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Colonel Tom D. Miller
377 ABW/CC
2000 Wyoming Blvd SE
Kirtland AFB NM 87117

Mr. Tom Blaine
Director, Environmental Health Division
New Mexico Environment Department (NMED)
1190 St. Francis Drive, Room North 4050
Santa Fe, New Mexico 87502

Dear Mr. Blaine

Attached please find the Risk Assessment Report for Bulk Fuels Facility located Kirtland Air Force Base. This Risk Assessment evaluates the probability and magnitude of potential adverse effects on human health associated with exposure to site-related chemicals in soil, groundwater, and soil gas that may migrate into indoor air in the absence of remediation

Please contact Mr. L. Wayne Bitner at 505.853.3484 or at ludie.bitner@us.af.mil, or Mr. Scott Clark at 505.846.9017 or at scott.clark@us.af.mil, if you have any questions.

Sincerely

TOM D. MILLER, Colonel, USAF
Commander

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KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO

Risk Assessment Report
Bulk Fuels Facility Spill
Solid Waste Management Units ST-106 and SS-111

April 2014

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KIRTLAND AIR FORCE BASE
ALBUQUERQUE, NEW MEXICO

RISK ASSESSMENT REPORT
BULK FUELS FACILITY SPILL
SOLID WASTE MANAGEMENT UNITS ST-106 AND SS-111
KIRTLAND AIR FORCE BASE, NEW MEXICO

April 2014

Prepared for
U.S. Army Corps of Engineers
Albuquerque District
Albuquerque, New Mexico 87109

USACE Contract No. W912DY-10-D-0014
Delivery Order 0002

Prepared by
CB&I Federal Services LLC
6380 South Fiddler's Green Circle, Suite 300
Greenwood Village, Colorado 80111

NOTICE

This report was prepared for the U.S. Army Corps of Engineers by CB&I Federal Services LLC for the purpose of aiding in the implementation of a final remedial action plan under the U.S. Air Force Environmental Restoration Program. As the report relates to actual or possible releases of potentially hazardous substances, its release prior to a final decision on remedial action may be in the public's interest. The limited objectives of this report and the ongoing nature of the Environmental Restoration Program, along with the evolving knowledge of site conditions and chemical effects on the environment and health, must be considered when evaluating this report, since subsequent facts may become known which may make this report premature or inaccurate.

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This Risk Assessment has been prepared for the Bulk Fuels Facility located within the western portion of Kirtland Air Force Base, New Mexico (U.S. Environmental Protection Agency identification number NM9570024423/HWB-KAFB-10-004). This Risk Assessment Report, including a Human Health Risk Assessment and a Screening Level Ecological Risk Assessment is specific to Solid Waste Management Unit (SWMU) ST-106 and SWMU-111 to fulfill Resource Conservation and Recovery Act permit requirements for the SWMUs.

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TOM D. MILLER, Colonel, USAF
Commander, 377th Air Base Wing

This document has been approved for public release.

KIRTLAND AIR FORCE BASE
377th Air Base Wing Public Affairs

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PREFACE

This Risk Assessment Report was prepared by CB&I Federal Services LLC (hereafter referred to as CB&I) for the U.S. Army Corps of Engineers (USACE), under Contract No. W912DY-10-D-0014, Delivery Order 0002. It pertains to the Kirtland Air Force Base Bulk Fuels Facility Spill, Solid Waste Management Units SS-111 and ST-106, located in Albuquerque, New Mexico. This Report was prepared in accordance with applicable federal, state, and local laws and regulations, including the New Mexico Hazardous Waste Act, New Mexico Statutes Annotated 1978, New Mexico Hazardous Waste Management Regulations, Resource Conservation and Recovery Act, regulatory correspondence between the New Mexico Environment Department Hazardous Waste Bureau and the Air Force dated April 2, June 4, August 6, and December 10, 2010, and *Base-Wide Plans for Investigations Under the Environmental Restoration Program* (Tetra Tech, 2004).

This work was performed under the authority of the USACE, Contract No. W912DY-10-D-0014, Delivery Order 0002. Mr. John McBee is the Project Manager for the USACE Albuquerque District. Mr. Wayne Bitner, Jr. is the Kirtland Air Force Base Restoration Section Chief, and Mr. Michael Amdurer is the CB&I Project Manager. This Report was prepared by Ms. Diane Agnew and Mr. Mark Weisberg.

Michael Amdurer, PG, PhD
CB&I Federal Services LLC
Project Manager

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ACRONYMS AND ABBREVIATIONS

%	percent
°F	degree Fahrenheit
μg/L	microgram per liter
$\mu g/m^3$	microgram per cubic meter
ADAF	age-dependent adjustment factor
AFB	Air Force Base
AST	aboveground storage tank
AvGas	aviation gasoline
BAF	bioaccumulation factor
BCF	bioconcentration factor
BFF	Bulk Fuels Facility
bgs	below ground surface
CATOX	catalytic oxidizer
CB&I	CB&I Federal Services LLC
CDI	chronic daily intake
CMS	conceptual site model
COC	contaminant of concern
COPC	chemical of potential concern
COPEC	contaminant of potential environmental concern
CSEM	conceptual site exposure model
CSF	carcinogenic slope factor
CY	calendar year
DA	dose absorbed per unit area per event
DRO	diesel range organic
EcoSSL	ecological soil screening level
EDB	1,2-dibromoethane
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
EQM	Environmental Quality Management
ERPIMS	Environmental Resources Program Information Management System
ESL	ecological screening level
FFOR	Former Fuel Off-Loading Rack
GI	gastrointestinal
GRO	gasoline range organics
HHRA	Human Health Risk Assessment
HI	hazard index
HQ	hazard quotient
INRMP	Natural Resources Management Plan
IRIS	Integrated Risk Information System

ACRONYMS AND ABBREVIATIONS (concluded)

JP-4	jet propellant grade 4
JP-8	jet propellant grade 8
KAFB	Kirtland Air Force Base
LANL	Los Alamos National Laboratory
LOAEL	lowest-observed-adverse-effect level
MCL	maximum contaminant level
MDC	maximum detected concentration
mg/day	milligram per day
mg/kg	milligram per kilogram
mg/L	milligram per liter
MWH	MWH Americas, Inc.
NAPL	non-aqueous phase liquid
NMED	New Mexico Environment Department
NOAEL	no-observed-adverse-effect level
PAH	polynuclear aromatic hydrocarbons
PEF	particulate emission factor
ppbv	parts per billion by volume
ppmv	parts per million by volume
PPRTV	Provisional Peer Reviewed Toxicity Value
PRG	Preliminary Remediation Goal
RCRA	Resource Conservation and Recovery Act
RDA	recommended daily allowance
RfC	reference concentration
RfD	reference dose
RFI	RCRA Facility Investigation
RSL	regional screening level
SL	screening level
SLERA	Screening Level Ecological Risk Assessment
SVE	soil-vapor extraction
SWMU	Solid Waste Management Unit
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TRV	toxicity reference value
UF	uncertainty factor
USACE	U.S. Army Corps of Engineers
UTL	upper tolerance limit
VDEQ	Virginia Department of Environmental Quality
VOC	volatile organic compound

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EXECUTIVE SUMMARY

CB&I Federal Services LLC (hereafter referred to as CB&I) was tasked by the U.S. Army Corps of Engineers to perform a Risk Assessment for the Bulk Fuels Facility (BFF) located within the western portion of Kirtland Air Force Base, New Mexico (U.S. Environmental Protection Agency identification number NM9570024423/HWB-KAFB-10-004). The BFF is comprised of two solid waste management units (SWMUs), designated as ST-106 and SS-111. The component of the BFF Spill project related to investigation and remediation of the vadose zone near the Former Fuel Off-Loading Rack is designated as SWMU ST-106. The non-aqueous phase liquid-impacted groundwater component of the project is designated as SWMU SS-111. The work for the Risk Assessment was performed under Contract No. W912DY-10-D-0014, Delivery Order 0002. In addition, this Risk Assessment Report was prepared in accordance with the requirements of Section 6.2.4.5, "Risk Assessment Reports," of the Hazardous Waste Treatment Facility Operating Permit, U.S. Environmental Protection Agency (EPA) ID No. NM9570024423.

A Human Health Risk Assessment (HHRA) and a Screening Level Ecological Risk Assessment (SLERA) were performed as part of the Risk Assessment. The HHRA evaluates the probability and magnitude of potential adverse effects on human health associated with exposure to site-related chemicals in soil, groundwater, and soil gas that may migrate into indoor air in the absence of remediation (i.e., baseline conditions). The SLERA was performed to determine if unacceptable adverse risks are present or may accrue to ecological receptors as a result of hazardous substance releases at the BFF.

The HHRA follows the risk assessment format approach discussed in Section 6.2.4.5 of New Mexico Environment Department (NMED) Kirtland Air Force Base Hazardous Waste Facility Permit No. NM9570024423, *Risk Assessment Guidance for Superfund* (EPA, 2004), and other current EPA resources and guidance documents. The main sections of the HHRA are presented below and described in the subsequent paragraphs:

- Data summary and selection of chemicals of potential concern (COPCs)
- Exposure assessment
- Toxicity assessment
- Risk characterization
- Uncertainties analysis

Data Summary and Selection of COPC

The soil samples for the BFF HHRA were divided into surface soil (0 to 1.0 feet below ground surface [bgs]) and subsurface soil (1 to 10 feet bgs). The total soil data grouping was assembled by combining the surface and subsurface soil data sets to address mixing of potential soil contamination during construction or land development activities. Soil samples collected by CB&I from 2011 to 2013 were used. Soil sample results collected by others prior to 2006 (e.g., 2002) were not used in the HHRA due to data quality and detection limit issues. A total of 741 soil samples, including duplicates, was used in the HHRA.

Site groundwater data were segregated into results from site monitoring wells and results from the four water-supply wells (Kirtland Air Force Base [KAFB]-003, KAFB-015, KAFB-016, and ST106-VA2). Results from the water-supply wells were used to assess potential risks and hazards for current and future exposure, while results from the monitoring wells were used to assess potential risks and hazards for future exposure only. Analytical data from 2 full years of monitoring were used (eight quarters, Round-03 [July 2011] through Round-10 [May 2013]) to adequately consider potential seasonal fluctuations. Results from monitoring wells impacted with non-aqueous phase liquid were not used in the HHRA, as land-use restrictions would prevent a future water-supply well from being installed proximate to a known impacted well. In addition, results from the non-impacted wells outside the plume perimeter (four wells) and three downgradient well clusters (total of nine wells) that have had three quarters of nondetect results for BFF contaminants of concern (COCs) were also excluded from use in the HHRA.

A total of 2585 soil gas samples, including 245 field duplicates, was used in the initial HHRA COPC selection step. To be consistent with the approach used for groundwater data used in the HHRA, soil gas results from 2 full years of monitoring were used (eight quarters, Round-03 [July 2011] through Round-10 [June 2013]) to adequately consider potential seasonal fluctuations.

The COPCs were identified by comparing the maximum detected concentration with risk-based screening levels (SLs) for each media. The risk-based criteria primarily were the lower of EPA regional screening levels (RSLs) and risk-based concentrations from NMED. For groundwater, additional screening values from NMAC *Environmental Protection, Water Quality, Groundwater and Surface Water Protection, Human Health Standards* (2002) were used, if they were lower than EPA RSLs and NMED SLs. If needed, adjustments were made so that chemicals with a cancer health endpoint had a target cancer risk of 1E-5 (where 1E-5 is the target cancer risk recommended by NMED). SLs for non-carcinogenic chemicals were adjusted downward to a hazard quotient (HQ) of 0.1 to ensure that chemicals with additive effects were not prematurely eliminated during screening.

Ten COPCs were selected in surface soil, 12 COPCs were selected in total soil, and 29 COPCs were selected in monitoring well groundwater. One COPC was selected in water-supply well groundwater, 5 COPCs were selected for current exposure to soil gas (modeled to indoor air), and 14 COPCs were selected for potential future exposure to soil gas (modeled to indoor air).

Exposure Assessment

Standard exposure factors and health-protective assumptions were used to assess the magnitude, frequency, and duration of exposure for each exposure route. Although current and future land uses at the BFF are most likely to remain industrial in nature, residential SLs for soil and modeled indoor air were conservatively used to screen the analytical results for soil and soil gas. Soil gas was modeled to indoor air using the Johnson and Ettinger Vapor Intrusion Model (1991; Environmental Quality Management [EQM], 2004). Groundwater results were screened using the lowest of (1) tap water RSLs, (2) risk-based concentrations from NMED, and (3) New Mexico Administrative Code (2002) protection of groundwater standards. Adjustments for a target cancer risk of 1E-5 and a target HQ of 0.1 were also made for groundwater, as needed, as discussed previously for soil and soil gas.

After the COPCs were identified, potentially exposed populations (e.g., receptors) and exposure routes were selected, and exposure point concentrations (EPCs) were calculated for COPCs. Standard exposure factors and health-protective assumptions are used to assess the magnitude, frequency, and duration of exposure for each exposure route. Potential exposure media include soil, groundwater, and air. The potential receptors identified for the site includes routine workers, construction workers, and adult and child residents. Models were used to estimate concentrations of COPCs in air from soil, concentrations of COPCs in trench air from *in-situ* groundwater, concentrations of COPCs in indoor air from soil gas, and concentrations of COPCs in indoor air from the household or washroom use of groundwater. In addition, a groundwater transport model was executed to estimate future concentrations of key chemicals at downgradient water-supply wells.

COPC exposure point concentrations were based on 95 percent upper confidence limit on the mean to account for uncertainty when estimating EPCs from sample data. For each receptor and pathway, chronic daily intake for each COPC was estimated by combining the EPC with exposure parameters such as ingestion rate, frequency of contact, duration, and frequency of exposure. In addition, intake parameters were selected so the combination of intake variables resulted in an estimate of the reasonable maximum exposure for that pathway.

Toxicity Assessment

The methodology used for classifying health effects from exposure to chemicals followed that recommended by EPA. The health-effects analysis considered chronic (long-term) exposures. In addition, some of the COPCs in this risk assessment (polynuclear aromatic hydrocarbons in soil and methylene chloride risks in soil gas as modeled to indoor air) are considered to be mutagens, which are suspected to cause irreversible changes to one's DNA (i.e., genetic information). This mutagenic mode of action exhibits greater effects in early life than later life. Therefore, risks for potential mutagens were adjusted by age to account for early-life susceptibility. As gasoline range organics and diesel range organics are chemical mixtures, toxicity factors are not available for these types of analytical results; therefore, risks and hazards were not quantified for these two COPCs in soil and groundwater. Similarly, reliable toxicity factors are not available for C5-C8 and C9-C12 aliphatic hydrocarbons, nor C9-C10 aromatic hydrocarbons in soil gas.

Risk Characterization

Quantitative risks and hazards due to exposure to COPCs were estimated and summarized by combining toxicity criteria (presented in the Toxicity Assessment paragraph above) with chronic daily intakes (calculated in the Exposure Assessment previously discussed). Excess lifetime cancer risks derived in this Risk Assessment Report were compared with the NMED target risk threshold of 1E-05, as well as the EPA acceptable risk range for Superfund sites of 1E-06 to 1E-04. Non-carcinogenic hazards were compared with NMED and EPA target hazard threshold of 1. Per NMED *Risk Assessment Guidance for Site Investigations and Remediation*, a total site risk less than the target level of 1E-5 indicates that the concentrations at the site are unlikely to result in adverse health impacts.

Inorganic COPCs were further evaluated with respect to background if they were identified as risk or hazard drivers. Risk drivers were defined as COPCs with risks above 1E-06, hazard drivers were COPCs with indices above 1, and chemicals with concentrations above advisory levels (e.g., sodium) were also considered.

A groundwater transport model was used to estimate concentrations of 1,2-dibromoethane (EDB) and benzene at downgradient water-supply wells, including wells KAFB-3 and Ridgecrest 5, as these two chemicals have been identified as a concern in groundwater. The model was run forward for 80 years, covering the period of 2013 through 2093. Benzene was not shown to migrate toward any of the drinking-water wells, including the Veterans Affairs well, KAFB-3, and Ridgecrest 5. The estimated future cancer risk for potential exposure to EDB at KAFB-3 was 4E-5, which exceeds the NMED cancer risk threshold of 1E-5. The estimated future cancer risk for potential exposure to EDB at Ridgecrest 5 was 4E-7, which is below the NMED cancer risk threshold of 1E-5. Estimated noncancer hazards at both water-supply wells were less than 1 and therefore acceptable. As concentrations of EDB in KAFB-3 were only modeled to exceed the maximum contaminant level of 0.05 micrograms per liter in the year 2056, this risk estimate is considered a future long-term projection.

An indoor risk evaluation was performed using results from indoor and ambient air samples collected from, and proximate to, Buildings 1026, 1032, and 1033 on July 17, 2012 and January 14, 2013. For the 30 detected volatile organic compounds (VOCs) in indoor air, concentrations for all but four (2-hexanone, carbon tetrachloride, Freon-113, and trichlorofluoromethane) were found to be statistically greater within the buildings compared with ambient concentrations measured outside the buildings. Using indoor air data, only three VOCs were identified as being potential risk or hazard drivers via the inhalation pathway (1,2,4-trimethylbenzene, benzene, and ethylbenzene), based on the assumption that the building is routinely occupied. However, as the building with the highest VOC concentrations (Building 1026) is not routinely occupied (it is a storage area, not a work area), actual risks and hazards are expected to be acceptable. The source of the VOCs in indoor air is uncertain, and may be from (1) ambient air, (2) contamination in the subsurface, and/or (3) sources within the building itself. It is recommended that workers should not routinely occupy Building 1026; however, limited exposure (i.e., a few times per month for many years, or daily during the work week for a few months) would not be expected to result in unacceptable health risks.

Human health risk assessment findings are summarized in Table ES-1 below.

Table ES-1
Human Health Risk Assessment Findings

Receptor	Total Cancer Risk	Risk Drivers[a]	Total Noncancer Hazard	Hazard Drivers[a]
Current Routine Worker [b]	5.5E-06	Benzene, bromodichloromethane in soil gas (modeled to indoor air)	0.052	None
Future Routine Worker	8.8E-04	Ethylbenzene, 1,2-dibromoethane, benzene, naphthalene in groundwater [c]; 1,2-dibromoethane, benzene, bromodichloromethane, chloroform in soil gas [d] (modeled to indoor air)	15	Benzene in groundwater [c]; benzene, 1,2,4-trimethylbenzene, xylenes in soil gas [d] (modeled to indoor air)
Future Construction Worker	9.6E-08	None	0.030	None
Current Adult/Lifetime Resident	0.0E+00	None [e]	0	None [e]
Current Child Resident	0.0E+00	None [e]	0	None [e]
Future Adult/Lifetime Resident	4.1E-03	BaP, DahA in total soil; ethylbenzene, 1,2-dibromoethane, benzene, 1-methylnaph, 1-2, dichloroethane, naphthalene in groundwater [c], 1,2-dibromoethane, benzene, bromodichloromethane, chloroform in soil gas [d] (modeled to indoor air)	60	Benzene, m&p-xylene, naphthalene, 1,2,4-trimethylbenzene in groundwater [c]; total xylenes, benzene, 1,2,4-trimethylbenzene n-hexane in soil gas [d] (modeled to indoor air)

Table ES-1 (concluded)
Human Health Risk Assessment Findings

Receptor	Total Cancer Risk	Risk Drivers[a]	Total Noncancer Hazard	Hazard Drivers[a]
Future Child Resident	9.6E-04	BaP, DahA in total soil; ethylbenzene, 1,2-dibromoethane, benzene, 1-methylnaph, naphthalene in groundwater [c], 1,2-dibromoethane, benzene, bromodichloromethane, chloroform in soil gas[d] (modeled to indoor air)	68	Benzene, manganese, m&p-xylene, naphthalene, 1,2,4-trimethylbenzene in groundwater [c]; total xylenes, benzene, 1,2,4-trimethylbenzene n-hexane in soil gas [d] (modeled to indoor air)

Note that the Risk Assessment is based on baseline site conditions (no remediation).
[a] Risk drivers are defined as contaminants of concern (COCs) with cancer risks > 1E-06. Hazard drivers are defined as COCs with hazard indices > 1.
[b] It was assumed that the current worker would drink water from the currently operating water-supply wells, and would be exposed to soil gas migrating to indoor air in Building 1033.
[c] Future groundwater risks and hazards are based on results from monitoring wells selected for use in the HHRA (not water-supply wells). For future receptors, this conservatively assumes a water-supply well is installed and collects water represented by the monitoring well network, i.e., receptors would drink water from wells beneath the site screened between 0 and 100 feet below the water table.
[d] Future soil gas risks and hazards are based on results from the most impacted soil vapor monitoring wells, based on the conservative assumption that a residence or building for workers will be constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas.
[e] The only COPC identified in water-supply well groundwater was sodium, which does not have published toxicity data. However, the advisory limit for individuals on a restricted sodium diet is 20 milligrams per liter. The 95 percent upper confidence limit EPC for sodium in water-supply well data was 29 milligrams per liter.

BaP Benzo(a)pyrene, DahA = dibenzo(a,h)anthracene, 1-methylnaph = 1-methylnaphthalene.

Based on these human health risk assessment findings, media with total cancer risk and/or total noncancer hazard exceeding 1E-5 and 1, respectively, are as follows (by receptor):

- Groundwater (future routine worker, future adult/lifetime resident, future child resident)
- Soil (future adult/lifetime resident)
- Soil gas (future routine worker, future adult/lifetime resident, future child resident)

The estimated residential adult/lifetime benzene risk (1E-3) potentially associated with future exposure to soil gas that may migrate to indoor air was based on data from the maximum impacted soil vapor probe location. This elevated estimate of risk is extremely conservative because it assumes 1) future construction of a residence immediately above the maximum impacted soil vapor probe location and 2) exposure to benzene in indoor air for 24 hours per day, 350 days per year over a 30-year period with indoor air concentrations conservatively estimated using the Johnson and Ettinger Vapor Intrusion Model

(1991; EQM, 2004) and no remediation occurring. To gain a better understanding of the BFF areal extent of potential future indoor air risks from benzene in soil gas, soil gas contours were generated for the eight sampling events that occurred in 2012 and 2013. More recent soil gas data (i.e., Third and Fourth Quarters calendar year [CY] 2013) were included in this spatial assessment to depict trends over a timeframe that includes the soil-vapor extraction catalytic oxidizer system operation that started on March 15, 2013.

To estimate the potential area of benzene impact across the BFF site (in acres) for soil gas potentially migrating into indoor air, soil gas Preliminary Remediation Goals (PRGs) (also referred to as risk-based concentrations) protective of residential indoor air were modeled (by depth) using the Johnson and Ettinger Vapor Intrusion model (1991; EQM, 2004). A summary of the areal extent of PRG exceedances is presented below:

Estimated Areal Extent of Benzene Soil Gas PRG Exceedances at BFF (acres)								
Time Period (in CY)	**Depth**							**Average**
	450 feet	**350 feet**	**250 feet**	**150 feet**	**100 feet**	**50 feet**	**25 feet**	
1Q2012	16	9.3	11	8	11.2	21.7	38	**16.5**
2Q2012	12	7.2	6.6	8.1	12	13.4	27.4	**12.4**
3Q2012	0.75	0.5	1.3	6.2	16.8	15.1	28.1	**9.8**
4Q2012	5.2	3.2	7.1	4.9	11.7	17.3	36.5	**12.3**
1Q2013	3.2	2.4	5.3	2.1	10.5	11.9	20.2	**7.9**
2Q2013	0	0.05	1.0	0.23	7.2	2.2	3.3	**2.0**
3Q2013	0.3	0	1.1	1.0	5.9	3.5	4.5	**2.3**
4Q2013	0	0	0.1	0	8.4	20.8	14.1	**6.2**
Average	**4.7**	**2.8**	**4.2**	**3.8**	**10.5**	**13.2**	**21.5**	

CY calendar year

As shown in this table, estimated exceedance areas are quite variable, ranging from a low of 0 acres to a high of 38 acres. In general, the area of exceedance increases in size at shallower soil gas sample depths, most likely due to the more restrictive PRGs that were estimated for these shallower depths. Over time, the average exceedance area per quarter (for all depths) is generally shrinking (from an average high of 16.5 acres in the First Quarter CY 2012 to approximately 2 acres in the Second and Third Quarters

CY 2013. The increase of the 25-foot and 50-foot benzene exceedance areas in the Fourth Quarter CY 2013 was unexpected and did not appear to fit the general pattern of decline. It is possible that non-BFF influences are affecting the size of the benzene exceedances. It is also possible that seasonal influences (e.g., barometric pressure changes resulting from seasonal weather changes) are affecting the size of the benzene exceedance area.

Other VOCs in soil gas besides benzene (including bromodichloromethane, chloroform, EDB, hexane, 1,2,4-trimethylbenzene, and xylenes) were also a potential concern for vapor intrusion to indoor air for a future residential scenario, based on data from the maximum impacted soil vapor probe location. However, with the exception of chloroform, the concentrations of these other VOCs were generally correlated with benzene. Chloroform and benzene soil gas concentrations were not correlated and contour plotting for chloroform was not performed because numerous elevated detection limits would have resulted in inaccurate contours for this VOC. However, the elevated chloroform detection limits appear to be related to those samples with elevated benzene concentrations. Therefore, a cleanup for benzene in soil gas would be expected to also address these other six VOCs as well.

The SLERA was performed to determine if unacceptable adverse risks are present or may accrue to ecological receptors as a result of hazardous substance releases at the BFF. The assessment objective was met by characterizing the general plant and animal communities in the vicinity of the BFF, defining the particular hazardous substances affecting environmental media at the site, identifying pathways for receptor exposure, estimating the potential for adverse impacts on ecological receptors, and determining the extent to which response actions are necessary. The results of the SLERA contribute to the overall characterization of the site, and the scientific/management decision point reached for the SLERA, per NMED and EPA Guidance, includes one of the following:

- There is adequate information to conclude that ecological risks are negligible and therefore, there is no need for further action at the site on the basis of ecological risk.
- The information is not adequate to make a decision at this point, and further refinement of data is needed to augment the ecological risk screening.
- The information collected and presented indicates that a more thorough risk assessment is warranted.

The SLERA followed the NMED *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening Level Ecological Risk Assessment* (2008), *Tri-Service Procedural Guidelines for Ecological Risk Assessments* (Wentsel et al., 1996), and *Technical Guidance TG-090801* (Tri-Services Environmental Risk Assessment Work Group; 2008), and includes Steps 1 and 2 and a portion of Step 3 of the EPA *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (1997b).

Step 1 includes a screening-level problem formulation and ecological-effects evaluation, and Step 2 includes a screening-level preliminary exposure estimate and risk calculation. Step 3 is segregated into Steps 3a and 3b by the U.S. Navy (1999a, 1999b; and summarized in the U.S. Army Environmental Command, 2000), and is the common approach for U.S. Department of Defense sites. Step 3a typically includes a re-evaluation of conservative assumptions used in the SLERA, and a refinement of the contaminants of potential environmental concern (COPECs) to determine which COPECs may be eliminated from further consideration.

The data, results, and conclusions of the SLERA evaluated risks to ecological populations potentially inhabiting the area of the BFF. Conclusions are derived from the SLERA and are based on the responses to the selected assessment endpoints and assessment hypotheses. The assessment endpoints for the BFF SLERA include protection of growth, survival, and reproductive of terrestrial avian and mammalian herbivore, insectivore, and carnivore populations as well as protection of terrestrial plant and soil invertebrate communities. The assessment hypothesis (or Risk Question) for each of the assessment endpoints is stated as the presence of site contaminants within soil, soil gas, and vegetation, and prey will have no adverse effect on the survival or reproductive capabilities of populations of herbivorous, insectivorous, and carnivorous mammals and birds. The assessment endpoint for the base of the food chain (plants and invertebrates) includes the protection of long-term survival and reproduction of terrestrial plants and soil-dwelling invertebrates.

The five representative wildlife receptor species selected for detailed assessment in the SLERA included the desert cottontail, montane shrew, American robin, American kestrel, and red fox. A sixth wildlife receptor selected, the Botta's pocket gopher, is a burrowing mammal that was evaluated for potential inhalation exposure to soil gas. Direct-contact assessments for COPECs in soil were also performed to evaluate potential toxicity to plants and soil invertebrates and possible reductions of the food-chain resource at this base.

Based on results of the SLERA, there is adequate information to conclude that overall ecological risks are negligible at the BFF; however, uncertainty remains for elevated concentrations of some VOCs, such as benzene and toluene in soil gas, should increased numbers of burrowing receptors such as the Botta's pocket gopher inhabit the site in the future. Estimated inhalation hazards for burrowing wildlife were elevated, conservatively assuming shallow soil gas results (i.e., 15 feet bgs) are representative of what might be present in shallow animal burrows within a few feet of the surface.

These assessment results may serve as a basis for discussions with risk managers and regulatory agencies. It is very important to note that many conservative assumptions and modeling approaches were used in the assessment, and actual hazards to wildlife may be orders of magnitude lower than predicted herein.

1. INTRODUCTION

CB&I Federal Services LLC (hereafter referred to as CB&I) was tasked by the U.S. Army Corps of Engineers (USACE) to perform a Risk Assessment at the Bulk Fuels Facility (BFF) located within the western portion of Kirtland Air Force Base (AFB), New Mexico (U.S. Environmental Protection Agency [EPA] identification number [ID#] NM9570024423/HWB-KAFB-10-004) (Figure 1-1). The BFF is comprised of two solid waste management units (SWMUs), designated as ST-106 and SS-111. The component of the BFF Spill project related to investigation and remediation of the vadose zone near the Former Fuel Off-Loading Rack (FFOR) is designated as SWMU ST-106. The non-aqueous phase liquid (NAPL)-impacted groundwater component of the project is designated as SWMU SS-111.

This Risk Assessment Report, including a Human Health Risk Assessment (HHRA) and a Screening Level Ecological Risk Assessment (SLERA), is specific to SWMU ST-106 and SWMU-111 to fulfill Resource Conservation and Recovery Act (RCRA) permit requirements for the SWMUs. The work for the Risk Assessment Report was performed under Contract No. W912DY-10-D-0014, Delivery Order 0002. Groundwater data are presented and discussed in the Groundwater Zone RCRA Facility Investigation (RFI) Report for SWMU SS-111 (USACE, 2014a). Soil and soil gas data are presented and discussed in the Vadose Zone RFI Report (USACE, 2014b). The Risk Assessment Report primarily relies on data contained in these two RFI reports.

1.1 Report Organization

This Risk Assessment Report was prepared in accordance with the requirements of Section 6.2.4.5, "Risk Assessment Reports," of the Hazardous Waste Treatment Facility Operating Permit, EPA ID No. NM9570024423. The following table presents the permit requirements and the corresponding section of this report:

Hazardous Waste Facility Permit Requirements	Risk Assessment Report Section
Title Page and Signature Block	Report Documentation Page, 40 CFR 270.11 Document Certification, and Preface
Executive Summary	Executive Summary
Table of Contents	Table of Contents
Introduction	Section 1.0 Introduction
Background Information – Including site description and sampling results	Section 2.0 Background Information, Section 3.1.1 Data Summary, Section 3.2.1 Conceptual Site Exposure Model/Receptor Characterization, and Section 4.3 Site Characterization
Conceptual Site and Risk Exposure Models	Section 3.2.1 Conceptual Site Exposure Model/Receptor Characterization, Section 3.2.4 Quantification of Exposure: Calculation of Daily Intakes, Section 4.5.1 Conceptual Site Exposure Model, and Section 4.7 Exposure Estimation
Risk Screening Results	Section 3.1.2 Identification of COPCs, Section 3.4 Risk Characterization, Section 4.4.2 Selection of COPECs, and Section 4.9 Risk Characterization
Conclusions and Recommendations	Section 3.6 HHRA Summary and Conclusions, Section 4.10 SLERA Summary and Conclusions

Figures, tables, and appendices are provided in separate tabs following the body of the report.

2. BACKGROUND INFORMATION

2.1 Site Description

Kirtland AFB is located in Bernalillo County in central New Mexico, southeast of and adjacent to the City of Albuquerque and the Albuquerque International Sunport (Figure 1-1). The approximate area of the base is 52,287 acres, and it is bordered by Albuquerque to the north and west, the Isleta Indian Reservation to the south, and the Cibola National Forest to the east.

The BFF is located in the western portion of Kirtland AFB and is comprised of two SWMUs, designated as ST-106 and SS-111. The vadose zone component of the BFF is designated as SWMU ST-106. The NAPL-impacted groundwater component of the BFF is designated as SWMU SS-111. The BFF currently contains bulk storage for jet propellant grade 8 (JP-8), diesel fuel, and unleaded gasoline. The current fueling infrastructure was installed between 2011 and 2012, replacing the fuel infrastructure that was discovered to be leaking in November of 1999. A temporary, alternative system was utilized, while a new system was designed and constructed. JP-8 is currently stored in two aboveground storage tanks (ASTs) that replaced the original ASTs in 2011. The fuel delivered to the JP-8 off-loading rack (Building 2405) is conveyed to the Pump House (Building 1033) via aboveground transfer lines. Refueling trucks routinely fill up at the facility and transport fuel as needed to the base flight line.

2.2 Operational History of the BFF

Historical aerial photography reveals that the BFF area was used for fuel storage and processing as early as 1951 (CH2M HILL, 2001). At that time, the fueling area was separated into a distinct tank-holding area where bulk shipments of fuel were received (near the location of existing well KAFB-1066), and a separate fuel-loading area where individual fuels trucks were filled. The fuel-loading area was approximately 250 feet north of the tank-holding area.

Subsequent aerial photographs indicate that construction of the facility and associated infrastructure took place from 1951 until 1953. Once completed, the facility operated until it was removed from service in 1999, as a result of below-grade line leakage along the off-loading rack (CH2M HILL, 2001). A temporary, alternate loading rack was used while new replacement infrastructure was designed and constructed. Bulk storage for JP-8 and aviation gasoline (AvGas) was managed in the eastern portion of the facility. A 250-gallon underground storage tank was located near the Pump House, Building 1033 (CH2M HILL, 2001). The three types of fuel handled by the BFF were AvGas, jet propellant grade 4 (JP-4), and JP-8. The use of AvGas and JP-4 at Kirtland AFB was phased out in 1975 and 1993, respectively. JP-8 was handled through the FFOR until the leak was discovered in 1999, after which it was handled through a temporary rack until a new replacement rack was completed in 2011.

Contamination in the subsurface soil and groundwater appears to be a result of various releases that have occurred over the operational history of the facility. Conceptually, releases could have occurred when fuel was transferred from railcars, through the FFOR to the Pump House, and then to the bulk fuel storage containers on the south end of the site (Tanks 2420 and 2422). Fuel transfer from the railcars to the Pump House was performed under vacuum transfers. Transfer of fuel from the Pump House to the bulk storage containers was performed under pressurized conditions. Some releases are more specifically defined, whereas others are not well documented and are inferred to have been ongoing for unknown periods of time. There are three known discharges resulting from the failure of belowground transfer lines and a cam-lock coupling failure that were discovered during pressure tests performed in November 1999 (CH2M HILL, 2001). The probable release points have been investigated and are summarized below.

In November 1999, pressure testing on the buried 14-inch diameter transfer line between the off-loading rack and the Pump House (Building 1033) was conducted under the direction of Kirtland AFB Environmental Management after staining was noted at the surface. A line-integrity test was conducted, and the line and a valve failed. Subsequently, an adjacent parallel 14-inch line failed the pressure test.

Integrity checks of remaining buried lines at the facility were performed after these findings of the pipe leaks. The pressure tests concluded that subsurface fuel leakage has likely been occurring for an extended period of time (Kirtland AFB, 1999).

Currently, JP-8 is stored in two ASTs (2.1 and 4.2 million gallons), diesel fuel is stored in two ASTs (one 5,000-gallon AST and one 10,000-gallon AST), and unleaded gasoline is stored in one 10,000-gallon AST. The site currently operates with one JP-8 off-loading rack located in the southwest corner of the facility, west of the fuel-loading structure (Building 2404). This rack was placed into service following the November 1999 piping failure at the FFOR (ST-106). A second small off-loading rack (Building 2401) is used for the delivery of diesel and unleaded gasoline motor vehicle fuels. Fuel delivered to the JP-8 off-loading rack is conveyed to the Pump House (Building 1033) via aboveground transfer lines. The fuel is then pumped to the JP-8 ASTs by piping of varying sizes that runs aboveground for approximately 750 feet and runs belowground for approximately 300 feet.

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3. HUMAN HEALTH RISK ASSESSMENT

The HHRA evaluates the probability and magnitude of potential adverse effects on human health associated with exposure to site-related chemicals in soil, groundwater, and soil gas that may migrate into indoor air in the absence of remediation (i.e., baseline conditions). It should be noted that the catalytic oxidizer (CATOX) soil-vapor extraction (SVE) system operational start date was March 15, 2013, and data used for risk assessment calculations included soil gas and groundwater samples collected through May, 2013. Therefore, there is a short period in which baseline conditions do not apply. The HHRA was conducted for the BFF site at Kirtland AFB.

Several decades ago, an underground fuel pipeline delivery system failed at the BFF site. The fuels AvGas, JP-4, and JP-8, have percolated to the groundwater table, thus resulting in a contaminated vadose zone (SWMU ST-106) and NAPL plume and a dissolved-phase groundwater plume (SS-111) that are migrating off base toward the City of Albuquerque municipal water supply Ridgecrest wells.

The HHRA follows the risk assessment format approach discussed in Section 6.2.4.5 of the New Mexico Environment Department (NMED) KAFB Hazardous Waste Facility Permit No. NM9570024423 (NMED, 2010), the *Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part A)* (EPA, 1989), and other current EPA resources and guidance documents as noted throughout this section and on the RAGS Part D tables provided in Appendix A-1. The conceptual site model (CSM) for the BFF is outlined in Appendix A-1, Table 1 and is shown on Figure 3-1. Additional information regarding the site can be found in the Groundwater Zone RCRA RFI Report (USACE, 2014a) and the Vadose Zone RCRA RFI Report (USACE, 2014b). This HHRA consists of the following six sections:

- **Section 3.1**—Data Summary and Selection of chemicals of potential concern (COPCs): Relevant site data are gathered, examined, and discussed. Basic constituent statistics and screening levels (SLs) are summarized. COPCs are identified by comparison to screening criteria as discussed in Section 3.1.1.2.

- **Section 3.2**—Exposure Assessment: Potentially exposed populations (e.g., receptors) and exposure routes are identified, and exposure point concentrations (EPCs) are calculated for COPCs. Standard exposure factors and health-protective assumptions are used to assess the magnitude, frequency, and duration of exposure for each exposure route.

- **Section 3.3**—Toxicity Assessment: Toxicity criteria for COPCs are compiled and presented.

- **Section 3.4**—Risk Characterization: Quantitative risks and hazards are estimated and summarized by combining toxicity criteria with intakes for each exposure route.

- **Section 3.5**—Uncertainties Analysis: Uncertainties, "including uncertainties in the physical setting definition for the site, in the models used, in the exposure parameters, and in the toxicity assessment" (EPA, 1989) are discussed.

- **Section 3.6**—HHRA Summary and Conclusions: The result of the HHRA is summarized.

The tabulated risk assessment results are presented in accordance with EPA guidance described in RAGS: Volume I - Human Health Evaluation Manual (Part D, Standardized Planning, Reporting, and Review of Superfund Risk Assessments) (EPA, 2001a). RAGS D requires the risk assessment results to be presented in a series of standardized tables, which are presented in Appendix A-1.

Supporting material for the HHRA is presented in the following additional Appendix A subsections:

- Appendix A-2a, Sample Groupings (Soil, Groundwater, Soil Gas)
- Appendix A-2b, Initial COPC Screening Tables
- Appendix A-2c, Spatial Evaluation of Infrequently Detection Chemicals in Groundwater
- Appendix A-3, Statistical EPC Output
- Appendix A-4, Groundwater Concentration Time Trend Statistical Analyses
- Appendix A-5, Soil Emission Factor Calculations (Particulates)
- Appendix A-6, Soil Emission Factor Calculations (Vapors)
- Appendix A-7, Dermal Exposure Calculations for COPCs in Groundwater
- Appendix A-8, Trench Model VOC Air Concentration Calculations – Groundwater
- Appendix A-9, Johnson & Ettinger Vapor Intrusion Model Results – Soil Gas
- Appendix A-10, Soil Dermal Absorption Factors
- Appendix A-11, Benzene Soil Gas Contours
- Appendix A-12, Johnson & Ettinger Vapor Intrusion Model Results for Soil Gas PRGs
- Appendix A-13, Soil Gas Regressions and Scatter Plots for Key COPCs

3.1 Data Summary and Selection of COPCs

3.1.1 Data Summary

Appendix A-2a—Tables identify the soil, groundwater, and soil gas samples used in the HHRA for the BFF site. The complete data tables for detected analytes for each media for samples collected by CB&I are provided in the Groundwater RFI Report, Appendix D (USACE, 2014a). Historic soil samples in the Environmental Resources Program Information Management System (ERPIMS) database were extracted and evaluated; however, none of these soil samples were collected at the BFF site. Additional information regarding the data used in the HHRA is summarized below:

- The qualification and validation of the analytical data included a comparison of the site data to corresponding blank (laboratory, equipment rinse, field, and trip, when applicable) concentration data. If the detected concentration in a site sample was less than 10 times (for common laboratory contaminants) or 5 times (for other compounds) the concentration in the corresponding blank sample, the sample was qualified with a "U," and treated as a nondetect result. If the concentration was more than 10 times (for common laboratory contaminants) or 5 times (for other compounds) the concentration in the corresponding blank sample, the sample was treated as a detected result.
- J-flagged data (estimated concentration) were considered detections and were used without modification.
- Rejected results (R-flagged) were not used.
- Data from duplicate sample pairs were averaged and treated as one result. If an analyte was detected in one of the sample pairs, one-half of the detection limit of the non-detect was averaged with the detected result, and the result was considered detected.
- If the frequency of detection for a soil constituent was less than or equal to 1 percent (%), the constituent was not identified as a COPC. This is a more conservative approach than the 5% threshold suggested in EPA (1989), and was taken to avoid discounting infrequently detected chemicals detected between 1 and 5%. For groundwater, if the frequency of detection for a constituent was less than 5%, a spatial analysis was performed. Frequency of detection was not used to deselect soil gas constituents, as a future building could be located immediately above an impacted soil vapor area.
- For the two inorganics measured in groundwater (iron and manganese), the analytical results for filtered (dissolved iron and manganese) results were used in the HHRA, as these were the only results available (i.e., unfiltered [total] results were not available).

Additional information regarding specific soil, groundwater, and soil gas samples used in the HHRA is provided below.

3.1.1.1 Surface Soil and Total Soil

A complete list of the soil samples used in the HHRA is presented in Appendix A-2a. The soil samples for the BFF HHRA were divided into surface soil (0 to 1.0 feet below ground surface [bgs]) and subsurface soil (1 to 10 feet bgs). The total soil data grouping was assembled by combining the surface and subsurface soil data sets to address mixing of potential soil contamination during construction or land-development activities. Sample details in the table include a matrix code of SS for 0 to 1 foot, SO for 1 to 5 feet, and SB for 5 to 10 33 feet bgs, as the SLERA (Section 4.0) addresses 0 to 5-foot soil and 0 to-10-foot soil. Soil samples collected by CB&I from 2011 to 2013 were used. Most of the soil samples followed the BFF fuel line, and assuming that each soil sample represents a 25-foot-diameter area around its location, the area represented by the soil samples is approximately 2.3 acres (Figure 3-2).

A total of 741 soil samples, including duplicates, was used in the HHRA and is summarized as follows:

CB&I Data	
0-1 ft = 355 samples	Field duplicates = 66
1-5 ft = 40 samples	
5-10 ft = 346 samples	

Soil samples collected from a depth deeper than 10 feet bgs were not used in the HHRA, as exposure to chemicals in this deeper soil is not expected. This approach follows NMED (2012) *Risk Assessment Guidance for Site Investigations and Remediation* (page 34).

Soil sample results collected by others prior to 2006 (e.g., 2002) were not used in the HHRA due to data quality and detection limit issues.

When polynuclear aromatic hydrocarbons (PAH) results were available from both SW8270C/D and SW8270C/D PAH analytical methods, results from the SW8270C/D PAH method were used in the

HHRA, as these were deemed more definitive. While naphthalene could be detected by both SW8260B and SW8270C/D methods, results from SW8260B were used in the HHRA, as these were deemed more definitive between the two methods. Where naphthalene results were available by SW8260B, SW8270C/D, and SW8270C/D-PAH methods, results from SW8270C/D-PAH were used, as these were deemed more definitive among the three methods. For hexachloro-butadiene, results were available from SW8260 and SW8270D, and although both are definitive methods, results from SW8260B are more sensitive and provide lower levels of quantitation; therefore, results from SW8260B were used in the HHRA.

3.1.1.2 Groundwater

Site groundwater data were segregated into results from site monitoring wells and results from the four water-supply wells (KAFB-003, KAFB-015, KAFB-016, and ST106-VA2). Results from the water-supply wells were used to assess potential risks and hazards for current and future exposure, while results from the monitoring wells were used to assess potential risks and hazards for future exposure only (conservatively assuming a future water-supply well is installed near a monitoring well and draws groundwater from the area represented by the monitoring well network). Analytical data from 2 full years of monitoring were used (eight quarters, Round-03 [July 2011] through Round-10 [May 2013]) to adequately consider potential seasonal fluctuations.

Results from monitoring wells impacted with NAPL were not used in the HHRA, as land-use restrictions would prevent a future water supply from being installed proximate to a known impacted well. The NAPL-impacted wells excluded from use in the HHRA included the following (based on monitoring wells identified in recent quarterly groundwater monitoring reports that identified wells with measurable floating product):

- KAFB-10628-510
- KAFB-1069
- KAFB-1065
- KAFB-106064
- KAFB-1068
- KAFB-106059
- KAFB-106076
- KAFB-1066

In addition, results from the following non-impacted wells outside the plume perimeter (four wells) and three downgradient well clusters (total of nine wells) that have had three quarters of nondetect results for BFF contaminants of concern (COC) were also excluded from use in the HHRA. Note: the term "COC" is used here as defined in the Groundwater Zone RCRA RFI Report (2014a), and differs from the term COPC used in the Risk Assessment herein. If these results had been used in the estimation of groundwater exposure point concentrations (EPCs; Section 3.1.2.3), results would have been biased on the low end; therefore, their exclusion from use in the HHRA is conservative and health protective. These wells include the following:

- KAFB-1063
- KAFB-1064
- KAFB-3411
- KAFB-106049
- KAFB-106201 (shallow)
- KAFB-106202 (intermediate)
- KAFB-106203 (deep)
- KAFB-106204 (shallow)
- KAFB-106205 (intermediate)
- KAFB-106206 (deep)
- KAFB-106207 (shallow)
- KAFB-106208 (intermediate)
- KAFB-106209 (deep)

The resultant monitoring wells used in the HHRA generally had wells screened between 434 and 584 feet bgs (with most 450 to 550 feet bgs), and these wells typically had well screens of 15 to 35 feet. The water-supply wells are significantly deeper than the monitoring wells. The water-supply wells are typically completed 500 feet or more below the 2009 water table elevation, with wells typically greater than 1,000 feet bgs, and the deepest being over 1,700 feet bgs (Groundwater Zone RCRA RFI Report, Section 3.4.2; USACE, 2014a)). Locations of groundwater monitoring wells and water-supply wells used in the risk assessment are depicted on Figure 3-3.

As shown in Appendix A-2a, results from 832 monitoring well sample results were used in the HHRA, including 83 field duplicates, collected over eight quarters of sampling. These data represent results from 97 monitoring wells. For the four water-supply wells, results from 37 samples were used, including four field duplicates.

3.1.1.3 Soil Gas

Site soil gas data used in the initial HHRA screening step included all sample results, regardless of sample collection depth or type of sample (monitoring sample, and CATOX system SVE influent sample [IN] or SVE post-treatment sample [POST]). Samples are listed in Appendix A-2a and include 2,585 samples, including 245 field duplicates. Monitoring sample collection depths ranged from 10 feet bgs to 460 feet bgs (generally with starting depths of 10, 15, 20, 40, 45, 50, 100, 140, 145, 150, 160, 230 to 240, 245 to 300, 302 to 309, 337 to 349, 350, 400, 430 to 439, and 440 to 450 feet bgs, while the IN and POST samples do not have a valid collection depth, as these samples represent a component of the SVE system that is associated with multiple depth zones. To be consistent with the groundwater data used in the HHRA, results from 2 full years of monitoring were used (eight quarters, Round-03 [July 2011] through Round-10 [June 2013]) to adequately consider potential seasonal fluctuations. The IN or POST samples (63 samples including 9 field duplicates) did not have results from the full eight quarters because the current CATOX SVE system has only been operating for a relatively short time, and data from the previous internal combustion engine systems are not available. Soil gas sample locations are shown on Figure 3-4.

A subset of these soil gas sample results is used to estimate potential indoor air concentrations as a result of migration (vapor intrusion), as discussed in Section 3.1.2.4.

3.1.2 Identification of COPCs

The COPCs were identified by comparing the maximum detected concentration (MDC) with risk-based SLs for each media. The risk-based criteria primarily were the lower of EPA regional screening levels (RSLs) as presented in the November 2013 Regional Screening Table (EPA, 2013a) and risk-based concentrations from NMED (2012). For groundwater, additional screening values from the New Mexico Administrative Code (2002) groundwater protection standards were used, if they were lower than EPA (2013a) and NMED (2012). If needed, adjustments were made so that chemicals with a cancer health endpoint had a target cancer risk of 1E-5 (where 1E-5 is the target cancer risk recommended by NMED [2012]). SLs for non-carcinogenic chemicals were adjusted downward to a hazard quotient (HQ) of 0.1 to ensure that chemicals with additive effects were not prematurely eliminated during screening.

Although current and future land uses at the BFF are most likely to remain industrial in nature, residential SLs for soil and modeled indoor air were conservatively used to screen the analytical results for soil and soil gas. Soil gas was modeled to indoor air using the Johnson and Ettinger Vapor Intrusion Model (1991; Environmental Quality Management [EQM], 2004). Groundwater results were screened using the lowest of (1) tap water RSLs (EPA, 2013a), (2) risk-based concentrations from NMED (2012), and (3) New Mexico Administrative Code (2002) protection of groundwater standards. Adjustments for a target cancer risk of 1E-5 and a target HQ of 0.1 were also made for groundwater, as needed, as discussed previously for soil and soil gas.

Other screening criteria included a residential lead action level of 400 milligrams per kilogram (mg/kg) in soil and 15 micrograms per liter (µg/L) in groundwater because toxicity criteria are not available for lead (EPA, 1994).

The essential nutrients, calcium, magnesium, potassium and sodium, were screened using recommended daily allowances (RDAs) and estimated concentrations in groundwater, which are summarized as follows:

Nutrient	Adult RDA (mg/day)	Reference Concentration in Groundwater (µg/L)
Calcium	1,000	500,000
Magnesium	350	175,000
Potassium	4,700	1,000,000[a]
Sodium	1,300-1,500 (500)	20,000

[a] The reference concentration exceeds one million parts per million; therefore, maximum of 1,000,000 is presented.
mg/day milligrams per day

The RDA for calcium is from the National Institute of Arthritis and Musculoskeletal and Skin Diseases (National Institute of Health, 2014). The RDAs for magnesium, potassium, and sodium are from the U.S. Department of Agriculture (USDA) National Agriculture Library (2014). For individuals on a restricted sodium diet (500 milligrams per day [mg/day]), the health-based value is 20,000 µg/L (EPA, 2012a). The reference concentration in groundwater was estimated using an intake of 2 liters per day, as follows:

$$\text{Reference Concentration in Groundwater } (\mu g/L) = \text{RDA } (\mu g/day) / [\text{Intake } (2\ L/day)]$$

Although iron is also an essential nutrient, there is an SL available for iron. If iron concentrations in soil or groundwater resulted in an HQ of 1.0 or greater, a "margin of exposure" evaluation would have been performed. This would have been done by comparing estimated iron intake to the tolerable upper intake level to estimate concentrations known to cause effects in children (greater than 40 mg/day; USDA, 2014). However, no iron hazard drivers were identified (Section 3.1.4); therefore, a margin of exposure for iron was not needed.

Analytes detected at a maximum concentration greater than the corresponding adjusted SL or screening values identified above for lead were selected as COPCs. Analytes for which no screening criteria exist were also selected as COPCs if toxicity data were known or suspected to exist.

Due to the large amount of chemical analytical data available from both groundwater monitoring wells and soil vapor probes at BFF used in the HHRA (approximately 157,000 and 175,000 samples, respectively), initial screening tables were prepared to compare the MDC of chemicals with the SLs (discussed previously) by treating sample and sample duplicate results as individual samples. CB&I's ShawView ORACLE© data management system was used for increased efficiency. This approach also avoided software limitations associated with Microsoft Excel™ that has a spreadsheet limit of 65,536 rows. The initial screening table approach (using the ShawView ORACLE© data management system) was not used to screen the site soil data because out of the approximately 100,000 results; detected chemicals only comprised about 37,000 records.

The initial COPC screening tables for groundwater monitoring well data and soil vapor probe data are presented in Appendix A-2b (Tables 1, and Tables 2 through 4, respectively). For the groundwater monitoring well sample results, 12 chemicals that had a MDC that exceeded an SL were detected in less than 5% of the samples, and a spatial analysis was performed to determine whether or not a hot spot might exist (as future exposure to these groundwater chemicals might preferentially occur). Figures showing the results of this groundwater COPC spatial analysis are presented in Appendix A-2c. Six infrequently detected chemicals were found to be spatially collocated (3- and 4-methylphenol, 2-methylphenol, 4-methyl-2-pentanone, 2-hexanone, carbon disulfide, and 2-butanone); therefore, these chemicals were retained as COPCs in the initial groundwater screening step. In total, 29 groundwater COPCs were selected during the initial screening step using monitoring well data.

For the initial screening step for soil gas data, the MDCs were compared with adjusted indoor air RSLs (EPA, 2013a). Indoor air RSLs were divided by a conservative attenuation factor of 0.1 to account for the potential migration of soil gas into indoor air. Adjustments for a target cancer risk of 1E-5 and a target HQ of 0.1 were also made, as needed, as discussed previously. Thirty-four soil gas volatile organic compounds (VOCs) were initially selected based on this initial screening step (Appendix A-2b, Table 3). As a future building could be situated over the location of the MDC of a VOC, the frequency of detection information was not used in selecting these 34 COPCs.

The MDC of these 34 soil gas VOCs were modeled to indoor air using the Johnson and Ettinger Vapor Intrusion Model (1991; EQM, 2004) by conservatively assuming future residential exposure, and 14 final soil gas COPCs were selected, based on estimated VOC risks greater than 1E-7 and/or estimated HQs greater than 0.1 (Appendix A-2b, Table 4). Sample numbers and location information for these 14 potential risk and/or hazard driver soil gas COPCs, for each round of sampling, are listed in Appendix A-2b, Table 5, along with start and end sample depth and sample date. These samples were used to estimate 95% upper confidence limit (UCL) EPCs (Section 3.1.2.3, Appendix A-3) for more refined future exposure estimates by using the Vapor Intrusion Model (1991; EQM, 2004; Appendix A-9). Results of initial vapor intrusion modeling for potential future exposure are summarized in Appendix A-9, Table 2.

It should be noted that for the soil gas "future" COPCs, total xylenes was selected in lieu of m&p xylene and o-xylene, because the maximum total xylene concentration in soil gas was 911,890 micrograms per cubic meter ($\mu g/m^3$), while the m&p xylene MDC was lower at 651,350 $\mu g/m^3$, and the o-xylene MDC was also lower at 225,801 $\mu g/m^3$ (Appendix A-2b, Table 4). As soil gas VOCs were modeled to indoor air, selection of total xylenes avoided double-counting indoor air exposure to total xylenes, m&p xylene, and o-xylene.

For potential current exposure to soil gas VOCs in indoor air, the shallowest soil gas results from three sampling locations within approximately 100 feet of Building 1033 were used (SVMW-03 [50 to 52.5 feet bgs], SVMW-11 [50 to 52.5 feet bgs], and KAFB-106119 [15 to 25 feet bgs]). Soil gas results proximate to Building 1033 were used for potential current exposure because these three sampling locations and Building 1033, considered together, had the greatest detected concentration of individual VOCs near a building used at least some of the time for routine activities. Shallow soil gas sample results are deemed more appropriate for potential current exposure, due to the expected longer time interval and dilution/degradation associated with the migration of deeper soil gas to the surface. Results of initial vapor intrusion modeling for potential current exposure are summarized in Appendix A-9, Table 1.

Detailed COPC selection information is presented in RAGS-D Tables (Appendix A-1, Tables 2.1 through 2.4) for surface soil (0 to 1 foot bgs), total soil (0 to 10 feet bgs), monitoring well groundwater, and water-supply well groundwater. For each media, the following information is presented:

- Exposure point
- Chemical Abstract Service number
- Chemical name
- Minimum and maximum detected concentration
- Units
- Location of maximum concentration
- Detection frequency
- Range of detection limits
- Concentration used for screening
- Background value (if any)
- Screening toxicity value

- Potential Applicable or Relevant and Appropriate Requirements or To Be Considered screening value (if any)
- Applicable or Relevant and Appropriate Requirements or To Be Considered source
- COPC flag (yes or no)
- Rationale for selection or deletion

Soil gas results were modeled to indoor air prior to final risk assessment calculations; soil gas screening results are presented in Appendix A-2b, Table 4 (as discussed previously).

Summaries of selected COPCs by media are presented in Tables 3-1 through 3-3.

- 10 COPCs were selected in surface soil.
- 12 COPCs were selected in total soil.
- 29 COPCs were selected in monitoring well groundwater.
- 1 COPC was selected in water-supply well groundwater.
- 5 COPCs were selected for current exposure to soil gas (modeled to indoor air).
- 14 COPCs were selected for potential future exposure to soil gas (modeled to indoor air).

3.2 Exposure Assessment

The objective of the exposure assessment is to estimate "the type and magnitude of exposures to chemicals of potential concern" (EPA, 1989). When combined with chemical-specific toxicity information (summarized in the toxicity assessment), these exposures produce estimations of potential risks.

3.2.1 Conceptual Site Exposure Model/Receptor Characterization

A conceptual site exposure model (CSEM) is presented on Figure 3-1 for current and future exposure scenarios at BFF. Appendix A-1, Table 1 presents the rationale for the selection of current and future receptor populations quantified in the HHRA.

General background information for Kirtland AFB and the BFF site was previously presented in Section 2.0. Contamination in the subsurface soil and groundwater appears to be the result of various releases that have occurred over the operational history of the facility. Kirtland AFB is located within the Albuquerque Basin immediately southeast of the City of Albuquerque in Bernalillo County. The base covers diverse terrain, ranging from mountainous relief to the east in the foothills of the Manzanita Mountains to plains in the western portion of the base. Kirtland AFB is approximately 52,287 acres in area. The topography of the BFF project site is relatively flat, ranging from 5,314 feet above mean sea level to 5,364 feet above mean sea level.

Land use within the base is currently industrial, including military and U.S. Department of Energy operations, research and development facilities, medical facilities, open space, military family housing, and community facilities. At the time of this investigation, Kirtland AFB did not own any facilities off base; however, the eastern portion of the base is primarily Cibola National Forest land, which was withdrawn from public use for military purposes. The BFF is currently used for bulk storage of JP-8, diesel fuel, and unleaded gasoline. Refueling trucks routinely fill up at the BFF and transport fuel as needed to the base.

The groundwater system at Kirtland AFB and in the Albuquerque area lies within the Albuquerque Basin, also referred to as the Middle Rio Grande Basin; the basin is part of the Rio Grande Rift. As the Rio Grande Rift spread, the Albuquerque Basin filled with sediments several miles thick, most of which are referred to as the Santa Fe Group. The unit consists of unconsolidated sediments that thin toward the basin boundary. Edges of the basin are marked by normal faults.

Generally, the upper unit of the Santa Fe Group contains the most productive portion of the regional aquifer that supplies groundwater to the City of Albuquerque, the Veterans Affairs (VA) Medical Center, and Kirtland AFB. The unit is characterized by piedmont slope, river, and floodplain deposits. The ancestral Rio Grande formed a large aggradational plain in the central basin, depositing a mix of coarse- to fine-grained sands, silts, and clays with variable bed thicknesses.

Basin-fill deposits make up the aquifer in the Albuquerque Basin. Hydraulic conductivity values range from 0.25 feet per day to 50.0 feet per day due to large variations in the lithology of the basin-fill deposits. Clay layers have relatively low hydraulic conductivity, whereas gravel and cobble deposits have relatively high hydraulic conductivity. Deposits of interbedded gravel, sand, silt, and clay have intermediate hydraulic conductivity (Tetra Tech, 2004).

This principal aquifer underlies Kirtland AFB with the basin fill in this area that consists of alluvial fan deposits and valley alluvium that overlies the Santa Fe Group. The Santa Fe Group consists of unconsolidated and semi-consolidated sands, gravels, silts, and clays. The layer overlying the Santa Fe Group consists of alluvial fan deposits associated with erosion of upland areas and valley alluvium associated with stream development. The alluvium varies in thickness from a few feet near the mountains on the east side of the base to greater than 2,100 feet at a location 5 miles southwest of the Kirtland AFB airfield (Tetra Tech, 2004).

BFF monitoring wells have been installed at Shallow (0 to 15 feet below the water table), Intermediate (15 to 30 feet below the water table), and Deep (30 to 150 feet below the water table) Zones. This interval is referred to as the upper aquifer for the purposes of this HHRA, while water-supply wells, which withdraw groundwater from a much deeper zone, are referred to as the lower aquifer in this HHRA.

Current groundwater-flow directions in the upper aquifer are toward the Kirtland AFB well KAFB-3 and Ridgecrest water-supply wells (Ridgecrest-5 and Ridgecrest-3), generally located to the northeast of the BFF site (Groundwater Zone RCRA RFI Report [USACE, 2014]). Groundwater flow is complex as a result of changing groundwater-flow directions, gradients, and velocities over time that are associated with regional water-supply well pumping rates that are quite variable (Section 6.6 of the Groundwater Zone RCRA RFI Report). Groundwater in the lower aquifer is generally expected to flow to the northeast (Groundwater Zone RCRA RFI Report) under the influence of the Ridgecrest and other City of Albuquerque water-supply wells.

The 377th Air Base Wing is comprised of approximately 1,200 active-duty military, 600 federal civilians, and 720 contractors assigned to the Medical Group, Mission Support Group, Security Forces Group, Maintenance Group, and 12 wing staff agencies.

Military housing is provided in Villages I through VII and Pershing Park. Off-base residences are present in the general area. The closest residences are approximately 0.5 to 1.0 mile to the northwest and northeast of the BFF.

Workers currently frequent the BFF site; however, residential exposure currently does not occur. Access to BFF is limited to authorized base personnel. Consequently, there are potentially complete pathways for human exposure (authorized military personnel, contract workers, etc.) to BFF.

Potential exposure media include: soil, groundwater, and air. Media exposure pathways are as follows:

- **Soil Exposure Pathway**—The soil exposure pathway for human receptors is considered to be potentially complete for both surface and subsurface soil. Surface and subsurface soil exposure is possible for all three exposure routes (ingestion, dermal contact, and inhalation). Passive and intrusive activities by human activities would be possible release mechanisms.
- **Groundwater Exposure Pathway**—The upper aquifer (as defined in this HHRA) is not used for consumption; therefore, there is no potential for direct groundwater exposure. However, VOCs may migrate from impacted groundwater to indoor air or a construction trench. If upper aquifer groundwater is used a drinking-water supply, exposure could occur via ingestion, dermal contact, and inhalation via off-gassing as a result of household or washroom use. Current exposure to water-supply well groundwater (lower aquifer) occurs.

- **Air Exposure Pathway**—The air exposure pathway is considered to be complete. Exposure routes include inhalation of fugitive dust mobilized from soil, inhalation of VOCs migrating from soil to ambient air, and inhalation of groundwater VOCs migrating from impacted groundwater to indoor air or a construction trench. If upper aquifer groundwater is used a drinking-water supply, inhalation exposure could occur via off-gassing as a result of household or washroom use.

3.2.1.1 Current and Future Routine Worker

A routine site worker is evaluated for exposure to BFF. It is assumed that this receptor would work primarily indoors throughout the year and potentially be exposed to surface soil over 25 years (the recommended default exposure duration). Exposure to water-supply well groundwater (lower aquifer) is assumed for the current worker. This also includes workers who may obtain drinking water from the VA Medical Center water-supply well (ST106-VA2). Although highly unlikely, future exposures to upper aquifer groundwater are also evaluated.

3.2.1.2 Future Construction Worker

Although land use is expected to remain the same at the BFF, a future construction scenario is evaluated to determine the need for restrictions on excavation and digging in the future. This exposure scenario represents upper-bound exposure for those personnel who may be subjected to more intensive, deeper soil exposure (up to 10 feet bgs) for short-term projects (i.e., 1 year). There are no known plans to develop the site or for major construction; however, the need for utility installation or repairs is possible. Construction workers are evaluated for exposures to total soil (i.e., surface and subsurface soil). In addition, potential exposure due to migration of VOCs from upper aquifer groundwater into the air space of an excavation or utility trench is quantified for BFF. Dermal exposures are not quantified because the depth to upper aquifer groundwater is considerably greater than the depth of a potential construction trench (15 feet bgs), as monitoring wells at BFF are only screened as shallow as 434 feet bgs, and most wells are much deeper (i.e., approximately 450 to 550 feet bgs). It is assumed that there is no potable use of upper aquifer groundwater for the construction-worker scenario.

3.2.1.3 Resident

There are no current residents or residential buildings on the BFF site. Future residents are not expected at BFF due to the continued operational use of the area related to the mission of the 377th Air Base Wing. However, an unrestricted future land-use scenario for adult and child residential receptors is quantified in the HHRA. The evaluation of the hypothetical future residential scenario is typically evaluated in a risk assessment for decision-making purposes. For example, the need for land-use restrictions at a site may be eliminated prior to site closure if acceptable risks are estimated for residential receptors. It is assumed that a hypothetical resident may be exposed to total soil, upper aquifer groundwater, and air. This exposure scenario thus represents upper-bound exposure to these media via ingestion, dermal contact, and inhalation exposure.

Current resident exposure is only quantified for drinking-water exposure as a result of the use of currently operating water-supply wells. This also includes residents who may obtain drinking water from the VA Medical Center water-supply well (ST106-VA2).

3.2.1.4 Trespasser

Although entry and use of the BFF are restricted, it is possible for trespassers to enter the site. However, on-site workers (routine workers) would be much more exposed than trespassers; therefore, trespassers are evaluated qualitatively.

3.2.1.5 Receptor Summary

As indicated on Figure 3-1, the potential human receptors quantitatively evaluated in this HHRA are as follows:

- Current and future routine workers
- Future construction workers
- Current and future adult and child residents

3.2.2 Identification of Exposure Pathways

The potential receptors identified for the site includes routine workers, construction workers, and adult and child residents. Appendix A-1, Table 1 summarizes the selection of exposure pathways for each receptor listing the rationale for the inclusion or exclusion of each pathway at the site, while Figure 3-1 summarizes which receptors are exposed to site media.

3.2.3 Calculation of EPCs

To calculate intakes, a 95% UCL of the mean concentration (95% UCL) for each COPC is used as a conservative estimate of the average concentration in a given environmental medium to which a receptor would be exposed. The 95% UCL estimate is referred to as the EPC. The 95% UCL is used rather than the mean concentration to account for uncertainty when estimating EPCs from sample data (EPA, 1989). Methods used to calculate 95% UCLs are based on guidance provided in the documents *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites* (EPA, 2002a) and *ProUCL Version 5.0.00 User Guide* (EPA, 2013b).

In general, the method used to calculate a 95% UCL depends on: 1) the prevalence of non-detects, 2) the data distribution (e.g., normal, gamma, lognormal, or nonparametric), and 3) number of samples. Non-detect results introduce uncertainty in the data set because the true concentration may be between zero to just below the detection limit. Therefore, distributional assumptions are difficult to ascertain for COPCs with a high rate of non-detects. The EPA (2013b) ProUCL Version 5.0.00 statistical program was used to estimate 95% UCL values for all the COPC data sets. For data sets with non-detects, ProUCL uses the Kaplan-Meier estimation method to derive a recommended 95% UCL. For the BFF site, the level of detection was used as a surrogate concentration for COPCs with non-detect results, with the level of detection defined as a reporting limit below the level of quantitation (also referred to as the practical quantitation limit), but above the detection limit (method detection limit). Where ProUCL recommends the results of more than one statistical approach, the most conservative (highest) 95% UCL value was used in the HHRA. Where only one sample had a detected result, ProUCL does not recommend a 95% UCL value. For these cases, the MDC was conservatively used as the EPC.

In some cases where only two or three samples had detected results (i.e., some soil gas COPCs at a specific location and depth where eight rounds of sample results were used for a conservative BFF worst-case exposure approach), ProUCL issued a warning that stated, "This is not enough to compute meaningful or reliable statistics and estimates." However, as ProUCL did provide a 95% UCL estimate in these situations, and these results are based on bootstrap or other statistical techniques (Efron, 1982; Efron and Tibshirani, 1993), these 95% UCL results were used in the HHRA. As the soil gas COPCs were conservatively selected by screening results from approximately 175,000 samples (Appendix A-2b) in order to focus on the HHRA VI evaluation on worst-case sample locations and sample depths, it is concluded that there are enough soil gas sample results to generate meaningful statistics.

The EPCs for selected COPCs in soil (surface and total), groundwater (monitoring wells and water-supply wells), and soil gas are presented in Appendix A-1, Tables 3.1 through 3.8. The statistical output from ProUCL Version 5.0.00 (95% UCLs) is presented in Appendix A-3.

3.2.3.1 Groundwater Chemicals Time-Trend Statistical Analyses

Because concentrations of groundwater chemicals (in monitoring wells) may be increasing over time, time-trend statistical analyses were performed (Appendix A-4). This was done to ensure that the estimated 95% UCL EPCs were not biased low due to increasing concentrations over time that would suggest future concentrations higher than the 95% UCLs. Based on the results of these statistical analyses, only 12 chemicals had statistically significant increasing trends over time, at between one and six wells, listed as follow:

Groundwater Chemical	Number of Monitoring Wells with Statistically Significant Increasing Concentrations Over Time		Groundwater COPC?
Sodium	5	KAFB-106001, -020, -030, -083, -085	Yes
Iron (dissolved)	2	KAFB-106021, -083	Yes
Manganese (dissolved)	6	KAFB-106010, -017, -066, -079, -083, -094	Yes
Diesel range organics	3	KAFB-106017, -073, -083	Yes
Gasoline range organics	3	KAFB-106017, -073, -083	Yes
n-propylbenzene	3	KAFB-106017, -082, -083	Yes
1,2-dichloroethane	1	KAFB-106083	Yes
1,3,5-trimethylbenzene	1	KAFB-106057	Yes
Acetone	1	KAFB-106083	Yes
Naphthalene	1	KAFB-106083	Yes
Isopropylbenzene	6	KAFB-106017, -069, -073, -082, -083, -094	Yes
p-Isopropyl toluene	1	KAFB-106010	Yes

Because results from 97 monitoring wells were used in the HHRA to estimate the 95% UCL EPCs over eight quarters (Section 3.1.1.1) (as only a few wells had statistically significant increasing concentrations over time as summarized above), these findings are deemed minor, and the estimated 95% UCLs are appropriate for use in the HHRA.

The estimation of whether a monotonic trend exists in the groundwater data was carried out by using a censored version of the Mann-Kendall trend test described in the *Nondetects and Data Analysis* (Helsel, 2005). This method computes Kendall's tau correlation coefficient statistic and the slope of the non-parametric line following the method of Akritas et al. (1995). A p-value indicating the significance of any monotonic trend or significant slope in the data was also calculated. The routines for calculating these values were computed with codes from the *Nondetects and Data Analysis* library in R (a computer language). These calculations were performed for a location/analyte combination only where there was data from at least three rounds of sampling with detected values for two or more sampling rounds. Otherwise, "not applicable" was reported (this approach eliminated reporting numbers that have limited usefulness).

The R system is an open-source implementation of a dialect of the influential S language, developed at AT&T Bell Laboratories by Rick Becker, John Chambers, and Alan Wilks, which is the basis for the commercial S-Plus system (Maindonald and Braun, 2007). It follows S in its close linkage between data analysis and graphics. R is available through the Comprehensive R Archive Network at http://cran.r-project.org/.

Data for locations KAFB-106012, KAFB-106160, and KAFB-106161 were excluded from analysis because these locations had less than three sampling rounds of data. Data for m,p-xylenes and o-xylene were also excluded because these analyses were not continued after the first two sampling rounds included in the data set.

The Results Table in Appendix A-4 presents the findings of the groundwater statistical time-trend analyses. For each monitoring well and chemical, an estimated slope, tau value, and p-value are given, along with the minimum and maximum reported values (or reporting limit), the number of observations (sample size), the number of non-detects, and the percent detects in the data set (time series). It should be noted that tau and p-values are not reported for time series with less three x-values or for time series with only a single detected value.

In general, small p-values may indicate that there is a significant trend in the times series. The direction of the trend can be determined from the slope estimate: a negative slope for decreasing trend and a positive slope for increasing trend. However, care should be used in interpreting the significance of these individual p-values as there is a Bonferroni effect caused by carrying out a large number of independent statistical tests. For example, in carrying out 100 independent statistical tests, one would expect approximately a 5% false positive rate for testing at the 0.05 level of significance.

Out of 2,510 location/analyte pairs in the data set (excluding wells KAFB-106012, KAFB-106160, and KAFB-106161, and analytes m,p-xylenes and o-xylene, as described above), only 33 showed a possible "significant" increasing trend. Since, in the absence of any trends, one would expect 63 indications of "significant" increasing trend (due to the Bonferroni effect), it may be concluded that there is limited statistical evidence of increasing groundwater concentration trends at the site.

3.2.3.2 Fate and Transport Models

Models were used to estimate concentrations of COPCs in air from soil, concentrations of COPCs in trench air from *in-situ* groundwater, concentrations of COPCs in indoor air from soil gas, and concentrations of COPCs in indoor air from the household or washroom use of groundwater. These models are discussed in Section 3.1.2.4.

In addition, a groundwater transport model was executed to estimate future concentrations of key chemicals at downgradient water-supply wells (Sections 3.1.2.4 and Section 6.6 of the Groundwater Zone RCRA RFI Report[USACE, 2014]).

3.2.4 Quantification of Exposure: Calculation of Daily Intakes

For each receptor and pathway, chronic daily intake (CDI), expressed as milligrams of COPC per kilogram body weight per day) for each COPC, is estimated by combining the EPC with exposure parameters such as ingestion rate, frequency of contact, duration, and frequency of exposure. In addition, intake parameters are selected so the combination of intake variables results in an estimate of the reasonable maximum exposure for that pathway (EPA, 1989). Intake formulas, exposure parameters, and chemical-specific parameters for each of the receptors for the BFF are provided in Appendix A-1, Tables 4.1 through 4.21.

The particulate emission factors (PEFs) used to calculate inhalation daily intakes associated with soil (for semi-volatile organic compounds and inorganics) were calculated in accordance with the *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites* (EPA, 2002b). The PEFs are provided in Appendix A-5. The volatilization factors used to calculate inhalation daily intakes associated with soil (for VOCs) were also calculated in accordance with EPA (2002b) and are provided in Appendix A-6.

For exposures to groundwater via dermal contact, the amount of chemical in water absorbed through the skin must be estimated in order to calculate the dose used in the intake formula. The dose absorbed per unit area per event (DA) is a function of the chemical concentration in water, the permeability coefficient for that chemical from water through the skin, and the exposure time. Following EPA (2004) guidance, receptor-specific DA values were calculated for groundwater using the EPA worksheet (2001b) and chemical-specific parameters. The DA values for both sites are described in (Appendix A-7).

In the event that excavation work is performed at the site, the construction worker may be exposed to volatile emissions from groundwater that collects in the bottom of a trench. While EPA does not have a standardized model for estimating concentrations of airborne VOCs in a trench or a pit, the Virginia Department of Environmental Quality (VDEQ) provides such a model on their Voluntary Remediation Program web site (VDEQ, 2013). The equation and parameters are given in Appendix A-8.

For potential exposure to VOCs in soil gas migrating into indoor air, the Johnson and Ettinger Vapor Intrusion Model was used (1991; EQM, 2004) to estimate indoor air concentrations. Site-specific depth information was used (based on the depth below grade [assuming a default slab thickness of 15 centimeters] to the vapor probe sample collection depth), as well as a vadose-zone-soil type of loamy sand (equivalent to silty sand) that is typical of Kirtland AFB and the BFF site. An average vapor zone soil temperature of 12.5 degrees Celsius was also used based on the site location and information presented on Figure 8 of the EQM (2004). For initial screening purposes (Appendix A-2b, Table 4), risks and hazards were estimated for a conservative future residential receptor using model spreadsheet defaults; however, for the more definitive inhalation risk and hazard calculations (Appendix A-1, Tables 7s, 9s, and 10s), estimated indoor air concentrations were extracted from the Intercalcs sheet in the model output (the infinite source building concentration). All vapor intrusion model input and output are presented in Appendix A-9.

The groundwater transport model is presented in Appendix M of the Groundwater Zone RCRA RFI Report (USACE, 2014). For purposes of the HHRA, modeled concentrations of the key groundwater COCs, 1,2-dibromoethane (EDB) and benzene, at two downgradient water-supply well locations (KAFB-3 and Ridgecrest 5) are used to estimate future risks and hazards in a semiquantitative manner (Section 3.1.4.3). Risk and hazards are estimated by scaling modeled concentrations with risk-based EPA RSLs for tap water (EPA, 2013a).

A semiquantitative approach is used for these results because (1) model results are uncertain due to assumed future pumping rates and locations of withdrawal in the regional area, and due to general uncertainties associated with groundwater transport modeling, and (2) groundwater monitoring well 95% UCL EPCs are already used to estimate risk and hazards based on measured concentrations in site monitoring wells.

3.3 Toxicity Assessment

The methodology used for classifying health effects from exposure to chemicals followed that recommended by EPA (2014a). The health-effects analysis considers chronic (long-term) exposures. Using the following hierarchy (EPA, 2003a), the chronic toxicity criteria were obtained from the following:

- **Tier 1**—Integrated Risk Information System (IRIS) (EPA, 2014a).
- **Tier 2**—Provisional Peer Reviewed Toxicity Values (PPRTVs) as developed on a chemical-specific basis by the Office of Superfund Remediation and Technology Innovation (EPA, 2014b), and as summarized on the EPA Regional SL Table (2013a).

- **Tier 3**—Other toxicity values, including additional EPA and non-EPA sources of toxicity information, such as the Agency for Toxic Substances Disease Registry Minimum Risk Levels, California Environmental Protection Agency, and the Health Effects Assessment Summary Tables (EPA, 1997a).

Toxicity criteria used to quantify non-carcinogenic hazards (reference doses [RfDs] and reference concentrations [RfCs]) and carcinogenic risks (slope factors[CSFs] and inhalation unit risks) are presented for BFF in Appendix A-1, Tables 5.1, 5.2, 6.1, and 6.2.

Dermal toxicity factors were estimated from oral toxicity data using chemical-specific oral to dermal-adjustment factors recommended in EPA (2013a), as presented in Tables 5.1 and 6.1 (Appendix A-1).

3.3.1 Evaluation of Lead

At BFF, the MDC of lead (140 mg/kg) for surface and total soil did not exceed the action level for lead of 400 mg/kg. Therefore, lead was not selected as a COPC.

It is noted that the Center for Disease Control and Prevention recently agreed to use a child blood lead level of 5 micrograms per deciliter to identify children who are living or staying for long periods in environments that expose them to lead hazards. EPA is currently evaluating the potential implications of the revised blood lead level (U.S. Department of Defense, 2012). However, even if this lower child blood lead level of 5 micrograms per deciliter is ultimately adopted by EPA, the action level for lead would not be expected to be reduced to a point such that the BFF average lead concentration in soil (approximately 11 mg/kg) would be a health concern.

3.3.2 Calculations for COPCs with Mutagenic Mode of Action

Five PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenzo[ah]anthracene, and indeno[123cd]-pyrene) were identified as COPCs in soil. Methylene chloride was identified as a COPC in soil gas. EPA has determined that these compounds have a mutagenic mode of action (EPA 2005a, 2008, 2013a). Adjustment for early-life susceptibility is thus necessary, as this approach results in a higher estimate of cancer risk compared with a non-mutagenic cancer risk calculation approach.

Therefore, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(ah)anthracene, indeno(123cd)-pyrene and methylene chloride mutagenic risks were estimated for future residents following EPA guidance by applying age-dependent adjustment factors (ADAFs). The following ADAFs were applied: 10 for ages 0 to 2 years, 3 for ages 2 to 16 years, and 1 (i.e., no adjustment) for 16 years and older.

In the following example for benzo(a)pyrene, cancer risks in total soil at BFF are calculated for the ingestion and dermal exposure pathways.

Benzo(a)pyrene Ingestion Exposure

- Ages 0 to 2

$$\frac{0.104\, mg/kg\, x\, 0.0002\, kg/day\, x\, 350\, days/yr\, x\, 2\, yr}{365\, days/yr\, x\, 70\, yr\, x\, 15\, kg}\, x\, \frac{7.3}{mg/kg/day}\, x\, 10 = 2.7E-6$$

- Ages 2 to 6

$$\frac{0.104\, mg/kg\, x\, 0.0002\, mg/day\, x\, 350\, days/yr\, x\, 4\, yr}{365\, days/yr\, x\, 70\, yr\, x\, 15\, kg}\, x\, \frac{7.3}{mg/kg/day}\, x\, 3 = 1.7E-6$$

- Ages 6 to 16

$$\frac{0.104\, mg/kg\, x\, 0.0001\, mg/day\, x\, 350\, days/yr\, x\, 10\, yr}{365\, days/yr\, x\, 70\, yr\, x\, 70\, kg}\, x\, \frac{7.3}{mg/kg/day}\, x\, 3 = 4.5E-7$$

- Ages 16 to 30

$$\frac{0.104\, mg/kg\, x\, 0.0001\, mg/day\, x\, 350\, days/yr\, x\, 14\, yr}{365\, days/yr\, x\, 70\, yr\, x\, 70\, kg}\, x\, \frac{7.3}{mg/kg/day}\, x\, 1 = 2.1E-7$$

Total Benzo(a)pyrene Soil Ingestion Risk

$$(2.7E\text{-}6) + (1.7E\text{-}6) + (4.5E\text{-}7) + (2.1E\text{-}7) = 5.1E\text{-}6$$

Benzo(a)pyrene Dermal Exposure

- Ages 0 to 2

$$\frac{0.104\,\text{mg/kg} \times 0.2\,\text{mg/cm}^2 \times 0.13 \times 2800\,\text{cm}^2\text{/day} \times 1\text{E-}6\ \text{kg/mg} \times 350\,\text{days/yr} \times 2\,\text{yr}}{365\,\text{days/yr} \times 70\,\text{yr} \times 15\,\text{kg}} \times \frac{7.3}{\text{mg/kg/day}} \times 10 = 1.1\text{E}-6$$

- Ages 2 to 6

$$\frac{0.104\,\text{mg/kg} \times 0.2\,\text{mg/cm}^2 \times 0.13 \times 2800\,\text{cm}^2\text{/day} \times 1\text{E-}6\ \text{kg/mg} \times 350\,\text{days/yr} \times 4\,\text{yr}}{365\,\text{days/yr} \times 70\,\text{yr} \times 15\,\text{kg}} \times \frac{7.3}{\text{mg/kg/day}} \times 3 = 6.1\text{E}-7$$

- Ages 6 to 16

$$\frac{0.104\,\text{mg/kg} \times 0.07\,\text{mg/cm}^2 \times 0.13 \times 5700\,\text{cm}^2\text{/day} \times 1\text{E-}6\ \text{kg/mg} \times 350\,\text{days/yr} \times 10\,\text{yr}}{365\,\text{days/yr} \times 70\,\text{yr} \times 70\,\text{kg}} \times \frac{7.3}{\text{mg/kg/day}} \times 3 = 2.3\text{E}-7$$

- Ages 16 to 30

$$\frac{0.104\,\text{mg/kg} \times 0.07\,\text{mg/cm}^2 \times 0.13 \times 5700\,\text{cm}^2\text{/day} \times 1\text{E-}6\ \text{kg/mg} \times 350\,\text{days/yr} \times 14\,\text{yr}}{365\,\text{days/yr} \times 70\,\text{yr} \times 70\,\text{kg}} \times \frac{7.3}{\text{mg/kg/day}} \times 1 = 1.1\text{E}-7$$

Total Benzo(a)pyrene Soil Dermal Risk

$$(1.1E\text{-}6) + (6.1E\text{-}7) + (2.3E\text{-}7) + (1.1E\text{-}7) = 2.3E\text{-}6$$

These benzo(a)pyrene ingestion and dermal cancer risks match those presented in Appendix A-1, Tables 7.14, 9.6, and 10.6. Example mutagenic calculations for inhalation of benzo(a)pyrene soil particulates in air and methylene chloride vapor in indoor air are not shown because estimated risks are considerably below 1E-6 (Appendix A-1, Table 9.6; 4.2E-11 and 2.5E-7, respectively), and generally follow the same approach as shown above for benzo(a)pyrene ingestion and dermal exposure.

In summary, mutagenic PAH risks in soil and methylene chloride risks in soil gas (modeled to indoor air) were calculated using the mutagenic mode of action. These mutagens pose adult (lifetime) cancer risks greater than risks estimated using a non-mutagenic mode of action approach that does not take into account early-life susceptibility. The risk calculations in Appendix A-1, Tables 7s, 9s, and 10s for adult/lifetime resident cancer risk use ADAFs to account for the mutagenic mode of action for these six mutagenic COPCs.

3.3.3 Evaluation of Hydrocarbon Results

As gasoline range organics (GRO) and diesel range organics (DRO) are chemical mixtures, toxicity factors are not available for these types of analytical results; therefore, risks and hazards were not quantified for these two COPCs in soil and groundwater. Similarly, reliable toxicity factors are not available for C5-C8 and C9-C12 aliphatic hydrocarbons, or C9-C10 aromatic hydrocarbons in soil gas.

Although provisional toxicity values for low, medium, and high molecular weight aromatic and aliphatic total petroleum hydrocarbons (TPH) are presented in the RSL Table (EPA, 2013a), these provisional values are based on very conservatively selected surrogate compounds (EPA, 2009a, 2009b). In addition, matching GRO and DRO analytical results for soil and groundwater with low, medium, and/or high molecular weight aromatic TPH and low, medium, and/or high molecular weight aliphatic TPH is very uncertain. Similarly, matching C5-C8 and C9-C12 aliphatic hydrocarbon results, and C9-C10 aromatic hydrocarbon results for soil gas with low, medium, and/or high molecular weight aromatic TPH and low, medium, and/or high molecular weight aliphatic TPH is also uncertain.

As site-specific BFF chemical analytical data are available for common petroleum chemicals such as benzene, toluene, ethylbenzene, and xylenes, and PAHs, conservative surrogate provisional toxicity data were not used to quantify GRO and DRO risks and hazards in soil and groundwater, or to quantify C5-C8 and C9-C12 aliphatic hydrocarbon and C9-C10 aromatic hydrocarbon risks and hazards in soil gas (modeled to indoor air). It should also be noted that as C5-C8 and C9-C12 aliphatic hydrocarbons, and C9-C10 aromatic hydrocarbons in soil gas data represent chemical mixtures, it is not possible to accurately model the transport of these VOCs to indoor air using the Johnson and Ettinger Vapor

Intrusion Model (1991; EQM, 2004) because chemical-specific transport properties (including diffusivity in air and water, Henry's Law constant, enthalpy of vaporization, boiling point, critical temperature, and molecular weight) are not available.

3.4 Risk characterization

Quantitative risks and hazards due to exposure to COPCs are estimated and summarized by combining toxicity criteria (presented in the Toxicity Assessment in Section 3.3) with CDIs (calculated in the Exposure Assessment located in Section 3.2). Methods used to calculate risks and hazards are taken from EPA (1989).

For exposures to potential carcinogens, the individual upper-bound excess lifetime cancer risk was calculated by multiplying the estimated CDI by the CSF. In order to assess the individual excess lifetime cancer risks associated with simultaneous exposure to COPCs, the risks derived from the individual chemicals are summed within each exposure pathway. For the residential scenario, carcinogenic risk was evaluated for the lifetime resident by adding together estimated cancer risks for adult and child residential receptors.

Non-carcinogenic adverse health effects were calculated by dividing the CDI of each COPC by its RfD, thus resulting in an HQ. HQs with a value greater than one (1.0) indicate the potential for adverse health effects. To estimate non-carcinogenic adverse health effects due to simultaneous exposure to several COPCs, HQs for individual COPCs were summed within each exposure pathway that resulted in a hazard index (HI). As with HQs, HIs that are greater than 1.0 indicate potential adverse health effects. In such cases, COPCs were divided into categories based on the target organ affected (e.g., liver, kidney), and target organ-specific HIs were recalculated. Non-carcinogenic hazards were evaluated for both child and adult residents independently.

Excess lifetime cancer risks derived in this report were compared with the EPA acceptable risk range of 1.0E-06 to 1.0E-04 for Superfund sites (EPA, 1989). In addition, the EPA RCRA Office of Solid Waste has issued a memorandum (1998) providing guidance on risk-based clean closure for RCRA-regulated units. The memorandum states that EPA generally considers protective media cleanup standards for human health to mean constituent concentrations that result in the total residual risk from any medium to an individual exposed over a lifetime falling within the range from 1.0E-4 to 1.0E-6. The cumulative carcinogenic risk is not to exceed 1.0E-4, and a preference for cleanup at the more protective end of the risk range and the total residual hazard index should generally not exceed 1.

Calculation of risks and hazards due to exposure to COPCs are provided for BFF in Tables 7.1 through 7.14 (Appendix A-1). Detailed summaries of risks and hazards for each receptor, using RAGS-D table format, are presented in Tables 9.1 through 9.7 (Appendix A-1). It should be noted that no Tables 8s are presented in Appendix A-1 because no radiological COPCs were selected for BFF, and RAG-D Table 8s are only used for radiological COPCs. The BFF overall risks and hazards are summarized in Table 3-4.

For the current routine worker scenario, the total estimated cancer risk (3.1E-6) is within the acceptable risk range of 1.0E-6 to 1.0E-4 and below the NMED risk threshold of 1.0E-5. The risk driver is benzene in soil gas (modeled to indoor air). The total HI (0.028) is below 1. The estimated inhalation risk from benzene in soil gas is based on results from three soil gas probes (SVMW-03 [40 to 50 feet bgs], SVMW-11 [40 to 50 feet bgs], and KAFB-106119 [15 to 25 feet bgs) within approximately 100 feet of Building 1033 (e.g., the Pump House). Although it is assumed a worker may be exposed to indoor air in this building once a week for 8 hours per day over a period of 10 years (Appendix A-1, Table 4.16), this is likely overly conservative because workers generally only enter this building to check pump equipment, monitor gages, and pick up stored supplies such as spill supplies and separator filters (Sanders, 2014). It should also be noted that an indoor air risk evaluation was performed for this and other buildings (based on indoor air sample results) as summarized in Section 3.1.4.2.

For the future routine worker, the total estimated cancer risk (7.8E-4) is above the acceptable risk range of 1.0E-6 to 1.0E-4 and above the NMED risk threshold of 1.0E-5. The risk drivers are ethylbenzene, EDB, benzene, and naphthalene in monitoring well groundwater (assuming the upper aquifer is used for household use and as a drinking-water supply), and EDB, benzene, bromodichloromethane, and chloroform in soil gas (modeled to indoor air). The total estimated HI (11) is above 1, and the hazard drivers are benzene in monitoring well groundwater, and benzene and 1,2,4-trimethylbenzene in soil gas (modeled to indoor air). It should be noted that the estimated soil gas risks and hazards are based on the conservative assumption that a building is constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas, and that this building would be occupied by workers 225 days per year, 8 hours per day, for 25 years (Appendix A-1, Table 4.19).

For the future construction-worker scenario, the total estimated cancer risk (8.2E-8) is below the acceptable risk range of 1.0E-6 to 1.0E-4 and below the NMED risk threshold of 1.0E-5. The total HI (0.021) is below 1.

For the current adult/lifetime resident and the child resident, the total estimated cancer risk is zero (below the acceptable risk range of 1.0E-6 to 1.0E-4 and below the NMED risk threshold of 1.0E-5), and the total estimated HI is also zero (below 1). This result is based on current residential exposure to COPCs in water-supply wells (KAFB-003, KAFB-015, KAFB-016, and ST106-VA2). Because only sodium was selected as a COPC in water-supply well groundwater, and this inorganic does not have published toxicity data, no risk or hazard was calculated. However, the advisory limit for individuals on a restricted sodium diet is 20,000 µg/L (20 milligrams per liter [mg/L]) (EPA, 2012a). As the 95% UCL EPC for sodium in water-supply well data was 29,000 µg/L (29 mg/L) (Appendix A-1, Table 3.3), this advisory limit is exceeded.

For the future adult/lifetime resident, the total estimated cancer risk is 3.5E-3, which is above the acceptable risk range of 1.0E-6 to 1.0E-4 and above the NMED risk threshold of 1.0E-5. The risk drivers are benzo(a)pyrene and dibenzo(a,h)anthracene in total soil; ethylbenzene, EDB, benzene, 1-methylnaphthalene, 1-2, dichloroethane, and naphthalene in monitoring well groundwater, and EDB, benzene, bromodichloromethane, and chloroform in soil gas (modeled to indoor air). The total estimated HI (42) is above 1, and the hazard drivers are benzene, m&p-xylene, naphthalene, and 1,2,4-trimethylbenzene in monitoring well groundwater, and total xylenes, benzene, 1,2,4-trimethylbenzene, and n-hexane in soil gas (modeled to indoor air). It should be noted that the estimated soil gas risks and hazards are based on the conservative assumption that a residence is constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas, and that this building would be occupied by an adult/lifetime resident 350 days per year, 24 hours per day, for 30 years (Appendix A-1, Table 4.18). Soil gas contours for the risk drivers by depth are presented in Appendix A-11 and discussed in Section 3.6.5.

For the future child resident, the total estimated cancer risk is 8.4E-4, which is above the acceptable risk range of 1.0E-6 to 1.0E-4 and above the NMED risk threshold of 1.0E-5. The risk drivers are benzo(a)pyrene and dibenzo(a,h)anthracene in total soil, ethylbenzene, EDB, benzene, 1-methylnaphthalene, 1-2, dichloroethane, and naphthalene in monitoring well groundwater, and EDB, benzene, bromodichloromethane, and chloroform in soil gas (modeled to indoor air). The total estimated HI (50) is above 1, and the hazard drivers are benzene, manganese, m&p-xylene, naphthalene, and 1,2,4-trimethylbenzene in monitoring well groundwater, and total xylenes, benzene, 1,2,4-trimethylbenzene, and n-hexane in soil gas (modeled to indoor air). It should be noted that the estimated soil gas risks and hazards are based on the conservative assumption that a residence is constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas, and that this building would be occupied by a child resident 350 days per year, 24 hours per day, for 6 years (Appendix A-1, Table 4.17).

A refinement of the HIs based on target organs was conducted by calculating HIs on a target organ-specific basis, as shown in the noncarcinogenic table columns for BFF in Tables 9.1 through 9.7 (Appendix A-1). However, refinement by target organ did not reduce any of the estimated hazards below 1.

In addition, Tables 10.1 through 10.7 in Appendix A-1 present the summarized risks and hazards for risk and hazard drivers (i.e., those COPCs having a risk greater than 1.E-6 or a total hazard greater than 1.0) for the BFF site.

3.4.1 Background Considerations for Metals

Inorganic COPCs were further evaluated with respect to background if they were identified as risk or hazard drivers. Risk drivers were defined as COPCs with risks above 1E-06, hazard drivers were COPCs with HIs above 1, and chemicals with concentrations above advisory levels were also considered. Based on HHRA results, manganese in monitoring well groundwater was a hazard driver for the future residential child, and sodium in water-supply well groundwater and monitoring well groundwater was a concern for individuals on a restricted sodium diet.

Background concentrations of manganese and sodium in groundwater are available from Foster Wheeler Environmental Corporation (2002) with upper tolerance limits (UTLs) of 2.221 µg/L and 24,993 µg/L, respectively. These background data are used in the HHRA because no BFF-specific background groundwater data are available. The MDC of manganese (dissolved) in BFF monitoring well groundwater was 5,690 µg/L, and the MDC of sodium in groundwater data from four water-supply wells (KAFB-003, KAFB-015, KAFB-016, and ST106-VA2) was 37,900 µg/L. In addition, the MDC of sodium in groundwater data from the BFF monitoring wells was 50,600 µg/L. Based on these data, site concentrations of manganese and sodium cannot be attributed to background.

It is important to note that the background well used as the basis for these UTLs (KAFB-0315) is screened in the uppermost aquifer proximate to the Kirtland AFB Landfill, and may not be representative of general background conditions near the BFF site. In addition, as the uppermost aquifer associated with KAFB-0315 is likely not similar to the deeper zone providing groundwater to the water-supply wells used in this HHRA, the comparison of the MDC of sodium in groundwater data from the four water-supply wells (37,900 μg/L) and the background UTL near the Landfill (24,993 μg/L) may be limited in its usefulness.

3.4.2 Indoor Risk Evaluation

An indoor risk evaluation (Appendix B) was performed using results from indoor and ambient air samples collected from, and proximate to, Buildings 1026, 1032, and 1033 on July 17, 2012 and January 14, 2013 (Shaw Environmental, Inc., 2012). For the 30 detected VOCs in indoor air, all but four (2-hexanone, carbon tetrachloride, Freon-113, and trichlorofluoromethane) were found to be statistically greater within the buildings compared with ambient concentrations measured outside the buildings. Elevated VOC concentrations in Building 1026 on July 17, 2012 appeared to be causing the statistical excursions above background. Three VOCs (1,2,4-trimethylbenzene, benzene, and ethylbenzene) of the 26 VOCs that were statistically above ambient had MDCs that exceeded the EPA (2012b) residential or industrial RSLs. All these MDCs occurred at Building 1026 during the July 17, 2012 indoor air sampling event. Based on the MDC, the combined cancer risk (for benzene and ethylbenzene) for an industrial land-use scenario was estimated to be 1.7E-5, and if the two seasonal samples at Building 1026 were averaged together, the estimated cancer risk dropped to 1E-5. This industrial cancer risk estimate assumed 25 years of exposure, 250 days per year for 8 hours a day. Based on current site land use, Building 1026 is not typically occupied; therefore, estimated cancer risks would drop linearly with reductions in both exposure frequency and exposure duration. Thus, exposure once a month for 10 years by a worker would reduce the estimated cancer risk by about 52-fold (to below 1E-6).

Benzene concentrations were above the residential RSL in all the indoor air samples, and above the industrial RSL in several of the samples. The MDC for benzene appeared to be a statistical outlier, and given that only one indoor sample result was causing benzene and ethylbenzene to fail the background statistical test, it is possible these two VOCs were actually related to ambient (background) conditions. Therefore, an evaluation of nearby soil vapor sample results was performed to try and determine if benzene and ethylbenzene (and 1,2,4-trimethylbenzene) were actually related to subsurface contamination and vapor intrusion.

Soil vapor, as represented by results from KAFB-106117, may be migrating into nearby Building 1026 (where the highest indoor air benzene concentration was measured). It was also possible that the benzene measured in indoor air may be related to ambient background concentrations. The measured indoor air benzene concentrations at Building 1026 were 23 $\mu g/m^3$ on July 17, 2012 and 4.8 $\mu g/m^3$ on January 14, 2013, and these indoor air results were within the range of vapor intrusion modeled results (0.30 to 35.3 $\mu g/m^3$. Based on the shallowest soil vapor data for KAFB-106117), benzene in shallow soil vapor proximate to Building 1026 may be migrating into indoor air.

In conclusion, many VOCs measured in indoor air were found to be statistically greater than ambient (background) concentrations; however, sample numbers were small, and most VOCs failed a hot spot statistical background test, but not a central tendency statistical background test. In addition, while the highest concentrations were detected during the July 17, 2012 indoor air sampling event at Building 1026, a corresponding ambient air sample was not collected on this date proximate to the building.

Using indoor air data, only three VOCs were identified as being potential risk or hazard drivers via the inhalation pathway (1,2,4-trimethylbenzene, benzene, and ethylbenzene) based on an assumed routine occupancy of the building. However, as the building with the highest VOC concentrations

(Building 1026) is not routinely occupied (it is a storage area, not a work area), actual risks and hazards are expected to be acceptable.

The source of the VOCs in indoor air is uncertain and may be from (1) ambient air, (2) contamination in the subsurface, and/or (3) from sources within the building itself. Modeled benzene concentrations in indoor air at Building 1026 (based on shallow soil vapor data from the nearest soil vapor probe) bracketed the range of measured indoor air concentrations at this building. Concentrations of benzene in soil vapor decreased at shallower depths and (for a given depth) were quite variable over time. A proportional analysis of VOC constituent data, using relative percentages, suggested vapor intrusion may be more likely from ambient air than from subsurface contamination; however, there were uncertainties with this evaluation approach.

It is recommended that workers should not routinely occupy Building 1026; however, limited exposure (i.e., a few times per month for many years, or daily during the work week for a few months) would not be expected to result in unacceptable health risks, based on data used in the Indoor Air Risk Evaluation (Appendix B).

3.4.3 Groundwater Transport Model Risk Evaluation

A groundwater transport model was used to estimate concentrations of EDB and benzene at downgradient water-supply wells, including wells KAFB-3 and Ridgecrest 5 (Section 6.6 of the Groundwater Zone RCRA RFI Report [USACE, 2014a]). The model was run forward for 80 years, covering the period 2013 through 2093. This end year was the upper time limit considered by the model to be accurate. Based on the results of the groundwater transport model, which assumes no remediation of the plume has taken place, the maximum modeled concentration of EDB was 0.30 µg/L in years 2083-2084 at KAFB-3, and the maximum modeled concentration at the Ridgecrest 5 well was 0.0039 µg/L in years 2092-2093.

Benzene was not shown to migrate toward any of the drinking-water wells, including the VA well, KAFB-3, and Ridgecrest 5.

Risks and hazards were estimated for EDB by scaling modeled concentrations with risk-based tap water concentrations from EPA (2013a). As adult/lifetime resident carcinogenic risk estimates are based on average exposure over an exposure duration of 30 years, the worst-case average 30-year concentrations of EDB (0.245 µg/L at KAFB-3 and 0.0023 µg/L at Ridgecrest 5) were used for the cancer risk estimates (i.e., years 2064-2093; Section 6.6 of the Groundwater Zone RCRA RFI Report [USACE, 2014a]). For the estimation of noncancer hazards, exposure duration is not a key variable used in the calculation (EPA, 1989); therefore, the maximum modeled concentration was used. Future estimated risks and hazards are presented as follows:

Future Estimated Cancer Risks and Noncancer Hazards for EDB at Downgradient Water-Supply Wells					
EPC for Cancer Endpoint (µg/L)	RSL (µg/L)	Cancer Risk	EPC for Noncancer Endpoint (µg/L)	RSL (µg/L)	Noncancer Hazard
KAFB-3					
0.245	0.0065	4E-5	0.30	16	0.02
Ridgecrest 5					
0.0023	0.0065	4E-7	0.0039	16	0.0002

For example, the cancer risk of 4E-5 was estimated using the ratio of 0.245 µg/L to the RSL of 0.0065 µg/L, and applying it to the target cancer threshold of 1E-6 associated with the cancer-based RSL of 0.0065 µg/L (0.245/0.0065 × 1E-6). The noncancer hazard of 0.02 was estimated using the ratio of 0.0.30 µg/L:16 µg/L, and applying it to the target noncancer threshold of 1.0 associated with the noncancer-based RSL of 16 µg/L (0.30/16 × 1). It should be noted that the maximum contaminant level (MCL) for EDB is 0.05 µg/L; however, MCLs are not solely based on risk or hazard.

The estimated cancer risk for future residential use of water from water-supply well KAFB-3 is 4E-5, which exceeds NMED's cancer risk threshold of 1E-5. The estimated noncancer hazard is below 1 and therefore acceptable. The estimated cancer risk for future residential use of water from water-supply well Ridgecrest 5 is 4E-7, which is below the NMED cancer risk threshold of 1E-5. The estimated noncancer hazard is below 1 and therefore acceptable.

It is important to note that the EDB concentrations and arrival times at the water-supply wells are based on the 10-year average pumping rate established between years 2003 and 2013. The 10-year average pumping rate incorporates both wet season (low pumping rates) and dry season (high pumping rates) values for each of the different pumping wells. The 10-year average pumping rates for KAFB-3 and Ridgecrest 5 are 167 gallons per minute and 1,123 gallons per minute, respectively.

Based on groundwater model results and risk estimates, the earliest exposure period at KAFB-3 that would be expected to result in an estimated cancer risk that exceeds the NMED 1E-5 risk threshold would be years 2041-2070. This 30-year period is modeled to have an average EDB concentration of 0.067 µg/L at the well, and an estimated adult/lifetime residential groundwater risk of just above 1E-5 (1.03E-5). For comparison, concentrations in this well are modeled to reach the MCL of 0.05 µg/L in the years 2055-2056 (see Section 6.5 of the Groundwater Zone RCRA RFI Report [USACE], 2014a).

These groundwater transport modeling risk results are less than the estimated future on-site adult/lifetime resident groundwater risk for EDB of 1.2E-3, conservatively assuming a future water-supply well is installed in the center of the monitoring well network for the BFF site with a well screen somewhere in the upper aquifer (approximately 450 to 550 feet bgs). The groundwater transport modeling hazard results are also less that the estimated noncancer hazard of 0.47 (Appendix A-1, Table 9.6) based on a 95% UCL EPC of 8.3 µg/L in site monitoring wells (Appendix A-1, Table 3.4). These findings are not unexpected, as COPCs in groundwater are projected to attenuate during off-site transport to downgradient water-supply wells. Approximately 80% of the cancer-based RSL for EDB is from the inhalation exposure pathway (with 19% from ingestion exposure and 1% from dermal exposure; EPA, 2013a). Therefore, most of the estimated future exposure and risk for this VOC is associated with the inhalation of vapor as a result of off-gassing from household use of groundwater (such as showering, dish washing, etc.), and not from ingestion and dermal contact.

3.5 Uncertainties Analysis

Risk assessments involve the use of assumptions, judgments, and incomplete data to varying degrees that contribute to the uncertainty of the final estimates of risk. Uncertainties result both from the use of assumptions or models in lieu of actual data, and from the error inherent in the estimation of risk-related parameters, and may cause risk to be overestimated or underestimated. Based on the uncertainties described below, this HHRA should not be construed as presenting an absolute estimate of risk to persons potentially exposed to COPCs.

Consideration of the uncertainty attached to various aspects of the risk assessment allows better interpretation of the risk assessment results and understanding of the potential adverse effects on human health. In general, the primary sources of uncertainty were associated with environmental sampling and analysis, selection of chemicals for evaluation, toxicological data, exposure assessment, and background. The effects of these uncertainties on the risk estimates are discussed below.

3.5.1 Environmental Sampling and Analysis

If the samples do not adequately represent media at the site, hazard/risk estimates could be overestimated or underestimated. The sampling and analysis plans were designed to investigate known or anticipated areas of contamination and to delineate area(s) of concern. Therefore, there was less chance that the hazard/risk estimates were biased low. Also, if the analytical methods used do not apply to some chemicals that are present, risk could be underestimated. Because the analytical methods at the site were selected to address all chemicals that are known or suspected to be present on the basis of site history, the potential for not identifying a COPC was reduced.

Uncertainty in environmental chemical analysis can stem from several sources including errors inherent in the sampling or analytical procedures. Analytical accuracy errors or sampling errors can result in the rejection of data, which decreases the available data for use in the HHRA, or in the qualification of data, which increases the uncertainty in the detected chemical concentrations. There is uncertainty associated with chemicals reported in samples at concentrations below the reporting limit but still included in data analysis, as well as with those chemicals qualified "J" that indicate the concentrations are estimated.

3.5.2 Selection of Chemicals for Evaluation

A comparison of maximum detected chemical concentrations with EPA RSLs and NMED SLs was conducted for surface soil, total soil, groundwater, and soil gas and adjusted as needed (as previously discussed). Chemicals with maximum concentrations below their respective SLs were not carried through the assessment. It is unlikely that this risk-based screening excluded chemicals that should be included, based on the conservative exposure assumptions and conservatively derived toxicity criteria that are the basis of the SLs. Although following this methodology does not provide a quantitative risk estimate for every chemical, it focuses the assessment on the chemicals accounting for the greatest risks (i.e., chemicals whose maximum concentrations are greater than their respective SLs), and the cumulative risk estimates would not be expected to be significantly greater.

For some COPCs without screening levels, the values used for screening were based on surrogate chemicals with similar structures and properties. The surrogates for this HHRA, such as pyrene for acenaphthylene, benzo(g,h,i)perylene, and phenanthrene, were generally based on proxy compounds, as recommended in the VDEQ *Voluntary Remediation Program Risk Assessment Guidance*, Risk-Based

Screening Levels Proxy Values (VDEQ, 2013). Note: NMED (2012) does not recommend any chemical surrogates for the chemicals analyzed at BFF.

3.5.3 Exposure Assessment

The primary areas of uncertainty affecting exposure parameter estimation involved the assumptions regarding exposure pathways, the estimation of EPCs, and the exposure parameters used to estimate chemical doses. An underlying assumption in the HHRA was that individuals at the sites would engage in activities that would result in exposures via each selected pathway. For example, it was assumed that construction workers would engage in regular activities (250 days per year) under future land-use conditions, thus resulting in exposure to COPCs. This assumption is likely conservative in that it is more likely that construction activities occur less than 250 days per year.

3.5.3.1 Indoor Air Modeling

Use of the Johnson and Ettinger Vapor Intrusion Model (1991; EQM, 2004) to estimate indoor air inhalation risks and hazards based on soil gas sample results introduces a considerable amount of uncertainty to the HHRA. The model is conservative in many respects and may result in an over-estimation of risk and hazards. For example, the model does not take into account any degradation of organic chemicals over time, and is insensitive to time (as time is not used as a model input). In addition, for the future exposure scenarios, it was conservatively assumed that a building would be constructed immediately over the location(s) of maximum detected soil gas COPCs. As shown in Appendix A-2b, the depth to the MDC at each of these locations was used in executing the model (with inputs and outputs presented in Appendix A-9). Therefore, even if the MDC of a soil gas COPC occurred at a considerable depth, this depth was used in the vapor intrusion modeling. For example, benzene's MDC of 1,400,000 parts per billion by volume (ppbv) (4,472,556 $\mu g/m^3$) occurred in vapor probe SVMW-11-100 at a depth of 100 feet bgs, and this depth was used for modeling purposes. A more realistic evaluation of potential indoor air exposures is presented in Section 3.1.4.2.

3.5.3.2 Exposure Point Concentrations

When calculating EPCs from sample data using ProUCL, non-detect results are coded as "zeroes." As indicated in the ProUCL output for the sites (Appendix A-3), summary statistics such as the arithmetic mean were based on detected values only. For calculation of the 95% UCL of the mean, the program substitutes surrogate values for the detection limits.

The 95% UCL was used as the EPC for each medium if an EPC was estimated by ProUCL. Generally, at least 8 to 10 samples are recommended for the calculation of an EPC. The ProUCL software typically gives a warning when data sets are too small (sample size less than 10), which suggests that the 95% UCL values could be unreliable. If the 95% UCL exceeded the maximum detected value, or fewer than five samples were available, or only one detected result was available, then the maximum was conservatively used as a default EPC in this HHRA. In addition, as discussed in Section 3.1.2.3, in some cases where only three or fewer samples had detected results (i.e., some soil gas COPCs at a specific location and depth where eight rounds of sample results were used for a conservative BFF worst-case exposure approach), ProUCL issued a warning that stated, "This is not enough to compute meaningful or reliable statistics and estimates." However, as ProUCL did provide a 95% UCL estimate in these situations, and these results are based on bootstrap or other statistical techniques (Efron, 1982 and Efron and Tibshirani, 1993), these 95% UCL results were used in the HHRA. As the soil gas COPCs were conservatively selected by screening results from approximately 175,000 samples (Appendix A-2), in order to focus the HHRA VI evaluation on worst-case sample locations and sample depths, it is concluded that there were enough soil gas sample results to generate meaningful statistics.

There were several COPCs in soil gas for which ProUCL was unable to run. In each case, there was only one sample with a single detected result (or none of the detected results were all the same value, e.g., one unique value). As a result, the EPA ProUCL program did not generate a 95% UCL, and the MDC was used (current exposure to bromodichloromethane in soil gas, and future exposure to dibromochloromethane, total xylenes, bromodichloromethane, EDB, 1.3-butadiene, and 1,1,2,2-tetrachloroethane in soil gas). Using a value that is based on one sampling result (i.e., the maximum) has associated uncertainty, and it adds a great deal of conservatism to the assessment. The cancer risks and noncancer HIs in the HHRA were thus likely biased high for these COPCs.

3.5.3.3 Particulate Emission Factors

For the HHRA, the PEF for the future resident was based on particulate emissions due to wind erosion at the site, using an area of 0.5 acres (the default size of a residential lot). However, the actual size of the BFF site, based on the area of soil samples, is 2.3 acres (Section 3.1.1.1). As the PEF (in units of cubic meters per kilogram) decreases as site area increases, and the resultant air concentration is calculated by dividing the soil COPC concentration by the PEF, use of an area of 0.5 acres instead of 2.3 acres underestimated particulate air concentrations. In addition, the default value for fraction of vegetative cover (0.5) likely underestimates risk and hazard because large areas of the site are generally devoid of vegetation. Overall, potential underestimations would not affect the risk conclusions for the site, due to the small contribution of soil-related inhalation risks and hazards to the total risks and hazards for these receptors.

3.5.3.4 Chemical Fate

In establishing EPCs, the concentrations of chemicals in the media evaluated are assumed to remain constant over time. Depending on the properties of the chemical and the media in which it was detected, this assumption could overestimate or underestimate risks, based on the degree of chemical transport to other media, or the rate and extent a chemical degrades over time. For example, if the biodegradation of chlorinated compounds does not result in non-toxic end-products such as ethane and ethene, it might result in the formation of toxic intermediate degradation products, such as vinyl chloride, over time. However, there were few chlorinated chemicals identified as COPCs in BFF monitoring wells or soil vapor probes (1,2-dichloroethane in groundwater, and chloroform, carbon tetrachloride, 1,1,2,2-

tetrachloroethane, and methylene chloride in soil gas). Furthermore, the additional contribution to overall risk and hazards from degradation by-products would be negligible relative to the significantly elevated risks and hazards for benzene and EDB, and other compounds in groundwater and soil gas at the site.

3.5.3.5 Use of Upper-Bound Exposure Factors

The exposure parameters used to describe the extent, frequency, and duration of exposure are associated with uncertainty. Actual risks for individuals within an exposed population may differ from those predicted, depending upon their actual intake rates (e.g., soil ingestion rates), nutritional status, or body weight. Exposure assumptions were selected to produce an upper-bound estimate of exposure in accordance with NMED and EPA guidelines regarding evaluation of potential exposures at contaminated sites. For example, the exposure frequency for the routine worker was assumed to be 225 days per year for 25 years.

In addition, many EPA (1991) and NMED (2012) default exposure parameters are highly conservative and are based on risk management interpretations of limited data. For example, although current EPA and NMED guidance recommends default soil ingestion rates of 100 mg/day for individuals over 6 years of age, other studies, such as Calabrese et al. (1990), have shown that the EPA default soil ingestion rate of 100 mg/day is likely to greatly overestimate adult exposures and risks. In addition, chemicals in soil are assumed 100% bioavailable; this assumes that ingested chemicals present in a soil matrix are absorbed through the gastrointestinal (GI) tract, which is unlikely due to the affinity of contaminants for soil particles. Therefore, based on the conservative exposure assumptions used in the HHRA, exposures and estimated potential risks were likely to be overestimated for the ingestion of soil pathway.

3.5.3.6 Dermal Exposure Pathways

Evaluation of the dermal absorption exposure pathway is affected by uncertainties in dermal exposure parameters. For example, there is uncertainty associated with the exposed skin surface areas used, since the choice of exposed body parts could slightly overestimate or underestimate risks. Uncertainties that are more significant are associated with the selection and use of dermal absorption factors. For this HHRA, the dermal absorption factors and calculations were based on dermal absorption factors recommended in the EPA RSL Table (EPA, 2013a) from the EPA RAGS: Part E, "Supplemental Guidance for Dermal Risk Assessment" (EPA, 2004). These soil dermal absorption factors are summarized in Appendix A-10. As shown in Appendix A-10, default dermal absorption factors are only provided for nine COPCs (PAHs and p-isopropyl toluene). The dermal absorption factors for 1,2,4-trimethylbenzene, lead, DRO, and GRO were set at zero because there are no default values recommended. According to the 2004 EPA RAGS, Part E, "...For inorganics, the speciation of the compound is critical to the dermal absorption and there are too little data to extrapolate a reasonable default value." Very limited information is available on dermal absorption of chemicals from contacted soil under environmental conditions. In fact, there are no actual human epidemiological data to support the hypothesis that absorption of soil-bound compounds under exposure conditions is a complete route of exposure. The lack of dermal absorption factors for evaluating dermal exposure for some chemicals is expected to be minimal.

For exposures to COPCs in groundwater via dermal absorption, the 2004 EPA dermal guidance cautions that the procedures for estimating dermal dose from water contact are relatively new. The dermal permeability estimates are probably the most uncertain of the parameters in the dermal dose equation. The equation used to calculate the term, DAevent, is based on a regression model that predicts the water permeability coefficient for organics. Statistical analysis of the regression equation provides the range of octanol/water partition coefficients (K_{ow}) and molecular weights where this regression model could be used to predict permeability coefficients (Effective Prediction Domain). Because halogenated chemicals have a lower ratio of molar volume relative to their molecular weight than hydrocarbons (due to the relatively weighty halogen atom), the K_p correlation based on molecular weight of hydrocarbons would tend to underestimate permeability coefficients for halogenated organic chemicals such as 1,2-dichloroethane, and EDB (EPA, 2004).

3.5.3.7 Trench Model

The VDEQ Trench Model was used to evaluate the volatilization of VOCs from groundwater into a construction/utility trench. As stated in Section 3.1.2.4, neither NMED nor EPA has developed a standardized model for estimating concentrations of airborne VOCs released from groundwater during construction or excavation activities. Therefore, the VDEQ Voluntary Remediation Program trench model was used in this HHRA (Appendix A-8). Due to several conservative assumptions used in the VDEQ trench model, risks and hazards due to potential exposures to groundwater during the hypothetical excavation of a construction/utility trench were likely to be overestimated. The uncertainties associated with this model include the following:

- The model does not account for the dilution, dissipation, or degradation of VOCs over time.
- The depth of the trench was set at 15 feet, and the VDEQ trench model for groundwater greater than 15 feet bgs was used for the BFF. The depth to COPCs in groundwater at the site was conservatively set at 419 feet bgs (the shallowest historically measured depth to groundwater). The use of the shallowest depth (419 feet bgs) likely overestimated the potential risks/hazards that groundwater is currently at, i.e., approximately 500 feet bgs at the BFF.

3.5.4 Toxicological Data

The HHRA relies on EPA-derived dose-response criteria. These health effects criteria are conservative and are designed to be protective of sensitive subpopulations. The health criteria used to evaluate long-term exposures, such as RfDs or CSFs, are based on concepts and assumptions that bias an evaluation in the direction of overestimation of health risk. As EPA notes in its *Guidelines for Carcinogenic Risk Assessment* (1986), there are major uncertainties in extrapolating both from animals to humans and from high to low doses. There are important species differences in uptake, metabolism, and organ distribution of carcinogens, as well as species and strain differences in target site susceptibility, human populations that are variable with respect to genetic constitution, diet, occupational and home environment, activity patterns, and other cultural factors.

To compensate for these uncertainties, upper-bound 95% UCLs for CSFs (carcinogens), and uncertainty factors for RfDs (non-carcinogens) were used. The assumptions used here provide a rough but plausible estimate of the upper limit of risk; in other words, it is unlikely that the true risk would be much more than the estimated risk, but it could very well be considerably lower, even approaching zero. More refined modeling in the area of dose response calculation (e.g., using maximum likelihood dose-response values rather than the 95% UCL) would be expected to substantially lower the final risk.

3.5.4.1 Dose-Response

It is generally assumed that the dose-response relationship will be linear in the low-dose portion of the multi-stage model dose-response curve used to evaluate cancer risk (EPA, 1989). Under this assumption, the slope factor is a constant, and the risk is directly related to intake. This linear equation is only valid, however, at risk levels below 1E-02. For sites where chemical intakes are high, the one-hit equation is considered to be more appropriate. Risks can be recalculated using the following equation:

$$\text{Risk} = 1 - \exp^{(-\text{CDI} \times \text{CSF})}$$

3.5.4.2 Adjustments for Dermal Exposure and Toxicity

For dermal absorption exposure pathways, the absence of dermal toxicity criteria necessitates the use of oral toxicity data. To calculate risk estimates for the dermal absorption pathway, absorbed dermal absorption doses are combined with oral toxicity values (also discussed previously in Section 3.1.3). Oral toxicity values, which are typically expressed in terms of potential (or administered) doses, should be adjusted when assessing dermal absorption doses, which are expressed as internal (or absorbed) doses. In this assessment, absolute oral absorption factors that reflect the toxicity study conditions were used to modify the oral toxicity criteria. For those chemicals lacking sufficient information, a default oral absorption factor of 1.0 was used. The risk estimates for the dermal absorption pathways may be overestimated or underestimated, depending on how the values used in the HHRA reflect the difference between the oral and dermal routes.

3.5.4.3 Route-to-Route Extrapolation

Inhalation toxicity criteria are unavailable for some of the COPCs. For other COPCs, however, oral-based toxicity criteria were used to estimate risks from inhalation exposure through route-to-route extrapolation. For example, some of the inhalation RfCs are based on dietary studies (California Environmental Protection Agency, 2000). The following uncertainties were associated with such a substitution:

- Many contaminants show portal-of-entry toxicity, e.g., adverse health effects occur primarily at the tissue site at which the chemical is introduced into the body (e.g., GI tract, lung, or skin).
- Physiological and anatomical differences between the GI tract and respiratory systems invalidate a cross-route quantitative risk extrapolation. The small intestine of humans contains a very large surface area that readily absorbs most compounds by passive diffusion (Klaasen et al., 1986). The oral absorption of a few compounds, such as iron, is an energy-dependent (active-transport) process, wherein the absorption rate is proportional to the body's current need for iron.
- The rate and extent of pulmonary absorption are much more complex and depend on such factors as particle size distribution of the airborne toxicant and blood-gas solubility of the toxicant (Klaasen et al., 1986). Particles with median aerodynamic diameters of approximately 1 micrometer or less are absorbed by the alveolar region of the human lung. Larger particles deposit in the tracheobronchial or nasopharyngeal regions where they are cleared by mucociliary mechanisms and subsequently swallowed or physically removed and exhaled. Therefore, pulmonary absorption is more highly dependent on the physiochemical properties of the material than oral absorption.
- Human inhalation risk estimates based on oral toxicity data in sub-human species are distorted by both route-to-route extrapolation and interspecies extrapolation. For example, the rodent GI tract, which includes a structurally unique fore stomach, is anatomically and functionally distinct from the human lung, which contains a very large alveolar surface area for extensive absorption. The rate and extent of absorption across these distinct physiological systems are not alike.

3.5.4.4 Inhalation Exposure

In general, the lack of toxicity values for the inhalation pathway could result in an underestimation of risk or hazard. However, risks and hazards associated with dusts and particulates are typically small relative to the ingestion and dermal pathways.

In addition, for inhalation exposure to substances present as dusts, vapors, gases, or airborne particulate matter, dose extrapolation is far more complex, and therefore, associated with uncertainty. The major confounding factors that prohibit a direct-dose extrapolation of an inhaled toxicant are the following:

- Over 40 functionally different cell types in the lung i.e. the distribution, consequent metabolic reactions, and air exchange rates vary widely across species.
- Differential concentration and activity of the detoxifying protein, glutathione.
- Interspecies and intraspecies differences in the ability to repair pulmonary cell damage, and to clear toxic contaminants and immune complexes from the respiratory tract. For example, species vary in the ability to activate macrophages, i.e., nonspecific immune cells that can both protect the inner lining of the respiratory system and, at high concentrations, damage healthy tissues.
- Anatomical variations in the respiratory pathway, which affect both absorption rates and time to reach steady-state blood levels.
- Sensitivity to solubility and concentration variables. Because of metabolic saturation (i.e., the exhaustion of normal metabolic activity caused by exposure to high concentrations), highly soluble contaminants deviate from first-order kinetics, which makes it difficult to predict the rates and extent of biotransformation and detoxification reactions. Furthermore, intermittent inhalation exposure to highly blood-soluble chemicals results in bioaccumulation in fat tissue because of the insufficient time between exposure sessions for complete clearance of the contaminant. Such slow release from the fat compartment to other body tissues can result in toxicological and metabolic effects that are difficult to assess and vary across species.

3.5.4.5 Provisional Toxicity Data

For chemicals without IRIS toxicity criteria, provisional toxicity criteria were used in the BFF HHRA when available (Tables 5.1, 5.2, 6.1, and 6.2 in Appendix A-1). Provisional toxicity criteria (i.e., PPRTVs) present a source of uncertainty since EPA has evaluated the compound, but consensus has not been established on the toxicity criteria. PPRTVs were used for 1,2,4-trimethylbenzene, ethylbenzene, iron, and 1-methylnaphthalene. In addition, toxicity values presented in appendices to the PPRTV documents were used for 1,2-dichloroethane (for the RfD), n-propylbenzene (for the RfD and RfC), and 1,3,5-trimethylbenzene (for the RfD). These "appendix" PPRTV toxicity values are even more uncertain than toxicity values presented in the main PPRTV report text, and should only be used for screening assessments.

For this HHRA, use of provisional toxicity criteria was preferable to not evaluating the chemical in order to limit data gaps. However, because these toxicity criteria have not been formally accepted by EPA, there is uncertainty with these values and, therefore, with the risks and hazards calculated using these toxicity criteria.

3.5.4.6 Subchronic Exposure

It is noted that the Supplemental SSL Guidance (EPA, 2002b) recommends that toxicity values for subchronic exposures be used to calculate the HQs for exposures by the construction worker. The general lack of readily available subchronic toxicity values for the COPCs at BFF contributes to the uncertainty of the HIs. Typically, subchronic toxicity values are 10-fold greater than chronic toxicity values and, therefore, would result in equivalently lower HQs. Because chronic toxicity values were used for all COPCs, the calculated hazards for the construction worker are likely to be overestimated.

3.5.4.7 Hydrocarbon Results

As discussed in Section 3.1.3.3, because GRO and DRO are chemical mixtures, toxicity factors are not available for these types of analytical results; therefore, risks and hazards were not quantified for these two COPCs in soil and groundwater. Similarly, reliable toxicity factors are not available for C5-C8 and C9-C12 aliphatic hydrocarbons or C9-C10 aromatic hydrocarbons in soil gas.

Although provisional toxicity values for low, medium, and high molecular weight aromatic and aliphatic TPH are presented in the RSL Table (EPA, 2013a), these provisional values are based on very conservatively selected surrogate compounds (EPA, 2009a, 2009b). In addition, matching GRO and DRO analytical results for soil and groundwater with low, medium, and/or high molecular weight aromatic TPH and low, medium, and/or high molecular weight aliphatic TPH is very uncertain. Similarly, matching C5-C8 and C9-C12 aliphatic hydrocarbon results, and C9-C10 aromatic hydrocarbon results for soil gas with low, medium, and/or high molecular weight aromatic TPH and low, medium, and/or high molecular weight aliphatic TPH is also uncertain.

Bypassing the quantification of risks and hazards for these types of hydrocarbon results might cause an underestimation of risks and hazards; however, as site-specific BFF chemical analytical data are available for common petroleum chemicals such as benzene, toluene, ethylbenzene, xylenes, and PAHs, this uncertainty is deemed low.

3.5.5 Site-Specific Background

As described in Section 3.1.4.1, background groundwater data from a monitoring well proximate to the Kirtland AFB Landfill were used to derive UTLs for comparison purposes. While these UTLs provide reasonable information for background comparison, there is uncertainty in using these data because they may not be representative of background conditions proximate to the BFF site.

3.5.6 Risk Characterization

Minor uncertainty is associated with rounding of the risk and hazard estimates. Thus, the actual risk or hazard may be slightly greater or less than the presented values. A related issue is rounding results in differences between summed risk and hazard values, depending on how the summing is performed. For example, the RAGS Table 7 spreadsheets in Tables 7.1 through 7.16 in Appendix A-1 present risks and hazards that were summed for exposure route, exposure point, exposure medium, and medium total. The individual chemical-specific risks and hazards were summed only for the initial exposure route in deriving the total. For the subsequent summations (exposure point, exposure medium, and medium total), each was the summation of the preceding sums. For this reason, there can also be rounding-related differences between the "same" values presented in the Table 9 and 10 spreadsheets, Tables 9.1 through 9.7 and Tables 10.1 through 10.7 in Appendix A-1.

3.6 HHRA Summary and Conclusions

The HHRA was performed to evaluate the potential human health effects associated with contamination at the BFF site. Receptors evaluated included current and future routine workers, future construction workers, current and future adult/lifetime residents, and current and future child residents. It should be noted that in the summary section that follows, text states whether the estimated cancer risks are within the acceptable risk range, below the risk range (<1E-6), or above the risk range (>1E-4). These results may be interpreted as follows:

- Estimated cancer risks below and outside the target risk range (i.e.,<1E-6, such as 1E-7) are acceptable.
- Estimated risks above and outside the target risk range (i.e., >1E-4, such as 5E-4 or 1E-3) are unacceptable.
- Estimated risks within the target risk range (i.e., 1E-6 ≤ x ≤ 1E-4 such as 1E-5 may or may not be acceptable. However, as NMED (2012) recommends, a target risk threshold of 1E-5 risks below and outside 1E-5 (i.e., <1E-5, such as 5E-6) are deemed acceptable.

The results of the HHRA for the BFF site are summarized in Table 3-4. Background comparisons for inorganic COPC risk and/or hazard drivers were discussed in Section 3.1.4.1.

3.6.1 Routine Workers

For the current routine worker scenario, the total estimated cancer risk (5.5E-6) was within the acceptable risk range of 1.0E-6 to 1.0E-4 and below the NMED risk threshold of 1.0E-5. The risk drivers were benzene and bromodichloromethane in soil gas (modeled to indoor air). The total HI (0.052) was below 1. The estimated inhalation risk from benzene in soil gas was based on results from three soil gas probes (SVMW-03 [40 to 50 feet bgs], SVMW-11 [40 to 50 feet bgs], and KAFB-106119 [15 to 25 feet bgs) within approximately 100 feet of Building 1033 (i.e., the Pump House). Although it was assumed a worker may be exposed to indoor air in this building once a week for 8 hours per day over a period of 10 years, this is likely overly conservative because workers generally only enter this building to check pump equipment, monitor gages, and pick up stored supplies, such as spill supplies and separator filters. It should also be noted that an indoor air risk evaluation was performed for this and other buildings (based on indoor air sample results; summarized in Section 3.1.4.2 and Appendix B), and these results suggest that current indoor air risks and hazards to routine workers are generally acceptable.

For the future routine worker, the total estimated cancer risk (8.8E-4) was above the acceptable risk range of 1.0E-6 to 1.0E-4 and above the NMED risk threshold of 1.0E-5, based on the conservative assumption that a building is constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas, and that this building would be occupied by workers 225 days per year, 8 hours per day, for 25 years. The risk drivers were ethylbenzene, EDB, benzene, and naphthalene in monitoring well groundwater (conservatively assuming that groundwater from the upper aquifer beneath the BFF is used as a drinking-water supply), and EDB, benzene, bromodichloromethane, and chloroform in soil gas (modeled to indoor air). The total estimated HI (15) was above 1, and the hazard drivers were benzene in monitoring well groundwater, and benzene, 1,2,4-trimethylbenzene, and xylene in soil gas (modeled to indoor air).

Results of an Indoor Risk Evaluation (Appendix B) (based on measured indoor air concentrations) estimated a worst-case industrial worker cancer risk of 1.7E-5 in Building 1026, due to risk drivers benzene, ethylbenzene, and 1,2,4-trimethylbenzene (Section 3.4.2). However, as this building is not routinely occupied, actual risks were predicted to be below 1E-6. In addition, some of the indoor air VOCs may be attributed to ambient background or from indoor sources, and not just from the migration of subsurface soil gas. It is recommended that workers should not routinely occupy Building 1026.

3.6.2 Construction Workers

For the future construction worker scenario, the total estimated cancer risk (9.6E-8) was below the acceptable risk range of 1.0E-6 to 1.0E-4 and below the NMED risk threshold of 1.0E-5. The total HI (0.030) was below 1.

3.6.3 Residents

For the current adult/lifetime resident and the child resident, the total estimated cancer risk was zero (below the acceptable risk range of 1.0E-6 to 1.0E-4 and below the NMED risk threshold of 1.0E-5), and the total estimated HI was also zero (below 1). This result is based on current residential exposure to COPCs in water-supply wells (KAFB-003, KAFB-015, KAFB-016, and ST106-VA2). As only sodium was selected as a COPC in water-supply well groundwater, and this inorganic does not have published toxicity data, no risk or hazard was calculated. However, the advisory limit for individuals on a restricted sodium diet is 20,000 µg/L (20 mg/L). As the 95% UCL EPC for sodium in water-supply well data was 29,000 µg/L (29 mg/L), this advisory limit is exceeded.

For the future adult/lifetime resident, the total estimated cancer risk was 4.1E-3, based on the conservative assumption that a residence will be constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas, and that this building would be occupied by an adult/lifetime resident 350 days per year, 24 hours per day, for 30 years, and that upper aquifer groundwater (upper 130 feet of the aquifer directly beneath the BFF) will be used as a drinking-water supply. This risk is above the acceptable risk range of 1.0E-6 to 1.0E-4 and above the NMED risk threshold of 1.0E-5. The risk drivers were benzo(a)pyrene and dibenzo(a,h)anthracene in total soil; ethylbenzene, EDB, benzene, 1-methylnaphthalene, 1-2, dichloroethane, and naphthalene in monitoring well groundwater; and EDB, benzene, bromodichloromethane, and chloroform in soil gas (modeled to indoor air). The total estimated HI (60) was above 1, and the hazard drivers were benzene, m&p-xylene, naphthalene, and 1,2,4-

trimethylbenzene in monitoring well groundwater; and total xylenes, benzene, 1,2,4-trimethylbenzene, and n-hexane in soil gas (modeled to indoor air).

For the future child resident, the total estimated cancer risk was 9.6E-4, based on the conservative assumption that a residence will be constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas, and that this building would be occupied by a child resident 350 days per year, 24 hours per day, for 6 years, and that upper aquifer groundwater will be used as a drinking-water supply. This risk is above the acceptable risk range of 1.0E-6 to 1.0E-4 and above the NMED risk threshold of 1.0E-5. The risk drivers were benzo(a)pyrene and dibenzo(a,h)anthracene in total soil; ethylbenzene, EDB, benzene, 1-methylnaphthalene, and naphthalene in monitoring well groundwater; and EDB, benzene, bromodichloromethane, and chloroform in soil gas (modeled to indoor air). The total estimated HI (68) was above 1, and the hazard drivers were benzene, manganese, m&p-xylene, naphthalene, and 1,2,4-trimethylbenzene in monitoring well groundwater; and total xylenes, benzene, 1,2,4-trimethylbenzene, and n-hexane in soil gas (modeled to indoor air).

3.6.4 Risks Predicted Using Groundwater Fate and Transport Model

Based on results of a groundwater transport model for EDB and benzene, the estimated cancer risk for future residential use of water from water-supply well KAFB-3 in the years 2064-2093 was 4E-5, which exceeds the NMED cancer risk threshold of 1E-5. Almost all of this estimated risk is from EDB. The estimated noncancer hazard was below 1 and therefore acceptable. The estimated cancer risk for future residential use of water from water-supply well Ridgecrest 5 was 4E-7, which is below the NMED cancer risk threshold of 1E-5. The estimated noncancer hazard was below 1 and therefore acceptable. Based on groundwater model results and risk estimates, the earliest exposure period at KAFB-3 that would be expected to result in an estimated cancer risk that exceeds the NMED 1E-5 risk threshold would be approximately years 2041-2070.

3.6.5 Areal Extent of Potential Soil Gas Impacts

The estimated residential adult/lifetime benzene risk (1E-3) potentially associated with future exposure to soil gas that may migrate to indoor air was based on data from the maximum impacted soil vapor probe location (SVMW-11-100; Section 3.1.2; Appendix A-2, Table 4, and Appendix A-1, Tables 3-7, 3-8, and 9-6). This location had benzene samples collected over the eight quarters of data used in the HHRA (Second Quarter calendar year [CY] 2011 [Round 3] through Second Quarter CY 2013 [Round 10]) from a depth of 100 feet bgs, with the maximum concentration (1,400,000 ppbv) occurring in the second quarter of 2012. This elevated estimate of risk is extremely conservative because it assumes future construction of a residence immediately above SVMW-11, and exposure to benzene in indoor air 24 hours per day, 350 days per year, for 30 years, with indoor air concentrations conservatively estimated using the Johnson and Ettinger Vapor Intrusion Model (1991; EQM, 2004; Appendix A-9) and no remediation occurring. To gain a better understanding of the BFF areal extent of potential future indoor air risks from benzene in soil gas, soil gas contours were generated for the eight sampling events that occurred in 2012 and 2013. More recent soil gas data (i.e., Third and Fourth Quarters CY 2013) were included in this spatial assessment to depict trends over a time frame that includes the SVE CATOX system operation that started March 15, 2013. Appendix A-11 presents these benzene soil gas contours by depth over the eight monitoring quarters in 2012 and 2013.

To estimate the potential area of benzene impact across the BFF site in acres for soil gas potentially migrating into indoor air, soil gas Preliminary Remediation Goals (PRGs) protective of residential indoor air were modeled using the Johnson and Ettinger Vapor Intrusion Model (1991; EQM, 2004). These estimated PRGs are for planning purposes only and are considered overly conservative for a variety of reasons, including the simplifying assumption used in the Johnson and Ettinger modeling performed for the HHRA that all soil in the BFF vadose zone is sandy loam. In actuality, the vadose soil beneath the site includes other less permeable soil types (although less common than sand), such as clay, clayey sand, silt, and silty sand. These other soil types would be expected to impede the migration of soil gas to indoor air as compared with sandy loam used in the model. These benzene PRGs are based on a target cancer risk of 1E-5 because this is the recommended target risk by NMED (2012). The estimated soil gas PRGs for benzene are summarized below (with details in Appendix A-12):

BFF Soil Gas Risk Driver	Soil Gas PRG Concentration (ppmv), by Depth (ft), Protective of Indoor Air (Hypothetical Future Residential Exposure)						
	450 feet	**350 feet**	**250 feet**	**150 feet**	**100 feet**	**50 feet**	**25 feet**
Benzene	35	28	20	12	8.1	4.2	2.3

ppmv part per million by volume

As shown in this table, soil gas benzene PRG concentrations decrease (e.g., become more restrictive) as depth decreases because less vertical distance is available for VOC attenuation, as predicted by the Johnson and Ettinger model (1991; EQM, 2004). It should be noted that the soil gas units change from ppbv (discussed above for the maximum detection at SVMW-11) to parts per million by volume (ppmv) for the PRGs and the contour plots to facilitate data presentation.

The benzene soil gas contours by depth in Appendix A-11 also present estimates of the area in shading and in acres, which exceed the residential soil gas PRGs presented previously. A summary of the areal extent of PRG exceedances is presented below, based on the information in Appendix A-11:

Estimated Areal Extent of Benzene Soil Gas PRG Exceedances at BFF (acres)								
Time Period	**Depth**							**Average**
	450 feet	**350 feet**	**250 feet**	**150 feet**	**100 feet**	**50 feet**	**25 feet**	
1Q2012	16	9.3	11	8	11.2	21.7	38	**16.5**
2Q2012	12	7.2	6.6	8.1	12	13.4	27.4	**12.4**
3Q2012	0.75	0.5	1.3	6.2	16.8	15.1	28.1	**9.8**
4Q2012	5.2	3.2	7.1	4.9	11.7	17.3	36.5	**12.3**
1Q2013	3.2	2.4	5.3	2.1	10.5	11.9	20.2	**7.9**
2Q2013	0	0.05	1.0	0.23	7.2	2.2	3.3	**2.0**
3Q2013	0.3	0	1.1	1.0	5.9	3.5	4.5	**2.3**
4Q2013	0	0	0.1	0	8.4	20.8	14.1	**6.2**
Average	**4.7**	**2.8**	**4.2**	**3.8**	**10.5**	**13.2**	**21.5**	

As shown in this table, estimated exceedance areas are quite variable, ranging from a low of 0 acres to a high of 38 acres. In general, the area of exceedance increases in size at shallower soil gas sample depths, most likely due to the more restrictive PRGs that were estimated for these shallower depths. Over time, the average exceedance area per quarter (for all depths) is generally shrinking (from an average high of 16.5 acres in the First Quarter CY 2012 to approximately 2 acres in the Second and Third Quarters CY 2013. The increase of the 25 feet and 50 feet benzene exceedance areas in the Fourth Quarter CY 2013 (to 20.8 and 14.1 acres, respectively) is unexpected and does not appear to fit the general pattern of decline. The increase is related to elevated detections north of the base boundary, coupled with a low density of data points in this area that results in a lack of constraint on the contour model. It is possible that non-BFF influences are affecting the size of the benzene exceedances in this area. It is also possible that seasonal influences (e.g., barometric pressure changes resulting from seasonal weather changes) are affecting the size of the benzene exceedance area, as Fourth Quarters CY 2012 and 2013 show an increase in the size of the exceedance area at the two shallowest depths (Appendix A-11 and Figure 3-5).

3.6.5.1 Areal Extent of Other Soil Gas COPCs

Besides benzene, six other VOCs had an estimated future residential risk above 1E-6 or an estimated hazard above 1.0, including bromodichloromethane, chloroform, EDB, hexane, 1,2,4-trimethylbenzene, and xylenes (Section 3.6.3). Similar to the approach used for benzene, the data from the maximum impacted soil vapor probe location (Section 3.1.2; Appendix A-2, Table 4, and Appendix A-1, Tables 3-7, 3-8, 9-6, and 9-7) were used in the HHRA calculations. Rather than contour the soil gas results for all six of these additional VOC COPCs, statistical evaluations were performed to determine if the concentrations of these VOCs are correlated with benzene, such that benzene contours might be used to approximate areas of concern for these additional VOCs.

As shown in Appendix A-13, Table 1, concentrations of bromodichloromethane, EDB, hexane, and xylene, when used to generate regressions with benzene, resulted in statistically significant regression equations (P value less than 0.00001). Therefore, benzene contours may be used to approximate areas of concern for these additional VOCs.

While the regression equation for 1,2,4-trimethylbenzene vs. benzene was not statistically significant at the 0.05 level (i.e., P = 0.22), the regression r^2 value was 0.49, thus indicating that these two VOCs are somewhat correlated. In addition, as 1,2,4-trimethylbenzene had a nondetect frequency of 82% in the 2012 to 2013 soil gas data set (Appendix A-13, Table 1), and the toxicity value (RfC) for this VOC is based on a provisional assessment by EPA (Section 3.5.4.5) in which confidence in the primary study is low, contour plotting for this VOC is deemed to not be necessary. This is because 1,2,4-trimethylbenzene is not expected to be a COC addressed in a site cleanup (due to its provision RfC) and the finding that this VOC is somewhat correlated with benzene, such that a cleanup for benzene would also be expected to address 1,2,4-trimethylbenzene.

The chloroform vs. benzene regression was not statistically significant (i.e., P = 0.72), and the regression r^2 values was quite low (0.027) (Appendix A-13, Table 1). These findings demonstrate that the soil gas concentrations of chloroform and benzene are not correlated at the BFF site. This finding is further supported by the scatter plot for these two VOCs (Appendix A-13), in which no correlation pattern can be readily seen. Chloroform had a nondetect frequency of about 91% in the 2012-2013 soil gas data set (Appendix A-13, Table 1), and although the toxicity value (inhalation unit risks) is based on a published value in the EPA IRIS on-line database, contour plotting for this VOC was not performed because numerous elevated detection limits would result in inaccurate contours. For informational purposes, chloroform PRGs are summarized below (from Appendix A-12) for a target cancer risk of 1E-5:

BFF Soil Gas Risk Driver	Soil Gas PRG Concentration (ppmv), by Depth (ft), Protective of Indoor Air (Hypothetical Future Residential Exposure)						
	450 feet	**350 feet**	**250 feet**	**150 feet**	**100 feet**	**50 feet**	**25 feet**
Chloroform	6.7	5.2	3.7	2.3	1.5	0.8	0.45

ppmv part per million by volume

The maximum detected chloroform concentration in soil gas was 1.4 ppmv in sample KAFB-106124, (25 feet bgs) in the Third Quarter CY 2011. This concentration exceeded the 25-foot chloroform PRG of 0.45 ppmv by about 3-fold. The total additional number of PRG exceedances, however, was limited to eight occurrences, all in 25-foot samples collected from three locations (KAFB-106124, KAFB-106122, and KAFB-106127) over a variety of quarterly sampling periods.

As the chloroform limits of detection ranged from 0.00069 to 160 ppmv, and the PRGs for this VOC ranged from 0.45 to 6.65 ppmv, the presence of many elevated detection limits in the data set preclude the ability to generate an accurate estimate of the chloroform exceedance areas. Based on the data set, approximately 561 out of 3,167 nondetect chloroform results, or about 18%, had a detection limit greater than the depth-specific PRG. However, the elevated chloroform detection limits appear to be related to those samples with elevated benzene concentrations. Therefore, a cleanup for benzene in soil gas would be expected to also address chloroform concerns as well, conservatively assuming soil gas sample results with elevated chloroform detection limits are actually a concern.

As discussed previously, the individual regression equations for benzene vs. bromodichloromethane, EDB, hexane, and xylene were statistically significant, and the benzene vs. 1,2,4-trimethylbenzene regression, although not statistically significant, had a relatively elevated r^2 regression value (0.49). Therefore, these VOC regression equations were used to estimate "benzene-equivalent" residential PRGs, so that existing benzene contour plots (Appendix A-11) may be used to evaluate the exceedance areas for these other five VOCs. Based on the information presented in Appendix A-12 and A-13, the bromodichloromethane, EDB) hexane, xylene, and 1,2,4-trimethylbenzene PRGs and the benzene-equivalent PRGs for these five VOCs, along with the benzene PRGs, are presented in Table 3-5. Except for bromodichloromethane, the depth-specific benzene-equivalent PRG for each of these VOC is numerically greater than the associated benzene PRG. Therefore, the depth-specific areal exceedances estimated for benzene in soil gas include the exceedance areas for the other VOCs (except bromodichloromethane). For example, the benzene soil gas exceedance area for the 25-foot depth interval for the Second Quarter CY 2013 was 3.3 acres (Appendix A-11, Figure 36), based on a depth-specific benzene PRG of 2.3 ppmv. The EDB 25-foot benzene-equivalent PRG is 14.6 ppmv (Table 3-5), which is less restrictive than the benzene PRG of 2.3 ppmv; the exceedance area of 3.3 acres includes any potential exceedances for EDB.

For bromodichloromethane, the benzene-equivalent PRGs are about half the benzene PRGs; therefore, some bromodichloromethane PRG exceedance areas may be larger than the exceedance area estimated for benzene. However, as the bromodichloromethane nondetect percentage was 98.4% (Appendix A-3, Table 1), the increase in the exceedance area is expected to be relatively minor. The maximum bromodichloromethane detected concentration in soil gas was 8.2 ppmv, in sample SVMW-03 (50 feet bgs in the Fourth Quarter CY 2011). This concentration exceeded the 50-foot bromodichloromethane PRG of 1.18 ppmv by about 7-fold. However, the next highest detected bromodichloromethane concentration was 0.17 ppmv in sample KAFB-106124 at a depth of 25 feet bgs in Third Quarter CY 2011. This concentration does not exceed the 25-foot bromodichloromethane PRG of 0.61 ppmv. As the bromodichloromethane limits of detection ranged from 0.0005 to 160 ppmv, and the PRGs for this VOC ranged from 0.61 to 10.4 ppmv, some elevated detection limits precluded the ability to generate an accurate estimate of the bromodichloromethane exceedance areas. However, as only 182 out of 3,335 nondetect bromodichloromethane results, or about 5%, had a detection limit greater than 10.4 ppmv, this uncertainty is relatively minor.

4. SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

This section presents the SLERA performed for the BFF site at Kirtland AFB.

4.1 Objective

The SLERA was performed to determine if unacceptable adverse risks are present or may accrue to ecological receptors as a result of hazardous substance releases at the BFF. As discussed in the following sections, it is important to note that given the current sparseness of habitat at the site and industrial land use, wildlife receptors are generally not expected to be common. However, future site conditions may change (e.g., industrial activities may cease) such that the site becomes more attractive to wildlife, thereby potentially increasing receptor exposure.

4.2 Approach

This section provides the rationale for the methods and procedures used during the evaluation of the data collected at the BFF.

The assessment objective was met by characterizing the general plant and animal communities in the vicinity of the BFF, defining the particular hazardous substances affecting environmental media at the site, identifying pathways for receptor exposure, estimating the potential for adverse impacts on ecological receptors, and determining the extent to which response actions are necessary.

Analysis and risk characterization results will be used as the basis for scientific/management decisions for No Further Action, immediate corrective measures, or to determine the need for implementation of more detailed evaluations of ecological risk. The results of the SLERA contribute to the overall characterization of the site, and the scientific/management decision point reached for the SLERA includes one of the following:

- There is adequate information to conclude that ecological risks are negligible, and thus, there is no need for further action at the site on the basis of ecological risk.
- The information is not adequate to make a decision at this point, and further refinement of data is needed to augment the ecological risk screening.
- The information collected and presented indicates that a more thorough risk assessment is warranted.

The SLERA followed the *Guidance for Assessing Ecological Risks Posed by Chemicals: Screening Level Ecological Risk Assessment* (NMED, 2008), *Tri-Service Procedural Guidelines for Ecological Risk Assessments* (Wentsel et al., 1996), *Technical Guidance TG-090801* (Tri-Services Environmental Risk Assessment Work Group; 2008), and includes Steps 1 and 2, and a portion of Step 3 of the *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA, 1997b). Step 1 includes a screening-level problem formulation and ecological-effects evaluation, and Step 2 includes an screening-level preliminary exposure estimate and risk calculation. Step 3 is segregated into Steps 3a and 3b by the U.S. Navy (1999a, 1999b; and summarized in the U.S. Army Environmental Command, 2000) and is the common approach for U.S. Department of Defense sites. Step 3a typically includes a re-evaluation of conservative assumptions used in the SLERA and a refinement of the contaminants of potential environmental concern (COPECs) to determine which COPECs may be eliminated from further consideration. The portion of Step 3 included in this SLERA is thus best termed Step 3a. The addition of Step 3a bridges the gap between a SLERA and baseline ecological risk assessment, focuses the outcome of the SLERA, streamlines the review process, and allows one assessment to function as the initial forum for ecological risk management decision making at the site.

The primary objective of the SLERA is to assess whether enough information has been compiled to determine the potential for unacceptable risks to ecological receptors as a result of potential hazardous substance releases. Characterizing the ecological communities in the vicinity of the BFF, assessing the particular hazardous substances being released, identifying pathways for receptor exposure, and estimating the magnitude and likelihood of potential risk to identified receptors meets this objective. The SLERA addresses the potential for adverse effects to vegetation, the soil invertebrate community, wildlife, endangered and threatened species, and sensitive habitats that may be associated with the BFF.

The SLERA is organized as follows.

- Section 4.3, "Site Characterization"
- Section 4.4, "Methodologies for the Identification of COPECs and Concentration Statistics"
- Section 4.5, "Identification of Exposure Pathways and Potential Receptors for Analysis"
- Section 4.6, "Identification of Assessment and Measurement Endpoints"
- Section 4.7, "Exposure Estimation"
- Section 4.8, "Ecological Effects Characterization"
- Section 4.9, "Risk Characterization"
- Section 4.10, "SLERA Summary and Conclusions"

4.3 Site Characterization

This section includes a general discussion of the BFF, vegetative communities, a species inventory, and a discussion of threatened and endangered species.

4.3.1 General Site Characterization

The setting of Kirtland AFB is discussed in Section 3.2.1. The site is located in the Arizona/New Mexico Plateau Ecoregion (Omernik, 1986).

Based on information contained in the Integrated Natural Resources Management Plan (INRMP) for Kirtland AFB (2007 and 2012 update), no designated or identified critical habitats exist on base. Surveys and literature indicate that important habitats on the base and in the Withdrawal Area include wetlands that provide water in an otherwise arid environment, which are rare in the region. However, none of these wetlands are near the BFF site. Other important habitats on base include prairie dog towns, which provide a nesting habitat for the burrowing owl, and areas between 5,900 and 6,600 feet containing open juniper woodlands, which are used as a nesting habitat by the gray vireo. As the elevation of the BFF site is hundreds of feet below 5,900 feet, open juniper woodlands and gray vireo are not expected. Prairie dog holes have been observed at the BFF site; therefore, the burrowing owl may be present, assuming current industrial activities do not displace them due to noise or other human disturbance.

4.3.2 Surface Water and Sediment

No surface water or sediment is located at the BFF; therefore, surface water and sediment were not evaluated.

4.3.3 Wetlands

No wetlands are present at the BFF; therefore, wetland communities were not evaluated.

4.3.4 Vegetative Communities

Vegetation at the BFF is very limited as shown in site photographs presented in Appendix C-1. This is primarily due to the generally disturbed nature of the site, but also due to the very low precipitation in the area. Rainfall for the Albuquerque area averages 8.3 inches per year. Snowfall is not uncommon in winter months, but seldom exceeds 3 inches. The summer monsoon season accounts for one-half of the annual rainfall.

Vegetation in the Arizona/New Mexico Plateau Ecoregion includes grama/galleta steppe, Great Basin sagebrush, and saltbush/greasewood plants (Omernik, 1986). Land use in this region generally includes sub-humid grassland and semiarid grazing land; grazing on the desert shrub-land occurs infrequently.

Based on the soil types at BFF (Latene sandy loam and Wink fine sandy loam; USDA 2013), native vegetation would typically include mesa dropseed, blue grama, broom snakeweed, and sands dropseed (Kirtland AFB, 2007 and 2012 update). In addition, these two soil types have poor to very poor potential for supporting habitat elements including grain and seed crops, domestic grasses and legumes, wild herbaceous plants, shrubs, and wetland plants (USDA, 1977).

Based on this information, vegetative communities at the site are currently very limited, and would be expected to be very limited in the future even if the land was allowed to return to its native condition (assuming industrial use of the site is discontinued). The very low productivity of the soil is also supported by the finding that the average organic carbon in surface soil is 0.49 mg/kg (based on detected results in soil samples ST105-SB0524[7]; ST105-SB0525[7]; and ST105-SB0524[2]), which is extracted from the ERPIMS database for Kirtland AFB.

4.3.5 Wildlife

The INRMP (Kirtland AFB, 2012) lists 55 species of mammals, 141 species of birds, 34 species of reptiles and amphibians, and 3 species of fish that may occur on the 52,287-acre base. However, based on the very limited vegetative communities at the BFF (Section 4.3.4), few of these bird, mammal, and reptile species would be expected to occur at the BFF site, and no amphibians or fish would be present due to the lack of surface water.

4.3.6 Threatened, Rare, and Endangered Species

The gray vireo, a state-threatened species as listed by the New Mexico Department of Game and Fish, is the only federal or state-listed species known to occur on the base or in the Withdrawal Area. Gray vireo territories have been documented on base throughout the juniper woodland community between 5,850 and 6,600 feet elevation, and these species occupy areas with an open canopy (i.e., less than 25%). The western burrowing owl, a federal species of concern, is a common resident at Kirtland AFB. Burrowing owls are very closely associated with the prairie dog colonies on base, as they use abandoned prairie dog burrows for nesting. The loggerhead shrike is also a federal species of concern. It has been observed on the base and in the Withdrawal Area. Loggerhead shrikes occupy grassland, pinyon-juniper woodlands, and riparian habitats. Mountain plovers, a federal species of concern, are not known to occur on base; however, limited sightings have been documented just south of the base on the Isleta Pueblo Indian Reservation. Appropriate nesting habitat for the plover is limited on base; therefore, it is unlikely that the mountain plover uses Kirtland AFB during the nesting season. However, the southern grasslands of the base may potentially be used as brood-rearing habitat or during migration. The Texas-horned lizard is another federal species of concern; however, this reptile species has not been documented at the base.

In conclusion, threatened, rare, or endangered species in the general area of Kirtland AFB include the gray vireo, a state-threatened species, the western burrowing owl, a federal species of concern, the loggerhead shrike, a federal species of concern, the mountain plover, a federal species of concern, and the Texas-horned lizard, a federal species of concern. However, except for the burrowing owl, none of these species are expected at BFF.

Based on this information and application of the ecological exclusion criteria decision tree presented in Attachment A of NMED (2008), a SLERA is warranted because ecological receptors are potentially present at the site, and site-related chemicals have been documented in soil and soil gas.

4.4 Methodologies for the Identification of COPECs and Concentration Statistics

Using the chemical analytical results from relevant environmental media samples (surface soil from 0 to 5 feet bgs and total soil for 0 to 10 feet bgs, and soil gas) collected at the BFF, a data set usable for SLERA purposes was obtained. The surface soil interval (0 to 5 feet bgs) is recommended for non-burrowing wildlife exposure, while the total soil interval is recommended for burrowing wildlife exposure, deep-rooted plants, and some soil invertebrate exposure (NMED, 2012, page 34).

Groundwater results were not used for the SLERA because there are no complete exposure pathways for ecological receptors to this medium.

Soil samples used in the SLERA are listed in HHRA Appendix A-2a (see Section 3.1.1 for a discussion of soil data).

Soil gas samples used in the SLERA included those with sample collection depths between 0 and approximately 50 feet bgs (as shown in HHRA Appendix A-2a; see Section 3.1.1 for a discussion of soil gas data). The shallowest soil gas samples used in the SLERA had a starting sample depth of 14.6 feet bgs, and some straddled the 50-foot threshold (e.g., 45 to 60, 49.5 to 52, 50 to 50.2, and 50 to 60 feet bgs). Deeper soil gas samples were not used in the SLERA because concentrations at deeper depths (i.e., greater than 100 feet bgs) are not representative of potential exposure in the den of a burrowing species of wildlife.

The analytical data have qualifiers from the analytical laboratory quality control or from the data validation process that reflect the level of confidence in the data. Relevant data quality information was previously and briefly discussed in Section 3.1.1. Besides taking into account the ecological depth of interest, the methodology for data summary was identical for the SLERA and the HHRA.

4.4.1 Background Evaluation

The concentrations of site inorganics selected as COPECs in soil are compared with site-specific background data in Section 4.9.5.

4.4.2 Selection of COPECs

Using detected chemical results, COPECs were evaluated in soil and soil gas. Chemical concentrations were screened for selection as COPECs for terrestrial plant and invertebrate direct-contact exposure and wildlife food-chain exposure. For the food-chain evaluation and direct-contact evaluation, the MDCs of all detected chemicals were compared with relevant ecological risk-based screening benchmarks. Chemicals with MDCs that exceeded their respective chemical benchmarks were evaluated further in the SLERA. Table 4-1, Table 4-2, and Table 4-3 were prepared for detected constituents in surface soil, total soil, and soil gas, respectively, at the BFF site with the following information:

- Chemical Abstract Service number
- Chemical name
- Range of detected concentrations and associated qualifiers
- Concentration units
- Location of MDC
- Frequency of detection
- Range of detection limits
- Ecological screening values
- COPEC selection conclusion: YES or NO
- Rationale for selection or rejection of the COPEC

Eight COPECs in surface soil (Table 4-1) exceeded the ecological soil screening values, and screening values were not available for four COPECs. These 12 COPECs were selected for further evaluation.

Fifteen COPECs in total soil (Table 4-2) exceeded the ecological soil screening values, and screening values were not available for four COPECs. These 19 COPECs were selected for further evaluation.

Soil gas COPECs were selected based on use of the following (Table 4-3):

1. Los Alamos National Laboratory (LANL) no-observed-adverse-effect level (NOAEL) soil gas screening values (LANL, 2012) for the Botta's pocket gopher
2. MWH Americas, Inc. (MWH), 2011, toxicity reference values (TRVs) low soil gas screening values

It should be noted that Gallagos et al. (2007) soil gas screening values were not used because these were initial LANL soil gas screening values, and final values are presented in LANL (2012).

Based on results of the soil gas screening, nine COPECs (Table 4-3) in relatively shallow soil gas (0 to approximately 50 feet bgs) were selected for further evaluation.

4.4.3 Descriptive Statistical Calculations

Because of the uncertainty associated with characterizing contamination in environmental media, the 95% UCL of the mean is typically estimated for chemicals selected as COPECs. The calculation of EPCs follows the same procedure used for the HHRA (Section 3.2.3) using the EPA ProUCL Version 5.0.00 (2013b). The results are presented in Table 4-4 for surface soil (0 to 5 feet bgs), Table 4-5 for total soil (0 to 10 feet bgs), and Table 4-6 for soil gas (0 to 50 feet bgs). Statistical backup is presented in Appendix C-3.

4.5 Identification of Exposure Pathways and Potential Receptors for Analysis

Terrestrial wildlife may be exposed to COPECs at the site by several pathways including the following: 1) the ingestion of impacted soil or food while foraging, 2) dermal absorption of chemicals from soil, and 3) inhalation of chemicals that have been wind-eroded from soil or have volatilized from soil. Among these potential exposure pathways, the greatest potential for exposure to chemicals is likely to result from the ingestion of chemicals in food. The incidental ingestion of impacted soil (while foraging) is typically a less important exposure route. Inhalation of volatilized COPECs from soil gas that has potentially migrated from the subsurface into a burrow or den is also considered in the SLERA. Thus, ingestion of food and soil, and inhalation of soil gas are the viable exposure pathways considered at the BFF. As surface water and sediment media are not present at the site, exposure pathways associated with these media are incomplete.

Receptor-specific exposures via dermal absorption were not selected for further evaluation because of a lack of appropriate exposure data, and the general understanding that this pathway would be insignificant in comparison to the other exposure pathways quantified. Dermal exposure is expected to be minimal becausewildlife fur or feathers typically act to impede the transport the COPECs to the dermal layer.

4.5.1 Conceptual Site Exposure Model

A CSEM is used to describe site dynamics, identify data gaps, define hypotheses to be tested in the SLERA, streamline the risk evaluation, and develop appropriate response actions. The CSEM is a mechanism for identifying potentially complete exposure pathways between physical media affected by site-related contamination and potential receptors. Identifying potentially complete exposure pathways is a critical element of the CSEM. Only exposure pathways that are potentially complete and for which adequate data are available were quantitatively evaluated in the SLERA. If under current and expected future land-use scenarios there were no potential exposure pathways for ecological receptors at the site, there is no potential for risk, and the exposure pathway was not evaluated in the SLERA. A CSEM for terrestrial receptors was developed for use in the SLERA (Figure 4-1).

Assessment receptors were selected for evaluation in the SLERA, and in order to narrow the exposure characterization portion of the SLERA on species or components that are the most likely to be affected, the SLERA focused the selection process on species, groups of species, or functional groups rather than higher organization levels such as communities or ecosystems. For terrestrial communities, the major groups are plants and wildlife, including terrestrial invertebrates, mammals, and birds.

4.5.2 Terrestrial Receptors

At the BFF, terrestrial fauna could include invertebrates, reptiles, birds, small mammals (i.e., rodents), and larger carnivorous, omnivorous, and/or browsing mammals (i.e., mule deer). Although unlikely due to the current lack of suitable habitat (Section 4.3.4), representative receptor species selected for evaluation in the SLERA have the potential to be present in the vicinity of the BFF.

Five representative receptor species have been selected for the SLERA to represent two classes of vertebrate wildlife (mammals and birds) and a range of both body size and food habits, including herbivory, omnivory, and carnivory. These five wildlife species are consistent with those used in the development of ecological screening levels (ESLs) in the LANL Ecorisk Database Release 3.1 (2012) and are deemed representative of species found in the arid southwestern United States. The five wildlife species include the desert cottontail (*Sylvilagus audubonii*) [herbivorous mammal], the montane shrew (*Sorex monticolus*) [insectivorous mammal], the American robin (*Turdus migratorius*) [omnivorous bird], the American kestrel (*Falco sparverius*) [carnivorous bird], and the red fox (*Vulpes vulpes*) [carnivorous mammal]. Data used to model exposure for these species are primarily from the *Wildlife Exposure Factors Handbook* (EPA, 1993), which are summarized in Appendix C-2 Table 1.

A sixth wildlife receptor, the Botta's pocket gopher (*Thomomys bottae*), is a burrowing mammal that was evaluated for potential inhalation exposure. The pocket gopher was evaluated for exposure to soil gas by comparing shallow soil gas concentrations with available inhalation screening values, such as LANL air ESLs for this species (LANL, 2012). See Section 4.9.3 for additional details on the pocket gopher soil gas assessment. The pocket gopher was not included in the food-chain modeling assessment because species with similar feeding habitats (e.g., desert cottontail) have already been selected.

The cottontail, shrew, and robin represent the prey base for the larger predators of the area (represented by the American kestrel and red fox). A pictorial representation of potential exposure is presented as Figure 4-2. Many of these species have limited home ranges, particularly the shrew and robin (approximately 1 acre or less), which make them particularly vulnerable to exposure from site constituents. Receptor profiles for these six selected species are presented in the following sections.

Desert Cottontail—The desert cottontail prefers arid areas but may inhabit woodlands and grasslands. They prefer areas of dense vegetation and use this vegetation as cover or hide in holes to avoid detection by predators. The cottontail constructs burrows approximately 20 centimeters underground for breeding and typically has five litters per year with about three young per litter. Male and female adults are approximately 385 millimeters in length and weigh between 600 and 1,200 grams (EPA, 1993). The cottontail has an average home range of 8 acres (University of Michigan, 2014).

Montane Shrew—The montane shrew is an insectivore that feeds largely on soil invertebrates. It would be potentially exposed to COPECs through prey items and is expected to have a relatively high rate of incidental ingestion of soil while foraging. This shrew weighs between 5.5 and 7 grams. Total length of this shrew ranges from 86 to 136 millimeters. The distribution extends from Northern Alaska to Northern Mexico with an average home range value of 0.65 acres. They inhabit the surface litter layer, seldom burrow, and are typically found in areas with heavy (85 to 90%) herbaceous cover (Smith and Belk, 1996).

American Robin—The American robin is primarily an insectivore that feeds on terrestrial invertebrates including earthworms and plant material (primarily fruit). The robin occurs throughout most of the continental United States and Canada during the breeding season, and for the winters, it occupies the southern half of the United States and Mexico and Central America. They live in a variety of habitats, including woodlands, wetlands, suburbs, and parks. Most robins build nests of mud and vegetation on the ground or in the crotches of trees or shrubs. Robins forage primarily on the ground and in low vegetation by probing and gleaning. They are approximately 25 centimeters in size, have a body weight range of 63 to 103 grams, and have an average home range of 1.2 acres (EPA, 1993).

American Kestrel—The American kestrel, also known as the sparrow hawk, is the most common falcon in open and semi-open areas in the United States. American kestrels live in open deserts, semi-open areas, and woodland edges, and are a year-round resident over most of the United States, although the more northerly populations are migratory. They are primarily carnivorous, feeding on insects, reptiles, small mammals, and small birds. The average home range is approximately 314 acres. This species is the smallest falcon native to the United States with adult body weights ranging from 103 to 138 grams (EPA, 1993).

Red Fox—The red fox is a carnivorous predator that occurs in a wide range of habitats, including cropland, rolling farmland, brush, pastures, hardwood stands, and coniferous forests. They are present throughout the United States and Canada, and are the most widely distributed carnivore in the world. Red foxes have a length of 56 to 63 centimeters with a 35- to 41-centimeter tail and an average weight of 4,530 grams. They do not undergo hibernation, and most often occupy abandoned burrows or dens of other species. One fox family per 247 to 2,470 acres is typical, and the average home range is 1,727 acres. Fecundity is higher in areas of high mortality and low-population density (EPA, 1993).

Botta's Pocket Gopher—The Botta's pocket gopher is a medium-sized rodent that is extremely adaptable in regards to habitat. Males have a total length of approximately 270 millimeters and weigh 160 to 250 grams. Females are approximately 220 millimeters and weigh 120 to 200 grams. They occur in soil ranging from loose sands and silts to tight clays, and in vegetative zones grading from dry deserts to montane meadows. They typically burrow to depths no deeper than 60 centimeters and spend 90% of their lives in underground burrows and tunnels (Texas Tech University, 2014).

4.5.3 Vegetation and Invertebrates

Vegetation at the BFF consists mostly of open sandy and gravel areas with sparsely distributed grasses. The habitat surrounding the site is sparsely vegetated with shrub/scrub, grasses, and small trees, which is typical of the Albuquerque New Mexico area (Appendix C-1). Plants were evaluated as an exposure medium (i.e., a food source) for wildlife receptors. Because there is limited phytotoxicity information in the available technical literature for many chemicals, quantitatively assessing risk to plants from constituent concentrations has high uncertainty. Where appropriate toxicity data were available, soil concentrations of COPECs were screened against these benchmarks to assess risks to plants. However, some plants can accumulate high quantities of constituents in their tissues without harm to the plant. Similarly, soil invertebrates are evaluated as potential indirect exposure media for higher trophic-level consumers. Therefore, no primary producer or detritivore receptor species are identified; rather, the plant assemblages representing the dominant cover types present and a general terrestrial invertebrate group are evaluated as biotransfer media, conservatively assuming that all plants and soil invertebrates have the capacity to take up constituents from soil. Such plants and invertebrates then may serve as food for other animals. It is important to note that the surrogate invertebrate species used for modeling by EPA for bioaccumulation from soil is the earthworm (EPA, 2007a). However, because the BFF site is quite arid and has very low total organic carbon in surface soil, earthworms are not expected to be present. Typical soil invertebrates at the site are expected to include beetles, ants, grasshoppers, spiders, and scorpions. Due to their firm exoskeleton (especially compared with earthworms that have a much more permeable outer layer), desert invertebrates are expected to be more tolerant of soil contaminants and would also be expected to bioaccumulate soil contaminants to a much lower degree than earthworms.

As discussed in Section 4.6, the terrestrial plant and invertebrate communities are selected as measurement receptors. Potential impacts to upper trophic-level receptors (such as birds and/or mammals) are quantitatively evaluated via the potential reduction of the food-chain resource (i.e., loss of food source for higher feeding guilds) at the base.

4.5.4 Reptiles

A lack of toxicity data precludes adequate quantitative evaluation of risks to lizards and snakes; therefore, they were not included as receptors for quantitative evaluation in the SLERA. The uncertainties associated with eliminating ecological receptors from quantitative evaluation because of a lack of toxicity (or other) data is discussed in the Section 4.9.6, “Uncertainty Analysis.” It was assumed that if neither bird nor mammal hazards were elevated (above 1.0), then reptile hazards were not expected to be elevated. However, if bird and/or mammal hazards were elevated, then reptiles would be qualitatively assumed to be potentially at risk.

4.6 Identification of Assessment and Measurement Endpoints

The protection of ecological resources such as habitats and species of plants and animals is a principal motivation for conducting the SLERA. To assess whether the protection of these resources is met at the BFF, assessment and measurement endpoints have been formulated to define the specific ecological values to be protected and to define the degree to which each may be protected.

Unlike the HHRA process (Section 3.0), which focuses on individual receptors, a SLERA focuses on populations or groups of interbreeding nonhuman, non-domesticated receptors. In the SLERA process, the risks to individuals are generally assessed if they are protected under the Endangered Species Act.

Selected assessment endpoints reflect environmental values that are protected by law, are critical resources, and/or have relevance to ecological functions that may be impaired. Both the entity and attribute are identified for each assessment endpoint (Suter, 1993).

Assessment endpoints (such as wildlife growth, survival, and reproduction) are inferred from effects related to one or more measurement endpoints (such as comparison of modeled wildlife chemical intake to toxicity reference values and calculation of HQs). The measurement endpoint is a measurable response to a stressor that is related to the valued attribute of the chosen assessment endpoint. It serves as a surrogate attribute of the ecological entity of interest (or of a closely related ecological entity) that can be used to draw a predictive conclusion about the potential for effects to the assessment endpoint.

Measurement endpoints for the SLERA are based on toxicity values from the available literature. When possible, receptors and endpoints have been concurrently selected by identifying those that are known to be adversely affected by chemicals at the site based on published literature.

4.6.1 Assessment Endpoints

Ecological Risk Assessment Guidance (EPA, 1997b) states: "For the screening-level ecological risk assessment, assessment endpoints are any adverse effects on ecological receptors, where receptors are plant and animal populations and communities, habitats, and sensitive environments. Adverse effects on populations can be inferred from measures related to impaired reproduction, growth, and survival. Adverse effects on communities can be inferred from changes in community structure or function. Adverse effects on habitats can be inferred from changes in composition and characteristics that reduce the habitats' ability to support plant and animal populations and communities."

The selected assessment endpoints for the BFF SLERA are as follows: protection of growth; survival; reproduction of terrestrial populations of avian and mammalian herbivores, insectivores, and carnivores; and protection of terrestrial plant and soil invertebrate communities (Table 4-7). The corresponding null hypothesis for each of the assessment endpoints is stated as such: The presence of site contaminants within soil, soil gas, vegetation, and prey will have no adverse effect on the survival or reproductive capabilities of populations of birds and herbivorous, insectivorous, and carnivorous mammals. In addition, assessment endpoints for the base of the food chain (plants and invertebrates) are stated as the protection of long-term survival and reproduction of terrestrial plants and soil-dwelling invertebrates that serve as a food source for higher-order consumers.

A simple food web for the CSEM (Figure 4-2) was developed to illustrate how the selected terrestrial species are ecologically linked. For terrestrial invertebrates, small prey items, and plants, partitioning coefficients and empirical uptake models were employed to estimate COPEC concentrations within tissues (Section 4.7.2). These tissue concentrations were then used as input values for exposure to higher trophic-level receptors through the dietary route of exposure.

4.6.2 Measurement Endpoints

Measurement endpoints are frequently numerical expressions of observations (e.g., toxicity test results or community diversity indices) that can be compared statistically to detect adverse responses to a site contaminant (EPA, 1997b). For the BFF site, the primary measurement endpoint selected for wildlife included the calculation of COPEC intakes and a comparison of these intakes to toxicity reference values to estimated HQs.

As three of the selected receptor species consume a large portion of terrestrial invertebrates (the montane shrew [100%], the American robin [38%], and the American kestrel [34%]), a reduction in the abundance of these invertebrates could result in an adverse impact because of food shortages. Similarly, one of the selected receptor species, the desert cottontail, subsists entirely on terrestrial plants, and the American robin's diet includes 62% plant matter; therefore, a reduction in the abundance of plants could result in an adverse impact because of food shortages. Therefore, the direct-contact toxicity of COPECs to soil invertebrates and plants were selected as measurement endpoints for protection of long-term survival and reproductive capabilities for populations of insectivorous mammals and omnivorous birds, and populations of herbivorous mammals and omnivorous birds.

4.7 Exposure Estimation

This section includes a discussion of how COPEC exposures were quantified, including intake (Section 4.7.1) and bioaccumulation (Section 4.7.2). The *Wildlife Exposure Factors Handbook* (EPA, 1993) includes a variety of exposure information for a number of avian and mammalian species, and was the primary source for exposure parameters listed in Appendix C-2 Table 1, including information on feeding rates and dietary composition.

An estimate of the nature, extent, and magnitude of potential exposure of assessment receptors to COPECs that are present at the site was developed, considering both current and reasonably plausible future-use scenarios.

Ecological routes of exposure for biota may be direct (bioconcentration) or through the food web via the consumption of contaminated organisms (bioaccumulation). Food-web exposure can occur when fauna consume contaminated biota. Direct-exposure routes include dermal contact, absorption, inhalation, and ingestion. Examples of direct exposure include animals incidentally ingesting contaminated soil, and plants absorbing contaminants by uptake from contaminated soil. As discussed in Section 4.5, dermal-contact exposure is considered insignificant compared to other quantified routes of exposure.

For faunal receptors, calculation of exposure rates relies upon determination of an organism's exposure to COPECs found in relevant media (i.e., surface soil or total soil) and on transfer factors used for food-chain exposure. Exposure rates for terrestrial wildlife receptors in this SLERA are based solely upon ingestion of contaminants from soil and from consumption of other organisms.

4.7.1 Intake

The first step in estimating exposure rates for terrestrial wildlife involves the calculation of food ingestion. Food-ingestion rates were estimated using Nagy (2001). Data have also been gathered on incidental ingestion of soil and are incorporated for the receptor species. This information is summarized in Appendix C-2, Table 1. For the SLERA, conservative Tier 1 exposures are based on the following when available: maximum dietary intake, maximum incidental soil intake, average body weight, 100% site exposure (i.e., area-use factor set equal to unity), and the use of COPEC MDCs as EPCs. Less conservative, but more realistic Tier 2 exposures are based on average dietary and incidental soil intake, average body weight, calculated area-use factor based on site area and home range of the receptor species, and, if available, COPEC EPCs set equal to 95% UCLs. These Tier 2 exposures may be considered as a portion of Step 3a of the Ecological Risk Assessment Guidance (EPA, 1997b) 8-step process. For exposure purposes, the site area is considered the area upon which the EPC is based, that is, the area of interest at the site that was sampled (3.2 acres).

Algorithms have been evaluated for calculating exposure for terrestrial vertebrates that account for exposure via incidental ingestion of contaminated soil, ingestion of plants grown in contaminated soil, and prey items. Results for these algorithms are presented in Appendix C-2, Tables 2 through 11.

The basic equation for estimating dose through the dietary pathway is shown as follows:

$$D_p = \sum_{k=1}^{m} (C_k \times F_k \times I_k) / W$$

Where:

D_p = the potential average daily dose (mg/kg-day)
C_k = the average COPEC concentration in the k^{th} food type (mg/kg dry weight)
F_k = the fraction of the k^{th} food type that is contaminated
I_k = the ingestion rate of the k^{th} food type (kilogram dry weight/day)
W = the body weight of the receptor (kilogram wet weight)

4.7.2 Bioaccumulation and Bioconcentration Factors

For SLERA, bioaccumulation factors (BAFs) and bioconcentration factors (BCFs) for soil-to-plants, soil-to-soil invertebrates, and soil-to-small mammals and birds are presented in Appendix C-2, Tables 12, 13, and 14, respectively. If a BAF or BCF was not available for a COPEC, the method for estimation was described below and/or in the footnotes of those tables. When chemical-specific properties were needed to estimate a BAF or BCF (such as K_{ow}, K_{oc}, etc.), Estimation Programs Interface Suite for Microsoft Windows, Version 4.1.1 (EPA, 2012c) was used.

Soil-to-plant BAF/BCF values (Appendix C-2, Table 12) are based on information from EPA (2007a). Values are based on a reported BAF or a regression equation that produces a BAF/BCF value, which scales in a non-linear fashion with soil COPEC concentrations. It should be noted that as the regression equation predicts COPEC concentrations in plants, the actual BAF/BCF value is estimated by dividing the estimated plant COPEC concentration by the soil COPEC concentration.

Soil-to-soil invertebrate BAF/BCF values (Appendix C-2, Table 13) are based on information from EPA (2007a) and Sample et al. (1998a). As discussed previously, although earthworms are not expected to inhabit the soil at the BFF, earthworms are generally used as a conservative surrogate species to represent terrestrial invertebrate bioaccumulation at the site, with one exception. When a static value or regression equation was not available from ecological soil screening level (EcoSSL) guidance (EPA, 2007a), an earthworm uptake equation may be used based on an organics' K_{ow} and the site-specific total organic carbon (TOC) concentration in surface soil. Total organic carbon data from soil at the BFF were not available; therefore, the arithmetic mean of TOC results from historic soil data at Kirtland AFB were extracted from the ERPIMS database and used as the soil TOC values. However, application of the K_{ow}-TOC uptake equation at the BFF site is not appropriate due to the very low TOC concentrations in soil (average of 0.49 mg/kg; Appendix C-2, Table 13 footnotes), and the conclusion that earthworms are not expected to be present. Thus, earthworms are an overly conservative surrogate receptor for soil invertebrates at the site, and use of an uptake equation based on earthworms that predicts very elevated BAFs with increasingly low TOC concentration is inappropriate. As a more appropriate alternative, a default BAF of 0.1 was used for VOC COPECs, and 1.0 was used for semivolatile organic compound COPECs, if BAFs were unavailable from EPA (2007a).

Soil-to-small mammal and small bird BAF/BCF values (Appendix C-2, Table 14) were based on information from EPA (2007a) and Sample et al. (1998b). Selected BAF/BCF values were based on EcoSSL regression equations (EPA, 2007a), or upper-bound BAF/BCF values (Sample et al., 1998b) if no regression equation was available. For organic COPECs without an available regression or upper-bound BAF, conservative BAF/BCF default values of 1 (Tier 1) and 0.5 (Tier 2) were selected. This is based on known bioaccumulative organics (2,3,7,8-tetrachlorodibenzo-p-dioxin and 2,3,7,8-tetrachlorodibenzofuran) having BAFs/BCFs of 1.1 and 0.13 (median) and 2.2 and 0.16 (maximum) from Sample et al. (1998b), and the COPECs at the BFF site are not expected to be as bioaccumulative as 2,3,7,8-tetrachlorodibenzo-p-dioxin and 2,3,7,8-tetrachlorodibenzofuran.

4.8 Ecological Effects Characterization

This section summarizes the ecological-effects characterization in the SLERA, which includes selection of literature benchmark values and the development of TRVs.

4.8.1 Selection of Literature Benchmark Values

Appropriate sources for literature benchmark values have been consulted such as Toxicological Benchmarks for Wildlife (Sample et al., 1996); EcoSSLs (EPA, 2007b); Ecorisk Database, Release 3.1 (LANL, 2012); Eisler (1987); TERRETOX, http://www.epa.gov/ecotox; Terrestrial Toxicity Database (U.S. Army Center for Health Promotion and Preventive Medicine, 2002); SLERA Protocol for Hazardous Waste Combustion Facilities (EPA, 1999); and IRIS (EPA, 2014a). If necessary, values were extrapolated to chronic NOAEL or lowest-observed-adverse-effect level (LOAEL) values using recommended *Tri-Service Procedural Guidelines for Ecological Risk Assessments* (Wentsel et al., 1996) uncertainty factors (UFs).

4.8.2 Development of Toxicity Reference Values

TRVs were selected from available data for use in the SLERA and provide a reference point for the comparison of toxicological effects upon exposure to a contaminant. The TRVs focus on the growth, survival, and reproduction of species and/or populations. This information is presented in Appendix C2, Tables 15 and 16, and the risk characterization spreadsheets are provided in Appendix C-2, Tables 2 through 11). Empirical data were available for the specific receptor-endpoint combinations in some instances. However, for some COPECs, it may have been necessary to use data on surrogate species and/or on endpoints other than the NOAEL and LOAEL (summarized in the footnotes to Appendix C-2, Tables 15 and 16, as necessary).

Toxicity information pertinent to identified receptors has been gathered for those analytes identified as COPECs. Because the measurement endpoint ranges from the NOAEL to the LOAEL, preference was given to chronic studies noting concentrations in which no adverse effects were observed,and ones for which the lowest concentrations associated with adverse effects were observed.

Using the relevant toxicity information, TRVs have been calculated for each of the COPECs. TRVs represent NOAELs and LOAELs with safety factors incorporated for toxicity information derived from studies other than no-effects or lowest-effects studies.

As recommended by Hull et al. (2007) and Allard et al.(2009), allometric dose scaling using body mass was not performed for chronic TRVs because this approach is not scientifically defensible, and interclass toxicity extrapolations were not performed as physiological differences between classes are too great to be addressed with the use of simplistic safety factors.

4.9 Risk Characterization

The risk characterization phase integrates information on exposure, exposure-effects relationships, and defined or presumed target populations. The result is a determination of the likelihood, severity, and characteristics of adverse effects to environmental stressors present at a site. Qualitative and semiquantitative approaches have been taken to estimate the likelihood of adverse effects occurring as a result of exposure of the selected site receptors to COPECs.

For this assessment, TRVs and exposure rates have been calculated and are used to generate HQs (Wentsel et al., 1996) by dividing the receptor exposure rate for each COPEC by the calculated TRV. HQs are a means of estimating the potential for adverse effects to organisms at a contaminated site, and for assessing the potential that toxicological effects will occur among site receptors. The total HQs, or HI, is the summation of COPEC HQs for each specific receptor. In general, HQs less than or equal to 1.0 are deemed protective of ecological receptors.

4.9.1 Terrestrial Plant Impact Assessment

To assess the potential impact of COPEC concentrations in soil on terrestrial plant species, visual observations can be used to assess general site conditions. In reviewing available site photographs (Appendix C-1), it is obvious that there is a general lack of vegetation at the site. However, conditions may improve in the future if industrial activities cease. Although plants are typically not quantitatively evaluated in a SLERA, owing to the general invasive nature of plant communities, potential impacts on plants from COPECs in soil were estimated as a conservative approach (Section 4.9.4).

4.9.2 Predictive Risk Estimation for Terrestrial Wildlife

The potential wildlife risks associated with the BFF are estimated in the SLERA. The risk estimation has been performed through a series of quantitative HQ calculations that compare receptor-specific exposure doses with TRVs. The HQs are compared to guidelines for assessing the risk posed from contaminants. It should be noted that HQs are conservative screening tools; they do not measure risk, are not population-based statistics, and are not linearly-scaled statistics. Therefore an HQ above 1, even exceedingly so, does not guarantee that there is even one individual expressing the toxicological effect associated with a given chemical to which it was exposed (Allard et al., 2009; Tannenbaum, 2001; Bartell, 1996).

Tier 1 and Tier 2 individual COPEC HQs and HIs for terrestrial receptors at the BFF are presented in risk characterization tables (Appendix C-2, Tables 2 through 11) for the five selected food-chain receptor species. An example calculation is presented in Appendix C-2, Table 17. The total (summed) HQs are summarized in Table 4-8 along with the hazard drivers and the exposure pathways of concern (the pathway contributing the most to the HI [the summed HQ]).

As shown in Table 4-8, Tier 1 total HQs ranged from 18 to 993 for the five receptor species using TRVs based on either NOAEL or LOAEL values. Based on Tier 1 NOAEL and LOAEL TRVs, the desert cottontail was predicted to be the most impacted, followed by the montane shrew, American kestrel, American robin, and red fox. The exposure pathways of most concern, based on the results of the Tier 1 food-chain modeling, were terrestrial invertebrate and plant ingestion.

More realistic Tier 2 total HQs were slightly greater than unity (1.0) but were much lower than Tier 1 total HQs. Values based on NOAEL and LOAEL TRVs ranged from 0.0003 to 6.1. Both the NOAEL and LOAEL Tier 2 total HQs for the red fox and American kestrel were less than one. The Tier 2 total HQs for the desert cottontail based on NOAEL and LOAEL values were 3.0 and 2.1, respectively, but all individual COPEC HQs were less than one. For the montane shrew and the American robin, the Tier 2 total HQs based on NOAEL values were 6.1 and 3.8, respectively. When based on LOAEL TRVs, Tier 2 total HQs for the montane shrew and the American robin were 3.2 and 2.4, respectively.

The specific results of the Tier 2 risk estimation for the montane shrew and American robin are evaluated further, but specific results for all other receptors are not discussed herein because the individual HQs are all less than one. As indicated above and in Table 4-8, total (summed) Tier 2 HQs for the shrew for both NOAEL and LOAEL TRVs exceeded one (6.1 and 3.2, respectively), and total (summed) Tier 2 HQs for the robin for both NOAEL and LOAEL TRVs also exceeded one (3.8 and 2.4, respectively.

- **Montane shrew**—Lead and fluoranthene had individual NOAEL-based HQs that exceeded one (lead HQ = 2.6; fluoranthene = 1.4); and only lead had a LOAEL-based HQ that exceeded one (lead HQ = 2.4). The results of the montane shrew Tier 2 risk evaluation are presented in Appendix C-2, Table 5.

- **American robin**—Only lead had an individual NOAEL-based HQ that exceeded one (lead HQ = 2.8); and lead also had a LOAEL-based HQ that exceeded one (lead HQ = 2.3). The results of the American robin Tier 2 risk evaluation are presented in Appendix C-2, Table 9.

4.9.3 Approach for the Evaluation of Soil Gas Toxicity

Estimated inhalation hazards for the Botta's pocket gopher for potential exposure to shallow soil gas that may migrate into a burrow or den are presented in Table 4-9. As discussed previously, this species is used to assess the inhalation exposure pathway because inhalation-based TRVs are presented for this burrowing animal in LANL (2012). HQs are estimated by dividing the soil gas EPC by the LANL ESL. Using the 95% UCL EPCs for the nine selected COPECs, based on the results of eight rounds of sampling for each COPEC's MDC location, HQs ranged from 1.0 to 62 with the more elevated HQs estimated for toluene (HQ = 62) from results from 50 to 53 feet bgs and for benzene (HQ = 61), also from results from 50 to 53 feet bgs. However, if 95% UCL EPCs are used from soil gas samples collected from shallower depths at the MDC location (SVMW-10-25; 15 to 25 feet bgs), estimated HQs drop to 9.4 to 9.1 (Table 4-9). These HQs are based on NOAEL-ESLs, and as LOAELs are typically 10-fold greater than NOAELs, population-relevant LOAEL HQs should be approximately 1.

As LANL (2012) ESLs were not available for 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and ethylbenzene, screening values from MWH (2011) were used. These TRVs are from *Inhalation Toxicity Reference Value Updates for Use in Ecological Risk Assessments at the Santa Susana Field Laboratory*, and represent conservative screening values presented to and accepted by the California Department of Toxic Substance Control. TRV high values represent adverse effects at the upper end of the literature values, while TRV low values represent adverse effects at the lower end (but not necessarily NOAELs) of the literature values. Use of MWH TRVs resulted in estimated HQs that ranged from 0.5 to 35 at the 15- to 25-foot bgs sampling depth for these three COPECs (Table 4-9). If only TRV high values are used, HQs above 1 are limited to 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene (7.1 and 2.9, respectively).

To understand the spatial extent of five of the driver COPECs in shallow soil gas at the BFF site, Table 4-10 presents ranked concentrations (highest to lowest) for toluene, benzene, xylene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene, along with sample number, location, and sample date. These concentrations are presented just for those samples with concentrations that exceed the LANL (2012) ESL or MWH (2011) TRV-high inhalation screening values. As shown in this table, there were 21 exceedances for toluene, 15 exceedances for benzene, 2 exceedances for xylenes, and just 1 exceedance each for 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene, although no individual sample location had more than 4 exceedances using eight quarters of soil gas data. Benzene and toluene exceedance areas are discussed in more detail in Section 4.10.3. Based on these findings, potential Botta's pocket gopher exposure to toluene and benzene in soil gas, which may migrate into a burrow or den, is not spatially limited. As the pocket gopher has a very small home range of between 0.03 and 0.06 acres (California Department of Fish and Game, 1999), numerous individual gophers would be expected to be adversely exposed to elevated toluene and/or benzene concentrations at the site, if gophers are actually present and concentrations measured in soil gas are representative of concentrations in a shallow burrow.

Soil gas concentrations at the BFF site have been shown to decrease significantly with shallower depth. Using benzene as an example (at soil probe location K-106117), average seasonal concentrations decrease from slightly over 571,000 ppbv at a sample depth of 450 feet bgs to approximately 5,500 ppbv at a depth of 25 feet bgs (Figure 4-3). An exponential regression equation generated for these data, with an r^2 value of 0.84, predicts that at a depth of 2 feet (the typical burrowing depth of Botta's pocket gophers), the benzene concentration would be 2,748 ppbv. This estimated benzene concentration does not exceed the LANL NOAEL-based ESL of 7,826 ppbv. Although this finding is based on just one location and just one VOC, it is likely that soil gas concentrations of many hazard drivers at the site would be below wildlife inhalation screening concentrations near the surface. In addition, actual dens and burrows would have entrance and exit holes, thereby facilitating air exchange (ventilation) and reducing VOC concentrations further.

Given the very limited vegetation currently at the site, large numbers of gophers are not expected to be present under existing conditions. In the future, if habitat improves and more gophers do inhabit the site, actual VOC concentrations in burrows and dens may be below inhalation screening concentrations. However, without further data, more definitive conclusions cannot be reached at this time regarding this potential exposure pathway.

4.9.4 Approach for the Evaluation of Direct Contact Toxicity

For direct-contact exposure to COPECs in total soil (0 to 10 feet bgs), measured COPEC concentrations of chemicals that screened in (Section 4.4.2) were compared with direct-contact benchmarks for plant and terrestrial invertebrates. Intake is not calculated because potential adverse effects are assessed by evaluating the COPEC concentrations in soil. The results are presented in Table 4-11 and summarized below.

To assess direct-contact soil toxicity, the MDC of COPECs in total soil were compared with individual soil screening values for plants and soil-dwelling invertebrates. In addition, an exposure concentration more representative of potential community-level effects, expressed as the 95% UCL, was also used in the evaluation, if available.

The direct-contact soil COPECs (lead, 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, fluoranthene, m&p-xylenes, naphthalene, o-xylene, phenanthrene, pyrene, total xylenes, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, bis(2-ethylhexyl)phthalate, chrysene, di-n-butyl phthalate, n-butylbenzene, DRO, and GRO) were compared to benchmarks for plants and terrestrial invertebrates if available. Benchmarks were obtained from the following sources with a summary of results presented in Table 4-11.

- EcoSSL value for direct-contact toxicity for plants (EPA, 2007b)
- EcoSSL value for direct contact toxicity for terrestrial invertebrates (EPA, 2007b)
- No-Effect and Low-Effect plant ESLs from LANL Ecorisk Database (Release 3.1), 2012
- No-Effect and Low-Effect invertebrate ESLs from LANL Ecorisk Database (Release 3.1), 2012
- EPA Region V ESLs for plant or earthworm toxicity (EPA, 2003b);
- Canadian Environmental Quality Guidelines for residential and park soil, (Canadian Council of Ministers of the Environment, 2003)

Based on the results of the soil screening evaluation for direct contact, 11 COPEC MDCs exceeded at least one plant or invertebrate benchmark (lead, 2-methylnaphthalene, acenaphthene, benzo(a)anthracene, fluoranthene, m&p-xylenes, naphthalene, o-xylene, phenanthrene, pyrene, and total xylenes). However, EPCs are a more informative exposure statistic when compared to using the MDC, and only the naphthalene EPC exceeded available plant or invertebrate benchmarks, so only naphthalene is discussed in more detail below. Six COPECs did not have any available soil benchmarks (1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, bis(2-ethylhexyl)phthalate, DRO, GRO, and n-butylbenzene) and could not be evaluated further. Detailed results of the soil-direct contact assessment are discussed below and presented in Table 4-11.

The naphthalene MDC exceeded all four available benchmarks: the EcoSSL invertebrate value (EPA, 2007b), both LANL ESL plant and soil invertebrate benchmarks (LANL, 2012), and the Canadian Environmental Quality Guidelines (Canadian Council of Ministers of the Environment, 2003). However, the EPC only exceeded one benchmark, the CCME Environmental Quality Guidelines, and there is a relatively high degree of uncertainty associated with using non-United States screening values due to lack of supporting documentation, and because the Canadian screening values are for residential land use and parkland. Since the EPC does not exceed any of the EcoSSL and/or LANL benchmarks, and given the lack of suitable habitat and relatively small size of the site, the potential for direct-contact toxicity is not significant enough to recommend further action at the BFF for naphthalene. Therefore, naphthalene is not considered an important ecological risk driver in soil for the direct-contact pathway.

These results suggest that direct-contact toxicity for COPECs in total soil at the BFF do not warrant further action for the protection of wildlife feeding on plants or invertebrates.

4.9.5 Background Evaluation

Lead background concentrations are 21.4 mg/kg (surface soil) and 11.8 mg/kg (subsurface soil) (Off-site Super Group; Sandia National Laboratory/Kirtland AFB Approved Background Concentrations; NMED, 2007). As the lead MDC in soil at the BFF site was 140 mg/kg, the MDC exceeds these background threshold values. Therefore, a more detailed statistical evaluation was performed using the EPA ProUCL software, specifically the Wilcoxon-Mann-Whitney 2-population test (Appendix C-3) based on current site data and background data from IT Corporation (1996). Based on the results of this statistical test, lead concentrations in BFF soil are not statistically greater than site-specific background, as the median site concentration of 5.2 mg/kg is less than the median background concentration of 8.2 mg/kg.

4.9.6 Uncertainty Analysis

The results of the SLERA are influenced to some degree by variability and uncertainty. In theory, investigators might reduce variability by increasing sample size of the media or species sampled. Alternatively, uncertainty within the risk analysis can be reduced by using species-specific and site-specific data (i.e., to better quantify contamination of media, vegetation, and prey through direct field measurements, toxicity testing of site-specific media, and field studies using site-specific receptor species). Detailed media, prey, and receptor field studies are costly; thus, the preliminary analyses of risk have been conducted to limit the potential use of these resource-intensive techniques to those COPECs that continue to show a relatively high potential for ecological risk. Since assessment criteria were developed based on conservative assumptions, the result of the assessment errs on the side of conservatism. This has the effect of maximizing the likelihood of accepting a false positive (Type I error: the rejection of a true null hypothesis) and simultaneously minimizing the likelihood of accepting a true negative (Type II error: the acceptance of a false null hypothesis).

A number of factors contributes to the overall variability and uncertainty inherent in ecological risk assessments. Variability is due primarily to measurement error; laboratory media analyses and receptor study design are the major sources of this kind of error. Uncertainty, on the other hand, is associated primarily with deficiency or irrelevancy of effects, exposure, or habitat data to actual ecological conditions at the site. Calculating an estimated value based on a large number of assumptions is often the alternative to the accurate (but costly) method of direct field or laboratory observation, measurement, or testing.

While there are a lack of toxicity data for assessing hazards to reptiles, it was conservatively assumed that if neither bird nor mammal HQs were elevated (above 1.0), then reptile hazards would not be expected to be elevated. As estimated hazards to birds and mammals were generally acceptable, hazards to reptiles are also assumed to be acceptable.

A summary of the uncertainty analysis is presented in Table 4-12 and lists some of the major assumptions made for the SLERAs; the direction of bias caused by each assumption (i.e., if the uncertainty results in an overestimate or underestimate of risk); the likely magnitude of impact (quantitative [percent difference], or qualitative [high, medium, low, or unknown]); if possible, a description of recommendations for minimizing the identified uncertainties if the SLERA progresses to higher-level assessment phases; and the ease of implementing the recommendation (EPA, 1997b).

The uncertainty analysis identifies and, if possible, quantifies the uncertainty in the individual preliminary scoping assessment, problem formulation, exposure and effects assessment, and risk characterization phases of the SLERA. Based on this uncertainty analysis, the most important biases that may result in an overestimation of risk include the following:

- Assuming soil gas results are representative of concentrations in animal burrows
- Assuming that COPECs are 100%bioavailable
- Using some laboratory-derived or empirically-estimated partitioning and transfer factors to predict COPEC concentrations in plants, invertebrates, and/or prey species
- Use of the HQ method to estimate risks to populations or communities

The uncertainties associated with soil food-chain HQs are discussed below. Only inorganic lead in soil (0 to 5 feet bgs and 0 to 10 feet bgs) had Tier 2 LOAEL-based HQs that exceeded 1 (montane shrew and American robin). Given the uncertainties associated with the SLERA process, the key parameters associated with these elevated HQs were examined in more detail. For lead, the mammalian-LOAEL TRV of 5 mg/kg per day was based on a rat study cited in Eco-SSL (EPA, 2005b), therefore, the HQ calculation used a TRV extrapolation UF of 8 for the shrew (Appendix C, Tables 5 and 18). The use of this UF is quite conservative, and the use of an alternative UF of 3 or less would result in the lead shrew HQ of 2.8 dropping to 1 or less.

The avian-LOAEL TRV of 1.94 mg/kg-day was based on a quail study cited in Eco-SSL (EPA, 2005b), therefore, the HQ calculation used a TRV extrapolation UF of 8 for the robin (Appendix C, Tables 9 and 18). The use of this UF is quite conservative, and the use of an alternative UF of 4 or less would result in the lead robin HQ of 2.3 dropping to 1 or less when rounded to one significant figure.

Based on this evaluation for the LOAEL-based risk driver lead, the use of alternative factors (e.g., an alternative UF for TRV species extrapolation), would reduce the estimated LOAEL-based EEQs to 1 (when rounded to one significant figure) or less than one for all receptors.

4.10 SLERA Summary and Conclusions

The data, results, and conclusions of the SLERA evaluated risks to ecological populations potentially inhabiting the area of the BFF. Conclusions are derived from the risk assessment and are based on the responses to the assessment hypotheses and assessment endpoints.

The assessment results for wildlife food-chain exposure are summarized in Table 4-8 and discussed in Section 4.9.2; potential soil gas exposures are summarized in Table 4-9, with further evaluation provided in Table 4-10 and discussed in Section 4.9.3. Direct-contact exposure results for terrestrial invertebrates and plants, which may serve as food sources for wildlife, are summarized in Table 4-11 and discussed in Section 4.9.4.

4.10.1 Potential Food Chain Impacts

The Tier 1 food-chain modeling assessment suggests potential adverse impacts to all five terrestrial wildlife receptors for modeled contact with the hazard drivers (lead, fluoranthene, and xylenes) in soil (0 to 5 feet bgs or 0 to 10 feet bgs, depending on the receptor). However, for the more realistic Tier 2 food-chain assessment, the total HQs were less than one for all receptors except the desert cottontails, montane shrews, and American robins. The use of alternative factors (e.g., an alternative UF for TRV species extrapolation for the montane shrew and American robin), would reduce the estimated LOAEL-based EEQs to 1 (when rounded to one significant figure) or less than one for all receptors. These findings suggest that food-chain impacts to wildlife are not a concern for any of the COPECs in surface or total soil at the BFF. In addition, lead was found to be statistically related to background.

4.10.2 Potential Soil Gas Impacts

Soil gas hazards were estimated to be a concern for toluene, benzene, xylene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene for potential inhalation exposure to burrowing wildlife such as the Botta's pocket gopher. Conservative areal extents of benzene and toluene exceedances in shallow soil gas are estimated and discussed below. Exceedances for xylene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were relatively minor, and are not discussed further.

The estimated wildlife hazards for benzene and toluene, with potential exposure to soil gas that may migrate to burrow air, was based on data from the maximum impacted shallow soil vapor probe locations (K-106118, collected March 2012, Table 4-10 and a benzene concentration of 71,000 ppbv, and K-106138, collected August 2012, Table 4-10 and a toluene concentration of 230,000 ppbv). These hazard estimates conservatively assume the presence of wildlife burrows immediately above K-106118 and K-106138 and exposure to benzene and toluene in burrow air 24 hours per day. To gain a better understanding of the BFF areal extent of potential inhalation hazards from benzene and toluene in soil gas, soil gas contours were generated for the eight sampling events that occurred in 2012 and 2013. More recent soil gas data (i.e., the Third and Fourth Quarters CY 2013) were included in this spatial assessment to depict trends over a timeframe that includes operation of the new CATOX SVE system that started on March 15, 2013. Appendix C-4 presents these benzene and toluene soil gas contours at two shallow depths (25 feet and 50 feet bgs) over the eight monitoring quarters in 2012 and 2013.

Estimated exceedance areas may be compared with the home range of the Botta's pocket gopher, which is quite small (approximately 0.06 acres; California Department of Fish and Game, 1999).

To estimate the potential area of benzene and toluene impact across the BFF site in acres for soil gas potentially migrating into burrow air, soil gas ESLs protective of burrowing wildlife were conservatively used. These ESLs are for planning purposes only, and are considered overly conservative for a variety of reasons, including the assumption that soil gas results would be representative of what would be in an animal burrow. These ESLs are based on a NOAEL target HQ of 1. The soil gas ESL for benzene and toluene are 7.826 ppmv and 15.921 ppmv, respectively (Table 4-10). It should be noted that the soil gas units change from ppbv (discussed above for the maximum detections at K-106118 and K-106138) to ppmv for the ESLs and the contour plots to facilitate data presentation.

The benzene and toluene soil gas contours by depth(Appendix C-4) also present estimates of the area in shading and in acres, which exceed the ESL. A summary of the areal extent of ESL exceedances is presented below, based on the information in Appendix C-4:

Time Period	Estimated Benzene ESL Exceedance Area (acres)		
	50 feet	25 feet	Average
1Q2012	11.4	12.7	**12.1**
2Q2012	9.1	9.9	**9.5**
3Q2012	9.5	8.4	**9.0**
4Q2012	9.2	4.6	**6.9**
1Q2013	9.2	9.0	**9.1**
2Q2013	1.1	0.1	**0.6**
3Q2013	1.8	0.5	**1.2**
4Q2013	8.1	7.8	**8.0**
Average	**7.4**	**6.6**	

As shown in this table, estimated benzene exceedance areas are quite variable, ranging from a low of 0.1 acres to a high of 12.7 acres. In general, the area of exceedance is larger at the deeper depth, most likely due to the higher concentrations seen at deeper depths. Over time, the average exceedance area per quarter (for both depths) is generally shrinking (from an average high of 12.1 acres in the First Quarter CY 2012 to approximately 1 acre in Second and Third Quarters CY 2013 The increase of the 25-foot and 50-foot benzene exceedance areas in the Fourth Quarter CY 2013 (to 7.8 and 8.1 acres, respectively) is unexpected and does not appear to fit the general pattern of decline, and is related to a few elevated detections in areas with a low density of data points resulting in a lack of constraint on the contour model. It is possible that non-BFF influences are affecting the size of the benzene exceedance area. For comparison, the average ecological exceedance area at 25 feet bgs of 6.6 acres is considerably smaller than the average human health PRG exceedance area at 25 feet bgs of 21.5 acres (Section 3.6.5), due to the fact the ESL of 7.86 ppmv is larger (less restrictive) than the human health PRG of 2.3 ppmv.

Time Period	Estimated Toluene ESL Exceedance Area (acres)		
	50 feet	25 feet	Average
1Q2012	11.2	17.3	**14.3**
2Q2012	9.8	11.4	**10.6**
3Q2012	12.6	11.2	**11.9**
4Q2012	26.2	25.5	**25.9**
1Q2013	10.2	10.3	**10.3**
2Q2013	0.5	0	**0.3**
3Q2013	0.9	0.2	**0.6**
4Q2013	24.6	24.3	**24.5**
Average	**12.0**	**12.5**	

As shown in this table, estimated toluene exceedance areas are quite variable, ranging from a low of 0 acres to a high of 26.2 acres. The area of exceedance by depth does not appear to follow a pattern. Over time, the average exceedance area per quarter (for both depths) also does not appear to follow a pattern, although there is a low of 0.3 to 0.6 in the Second and Third Quarters CY 2013. Many of the larger exceedance areas are related to elevated detections north of the base boundary coupled with a low density of data points in this area that result in a lack of constraint on the contour model. It is possible that non-BFF influences are affecting the size of the toluene exceedance area.

However, given the very limited vegetation currently at the site, burrowing gophers are not expected to be present in large numbers under existing conditions. In the future, if habitat improves and gophers do inhabit the site in large numbers, actual VOC concentrations in burrows and dens may be below inhalation screening concentrations, due to expected attenuation in near surface soil and natural ventilation of burrows with ambient air. However, without additional data, more definitive conclusions cannot be reached at this time regarding the inhalation exposure pathway.

4.10.3 Direct Contact Hazards

The direct-contact assessment results suggest there are no likely adverse impacts to plant and terrestrial invertebrate communities; thus, there are no adverse impacts to wildlife food supply due to site-related COPECs in soil.

4.10.4 Overall Conclusions

Based on the information presented in Sections 4.10.1, 4.10.2, and 4.10.3, there is adequate information to conclude that overall ecological risks are negligible at the BFF; however, uncertainty remains for elevated concentrations of some VOCs such as benzene and toluene in soil gas, should increased numbers of receptors such as the Botta's pocket gopher inhabit the site in the future. These assessment results may serve as a basis for discussions with risk managers and regulatory agencies. It is very important to note that many conservative assumptions and modeling approaches were used in the assessment, and actual hazards to wildlife may be orders of magnitude lower than predicted herein.

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FIGURES

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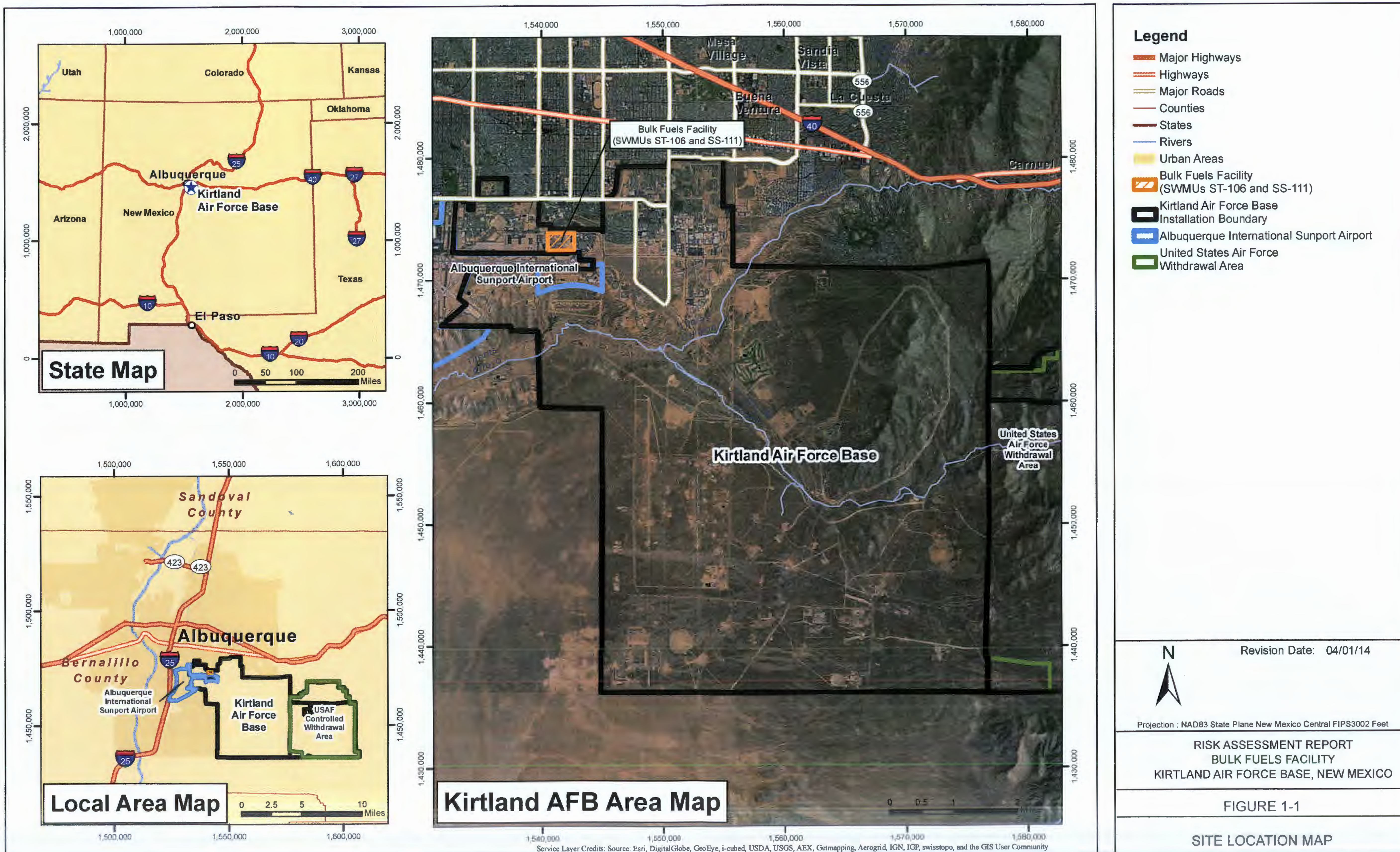

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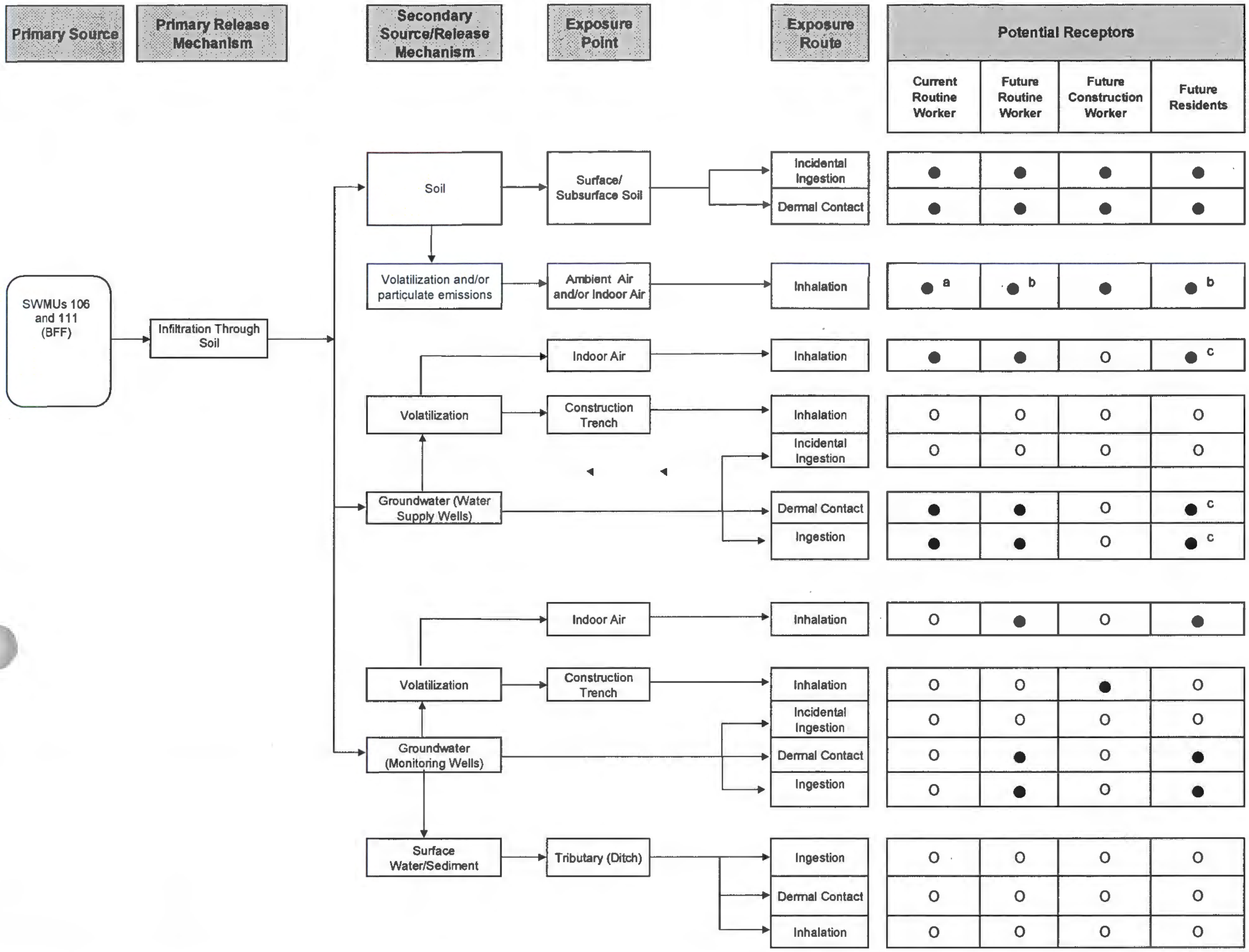
Figure 3-1
Human Health Site Conceptual Exposure Model
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico



Note: Ambient air exposures from suspension of dust or offgassing from soil, while indoor air exposures from vapor intrusion or offgassing from household or office use of groundwater.

● Indicates pathway is potentially complete.
O Indicates pathway is incomplete.
Groundwater data segregated into monitoring well data and water supply well data.

[a] For vapor intrusion of soil gas to indoor air, at occupied Building 1033.

[b] For vapor intrusion of soil gas to indoor air, for hypothetical building above maximally-impacted soil vapor locations.

[c] Current and future residential exposure to water supply well groundwater data.

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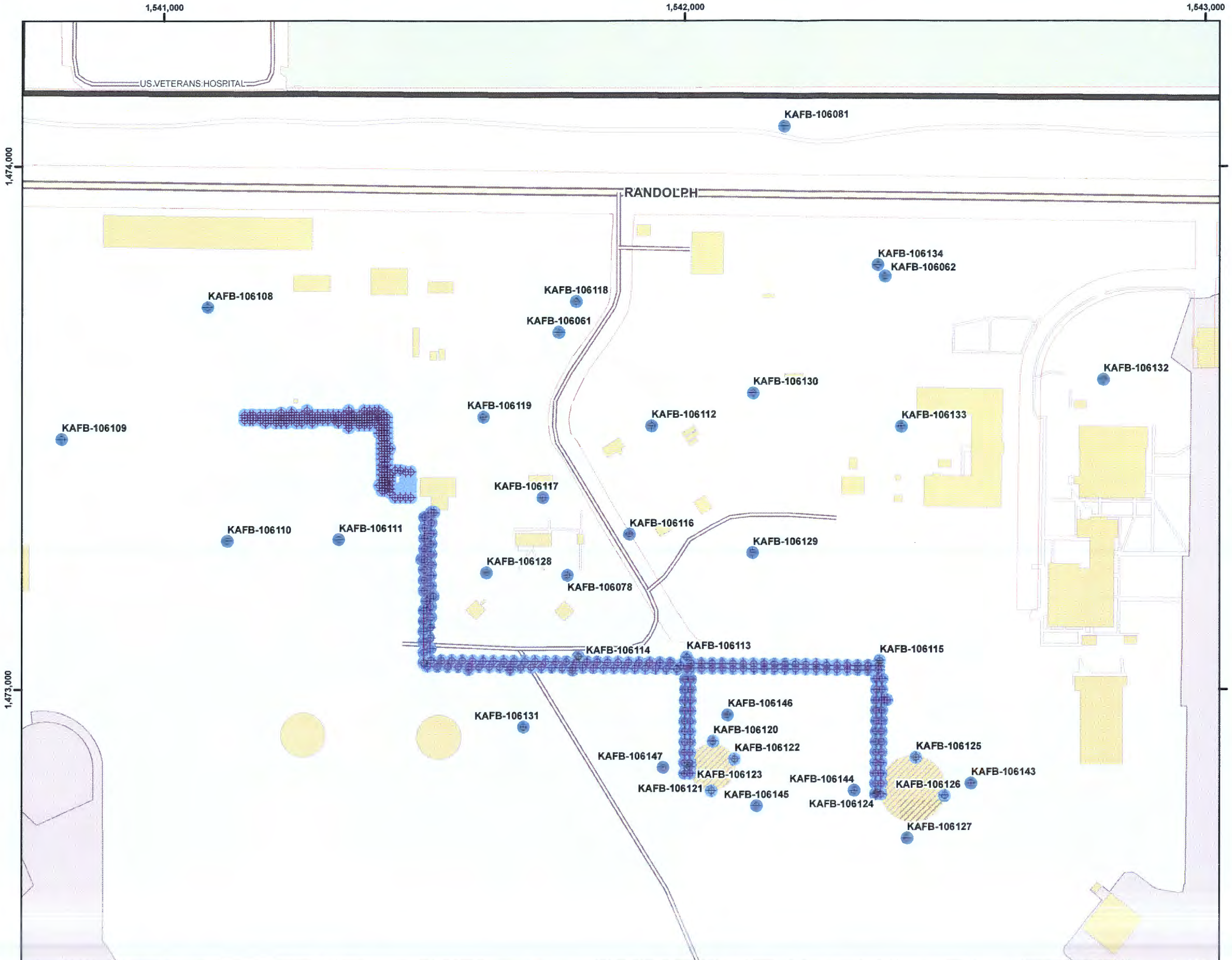

Legend

- Soil Data Location
- FFOR Soil Data Location
- Buffer

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N

Revision Date: 04/01/14

0 100 200 400

Feet

1 inch = 200 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

RISK ASSESSMENT REPORT
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 3-2

LOCATION OF SOIL SAMPLES
USED IN RISK ASSESSMENT

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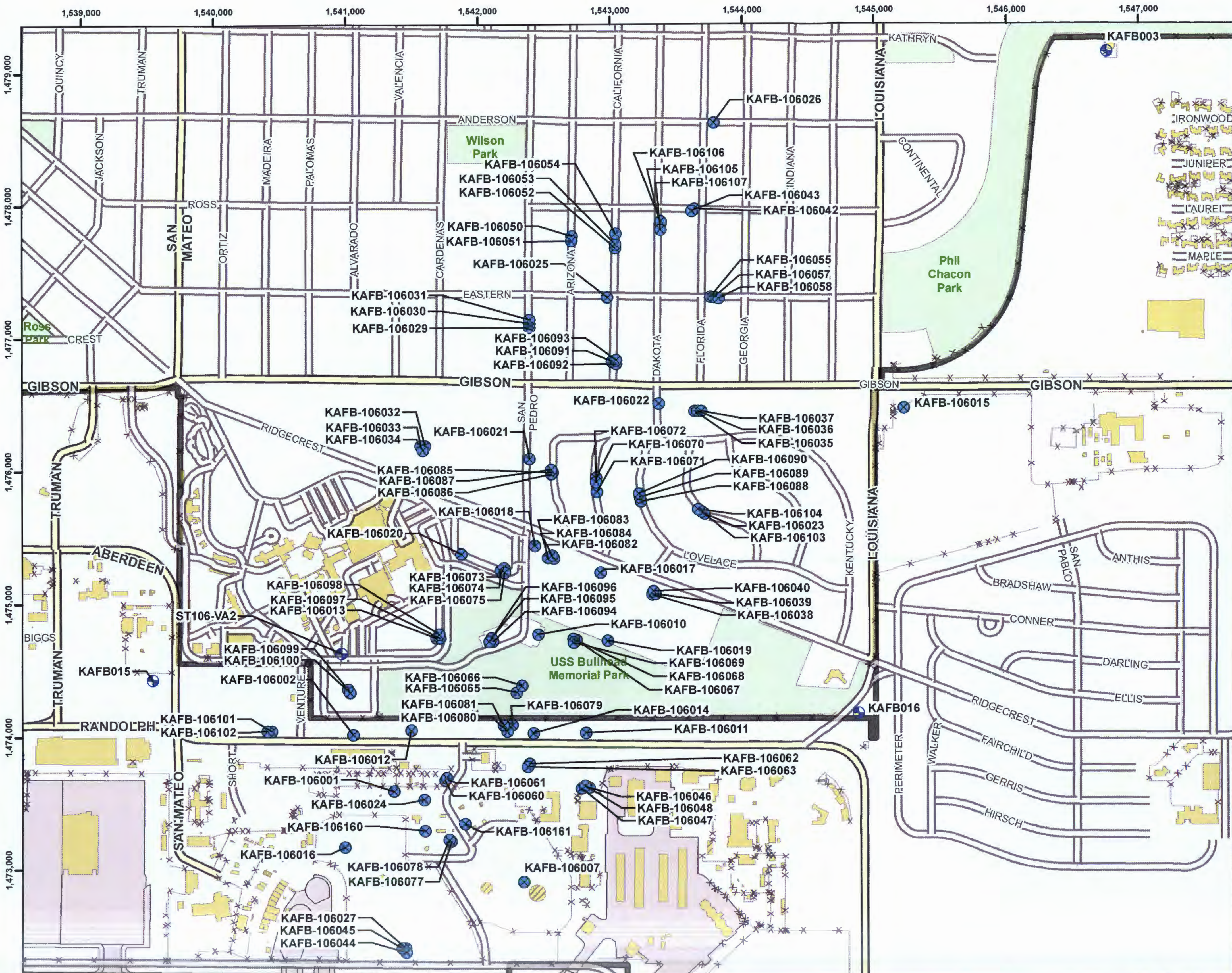

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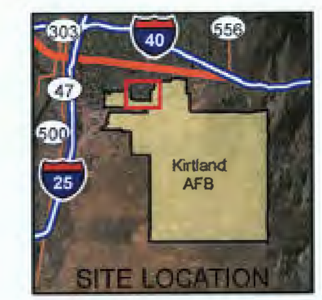
Legend

- Groundwater Monitor Well
- Water Supply Well

See Appendix A for groundwater sample IDs and the associated location ID.



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Revision Date: 04/01/14

N

0 400 800 1,600
Feet
1 inch = 800 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

RISK ASSESSMENT REPORT
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 3-3

LOCATIONS OF GROUNDWATER SAMPLES USED IN RISK ASSESSMENT

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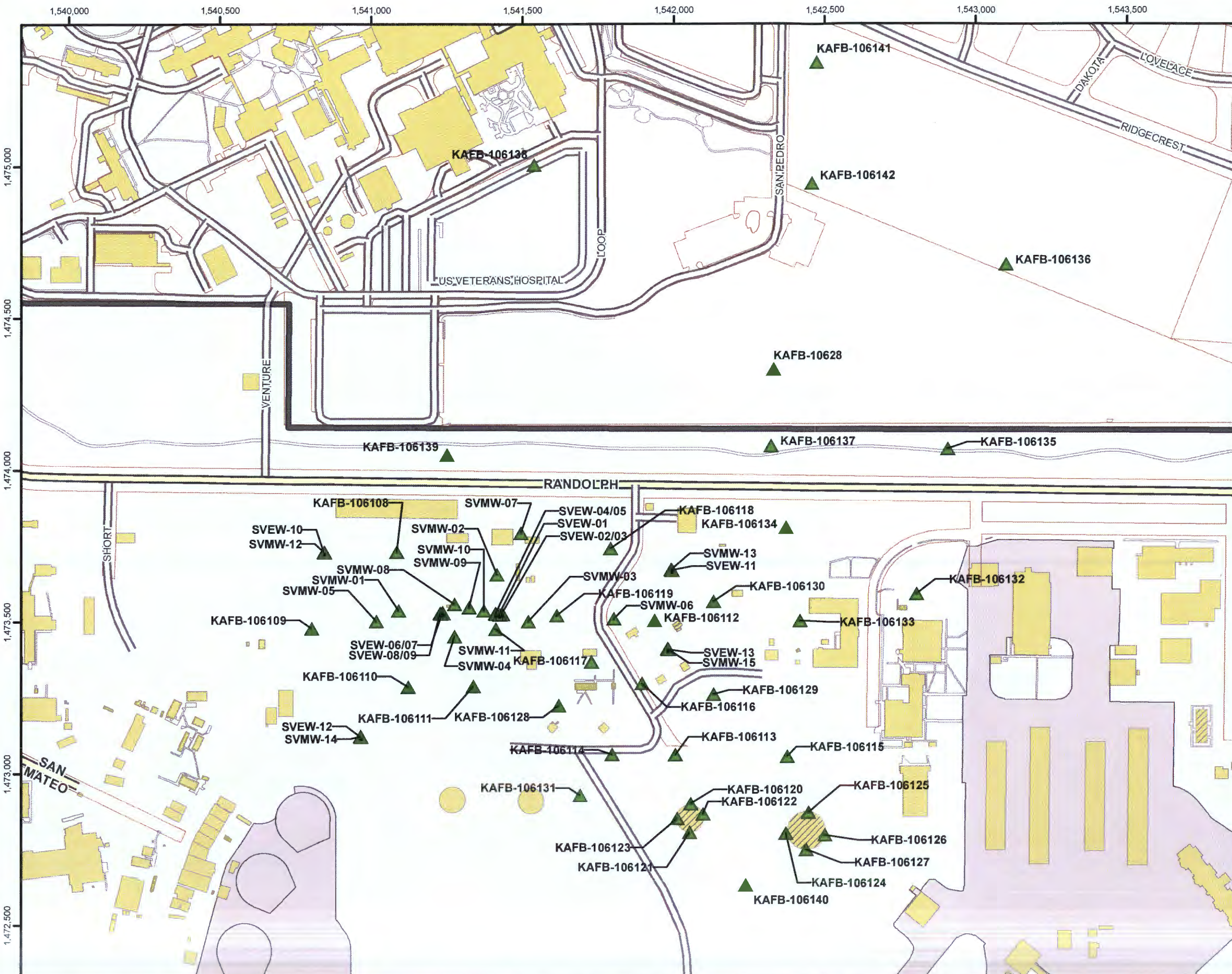


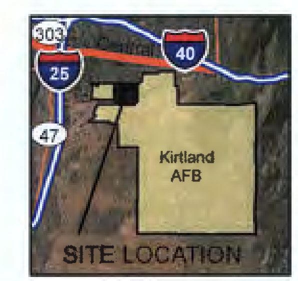
H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_117_SVE_well_locs.mxd 04/01/14

Legend

▲ SVE Extraction Well

▲ SVM Cluster

See Appendix A for soil gas sample IDs and the associated location ID.



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Revision Date: 04/01/14

N

0 175 350 700

Feet

1 inch = 350 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

RISK ASSESSMENT REPORT
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 3-4

LOCATION OF SOIL GAS SAMPLES USED IN RISK ASSESSMENT

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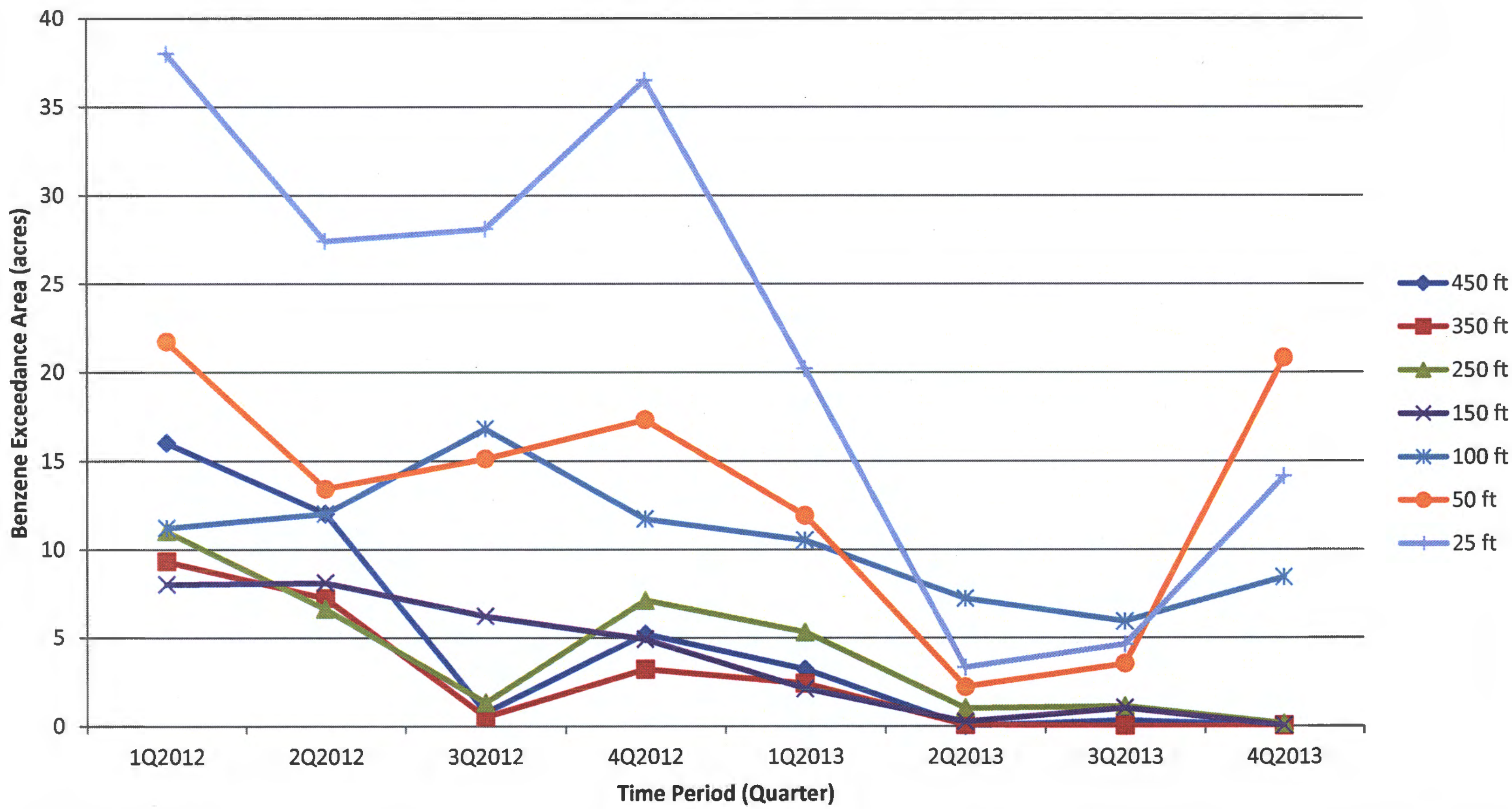
Figure 3-5. Estimated Area of Benzene Soil Gas PRG [a] Exceedances, by Depth over Time

Bulk Fuels Facility, Kirtland Air Force Base, New Mexico



[a] PRG = Preliminary Remediation Goal (future residential), for planning purposes only. See text for discussion.

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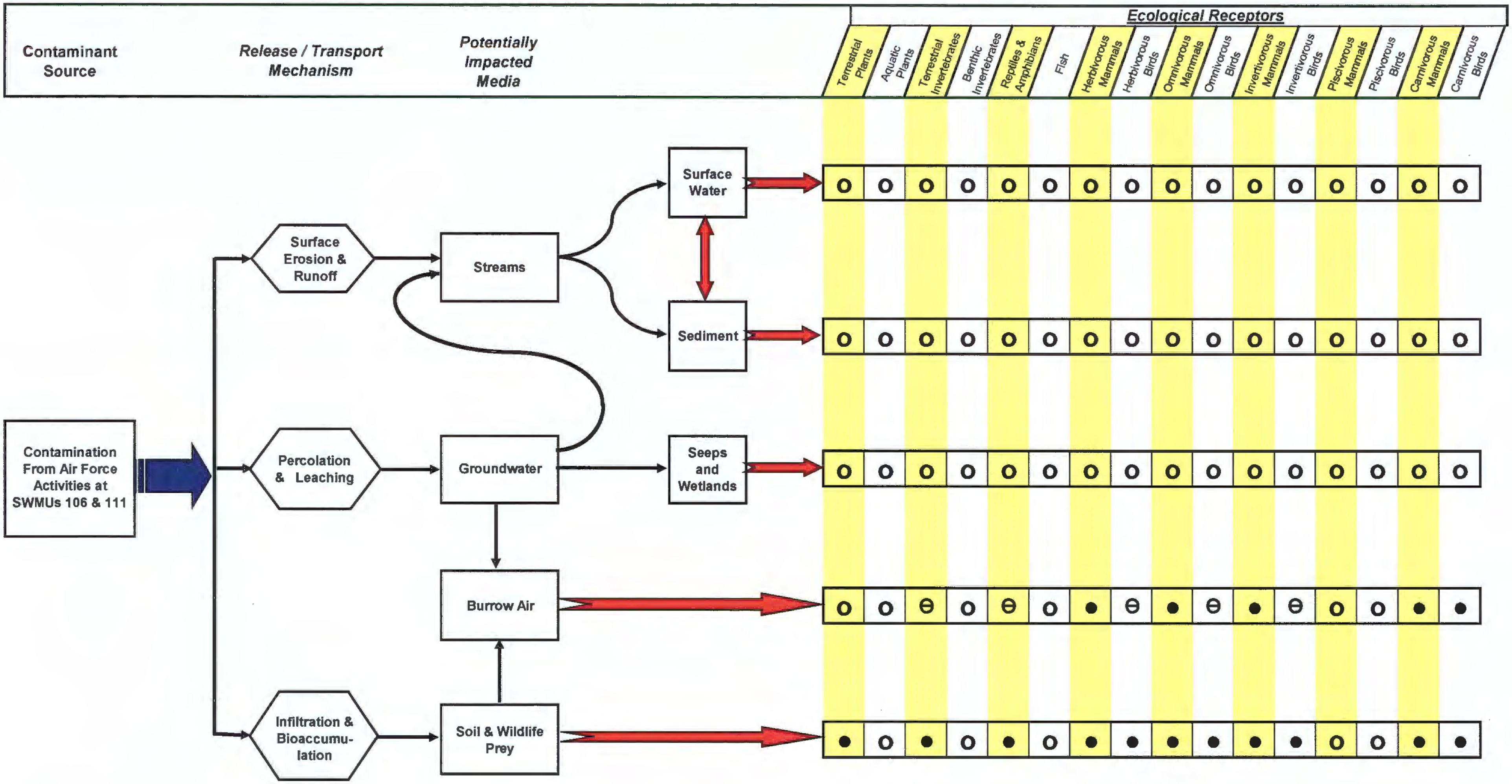
Figure 4-1
SLERA Conceptual Site Exposure Model
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico



Key To Potential Exposure Routes

● - Potentially complete exposure pathway

O - Incomplete exposure pathway

ϴ - Potentially complete exposure pathway but insignificant

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Figure 4-2
Terrestrial Food Web Conceptual Site Exposure Model
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

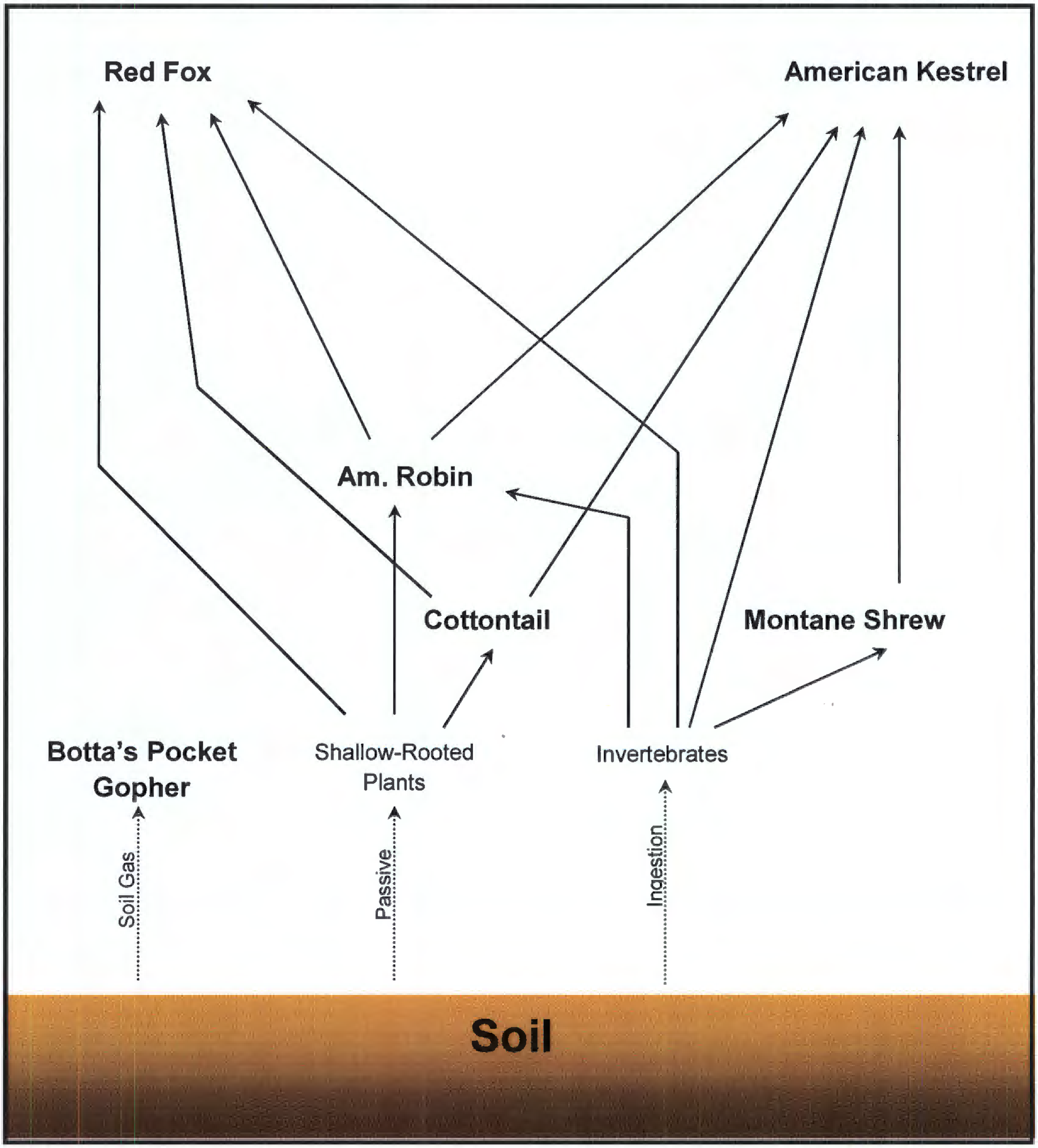

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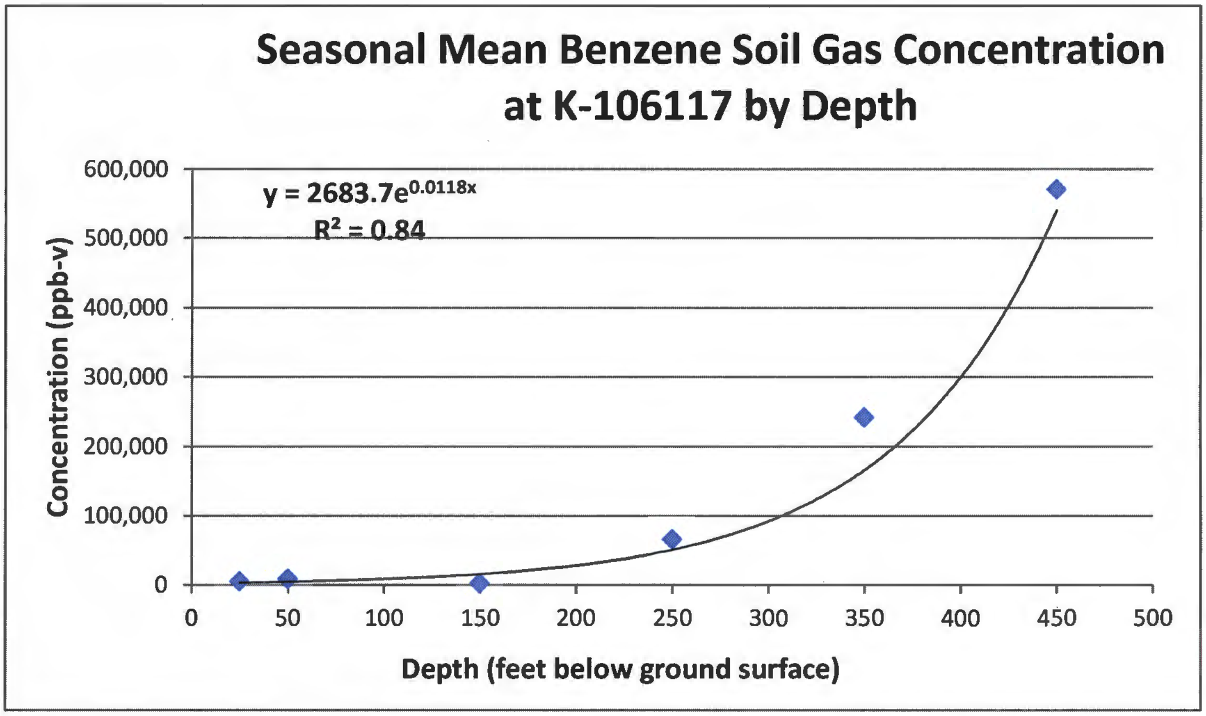
Figure 4-3. Estimation of Benzene Soil Gas Concentration in Near Surface Soil Bulk Fuels Facility, Kirtland Air Force Base, New Mexico



K-106117 Data

May, September, and October, 2011, and January, May, September, and November, 2012

Soil Vapor Sample Depth (ft bgs)	Seasonal Mean Benzene Concentration (ppb-v)
25	5,486
50	9,245
150	2,724
250	65,997
350	242,250
450	571,428

Estimated concentration in near-surface (2 ft) = 2748 ppb-v (based on regression equation)

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TABLES

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Table 3-1
Summary of Chemicals of Potential Concern in Surface and Total Soil
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Surface Soil (0-1 ft bgs)	Total Soil (0-10 ft bgs)
2-Methylnaphthalene	1,2,4-Trimethylbenzene
Benzo(a)anthracene	2-Methylnaphthalene
Benzo(a)pyrene	Benzo(a)anthracene
Benzo(b)fluoranthene	Benzo(a)pyrene
Carbazole	Benzo(b)fluoranthene
Dibenz(a,h)anthracene	Carbazole
Diesel Range Organics	Dibenz(a,h)anthracene
Gas Range Organics	Diesel Range Organics
Indeno(1,2,3-cd)pyrene	Gas Range Organics
p-Cymene	Indeno(1,2,3-cd)pyrene
	Naphthalene
	p-Cymene

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Table 3-2
Summary of Chemicals of Potential Concern in Groundwater
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Monitoring Well Groundwater	Water Supply Well Groundwater
1,2,4-Trimethylbenzene	Sodium
1,2-Dibromoethane	
1,2-Dichloroethane	
1,3,5-Trimethylbenzene	
1-Methylnaphthalene	
2-Butanone	
2-Hexanone	
2-Methylnaphthalene	
2-Methylphenol	
3-Methylphenol and 4-Methylphenol	
4-Methyl-2-Pentanone	
Acetone	
Acetophenone	
Benzene	
Carbon Disulfide	
Diesel Range Organics	
Ethylbenzene	
Gasoline Range Organics	
Iron, Dissolved	
Isopropylbenzene	
M,P-Xylene	
Manganese, Dissolved	
Naphthalene	
N-Propylbenzene	
O-Xylene	
P-Isopropyltoluene	
Sodium	
Toluene	
Xylenes	

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Table 3-3
Summary of Chemicals of Potential Concern in Soil Gas
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

For Current Exposure [a]	For Future Exposure [b]
Acetone	1,1,2,2-Tetrachloroethane
Benzene	1,2,4-Trimethylbenzene
Bromodichloromethane	1,2-Dibromoethane
Methylene chloride	1,3-Butadiene
n-Hexane	Acetone
	Benzene
	Bromodichloromethane
	Carbon tetrachloride
	Chloroform
	Cyclohexane
	Dibromochloromethane
	Methylene chloride
	n-Hexane
	Xylenes (total)

[a] These five VOCs had the highest concentration in the three soil gas probes (SVMW-03, SVMW-11, and KAFB-106119) within 100 ft of Building 1033, which is a potentially occupied building at BFF (see Appendix A-2 Table 4 for details).

[b] These 14 VOCs had the highest concentration in any soil gas probe and the modeled indoor air concentration had an estimated risk ≥ 1E-7 and/or hazard ≥ 0.1 using the Johnson and Ettinger Vapor Intrusion Model run with the specific depth of the MDC (see Appendix A-2 Tables 4 and 5, and Appendix A-9 for details).

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Table 3-4
Summary of Cancer Risk and Noncancer Hazards
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Receptor	Total Cancer Risk	Risk Drivers[a]	Total Noncancer Hazard	Hazard Drivers[a]
Current Routine Worker [b]	5.5E-06	Benzene, bromodichloromethane in soil gas (modeled to indoor air)	0.052	None
Future Routine Worker	8.8E-04	Ethylbenzene, 1,2-dibromoethane, benzene, naphthalene in groundwater [c]; 1,2-dibromoethane, benzene, bromodichloromethane, chloroform in soil gas [d] (modeled to indoor air)	15	Benzene in groundwater [c]; benzene, 1,2,4-trimethylbenzene, xylenes in soil gas [d] (modeled to indoor air)
Future Construction Worker	9.6E-08	None	0.030	None
Current Adult/Lifetime Resident	0.0E+00	None [e]	0	None [e]
Current Child Resident	0.0E+00	None [e]	0	None [e]
Future Adult/Lifetime Resident	4.1E-03	BaP, DahA in total soil; ethylbenzene, 1,2-dibromoethane, benzene, 1-methylnaph, 1-2, dichloroethane, naphthalene in groundwater [c], 1,2-dibromoethane, benzene, bromodichloromethane, chloroform in soil gas [d] (modeled to indoor air)	60	Benzene, m&p-xylene, naphthalene, 1,2,4-trimethylbenzene in groundwater [c]; total xylenes, benzene, 1,2,4-trimethylbenzene n-hexane in soil gas [d] (modeled to indoor air)
Future Child Resident	9.6E-04	BaP, DahA in total soil; ethylbenzene, 1,2-dibromoethane, benzene, 1-methylnaph, naphthalene in groundwater [c], 1,2-dibromoethane, benzene, bromodichloromethane, chloroform in soil gas[d] (modeled to indoor air)	68	Benzene, manganese, m&p-xylene, naphthalene, 1,2,4-trimethylbenzene in groundwater [c]; total xylenes, benzene, 1,2,4-trimethylbenzene n-hexane in soil gas [d] (modeled to indoor air)

For details, see **Appendix A-1**, Tables 9.1 through 9.7. Note that the Risk Assessment is based on baseline site conditions (no remediation).

[a] Risk drivers are defined as chemicals of concern (COCs) with cancer risks > 1E-06. Hazard drivers are defined as COCs with hazard indices > 1.

[b] It was assumed that the current worker would drink water from the currently operating water supply wells, and would be exposed to soil gas migrating to indoor air in Building 1033.

[c] Future groundwater risks and hazards are based on results from monitoring wells selected for use in the HHRA (not water supply wells). For future receptors this conservatively assumes a water supply well is installed and collects water represented by the monitoring well network, i.e., receptors would drink water from wells beneath the site screened between 0 and 100 ft below the water table.

[d] Future soil gas risks and hazards are based on results from the most impacted soil vapor monitoring wells, based on the conservative assumption that a residence or building for workers will be constructed immediately above the location(s) of the maximum detected VOC concentrations in soil gas.

[e] The only COPC identified in water supply well groundwater was sodium, which does not have published toxicity data. However, the advisory limit for individuals on a restricted sodium diet is 20 mg/L. The 95% UCL EPC for sodium in water supply well data was 29 mg/L.

BaP = Benzo(a)pyrene, DahA = dibenzo(a,h)anthracene, 1-methylnaph = 1-methylnaphthalene

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Table 3-5
Soil Gas Risk Drivers, PRGs, and Estimated Benzene-Equivalent Concentrations
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Soil Gas Risk Drivers from HHRA [a]	Nondetect Frequency [b]	Sample Size for Regression [c]	Statistical Significance of Benzene Linear Regressions [d]	Power Regression Equation [e] Ben = (m × VOC)^variable	Power Regression r^2 value [f]
Benzene	10.8% (374/3450)	--	--	--	--
Bromodichloromethane	98.4% (3398/3452)	53	<0.00001	$y = 2.02\ x^{0.915}$	0.51
Chloroform	90.5% (3126/3455)	235	0.72	$y = 36.0\ x^{0.139}$	0.027
1,2-Dibromoethane (EDB)	91.3% (3152/345)	294	<0.00001	$y = 223\ x^{0.872}$	0.77
Hexane	12.3% (424/3451)	1363	<0.00001	$y = 1.77\ x^{0.880}$	0.91
1,2,4-Trimethylbenzene	82.4% (2848/3455)	602	0.22	$y = 32.9\ x^{0.755}$	0.49
Xylene	25.6% (866/3388)	2522	<0.00001	$y = 1.46\ x^{1.09}$	0.84

Risk Drivers and Benzene Equivalent [g]	Soil Gas PRG Concentration (ppm-v), by Depth, Protective of Indoor Air [h] (Hypothetical Future Residential Exposure)					
Depth===>	450 ft	350 ft	250 ft	150 ft	50 ft	25 ft
Benzene	3.54E+01	2.76E+01	1.98E+01	1.20E+01	4.25E+00	2.30E+00
Bromodichloromethane	1.04E+01	8.11E+00	5.80E+00	3.49E+00	1.18E+00	6.06E-01
Equivalent Benzene Conc	1.72E+01	1.37E+01	1.01E+01	6.34E+00	2.36E+00	1.28E+00
Chloroform	6.65E+00	5.19E+00	3.73E+00	2.27E+00	8.11E-01	4.46E-01
Equivalent Benzene Conc	Not Applicable (r^2 value from power regression equation too low)					
1,2-Dibromoethane (EDB)	7.70E-01	5.99E-01	4.28E-01	2.57E-01	8.65E-02	4.40E-02
Equivalent Benzene Conc	1.78E+02	1.43E+02	1.06E+02	6.82E+01	2.64E+01	1.46E+01
Hexane	3.35E+03	2.62E+03	1.90E+03	1.17E+03	4.44E+02	2.62E+02
Equivalent Benzene Conc	2.24E+03	1.81E+03	1.36E+03	8.87E+02	3.78E+02	2.38E+02
1,2,4-Trimethylbenzene	7.79E+01	6.07E+01	4.35E+01	2.63E+01	9.12E+00	4.82E+00
Equivalent Benzene Conc	8.82E+02	7.30E+02	5.68E+02	3.88E+02	1.75E+02	1.08E+02
Xylene	1.09E+03	8.51E+02	6.10E+02	3.70E+02	1.29E+02	6.88E+01
Equivalent Benzene Conc	2.99E+03	2.28E+03	1.59E+03	9.19E+02	2.92E+02	1.47E+02

[a] Risk and hazard drivers, estimated to have a residential cancer risk > 1E-6 or noncancer hazard > 1, for soil gas to indoor air vapor intrusion pathway, modeled using Johnson & Ettinger (J&E) VI Model, based on depth of maximum measured VOC concentration in soil gas, EPC = 95% UCL of 8 quarters of soil gas monitoring data (QTR3-QTR10), and site-specific soil type (loamy sand) and mean subsurface temp (12.5 C).
[b] Number of soil gas samples in vapor wells that were nondetect (and percentage), for 12 quarters of data (2011 through 2013).
[c] Sample size used to generate regression statistics; nondetect results for each VOC removed to limit the influence of nondetect detection limits.
[d] From Excel linear regressions; statistical significance (p-values) less than 0.05 are considered statistically significant.

Table 3-5
Soil Gas Risk Drivers, PRGs, and Estimated Benzene-Equivalent Concentrations
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

[e] Regression Equation from Excel statistical function, for power relationship; m = slope, variable = power exponent.
[f] From Excel power regressions; the closer the r^2 value is to 1.0, the greater the estimating power of the equation.
[g] VOC concentrations equivalent to benzene estimated using power regression equation, when appropriate.
[h] Preliminary remediation goal (PRG) based on target cancer risk of 1E-5 or target hazard quotient of 1.0, whichever was lower, from J&E Model.

For Details, See Appendix A-13.

Table 4-1
Occurrence, Distribution, and Selection of Chemicals of Potential Ecological Concern, Surface Soil (0-5 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil (0-5 ft bgs)

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)	COPEC Flag (Y/N)	Rationale for Selection or Deletion (4)
Surface Soil (0-5 ft bgs)	87-61-6	1,2,3-Trichlorobenzene	8.68E-04 J	8.68E-04 J	mg/kg	FFOR1031	1/346	3.14E-04 - 2.00E-01	8.68E-04	N/A	N/A	No	IFD
	120-82-1	1,2,4-Trichlorobenzene	2.86E-04 J	2.86E-04 J	mg/kg	FFOR1339	1/346	3.14E-04 - 2.00E-01	2.86E-04	N/A	2.70E-01	No	IFD, BSL
	95-63-6	1,2,4-Trimethylbenzene	1.05E-04 J	8.89E-01	mg/kg	FFOR0135	58/346	3.84E-04 - 2.88E-02	8.89E-01	N/A	N/A	Yes	TX
	108-67-8	1,3,5-Trimethylbenzene	1.12E-04 J	3.02E-01 J	mg/kg	FFOR0135	23/346	3.14E-04 - 2.88E-02	3.02E-01	N/A	N/A	Yes	TX
	78-93-3	2-Butanone	6.05E-04 J	5.98E-02	mg/kg	SB0243	190/346	1.54E-03 - 7.99E-01	5.98E-02	N/A	3.60E+02	No	BSL
	591-78-6	2-Hexanone	1.20E-02	1.20E-02	mg/kg	FFOR0348	1/346	5.73E-04 - 7.99E-01	1.20E-02	N/A	3.60E-01	No	IFD, BSL
	91-57-6	2-Methylnaphthalene	9.95E-03 J	2.32E+01	mg/kg	FFOR1306	31/346	3.36E-02 - 3.71E-01	2.32E+01	N/A	1.60E+01	Yes	ASL
	108-10-1	4-Methyl-2-pentanone	2.94E-03 J	7.88E-03 J	mg/kg	SB0043	3/346	3.14E-04 - 2.00E-01	7.88E-03	N/A	9.80E+00	No	IFD, BSL
	83-32-9	Acenaphthene	1.36E-02 J	4.99E-01	mg/kg	FFOR0673	21/346	3.36E-02 - 3.71E-01	4.99E-01	N/A	2.50E-01	Yes	ASL
	208-96-8	Acenaphthylene	1.45E-02 J	9.77E-02 J	mg/kg	FFOR0421	25/346	3.36E-02 - 3.71E-01	9.77E-02	N/A	1.20E+02	No	BSL
	67-64-1	Acetone	1.62E-03 J	1.24E-01 J	mg/kg	SB0186	300/346	1.74E-03 - 7.99E-01	1.24E-01	N/A	1.20E+00	No	BSL
	120-12-7	Anthracene	1.19E-02 J	1.54E+00 J	mg/kg	FFOR0202	100/346	3.37E-02 - 3.71E-01	1.54E+00	N/A	6.80E+00	No	BSL
	71-43-2	Benzene	1.06E-04 J	1.13E-02	mg/kg	FFOR0544	204/346	3.45E-04 - 2.00E-01	1.13E-02	N/A	2.40E+01	No	BSL
	56-55-3	Benzo(a)anthracene	2.22E-02 J	5.39E+00	mg/kg	FFOR0085	84/346	3.37E-02 - 7.05E-01	5.39E+00	N/A	8.00E-01	Yes	ASL
	50-32-8	Benzo(a)pyrene	9.35E-03 J	4.45E+00	mg/kg	FFOR0085	118/357	3.37E-02 - 1.71E+00	4.45E+00	N/A	5.30E+01	No	BSL
	205-99-2	Benzo(b)fluoranthene	2.71E-02 J	5.15E+00	mg/kg	FFOR0085	72/346	3.37E-02 - 1.71E+00	5.15E+00	N/A	1.80E+01	No	BSL
	191-24-2	Benzo(g,h,i)perylene	1.03E-02 J	2.18E+00	mg/kg	FFOR0085	134/346	1.69E-02 - 8.59E-01	2.18E+00	N/A	2.40E+01	No	BSL
	207-08-9	Benzo(k)fluoranthene	1.44E-02 J	2.51E+00	mg/kg	FFOR0085	80/346	3.37E-02 - 1.71E+00	2.51E+00	N/A	6.20E+01	No	BSL
	117-81-7	bis(2-Ethylhexyl) phthalate	1.89E-02 J	2.45E+00	mg/kg	SB0129	50/346	3.36E-02 - 7.05E-01	2.45E+00	N/A	2.00E-02	Yes	ASL
	85-68-7	Butyl benzyl phthalate	1.59E-01 J	1.59E-01 J	mg/kg	FFOR1445	1/346	1.68E-02 - 3.54E-01	1.59E-01	N/A	9.00E+01	No	IFD, BSL
	86-74-8	Carbazole	2.01E-02 J	5.33E-01	mg/kg	FFOR0085	56/346	3.36E-02 - 3.71E-01	5.33E-01	N/A	8.00E+01	No	BSL
	75-15-0	Carbon disulfide	5.38E-04	5.38E-04	mg/kg	FFOR1709	1/346	3.14E-04 - 2.00E-01	5.38E-04	N/A	8.20E-01	No	IFD, BSL
	108-90-7	Chlorobenzene	2.25E-04 J	2.25E-04 J	mg/kg	FFOR0045	1/346	3.14E-04 - 2.00E-01	2.25E-04	N/A	2.40E+00	No	IFD, BSL
	67-66-3	Chloroform	5.17E-04 J	2.11E-01 J	mg/kg	FFOR0135	14/346	3.14E-04 - 2.88E-02	2.11E-01	N/A	8.00E+00	No	BSL
	218-01-9	Chrysene	1.60E-02 J	6.76E+00	mg/kg	FFOR0085	131/346	3.37E-02 - 7.05E-01	6.76E+00	N/A	2.40E+00	Yes	ASL
	53-70-3	Dibenz(a,h)anthracene	1.05E-02 J	6.83E-01	mg/kg	FFOR0085	27/348	1.68E-02 - 8.59E-01	6.83E-01	N/A	1.20E+01	No	BSL
	132-64-9	Dibenzofuran	1.21E-02 J	1.16E+00 J	mg/kg	FFOR1306	15/346	3.36E-02 - 3.71E-01	1.16E+00	N/A	6.10E+00	No	BSL
	84-66-2	Diethyl phthalate	2.26E-02 J	3.54E-02	mg/kg	FFOR1440	10/346	3.36E-02 - 3.71E-01	3.54E-02	N/A	1.00E+02	No	BSL
	84-74-2	Di-n-butyl phthalate	1.45E-02 J	8.99E-02	mg/kg	FFOR0639	19/346	1.68E-02 - 3.42E-01	8.99E-02	N/A	1.10E-02	Yes	ASL
	100-41-4	Ethylbenzene (5)	2.77E-04 J	1.87E-01	mg/kg	FFOR1306	21/346	3.14E-04 - 2.00E-01	1.87E-01	N/A	2.40E+01	No	BSL
	206-44-0	Fluoranthene	6.99E-03 J	8.23E+00	mg/kg	FFOR0202	167/346	1.69E-02 - 1.86E-01	8.23E+00	N/A	1.00E+01	No	BSL
	86-73-7	Fluorene	1.61E-02 J	3.56E-01	mg/kg	FFOR0673	20/346	3.36E-02 - 3.71E-01	3.56E-01	N/A	3.70E+00	No	BSL
	87-68-3	Hexachlorobutadiene	2.01E-04 J	2.01E-04 J	mg/kg	FFOR1244	1/346	3.14E-04 - 2.00E-01	2.01E-04	N/A	N/A	No	IFD
	193-39-5	Indeno(1,2,3-cd)pyrene	2.74E-02 J	2.26E+00	mg/kg	FFOR0085	50/346	3.37E-02 - 1.71E+00	2.26E+00	N/A	6.20E+01	No	BSL
	98-82-8	Isopropylbenzene (5)	4.69E-02	4.69E-02	mg/kg	FFOR1306	1/346	3.14E-04 - 2.00E-01	4.69E-02	N/A	2.40E+01	No	IFD, BSL
	7439-92-1	Lead	2.12E+00	1.40E+02	mg/kg	FFOR0292	346/346	N/A	1.40E+02	N/A	1.40E+01	Yes	ASL
	N/A	m&p-Xylenes (6)	3.73E-04 J	1.92E-01	mg/kg	FFOR1306	50/346	6.28E-04 - 3.99E-01	1.92E-01	N/A	1.40E+00	No	BSL
	75-09-2	Methylene chloride	1.38E-03 J	1.18E-02	mg/kg	FFOR1743	6/346	3.14E-04 - 2.00E-01	1.18E-02	N/A	2.60E+00	No	BSL
	104-51-8	n-Butylbenzene (5)	2.61E-04 J	1.58E-02	mg/kg	FFOR1306	6/346	3.14E-04 - 2.00E-01	1.58E-02	N/A	2.40E+01	No	BSL

Table 4-1
Occurrence, Distribution, and Selection of Chemicals of Potential Ecological Concern, Surface Soil (0-5 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil (0-5 ft bgs)

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)	COPEC Flag (Y/N)	Rationale for Selection or Deletion (4)
Surface Soil	103-65-1	n-Propylbenzene (5)	2.78E-04 J	8.63E-02	mg/kg	FFOR1306	3/346	3.14E-04 - 2.00E-01	8.63E-02	N/A	2.40E+01	No	IFD, BSL
(0-5 ft bgs)	91-20-3	Naphthalene	1.90E-04 J	2.45E+00	mg/kg	FFOR0135	14/346	3.14E-04 - 2.88E-02	2.45E+00	N/A	1.00E+00	Yes	ASL
	95-47-6	o-Xylene (6)	1.60E-04 J	8.98E-02	mg/kg	FFOR1306	38/346	3.14E-04 - 2.00E-01	8.98E-02	N/A	1.40E+00	No	BSL
	99-87-6	p-Cymene (7)	4.67E-04 J	3.54E-01 J	mg/kg	FFOR0135	8/346	3.14E-04 - 2.88E-02	3.54E-01	N/A	2.30E+01	No	BSL
	85-01-8	Phenanthrene	1.13E-02 J	3.44E+00 J	mg/kg	FFOR0202	131/346	3.37E-02 - 3.71E-01	3.44E+00	N/A	5.50E+00	No	BSL
	129-00-0	Pyrene	1.62E-02 J	8.19E+00	mg/kg	FFOR0202	139/346	3.37E-02 - 7.05E-01	8.19E+00	N/A	1.00E+01	No	BSL
	135-98-8	sec-Butylbenzene (5)	3.15E-04 J	2.63E-01 J	mg/kg	FFOR0135	4/346	3.14E-04 - 2.88E-02	2.63E-01	N/A	2.40E+01	No	BSL
	127-18-4	Tetrachloroethene	1.73E-04 J	3.69E-04 J	mg/kg	FFOR0768	3/346	3.14E-04 - 2.00E-01	3.69E-04	N/A	1.80E-01	No	IFD, BSL
	108-88-3	Toluene	2.29E-04 J	8.98E-02	mg/kg	FFOR1306	138/346	3.45E-04 - 2.00E-01	8.98E-02	N/A	2.30E+01	No	BSL
	N/A	TPH - Diesel Range Organics	1.34E+00 J	4.52E+03	mg/kg	FFOR1306	295/346	2.09E+00 - 4.39E+00	4.52E+03	N/A	N/A	Yes	TX
	N/A	TPH - Gasoline Range Organics	7.37E-01 J	1.75E+03 J	mg/kg	FFOR1306	44/346	1.01E+00 - 8.38E+00	1.75E+03	N/A	N/A	Yes	TX
	79-01-6	Trichloroethene	1.16E-03 J	1.16E-03 J	mg/kg	FFOR0555	1/346	3.14E-04 - 2.00E-01	1.16E-03	N/A	4.20E+01	No	IFD, BSL
	75-69-4	Trichlorofluoromethane	5.81E-03	5.81E-03	mg/kg	FFOR0175	1/346	3.14E-04 - 2.00E-01	5.81E-03	N/A	5.20E+01	No	IFD, BSL
	1330-20-7	Xylenes (total)	4.59E-04 J	2.82E-01	mg/kg	FFOR1306	49/346	9.42E-04 - 5.99E-01	2.82E-01	N/A	1.40E+00	No	BSL

(1) Maximum concentration used for screening.

(2) N/A - Refer to supporting information for background discussion.

(3) Ecological screening levels (ESLs) are the lowest No-Effect ESLs from LANL Ecorisk Datatbase (Release 3.1), October 2012.

(4) Rationale Codes

Selection Reason: Toxicity Information Available (TX)
Above Screening Levels (ASL)

Deletion Reason: Background Levels (BKG)
No Toxicity Information (NTX)
Below Screening Level (BSL)
Infrequent Detection [≤ 1%] (IFD)

(5) Benzene used for screening.

(6) Xylene used for screening.

(7) Toluene used for screening.

Definitions:
N/A = Not Applicable or Not Available
COPEC = Chemical of Potential Ecological Concern
J = Estimated Value

Table 4-2
Occurrence, Distribution, and Selection of Chemicals of Potential Ecological Concern, Total Soil (0-10 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Total Soil (0-10 ft bgs)

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)	COPEC Flag (Y/N)	Rationale for Selection or Deletion (4)
Total Soil (0-10 ft bgs)	87-61-6	1,2,3-Trichlorobenzene	8.68E-04 J	8.68E-04 J	mg/kg	FFOR1031	1/652	3.14E-04 - 1.13E+00	8.68E-04	N/A	N/A	No	IFD
	120-82-1	1,2,4-Trichlorobenzene	2.86E-04 J	2.86E-04 J	mg/kg	FFOR1339	1/652	3.14E-04 - 1.13E+00	2.86E-04	N/A	2.70E-01	No	IFD, BSL
	95-63-6	1,2,4-Trimethylbenzene	1.05E-04 J	5.92E+01	mg/kg	FFOR0136	106/652	3.69E-04 - 3.83E-01	5.92E+01	N/A	N/A	Yes	TX
	108-67-8	1,3,5-Trimethylbenzene	1.12E-04 J	1.55E+01	mg/kg	FFOR0450	46/652	3.14E-04 - 1.13E+00	1.55E+01	N/A	N/A	Yes	TX
	105-67-9	2,4-Dimethylphenol	2.76E-01 J	2.76E-01 J	mg/kg	FFOR1744	1/652	1.74E-01 - 3.81E+00	2.76E-01	N/A	N/A	No	IFD
	78-93-3	2-Butanone	6.05E-04 J	7.34E-02	mg/kg	FFOR1542	327/652	1.54E-03 - 4.50E+00	7.34E-02	N/A	3.60E+02	No	BSL
	591-78-6	2-Hexanone	1.89E-03 J	1.20E-02	mg/kg	FFOR0348	2/652	5.73E-04 - 4.50E+00	1.20E-02	N/A	3.60E-01	No	IFD, BSL
	91-57-6	2-Methylnaphthalene	9.95E-03 J	3.24E+01	mg/kg	FFOR0142	55/652	3.36E-02 - 3.85E-01	3.24E+01	N/A	1.60E+01	Yes	ASL
	108-10-1	4-Methyl-2-pentanone	2.94E-03 J	7.88E-03 J	mg/kg	SB0043	3/652	3.14E-04 - 1.13E+00	7.88E-03	N/A	9.80E+00	No	IFD, BSL
	83-32-9	Acenaphthene	1.28E-02 J	6.20E-01 J	mg/kg	FFOR0987	33/652	3.36E-02 - 3.85E-01	6.20E-01	N/A	2.50E-01	Yes	ASL
	208-96-8	Acenaphthylene	1.45E-02 J	5.13E-01 J	mg/kg	FFOR0987	36/652	3.36E-02 - 3.85E-01	5.13E-01	N/A	1.20E+02	No	BSL
	67-64-1	Acetone	1.53E-03 J	1.83E-01	mg/kg	FFOR1542	547/652	1.71E-03 - 4.50E+00	1.83E-01	N/A	1.20E+00	No	BSL
	120-12-7	Anthracene	1.19E-02 J	1.96E+00	mg/kg	FFOR0987	157/652	3.37E-02 - 3.85E-01	1.96E+00	N/A	6.80E+00	No	BSL
	71-43-2	Benzene	9.20E-05 J	7.32E-02 J	mg/kg	FFOR0433	359/652	3.45E-04 - 1.13E+00	7.32E-02	N/A	2.40E+01	No	BSL
	56-55-3	Benzo(a)anthracene	2.22E-02 J	9.00E+00	mg/kg	FFOR0987	125/652	3.37E-02 - 7.05E-01	9.00E+00	N/A	8.00E-01	Yes	ASL
	50-32-8	Benzo(a)pyrene	9.35E-03 J	9.04E+00	mg/kg	FFOR0987	187/672	3.37E-02 - 1.71E+00	9.04E+00	N/A	5.30E+01	No	BSL
	205-99-2	Benzo(b)fluoranthene	2.61E-02 J	9.85E+00	mg/kg	FFOR0987	116/653	3.37E-02 - 1.71E+00	9.85E+00	N/A	1.80E+01	No	BSL
	191-24-2	Benzo(g,h,i)perylene	1.03E-02 J	7.77E+00	mg/kg	FFOR0987	216/652	1.69E-02 - 8.59E-01	7.77E+00	N/A	2.40E+01	No	BSL
	207-08-9	Benzo(k)fluoranthene	1.42E-02 J	6.24E+00	mg/kg	FFOR0987	124/652	3.37E-02 - 1.71E+00	6.24E+00	N/A	6.20E+01	No	BSL
	117-81-7	bis(2-Ethylhexyl) phthalate	1.89E-02 J	2.45E+00	mg/kg	SB0129	80/652	3.36E-02 - 7.05E-01	2.45E+00	N/A	2.00E-02	Yes	ASL
	85-68-7	Butyl benzyl phthalate	1.59E-01 J	1.59E-01 J	mg/kg	FFOR1445	1/652	1.68E-02 - 3.54E-01	1.59E-01	N/A	9.00E+01	No	IFD, BSL
	86-74-8	Carbazole	2.01E-02 J	1.62E+00 J	mg/kg	FFOR0987	78/652	3.36E-02 - 3.85E-01	1.62E+00	N/A	8.00E+01	No	BSL
	75-15-0	Carbon disulfide	5.38E-04	5.38E-04 J	mg/kg	FFOR1407	1/652	3.14E-04 - 1.13E+00	5.38E-04	N/A	8.20E-01	No	IFD, BSL
	108-90-7	Chlorobenzene	2.25E-04 J	2.25E-04 J	mg/kg	FFOR0045	1/652	3.14E-04 - 1.13E+00	2.25E-04	N/A	2.40E+00	No	IFD, BSL
	67-66-3	Chloroform	2.65E-04 J	1.19E+00 J	mg/kg	FFOR0153	27/652	3.14E-04 - 1.13E+00	1.19E+00	N/A	8.00E+00	No	BSL
	218-01-9	Chrysene	1.60E-02 J	9.38E+00	mg/kg	FFOR0987	206/652	3.37E-02 - 7.05E-01	9.38E+00	N/A	2.40E+00	Yes	ASL
	53-70-3	Dibenz(a,h)anthracene	1.05E-02 J	8.39E-01 J	mg/kg	FFOR0416	46/655	1.68E-02 - 8.59E-01	8.39E-01	N/A	1.20E+01	No	BSL
	132-64-9	Dibenzofuran	1.21E-02 J	1.29E+00 J	mg/kg	FFOR0142	30/652	3.36E-02 - 3.85E-01	1.29E+00	N/A	6.10E+00	No	BSL
	84-66-2	Diethyl phthalate	2.26E-02 J	3.54E-02	mg/kg	FFOR0157	12/652	3.36E-02 - 4.19E-01	3.54E-02	N/A	1.00E+02	No	BSL
	84-74-2	Di-n-butyl phthalate	1.45E-02 J	8.99E-02	mg/kg	FFOR0712	30/652	1.68E-02 - 3.57E-01	8.99E-02	N/A	1.10E-02	Yes	ASL
	117-84-0	Di-n-octyl phthalate	3.62E-01 J	3.62E-01 J	mg/kg	FFOR1105	1/652	1.68E-02 - 3.54E-01	3.62E-01	N/A	9.10E-01	No	IFD, BSL
	100-41-4	Ethylbenzene (5)	2.10E-04 J	5.07E+00	mg/kg	FFOR0136	62/652	3.14E-04 - 1.13E+00	5.07E+00	N/A	2.40E+01	No	BSL
	206-44-0	Fluoranthene	6.99E-03 J	1.82E+01	mg/kg	FFOR0987	267/652	1.69E-02 - 1.87E-01	1.82E+01	N/A	1.00E+01	Yes	ASL
	86-73-7	Fluorene	1.48E-02 J	4.70E-01 J	mg/kg	FFOR0987	37/652	3.36E-02 - 3.85E-01	4.70E-01	N/A	3.70E+00	No	BSL
	87-68-3	Hexachlorobutadiene	2.01E-04 J	2.01E-04 J	mg/kg	FFOR1244	1/652	3.14E-04 - 1.13E+00	2.01E-04	N/A	N/A	No	IFD
	193-39-5	Indeno(1,2,3-cd)pyrene	2.74E-02 J	6.71E+00	mg/kg	FFOR0987	88/654	3.37E-02 - 1.71E+00	6.71E+00	N/A	6.20E+01	No	BSL
	98-82-8	Isopropylbenzene (5)	1.61E-03 J	3.78E+00 J	mg/kg	FFOR0136	5/652	3.14E-04 - 1.13E+00	3.78E+00	N/A	2.40E+01	No	IFD, BSL
	7439-92-1	Lead	2.12E+00	1.40E+02	mg/kg	FFOR0292	652/652	N/A	1.40E+02	N/A	1.40E+01	Yes	ASL
	N/A	m&p-Xylenes (6)	3.73E-04 J	1.14E+01	mg/kg	FFOR0136	77/652	6.28E-04 - 2.25E+00	1.14E+01	N/A	1.40E+00	Yes	ASL
	75-09-2	Methylene chloride	1.38E-03 J	1.49E-02 J	mg/kg	FFOR0265	10/652	3.14E-04 - 1.13E+00	1.49E-02	N/A	2.60E+00	No	BSL
	104-51-8	n-Butylbenzene (5)	2.45E-04 J	4.16E+01	mg/kg	FFOR0136	11/652	3.14E-04 - 1.13E+00	4.16E+01	N/A	2.40E+01	Yes	ASL
	621-64-7	n-Nitroso-di-n-propylamine	3.28E-01 J	3.28E-01 J	mg/kg	FFOR0512	1/652	3.36E-02 - 7.02E-01	3.28E-01	N/A	N/A	No	IFD
	103-65-1	n-Propylbenzene (5)	1.72E-04 J	9.76E+00	mg/kg	FFOR0136	9/652	3.14E-04 - 1.13E+00	9.76E+00	N/A	2.40E+01	No	BSL
	91-20-3	Naphthalene	1.90E-04 J	4.50E+01	mg/kg	FFOR0136	34/652	3.14E-04 - 3.83E-01	4.50E+01	N/A	1.00E+00	Yes	ASL
	95-47-6	o-Xylene (6)	1.60E-04 J	6.75E+00	mg/kg	FFOR0136	50/652	3.14E-04 - 1.13E+00	6.75E+00	N/A	1.40E+00	Yes	ASL
	99-87-6	p-Cymene (7)	4.67E-04	1.73E+01	mg/kg	FFOR0136	19/652	3.14E-04 - 1.13E+00	1.73E+01	N/A	2.30E+01	No	BSL

Table 4-2
Occurrence, Distribution, and Selection of Chemicals of Potential Ecological Concern, Total Soil (0-10 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Total Soil (0-10 ft bgs)

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)	COPEC Flag (Y/N)	Rationale for Selection or Deletion (4)
Total Soil	85-01-8	Phenanthrene	1.13E-02 J	7.73E+00	mg/kg	FFOR0987	204/652	3.37E-02 - 3.72E-01	7.73E+00	N/A	5.50E+00	Yes	ASL
(0-10 ft bgs)	129-00-0	Pyrene	1.62E-02 J	1.19E+01	mg/kg	FFOR0987	221/652	3.37E-02 - 7.05E-01	1.19E+01	N/A	1.00E+01	Yes	ASL
	135-98-8	sec-Butylbenzene (5)	3.15E-04 J	1.53E+01	mg/kg	FFOR0136	10/652	3.14E-04 - 1.13E+00	1.53E+01	N/A	2.40E+01	No	BSL
	100-42-5	Styrene	6.63E-04 J	6.63E-04 J	mg/kg	FFOR0395	1/652	3.14E-04 - 1.13E+00	6.63E-04	N/A	1.20E+00	No	IFD, BSL
	127-18-4	Tetrachloroethene	1.73E-04 J	3.69E-04 J	mg/kg	FFOR0768	6/652	3.14E-04 - 1.13E+00	3.69E-04	N/A	1.80E-01	No	IFD, BSL
	108-88-3	Toluene	2.29E-04 J	8.98E-02	mg/kg	FFOR1306	239/652	3.45E-04 - 1.13E+00	8.98E-02	N/A	2.30E+01	No	BSL
	N/A	TPH - Diesel Range Organics	1.34E+00 J	8.38E+03	mg/kg	FFOR0136	483/652	2.07E+00 - 6.00E+00	8.38E+03	N/A	N/A	Yes	TX
	N/A	TPH - Gasoline Range Organics	7.37E-01 J	1.75E+03 J	mg/kg	FFOR1306	75/652	1.01E+00 - 8.38E+00	1.75E+03	N/A	N/A	Yes	TX
	79-01-6	Trichloroethene	1.16E-03 J	1.16E-03 J	mg/kg	FFOR0555	1/652	3.14E-04 - 1.13E+00	1.16E-03	N/A	4.20E+01	No	IFD, BSL
	75-69-4	Trichlorofluoromethane	5.81E-03	5.81E-03	mg/kg	FFOR0175	1/652	3.14E-04 - 1.13E+00	5.81E-03	N/A	5.20E+01	No	IFD, BSL
	1330-20-7	Xylenes (total)	4.26E-04 J	1.81E+01	mg/kg	FFOR0136	73/652	9.42E-04 - 3.38E+00	1.81E+01	N/A	1.40E+00	Yes	ASL

(1) Maximum concentration used for screening.
(2) N/A - Refer to supporting information for background discussion.
(3) Ecological screening levels (ESLs) are the lowest No-Effect ESLs from LANL Ecorisk Datatbase (Release 3.1), October 2012.
(4) Rationale Codes

Selection Reason: Toxicity Information Available (TX)
Above Screening Levels (ASL)

Deletion Reason: Background Levels (BKG)
No Toxicity Information (NTX)
Below Screening Level (BSL)
Infrequent Detection [≤ 1%] (IFD)

(5) Benzene used for screening.
(6) Xylene used for screening.
(7) Toluene used for screening.

Definitions:
N/A = Not Applicable or Not Available
COPEC = Chemical of Potential Ecological Concern
J = Estimated Value

Table 4-3
Occurrence, Distribution, and Selection of Chemicals of Potential Ecological Concern, (Soil Gas 0-50 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil Gas
Exposure Medium: Soil Gas (0-50 ft)

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Molecular Weight (1)	Concentration Used for Screening (2)	Units	Background Value (3)	Screening Toxicity Value and Source (4)	COPEC Flag (Y/N)	Rationale for Selection or Deletion (5)
Soil Gas (0-50 ft)	79-34-5	1,1,2,2-Tetrachloroethane	6.90E+00 J-	6.90E+00 J-	ppbv	VA0556	1/662	4.20E-01 - 4.00E+04	167.85	4.74E+01	ug/m^3	N/A	N/A	No	NTX
	106-99-0	1,3-Butadiene	2.50E+00 J-	2.50E+00 J-	ppbv	VA0635	1/662	3.00E-01 - 4.00E+04	54.09	5.53E+00	ug/m^3	N/A	N/A	No	NTX
	591-78-6	2-Hexanone	5.80E+00 J-	5.00E+02	ppbv	VA1309	12/662	2.70E-01 - 4.00E+04	100.16	2.05E+03	ug/m^3	N/A	4.90E+03 (M)	No	BSL
	67-64-1	Acetone	6.85E+00	9.40E+05	ppbv	VA1701	294/662	8.60E-01 - 4.00E+04	58.08	2.23E+06	ug/m^3	N/A	5.30E+05 (L)	Yes	ASL
	71-43-2	Benzene	2.90E+00	5.90E+05	ppbv	VA0408	581/662	5.00E-01 - 1.00E+03	78.11	1.88E+06	ug/m^3	N/A	2.50E+04 (L)	Yes	ASL
	95-63-6	Benzene, 1,2,4-trimethyl	3.70E+00 J-	5.60E+04	ppbv	VA0838	74/662	4.90E-01 - 4.00E+04	120.19	2.75E+05	ug/m^3	N/A	7.80E+03 (M)	Yes	ASL
	108-67-8	Benzene, 1,3,5-trimethyl-	2.10E+00 J-	2.30E+04	ppbv	VA0838	31/662	4.80E-01 - 4.00E+04	120.19	1.13E+05	ug/m^3	N/A	7.80E+03 (M)	Yes	ASL
	75-27-4	Bromodichloromethane	7.20E+00	8.20E+03	ppbv	VA0696-FQ	19/662	3.10E-01 - 4.00E+04	163.83	5.49E+04	ug/m^3	N/A	N/A	No	NTX
	N/A	C5-C8 Aliphatic Hydrocarbons	1.30E+03	1.30E+08	ug/m^3	VA1668	660/662	2.40E+02 - 2.40E+02	N/A	1.30E+08	ug/m^3	N/A	N/A	No	NTX
	N/A	C9-C10 Aromatic Hydrocarbons	3.10E+02 J-	8.60E+04	ug/m^3	VA0838	27/662	2.90E+02 - 1.10E+07	N/A	8.60E+04	ug/m^3	N/A	N/A	No	NTX
	N/A	C9-C12 Aliphatic Hydrocarbons	2.20E+02 J	1.80E+06 J	ug/m^3	VA1385	290/662	2.10E+02 - 1.50E+07	N/A	1.80E+06	ug/m^3	N/A	N/A	No	NTX
	75-15-0	Carbon disulfide	1.60E+00 J-	1.30E+01	ppbv	VA1727	11/662	1.90E-01 - 4.00E+04	76.13	4.05E+01	ug/m^3	N/A	1.20E+03 (M)	No	BSL
	56-23-5	Carbon tetrachloride	3.00E+00 J-	9.50E+01 J-	ppbv	VA0561	26/662	2.30E-01 - 4.00E+04	153.82	5.98E+02	ug/m^3	N/A	5.70E+03 (L)	No	BSL
	67-66-3	Chloroform	2.10E+01	1.40E+03 J-	ppbv	VA0561	57/662	2.50E-01 - 4.00E+04	119.38	6.84E+03	ug/m^3	N/A	2.00E+04 (L)	No	BSL
	110-82-7	Cyclohexane	1.10E+01 J	3.30E+06	ppbv	VA1040	584/662	1.40E+00 - 5.50E+02	84.16	1.14E+07	ug/m^3	N/A	N/A	No	NTX
	124-48-1	Dibromochloromethane	2.30E+01	2.30E+01	ppbv	VA0549	1/662	3.30E-01 - 4.00E+04	208.28	1.96E+02	ug/m^3	N/A	N/A	No	NTX
	141-78-6	Ethyl acetate	9.80E+00 J	9.80E+00 J	ppbv	VA1714	1/662	3.10E-01 - 4.00E+04	88.11	3.53E+01	ug/m^3	N/A	N/A	No	NTX
	100-41-4	Ethylbenzene	5.00E+00 J	4.40E+04 J	ppbv	VA0408	288/662	1.50E+00 - 8.00E+04	106.17	1.91E+05	ug/m^3	N/A	2.30E+04 (M)	Yes	ASL
	106-93-4	Ethylene dibromide	1.40E+00 J-	2.50E+02 J+	ppbv	VA2087	7/662	3.70E-01 - 4.00E+04	187.86	1.92E+03	ug/m^3	N/A	N/A	No	NTX
	76-13-1	Freon 113	1.90E+00 J-	2.60E+01 J-	ppbv	VA0607	6/662	2.20E-01 - 4.00E+04	187.38	1.99E+02	ug/m^3	N/A	9.09E+05 (M)	No	BSL
	N/A	m&p-Xylenes (6)	4.08E+00 J	1.50E+05	ppbv	VA0838	508/662	1.00E+00 - 8.00E+04	106.17	6.51E+05	ug/m^3	N/A	8.70E+04 (L)	Yes	ASL
	74-87-3	Methyl chloride	3.40E+00 J-	1.60E+01	ppbv	VA0550	2/662	2.10E-01 - 4.00E+04	50.49	3.30E+01	ug/m^3	N/A	2.10E+04 (L)	No	BSL
	78-93-3	Methyl ethyl ketone	3.50E+00	1.40E+05	ppbv	VA1668	108/662	5.70E-01 - 4.00E+04	72.11	4.13E+05	ug/m^3	N/A	8.60E+05 (M)	No	BSL
	108-10-1	Methyl isobutyl ketone (MIBK)	3.90E+00 J-	3.96E+02	ppbv	VA1105	8/662	3.10E-01 - 4.00E+04	100.16	1.62E+03	ug/m^3	N/A	N/A	No	NTX
	75-09-2	Methylene chloride	2.10E+00 J-	9.20E+04 J	ppbv	VA1345	150/662	1.20E+00 - 3.20E+05	84.93	3.20E+05	ug/m^3	N/A	1.30E+06 (L)	No	BSL
	142-82-5	n-Heptane	5.30E+00 J-	1.40E+06	ppbv	VA0408	563/662	5.00E-01 - 2.00E+03	100.21	5.74E+06	ug/m^3	N/A	N/A	No	NTX
	110-54-3	n-Hexane	1.00E+01 J	2.60E+06	ppbv	VA1040	555/662	1.40E+00 - 5.50E+02	86.18	9.16E+06	ug/m^3	N/A	N/A	No	NTX
	95-47-6	o-Xylene (6)	2.00E+00	5.20E+04	ppbv	VA0838	249/662	5.20E-01 - 4.00E+04	106.17	2.26E+05	ug/m^3	N/A	8.70E+04 (L)	Yes	ASL
	115-07-1	Propylene	2.18E+00	1.80E+04	ppbv	VA1031	59/662	1.50E-01 - 4.00E+04	42.08	3.10E+04	ug/m^3	N/A	N/A	No	NTX
	100-42-5	Styrene	1.20E+00 J-	1.60E+00 J-	ppbv	VA0681	3/662	5.30E-01 - 4.00E+04	104.15	6.82E+00	ug/m^3	N/A	1.92E+05 (M)	No	BSL
	127-18-4	Tetrachloroethylene	1.50E+00 J-	2.30E+00 J-	ppbv	VA0568	2/662	3.00E-01 - 4.00E+04	165.83	1.56E+01	ug/m^3	N/A	7.30E+04 (L)	No	BSL
	109-99-9	Tetrahydrofuran	1.30E+00 J-	6.10E+03	ppbv	VA2427	7/662	4.00E-01 - 4.00E+04	72.11	1.80E+04	ug/m^3	N/A	N/A	No	NTX
	108-88-3	Toluene	1.65E+01 J-	1.50E+06	ppbv	VA0408	598/662	3.20E-01 - 1.30E+03	92.14	5.65E+06	ug/m^3	N/A	6.00E+04 (L)	Yes	ASL
	79-01-6	Trichloroethylene	2.00E+00 J-	2.90E+00 J-	ppbv	VA0635	2/662	2.40E-01 - 4.00E+04	131.39	1.56E+01	ug/m^3	N/A	1.90E+04 (L)	No	BSL
	75-69-4	Trichlorofluoromethane	1.90E+00 J-	1.90E+00 J-	ppbv	VA0635	1/662	3.00E-01 - 4.00E+04	137.37	1.07E+01	ug/m^3	N/A	8.20E+05 (L)	No	BSL
	1330-20-7	Xylene (total)	6.28E+00 J	2.10E+05	ppbv	VA0838	508/662	1.60E+00 - 1.20E+05	106.17	9.12E+05	ug/m^3	N/A	8.70E+04 (L)	Yes	ASL

(1) When necessary, maximum detection converted from parts per billion by volume (ppbv) to ug/m^3 by multiplying by the molecular weight and dividing by 24.45 (molecular weight values from EPA's EpiSuite version 4.1.1)

(2) Maximum concentration used for screening.

(3) N/A - No background data are available for soil gas.

(4) Ecological screening levels (ESLs) are the lowest air No-Effect ESL from LANL Ecorisk Datatbase (Release 3.1), October 2012. If a LANL value was unavaialble, the MWH (2011) TRV-Low soil vapor screening value was used. (L) = LANL; (M) = MWH.

(5) Rationale Codes

Selection Reason: Toxicity Information Available (TX)
Above Screening Levels (ASL)

Deletion Reason: Background Levels (BKG)
No Toxicity Information (NTX)
Below Screening Level (BSL)

(6) Total xylene used for screening.

Definitions:
N/A = Not Applicable or Not Available
COPEC = Chemical of Potential Ecological Concern
J+, J- = Estimated Value

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Table 4-4
Media-Specific Exposure Point Concentration Summary for COPECs, Surface Soil (0-5 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil (0-5 ft bgs)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Surface Soil (0-5 ft bgs)	1,2,4-Trimethylbenzene	mg/kg	1.96E-02	Yes	1.49E-02 (NP)	8.89E-01	1.49E-02	mg/kg	95% KM-Cheby	Test (1)
	1,3,5-Trimethylbenzene	mg/kg	1.76E-02	Yes	7.10E-03 (NP)	3.02E-01	7.10E-03	mg/kg	97.5% KM-Cheby	Test (1)
	2-Methylnaphthalene	mg/kg	8.94E-01	Yes	3.94E-01 (NP)	2.32E+01	3.94E-01	mg/kg	95% KM-Cheby	Test (1)
	Acenaphthene	mg/kg	8.32E-02	Yes	2.84E-02 (L)	4.99E-01	2.84E-02	mg/kg	95% KM-BCA	Test (1)
	Benzo(a)anthracene	mg/kg	2.49E-01	Yes	1.19E-01 (NP)	5.39E+00	1.19E-01	mg/kg	95% KM-BCA	Test (1)
	bis(2-Ethylhexyl) phthalate	mg/kg	1.61E-01	Yes	6.14E-02 (NP)	2.45E+00	6.14E-02	mg/kg	95% KM-BCA	Test (1)
	Chrysene	mg/kg	2.17E-01	Yes	1.46E-01 (NP)	6.76E+00	1.46E-01	mg/kg	95% KM-BCA	Test (1)
	Di-n-butyl phthalate	mg/kg	3.03E-02	Yes	1.72E-02 (NP)	8.99E-02	1.72E-02	mg/kg	95% KM-t	Test (1)
	Lead	mg/kg	1.20E+01	No	1.59E+01 (NP)	1.40E+02	1.59E+01	mg/kg	95% Cheby, Mean, Sd	Test (3)
	Naphthalene	mg/kg	1.97E-01	Yes	5.41E-02 (L)	2.45E+00	5.41E-02	mg/kg	97.5% KM-Cheby	Test (1)
	TPH - Diesel Range Organics	mg/kg	4.03E+01	Yes	9.33E+01 (NP)	4.52E+03	9.33E+01	mg/kg	95% KM-Cheby	Test (1)
	TPH - Gasoline Range Organics	mg/kg	4.50E+01	Yes	1.70E+01 (NP)	1.75E+03	1.70E+01	mg/kg	95% KM-BCA	Test (1)

Notes: N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby);
95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD);
97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T)
95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma);
95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE); 95% Gamma ROS Approximate Gamma (95% GROS Approx. Gamma).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): 95% UCL exceeds or equals the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Infrequent detection resulted in ProUCL modeling error for this constituent, therefore, maximum concentration used for EPC.

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Table 4-5
Media-Specific Exposure Point Concentration Summary for COPECs, Total Soil (0-10 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Total Soil (0-10 ft BGS)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Total Soil (0-10 ft bgs)	1,2,4-Trimethylbenzene	mg/kg	1.62E+00	Yes	1.14E+00 (NP)	5.92E+01	1.14E+00	mg/kg	97.5% KM-Cheby	Test (1
	1,3,5-Trimethylbenzene	mg/kg	1.11E+00	Yes	3.03E-01 (NP)	1.55E+01	3.03E-01	mg/kg	97.5% KM-Cheby	Test (1
	2-Methylnaphthalene	mg/kg	2.52E+00	Yes	8.03E-01 (NP)	3.24E+01	8.03E-01	mg/kg	97.5% KM-Cheby	Test (1
	Acenaphthene	mg/kg	8.99E-02	Yes	2.74E-02 (NP)	6.20E-01	2.74E-02	mg/kg	95% KM-BCA	Test (1
	Benzo(a)anthracene	mg/kg	2.86E-01	Yes	1.12E-01 (NP)	9.00E+00	1.12E-01	mg/kg	95% KM-BCA	Test (1
	bis(2-Ethylhexyl) phthalate	mg/kg	1.32E-01	Yes	4.80E-02 (NP)	2.45E+00	4.80E-02	mg/kg	95% KM-BCA	Test (1
	Chrysene	mg/kg	2.24E-01	Yes	1.25E-01 (NP)	9.38E+00	1.25E-01	mg/kg	95% KM-BCA	Test (1
	Di-n-butyl phthalate	mg/kg	2.98E-02	Yes	1.67E-02 (G)	8.99E-02	1.67E-02	mg/kg	95% KM-t	Test (1
	Fluoranthene	mg/kg	2.77E-01	Yes	1.73E-01 (NP)	1.82E+01	1.73E-01	mg/kg	95% KM-BCA	Test (1
	Lead	mg/kg	1.07E+01	No	1.31E+01 (NP)	1.40E+02	1.31E+01	mg/kg	95% Cheby, Mean, Sd	Test (3
	m&p-Xylenes	mg/kg	3.60E-01	Yes	2.00E-01 (NP)	1.14E+01	2.00E-01	mg/kg	97.5% KM-Cheby	Test (1
	n-Butylbenzene	mg/kg	6.32E+00	Yes	6.09E-01 (L)	4.16E+01	6.09E-01	mg/kg	97.5% KM-Cheby	Test (1
	Naphthalene	mg/kg	3.93E+00	Yes	7.99E-01 (NP)	4.50E+01	7.99E-01	mg/kg	97.5% KM-Cheby	Test (1
	o-Xylene	mg/kg	3.26E-01	Yes	1.18E-01 (NP)	6.75E+00	1.18E-01	mg/kg	97.5% KM-Cheby	Test (1
	Phenanthrene	mg/kg	1.78E-01	Yes	9.78E-02 (NP)	7.73E+00	9.78E-02	mg/kg	95% KM-BCA	Test (1
	Pyrene	mg/kg	2.63E-01	Yes	1.55E-01 (NP)	1.19E+01	1.55E-01	mg/kg	95% KM-BCA	Test (1
	TPH - Diesel Range Organics	mg/kg	1.04E+02	Yes	1.78E+02 (NP)	8.38E+03	1.78E+02	mg/kg	95% KM-Cheby	Test (1
	TPH - Gasoline Range Organics	mg/kg	1.06E+02	Yes	4.25E+01 (NP)	1.75E+03	4.25E+01	mg/kg	97.5% KM-Cheby	Test (1
	Xylenes (total)	mg/kg	6.02E-01	Yes	3.17E-01 (NP)	1.81E+01	3.17E-01	mg/kg	97.5% KM-Cheby	Test (1

Notes: N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby);
95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD);
97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T)
95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma);
95% Gamma Approximate KM-UCL (95% Approx. Gamma KM-UCL); 95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): 95% UCL exceeds or equals the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Infrequent detection resulted in ProUCL modeling error for this constituent, therefore, maximum concentration used for EPC.

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Table 4-6
Media-Specific Exposure Point Concentration Summary for Hot-Spot Soil Gas COPECs (0-50 ft bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Scenario Timeframe: Current/Future
Medium: Soil Gas (0-50 ft)
Exposure Medium: Soil Gas (0- 50 ft)

									Hot-Spot Exposure Point Concentration [5]				
Exposure Point	Chemical of Potential Ecological Concern	Units	Sample Depth Range (ft BGS) [1]	Shallower Samples Available (Yes/No) [2]	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [3]	95% UCL (Distribution) [4]	Maximum Concentration	Molecular Weight	Value [6]	Units	Statistic [7]	Rationale [8]
Soil Gas (MDC Depth) [1]	Acetone	pbbv	45 - 60	Yes	3.91E+05	N/A	6.04E+05 (N)	9.40E+05	58.08	1.44E+06	ug/m^3	95% Student's-t	Test (4)
	Benzene	pbbv	50 - 52.5	Yes	3.71E+05	No	4.77E+05 (N)	5.90E+05	78.11	1.53E+06	ug/m^3	95% Student's-t	Test (4)
	Benzene, 1,2,4-trimethyl	pbbv	15 - 25	No	2.82E+04	Yes	9.91E+04 (NP)	5.60E+04	120.19	2.75E+05	ug/m^3	Max	Test (2)
	Benzene, 1,3,5-trimethyl-	pbbv	15 - 25	No	N/A	N/A	N/A	2.30E+04	120.19	1.13E+05	ug/m^3	Max	Test (8)
	Ethylbenzene	pbbv	50 - 52.5	Yes	3.90E+04	Yes	3.92E+04 (NP)	4.40E+04	106.17	1.70E+05	ug/m^3	95% KM-t	Test (1)
	Toluene	pbbv	50 - 52.5	Yes	7.26E+05	N/A	9.89E+05 (N)	1.50E+06	92.14	3.73E+06	ug/m^3	95% Student's-t	Test (4)
	m&p-Xylenes	pbbv	15 - 25	No	2.43E+04	No	2.95E+05 (G)	1.50E+05	106.17	6.51E+05	ug/m^3	Max	Test (2)
	o-Xylene	pbbv	15 - 25	No	1.75E+04	Yes	2.07E+04 (N)	5.20E+04	106.17	8.98E+04	ug/m^3	95% KM-t	Test (4)
	Xylene (total)	pbbv	15 - 25	No	3.30E+04	No	4.41E+05 (G)	2.10E+05	106.17	9.12E+05	ug/m^3	Max	Test (2)
Soil Gas (15-25 ft) [2]	Acetone	pbbv	15 - 25	No	7.18E+03	Yes	1.02E+04 (N)	2.60E+04	58.08	2.42E+04	ug/m^3	95% KM-t	Test (1)
	Benzene	pbbv	15 - 25	No	1.41E+04	No	1.30E+05 (G)	7.10E+04	78.11	2.27E+05	ug/m^3	Max	Test (2)
	Ethylbenzene	pbbv	15 - 25	No	9.30E+03	Yes	1.38E+04 (N)	3.60E+04	106.17	6.01E+04	ug/m^3	95% KM-t	Test (1)
	Toluene	pbbv	15 - 25	No	4.59E+04	No	4.46E+05 (G)	1.50E+05	92.14	5.65E+05	ug/m^3	Max	Test (2)

Notes: N/A = not applicable; "hot-spot" = the sampling location and depth where the soil gas COPEC MDC occurred.

[1] Soil gas samples were collected from two depth intervals (15-25 ft BGS and 45-60 ft BGS). Depth interval listed is from the soil gas MDC hot-spot location.

[2] If the soil gas MDC hot-spot occurred at the deeper sampling interval (45-60 ft BGS), the EPC was also calculated for the shallower depth interval (15-25 ft BGS).

[3] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[4] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[5] The EPC was calculated using eight quarters of data collected from the sampling location where the COPEC MDC occurred (i.e., "hot-spot"). See text for additional details.

[6] Concetrations were converted from parts per billion by volume (ppbv) to ug/m^3 by multiplying by the molecular weight and dividing by 24.45 (molecular weight values from EPA's EpiSuite version 4.1.1)

[7] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby);
95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD);
97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T)
95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma);
95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE); 95% Gamma ROS Approximate Gamma (95% GROS Approx. Gamma).

[8] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): 95% UCL exceeds or equals the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Infrequent detection resulted in ProUCL modeling error for this constituent, therefore, maximum concentration used for EPC.

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Table 4-7
Assessment and Measurement Endpoints
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Assessment Endpoint	Basis For Assessment Endpoint	Measurement Endpoint	Receptor
Growth, survival, and reproduction of soil invertebrate communities, as they serve as a food source for higher order consumers.	Soil invertebrates promote development of a well-conditioned soil to support plant growth. Soil invertebrates are an important dietary component for a number of upper trophic level receptors.	Comparison of the MDC and EPC in the top ten feet of soil to benchmark values.	Soil Invertebrates
Growth, survival, and reproduction of terrestrial plant communities, as they serve as a food source for higher order consumers.	Plants provide food and habitat for a multitude of wildlife receptors.	Comparison of the MDC and EPC in the top ten feet of soil to benchmark values.	Terrestrial plants
Growth, survival, and reproduction of avian terrestrial omnivore populations.	Avian terrestrial herbivores are consumers of the nuts, seeds, and berries produced by plants, and terrestrial invertebrates. They serve as prey species for upper trophic level receptors.	Calculation of maximum intake (Tier 1) and more reasonable intake (Tier 2) and comparison to NOAEL and LOAEL TRVs found in the literature.	American robin
Growth, survival, and reproduction of avian terrestrial carnivore populations.	Avian terrestrial carnivores consume small birds, small mammal, and terrestrial invertebrates, thereby ensuring balance in the ecosystem. These receptors may be particularly vulnerable to compounds which bioaccumulate.	Calculation of maximum intake (Tier 1) and more reasonable intake (Tier 2) and comparison to NOAEL and LOAEL TRVs found in the literature.	American kestrel
Growth, survival, and reproduction of mammalian terrestrial herbivore populations.	Mammalian terrestrial herbivores are consumers of the nuts, seeds, and berries produced by plants, and serve as prey species for upper trophic level receptors.	Calculation of maximum intake (Tier 1) and more reasonable intake (Tier 2) and comparison to NOAEL and LOAEL TRVs found in the literature.	Desert cottontail
Growth, survival, and reproduction of mammalian terrestrial insectivore populations.	Mammalian terrestrial insectivores are important consumers of soil invertebrates, and serve as prey species for upper trophic level receptors.	Calculation of maximum intake (Tier 1) and more reasonable intake (Tier 2) and comparison to NOAEL and LOAEL TRVs found in the literature.	Montane shrew
Growth, survival, and reproduction of mammalian terrestrial carnivore populations.	Mammalian terrestrial carnivores consume small birds and mammals, thereby ensuring balance in the ecosystem. These receptors may be particularly vulnerable to compounds which bioaccumulate.	Calculation of maximum intake (Tier 1) and more reasonable intake (Tier 2) and comparison to NOAEL and LOAEL TRVs found in the literature.	Red fox
Growth, survival, and reproduction of populations of burrowing mammals.	Burrowing mammal that spends approximately 90% of its life in subterranean tunnels and burrows. These receptors serve as a receptor to estimate exposure to soil gas.	Comparison of MDC and EPC in shallow soil gas (< 50 ft BGS) to screening values.	Botta's pocket gopher

LOAEL - lowest-observed-adverse-effect level
NOAEL - no-observed-adverse-effect level
TRV - toxicity reference value

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Table 4-8
Wildlife Hazard Quotient Summary
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Receptor	Tier 1[a] NOAEL-Based HQ	Tier 1[a] LOAEL-Based HQ	Tier 2[b] NOAEL-Based HQ	Tier 2[b] LOAEL-Based HQ
Desert Cottontail	993	597	3.0	2.1
Hazard Driver(s)[c]:	m&p xylenes, total xylenes plant ingestion		Individual HQs < 1	
Montane shrew	397	104	6.1	3.2
Hazard Driver(s)[c]:	lead, fluoranthene terrestrial invert. ingestion		lead terrestrial invert. ingestion	
Red fox	29	18	0.0004	0.0003
Hazard Driver(s)[c]:	m&p xylenes, total xylenes, lead mammal, plant, and soil ingestion		Total HQ < 1	
American robin	80	25	3.8	2.4
Hazard Driver(s)[c]:	lead soil and terrestrial invert. ingestion		lead soil and terrestrial invert. ingestion	
American kestrel	82	28	0.04	0.03
Hazard Driver(s)[c]:	lead terrestrial invert. ingestion		Total HQ < 1	

[a] Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
[b] Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR less than or equal to 1.
[c] Hazard drivers are those chemicals contributing the most to the total estimated HQ, and the primary route of exposure associated with this driver.

HQ - Hazard Quotient
LOAEL - Lowest Observed Adverse Effect Level
NOAEL - No Observed Adverse Effect Level
FHR - Fraction home range
BW - Body weight
BAF/BCF - Bioaccumulation Factor/Bioconcentration Factor
EPC - Exposure point concentration

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Table 4-9
Hazard Quotient Summary for Hot-Spot Soil Gas COPECs (0-50 feet bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Exposure Point (Sample End Depth)	Chemical of Potential Ecologial Concern	EPC Value [3]	EPC Depth (ft)	EPC Units	Soil Gas Toxicity Values [4] LANL ESL	MWH TRV-Low	MWH TRV-High	Hazard Quotients [5] LANL ESL (NOAEL)	MWH TRV-Low	MWH TRV-High	Comments [6]
Soil Gas (MDC Depth) [1]	Acetone	1.44E+06	45 - 60	ug/m³	5.30E+05	N/A	N/A	**2.7**	N/A	N/A	
	Benzene	1.53E+06	50 - 53	ug/m³	2.50E+04	N/A	N/A	**61**	N/A	N/A	
	Benzene, 1,2,4-trimethyl	2.75E+05	15 - 25	ug/m³	---	7.80E+03	3.90E+04	---	**35**	**7.1**	MDC used as the EPC.
	Benzene, 1,3,5-trimethyl-	1.13E+05	15 - 25	ug/m³	---	7.80E+03	3.90E+04	---	**14**	**2.9**	MDC used as the EPC.
	Ethylbenzene	1.70E+05	50 - 53	ug/m³	---	2.30E+04	1.16E+05	---	**7.4**	**1.5**	
	Toluene	3.73E+06	50 - 53	ug/m³	6.00E+04	N/A	N/A	**62**	N/A	N/A	
	m&p-Xylenes	6.51E+05	15 - 25	ug/m³	8.70E+04	N/A	N/A	**7.5**	N/A	N/A	MDC used as the EPC.
	o-Xylene	8.98E+04	15 - 25	ug/m³	8.70E+04	N/A	N/A	1.0	N/A	N/A	
	Xylene (total)	9.12E+05	15 - 25	ug/m³	8.70E+04	N/A	N/A	**10**	N/A	N/A	MDC used as the EPC.
Soil Gas (15-25 ft) [2]	Acetone	2.42E+04	15 - 25	ug/m³	5.30E+05	N/A	N/A	0.05	N/A	N/A	
	Benzene	2.27E+05	15 - 25	ug/m³	2.50E+04	N/A	N/A	**9.1**	N/A	N/A	MDC used as the EPC.
	Ethylbenzene	6.01E+04	15 - 25	ug/m³	---	2.30E+04	1.16E+05	---	**2.6**	0.5	
	Toluene	5.65E+05	15 - 25	ug/m³	6.00E+04	N/A	N/A	**9.4**	N/A	N/A	MDC used as the EPC.

Notes: N/A = not applicable; "---" = not available; "hot-spot" = the sampling location and depth where the soil gas COPEC MDC occurred.

[1] Soil gas samples were collected from two depth intervals (15-25 ft bgs and 45-60 ft bgs). The soil gas MDC depth EPCs and HQs are for the MDC hot-spot location.

[2] If the soil gas MDC hot-spot occurred at the deeper sampling interval (45-60 ft bgs), the EPC was also calculated for the shallower depth interval (15-25 ft bgs), if available.

[3] The EPC was calculated using eight quarters of data collected from the sampling location where the COPEC MDC occurred (i.e., "hot-spot").

[4] Toxicity values are the No-Effect ESL from LANL Ecorisk Datatbase (Release 3.1), October 2012, and if LANL ESL N/A, then MWH (2011) TRV-Low and TRV-High soil vapor screening values were used (see text for details).

[5] The Hazard Quotient is calculated by dividing the EPC by the selected toxicity value.

[6] The MDC used due to ProUCL not processing data (as a result of too few detections) or the ProUCL estimated 95% UCL exceeding the MDC.

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Table 4-10
Detailed Evaluation of Soil Gas COPEC Drivers for Burrowing Mammals
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Shallow Toluene Conc of Concern (ppb-v)	Sample ID	Location, Date	Shallow Toluene Conc of Concern (ppb-v)	Sample ID	Location, Date
LANL ESL=15921 ppb-v (60,000 ug/m^3)					
230000	VA1912	K-106138, 8/12	29000	VA1157	K-106119, 3/12
180000	VA1859	K-106130, 10/12	29000	VA1793	K-106120, 8/12
150000	VA0838	K-106118, 11/11	28000	VA0476	K-106111, 9/11
150000	VA1151	K-106118, 3/12	26000	VA2061	K-106113, 11/12
140000	VA2539	K-106138, 2/13	24000	VA1451	K-106116, 5/12
130000	VA1603	K-106139, 6/12	24000	VA1144	K-106117, 1/12
98000	VA1230	K-106130, 1/12	24000	VA2212	K-106136, 11/12
91000	VA1438	K-106114, 3/12	23000	VA1925	K-106140, 9/12
89000	VA1471	K-1061119, 6/12	22000	VA1431	K-106113, 6/12
81000	VA1425	K-106112, 6/12	21000	VA2225	K-106138, 12/12
61000	VA1491	K-106122, 6/12	20000	VA2401	K-106117, 3/13
45000	VA2362	K-106111, 3/12	19000	VA2245	K-106141, 12/12
40000	VA2185	K-106132, 12/12	19000	VA0851	K-106120, 10/11
39000	VA2100	K-106119, 12/12	19000	VA1131	K-106115, 1/12
36000	VA1418	K-106111, 6/12	19000	VA1309	K-106142, 3/12
36000	VA2087	K-106117, 11/12	18000	VA2421	K-106120, 3/13
35000	VA1137	K-106116, 3/12	17000	VA1117	K-106113, 1/12
33000	VA2067	K-106114, 11/12	16000	VA0871	K-106123, 10/11
31000	VA1104	K-106111, 3/12	16000	VA0824	K-106116, 11/11
31000	VA2427	K-106121, 3/13			

Shallow Benzene Conc of Concern (ppb-v)	Sample ID	Location, Date	Shallow Benzene Conc of Concern (ppb-v)	Sample ID	Location, Date
LANL ESL = 7826 ppb-v (25,000 ug/m^3)					
71000	VA1151	K-106118, 3/12	14000	VA2185	K-106132, 12/12
62000	VA1230	K-106130, 1/12	13000	VA1144	K-106117, 1/12
53000	VA1859	K-106130, 10/12	13000	VA1418	K-106111, 6/12
51000	VA2539	K-106138, 2/13	13000	VA2087	K-106117, 11/12
35000	VA1603	K-106139, 6/12	11000	VA0476	K-106111, 9/11
32000	VA1491	K-106122, 6/12	11000	VA1157	K-106119, 3/12
28000	VA1438	K-106114, 3/12	11000	VA1104	K-106111, 3/12
25000	VA1471	K-106119, 6/12	11000	VA2061	K-106113, 11/12
22000	VA1425	K-106112, 6/12	8900	VA1117	K-106113, 1/12
21000	VA0838	K-106118, 11/11	8700	VA1451	K-106116, 5/12
20000	VA1137	K-106116, 3/12	8700	VA1309	K-106142, 3/12
18000	VA1912	K-106138, 8/12	8500	VA2067	K-106114, 11/12
16000	VA0924	K-106131, 10/11	7900	VA2362	K-106111, 3/12

Table 4-10
Detailed Evaluation of Soil Gas COPEC Drivers for Burrowing Mammals
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Shallow Xylene Conc of Concern (ppb-v)	Sample ID	Location, Date
LANL ESL = 20035 ppb-v (87,000 ug/m^3)		
210000	VA0838	K-106118, 11/11
25000	VA1912	K-106138, 8/12
Shallow 1,2,4-TMB Conc of Concern (ppb-v)	**Sample ID**	**Location, Date**
MWH TRVh = 7934 ppb-v (39000 ug/m^3)		
56000	VA0838	K-106118, 11/11
Shallow 1,3,5-TMB Conc of Concern (ppb-v)	**Sample ID**	**Location, Date**
MWH TRVh = 7934 ppb-v (39000 ug/m^3)		
23000	VA0838	K-106118, 11/11

Notes:

These five VOCs had elevated inhalation hazard quotient estimates (greater than 1).

Location results presented are those in shallow samples with concentrations in site soil vapor probe samples that exceed the ecological screening values for small mammal inhalation exposure:

(1) LANL = Los Alamos National Laboratory (2013) NOAEL-based ESL for gopher (LOAEL ESL not available)

(2) MWH TRVh = Montgomery Watson TRV-high value (2010) (used if no LANL ESL available)

Sample results in this table were collected at depths from the following intervals:

10 - 19.5 ft bgs
10 - 20 ft bgs
15 - 25 ft bgs
15.2 - 25.2 ft bgs
20 - 30 ft bgs (only one result)

These data demonstrate that:

Toluene threshold exceeded in 21 locations
Benzene threshold exceeded in 15 locations
Xylene threshold exceeded in 2 locations
1,2-4- and 1,3,5-trimethylbenzene threshold exceeded in 1 location

Table 4-11
Direct Contact Toxicity Evaluation for Total Soil (0-10 ft bgs)
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Chemical	Detection Frequency	MDC	EPC	USEPA Direct Contact EcoSSLs		LANL Direct Contact ESLs for Plants (3)		LANL Direct Contact ESLs for Invertebrates (4)		USEPA Region-V ESLs (5)	CCME Value (6)	COPEC Weight of Evidence Summary	
				Plants (1)	Invertebrates (2)	No-Effect ESLs	Low-Effect ESLs	No-Effect ESLs	Low-Effect ESLs			Number of Direct Contact Benchmarks Exceeded Using MDC	Number of Direct Contact Benchmarks Exceeded Using EPC
1,2,4-Trimethylbenzene	106 / 652	5.92E+01	1.14E+00	NVA	NVA	NVA	NVA	NVA	NVA	NVA	NVA	—	—
1,3,5-Trimethylbenzene	46 / 652	1.55E+01	3.03E-01	NVA	NVA	NVA	NVA	NVA	NVA	NVA	NVA	—	—
2-Methylnaphthalene	55 / 652	3.24E+01	8.03E-01	NVA	2.90E+01 (LMW)	NVA	NVA	NVA	NVA	NVA	NVA	1 / 1	0 / 1
Acenaphthene	33 / 652	6.20E-01	2.74E-02	NVA	2.90E+01 (LMW)	2.50E-01	2.50E+00	NVA	NVA	NVA	NVA	1 / 3	0 / 3
Benzo(a)anthracene	125 / 652	9.00E+00	1.12E-01	NVA	1.80E+01 (HMW)	1.80E+01	1.80E+02	NVA	NVA	NVA	7.00E-01	1 / 4	0 / 4
bis(2-Ethylhexyl) phthalate	80 / 652	2.45E+00	4.80E-02	NVA	NVA	NVA	NVA	NVA	NVA	NVA	NVA	—	—
Chrysene	206 / 652	9.38E+00	1.25E-01	NVA	1.80E+01 (HMW)	NVA	NVA	NVA	NVA	NVA	NVA	0 / 1	0 / 1
Di-n-butyl phthalate	30 / 652	8.99E-02	1.67E-02	NVA	NVA	1.60E+02	6.00E+02	NVA	NVA	NVA	NVA	0 / 2	0 / 2
Fluoranthene	267 / 652	1.82E+01	1.73E-01	NVA	2.90E+01 (LMW)	NVA	NVA	1.00E+01	2.30E+01	NVA	NVA	1 / 3	0 / 3
Lead	652 / 652	1.40E+02	1.31E+01	1.20E+02	1.70E+03	1.20E+02	5.70E+02	1.70E+03	8.40E+03	NVA	1.40E+02	2 / 7	0 / 7
m&p-Xylenes	77 / 652	1.14E+01	2.00E-01	NVA	NVA	1.00E+02	1.00E+03	NVA	NVA	1.00E+01	1.00E+00	2 / 4	0 / 4
n-Butylbenzene	11 / 652	4.16E+01	6.09E-01	NVA	NVA	NVA	NVA	NVA	NVA	NVA	NVA	—	—
Naphthalene	34 / 652	4.50E+01	7.99E-01	NVA	2.90E+01 (LMW)	1.00E+00	1.00E+01	NVA	NVA	NVA	6.00E-01	4 / 4	1 / 4
o-Xylene	50 / 652	6.75E+00	1.18E-01	NVA	NVA	1.00E+02	1.00E+03	NVA	NVA	1.00E+01	1.00E+00	1 / 4	0 / 4
Phenanthrene	204 / 652	7.73E+00	9.78E-02	NVA	2.90E+01 (LMW)	NVA	NVA	5.50E+00	1.20E+01	NVA	5.00E+00	2 / 4	0 / 4
Pyrene	221 / 652	1.19E+01	1.55E-01	NVA	1.80E+01 (HMW)	NVA	NVA	1.00E+01	2.00E+01	NVA	1.00E+01	2 / 4	0 / 4
TPH - Diesel Range Organics	483 / 652	8.38E+03	1.78E+02	NVA	NVA	NVA	NVA	NVA	NVA	NVA	NVA	—	—
TPH - Gasoline Range Organics	75 / 652	1.75E+03	4.25E+01	NVA	NVA	NVA	NVA	NVA	NVA	NVA	NVA	—	—
Xylenes (total)	73 / 652	1.81E+01	3.17E-01	NVA	NVA	1.00E+02	1.00E+03	NVA	NVA	1.00E+01	1.00E+00	2 / 4	0 / 4

Notes:

All values presented in mg/kg; MDC = Maximum Detected Concentration; EPC = Exposure Point Concentration; NVA = No Value Available; LMW = Low Molecular Weight; HMW = High Molecular Weight; "—" = no benchmarks, did not evaluate.

(1) EcoSSL value for direct contact toxicity for plants (USEPA, 2007).

(2) EcoSSL value for direct contact toxicity for terrestrial invertebrates (USEPA, 2007). LMW and HMW total PAH EcoSSLs used for PAHs.

(3) No-Effect and Low-Effect plant ESLs from LANL Ecorisk Datatbase (Release 3.1), October 2012.

(4) No-Effect and Low-Effect invertebrate ESLs from LANL Ecorisk Datatbase (Release 3.1), October 2012.

(5) EPA Region-V ESLs for plant or earthworm toxicity (USEPA, 2003).

(6) Canadian Council of Ministers of the Environment (CCME), Canadian Environmental Quality Guidelines for residential and park soil, December 2003.

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Table 4-12
Uncertainty Analysis Summary
Bulk Fuels Facility, Kirtland Air Force Base, New Mexico

Component	Bias	Magnitude	Ways to Minimize Uncertainty	Additional Comments
Use of representative receptor species for site ecological community	Underestimates Risk	Low	Select additional receptor species	Easy to implement, but unlikely to change conclusions
Use of soil gas data to estimate inhalation hazards to burrowing wildlife (pocket gopher)	Overestimates Risk	Medium to High	Collect soil gas at near surface (2 ft) or collect samples from actual burrows, if present.	Likely to reduce estimated hazards.
Discounting of dermal exposure routes	Underestimates Risk	Low	Include dermal routes of exposure	Would be difficult to quantify this route of exposure
Use of direct contact screening values without knowing the source of the value or organism the study was based on	Underestimates or Overestimates Risk	Low	Obtain COPEC-specific direct contact toxicity data	May be costly to obtain unless data are available in the literature
Use of conservative foraging factors (i.e., 100%) for some species	Overestimates Risk	Medium	Use more site-specific foraging factors, i.e., less than 100%	May be difficult to obtain site-specific foraging factors
Use of safety factors to convert LOAEL and LD_{50} toxicity data to NOAELs	Overestimates Risk	Medium	Obtain COPEC-specific NOAEL data	Would be costly to implement unless data are available in the literature
Discounting potential effects from COPECs that lack toxicity data	Underestimates Risk	Medium to High	Perform COPEC-specific toxicity tests or perform an extensive literature review	Would be costly to perform unless data are readily available in the literature
Assumption that all COPECs are 100% bioavailable	Overestimates Risk	Medium to High	Obtain medium- and COPEC-specific bioavailability factors	Would be very difficult and costly to obtain these bioavailability factors
Use of partitioning and transfer factors to estimate COPEC concentrations in plants, invertebrates, and prey items.	Overestimates Risk	Medium to High	Measure COPEC concentrations in site plants, invertebrates, and/or other prey species	Would be costly to implement, but could significantly reduce HQs
Use of hazard quotient method to estimate risks to populations or communities may be biased	Overestimates Risk	High	Perform population or community studies	Would be very costly to perform

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APPENDICES

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APPENDICES

A Backup Information for BFF HHRA

A-1. RAGS-D Tables
A-2a. Sample Groupings (Soil, Groundwater, Soil Gas)
A-2b. Initial COPC Screening Tables
A-2c. Spatial Evaluation of Infrequently Detection Chemicals in Groundwater
A-3. Statistical EPC Output
A-4. Groundwater Concentration Time Trend Statistical Analyses
A-5. Soil Emission Factor Calculations (Particulates)
A-6. Soil Emission Factor Calculations (Vapors)
A-7. Dermal Exposure Calculations for COPCs in Groundwater
A-8. Trench Model VOC Air Concentration Calculations – Groundwater
A-9. Johnson & Ettinger Vapor Intrusion Model Results – Soil Gas
A-10. Soil Dermal Absorption Factors
A-11. Benzene Soil Gas Contours
A-12. Johnson & Ettinger Vapor Intrusion Model Results for Soil Gas PRGs
A-13. Soil Gas Regressions and Scatter Plots, for Key COPCs

B Human Health Indoor Air Risk Evaluation

C Ecological Backup Information for BFF SLERA

C-1. Site Photographs
C-2. SLERA Supporting Information
C-3. Statistical EPC Output and Background Statistical Lead Evaluation
C-4. Shallow Benzene and Toluene Soil Gas Contours, for Potential Wildlife Inhalation Exposure

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Table 1
Selection of Exposure Pathways
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Surface Soil	Surface Soil	BFF	Routine Worker	Adult	Incidental ingestion	Quant	Workers could contact surface soil at BFF and be exposed to COPCs via incidental ingestion.
						Dermal	Quant	Workers could contact surface soil at BFF and be exposed to COPCs via dermal absorption.
		Air	Particulates/volatiles released from surface soil at BFF	Routine Worker	Adult	Inhalation	Quant	Workers could be exposed to COPCs released from surface soil at BFF.
			Volatiles from soil gas migrating into indoor air at BFF	Routine Worker	Adult	Inhalation	Quant	Volatile COPCs from soil could potentially migrate into buildings via vapor intrusion. For current exposure, shallowest soil gas data used from three sampling locations within 100 ft of Bldg. 1033. Indoor air concentrations estimated using Johnson and Ettinger Model and site-specific sample depth and soil type.
	Groundwater	Groundwater	BFF Monitoring Wells	Routine Worker	Adult	Ingestion	None	Groundwater associated with the monitoring wells sample depth is not currently being used. Therefore, there is no direct contact with groundwater.
						Dermal	None	Groundwater associated with the monitoring wells sample depth is not currently being used. Therefore, there is no direct contact with groundwater.
			Water Supply Wells	Routine Worker	Adult	Ingestion	Quant	Four water supply wells are currently used to provide drinking water; therefore, direct contact with this deeper groundwater is occurring.
						Dermal	Quant	Four water supply wells are currently used to provide drinking water; therefore, direct contact with this deeper groundwater is occurring.
			Use of Water Supply Wells	Routine Worker	Adult	Inhalation	Quant	Volatiles in groundwater could partition to indoor air during normal use of groundwater (use in washroom, etc).

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current/Future	Surface Soil	Surface Soil	BFF	Maintenance Worker	Adult	Incidental ingestion	None	Workers could contact surface soil at BFF and be exposed to COPCs via incidental ingestion; however maintenance worker would be less exposed than routine worker.
						Dermal	None	Workers could contact surface soil at BFF and be exposed to COPCs via dermal absorption; however maintenance worker would be less exposed than routine worker.
		Air	Particulates/volatiles released from surface soil at BFF	Maintenance Worker	Adult	Inhalation	None	Maintenance workers could be exposed to COPCs released from surface soil at BFF; however maintenance worker would be less exposed than routine worker.
	Groundwater	Groundwater	BFF Monitoring Wells	Residential	Adult and Child	Ingestion	None	Groundwater associated with the monitoring wells sample depth is not currently being used. Therefore, there is no direct contact with groundwater.
						Dermal	None	Groundwater associated with the monitoring wells sample depth is not currently being used. Therefore, there is no direct contact with groundwater.
			Water Supply Wells	Residential	Adult and Child	Ingestion	Quant	Four water supply wells are currently used to provide drinking water; therefore, direct contact with this deeper groundwater is occurring.
						Dermal	Quant	Four water supply wells are currently used to provide drinking water; therefore, direct contact with this deeper groundwater is occurring.
			Household Use of Groundwater from Water Supply Wells	Residential	Adult	Inhalation	Quant	Volatiles in groundwater could partition to indoor air during normal household use of groundwater (showering, dish washing, etc).
					Child	Inhalation	Quant	Volatiles in groundwater could partition to indoor air during normal household use of groundwater (bathing, dish washing, etc).
		Air	Indoor Air at BFF	Routine Worker	Adult	Inhalation	Quant	Volatiles in groundwater could potentially migrate into buildings via vapor intrusion. This pathway quantified using soil gas data and the Vapor Intrusion Johnson & Ettinger Model.

Table 1
Selection of Exposure Pathways
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Surface Soil	Surface Soil	BFF	Routine Worker	Adult	Incidental ingestion	Quant	Workers could contact surface soil at BFF and be exposed to COPCs via incidental ingestion.
						Dermal	Quant	Workers could contact surface soil at BFF and be exposed to COPCs via dermal absorption.
		Air	Particulates/volatiles released from surface soil at BFF	Routine Worker	Adult	Inhalation	Quant	Workers could be exposed to COPCs released from surface soil at BFF.
			Volatiles from soil gas migrating into indoor air at BFF	Routine Worker	Adult	Inhalation	Quant	Volatile COPCs from soil could potentially migrate into buildings via vapor intrusion. For future exposure, data from location of maximum detected soil gas concentrations conservatively used. Indoor air concentrations estimated using Johnson and Ettinger Model and site-specific sample depth and soil type.
	Total Soil	Total Soil	BFF	Residential	Adult	Incidental ingestion	Quant	Residents could be exposed to COPCs in total soil at BFF via incidental ingestion following potential future site development.
						Dermal	Quant	Residents could contact total soil at BFF and be exposed to COPCs via dermal absorption following potential future site development.
					Child	Incidental ingestion	Quant	Residents could be exposed to COPCs in total soil at BFF via incidental ingestion following potential future site development.
						Dermal	Quant	Residents could contact total soil at BFF and be exposed to COPCs via dermal absorption following potential future site development.
				Construction Worker	Adult	Incidental ingestion	Quant	Construction workers could contact total soil at BFF and be exposed to COPCs via incidental ingestion.
						Dermal	Quant	Construction workers could contact total soil at BFF and be exposed to COPCs via dermal absorption.
		Air	Particulates/ volatiles released from total soil at BFF	Residential	Adult	Inhalation	Quant	Residents could be exposed to COPCs released from total soil at BFF following potential future site development.
					Child	Inhalation	Quant	Residents could be exposed to COPCs released from total soil at BFF following potential future site development.
				Construction Worker	Adult	Inhalation	Quant	Construction workers could be exposed to COPCs released from total soil at BFF.
			Volatiles from soil gas migrating into indoor air	Residential	Adult	inhalation	Quant	Volatile COPCs from soil could potentially migrate into buildings via vapor intrusion. For future exposure, data from location with maximum detected soil gas concentrations conservatively used. Indoor air concentrations estimated using Johnson and Ettinger Model and site-specific sample depth and soil type.
					Child	Inhalation	Quant	Volatile COPCs from soil could potentially migrate into buildings via vapor intrusion. For future exposure, data from location with maximum detected soil gas concentrations conservatively used. Indoor air concentrations estimated using Johnson and Ettinger Model and site-specific sample depth and soil type.

Table 1
Selection of Exposure Pathways
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future (cont)	Groundwater	Groundwater	BFF Monitoring Wells	Residential	Adult	Ingestion	Quant	Hypothetical exposures are considered due to the aquifer designation as a potable water supply.
						Dermal	Quant	Hypothetical exposures are considered due to the aquifer designation as a potable water supply.
					Child	Ingestion	Quant	Hypothetical exposures are considered due to the aquifer designation as a potable water supply.
						Dermal	Quant	Hypothetical exposures are considered due to the aquifer designation as a potable water supply.
				Routine Worker	Adult	Ingestion	Quant	Hypothetical exposures are considered due to the aquifer designation as a potable water supply.
						Dermal	Quant	Hypothetical exposures are considered due to the aquifer designation as a potable water supply.
				Construction Worker	Adult	Incidental ingestion	None	Due to the depth of the groundwater at the site, potential future construction/utility workers would not contact the water table during excavation, construction, or utility-related activities in a trench or pit.
						Dermal	None	Due to the depth of the groundwater at the site, potential future construction/utility workers would not contact the water table during excavation, construction, or utility-related activities in a trench or pit.
		Air	Indoor Air at BFF	Residential	Adult	Inhalation	Quant	Volatiles in groundwater could potentially migrate into buildings via vapor intrusion. This pathway quantified using soil gas data and the Vapor Intrusion Johnson & Ettinger Model.
					Child	Inhalation	Quant	Volatiles in groundwater could potentially migrate into buildings via vapor intrusion. This pathway quantified using soil gas data and the Vapor Intrusion Johnson & Ettinger Model.
			Washroom Use of Groundwater from Monitoring Wells	Routine Worker	Adult	Inhalation	Quant	Hypothetical exposures are considered due to the aquifer designation as a potable water supply. Emissions modeled using 0.5 L/m^3 volatilization factor K.
			Trench Vapors at BFF	Construction Worker	Adult	Inhalation	Quant	Volatiles in groundwater could potentially migrate into a construction or utility trench. Quantified using Trench Model.
			Household Use of Groundwater from Monitoring Wells	Residential	Adult	Inhalation	Quant	Volatiles in groundwater could partition to indoor air during normal household use of groundwater (showering, dish washing, etc). Emissions modeled using 0.5 L/m^3 volatilization factor K.
					Child	Inhalation	Quant	Volatiles in groundwater could partition to indoor air during normal household use of groundwater (bathing, dish washing, etc). Emissions modeled using 0.5 L/m^3 volatilization factor K.

Exposure pathways are also summarized on Site Conceptual Exposure Model figure.

Table 7.1
Calculation of Cancer Risks
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Surface Soil	Surface Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	(mg/kg-day)$^{-1}$	2.6E-07
				Benzo(a)anthracene	1.28E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-01	(mg/kg-day)$^{-1}$	2.9E-08
				Benzo(b)fluoranthene	1.38E-01	mg/kg	4.3E-08	mg/kg-day	7.3E-01	(mg/kg-day)$^{-1}$	3.2E-08
				Carbazole	3.94E-02	mg/kg	1.2E-08	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	8.4E-09	mg/kg-day	7.3E+00	(mg/kg-day)$^{-1}$	6.2E-08
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	3.1E-05	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	5.9E-06	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	2.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)$^{-1}$	1.9E-08
				p-Isopropyltoluene	1.15E-02	mg/kg	3.6E-09	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				2-Methylnaphthalene	4.37E-01	mg/kg	1.4E-07	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								4.0E-07
			Dermal Absorption	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	(mg/kg-day)$^{-1}$	2.2E-07
				Benzo(a)anthracene	1.28E-01	mg/kg	3.5E-08	mg/kg-day	7.3E-01	(mg/kg-day)$^{-1}$	2.5E-08
				Benzo(b)fluoranthene	1.38E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-01	(mg/kg-day)$^{-1}$	2.7E-08
				Carbazole	3.94E-02	mg/kg	1.1E-08	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	7.2E-09	mg/kg-day	7.3E+00	(mg/kg-day)$^{-1}$	5.3E-08
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	0.0E+00	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	0.0E+00	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	2.2E-08	mg/kg-day	7.3E-01	(mg/kg-day)$^{-1}$	1.6E-08
				p-Isopropyltoluene	1.15E-02	mg/kg	2.4E-09	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				2-Methylnaphthalene	4.37E-01	mg/kg	1.2E-07	mg/kg-day	N/A	(mg/kg-day)$^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								3.4E-07
		Exposure Point Total									7.4E-07
	Exposure Media Total										7.4E-07

Table 7.1
Calculation of Cancer Risks
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Cancer Risk Calculations: Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Surface Soil	Air (Particulates)	Facility	**Inhalation**	**Organics**							
				Benzo(a)pyrene	5.11E-11	mg/m^3	3.7E-09	$\mu g/m^3$	1.1E-03	$(\mu g/m^3)^{-1}$	4.1E-12
				Benzo(a)anthracene	5.84E-11	mg/m^3	4.2E-09	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	4.7E-13
				Benzo(b)fluoranthene	6.30E-11	mg/m^3	4.6E-09	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	5.0E-13
				Carbazole	1.80E-11	mg/m^3	1.3E-09	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Dibenz(a,h)anthracene	1.22E-11	mg/m^3	8.9E-10	$\mu g/m^3$	1.2E-03	$(\mu g/m^3)^{-1}$	1.1E-12
				Indeno(1,2,3-cd)pyrene	3.68E-11	mg/m^3	2.7E-09	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	2.9E-13
				p-Isopropyltoluene	5.25E-12	mg/m^3	3.8E-10	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Methylnaphthalene	2.00E-10	mg/m^3	1.4E-08	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								6.4E-12
		Exposure Point Total									6.4E-12
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										6.4E-12
Surface Soil Total											7.4E-07
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility (Potable Use)	**Ingestion**	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	1.8E-01	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)	**Inhalation**	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00

Table 7.1
Calculation of Cancer Risks
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil Gas (Shallowest soil gas results)	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	1.06E+02	μg/m^3	7.1E-01	μg/m^3	N/A	(μg/m^3)$^{-1}$	---
				Benzene	6.61E+01	μg/m^3	4.4E-01	μg/m^3	7.8E-06	(μg/m^3)$^{-1}$	3.5E-06
				Bromodichloromethane	5.27E+00	μg/m^3	3.5E-02	μg/m^3	3.7E-05	(μg/m^3)$^{-1}$	1.3E-06
				n-Hexane	3.73E+02	μg/m^3	2.5E+00	μg/m^3	N/A	(μg/m^3)$^{-1}$	---
				Methylene Chloride	2.05E+00	μg/m^3	1.4E-02	μg/m^3	1.0E-08	(μg/m^3)$^{-1}$	1.4E-10
			Exp. Route Total								4.8E-06
		Exposure Point Total									4.8E-06
	Exposure Media Total										4.8E-06
Soil Gas Total											4.8E-06
										Total of Receptor Risks Across All Media	5.5E-06

N/A = Not Applicable.

Table 7.2
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations: Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Surface Soil	Surface Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	9.9E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)anthracene	1.28E-01	mg/kg	1.1E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.38E-01	mg/kg	1.2E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.94E-02	mg/kg	3.5E-08	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	2.4E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	8.6E-05	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	1.6E-05	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	7.1E-08	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.15E-02	mg/kg	1.0E-08	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	4.37E-01	mg/kg	3.8E-07	mg/kg-day	4.0E-03	mg/kg-day	9.6E-05
				Inorganics							
				No COPCs							
			Exp. Route Total								9.6E-05
			Dermal Absorption	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	8.5E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)anthracene	1.28E-01	mg/kg	9.7E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.38E-01	mg/kg	1.0E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.94E-02	mg/kg	3.0E-08	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	2.0E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	6.1E-08	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.15E-02	mg/kg	6.7E-09	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	4.37E-01	mg/kg	3.3E-07	mg/kg-day	4.0E-03	mg/kg-day	8.3E-05
				Inorganics							
				No COPCs							
			Exp. Route Total								8.3E-05
		Exposure Point Total									1.8E-04
	Exposure Media Total										1.8E-04

Table 7.2
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Surface Soil	Air (Particulates)	Bulk Fuel Facility	Inhalation	**Organics**							
				Benzo(a)pyrene	5.11E-11	mg/m^3	1.0E-11	mg/m^3	N/A	mg/m^3	---
				Benzo(a)anthracene	5.84E-11	mg/m^3	1.2E-11	mg/m^3	N/A	mg/m^3	---
				Benzo(b)fluoranthene	6.30E-11	mg/m^3	1.3E-11	mg/m^3	N/A	mg/m^3	---
				Carbazole	1.80E-11	mg/m^3	3.7E-12	mg/m^3	N/A	mg/m^3	---
				Dibenz(a,h)anthracene	1.22E-11	mg/m^3	2.5E-12	mg/m^3	N/A	mg/m^3	---
				Indeno(1,2,3-cd)pyrene	3.68E-11	mg/m^3	7.5E-12	mg/m^3	N/A	mg/m^3	---
				p-Isopropyltoluene	5.25E-12	mg/m^3	1.1E-12	mg/m^3	N/A	mg/m^3	---
				2-Methylnaphthalene	2.00E-10	mg/m^3	4.1E-11	mg/m^3	N/A	mg/m^3	---
				Inorganics							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Air (Volatiles)	Bulk Fuel Facility	Inhalation	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	mg/m^3	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	mg/m^3	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Surface Soil Total											1.8E-04
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility Potable Use	Ingestion	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	5.1E-01	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)	Inhalation	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00

Table 7.2
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Soil Gas (Shallowest soil gas results)	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	1.06E-01	mg/m^3	2.0E-03	mg/m^3	3.1E+01	mg/m^3	6.4E-05
				Benzene	6.61E-02	mg/m^3	1.2E-03	mg/m^3	3.0E-02	mg/m^3	4.1E-02
				Bromodichloromethane	5.27E-03	mg/m^3	9.9E-05	mg/m^3	N/A	mg/m^3	---
				n-Hexane	3.73E-01	mg/m^3	7.0E-03	mg/m^3	7.0E-01	mg/m^3	1.0E-02
				Methylene Chloride	2.05E-03	mg/m^3	3.9E-05	mg/m^3	6.0E-01	mg/m^3	6.4E-05
			Exp. Route Total								5.2E-02
		Exposure Point Total									5.2E-02
	Exposure Media Total										5.2E-02
Soil Gas Total											5.2E-02
									Total of Receptor Hazards Across All Media		5.2E-02

N/A = Not Applicable.

Table 7.3
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Surface Soil	Surface Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	3.5E-08	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	2.6E-07
				Benzo(a)anthracene	1.28E-01	mg/kg	4.0E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	2.9E-08
				Benzo(b)fluoranthene	1.38E-01	mg/kg	4.3E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	3.2E-08
				Carbazole	3.94E-02	mg/kg	1.2E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	8.4E-09	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	6.2E-08
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	3.1E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	5.9E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	2.5E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.9E-08
				p-Isopropyltoluene	1.15E-02	mg/kg	3.6E-09	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	4.37E-01	mg/kg	1.4E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								4.0E-07
			Dermal Absorption	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	3.0E-08	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	2.2E-07
				Benzo(a)anthracene	1.28E-01	mg/kg	3.5E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	2.5E-08
				Benzo(b)fluoranthene	1.38E-01	mg/kg	3.7E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	2.7E-08
				Carbazole	3.94E-02	mg/kg	1.1E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	7.2E-09	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	5.3E-08
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	2.2E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.6E-08
				p-Isopropyltoluene	1.15E-02	mg/kg	2.4E-09	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	4.37E-01	mg/kg	1.2E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								3.4E-07
		Exposure Point Total									7.4E-07
	Exposure Media Total										7.4E-07

Table 7.3
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Surface Soil	Air (Particulates)	Facility	**Inhalation**	**Organics**							
				Benzo(a)pyrene	5.11E-11	mg/m³	3.7E-09	µg/m³	1.1E-03	(µg/m³)⁻¹	4.1E-12
				Benzo(a)anthracene	5.84E-11	mg/m³	4.2E-09	µg/m³	1.1E-04	(µg/m³)⁻¹	4.7E-13
				Benzo(b)fluoranthene	6.30E-11	mg/m³	4.6E-09	µg/m³	1.1E-04	(µg/m³)⁻¹	5.0E-13
				Carbazole	1.80E-11	mg/m³	1.3E-09	µg/m³	N/A	(µg/m³)⁻¹	---
				Dibenz(a,h)anthracene	1.22E-11	mg/m³	8.9E-10	µg/m³	1.2E-03	(µg/m³)⁻¹	1.1E-12
				Indeno(1,2,3-cd)pyrene	3.68E-11	mg/m³	2.7E-09	µg/m³	1.1E-04	(µg/m³)⁻¹	2.9E-13
				p-Isopropyltoluene	5.25E-12	mg/m³	3.8E-10	µg/m³	N/A	(µg/m³)⁻¹	---
				2-Methylnaphthalene	2.00E-10	mg/m³	1.4E-08	µg/m³	N/A	(µg/m³)⁻¹	---
				Inorganics							
				No COPCs							
			Exp. Route Total								6.4E-12
		Exposure Point Total									6.4E-12
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m³	N/A	µg/m³	N/A	(µg/m³)⁻¹	---
				Gasoline Range Organics (GRO)	N/A	mg/m³	N/A	µg/m³	N/A	(µg/m³)⁻¹	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										6.4E-12
Surface Soil Total											7.4E-07
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility (Potable Use)	**Ingestion**	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	1.8E-01	mg/kg-day	N/A	(mg/kg-day)⁻¹	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	(mg/kg-day)⁻¹	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)	**Inhalation**	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00

Table 7.3
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				Acetone	3.26E-01	mg/L	2.1E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Acetophenone	3.49E-01	mg/L	2.2E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Benzene	5.67E-01	mg/L	3.6E-03	mg/kg-day	5.5E-02	$(mg/kg\text{-}day)^{-1}$	2.0E-04
				2-Butanone	1.17E-01	mg/L	7.4E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Carbon Disulfide	4.36E-03	mg/L	2.7E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2-Dibromoethane	8.30E-03	mg/L	5.2E-05	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	1.0E-04
				1,2-Dichloroethane	5.41E-04	mg/L	3.4E-06	mg/kg-day	9.1E-02	$(mg/kg\text{-}day)^{-1}$	3.1E-07
				Diesel Range Organics (DRO)	3.68E+00	mg/L	2.3E-02	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Ethylbenzene	1.02E-01	mg/L	6.4E-04	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	7.1E-06
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	1.7E-02	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Hexanone	9.95E-03	mg/L	6.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Isopropylbenzene	7.58E-03	mg/L	4.8E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				p-Isopropyltoluene	3.09E-03	mg/L	1.9E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1-Methylnaphthalene	2.72E-03	mg/L	1.7E-05	mg/kg-day	2.9E-02	$(mg/kg\text{-}day)^{-1}$	5.0E-07
				2-Methylnaphthalene	2.45E-03	mg/L	1.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	5.4E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylphenol	2.19E-03	mg/L	1.4E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				3&4-Methylphenol	2.36E-03	mg/L	1.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	9.98E-03	mg/L	6.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				n-Propylbenzene	7.63E-03	mg/L	4.8E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Toluene	7.03E-01	mg/L	4.4E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	1.2E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	4.4E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				m&p-Xylenes	3.18E-01	mg/L	2.0E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				o-Xylene	1.35E-01	mg/L	8.5E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Xylene (Total)	1.71E-01	mg/L	1.1E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				Iron	3.16E-01	mg/L	2.0E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Manganese	3.80E-01	mg/L	2.4E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Sodium	2.64E+01	mg/L	1.7E-01	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								3.1E-04

Table 7.3
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Monitoring wells) (cont)	Groundwater	Bulk Fuel Facility Potable Use	**Dermal Absorption**	**Organics**							
				Acetone	3.26E-01	mg/L	1.4E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Acetophenone	3.49E-01	mg/L	1.7E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Benzene	5.67E-01	mg/L	8.2E-05	mg/kg-day	5.5E-02	$(mg/kg\text{-}day)^{-1}$	NV
				2-Butanone	1.17E-01	mg/L	1.1E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Carbon Disulfide	4.36E-03	mg/L	7.4E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				1,2-Dibromoethane	8.30E-03	mg/L	4.5E-07	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	NV
				1,2-Dichloroethane	5.41E-04	mg/L	2.5E-08	mg/kg-day	9.1E-02	$(mg/kg\text{-}day)^{-1}$	NV
				Diesel Range Organics (DRO)	3.68E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				Ethylbenzene	1.02E-01	mg/L	5.8E-05	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	NV
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				2-Hexanone	9.95E-03	mg/L	3.9E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Isopropylbenzene	7.58E-03	mg/L	8.7E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				p-Isopropyltoluene	3.09E-03	mg/L	6.4E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1-Methylnaphthalene	2.72E-03	mg/L	3.8E-06	mg/kg-day	2.9E-02	$(mg/kg\text{-}day)^{-1}$	1.1E-07
				2-Methylnaphthalene	2.45E-03	mg/L	3.2E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	3.1E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				2-Methylphenol	2.19E-03	mg/L	1.9E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				3&4-Methylphenol	2.36E-03	mg/L	2.2E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Naphthalene	9.98E-03	mg/L	6.2E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				n-Propylbenzene	7.63E-03	mg/L	9.1E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Toluene	7.03E-01	mg/L	2.3E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	1.9E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	5.6E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				m&p-Xylenes	3.18E-01	mg/L	1.9E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				o-Xylene	1.35E-01	mg/L	7.8E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Xylene (Total)	1.71E-01	mg/L	1.0E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Inorganics							
				Iron	3.16E-01	mg/L	1.0E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Manganese	3.80E-01	mg/L	1.2E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Sodium	2.64E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
			Exp. Route Total								1.1E-07
		Exposure Point Total									3.1E-04
	Exposure Media Total										3.1E-04

Table 7.3
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use	**Inhalation**	**Organics**							
				Acetone	1.63E-01	mg/m^3	1.2E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Acetophenone	1.75E-01	mg/m^3	1.3E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Benzene	2.84E-01	mg/m^3	2.1E+01	$\mu g/m^3$	7.8E-06	$(\mu g/m^3)^{-1}$	1.6E-04
				2-Butanone	5.85E-02	mg/m^3	4.3E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Carbon Disulfide	2.18E-03	mg/m^3	1.6E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,2-Dibromoethane	4.15E-03	mg/m^3	3.0E-01	$\mu g/m^3$	6.0E-04	$(\mu g/m^3)^{-1}$	1.8E-04
				1,2-Dichloroethane	2.71E-04	mg/m^3	2.0E-02	$\mu g/m^3$	2.6E-05	$(\mu g/m^3)^{-1}$	5.1E-07
				Diesel Range Organics (DRO)	1.84E+00	mg/m^3	1.3E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Ethylbenzene	5.10E-02	mg/m^3	3.7E+00	$\mu g/m^3$	2.5E-06	$(\mu g/m^3)^{-1}$	9.3E-06
				Gasoline Range Organics (GRO)	1.33E+00	mg/m^3	9.7E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Hexanone	4.98E-03	mg/m^3	3.6E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Isopropylbenzene	3.79E-03	mg/m^3	2.8E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1-Methylnaphthalene	1.36E-03	mg/m^3	9.9E-02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Methylnaphthalene	1.23E-03	mg/m^3	8.9E-02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				4-Methyl-2-Pentanone	4.31E-03	mg/m^3	3.1E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Naphthalene	4.99E-03	mg/m^3	3.6E-01	$\mu g/m^3$	3.4E-05	$(\mu g/m^3)^{-1}$	1.2E-05
				n-Propylbenzene	3.82E-03	mg/m^3	2.8E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Toluene	3.52E-01	mg/m^3	2.6E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,2,4-Trimethylbenzene	9.20E-03	mg/m^3	6.7E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,3,5-Trimethylbenzene	3.53E-03	mg/m^3	2.6E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				m&p-Xylenes	1.59E-01	mg/m^3	1.2E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				o-Xylene	6.75E-02	mg/m^3	4.9E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Xylene (Total)	8.55E-02	mg/m^3	6.2E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								3.6E-04
		Exposure Point Total									3.6E-04
	Exposure Media Total										3.6E-04
Groundwater Total (Monitoring Wells)											6.7E-04

Table 7.3
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Soil Gas (Max detected	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	2.10E+02	μg/m³	1.5E+01	μg/m³	N/A	(μg/m³)⁻¹	---
				Benzene	3.27E+02	μg/m³	2.4E+01	μg/m³	7.8E-06	(μg/m³)⁻¹	1.9E-04
				Bromodichloromethane	4.56E+00	μg/m³	3.3E-01	μg/m³	3.7E-05	(μg/m³)⁻¹	1.2E-05
				1,3-Butadiene	5.10E-02	μg/m³	3.7E-03	μg/m³	3.0E-05	(μg/m³)⁻¹	1.1E-07
				Carbon tetrachloride	6.38E-02	μg/m³	4.6E-03	μg/m³	6.0E-06	(μg/m³)⁻¹	2.8E-08
				Chloroform	3.84E+00	μg/m³	2.8E-01	μg/m³	2.3E-05	(μg/m³)⁻¹	6.4E-06
				Cyclohexane	3.63E+02	μg/m³	2.6E+01	μg/m³	N/A	(μg/m³)⁻¹	---
				Dibromochloromethane	3.50E-02	μg/m³	2.5E-03	μg/m³	2.7E-05	(μg/m³)⁻¹	6.9E-08
				1,2-Dibromoethane	1.74E-01	μg/m³	1.3E-02	μg/m³	6.0E-04	(μg/m³)⁻¹	7.6E-06
				n-Hexane	3.13E+03	μg/m³	2.3E+02	μg/m³	N/A	(μg/m³)⁻¹	---
				Methylene Chloride	2.37E+01	μg/m³	1.7E+00	μg/m³	1.0E-08	(μg/m³)⁻¹	1.7E-08
				1,1,2,2-Tetrachloroethane	8.68E-03	μg/m³	6.3E-04	μg/m³	5.8E-05	(μg/m³)⁻¹	3.7E-08
				1,2,4-Trimethylbenzene	1.32E+02	μg/m³	9.6E+00	μg/m³	N/A	(μg/m³)⁻¹	---
				Xylene (total)	5.79E+02	μg/m³	4.2E+01	μg/m³	N/A	(μg/m³)⁻¹	---
			Exp. Route Total								2.1E-04
		Exposure Point Total									2.1E-04
	Exposure Media Total										2.1E-04
Soil Gas Total											2.1E-04
										Total of Receptor Risks Across All Media [a]	8.8E-04

N/A = Not Applicable.

[a] Since groundwater from the monitoring wells represents the more highly contaminated source of water, total risk and hazard estimates are conservatively based on this data grouping.

Table 7.4
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Surface Soil	Surface Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	9.9E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)anthracene	1.28E-01	mg/kg	1.1E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.38E-01	mg/kg	1.2E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.94E-02	mg/kg	3.5E-08	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	2.4E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	8.6E-05	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	1.6E-05	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	7.1E-08	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.15E-02	mg/kg	1.0E-08	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	4.37E-01	mg/kg	3.8E-07	mg/kg-day	4.0E-03	mg/kg-day	9.6E-05
				Inorganics							
				No COPCs							
			Exp. Route Total								9.6E-05
			Dermal Absorption	**Organics**							
				Benzo(a)pyrene	1.12E-01	mg/kg	8.5E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)anthracene	1.28E-01	mg/kg	9.7E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.38E-01	mg/kg	1.0E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.94E-02	mg/kg	3.0E-08	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.68E-02	mg/kg	2.0E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	9.82E+01	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	1.87E+01	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	8.07E-02	mg/kg	6.1E-08	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.15E-02	mg/kg	6.7E-09	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	4.37E-01	mg/kg	3.3E-07	mg/kg-day	4.0E-03	mg/kg-day	8.3E-05
				Inorganics							
				No COPCs							
			Exp. Route Total								8.3E-05
		Exposure Point Total									1.8E-04
	Exposure Media Total										1.8E-04

Table 7.4
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Surface Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)pyrene	5.11E-11	mg/m^3	1.0E-11	mg/m^3	N/A	mg/m^3	---
				Benzo(a)anthracene	5.84E-11	mg/m^3	1.2E-11	mg/m^3	N/A	mg/m^3	---
				Benzo(b)fluoranthene	6.30E-11	mg/m^3	1.3E-11	mg/m^3	N/A	mg/m^3	---
				Carbazole	1.80E-11	mg/m^3	3.7E-12	mg/m^3	N/A	mg/m^3	---
				Dibenz(a,h)anthracene	1.22E-11	mg/m^3	2.5E-12	mg/m^3	N/A	mg/m^3	---
				Indeno(1,2,3-cd)pyrene	3.68E-11	mg/m^3	7.5E-12	mg/m^3	N/A	mg/m^3	---
				p-Isopropyltoluene	5.25E-12	mg/m^3	1.1E-12	mg/m^3	N/A	mg/m^3	---
				2-Methylnaphthalene	2.00E-10	mg/m^3	4.1E-11	mg/m^3	N/A	mg/m^3	---
				Inorganics							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	mg/m^3	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	mg/m^3	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Surface Soil Total											1.8E-04
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	5.1E-01	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)	**Inhalation**	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00

Table 7.4
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater	Groundwater	Bulk Fuel Facility	**Ingestion**	**Organics**							
(Monitoring wells)				Acetone	3.26E-01	mg/L	5.7E-03	mg/kg-day	9.0E-01	mg/kg-day	6.4E-03
		Potable Use		Acetophenone	3.49E-01	mg/L	6.1E-03	mg/kg-day	1.0E-01	mg/kg-day	6.1E-02
				Benzene	5.67E-01	mg/L	1.0E-02	mg/kg-day	4.0E-03	mg/kg-day	2.5E+00
				2-Butanone	1.17E-01	mg/L	2.1E-03	mg/kg-day	6.0E-01	mg/kg-day	3.4E-03
				Carbon Disulfide	4.36E-03	mg/L	7.7E-05	mg/kg-day	1.0E-01	mg/kg-day	7.7E-04
				1,2-Dibromoethane	8.30E-03	mg/L	1.5E-04	mg/kg-day	9.0E-03	mg/kg-day	1.6E-02
				1,2-Dichloroethane	5.41E-04	mg/L	9.5E-06	mg/kg-day	6.0E-03	mg/kg-day	1.6E-03
				Diesel Range Organics (DRO)	3.68E+00	mg/L	6.5E-02	mg/kg-day	N/A	mg/kg-day	---
				Ethylbenzene	1.02E-01	mg/L	1.8E-03	mg/kg-day	1.0E-01	mg/kg-day	1.8E-02
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	4.7E-02	mg/kg-day	N/A	mg/kg-day	---
				2-Hexanone	9.95E-03	mg/L	1.8E-04	mg/kg-day	5.0E-03	mg/kg-day	3.5E-02
				Isopropylbenzene	7.58E-03	mg/L	1.3E-04	mg/kg-day	1.0E-01	mg/kg-day	1.3E-03
				p-Isopropyltoluene	3.09E-03	mg/L	5.4E-05	mg/kg-day	N/A	mg/kg-day	---
				1-Methylnaphthalene	2.72E-03	mg/L	4.8E-05	mg/kg-day	7.0E-02	mg/kg-day	6.8E-04
				2-Methylnaphthalene	2.45E-03	mg/L	4.3E-05	mg/kg-day	4.0E-03	mg/kg-day	1.1E-02
				4-Methyl-2-Pentanone	8.62E-03	mg/L	1.5E-04	mg/kg-day	8.0E-02	mg/kg-day	1.9E-03
				2-Methylphenol	2.19E-03	mg/L	3.9E-05	mg/kg-day	5.0E-02	mg/kg-day	7.7E-04
				3&4-Methylphenol	2.36E-03	mg/L	4.2E-05	mg/kg-day	5.0E-02	mg/kg-day	8.3E-04
				Naphthalene	9.98E-03	mg/L	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	8.8E-03
				n-Propylbenzene	7.63E-03	mg/L	1.3E-04	mg/kg-day	1.0E-01	mg/kg-day	1.3E-03
				Toluene	7.03E-01	mg/L	1.2E-02	mg/kg-day	8.0E-02	mg/kg-day	1.5E-01
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	3.2E-04	mg/kg-day	N/A	mg/kg-day	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	1.2E-04	mg/kg-day	1.0E-02	mg/kg-day	1.2E-02
				m&p-Xylenes	3.18E-01	mg/L	5.6E-03	mg/kg-day	2.0E-01	mg/kg-day	2.8E-02
				o-Xylene	1.35E-01	mg/L	2.4E-03	mg/kg-day	2.0E-01	mg/kg-day	1.2E-02
				Xylene (Total)	1.71E-01	mg/L	3.0E-03	mg/kg-day	2.0E-01	mg/kg-day	1.5E-02
				Inorganics							
				Iron	3.16E-01	mg/L	5.6E-03	mg/kg-day	7.0E-01	mg/kg-day	8.0E-03
				Manganese	3.80E-01	mg/L	6.7E-03	mg/kg-day	2.4E-02	mg/kg-day	2.8E-01
				Sodium	2.64E+01	mg/L	4.6E-01	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								3.2E+00

Table 7.4
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Groundwater	Groundwater	Bulk Fuel Facility	**Dermal Absorption**	**Organics**							
(Monitoring wells)				Acetone	3.26E-01	mg/L	4.0E-06	mg/kg-day	9.0E-01	mg/kg-day	NV
(cont)		Potable Use		Acetophenone	3.49E-01	mg/L	4.7E-05	mg/kg-day	1.0E-01	mg/kg-day	NV
				Benzene	5.67E-01	mg/L	2.3E-04	mg/kg-day	4.0E-03	mg/kg-day	NV
				2-Butanone	1.17E-01	mg/L	2.9E-06	mg/kg-day	6.0E-01	mg/kg-day	NV
				Carbon Disulfide	4.36E-03	mg/L	2.1E-06	mg/kg-day	1.0E-01	mg/kg-day	NV
				1,2-Dibromoethane	8.30E-03	mg/L	1.3E-06	mg/kg-day	9.0E-03	mg/kg-day	NV
				1,2-Dichloroethane	5.41E-04	mg/L	6.9E-08	mg/kg-day	6.0E-03	mg/kg-day	NV
				Diesel Range Organics (DRO)	3.68E+00	mg/L	0.0E+00	mg/kg-day	N/A	mg/kg-day	N/A
				Ethylbenzene	1.02E-01	mg/L	1.6E-04	mg/kg-day	1.0E-01	mg/kg-day	NV
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	0.0E+00	mg/kg-day	N/A	mg/kg-day	N/A
				2-Hexanone	9.95E-03	mg/L	1.1E-06	mg/kg-day	5.0E-03	mg/kg-day	NV
				Isopropylbenzene	7.58E-03	mg/L	2.4E-05	mg/kg-day	1.0E-01	mg/kg-day	2.4E-04
				p-Isopropyltoluene	3.09E-03	mg/L	1.8E-05	mg/kg-day	N/A	mg/kg-day	---
				1-Methylnaphthalene	2.72E-03	mg/L	1.1E-05	mg/kg-day	7.0E-02	mg/kg-day	1.5E-04
				2-Methylnaphthalene	2.45E-03	mg/L	9.1E-06	mg/kg-day	4.0E-03	mg/kg-day	2.3E-03
				4-Methyl-2-Pentanone	8.62E-03	mg/L	8.7E-07	mg/kg-day	8.0E-02	mg/kg-day	NV
				2-Methylphenol	2.19E-03	mg/L	5.4E-07	mg/kg-day	5.0E-02	mg/kg-day	NV
				3&4-Methylphenol	2.36E-03	mg/L	6.2E-07	mg/kg-day	5.0E-02	mg/kg-day	NV
				Naphthalene	9.98E-03	mg/L	1.7E-05	mg/kg-day	2.0E-02	mg/kg-day	NV
				n-Propylbenzene	7.63E-03	mg/L	2.5E-05	mg/kg-day	1.0E-01	mg/kg-day	2.5E-04
				Toluene	7.03E-01	mg/L	6.5E-04	mg/kg-day	8.0E-02	mg/kg-day	NV
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	5.4E-05	mg/kg-day	N/A	mg/kg-day	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	1.6E-05	mg/kg-day	1.0E-02	mg/kg-day	1.6E-03
				m&p-Xylenes	3.18E-01	mg/L	5.4E-04	mg/kg-day	2.0E-01	mg/kg-day	NV
				o-Xylene	1.35E-01	mg/L	2.2E-04	mg/kg-day	2.0E-01	mg/kg-day	NV
				Xylene (Total)	1.71E-01	mg/L	2.8E-04	mg/kg-day	2.0E-01	mg/kg-day	NV
				Inorganics							
				Iron	3.16E-01	mg/L	2.9E-06	mg/kg-day	7.0E-01	mg/kg-day	NV
				Manganese	3.80E-01	mg/L	3.4E-06	mg/kg-day	9.6E-04	mg/kg-day	NV
				Sodium	2.64E+01	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	NV
			Exp. Route Total								4.5E-03
		Exposure Point Total									3.2E+00
	Exposure Media Total										3.2E+00

Table 7.4
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use	**Inhalation**	**Organics**							
				Acetone	1.63E-01	mg/m^3	3.3E-02	mg/m^3	3.1E+01	mg/m^3	1.1E-03
				Acetophenone	1.75E-01	mg/m^3	3.5E-02	mg/m^3	N/A	mg/m^3	---
				Benzene	2.84E-01	mg/m^3	5.8E-02	mg/m^3	3.0E-02	mg/m^3	1.9E+00
				2-Butanone	5.85E-02	mg/m^3	1.2E-02	mg/m^3	5.0E+00	mg/m^3	2.4E-03
				Carbon Disulfide	2.18E-03	mg/m^3	4.4E-04	mg/m^3	7.0E-01	mg/m^3	6.3E-04
				1,2-Dibromoethane	4.15E-03	mg/m^3	8.4E-04	mg/m^3	9.0E-03	mg/m^3	9.4E-02
				1,2-Dichloroethane	2.71E-04	mg/m^3	5.5E-05	mg/m^3	7.0E-03	mg/m^3	7.9E-03
				Diesel Range Organics (DRO)	1.84E+00	mg/m^3	3.7E-01	mg/m^3	N/A	mg/m^3	---
				Ethylbenzene	5.10E-02	mg/m^3	1.0E-02	mg/m^3	1.0E+00	mg/m^3	1.0E-02
				Gasoline Range Organics (GRO)	1.33E+00	mg/m^3	2.7E-01	mg/m^3	N/A	mg/m^3	---
				2-Hexanone	4.98E-03	mg/m^3	1.0E-03	mg/m^3	3.0E-02	mg/m^3	3.4E-02
				Isopropylbenzene	3.79E-03	mg/m^3	7.7E-04	mg/m^3	4.0E-01	mg/m^3	1.9E-03
				1-Methylnaphthalene	1.36E-03	mg/m^3	2.8E-04	mg/m^3	N/A	mg/m^3	---
				2-Methylnaphthalene	1.23E-03	mg/m^3	2.5E-04	mg/m^3	N/A	mg/m^3	---
				4-Methyl-2-Pentanone	4.31E-03	mg/m^3	8.8E-04	mg/m^3	3.0E+00	mg/m^3	2.9E-04
				Naphthalene	4.99E-03	mg/m^3	1.0E-03	mg/m^3	3.0E-03	mg/m^3	3.4E-01
				n-Propylbenzene	3.82E-03	mg/m^3	7.8E-04	mg/m^3	1.0E+00	mg/m^3	7.8E-04
				Toluene	3.52E-01	mg/m^3	7.2E-02	mg/m^3	5.0E+00	mg/m^3	1.4E-02
				1,2,4-Trimethylbenzene	9.20E-03	mg/m^3	1.9E-03	mg/m^3	7.0E-03	mg/m^3	2.7E-01
				1,3,5-Trimethylbenzene	3.53E-03	mg/m^3	7.2E-04	mg/m^3	N/A	mg/m^3	---
				m&p-Xylenes	1.59E-01	mg/m^3	3.2E-02	mg/m^3	1.0E-01	mg/m^3	3.2E-01
				o-Xylene	6.75E-02	mg/m^3	1.4E-02	mg/m^3	1.0E-01	mg/m^3	1.4E-01
				Xylene (Total)	8.55E-02	mg/m^3	1.7E-02	mg/m^3	1.0E-01	mg/m^3	1.7E-01
			Exp. Route Total								3.3E+00
		Exposure Point Total									3.3E+00
	Exposure Media Total										3.3E+00
Groundwater Total (Monitoring Wells)											6.5E+00

Table 7.4
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	2.10E-01	mg/m^3	4.3E-02	mg/m^3	3.1E+01	mg/m^3	1.4E-03
				Benzene	3.27E-01	mg/m^3	6.7E-02	mg/m^3	3.0E-02	mg/m^3	2.2E+00
				Bromodichloromethane	4.56E-03	mg/m^3	9.3E-04	mg/m^3	N/A	mg/m^3	---
				1,3-Butadiene	5.10E-05	mg/m^3	1.0E-05	mg/m^3	2.0E-03	mg/m^3	5.2E-03
				Carbon tetrachloride	6.38E-05	mg/m^3	1.3E-05	mg/m^3	1.0E-01	mg/m^3	1.3E-04
				Chloroform	3.84E-03	mg/m^3	7.8E-04	mg/m^3	9.8E-02	mg/m^3	8.0E-03
				Cyclohexane	3.63E-01	mg/m^3	7.4E-02	mg/m^3	6.0E+00	mg/m^3	1.2E-02
				Dibromochloromethane	3.50E-05	mg/m^3	7.1E-06	mg/m^3	N/A	mg/m^3	---
				1,2-Dibromoethane	1.74E-04	mg/m^3	3.5E-05	mg/m^3	9.0E-03	mg/m^3	3.9E-03
				n-Hexane	3.13E+00	mg/m^3	6.4E-01	mg/m^3	7.0E-01	mg/m^3	9.1E-01
				Methylene Chloride	2.37E-02	mg/m^3	4.8E-03	mg/m^3	6.0E-01	mg/m^3	8.0E-03
				1,1,2,2-Tetrachloroethane	8.68E-06	mg/m^3	1.8E-06	mg/m^3	N/A	mg/m^3	---
				1,2,4-Trimethylbenzene	1.32E-01	mg/m^3	2.7E-02	mg/m^3	7.0E-03	mg/m^3	3.8E+00
				Xylene (total)	5.79E-01	mg/m^3	1.2E-01	mg/m^3	1.0E-01	mg/m^3	1.2E+00
			Exp. Route Total								8.2E+00
		Exposure Point Total									8.2E+00
	Exposure Media Total										8.2E+00
Soil Gas Total											8.2E+00
										Total of Receptor Hazards Across All Media [a]	1.5E+01

N/A = Not Applicable.

[a] Since groundwater from the monitoring wells represents the more highly contaminated source of water, total risk and hazard estimates are conservatively based on this data grouping.

Table 7.5
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Total Soil	Total Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	5.2E-09	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	3.8E-09
				Benzo(a)pyrene	1.04E-01	mg/kg	4.8E-09	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	3.5E-08
				Benzo(b)fluoranthene	1.20E-01	mg/kg	5.5E-09	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	4.0E-09
				Carbazole	3.92E-02	mg/kg	1.8E-09	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	1.1E-09	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	8.3E-09
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	8.2E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	2.0E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	4.5E-09	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	3.3E-09
				p-Isopropyltoluene	1.96E-01	mg/kg	9.0E-09	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	3.7E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	3.7E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	5.3E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								5.4E-08
			Dermal Absorption	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	2.0E-09	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.5E-09
				Benzo(a)pyrene	1.04E-01	mg/kg	1.9E-09	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	1.4E-08
				Benzo(b)fluoranthene	1.20E-01	mg/kg	2.2E-09	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.6E-09
				Carbazole	3.92E-02	mg/kg	7.1E-10	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	4.4E-10	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	3.2E-09
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	1.7E-09	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.3E-09
				p-Isopropyltoluene	1.96E-01	mg/kg	2.7E-09	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	1.4E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	1.4E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								2.1E-08
		Exposure Point Total									7.6E-08
	Exposure Media Total										7.6E-08

Table 7.5
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Total Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)anthracene	1.12E-08	mg/m^3	3.6E-08	µg/m^3	1.1E-04	(µg/m^3)$^{-1}$	4.0E-12
				Benzo(a)pyrene	1.04E-08	mg/m^3	3.4E-08	µg/m^3	1.1E-03	(µg/m^3)$^{-1}$	3.7E-11
				Benzo(b)fluoranthene	1.20E-08	mg/m^3	3.9E-08	µg/m^3	1.1E-04	(µg/m^3)$^{-1}$	4.3E-12
				Carbazole	3.92E-09	mg/m^3	1.3E-08	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-09	mg/m^3	8.0E-09	µg/m^3	1.2E-03	(µg/m^3)$^{-1}$	9.6E-12
				Indeno(1,2,3-cd)pyrene	9.71E-09	mg/m^3	3.1E-08	µg/m^3	1.1E-04	(µg/m^3)$^{-1}$	3.4E-12
				p-Isopropyltoluene	1.96E-08	mg/m^3	6.3E-08	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				2-Methylnaphthalene	8.03E-08	mg/m^3	2.6E-07	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								5.8E-11
		Exposure Point Total									5.8E-11
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Naphthalene	1.63E-04	mg/m^3	5.3E-04	µg/m^3	3.4E-05	(µg/m^3)$^{-1}$	1.8E-08
				1,2,4-Trimethylbenzene	3.45E-04	mg/m^3	1.1E-03	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
			Exp. Route Total								1.8E-08
		Exposure Point Total									1.8E-08
	Exposure Media Total										1.8E-08
Total Soil Total											9.4E-08

Table 7.5
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (monitoring wells)	Air	Bulk Fuel Facility	**Inhalation** (Trench Air)	**Organics**							
				Acetone	1.06E-06	mg/m^3	1.7E-06	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Acetophenone	1.55E-07	mg/m^3	2.5E-07	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Benzene	1.92E-04	mg/m^3	3.1E-04	µg/m^3	7.8E-06	(µg/m^3)$^{-1}$	2.4E-09
				2-Butanone	3.66E-07	mg/m^3	6.0E-07	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Carbon Disulfide	9.52E-06	mg/m^3	1.6E-05	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1,2-Dibromoethane	1.84E-07	mg/m^3	3.0E-07	µg/m^3	6.0E-04	(µg/m^3)$^{-1}$	1.8E-10
				1,2-Dichloroethane	3.82E-08	mg/m^3	6.2E-08	µg/m^3	2.6E-05	(µg/m^3)$^{-1}$	1.6E-12
				Ethylbenzene	4.18E-05	mg/m^3	6.8E-05	µg/m^3	2.5E-06	(µg/m^3)$^{-1}$	1.7E-10
				2-Hexanone	4.52E-08	mg/m^3	7.4E-08	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Isopropylbenzene	3.96E-04	mg/m^3	6.5E-04	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				p-Isopropyltoluene	1.32E-06	mg/m^3	2.2E-06	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1-Methylnaphthalene	5.11E-08	mg/m^3	8.4E-08	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				2-Methylnaphthalene	4.61E-08	mg/m^3	7.5E-08	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				4-Methyl-2-Pentanone	6.18E-08	mg/m^3	1.0E-07	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				2-Methylphenol	1.35E-10	mg/m^3	2.2E-10	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				3&4-Methylphenol	1.05E-10	mg/m^3	1.7E-10	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Naphthalene	1.97E-07	mg/m^3	3.2E-07	µg/m^3	3.4E-05	(µg/m^3)$^{-1}$	1.1E-11
				n-Propylbenzene	3.35E-06	mg/m^3	5.5E-06	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Toluene	2.81E-04	mg/m^3	4.6E-04	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1,2,4-Trimethylbenzene	4.75E-06	mg/m^3	7.8E-06	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1,3,5-Trimethylbenzene	2.58E-06	mg/m^3	4.2E-06	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				m&p-Xylenes	1.30E-04	mg/m^3	2.1E-04	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				o-Xylene	4.23E-05	mg/m^3	6.9E-05	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Xylene (Total)	4.21E-05	mg/m^3	6.9E-05	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
			Exp. Route Total								2.8E-09
		Exposure Point Total									2.8E-09
	Exposure Media Total										2.8E-09
Groundwater Total (Monitoring Wells)											2.8E-09
										Total of Receptor Risks Across All Media	9.6E-08

N/A = Not Applicable.

Table 7.6
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Total Soil	Total Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	3.6E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)pyrene	1.04E-01	mg/kg	3.4E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.20E-01	mg/kg	3.9E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.92E-02	mg/kg	1.3E-07	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	8.0E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	5.7E-04	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	1.4E-04	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	3.1E-07	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.96E-01	mg/kg	6.3E-07	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	8.03E-01	mg/kg	2.6E-06	mg/kg-day	4.0E-03	mg/kg-day	6.5E-04
				Naphthalene	7.99E-01	mg/kg	2.6E-06	mg/kg-day	2.0E-02	mg/kg-day	1.3E-04
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	3.7E-06	mg/kg-day	N/A	mg/kg-day	---
				Inorganics							
				No COPCs							
			Exp. Route Total								7.8E-04
			Dermal Absorption	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	1.4E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)pyrene	1.04E-01	mg/kg	1.3E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.20E-01	mg/kg	1.5E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.92E-02	mg/kg	4.9E-08	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	3.1E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	1.2E-07	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.96E-01	mg/kg	1.9E-07	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	8.03E-01	mg/kg	1.0E-06	mg/kg-day	4.0E-03	mg/kg-day	2.5E-04
				Naphthalene	7.99E-01	mg/kg	1.0E-06	mg/kg-day	2.0E-02	mg/kg-day	5.0E-05
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Inorganics							
				No COPCs							
			Exp. Route Total								3.0E-04
		Exposure Point Total									1.1E-03
	Exposure Media Total										1.1E-03

Table 7.6
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Total Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)anthracene	1.12E-08	mg/m^3	2.5E-09	mg/m^3	N/A	(mg/m^3)	---
				Benzo(a)pyrene	1.04E-08	mg/m^3	2.4E-09	mg/m^3	N/A	(mg/m^3)	---
				Benzo(b)fluoranthene	1.20E-08	mg/m^3	2.7E-09	mg/m^3	N/A	(mg/m^3)	---
				Carbazole	3.92E-09	mg/m^3	8.9E-10	mg/m^3	N/A	(mg/m^3)	---
				Dibenz(a,h)anthracene	2.47E-09	mg/m^3	5.6E-10	mg/m^3	N/A	(mg/m^3)	---
				Indeno(1,2,3-cd)pyrene	9.71E-09	mg/m^3	2.2E-09	mg/m^3	N/A	(mg/m^3)	---
				p-Isopropyltoluene	1.96E-08	mg/m^3	4.4E-09	mg/m^3	N/A	(mg/m^3)	---
				2-Methylnaphthalene	8.03E-08	mg/m^3	1.8E-08	mg/m^3	N/A	(mg/m^3)	---
				Inorganics							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	mg/m^3	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	mg/m^3	---
				Naphthalene	1.63E-04	mg/m^3	3.7E-05	mg/m^3	3.0E-03	mg/m^3	1.2E-02
				1,2,4-Trimethylbenzene	3.45E-04	mg/m^3	7.8E-05	mg/m^3	7.0E-03	mg/m^3	1.1E-02
			Exp. Route Total								2.3E-02
		Exposure Point Total									2.3E-02
	Exposure Media Total										2.3E-02
Total Soil Total											2.5E-02

Table 7.6
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		
					Value	Units	Value	Units	Value	Units	Hazard Quotient
Groundwater (monitoring wells)	Air	Bulk Fuel Facility	**Inhalation** (Trench Air)	**Organics**							
				Acetone	4.18E-05	mg/m3	4.8E-06	mg/m3	3.1E+01	mg/m3	1.5E-07
				Acetophenone	3.35E-06	mg/m3	3.8E-07	mg/m3	N/A	mg/m3	---
				Benzene	1.84E-07	mg/m3	2.1E-08	mg/m3	3.0E-02	mg/m3	7.0E-07
				2-Butanone	3.82E-08	mg/m3	4.4E-09	mg/m3	5.0E+00	mg/m3	8.7E-10
				Carbon Disulfide	2.58E-06	mg/m3	3.0E-07	mg/m3	7.0E-01	mg/m3	4.2E-07
				1,2-Dibromoethane	2.81E-04	mg/m3	3.2E-05	mg/m3	9.0E-03	mg/m3	3.6E-03
				1,2-Dichloroethane	1.30E-04	mg/m3	1.5E-05	mg/m3	7.0E-03	mg/m3	2.1E-03
				Ethylbenzene	4.21E-05	mg/m3	4.8E-06	mg/m3	1.0E+00	mg/m3	4.8E-06
				2-Hexanone	1.06E-06	mg/m3	1.2E-07	mg/m3	3.0E-02	mg/m3	4.0E-06
				Isopropylbenzene	1.92E-04	mg/m3	2.2E-05	mg/m3	4.0E-01	mg/m3	5.5E-05
				p-Isopropyltoluene	5.11E-08	mg/m3	5.8E-09	mg/m3	N/A	mg/m3	---
				1-Methylnaphthalene	1.97E-07	mg/m3	2.3E-08	mg/m3	N/A	mg/m3	---
				2-Methylnaphthalene	4.61E-08	mg/m3	5.3E-09	mg/m3	N/A	mg/m3	---
				4-Methyl-2-Pentanone	4.23E-05	mg/m3	4.8E-06	mg/m3	3.0E+00	mg/m3	1.6E-06
				2-Methylphenol	4.75E-06	mg/m3	5.4E-07	mg/m3	6.0E-01	mg/m3	9.1E-07
				3&4-Methylphenol	3.96E-04	mg/m3	4.5E-05	mg/m3	6.0E-01	mg/m3	7.5E-05
				Naphthalene	1.32E-06	mg/m3	1.5E-07	mg/m3	3.0E-03	mg/m3	5.0E-05
				n-Propylbenzene	1.55E-07	mg/m3	1.8E-08	mg/m3	1.0E+00	mg/m3	1.8E-08
				Toluene	3.66E-07	mg/m3	4.2E-08	mg/m3	5.0E+00	mg/m3	8.4E-09
				1,2,4-Trimethylbenzene	4.52E-08	mg/m3	5.2E-09	mg/m3	7.0E-03	mg/m3	7.4E-07
				1,3,5-Trimethylbenzene	1.35E-10	mg/m3	1.5E-11	mg/m3	N/A	mg/m3	---
				m&p-Xylenes	1.05E-10	mg/m3	1.2E-11	mg/m3	1.0E-01	mg/m3	1.2E-10
				o-Xylene	6.18E-08	mg/m3	7.1E-09	mg/m3	1.0E-01	mg/m3	7.1E-08
				Xylene (Total)	9.52E-06	mg/m3	1.1E-06	mg/m3	1.0E-01	mg/m3	1.1E-05
			Exp. Route Total								5.9E-03
		Exposure Point Total									5.9E-03
	Exposure Media Total										5.9E-03
Groundwater Total (Monitoring Wells)											5.9E-03
Total of Receptor Hazards Across All Media											3.0E-02

N/A = Not Applicable.

Table 7.7
Calculation of Cancer Risks
Reasonable Maximum Exposure
Current/Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater (Water Supply Well)	Groundwater	Bulk Fuel Facility Potable Use	Ingestion	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	2.7E-01	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	Inhalation	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00
										Total of Receptor Risks Across All Media	0.0E+00

N/A = Not Applicable.

Table 7.8
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Current/Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater (Water Supply Well)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics** No COPCs							
				Inorganics Sodium	2.90E+01	mg/L	7.9E-01	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics** No COPCs							
				Inorganics Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics** No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00
										Total of Receptor Hazards Across All Media	0.0E+00

N/A = Not Applicable.

Table 7.9
Calculation of Cancer Risks
Reasonable Maximum Exposure
Current/Future Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Lifetime

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Water Supply Well)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	4.3E-01	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00
										Total of Receptor Risks Across All Media	0.0E+00

N/A = Not Applicable.

Table 7.10
Calculation of Cancer Risks
Reasonable Maximum Exposure
Current/Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Water Supply Well)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	1.6E-01	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00
										Total of Receptor Risks Across All Media	0.0E+00

N/A = Not Applicable.

Table 7.11
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Current/Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater (Water Supply Well)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	1.9E+00	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
			Dermal Absorption	**Organics**							
				No COPCs							
				Inorganics							
				Sodium	2.90E+01	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
Groundwater Total (Water Supply)											0.0E+00
Total of Receptor Hazards Across All Media											0.0E+00

N/A = Not Applicable.

Table 7.12
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Total Soil	Total Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	5.3E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	3.8E-08
				Benzo(a)pyrene	1.04E-01	mg/kg	4.9E-08	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	3.6E-07
				Benzo(b)fluoranthene	1.20E-01	mg/kg	5.6E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	4.1E-08
				Carbazole	3.92E-02	mg/kg	1.8E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	1.2E-08	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	8.5E-08
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	8.4E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	2.0E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	4.6E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	3.3E-08
				p-Isopropyltoluene	1.96E-01	mg/kg	9.2E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	3.8E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	3.8E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	5.4E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								5.5E-07
			Dermal Absorption	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	2.7E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	2.0E-08
				Benzo(a)pyrene	1.04E-01	mg/kg	2.5E-08	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	1.8E-07
				Benzo(b)fluoranthene	1.20E-01	mg/kg	2.9E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	2.1E-08
				Carbazole	3.92E-02	mg/kg	9.5E-09	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	6.0E-09	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	4.4E-08
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	2.4E-08	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.7E-08
				p-Isopropyltoluene	1.96E-01	mg/kg	3.7E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	2.0E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	1.9E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								2.9E-07
		Exposure Point Total									8.4E-07
	Exposure Media Total										8.4E-07

Table 7.12
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Total Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)anthracene	3.93E-11	mg/m^3	1.3E-08	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	1.4E-12
				Benzo(a)pyrene	3.65E-11	mg/m^3	1.2E-08	$\mu g/m^3$	1.1E-03	$(\mu g/m^3)^{-1}$	1.3E-11
				Benzo(b)fluoranthene	4.21E-11	mg/m^3	1.4E-08	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	1.5E-12
				Carbazole	1.38E-11	mg/m^3	4.5E-09	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Dibenz(a,h)anthracene	8.67E-12	mg/m^3	2.8E-09	$\mu g/m^3$	1.2E-03	$(\mu g/m^3)^{-1}$	3.4E-12
				Indeno(1,2,3-cd)pyrene	3.41E-11	mg/m^3	1.1E-08	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	1.2E-12
				p-Isopropyltoluene	6.88E-11	mg/m^3	2.3E-08	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Methylnaphthalene	2.82E-10	mg/m^3	9.3E-08	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								2.1E-11
		Exposure Point Total									2.1E-11
	Exposure Media Total										2.1E-11
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Naphthalene	1.14E-05	mg/m^3	3.8E-03	$\mu g/m^3$	3.4E-05	$(\mu g/m^3)^{-1}$	1.3E-07
				1,2,4-Trimethylbenzene	2.37E-05	mg/m^3	7.8E-03	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								1.3E-07
		Exposure Point Total									1.3E-07
	Exposure Media Total										1.3E-07
Total Soil Total											9.7E-07

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Table 7.12
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				Acetone	3.26E-01	mg/L	3.1E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				Acetophenone	3.49E-01	mg/L	3.3E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				Benzene	5.67E-01	mg/L	5.3E-03	mg/kg-day	5.5E-02	(mg/kg-day)-1	2.9E-04
				2-Butanone	1.17E-01	mg/L	1.1E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				Carbon Disulfide	4.36E-03	mg/L	4.1E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				1,2-Dibromoethane	8.30E-03	mg/L	7.8E-05	mg/kg-day	2.0E+00	(mg/kg-day)-1	1.6E-04
				1,2-Dichloroethane	5.41E-04	mg/L	5.1E-06	mg/kg-day	9.1E-02	(mg/kg-day)-1	4.6E-07
				Diesel Range Organics (DRO)	3.68E+00	mg/L	3.5E-02	mg/kg-day	N/A	(mg/kg-day)-1	---
				Ethylbenzene	1.02E-01	mg/L	9.6E-04	mg/kg-day	1.1E-02	(mg/kg-day)-1	1.1E-05
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	2.5E-02	mg/kg-day	N/A	(mg/kg-day)-1	---
				2-Hexanone	9.95E-03	mg/L	9.3E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				Isopropylbenzene	7.58E-03	mg/L	7.1E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				p-Isopropyltoluene	3.09E-03	mg/L	2.9E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				1-Methylnaphthalene	2.72E-03	mg/L	2.6E-05	mg/kg-day	2.9E-02	(mg/kg-day)-1	7.4E-07
				2-Methylnaphthalene	2.45E-03	mg/L	2.3E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	8.1E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				2-Methylphenol	2.19E-03	mg/L	2.1E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				3&4-Methylphenol	2.36E-03	mg/L	2.2E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				Naphthalene	9.98E-03	mg/L	9.4E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				n-Propylbenzene	7.63E-03	mg/L	7.2E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				Toluene	7.03E-01	mg/L	6.6E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	1.7E-04	mg/kg-day	N/A	(mg/kg-day)-1	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	6.6E-05	mg/kg-day	N/A	(mg/kg-day)-1	---
				m&p-Xylenes	3.18E-01	mg/L	3.0E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				o-Xylene	1.35E-01	mg/L	1.3E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				Xylene (Total)	1.71E-01	mg/L	1.6E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				Inorganics							
				Iron	3.16E-01	mg/L	3.0E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				Manganese	3.80E-01	mg/L	3.6E-03	mg/kg-day	N/A	(mg/kg-day)-1	---
				Sodium	2.64E+01	mg/L	2.5E-01	mg/kg-day	N/A	(mg/kg-day)-1	---
			Exp. Route Total								4.6E-04

Table 7.12
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Groundwater (Monitoring wells) (cont)	Groundwater	Bulk Fuel Facility Potable Use	**Dermal Absorption**	**Organics**							
				Acetone	3.26E-01	mg/L	1.4E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Acetophenone	3.49E-01	mg/L	1.6E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Benzene	5.67E-01	mg/L	8.1E-04	mg/kg-day	5.5E-02	$(mg/kg\text{-}day)^{-1}$	4.5E-05
				2-Butanone	1.17E-01	mg/L	1.0E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Carbon Disulfide	4.36E-03	mg/L	7.3E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2-Dibromoethane	8.30E-03	mg/L	4.5E-06	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	NV
				1,2-Dichloroethane	5.41E-04	mg/L	2.5E-07	mg/kg-day	9.1E-02	$(mg/kg\text{-}day)^{-1}$	NV
				Diesel Range Organics (DRO)	3.68E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				Ethylbenzene	1.02E-01	mg/L	5.8E-04	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	6.4E-06
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				2-Hexanone	9.95E-03	mg/L	3.9E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Isopropylbenzene	7.58E-03	mg/L	8.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				p-Isopropyltoluene	3.09E-03	mg/L	6.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1-Methylnaphthalene	2.72E-03	mg/L	3.7E-05	mg/kg-day	2.9E-02	$(mg/kg\text{-}day)^{-1}$	1.1E-06
				2-Methylnaphthalene	2.45E-03	mg/L	3.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	3.0E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				2-Methylphenol	2.19E-03	mg/L	1.9E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				3&4-Methylphenol	2.36E-03	mg/L	2.1E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Naphthalene	9.98E-03	mg/L	6.2E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				n-Propylbenzene	7.63E-03	mg/L	9.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Toluene	7.03E-01	mg/L	2.3E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	2.0E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	5.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				m&p-Xylenes	3.18E-01	mg/L	1.9E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				o-Xylene	1.35E-01	mg/L	7.8E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Xylene (Total)	1.71E-01	mg/L	1.0E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				Iron	3.16E-01	mg/L	1.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Manganese	3.80E-01	mg/L	1.9E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Sodium	2.64E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
			Exp. Route Total								5.2E-05
		Exposure Point Total									5.1E-04
	Exposure Media Total										5.1E-04

Table 7.12
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				Acetone	1.63E-01	mg/m^3	5.4E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Acetophenone	1.75E-01	mg/m^3	5.7E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Benzene	2.84E-01	mg/m^3	9.3E+01	µg/m^3	7.8E-06	(µg/m^3)$^{-1}$	7.3E-04
				2-Butanone	5.85E-02	mg/m^3	1.9E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Carbon Disulfide	2.18E-03	mg/m^3	7.2E-01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1,2-Dibromoethane	4.15E-03	mg/m^3	1.4E+00	µg/m^3	6.0E-04	(µg/m^3)$^{-1}$	8.2E-04
				1,2-Dichloroethane	2.71E-04	mg/m^3	8.9E-02	µg/m^3	2.6E-05	(µg/m^3)$^{-1}$	2.3E-06
				Diesel Range Organics (DRO)	1.84E+00	mg/m^3	6.0E+02	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Ethylbenzene	5.10E-02	mg/m^3	1.7E+01	µg/m^3	2.5E-06	(µg/m^3)$^{-1}$	4.2E-05
				Gasoline Range Organics (GRO)	1.33E+00	mg/m^3	4.4E+02	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				2-Hexanone	4.98E-03	mg/m^3	1.6E+00	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Isopropylbenzene	3.79E-03	mg/m^3	1.2E+00	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1-Methylnaphthalene	1.36E-03	mg/m^3	4.5E-01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				2-Methylnaphthalene	1.23E-03	mg/m^3	4.0E-01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				4-Methyl-2-Pentanone	4.31E-03	mg/m^3	1.4E+00	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Naphthalene	4.99E-03	mg/m^3	1.6E+00	µg/m^3	3.4E-05	(µg/m^3)$^{-1}$	5.6E-05
				n-Propylbenzene	3.82E-03	mg/m^3	1.3E+00	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Toluene	3.52E-01	mg/m^3	1.2E+02	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1,2,4-Trimethylbenzene	9.20E-03	mg/m^3	3.0E+00	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				1,3,5-Trimethylbenzene	3.53E-03	mg/m^3	1.2E+00	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				m&p-Xylenes	1.59E-01	mg/m^3	5.2E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				o-Xylene	6.75E-02	mg/m^3	2.2E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Xylene (Total)	8.55E-02	mg/m^3	2.8E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
			Exp. Route Total								1.6E-03
		Exposure Point Total									1.6E-03
	Exposure Media Total										1.6E-03
Groundwater Total (Monitoring Wells)											2.2E-03

Table 7.12
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Soil Gas (Max detected	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	2.10E+02	$\mu g/m^3$	6.9E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Benzene	3.27E+02	$\mu g/m^3$	1.1E+02	$\mu g/m^3$	7.8E-06	$(\mu g/m^3)^{-1}$	8.4E-04
				Bromodichloromethane	4.56E+00	$\mu g/m^3$	1.5E+00	$\mu g/m^3$	3.7E-05	$(\mu g/m^3)^{-1}$	5.5E-05
				1,3-Butadiene	5.10E-02	$\mu g/m^3$	1.7E-02	$\mu g/m^3$	3.0E-05	$(\mu g/m^3)^{-1}$	5.0E-07
				Carbon tetrachloride	6.38E-02	$\mu g/m^3$	2.1E-02	$\mu g/m^3$	6.0E-06	$(\mu g/m^3)^{-1}$	1.3E-07
				Chloroform	3.84E+00	$\mu g/m^3$	1.3E+00	$\mu g/m^3$	2.3E-05	$(\mu g/m^3)^{-1}$	2.9E-05
				Cyclohexane	3.63E+02	$\mu g/m^3$	1.2E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Dibromochloromethane	3.50E-02	$\mu g/m^3$	1.2E-02	$\mu g/m^3$	2.7E-05	$(\mu g/m^3)^{-1}$	3.1E-07
				1,2-Dibromoethane	1.74E-01	$\mu g/m^3$	5.7E-02	$\mu g/m^3$	6.0E-04	$(\mu g/m^3)^{-1}$	3.4E-05
				n-Hexane	3.13E+03	$\mu g/m^3$	1.0E+03	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Methylene Chloride	2.37E+01	$\mu g/m^3$	7.8E+00	$\mu g/m^3$	1.0E-08	$(\mu g/m^3)^{-1}$	7.8E-08
				1,1,2,2-Tetrachloroethane	8.68E-03	$\mu g/m^3$	2.9E-03	$\mu g/m^3$	5.8E-05	$(\mu g/m^3)^{-1}$	1.7E-07
				1,2,4-Trimethylbenzene	1.32E+02	$\mu g/m^3$	4.3E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Xylene (total)	5.79E+02	$\mu g/m^3$	1.9E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								9.6E-04
		Exposure Point Total									9.6E-04
	Exposure Media Total										9.6E-04
Soil Gas Total											9.6E-04
										Total of Receptor Risks Across All Media	3.1E-03

N/A = Not Applicable.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.

Table 7.13
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Total Soil	Total Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	1.5E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)pyrene	1.04E-01	mg/kg	1.4E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.20E-01	mg/kg	1.6E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.92E-02	mg/kg	5.4E-08	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	3.4E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	2.4E-04	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	5.8E-05	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	1.3E-07	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.96E-01	mg/kg	2.7E-07	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	8.03E-01	mg/kg	1.1E-06	mg/kg-day	4.0E-03	mg/kg-day	2.8E-04
				Naphthalene	7.99E-01	mg/kg	1.1E-06	mg/kg-day	2.0E-02	mg/kg-day	5.5E-05
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	1.6E-06	mg/kg-day	N/A	mg/kg-day	---
				Inorganics							
				No COPCs							
			Exp. Route Total								3.3E-04
			Dermal Absorption	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	8.0E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)pyrene	1.04E-01	mg/kg	7.4E-08	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.20E-01	mg/kg	8.5E-08	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.92E-02	mg/kg	2.8E-08	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	1.8E-08	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	6.9E-08	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.96E-01	mg/kg	1.1E-07	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	8.03E-01	mg/kg	5.7E-07	mg/kg-day	4.0E-03	mg/kg-day	1.4E-04
				Naphthalene	7.99E-01	mg/kg	5.7E-07	mg/kg-day	2.0E-02	mg/kg-day	2.8E-05
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Inorganics							
				No COPCs							
			Exp. Route Total								1.7E-04
		Exposure Point Total									5.0E-04
	Exposure Media Total										5.0E-04

Table 7.13
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Total Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)anthracene	3.93E-11	mg/m³	3.8E-11	mg/m³	N/A	mg/m³	---
				Benzo(a)pyrene	3.65E-11	mg/m³	3.5E-11	mg/m³	N/A	mg/m³	---
				Benzo(b)fluoranthene	4.21E-11	mg/m³	4.0E-11	mg/m³	N/A	mg/m³	---
				Carbazole	1.38E-11	mg/m³	1.3E-11	mg/m³	N/A	mg/m³	---
				Dibenz(a,h)anthracene	8.67E-12	mg/m³	8.3E-12	mg/m³	N/A	mg/m³	---
				Indeno(1,2,3-cd)pyrene	3.41E-11	mg/m³	3.3E-11	mg/m³	N/A	mg/m³	---
				p-Isopropyltoluene	6.88E-11	mg/m³	6.6E-11	mg/m³	N/A	mg/m³	---
				2-Methylnaphthalene	2.82E-10	mg/m³	2.7E-10	mg/m³	N/A	mg/m³	---
				Inorganics							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m³	N/A	mg/m³	N/A	(mg/m³)	---
				Gasoline Range Organics (GRO)	N/A	mg/m³	N/A	mg/m³	N/A	(mg/m³)	---
				Naphthalene	1.14E-05	mg/m³	1.1E-05	mg/m³	3.0E-03	(mg/m³)	3.7E-03
				1,2,4-Trimethylbenzene	2.37E-05	mg/m³	2.3E-05	mg/m³	7.0E-03	(mg/m³)	3.2E-03
			Exp. Route Total								6.9E-03
		Exposure Point Total									6.9E-03
	Exposure Media Total										6.9E-03
Total Soil Total											7.4E-03

Table 7.13
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				Acetone	3.26E-01	mg/L	8.9E-03	mg/kg-day	9.0E-01	mg/kg-day	9.9E-03
				Acetophenone	3.49E-01	mg/L	9.6E-03	mg/kg-day	1.0E-01	mg/kg-day	9.6E-02
				Benzene	5.67E-01	mg/L	1.6E-02	mg/kg-day	4.0E-03	mg/kg-day	3.9E+00
				2-Butanone	1.17E-01	mg/L	3.2E-03	mg/kg-day	6.0E-01	mg/kg-day	5.3E-03
				Carbon Disulfide	4.36E-03	mg/L	1.2E-04	mg/kg-day	1.0E-01	mg/kg-day	1.2E-03
				1,2-Dibromoethane	8.30E-03	mg/L	2.3E-04	mg/kg-day	9.0E-03	mg/kg-day	2.5E-02
				1,2-Dichloroethane	5.41E-04	mg/L	1.5E-05	mg/kg-day	6.0E-03	mg/kg-day	2.5E-03
				Diesel Range Organics (DRO)	3.68E+00	mg/L	1.0E-01	mg/kg-day	N/A	mg/kg-day	---
				Ethylbenzene	1.02E-01	mg/L	2.8E-03	mg/kg-day	1.0E-01	mg/kg-day	2.8E-02
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	7.3E-02	mg/kg-day	N/A	mg/kg-day	---
				2-Hexanone	9.95E-03	mg/L	2.7E-04	mg/kg-day	5.0E-03	mg/kg-day	5.5E-02
				Isopropylbenzene	7.58E-03	mg/L	2.1E-04	mg/kg-day	1.0E-01	mg/kg-day	2.1E-03
				p-Isopropyltoluene	3.09E-03	mg/L	8.5E-05	mg/kg-day	N/A	mg/kg-day	---
				1-Methylnaphthalene	2.72E-03	mg/L	7.5E-05	mg/kg-day	7.0E-02	mg/kg-day	1.1E-03
				2-Methylnaphthalene	2.45E-03	mg/L	6.7E-05	mg/kg-day	4.0E-03	mg/kg-day	1.7E-02
				4-Methyl-2-Pentanone	8.62E-03	mg/L	2.4E-04	mg/kg-day	8.0E-02	mg/kg-day	3.0E-03
				2-Methylphenol	2.19E-03	mg/L	6.0E-05	mg/kg-day	5.0E-02	mg/kg-day	1.2E-03
				3&4-Methylphenol	2.36E-03	mg/L	6.5E-05	mg/kg-day	5.0E-02	mg/kg-day	1.3E-03
				Naphthalene	9.98E-03	mg/L	2.7E-04	mg/kg-day	2.0E-02	mg/kg-day	1.4E-02
				n-Propylbenzene	7.63E-03	mg/L	2.1E-04	mg/kg-day	1.0E-01	mg/kg-day	2.1E-03
				Toluene	7.03E-01	mg/L	1.9E-02	mg/kg-day	8.0E-02	mg/kg-day	2.4E-01
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	5.0E-04	mg/kg-day	N/A	mg/kg-day	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	1.9E-04	mg/kg-day	1.0E-02	mg/kg-day	1.9E-02
				m&p-Xylenes	3.18E-01	mg/L	8.7E-03	mg/kg-day	2.0E-01	mg/kg-day	4.4E-02
				o-Xylene	1.35E-01	mg/L	3.7E-03	mg/kg-day	2.0E-01	mg/kg-day	1.8E-02
				Xylene (Total)	1.71E-01	mg/L	4.7E-03	mg/kg-day	2.0E-01	mg/kg-day	2.3E-02
				Inorganics							
				Iron	3.16E-01	mg/L	8.7E-03	mg/kg-day	7.0E-01	mg/kg-day	1.2E-02
				Manganese	3.80E-01	mg/L	1.0E-02	mg/kg-day	2.4E-02	mg/kg-day	4.3E-01
				Sodium	2.64E+01	mg/L	7.2E-01	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								4.9E+00

Table 7.13
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Groundwater (Monitoring wells) (cont)	Groundwater	Bulk Fuel Facility	**Dermal Absorption**	**Organics**							
				Acetone	3.26E-01	mg/L	4.2E-05	mg/kg-day	9.0E-01	mg/kg-day	NV
				Acetophenone	3.49E-01	mg/L	4.7E-04	mg/kg-day	1.0E-01	mg/kg-day	NV
				Benzene	5.67E-01	mg/L	2.4E-03	mg/kg-day	4.0E-03	mg/kg-day	5.9E-01
				2-Butanone	1.17E-01	mg/L	3.0E-05	mg/kg-day	6.0E-01	mg/kg-day	NV
				Carbon Disulfide	4.36E-03	mg/L	2.1E-05	mg/kg-day	1.0E-01	mg/kg-day	2.1E-04
				1,2-Dibromoethane	8.30E-03	mg/L	1.3E-05	mg/kg-day	9.0E-03	mg/kg-day	NV
				1,2-Dichloroethane	5.41E-04	mg/L	7.4E-07	mg/kg-day	6.0E-03	mg/kg-day	NV
				Diesel Range Organics (DRO)	3.68E+00	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	N/A
				Ethylbenzene	1.02E-01	mg/L	1.7E-03	mg/kg-day	1.0E-01	mg/kg-day	1.7E-02
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	N/A
				2-Hexanone	9.95E-03	mg/L	1.1E-05	mg/kg-day	5.0E-03	mg/kg-day	NV
				Isopropylbenzene	7.58E-03	mg/L	2.5E-04	mg/kg-day	1.0E-01	mg/kg-day	2.5E-03
				p-Isopropyltoluene	3.09E-03	mg/L	1.8E-04	mg/kg-day	N/A	mg/kg-day	---
				n-Propylbenzene	7.63E-03	mg/L	2.7E-04	mg/kg-day	1.0E-01	mg/kg-day	2.7E-03
				1-Methylnaphthalene	2.72E-03	mg/L	1.1E-04	mg/kg-day	7.0E-02	mg/kg-day	1.5E-03
				2-Methylnaphthalene	2.45E-03	mg/L	9.6E-05	mg/kg-day	4.0E-03	mg/kg-day	2.4E-02
				4-Methyl-2-Pentanone	8.62E-03	mg/L	8.9E-06	mg/kg-day	8.0E-02	mg/kg-day	NV
				2-Methylphenol	2.19E-03	mg/L	5.7E-06	mg/kg-day	5.0E-02	mg/kg-day	NV
				3&4-Methylphenol	2.36E-03	mg/L	6.2E-06	mg/kg-day	5.0E-02	mg/kg-day	NV
				Naphthalene	9.98E-03	mg/L	1.8E-04	mg/kg-day	2.0E-02	mg/kg-day	9.0E-03
				Toluene	7.03E-01	mg/L	6.7E-03	mg/kg-day	8.0E-02	mg/kg-day	8.3E-02
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	5.9E-04	mg/kg-day	N/A	mg/kg-day	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	1.6E-04	mg/kg-day	1.0E-02	mg/kg-day	1.6E-02
				m&p-Xylenes	3.18E-01	mg/L	5.7E-03	mg/kg-day	2.0E-01	mg/kg-day	2.8E-02
				o-Xylene	1.35E-01	mg/L	2.3E-03	mg/kg-day	2.0E-01	mg/kg-day	1.1E-02
				Xylene (Total)	1.71E-01	mg/L	3.0E-03	mg/kg-day	2.0E-01	mg/kg-day	1.5E-02
				Inorganics							
				Iron	3.16E-01	mg/L	4.4E-05	mg/kg-day	7.0E-01	mg/kg-day	NV
				Manganese	3.80E-01	mg/L	5.4E-05	mg/kg-day	9.6E-04	mg/kg-day	5.7E-02
				Sodium	2.64E+01	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	NV
			Exp. Route Total								8.6E-01
		Exposure Point Total									5.8E+00
	Exposure Media Total										5.8E+00

Table 7.13
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				Acetone	1.63E-01	mg/m³	1.6E-01	mg/m³	3.1E+01	mg/m³	5.0E-03
				Acetophenone	1.75E-01	mg/m³	1.7E-01	mg/m³	N/A	mg/m³	---
				Benzene	2.84E-01	mg/m³	2.7E-01	mg/m³	3.0E-02	mg/m³	9.1E+00
				2-Butanone	5.85E-02	mg/m³	5.6E-02	mg/m³	5.0E+00	mg/m³	1.1E-02
				Carbon Disulfide	2.18E-03	mg/m³	2.1E-03	mg/m³	7.0E-01	mg/m³	3.0E-03
				1,2-Dibromoethane	4.15E-03	mg/m³	4.0E-03	mg/m³	9.0E-03	mg/m³	4.4E-01
				1,2-Dichloroethane	2.71E-04	mg/m³	2.6E-04	mg/m³	7.0E-03	mg/m³	3.7E-02
				Diesel Range Organics (DRO)	1.84E+00	mg/m³	1.8E+00	mg/m³	N/A	mg/m³	---
				Ethylbenzene	5.10E-02	mg/m³	4.9E-02	mg/m³	1.0E+00	mg/m³	4.9E-02
				Gasoline Range Organics (GRO)	1.33E+00	mg/m³	1.3E+00	mg/m³	N/A	mg/m³	---
				2-Hexanone	4.98E-03	mg/m³	4.8E-03	mg/m³	3.0E-02	mg/m³	1.6E-01
				Isopropylbenzene	3.79E-03	mg/m³	3.6E-03	mg/m³	4.0E-01	mg/m³	9.1E-03
				1-Methylnaphthalene	1.36E-03	mg/m³	1.3E-03	mg/m³	N/A	mg/m³	---
				2-Methylnaphthalene	1.23E-03	mg/m³	1.2E-03	mg/m³	N/A	mg/m³	---
				4-Methyl-2-Pentanone	4.31E-03	mg/m³	4.1E-03	mg/m³	3.0E+00	mg/m³	1.4E-03
				Naphthalene	4.99E-03	mg/m³	4.8E-03	mg/m³	3.0E-03	mg/m³	1.6E+00
				n-Propylbenzene	3.82E-03	mg/m³	3.7E-03	mg/m³	1.0E+00	mg/m³	3.7E-03
				Toluene	3.52E-01	mg/m³	3.4E-01	mg/m³	5.0E+00	mg/m³	6.7E-02
				1,2,4-Trimethylbenzene	9.20E-03	mg/m³	8.8E-03	mg/m³	7.0E-03	mg/m³	1.3E+00
				1,3,5-Trimethylbenzene	3.53E-03	mg/m³	3.4E-03	mg/m³	N/A	mg/m³	---
				m&p-Xylenes	1.59E-01	mg/m³	1.5E-01	mg/m³	1.0E-01	mg/m³	1.5E+00
				o-Xylene	6.75E-02	mg/m³	6.5E-02	mg/m³	1.0E-01	mg/m³	6.5E-01
				Xylene (Total)	8.55E-02	mg/m³	8.2E-02	mg/m³	1.0E-01	mg/m³	8.2E-01
			Exp. Route Total								1.6E+01
		Exposure Point Total									1.6E+01
	Exposure Media Total										1.6E+01
Groundwater Total (Monitoring Wells)											2.1E+01

Table 7.13
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations: Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	2.10E-01	mg/m3	2.0E-01	mg/m3	3.1E+01	mg/m3	6.5E-03
				Benzene	3.27E-01	mg/m3	3.1E-01	mg/m3	3.0E-02	mg/m3	1.0E+01
				Bromodichloromethane	4.56E-03	mg/m3	4.4E-03	mg/m3	N/A	mg/m3	---
				1,3-Butadiene	5.10E-05	mg/m3	4.9E-05	mg/m3	2.0E-03	mg/m3	2.4E-02
				Carbon tetrachloride	6.38E-05	mg/m3	6.1E-05	mg/m3	1.0E-01	mg/m3	6.1E-04
				Chloroform	3.84E-03	mg/m3	3.7E-03	mg/m3	9.8E-02	mg/m3	3.8E-02
				Cyclohexane	3.63E-01	mg/m3	3.5E-01	mg/m3	6.0E+00	mg/m3	5.8E-02
				Dibromochloromethane	3.50E-05	mg/m3	3.4E-05	mg/m3	N/A	mg/m3	---
				1,2-Dibromoethane	1.74E-04	mg/m3	1.7E-04	mg/m3	9.0E-03	mg/m3	1.9E-02
				n-Hexane	3.13E+00	mg/m3	3.0E+00	mg/m3	7.0E-01	mg/m3	4.3E+00
				Methylene Chloride	2.37E-02	mg/m3	2.3E-02	mg/m3	6.0E-01	mg/m3	3.8E-02
				1,1,2,2-Tetrachloroethane	8.68E-06	mg/m3	8.3E-06	mg/m3	N/A	mg/m3	---
				1,2,4-Trimethylbenzene	1.32E-01	mg/m3	1.3E-01	mg/m3	7.0E-03	mg/m3	1.8E+01
				Xylene (total)	5.79E-01	mg/m3	5.6E-01	mg/m3	1.0E-01	mg/m3	5.6E+00
			Exp. Route Total								3.9E+01
		Exposure Point Total									3.9E+01
	Exposure Media Total										3.9E+01
Soil Gas Total											3.9E+01
										Total of Receptor Hazards Across All Media	6.0E+01

N/A = Not Applicable.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.

Table 7.14
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Lifetime

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Total Soil	Total Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	5.5E-07
				Benzo(a)pyrene	1.04E-01	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	5.1E-06
				Benzo(b)fluoranthene	1.20E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	5.9E-07
				Carbazole	3.92E-02	mg/kg	6.1E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	1.2E-06
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	2.8E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	6.7E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	4.8E-07
				p-Isopropyltoluene	1.96E-01	mg/kg	3.1E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	1.3E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	1.3E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	1.8E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								7.9E-06
			Dermal Absorption	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	2.1E-07
				Benzo(a)pyrene	1.04E-01	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	2.0E-06
				Benzo(b)fluoranthene	1.20E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	2.3E-07
				Carbazole	3.92E-02	mg/kg	2.5E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg\text{-}day)^{-1}$	4.6E-07
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg\text{-}day)^{-1}$	1.8E-07
				p-Isopropyltoluene	1.96E-01	mg/kg	9.7E-08	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	5.2E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	5.1E-07	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								3.0E-06
		Exposure Point Total									1.1E-05
	Exposure Media Total										1.1E-05

Table 7.14
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Lifetime

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Total Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)anthracene	3.93E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	4.5E-12
				Benzo(a)pyrene	3.65E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-03	$(\mu g/m^3)^{-1}$	4.2E-11
				Benzo(b)fluoranthene	4.21E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	4.8E-12
				Carbazole	1.38E-11	mg/m^3	5.7E-09	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Dibenz(a,h)anthracene	8.67E-12	mg/m^3	ADAF	$\mu g/m^3$	1.2E-03	$(\mu g/m^3)^{-1}$	1.1E-11
				Indeno(1,2,3-cd)pyrene	3.41E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	3.9E-12
				p-Isopropyltoluene	6.88E-11	mg/m^3	2.8E-08	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Methylnaphthalene	2.82E-10	mg/m^3	1.2E-07	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								6.6E-11
		Exposure Point Total									6.6E-11
	Exposure Media Total										6.6E-11
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Naphthalene	1.14E-05	mg/m^3	5.6E-03	$\mu g/m^3$	3.4E-05	$(\mu g/m^3)^{-1}$	1.9E-07
				1,2,4-Trimethylbenzene	2.37E-05	mg/m^3	1.2E-02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								1.9E-07
		Exposure Point Total									1.9E-07
	Exposure Media Total										1.9E-07
Total Soil Total											1.1E-05

Table 7.14
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Lifetime

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility	**Ingestion**	**Organics**							
		Potable Use		Acetone	3.26E-01	mg/L	4.8E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Acetophenone	3.49E-01	mg/L	5.2E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Benzene	5.67E-01	mg/L	8.4E-03	mg/kg-day	5.5E-02	$(mg/kg\text{-}day)^{-1}$	4.6E-04
				2-Butanone	1.17E-01	mg/L	1.7E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Carbon Disulfide	4.36E-03	mg/L	6.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2-Dibromoethane	8.30E-03	mg/L	1.2E-04	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	2.5E-04
				1,2-Dichloroethane	5.41E-04	mg/L	8.0E-06	mg/kg-day	9.1E-02	$(mg/kg\text{-}day)^{-1}$	7.3E-07
				Diesel Range Organics (DRO)	3.68E+00	mg/L	5.5E-02	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Ethylbenzene	1.02E-01	mg/L	1.5E-03	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	1.7E-05
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	4.0E-02	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Hexanone	9.95E-03	mg/L	1.5E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Isopropylbenzene	7.58E-03	mg/L	1.1E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				p-Isopropyltoluene	3.09E-03	mg/L	4.6E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1-Methylnaphthalene	2.72E-03	mg/L	4.0E-05	mg/kg-day	2.9E-02	$(mg/kg\text{-}day)^{-1}$	1.2E-06
				2-Methylnaphthalene	2.45E-03	mg/L	3.6E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	1.3E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylphenol	2.19E-03	mg/L	3.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				3&4-Methylphenol	2.36E-03	mg/L	3.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	9.98E-03	mg/L	1.5E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				n-Propylbenzene	7.63E-03	mg/L	1.1E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Toluene	7.03E-01	mg/L	1.0E-02	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	2.7E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	1.1E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				m&p-Xylenes	3.18E-01	mg/L	4.7E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				o-Xylene	1.35E-01	mg/L	2.0E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Xylene (Total)	1.71E-01	mg/L	2.5E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				Iron	3.16E-01	mg/L	4.7E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Manganese	3.80E-01	mg/L	5.7E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Sodium	2.64E+01	mg/L	3.9E-01	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								7.3E-04

Table 7.14
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Lifetime

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Groundwater	Groundwater	Bulk Fuel Facility	**Dermal Absorption**	**Organics**							
				Acetone	3.26E-01	mg/L	2.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Acetophenone	3.49E-01	mg/L	2.5E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Benzene	5.67E-01	mg/L	1.3E-03	mg/kg-day	5.5E-02	$(mg/kg\text{-}day)^{-1}$	7.0E-05
				2-Butanone	1.17E-01	mg/L	1.6E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Carbon Disulfide	4.36E-03	mg/L	1.2E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2-Dibromoethane	8.30E-03	mg/L	7.0E-06	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	NV
				1,2-Dichloroethane	5.41E-04	mg/L	4.0E-07	mg/kg-day	9.1E-02	$(mg/kg\text{-}day)^{-1}$	NV
				Diesel Range Organics (DRO)	3.68E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				Ethylbenzene	1.02E-01	mg/L	9.1E-04	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	1.0E-05
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				2-Hexanone	9.95E-03	mg/L	6.2E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Isopropylbenzene	7.58E-03	mg/L	1.3E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				p-Isopropyltoluene	3.09E-03	mg/L	9.8E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1-Methylnaphthalene	2.72E-03	mg/L	5.8E-05	mg/kg-day	2.9E-02	$(mg/kg\text{-}day)^{-1}$	1.7E-06
				2-Methylnaphthalene	2.45E-03	mg/L	5.1E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	4.8E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				2-Methylphenol	2.19E-03	mg/L	3.0E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				3&4-Methylphenol	2.36E-03	mg/L	3.3E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Naphthalene	9.98E-03	mg/L	9.6E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				n-Propylbenzene	7.63E-03	mg/L	1.4E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Toluene	7.03E-01	mg/L	3.6E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	3.2E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	8.6E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				m&p-Xylenes	3.18E-01	mg/L	3.0E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				o-Xylene	1.35E-01	mg/L	1.2E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Xylene (Total)	1.71E-01	mg/L	1.6E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				Iron	3.16E-01	mg/L	2.7E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Manganese	3.80E-01	mg/L	3.2E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Sodium	2.64E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
			Exp. Route Total								8.2E-05
		Exposure Point Total									8.1E-04
	Exposure Media Total										8.1E-04

Table 7.14
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Lifetime

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				Acetone	1.63E-01	mg/m^3	6.7E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Acetophenone	1.75E-01	mg/m^3	7.2E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Benzene	2.84E-01	mg/m^3	1.2E+02	$\mu g/m^3$	7.8E-06	$(\mu g/m^3)^{-1}$	9.1E-04
				2-Butanone	5.85E-02	mg/m^3	2.4E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Carbon Disulfide	2.18E-03	mg/m^3	9.0E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,2-Dibromoethane	4.15E-03	mg/m^3	1.7E+00	$\mu g/m^3$	6.0E-04	$(\mu g/m^3)^{-1}$	1.0E-03
				1,2-Dichloroethane	2.71E-04	mg/m^3	1.1E-01	$\mu g/m^3$	2.6E-05	$(\mu g/m^3)^{-1}$	2.9E-06
				Diesel Range Organics (DRO)	1.84E+00	mg/m^3	7.6E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Ethylbenzene	5.10E-02	mg/m^3	2.1E+01	$\mu g/m^3$	2.5E-06	$(\mu g/m^3)^{-1}$	5.2E-05
				Gasoline Range Organics (GRO)	1.33E+00	mg/m^3	5.5E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Hexanone	4.98E-03	mg/m^3	2.0E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Isopropylbenzene	3.79E-03	mg/m^3	1.6E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1-Methylnaphthalene	1.36E-03	mg/m^3	5.6E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Methylnaphthalene	1.23E-03	mg/m^3	5.0E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				4-Methyl-2-Pentanone	4.31E-03	mg/m^3	1.8E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Naphthalene	4.99E-03	mg/m^3	2.1E+00	$\mu g/m^3$	3.4E-05	$(\mu g/m^3)^{-1}$	7.0E-05
				n-Propylbenzene	3.82E-03	mg/m^3	1.6E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Toluene	3.52E-01	mg/m^3	1.4E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,2,4-Trimethylbenzene	9.20E-03	mg/m^3	3.8E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,3,5-Trimethylbenzene	3.53E-03	mg/m^3	1.5E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				m&p-Xylenes	1.59E-01	mg/m^3	6.5E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				o-Xylene	6.75E-02	mg/m^3	2.8E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Xylene (Total)	8.55E-02	mg/m^3	3.5E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								2.1E-03
		Exposure Point Total									2.1E-03
	Exposure Media Total										2.1E-03
Groundwater Total (Monitoring Wells)											2.9E-03

Table 7.14
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Lifetime

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	2.10E+02	µg/m^3	8.6E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Benzene	3.27E+02	µg/m^3	1.3E+02	µg/m^3	7.8E-06	(µg/m^3)$^{-1}$	1.0E-03
				Bromodichloromethane	4.56E+00	µg/m^3	1.9E+00	µg/m^3	3.7E-05	(µg/m^3)$^{-1}$	6.9E-05
				1,3-Butadiene	5.10E-02	µg/m^3	2.1E-02	µg/m^3	3.0E-05	(µg/m^3)$^{-1}$	6.3E-07
				Carbon tetrachloride	6.38E-02	µg/m^3	2.6E-02	µg/m^3	6.0E-06	(µg/m^3)$^{-1}$	1.6E-07
				Chloroform	3.84E+00	µg/m^3	1.6E+00	µg/m^3	2.3E-05	(µg/m^3)$^{-1}$	3.6E-05
				Cyclohexane	3.63E+02	µg/m^3	1.5E+02	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Dibromochloromethane	3.50E-02	µg/m^3	1.4E-02	µg/m^3	2.7E-05	(µg/m^3)$^{-1}$	3.9E-07
				1,2-Dibromoethane	1.74E-01	µg/m^3	7.2E-02	µg/m^3	6.0E-04	(µg/m^3)$^{-1}$	4.3E-05
				n-Hexane	3.13E+03	µg/m^3	1.3E+03	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Methylene Chloride	2.37E+01	µg/m^3	ADAF	µg/m^3	1.0E-08	(µg/m^3)$^{-1}$	2.5E-07
				1,1,2,2-Tetrachloroethane	8.68E-03	µg/m^3	3.6E-03	µg/m^3	5.8E-05	(µg/m^3)$^{-1}$	2.1E-07
				1,2,4-Trimethylbenzene	1.32E+02	µg/m^3	5.4E+01	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
				Xylene (total)	5.79E+02	µg/m^3	2.4E+02	µg/m^3	N/A	(µg/m^3)$^{-1}$	---
			Exp. Route Total								1.2E-03
		Exposure Point Total									1.2E-03
	Exposure Media Total										1.2E-03
Soil Gas Total											1.2E-03
										Total of Receptor Risks Across All Media	4.1E-03

N/A = Not Applicable.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.
ADAF = Age-Dependent Adjustment Factor

Table 7.15
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Total Soil	Total Soil	Bulk Fuel Facility	Ingestion	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg-day)^{-1}$	4.8E-07
				Benzo(a)pyrene	1.04E-01	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg-day)^{-1}$	4.4E-06
				Benzo(b)fluoranthene	1.20E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg-day)^{-1}$	5.1E-07
				Carbazole	3.92E-02	mg/kg	4.3E-08	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg-day)^{-1}$	1.1E-06
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	2.0E-04	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	4.7E-05	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg-day)^{-1}$	4.1E-07
				p-Isopropyltoluene	1.96E-01	mg/kg	2.1E-07	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	8.8E-07	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	8.8E-07	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	1.2E-06	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								6.9E-06
			Dermal Absorption	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg-day)^{-1}$	1.7E-07
				Benzo(a)pyrene	1.04E-01	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg-day)^{-1}$	1.6E-06
				Benzo(b)fluoranthene	1.20E-01	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg-day)^{-1}$	1.9E-07
				Carbazole	3.92E-02	mg/kg	1.6E-08	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	ADAF	mg/kg-day	7.3E+00	$(mg/kg-day)^{-1}$	3.8E-07
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	ADAF	mg/kg-day	7.3E-01	$(mg/kg-day)^{-1}$	1.5E-07
				p-Isopropyltoluene	1.96E-01	mg/kg	6.0E-08	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				2-Methylnaphthalene	8.03E-01	mg/kg	3.2E-07	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Naphthalene	7.99E-01	mg/kg	3.2E-07	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	0.0E+00	mg/kg-day	N/A	$(mg/kg-day)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								2.5E-06
		Exposure Point Total									9.4E-06
	Exposure Media Total										9.4E-06

Table 7.15
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Total Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)anthracene	3.93E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	1.9E-12
				Benzo(a)pyrene	3.65E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-03	$(\mu g/m^3)^{-1}$	1.8E-11
				Benzo(b)fluoranthene	4.21E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	2.0E-12
				Carbazole	1.38E-11	mg/m^3	1.1E-09	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Dibenz(a,h)anthracene	8.67E-12	mg/m^3	ADAF	$\mu g/m^3$	1.2E-03	$(\mu g/m^3)^{-1}$	4.6E-12
				Indeno(1,2,3-cd)pyrene	3.41E-11	mg/m^3	ADAF	$\mu g/m^3$	1.1E-04	$(\mu g/m^3)^{-1}$	1.6E-12
				p-Isopropyltoluene	6.88E-11	mg/m^3	5.7E-09	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Methylnaphthalene	2.82E-10	mg/m^3	2.3E-08	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Inorganics							
				No COPCs							
			Exp. Route Total								2.8E-11
		Exposure Point Total									2.8E-11
	Exposure Media Total										2.8E-11
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Naphthalene	2.29E-05	mg/m^3	1.9E-03	$\mu g/m^3$	3.4E-05	$(\mu g/m^3)^{-1}$	6.4E-08
				1,2,4-Trimethylbenzene	5.33E-05	mg/m^3	4.4E-03	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								6.4E-08
		Exposure Point Total									6.4E-08
	Exposure Media Total										6.4E-08
Total Soil Total											9.5E-06

Table 7.15
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				Acetone	3.26E-01	mg/L	1.8E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Acetophenone	3.49E-01	mg/L	1.9E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Benzene	5.67E-01	mg/L	3.1E-03	mg/kg-day	5.5E-02	$(mg/kg\text{-}day)^{-1}$	1.7E-04
				2-Butanone	1.17E-01	mg/L	6.4E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Carbon Disulfide	4.36E-03	mg/L	2.4E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2-Dibromoethane	8.30E-03	mg/L	4.5E-05	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	9.1E-05
				1,2-Dichloroethane	5.41E-04	mg/L	3.0E-06	mg/kg-day	9.1E-02	$(mg/kg\text{-}day)^{-1}$	2.7E-07
				Diesel Range Organics (DRO)	3.68E+00	mg/L	2.0E-02	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Ethylbenzene	1.02E-01	mg/L	5.6E-04	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	6.1E-06
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	1.5E-02	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Hexanone	9.95E-03	mg/L	5.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Isopropylbenzene	7.58E-03	mg/L	4.2E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				p-Isopropyltoluene	3.09E-03	mg/L	1.7E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1-Methylnaphthalene	2.72E-03	mg/L	1.5E-05	mg/kg-day	2.9E-02	$(mg/kg\text{-}day)^{-1}$	4.3E-07
				2-Methylnaphthalene	2.45E-03	mg/L	1.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	4.7E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				2-Methylphenol	2.19E-03	mg/L	1.2E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				3&4-Methylphenol	2.36E-03	mg/L	1.3E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Naphthalene	9.98E-03	mg/L	5.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				n-Propylbenzene	7.63E-03	mg/L	4.2E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Toluene	7.03E-01	mg/L	3.9E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	1.0E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	3.9E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				m&p-Xylenes	3.18E-01	mg/L	1.7E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				o-Xylene	1.35E-01	mg/L	7.4E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Xylene (Total)	1.71E-01	mg/L	9.4E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				Iron	3.16E-01	mg/L	1.7E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Manganese	3.80E-01	mg/L	2.1E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Sodium	2.64E+01	mg/L	1.4E-01	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
			Exp. Route Total								2.7E-04

Table 7.15
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	CSF/Unit Risk Value	CSF/Unit Risk Units	Cancer Risk
Groundwater (Monitoring wells) (cont)	Groundwater	Bulk Fuel Facility Potable Use	**Dermal Absorption**	**Organics**							
				Acetone	3.26E-01	mg/L	8.7E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Acetophenone	3.49E-01	mg/L	9.0E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Benzene	5.67E-01	mg/L	4.7E-04	mg/kg-day	5.5E-02	$(mg/kg\text{-}day)^{-1}$	2.6E-05
				2-Butanone	1.17E-01	mg/L	6.1E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Carbon Disulfide	4.36E-03	mg/L	4.3E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2-Dibromoethane	8.30E-03	mg/L	2.5E-06	mg/kg-day	2.0E+00	$(mg/kg\text{-}day)^{-1}$	NV
				1,2-Dichloroethane	5.41E-04	mg/L	1.4E-07	mg/kg-day	9.1E-02	$(mg/kg\text{-}day)^{-1}$	NV
				Diesel Range Organics (DRO)	3.68E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				Ethylbenzene	1.02E-01	mg/L	3.3E-04	mg/kg-day	1.1E-02	$(mg/kg\text{-}day)^{-1}$	3.6E-06
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	N/A
				2-Hexanone	9.95E-03	mg/L	2.3E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Isopropylbenzene	7.58E-03	mg/L	4.7E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				p-Isopropyltoluene	3.09E-03	mg/L	3.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1-Methylnaphthalene	2.72E-03	mg/L	2.1E-05	mg/kg-day	2.9E-02	$(mg/kg\text{-}day)^{-1}$	6.0E-07
				2-Methylnaphthalene	2.45E-03	mg/L	1.8E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				4-Methyl-2-Pentanone	8.62E-03	mg/L	1.8E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				2-Methylphenol	2.19E-03	mg/L	1.1E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				3&4-Methylphenol	2.36E-03	mg/L	1.2E-06	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Naphthalene	9.98E-03	mg/L	3.5E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				n-Propylbenzene	7.63E-03	mg/L	5.1E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Toluene	7.03E-01	mg/L	1.3E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	1.1E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	3.1E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				m&p-Xylenes	3.18E-01	mg/L	1.1E-03	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				o-Xylene	1.35E-01	mg/L	4.3E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Xylene (Total)	1.71E-01	mg/L	5.4E-04	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Inorganics							
				Iron	3.16E-01	mg/L	1.2E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
				Manganese	3.80E-01	mg/L	1.4E-05	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	---
				Sodium	2.64E+01	mg/L	N/A	mg/kg-day	N/A	$(mg/kg\text{-}day)^{-1}$	NV
			Exp. Route Total								3.0E-05
		Exposure Point Total									3.0E-04
	Exposure Media Total										3.0E-04

Table 7.15
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		
					Value	Units	Value	Units	Value	Units	Cancer Risk
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				Acetone	1.63E-01	mg/m^3	1.3E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Acetophenone	1.75E-01	mg/m^3	1.4E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Benzene	2.84E-01	mg/m^3	2.3E+01	$\mu g/m^3$	7.8E-06	$(\mu g/m^3)^{-1}$	1.8E-04
				2-Butanone	5.85E-02	mg/m^3	4.8E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Carbon Disulfide	2.18E-03	mg/m^3	1.8E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,2-Dibromoethane	4.15E-03	mg/m^3	3.4E-01	$\mu g/m^3$	6.0E-04	$(\mu g/m^3)^{-1}$	2.0E-04
				1,2-Dichloroethane	2.71E-04	mg/m^3	2.2E-02	$\mu g/m^3$	2.6E-05	$(\mu g/m^3)^{-1}$	5.8E-07
				Diesel Range Organics (DRO)	1.84E+00	mg/m^3	1.5E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Ethylbenzene	5.10E-02	mg/m^3	4.2E+00	$\mu g/m^3$	2.5E-06	$(\mu g/m^3)^{-1}$	1.0E-05
				Gasoline Range Organics (GRO)	1.33E+00	mg/m^3	1.1E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Hexanone	4.98E-03	mg/m^3	4.1E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Isopropylbenzene	3.79E-03	mg/m^3	3.1E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1-Methylnaphthalene	1.36E-03	mg/m^3	1.1E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				2-Methylnaphthalene	1.23E-03	mg/m^3	1.0E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				4-Methyl-2-Pentanone	4.31E-03	mg/m^3	3.5E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Naphthalene	4.99E-03	mg/m^3	4.1E-01	$\mu g/m^3$	3.4E-05	$(\mu g/m^3)^{-1}$	1.4E-05
				n-Propylbenzene	3.82E-03	mg/m^3	3.1E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Toluene	3.52E-01	mg/m^3	2.9E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,2,4-Trimethylbenzene	9.20E-03	mg/m^3	7.6E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				1,3,5-Trimethylbenzene	3.53E-03	mg/m^3	2.9E-01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				m&p-Xylenes	1.59E-01	mg/m^3	1.3E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				o-Xylene	6.75E-02	mg/m^3	5.5E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Xylene (Total)	8.55E-02	mg/m^3	7.0E+00	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								4.1E-04
		Exposure Point Total									4.1E-04
	Exposure Media Total										4.1E-04
Groundwater Total (Monitoring Wells)											7.1E-04

Table 7.15
Calculation of Cancer Risks
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations				
							Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk
					Value	Units	Value	Units	Value	Units	
Soil Gas	Air	Facility	**Inhalation**	**Organics**							
(Max detected	(Indoor Air)			Acetone	2.10E+02	$\mu g/m^3$	1.7E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Benzene	3.27E+02	$\mu g/m^3$	2.7E+01	$\mu g/m^3$	7.8E-06	$(\mu g/m^3)^{-1}$	2.1E-04
				Bromodichloromethane	4.56E+00	$\mu g/m^3$	3.7E-01	$\mu g/m^3$	3.7E-05	$(\mu g/m^3)^{-1}$	1.4E-05
				1,3-Butadiene	5.10E-02	$\mu g/m^3$	4.2E-03	$\mu g/m^3$	3.0E-05	$(\mu g/m^3)^{-1}$	1.3E-07
				Carbon tetrachloride	6.38E-02	$\mu g/m^3$	5.2E-03	$\mu g/m^3$	6.0E-06	$(\mu g/m^3)^{-1}$	3.1E-08
				Chloroform	3.84E+00	$\mu g/m^3$	3.2E-01	$\mu g/m^3$	2.3E-05	$(\mu g/m^3)^{-1}$	7.3E-06
				Cyclohexane	3.63E+02	$\mu g/m^3$	3.0E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Dibromochloromethane	3.50E-02	$\mu g/m^3$	2.9E-03	$\mu g/m^3$	2.7E-05	$(\mu g/m^3)^{-1}$	7.8E-08
				1,2-Dibromoethane	1.74E-01	$\mu g/m^3$	1.4E-02	$\mu g/m^3$	6.0E-04	$(\mu g/m^3)^{-1}$	8.6E-06
				n-Hexane	3.13E+03	$\mu g/m^3$	2.6E+02	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Methylene Chloride	2.37E+01	$\mu g/m^3$	ADAF	$\mu g/m^3$	1.0E-08	$(\mu g/m^3)^{-1}$	1.0E-07
				1,1,2,2-Tetrachloroethane	8.68E-03	$\mu g/m^3$	7.1E-04	$\mu g/m^3$	5.8E-05	$(\mu g/m^3)^{-1}$	4.1E-08
				1,2,4-Trimethylbenzene	1.32E+02	$\mu g/m^3$	1.1E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
				Xylene (total)	5.79E+02	$\mu g/m^3$	4.8E+01	$\mu g/m^3$	N/A	$(\mu g/m^3)^{-1}$	---
			Exp. Route Total								2.4E-04
		Exposure Point Total									2.4E-04
	Exposure Media Total										2.4E-04
Soil Gas Total											2.4E-04
										Total of Receptor Risks Across All Media	9.6E-04

N/A = Not Applicable.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.
ADAF = Age-Dependent Adjustment Factor

Table 7.16
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Total Soil	Total Soil	Bulk Fuel Facility	**Ingestion**	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	1.4E-06	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)pyrene	1.04E-01	mg/kg	1.3E-06	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.20E-01	mg/kg	1.5E-06	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.92E-02	mg/kg	5.0E-07	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	3.2E-07	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	2.3E-03	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	5.4E-04	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	1.2E-06	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.96E-01	mg/kg	2.5E-06	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	8.03E-01	mg/kg	1.0E-05	mg/kg-day	4.0E-03	mg/kg-day	2.6E-03
				Naphthalene	7.99E-01	mg/kg	1.0E-05	mg/kg-day	2.0E-02	mg/kg-day	5.1E-04
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	1.5E-05	mg/kg-day	N/A	mg/kg-day	---
				Inorganics							
				No COPCs							
			Exp. Route Total								3.1E-03
			Dermal Absorption	**Organics**							
				Benzo(a)anthracene	1.12E-01	mg/kg	5.2E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(a)pyrene	1.04E-01	mg/kg	4.8E-07	mg/kg-day	N/A	mg/kg-day	---
				Benzo(b)fluoranthene	1.20E-01	mg/kg	5.6E-07	mg/kg-day	N/A	mg/kg-day	---
				Carbazole	3.92E-02	mg/kg	1.8E-07	mg/kg-day	N/A	mg/kg-day	---
				Dibenz(a,h)anthracene	2.47E-02	mg/kg	1.1E-07	mg/kg-day	N/A	mg/kg-day	---
				Diesel Range Organics (DRO)	1.78E+02	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Gasoline Range Organics (GRO)	4.25E+01	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Indeno(1,2,3-cd)pyrene	9.71E-02	mg/kg	4.5E-07	mg/kg-day	N/A	mg/kg-day	---
				p-Isopropyltoluene	1.96E-01	mg/kg	7.0E-07	mg/kg-day	N/A	mg/kg-day	---
				2-Methylnaphthalene	8.03E-01	mg/kg	3.7E-06	mg/kg-day	4.0E-03	mg/kg-day	9.3E-04
				Naphthalene	7.99E-01	mg/kg	3.7E-06	mg/kg-day	2.0E-02	mg/kg-day	1.9E-04
				1,2,4-Trimethylbenzene	1.14E+00	mg/kg	0.0E+00	mg/kg-day	N/A	mg/kg-day	---
				Inorganics							
				No COPCs							
			Exp. Route Total								1.1E-03
		Exposure Point Total									4.2E-03
	Exposure Media Total										4.2E-03

Table 7.16
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Total Soil	Air (Particulates)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Benzo(a)anthracene	3.93E-11	mg/m^3	3.8E-11	mg/m^3	N/A	mg/m^3	---
				Benzo(a)pyrene	3.65E-11	mg/m^3	3.5E-11	mg/m^3	N/A	mg/m^3	---
				Benzo(b)fluoranthene	4.21E-11	mg/m^3	4.0E-11	mg/m^3	N/A	mg/m^3	---
				Carbazole	1.38E-11	mg/m^3	1.3E-11	mg/m^3	N/A	mg/m^3	---
				Dibenz(a,h)anthracene	8.67E-12	mg/m^3	8.3E-12	mg/m^3	N/A	mg/m^3	---
				Indeno(1,2,3-cd)pyrene	3.41E-11	mg/m^3	3.3E-11	mg/m^3	N/A	mg/m^3	---
				p-Isopropyltoluene	6.88E-11	mg/m^3	6.6E-11	mg/m^3	N/A	mg/m^3	---
				2-Methylnaphthalene	2.82E-10	mg/m^3	2.7E-10	mg/m^3	N/A	mg/m^3	---
				Inorganics							
				No COPCs							
			Exp. Route Total								0.0E+00
		Exposure Point Total									0.0E+00
	Exposure Media Total										0.0E+00
	Air (Volatiles)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Diesel Range Organics (DRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	(mg/m^3)	---
				Gasoline Range Organics (GRO)	N/A	mg/m^3	N/A	mg/m^3	N/A	(mg/m^3)	---
				Naphthalene	2.29E-05	mg/m^3	2.2E-05	mg/m^3	3.0E-03	(mg/m^3)	7.3E-03
				1,2,4-Trimethylbenzene	5.33E-05	mg/m^3	5.1E-05	mg/m^3	7.0E-03	(mg/m^3)	7.3E-03
			Exp. Route Total								1.5E-02
		Exposure Point Total									1.5E-02
	Exposure Media Total										1.5E-02
Total Soil Total											1.9E-02

Table 7.16
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Ingestion**	**Organics**							
				Acetone	3.26E-01	mg/L	2.1E-02	mg/kg-day	9.0E-01	mg/kg-day	2.3E-02
				Acetophenone	3.49E-01	mg/L	2.2E-02	mg/kg-day	1.0E-01	mg/kg-day	2.2E-01
				Benzene	5.67E-01	mg/L	3.6E-02	mg/kg-day	4.0E-03	mg/kg-day	9.1E+00
				2-Butanone	1.17E-01	mg/L	7.5E-03	mg/kg-day	6.0E-01	mg/kg-day	1.2E-02
				Carbon Disulfide	4.36E-03	mg/L	2.8E-04	mg/kg-day	1.0E-01	mg/kg-day	2.8E-03
				1,2-Dibromoethane	8.30E-03	mg/L	5.3E-04	mg/kg-day	9.0E-03	mg/kg-day	5.9E-02
				1,2-Dichloroethane	5.41E-04	mg/L	3.5E-05	mg/kg-day	6.0E-03	mg/kg-day	5.8E-03
				Diesel Range Organics (DRO)	3.68E+00	mg/L	2.4E-01	mg/kg-day	N/A	mg/kg-day	---
				Ethylbenzene	1.02E-01	mg/L	6.5E-03	mg/kg-day	1.0E-01	mg/kg-day	6.5E-02
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	1.7E-01	mg/kg-day	N/A	mg/kg-day	---
				2-Hexanone	9.95E-03	mg/L	6.4E-04	mg/kg-day	5.0E-03	mg/kg-day	1.3E-01
				Isopropylbenzene	7.58E-03	mg/L	4.8E-04	mg/kg-day	1.0E-01	mg/kg-day	4.8E-03
				p-Isopropyltoluene	3.09E-03	mg/L	2.0E-04	mg/kg-day	N/A	mg/kg-day	---
				1-Methylnaphthalene	2.72E-03	mg/L	1.7E-04	mg/kg-day	7.0E-02	mg/kg-day	2.5E-03
				2-Methylnaphthalene	2.45E-03	mg/L	1.6E-04	mg/kg-day	4.0E-03	mg/kg-day	3.9E-02
				4-Methyl-2-Pentanone	8.62E-03	mg/L	5.5E-04	mg/kg-day	8.0E-02	mg/kg-day	6.9E-03
				2-Methylphenol	2.19E-03	mg/L	1.4E-04	mg/kg-day	5.0E-02	mg/kg-day	2.8E-03
				3&4-Methylphenol	2.36E-03	mg/L	1.5E-04	mg/kg-day	5.0E-02	mg/kg-day	3.0E-03
				Naphthalene	9.98E-03	mg/L	6.4E-04	mg/kg-day	2.0E-02	mg/kg-day	3.2E-02
				n-Propylbenzene	7.63E-03	mg/L	4.9E-04	mg/kg-day	1.0E-01	mg/kg-day	4.9E-03
				Toluene	7.03E-01	mg/L	4.5E-02	mg/kg-day	8.0E-02	mg/kg-day	5.6E-01
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	1.2E-03	mg/kg-day	N/A	mg/kg-day	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	4.5E-04	mg/kg-day	1.0E-02	mg/kg-day	4.5E-02
				m&p-Xylenes	3.18E-01	mg/L	2.0E-02	mg/kg-day	2.0E-01	mg/kg-day	1.0E-01
				o-Xylene	1.35E-01	mg/L	8.6E-03	mg/kg-day	2.0E-01	mg/kg-day	4.3E-02
				Xylene (Total)	1.71E-01	mg/L	1.1E-02	mg/kg-day	2.0E-01	mg/kg-day	5.5E-02
				Inorganics							
				Iron	3.16E-01	mg/L	2.0E-02	mg/kg-day	7.0E-01	mg/kg-day	2.9E-02
				Manganese	3.80E-01	mg/L	2.4E-02	mg/kg-day	2.4E-02	mg/kg-day	1.0E+00
				Sodium	2.64E+01	mg/L	1.7E+00	mg/kg-day	N/A	mg/kg-day	---
			Exp. Route Total								1.2E+01

Table 7.16
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Groundwater wells) (cont)	Groundwater	Bulk Fuel Facility	**Dermal Absorption**	**Organics**							
				Acetone	3.26E-01	mg/L	1.0E-04	mg/kg-day	9.0E-01	mg/kg-day	NV
				Acetophenone	3.49E-01	mg/L	1.1E-03	mg/kg-day	1.0E-01	mg/kg-day	NV
				Benzene	5.67E-01	mg/L	5.5E-03	mg/kg-day	4.0E-03	mg/kg-day	1.4E+00
				2-Butanone	1.17E-01	mg/L	7.2E-05	mg/kg-day	6.0E-01	mg/kg-day	NV
				Carbon Disulfide	4.36E-03	mg/L	5.1E-05	mg/kg-day	1.0E-01	mg/kg-day	5.1E-04
				1,2-Dibromoethane	8.30E-03	mg/L	3.0E-05	mg/kg-day	9.0E-03	mg/kg-day	NV
				1,2-Dichloroethane	5.41E-04	mg/L	1.7E-06	mg/kg-day	6.0E-03	mg/kg-day	NV
				Diesel Range Organics (DRO)	3.68E+00	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	N/A
				Ethylbenzene	1.02E-01	mg/L	3.8E-03	mg/kg-day	1.0E-01	mg/kg-day	3.8E-02
				Gasoline Range Organics (GRO)	2.66E+00	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	N/A
				2-Hexanone	9.95E-03	mg/L	2.7E-05	mg/kg-day	5.0E-03	mg/kg-day	NV
				Isopropylbenzene	7.58E-03	mg/L	5.5E-04	mg/kg-day	1.0E-01	mg/kg-day	5.5E-03
				p-Isopropyltoluene	3.09E-03	mg/L	4.1E-04	mg/kg-day	N/A	mg/kg-day	---
				1-Methylnaphthalene	2.72E-03	mg/L	2.4E-04	mg/kg-day	7.0E-02	mg/kg-day	3.4E-03
				2-Methylnaphthalene	2.45E-03	mg/L	2.2E-04	mg/kg-day	4.0E-03	mg/kg-day	5.4E-02
				4-Methyl-2-Pentanone	8.62E-03	mg/L	2.1E-05	mg/kg-day	8.0E-02	mg/kg-day	NV
				2-Methylphenol	2.19E-03	mg/L	1.3E-05	mg/kg-day	5.0E-02	mg/kg-day	NV
				3&4-Methylphenol	2.36E-03	mg/L	1.4E-05	mg/kg-day	5.0E-02	mg/kg-day	NV
				Naphthalene	9.98E-03	mg/L	4.1E-04	mg/kg-day	2.0E-02	mg/kg-day	2.0E-02
				n-Propylbenzene	7.63E-03	mg/L	5.9E-04	mg/kg-day	1.0E-01	mg/kg-day	5.9E-03
				Toluene	7.03E-01	mg/L	1.6E-02	mg/kg-day	8.0E-02	mg/kg-day	2.0E-01
				1,2,4-Trimethylbenzene	1.84E-02	mg/L	1.3E-03	mg/kg-day	N/A	mg/kg-day	---
				1,3,5-Trimethylbenzene	7.06E-03	mg/L	3.6E-04	mg/kg-day	1.0E-02	mg/kg-day	3.6E-02
				m&p-Xylenes	3.18E-01	mg/L	1.3E-02	mg/kg-day	2.0E-01	mg/kg-day	6.3E-02
				o-Xylene	1.35E-01	mg/L	5.1E-03	mg/kg-day	2.0E-01	mg/kg-day	2.5E-02
				Xylene (Total)	1.71E-01	mg/L	6.3E-03	mg/kg-day	2.0E-01	mg/kg-day	3.2E-02
				Inorganics							
				Iron	3.16E-01	mg/L	1.4E-04	mg/kg-day	7.0E-01	mg/kg-day	NV
				Manganese	3.80E-01	mg/L	1.6E-04	mg/kg-day	9.6E-04	mg/kg-day	1.7E-01
				Sodium	2.64E+01	mg/L	N/A	mg/kg-day	N/A	mg/kg-day	NV
			Exp. Route Total								2.0E+00
		Exposure Point Total									1.4E+01
	Exposure Media Total										1.4E+01

Table 7.16
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Non-Cancer Hazard Calculations				
							Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
					Value	Units	Value	Units	Value	Units	
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Inhalation**	**Organics**							
				Acetone	1.63E-01	mg/m^3	1.6E-01	mg/m^3	3.1E+01	mg/m^3	5.0E-03
				Acetophenone	1.75E-01	mg/m^3	1.7E-01	mg/m^3	N/A	mg/m^3	---
				Benzene	2.84E-01	mg/m^3	2.7E-01	mg/m^3	3.0E-02	mg/m^3	9.1E+00
				2-Butanone	5.85E-02	mg/m^3	5.6E-02	mg/m^3	5.0E+00	mg/m^3	1.1E-02
				Carbon Disulfide	2.18E-03	mg/m^3	2.1E-03	mg/m^3	7.0E-01	mg/m^3	3.0E-03
				1,2-Dibromoethane	4.15E-03	mg/m^3	4.0E-03	mg/m^3	9.0E-03	mg/m^3	4.4E-01
				1,2-Dichloroethane	2.71E-04	mg/m^3	2.6E-04	mg/m^3	7.0E-03	mg/m^3	3.7E-02
				Diesel Range Organics (DRO)	1.84E+00	mg/m^3	1.8E+00	mg/m^3	N/A	mg/m^3	---
				Ethylbenzene	5.10E-02	mg/m^3	4.9E-02	mg/m^3	1.0E+00	mg/m^3	4.9E-02
				Gasoline Range Organics (GRO)	1.33E+00	mg/m^3	1.3E+00	mg/m^3	N/A	mg/m^3	---
				2-Hexanone	4.98E-03	mg/m^3	4.8E-03	mg/m^3	3.0E-02	mg/m^3	1.6E-01
				Isopropylbenzene	3.79E-03	mg/m^3	3.6E-03	mg/m^3	4.0E-01	mg/m^3	9.1E-03
				1-Methylnaphthalene	1.36E-03	mg/m^3	1.3E-03	mg/m^3	N/A	mg/m^3	---
				2-Methylnaphthalene	1.23E-03	mg/m^3	1.2E-03	mg/m^3	N/A	mg/m^3	---
				4-Methyl-2-Pentanone	4.31E-03	mg/m^3	4.1E-03	mg/m^3	3.0E+00	mg/m^3	1.4E-03
				Naphthalene	4.99E-03	mg/m^3	4.8E-03	mg/m^3	3.0E-03	mg/m^3	1.6E+00
				n-Propylbenzene	3.82E-03	mg/m^3	3.7E-03	mg/m^3	1.0E+00	mg/m^3	3.7E-03
				Toluene	3.52E-01	mg/m^3	3.4E-01	mg/m^3	5.0E+00	mg/m^3	6.7E-02
				1,2,4-Trimethylbenzene	9.20E-03	mg/m^3	8.8E-03	mg/m^3	7.0E-03	mg/m^3	1.3E+00
				1,3,5-Trimethylbenzene	3.53E-03	mg/m^3	3.4E-03	mg/m^3	N/A	mg/m^3	---
				m&p-Xylenes	1.59E-01	mg/m^3	1.5E-01	mg/m^3	1.0E-01	mg/m^3	1.5E+00
				o-Xylene	6.75E-02	mg/m^3	6.5E-02	mg/m^3	1.0E-01	mg/m^3	6.5E-01
				Xylene (Total)	8.55E-02	mg/m^3	8.2E-02	mg/m^3	1.0E-01	mg/m^3	8.2E-01
			Exp. Route Total								1.6E+01
		Exposure Point Total									1.6E+01
	Exposure Media Total										1.6E+01
Groundwater Total (Monitoring Wells)											2.9E+01

Table 7.16
Calculation of Noncancer Hazards
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC Value	EPC Units	Intake/Exposure Concentration Value	Intake/Exposure Concentration Units	RfD/RfC Value	RfD/RfC Units	Hazard Quotient
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Inhalation**	**Organics**							
				Acetone	2.10E-01	mg/m^3	2.0E-01	mg/m^3	3.1E+01	mg/m^3	6.5E-03
				Benzene	3.27E-01	mg/m^3	3.1E-01	mg/m^3	3.0E-02	mg/m^3	1.0E+01
				Bromodichloromethane	4.56E-03	mg/m^3	4.4E-03	mg/m^3	N/A	mg/m^3	---
				1,3-Butadiene	5.10E-05	mg/m^3	4.9E-05	mg/m^3	2.0E-03	mg/m^3	2.4E-02
				Carbon tetrachloride	6.38E-05	mg/m^3	6.1E-05	mg/m^3	1.0E-01	mg/m^3	6.1E-04
				Chloroform	3.84E-03	mg/m^3	3.7E-03	mg/m^3	9.8E-02	mg/m^3	3.8E-02
				Cyclohexane	3.63E-01	mg/m^3	3.5E-01	mg/m^3	6.0E+00	mg/m^3	5.8E-02
				Dibromochloromethane	3.50E-05	mg/m^3	3.4E-05	mg/m^3	N/A	mg/m^3	---
				1,2-Dibromoethane	1.74E-04	mg/m^3	1.7E-04	mg/m^3	9.0E-03	mg/m^3	1.9E-02
				n-Hexane	3.13E+00	mg/m^3	3.0E+00	mg/m^3	7.0E-01	mg/m^3	4.3E+00
				Methylene Chloride	2.37E-02	mg/m^3	2.3E-02	mg/m^3	6.0E-01	mg/m^3	3.8E-02
				1,1,2,2-Tetrachloroethane	8.68E-06	mg/m^3	8.3E-06	mg/m^3	N/A	mg/m^3	---
				1,2,4-Trimethylbenzene	1.32E-01	mg/m^3	1.3E-01	mg/m^3	7.0E-03	mg/m^3	1.8E+01
				Xylene (total)	5.79E-01	mg/m^3	5.6E-01	mg/m^3	1.0E-01	mg/m^3	5.6E+00
			Exp. Route Total								3.9E+01
		Exposure Point Total									3.9E+01
	Exposure Media Total										3.9E+01
Soil Gas Total											3.9E+01
										Total of Receptor Hazards Across All Media	6.8E+01

N/A = Not Applicable.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.

Table 9.1
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Bulk Fuel Facility	**Organics**									
			Benzo(a)pyrene	2.6E-07	---	2.2E-07	4.8E-07	N/A	---	---	---	---
			Benzo(a)anthracene	2.9E-08	---	2.5E-08	5.5E-08	N/A	---	---	---	---
			Benzo(b)fluoranthene	3.2E-08	---	2.7E-08	5.9E-08	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	6.2E-08	---	5.3E-08	1.1E-07	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	--
			Indeno(1,2,3-cd)pyrene	1.9E-08	---	1.6E-08	3.4E-08	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	Lungs	9.6E-05	---	8.3E-05	1.8E-04
			Inorganics									
			No COPCs									
			Chemical Total	4.0E-07	---	3.4E-07	7.4E-07		0.000096	---	0.000083	0.00018
		Exposure Point Total					7.4E-07					0.00018
	Exposure Media Total						7.4E-07					0.00018
	Air (Particulates and Volatiles)	Bulk Fuel Facility	**Organics**									
			Benzo(a)pyrene	---	4.1E-12	---	4.1E-12	N/A	---	---	---	---
			Benzo(a)anthracene	---	4.7E-13	---	4.7E-13	N/A	---	---	---	---
			Benzo(b)fluoranthene	---	5.0E-13	---	5.0E-13	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	---	1.1E-12	---	1.1E-12	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.9E-13	---	2.9E-13	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Inorganics									
			No COPCs									
			Chemical Total	---	6.4E-12	---	6.4E-12		---	0.0000	---	0.0000
		Exposure Point Total					6.4E-12					0.0000
	Exposure Media Total						6.4E-12					0.0000
Surface Soil Total							7.4E-07					0.00018

Table 9.1
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility (Potable)	**Organics**									
			No COPCs									
			Inorganics									
			Sodium	---	---	---	---	N/A	---	---	---	0.0E+00
			Chemical Total		0.0E+00		0.0E+00		---	---	---	0.00
		Exposure Point Total					0.0E+00					0.00
	Exposure Media Total						0.0E+00					0.00
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)	**Organics**									
			No COPCs									
			Chemical Total				0.0E+00					0.00
		Exposure Point Total					0.0E+00					0.00
	Exposure Media Total						0.0E+00					0.00
Groundwater Total (Water Supply)							0.0E+00					0.00
Soil Gas (Shallowest soil gas results)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	6.4E-05	---	6.4E-05
			Benzene	---	3.5E-06	---	3.5E-06	Blood	---	4.1E-02	---	4.1E-02
			Bromodichloromethane	---	1.3E-06	---	1.3E-06	N/A	---	---	---	---
			n-Hexane	---	---	---	---	Peripheral Nervous System	---	1.0E-02	---	1.0E-02
			Methylene Chloride	---	1.4E-10	---	1.4E-10	Liver	---	6.4E-05	---	6.4E-05
			Chemical Total	---	4.8E-06	---	4.8E-06		---	0.052	---	0.052
		Exposure Point Total					4.8E-06					0.052
	Exposure Media Total						4.8E-06					0.052
Soil Gas Total							4.8E-06					0.052
Receptor Total							5.5E-06					0.052

Total Risk Across All Media = 5.5E-06

Total Hazard Across All Media = 0.052

CNS = Central nervous system.
GI = Gastrointestinal.
N/A = Not Available.

Table 9.2
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Bulk Fuel Facility	**Organics**									
			Benzo(a)pyrene	2.6E-07	---	2.2E-07	4.8E-07	N/A	---	---	---	---
			Benzo(a)anthracene	2.9E-08	---	2.5E-08	5.5E-08	N/A	---	---	---	---
			Benzo(b)fluoranthene	3.2E-08	---	2.7E-08	5.9E-08	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	6.2E-08	---	5.3E-08	1.1E-07	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	1.9E-08	---	1.6E-08	3.4E-08	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	Lungs	9.6E-05	---	8.3E-05	1.8E-04
			Inorganics									
			No COPCs									
			Chemical Total	4.0E-07	---	3.4E-07	7.4E-07		0.000096	---	0.000083	0.00018
		Exposure Point Total					7.4E-07					0.00018
	Exposure Media Total						7.4E-07					0.00018
	Air (Particulates and Volatiles)	Bulk Fuel Facility	**Organics**									
			Benzo(a)pyrene	---	4.1E-12	---	4.1E-12	N/A	---	---	---	---
			Benzo(a)anthracene	---	4.7E-13	---	4.7E-13	N/A	---	---	---	---
			Benzo(b)fluoranthene	---	5.0E-13	---	5.0E-13	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	---	1.1E-12	---	1.1E-12	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	2.9E-13	---	2.9E-13	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			Inorganics									
			No COPCs									
			Chemical Total	---	6.4E-12	---	6.4E-12		---	0.0000	---	0.0000
		Exposure Point Total					6.4E-12					0.0000
	Exposure Media Total						6.4E-12					0.0000
Surface Soil Total							7.4E-07					0.00018

Table 9.2
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility (Potable)	**Organics**									
			No COPCs									
			Inorganics									
			Sodium	---	---	---	---	N/A	---	---	---	0.0E+00
			Chemical Total	---	---	---	0.0E+00		---	---	---	0.00
		Exposure Point Total					0.0E+00					0.00
	Exposure Media Total						0.0E+00					0.00
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)	**Organics**									
			No COPCs									
			Chemical Total				0.0E+00					0.00
		Exposure Point Total					0.0E+00					0.00
	Exposure Media Total						0.0E+00					0.00
Groundwater Total (Water Supply)							0.0E+00					0.00

Table 9.2
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility	**Organics**									
		Potable Use	Acetone	---	---	NV	---	Kidney	6.4E-03	---	NV	6.4E-03
			Acetophenone	---	---	NV	---	NOAEL	6.1E-02	---	NV	6.1E-02
			Benzene	2.0E-04	---	NV	2.0E-04	Blood	2.5E+00	---	NV	2.5E+00
			2-Butanone	---	---	NV	---	Decreased weight	3.4E-03	---	NV	3.4E-03
			Carbon Disulfide	---	---	NV	---	Fetal toxicity	7.7E-04	---	NV	7.7E-04
			1,2-Dibromoethane	1.0E-04	---	NV	1.0E-04	Reproductive, Liver, Endocrine System	1.6E-02	---	NV	1.6E-02
			1,2-Dichloroethane	3.1E-07	---	NV	3.1E-07	Kidney	1.6E-03	---	NV	1.6E-03
			Diesel Range Organics (DRO)	---	---	N/A	---	N/A	---	---	N/A	---
			Ethylbenzene	7.1E-06	---	NV	7.1E-06	Liver, Kidney	1.8E-02	---	NV	1.8E-02
			Gasoline Range Organics (GRO)	---	---	N/A	---	N/A	---	---	N/A	---
			2-Hexanone	---	---	NV	---	Peripheral Nervous System	3.5E-02	---	NV	3.5E-02
			Isopropylbenzene	---	---	---	---	Kidney	1.3E-03	---	2.4E-04	1.6E-03
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			1-Methylnaphthalene	5.0E-07	---	1.1E-07	6.1E-07	Lungs	6.8E-04	---	1.5E-04	8.3E-04
			2-Methylnaphthalene	---	---	---	---	Lungs	1.1E-02	---	2.3E-03	1.3E-02
			4-Methyl-2-Pentanone	---	---	NV	---	Whole Body, Liver, Kidney	1.9E-03	---	NV	1.9E-03
			2-Methylphenol	---	---	NV	---	Decreased Body Weight, Neurotoxicity	7.7E-04	---	NV	7.7E-04
			3&4-Methylphenol	---	---	NV	---	Decreased Body Weight, Neurotoxicity	8.3E-04	---	NV	8.3E-04
			Naphthalene	---	---	NV	---	Whole body (decreased weight)	8.8E-03	---	NV	8.8E-03
			n-Propylbenzene	---	---	---	---	Liver, Kidney	1.3E-03	---	2.5E-04	1.6E-03
			Toluene	---	---	NV	---	Kidney	1.5E-01	---	NV	1.5E-01
			1,2,4-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			1,3,5-Trimethylbenzene	---	---	---	---	NOAEL	1.2E-02	---	1.6E-03	1.4E-02
			m&p-Xylenes	---	---	NV	---	Decreased Body Weight, Mortality	2.8E-02	---	NV	2.8E-02
			o-Xylene	---	---	NV	---	Decreased Body Weight, Mortality	1.2E-02	---	NV	1.2E-02
			Xylene (Total)	---	---	NV	---	Decreased Body Weight, Mortality	1.5E-02	---	NV	1.5E-02
			Inorganics									
			Iron	---	---	NV	---	GI Tract	8.0E-03	---	NV	8.0E-03
			Manganese	---	---	NV	---	CNS	2.8E-01	---	NV	2.8E-01
			Sodium	---	---	NV	---	N/A	---	---	NV	---
			Chemical Total	3.1E-04	---	1.1E-07	3.1E-04		3.2	---	0.0045	3.2
		Exposure Point Total					3.1E-04					3.2
	Exposure Media Total						3.1E-04					3.2

Table 9.2
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	1.1E-03	---	1.1E-03
			Acetophenone	---	---	---	---	N/A	---	---	---	---
			Benzene	---	1.6E-04	---	1.6E-04	Blood	---	1.9E+00	---	1.9E+00
			2-Butanone	---	---	---	---	Developmental Toxicity	---	2.4E-03	---	2.4E-03
			Carbon Disulfide	---	---	---	---	Peripheral Nervous System	---	6.3E-04	---	6.3E-04
			1,2-Dibromoethane	---	1.8E-04	---	1.8E-04	Nasal Effects	---	9.4E-02	---	9.4E-02
			1,2-Dichloroethane	---	5.1E-07	---	5.1E-07	CNS	---	7.9E-03	---	7.9E-03
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Ethylbenzene	---	9.3E-06	---	9.3E-06	Developmental Toxicity	---	1.0E-02	---	1.0E-02
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			2-Hexanone	---	---	---	---	CNS	---	3.4E-02	---	3.4E-02
			Isopropylbenzene	---	---	---	---	Kidney	---	1.9E-03	---	1.9E-03
			1-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			4-Methyl-2-Pentanone	---	---	---	---	Body Weight, Skeletal System	---	2.9E-04	---	2.9E-04
			Naphthalene	---	1.2E-05	---	1.2E-05	Respiratory Tract, Nasal Effects	---	3.4E-01	---	3.4E-01
			n-Propylbenzene	---	---	---	---	Developmental Toxicity	---	7.8E-04	---	7.8E-04
			Toluene	---	---	---	---	CNS	---	1.4E-02	---	1.4E-02
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	2.7E-01	---	2.7E-01
			1,3,5-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			m&p-Xylenes	---	---	---	---	CNS	---	3.2E-01	---	3.2E-01
			o-Xylene	---	---	---	---	CNS	---	1.4E-01	---	1.4E-01
			Xylene (Total)	---	---	---	---	CNS	---	1.7E-01	---	1.7E-01
			Chemical Total	---	3.6E-04	---	3.6E-04		---	3.3	---	3.3
		Exposure Point Total					3.6E-04					3.3
	Exposure Media Total						3.6E-04					3.3
Groundwater Total (Monitoring Wells)							6.7E-04					6.5

Table 9.2
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	1.4E-03	---	1.4E-03
			Benzene	---	1.9E-04	---	1.9E-04	Blood	---	2.2E+00	---	2.2E+00
			Bromodichloromethane	---	1.2E-05	---	1.2E-05	N/A	---	---	---	---
			1,3-Butadiene	---	1.1E-07	---	1.1E-07	Reproductive System	---	5.2E-03	---	5.2E-03
			Carbon tetrachloride	---	2.8E-08	---	2.8E-08	Liver	---	1.3E-04	---	1.3E-04
			Chloroform	---	6.4E-06	---	6.4E-06	Liver	---	8.0E-03	---	8.0E-03
			Cyclohexane	---	---	---	---	Decreased Body Weight	---	1.2E-02	---	1.2E-02
			Dibromochloromethane	---	6.9E-08	---	6.9E-08	N/A	---	---	---	---
			1,2-Dibromoethane	---	7.6E-06	---	7.6E-06	Nasal Effects	---	3.9E-03	---	3.9E-03
			n-Hexane	---	---	---	---	Peripheral Nervous System	---	9.1E-01	---	9.1E-01
			Methylene Chloride	---	1.7E-08	---	1.7E-08	Liver	---	8.0E-03	---	8.0E-03
			1,1,2,2-Tetrachloroethane	---	3.7E-08	---	3.7E-08	N/A	---	---	---	---
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	3.8E+00	---	3.8E+00
			Xylene (total)	---	---	---	---	CNS	---	1.2E+00	---	1.2E+00
			Chemical Total	---	2.1E-04	---	2.1E-04		---	8.2	---	8.2
		Exposure Point Total					2.1E-04					8.2
	Exposure Media Total						2.1E-04					8.2
Soil Gas Total							2.1E-04					8.2
Receptor Total							8.8E-04					14.7

Total Risk Across All Media [a] = 8.8E-04

Total Hazard Across All Media [a] = 14.7

Total Lung HI Across All Media =	0.014
Total Whole Body (decreased weight) HI Across All Media =	0.083
Total Blood HI Across All Media =	10.7
Total Respiratory tract HI Across All Media =	0.34
Total Nasal Effects HI Across All Media =	0.44
Total Liver HI Across All Media =	0.054
Total Kidney HI Across All Media =	0.19
Total Reproductive System HI Across All Media =	0.021
Total Endocrine HI Across All Media =	0.016
Total NOAEL HI Across All Media =	0.075
Total Mortality HI Across All Media =	0.055
Total CNS HI Across All Media =	2.2
Total Neurotoxicity HI Across All Media =	0.0016
Total Fetal Toxicity HI Across All Media =	0.0008
Total GI Tract HI Across All Media =	0.0080
Total Developmental Toxicity HI Across All Media =	0.014
Total Skeletal System HI Across All Media =	0.00029

GI = Gastrointestinal
CNS = Central nervous system.
N/A = Not Available.

[a] Since groundwater from the monitoring wells represents the more highly contaminated source of water, total risk and hazard estimates are conservatively based on this data grouping.

Table 9.3
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk: Ingestion	Carcinogenic Risk: Inhalation	Carcinogenic Risk: Dermal	Carcinogenic Risk: Exposure Routes Total	Non-Carcinogenic Hazard Quotient: Primary Target Organ	Non-Carcinogenic Hazard Quotient: Ingestion	Non-Carcinogenic Hazard Quotient: Inhalation	Non-Carcinogenic Hazard Quotient: Dermal	Non-Carcinogenic Hazard Quotient: Exposure Routes Total
Total Soil	Total Soil	Bulk Fuel Facility	**Organics**									
			Benzo(a)anthracene	3.8E-09	---	1.5E-09	5.2E-09	N/A	---	---	---	---
			Benzo(a)pyrene	3.5E-08	---	1.4E-08	4.9E-08	N/A	---	---	---	---
			Benzo(b)fluoranthene	4.0E-09	---	1.6E-09	5.6E-09	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	8.3E-09	---	3.2E-09	1.2E-08	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	3.3E-09	---	1.3E-09	4.5E-09	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	Lungs	6.5E-04	---	2.5E-04	9.0E-04
			Naphthalene	---	---	---	---	Whole body (decreased weight)	1.3E-04	---	5.0E-05	1.8E-04
			1,2,4-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			Inorganics									
			No COCPs									
			Chemical Total	5.4E-08	---	2.1E-08	7.6E-08		0.00078	---	0.00030	0.00108
		Exposure Point Total					7.6E-08					0.00108
	Exposure Media Total						7.6E-08					0.00108
	Air (Particulates and Volatiles)	Bulk Fuel Facility	**Organics**									
			Benzo(a)anthracene	---	4.0E-12	---	4.0E-12	N/A	---	---	---	---
			Benzo(a)pyrene	---	3.7E-11	---	3.7E-11	N/A	---	---	---	---
			Benzo(b)fluoranthene	---	4.3E-12	---	4.3E-12	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	---	9.6E-12	---	9.6E-12	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.4E-12	---	---	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			Naphthalene	---	1.8E-08	---	1.8E-08	Respiratory Tract, Nasal Effects	---	1.2E-02	---	1.2E-02
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.1E-02	---	1.1E-02
			Inorganics									
			No COPCs									
			Chemical Total	---	1.8E-08	---	1.8E-08		---	0.023	---	0.023
		Exposure Point Total					1.8E-08					0.023
	Exposure Media Total						1.8E-08					0.023
Total Soil Total							9.4E-08					0.025

Table 9.3
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (GW monitoring wells)	Air (Trench Air)	Bulk Fuel Facility	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	1.54E-07	---	1.54E-07
			Acetophenone	---	---	---	---	N/A	---	---	---	---
			Benzene	---	2.4E-09	---	2.4E-09	Blood	---	7.02E-07	---	7.02E-07
			2-Butanone	---	---	---	---	Developmental Toxicity	---	8.74E-10	---	8.74E-10
			Carbon Disulfide	---	---	---	---	Peripheral Nervous System	---	4.22E-07	---	4.22E-07
			1,2-Dibromoethane	---	1.8E-10	---	1.8E-10	Nasal Effects	---	3.57E-03	---	3.57E-03
			1,2-Dichloroethane	---	1.6E-12	---	1.6E-12	CNS	---	2.12E-03	---	2.12E-03
			Ethylbenzene	---	1.7E-10	---	1.7E-10	Developmental Toxicity	---	4.82E-06	---	4.82E-06
			2-Hexanone	---	---	---	---	CNS	---	4.04E-06	---	4.04E-06
			Isopropylbenzene	---	---	---	---	Kidney	---	5.49E-05	---	5.49E-05
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			1-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			4-Methyl-2-Pentanone	---	---	---	---	Body Weight, Skeletal System	---	1.61E-06	---	1.61E-06
			2-Methylphenol	---	---	---	---	CNS	---	9.06E-07	---	9.06E-07
			3&4-Methylphenol	---	---	---	---	CNS	---	7.55E-05	---	7.55E-05
			Naphthalene	---	1.1E-11	---	1.1E-11	Respiratory Tract, Nasal Effects	---	5.03E-05	---	5.03E-05
			n-Propylbenzene	---	---	---	---	Developmental Toxicity	---	1.77E-08	---	1.77E-08
			Toluene	---	---	---	---	CNS	---	8.37E-09	---	8.37E-09
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	7.39E-07	---	7.39E-07
			1,3,5-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			m&p-Xylenes	---	---	---	---	CNS	---	1.20E-10	---	1.20E-10
			o-Xylene	---	---	---	---	CNS	---	7.07E-08	---	7.07E-08
			Xylene (Total)	---	---	---	--	CNS	---	1.09E-05	---	1.09E-05
			Chemical Total	---	2.8E-09	---	2.8E-09		---	0.0059	---	0.0059
		Exposure Point Total					2.8E-09					0.0059
	Exposure Media Total						2.8E-09					0.0059
Groundwater Total (Monitoring Wells)							2.8E-09					0.0059
Receptor Total							9.6E-08					0.030

Total Risk Across All Media = 9.6E-08

Total Hazard Across All Media = 0.030

Table 9.4
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Current Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility Potable Use	**Organics**									
			No COPCs									
			Inorganics									
			Sodium	---	---	---	---	N/A	---	---	---	---
			Chemical Total	---	---	---	0.0E+00		---	---	---	0.0
		Exposure Point Total					0.0E+00					0.0
	Exposure Media Total						0.0E+00					0.0
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Organics**									
			No COPCs									
			Chemical Total				0.0E+00					0.0
		Exposure Point Total					0.0E+00					0.0
	Exposure Media Total						0.0E+00					0.0
Groundwater Total (Water Supply)							0.0E+00					0.0
Receptor Total							0.0E+00					0.0

Total Risk Across All Media = 0.0E+00

Total Hazard Across All Media = 0.0

N/A = Not Available.

Table 9.5
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Current Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility Potable Use	**Organics**									
			No COPCs									
			Inorganics									
			Sodium	---	---	---	---	N/A	---	---	---	---
			Chemical Total	---	---	---	0.0E+00		0.0	---	0.00	0.0
		Exposure Point Total					0.0E+00					0.0
	Exposure Media Total						0.0E+00					0.0
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Organics**									
			No COPCs									
			Chemical Total				0.0E+00					0.0
		Exposure Point Total					0.0E+00					0.0
	Exposure Media Total						0.0E+00					0.0
Groundwater Total (Water Supply)							0.0E+00					0.0
Receptor Total							0.0E+00					0.0

Total Risk Across All Media = 0.0E+00

Total Hazard Across All Media = 0.0

N/A = Not Available.

Table 9.6
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Total Soil	Total Soil	Bulk Fuel Facility	**Organics**									
			Benzo(a)anthracene	5.5E-07	---	2.1E-07	7.6E-07	N/A	---	---	---	---
			Benzo(a)pyrene	5.1E-06	---	2.0E-06	7.0E-06	N/A	---	---	---	---
			Benzo(b)fluoranthene	5.9E-07	---	2.3E-07	8.1E-07	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	1.2E-06	---	4.6E-07	1.7E-06	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.8E-07	---	1.8E-07	6.6E-07	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	Lungs	2.8E-04	---	1.4E-04	4.2E-04
			Naphthalene	---	---	---	---	Whole body (decreased weight)	5.5E-05	---	2.8E-05	8.3E-05
			1,2,4-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			Inorganics									
			No COPCs									
			Chemical Total	7.9E-06	---	3.0E-06	1.1E-05		0.00033	---	0.00017	0.00050
		Exposure Point Total					1.1E-05					0.00050
	Exposure Media Total						1.1E-05					0.00050
	Air (Particulates and Volatiles)	Bulk Fuel Facility	**Organics**									
			Benzo(a)anthracene	---	4.5E-12	---	4.5E-12	N/A	---	---	---	---
			Benzo(a)pyrene	---	4.2E-11	---	4.2E-11	N/A	---	---	---	---
			Benzo(b)fluoranthene	---	4.8E-12	---	4.8E-12	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	---	1.1E-11	---	1.1E-11	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	3.9E-12	---	3.9E-12	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			Naphthalene	---	1.9E-07	---	1.9E-07	Respiratory Tract, Nasal Effects	---	3.7E-03	---	3.7E-03
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	3.2E-03	---	3.2E-03
			Inorganics									
			No COPCs									
			Chemical Total		1.9E-07		1.9E-07			0.0069		0.0069
		Exposure Point Total					1.9E-07					0.0069
	Exposure Media Total						1.9E-07					0.0069
Total Soil Total							1.1E-05					0.0074

Table 9.6
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Organics**									
			Acetone	---	---	NV	---	Kidney	9.9E-03	---	NV	9.9E-03
			Acetophenone	---	---	NV	---	NOAEL	9.6E-02	---	NV	9.6E-02
			Benzene	4.6E-04	---	7.0E-05	5.3E-04	Blood	3.9E+00	---	5.9E-01	4.5E+00
			2-Butanone	---	---	NV	---	Decreased weight	5.3E-03	---	NV	5.3E-03
			Carbon Disulfide	---	---	---	---	Fetal toxicity	1.2E-03	---	2.1E-04	1.4E-03
			1,2-Dibromoethane	2.5E-04	---	NV	2.5E-04	Reproductive, Liver, Endocrine System	2.5E-02	---	NV	2.5E-02
			1,2-Dichloroethane	7.3E-07	---	NV	7.3E-07	Kidney	2.5E-03	---	NV	2.5E-03
			Diesel Range Organics (DRO)	---	---	N/A	---	N/A	---	---	N/A	---
			Ethylbenzene	1.7E-05	---	1.0E-05	2.7E-05	Liver, Kidney	2.8E-02	---	1.7E-02	4.5E-02
			Gasoline Range Organics (GRO)	---	---	N/A	---	N/A	---	---	N/A	---
			2-Hexanone	---	---	NV	---	Peripheral Nervous System	5.5E-02	---	NV	5.5E-02
			Isopropylbenzene	---	---	---	---	Kidney	2.1E-03	---	2.5E-03	4.5E-03
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			1-Methylnaphthalene	1.2E-06	---	1.7E-06	2.8E-06	Lungs	1.1E-03	---	1.5E-03	2.6E-03
			2-Methylnaphthalene	---	---	---	---	Lungs	1.7E-02	---	2.4E-02	4.1E-02
			4-Methyl-2-Pentanone	---	---	NV	---	Whole Body, Liver, Kidney	3.0E-03	---	NV	3.0E-03
			2-Methylphenol	---	---	NV	---	Decreased Body Weight, Neurotoxicity	1.2E-03	---	NV	1.2E-03
			3&4-Methylphenol	---	---	NV	---	Decreased Body Weight, Neurotoxicity	1.3E-03	---	NV	1.3E-03
			Naphthalene	---	---	---	---	Whole body (decreased weight)	1.4E-02	---	9.0E-03	2.3E-02
			n-Propylbenzene	---	---	---	---	Liver, Kidney	2.1E-03	---	2.7E-03	4.8E-03
			Toluene	---	---	---	---	Kidney	2.4E-01	---	8.3E-02	3.2E-01
			1,2,4-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			1,3,5-Trimethylbenzene	---	---	---	---	NOAEL	1.9E-02	---	1.6E-02	3.5E-02
			m&p-Xylenes	---	---	---	---	Decreased Body Weight, Mortality	4.4E-02	---	2.8E-02	7.2E-02
			o-Xylene	---	---	---	---	Decreased Body Weight, Mortality	1.8E-02	---	1.1E-02	3.0E-02
			Xylene (Total)	---	---	---	---	Decreased Body Weight, Mortality	2.3E-02	---	1.5E-02	3.8E-02
			Inorganics									
			Iron	---	---	NV	---	GI Tract	1.2E-02	---	NV	1.2E-02
			Manganese	---	---	---	---	CNS	4.3E-01	---	5.7E-02	4.9E-01
			Sodium	---	---	NV	---	N/A	---	---	NV	---
			Chemical Total	7.3E-04	---	8.2E-05	8.1E-04		4.9	---	0.86	5.8
		Exposure Point Total					8.1E-04					5.8
	Exposure Media Total						8.1E-04					5.8

Table 9.6
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	5.0E-03	---	5.0E-03
			Acetophenone	---	---	---	---	N/A	---	---	---	---
			Benzene	---	9.1E-04	---	9.1E-04	Blood	---	9.1E+00	---	9.1E+00
			2-Butanone	---	---	---	---	Developmental Toxicity	---	1.1E-02	---	1.1E-02
			Carbon Disulfide	---	---	---	---	Peripheral Nervous System	---	3.0E-03	---	3.0E-03
			1,2-Dibromoethane	---	1.0E-03	---	1.0E-03	Nasal Effects	---	4.4E-01	---	4.4E-01
			1,2-Dichloroethane	---	2.9E-06	---	2.9E-06	CNS	---	3.7E-02	---	3.7E-02
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Ethylbenzene	---	5.2E-05	---	5.2E-05	Developmental Toxicity	---	4.9E-02	---	4.9E-02
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			2-Hexanone	---	---	---	---	CNS	---	1.6E-01	---	1.6E-01
			Isopropylbenzene	---	---	---	---	Kidney	---	9.1E-03	---	9.1E-03
			1-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			4-Methyl-2-Pentanone	---	---	---	---	Body Weight, Skeletal System	---	1.4E-03	---	1.4E-03
			Naphthalene	---	7.0E-05	---	7.0E-05	Respiratory Tract, Nasal Effects	---	1.6E+00	---	1.6E+00
			n-Propylbenzene	---	---	---	---	Developmental Toxicity	---	3.7E-03	---	3.7E-03
			Toluene	---	---	---	---	CNS	---	6.7E-02	---	6.7E-02
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.3E+00	---	1.3E+00
			1,3,5-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			m&p-Xylenes	---	---	---	---	CNS	---	1.5E+00	---	1.5E+00
			o-Xylene	---	---	---	---	CNS	---	6.5E-01	---	6.5E-01
			Xylene (Total)	---	---	---	---	CNS	---	8.2E-01	---	8.2E-01
			Chemical Total	---	2.1E-03	---	2.1E-03		---	15.7	---	15.7
		Exposure Point Total					2.1E-03					15.7
	Exposure Media Total						2.1E-03					15.7
Groundwater Total (Monitoring Wells)							2.9E-03					21.5

Table 9.6
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	6.5E-03	---	6.5E-03
			Benzene	---	1.0E-03	---	1.0E-03	Blood	---	1.0E+01	---	1.0E+01
			Bromodichloromethane	---	6.9E-05	---	6.9E-05	N/A	---	---	---	---
			1,3-Butadiene	---	6.3E-07	---	6.3E-07	Reproductive System	---	2.4E-02	---	2.4E-02
			Carbon tetrachloride	---	1.6E-07	---	1.6E-07	Liver	---	6.1E-04	---	6.1E-04
			Chloroform	---	3.6E-05	---	3.6E-05	Liver	---	3.8E-02	---	3.8E-02
			Cyclohexane	---	---	---	---	Decreased Body Weight	---	5.8E-02	---	5.8E-02
			Dibromochloromethane	---	3.9E-07	---	3.9E-07	N/A	---	---	---	---
			1,2-Dibromoethane	---	4.3E-05	---	4.3E-05	Nasal Effects	---	1.9E-02	---	1.9E-02
			n-Hexane	---	---	---	---	Peripheral Nervous System	---	4.3E+00	---	4.3E+00
			Methylene Chloride	---	2.5E-07	---	2.5E-07	Liver	---	3.8E-02	---	3.8E-02
			1,1,2,2-Tetrachloroethane	---	2.1E-07	---	2.1E-07	N/A	---	---	---	---
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.8E+01	---	1.8E+01
			Xylene (total)	---	---	---	---	CNS	---	5.6E+00	---	5.6E+00
			Chemical Total	---	1.2E-03	---	1.2E-03		---	38.6	---	38.6
		Exposure Point Total					1.2E-03					38.6
	Exposure Media Total						1.2E-03					38.6
Soil Gas Total							1.2E-03					38.6
Receptor Total							4.1E-03					60.1

Total Risk Across All Media = 4.1E-03

Total Hazard Across All Media = 60.1

Total Lung HI Across All Media =	0.044
Total Whole Body (decreased weight) HI Across All Media =	0.23
Total Blood HI Across All Media =	43
Total Respiratory tract HI Across All Media =	1.6
Total Nasal Effects HI Across All Media =	2.1
Total Liver HI Across All Media =	0.15
Total Kidney HI Across All Media =	0.40
Total Reproductive System HI Across All Media =	0.050
Total Endocrine HI Across All Media =	0.025
Total NOAEL HI Across All Media =	0.13
Total Mortality HI Across All Media =	0.14
Total CNS HI Across All Media =	9.4
Total Neurotoxicity HI Across All Media =	0.0025
Total Fetal Toxicity HI Across All Media =	0.0014
Total GI Tract HI Across All Media =	0.012
Total Developmental Toxicity HI Across All Media =	0.064
Total Skeletal System HI Across All Media =	0.0014

CNS = Central nervous system.
GI = Gastrointestinal.
N/A = Not Available.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.

Table 9.7
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Total Soil	Total Soil	Bulk Fuel Facility	**Organics**									
			Benzo(a)anthracene	4.8E-07	---	1.7E-07	6.5E-07	N/A	---	---	---	---
			Benzo(a)pyrene	4.4E-06	---	1.6E-06	6.1E-06	N/A	---	---	---	---
			Benzo(b)fluoranthene	5.1E-07	---	1.9E-07	7.0E-07	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	1.1E-06	---	3.8E-07	1.4E-06	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	4.1E-07	---	1.5E-07	5.7E-07	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	Lungs	2.6E-03	---	9.3E-04	3.5E-03
			Naphthalene	---	---	---	---	Whole body (decreased weight)	5.1E-04	---	1.9E-04	7.0E-04
			1,2,4-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			Inorganics									
			No COPCs									
			Chemical Total	6.9E-06	---	2.5E-06	9.4E-06		0.0031	---	0.00112	0.0042
		Exposure Point Total					9.4E-06					0.0042
	Exposure Media Total						9.4E-06					0.0042
	Air (Particulates and Volatiles)	Bulk Fuel Facility	**Organics**									
			Benzo(a)anthracene	---	1.9E-12	---	1.9E-12	N/A	---	---	---	---
			Benzo(a)pyrene	---	1.8E-11	---	1.8E-11	N/A	---	---	---	---
			Benzo(b)fluoranthene	---	2.0E-12	---	2.0E-12	N/A	---	---	---	---
			Carbazole	---	---	---	---	N/A	---	---	---	---
			Dibenz(a,h)anthracene	---	4.6E-12	---	4.6E-12	N/A	---	---	---	---
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			Indeno(1,2,3-cd)pyrene	---	1.6E-12	---	1.6E-12	N/A	---	---	---	---
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			Naphthalene	---	6.4E-08	---	6.4E-08	Respiratory Tract, Nasal Effects	---	7.3E-03	---	7.3E-03
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	7.3E-03	---	7.3E-03
			Inorganics									
			No COPCs									
			Chemical Total	---	6.4E-08	---	6.4E-08		---	0.015	---	0.015
		Exposure Point Total					6.4E-08					0.015
	Exposure Media Total						6.4E-08					0.015
Total Soil Total							9.5E-06					0.019

Table 9.7
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Organics**									
			Acetone	---	---	NV	---	Kidney	2.3E-02	---	NV	2.3E-02
			Acetophenone	---	---	NV	---	NOAEL	2.2E-01	---	NV	2.2E-01
			Benzene	1.7E-04	---	2.6E-05	2.0E-04	Blood	9.1E+00	---	1.4E+00	1.0E+01
			2-Butanone	---	---	NV	---	Decreased weight	1.2E-02	---	NV	1.2E-02
			Carbon Disulfide	---	---	---	---	Fetal toxicity	2.8E-03	---	5.1E-04	3.3E-03
			1,2-Dibromoethane	9.1E-05	---	NV	9.1E-05	Reproductive, Liver, Endocrine System	5.9E-02	---	NV	5.9E-02
			1,2-Dichloroethane	2.7E-07	---	NV	2.7E-07	Kidney	5.8E-03	---	NV	5.8E-03
			Diesel Range Organics (DRO)	---	---	N/A	---	N/A	---	---	N/A	---
			Ethylbenzene	6.1E-06	---	3.6E-06	9.7E-06	Liver, Kidney	6.5E-02	---	3.8E-02	1.0E-01
			Gasoline Range Organics (GRO)	---	---	N/A	---	N/A	---	---	N/A	---
			2-Hexanone	---	---	NV	---	Peripheral Nervous System	1.3E-01	---	NV	1.3E-01
			Isopropylbenzene	---	---	---	---	Kidney	4.8E-03	---	5.5E-03	1.0E-02
			p-Isopropyltoluene	---	---	---	---	N/A	---	---	---	---
			1-Methylnaphthalene	4.3E-07	---	6.0E-07	1.0E-06	Lungs	2.5E-03	---	3.4E-03	5.9E-03
			2-Methylnaphthalene	---	---	---	---	Lungs	3.9E-02	---	5.4E-02	9.3E-02
			4-Methyl-2-Pentanone	---	---	NV	---	Whole Body, Liver, Kidney	6.9E-03	---	NV	6.9E-03
			2-Methylphenol	---	---	NV	---	Decreased Body Weight, Neurotoxicity	2.8E-03	---	NV	2.8E-03
			3&4-Methylphenol	---	---	NV	---	Decreased Body Weight, Neurotoxicity	3.0E-03	---	NV	3.0E-03
			Naphthalene	---	---	---	---	Whole body (decreased weight)	3.2E-02	---	2.0E-02	5.2E-02
			n-Propylbenzene	---	---	---	---	Liver, Kidney	4.9E-03	---	5.9E-03	1.1E-02
			Toluene	---	---	---	---	Kidney	5.6E-01	---	2.0E-01	7.6E-01
			1,2,4-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			1,3,5-Trimethylbenzene	---	---	---	---	NOAEL	4.5E-02	---	3.6E-02	8.1E-02
			m&p-Xylenes	---	---	---	---	Decreased Body Weight, Mortality	1.0E-01	---	6.3E-02	1.6E-01
			o-Xylene	---	---	---	---	Decreased Body Weight, Mortality	4.3E-02	---	2.5E-02	6.8E-02
			Xylene (Total)	---	---	---	---	Decreased Body Weight, Mortality	5.5E-02	---	3.2E-02	8.6E-02
			Inorganics									
			Iron	---	---	NV	---	GI Tract	2.9E-02	---	NV	2.9E-02
			Manganese	---	---	---	---	CNS	1.0E+00	---	1.7E-01	1.2E+00
			Sodium	---	---	NV	---	N/A	---	---	NV	---
			Chemical Total	2.7E-04	---	3.0E-05	3.0E-04		11.5	---	2.0	13.5
		Exposure Point Total					3.0E-04					13.5
	Exposure Media Total						3.0E-04					13.5

Table 9.7
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Monitoring wells) (cont)	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	5.0E-03	---	5.0.E-03
			Acetophenone	---	---	---	---	N/A	---	---	---	---
			Benzene	---	1.8E-04	---	1.8E-04	Blood	---	9.1E+00	---	9.1.E+00
			2-Butanone	---	---	---	---	Developmental Toxicity	---	1.1E-02	---	1.1.E-02
			Carbon Disulfide	---	---	---	---	Peripheral Nervous System	---	3.0E-03	---	3.0.E-03
			1,2-Dibromoethane	---	2.0E-04	---	2.0E-04	Nasal Effects	---	4.4E-01	---	4.4.E-01
			1,2-Dichloroethane	---	5.8E-07	---	5.8E-07	CNS	---	3.7E-02	---	3.7.E-02
			Diesel Range Organics (DRO)	---	---	---	---	N/A	---	---	---	---
			Ethylbenzene	---	1.0E-05	---	1.0E-05	Developmental Toxicity	---	4.9E-02	---	4.9.E-02
			Gasoline Range Organics (GRO)	---	---	---	---	N/A	---	---	---	---
			2-Hexanone	---	---	---	---	CNS	---	1.6E-01	---	1.6.E-01
			Isopropylbenzene	---	---	---	---	Kidney	---	9.1E-03	---	9.1.E-03
			1-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			2-Methylnaphthalene	---	---	---	---	N/A	---	---	---	---
			4-Methyl-2-Pentanone	---	---	---	---	Body Weight, Skeletal System	---	1.4E-03	---	1.4.E-03
			Naphthalene	---	1.4E-05	---	1.4E-05	Respiratory Tract, Nasal Effects	---	1.6E+00	---	1.6.E+00
			n-Propylbenzene	---	---	---	---	Developmental Toxicity	---	3.7E-03	---	3.7.E-03
			Toluene	---	---	---	---	CNS	---	6.7E-02	---	6.7.E-02
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.3E+00	---	1.3.E+00
			1,3,5-Trimethylbenzene	---	---	---	---	N/A	---	---	---	---
			m&p-Xylenes	---	---	---	---	CNS	---	1.5E+00	---	1.5.E+00
			o-Xylene	---	---	---	---	CNS	---	6.5E-01	---	6.5.E-01
			Xylene (Total)	---	---	---	---	CNS	---	8.2E-01	---	8.2.E-01
			Chemical Total	---	4.1E-04	---	4.1E-04		---	15.7	---	15.7
		Exposure Point Total					4.1E-04					15.7
	Exposure Media Total						4.1E-04					15.7
Groundwater Total (Monitoring Wells)							7.1E-04					29.2

Table 9.7
Summary of Receptor Risks and Hazards for COPCs
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk Ingestion	Carcinogenic Risk Inhalation	Carcinogenic Risk Dermal	Carcinogenic Risk Exposure Routes Total	Non-Carcinogenic Hazard Quotient Primary Target Organ	Non-Carcinogenic Ingestion	Non-Carcinogenic Inhalation	Non-Carcinogenic Dermal	Non-Carcinogenic Exposure Routes Total
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Acetone	---	---	---	---	Nervous System	---	6.5E-03	---	6.5E-03
			Benzene	---	2.1E-04	---	2.1E-04	Blood	---	1.0E+01	---	1.0E+01
			Bromodichloromethane	---	1.4E-05	---	1.4E-05	N/A	---	---	---	---
			1,3-Butadiene	---	1.3E-07	---	1.3E-07	Reproductive System	---	2.4E-02	---	2.4E-02
			Carbon tetrachloride	---	3.1E-08	---	3.1E-08	Liver	---	6.1E-04	---	6.1E-04
			Chloroform	---	7.3E-06	---	7.3E-06	Liver	---	3.8E-02	---	3.8E-02
			Cyclohexane	---	---	---	---	Decreased Body Weight	---	5.8E-02	---	5.8E-02
			Dibromochloromethane	---	7.8E-08	---	7.8E-08	N/A	---	---	---	---
			1,2-Dibromoethane	---	8.6E-06	---	8.6E-06	Nasal Effects	---	1.9E-02	---	1.9E-02
			n-Hexane	---	---	---	---	Peripheral Nervous System	---	4.3E+00	---	4.3E+00
			Methylene Chloride	---	1.0E-07	---	1.0E-07	Liver	---	3.8E-02	---	3.8E-02
			1,1,2,2-Tetrachloroethane	---	4.1E-08	---	4.1E-08	N/A	---	---	---	---
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.8E+01	---	1.8E+01
			Xylene (total)	---	---	---	---	CNS	---	5.6E+00	---	5.6E+00
			Chemical Total	---	2.4E-04	---	2.4E-04		---	38.6	---	38.6
		Exposure Point Total					2.4E-04					38.6
	Exposure Media Total						2.4E-04					38.6
Soil Gas Total							2.4E-04					38.6
Receptor Total							9.6E-04					67.8

Total Risk Across All Media = 9.6E-04

Total Hazard Across All Media = 67.8

Total Lung HI Across All Media =	0.10
Total Whole Body (decreased weight) HI Across All Media =	0.46
Total Blood HI Across All Media =	40
Total Respiratory tract HI Across All Media =	1.6
Total Nasal Effects HI Across All Media =	2.06
Total Liver HI Across All Media =	0.26
Total Kidney HI Across All Media =	0.93
Total Reproductive System HI Across All Media =	0.083
Total Endocrine HI Across All Media =	0.059
Total NOAEL HI Across All Media =	0.30
Total Mortality HI Across All Media =	0.32
Total CNS HI Across All Media =	14.4
Total Neurotoxicity HI Across All Media =	0.0058
Total Fetal Toxicity HI Across All Media =	0.0033
Total GI Tract HI Across All Media =	0.029
Total Developmental Toxicity HI Across All Media =	0.064
Total Skeletal System HI Across All Media =	0.0014

CNS = Central nervous system.
GI = Gastrointestinal.
N/A = Not Available.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.

Table 10.1
Risk Assessment Summary
Reasonable Maximum Exposure
Current Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
	Air (Particulates and Volatiles)	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Surface Soil Total							<1.0E-06					<1
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility (Potable)										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Groundwater Total (Water Supply)												
Soil Gas (Shallowest soil gas results)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Benzene	---	3.5E-06	---	3.5E-06					
			Bromodichloromethane	---	1.3E-06	---	1.3E-06					
			Chemical Total	---	4.8E-06	---	4.8E-06					<1
		Exposure Point Total					4.8E-06					<1
	Exposure Media Total						4.8E-06					<1
Soil Gas Total												
Receptor Total							4.8E-06					<1

Total Risk Across All Media = 4.8E-06

Total Hazard Across All Media = <1

Table 10.2
Risk Assessment Summary
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk: Ingestion	Carcinogenic Risk: Inhalation	Carcinogenic Risk: Dermal	Carcinogenic Risk: Exposure Routes Total	Non-Carcinogenic Hazard Quotient: Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
	Air (Particulates and Volatiles)	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Surface Soil Total							<1.0E-06					<1
Groundwater (Water Supply)	Groundwater	Bulk Fuel Facility (Potable)										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
	Air (Volatiles)	Bulk Fuel Facility (Potable Use - washroom)										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Groundwater Total (Water Supply)							<1.0E-06					<1

Table 10.2
Risk Assessment Summary
Reasonable Maximum Exposure
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Routine Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk: Ingestion	Carcinogenic Risk: Inhalation	Carcinogenic Risk: Dermal	Carcinogenic Risk: Exposure Routes Total	Non-Carcinogenic Hazard Quotient: Primary Target Organ	Non-Carcinogenic Hazard Quotient: Ingestion	Non-Carcinogenic Hazard Quotient: Inhalation	Non-Carcinogenic Hazard Quotient: Dermal	Non-Carcinogenic Hazard Quotient: Exposure Routes Total
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Organics**									
			Benzene	2.0E-04	---	NV	2.0E-04	Blood	2.5E+00	---	NV	2.5E+00
			1,2-Dibromoethane	1.0E-04	---	NV	1.0E-04	---	---	---	---	---
			Ethylbenzene	7.1E-06	---	NV	7.1E-06	---	---	---	---	---
			Chemical Total	3.1E-04	---	0.0E+00	3.1E-04		2.5	---	0.000	2.5
		Exposure Point Total					3.1E-04					2.5
	Exposure Media Total						3.1E-04					2.5
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Organics**									
			Benzene	---	1.6E-04	---	1.6E-04	Blood	---	1.9E+00	---	1.9E+00
			1,2-Dibromoethane	---	1.8E-04	---	1.8E-04	---	---	---	---	---
			Ethylbenzene	---	9.3E-06	---	9.3E-06	---	---	---	---	---
			Naphthalene	---	1.2E-05	---	1.2E-05	---	---	---	---	---
			Chemical Total	---	3.6E-04	---	3.6E-04		---	1.9	---	1.9
		Exposure Point Total					3.6E-04					1.9
	Exposure Media Total						3.6E-04					1.9
Groundwater Total (Monitoring Wells)							6.7E-04					4.4
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Benzene	---	1.9E-04	---	1.9E-04	Blood	---	2.2E+00	---	2.2E+00
			Bromodichloromethane	---	1.2E-05	---	---	---	---	---	---	---
			Chloroform	---	6.4E-06	---	6.4E-06	---	---	---	---	---
			1,2-Dibromoethane	---	7.6E-06	---	7.6E-06	---	---	---	---	---
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	3.8E+00	---	3.8E+00
			Xylene (total)	---	---	---	---	CNS	---	1.2E+00	---	1.2E+00
			Chemical Total	---	2.1E-04	---	2.1E-04		---	7.2	---	7.2
		Exposure Point Total					2.1E-04					7.2
	Exposure Media Total						2.1E-04					7.2
Soil Gas Total							2.1E-04					7.2
Receptor Total							8.8E-04					11.7

Total Risk Across All Media [a] = 8.8E-04

Total Hazard Across All Media [a] = 11.7

Total Blood HI Across All Media = 10.5
Total CNS HI Across All Media = 1.2

[a] Since groundwater from the monitoring wells represents the more highly contaminated source of water, total risk and hazard estimates are conservatively based on this data grouping.

Table 10.3
Risk Assessment Summary
Reasonable Maximum Exposure
Future Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk: Ingestion	Carcinogenic Risk: Inhalation	Carcinogenic Risk: Dermal	Carcinogenic Risk: Exposure Routes Total	Non-Carcinogenic Hazard Quotient: Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Total Soil	Total Soil	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
	Air (Particulates and Volatiles)	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Total Soil Total							<1.0E-06					<1
Groundwater (GW monitoring wells)	Air (Trench Air)	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Groundwater Total (Monitoring Wells)							<1.0E-06					<1
Receptor Total							<1.0E-06					<1

Total Risk Across All Media = <1.0E-06

Total Hazard Across All Media = <1

Table 10.4
Risk Assessment Summary
Reasonable Maximum Exposure
Current Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Water Supply Well)	Groundwater	Bulk Fuel Facility Potable Use										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Groundwater Total (Water Supply)							<1.0E-06					<1
Receptor Total							<1.0E-06					<1

Total Risk Across All Media = <1.0E-06

Total Hazard Across All Media = <1

Table 10.5
Risk Assessment Summary
Reasonable Maximum Exposure
Current Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (Water Supply Well)	Groundwater	Bulk Fuel Facility Potable Use										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Groundwater Total (Water Supply)							<1.0E-06					<1
Receptor Total							<1.0E-06					<1

Total Risk Across All Media = <1.0E-06

Total Hazard Across All Media = <1

Table 10.6
Risk Assessment Summary
Reasonable Maximum Exposure
Future Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Total Soil	Total Soil	Bulk Fuel Facility	**Organics**									
			Benzo(a)pyrene	5.1E-06	---	2.0E-06	7.0E-06					
			Dibenz(a,h)anthracene	1.2E-06	---	4.6E-07	1.7E-06					
			Chemical Total	6.3E-06	---	2.4E-06	8.7E-06					<1
		Exposure Point Total					8.7E-06					<1
	Exposure Media Total						8.7E-06					<1
	Air (Particulates and Volatiles)	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Total Soil Total							8.7E-06					<1
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Organics**									
			Benzene	4.6E-04	---	7.0E-05	5.3E-04	Blood	3.9E+00	---	5.9E-01	4.5E+00
			1,2-Dibromoethane	2.5E-04	---	NV	2.5E-04	---	---	---	---	---
			Ethylbenzene	1.7E-05	---	1.0E-05	2.7E-05	---	---	---	---	---
			1-Methylnaphthalene	1.2E-06	---	1.7E-06	2.8E-06	---	---	---	---	---
			Chemical Total	7.3E-04	---	8.2E-05	8.1E-04		3.9	---	0.59	4.5
		Exposure Point Total					8.1E-04					4.5
	Exposure Media Total						8.1E-04					4.5
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Organics**									
			Benzene	---	9.1E-04	---	9.1E-04	Blood	---	9.1E+00	---	9.1E+00
			1,2-Dibromoethane	---	1.0E-03	---	1.0E-03	---	---	---	---	---
			1,2-Dichloroethane	---	2.9E-06	---	2.9E-06	---	---	---	---	---
			Ethylbenzene	---	5.2E-05	---	5.2E-05	---	---	---	---	---
			Naphthalene	---	7.0E-05	---	7.0E-05	Respiratory Tract, Nasal Effects	---	1.6E+00	---	1.6E+00
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.3E+00	---	1.3E+00
			m&p-Xylenes	---	---	---	---	CNS		1.5E+00		1.5E+00
			Chemical Total	---	2.1E-03	---	2.1E-03		---	13.4	---	13.4
		Exposure Point Total					2.1E-03					13.4
	Exposure Media Total						2.1E-03					13.4
Groundwater Total (Monitoring Wells)							2.9E-03					17.9

Table 10.6
Risk Assessment Summary
Reasonable Maximum Exposure
Future Adult/Lifetime Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/ Lifetime

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Benzene	---	1.0E-03	---	1.0E-03	Blood	---	1.0E+01	---	1.0.E+01
			Bromodichloromethane	---	6.9E-05	---	6.9E-05	---	---	---	---	---
			Chloroform	---	3.6E-05	---	3.6E-05	---	---	---	---	---
			1,2-Dibromoethane	---	4.3E-05	---	4.3E-05	---	---	---	---	---
			n-Hexane	---	---	---	---	Peripheral Nervous System	---	4.3E+00	---	4.3.E+00
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.8E+01	---	1.8.E+01
			Xylene (total)	---	---	---	---	CNS	---	5.6E+00	---	5.6.E+00
			Chemical Total	---	1.2E-03	---	1.2E-03		---	38.4	---	38.4
		Exposure Point Total					1.2E-03					38.4
	Exposure Media Total						1.2E-03					38.4
Soil Gas Total							1.2E-03					38.4
Receptor Total							4.1E-03					56.3

Total Risk Across All Media = 4.1E-03

Total Hazard Across All Media = 56.3

N/A = Not Available.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.
CNS = Central nervous system.

Total Blood HI Across All Media =	43.3
Total Respiratory Tract HI Across All Media =	1.6
Total Nasal Effects HI Across All Media =	1.6
Total CNS HI Across All Media =	11.4

Table 10.7
Risk Assessment Summary
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Total Soil	Total Soil	Bulk Fuel Facility	**Organics**									
			Benzo(a)pyrene	4.4E-06	---	1.6E-06	6.1E-06					
			Dibenz(a,h)anthracene	1.1E-06	---	3.8E-07	1.4E-06					
			Chemical Total	5.5E-06	---	2.0E-06	7.5E-06					<1
		Exposure Point Total					7.5E-06					<1
	Exposure Media Total						7.5E-06					<1
	Air (Particulates and Volatiles)	Bulk Fuel Facility										
			Chemical Total				<1.0E-06					<1
		Exposure Point Total					<1.0E-06					<1
	Exposure Media Total						<1.0E-06					<1
Total Soil Total							7.5E-06					<1
Groundwater (Monitoring wells)	Groundwater	Bulk Fuel Facility Potable Use	**Organics**									
			Benzene	1.7E-04	---	2.6E-05	2.0E-04	Blood	9.1E+00	---	1.4E+00	1.0E+01
			1,2-Dibromoethane	9.1E-05	---	NV	9.1E-05	---	---	---	---	---
			Ethylbenzene	6.1E-06	---	3.6E-06	9.7E-06	---	---	---	---	---
			1-Methylnaphthalene	4.3E-07	---	6.0E-07	1.0E-06	---	---	---	---	---
			Inorganics									
			Manganese	---	---	---	---	CNS	1.0E+00	---	1.7E-01	1.2E+00
			Chemical Total	2.7E-04	---	3.0E-05	3.0E-04		10.1	---	1.5	10.4
		Exposure Point Total					3.0E-04					10.4
	Exposure Media Total						3.0E-04					10.4
	Air (Volatiles)	Bulk Fuel Facility Potable Use (Household)	**Organics**									
			Benzene	---	1.8E-04	---	1.8E-04	Blood	---	9.1E+00	---	9.1E+00
			1,2-Dibromoethane	---	2.0E-04	---	2.0E-04	---	---	---	---	---
			Ethylbenzene	---	1.0E-05	---	1.0E-05	---	---	---	---	---
			Naphthalene	---	1.4E-05	---	1.4E-05	Respiratory Tract, Nasal Effects	---	1.6E+00	---	1.6E+00
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.3E+00	---	1.3E+00
			m&p-Xylenes	---	---	---	---	CNS		1.5E+00		1.5E+00
			Chemical Total	---	4.1E-04	---	4.1E-04		---	13.4	---	13.4
		Exposure Point Total					4.1E-04					13.4
	Exposure Media Total						4.1E-04					13.4
Groundwater Total Monitoring Wells)							7.1E-04					23.9

Table 10.7
Risk Assessment Summary
Reasonable Maximum Exposure
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil Gas (Max detected soil gas)	Air (Indoor Air)	Bulk Fuel Facility	**Organics**									
			Benzene	---	2.1E-04	---	2.1E-04	Blood	---	1.0E+01	---	1.0.E+01
			Bromodichloromethane	---	1.4E-05	---	1.4E-05	---	---	---	---	---
			Chloroform	---	7.3E-06	---	7.3E-06	---	---	---	---	---
			1,2-Dibromoethane	---	8.6E-06	---	8.6E-06	---	---	---	---	---
			n-Hexane	---	---	---	---	Peripheral Nervous System	---	4.3E+00	---	4.3.E+00
			1,2,4-Trimethylbenzene	---	---	---	---	Blood	---	1.8E+01	---	1.8.E+01
			Xylene (total)		---			CNS	---	5.6E+00	---	5.6.E+00
			Chemical Total	---	2.4E-04	---	2.4E-04		---	38.4	---	38.4
		Exposure Point Total					2.4E-04					38.4
	Exposure Media Total						2.4E-04					38.4
Soil Gas Total							2.4E-04					38.4
Receptor Total							9.6E-04					62.2

Total Risk Across All Media = 9.6E-04

Total Hazard Across All Media = 62.2

Total Blood HI Across All Media = 49.3
Total CNS HI Across All Media = 12.5
Total Respiratory Tract HI Across All Media = 1.6
Total Nasal Effects HI Across All Media = 1.6

N/A = Not Available.
NV = No dermal exposure value calculated. As per USEPA Dermal Exposure spreadsheet, this chemical is not assessed.
CNS = Central nervous system.

Table 2.1
Occurrence, Distribution and Selection of Chemicals of Potential Concern
Bulk Fuel Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil (0-1 ft BGS)

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3) (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	87-61-6	1,2,3-Trichlorobenzene	8.68E-04 J	8.68E-04 J	mg/kg	FFOR1031	1/311	3.14E-04 - 2.00E-01	8.68E-04	N/A	4.90E+00 N	N/A	N/A	No	IFD, BSL
Surface Soil	120-82-1	1,2,4-Trichlorobenzene	2.86E-04 J	2.86E-04 J	mg/kg	FFOR1339	1/311	3.14E-04 - 2.00E-01	2.86E-04	N/A	6.20E+00 N	N/A	N/A	No	IFD, BSL
(0-1 ft BGS)	591-78-6	2-Hexanone	1.20E-02	1.20E-02	mg/kg	FFOR0348	1/311	1.26E-03 - 7.99E-01	1.20E-02	N/A	2.10E+01 N	N/A	N/A	No	IFD, BSL
	91-57-6	2-Methylnaphthalene	9.95E-03 J	2.32E+01	mg/kg	FFOR1306	31/311	3.36E-02 - 3.71E-01	2.32E+01	N/A	2.30E+01 N	N/A	N/A	Yes	ASL
	83-32-9	Acenaphthene	1.36E-02 J	4.99E-01	mg/kg	FFOR0673	21/311	3.36E-02 - 3.71E-01	4.99E-01	N/A	3.40E+02 N	N/A	N/A	No	BSL
	208-96-8	Acenaphthylene (5)	1.45E-02 J	9.77E-02 J	mg/kg	FFOR0421	25/311	3.36E-02 - 3.71E-01	9.77E-02	N/A	1.70E+02 N	N/A	N/A	No	BSL
	67-64-1	Acetone	1.62E-03 J	9.87E-02	mg/kg	FFOR0426	269/311	1.74E-03 - 7.99E-01	9.87E-02	N/A	6.10E+03 N	N/A	N/A	No	BSL
	120-12-7	Anthracene	1.19E-02 J	1.54E+00 J	mg/kg	FFOR0202	98/311	3.37E-02 - 3.71E-01	1.54E+00	N/A	1.70E+03 N	N/A	N/A	No	BSL
	71-43-2	Benzene	1.06E-04 J	1.13E-02	mg/kg	FFOR0544	180/311	3.45E-04 - 2.00E-01	1.13E-02	N/A	1.10E+01 C	N/A	N/A	No	BSL
	95-63-6	Benzene, 1,2,4-trimethyl	1.05E-04 J	8.89E-01	mg/kg	FFOR0135	47/311	3.84E-04 - 2.88E-02	8.89E-01	N/A	6.20E+00 N	N/A	N/A	No	BSL
	108-67-8	Benzene, 1,3,5-trimethyl-	1.12E-04 J	3.02E-01 J	mg/kg	FFOR0135	16/311	3.14E-04 - 2.88E-02	3.02E-01	N/A	7.80E+01 N	N/A	N/A	No	BSL
	98-82-8	Benzene, 1-methylethyl-	4.69E-02	4.69E-02	mg/kg	FFOR1306	1/311	3.14E-04 - 2.00E-01	4.69E-02	N/A	2.10E+02 N	N/A	N/A	No	IFD, BSL
	56-55-3	Benzo(a)anthracene	2.22E-02 J	5.39E+00	mg/kg	FFOR0085	81/311	3.37E-02 - 7.05E-01	5.39E+00	N/A	1.48E+00 C	N/A	N/A	Yes	ASL
	50-32-8	Benzo(a)pyrene	9.35E-03 J	4.45E+00	mg/kg	FFOR0085	115/322	3.37E-02 - 1.71E+00	4.45E+00	N/A	1.48E-01 C	N/A	N/A	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	2.71E-02 J	5.15E+00	mg/kg	FFOR0085	70/311	3.37E-02 - 1.71E+00	5.15E+00	N/A	1.48E+00 C	N/A	N/A	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene (5)	1.12E-02 J	2.18E+00	mg/kg	FFOR0085	129/311	1.69E-02 - 8.59E-01	2.18E+00	N/A	1.70E+02 N	N/A	N/A	No	BSL
	207-08-9	Benzo(k)fluoranthene	1.44E-02 J	2.51E+00	mg/kg	FFOR0085	77/311	3.37E-02 - 1.71E+00	2.51E+00	N/A	1.48E+01 C	N/A	N/A	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate	1.89E-02 J	6.54E-01	mg/kg	FFOR0757	30/311	3.36E-02 - 7.05E-01	6.54E-01	N/A	3.47E+02 C	N/A	N/A	No	BSL
	85-68-7	Butyl benzyl phthalate	1.59E-01 J	1.59E-01 J	mg/kg	FFOR1445	1/311	1.68E-02 - 3.54E-01	1.59E-01	N/A	2.60E+03 C	N/A	N/A	No	IFD, BSL
	86-74-8	Carbazole	2.01E-02 J	5.33E-01	mg/kg	FFOR0085	56/311	3.36E-02 - 3.71E-01	5.33E-01	N/A	NVA	N/A	N/A	Yes	TX
	75-15-0	Carbon disulfide	5.38E-04	5.38E-04	mg/kg	FFOR1407	1/311	3.14E-04 - 2.00E-01	5.38E-04	N/A	8.20E+01 N	N/A	N/A	No	IFD, BSL
	108-90-7	Chlorobenzene	2.25E-04 J	2.25E-04 J	mg/kg	FFOR0045	1/311	3.14E-04 - 2.00E-01	2.25E-04	N/A	2.90E+01 N	N/A	N/A	No	IFD, BSL
	67-66-3	Chloroform	5.17E-04 J	2.11E-01 J	mg/kg	FFOR0135	14/311	3.14E-04 - 2.88E-02	2.11E-01	N/A	2.90E+00 C	N/A	N/A	No	BSL
	218-01-9	Chrysene	1.60E-02 J	6.76E+00	mg/kg	FFOR0085	127/311	3.37E-02 - 7.05E-01	6.76E+00	N/A	1.48E+02 C	N/A	N/A	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	1.05E-02 J	6.83E-01	mg/kg	FFOR0085	26/313	1.68E-02 - 8.59E-01	6.83E-01	N/A	1.50E-01 C	N/A	N/A	Yes	ASL
	132-64-9	Dibenzofuran	1.21E-02 J	1.16E+00 J	mg/kg	FFOR1306	15/311	3.36E-02 - 3.71E-01	1.16E+00	N/A	7.80E+00 N	N/A	N/A	No	BSL
	84-66-2	Diethyl phthalate	2.40E-02 J	3.54E-02	mg/kg	FFOR0057	7/311	3.36E-02 - 3.71E-01	3.54E-02	N/A	4.90E+03 N	N/A	N/A	No	BSL
	84-74-2	Di-n-butyl phthalate	1.45E-02 J	8.99E-02	mg/kg	FFOR0712	16/311	1.68E-02 - 3.42E-01	8.99E-02	N/A	6.10E+02 N	N/A	N/A	No	BSL
	100-41-4	Ethylbenzene	2.77E-04 J	1.87E-01	mg/kg	FFOR1306	12/311	3.14E-04 - 2.00E-01	1.87E-01	N/A	5.40E+01 C	N/A	N/A	No	BSL
	206-44-0	Fluoranthene	6.99E-03 J	8.23E+00	mg/kg	FFOR0202	159/311	1.69E-02 - 1.86E-01	8.23E+00	N/A	2.30E+02 N	N/A	N/A	No	BSL
	86-73-7	Fluorene	1.61E-02 J	3.56E-01	mg/kg	FFOR0673	20/311	3.36E-02 - 3.71E-01	3.56E-01	N/A	2.30E+02 N	N/A	N/A	No	BSL
	87-68-3	Hexachlorobutadiene	2.01E-04 J	2.01E-04 J	mg/kg	FFOR1244	1/311	3.14E-04 - 2.00E-01	2.01E-04	N/A	6.10E+00 N	N/A	N/A	No	IFD, BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	2.74E-02 J	2.26E+00	mg/kg	FFOR0085	49/311	3.37E-02 - 1.71E+00	2.26E+00	N/A	1.48E+00 C	N/A	N/A	Yes	ASL
	7439-92-1	Lead	2.12E+00	1.40E+02	mg/kg	FFOR0292	311/311	N/A	1.40E+02	N/A	4.00E+02 N	N/A	N/A	No	BSL
	N/A	m&p-Xylenes	3.73E-04 J	1.92E-01	mg/kg	FFOR1306	40/311	6.28E-04 - 3.99E-01	1.92E-01	N/A	5.90E+01 N	N/A	N/A	No	BSL
	78-93-3	Methyl ethyl ketone	6.05E-04 J	2.13E-02	mg/kg	FFOR0426	172/311	1.54E-03 - 7.99E-01	2.13E-02	N/A	2.80E+03 N	N/A	N/A	No	BSL
	75-09-2	Methylene chloride	1.38E-03 J	1.18E-02	mg/kg	FFOR1743	6/311	3.14E-04 - 2.00E-01	1.18E-02	N/A	3.60E+01 N	N/A	N/A	No	BSL
	91-20-3	Naphthalene	1.90E-04 J	2.45E+00	mg/kg	FFOR0135	14/311	3.14E-04 - 2.88E-02	2.45E+00	N/A	3.60E+01 C	N/A	N/A	No	BSL
	104-51-8	n-Butylbenzene	2.61E-04 J	1.58E-02	mg/kg	FFOR1306	6/311	3.14E-04 - 2.00E-01	1.58E-02	N/A	3.90E+02 N	N/A	N/A	No	BSL

Table 2.1
Occurrence, Distribution and Selection of Chemicals of Potential Concern
Bulk Fuel Facility, Kirtland Air Force Base

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3) (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Surface Soil (0-1 ft BGS)	103-65-1	n-Propylbenzene	2.78E-04 J	8.63E-02	mg/kg	FFOR1306	3/311	3.14E-04 - 2.00E-01	8.63E-02	N/A	3.40E+02 N	N/A	N/A	No	IFD, BSL
	95-47-6	o-Xylene	1.60E-04 J	8.98E-02	mg/kg	FFOR1306	29/311	3.14E-04 - 2.00E-01	8.98E-02	N/A	6.90E+01 N	N/A	N/A	No	BSL
	99-87-6	p-Cymene	9.81E-04 J	3.54E-01 J	mg/kg	FFOR0135	5/311	3.14E-04 - 2.88E-02	3.54E-01	N/A	NVA	N/A	N/A	Yes	TX
	85-01-8	Phenanthrene (5)	1.13E-02 J	3.44E+00 J	mg/kg	FFOR0202	124/311	3.37E-02 - 3.71E-01	3.44E+00	N/A	1.70E+02 N	N/A	N/A	No	BSL
	129-00-0	Pyrene	1.62E-02 J	8.19E+00	mg/kg	FFOR0202	135/311	3.37E-02 - 7.05E-01	8.19E+00	N/A	1.70E+02 N	N/A	N/A	No	BSL
	135-98-8	sec-Butylbenzene	3.15E-04 J	2.63E-01 J	mg/kg	FFOR0135	4/311	3.14E-04 - 2.88E-02	2.63E-01	N/A	7.80E+02 N	N/A	N/A	No	BSL
	127-18-4	Tetrachloroethylene	1.73E-04 J	3.69E-04 J	mg/kg	FFOR0768	3/311	3.14E-04 - 2.00E-01	3.69E-04	N/A	7.02E+00 N	N/A	N/A	No	IFD, BSL
	108-88-3	Toluene	2.29E-04 J	8.98E-02	mg/kg	FFOR1306	125/311	3.45E-04 - 2.00E-01	8.98E-02	N/A	5.00E+02 N	N/A	N/A	No	BSL
	N/A	TPH-DRO	1.34E+00 J	4.52E+03	mg/kg	FFOR1306	265/311	2.09E+00 - 4.39E+00	4.52E+03	N/A	NVA	1000	NMED 2012	Yes	ASL
	N/A	TPH-GRO	7.37E-01 J	1.75E+03 J	mg/kg	FFOR1306	43/311	1.01E+00 - 8.38E+00	1.75E+03	N/A	NVA	1000	NMED 2012	Yes	ASL
	79-01-6	Trichloroethylene	1.16E-03 J	1.16E-03 J	mg/kg	FFOR0555	1/311	3.14E-04 - 2.00E-01	1.16E-03	N/A	4.40E-01 N	N/A	N/A	No	IFD, BSL
	75-69-4	Trichlorofluoromethane	5.81E-03	5.81E-03	mg/kg	FFOR0175	1/311	3.14E-04 - 2.00E-01	5.81E-03	N/A	7.90E+01 N	N/A	N/A	No	IFD, BSL
	1330-20-7	Xylene (total)	4.59E-04 J	2.82E-01	mg/kg	FFOR1306	39/311	9.42E-04 - 5.99E-01	2.82E-01	N/A	6.30E+01 N	N/A	N/A	No	BSL

(1) Maximum concentration used for screening.

(2) N/A - Refer to supporting information for background discussion.

(3) Screening level values for residential soil from USEPA Regional Screening Level (RSL) Table (November 2013) or NMED screening values (2012) [lowest of the two sources] are based on a risk level of 1.0E-05 and a hazard index of 0.1.

(4) Rationale Codes Selection Reason: Toxicity Information Available (TX)
Above Screening Levels (ASL)

Deletion Reason: Background Levels (BKG)
No Toxicity Information (NTX)
Below Screening and/or ARAR/TBC Level (BSL)
Infrequent Detection [≤ 1%] (IFD)

(5) The RSL value for pyrene was used as a surrogate.

Definitions:
N/A = Not Applicable or Not Available
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL = Federal Maximum Contaminant Level
SMCL = Secondary Maximum Contaminant Level
J, K, L = Estimated Value
C = Carcinogenic
N = Non-Carcinogenic

Table 2.2
Occurrence, Distribution and Selection of Chemicals of Potential Concern
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Total Soil (0-10 ft BGS)

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3) (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	87-61-6	1,2,3-Trichlorobenzene	8.68E-04 J	8.68E-04 J	mg/kg	FFOR1031	1/652	3.14E-04 - 1.13E+00	8.68E-04	N/A	4.90E+00 N	N/A	N/A	No	IFD, BSL
Total Soil	120-82-1	1,2,4-Trichlorobenzene	2.86E-04 J	2.86E-04 J	mg/kg	FFOR1339	1/652	3.14E-04 - 1.13E+00	2.86E-04	N/A	6.20E+00 N	N/A	N/A	No	IFD, BSL
(0-10 ft BGS)	105-67-9	2,4-Dimethylphenol	2.76E-01 J	2.76E-01 J	mg/kg	FFOR1744	1/652	1.74E-01 - 3.81E+00	2.76E-01	N/A	1.20E+02 N	N/A	N/A	No	IFD, BSL
	591-78-6	2-Hexanone	1.89E-03 J	1.20E-02	mg/kg	FFOR0348	2/652	5.73E-04 - 4.50E+00	1.20E-02	N/A	2.10E+01 N	N/A	N/A	No	IFD, BSL
	91-57-6	2-Methylnaphthalene	9.95E-03 J	3.24E+01	mg/kg	FFOR0142	55/652	3.36E-02 - 3.85E-01	3.24E+01	N/A	2.30E+01 N	N/A	N/A	Yes	ASL
	83-32-9	Acenaphthene	1.28E-02 J	6.20E-01 J	mg/kg	FFOR0987	33/652	3.36E-02 - 3.85E-01	6.20E-01	N/A	3.40E+02 N	N/A	N/A	No	BSL
	208-96-8	Acenaphthylene (5)	1.45E-02 J	5.13E-01 J	mg/kg	FFOR0987	36/652	3.36E-02 - 3.85E-01	5.13E-01	N/A	1.70E+02 N	N/A	N/A	No	BSL
	67-64-1	Acetone	1.53E-03 J	1.83E-01	mg/kg	FFOR1542	547/652	1.71E-03 - 4.50E+00	1.83E-01	N/A	6.10E+03 N	N/A	N/A	No	BSL
	120-12-7	Anthracene	1.19E-02 J	1.96E+00	mg/kg	FFOR0987	157/652	3.37E-02 - 3.85E-01	1.96E+00	N/A	1.70E+03 N	N/A	N/A	No	BSL
	71-43-2	Benzene	9.20E-05 J	7.32E-02 J	mg/kg	FFOR0433	359/652	3.45E-04 - 1.13E+00	7.32E-02	N/A	1.10E+01 C	N/A	N/A	No	BSL
	95-63-6	Benzene, 1,2,4-trimethyl	1.05E-04 J	5.92E+01	mg/kg	FFOR0136	106/652	3.69E-04 - 3.83E-01	5.92E+01	N/A	6.20E+00 N	N/A	N/A	Yes	ASL
	108-67-8	Benzene, 1,3,5-trimethyl-	1.12E-04 J	1.55E+01	mg/kg	FFOR0450	46/652	3.14E-04 - 1.13E+00	1.55E+01	N/A	7.80E+01 N	N/A	N/A	No	BSL
	98-82-8	Benzene, 1-methylethyl-	1.61E-03 J	3.78E+00 J	mg/kg	FFOR0136	5/652	3.14E-04 - 1.13E+00	3.78E+00	N/A	2.10E+02 N	N/A	N/A	No	IFD, BSL
	56-55-3	Benzo(a)anthracene	2.22E-02 J	9.00E+00	mg/kg	FFOR0987	125/652	3.37E-02 - 7.05E-01	9.00E+00	N/A	1.48E+00 C	N/A	N/A	Yes	ASL
	50-32-8	Benzo(a)pyrene	9.35E-03 J	9.04E+00	mg/kg	FFOR0987	187/672	3.37E-02 - 1.71E+00	9.04E+00	N/A	1.48E-01 C	N/A	N/A	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	2.61E-02 J	9.85E+00	mg/kg	FFOR0987	116/653	3.37E-02 - 1.71E+00	9.85E+00	N/A	1.48E+00 C	N/A	N/A	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene (5)	1.03E-02 J	7.77E+00	mg/kg	FFOR0987	216/652	1.69E-02 - 8.59E-01	7.77E+00	N/A	1.70E+02 N	N/A	N/A	No	BSL
	207-08-9	Benzo(k)fluoranthene	1.42E-02 J	6.24E+00	mg/kg	FFOR0987	124/652	3.37E-02 - 1.71E+00	6.24E+00	N/A	1.48E+01 C	N/A	N/A	No	BSL
	117-81-7	Bis(2-ethylhexyl)phthalate (BEHP)	1.89E-02 J	2.45E+00	mg/kg	SB0129	80/652	3.36E-02 - 7.05E-01	2.45E+00	N/A	3.47E+02 C	N/A	N/A	No	BSL
	85-68-7	Butyl benzyl phthalate	1.59E-01 J	1.59E-01 J	mg/kg	FFOR1445	1/652	1.68E-02 - 3.54E-01	1.59E-01	N/A	2.60E+03 C	N/A	N/A	No	IFD, BSL
	86-74-8	Carbazole	2.01E-02 J	1.62E+00 J	mg/kg	FFOR0987	78/652	3.36E-02 - 3.85E-01	1.62E+00	N/A	N/A	N/A	N/A	Yes	TX
	75-15-0	Carbon disulfide	5.38E-04	5.38E-04 J	mg/kg	FFOR1407	1/652	3.14E-04 - 1.13E+00	5.38E-04	N/A	8.20E+01 N	N/A	N/A	No	IFD, BSL
	108-90-7	Chlorobenzene	2.25E-04 J	2.25E-04 J	mg/kg	FFOR0045	1/652	3.14E-04 - 1.13E+00	2.25E-04	N/A	2.90E+01 N	N/A	N/A	No	IFD, BSL
	67-66-3	Chloroform	2.65E-04 J	1.19E+00 J	mg/kg	FFOR0153	27/652	3.14E-04 - 1.13E+00	1.19E+00	N/A	2.90E+00 C	N/A	N/A	No	BSL
	218-01-9	Chrysene	1.60E-02 J	9.38E+00	mg/kg	FFOR0987	206/652	3.37E-02 - 7.05E-01	9.38E+00	N/A	1.48E+02 C	N/A	N/A	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	1.05E-02 J	8.39E-01 J	mg/kg	FFOR0416	46/655	1.68E-02 - 8.59E-01	8.39E-01	N/A	1.50E-01 C	N/A	N/A	Yes	ASL
	132-64-9	Dibenzofuran	1.21E-02 J	1.29E+00 J	mg/kg	FFOR0142	30/652	3.36E-02 - 3.85E-01	1.29E+00	N/A	7.80E+00 N	N/A	N/A	No	BSL
	84-66-2	Diethyl phthalate	2.26E-02 J	3.54E-02	mg/kg	FFOR1357	12/652	3.36E-02 - 4.19E-01	3.54E-02	N/A	4.90E+03 N	N/A	N/A	No	BSL
	84-74-2	Di-n-butyl phthalate	1.45E-02 J	8.99E-02	mg/kg	FFOR0712	30/652	1.68E-02 - 3.57E-01	8.99E-02	N/A	6.10E+02 N	N/A	N/A	No	BSL
	117-84-0	Di-n-octyl phthalate	3.62E-01 J	3.62E-01 J	mg/kg	FFOR1105	1/652	1.68E-02 - 3.54E-01	3.62E-01	N/A	6.10E+01 N	N/A	N/A	No	IFD, BSL
	100-41-4	Ethylbenzene	2.10E-04 J	5.07E+00	mg/kg	FFOR0136	62/652	3.14E-04 - 1.13E+00	5.07E+00	N/A	5.40E+01 C	N/A	N/A	No	BSL
	206-44-0	Fluoranthene	6.99E-03 J	1.82E+01	mg/kg	FFOR0987	267/652	1.69E-02 - 1.87E-01	1.82E+01	N/A	2.30E+02 N	N/A	N/A	No	BSL
	86-73-7	Fluorene	1.48E-02 J	4.70E-01 J	mg/kg	FFOR0987	37/652	3.36E-02 - 3.85E-01	4.70E-01	N/A	2.30E+02 N	N/A	N/A	No	BSL
	87-68-3	Hexachlorobutadiene	2.01E-04 J	2.01E-04 J	mg/kg	FFOR1244	1/652	3.14E-04 - 1.13E+00	2.01E-04	N/A	6.10E+00 N	N/A	N/A	No	IFD, BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	2.74E-02 J	6.71E+00	mg/kg	FFOR0987	88/654	3.37E-02 - 1.71E+00	6.71E+00	N/A	1.48E+00 C	N/A	N/A	Yes	ASL
	7439-92-1	Lead	2.12E+00	1.40E+02	mg/kg	FFOR0292	652/652	N/A	1.40E+02	N/A	4.00E+02 N	N/A	N/A	No	BSL
	N/A	m&p-Xylenes	3.73E-04 J	1.14E+01	mg/kg	FFOR0136	77/652	6.28E-04 - 2.25E+00	1.14E+01	N/A	5.90E+01 N	N/A	N/A	No	BSL
	78-93-3	Methyl ethyl ketone	6.05E-04 J	7.34E-02	mg/kg	FFOR1542	327/652	1.54E-03 - 4.50E+00	7.34E-02	N/A	2.80E+03 N	N/A	N/A	No	BSL
	108-10-1	Methyl isobutyl ketone (MIBK)	2.94E-03 J	7.88E-03 J	mg/kg	SB0043	3/652	3.14E-04 - 1.13E+00	7.88E-03	N/A	5.30E+02 N	N/A	N/A	No	IFD, BSL
	75-09-2	Methylene chloride	1.38E-03 J	1.49E-02 J	mg/kg	FFOR0265	10/652	3.14E-04 - 1.13E+00	1.49E-02	N/A	3.60E+01 N	N/A	N/A	No	BSL
	91-20-3	Naphthalene	1.90E-04 J	4.50E+01	mg/kg	FFOR0136	34/652	3.14E-04 - 3.83E-01	4.50E+01	N/A	3.60E+01 C	N/A	N/A	Yes	ASL
	104-51-8	n-Butylbenzene	2.45E-04 J	4.16E+01	mg/kg	FFOR0136	11/652	3.14E-04 - 1.13E+00	4.16E+01	N/A	3.90E+02 N	N/A	N/A	No	BSL
	621-64-7	N-Nitrosodipropylamine	3.28E-01 J	3.28E-01 J	mg/kg	FFOR0512	1/652	3.36E-02 - 7.02E-01	3.28E-01	N/A	6.90E-01 C	N/A	N/A	No	IFD, BSL
	103-65-1	n-Propylbenzene	1.72E-04 J	9.76E+00	mg/kg	FFOR0136	9/652	3.14E-04 - 1.13E+00	9.76E+00	N/A	3.40E+02 N	N/A	N/A	No	BSL
	95-47-6	o-Xylene	1.60E-04 J	6.75E+00	mg/kg	FFOR0136	50/652	3.14E-04 - 1.13E+00	6.75E+00	N/A	6.90E+01 N	N/A	N/A	No	BSL
	99-87-6	p-Cymene	4.67E-04	1.73E+01	mg/kg	FFOR0136	19/652	3.14E-04 - 1.13E+00	1.73E+01	N/A	N/A	N/A	N/A	Yes	TX

Table 2.2
Occurrence, Distribution and Selection of Chemicals of Potential Concern
Bulk Fuels Facility, Kirtland Air Force Base

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3) (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Total Soil (0-10 ft BGS)	85-01-8	Phenanthrene (5)	1.13E-02 J	7.73E+00	mg/kg	FFOR0987	204/652	3.37E-02 - 3.72E-01	7.73E+00	N/A	1.70E+02 N	N/A	N/A	No	BSL
	129-00-0	Pyrene	1.62E-02 J	1.19E+01	mg/kg	FFOR0987	221/652	3.37E-02 - 7.05E-01	1.19E+01	N/A	1.70E+02 N	N/A	N/A	No	BSL
	135-98-8	sec-Butylbenzene	3.15E-04 J	1.53E+01	mg/kg	FFOR0136	10/652	3.14E-04 - 1.13E+00	1.53E+01	N/A	7.80E+02 N	N/A	N/A	No	BSL
	100-42-5	Styrene	6.63E-04 J	6.63E-04 J	mg/kg	FFOR0395	1/652	3.14E-04 - 1.13E+00	6.63E-04	N/A	6.30E+02 N	N/A	N/A	No	IFD, BSL
	127-18-4	Tetrachloroethylene	1.73E-04 J	3.69E-04 J	mg/kg	FFOR0768	6/652	3.14E-04 - 1.13E+00	3.69E-04	N/A	7.02E+00 C	N/A	N/A	No	IFD, BSL
	108-88-3	Toluene	2.29E-04 J	8.98E-02	mg/kg	FFOR1306	239/652	3.45E-04 - 1.13E+00	8.98E-02	N/A	5.00E+02 N	N/A	N/A	No	BSL
	11-84-7	TPH-DRO	1.34E+00 J	8.38E+03	mg/kg	FFOR0136	483/652	2.07E+00 - 6.00E+00	8.38E+03	N/A	N/A	1000	NMED 2012	Yes	ASL
	N/A	TPH-GRO	7.37E-01 J	1.75E+03 J	mg/kg	FFOR1306	75/652	1.01E+00 - 8.38E+00	1.75E+03	N/A	N/A	1000	NMED 2012	Yes	ASL
	79-01-6	Trichloroethylene	1.16E-03 J	1.16E-03 J	mg/kg	FFOR0555	1/652	3.14E-04 - 1.13E+00	1.16E-03	N/A	4.40E-01 N	N/A	N/A	No	IFD, BSL
	75-69-4	Trichlorofluoromethane	5.81E-03	5.81E-03	mg/kg	FFOR0175	1/652	3.14E-04 - 1.13E+00	5.81E-03	N/A	7.90E+01 N	N/A	N/A	No	IFD, BSL
	1330-20-7	Xylene (total)	4.26E-04 J	1.81E+01	mg/kg	FFOR0136	73/652	9.42E-04 - 3.38E+00	1.81E+01	N/A	6.30E+01 N	N/A	N/A	No	BSL

(1) Maximum concentration used for screening.

(2) N/A - Refer to supporting information for background discussion.

(3) Screening level values for residential soil from USEPA Regional Screening Level (RSL) Table (November 2013) or NMED screening values (2012) [lowest of the two sources] are based on a risk level of 1.0E-05 and a hazard index of 0.1.

(4) Rationale Codes Selection Reason: Toxicity Information Available (TX)
Above Screening Levels (ASL)

Deletion Reason: Background Levels (BKG)
No Toxicity Information (NTX)
Below Screening and/or ARAR/TBC Level (BSL)
Infrequent Detection [≤ 1%] (IFD)

(5) The RSL value for pyrene was used as a surrogate.

Definitions:
N/A = Not Applicable or Not Available
SQL = Sample Quantitation Limit
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL = Federal Maximum Contaminant Level
SMCL = Secondary Maximum Contaminant Level
J, K, L = Estimated Value
C = Carcinogenic
N = Non-Carcinogenic

Table 2.3
Occurrence, Distribution and Selection of Chemicals of Potential Conern
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater - Water Supply Wells [a]

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3) (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Groundwater (Water Supply Well)	471-34-1	Alkalinity (as CaCO3)	8.00E+01	1.22E+02	mg/l	GW1021R	15/15	N/A	1.22E+02	N/A	N/A	N/A	N/A	No	NTX
	7664-41-7	Ammonia (as N)	1.16E-01 J	3.34E-01	mg/l	GW0627	6/27	3.00E-01 - 3.00E-01	3.34E-01	N/A	N/A	30	HA	No	BSL
	7440-70-2	Calcium	2.90E+01	5.11E+01	mg/l	GW0253	27/27	N/A	5.11E+01	N/A	N/A	N/A	N/A	No	NUT
	3812-32-6	Bicarbonate (as CaCO3)	7.98E+01	1.18E+02	mg/l	GW0882	27/27	1.00E+00 - 1.00E+00	1.18E+02	N/A	N/A	N/A	N/A	No	NTX
	16887-00-6	Chloride	2.25E+01	5.41E+01	mg/l	GW0502	27/27	N/A	5.41E+01	N/A	N/A	250	SDWS	No	BSL
	86-73-7	Fluorene	4.95E-05 J	4.95E-05 J	mg/l	GW0128	1/28	1.85E-04 - 5.00E-03	4.95E-05	N/A	2.20E-02 (N)	N/A	N/A	No	BSL
	7439-95-4	Magnesium	5.37E+00	7.85E+00	mg/l	GW0626	27/27	N/A	7.85E+00	N/A	N/A	N/A	N/A	No	NUT
	7439-96-5	Manganese	6.18E-03 J	2.40E-02	mg/l	GW0377	11/27	1.50E-02 - 1.50E-02	2.40E-02	N/A	8.76E-01 (N)	N/A	N/A	No	BSL
	230-001	Nitrate/Nitrite	3.06E-01 J	5.49E-01 J	mg/l	GW0251	8/27	1.50E+00 - 1.50E+00	5.49E-01	N/A	N/A	10	MCL	No	BSL
	85-01-8	Phenanthrene (5)	1.26E-04 J	1.26E-04 J	mg/l	GW0628	1/28	1.85E-04 - 5.00E-03	1.26E-04	N/A	8.70E-03 (N)	N/A	N/A	No	BSL
	7440-09-7	Potassium	2.18E+00 J	6.63E+00	mg/l	GW0626	27/27	N/A	6.63E+00	N/A	N/A	N/A	N/A	No	NUT
	7440-23-5	Sodium (6)	2.16E+01	3.79E+01	mg/l	GW0626	27/27	N/A	3.79E+01	N/A	N/A	20	HA	Yes	ASL
	14808-79-8	Sulfate (7)	2.34E+01	3.64E+01	mg/l	GW0748	27/27	N/A	3.64E+01	N/A	N/A	250	HA	No	BSL
	18496-25-8	Sulfide	6.78E-01 J	1.30E+00 J	mg/l	GW0624	7/27	3.39E+00 - 4.55E+00	1.30E+00	N/A	N/A	N/A	N/A	No	NTX

[a] The Drinking Water Supply Wells at KAFB include KAFB-003, KAFB-015, KAFB-016, and the VA Hospital Well ST106VA2.

(1) Maximum concentration used for screening.

(2) N/A - Refer to supporting information for background discussion.

(3) Screening level values are the lowest value from based on a risk level of 1.0E-05 and a hazard index of 0.1:
USEPA Regional Screening Level (RSL) for tap water (November 2013)
NMED RA for tap water (June 2012)
NMAC GW Protection

(4) Rationale Codes Selection Reason: Toxicity Information Available (TX)
Above Screening Levels (ASL)

Deletion Reason: Background Levels (BKG)
No Toxicity Information (NTX)
Nutrient (NUT)
Below Screening and/or ARAR/TBC Level (BSL)

(5) The RSL value for pyrene was used as a surrogate.

(6) The screening value of 20 mg/L for sodium is the recommended threshold for individuals on a 500 mg/day restricted sodium diet (EPA, 2012).

(7) The screening value of 250 mg/L for sulfate is the recommended taste threshold (EPA, 2012).

Definitions:
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
J = Estimated Value
C = Carcinogenic
N = Non-Carcinogenic
HA = Health Advisory (EPA, 2012)
SDWS = Secondary Drinking Water Standard (EPA, 2012)
MCL = Maximum Contaminant Level (EPA, 2012)

Table 2.4
Occurrence, Distribution and Selection of Chemicals of Potential Concern
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater - Monitoring Wells [a]

Exposure Point	CAS Number	Chemical [b]	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3) (N/C)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
	100-41-4	Ethylbenzene	2.50E-01 J	1.84E+03	ug/L	GW0144	97/748	5.00E-01 - 5.00E+00	1.84E+03	N/A	1.30E+01 (C)	N/A	N/A	Yes	ASL
Groundwater	103-65-1	N-Propylbenzene	2.64E-01 J	1.28E+02	ug/L	GW0896	108/748	5.00E-01 - 5.00E+00	1.28E+02	N/A	5.30E+01 (N)	N/A	N/A	Yes	ASL
	106-93-4	1,2-Dibromoethane	1.07E-02 J	4.59E+02 J	ug/L	GW0144	302/749	1.82E-02 - 2.18E-02	4.59E+02	N/A	6.50E-02 (C)	N/A	N/A	Yes	ASL
	107-06-2	1,2-Dichloroethane	2.70E-01 J	4.30E+00	ug/L	GW0968	90/748	5.00E-01 - 1.00E+02	4.30E+00	N/A	1.30E+00 (N)	N/A	N/A	Yes	ASL
	108-67-8	1,3,5-Trimethylbenzene	2.60E-01 J	1.30E+02	ug/L	GW0762	110/748	5.00E-01 - 2.50E+01	1.30E+02	N/A	8.70E+00 (N)	N/A	N/A	Yes	ASL
	108-88-3	Toluene	2.53E-01 J	1.90E+04 J	ug/L	GW0144	122/748	5.00E-01 - 1.00E+01	1.90E+04	N/A	8.60E+01 (N)	N/A	N/A	Yes	ASL
	11-84-7	Diesel Range Organics	9.56E+01	9.86E+04	ug/L	GW0337	188/748	9.26E+01 - 2.50E+02	9.86E+04	N/A	4.00E+02 (N)	N/A	N/A	Yes	ASL
	136777-61-2	M,P-Xylene	6.14E-01 J	3.75E+03	ug/L	GW0144	13/95	1.00E+00 - 5.00E+01	3.75E+03	N/A	1.90E+01 (N)	N/A	N/A	Yes	ASL
	1330-20-7	Xylenes	7.52E-01 J	4.38E+03	ug/L	GW0765	82/653	1.50E+00 - 1.50E+02	4.38E+03	N/A	1.90E+01 (N)	N/A	N/A	Yes	ASL
	67-64-1	Acetone	2.51E+00 J	2.63E+04	ug/L	GW1006	147/748	5.00E+00 - 1.00E+03	2.63E+04	N/A	1.20E+03 (N)	N/A	N/A	Yes	ASL
	71-43-2	Benzene	2.53E-01 J	1.34E+04	ug/L	GW0586	133/748	5.00E-01 - 5.00E+00	1.34E+04	N/A	2.90E+00 (N)	N/A	N/A	Yes	ASL
	7439-89-6	Iron, Dissolved	3.08E+01 J	1.56E+04	ug/L	GW1006	118/748	6.00E+01 - 1.09E+02	1.56E+04	N/A	1.00E+03 (N)	N/A	N/A	Yes	ASL
	7439-96-5	Manganese, Dissolved	3.06E+00 J	5.69E+03	ug/L	GW1103	351/748	6.00E+00 - 6.00E+00	5.69E+03	N/A	3.20E+01 (N)	N/A	N/A	Yes	ASL
	7440-23-5	Sodium	1.87E+04	5.06E+04 J	ug/L	GW0366	746/748	3.00E+03 - 3.00E+03	5.06E+04	N/A	N/A	2.00E+04	RDA	Yes	ASL
	90-12-0	1-Methylnaphthalene	1.19E+00 J	3.42E+01 J	ug/L	GW0896	40/747	2.31E+00 - 2.78E+02	3.42E+01	N/A	9.70E+00 (C)	N/A	N/A	Yes	ASL
	91-20-3	Naphthalene	3.20E-01 J	2.33E+02 J	ug/L	GW0462	70/748	5.00E-01 - 5.00E+01	2.33E+02	N/A	6.10E-01 (N)	N/A	N/A	Yes	ASL
	91-57-6	2-Methylnaphthalene	1.35E+00 J	4.07E+01 J	ug/L	GW0896	36/747	2.31E+00 - 2.78E+02	4.07E+01	N/A	2.70E+00 (N)	N/A	N/A	Yes	ASL
	95-47-6	O-Xylene	2.66E-01	1.59E+03 J	ug/L	GW0144	11/95	5.00E-01 - 1.25E+01	1.59E+03	N/A	1.90E+01 (N)	N/A	N/A	Yes	ASL
	95-63-6	1,2,4-Trimethylbenzene	2.60E-01 J	4.29E+02	ug/L	GW0762	93/748	5.00E-01 - 5.00E+01	4.29E+02	N/A	1.50E+00 (N)	N/A	N/A	Yes	ASL
	98-82-8	Isopropylbenzene	2.60E-01 J	1.35E+02	ug/L	GW0762	197/748	5.00E-01 - 2.50E+00	1.35E+02	N/A	3.90E+01 (N)	N/A	N/A	Yes	ASL
	98-86-2	Acetophenone	1.33E+00 J	8.91E+03	ug/L	GW0517	57/747	2.31E+00 - 4.63E+01	8.91E+03	N/A	1.50E+02 (N)	N/A	N/A	Yes	ASL
	99-87-6	P-Isopropyltoluene	2.78E-01 J	2.11E+02	ug/L	GW0762	60/748	5.00E-01 - 1.00E+02	2.11E+02	N/A	N/A	NSV	NSV	Yes	TX
	8006-61-9	Gasoline Range Organics	5.16E+01 J	7.21E+04	ug/L	GW0765	191/748	1.00E+02 - 1.00E+02	7.21E+04	N/A	5.50E+02 (N)	N/A	N/A	Yes	ASL
	78-93-3	2-Butanone	2.62E+00 J	9.39E+03	ug/L	GW1006	24/748	5.00E+00 - 1.00E+03	9.39E+03	N/A	4.90E+02 (N)	N/A	N/A	Yes	ASL
	591-78-6	2-Hexanone	3.72E+01	6.26E+02	ug/L	GW1006	16/748	2.50E+00 - 5.00E+02	6.26E+02	N/A	3.40E+00 (N)	N/A	N/A	Yes	ASL
	95-48-7	2-Methylphenol	1.36E+00 J	1.30E+02 J	ug/L	GW0337	8/747	2.31E+00 - 2.78E+02	1.30E+02	N/A	7.20E+01 (N)	N/A	N/A	Yes	ASL
	65794-96-9	3-Methylphenol and 4-Methylphenol	1.28E+00 J	9.95E+01	ug/L	GW0140	21/747	2.31E+00 - 2.78E+02	9.95E+01	N/A	7.20E+01 (N)	N/A	N/A	Yes	ASL
	108-10-1	4-Methyl-2-Pentanone	1.51E+00 J	4.58E+02	ug/L	GW1006	25/748	2.50E+00 - 5.00E+02	4.58E+02	N/A	1.00E+02 (N)	N/A	N/A	Yes	ASL
	75-15-0	Carbon Disulfide	3.20E-01 J	4.48E+02	ug/L	GW0710	23/748	5.00E-01 - 1.00E+02	4.48E+02	N/A	7.20E+01 (N)	N/A	N/A	Yes	ASL

[a] The subset of wells is based on the exclusion of wells with documented NAPL (as these wells would not be used for drinking water) and excluding clean perimeter wells (see text for discussion).

[b] This list of 29 groundwater COPCs is based on a pre-screening assessment of detected chemicals (see Table X).

(1) Maximum concentration used for screening.

(2) N/A - Refer to supporting information for background discussion.

(3) Screening level values are the lowest value from based on a risk level of 1.0E-05 and a hazard index of 0.1:
USEPA Regional Screening Level (RSL) for tap water (November 2013)
NMED RA for tap water (June 2012)
NMAC GW Protection

(4) Rationale Codes Selection Reason: Toxicity Information Available (TX)
Above Screening Levels (ASL)

Deletion Reason: Background Levels (BKG)
No Toxicity Information (NTX)
Below Screening and/or ARAR/TBC Level (BSL)

Definitions:
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
J = Estimated Value
C = Carcinogenic
N = Non-Carcinogenic
RDA = Recommended Daily Allowance

Table 3.1
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland AFB COPCs

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil (0-1 ft BGS)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Surface Soil (0-1 ft BGS)	2-Methylnaphthalene	mg/kg	8.94E-01	Yes	4.37E-01 (NP)	2.32E+01	4.37E-01	mg/kg	95% KM-Cheby	Test (1)
	Benzo(a)anthracene	mg/kg	2.57E-01	Yes	1.28E-01 (NP)	5.39E+00	1.28E-01	mg/kg	95% KM-BCA	Test (1)
	Benzo(a)pyrene	mg/kg	1.76E-01	Yes	1.12E-01 (NP)	4.45E+00	1.12E-01	mg/kg	95% KM-BCA	Test (1)
	Benzo(b)fluoranthene	mg/kg	3.04E-01	Yes	1.38E-01 (NP)	5.15E+00	1.38E-01	mg/kg	95% KM-BCA	Test (1)
	Carbazole	mg/kg	7.19E-02	Yes	3.94E-02 (NP)	5.33E-01	3.94E-02	mg/kg	95% KM-t [or] 95% KM % Btstrp	Test (1)
	Dibenz(a,h)anthracene	mg/kg	1.02E-01	Yes	2.68E-02 (L)	6.83E-01	2.68E-02	mg/kg	95% KM-BCA	Test (1)
	Diesel Range Organics	mg/kg	3.90E+01	Yes	9.82E+01 (NP)	4.52E+03	9.82E+01	mg/kg	95% KM-Cheby	Test (1)
	Gas Range Organics	mg/kg	4.60E+01	Yes	1.87E+01 (NP)	1.75E+03	1.87E+01	mg/kg	95% KM-BCA	Test (1)
	Indeno(1,2,3-cd)pyrene	mg/kg	2.18E-01	Yes	8.07E-02 (NP)	2.26E+00	8.07E-02	mg/kg	95% KM-BCA	Test (1)
	p-Cymene	mg/kg	7.68E-02	Yes	1.15E-02 (G)	3.54E-01	1.15E-02	mg/kg	95% GROS Approx. Gamma	Test (6)

Notes: N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby);
95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD);
97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T)
95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma);
95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE); 95% Gamma ROS Approximate Gamma (95% GROS Approx. Gamma).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): 95% UCL exceeds or equals the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Infrequent detection resulted in ProUCL modeling error for this constituent, therefore, maximum concentration used for EPC.

Table 3.2
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland AFB COPCs

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Total Soil (0-10 ft BGS)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Total Soil (0-10 ft BGS)	1,2,4-Trimethylbenzene	mg/kg	1.62E+00	Yes	1.14E+00 (NP)	5.92E+01	1.14E+00	mg/kg	97.5% KM-Cheby	Test (1)
	2-Methylnaphthalene	mg/kg	2.52E+00	Yes	8.03E-01 (NP)	3.24E+01	8.03E-01	mg/kg	97.5% KM-Cheby	Test (1)
	Benzo(a)anthracene	mg/kg	2.86E-01	Yes	1.12E-01 (NP)	9.00E+00	1.12E-01	mg/kg	95% KM-BCA	Test (1)
	Benzo(a)pyrene	mg/kg	2.04E-01	Yes	1.04E-01 (NP)	9.04E+00	1.04E-01	mg/kg	95% KM-BCA	Test (1)
	Benzo(b)fluoranthene	mg/kg	3.49E-01	Yes	1.20E-01 (NP)	9.85E+00	1.20E-01	mg/kg	95% KM-BCA	Test (1)
	Carbazole	mg/kg	8.86E-02	Yes	3.92E-02 (NP)	1.62E+00	3.92E-02	mg/kg	95% KM-% Btstrp	Test (1)
	Dibenzo(a,h)anthracene	mg/kg	1.08E-01	Yes	2.47E-02 (NP)	8.39E-01	2.47E-02	mg/kg	95% KM-BCA	Test (1)
	Indeno(1,2,3-cd)pyrene	mg/kg	3.32E-01	Yes	9.71E-02 (NP)	6.71E+00	9.71E-02	mg/kg	95% KM-BCA	Test (1)
	Naphthalene	mg/kg	3.93E+00	Yes	7.99E-01 (NP)	4.50E+01	7.99E-01	mg/kg	97.5% KM-Cheby	Test (1)
	p-Cymene	mg/kg	1.81E+00	Yes	1.96E-01 (G)	1.73E+01	1.96E-01	mg/kg	95% Approx. Gamma KM-UCL	Test (1)
	TPH - Diesel Range Organics	mg/kg	1.04E+02	Yes	1.78E+02 (NP)	8.38E+03	1.78E+02	mg/kg	95% KM-Cheby	Test (1)
	TPH - Gasoline Range Organics	mg/kg	1.06E+02	Yes	4.25E+01 (NP)	1.75E+03	4.25E+01	mg/kg	97.5% KM-Cheby	Test (1)

Notes: N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby);
95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD);
97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T)
95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma);
95% Gamma Approximate KM-UCL (95% Approx. Gamma KM-UCL); 95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): 95% UCL exceeds or equals the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Infrequent detection resulted in ProUCL modeling error for this constituent, therefore, maximum concentration used for EPC.

Table 3.3
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater - Water Supply Wells

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Groundwater	Sodium	mg/L	2.72E+01	No	2.90E+01 (NP)	3.79E+01	2.90E+01	mg/L	95% Modified-t	Test (3)

Notes: N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby);
95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD);
97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T)
95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma);
95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE); 95% Gamma ROS Approximate Gamma (95% GROS Approx. Gamma).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): 95% UCL exceeds or equals the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Infrequent detection resulted in ProUCL modeling error for this constituent, therefore, maximum concentration used for EPC.

Table 3.4
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater - Monitoring Wells

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Groundwater	Ethylbenzene	µg/L	3.70E+02	Yes	1.02E+02 (NP)	1.84E+03	1.02E+02	µg/L	97.5% KM-Cheby	Test (1)
	N-Propylbenzene	µg/L	2.52E+01	Yes	7.63E+00 (NP)	1.28E+02	7.63E+00	µg/L	97.5% KM-Cheby	Test (1)
	1,2-Dibromoethane	µg/L	9.38E+00	Yes	8.30E+00 (NP)	4.59E+02	8.30E+00	µg/L	95% KM-Cheby	Test (1)
	1,2-Dichloroethane	µg/L	1.37E+00	Yes	5.41E-01 (NP)	4.30E+00	5.41E-01	µg/L	95% KM-% Btstrp	Test (1)
	1,3,5-Trimethylbenzene	µg/L	2.27E+01	Yes	7.06E+00 (NP)	1.30E+02	7.06E+00	µg/L	97.5% KM-Cheby	Test (1)
	Toluene	µg/L	1.76E+03	Yes	7.03E+02 (NP)	1.90E+04	7.03E+02	µg/L	97.5% KM-Cheby	Test (1)
	Diesel Range Organics	µg/L	8.23E+03	Yes	3.68E+03 (NP)	9.86E+04	3.68E+03	µg/L	95% KM-Cheby	Test (1)
	M,P-Xylene	µg/L	4.20E+02	Yes	3.18E+02 (G)	3.75E+03	3.18E+02	µg/L	95% Approx. Gamma KM	Test (1)
	Xylenes	µg/L	5.58E+02	Yes	1.71E+02 (NP)	4.38E+03	1.71E+02	µg/L	97.5% KM-Cheby	Test (1)
	Acetone	µg/L	4.60E+02	Yes	3.26E+02 (NP)	2.63E+04	3.26E+02	µg/L	97.5% KM-Cheby	Test (1)
	Benzene	µg/L	1.45E+03	Yes	5.67E+02 (NP)	1.34E+04	5.67E+02	µg/L	97.5% KM-Cheby	Test (1)
	Iron, Dissolved	µg/L	9.38E+02	Yes	3.16E+02 (G)	1.56E+04	3.16E+02	µg/L	95% KM-Cheby	Test (1)
	Manganese, Dissolved	µg/L	4.54E+02	No	3.80E+02 (NP)	5.69E+03	3.80E+02	µg/L	97.5% KM-Cheby	Test (3)
	Sodium	µg/L	2.62E+04	No	2.64E+04 (NP)	5.06E+04	2.64E+04	µg/L	95% KM-BCA	Test (3)
	1-Methylnaphthalene	µg/L	1.32E+01	Yes	2.72E+00 (NP)	3.42E+01	2.72E+00	µg/L	95% KM-BCA	Test (1)
	Naphthalene	µg/L	4.89E+01	Yes	9.98E+00 (NP)	2.33E+02	9.98E+00	µg/L	97.5% KM-Cheby	Test (1)
	2-Methylnaphthalene	µg/L	1.51E+01	Yes	2.45E+00 (NP)	4.07E+01	2.45E+00	µg/L	95% KM-BCA	Test (1)
	O-Xylene	µg/L	2.43E+02	Yes	1.35E+02 (G)	1.59E+03	1.35E+02	µg/L	95% Approx. Gamma KM	Test (1)
	1,2,4-Trimethylbenzene	µg/L	6.75E+01	Yes	1.84E+01 (NP)	4.29E+02	1.84E+01	µg/L	97.5% KM-Cheby	Test (1)
	Isopropylbenzene	µg/L	1.76E+01	Yes	7.58E+00 (NP)	1.35E+02	7.58E+00	µg/L	95% KM-Cheby	Test (1)
	Acetophenone	µg/L	1.85E+03	Yes	3.49E+02 (NP)	8.91E+03	3.49E+02	µg/L	97.5% KM-Cheby	Test (1)
	P-Isopropyltoluene	µg/L	1.23E+01	Yes	3.09E+00 (NP)	2.11E+02	3.09E+00	µg/L	95% KM-Cheby	Test (1)
	Gasoline Range Organics	µg/L	5.71E+03	No	2.66E+03 (NP)	7.21E+04	2.66E+03	µg/L	95% KM-Cheby	Test (3)
	2-Butanone	µg/L	9.21E+02	Yes	1.17E+02 (NP)	9.39E+03	1.17E+02	µg/L	97.5% KM-Cheby	Test (1)
	2-Hexanone	µg/L	2.31E+02	Yes	9.95E+00 (N)	6.26E+02	9.95E+00	µg/L	95% KM-t	Test (1)
	2-Methylphenol	µg/L	3.21E+01	Yes	2.19E+00 (G)	1.30E+02	2.19E+00	µg/L	95% Approx. Gamma KM	Test (1)
	3-Methylphenol and 4-Methylphenol	µg/L	1.21E+01	Yes	2.36E+00 (G)	9.95E+01	2.36E+00	µg/L	95% KM-t	Test (1)
	4-Methyl-2-Pentanone	µg/L	1.37E+02	Yes	8.62E+00 (N)	4.58E+02	8.62E+00	µg/L	95% KM-% Btstrp	Test (1)
	Carbon Disulfide	µg/L	6.58E+01	Yes	4.36E+00 (G)	4.48E+02	4.36E+00	µg/L	95% Approx. Gamma KM	Test (1)

Table 3.4
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland Air Force Base

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]

Notes: N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby); 95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD); 97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T) 95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma); 95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): The 95% UCL exceeds the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): 95% UCL estimated by a non-Pro-UCL bootstrap method.

[5] Infrequent detection resulted in ProUCL modeling error for this constituent, therefore the distribution was assumed to be non-parametric and the UCL was determined using a non-ProUCL bootstrap method with random numbers for NDs (see text for

Table 3.5
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Medium: Soil Gas
Exposure Medium: Soil Gas

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Soil Gas	Acetone	ppbv	1.37E+05	Yes	1.25E+05 (N)	6.00E+05	1.25E+05	ppbv	95% KM-%Btstrp	Test (1)
	Benzene	ppbv	3.88E+04	No	7.87E+04 (G)	2.20E+05	7.87E+04	ppbv	95% Adjusted. Gamma	Test (6)
	Bromodichloromethane (5)	ppbv	8.20E+03	Yes	--	8.20E+03	8.20E+03	ppbv	Max	Test (8)
	n-Hexane	ppbv	9.18E+04	Yes	2.01E+05 (G)	5.20E+05	2.01E+05	ppbv	95% GROS Adjusted Gamma	Test (6)
	Methylene chloride	ppbv	3.80E+03	Yes	1.98E+03 (N)	5.40E+03	1.98E+03	ppbv	95% KM-t	Test (1)

Notes:

Shallowest soil gas results from three sampling locations (SVMW-03 [40-50 ft bgs], SVMW-11 [40-50 ft bgs], and KAFB-106119 [15-25 ft bgs]) within 100 ft of Bldg. 1033, for Rounds 03 through 10.

N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution;
(L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby);
95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD);
97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T)
95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma);
95% Gamma ROS Adjusted Gamma (95% GROS Adjusted Gamma); 95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): The 95% UCL exceeds the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Max used.

[5] Infrequent detection resulted in ProUCL modeling error for this constituent, therefore the maximum dectected concentration was used.

Table 3.6
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Current
Medium: Air
Exposure Medium: Indoor Air (Building 1033)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No)	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration [1]			
							Value	Units	Statistic	Rationale
Air	Acetone	N/A	N/A	N/A	N/A	N/A	1.06E+02	$\mu g/m^3$	N/A	N/A
	Benzene	N/A	N/A	N/A	N/A	N/A	6.61E+01	$\mu g/m^3$	N/A	N/A
	Bromodichloromethane	N/A	N/A	N/A	N/A	N/A	5.27E+00	$\mu g/m^3$	N/A	N/A
	n-Hexane	N/A	N/A	N/A	N/A	N/A	3.73E+02	$\mu g/m^3$	N/A	N/A
	Methylene chloride	N/A	N/A	N/A	N/A	N/A	2.05E+00	$\mu g/m^3$	N/A	N/A

Notes:

Shallowest soil gas results from three sampling locations (SVMW-03 [40-50 ft bgs], SVMW-11 [40-50 ft bgs], and KAFB-106119 [15-25 ft bgs]) within 100 ft of Bldg. 1033, for Rounds 03 through 10.

N/A = Not applicable

[1] Soil gas results were used in the Johnson & Ettinger Model (JEM) to estimate indoor air concentrations. JEM indoor air results were based on the 95% UCL concentration and average depth of 43 ft, for conservative default building dimensions (JEM input and output data in Appendix N-9). Indoor air concentration from "C-Building" column in INTERCALCS sheet in JEM output was used.

Table 3.7
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland AFB

Scenario Timeframe: Future
Medium: Soil Gas
Exposure Medium: Soil Gas

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No) [1]	95% UCL (Distribution) [2]	Maximum Concentration	Exposure Point Concentration			
							Value	Units	Statistic [3]	Rationale [4]
Soil Gas	Acetone	ppbv	6.86E+05	No	1.33E+06 (N)	2.90E+06	1.33E+06	ppbv	95% Students-t	Test (4)
	Benzene	ppbv	5.76E+05	No	8.56E+05 (N)	1.40E+06	8.56E+05	ppbv	95% Students-t	Test (4)
	Bromodichloromethane (5)	ppbv	8.20E+03	Yes	--	8.20E+03	8.20E+03	ppbv	Max	Test (8)
	1,3-Butadiene (5)	ppbv	2.30E+02	Yes	--	2.30E+02	2.30E+02	ppbv	Max	Test (8)
	Carbon tetrachloride	ppbv	2.57E+02	Yes	2.27E+02 (N)	4.00E+02	2.27E+02	ppbv	95% KM-t	Test (1)
	Chloroform	ppbv	8.80E+02	No	1.09E+03 (N)	1.40E+03	1.09E+03	ppbv	95% KM-t	Test (4)
	Cyclohexane	ppbv	1.31E+06	No	2.44E+06 (N)	5.10E+06	2.44E+06	ppbv	95% Students-t	Test (4)
	Dibromochloromethane (5)	ppbv	2.30E+01	Yes	--	2.30E+01	2.30E+01	ppbv	Max	Test (8)
	1,2-Dibromoethane (5)	ppbv	1.80E+03	Yes	--	1.80E+03	1.80E+03	ppbv	Max	Test (8)
	n-Hexane	ppbv	2.29E+06	No	3.47E+06 (N)	5.30E+06	3.47E+06	ppbv	95% Students-t	Test (4)
	Methylene chloride	ppbv	1.78E+05	Yes	2.11E+05 (N)	5.30E+05	2.11E+05	ppbv	95% KM-t	Test (1)
	1,1,2,2-Tetrachloroethane (5)	ppbv	4.30E+01	Yes	--	4.30E+01	4.30E+01	ppbv	Max	Test (8)
	1,2,4-Trimethylbenzene	ppbv	2.82E+04	Yes	9.91E+04 (NP)	5.60E+04	5.60E+04	ppbv	Max	Test (2)
	Xylenes (total)	ppbv	3.30E+04	No	4.41E+05 (G)	2.10E+05	2.10E+05	ppbv	Max	Test (2)

Notes: N/A = Not applicable

[1] ProUCL software (version 5.0, USEPA, 2013) recommends use of Kaplan-Meier method if there are multiple detection limits.

[2] Statistical Distribution and 95% UCL as determined by ProUCL (unless otherwise noted): (G) the data were determined to follow gamma distribution; (L) the data were determined to follow lognormal distribution; (NP) the data were determined to be non-parametric; (N) the data were determined to be normally distributed.

[3] Statistic: Maximum Detected Value (Max); 95% KM Chebyshev (95% KM-Cheby); 97.5% KM Chebyshev (97.5% KM-Cheby); 99% KM Chebyshev (99% KM-Cheby); 95% KM Percentile Bootstrap (95% KM-% Btstrp); 95% KM-t (95% KM-t); 95% KM-BCA (95% KM-BCA); 95% H-UCL (95% H-UCL); 95% Chebyshev -Mean, SD- UCL (95% Cheby, Mean, SD); 97.5% Chebyshev -Mean, SD- UCL (97.5% Cheby, Mean, SD); 99% Chebyshev -Mean, SD- UCL (99% Cheby, Mean, SD); 95% UCL of Log-transformed Data (95% UCL-T) 95% Student's-t (95% Student's-t); 95% Modified-t (95% Modified-t); 95% UCL based on bootstrap statistic (95% UCL-Bst); 95% Approximate Gamma UCL (95% Approx. Gamma); 95% KM Chebyshev-MVUE (95% KM-Cheby-MVUE).

[4] Unless otherwise noted (see footnote 5), ProUCL EPC selection rationale based on, detection limit values, distribution, standard deviation, and sample size (see ProUCL output in appendix for further details):

Test (1): Kaplan-Meier method recommended by ProUCL due to multiple detection limits.
Test (2): The 95% UCL exceeds the maximum detected concentration, therefore, maximum concentration used for EPC.
Test (3): Shapiro-Wilk W test, Kolmogorov-Smirnov (K-S), and Anderson-Darling (A-D) tests, indicate data follow nonparametric distribution.
Test (4): Shapiro-Wilk W test indicates data are normally distributed.
Test (5): Shapiro-Wilk W test indicates data are log-normally distributed.
Test (6): Kolmogorov-Smirnov (K-S) and/or Anderson-Darling (A-D) tests indicate data follow gamma distribution.
Test (7): Sample size is less than or equal to 5, therefore, maximum concentration used for EPC.
Test (8): Max used.

[5] Infrequent detection resulted in ProUCL modeling error for this constituent, therefore the maximum dectected concentration was used.

Table 3.8
Medium-Specific Exposure Point Concentration Summary
Bulk Fuels Facility, Kirtland AFB

Scenario Timeframe: Future
Medium: Air
Exposure Medium: Indoor Air (Future Building)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean of Detects	Multiple Detection Limits? (Yes/No)	95% UCL (Distribution)	Maximum Concentration	Exposure Point Concentration [1]			
							Value	Units	Statistic	Rationale
Air	Acetone	N/A	N/A	N/A	N/A	N/A	2.10E+02	μg/m^3	N/A	N/A
	Benzene	N/A	N/A	N/A	N/A	N/A	3.27E+02	μg/m^3	N/A	N/A
	Bromodichloromethane	N/A	N/A	N/A	N/A	N/A	4.56E+00	μg/m^3	N/A	N/A
	1,3-Butadiene	N/A	N/A	N/A	N/A	N/A	5.10E-02	μg/m^3	N/A	N/A
	Carbon tetrachloride	N/A	N/A	N/A	N/A	N/A	6.38E-02	μg/m^3	N/A	N/A
	Chloroform	N/A	N/A	N/A	N/A	N/A	3.84E+00	μg/m^3	N/A	N/A
	Cyclohexane	N/A	N/A	N/A	N/A	N/A	3.63E+02	μg/m^3	N/A	N/A
	Dibromochloromethane	N/A	N/A	N/A	N/A	N/A	3.50E-02	μg/m^3	N/A	N/A
	1,2-Dibromoethane	N/A	N/A	N/A	N/A	N/A	1.74E-01	μg/m^3	N/A	N/A
	n-Hexane	N/A	N/A	N/A	N/A	N/A	3.13E+03	μg/m^3	N/A	N/A
	Methylene chloride	N/A	N/A	N/A	N/A	N/A	2.37E+01	μg/m^3	N/A	N/A
	1,1,2,2-Tetrachloroethane	N/A	N/A	N/A	N/A	N/A	8.68E-03	μg/m^3	N/A	N/A
	1,2,4-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	1.32E+02	μg/m^3	N/A	N/A
	Xylenes (total)	N/A	N/A	N/A	N/A	N/A	5.79E+02	μg/m^3	N/A	N/A

Notes: N/A = Not applicable

[1] Soil gas results were used in the Johnson & Ettinger Model (JEM) to estimate indoor air concentrations. JEM indoor air results were based on the 95% UCL concentration and site-specific sample depth, for conservative default residential exposure scenario (JEM input and output data in Appendix N-9). Indoor air concentration from "C-Building" column in INTERCALCS sheet in JEM output were used.

Table 4.1
Values Used for Daily Intake and Exposure Calculations - Current and Future Exposures to Surface Soil
BFF, KAFB

Scenario Timeframe: Current and Future
Medium: Surface Soil
Exposure Medium: Surface Soil
Exposure Point: Surface Soil
Receptor Population: Routine Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	100	USEPA, 2002	CS*IR-S*CF3*ED*EF*FI
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	225	NMED, 2012	
	ED	Exposure Duration	years	25	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED	
Dermal	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	CS*SSAF*DABS*SA*CF3*ED*EF
	SA	Skin Surface Available for Contact	cm^2/day	3,300	(1)	BW*AT
	SSAF	Soil to Skin Adherence Factor	mg/cm^2/event	0.2	NMED, 2012	
	DABS	Absorption Factor	unitless	Chemical Specific	USEPA, 2004	
	EF	Exposure Frequency	days/year	225	NMED, 2012	
	ED	Exposure Duration	years	25	USEPA, 2004	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2004	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED	
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(2)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	0.33	8 hours/24 hours	CA*FI*EF*ED
	EF	Exposure Frequency	days/year	225	NMED, 2012	AT
	ED	Exposure Duration	years	25	USEPA, 2002	(3)
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED	

Notes:
(1) Assumes face, forearms, and hands are exposed (USEPA, 2004). Also, NMED (2012).
(2) Chemical concentration for particulates in air (mg/m^3) = Concentration in soil (mg/kg) x 1/PEF (kg/m^3).
Chemical concentration of volatiles in air (mg/m^3) = Concentration in soil (mg/kg) x 1/VF (kg/m^3).
(3) RAGS-F (USEPA, 2009).

Sources:
USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24
USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final
USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final
NMED, 2012, Risk Assessment Guidance for Investigations and Remediation, Volume 1.

Table 4.2
Values Used for Daily Intake and Exposure Calculations - Future Exposures to Total Soil
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Total Soil
Exposure Medium:	Total Soil
Exposure Point:	Total Soil
Receptor Population:	Residential Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	100	USEPA, 1997	CS*IR-S*CF3*ED*EF*FI
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (1)	
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (2)	
Dermal	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	CS*SSAF*DABS*SA*CF3*ED*EF
	SA	Skin Surface Available for Contact	cm^2/day	5,700	NMED (2012)	BW*AT
	SSAF	Soil to Skin Adherence Factor	mg/cm^2/event	0.07	NMED (2012)	
	DABS	Absorption Factor	unitless	Chemical Specific	USEPA 2004	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (1)	
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (2)	
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(3)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	1.0	24 hours/24 hours	CA*FI*EF*ED
	EF	Exposure Frequency	days/year	350	USEPA, 2002	AT
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (1)	(4)
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (2)	

Notes:
(1) For carcinogens, risks for adults and children are averaged over a lifetime of 70 years (USEPA, 2002).
(2) AT for chronic exposures = 30 years x 365 days/year.
(3) Chemical concentration for particulates in air (mg/m^3) = Concentration in soil (mg/kg) x 1/PEF (kg/m^3).
Chemical concentration of volatiles in air (mg/m^3) = Concentration in soil (mg/kg) x 1/VF (kg/m^3).
(4) RAGS-F (USEPA, 2009).

Sources:

USEPA, 1997. Exposure Factors Handbook. EPA/600/P-95/002 Fa.
USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24
USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final
USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final
NMED, 2012, Risk Assessment Guidance for Investigations and Remediation, Volume 1.

Table 4.3
Values Used for Daily Intake and Exposure Calculations - Future Exposures to Total Soil
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Total Soil
Exposure Medium:	Total Soil
Exposure Point:	Total Soil
Receptor Population:	Residential Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	200	USEPA, 1997	CS*IR-S*CF3*ED*EF*FI
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED	Exposure Duration	years	6	USEPA, 2002	
	BW	Body Weight	kg	15	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	Based on ED	
Dermal	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	CS*SSAF*DABS*SA*CF3*ED*EF
	SA	Skin Surface Available for Contact	cm^2/day	2,800	(1)	BW*AT
	SSAF	Soil to Skin Adherence Factor	mg/cm^2/event	0.2	NMED, 2012	
	DABS	Absorption Factor	unitless	Chemical Specific	USEPA, 2004	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED	Exposure Duration	years	6	USEPA, 2002	
	BW	Body Weight	kg	15	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	Based on ED	
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(2)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	1.00	24 hours/24 hours	CA*FI*EF*ED
	EF	Exposure Frequency	days/year	350	USEPA, 2002	AT
	ED	Exposure Duration	years	6	USEPA, 2002	(3)
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	Based on ED	

Notes:

(1) Assumes face, forearms, and hands are exposed (USEPA, 2004). Also, NMED (2012).

(2) Chemical concentration for particulates in air (mg/m^3) = Concentration in soil (mg/kg) x 1/PEF (kg/m^3).

Chemical concentration of volatiles in air (mg/m^3) = Concentration in soil (mg/kg) x 1/VF (kg/m^3).

(3) RAGS-F (USEPA, 2009).

Sources:

USEPA, 1997. Exposure Factors Handbook. EPA/600/P-95/002 Fa.
USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24
USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final
USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final
NMED, 2012, Risk Assessment Guidance for Investigations and Remediation, Volume 1.

Table 4.4
Values Used for Daily Intake and Exposure Calculations - Future Exposures to Total Soil
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Total Soil
Exposure Medium:	Total Soil
Exposure Point:	Total Soil
Receptor Population:	Construction Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Intake (mg/kg/day) =
	IR-S	Ingestion Rate	mg/day	330	USEPA, 2002	CS*IR-S*CF3*ED*EF*FI
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	250	NMED, 2012	
	ED	Exposure Duration	years	1	NMED, 2012	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	365	Based on ED	
Dermal	CS	Chemical concentration in soil	mg/kg	Chemical Specific	--	Dermally Absorbed Dose (mg/kg/day) =
	CF3	Conversion Factor 3	kg/mg	1.0E-06	--	CS*SSAF*DABS*SA*CF3*ED*EF
	SA	Skin Surface Available for Contact	cm^2/day	3,300	(1)	BW*AT
	SSAF	Soil to Skin Adherence Factor	mg/cm^2/event	0.3	NMED, 2012	
	DABS	Absorption Factor	unitless	Chemical Specific	USEPA, 2004	
	EF	Exposure Frequency	days/year	250	NMED, 2012	
	ED	Exposure Duration	years	1	NMED, 2012	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2004	
	AT-N	Averaging Time (Non-Cancer)	days	365	Based on ED	
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(2)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	0.33	8 hours/24 hours	CA*FI*EF*ED
	EF	Exposure Frequency	days/year	250	NMED, 2012	AT
	ED	Exposure Duration	years	1	NMED, 2012	(3)
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	365	Based on ED	

Notes:

(1) Assumes face, forearms, and hands are exposed (USEPA, 2004). Also, NMED (2012).

(2) Chemical concentration for particulates in air (mg/m^3) = Concentration in soil (mg/kg) x 1/PEF (kg/m^3).

Chemical concentration of volatiles in air (mg/m^3) = Concentration in soil (mg/kg) x 1/VF (kg/m^3).

(3) RAGS-F (USEPA, 2009).

Sources:

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24

USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

NMED, 2012, Risk Assessment Guidance for Investigations and Remediation, Volume 1.

Table 4.5
Values Used for Exposure Calculations - Future Exposures to Groundwater COPCs in Ambient Air in Construction Trench
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Trench Air
Receptor Population:	Construction Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	0.167	4 hours/24 hours (2)	$\frac{CA*FI*EF*ED}{AT}$
	EF	Exposure Frequency	days/year	250	NMED, 2012	
	ED	Exposure Duration	years	1	NMED, 2012	(3)
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	365	Based on ED	

Notes:

(1) Chemical concentration calculated from Construction Trench Model (VDEQ, 2008).

(2) Assumes that worker spends 4 hours per day in the trench.

(3) RAGS-F (USEPA, 2009).

Sources:

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24

VDEQ, 2008: Virginia Department of Environmental Quality Voluntary Remediation Program Risk Assessment Guidance.

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

NMED, 2012, Risk Assessment Guidance for Investigations and Remediation, Volume 1.

Table 4.6
Values Used for Daily Intake Calculations - Future Exposures to Groundwater Assuming Potable Use
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Potable Use (Monitoring Well Data)
Receptor Population:	Residential Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical concentration in groundwater	ug/L	Chemical Specific	--	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-GW	Ingestion Rate of Groundwater	L/day	2	USEPA, 1997	CGW*IR-GW*ED*EF*CF*FI
	CF	Conversion Factor	mg/ug	0.001	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	No other source of drinking water	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (1)	
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (2)	
Dermal	DAevent	Absorbed dose per event	mg/cm^2-event	(3)	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
	SA	Skin Surface Available for Contact	cm^2	18,000	USEPA, 2004	DAevent*ED*EF*SA
	EF	Exposure Frequency	days/year	350	USEPA, 2002	BW*AT
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (1)	
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (2)	

Notes:

(1) For carcinogens, risks for adults and children are averaged over a lifetime of 70 years (USEPA, 2002).

(2) AT for chronic exposures = 30 years x 365 days/year.

(3) Value based on chemical concentration in groundwater and equations presented in USEPA, 2004. Exposure time = 35 minutes (0.58 hrs).

Sources:

USEPA, 1997. Exposure Factor Handbook. EPA/600/P-95/002Fa.

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final

Table 4.7
Values Used for Daily Intake Calculations - Future Exposures to Groundwater Assuming Potable Use
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Potable Use (Monitoring Well Data)
Receptor Population:	Residential Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical concentration in groundwater	ug/L	Chemical Specific	--	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-GW	Ingestion Rate of Groundwater	L/day	1	USEPA, 1997	CGW*IR-GW*ED*EF*CF*FI
	CF	Conversion Factor	mg/ug	0.001	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	No other source of drinking water	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED	Exposure Duration	years	6	USEPA, 2002	
	BW	Body Weight	kg	15	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Noncancer)	days	2,190	Based on ED	
Dermal	DAevent	Absorbed dose per event	mg/cm^2-event	(1)	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
	SA	Skin Surface Available for Contact	cm^2	6,600	USEPA, 2004	DAevent*ED*EF*SA
	EF	Exposure Frequency	days/year	350	USEPA, 2002	BW*AT
	ED	Exposure Duration	years	6	USEPA, 2002	
	BW	Body Weight	kg	15	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Noncancer)	days	2,190	Based on ED	

Notes:

(1) Value based on chemical concentration in groundwater and equations presented in USEPA, 2004. Exposure time = 60 minutes (1 hr).

Sources:

USEPA, 1997. Exposure Factor Handbook. EPA/600/P-95/002Fa.

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final

Table 4.8
Values Used for Exposure Calculations - Future Exposures to Groundwater Assuming Potable Use - Household
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Potable Use - Household (Monitoring Well Data)
Receptor Population:	Residential Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	
	CGW	Chemical Concentration in groundwater	mg/L	Chemical Specific	--	CA = CGW * K
	K	Volatilization Factor	L/m^3	0.0005 x 1000	(1)	
	FI	Fraction of Inhalation	days/days	1.0	24 hours/24 hours	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	Exposure concentration (mg/m^3) =
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (2)	CA*FI*EF*ED
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	(4)
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (3)	

Notes:
(1) Concentration of volatile COPCs in air are estimated using the Shower Model (Andelman, 1990).
(2) For carcinogens, risks for adults and children are averaged over a lifetime of 70 years (USEPA, 2002).
(3) AT for chronic exposures = 30 years x 365 days/year.
(4) RAGS-F (USEPA, 2009).

Sources:

Andelman, J. B., 1990. *Total Exposure to Volatile Organic Chemicals in Potable Water* , N. M. Ram, R. F. Christman, K. O. Cantor (eds.), Lewis Publishers (from USEPA, 1991).
USEPA, 1991. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Mannual (Part B, Development of Risk-Based Preliminary Remediation Goals)
USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.
USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 4.9
Values Used for Exposure Calculations - Future Exposures to Groundwater Assuming Potable Use - Household
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Potable Use - Household (Monitoring Well Data)
Receptor Population:	Residential Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	
	CGW	Chemical Concentration in groundwater	mg/L	Chemical Specific	--	CA = CGW * K
	K	Volatilization Factor	L/m^3	0.0005 x 1000	(1)	
	FI	Fraction of Inhalation	days/days	1.0	24 hours/24 hours	Exposure concentration (mg/m^3) =
	EF	Exposure Frequency	days/year	350	USEPA, 2002	CA*FI*EF*ED
	ED	Exposure Duration	years	6	USEPA, 2002	AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	(3)
	AT-N	Averaging Time (Non-Cancer)	days	2,190	Based on ED (2)	

Notes:

(1) Concentration of volatile COPCs in air are estimated using the Shower Model (Andelman, 1990).

(2) AT for chronic exposures = 6 years x 365 days/year.

(3) RAGS-F (USEPA, 2009).

Sources:

Andelman, J. B., 1990. *Total Exposure to Volatile Organic Chemicals in Potable Water* , N. M. Ram, R. F. Christman, K. O. Cantor (eds.), Lewis Publishers (from USEPA, 1991).

USEPA, 1991. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Mannual (Part B, Development of Risk-Based Preliminary Remediation Goals)

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 4.10
Values Used for Daily Intake Calculations - Current/Future Exposures to Groundwater Assuming Potable Use
BFF, KAFB

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Potable Use (Water Supply Well Data)
Receptor Population:	Residential Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical concentration in groundwater	ug/L	Chemical Specific	--	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-GW	Ingestion Rate of Groundwater	L/day	2	USEPA, 1997	CGW*IR-GW*ED*EF*CF*FI
	CF	Conversion Factor	mg/ug	0.001	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (1)	
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (2)	
Dermal	DAevent	Absorbed dose per event	mg/cm^2-event	(3)	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
	SA	Skin Surface Available for Contact	cm^2	18,000	USEPA, 2004	DAevent*ED*EF*SA
	EF	Exposure Frequency	days/year	350	USEPA, 2002	BW*AT
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (1)	
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (2)	

Notes:

(1) For carcinogens, risks for adults and children are averaged over a lifetime of 70 years (USEPA, 2002).

(2) AT for chronic exposures = 30 years x 365 days/year.

(3) Value based on chemical concentration in groundwater and equations presented in USEPA, 2004. Exposure time = 35 minutes (0.58 hr).

Sources:

USEPA, 1997. Exposure Factor Handbook. EPA/600/P-95/002Fa.

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final

Table 4.11
Values Used for Daily Intake Calculations - Current/Future Exposures to Groundwater Assuming Potable Use
BFF, KAFB

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Potable Use (Water Supply Well Data)
Receptor Population:	Residential Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical concentration in groundwater	ug/L	Chemical Specific	--	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-GW	Ingestion Rate of Groundwater	L/day	1	USEPA, 1997	CGW*IR-GW*ED*EF*CF*FI
	CF	Conversion Factor	mg/ug	0.001	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	
	ED	Exposure Duration	years	6	USEPA, 2002	
	BW	Body Weight	kg	15	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Noncancer)	days	2,190	Based on ED	
Dermal	DAevent	Absorbed dose per event	mg/cm^2-event	(1)	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
	SA	Skin Surface Available for Contact	cm^2	6,600	USEPA, 2004	DAevent*ED*EF*SA
	EF	Exposure Frequency	days/year	350	USEPA, 2002	BW*AT
	ED	Exposure Duration	years	6	USEPA, 2002	
	BW	Body Weight	kg	15	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	
	AT-N	Averaging Time (Noncancer)	days	2,190	Based on ED	

Notes:

(1) Value based on chemical concentration in groundwater and equations presented in USEPA, 2004. Exposure time = 60 minutes (1 hr).

Sources:

USEPA, 1997. Exposure Factor Handbook. EPA/600/P-95/002Fa.

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final

Table 4.12
Values Used for Exposure Calculations - Current/Future Exposures to Groundwater Assuming Potable Use - Household
BFF, KAFB

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Potable Use - Household (Water Supply Well Data)
Receptor Population:	Residential Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	
	CGW	Chemical Concentration in groundwater	mg/L	Chemical Specific	--	CA = CGW * K
	K	Volatilization Factor	L/m^3	0.0005 x 1000	(1)	
	FI	Fraction of Inhalation	days/days	1.0	24 hours/24 hours	
	EF	Exposure Frequency	days/year	350	USEPA, 2002	Exposure concentration (mg/m^3) =
	ED_c	Exposure Duration (Cancer)	years	24	USEPA, 2002 (2)	CA*FI*EF*ED
	ED	Exposure Duration (Noncancer)	years	30	USEPA, 2002	AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	(4)
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (3)	

Notes:
(1) Concentration of volatile COPCs in air are estimated using the Shower Model (Andelman, 1990).
(2) For carcinogens, risks for adults and children are averaged over a lifetime of 70 years (USEPA, 2002).
(3) AT for chronic exposures = 30 years x 365 days/year.
(4) RAGS-F (USEPA, 2009).

Sources:

Andelman, J. B., 1990. *Total Exposure to Volatile Organic Chemicals in Potable Water*, N. M. Ram, R. F. Christman, K. O. Cantor (eds.), Lewis Publishers (from USEPA, 1991).
USEPA, 1991. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Mannual (Part B, Development of Risk-Based Preliminary Remediation Goals)
USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.
USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 4.13
Values Used for Exposure Calculations - Current/Future Exposures to Groundwater Assuming Potable Use - Household
BFF, KAFB

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Potable Use - Household (Water Supply Well Data)
Receptor Population:	Residential Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	
	CGW	Chemical Concentration in groundwater	mg/L	Chemical Specific	--	CA = CGW * K
	K	Volatilization Factor	L/m^3	0.0005 x 1000	(1)	
	FI	Fraction of Inhalation	days/days	1.0	24 hours/24 hours	Exposure concentration (mg/m^3) =
	EF	Exposure Frequency	days/year	350	USEPA, 2002	<u>CA*FI*EF*ED</u>
	ED	Exposure Duration	years	6	USEPA, 2002	AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	(3)
	AT-N	Averaging Time (Non-Cancer)	days	2,190	Based on ED (2)	

Notes:

(1) Concentration of volatile COPCs in air are estimated using the Shower Model (Andelman, 1990).

(2) AT for chronic exposures = 6 years x 365 days/year.

(3) RAGS-F (USEPA, 2009).

Sources:

Andelman, J. B., 1990. *Total Exposure to Volatile Organic Chemicals in Potable Water* , N. M. Ram, R. F. Christman, K. O. Cantor (eds.), Lewis Publishers (from USEPA, 1991).

USEPA, 1991. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Mannual (Part B, Development of Risk-Based Preliminary Remediation Goals)

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 4.14

Values Used for Daily Intake Calculations - Current and Future Exposures to Groundwater Assuming Potable Use in Washroom

BFF, KAFB

Scenario Timeframe:	Current and Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Potable Use in Washroom (Water Supply Well Data)
Receptor Population:	Routine Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical concentration in groundwater	ug/L	Chemical Specific	--	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-GW	Ingestion Rate of Groundwater	L/day	2	USEPA, 1997	CGW*IR-GW*ED*EF*CF*FI
	CF	Conversion Factor	mg/ug	0.001	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	225	USEPA, 2002	
	ED	Exposure Duration	years	25	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002 (1)	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED (2)	
Dermal	DAevent	Absorbed dose per event	mg/cm^2-event	(3)	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
	SA	Skin Surface Available for Contact	cm^2	4,123	USEPA, 1997 (4)	DAevent*ED*EF*SA
	EF	Exposure Frequency	days/year	225	USEPA, 2002	BW*AT
	ED	Exposure Duration	years	25	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002 (1)	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED (2)	

Notes:

(1) For carcinogens, risks for adults are averaged over a lifetime of 70 years (USEPA, 2002).

(2) AT for chronic exposures = 25 years x 365 days/year.

(3) Value based on chemical concentration in groundwater and equations presented in USEPA, 2004. Exposure time = 15 minutes (0.25 hrs).

(4) Value based on face, hands, and arms exposed to groundwater during washing in washroom.

Sources:

USEPA, 1997. Exposure Factor Handbook. EPA/600/P-95/002Fa.

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final

Table 4.15
Values Used for Exposure Calculations - Current and Future Exposures to Groundwater Assuming Potable Use - Washroom
BFF, KAFB

Scenario Timeframe:	Current and Future
Medium:	Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Potable Use - Washroom (Water Supply Well Data)
Receptor Population:	Routine Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	
	CGW	Chemical Concentration in groundwater	mg/L	Chemical Specific	--	CA = CGW * K
	K	Volatilization Factor	L/m^3	0.0005 x 1000	(1)	
	FI	Fraction of Inhalation	days/days	0.33	8 hours/24 hours	Exposure concentration (mg/m^3) =
	EF	Exposure Frequency	days/year	225	USEPA, 2002	CA*FI*EF*ED
	ED	Exposure Duration	years	25	USEPA, 2002 (2)	AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	(4)
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED (3)	

Notes:
(1) Concentration of volatile COPCs in air are estimated using a volatilization factor for potable use (Andelman, 1990).
(2) For carcinogens, risks for adults are averaged over a lifetime of 70 years (USEPA, 2002).
(3) AT for chronic exposures = 25 years x 365 days/year.
(4) RAGS-F (USEPA, 2009).

Sources:

Andelman, J. B., 1990. *Total Exposure to Volatile Organic Chemicals in Potable Water* , N. M. Ram, R. F. Christman, K. O. Cantor (eds.), Lewis Publishers (from USEPA, 1991).
USEPA, 1991. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Mannual (Part B, Development of Risk-Based Preliminary Remediation Goals)
USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.
USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 4.16
Values Used for Exposure Calculations - Current Exposures to COPCs in Indoor Air from Soil Gas
BFF, KAFB

Scenario Timeframe:	Current
Medium:	Soil and/or Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Indoor Air
Receptor Population:	Routine Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	0.33	8 hours/24 hours (2)	$\frac{CA*FI*EF*ED}{AT}$
	EF	Exposure Frequency	days/year	52	(3)	
	ED	Exposure Duration	years	10	(3)	(4)
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002a	
	AT-N	Averaging Time (Non-Cancer)	days	3,650	Based on ED	

Notes:

(1) Chemical concentrations based on shallowest vapor probe samples within 100 ft of Bldg. 1033, USEPA guidance (USEPA, 2002b), and use of Johnson and Ettinger Vapor Intrusion Model.

(2) Fraction inhaled is based on an 8-hour workday (8/24 = 0.33).

(3) Bldg. 1033 is infrequently used; assumed usage is once a week over a 10 year period.

(4) RAGS-F (USEPA, 2009).

Sources:

USEPA, 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24

USEPA, 2002b: OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, EPA530-D-02-004.

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 4.17
Values Used for Exposure Calculations - Future Exposure to COPCs in Indoor Air from Soil Gas
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Soil and/or Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Indoor Air
Receptor Population:	Residential Child

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	1.00	24 hours/24 hours	CA*FI*EF*ED
	EF	Exposure Frequency	days/year	350	USEPA, 2002a (2)	AT
	ED	Exposure Duration	years	6	USEPA, 2002a	(4)
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002a	
	AT-N	Averaging Time (Non-Cancer)	days	2,190	Based on ED (3)	

Notes:
(1) Chemical concentrations based on vapor probe samples, USEPA guidance (USEPA, 2002b), and use of Johnson and Ettinger Vapor Intrusion Model.
(2) For carcinogens, risks for adults and children are averaged over a lifetime of 70 years (USEPA, 2002a).
(3) AT for chronic exposures = 6 years x 365 days/year.
(4) RAGS-F (USEPA, 2009).

Sources:
USEPA, 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.
USEPA, 2002b. OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway for Groundwater and Soils. EPA530-D-02-004.
USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment)

Table 4.18
Values Used for Exposure Calculations - Future Exposure to COPCs in Indoor Air from Soil Gas
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Soil and/or Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Indoor Air
Receptor Population:	Residential Adult

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	1.00	24 hours/24 hours	$\frac{CA*FI*EF*ED}{AT}$
	EF	Exposure Frequency	days/year	350	USEPA, 2002a	
	ED_c	Exposure Duration	years	24	USEPA, 2002a (2)	(4)
	ED	Exposure Duration	years	30	USEPA, 2002a	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002a	
	AT-N	Averaging Time (Non-Cancer)	days	10,950	Based on ED (3)	

Notes:

(1) Chemical concentrations to be based on vapor probe samples and USEPA guidance (USEPA, 2002b).

(2) For carcinogens, risks for adults and children are averaged over a lifetime of 70 years (USEPA, 2002a).

(3) AT for chronic exposures = 30 years x 365 days/year.

(4) RAGS-F (USEPA, 2009).

Sources:

USEPA, 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b. OSWER Draft Guidance for Evaluating the Vapor Intrusion to indoor Air Pathway from Groundwater and Soils. EPA530-D-02-004.

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment)

Table 4.19
Values Used for Exposure Calculations - Future Exposures to COPCs in Indoor Air from Soil Gas
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Soil and/or Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Indoor Air
Receptor Population:	Routine Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	Exposure concentration (mg/m^3) =
	FI	Fraction Inhaled	unitless	0.33	8 hours/24 hours (2)	CA*FI*EF*ED
	EF	Exposure Frequency	days/year	225	NMED, 2012	AT
	ED	Exposure Duration	years	25	USEPA, 2002a	(3)
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002a	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED	

Notes:

(1) Chemical concentrations based on vapor probe samples, USEPA guidance (USEPA, 2002b), and use of Johnson and Ettinger Vapor Intrusion Model.

(2) Fraction inhaled is based on an 8-hour workday (8/24 = 0.33).

(3) RAGS-F (USEPA, 2009).

Sources:

USEPA, 2002a. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24

USEPA, 2002b: OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils, EPA530-D-02-004.

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 4.20
Values Used for Daily Intake Calculations - Future Exposures to Groundwater Assuming Potable Use in Washroom
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Potable Use in Washroom (Monitoring Well Data)
Receptor Population:	Routine Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CGW	Chemical concentration in groundwater	ug/L	Chemical Specific	--	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-GW	Ingestion Rate of Groundwater	L/day	2	USEPA, 1997	CGW*IR-GW*ED*EF*CF*FI
	CF	Conversion Factor	mg/ug	0.001	--	BW*AT
	FI	Fraction Ingested	unitless	1.00	--	
	EF	Exposure Frequency	days/year	225	USEPA, 2002	
	ED	Exposure Duration	years	25	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002 (1)	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED (2)	
Dermal	DAevent	Absorbed dose per event	mg/cm^2-event	(3)	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
	SA	Skin Surface Available for Contact	cm^2	4,123	USEPA, 1997 (4)	DAevent*ED*EF*SA
	EF	Exposure Frequency	days/year	225	USEPA, 2002	BW*AT
	ED	Exposure Duration	years	25	USEPA, 2002	
	BW	Body Weight	kg	70	USEPA, 2002	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002 (1)	
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED (2)	

Notes:

(1) For carcinogens, risks for adults are averaged over a lifetime of 70 years (USEPA, 2002).

(2) AT for chronic exposures = 30 years x 365 days/year.

(3) Value based on chemical concentration in groundwater and equations presented in USEPA, 2004. Exposure time = 15 minutes (0.25 hrs).

(4) Value based on face, hands, and arms exposed to groundwater during washing in washroom.

Sources:

USEPA, 1997. Exposure Factor Handbook. EPA/600/P-95/002Fa.

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part E, Supplemental Guidance for Dermal Risk Assessment). Final

Table 4.21
Values Used for Exposure Calculations - Future Exposures to Groundwater Assuming Potable Use - Washroom
BFF, KAFB

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Air (volatiles)
Exposure Point:	Potable Use - Washroom (Monitoring Well Data)
Receptor Population:	Routine Worker

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	Intake Equation/ Model Name
Inhalation	CA	Chemical Concentration in Air	mg/m^3	Chemical Specific	(1)	
	CGW	Chemical Concentration in groundwater	mg/L	Chemical Specific	--	CA = CGW * K
	K	Volatilization Factor	L/m^3	0.0005 x 1000	(1)	
	FI	Fraction of Inhalation	days/days	0.33	8 hours/24 hours	Exposure concentration (mg/m^3) =
	EF	Exposure Frequency	days/year	225	USEPA, 2002	CA*FI*EF*ED
	ED	Exposure Duration	years	25	USEPA, 2002 (2)	AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA, 2002	(4)
	AT-N	Averaging Time (Non-Cancer)	days	9,125	Based on ED (3)	

Notes:

(1) Concentration of volatile COPCs in air are estimated using a volatilization factor for potable use (Andelman, 1990).

(2) For carcinogens, risks for adults are averaged over a lifetime of 70 years (USEPA, 2002).

(3) AT for chronic exposures = 30 years x 365 days/year.

(4) RAGS-F (USEPA, 2009).

Sources:

Andelman, J. B., 1990. *Total Exposure to Volatile Organic Chemicals in Potable Water* , N. M. Ram, R. F. Christman, K. O. Cantor (eds.), Lewis Publishers (from USEPA, 1991).

USEPA, 1991. Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Mannual (Part B, Development of Risk-Based Preliminary Remediation Goals)

USEPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2009. Risk Assessment Guidance for Superfund. Volume I: Human Health Evaluation Manual, (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final

Table 5.1
Non-Cancer Toxicity Data - Oral/Dermal
Bulk Fuel Facility, Kirtland Air Force Base

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dermal Efficiency for Dermal (1)	Absorbed RfD for Dermal (2) Value	Absorbed RfD for Dermal (2) Units	Primary Target Organ(s)	Combined Uncertainty/ Modifying Factors	RfD:Target Organ(s) Source(s)	RfD:Target Organ(s) Dates of RfD (3): (MM/DD/YY)
Organics										
Acetone	Chronic	9.E-01	mg/kg-day	100%	9.0E-01	mg/kg-day	Kidney	1,000	IRIS	1/10/14:7/31/03
Acetophenone	Chronic	1.0.E-01	mg/kg-day	100%	1.0E-01	mg/kg-day	NOAEL	3,000	IRIS	1/10/14:1/1/89
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Benzo(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Benzene	Chronic	4.0E-03	mg/kg-day	100%	4.0E-03	mg/kg-day	Blood	300	IRIS	1/10/14:4/17/03
Bromodicholormethane	Chronic	2.0E-02	mg/kg-day	100%	2.0E-02	mg/kg-day	Kidney	1,000	IRIS	1/10/14:3/1/91
1,3-Butadiene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
2-Butanone	Chronic	6.0E-01	mg/kg-day	100%	6.0E-01	mg/kg-day	Decreased Weight	1,000	IRIS	1/10/14:9/26/03
Carbazole	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Disulfide	Chronic	1.0E-01	mg/kg-day	100%	1.0E-01	mg/kg-day	Fetal toxicity	100	IRIS	1/10/14:9/1/90
Carbon Tetrachloride	Chronic	4.0E-03	mg/kg-day	100%	4.0E-03	mg/kg-day	Liver	1,000	IRIS	1/10/14:3/31/10
Chloroform	Chronic	1.0E-02	mg/kg-day	100%	1.0E-02	mg/kg-day	Liver	1,000	IRIS	1/10/14:10/19/01
Cyclohexane	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	3/4/14:9/11/03
Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Dibromochloromethane	Chronic	2.0E-02	mg/kg-day	100%	2.0E-02	mg/kg-day	Liver	1,000	IRIS	1/10/14:3/1/91
1,2-Dibromoethane	Chronic	9.0E-03	mg/kg-day	100%	9.0E-03	mg/kg-day	Reproductive, Liver, Endocrine System	3,000	IRIS	1/10/14:07/29/04
1,2-Dichloroethane	Chronic	6.0E-03	mg/kg-day	100%	6.0E-03	mg/kg-day	Kidney	10,000	PPRTV Appendix	1/10/14:10/1/10
Ethylbenzene	Chronic	1.0E-01	mg/kg-day	100%	1.0E-01	mg/kg-day	Liver, Kidney	1,000	IRIS	1/10/14:06/01/91
n-Hexane	Chronic	6.0E-02	mg/kg-day	100%	6.0E-02	mg/kg-day	Reproductive System, Nervous System	10,000	HEAST	1997
2-Hexanone	Chronic	5.0E-03	mg/kg-day	100%	5.0E-03	mg/kg-day	Peripheral Nervous System	1,000	IRIS	1/10/14:9/25/09
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isopropylbenzene (Cumene)	Chronic	1.0E-01	mg/kg-day	100%	1.0E-01	mg/kg-day	Kidney	1,000	IRIS	1/10/14:8/1/97
p-Isopropyltoluene (p-cymene)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Chloride	Chronic	6.0E-03	mg/kg-day	100%	6.0E-03	mg/kg-day	Liver	30	IRIS	1/10/14:11/18/11
2-Methylphenol	Chronic	5.0E-02	mg/kg-day	100%	5.0E-02	mg/kg-day	Decreased Body weight, Neurotoxicity	1,000	IRIS	1/10/14:9/1/90
3&4-Methyphenol (4)	Chronic	5.0E-02	mg/kg-day	100%	5.0E-02	mg/kg-day	Decreased Body weight, Neurotoxicity	1,000	IRIS	1/10/14:9/1/90
1-Methylnaphthalene	Chronic	7.0E-02	mg/kg-day	100%	7.0E-02	mg/kg-day	Lungs	1,000	ATSDR; EPA, 2013	1/10/14
2-Methylnaphthalene	Chronic	4.0E-03	mg/kg-day	100%	4.0E-03	mg/kg-day	Lungs	1,000	IRIS	1/10/14: 12/22/03
4-Methyl-2-pentanone	Chronic	8.0E-02	mg/kg-day	100%	8.0E-02	mg/kg-day	Whole Body, Liver, Kidney	3,000	HEAST	1997
Naphthalene	Chronic	2.0E-02	mg/kg-day	100%	2.0E-02	mg/kg-day	Whole Body (decreased weight)	3,000	IRIS	1/10/14: 9/17/98
n-Propyl benzene	Chronic	1.0E-01	mg/kg-day	100%	1.0E-01	mg/kg-day	Liver, Kidney	1,000	PPRTV Appendix	1/10/14:2/4/09
1,1,2,2-Tetrachloroethane	Chronic	2.0E-02	mg/kg-day	100%	2.0E-02	mg/kg-day	Liver	1,000	IRIS	1/10/14:9/30/10
Toluene	Chronic	8.0E-02	mg/kg-day	100%	8.0E-02	mg/kg-day	Kidney	3,000	IRIS	1/10/14:9/23/05
1,2,4-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	Chronic	1.0E-02	mg/kg-day	100%	1.0E-02	mg/kg-day	NOAEL	10,000	PPRTV Appendix	1/10/14:4/22/09
m,p-Xylene	Chronic	2.0E-01	mg/kg-day	100%	2.0E-01	mg/kg-day	Decreased body weight, mortality	1,000	IRIS	1/10/14:02/21/03
o-Xylene	Chronic	2.0E-01	mg/kg-day	100%	2.0E-01	mg/kg-day	Decreased body weight, mortality	1,000	IRIS	1/10/14:02/21/03
Xylene, Total	Chronic	2.0E-01	mg/kg-day	100%	2.0E-01	mg/kg-day	Decreased body weight, mortality	1,000	IRIS	1/10/14:02/21/03
Diesel Range Organics (DRO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gasoline Range Organics (GRO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Inorganics										
Iron	Chronic	7.0E-01	mg/kg-day	100%	7.0E-01	mg/kg-day	GI tract	1.5	PPRTV	1/10/14:9/11/06
Manganese	Chronic	2.4E-02	mg/kg-day	4%	9.6E-04	mg/kg-day	CNS	1	IRIS	1/10/14:05/01/96
Sodium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 5.1
Non-Cancer Toxicity Data - Oral/Dermal
Bulk Fuel Facility, Kirtland Air Force Base

(1) Source: Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. Section 4.2 and Exhibit 4-1.
(2) The equation used to derive the adjusted dermal RfD is presented in the text.
(3) For IRIS values, the date IRIS was searched and the date of the most recent review are provided.
(4) Value for 3-Methylphenol was used.

Definitions:
N/A = Not Available
ATSDR = Agency for Toxic Substances Disease Registry
CNS = Central Nervous System
GI = Gastrointestinal
IRIS = Integrated Risk Information System
NOAEL = No Observable Adverse Effect Level
PPRTV = Provisional Peer-Reviewed Toxicity Values
EPA, 2013 = USEPA Regional Screening Values, November 2013

Table 5.2
Non-Cancer Toxicity Data - Inhalation
Bulk Fuel Facility, Kirtland Air Force Base

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Primary Target Organ (s)	Combined Uncertainty/ Modifying Factors	RfC:Target Organ(s)	
		Value	Units			Source(s) (2)	Dates of RfD: (MM/DD/YY)
Organics							
Acetone	Chronic	3.1E+01	mg/m^3	Nervous System	100	ATSDR; EPA, 2013	1/10/14
Acetophenone	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Benzo(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Benzene	Chronic	3.0E-02	mg/m^3	Blood	300	IRIS	1/10/14:4/17/03
Bromodicholormethane	Chronic	N/A	N/A	N/A	N/A	N/A	1/10/14
1,3-Butadiene	Chronic	2.0E-03	mg/m^3	Reproductive	1,000	IRIS	1/10/14:11/05/02
2-Butanone	Chronic	5.0E+00	mg/m^3	Developmental toxicity	300	IRIS	1/10/14:9/26/03
Carbazole	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Disulfide	Chronic	7.0E-01	mg/m^3	Peripheral Nervous System	30	IRIS	1/10/14:8/1/95
Carbon Tetrachloride	Chronic	1.0E-01	mg/m^3	Liver	100	IRIS	1/10/14:3/31/10
Chloroform	Chronic	9.8E-02	mg/m^3	Liver	100	ATSDR; EPA, 2013	1/10/14
Cyclohexane	Chronic	6.0E+00	mg/m^3	Decreased body weight	300	IRIS	11/17/08:9/11/03
Dibenz(a,h)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	1/10/14
Dibromochloromethane	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dibromoethane	Chronic	9.0E-03	mg/m^3	Nasal Effects	300	IRIS	1/10/14:07/29/04
1,2-Dichloroethane	Chronic	7.0E-03	mg/m^3	CNS	3,000	PPRTV; EPA, 2013	1/10/14:10/1/10
Ethylbenzene	Chronic	1.0E+00	mg/m^3	Developmental Toxicity	300	IRIS	1/10/14:3/01/91
n-Hexane	Chronic	7.0E-01	mg/m^3	Peripheral Nervous System	300	IRIS	1/10/14:12/23/05
2-Hexanone	Chronic	3.0E-02	mg/m^3	CNS	3,000	IRIS	1/10/14:9/25/09
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isopropylbenzene (Cumene)	Chronic	4.0E-01	mg/m^3	Kidney	1,000	IRIS	1/10/14:8/1/97
p-Isopropyltoluene (p-cymene)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Chloride	Chronic	6.0E-01	mg/m^3	Liver	30	IRIS	1/10/14:11/18/11
2-Methylphenol	Chronic	6.0E-01	mg/m^3	CNS	N/A	CalEPA; EPA 2013	1/10/14
3&4-Methyphenol	Chronic	6.0E-01	mg/m^3	CNS	N/A	CalEPA; EPA 2013	1/10/14
1-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4-Methyl-2-pentanone	Chronic	3.0E+00	mg/m^3	Body Weight, Skeletal System	300	IRIS	1/10/14:4/25/03
Naphthalene	Chronic	3.0E-03	mg/m^3	Respiratory tract, Nasal Effects	3,000	IRIS	1/10/14:9/17/98
n-Propyl benzene	Chronic	1.0E+00	mg/m^3	Developmental Toxicity	300	PPRTV Appendix	1/10/14:2/4/09
1,1,2,2-Tetrachloroethane	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toluene	Chronic	5.0E+00	mg/m^3	CNS	10	IRIS	1/10/14:9/23/05
1,2,4-Trimethylbenzene	Chronic	7.0E-03	mg/m^3	Blood	3,000	PPRTV; EPA, 2013	1/10/14:6/11/07
1,3,5-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
m,p-Xylene	Chronic	1.0E-01	mg/m^3	CNS	300	IRIS	1/10/14:02/21/03
o-Xylene	Chronic	1.0E-01	mg/m^3	CNS	300	IRIS	1/10/14:02/21/03
Xylene, Total	Chronic	1.0E-01	mg/m^3	CNS	300	IRIS	1/10/14:02/21/03
Diesel Range Organics (DRO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gasoline Range Organics (GRO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 5.2
Non-Cancer Toxicity Data - Inhalation
Bulk Fuel Facility, Kirtland Air Force Base

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Primary Target Organ (s)	Combined Uncertainty/ Modifying Factors	RfC:Target Organ(s)	
		Value	Units			Source(s) (2)	Dates of RfD: (MM/DD/YY)
Inorganics							
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	Chronic	5.0E-05	mg/m^3	CNS	1,000	IRIS	1/10/14:12/1/93
Sodium	N/A	N/A	N/A	N/A	N/A	N/A	N/A

(1) The adjusted inhalation RfD was derived from the RfC value assuming a 70 kg adult inhales 20 m^3/day as follows: RfD = RfC * (20 m^3/day / 70 kg).
(2) For NCEA values, the date of the article provided by NCEA is provided. For IRIS values, the date IRIS was searched and the date of the most recent review are provided.

Definitions:
N/A = Not Available
ATSDR = Agency for Toxic Substances Disease Registry
IRIS = Integrated Risk Information System
PPRTV = Provisional Peer-Reviewed Toxicity Values
EPA, 2013 - USEPA Regional Screening Valules, November 2013
CNS = Central Nervous System

Table 6.1
Cancer Toxicity Data - Oral/Dermal
Bulk Fuel Facility, Kirtland Air Force Base

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source	Date (3) (MM/DD/YY)
Organics								
Acetone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	01/10/14
Acetophenone	N/A	N/A	N/A	N/A	N/A	D	IRIS	1/10/14:2/1/91
Benzo(a)pyrene	7.3E+00	$(mg/kg\text{-}day)^{-1}$	100%	7.3E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	1/10/14:11/01/94
Benzo(a)anthracene	7.3E-01	$(mg/kg\text{-}day)^{-1}$	100%	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	EPA, 2013; NCEA	1/10/14:3/1/94
Benzo(b)fluoranthene	7.3E-01	$(mg/kg\text{-}day)^{-1}$	100%	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	EPA, 2013; NCEA	1/10/14:3/1/94
Benzene	5.5E-02	$(mg/kg\text{-}day)^{-1}$	100%	5.5E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	1/10/14:1/19/00
Bromodichloromethane	6.2E-02	$(mg/kg\text{-}day)^{-1}$	100%	6.2E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	1/10/14:3/1/93
1,3-Butadiene	3.4E+00	$(mg/kg\text{-}day)^{-1}$	100%	3.4E+00	$(mg/kg\text{-}day)^{-1}$	Carcinogenic	CalEPA; EPA 2013	1/10/14
2-Butanone	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:9/26/03
Carbazole	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Disulfide	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	7.0E-02	$(mg/kg\text{-}day)^{-1}$	100%	7.0E-02	$(mg/kg\text{-}day)^{-1}$	Likely	IRIS	1/10/14:3/31/10
Chloroform	3.1E-02	$(mg/kg\text{-}day)^{-1}$	100%	3.1E-02	$(mg/kg\text{-}day)^{-1}$	Likely	CalEPA; EPA, 2013	1/10/14:10/19/01
Cyclohexane	N/A	N/A	N/A	N/A	N/A	Inadequate Data	EPA, 2013	3/4/14:9/11/03
Dibenz(a,h) anthracene	7.3E+00	$(mg/kg\text{-}day)^{-1}$	100%	7.3E+00	$(mg/kg\text{-}day)^{-1}$	B2	EPA, 2013; NCEA	1/10/14: 3/1/94
Dibromochloromethane	8.4E-02	$(mg/kg\text{-}day)^{-1}$	100%	8.4E-02	$(mg/kg\text{-}day)^{-1}$	C	IRIS	1/10/14:1/1/92
1,2-Dibromoethane	2.0E+00	$(mg/kg\text{-}day)^{-1}$	100%	2.0E+00	$(mg/kg\text{-}day)^{-1}$	Likely	IRIS	1/10/14:07/29/04
1,2-Dichloroethane	9.1E-02	$(mg/kg\text{-}day)^{-1}$	100%	9.1E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	1/10/14:1/1/91
Ethylbenzene	1.1E-02	$(mg/kg\text{-}day)^{-1}$	100%	1.1E-02	$(mg/kg\text{-}day)^{-1}$	D	CalEPA; EPA, 2013	1/10/14
n-Hexane	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:12/23/05
2-Hexanone	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:9/25/09
Indeno(1,2,3-cd)pyrene	7.3E-01	$(mg/kg\text{-}day)^{-1}$	100%	7.3E-01	$(mg/kg\text{-}day)^{-1}$	B2	EPA, 2013; NCEA	1/10/14
Isopropylbenzene (Cumene)	N/A	N/A	N/A	N/A	N/A	D	IRIS	1/10/14:8/1/97
p-Isopropyltoluene (p-cymene)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Chloride	2.0E-03	$(mg/kg\text{-}day)^{-1}$	100%	2.0E-03	$(mg/kg\text{-}day)^{-1}$	Likely	IRIS	1/10/14:11/18/11
2-Methylphenol	N/A	N/A	N/A	N/A	N/A	C	IRIS	1/10/14:8/1/91
3&4-Methylphenol	N/A	N/A	N/A	N/A	N/A	C	IRIS	1/10/14:8/1/91
1-Methylnaphthalene	2.9E-02	$(mg/kg\text{-}day)^{-1}$	100%	2.9E-02	$(mg/kg\text{-}day)^{-1}$	Inadequate Data	PPRTV	1/10/14:1/10/08
2-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:12/22/03
4-Methyl-2-pentanone	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:4/25/03
Naphthalene	N/A	N/A	N/A	N/A	N/A	C	IRIS	1/10/14:9/17/98
n-Propyl benzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	2.0E-01	$(mg/kg\text{-}day)^{-1}$	100%	2.0E-01	$(mg/kg\text{-}day)^{-1}$	Likely	IRIS	1/10/14:9/30/10
Toluene	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:9/23/05
1,2,4-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
m,p-Xylene	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:2/21/03
o-xylene	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:2/21/03
Xylene, total	N/A	N/A	N/A	N/A	N/A	Inadequate Data	IRIS	1/10/14:2/21/03
Diesel Range Organics (DRO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gasoline Range Organics (GRO)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Inorganics								
Iron	N/A	N/A	N/A	N/A	N/A	Inadequate Data	PPRTV	1/10/14
Manganese	N/A	N/A	N/A	N/A	N/A	D	IRIS	1/10/14:12/1/96
Sodium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6.1
Cancer Toxicity Data - Oral/Dermal
Bulk Fuel Facility, Kirtland Air Force Base

(1) Source: Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. Section 4.2 and Exhibit 4-1.

(2) The equation for deriving the adjusted dermal cancer slope factors are presented in the text.

(3) For IRIS values, the date IRIS was searched and the date of the most recent review are provided.

Definitions:
N/A = Not Available
IRIS = Integrated Risk Information System
EPA, 2013 = USEPA Regional Screening Values, November 2013

PPRTV = Provisional Peer Reviewed Toxicity Data from USEPA RSL-UG (with date of latest published data in parentheses and date of website search in the date column).

EPA Group:
- A - Human carcinogen
- B1 - Probable human carcinogen - indicates that limited human data are available
- B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
- C - Possible human carcinogen
- D - Not classifiable as a human carcinogen
- E - Evidence of noncarcinogenicity

Table 6.2
Cancer Toxicity Data - Inhalation
Bulk Fuel Facility, Kirtland Air Force Base

Chemical of Potential Concern	Unit Risk		Weight of Evidence/ Cancer Guideline Description	Unit Risk: Inhalation CSF	
	Value	Units		Source	Date (1) (MM/DD/YY)
Organics					
Acetone	N/A	N/A	N/A	N/A	N/A
Acetophenone	N/A	N/A	D	IRIS	1/10/14:2/1/91
Benzo(a)pyrene	1.10E-03	$(ug/m^3)^{-1}$	B2	CalEPA; EPA, 2013	1/10/14
Benzo(a)anthracene	1.10E-04	$(ug/m^3)^{-1}$	B2	CalEPA; EPA, 2013	1/10/14
Benzo(b)fluoranthene	1.10E-04	$(ug/m^3)^{-1}$	B2	CalEPA; EPA, 2013	1/10/14
Benzene	7.8E-06	$(ug/m^3)^{-1}$	A	IRIS	1/10/14:1/19/00
Bromodicholormethane	3.7E-05	$(ug/m^3)^{-1}$	B2	CalEPA; EPA, 2013	1/10/14
1,3-Butadiene	3.0E-05	$(ug/m^3)^{-1}$	Carcinogenic	IRIS	1/10/14:11/05/02
2-Butanone	N/A	N/A	Inadequate Data	IRIS	1/10/14:9/26/03
Carbazole	N/A	N/A	N/A	N/A	N/A
Carbon Disulfide	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	6.0E-06	$(ug/m^3)^{-1}$	Likely	IRIS	1/10/14:3/31/10
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	Likely	IRIS	1/10/14:10/19/01
Cyclohexane	N/A	N/A	Inadequate Data	EPA, 2013	3/4/14:9/11/03
Dibenz(a,h)anthracene	1.2E-03	$(ug/m^3)^{-1}$	B2	CalEPA; EPA, 2013	1/10/14: 3/1/94
Dibromochloromethane	2.7E-05	$(ug/m^3)^{-1}$	C	CalEPA; EPA, 2013	1/10/14
1,2-Dibromoethane	6.0E-04	$(ug/m^3)^{-1}$	Likely	IRIS	1/10/14:07/29/04
1,2-Dichloroethane	2.6E-05	$(ug/m^3)^{-1}$	B2	IRIS	1/10/14:1/1/91
Ethylbenzene	2.5E-06	$(ug/m^3)^{-1}$	D	CalEPA; EPA, 2013	1/10/14
n-Hexane	N/A	N/A	Inadequate Data	IRIS	1/10/14:12/23/05
2-Hexanone	N/A	N/A	Inadequate Data	IRIS	1/10/14:9/25/09
Indeno(1,2,3-cd)pyrene	1.1E-04	$(ug/m^3)^{-1}$	B2	CalEPA; EPA, 2013	1/10/14
Isopropylbenzene (Cumene)	N/A	N/A	D	N/A	1/10/14:8/1/97
p-Isopropyltoluene (p-cymene)	N/A	N/A	N/A	N/A	N/A
Methylene Chloride	1.0E-08	$(ug/m^3)^{-1}$	Likely	IRIS	1/10/14:11/18/11
2-Methylphenol	N/A	N/A	C	IRIS	1/10/14:8/1/91
3&4-Methyphenol	N/A	N/A	C	IRIS	1/10/14:8/1/91
1-Methylnaphthalene	N/A	N/A	N/A	N/A	N/A
2-Methylnaphthalene	N/A	N/A	Inadequate Data	IRIS	1/10/14:12/22/03
4-Methyl-2-pentanone	N/A	N/A	Inadequate Data	IRIS	1/10/14:4/25/03
Naphthalene	3.4E-05	$(ug/m^3)^{-1}$	C	CalEPA; EPA, 2013	1/10/14
n-Propyl benzene	N/A	N/A	N/A	N/A	N/A
1,1,2,2-Tetrachloroethane	5.8E-05	$(ug/m^3)^{-1}$	Likely	CalEPA, EPA, 2013	1/10/14
Toluene	N/A	N/A	Inadequate Data	IRIS	1/10/14:9/23/05
1,2,4-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A
1,3,5-Trimethylbenzene	N/A	N/A	N/A	N/A	N/A
m,p-Xylene	N/A	N/A	Inadequate Data	IRIS	1/10/14:2/21/03
o-Xylene	N/A	N/A	Inadequate Data	IRIS	1/10/14:2/21/03
Xylene, Total	N/A	N/A	Inadequate Data	IRIS	1/10/14:2/21/03
Diesel Range Organics (DRO)	N/A	N/A	N/A	N/A	N/A
Gasoline Range Organics (GRO)	N/A	N/A	N/A	N/A	N/A

Table 6.2
Cancer Toxicity Data - Inhalation
Bulk Fuel Facility, Kirtland Air Force Base

Chemical of Potential Concern	Unit Risk		Weight of Evidence/ Cancer Guideline Description	Unit Risk: Inhalation CSF	
	Value	Units		Source	Date (1) (MM/DD/YY)
Inorganics					
Iron	N/A	N/A	N/A	N/A	N/A
Manganese	N/A	N/A	D	IRIS	1/10/14:12/1/96
Sodium	N/A	N/A	N/A	N/A	N/A

(1) For IRIS values, the date IRIS was searched and the date of the most recent review are provided.

EPA Group:
A - Human carcinogen
B1 - Probable human carcinogen - indicates that limited human data are available
B2 - Probable human carcinogen - indicates sufficient evidence in animals and inadequate or no evidence in humans
C - Possible human carcinogen
D - Not classifiable as a human carcinogen
E - Evidence of noncarcinogenicity

Definitions:
N/A = Not Available
Cal EPA = California Environmental Protection Agency
IRIS = Integrated Risk Information System
PPRTV = Provisional Peer-Reviewed Toxicity Values
EPA, 2013 = USEPA Regional Screening Values, November 2013

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0001-R	SS	0	1	CB&I Data	
FFOR0007	SS	0	1	CB&I Data	
FFOR0012-R	SS	0	1	CB&I Data	
FFOR0018	SS	0	1	CB&I Data	
FFOR0023	SS	0	1	CB&I Data	
FFOR0029-R	SS	0	1	CB&I Data	
FFOR0034-R	SS	0	1	CB&I Data	
FFOR0040	SS	0	1	CB&I Data	
FFOR0045	SS	0	1	CB&I Data	
FFOR0051-R	SS	0	1	CB&I Data	
FFOR0052-R	SS	0	1	CB&I Data	Yes
FFOR0057	SS	0	1	CB&I Data	
FFOR0063	SS	0	1	CB&I Data	
FFOR0068	SS	0	1	CB&I Data	
FFOR0074	SS	0	1	CB&I Data	
FFOR0079	SS	0	1	CB&I Data	
FFOR0085	SS	0	1	CB&I Data	
FFOR0090	SS	0	1	CB&I Data	
FFOR0096	SS	0	1	CB&I Data	
FFOR0101	SS	0	1	CB&I Data	
FFOR0107	SS	0	1	CB&I Data	
FFOR0108	SS	0	1	CB&I Data	Yes
FFOR0113	SS	0	1	CB&I Data	
FFOR0119	SS	0	1	CB&I Data	
FFOR0124	SS	0	1	CB&I Data	
FFOR0130	SS	0	1	CB&I Data	
FFOR0135	SS	0	1	CB&I Data	
FFOR0141	SS	0	1	CB&I Data	
FFOR0146	SS	0	1	CB&I Data	
FFOR0152	SS	0	1	CB&I Data	
FFOR0157	SS	0	1	CB&I Data	
FFOR0163	SS	0	1	CB&I Data	
FFOR0164	SS	0	1	CB&I Data	Yes
FFOR0169	SS	0	1	CB&I Data	
FFOR0175	SS	0	1	CB&I Data	
FFOR0180	SS	0	1	CB&I Data	
FFOR0186	SS	0	1	CB&I Data	
FFOR0191	SS	0	1	CB&I Data	
FFOR0197	SS	0	1	CB&I Data	
FFOR0202	SS	0	1	CB&I Data	
FFOR0208	SS	0	1	CB&I Data	
FFOR0213	SS	0	1	CB&I Data	
FFOR0219	SS	0	1	CB&I Data	
FFOR0220	SS	0	1	CB&I Data	Yes
FFOR0225	SS	0	1	CB&I Data	
FFOR0231	SS	0	1	CB&I Data	
FFOR0236	SS	0	1	CB&I Data	
FFOR0242	SS	0	1	CB&I Data	
FFOR0247	SS	0	1	CB&I Data	
FFOR0253	SS	0	1	CB&I Data	
FFOR0258	SS	0	1	CB&I Data	
FFOR0264	SS	0	1	CB&I Data	
FFOR0269	SS	0	1	CB&I Data	

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0275	SS	0	1	CB&I Data	
FFOR0276	SS	0	1	CB&I Data	Yes
FFOR0281	SS	0	1	CB&I Data	
FFOR0287	SS	0	1	CB&I Data	
FFOR0292	SS	0	1	CB&I Data	
FFOR0298	SS	0	1	CB&I Data	
FFOR0303	SS	0	1	CB&I Data	
FFOR0309	SS	0	1	CB&I Data	
FFOR0314	SS	0	1	CB&I Data	
FFOR0320	SS	0	1	CB&I Data	
FFOR0325	SS	0	1	CB&I Data	
FFOR0331	SS	0	1	CB&I Data	
FFOR0332	SS	0	1	CB&I Data	Yes
FFOR0337	SS	0	1	CB&I Data	
FFOR0343	SS	0	1	CB&I Data	
FFOR0348	SS	0	1	CB&I Data	
FFOR0354	SS	0	1	CB&I Data	
FFOR0359	SS	0	1	CB&I Data	
FFOR0365	SS	0	1	CB&I Data	
FFOR0370	SS	0	1	CB&I Data	
FFOR0376	SS	0	1	CB&I Data	
FFOR0381	SS	0	1	CB&I Data	
FFOR0387	SS	0	1	CB&I Data	
FFOR0388	SS	0	1	CB&I Data	Yes
FFOR0393	SS	0	1	CB&I Data	
FFOR0399	SS	0	1	CB&I Data	
FFOR0404	SS	0	1	CB&I Data	
FFOR0410	SS	0	1	CB&I Data	
FFOR0415	SS	0	1	CB&I Data	
FFOR0421	SS	0	1	CB&I Data	
FFOR0426	SS	0	1	CB&I Data	
FFOR0432	SS	0	1	CB&I Data	
FFOR0437	SS	0	1	CB&I Data	
FFOR0443	SS	0	1	CB&I Data	
FFOR0444	SS	0	1	CB&I Data	Yes
FFOR0449	SS	0	1	CB&I Data	
FFOR0455	SS	0	1	CB&I Data	
FFOR0460	SS	0	1	CB&I Data	
FFOR0466	SS	0	1	CB&I Data	
FFOR0471	SS	0	1	CB&I Data	
FFOR0477	SS	0	1	CB&I Data	
FFOR0482	SS	0	1	CB&I Data	
FFOR0488	SS	0	1	CB&I Data	
FFOR0493	SS	0	1	CB&I Data	
FFOR0499	SS	0	1	CB&I Data	
FFOR0500	SS	0	1	CB&I Data	Yes
FFOR0505	SS	0	1	CB&I Data	
FFOR0511	SS	0	1	CB&I Data	
FFOR0516	SS	0	1	CB&I Data	
FFOR0522	SS	0	1	CB&I Data	
FFOR0527	SS	0	1	CB&I Data	
FFOR0533	SS	0	1	CB&I Data	
FFOR0538	SS	0	1	CB&I Data	

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0544	SS	0	1	CB&I Data	
FFOR0549	SS	0	1	CB&I Data	
FFOR0555	SS	0	1	CB&I Data	
FFOR0556	SS	0	1	CB&I Data	Yes
FFOR0561	SS	0	1	CB&I Data	
FFOR0567	SS	0	1	CB&I Data	
FFOR0572	SS	0	1	CB&I Data	
FFOR0578	SS	0	1	CB&I Data	
FFOR0583	SS	0	1	CB&I Data	
FFOR0589	SS	0	1	CB&I Data	
FFOR0594	SS	0	1	CB&I Data	
FFOR0600	SS	0	1	CB&I Data	
FFOR0605	SS	0	1	CB&I Data	
FFOR0611	SS	0	1	CB&I Data	
FFOR0612	SS	0	1	CB&I Data	Yes
FFOR0617	SS	0	1	CB&I Data	
FFOR0623	SS	0	1	CB&I Data	
FFOR0628	SS	0	1	CB&I Data	
FFOR0634	SS	0	1	CB&I Data	
FFOR0639	SS	0	1	CB&I Data	
FFOR0645	SS	0	1	CB&I Data	
FFOR0650	SS	0	1	CB&I Data	
FFOR0656	SS	0	1	CB&I Data	
FFOR0661	SS	0	1	CB&I Data	
FFOR0667	SS	0	1	CB&I Data	
FFOR0668	SS	0	1	CB&I Data	Yes
FFOR0673	SS	0	1	CB&I Data	
FFOR0679	SS	0	1	CB&I Data	
FFOR0684	SS	0	1	CB&I Data	
FFOR0690	SS	0	1	CB&I Data	
FFOR0695	SS	0	1	CB&I Data	
FFOR0701	SS	0	1	CB&I Data	
FFOR0706	SS	0	1	CB&I Data	
FFOR0712	SS	0	1	CB&I Data	
FFOR0717	SS	0	1	CB&I Data	
FFOR0723	SS	0	1	CB&I Data	
FFOR0724	SS	0	1	CB&I Data	Yes
FFOR0729	SS	0	1	CB&I Data	
FFOR0735	SS	0	1	CB&I Data	
FFOR0740	SS	0	1	CB&I Data	
FFOR0746	SS	0	1	CB&I Data	
FFOR0751	SS	0	1	CB&I Data	
FFOR0757	SS	0	1	CB&I Data	
FFOR0762	SS	0	1	CB&I Data	
FFOR0768	SS	0	1	CB&I Data	
FFOR0773	SS	0	1	CB&I Data	
FFOR0779	SS	0	1	CB&I Data	
FFOR0780	SS	0	1	CB&I Data	Yes
FFOR0785	SS	0	1	CB&I Data	
FFOR0791	SS	0	1	CB&I Data	
FFOR0796	SS	0	1	CB&I Data	
FFOR0802	SS	0	1	CB&I Data	
FFOR0874	SS	0	1	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0880	SS	0	1	CB&I Data	
FFOR0885	SS	0	1	CB&I Data	
FFOR0891	SS	0	1	CB&I Data	
FFOR0892	SS	0	1	CB&I Data	Yes
FFOR0897	SS	0	1	CB&I Data	
FFOR0903	SS	0	1	CB&I Data	
FFOR0908	SS	0	1	CB&I Data	
FFOR0914	SS	0	1	CB&I Data	
FFOR0919	SS	0	1	CB&I Data	
FFOR0925	SS	0	1	CB&I Data	
FFOR0930	SS	0	1	CB&I Data	
FFOR0936	SS	0	1	CB&I Data	
FFOR0941	SS	0	1	CB&I Data	
FFOR0947	SS	0	1	CB&I Data	
FFOR0948	SS	0	1	CB&I Data	Yes
FFOR0953	SS	0	1	CB&I Data	
FFOR0959	SS	0	1	CB&I Data	
FFOR0964	SS	0	1	CB&I Data	
FFOR0970	SS	0	1	CB&I Data	
FFOR0975	SS	0	1	CB&I Data	
FFOR0981	SS	0	1	CB&I Data	
FFOR0986	SS	0	1	CB&I Data	
FFOR0992	SS	0	1	CB&I Data	
FFOR0997	SS	0	1	CB&I Data	
FFOR1003	SS	0	1	CB&I Data	
FFOR1004	SS	0	1	CB&I Data	Yes
FFOR1009	SS	0	1	CB&I Data	
FFOR1015	SS	0	1	CB&I Data	
FFOR1020	SS	0	1	CB&I Data	
FFOR1026	SS	0	1	CB&I Data	
FFOR1031	SS	0	1	CB&I Data	
FFOR1037	SS	0	1	CB&I Data	
FFOR1042	SS	0	1	CB&I Data	
FFOR1048-R	SS	0	1	CB&I Data	
FFOR1053	SS	0	1	CB&I Data	
FFOR1059	SS	0	1	CB&I Data	
FFOR1060	SS	0	1	CB&I Data	Yes
FFOR1065	SS	0	1	CB&I Data	
FFOR1071	SS	0	1	CB&I Data	
FFOR1076	SS	0	1	CB&I Data	
FFOR1082	SS	0	1	CB&I Data	
FFOR1087	SS	0	1	CB&I Data	
FFOR1093	SS	0	1	CB&I Data	
FFOR1098	SS	0	1	CB&I Data	
FFOR1104	SS	0	1	CB&I Data	
FFOR1109	SS	0	1	CB&I Data	
FFOR1115	SS	0	1	CB&I Data	
FFOR1116	SS	0	1	CB&I Data	Yes
FFOR1121	SS	0	1	CB&I Data	
FFOR1127	SS	0	1	CB&I Data	
FFOR1132	SS	0	1	CB&I Data	
FFOR1138	SS	0	1	CB&I Data	
FFOR1143	SS	0	1	CB&I Data	

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR1149	SS	0	1	CB&I Data	
FFOR1154	SS	0	1	CB&I Data	
FFOR1160	SS	0	1	CB&I Data	
FFOR1165	SS	0	1	CB&I Data	
FFOR1171	SS	0	1	CB&I Data	
FFOR1172	SS	0	1	CB&I Data	Yes
FFOR1177	SS	0	1	CB&I Data	
FFOR1183	SS	0	1	CB&I Data	
FFOR1188	SS	0	1	CB&I Data	
FFOR1194	SS	0	1	CB&I Data	
FFOR1199	SS	0	1	CB&I Data	
FFOR1205	SS	0	1	CB&I Data	
FFOR1210	SS	0	1	CB&I Data	
FFOR1216	SS	0	1	CB&I Data	
FFOR1221	SS	0	1	CB&I Data	
FFOR1227	SS	0	1	CB&I Data	
FFOR1228	SS	0	1	CB&I Data	Yes
FFOR1233	SS	0	1	CB&I Data	
FFOR1239	SS	0	1	CB&I Data	
FFOR1244	SS	0	1	CB&I Data	
FFOR1250	SS	0	1	CB&I Data	
FFOR1255	SS	0	1	CB&I Data	
FFOR1261	SS	0	1	CB&I Data	
FFOR1266	SS	0	1	CB&I Data	
FFOR1272	SS	0	1	CB&I Data	
FFOR1277	SS	0	1	CB&I Data	
FFOR1283	SS	0	1	CB&I Data	
FFOR1284	SS	0	1	CB&I Data	Yes
FFOR1289	SS	0	1	CB&I Data	
FFOR1295	SS	0	1	CB&I Data	
FFOR1300	SS	0	1	CB&I Data	
FFOR1306	SS	0	1	CB&I Data	
FFOR1311	SS	0	1	CB&I Data	
FFOR1317	SS	0	1	CB&I Data	
FFOR1322	SS	0	1	CB&I Data	
FFOR1328	SS	0	1	CB&I Data	
FFOR1333	SS	0	1	CB&I Data	
FFOR1339	SS	0	1	CB&I Data	
FFOR1340	SS	0	1	CB&I Data	Yes
FFOR1345	SS	0	1	CB&I Data	
FFOR1351	SS	0	1	CB&I Data	
FFOR1356	SS	0	1	CB&I Data	
FFOR1362	SS	0	1	CB&I Data	
FFOR1367	SS	0	1	CB&I Data	
FFOR1373	SS	0	1	CB&I Data	
FFOR1378	SS	0	1	CB&I Data	
FFOR1384	SS	0	1	CB&I Data	
FFOR1389	SS	0	1	CB&I Data	
FFOR1395	SS	0	1	CB&I Data	
FFOR1396	SS	0	1	CB&I Data	Yes
FFOR1401	SS	0	1	CB&I Data	
FFOR1407	SS	0	1	CB&I Data	
FFOR1412	SS	0	1	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR1418	SS	0	1	CB&I Data	
FFOR1423	SS	0	1	CB&I Data	
FFOR1429	SS	0	1	CB&I Data	
FFOR1434	SS	0	1	CB&I Data	
FFOR1440	SS	0	1	CB&I Data	
FFOR1445	SS	0	1	CB&I Data	
FFOR1451	SS	0	1	CB&I Data	
FFOR1452	SS	0	1	CB&I Data	Yes
FFOR1457	SS	0	1	CB&I Data	
FFOR1463	SS	0	1	CB&I Data	
FFOR1468	SS	0	1	CB&I Data	
FFOR1474	SS	0	1	CB&I Data	
FFOR1479	SS	0	1	CB&I Data	
FFOR1485	SS	0	1	CB&I Data	
FFOR1490	SS	0	1	CB&I Data	
FFOR1496	SS	0	1	CB&I Data	
FFOR1501	SS	0	1	CB&I Data	
FFOR1507	SS	0	1	CB&I Data	
FFOR1508	SS	0	1	CB&I Data	Yes
FFOR1513	SS	0	1	CB&I Data	
FFOR1519	SS	0	1	CB&I Data	
FFOR1524	SS	0	1	CB&I Data	
FFOR1530	SS	0	1	CB&I Data	
FFOR1535	SS	0	1	CB&I Data	
FFOR1541	SS	0	1	CB&I Data	
FFOR1546	SS	0	1	CB&I Data	
FFOR1552	SS	0	1	CB&I Data	
FFOR1557	SS	0	1	CB&I Data	
FFOR1563	SS	0	1	CB&I Data	
FFOR1564	SS	0	1	CB&I Data	Yes
FFOR1569	SS	0	1	CB&I Data	
FFOR1575	SS	0	1	CB&I Data	
FFOR1580	SS	0	1	CB&I Data	
FFOR1586	SS	0	1	CB&I Data	
FFOR1591	SS	0	1	CB&I Data	
FFOR1597	SS	0	1	CB&I Data	
FFOR1602	SS	0	1	CB&I Data	
FFOR1608	SS	0	1	CB&I Data	
FFOR1613	SS	0	1	CB&I Data	
FFOR1619	SS	0	1	CB&I Data	
FFOR1620	SS	0	1	CB&I Data	Yes
FFOR1625	SS	0	1	CB&I Data	
FFOR1631	SS	0	1	CB&I Data	
FFOR1636	SS	0	1	CB&I Data	
FFOR1642	SS	0	1	CB&I Data	
FFOR1647	SS	0	1	CB&I Data	
FFOR1653	SS	0	1	CB&I Data	
FFOR1658	SS	0	1	CB&I Data	
FFOR1664	SS	0	1	CB&I Data	
FFOR1669	SS	0	1	CB&I Data	
FFOR1675	SS	0	1	CB&I Data	
FFOR1676	SS	0	1	CB&I Data	Yes
FFOR1681	SS	0	1	CB&I Data	

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR1687	SS	0	1	CB&I Data	
FFOR1692	SS	0	1	CB&I Data	
FFOR1698	SS	0	1	CB&I Data	
FFOR1703	SS	0	1	CB&I Data	
FFOR1709	SS	0	1	CB&I Data	
FFOR1714	SS	0	1	CB&I Data	
FFOR1720	SS	0	1	CB&I Data	
FFOR1725	SS	0	1	CB&I Data	
FFOR1731	SS	0	1	CB&I Data	
FFOR1732	SS	0	1	CB&I Data	Yes
FFOR1737	SS	0	1	CB&I Data	
FFOR1743	SS	0	1	CB&I Data	
FFOR1748	SS	0	1	CB&I Data	
FFOR1754	SS	0	1	CB&I Data	
FFOR1759	SS	0	1	CB&I Data	
FFOR1765	SS	0	1	CB&I Data	
FFOR1770	SS	0	1	CB&I Data	
FFOR1781	SS	0	1	CB&I Data	
FFOR1787	SS	0	1	CB&I Data	
FFOR1790	SS	0	1	CB&I Data	
FFOR1807	SS	0	0.5	CB&I Data	
FFOR1809	SS	0	1	CB&I Data	
FFOR1812	SS	0	1	CB&I Data	
FFOR1813	SS	0	1	CB&I Data	Yes
FFOR1818	SS	0	1	CB&I Data	
FFOR1824	SS	0	1	CB&I Data	
FFOR1840	SS	0	1	CB&I Data	
FFOR1845	SS	0	1	CB&I Data	
FFOR1848	SS	0	1	CB&I Data	
FFOR1851	SS	0	1	CB&I Data	
FFOR1852	SS	0	1	CB&I Data	Yes
FFOR1859	SS	0	1	CB&I Data	
SB0383	SS	0	1	CB&I Data	
SB0388	SS	0	1	CB&I Data	
SB1723	SS	0	1	CB&I Data	
SB1728	SS	0	1	CB&I Data	
SB1734	SS	0	1	CB&I Data	
FFOR0283	SO	5	5	CB&I Data	
FFOR0478	SO	5	5	CB&I Data	
FFOR0523	SO	5	5	CB&I Data	
FFOR0579	SO	5	5	CB&I Data	
FFOR0893	SO	5	5	CB&I Data	
FFOR0899	SO	5	5	CB&I Data	Yes
FFOR0998	SO	5	5	CB&I Data	
SB0001	SO	0	10	CB&I Data	
SB0015	SO	0	10	CB&I Data	
SB0029	SO	0	10	CB&I Data	
SB0043	SO	0	10	CB&I Data	
SB0044	SO	0	10	CB&I Data	Yes
SB0058	SO	0	10	CB&I Data	
SB0086	SO	0	10	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
SB0100	SO	0	10	CB&I Data	
SB0101	SO	0	10	CB&I Data	Yes
SB0115	SO	0	10	CB&I Data	
SB0129	SO	0	10	CB&I Data	
SB0143	SO	0	10	CB&I Data	
SB0157	SO	0	10	CB&I Data	
SB0158	SO	0	10	CB&I Data	Yes
SB0172	SO	0	10	CB&I Data	
SB0186	SO	0	10	CB&I Data	
SB0200	SO	0	10	CB&I Data	
SB0214	SO	0	10	CB&I Data	
SB0215	SO	0	10	CB&I Data	Yes
SB0229	SO	0	10	CB&I Data	
SB0243	SO	0	10	CB&I Data	
SB0272	SO	0	10	CB&I Data	
SB0286	SO	0	10	CB&I Data	
SB0300	SO	0	10	CB&I Data	
SB0314	SO	0	10	CB&I Data	
SB0328	SO	0	10	CB&I Data	
SB0342	SO	0	10	CB&I Data	
SB0356	SO	0	10	CB&I Data	
SB0369	SO	0	10	CB&I Data	
SB0927	SO	0	10	CB&I Data	
SB0944	SO	0	10	CB&I Data	
SB1209	SO	0	10	CB&I Data	
SB1258	SO	0	10	CB&I Data	
FFOR0002-R	SB	5	6	CB&I Data	
FFOR0003-R	SB	5	6	CB&I Data	Yes
FFOR0008	SB	5	6	CB&I Data	
FFOR0013	SB	5	6	CB&I Data	
FFOR0019	SB	5	6	CB&I Data	
FFOR0024	SB	5	6	CB&I Data	
FFOR0030	SB	5	6	CB&I Data	
FFOR0035-R	SB	5	6	CB&I Data	
FFOR0041	SB	5	6	CB&I Data	
FFOR0046-R	SB	5	6	CB&I Data	
FFOR0053	SB	5	6	CB&I Data	
FFOR0058	SB	5	6	CB&I Data	
FFOR0059	SB	5	6	CB&I Data	Yes
FFOR0064	SB	5	6	CB&I Data	
FFOR0069-R	SB	5	6	CB&I Data	
FFOR0075	SB	5	6	CB&I Data	
FFOR0080	SB	5	6	CB&I Data	
FFOR0086	SB	5	6	CB&I Data	
FFOR0091	SB	5	6	CB&I Data	
FFOR0097	SB	5	6	CB&I Data	
FFOR0102	SB	5	6	CB&I Data	
FFOR0109	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0114	SB	5	6	CB&I Data	
FFOR0115	SB	5	6	CB&I Data	Yes
FFOR0120	SB	5	6	CB&I Data	
FFOR0125	SB	5	6	CB&I Data	
FFOR0131	SB	5	6	CB&I Data	
FFOR0136	SB	5	6	CB&I Data	
FFOR0142	SB	5	6	CB&I Data	
FFOR0147	SB	5	6	CB&I Data	
FFOR0153	SB	5	6	CB&I Data	
FFOR0158	SB	5	6	CB&I Data	
FFOR0165	SB	5	6	CB&I Data	
FFOR0170	SB	5	6	CB&I Data	
FFOR0171	SB	5	6	CB&I Data	Yes
FFOR0176	SB	5	6	CB&I Data	
FFOR0181	SB	5	6	CB&I Data	
FFOR0187	SB	5	6	CB&I Data	
FFOR0192	SB	5	6	CB&I Data	
FFOR0198	SB	5	6	CB&I Data	
FFOR0203	SB	5	6	CB&I Data	
FFOR0209	SB	5	6	CB&I Data	
FFOR0214	SB	5	6	CB&I Data	
FFOR0221	SB	5	6	CB&I Data	
FFOR0226	SB	5	6	CB&I Data	
FFOR0227	SB	5	6	CB&I Data	Yes
FFOR0232	SB	5	6	CB&I Data	
FFOR0237	SB	5	6	CB&I Data	
FFOR0243	SB	5	6	CB&I Data	
FFOR0248	SB	5	6	CB&I Data	
FFOR0254	SB	5	6	CB&I Data	
FFOR0259	SB	5	6	CB&I Data	
FFOR0265	SB	5	6	CB&I Data	
FFOR0270	SB	5	6	CB&I Data	
FFOR0277	SB	5	6	CB&I Data	
FFOR0282	SB	5	6	CB&I Data	
FFOR0288	SB	5	6	CB&I Data	
FFOR0293	SB	5	6	CB&I Data	
FFOR0299	SB	5	6	CB&I Data	
FFOR0304	SB	5	6	CB&I Data	
FFOR0310	SB	5	6	CB&I Data	
FFOR0315	SB	5	6	CB&I Data	
FFOR0321	SB	5	6	CB&I Data	
FFOR0326	SB	5	6	CB&I Data	
FFOR0333	SB	5	6	CB&I Data	
FFOR0338	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0339	SB	5	6	CB&I Data	Yes
FFOR0344	SB	5	6	CB&I Data	
FFOR0349	SB	5	6	CB&I Data	
FFOR0355	SB	5	6	CB&I Data	
FFOR0360	SB	5	6	CB&I Data	
FFOR0366	SB	5	6	CB&I Data	
FFOR0371	SB	5	6	CB&I Data	
FFOR0377	SB	5	6	CB&I Data	
FFOR0382	SB	5	6	CB&I Data	
FFOR0389	SB	5	6	CB&I Data	
FFOR0394-R	SB	5	6	CB&I Data	
FFOR0395	SB	5	6	CB&I Data	Yes
FFOR0400	SB	5	6	CB&I Data	
FFOR0405	SB	5	6	CB&I Data	
FFOR0411	SB	5	6	CB&I Data	
FFOR0416	SB	5	6	CB&I Data	
FFOR0422	SB	5	6	CB&I Data	
FFOR0427	SB	5	6	CB&I Data	
FFOR0433	SB	5	6	CB&I Data	
FFOR0438	SB	5	6	CB&I Data	
FFOR0445	SB	5	6	CB&I Data	
FFOR0450	SB	5	6	CB&I Data	
FFOR0451	SB	5	6	CB&I Data	Yes
FFOR0456	SB	5	6	CB&I Data	
FFOR0461	SB	5	6	CB&I Data	
FFOR0467	SB	5	6	CB&I Data	
FFOR0472	SB	5	6	CB&I Data	
FFOR0483	SB	5	6	CB&I Data	
FFOR0489	SB	5	6	CB&I Data	
FFOR0494	SB	5	6	CB&I Data	
FFOR0501	SB	5	6	CB&I Data	
FFOR0506	SB	5	6	CB&I Data	
FFOR0507	SB	5	6	CB&I Data	Yes
FFOR0512	SB	5	6	CB&I Data	
FFOR0517	SB	5	6	CB&I Data	
FFOR0528	SB	5	6	CB&I Data	
FFOR0534	SB	5	6	CB&I Data	
FFOR0539	SB	5	6	CB&I Data	
FFOR0545	SB	5	6	CB&I Data	
FFOR0550	SB	5	6	CB&I Data	
FFOR0557	SB	5	6	CB&I Data	
FFOR0562	SB	5	6	CB&I Data	
FFOR0563	SB	5	6	CB&I Data	Yes
FFOR0568	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0573	SB	5	6	CB&I Data	
FFOR0584	SB	5	6	CB&I Data	
FFOR0590	SB	5	6	CB&I Data	
FFOR0601	SB	5	6	CB&I Data	
FFOR0606	SB	5	6	CB&I Data	
FFOR0613	SB	5	6	CB&I Data	
FFOR0618	SB	5	6	CB&I Data	
FFOR0624	SB	5	6	CB&I Data	
FFOR0629	SB	5	6	CB&I Data	
FFOR0635	SB	5	6	CB&I Data	
FFOR0640	SB	5	6	CB&I Data	
FFOR0646	SB	5	6	CB&I Data	
FFOR0651	SB	5	6	CB&I Data	
FFOR0657	SB	5	6	CB&I Data	
FFOR0662	SB	5	6	CB&I Data	
FFOR0669	SB	5	6	CB&I Data	
FFOR0674	SB	5	6	CB&I Data	
FFOR0675	SB	5	6	CB&I Data	Yes
FFOR0680	SB	5	6	CB&I Data	
FFOR0685	SB	5	6	CB&I Data	
FFOR0691	SB	5	6	CB&I Data	
FFOR0696	SB	5	6	CB&I Data	
FFOR0702	SB	5	6	CB&I Data	
FFOR0707	SB	5	6	CB&I Data	
FFOR0713	SB	5	6	CB&I Data	
FFOR0718	SB	5	6	CB&I Data	
FFOR0725	SB	5	6	CB&I Data	
FFOR0730	SB	5	6	CB&I Data	
FFOR0731	SB	5	6	CB&I Data	Yes
FFOR0736	SB	5	6	CB&I Data	
FFOR0741	SB	5	6	CB&I Data	
FFOR0747	SB	5	6	CB&I Data	
FFOR0752	SB	5	6	CB&I Data	
FFOR0758	SB	5	6	CB&I Data	
FFOR0763	SB	5	6	CB&I Data	
FFOR0769	SB	5	6	CB&I Data	
FFOR0774	SB	5	6	CB&I Data	
FFOR0781	SB	5	6	CB&I Data	
FFOR0786	SB	5	6	CB&I Data	
FFOR0787	SB	5	6	CB&I Data	Yes
FFOR0792	SB	5	6	CB&I Data	
FFOR0797	SB	5	6	CB&I Data	
FFOR0803	SB	5	6	CB&I Data	
FFOR0875	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR0881	SB	5	6	CB&I Data	
FFOR0886	SB	5	6	CB&I Data	
FFOR0898	SB	5	6	CB&I Data	
FFOR0904	SB	5	6	CB&I Data	
FFOR0909	SB	5	6	CB&I Data	
FFOR0915	SB	5	6	CB&I Data	
FFOR0920	SB	5	6	CB&I Data	
FFOR0926	SB	5	6	CB&I Data	
FFOR0931	SB	5	6	CB&I Data	
FFOR0937	SB	5	6	CB&I Data	
FFOR0942	SB	5	6	CB&I Data	
FFOR0949	SB	5	6	CB&I Data	
FFOR0954	SB	5	6	CB&I Data	
FFOR0955	SB	5	6	CB&I Data	Yes
FFOR0960	SB	5	6	CB&I Data	
FFOR0965	SB	5	6	CB&I Data	
FFOR0971	SB	5	6	CB&I Data	
FFOR0976	SB	5	6	CB&I Data	
FFOR0982	SB	5	6	CB&I Data	
FFOR0987	SB	5	6	CB&I Data	
FFOR0993	SB	5	6	CB&I Data	
FFOR1005	SB	5	6	CB&I Data	
FFOR1010	SB	5	6	CB&I Data	
FFOR1011	SB	5	6	CB&I Data	Yes
FFOR1016	SB	5	6	CB&I Data	
FFOR1021	SB	5	6	CB&I Data	
FFOR1027	SB	5	6	CB&I Data	
FFOR1032	SB	5	6	CB&I Data	
FFOR1038	SB	5	6	CB&I Data	
FFOR1043	SB	5	6	CB&I Data	
FFOR1049-R	SB	5	6	CB&I Data	
FFOR1054	SB	5	6	CB&I Data	
FFOR1061	SB	5	6	CB&I Data	
FFOR1066	SB	5	6	CB&I Data	
FFOR1067	SB	5	6	CB&I Data	Yes
FFOR1072	SB	5	6	CB&I Data	
FFOR1077	SB	5	6	CB&I Data	
FFOR1083	SB	5	6	CB&I Data	
FFOR1088	SB	5	6	CB&I Data	
FFOR1094	SB	5	6	CB&I Data	
FFOR1099	SB	5	6	CB&I Data	
FFOR1105	SB	5	6	CB&I Data	
FFOR1110	SB	5	6	CB&I Data	
FFOR1117	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR1122	SB	5	6	CB&I Data	
FFOR1123	SB	5	6	CB&I Data	Yes
FFOR1128	SB	5	6	CB&I Data	
FFOR1133	SB	5	6	CB&I Data	
FFOR1139	SB	5	6	CB&I Data	
FFOR1144	SB	5	6	CB&I Data	
FFOR1150	SB	5	6	CB&I Data	
FFOR1155	SB	5	6	CB&I Data	
FFOR1161	SB	5	6	CB&I Data	
FFOR1166	SB	5	6	CB&I Data	
FFOR1173	SB	5	6	CB&I Data	
FFOR1178	SB	5	6	CB&I Data	
FFOR1179	SB	5	6	CB&I Data	Yes
FFOR1184	SB	5	6	CB&I Data	
FFOR1189	SB	5	6	CB&I Data	
FFOR1195	SB	5	6	CB&I Data	
FFOR1200	SB	5	6	CB&I Data	
FFOR1206	SB	5	6	CB&I Data	
FFOR1211	SB	5	6	CB&I Data	
FFOR1217	SB	5	6	CB&I Data	
FFOR1222	SB	5	6	CB&I Data	
FFOR1229	SB	5	6	CB&I Data	
FFOR1234	SB	5	6	CB&I Data	
FFOR1235	SB	5	6	CB&I Data	Yes
FFOR1240	SB	5	6	CB&I Data	
FFOR1245	SB	5	6	CB&I Data	
FFOR1251	SB	5	6	CB&I Data	
FFOR1256	SB	5	6	CB&I Data	
FFOR1262	SB	5	6	CB&I Data	
FFOR1267	SB	5	6	CB&I Data	
FFOR1273	SB	5	6	CB&I Data	
FFOR1278	SB	5	6	CB&I Data	
FFOR1285	SB	5	6	CB&I Data	
FFOR1290	SB	5	6	CB&I Data	
FFOR1291	SB	5	6	CB&I Data	Yes
FFOR1296	SB	5	6	CB&I Data	
FFOR1301	SB	5	6	CB&I Data	
FFOR1307	SB	5	6	CB&I Data	
FFOR1312	SB	5	6	CB&I Data	
FFOR1318	SB	5	6	CB&I Data	
FFOR1323	SB	5	6	CB&I Data	
FFOR1329	SB	5	6	CB&I Data	
FFOR1334	SB	5	6	CB&I Data	
FFOR1341	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR1346	SB	5	6	CB&I Data	
FFOR1347	SB	5	6	CB&I Data	Yes
FFOR1352	SB	5	6	CB&I Data	
FFOR1357	SB	5	6	CB&I Data	
FFOR1363	SB	5	6	CB&I Data	
FFOR1368	SB	5	6	CB&I Data	
FFOR1374	SB	5	6	CB&I Data	
FFOR1379	SB	5	6	CB&I Data	
FFOR1385	SB	5	6	CB&I Data	
FFOR1390	SB	5	6	CB&I Data	
FFOR1397	SB	5	6	CB&I Data	
FFOR1402	SB	5	6	CB&I Data	
FFOR1403	SB	5	6	CB&I Data	Yes
FFOR1408	SB	5	6	CB&I Data	
FFOR1413	SB	5	6	CB&I Data	
FFOR1419	SB	5	6	CB&I Data	
FFOR1424	SB	5	6	CB&I Data	
FFOR1430	SB	5	6	CB&I Data	
FFOR1435	SB	5	6	CB&I Data	
FFOR1441	SB	5	6	CB&I Data	
FFOR1446	SB	5	6	CB&I Data	
FFOR1453	SB	5	6	CB&I Data	
FFOR1458	SB	5	6	CB&I Data	
FFOR1459	SB	5	6	CB&I Data	Yes
FFOR1464	SB	5	6	CB&I Data	
FFOR1469	SB	5	6	CB&I Data	
FFOR1475	SB	5	6	CB&I Data	
FFOR1480	SB	5	6	CB&I Data	
FFOR1486	SB	5	6	CB&I Data	
FFOR1491	SB	5	6	CB&I Data	
FFOR1497	SB	5	6	CB&I Data	
FFOR1502	SB	5	6	CB&I Data	
FFOR1509	SB	5	6	CB&I Data	
FFOR1514	SB	5	6	CB&I Data	
FFOR1515	SB	5	6	CB&I Data	Yes
FFOR1520	SB	5	6	CB&I Data	
FFOR1525	SB	5	6	CB&I Data	
FFOR1531	SB	5	6	CB&I Data	
FFOR1536	SB	5	6	CB&I Data	
FFOR1542	SB	5	6	CB&I Data	
FFOR1547	SB	5	6	CB&I Data	
FFOR1553	SB	5	6	CB&I Data	
FFOR1558	SB	5	6	CB&I Data	
FFOR1565	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR1570	SB	5	6	CB&I Data	
FFOR1571	SB	5	6	CB&I Data	Yes
FFOR1576	SB	5	6	CB&I Data	
FFOR1581	SB	5	6	CB&I Data	
FFOR1587	SB	5	6	CB&I Data	
FFOR1592	SB	5	6	CB&I Data	
FFOR1598	SB	5	6	CB&I Data	
FFOR1603	SB	5	6	CB&I Data	
FFOR1609	SB	5	6	CB&I Data	
FFOR1614	SB	5	6	CB&I Data	
FFOR1621	SB	5	6	CB&I Data	
FFOR1626	SB	5	6	CB&I Data	
FFOR1627	SB	5	6	CB&I Data	Yes
FFOR1632	SB	5	6	CB&I Data	
FFOR1637	SB	5	6	CB&I Data	
FFOR1643	SB	5	6	CB&I Data	
FFOR1648	SB	5	6	CB&I Data	
FFOR1654	SB	5	6	CB&I Data	
FFOR1659	SB	5	6	CB&I Data	
FFOR1665	SB	5	6	CB&I Data	
FFOR1670	SB	5	6	CB&I Data	
FFOR1677	SB	5	6	CB&I Data	
FFOR1682	SB	5	6	CB&I Data	
FFOR1683	SB	5	6	CB&I Data	Yes
FFOR1688	SB	5	6	CB&I Data	
FFOR1693	SB	5	6	CB&I Data	
FFOR1699	SB	5	6	CB&I Data	
FFOR1704	SB	5	6	CB&I Data	
FFOR1710	SB	5	6	CB&I Data	
FFOR1715	SB	5	6	CB&I Data	
FFOR1721	SB	5	6	CB&I Data	
FFOR1726	SB	5	6	CB&I Data	
FFOR1733	SB	5	6	CB&I Data	
FFOR1738	SB	5	6	CB&I Data	
FFOR1739	SB	5	6	CB&I Data	Yes
FFOR1744	SB	5	6	CB&I Data	
FFOR1749	SB	5	6	CB&I Data	
FFOR1755	SB	5	6	CB&I Data	
FFOR1760	SB	5	6	CB&I Data	
FFOR1766	SB	5	6	CB&I Data	
FFOR1771	SB	5	6	CB&I Data	
FFOR1782	SB	5	6	CB&I Data	
FFOR1799	SB	5	6	CB&I Data	
FFOR1810	SB	5	6	CB&I Data	

Appendix A-2a
Soil Samples Used in HHRA

Sample Number	Matrix [a]	Start Depth (f)	End Depth (ft)	Sample Type [b]	Duplicate Sample?
FFOR1817	SB	5	7	CB&I Data	
FFOR1819	SB	5	6	CB&I Data	
FFOR1825	SB	5	6	CB&I Data	
FFOR1829	SB	5	6	CB&I Data	
FFOR1836	SB	5	6	CB&I Data	
FFOR1841	SB	5	6	CB&I Data	
FFOR1842	SB	5	6	CB&I Data	Yes
FFOR1847	SB	5	6	CB&I Data	
FFOR1849	SB	5	6	CB&I Data	
FFOR1853	SB	5	6	CB&I Data	
SB0258	SB	0	11	CB&I Data	
SB0384	SB	5	6	CB&I Data	
SB0389	SB	5	6	CB&I Data	
SB1724	SB	5	6	CB&I Data	
SB1729	SB	5	6	CB&I Data	
SB1735	SB	5	6	CB&I Data	

[a] SS = surface soil (0-1) ft bgs
SO = subsurface soil 1-5 ft bgs
SB = subsurface soil 5-10 ft bgs

[b] CB&I samples collected from 2011 to 2013

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0132	KAFB-106001	GW03	20-Jul-11	483	505	
GW0133	KAFB-106002	GW03	12-Sep-11	479	504	
GW0137	KAFB-106007	GW03	15-Jul-11	484	509	
GW0140	KAFB-106010	GW03	13-Jul-11	483	508	
GW0141	KAFB-106011	GW03	21-Jul-11	486	511	
GW0142	KAFB-106011	GW03	21-Jul-11	486	511	Yes
GW0143	KAFB-106012	GW03	29-Jul-11	480.5	505.5	
GW0144	KAFB-106014	GW03	6-Sep-11	486	511	
GW0145	KAFB-106015	GW03	28-Jul-11	485	510	
GW0146	KAFB-106016	GW03	19-Jul-11	475	500	
GW0147	KAFB-106017	GW03	7-Jul-11	482	507	
GW0148	KAFB-106018	GW03	8-Jul-11	476	501	
GW0149	KAFB-106019	GW03	7-Jul-11	493	518	
GW0150	KAFB-106020	GW03	29-Jul-11	482	507	
GW0151	KAFB-106021	GW03	12-Jul-11	458	483	
GW0152	KAFB-106022	GW03	18-Jul-11	462	487	
GW0153	KAFB-106022	GW03	18-Jul-11	462	487	Yes
GW0154	KAFB-106024	GW03	20-Jul-11	481	506	
GW0155	KAFB-106025	GW03	11-Jul-11	465	490	
GW0155-R	KAFB-106025	GW03	8-Aug-11			
GW0156	KAFB-106026	GW03	11-Jul-11	466	486	
GW0156-R	KAFB-106026	GW03	8-Aug-11			
GW0157	KAFB-106029	GW03	19-Jul-11	450.77	470.33	
GW0158	KAFB-106030	GW03	20-Jul-11	469.5	484.5	
GW0159	KAFB-106031	GW03	20-Jul-11	495.77	509.54	
GW0160	KAFB-106032	GW03	10-Aug-11	456	475.75	
GW0161	KAFB-106033	GW03	10-Aug-11	477	492	
GW0162	KAFB-106034	GW03	9-Aug-11	502	517	
GW0163	KAFB-106035	GW03	13-Sep-11	452	482	
GW0164	KAFB-106036	GW03	13-Sep-11	481.8	496.8	
GW0165	KAFB-106037	GW03	14-Sep-11	507	522	
GW0166	KAFB-106038	GW03	8-Sep-11	478	508	
GW0167	KAFB-106039	GW03	8-Sep-11	508.25	523.25	
GW0168	KAFB-106040	GW03	9-Sep-11	530.55	545.55	
GW0170	KAFB-106042	GW03	27-Jul-11	469	483.5	Yes
GW0171	KAFB-106042	GW03	27-Jul-11	469	483.5	
GW0172	KAFB-106043	GW03	18-Jul-11	543.53	554.53	
GW0173	KAFB-106027	GW03	14-Jul-11	481	501	
GW0173-R	KAFB-106027	GW03	15-Aug-11			
GW0174	KAFB-106044	GW03	26-Jul-11	504.23	519.23	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0175	KAFB-106045	GW03	26-Jul-11	528.3	543.3	
GW0176	KAFB-106046	GW03	8-Aug-11	490	510	
GW0177	KAFB-106047	GW03	11-Aug-11	512	527	
GW0178	KAFB-106048	GW03	11-Aug-11	535.5	550.5	
GW0180	KAFB-106050	GW03	11-Aug-11	475.58	489.35	
GW0181	KAFB-106050	GW03	11-Aug-11	475.58	489.35	Yes
GW0182	KAFB-106051	GW03	25-Aug-11	502.05	515.82	
GW0183	KAFB-106052	GW03	7-Sep-11	450.36	479.63	
GW0184	KAFB-106053	GW03	12-Sep-11	479.26	493.03	
GW0185	KAFB-106054	GW03	1-Sep-11	504	514	
GW0186	KAFB-106055	GW03	25-Aug-11	465.82	484.82	
GW0187	KAFB-106057	GW03	23-Aug-11	486.17	499.94	
GW0188	KAFB-106058	GW03	26-Aug-11	511.8	526.8	
GW0190	KAFB-106060	GW03	30-Aug-11	503	518	
GW0191	KAFB-106061	GW03	10-Aug-11	573.2	588.2	
GW0192	KAFB-106062	GW03	1-Aug-11	475.78	590.26	
GW0193	KAFB-106062	GW03	1-Aug-11	475.78	590.26	Yes
GW0194	KAFB-106063	GW03	1-Aug-11	505	520	
GW0197	KAFB-106065	GW03	16-Aug-11	484	504	
GW0198	KAFB-106066	GW03	15-Aug-11	575.6	590.6	
GW0199	KAFB-106067	GW03	12-Jul-11	485	505	
GW0200	KAFB-106067	GW03	12-Jul-11	485	505	Yes
GW0201	KAFB-106068	GW03	11-Jul-11	580	595	
GW0202	KAFB-106069	GW03	12-Jul-11	506	521	
GW0203	KAFB-106070	GW03	14-Jul-11	460	480	
GW0204	KAFB-106071	GW03	13-Jul-11	548	563	
GW0205	KAFB-106072	GW03	15-Jul-11	475	495	
GW0206	KAFB-106073	GW03	22-Jul-11	500	514.5	
GW0207	KAFB-106074	GW03	25-Jul-11	570	584	
GW0208	KAFB-106075	GW03	22-Jul-11	480	500	
GW0209	KAFB-106075	GW03	22-Jul-11	480	500	Yes
GW0211	KAFB-106077	GW03	6-Sep-11	504	519	
GW0212	KAFB-106078	GW03	26-Aug-11	573.5	588.5	
GW0213	KAFB-106079	GW03	22-Jul-11	484.92	503.92	
GW0214	KAFB-106080	GW03	22-Jul-11	504.4	519.4	
GW0215	KAFB-106081	GW03	17-Aug-11	575.59	589.36	
GW0216	KAFB-106082	GW03	7-Jul-11	472	492	
GW0217	KAFB-106083	GW03	7-Jul-11	495.45	510.45	
GW0218	KAFB-106084	GW03	8-Jul-11	566	581	
GW0219	KAFB-106085	GW03	31-Aug-11	446.5	476.5	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0220	KAFB-106086	GW03	31-Aug-11	476	491	
GW0221	KAFB-106087	GW03	29-Aug-11	546	561	
GW0222	KAFB-106088	GW03	2-Aug-11	460	480	
GW0223	KAFB-106088	GW03	2-Aug-11	460	480	Yes
GW0224	KAFB-106089	GW03	3-Aug-11	481.5	496.5	
GW0225	KAFB-106090	GW03	1-Aug-11	555	570	
GW0226	KAFB-106091	GW03	4-Aug-11	454	474	
GW0227	KAFB-106092	GW03	4-Aug-11	474	487	
GW0228	KAFB-106093	GW03	3-Aug-11	544	557	
GW0229	KAFB-106094	GW03	25-Aug-11	484.2	504.2	
GW0230	KAFB-106095	GW03	16-Aug-11	503.75	518.75	
GW0231	KAFB-106095	GW03	16-Aug-11	503.75	518.75	Yes
GW0232	KAFB-106096	GW03	18-Aug-11	576.3	591.3	
GW0233	KAFB-106013	GW03	29-Jul-11	486.5	511.5	
GW0234	KAFB-106097	GW03	21-Jul-11	506	521	
GW0235	KAFB-106098	GW03	21-Jul-11	531	546	
GW0237	KAFB-106099	GW03	28-Jul-11	501	516	
GW0238	KAFB-106099	GW03	28-Jul-11	501	516	Yes
GW0239	KAFB-106100	GW03	26-Jul-11	526	541	
GW0241	KAFB-106101	GW03	29-Jul-11	495.93	511.21	
GW0242	KAFB-106102	GW03	25-Jul-11	521.08	534.84	
GW0243	KAFB-106023	GW03	18-Jul-11	473	498	
GW0244	KAFB-106103	GW03	8-Aug-11	485	500	
GW0245	KAFB-106104	GW03	5-Aug-11	510	525	
GW0246	KAFB-106104	GW03	5-Aug-11	510	525	Yes
GW0256	KAFB-106001	GW04	6-Oct-11	483	508	
GW0258	KAFB-106002	GW04	10-Nov-11	479	504	
GW0261	KAFB-106007	GW04	13-Oct-11	484	509	
GW0261R	KAFB-106007	GW04	18-Oct-11	484	509	
GW0264	KAFB-106010	GW04	15-Dec-11	483	508	
GW0265	KAFB-106010	GW04	15-Dec-11	483	508	Yes
GW0266	KAFB-106011	GW04	19-Oct-11	486	511	
GW0267	KAFB-106012	GW04	2-Nov-11	480.5	505.5	
GW0268	KAFB-106014	GW04	21-Nov-11	486	511	
GW0269	KAFB-106015	GW04	8-Nov-11	486	511	
GW0270	KAFB-106016	GW04	17-Oct-11	475	500	
GW0271	KAFB-106017	GW04	3-Oct-11	482	507	
GW0272	KAFB-106018	GW04	3-Oct-11	476	501	
GW0273	KAFB-106019	GW04	13-Dec-11	493	518	
GW0274	KAFB-106020	GW04	17-Nov-11	482	507	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0275	KAFB-106020	GW04	17-Nov-11	482	507	Yes
GW0276	KAFB-106021	GW04	16-Dec-11	458	483	
GW0277	KAFB-106022	GW04	21-Dec-11	462	487	
GW0278	KAFB-106024	GW04	11-Oct-11	481	506	
GW0279	KAFB-106025	GW04	4-Oct-11	465	490	
GW0280	KAFB-106026	GW04	4-Oct-11	466	486	
GW0281	KAFB-106029	GW04	1-Nov-11	450.77	470.33	
GW0282	KAFB-106030	GW04	31-Oct-11	469.5	484.5	
GW0283	KAFB-106030	GW04	31-Oct-11	469.5	484.5	Yes
GW0284	KAFB-106031	GW04	1-Nov-11	495.77	509.54	
GW0285	KAFB-106032	GW04	24-Oct-11	456	475.75	
GW0286	KAFB-106033	GW04	24-Oct-11	477	492	
GW0287	KAFB-106034	GW04	25-Oct-11	502	517	
GW0288	KAFB-106035	GW04	15-Nov-11	452	482	
GW0289	KAFB-106036	GW04	15-Nov-11	481.8	496.8	
GW0290	KAFB-106037	GW04	15-Nov-11	507	522	
GW0291	KAFB-106038	GW04	7-Nov-11	478	508	
GW0292	KAFB-106039	GW04	12-Oct-11	508.25	523.25	
GW0293	KAFB-106039	GW04	12-Oct-11	508.25	523.25	Yes
GW0294	KAFB-106040	GW04	19-Oct-11	530.55	545.55	
GW0296	KAFB-106042	GW04	31-Oct-11	469	483.53	
GW0297	KAFB-106043	GW04	31-Oct-11	543	557.53	
GW0298	KAFB-106027	GW04	17-Oct-11	481	501	
GW0299	KAFB-106044	GW04	18-Oct-11	504.23	519.23	
GW0300	KAFB-106045	GW04	19-Oct-11	528.3	543.3	
GW0301	KAFB-106046	GW04	7-Nov-11	490	510	
GW0302	KAFB-106047	GW04	7-Nov-11	512	527	
GW0303	KAFB-106048	GW04	8-Nov-11	0	0	
GW0305	KAFB-106050	GW04	10-Oct-11	475.58	489.35	
GW0306	KAFB-106050	GW04	10-Oct-11	475.58	489.35	Yes
GW0307	KAFB-106051	GW04	10-Oct-11	502.05	515.83	
GW0308	KAFB-106052	GW04	2-Nov-11	450.35	479.63	
GW0309	KAFB-106053	GW04	2-Nov-11	0	0	
GW0310	KAFB-106054	GW04	3-Nov-11	504	519	
GW0311	KAFB-106055	GW04	6-Oct-11	468.82	484.82	
GW0312	KAFB-106057	GW04	6-Oct-11	486.17	499.94	
GW0313	KAFB-106058	GW04	5-Oct-11	511.8	526.1	
GW0315	KAFB-106060	GW04	25-Oct-11	503	518	
GW0316	KAFB-106060	GW04	25-Oct-11	503	518	Yes
GW0317	KAFB-106061	GW04	25-Oct-11	573.2	588.2	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0318	KAFB-106062	GW04	9-Nov-11	575.78	590.26	
GW0319	KAFB-106063	GW04	9-Nov-11	505	520	
GW0322	KAFB-106066	GW04	1-Nov-11	508	523	
GW0323	KAFB-106065	GW04	1-Nov-11	575.6	590.6	
GW0324	KAFB-106067	GW04	3-Nov-11	485	505	
GW0325	KAFB-106068	GW04	3-Nov-11	580	595	
GW0326	KAFB-106069	GW04	14-Dec-11	506	521	
GW0327	KAFB-106070	GW04	8-Nov-11	460	480	
GW0328	KAFB-106071	GW04	8-Nov-11	548	563	
GW0329	KAFB-106071	GW04	8-Nov-11	548	563	Yes
GW0330	KAFB-106072	GW04	7-Nov-11	475	495	
GW0331	KAFB-106073	GW04	14-Nov-11	500	515	
GW0332	KAFB-106074	GW04	14-Nov-11	570	584.53	
GW0333	KAFB-106075	GW04	10-Nov-11	480	500	
GW0335	KAFB-106077	GW04	20-Dec-11	504	519	
GW0337	KAFB-106079	GW04	24-Oct-11	484.92	503.92	
GW0338	KAFB-106080	GW04	24-Oct-11	504.4	519.4	
GW0339	KAFB-106080	GW04	24-Oct-11	504.4	519.4	Yes
GW0340	KAFB-106081	GW04	24-Oct-11	575.59	589.36	
GW0341	KAFB-106082	GW04	13-Oct-11	472	492	
GW0342	KAFB-106083	GW04	12-Oct-11	495.45	510.43	
GW0343	KAFB-106084	GW04	12-Oct-11	566	581	
GW0344	KAFB-106085	GW04	16-Nov-11	446.5	476.5	
GW0345	KAFB-106086	GW04	16-Nov-11	476	491	
GW0346	KAFB-106087	GW04	17-Nov-11	546	561	
GW0347	KAFB-106088	GW04	10-Oct-11	460	480	
GW0348	KAFB-106089	GW04	12-Oct-11	481.5	496.5	
GW0349	KAFB-106089	GW04	12-Oct-11	481.5	496.5	Yes
GW0350	KAFB-106090	GW04	11-Oct-11	555	570	
GW0351	KAFB-106091	GW04	16-Nov-11	454	474	
GW0352	KAFB-106092	GW04	15-Nov-11	474	487	
GW0353	KAFB-106093	GW04	16-Nov-11	544	557	
GW0354	KAFB-106094	GW04	13-Oct-11	484.2	504.2	
GW0355	KAFB-106095	GW04	19-Oct-11	503.75	518.75	
GW0356	KAFB-106095	GW04	19-Oct-11	503.75	518.75	Yes
GW0357	KAFB-106096	GW04	20-Oct-11	576.3	591.3	
GW0358	KAFB-106013	GW04	6-Oct-11	486.5	511.5	
GW0359	KAFB-106097	GW04	5-Oct-11	506	521	
GW0360	KAFB-106098	GW04	5-Oct-11	531	546	
GW0362	KAFB-106099	GW04	9-Nov-11	501	516	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0363	KAFB-106100	GW04	9-Nov-11	526	541	
GW0364	KAFB-106100	GW04	9-Nov-11	526	541	Yes
GW0366	KAFB-106101	GW04	20-Oct-11	495.93	511.21	
GW0367	KAFB-106102	GW04	20-Oct-11	521.08	534.84	
GW0368	KAFB-106023	GW04	11-Oct-11	473	498	
GW0369	KAFB-106103	GW04	10-Oct-11	485	500	
GW0370	KAFB-106104	GW04	3-Oct-11	510.2	525	
GW0371	KAFB-106105	GW04	17-Oct-11	484	499	
GW0372	KAFB-106106	GW04	17-Oct-11	453.6	483.6	
GW0373	KAFB-106106	GW04	17-Oct-11	453.6	483.6	Yes
GW0374	KAFB-106107	GW04	18-Oct-11	510.16	525.16	
GW0382	KAFB-106001	GW05	1-Feb-12	483	508	
GW0383	KAFB-106002	GW05	22-Mar-12	479	504	
GW0386	KAFB-106007	GW05	3-Feb-12	484	509	
GW0389	KAFB-106010	GW05	16-Feb-12	483	508	
GW0390	KAFB-106010	GW05	16-Feb-12	483	508	Yes
GW0391	KAFB-106011	GW05	13-Feb-12	486	511	
GW0393	KAFB-106014	GW05	27-Feb-12	486	511	
GW0394	KAFB-106015	GW05	13-Feb-12	485	510	
GW0395	KAFB-106016	GW05	31-Jan-12	475	500	
GW0396	KAFB-106017	GW05	23-Jan-12	482	507	
GW0397	KAFB-106018	GW05	23-Jan-12	476	501	
GW0398	KAFB-106019	GW05	23-Jan-12	493	518	
GW0399	KAFB-106020	GW05	22-Feb-12	482	507	
GW0400	KAFB-106021	GW05	2-Feb-12	458	483	
GW0401	KAFB-106021	GW05	2-Feb-12	458	483	Yes
GW0402	KAFB-106022	GW05	3-Feb-12	462	487	
GW0403	KAFB-106024	GW05	21-Mar-12	481	506	
GW0404	KAFB-106025	GW05	25-Jan-12	465	490	
GW0405	KAFB-106026	GW05	26-Mar-12	466	486	
GW0406	KAFB-106029	GW05	9-Feb-12	450.77	470.33	
GW0407	KAFB-106030	GW05	9-Feb-12	469.5	481.5	
GW0408	KAFB-106031	GW05	8-Feb-12	495.47	509.54	
GW0409	KAFB-106032	GW05	30-Jan-12	456	475	
GW0410	KAFB-106033	GW05	24-Jan-12	477	492	
GW0411	KAFB-106034	GW05	27-Jan-12	502	517	
GW0412	KAFB-106035	GW05	13-Feb-12	452	482	
GW0413	KAFB-106036	GW05	13-Feb-12	481.8	496.8	
GW0414	KAFB-106037	GW05	13-Feb-12	507	522	
GW0415	KAFB-106038	GW05	9-Feb-12	478	508	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0416	KAFB-106039	GW05	9-Feb-12	508.25	523.25	
GW0417	KAFB-106040	GW05	9-Feb-12	530.55	545.55	
GW0419	KAFB-106042	GW05	2-Feb-12	469	483.53	
GW0420	KAFB-106043	GW05	2-Feb-12	543	557.53	
GW0421	KAFB-106043	GW05	2-Feb-12	543	557.53	Yes
GW0422	KAFB-106027	GW05	31-Jan-12	481	501	
GW0423	KAFB-106044	GW05	31-Jan-12	504.23	519.23	
GW0424	KAFB-106045	GW05	30-Jan-12	528.3	543.3	
GW0425	KAFB-106046	GW05	8-Feb-12	490	510	
GW0426	KAFB-106047	GW05	8-Feb-12	512	527	
GW0427	KAFB-106048	GW05	8-Feb-12	535.5	550.5	
GW0429	KAFB-106050	GW05	25-Jan-12	475.58	489.35	
GW0430	KAFB-106051	GW05	24-Jan-12	502.05	515.82	
GW0431	KAFB-106052	GW05	15-Feb-12	450.35	479.63	
GW0432	KAFB-106053	GW05	15-Feb-12	479.26	493.03	
GW0433	KAFB-106053	GW05	15-Feb-12	479.26	493.03	Yes
GW0434	KAFB-106054	GW05	15-Feb-12	504	519	
GW0435	KAFB-106055	GW05	31-Jan-12	465.82	484.25	
GW0436	KAFB-106057	GW05	31-Jan-12	486.17	499.99	
GW0437	KAFB-106058	GW05	30-Jan-12	511.17	524.94	
GW0439	KAFB-106060	GW05	23-Feb-12	503	518	
GW0440	KAFB-106061	GW05	22-Feb-12	573.2	588.2	
GW0441	KAFB-106062	GW05	10-Feb-12	575.78	590.26	
GW0442	KAFB-106063	GW05	10-Feb-12	505	520	
GW0443	KAFB-106063	GW05	10-Feb-12	505	520	Yes
GW0446	KAFB-106065	GW05	15-Feb-12	508	523	
GW0447	KAFB-106066	GW05	15-Feb-12	575.6	590.6	
GW0448	KAFB-106067	GW05	8-Feb-12	485	505	
GW0449	KAFB-106068	GW05	17-Feb-12	580	595	
GW0450	KAFB-106068	GW05	17-Feb-12	580	595	Yes
GW0451	KAFB-106069	GW05	21-Feb-12	506	521	
GW0452	KAFB-106070	GW05	6-Feb-12	460	480	
GW0453	KAFB-106071	GW05	6-Feb-12	548	563	
GW0454	KAFB-106072	GW05	7-Feb-12	475	495	
GW0455	KAFB-106073	GW05	23-Feb-12	500	514.53	
GW0456	KAFB-106074	GW05	23-Feb-12	570	584.53	
GW0457	KAFB-106075	GW05	22-Feb-12	480	500	
GW0459	KAFB-106077	GW05	28-Feb-12	504	519	
GW0460	KAFB-106077	GW05	28-Feb-12	504	519	Yes
GW0461	KAFB-106078	GW05	27-Feb-12	573.5	588.5	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0462	KAFB-106079	GW05	21-Feb-12	483.92	503.92	
GW0463	KAFB-106080	GW05	22-Feb-12	504.4	519.4	
GW0464	KAFB-106081	GW05	21-Feb-12	575.59	589.39	
GW0465	KAFB-106082	GW05	26-Jan-12	472	492	
GW0466	KAFB-106083	GW05	26-Jan-12	495.45	510.45	
GW0467	KAFB-106083	GW05	26-Jan-12	495.45	510.45	Yes
GW0468	KAFB-106084	GW05	26-Jan-12	566	581	
GW0469	KAFB-106085	GW05	16-Feb-12	446.5	476.5	
GW0470	KAFB-106086	GW05	16-Feb-12	476	491	
GW0471	KAFB-106087	GW05	14-Feb-12	452	482	
GW0472	KAFB-106088	GW05	26-Jan-12	460	480	
GW0473	KAFB-106089	GW05	26-Jan-12	481.5	496.5	
GW0474	KAFB-106089	GW05	26-Jan-12	481.5	496.5	Yes
GW0475	KAFB-106090	GW05	26-Jan-12	555	570	
GW0476	KAFB-106091	GW05	20-Feb-12	454	474	
GW0477	KAFB-106092	GW05	21-Feb-12	474	487	
GW0478	KAFB-106093	GW05	20-Feb-12	544	557	
GW0479	KAFB-106094	GW05	7-Feb-12	484.2	504.2	
GW0480	KAFB-106095	GW05	10-Feb-12	503.75	518.75	
GW0481	KAFB-106096	GW05	14-Feb-12	576.3	591.3	
GW0482	KAFB-106013	GW05	27-Mar-12	486.5	511.5	
GW0483	KAFB-106097	GW05	7-Feb-12	506	521	
GW0484	KAFB-106098	GW05	7-Feb-12	531	546	
GW0485	KAFB-106098	GW05	7-Feb-12	531	546	Yes
GW0487	KAFB-106099	GW05	29-Feb-12	501	516	
GW0488	KAFB-106100	GW05	28-Feb-12	526	541	
GW0490	KAFB-106101	GW05	7-Feb-12	495.93	511.21	
GW0491	KAFB-106102	GW05	6-Feb-12	521.08	534.84	
GW0492	KAFB-106102	GW05	6-Feb-12	521.08	534.84	Yes
GW0493	KAFB-106023	GW05	25-Jan-12	473	498	
GW0494	KAFB-106103	GW05	27-Jan-12	485	500	
GW0495	KAFB-106104	GW05	27-Jan-12	510	525	
GW0496	KAFB-106105	GW05	1-Feb-12	484	499	
GW0497	KAFB-106106	GW05	1-Feb-12	453.6	483.6	
GW0498	KAFB-106107	GW05	3-Feb-12	510.16	525.16	
GW0506	KAFB-106001	GW06	11-Apr-12	483	508	
GW0507	KAFB-106002	GW06	3-May-12	479	504	
GW0510	KAFB-106007	GW06	11-Apr-12	484	509	
GW0514	KAFB-106010	GW06	26-Apr-12	483	508	
GW0515	KAFB-106011	GW06	26-Apr-12	486	511	

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Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0517	KAFB-106014	GW06	7-May-12	486	511	
GW0518	KAFB-106015	GW06	7-May-12	480	505	
GW0519	KAFB-106016	GW06	18-Apr-12	475	500	
GW0520	KAFB-106017	GW06	4-Apr-12	482	507	
GW0521	KAFB-106018	GW06	4-Apr-12	476	501	
GW0522	KAFB-106019	GW06	4-Apr-12	493	518	
GW0523	KAFB-106019	GW06	4-Apr-12	493	518	Yes
GW0524	KAFB-106020	GW06	3-May-12	482	507	
GW0525	KAFB-106021	GW06	1-May-12	458	483	
GW0526	KAFB-106022	GW06	30-Apr-12	462	487	
GW0527	KAFB-106024	GW06	12-Apr-12	481	506	
GW0528	KAFB-106025	GW06	19-Apr-12	465	490	
GW0529	KAFB-106026	GW06	9-Apr-12	466	486	
GW0530	KAFB-106029	GW06	27-Apr-12	450.33	470.33	
GW0531	KAFB-106030	GW06	27-Apr-12	469.5	484.5	
GW0532	KAFB-106031	GW06	27-Apr-12	495.47	509.54	
GW0533	KAFB-106032	GW06	16-Apr-12	456	475.75	
GW0534	KAFB-106033	GW06	18-Apr-12	477	492	
GW0535	KAFB-106033	GW06	18-Apr-12	477	492	Yes
GW0536	KAFB-106034	GW06	16-Apr-12	502	517	
GW0537	KAFB-106035	GW06	2-May-12	452	482	
GW0538	KAFB-106036	GW06	2-May-12	481.8	496.8	
GW0539	KAFB-106037	GW06	2-May-12	507	522	
GW0540	KAFB-106038	GW06	23-Apr-12	478	508	
GW0541	KAFB-106039	GW06	23-Apr-12	508.25	523.25	
GW0542	KAFB-106040	GW06	23-Apr-12	530.55	545.55	
GW0544	KAFB-106042	GW06	10-Apr-12	469	483.53	
GW0545	KAFB-106042	GW06	10-Apr-12	469	483.53	Yes
GW0546	KAFB-106043	GW06	10-Apr-12	543	557.53	
GW0547	KAFB-106027	GW06	12-Apr-12	481	501	
GW0548	KAFB-106044	GW06	12-Apr-12	504.23	519.23	
GW0549	KAFB-106045	GW06	12-Apr-12	528.3	543.3	
GW0550	KAFB-106046	GW06	19-Apr-12	490	510	
GW0551	KAFB-106047	GW06	19-Apr-12	512	527	
GW0552	KAFB-106048	GW06	19-Apr-12	535.5	550.5	
GW0554	KAFB-106050	GW06	30-Apr-12	475.58	489.35	
GW0555	KAFB-106051	GW06	3-May-12	502.05	515.82	
GW0556	KAFB-106051	GW06	3-May-12	502.05	515.82	Yes
GW0557	KAFB-106052	GW06	24-Apr-12	450.35	479.63	
GW0558	KAFB-106053	GW06	24-Apr-12	479.26	493.03	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0559	KAFB-106054	GW06	24-Apr-12	504	519	
GW0560	KAFB-106055	GW06	17-Apr-12	465.82	484.82	
GW0561	KAFB-106057	GW06	2-May-12	486.17	499.94	
GW0562	KAFB-106058	GW06	17-Apr-12	511.17	524.94	
GW0564	KAFB-106060	GW06	7-May-12	503	518	
GW0565	KAFB-106061	GW06	7-May-12	573.2	588.2	
GW0566	KAFB-106062	GW06	24-Apr-12	575.78	590.26	
GW0567	KAFB-106063	GW06	24-Apr-12	505	520	
GW0568	KAFB-106063	GW06	24-Apr-12	505	520	Yes
GW0571	KAFB-106065	GW06	25-Apr-12	508	523	
GW0572	KAFB-106066	GW06	25-Apr-12	575.6	590.6	
GW0573	KAFB-106067	GW06	25-Apr-12	485	505	
GW0574	KAFB-106068	GW06	25-Apr-12	580	595	
GW0575	KAFB-106069	GW06	25-Apr-12	506	521	
GW0576	KAFB-106070	GW06	12-Apr-12	460	480	
GW0577	KAFB-106071	GW06	12-Apr-12	548	563	
GW0578	KAFB-106071	GW06	12-Apr-12	548	563	Yes
GW0579	KAFB-106072	GW06	12-Apr-12	475	495	
GW0580	KAFB-106073	GW06	3-May-12	500	515	
GW0581	KAFB-106074	GW06	3-May-12	570	584.53	
GW0582	KAFB-106075	GW06	3-May-12	480	500	
GW0584	KAFB-106077	GW06	10-May-12	504	519	
GW0585	KAFB-106078	GW06	14-May-12	573.5	588.5	
GW0586	KAFB-106079	GW06	8-May-12	483.92	503.92	
GW0587	KAFB-106080	GW06	8-May-12	504.4	519.4	
GW0588	KAFB-106081	GW06	8-May-12	575.59	589.36	
GW0589	KAFB-106081	GW06	8-May-12	575.59	589.36	Yes
GW0590	KAFB-106082	GW06	9-Apr-12	472	492	
GW0591	KAFB-106083	GW06	9-Apr-12	495.45	510.45	
GW0592	KAFB-106084	GW06	9-Apr-12	566	581	
GW0593	KAFB-106085	GW06	26-Apr-12	460	480	
GW0594	KAFB-106086	GW06	26-Apr-12	476	491	
GW0595	KAFB-106087	GW06	26-Apr-12	546	561	
GW0596	KAFB-106088	GW06	10-Apr-12	460	480	
GW0597	KAFB-106089	GW06	10-Apr-12	481.5	496.5	
GW0598	KAFB-106090	GW06	10-Apr-12	555	570	
GW0599	KAFB-106091	GW06	9-May-12	454	474	
GW0600	KAFB-106091	GW06	9-May-12	454	474	Yes
GW0601	KAFB-106092	GW06	1-May-12	474	487	
GW0602	KAFB-106093	GW06	1-May-12	544	557	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0603	KAFB-106094	GW06	19-Apr-12	484.2	504.2	
GW0604	KAFB-106095	GW06	9-Apr-12	503.75	518.75	
GW0605	KAFB-106096	GW06	11-Apr-12	576.3	591.3	
GW0606	KAFB-106013	GW06	18-Apr-12	486.5	511.5	
GW0607	KAFB-106097	GW06	18-Apr-12	506	521	
GW0608	KAFB-106098	GW06	18-Apr-12	531	546	
GW0610	KAFB-106099	GW06	8-May-12	501	516	
GW0611	KAFB-106099	GW06	8-May-12	501	516	Yes
GW0612	KAFB-106100	GW06	8-May-12	526	541	
GW0614	KAFB-106101	GW06	17-Apr-12	495.93	511.21	
GW0615	KAFB-106102	GW06	17-Apr-12	521.08	534.84	
GW0616	KAFB-106023	GW06	2-May-12	473	498	
GW0617	KAFB-106103	GW06	30-Apr-12	485	500	
GW0618	KAFB-106104	GW06	30-Apr-12	510	525	
GW0619	KAFB-106105	GW06	23-Apr-12	484	499	
GW0620	KAFB-106106	GW06	23-Apr-12	453.6	483.6	
GW0621	KAFB-106106	GW06	23-Apr-12	453.6	483.6	Yes
GW0622	KAFB-106107	GW06	23-Apr-12	510.16	525.16	
GW0630	KAFB-106001	GW07	11-Jul-12	483	508	
GW0631	KAFB-106002	GW07	2-Aug-12	479	504	
GW0635	KAFB-106007	GW07	11-Jul-12	484	509	
GW0638	KAFB-106010	GW07	28-Aug-12	483	508	
GW0639	KAFB-106011	GW07	2-Aug-12	482	507	
GW0641	KAFB-106014	GW07	9-Aug-12	486	511	
GW0642	KAFB-106015	GW07	7-Aug-12	480	505	
GW0643	KAFB-106016	GW07	19-Jul-12	475	500	
GW0644	KAFB-106017	GW07	12-Jul-12	482	507	
GW0645	KAFB-106018	GW07	12-Jul-12	476	501	
GW0646	KAFB-106018	GW07	12-Jul-12	476	501	Yes
GW0647	KAFB-106019	GW07	12-Jul-12	493	518	
GW0648	KAFB-106020	GW07	13-Aug-12	482	507	
GW0649	KAFB-106021	GW07	2-Aug-12	458	483	
GW0650	KAFB-106022	GW07	2-Aug-12	462	487	
GW0651	KAFB-106024	GW07	11-Jul-12	481	506	
GW0652	KAFB-106025	GW07	10-Jul-12	465	490	
GW0653	KAFB-106026	GW07	19-Jul-12	466	486	
GW0654	KAFB-106029	GW07	18-Jul-12	450.77	470.33	
GW0655	KAFB-106030	GW07	18-Jul-12	469.5	484.5	
GW0656	KAFB-106031	GW07	18-Jul-12	495.47	509.54	
GW0657	KAFB-106031	GW07	18-Jul-12	495.47	509.54	Yes

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Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0658	KAFB-106032	GW07	12-Jul-12	456	476	
GW0659	KAFB-106033	GW07	12-Jul-12	477	492	
GW0660	KAFB-106034	GW07	12-Jul-12	502	517	
GW0661	KAFB-106035	GW07	31-Jul-12	464.28	482	
GW0662	KAFB-106036	GW07	1-Aug-12	481.8	496.8	
GW0663	KAFB-106037	GW07	1-Aug-12	507	522	
GW0664	KAFB-106038	GW07	24-Jul-12	478	508	
GW0665	KAFB-106039	GW07	24-Jul-12	508.25	523.25	
GW0666	KAFB-106040	GW07	24-Jul-12	530.55	545.55	
GW0668	KAFB-106042	GW07	10-Jul-12	469	483.53	
GW0669	KAFB-106042	GW07	10-Jul-12	469	483.53	Yes
GW0670	KAFB-106043	GW07	10-Jul-12	543	557.53	
GW0671	KAFB-106027	GW07	23-Jul-12	481	501	
GW0672	KAFB-106044	GW07	29-Aug-12	504.23	519.23	
GW0673	KAFB-106045	GW07	23-Jul-12	528.3	543.3	
GW0674	KAFB-106046	GW07	26-Jul-12	490	510	
GW0675	KAFB-106047	GW07	26-Jul-12	512	527	
GW0676	KAFB-106048	GW07	26-Jul-12	535.5	550.5	
GW0678	KAFB-106050	GW07	31-Jul-12	475.58	489.35	
GW0679	KAFB-106050	GW07	31-Jul-12	475.58	489.35	Yes
GW0680	KAFB-106051	GW07	31-Jul-12	502.05	515.82	
GW0681	KAFB-106052	GW07	26-Jul-12	450.35	479.63	
GW0682	KAFB-106053	GW07	26-Jul-12	450.35	479.63	
GW0683	KAFB-106054	GW07	25-Jul-12	504	519	
GW0684	KAFB-106055	GW07	25-Jul-12	465.82	484.82	
GW0685	KAFB-106057	GW07	16-Jul-12	486.17	499.94	
GW0686	KAFB-106058	GW07	16-Jul-12	511.17	524.94	
GW0688	KAFB-106060	GW07	6-Aug-12	503	518	
GW0689	KAFB-106061	GW07	6-Aug-12	573.2	588.2	
GW0690	KAFB-106062	GW07	25-Jul-12	575.78	590.26	
GW0691	KAFB-106062	GW07	25-Jul-12	575.78	590.26	Yes
GW0692	KAFB-106063	GW07	25-Jul-12	505	520	
GW0695	KAFB-106065	GW07	8-Aug-12	508	523	
GW0696	KAFB-106066	GW07	8-Aug-12	575.6	590.6	
GW0697	KAFB-106067	GW07	30-Jul-12	485	505	
GW0698	KAFB-106068	GW07	30-Jul-12	580	595	
GW0699	KAFB-106069	GW07	28-Aug-12	506.01	521.01	
GW0700	KAFB-106070	GW07	25-Jul-12	460	480	
GW0701	KAFB-106071	GW07	11-Jul-12	548	563	
GW0702	KAFB-106071	GW07	11-Jul-12	548	563	Yes

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Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0703	KAFB-106072	GW07	25-Jul-12	475	695	
GW0704	KAFB-106073	GW07	6-Aug-12	500	514.53	
GW0705	KAFB-106074	GW07	6-Aug-12	570	584.53	
GW0706	KAFB-106075	GW07	6-Aug-12	480	500	
GW0708	KAFB-106077	GW07	9-Aug-12	504	519	
GW0709	KAFB-106078	GW07	29-Aug-12	573.5	588.5	
GW0710	KAFB-106079	GW07	1-Aug-12	483.92	503.92	
GW0711	KAFB-106080	GW07	1-Aug-12	504.4	519.4	
GW0712	KAFB-106081	GW07	1-Aug-12	575.59	589.36	
GW0714	KAFB-106082	GW07	9-Jul-12	472	492	
GW0715	KAFB-106083	GW07	9-Jul-12	495.45	510.45	
GW0716	KAFB-106084	GW07	10-Jul-12	566	581	
GW0717	KAFB-106085	GW07	23-Jul-12	446.5	476.5	
GW0718	KAFB-106086	GW07	23-Jul-12	476	491	
GW0719	KAFB-106087	GW07	23-Jul-12	546	561	
GW0720	KAFB-106088	GW07	9-Jul-12	460	480	
GW0721	KAFB-106089	GW07	9-Jul-12	481.5	**4963.5**	
GW0722	KAFB-106090	GW07	9-Jul-12	555	570	
GW0723	KAFB-106091	GW07	30-Jul-12	454	474	
GW0724	KAFB-106092	GW07	30-Jul-12	474	487	
GW0725	KAFB-106092	GW07	30-Jul-12	474	487	Yes
GW0726	KAFB-106093	GW07	30-Jul-12	544	557	
GW0727	KAFB-106094	GW07	11-Jul-12	484.2	504.2	
GW0728	KAFB-106095	GW07	28-Aug-12	503.75	518.75	
GW0729	KAFB-106096	GW07	10-Jul-12	576.3	591.3	
GW0730	KAFB-106013	GW07	19-Jul-12	486.5	511.5	
GW0731	KAFB-106097	GW07	29-Aug-12	506	521	
GW0732	KAFB-106098	GW07	19-Jul-12	531	546	
GW0734	KAFB-106099	GW07	7-Aug-12	501	516	
GW0735	KAFB-106100	GW07	7-Aug-12	526	541	
GW0736	KAFB-106100	GW07	7-Aug-12	526	541	Yes
GW0738	KAFB-106101	GW07	18-Jul-12	495.93	511.21	
GW0739	KAFB-106102	GW07	18-Jul-12	521.08	534.84	
GW0740	KAFB-106023	GW07	24-Jul-12	473	498	
GW0741	KAFB-106103	GW07	24-Jul-12	485	500	
GW0742	KAFB-106104	GW07	24-Jul-12	485	500	
GW0743	KAFB-106105	GW07	17-Jul-12	484	499	
GW0744	KAFB-106106	GW07	17-Jul-12	433.6	483.6	
GW0745	KAFB-106106	GW07	17-Jul-12	453.6	483.6	Yes
GW0746	KAFB-106107	GW07	17-Jul-12	510.16	525.16	

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Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0754	KAFB-106001	GW08	16-Oct-12	483	508	
GW0755	KAFB-106002	GW08	1-Nov-12	479	504	
GW0758	KAFB-106007	GW08	4-Oct-12	484	509	
GW0762	KAFB-106010	GW08	1-Nov-12	483	508	
GW0763	KAFB-106011	GW08	1-Nov-12	486	511	
GW0765	KAFB-106014	GW08	5-Nov-12	486	511	
GW0766	KAFB-106015	GW08	22-Oct-12	480	505	
GW0767	KAFB-106016	GW08	11-Oct-12	475	500	
GW0768	KAFB-106017	GW08	11-Oct-12	482	507	
GW0769	KAFB-106018	GW08	9-Oct-12	476	501	
GW0770	KAFB-106018	GW08	9-Oct-12	476	501	Yes
GW0771	KAFB-106019	GW08	9-Oct-12	493	518	
GW0772	KAFB-106020	GW08	7-Nov-12	482	507	
GW0773	KAFB-106021	GW08	6-Nov-12	458	483	
GW0774	KAFB-106022	GW08	18-Oct-12	462	482	
GW0775	KAFB-106024	GW08	4-Oct-12	481	506	
GW0776	KAFB-106025	GW08	4-Oct-12	465	490	Yes
GW0777	KAFB-106025	GW08	4-Oct-12	465	490	
GW0778	KAFB-106026	GW08	9-Oct-12	466	486	
GW0779	KAFB-106029	GW08	23-Oct-12	450.77	470.33	
GW0780	KAFB-106030	GW08	23-Oct-12	469.5	484.5	
GW0781	KAFB-106031	GW08	23-Oct-12	495.47	509.54	
GW0782	KAFB-106032	GW08	8-Oct-12	456	475.75	
GW0783	KAFB-106033	GW08	8-Oct-12	477	492	
GW0784	KAFB-106033	GW08	8-Oct-12	477	492	Yes
GW0785	KAFB-106034	GW08	8-Oct-12	502	517	
GW0786	KAFB-106035	GW08	30-Oct-12	452	482	
GW0787	KAFB-106036	GW08	30-Oct-12	507	522	
GW0788	KAFB-106037	GW08	30-Oct-12	507	522	
GW0789	KAFB-106038	GW08	18-Oct-12	478	508	
GW0790	KAFB-106039	GW08	18-Oct-12	508.25	523.25	
GW0791	KAFB-106040	GW08	18-Oct-12	530.55	545.55	
GW0793	KAFB-106042	GW08	10-Oct-12	469	483.53	
GW0794	KAFB-106043	GW08	10-Oct-12	543	557.53	
GW0795	KAFB-106027	GW08	8-Oct-12	481	501	
GW0796	KAFB-106044	GW08	8-Oct-12	504.23	519.23	
GW0797	KAFB-106044	GW08	8-Oct-12	504.23	519.23	Yes
GW0798	KAFB-106045	GW08	8-Oct-12	528.3	543.3	
GW0799	KAFB-106046	GW08	17-Oct-12	490	510	
GW0800	KAFB-106047	GW08	17-Oct-12	512	527	

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Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0801	KAFB-106048	GW08	17-Oct-12	535.5	550.5	
GW0803	KAFB-106050	GW08	31-Oct-12	475.58	489.35	
GW0804	KAFB-106051	GW08	31-Oct-12	502.05	515.82	
GW0805	KAFB-106052	GW08	25-Oct-12	450.35	479.63	
GW0806	KAFB-106053	GW08	25-Oct-12	479.26	493.03	
GW0807	KAFB-106054	GW08	25-Oct-12	504	519	
GW0808	KAFB-106055	GW08	16-Oct-12	465.82	484.82	
GW0809	KAFB-106057	GW08	16-Oct-12	486.17	499.94	
GW0810	KAFB-106057	GW08	16-Oct-12	486.17	499.94	Yes
GW0811	KAFB-106058	GW08	16-Oct-12	511.17	524.94	
GW0813	KAFB-106060	GW08	31-Oct-12	503	518	
GW0814	KAFB-106061	GW08	31-Oct-12	573.2	588.2	
GW0815	KAFB-106062	GW08	22-Oct-12	575.78	590.26	
GW0816	KAFB-106063	GW08	22-Oct-12	505	520	
GW0819	KAFB-106065	GW08	24-Oct-12	508	523	
GW0820	KAFB-106066	GW08	24-Oct-12	575.6	590.6	
GW0821	KAFB-106067	GW08	23-Oct-12	485	505	
GW0822	KAFB-106068	GW08	23-Oct-12	580	595	
GW0823	KAFB-106068	GW08	23-Oct-12	580	595	Yes
GW0824	KAFB-106069	GW08	23-Oct-12	506	521	
GW0825	KAFB-106070	GW08	15-Oct-12	460	480	
GW0826	KAFB-106071	GW08	15-Oct-12	548	563	
GW0827	KAFB-106072	GW08	15-Oct-12	475	495	
GW0828	KAFB-106073	GW08	7-Nov-12	500	514.53	
GW0829	KAFB-106074	GW08	6-Nov-12	570	584.53	
GW0830	KAFB-106075	GW08	7-Nov-12	480	500	
GW0832	KAFB-106077	GW08	1-Nov-12	504	519	
GW0833	KAFB-106078	GW08	1-Nov-12	573.5	588.5	
GW0834	KAFB-106079	GW08	25-Oct-12	483.92	503.92	
GW0835	KAFB-106080	GW08	25-Oct-12	504.4	519.4	
GW0836	KAFB-106080	GW08	25-Oct-12	504.4	519.4	Yes
GW0837	KAFB-106081	GW08	25-Oct-12	575.59	589.36	
GW0838	KAFB-106082	GW08	3-Oct-12	472	492	
GW0839	KAFB-106083	GW08	3-Oct-12	495.45	510.45	
GW0840	KAFB-106084	GW08	3-Oct-12	566	581	
GW0841	KAFB-106085	GW08	24-Oct-12	446.5	476.5	
GW0842	KAFB-106086	GW08	24-Oct-12	476	491	
GW0843	KAFB-106087	GW08	24-Oct-12	546	561	
GW0844	KAFB-106088	GW08	11-Oct-12	460	480	
GW0845	KAFB-106089	GW08	11-Oct-12	481.5	496.5	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0846	KAFB-106089	GW08	11-Oct-12	481.5	496.5	Yes
GW0847	KAFB-106090	GW08	11-Oct-12	555	570	
GW0848	KAFB-106091	GW08	29-Oct-12	454	474	
GW0849	KAFB-106092	GW08	29-Oct-12	474	487	
GW0850	KAFB-106093	GW08	29-Oct-12	544	557	
GW0851	KAFB-106094	GW08	4-Oct-12	484.2	504.2	
GW0852	KAFB-106095	GW08	4-Oct-12	503.75	518.75	
GW0853	KAFB-106096	GW08	4-Oct-12	576.3	591.3	
GW0854	KAFB-106013	GW08	18-Oct-12	486.5	511.5	
GW0855	KAFB-106097	GW08	16-Oct-12	506	521	
GW0856	KAFB-106097	GW08	16-Oct-12	506	521	Yes
GW0857	KAFB-106098	GW08	16-Oct-12	531	546	
GW0859	KAFB-106099	GW08	5-Nov-12	501	516	
GW0860	KAFB-106100	GW08	14-Nov-12	526	541	
GW0862	KAFB-106101	GW08	15-Oct-12	495.93	511.21	
GW0863	KAFB-106102	GW08	15-Oct-12	521.08	534.84	
GW0864	KAFB-106023	GW08	17-Oct-12	473	498	
GW0865	KAFB-106103	GW08	17-Oct-12	485	500	
GW0866	KAFB-106103	GW08	17-Oct-12	485	500	Yes
GW0867	KAFB-106104	GW08	17-Oct-12	510	525	
GW0868	KAFB-106105	GW08	11-Oct-12	484	499	
GW0869	KAFB-106106	GW08	10-Oct-12	453.6	483.6	
GW0870	KAFB-106107	GW08	10-Oct-12	510.16	525.16	
GW0888	KAFB-106001	GW09	9-Jan-13	483	508	
GW0889	KAFB-106002	GW09	29-Jan-13	479	504	
GW0892	KAFB-106007	GW09	9-Jan-13	484	509	
GW0896	KAFB-106010	GW09	29-Jan-13	483	508	
GW0897	KAFB-106011	GW09	24-Jan-13	486	511	
GW0899	KAFB-106014	GW09	22-Jan-13	486	511	
GW0900	KAFB-106015	GW09	13-Mar-13	483.5	508.5	
GW0901	KAFB-106016	GW09	10-Jan-13	475	500	
GW0902	KAFB-106017	GW09	14-Jan-13	482	507	
GW0903	KAFB-106017	GW09	14-Jan-13	482	507	Yes
GW0904	KAFB-106018	GW09	14-Jan-13	476	501	
GW0905	KAFB-106019	GW09	26-Mar-13	493	518	
GW0906	KAFB-106020	GW09	23-Jan-13	482	507	
GW0907	KAFB-106021	GW09	7-Feb-13	458	483	
GW0908	KAFB-106022	GW09	26-Mar-13	462	487	
GW0909	KAFB-106024	GW09	9-Jan-13	481	506	
GW0910	KAFB-106025	GW09	10-Jan-13	465	490	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0911	KAFB-106026	GW09	7-Feb-13	466	486	
GW0912	KAFB-106026	GW09	7-Feb-13	466	486	Yes
GW0913	KAFB-106029	GW09	23-Jan-13	450.77	470.73	
GW0914	KAFB-106030	GW09	22-Jan-13	469.5	484.5	
GW0915	KAFB-106031	GW09	22-Jan-13	495.47	509.54	
GW0916	KAFB-106032	GW09	22-Jan-13	456	475.75	
GW0917	KAFB-106033	GW09	21-Jan-13	477	492	
GW0918	KAFB-106034	GW09	9-Jan-13			
GW0919	KAFB-106035	GW09	5-Feb-13	452	482	
GW0920	KAFB-106036	GW09	5-Feb-13	481.8	496.8	
GW0921	KAFB-106037	GW09	5-Feb-13	507	522	
GW0922	KAFB-106038	GW09	28-Jan-13	478	508	
GW0923	KAFB-106039	GW09	28-Jan-13	508.25	523.25	
GW0924	KAFB-106039	GW09	28-Jan-13	508.25	523.25	Yes
GW0925	KAFB-106040	GW09	28-Jan-13	530.55	545.55	
GW0927	KAFB-106042	GW09	10-Jan-13	469	483.53	
GW0928	KAFB-106043	GW09	10-Jan-13	543	557.53	
GW0929	KAFB-106027	GW09	21-Jan-13	481	501	
GW0930	KAFB-106044	GW09	14-Jan-13	482	507	
GW0931	KAFB-106045	GW09	21-Jan-13	528.3	543.3	
GW0932	KAFB-106046	GW09	16-Jan-13	490	510	
GW0933	KAFB-106047	GW09	16-Jan-13	512	527	
GW0934	KAFB-106047	GW09	16-Jan-13	512	527	Yes
GW0935	KAFB-106048	GW09	15-Jan-13	535.5	550.5	
GW0937	KAFB-106050	GW09	5-Feb-13	475.58	489.35	
GW0938	KAFB-106051	GW09	4-Feb-13	502.05	515.82	
GW0939	KAFB-106052	GW09	30-Jan-13	450.35	479.63	
GW0940	KAFB-106053	GW09	30-Jan-13	479.26	493.03	
GW0941	KAFB-106054	GW09	30-Jan-13	504	519	
GW0942	KAFB-106055	GW09	17-Jan-13	465.82	484.82	
GW0943	KAFB-106057	GW09	17-Jan-13	486.17	499.94	
GW0944	KAFB-106058	GW09	17-Jan-13	511.17	524.94	
GW0946	KAFB-106060	GW09	31-Jan-13	503	518	
GW0947	KAFB-106060	GW09	31-Jan-13	503	518	Yes
GW0948	KAFB-106061	GW09	31-Jan-13	573.2	588.2	
GW0949	KAFB-106062	GW09	30-Jan-13	575.78	590.26	
GW0950	KAFB-106063	GW09	30-Jan-13	505	520	
GW0953	KAFB-106065	GW09	31-Jan-13	508	523	
GW0954	KAFB-106066	GW09	31-Jan-13	575.6	590.6	
GW0955	KAFB-106067	GW09	22-Jan-13	485	505	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0956	KAFB-106068	GW09	17-Jan-13	580	595	
GW0957	KAFB-106069	GW09	17-Jan-13	506	521	
GW0958	KAFB-106070	GW09	14-Jan-13	460	480	
GW0959	KAFB-106070	GW09	14-Jan-13	460	480	Yes
GW0960	KAFB-106071	GW09	14-Jan-13	548	563	
GW0961	KAFB-106072	GW09	14-Jan-13	475	495	
GW0962	KAFB-106073	GW09	6-Feb-13	500	514.53	
GW0963	KAFB-106074	GW09	6-Feb-13	570	584.53	
GW0964	KAFB-106075	GW09	6-Feb-13	480	500	
GW0966	KAFB-106077	GW09	29-Jan-13	504	519	
GW0967	KAFB-106078	GW09	7-Feb-13	573.5	588.5	
GW0968	KAFB-106079	GW09	5-Feb-13	483.92	503.92	
GW0969	KAFB-106080	GW09	5-Feb-13	504.4	519.4	
GW0970	KAFB-106080	GW09	5-Feb-13	504.4	519.4	Yes
GW0971	KAFB-106081	GW09	5-Feb-13	575.59	589.36	
GW0972	KAFB-106082	GW09	8-Jan-13	472	492	
GW0973	KAFB-106083	GW09	8-Jan-13	495.45	510.45	
GW0974	KAFB-106084	GW09	8-Jan-13	566	581	
GW0975	KAFB-106085	GW09	28-Jan-13	446.5	476.5	
GW0976	KAFB-106086	GW09	28-Jan-13	476	491	
GW0977	KAFB-106087	GW09	28-Jan-13	546	561	
GW0978	KAFB-106088	GW09	8-Jan-13	460	480	
GW0979	KAFB-106089	GW09	8-Jan-13	481.5	496.5	
GW0980	KAFB-106090	GW09	8-Jan-13	555	570	
GW0981	KAFB-106090	GW09	8-Jan-13	555	570	Yes
GW0982	KAFB-106091	GW09	26-Mar-13	454	474	
GW0983	KAFB-106092	GW09	4-Feb-13	474	487	
GW0984	KAFB-106093	GW09	5-Feb-13	544	557	
GW0985	KAFB-106094	GW09	7-Jan-13	484.2	504.2	
GW0986	KAFB-106095	GW09	7-Jan-13	503.75	518.75	
GW0987	KAFB-106096	GW09	7-Jan-13	576.3	591.3	
GW0988	KAFB-106013	GW09	11-Mar-13	486.5	511.5	
GW0989	KAFB-106097	GW09	24-Jan-13	506	521	
GW0990	KAFB-106098	GW09	24-Jan-13	531	546	
GW0992	KAFB-106099	GW09	6-Feb-13	501	516	
GW0993	KAFB-106099	GW09	9-Jan-13	501	516	Yes
GW0994	KAFB-106100	GW09	6-Feb-13	526	541	
GW0996	KAFB-106101	GW09	23-Jan-13	495.93	511.21	
GW0997	KAFB-106102	GW09	23-Jan-13	521.08	534.84	
GW0998	KAFB-106023	GW09	24-Jan-13	473	498	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW0999	KAFB-106103	GW09	24-Jan-13	485	500	
GW1000	KAFB-106104	GW09	24-Jan-13	510	525	
GW1001	KAFB-106105	GW09	29-Jan-13	484	499	
GW1002	KAFB-106106	GW09	29-Jan-13	453.6	483.6	
GW1003	KAFB-106106	GW09	29-Jan-13	453.6	483.6	Yes
GW1004	KAFB-106107	GW09	29-Jan-13	510.16	525.16	
GW1005	KAFB-106160	GW09	15-Jan-13	490	525	
GW1006	KAFB-106161	GW09	16-Jan-13	490	525	
GW1023	KAFB-106001	GW10	8-Apr-13	483	508	
GW1024	KAFB-106002	GW10	11-Apr-13	479	504	
GW1028	KAFB-106007	GW10	8-Apr-13	484	509	
GW1031	KAFB-106010	GW10	13-May-13	483	508	
GW1032	KAFB-106011	GW10	11-Apr-13	486	511	
GW1034	KAFB-106014	GW10	13-May-13	486	511	
GW1035	KAFB-106015	GW10	14-May-13	480	505	
GW1036	KAFB-106016	GW10	9-Apr-13	475	500	
GW1037	KAFB-106017	GW10	10-Apr-13	482	507	
GW1038	KAFB-106017	GW10	10-Apr-13	482	507	Yes
GW1039	KAFB-106018	GW10	10-Apr-13	476	501	
GW1040	KAFB-106019	GW10	10-Apr-13	493	518	
GW1041	KAFB-106020	GW10	9-Apr-13	482	507	
GW1042	KAFB-106021	GW10	16-Apr-13	458	483	
GW1043	KAFB-106022	GW10	15-Apr-13	462	487	
GW1044	KAFB-106024	GW10	8-Apr-13	481	506	
GW1045	KAFB-106025	GW10	4-Apr-13	465	490	
GW1046	KAFB-106026	GW10	4-Apr-13	466	486	
GW1047	KAFB-106029	GW10	18-Apr-13	450.77	470.33	
GW1048	KAFB-106030	GW10	17-Apr-13	469.5	484.5	
GW1049	KAFB-106030	GW10	17-Apr-13	469.5	484.5	Yes
GW1050	KAFB-106031	GW10	17-Apr-13	495.47	509.54	
GW1051	KAFB-106032	GW10	16-Apr-13	456	475.75	
GW1052	KAFB-106033	GW10	16-Apr-13	477	492	
GW1053	KAFB-106034	GW10	16-Apr-13	502	717	
GW1054	KAFB-106035	GW10	23-Apr-13	452	482	
GW1055	KAFB-106036	GW10	23-Apr-13	481.8	496.8	
GW1056	KAFB-106037	GW10	23-Apr-13	507	522	
GW1057	KAFB-106038	GW10	29-Apr-13	478	508	
GW1058	KAFB-106039	GW10	29-Apr-13	508.25	523.25	
GW1059	KAFB-106040	GW10	29-Apr-13	530.55	545.55	
GW1060	KAFB-106040	GW10	29-Apr-13	530.55	545.55	Yes

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW1062	KAFB-106042	GW10	15-Apr-13	469	483.53	
GW1063	KAFB-106043	GW10	15-Apr-13	543	557.53	
GW1064	KAFB-106027	GW10	2-May-13	481	501	
GW1065	KAFB-106044	GW10	2-May-13	504.23	519.23	
GW1066	KAFB-106045	GW10	2-May-13	528.3	543.3	
GW1067	KAFB-106046	GW10	6-May-13			
GW1068	KAFB-106047	GW10	6-May-13			
GW1069	KAFB-106048	GW10	6-May-13			
GW1072	KAFB-106050	GW10	15-Apr-13	475.58	489.35	
GW1073	KAFB-106051	GW10	15-Apr-13	502.05	515.82	
GW1074	KAFB-106052	GW10	17-Apr-13	450.35	479.63	
GW1075	KAFB-106053	GW10	17-Apr-13	479.26	493.03	
GW1076	KAFB-106054	GW10	17-Apr-13	504	519	
GW1077	KAFB-106055	GW10	22-Apr-13	465.82	484.82	
GW1078	KAFB-106057	GW10	22-Apr-13	486.17	499.94	
GW1079	KAFB-106058	GW10	22-Apr-13	511.17	524.94	
GW1081	KAFB-106060	GW10	8-May-13			
GW1082	KAFB-106060	GW10	8-May-13			Yes
GW1083	KAFB-106061	GW10	8-May-13			
GW1084	KAFB-106062	GW10	6-May-13			
GW1085	KAFB-106063	GW10	6-May-13			
GW1088	KAFB-106065	GW10	9-May-13			
GW1089	KAFB-106066	GW10	9-May-13			
GW1090	KAFB-106067	GW10	1-May-13	485	505	
GW1091	KAFB-106068	GW10	1-May-13	580	595	
GW1092	KAFB-106069	GW10	1-May-13	506	521	
GW1093	KAFB-106069	GW10	1-May-13	506	521	Yes
GW1094	KAFB-106070	GW10	24-Apr-13	460	480	
GW1095	KAFB-106071	GW10	20-May-13	548	563	
GW1096	KAFB-106072	GW10	24-Apr-13	475	495	
GW1097	KAFB-106073	GW10	21-May-13	500	514.53	
GW1098	KAFB-106074	GW10	30-Apr-13	570	584.53	
GW1099	KAFB-106075	GW10	30-Apr-13	480	500	
GW1101	KAFB-106077	GW10	2-May-13	504	519	
GW1102	KAFB-106078	GW10	13-May-13	573.5	588.5	
GW1103	KAFB-106079	GW10	9-May-13			
GW1104	KAFB-106079	GW10	9-May-13			Yes
GW1105	KAFB-106080	GW10	9-May-13			
GW1106	KAFB-106081	GW10	9-May-13			
GW1107	KAFB-106082	GW10	30-Apr-13	472	492	

Appendix A-2a
Groundwater Monitoring Well Samples Used in HHRA

Sample Number	Location	Round	Date	Well Screen Start (ft)	Well Screen End (ft)	Duplicate Result?
GW1108	KAFB-106083	GW10	30-Apr-13	495.45	510.45	
GW1109	KAFB-106084	GW10	30-Apr-13	566	581	
GW1110	KAFB-106085	GW10	29-Apr-13	446.5	476.5	
GW1111	KAFB-106086	GW10	29-Apr-13	476	491	
GW1112	KAFB-106087	GW10	29-Apr-13	546	561	
GW1113	KAFB-106088	GW10	7-May-13			
GW1114	KAFB-106089	GW10	24-Apr-13	481.5	496.5	
GW1115	KAFB-106089	GW10	24-Apr-13	481.5	496.5	Yes
GW1116	KAFB-106090	GW10	24-Apr-13	555	570	
GW1117	KAFB-106091	GW10	18-Apr-13	454	474	
GW1118	KAFB-106092	GW10	18-Apr-13	474	487	
GW1119	KAFB-106093	GW10	18-Apr-13	544	557	
GW1120	KAFB-106094	GW10	8-May-13			
GW1121	KAFB-106095	GW10	8-May-13			
GW1122	KAFB-106096	GW10	8-May-13			
GW1123	KAFB-106013	GW10	14-May-13	486.5	511.5	
GW1124	KAFB-106097	GW10	7-May-13			
GW1125	KAFB-106098	GW10	7-May-13			
GW1126	KAFB-106098	GW10	7-May-13			Yes
GW1128	KAFB-106099	GW10	7-May-13			
GW1129	KAFB-106100	GW10	7-May-13			
GW1131	KAFB-106101	GW10	18-Apr-13	495.93	511.21	
GW1132	KAFB-106102	GW10	16-Apr-13	521.08	534.84	
GW1133	KAFB-106023	GW10	23-Apr-13	473	498	
GW1134	KAFB-106103	GW10	23-Apr-13	485	500	
GW1135	KAFB-106104	GW10	23-Apr-13	510	525	
GW1136	KAFB-106105	GW10	22-Apr-13	484	499	
GW1137	KAFB-106105	GW10	22-Apr-13	484	499	Yes
GW1138	KAFB-106106	GW10	22-Apr-13	453.6	483.6	
GW1139	KAFB-106107	GW10	22-Apr-13	510.16	525.16	

Appendix A-2a
Water Supply Well Samples Used in HHRA

Sample Number	Location	Sample Round	Purpose	Duplicate Sample?
GW0118	KAFB-003	GW03	REG	
GW0120	KAFB-003	GW03	REG	
GW0122	KAFB-015	GW03	REG	
GW0123	KAFB-015	GW03	REG	
GW0125	KAFB-016	GW03	REG	
GW0126	KAFB-016	GW03	REG	
GW0128	ST106-VA2	GW03	REG	
GW0129	ST106-VA2	GW03	REG	
GW0251	KAFB-003	GW04	REG	
GW0252	KAFB-015	GW04	REG	
GW0253	KAFB-016	GW04	REG	
GW0254	ST106-VA2	GW04	REG	
GW0376	KAFB-003	GW05	REG	
GW0377	KAFB-015	GW05	REG	
GW0378	KAFB-016	GW05	REG	
GW0379	ST106-VA2	GW05	REG	
GW0380	ST106-VA2	GW05	FD	Yes
GW0500	KAFB-003	GW06	REG	
GW0501	KAFB-015	GW06	REG	
GW0502	KAFB-016	GW06	REG	
GW0503	ST106-VA2	GW06	REG	
GW0504	ST106-VA2	GW06	FD	Yes
GW0624	KAFB-003	GW07	REG	
GW0625	KAFB-003	GW07	FD	Yes
GW0626	KAFB-015	GW07	REG	
GW0627	KAFB-016	GW07	REG	
GW0628	ST106-VA2	GW07	REG	
GW0748	KAFB-003	GW08	REG	
GW0749	KAFB-015	GW08	REG	
GW0752	ST106-VA2	GW08	REG	
GW0882	KAFB-003	GW09	REG	
GW0883	KAFB-003	GW09	FD	Yes
GW0886	ST106-VA2	GW09	REG	
GW1018	KAFB-003	GW10	REG	
GW1021	ST106-VA2	GW10	REG	
GW1021R	ST106-VA2	GW10	REG	

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA9113	CATOX-IN	0	0	20-Mar-13	SG09	REG	
VA9112	CATOX-POSTC1	0	0	20-Mar-13	SG09	REG	
VA0436	KAFB-106028-150	148.75	151.25	15-Aug-11	SG03	REG	
VA0752	KAFB-106028-150	148.75	151.25	1-Nov-11	SG04	REG	
VA1066	KAFB-106028-150	148.75	151.25	21-Mar-12	SG05	REG	
VA1380	KAFB-106028-150	148.75	151.25	22-May-12	SG06	REG	
VA1694	KAFB-106028-150	148.75	151.25	18-Sep-12	SG07	REG	
VA2009	KAFB-106028-150	148.75	151.25	18-Dec-12	SG08	REG	
VA2323	KAFB-106028-150	148.75	151.25	19-Mar-13	SG09	REG	
VA2637	KAFB-106028-150	148.75	151.25	20-Jun-13	SG10	REG	
VA0437	KAFB-106028-250	248.75	251.25	15-Aug-11	SG03	REG	
VA0438	KAFB-106028-250	248.75	251.25	15-Aug-11	SG03	FD	Yes
VA0753	KAFB-106028-250	248.75	251.25	1-Nov-11	SG04	REG	
VA1067	KAFB-106028-250	248.75	251.25	21-Mar-12	SG05	REG	
VA1381	KAFB-106028-250	248.75	251.25	22-May-12	SG06	REG	
VA1695	KAFB-106028-250	248.75	251.25	18-Sep-12	SG07	REG	
VA1696	KAFB-106028-250	248.75	251.25	18-Sep-12	SG07	FD	Yes
VA2010	KAFB-106028-250	248.75	251.25	18-Dec-12	SG08	REG	
VA2324	KAFB-106028-250	248.75	251.25	19-Mar-13	SG09	REG	
VA2638	KAFB-106028-250	248.75	251.25	20-Jun-13	SG10	REG	
VA0439	KAFB-106028-350	348.75	351.25	15-Aug-11	SG03	REG	
VA0754	KAFB-106028-350	348.75	351.25	1-Nov-11	SG04	REG	
VA1068	KAFB-106028-350	348.75	351.25	21-Mar-12	SG05	REG	
VA1382	KAFB-106028-350	348.75	351.25	22-May-12	SG06	REG	
VA1697	KAFB-106028-350	348.75	351.25	18-Sep-12	SG07	REG	
VA2011	KAFB-106028-350	348.75	351.25	18-Dec-12	SG08	REG	
VA2325	KAFB-106028-350	348.75	351.25	19-Mar-13	SG09	REG	
VA2639	KAFB-106028-350	348.75	351.25	20-Jun-13	SG10	REG	
VA0440	KAFB-106028-450	448.75	451.25	15-Aug-11	SG03	REG	
VA0755	KAFB-106028-450	448.75	451.25	1-Nov-11	SG04	REG	
VA0755R	KAFB-106028-450	448.75	451.25	15-Nov-11	SG04	REG	
VA1069	KAFB-106028-450	448.75	451.25	21-Mar-12	SG05	REG	
VA1383	KAFB-106028-450	448.75	451.25	22-May-12	SG06	REG	
VA1698	KAFB-106028-450	448.75	451.25	18-Sep-12	SG07	REG	
VA2012	KAFB-106028-450	448.75	451.25	18-Dec-12	SG08	REG	
VA2013	KAFB-106028-450	448.75	451.25	18-Dec-12	SG08	FD	Yes
VA2326	KAFB-106028-450	448.75	451.25	19-Mar-13	SG09	REG	
VA2327	KAFB-106028-450	448.75	451.25	19-Mar-13	SG09	FD	Yes
VA2640	KAFB-106028-450	448.75	451.25	20-Jun-13	SG10	REG	
VA0455	KAFB-106108-025	15.34	25.34	6-Jul-11	SG03	REG	
VA0770	KAFB-106108-025	15.34	25.34	25-Oct-11	SG04	REG	
VA1084	KAFB-106108-025	15.34	25.34	13-Mar-12	SG05	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1398	KAFB-106108-025	15.34	25.34	15-May-12	SG06	REG	
VA1714	KAFB-106108-025	15.34	25.34	4-Sep-12	SG07	REG	
VA2028	KAFB-106108-025	15	25	26-Nov-12	SG08	REG	
VA2342	KAFB-106108-025	15.34	25.34	18-Feb-13	SG09	REG	
VA2656	KAFB-106108-025	15.34	25.34	5-Jun-13	SG10	REG	
VA0456	KAFB-106108-050	40	50	6-Jul-11	SG03	REG	
VA0457	KAFB-106108-050	40	50	6-Jul-11	SG03	FD	Yes
VA0771	KAFB-106108-050	40	50	25-Oct-11	SG04	REG	
VA0772	KAFB-106108-050	40	50	25-Oct-11	SG04	FD	Yes
VA1085	KAFB-106108-050	40	50	13-Mar-12	SG05	REG	
VA1086	KAFB-106108-050	40	50	13-Mar-12	SG05	FD	Yes
VA1399	KAFB-106108-050	40	50	15-May-12	SG06	REG	
VA1400	KAFB-106108-050	40	50	15-May-12	SG06	FD	Yes
VA1715	KAFB-106108-050	40	50	5-Sep-12	SG07	REG	
VA2029	KAFB-106108-050	40	50	26-Nov-12	SG08	REG	
VA2343	KAFB-106108-050	40	50	18-Feb-13	SG09	REG	
VA2657	KAFB-106108-050	40	50	5-Jun-13	SG10	REG	
VA0458	KAFB-106108-150	140.17	150.17	6-Jul-11	SG03	REG	
VA0773	KAFB-106108-150	140.17	150.17	25-Oct-11	SG04	REG	
VA1087	KAFB-106108-150	140.17	150.17	13-Mar-12	SG05	REG	
VA1401	KAFB-106108-150	140.17	150.17	16-May-12	SG06	REG	
VA1716	KAFB-106108-150	140.17	150.17	5-Sep-12	SG07	REG	
VA2030	KAFB-106108-150	140.17	150.17	27-Nov-12	SG08	REG	
VA2344	KAFB-106108-150	140.17	150.17	18-Feb-13	SG09	REG	
VA2658	KAFB-106108-150	140.17	150.17	5-Jun-13	SG10	REG	
VA0459	KAFB-106108-250	240.27	250.27	8-Jul-11	SG03	REG	
VA0774	KAFB-106108-250	240.27	250.27	25-Oct-11	SG04	REG	
VA1088	KAFB-106108-250	240.27	250.27	13-Mar-12	SG05	REG	
VA1402	KAFB-106108-250	240.27	250.27	16-May-12	SG06	REG	
VA1717	KAFB-106108-250	240.27	250.27	5-Sep-12	SG07	REG	
VA2031	KAFB-106108-250	240.27	250.27	27-Nov-12	SG08	REG	
VA2345	KAFB-106108-250	240.27	250.27	18-Feb-13	SG09	REG	
VA2659	KAFB-106108-250	240.27	250.27	5-Jun-13	SG10	REG	
VA0460	KAFB-106108-350	340.27	350.27	8-Jul-11	SG03	REG	
VA0775	KAFB-106108-350	340.27	350.27	25-Oct-11	SG04	REG	
VA1089	KAFB-106108-350	340.27	350.27	13-Mar-12	SG05	REG	
VA1403	KAFB-106108-350	340.27	350.27	16-May-12	SG06	REG	
VA1718	KAFB-106108-350	340.27	350.27	5-Sep-12	SG07	REG	
VA1719	KAFB-106108-350	340.27	350.27	5-Sep-12	SG07	FD	Yes
VA2032	KAFB-106108-350	340.27	350.27	27-Nov-12	SG08	REG	
VA2033	KAFB-106108-350	340.27	350.27	27-Nov-12	SG08	FD	Yes
VA2346	KAFB-106108-350	340.27	350.27	18-Feb-13	SG09	REG	

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Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2347	KAFB-106108-350	340.27	350.27	18-Feb-13	SG09	FD	Yes
VA2660	KAFB-106108-350	340.27	350.27	5-Jun-13	SG10	REG	
VA0461	KAFB-106108-450	440	450	8-Jul-11	SG03	REG	
VA0776	KAFB-106108-450	440	450	25-Oct-11	SG04	REG	
VA1090	KAFB-106108-450	440	450	14-Mar-12	SG05	REG	
VA1404	KAFB-106108-450	440	450	16-May-12	SG06	REG	
VA1720	KAFB-106108-450	440	450	6-Sep-12	SG07	REG	
VA2034	KAFB-106108-450	440	450	27-Nov-12	SG08	REG	
VA2348	KAFB-106108-450	440	450	19-Feb-13	SG09	REG	
VA2661	KAFB-106108-450	440	450	5-Jun-13	SG10	REG	
VA0462	KAFB-106109-025	15.2	25.2	8-Jul-11	SG03	REG	
VA0777	KAFB-106109-025	15.2	25.2	28-Nov-11	SG04	REG	
VA1091	KAFB-106109-025	15.2	25.2	15-Mar-12	SG05	REG	
VA1405	KAFB-106109-025	15.2	25.2	15-May-12	SG06	REG	
VA1721	KAFB-106109-025	15.2	25.2	20-Aug-12	SG07	REG	
VA2035	KAFB-106109-025	15.2	25.2	15-Nov-12	SG08	REG	
VA2349	KAFB-106109-025	15.2	25.2	18-Feb-13	SG09	REG	
VA2662	KAFB-106109-025	15.2	25.2	24-Jun-13	SG10	REG	
VA0463	KAFB-106109-050	40.1	50.1	8-Jul-11	SG03	REG	
VA0464	KAFB-106109-050	40.1	50.1	8-Jul-11	SG03	FD	Yes
VA0778	KAFB-106109-050	40.1	50.1	28-Nov-11	SG04	REG	
VA1092	KAFB-106109-050	40.1	50.1	15-Mar-12	SG05	REG	
VA1406	KAFB-106109-050	40.1	50.1	15-May-12	SG06	REG	
VA1722	KAFB-106109-050	40.1	50.1	20-Aug-12	SG07	REG	
VA2036	KAFB-106109-050	40	50	15-Nov-12	SG08	REG	
VA2350	KAFB-106109-050	40.1	50.1	18-Feb-13	SG09	REG	
VA2663	KAFB-106109-050	40.1	50.1	24-Jun-13	SG10	REG	
VA0465	KAFB-106109-150	140	150	8-Jul-11	SG03	REG	
VA0779	KAFB-106109-150	140	150	28-Nov-11	SG04	REG	
VA0780	KAFB-106109-150	140	150	28-Nov-11	SG04	FD	Yes
VA1093	KAFB-106109-150	140	150	15-Mar-12	SG05	REG	
VA1407	KAFB-106109-150	140	150	15-May-12	SG06	REG	
VA1723	KAFB-106109-150	140	150	20-Aug-12	SG07	REG	
VA2037	KAFB-106109-150	140	150	15-Nov-12	SG08	REG	
VA2351	KAFB-106109-150	140	150	18-Feb-13	SG09	REG	
VA2664	KAFB-106109-150	140	150	24-Jun-13	SG10	REG	
VA2665	KAFB-106109-150	140	150	24-Jun-13	SG10	FD	Yes
VA0466	KAFB-106109-250	240.2	250.2	8-Jul-11	SG03	REG	
VA0781	KAFB-106109-250	240.2	250.2	28-Nov-11	SG04	REG	
VA1094	KAFB-106109-250	240.2	250.2	15-Mar-12	SG05	REG	
VA1095	KAFB-106109-250	240.2	250.2	15-Mar-12	SG05	FD	Yes
VA1408	KAFB-106109-250	240.2	250.2	15-May-12	SG06	REG	

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Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1724	KAFB-106109-250	240.2	250.2	20-Aug-12	SG07	REG	
VA2038	KAFB-106109-250	240	250	15-Nov-12	SG08	REG	
VA2352	KAFB-106109-250	240.2	250.2	18-Feb-13	SG09	REG	
VA2666	KAFB-106109-250	240.2	250.2	24-Jun-13	SG10	REG	
VA0467	KAFB-106109-350	340.6	350.6	8-Jul-11	SG03	REG	
VA0782	KAFB-106109-350	340.6	350.6	28-Nov-11	SG04	REG	
VA1096	KAFB-106109-350	340.2	350.6	15-Mar-12	SG05	REG	
VA1409	KAFB-106109-350	340.2	350.6	15-May-12	SG06	REG	
VA1410	KAFB-106109-350	340.2	350.6	15-May-12	SG06	FD	Yes
VA1725	KAFB-106109-350	340.2	350.6	20-Aug-12	SG07	REG	
VA2039	KAFB-106109-350	340	350	19-Nov-12	SG08	REG	
VA2353	KAFB-106109-350	340.2	350.6	18-Feb-13	SG09	REG	
VA2667	KAFB-106109-350	340.2	350.6	25-Jun-13	SG10	REG	
VA0468	KAFB-106109-450	440	450	8-Jul-11	SG03	REG	
VA0783	KAFB-106109-450	440	450	28-Nov-11	SG04	REG	
VA1097	KAFB-106109-450	440	450	15-Mar-12	SG05	REG	
VA1411	KAFB-106109-450	440	450	15-May-12	SG06	REG	
VA1726	KAFB-106109-450	440	450	20-Aug-12	SG07	REG	
VA2040	KAFB-106109-450	440	450	19-Nov-12	SG08	REG	
VA2354	KAFB-106109-450	440	450	18-Feb-13	SG09	REG	
VA2668	KAFB-106109-450	440	450	24-Jun-13	SG10	REG	
VA0469	KAFB-106110-025	15	25	29-Aug-11	SG03	REG	
VA0784	KAFB-106110-025	15	25	25-Oct-11	SG04	REG	
VA1098	KAFB-106110-025	15	25	19-Mar-12	SG05	REG	
VA1412	KAFB-106110-025	15	25	15-May-12	SG06	REG	
VA1727	KAFB-106110-025	15	25	4-Sep-12	SG07	REG	
VA2041	KAFB-106110-025	15	25	15-Nov-12	SG08	REG	
VA2355	KAFB-106110-025	15	25	18-Feb-13	SG09	REG	
VA2669	KAFB-106110-025	15	25	17-Jun-13	SG10	REG	
VA0470	KAFB-106110-050	40.11	50.11	29-Aug-11	SG03	REG	
VA0785	KAFB-106110-050	40.11	50.11	25-Oct-11	SG04	REG	
VA1099	KAFB-106110-050	40.11	50.11	19-Mar-12	SG05	REG	
VA1413	KAFB-106110-050	40.11	50.11	15-May-12	SG06	REG	
VA1728	KAFB-106110-050	40.11	50.11	4-Sep-12	SG07	REG	
VA2042	KAFB-106110-050	40	50	15-Nov-12	SG08	REG	
VA2043	KAFB-106110-050	40	50	15-Nov-12	SG08	FD	Yes
VA2356	KAFB-106110-050	40.11	50.11	18-Feb-13	SG09	REG	
VA2357	KAFB-106110-050	40.11	50.11	18-Feb-13	SG09	FD	Yes
VA2670	KAFB-106110-050	40.11	50.11	17-Jun-13	SG10	REG	
VA0471	KAFB-106110-150	140.32	150.32	29-Aug-11	SG03	REG	
VA0786	KAFB-106110-150	140.32	150.32	25-Oct-11	SG04	REG	
VA1100	KAFB-106110-150	140.32	150.32	19-Mar-12	SG05	REG	

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Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1414	KAFB-106110-150	140.32	150.32	15-May-12	SG06	REG	
VA1729	KAFB-106110-150	140.32	150.32	4-Sep-12	SG07	REG	
VA1730	KAFB-106110-150	140.32	150.32	4-Sep-12	SG07	FD	Yes
VA2044	KAFB-106110-150	140	150	15-Nov-12	SG08	REG	
VA2358	KAFB-106110-150	140.32	150.32	18-Feb-13	SG09	REG	
VA2671	KAFB-106110-150	140.32	150.32	17-Jun-13	SG10	REG	
VA0472	KAFB-106110-250	240	250	29-Aug-11	SG03	REG	
VA0473	KAFB-106110-250	240	250	29-Aug-11	SG03	FD	Yes
VA0787	KAFB-106110-250	240	250	25-Oct-11	SG04	REG	
VA1101	KAFB-106110-250	240	250	19-Mar-12	SG05	REG	
VA1415	KAFB-106110-250	240	250	15-May-12	SG06	REG	
VA1731	KAFB-106110-250	240	250	4-Sep-12	SG07	REG	
VA2045	KAFB-106110-250	240	250	15-Nov-12	SG08	REG	
VA2359	KAFB-106110-250	240	250	19-Feb-13	SG09	REG	
VA2672	KAFB-106110-250	240	250	17-Jun-13	SG10	REG	
VA0474	KAFB-106110-350	340.23	350.23	29-Aug-11	SG03	REG	
VA0788	KAFB-106110-350	340.23	350.23	25-Oct-11	SG04	REG	
VA1102	KAFB-106110-350	340.23	350.23	19-Mar-12	SG05	REG	
VA1416	KAFB-106110-350	340.23	350.23	15-May-12	SG06	REG	
VA1732	KAFB-106110-350	340.23	350.23	4-Sep-12	SG07	REG	
VA2046	KAFB-106110-350	340	350	15-Nov-12	SG08	REG	
VA2360	KAFB-106110-350	340.23	350.23	19-Feb-13	SG09	REG	
VA2673	KAFB-106110-350	340.23	350.23	17-Jun-13	SG10	REG	
VA0475	KAFB-106110-450	440	450	29-Aug-11	SG03	REG	
VA0789	KAFB-106110-450	440	450	25-Oct-11	SG04	REG	
VA1103	KAFB-106110-450	440	450	19-Mar-12	SG05	REG	
VA1417	KAFB-106110-450	440	450	15-May-12	SG06	REG	
VA1733	KAFB-106110-450	440	450	4-Sep-12	SG07	REG	
VA2047	KAFB-106110-450	440	450	15-Nov-12	SG08	REG	
VA2361	KAFB-106110-450	440	450	19-Feb-13	SG09	REG	
VA2674	KAFB-106110-450	440	450	17-Jun-13	SG10	REG	
VA0476	KAFB-106111-025	15.23	25.23	6-Sep-11	SG03	REG	
VA0790	KAFB-106111-025	15.23	25.23	15-Nov-11	SG04	REG	
VA1104	KAFB-106111-025	15.23	25.23	15-Mar-12	SG05	REG	
VA1418	KAFB-106111-025	15.23	25.23	13-Jun-12	SG06	REG	
VA1734	KAFB-106111-025	15.23	25.23	10-Sep-12	SG07	REG	
VA2048	KAFB-106111-025	15.23	25.23	11-Dec-12	SG08	REG	
VA2362	KAFB-106111-025	15.23	25.23	4-Mar-13	SG09	REG	
VA2675	KAFB-106111-025	15.23	25.23	17-Jun-13	SG10	REG	
VA2676	KAFB-106111-025	15.23	25.23	17-Jun-13	SG10	FD	Yes
VA0477	KAFB-106111-050	40.06	50.06	6-Sep-11	SG03	REG	
VA0791	KAFB-106111-050	40.06	50.06	15-Nov-11	SG04	REG	

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Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1105	KAFB-106111-050	40.06	50.06	15-Mar-12	SG05	REG	
VA1106	KAFB-106111-050	40.06	50.06	15-Mar-12	SG05	FD	Yes
VA1419	KAFB-106111-050	40.06	50.06	13-Jun-12	SG06	REG	
VA1420	KAFB-106111-050	40.06	50.06	13-Jun-12	SG06	FD	Yes
VA1735	KAFB-106111-050	40.06	50.06	10-Sep-12	SG07	REG	
VA2049	KAFB-106111-050	40.06	50.06	11-Dec-12	SG08	REG	
VA2363	KAFB-106111-050	40.06	50.06	4-Mar-13	SG09	REG	
VA2677	KAFB-106111-050	40.06	50.06	17-Jun-13	SG10	REG	
VA0478	KAFB-106111-150	140.27	150.27	6-Sep-11	SG03	REG	
VA0792	KAFB-106111-150	140.27	150.27	15-Nov-11	SG04	REG	
VA1107	KAFB-106111-150	140.27	150.27	15-Mar-12	SG05	REG	
VA1421	KAFB-106111-150	140.27	150.27	13-Jun-12	SG06	REG	
VA1736	KAFB-106111-150	140.27	150.27	11-Sep-12	SG07	REG	
VA2050	KAFB-106111-150	140.27	150.27	11-Dec-12	SG08	REG	
VA2364	KAFB-106111-150	140.27	150.27	4-Mar-13	SG09	REG	
VA2678	KAFB-106111-150	140.27	150.27	17-Jun-13	SG10	REG	
VA0479	KAFB-106111-250	240.27	250.27	6-Sep-11	SG03	REG	
VA0793	KAFB-106111-250	240.27	250.27	15-Nov-11	SG04	REG	
VA1108	KAFB-106111-250	240.27	250.27	15-Mar-12	SG05	REG	
VA1422	KAFB-106111-250	240.27	250.27	13-Jun-12	SG06	REG	
VA1737	KAFB-106111-250	240.27	250.27	11-Sep-12	SG07	REG	
VA2051	KAFB-106111-250	240.27	250.27	11-Dec-12	SG08	REG	
VA2365	KAFB-106111-250	240.27	250.27	4-Mar-13	SG09	REG	
VA2679	KAFB-106111-250	240.27	250.27	17-Jun-13	SG10	REG	
VA0480	KAFB-106111-350	340.39	350.39	6-Sep-11	SG03	REG	
VA0794	KAFB-106111-350	340.39	350.39	16-Nov-11	SG04	REG	
VA0795	KAFB-106111-350	340.39	350.39	16-Nov-11	SG04	FD	Yes
VA1109	KAFB-106111-350	340.39	350.39	19-Mar-12	SG05	REG	
VA1423	KAFB-106111-350	340.39	350.39	14-Jun-12	SG06	REG	
VA1738	KAFB-106111-350	340.39	350.39	11-Sep-12	SG07	REG	
VA2052	KAFB-106111-350	340.39	350.39	11-Dec-12	SG08	REG	
VA2366	KAFB-106111-350	340.39	350.39	4-Mar-13	SG09	REG	
VA2680	KAFB-106111-350	340.39	350.39	17-Jun-13	SG10	REG	
VA0481	KAFB-106111-450	440.33	450.33	7-Sep-11	SG03	REG	
VA0796	KAFB-106111-450	440.33	450.33	16-Nov-11	SG04	REG	
VA1110	KAFB-106111-450	440.33	450.33	19-Mar-12	SG05	REG	
VA1424	KAFB-106111-450	440.33	450.33	14-Jun-12	SG06	REG	
VA1739	KAFB-106111-450	440.33	450.33	11-Sep-12	SG07	REG	
VA2053	KAFB-106111-450	440.33	450.33	11-Dec-12	SG08	REG	
VA2367	KAFB-106111-450	440.33	450.33	5-Mar-13	SG09	REG	
VA2681	KAFB-106111-450	440.33	450.33	18-Jun-13	SG10	REG	
VA0482	KAFB-106112-025	15	25	8-Sep-11	SG03	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0797	KAFB-106112-025	15	25	9-Nov-11	SG04	REG	
VA1111	KAFB-106112-025	15	25	12-Jan-12	SG05	REG	
VA1425	KAFB-106112-025	15	25	6-Jun-12	SG06	REG	
VA1740	KAFB-106112-025	15	25	21-Aug-12	SG07	REG	
VA2054	KAFB-106112-025	15	25	12-Dec-12	SG08	REG	
VA2368	KAFB-106112-025	15	25	25-Feb-13	SG09	REG	
VA2682	KAFB-106112-025	15	25	17-Jun-13	SG10	REG	
VA0483	KAFB-106112-050	40	50	8-Sep-11	SG03	REG	
VA0484	KAFB-106112-050	40	50	8-Sep-11	SG03	FD	Yes
VA0798	KAFB-106112-050	40	50	9-Nov-11	SG04	REG	
VA1112	KAFB-106112-050	40	50	12-Jan-12	SG05	REG	
VA1426	KAFB-106112-050	40	50	6-Jun-12	SG06	REG	
VA1741	KAFB-106112-050	40	50	21-Aug-12	SG07	REG	
VA1742	KAFB-106112-050	40	50	21-Aug-12	SG07	FD	Yes
VA2055	KAFB-106112-050	40	50	12-Dec-12	SG08	REG	
VA2369	KAFB-106112-050	40	50	25-Feb-13	SG09	REG	
VA2683	KAFB-106112-050	40	50	17-Jun-13	SG10	REG	
VA0485	KAFB-106112-150	140	150	8-Sep-11	SG03	REG	
VA0799	KAFB-106112-150	140	150	9-Nov-11	SG04	REG	
VA1113	KAFB-106112-150	140	150	12-Jan-12	SG05	REG	
VA1427	KAFB-106112-150	140	150	6-Jun-12	SG06	REG	
VA1743	KAFB-106112-150	140	150	21-Aug-12	SG07	REG	
VA2056	KAFB-106112-150	140	150	12-Dec-12	SG08	REG	
VA2057	KAFB-106112-150	140	150	12-Dec-12	SG08	FD	Yes
VA2370	KAFB-106112-150	140	150	26-Feb-13	SG09	REG	
VA2371	KAFB-106112-150	140	150	26-Feb-13	SG09	FD	Yes
VA2684	KAFB-106112-150	140	150	17-Jun-13	SG10	REG	
VA0486	KAFB-106112-250	240	250	8-Sep-11	SG03	REG	
VA0800	KAFB-106112-250	240	250	9-Nov-11	SG04	REG	
VA1114	KAFB-106112-250	240	250	12-Jan-12	SG05	REG	
VA1428	KAFB-106112-250	240	250	7-Jun-12	SG06	REG	
VA1744	KAFB-106112-250	240	250	21-Aug-12	SG07	REG	
VA2058	KAFB-106112-250	240	250	12-Dec-12	SG08	REG	
VA2372	KAFB-106112-250	240	250	25-Feb-13	SG09	REG	
VA2685	KAFB-106112-250	240	250	17-Jun-13	SG10	REG	
VA0487	KAFB-106112-350	339	349	8-Sep-11	SG03	REG	
VA0801	KAFB-106112-350	339	349	9-Nov-11	SG04	REG	
VA1115	KAFB-106112-350	339	349	12-Jan-12	SG05	REG	
VA1429	KAFB-106112-350	339	349	7-Jun-12	SG06	REG	
VA1745	KAFB-106112-350	339	349	21-Aug-12	SG07	REG	
VA2059	KAFB-106112-350	339	349	12-Dec-12	SG08	REG	
VA2373	KAFB-106112-350	339	349	26-Feb-13	SG09	REG	

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2686	KAFB-106112-350	339	349	17-Jun-13	SG10	REG	
VA2687	KAFB-106112-350	339	349	17-Jun-13	SG10	FD	Yes
VA0488	KAFB-106112-450	439	449	8-Sep-11	SG03	REG	
VA0802	KAFB-106112-450	439	449	9-Nov-11	SG04	REG	
VA1116	KAFB-106112-450	439	449	12-Jan-12	SG05	REG	
VA1430	KAFB-106112-450	439	449	7-Jun-12	SG06	REG	
VA1746	KAFB-106112-450	439	449	22-Aug-12	SG07	REG	
VA2060	KAFB-106112-450	439	449	12-Dec-12	SG08	REG	
VA2374	KAFB-106112-450	439	449	26-Feb-13	SG09	REG	
VA2374R	KAFB-106112-450	439	449	19-Mar-13	SG09	REG	
VA2688	KAFB-106112-450	439	449	17-Jun-13	SG10	REG	
VA0489	KAFB-106113-020	10	20	8-Aug-11	SG03	REG	
VA0803	KAFB-106113-020	10	20	26-Oct-11	SG04	REG	
VA1117	KAFB-106113-020	10	20	19-Jan-12	SG05	REG	
VA1431	KAFB-106113-020	10	20	4-Jun-12	SG06	REG	
VA1747	KAFB-106113-020	10	20	27-Aug-12	SG07	REG	
VA2061	KAFB-106113-020	10	20	27-Nov-12	SG08	REG	
VA2375	KAFB-106113-020	10	20	5-Mar-13	SG09	REG	
VA2689	KAFB-106113-020	10	20	3-Jun-13	SG10	REG	
VA0490	KAFB-106113-050	40	50	8-Aug-11	SG03	REG	
VA0804	KAFB-106113-050	40	50	26-Oct-11	SG04	REG	
VA0805	KAFB-106113-050	40	50	26-Oct-11	SG04	FD	Yes
VA1118	KAFB-106113-050	40	50	19-Jan-12	SG05	REG	
VA1119	KAFB-106113-050	40	50	19-Jan-12	SG05	FD	Yes
VA1432	KAFB-106113-050	40	50	4-Jun-12	SG06	REG	
VA1748	KAFB-106113-050	40	50	27-Aug-12	SG07	REG	
VA2062	KAFB-106113-050	40	50	27-Nov-12	SG08	REG	
VA2376	KAFB-106113-050	40	50	5-Mar-13	SG09	REG	
VA2690	KAFB-106113-050	40	50	3-Jun-13	SG10	REG	
VA0491	KAFB-106113-150	140	150	8-Aug-11	SG03	REG	
VA0806	KAFB-106113-150	140	150	26-Oct-11	SG04	REG	
VA1120	KAFB-106113-150	140	150	19-Jan-12	SG05	REG	
VA1433	KAFB-106113-150	140	150	4-Jun-12	SG06	REG	
VA1749	KAFB-106113-150	140	150	28-Aug-12	SG07	REG	
VA2063	KAFB-106113-150	140	150	27-Nov-12	SG08	REG	
VA2377	KAFB-106113-150	140	150	5-Mar-13	SG09	REG	
VA2691	KAFB-106113-150	140	150	3-Jun-13	SG10	REG	
VA0492	KAFB-106113-250	240	250	8-Aug-11	SG03	REG	
VA0807	KAFB-106113-250	240	250	26-Oct-11	SG04	REG	
VA1121	KAFB-106113-250	240	250	19-Jan-12	SG05	REG	
VA1434	KAFB-106113-250	240	250	4-Jun-12	SG06	REG	
VA1435	KAFB-106113-250	240	250	4-Jun-12	SG06	FD	Yes

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1750	KAFB-106113-250	240	250	28-Aug-12	SG07	REG	
VA2064	KAFB-106113-250	240	250	27-Nov-12	SG08	REG	
VA2378	KAFB-106113-250	240	250	5-Mar-13	SG09	REG	
VA2692	KAFB-106113-250	240	250	3-Jun-13	SG10	REG	
VA0493	KAFB-106113-350	340	350	8-Aug-11	SG03	REG	
VA0808	KAFB-106113-350	340	350	26-Oct-11	SG04	REG	
VA1122	KAFB-106113-350	340	350	19-Jan-12	SG05	REG	
VA1436	KAFB-106113-350	340	350	4-Jun-12	SG06	REG	
VA1751	KAFB-106113-350	340	350	28-Aug-12	SG07	REG	
VA2065	KAFB-106113-350	340	350	27-Nov-12	SG08	REG	
VA2379	KAFB-106113-350	340	350	5-Mar-13	SG09	REG	
VA2693	KAFB-106113-350	340	350	3-Jun-13	SG10	REG	
VA0494	KAFB-106113-450	440	450	8-Aug-11	SG03	REG	
VA0495	KAFB-106113-450	440	450	8-Aug-11	SG03	FD	Yes
VA0809	KAFB-106113-450	440	450	26-Oct-11	SG04	REG	
VA1123	KAFB-106113-450	440	450	19-Jan-12	SG05	REG	
VA1437	KAFB-106113-450	440	450	4-Jun-12	SG06	REG	
VA1752	KAFB-106113-450	440	450	28-Aug-12	SG07	REG	
VA1753	KAFB-106113-450	440	450	28-Aug-12	SG07	FD	Yes
VA2066	KAFB-106113-450	440	450	27-Nov-12	SG08	REG	
VA2380	KAFB-106113-450	440	450	5-Mar-13	SG09	REG	
VA2694	KAFB-106113-450	440	450	3-Jun-13	SG10	REG	
VA0496	KAFB-106114-025	15	25	5-Aug-11	SG03	REG	
VA0810	KAFB-106114-025	15	25	31-Oct-11	SG04	REG	
VA1124	KAFB-106114-025	15	25	19-Mar-12	SG05	REG	
VA1438	KAFB-106114-025	15	25	30-May-12	SG06	REG	
VA1754	KAFB-106114-025	15	25	14-Aug-12	SG07	REG	
VA2067	KAFB-106114-025	15	25	27-Nov-12	SG08	REG	
VA2381	KAFB-106114-025	15	25	21-Mar-13	SG09	REG	
VA2695	KAFB-106114-025	15	25	12-Jun-13	SG10	REG	
VA0497	KAFB-106114-050	40	50	5-Aug-11	SG03	REG	
VA0811	KAFB-106114-050	40	50	31-Oct-11	SG04	REG	
VA0811R	KAFB-106114-050	40	50	15-Nov-11	SG04	REG	
VA0812	KAFB-106114-050	40	50	31-Oct-11	SG04	FD	Yes
VA1125	KAFB-106114-050	40	50	19-Mar-12	SG05	REG	
VA1439	KAFB-106114-050	40	50	30-May-12	SG06	REG	
VA1755	KAFB-106114-050	40	50	14-Aug-12	SG07	REG	
VA2068	KAFB-106114-050	40	50	27-Nov-12	SG08	REG	
VA2382	KAFB-106114-050	40	50	21-Mar-13	SG09	REG	
VA2696	KAFB-106114-050	40	50	12-Jun-13	SG10	REG	
VA0498	KAFB-106114-150	140	150	5-Aug-11	SG03	REG	
VA0813	KAFB-106114-150	140	150	31-Oct-11	SG04	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1126	KAFB-106114-150	140	150	19-Mar-12	SG05	REG	
VA1440	KAFB-106114-150	140	150	30-May-12	SG06	REG	
VA1756	KAFB-106114-150	140	150	14-Aug-12	SG07	REG	
VA2069	KAFB-106114-150	140	150	27-Nov-12	SG08	REG	
VA2070	KAFB-106114-150	140	150	27-Nov-12	SG08	FD	Yes
VA2383	KAFB-106114-150	140	150	21-Mar-13	SG09	REG	
VA2384	KAFB-106114-150	140	150	21-Mar-13	SG09	FD	Yes
VA2697	KAFB-106114-150	140	150	12-Jun-13	SG10	REG	
VA2698	KAFB-106114-150	140	150	12-Jun-13	SG10	FD	Yes
VA0499	KAFB-106114-250	235	245	5-Aug-11	SG03	REG	
VA0814	KAFB-106114-250	235	245	31-Oct-11	SG04	REG	
VA1127	KAFB-106114-250	235	245	20-Mar-12	SG05	REG	
VA1441	KAFB-106114-250	235	245	30-May-12	SG06	REG	
VA1757	KAFB-106114-250	240	250	14-Aug-12	SG07	REG	
VA2071	KAFB-106114-250	235	245	27-Nov-12	SG08	REG	
VA2385	KAFB-106114-250	235	245	21-Mar-13	SG09	REG	
VA2699	KAFB-106114-250	235	245	12-Jun-13	SG10	REG	
VA0500	KAFB-106114-350	340	350	5-Aug-11	SG03	REG	
VA0501	KAFB-106114-350	340	350	5-Aug-11	SG03	FD	Yes
VA0815	KAFB-106114-350	340	350	31-Oct-11	SG04	REG	
VA1128	KAFB-106114-350	340	350	20-Mar-12	SG05	REG	
VA1129	KAFB-106114-350	340	350	20-Mar-12	SG05	FD	Yes
VA1442	KAFB-106114-350	340	350	30-May-12	SG06	REG	
VA1758	KAFB-106114-350	340	350	14-Aug-12	SG07	REG	
VA2072	KAFB-106114-350	340	350	27-Nov-12	SG08	REG	
VA2386	KAFB-106114-350	340	350	21-Mar-13	SG09	REG	
VA2700	KAFB-106114-350	340	350	12-Jun-13	SG10	REG	
VA0502	KAFB-106114-450	439.6	449.6	5-Aug-11	SG03	REG	
VA0816	KAFB-106114-450	439.6	449.6	31-Oct-11	SG04	REG	
VA1130	KAFB-106114-450	439.6	449.6	20-Mar-12	SG05	REG	
VA1443	KAFB-106114-450	439.6	449.6	30-May-12	SG06	REG	
VA1759	KAFB-106114-450	439.6	449.6	14-Aug-12	SG07	REG	
VA2073	KAFB-106114-450	439.6	449.6	27-Nov-12	SG08	REG	
VA2387	KAFB-106114-450	439.6	449.6	21-Mar-13	SG09	REG	
VA2701	KAFB-106114-450	439.6	449.6	12-Jun-13	SG10	REG	
VA0503	KAFB-106115-025	14.6	24.6	9-Aug-11	SG03	REG	
VA0817	KAFB-106115-025	14.6	24.6	30-Nov-11	SG04	REG	
VA1131	KAFB-106115-025	14.6	24.6	19-Jan-12	SG05	REG	
VA1444	KAFB-106115-025	14.6	24.6	4-Jun-12	SG06	REG	
VA1760	KAFB-106115-025	14.6	24.6	13-Aug-12	SG07	REG	
VA2074	KAFB-106115-025	14.6	24.6	4-Dec-12	SG08	REG	
VA2388	KAFB-106115-025	14.6	24.6	6-Mar-13	SG09	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2702	KAFB-106115-025	14.6	24.6	3-Jun-13	SG10	REG	
VA0504	KAFB-106115-050	39.6	49.6	9-Aug-11	SG03	REG	
VA0818	KAFB-106115-050	39.6	49.6	30-Nov-11	SG04	REG	
VA1132	KAFB-106115-050	39.6	49.6	19-Jan-12	SG05	REG	
VA1445	KAFB-106115-050	39.6	49.6	4-Jun-12	SG06	REG	
VA1761	KAFB-106115-050	39.6	49.6	13-Aug-12	SG07	REG	
VA2075	KAFB-106115-050	39.6	49.6	4-Dec-12	SG08	REG	
VA2389	KAFB-106115-050	39.6	49.6	6-Mar-13	SG09	REG	
VA2703	KAFB-106115-050	39.6	49.6	3-Jun-13	SG10	REG	
VA0505	KAFB-106115-150	144.6	154.6	9-Aug-11	SG03	REG	
VA0506	KAFB-106115-150	144.6	154.6	9-Aug-11	SG03	FD	Yes
VA0819	KAFB-106115-150	144.6	154.6	1-Dec-11	SG04	REG	
VA1133	KAFB-106115-150	144.6	154.6	19-Jan-12	SG05	REG	
VA1446	KAFB-106115-150	144.6	154.6	4-Jun-12	SG06	REG	
VA1447	KAFB-106115-150	144.6	154.6	4-Jun-12	SG06	FD	Yes
VA1762	KAFB-106115-150	144.6	154.6	13-Aug-12	SG07	REG	
VA2076	KAFB-106115-150	144.6	154.6	4-Dec-12	SG08	REG	
VA2390	KAFB-106115-150	144.6	154.6	6-Mar-13	SG09	REG	
VA2704	KAFB-106115-150	144.6	154.6	3-Jun-13	SG10	REG	
VA0507	KAFB-106115-250	239.6	249.6	9-Aug-11	SG03	REG	
VA0820	KAFB-106115-250	239.6	249.6	1-Dec-11	SG04	REG	
VA1134	KAFB-106115-250	239.5	249.6	19-Jan-12	SG05	REG	
VA1448	KAFB-106115-250	239.5	249.6	4-Jun-12	SG06	REG	
VA1763	KAFB-106115-250	239.5	249.6	13-Aug-12	SG07	REG	
VA1764	KAFB-106115-250	239.5	249.6	13-Aug-12	SG07	FD	Yes
VA2077	KAFB-106115-250	239.5	249.6	4-Dec-12	SG08	REG	
VA2391	KAFB-106115-250	239.5	249.6	6-Mar-13	SG09	REG	
VA2705	KAFB-106115-250	239.5	249.6	3-Jun-13	SG10	REG	
VA0508	KAFB-106115-350	339.6	349.6	9-Aug-11	SG03	REG	
VA0821	KAFB-106115-350	339.6	349.6	1-Dec-11	SG04	REG	
VA0822	KAFB-106115-350	339.6	349.6	1-Dec-11	SG04	FD	Yes
VA1135	KAFB-106115-350	339.5	349.6	19-Jan-12	SG05	REG	
VA1449	KAFB-106115-350	339.5	349.6	4-Jun-12	SG06	REG	
VA1765	KAFB-106115-350	339.5	349.6	13-Aug-12	SG07	REG	
VA2078	KAFB-106115-350	339.5	349.6	4-Dec-12	SG08	REG	
VA2392	KAFB-106115-350	339.5	349.6	7-Mar-13	SG09	REG	
VA2706	KAFB-106115-350	339.5	349.6	3-Jun-13	SG10	REG	
VA0509	KAFB-106115-450	439.6	449.6	9-Aug-11	SG03	REG	
VA0823	KAFB-106115-450	439.6	449.6	1-Dec-11	SG04	REG	
VA1136	KAFB-106115-450	439.5	449.6	20-Jan-12	SG05	REG	
VA1450	KAFB-106115-450	439.5	449.6	4-Jun-12	SG06	REG	
VA1766	KAFB-106115-450	439.5	449.6	14-Aug-12	SG07	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2079	KAFB-106115-450	439.5	449.6	4-Dec-12	SG08	REG	
VA2393	KAFB-106115-450	439.5	449.6	7-Mar-13	SG09	REG	
VA2707	KAFB-106115-450	439.5	449.6	3-Jun-13	SG10	REG	
VA0510	KAFB-106116-025	10	19.45	10-Aug-11	SG03	REG	
VA0824	KAFB-106116-025	10	19.45	9-Nov-11	SG04	REG	
VA1137	KAFB-106116-025	10	19.45	19-Mar-12	SG05	REG	
VA1451	KAFB-106116-025	10	19.45	29-May-12	SG06	REG	
VA1767	KAFB-106116-025	10	19.45	28-Aug-12	SG07	REG	
VA2080	KAFB-106116-025	10	19.45	26-Nov-12	SG08	REG	
VA2394	KAFB-106116-025	10	19.45	12-Mar-13	SG09	REG	
VA2708	KAFB-106116-025	10	19.45	12-Jun-13	SG10	REG	
VA2709	KAFB-106116-025	10	20	12-Jun-13	SG10	FD	Yes
VA0511	KAFB-106116-050	40	49.45	10-Aug-11	SG03	REG	
VA0825	KAFB-106116-050	40	49.45	9-Nov-11	SG04	REG	
VA1138	KAFB-106116-050	40	49.45	19-Mar-12	SG05	REG	
VA1139	KAFB-106116-050	40	49.45	19-Mar-12	SG05	FD	Yes
VA1452	KAFB-106116-050	40	49.45	29-May-12	SG06	REG	
VA1768	KAFB-106116-050	40	49.45	28-Aug-12	SG07	REG	
VA2081	KAFB-106116-050	40	49.45	26-Nov-12	SG08	REG	
VA2082	KAFB-106116-050	40	49.45	26-Nov-12	SG08	FD	Yes
VA2395	KAFB-106116-050	40	49.45	12-Mar-13	SG09	REG	
VA2396	KAFB-106116-050	40	49.45	12-Mar-13	SG09	FD	Yes
VA2710	KAFB-106116-050	40	50	12-Jun-13	SG10	REG	
VA0512	KAFB-106116-150	140	149.45	10-Aug-11	SG03	REG	
VA0826	KAFB-106116-150	140	149.45	9-Nov-11	SG04	REG	
VA1140	KAFB-106116-150	140	149.45	20-Mar-12	SG05	REG	
VA1453	KAFB-106116-150	140	149.45	29-May-12	SG06	REG	
VA1769	KAFB-106116-150	140	149.45	28-Aug-12	SG07	REG	
VA2083	KAFB-106116-150	140	149.45	26-Nov-12	SG08	REG	
VA2397	KAFB-106116-150	140	149.45	12-Mar-13	SG09	REG	
VA2711	KAFB-106116-150	140	150	12-Jun-13	SG10	REG	
VA0513	KAFB-106116-250	240	249.45	11-Aug-11	SG03	REG	
VA0827	KAFB-106116-250	240	249.45	9-Nov-11	SG04	REG	
VA1141	KAFB-106116-250	240	249.45	20-Mar-12	SG05	REG	
VA1454	KAFB-106116-250	240	249.45	29-May-12	SG06	REG	
VA1770	KAFB-106116-250	240	249.45	28-Aug-12	SG07	REG	
VA2084	KAFB-106116-250	240	249.45	26-Nov-12	SG08	REG	
VA2398	KAFB-106116-250	240	249.45	12-Mar-13	SG09	REG	
VA2712	KAFB-106116-250	240	250	12-Jun-13	SG10	REG	
VA0514	KAFB-106116-350	340	349.45	11-Aug-11	SG03	REG	
VA0828	KAFB-106116-350	340	349.45	9-Nov-11	SG04	REG	
VA0829	KAFB-106116-350	340	349.45	9-Nov-11	SG04	FD	Yes

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1142	KAFB-106116-350	340	349.45	20-Mar-12	SG05	REG	
VA1455	KAFB-106116-350	340	349.45	29-May-12	SG06	REG	
VA1456	KAFB-106116-350	340	349.45	29-May-12	SG06	FD	Yes
VA1771	KAFB-106116-350	340	349.45	28-Aug-12	SG07	REG	
VA2085	KAFB-106116-350	340	349.45	26-Nov-12	SG08	REG	
VA2399	KAFB-106116-350	340	349.45	18-Mar-13	SG09	REG	
VA2713	KAFB-106116-350	340	350	12-Jun-13	SG10	REG	
VA0515	KAFB-106116-450	440	448.95	11-Aug-11	SG03	REG	
VA0830	KAFB-106116-450	440	448.95	9-Nov-11	SG04	REG	
VA1143	KAFB-106116-450	440	448.95	20-Mar-12	SG05	REG	
VA1457	KAFB-106116-450	440	448.95	30-May-12	SG06	REG	
VA1772	KAFB-106116-450	440	448.95	29-Aug-12	SG07	REG	
VA2086	KAFB-106116-450	440	448.95	26-Nov-12	SG08	REG	
VA2400	KAFB-106116-450	440	448.95	18-Mar-13	SG09	REG	
VA2714	KAFB-106116-450	440	450	12-Jun-13	SG10	REG	
VA0516	KAFB-106117-025	15	25	9-Sep-11	SG03	REG	
VA0831	KAFB-106117-025	15	25	11-Oct-11	SG04	REG	
VA1144	KAFB-106117-025	15	25	12-Jan-12	SG05	REG	
VA1458	KAFB-106117-025	15	25	29-May-12	SG06	REG	
VA1773	KAFB-106117-025	15	25	12-Sep-12	SG07	REG	
VA2087	KAFB-106117-025	15	25	28-Nov-12	SG08	REG	
VA2401	KAFB-106117-025	15	25	18-Mar-13	SG09	REG	
VA2715	KAFB-106117-025	15	25	17-Jun-13	SG10	REG	
VA0517	KAFB-106117-050	40	50	9-Sep-11	SG03	REG	
VA0518	KAFB-106117-050	40	50	9-Sep-11	SG03	FD	Yes
VA0832	KAFB-106117-050	40	50	11-Oct-11	SG04	REG	
VA1145	KAFB-106117-050	40	50	12-Jan-12	SG05	REG	
VA1459	KAFB-106117-050	40	50	29-May-12	SG06	REG	
VA1774	KAFB-106117-050	40	50	12-Sep-12	SG07	REG	
VA1775	KAFB-106117-050	40	50	12-Sep-12	SG07	FD	Yes
VA2088	KAFB-106117-050	40	50	28-Nov-12	SG08	REG	
VA2402	KAFB-106117-050	40	50	18-Mar-13	SG09	REG	
VA2716	KAFB-106117-050	40	50	17-Jun-13	SG10	REG	
VA0519	KAFB-106117-150	140	150	9-Sep-11	SG03	REG	
VA0833	KAFB-106117-150	140	150	11-Oct-11	SG04	REG	
VA1146	KAFB-106117-150	140	150	18-Jan-12	SG05	REG	
VA1460	KAFB-106117-150	140	150	29-May-12	SG06	REG	
VA1776	KAFB-106117-150	140	150	12-Sep-12	SG07	REG	
VA2089	KAFB-106117-150	140	150	28-Nov-12	SG08	REG	
VA2403	KAFB-106117-150	140	150	18-Mar-13	SG09	REG	
VA2717	KAFB-106117-150	140	150	17-Jun-13	SG10	REG	
VA0520	KAFB-106117-250	240	250	9-Sep-11	SG03	REG	

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0834	KAFB-106117-250	240	250	12-Oct-11	SG04	REG	
VA1147	KAFB-106117-250	240	250	18-Jan-12	SG05	REG	
VA1461	KAFB-106117-250	240	250	30-May-12	SG06	REG	
VA1777	KAFB-106117-250	240	250	12-Sep-12	SG07	REG	
VA2090	KAFB-106117-250	240	250	29-Nov-12	SG08	REG	
VA2404	KAFB-106117-250	240	250	18-Mar-13	SG09	REG	
VA2718	KAFB-106117-250	240	250	17-Jun-13	SG10	REG	
VA0521	KAFB-106117-350	340	350	9-Sep-11	SG03	REG	
VA0835	KAFB-106117-350	340	350	12-Oct-11	SG04	REG	
VA0836	KAFB-106117-350	340	350	12-Oct-11	SG04	FD	Yes
VA1148	KAFB-106117-350	340	350	18-Jan-12	SG05	REG	
VA1149	KAFB-106117-350	340	350	18-Jan-12	SG05	FD	Yes
VA1462	KAFB-106117-350	340	350	30-May-12	SG06	REG	
VA1463	KAFB-106117-350	340	350	30-May-12	SG06	FD	Yes
VA1778	KAFB-106117-350	340	350	12-Sep-12	SG07	REG	
VA2091	KAFB-106117-350	340	350	29-Nov-12	SG08	REG	
VA2092	KAFB-106117-350	340	350	29-Nov-12	SG08	FD	Yes
VA2405	KAFB-106117-350	340	350	18-Mar-13	SG09	REG	
VA2406	KAFB-106117-350	340	350	18-Mar-13	SG09	FD	Yes
VA2719	KAFB-106117-350	340	350	17-Jun-13	SG10	REG	
VA2720	KAFB-106117-350	340	350	17-Jun-13	SG10	FD	Yes
VA0522	KAFB-106117-450	440	450	9-Sep-11	SG03	REG	
VA0837	KAFB-106117-450	440	450	12-Oct-11	SG04	REG	
VA1150	KAFB-106117-450	440	450	18-Jan-12	SG05	REG	
VA1464	KAFB-106117-450	440	450	30-May-12	SG06	REG	
VA1779	KAFB-106117-450	440	450	12-Sep-12	SG07	REG	
VA2093	KAFB-106117-450	440	450	29-Nov-12	SG08	REG	
VA2407	KAFB-106117-450	440	450	18-Mar-13	SG09	REG	
VA2721	KAFB-106117-450	440	450	17-Jun-13	SG10	REG	
VA0523	KAFB-106118-025	15	25	24-Aug-11	SG03	REG	
VA0838	KAFB-106118-025	15	25	10-Nov-11	SG04	REG	
VA1151	KAFB-106118-025	15	25	20-Mar-12	SG05	REG	
VA1465	KAFB-106118-025	15	25	4-Jun-12	SG06	REG	
VA1780	KAFB-106118-025	15	25	6-Sep-12	SG07	REG	
VA2094	KAFB-106118-025	15	25	11-Dec-12	SG08	REG	
VA2408	KAFB-106118-025	15	25	18-Feb-13	SG09	REG	
VA2722	KAFB-106118-025	15	25	5-Jun-13	SG10	REG	
VA0524	KAFB-106118-050	40	50	24-Aug-11	SG03	REG	
VA0839	KAFB-106118-050	40	50	10-Nov-11	SG04	REG	
VA1152	KAFB-106118-050	40	50	20-Mar-12	SG05	REG	
VA1466	KAFB-106118-050	40	50	5-Jun-12	SG06	REG	
VA1781	KAFB-106118-050	40	50	6-Sep-12	SG07	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2095	KAFB-106118-050	40	50	11-Dec-12	SG08	REG	
VA2409	KAFB-106118-050	40	50	18-Feb-13	SG09	REG	
VA2723	KAFB-106118-050	40	50	5-Jun-13	SG10	REG	
VA0525	KAFB-106118-160	150	160	24-Aug-11	SG03	REG	
VA0526	KAFB-106118-160	150	160	24-Aug-11	SG03	FD	Yes
VA0840	KAFB-106118-160	150	160	10-Nov-11	SG04	REG	
VA1153	KAFB-106118-160	150	160	20-Mar-12	SG05	REG	
VA1467	KAFB-106118-160	150	160	5-Jun-12	SG06	REG	
VA1782	KAFB-106118-160	150	160	6-Sep-12	SG07	REG	
VA2096	KAFB-106118-160	150	160	11-Dec-12	SG08	REG	
VA2410	KAFB-106118-160	150	160	18-Feb-13	SG09	REG	
VA2724	KAFB-106118-160	150	160	5-Jun-13	SG10	REG	
VA0527	KAFB-106118-265	255	265	24-Aug-11	SG03	REG	
VA0841	KAFB-106118-265	255	265	10-Nov-11	SG04	REG	
VA1154	KAFB-106118-265	255	265	20-Mar-12	SG05	REG	
VA1468	KAFB-106118-265	255	265	5-Jun-12	SG06	REG	
VA1783	KAFB-106118-265	255	265	6-Sep-12	SG07	REG	
VA2097	KAFB-106118-265	255	265	11-Dec-12	SG08	REG	
VA2411	KAFB-106118-265	255	265	18-Feb-13	SG09	REG	
VA2725	KAFB-106118-265	255	265	5-Jun-13	SG10	REG	
VA0528	KAFB-106118-350	340	350	25-Aug-11	SG03	REG	
VA0842	KAFB-106118-350	340	350	16-Nov-11	SG04	REG	
VA1155	KAFB-106118-350	340	350	22-Mar-12	SG05	REG	
VA1469	KAFB-106118-350	340	350	5-Jun-12	SG06	REG	
VA1784	KAFB-106118-350	340	350	10-Sep-12	SG07	REG	
VA1785	KAFB-106118-350	340	350	10-Sep-12	SG07	FD	Yes
VA2098	KAFB-106118-350	340	350	11-Dec-12	SG08	REG	
VA2412	KAFB-106118-350	340	350	18-Feb-13	SG09	REG	
VA2726	KAFB-106118-350	340	350	5-Jun-13	SG10	REG	
VA0529	KAFB-106118-450	440	450	25-Aug-11	SG03	REG	
VA0843	KAFB-106118-450	440	450	15-Nov-11	SG04	REG	
VA1156	KAFB-106118-450	440	450	22-Mar-12	SG05	REG	
VA1470	KAFB-106118-450	440	450	5-Jun-12	SG06	REG	
VA1786	KAFB-106118-450	440	450	10-Sep-12	SG07	REG	
VA2099	KAFB-106118-450	440	450	11-Dec-12	SG08	REG	
VA2413	KAFB-106118-450	440	450	18-Feb-13	SG09	REG	
VA2727	KAFB-106118-450	440	450	5-Jun-13	SG10	REG	
VA0530	KAFB-106119-025	15	25	19-Sep-11	SG03	REG	
VA0844	KAFB-106119-025	15	25	19-Oct-11	SG04	REG	
VA1157	KAFB-106119-025	15	25	20-Mar-12	SG05	REG	
VA1471	KAFB-106119-025	15	25	6-Jun-12	SG06	REG	
VA1787	KAFB-106119-025	15	25	10-Sep-12	SG07	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2100	KAFB-106119-025	15	25	12-Dec-12	SG08	REG	
VA2414	KAFB-106119-025	15	25	26-Feb-13	SG09	REG	
VA2728	KAFB-106119-025	15	25	24-Jun-13	SG10	REG	
VA0531	KAFB-106119-050	40	50	19-Sep-11	SG03	REG	
VA0845	KAFB-106119-050	40	50	19-Oct-11	SG04	REG	
VA0846	KAFB-106119-050	40	50	19-Oct-11	SG04	FD	Yes
VA1158	KAFB-106119-050	40	50	20-Mar-12	SG05	REG	
VA1472	KAFB-106119-050	40	50	6-Jun-12	SG06	REG	
VA1473	KAFB-106119-050	40	50	6-Jun-12	SG06	FD	Yes
VA1788	KAFB-106119-050	40	50	10-Sep-12	SG07	REG	
VA2101	KAFB-106119-050	40	50	12-Dec-12	SG08	REG	
VA2415	KAFB-106119-050	40	50	26-Feb-13	SG09	REG	
VA2729	KAFB-106119-050	40	50	24-Jun-13	SG10	REG	
VA0532	KAFB-106119-150	140	150	19-Sep-11	SG03	REG	
VA0847	KAFB-106119-150	140	150	19-Oct-11	SG04	REG	
VA1159	KAFB-106119-150	140	150	20-Mar-12	SG05	REG	
VA1160	KAFB-106119-150	140	150	20-Mar-12	SG05	FD	Yes
VA1474	KAFB-106119-150	140	150	6-Jun-12	SG06	REG	
VA1789	KAFB-106119-150	140	150	10-Sep-12	SG07	REG	
VA2102	KAFB-106119-150	140	150	12-Dec-12	SG08	REG	
VA2416	KAFB-106119-150	140	150	26-Feb-13	SG09	REG	
VA2730	KAFB-106119-150	140	150	24-Jun-13	SG10	REG	
VA2731	KAFB-106119-150	140	150	24-Jun-13	SG10	FD	Yes
VA0533	KAFB-106119-250	240	250	19-Sep-11	SG03	REG	
VA0534	KAFB-106119-250	240	250	19-Sep-11	SG03	FD	Yes
VA0848	KAFB-106119-250	240	250	19-Oct-11	SG04	REG	
VA1161	KAFB-106119-250	240	250	20-Mar-12	SG05	REG	
VA1475	KAFB-106119-250	240	250	6-Jun-12	SG06	REG	
VA1790	KAFB-106119-250	240	250	10-Sep-12	SG07	REG	
VA2103	KAFB-106119-250	240	250	12-Dec-12	SG08	REG	
VA2417	KAFB-106119-250	240	250	26-Feb-13	SG09	REG	
VA2732	KAFB-106119-250	240	250	24-Jun-13	SG10	REG	
VA0535	KAFB-106119-350	340	350	19-Sep-11	SG03	REG	
VA0849	KAFB-106119-350	340	350	19-Oct-11	SG04	REG	
VA1162	KAFB-106119-350	340	350	20-Mar-12	SG05	REG	
VA1476	KAFB-106119-350	340	350	6-Jun-12	SG06	REG	
VA1791	KAFB-106119-350	340	350	10-Sep-12	SG07	REG	
VA2104	KAFB-106119-350	340	350	12-Dec-12	SG08	REG	
VA2105	KAFB-106119-350	340	350	12-Dec-12	SG08	FD	Yes
VA2418	KAFB-106119-350	340	350	26-Feb-13	SG09	REG	
VA2419	KAFB-106119-350	340	350	26-Feb-13	SG09	FD	Yes
VA2733	KAFB-106119-350	340	350	24-Jun-13	SG10	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0536	KAFB-106119-450	440	450	19-Sep-11	SG03	REG	
VA0850	KAFB-106119-450	440	450	19-Oct-11	SG04	REG	
VA1163	KAFB-106119-450	440	450	20-Mar-12	SG05	REG	
VA1477	KAFB-106119-450	440	450	13-Jun-12	SG06	REG	
VA1792	KAFB-106119-450	440	450	10-Sep-12	SG07	REG	
VA2106	KAFB-106119-450	440	450	12-Dec-12	SG08	REG	
VA2420	KAFB-106119-450	440	450	26-Feb-13	SG09	REG	
VA2734	KAFB-106119-450	440	450	24-Jun-13	SG10	REG	
VA0537	KAFB-106120-025	15	25	6-Jul-11	SG03	REG	
VA0851	KAFB-106120-025	15	25	10-Oct-11	SG04	REG	
VA1164	KAFB-106120-025	15	25	20-Jan-12	SG05	REG	
VA1478	KAFB-106120-025	15	25	11-Jun-12	SG06	REG	
VA1793	KAFB-106120-025	15	25	30-Aug-12	SG07	REG	
VA2107	KAFB-106120-025	15	25	27-Nov-12	SG08	REG	
VA2421	KAFB-106120-025	15	25	5-Mar-13	SG09	REG	
VA2735	KAFB-106120-025	15	25	3-Jun-13	SG10	REG	
VA0538	KAFB-106120-050	40	50	6-Jul-11	SG03	REG	
VA0852	KAFB-106120-050	40	50	10-Oct-11	SG04	REG	
VA1165	KAFB-106120-050	40	50	20-Jan-12	SG05	REG	
VA1479	KAFB-106120-050	40	50	11-Jun-12	SG06	REG	
VA1794	KAFB-106120-050	40	50	30-Aug-12	SG07	REG	
VA2108	KAFB-106120-050	40	50	27-Nov-12	SG08	REG	
VA2422	KAFB-106120-050	40	50	5-Mar-13	SG09	REG	
VA2736	KAFB-106120-050	40	50	3-Jun-13	SG10	REG	
VA0539	KAFB-106120-150	140	150	6-Jul-11	SG03	REG	
VA0853	KAFB-106120-150	140	150	10-Oct-11	SG04	REG	
VA1166	KAFB-106120-150	140	150	20-Jan-12	SG05	REG	
VA1480	KAFB-106120-150	140	150	11-Jun-12	SG06	REG	
VA1795	KAFB-106120-150	140	150	30-Aug-12	SG07	REG	
VA1796	KAFB-106120-150	140	150	30-Aug-12	SG07	FD	Yes
VA2109	KAFB-106120-150	140	150	27-Nov-12	SG08	REG	
VA2423	KAFB-106120-150	140	150	5-Mar-13	SG09	REG	
VA2737	KAFB-106120-150	140	150	3-Jun-13	SG10	REG	
VA0540	KAFB-106120-250	240	250	6-Jul-11	SG03	REG	
VA0854	KAFB-106120-250	240	250	11-Oct-11	SG04	REG	
VA1167	KAFB-106120-250	240	250	20-Jan-12	SG05	REG	
VA1481	KAFB-106120-250	240	250	11-Jun-12	SG06	REG	
VA1797	KAFB-106120-250	240	250	4-Sep-12	SG07	REG	
VA2110	KAFB-106120-250	240	250	27-Nov-12	SG08	REG	
VA2424	KAFB-106120-250	240	250	5-Mar-13	SG09	REG	
VA2738	KAFB-106120-250	240	250	3-Jun-13	SG10	REG	
VA0541	KAFB-106120-350	340	350	6-Jul-11	SG03	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0855	KAFB-106120-350	340	350	11-Oct-11	SG04	REG	
VA1168	KAFB-106120-350	340	350	20-Jan-12	SG05	REG	
VA1482	KAFB-106120-350	340	350	11-Jun-12	SG06	REG	
VA1798	KAFB-106120-350	340	350	4-Sep-12	SG07	REG	
VA2111	KAFB-106120-350	340	350	27-Nov-12	SG08	REG	
VA2425	KAFB-106120-350	340	350	5-Mar-13	SG09	REG	
VA2739	KAFB-106120-350	340	350	3-Jun-13	SG10	REG	
VA0542	KAFB-106120-450	440	450	6-Jul-11	SG03	REG	
VA0856	KAFB-106120-450	440	450	11-Oct-11	SG04	REG	
VA1169	KAFB-106120-450	440	450	20-Jan-12	SG05	REG	
VA1483	KAFB-106120-450	440	450	11-Jun-12	SG06	REG	
VA1799	KAFB-106120-450	440	450	4-Sep-12	SG07	REG	
VA2112	KAFB-106120-450	440	450	27-Nov-12	SG08	REG	
VA2426	KAFB-106120-450	440	450	5-Mar-13	SG09	REG	
VA2740	KAFB-106120-450	440	450	3-Jun-13	SG10	REG	
VA0544	KAFB-106121-025	40	50	8-Jul-11	SG03	REG	
VA0544R	KAFB-106121-025	40	50	8-Jul-11	SG03	REG	
VA0858	KAFB-106121-025	40	50	6-Oct-11	SG04	REG	
VA0859	KAFB-106121-025	40	50	6-Oct-11	SG04	FD	Yes
VA1172	KAFB-106121-025	40	50	10-Jan-12	SG05	REG	
VA1484	KAFB-106121-025	15	25	31-May-12	SG06	REG	
VA1800	KAFB-106121-025	15	25	4-Sep-12	SG07	REG	
VA2113	KAFB-106121-025	15	25	28-Nov-12	SG08	REG	
VA2427	KAFB-106121-025	15	25	5-Mar-13	SG09	REG	
VA2741	KAFB-106121-025	15	25	3-Jun-13	SG10	REG	
VA2742	KAFB-106121-025	15	25	3-Jun-13	SG10	FD	Yes
VA0543	KAFB-106121-050	15	25	8-Jul-11	SG03	REG	
VA0857	KAFB-106121-050	15	25	6-Oct-11	SG04	REG	
VA1170	KAFB-106121-050	15	25	10-Jan-12	SG05	REG	
VA1171	KAFB-106121-050	15	25	10-Jan-12	SG05	FD	Yes
VA1485	KAFB-106121-050	40	50	31-May-12	SG06	REG	
VA1801	KAFB-106121-050	40	50	4-Sep-12	SG07	REG	
VA2114	KAFB-106121-050	40	50	28-Nov-12	SG08	REG	
VA2428	KAFB-106121-050	40	50	6-Mar-13	SG09	REG	
VA2743	KAFB-106121-050	40	50	3-Jun-13	SG10	REG	
VA0545	KAFB-106121-145	140	150	8-Jul-11	SG03	REG	
VA0860	KAFB-106121-145	140	150	6-Oct-11	SG04	REG	
VA1173	KAFB-106121-145	140	150	10-Jan-12	SG05	REG	
VA1486	KAFB-106121-145	140	150	31-May-12	SG06	REG	
VA1487	KAFB-106121-145	140	150	31-May-12	SG06	FD	Yes
VA1802	KAFB-106121-145	135	145	4-Sep-12	SG07	REG	
VA2115	KAFB-106121-145	135	145	28-Nov-12	SG08	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2116	KAFB-106121-145	135	145	28-Nov-12	SG08	FD	Yes
VA2429	KAFB-106121-145	135	145	6-Mar-13	SG09	REG	
VA2430	KAFB-106121-145	135	145	6-Mar-13	SG09	FD	Yes
VA2744	KAFB-106121-145	135	145	3-Jun-13	SG10	REG	
VA0546	KAFB-106121-250	240	250	8-Jul-11	SG03	REG	
VA0861	KAFB-106121-250	240	250	6-Oct-11	SG04	REG	
VA1174	KAFB-106121-250	240	250	10-Jan-12	SG05	REG	
VA1488	KAFB-106121-250	240	250	31-May-12	SG06	REG	
VA1803	KAFB-106121-250	240	250	4-Sep-12	SG07	REG	
VA2117	KAFB-106121-250	240	250	28-Nov-12	SG08	REG	
VA2431	KAFB-106121-250	240	250	6-Mar-13	SG09	REG	
VA2745	KAFB-106121-250	240	250	3-Jun-13	SG10	REG	
VA0547	KAFB-106121-350	340	350	8-Jul-11	SG03	REG	
VA0862	KAFB-106121-350	340	350	6-Oct-11	SG04	REG	
VA1175	KAFB-106121-350	340	350	10-Jan-12	SG05	REG	
VA1489	KAFB-106121-350	340	350	31-May-12	SG06	REG	
VA1804	KAFB-106121-350	340	350	4-Sep-12	SG07	REG	
VA2118	KAFB-106121-350	340	350	28-Nov-12	SG08	REG	
VA2432	KAFB-106121-350	340	350	6-Mar-13	SG09	REG	
VA2746	KAFB-106121-350	340	350	3-Jun-13	SG10	REG	
VA0548	KAFB-106121-450	440	450	8-Jul-11	SG03	REG	
VA0863	KAFB-106121-450	440	450	6-Oct-11	SG04	REG	
VA1176	KAFB-106121-450	440	450	10-Jan-12	SG05	REG	
VA1490	KAFB-106121-450	440	450	31-May-12	SG06	REG	
VA1805	KAFB-106121-450	430	440	4-Sep-12	SG07	REG	
VA2119	KAFB-106121-450	430	440	28-Nov-12	SG08	REG	
VA2433	KAFB-106121-450	430	440	6-Mar-13	SG09	REG	
VA2747	KAFB-106121-450	430	440	3-Jun-13	SG10	REG	
VA0549	KAFB-106122-025	15	25	11-Jul-11	SG03	REG	
VA0864	KAFB-106122-025	15	25	18-Oct-11	SG04	REG	
VA1177	KAFB-106122-025	15	25	10-Jan-12	SG05	REG	
VA1491	KAFB-106122-025	15	25	12-Jun-12	SG06	REG	
VA1806	KAFB-106122-025	15	25	4-Sep-12	SG07	REG	
VA2120	KAFB-106122-025	15	25	28-Nov-12	SG08	REG	
VA2434	KAFB-106122-025	15	25	6-Mar-13	SG09	REG	
VA2748	KAFB-106122-025	15	25	29-May-13	SG10	REG	
VA0550	KAFB-106122-050	40	50	11-Jul-11	SG03	REG	
VA0865	KAFB-106122-050	40	50	18-Oct-11	SG04	REG	
VA1178	KAFB-106122-050	40	50	10-Jan-12	SG05	REG	
VA1492	KAFB-106122-050	40	50	12-Jun-12	SG06	REG	
VA1807	KAFB-106122-050	40	50	5-Sep-12	SG07	REG	
VA1808	KAFB-106122-050	40	50	5-Sep-12	SG07	FD	Yes

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2121	KAFB-106122-050	40	50	28-Nov-12	SG08	REG	
VA2435	KAFB-106122-050	40	50	6-Mar-13	SG09	REG	
VA2749	KAFB-106122-050	40	50	29-May-13	SG10	REG	
VA0551	KAFB-106122-150	140	150	11-Jul-11	SG03	REG	
VA0866	KAFB-106122-150	140	150	18-Oct-11	SG04	REG	
VA1179	KAFB-106122-150	140	150	11-Jan-12	SG05	REG	
VA1493	KAFB-106122-150	140	150	12-Jun-12	SG06	REG	
VA1809	KAFB-106122-150	140	150	5-Sep-12	SG07	REG	
VA2122	KAFB-106122-150	140	150	28-Nov-12	SG08	REG	
VA2436	KAFB-106122-150	140	150	6-Mar-13	SG09	REG	
VA2750	KAFB-106122-150	140	150	29-May-13	SG10	REG	
VA0552	KAFB-106122-250	240	250	11-Jul-11	SG03	REG	
VA0867	KAFB-106122-250	240	250	18-Oct-11	SG04	REG	
VA1180	KAFB-106122-250	240	250	11-Jan-12	SG05	REG	
VA1181	KAFB-106122-250	240	250	11-Jan-12	SG05	FD	Yes
VA1494	KAFB-106122-250	240	250	12-Jun-12	SG06	REG	
VA1810	KAFB-106122-250	240	250	5-Sep-12	SG07	REG	
VA2123	KAFB-106122-250	240	250	28-Nov-12	SG08	REG	
VA2437	KAFB-106122-250	240	250	6-Mar-13	SG09	REG	
VA2751	KAFB-106122-250	240	250	29-May-13	SG10	REG	
VA0553	KAFB-106122-350	340	350	12-Jul-11	SG03	REG	
VA0868	KAFB-106122-350	340	350	18-Oct-11	SG04	REG	
VA0869	KAFB-106122-350	340	350	18-Oct-11	SG04	FD	Yes
VA1182	KAFB-106122-350	340	350	11-Jan-12	SG05	REG	
VA1495	KAFB-106122-350	340	350	12-Jun-12	SG06	REG	
VA1811	KAFB-106122-350	340	350	5-Sep-12	SG07	REG	
VA2124	KAFB-106122-350	340	350	28-Nov-12	SG08	REG	
VA2125	KAFB-106122-350	340	350	28-Nov-12	SG08	FD	Yes
VA2438	KAFB-106122-350	340	350	6-Mar-13	SG09	REG	
VA2439	KAFB-106122-350	340	350	6-Mar-13	SG09	FD	Yes
VA2752	KAFB-106122-350	340	350	29-May-13	SG10	REG	
VA2753	KAFB-106122-350	340	350	29-May-13	SG10	FD	Yes
VA0554	KAFB-106122-450	440	450	12-Jul-11	SG03	REG	
VA0870	KAFB-106122-450	440	450	18-Oct-11	SG04	REG	
VA1183	KAFB-106122-450	440	450	11-Jan-12	SG05	REG	
VA1496	KAFB-106122-450	440	450	12-Jun-12	SG06	REG	
VA1812	KAFB-106122-450	440	450	5-Sep-12	SG07	REG	
VA2126	KAFB-106122-450	440	450	28-Nov-12	SG08	REG	
VA2440	KAFB-106122-450	440	450	7-Mar-13	SG09	REG	
VA2754	KAFB-106122-450	440	450	29-May-13	SG10	REG	
VA0555	KAFB-106123-025	15	25	14-Jul-11	SG03	REG	
VA0871	KAFB-106123-025	15	25	6-Oct-11	SG04	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1184	KAFB-106123-025	15	25	11-Jan-12	SG05	REG	
VA1497	KAFB-106123-025	15	25	16-May-12	SG06	REG	
VA1813	KAFB-106123-025	15	25	11-Sep-12	SG07	REG	
VA2127	KAFB-106123-025	15	25	29-Nov-12	SG08	REG	
VA2441	KAFB-106123-025	15	25	6-Mar-13	SG09	REG	
VA2755	KAFB-106123-025	15	25	29-May-13	SG10	REG	
VA0556	KAFB-106123-050	40	50	13-Jul-11	SG03	REG	
VA0872	KAFB-106123-050	40	50	6-Oct-11	SG04	REG	
VA1185	KAFB-106123-050	40	50	11-Jan-12	SG05	REG	
VA1498	KAFB-106123-050	40	50	16-May-12	SG06	REG	
VA1499	KAFB-106123-050	40	50	16-May-12	SG06	FD	Yes
VA1814	KAFB-106123-050	40	50	11-Sep-12	SG07	REG	
VA2128	KAFB-106123-050	40	50	29-Nov-12	SG08	REG	
VA2442	KAFB-106123-050	40	50	6-Mar-13	SG09	REG	
VA2756	KAFB-106123-050	40	50	29-May-13	SG10	REG	
VA0557	KAFB-106123-150	140	150	13-Jul-11	SG03	REG	
VA0873	KAFB-106123-150	140	150	6-Oct-11	SG04	REG	
VA1186	KAFB-106123-150	140	150	11-Jan-12	SG05	REG	
VA1500	KAFB-106123-150	140	150	16-May-12	SG06	REG	
VA1815	KAFB-106123-150	140	150	11-Sep-12	SG07	REG	
VA2129	KAFB-106123-150	140	150	29-Nov-12	SG08	REG	
VA2443	KAFB-106123-150	140	150	6-Mar-13	SG09	REG	
VA2757	KAFB-106123-150	140	150	29-May-13	SG10	REG	
VA0558	KAFB-106123-250	240	250	13-Jul-11	SG03	REG	
VA0874	KAFB-106123-250	240	250	6-Oct-11	SG04	REG	
VA1187	KAFB-106123-250	240	250	11-Jan-12	SG05	REG	
VA1501	KAFB-106123-250	240	250	16-May-12	SG06	REG	
VA1816	KAFB-106123-250	240	250	11-Sep-12	SG07	REG	
VA2130	KAFB-106123-250	240	250	29-Nov-12	SG08	REG	
VA2444	KAFB-106123-250	240	250	6-Mar-13	SG09	REG	
VA2758	KAFB-106123-250	240	250	29-May-13	SG10	REG	
VA0559	KAFB-106123-350	340	350	13-Jul-11	SG03	REG	
VA0875	KAFB-106123-350	340	350	6-Oct-11	SG04	REG	
VA1188	KAFB-106123-350	340	350	11-Jan-12	SG05	REG	
VA1502	KAFB-106123-350	340	350	16-May-12	SG06	REG	
VA1817	KAFB-106123-350	340	350	11-Sep-12	SG07	REG	
VA2131	KAFB-106123-350	340	350	29-Nov-12	SG08	REG	
VA2445	KAFB-106123-350	340	350	6-Mar-13	SG09	REG	
VA2759	KAFB-106123-350	340	350	29-May-13	SG10	REG	
VA0560	KAFB-106123-450	440	450	14-Jul-11	SG03	REG	
VA0876	KAFB-106123-450	440	450	6-Oct-11	SG04	REG	
VA1189	KAFB-106123-450	440	450	11-Jan-12	SG05	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1503	KAFB-106123-450	440	450	16-May-12	SG06	REG	
VA1818	KAFB-106123-450	440	450	11-Sep-12	SG07	REG	
VA2132	KAFB-106123-450	440	450	3-Dec-12	SG08	REG	
VA2446	KAFB-106123-450	440	450	6-Mar-13	SG09	REG	
VA2760	KAFB-106123-450	440	450	29-May-13	SG10	REG	
VA0561	KAFB-106124-025	15	25	19-Jul-11	SG03	REG	
VA0877	KAFB-106124-025	15	25	5-Dec-11	SG04	REG	
VA1190	KAFB-106124-025	15	25	17-Jan-12	SG05	REG	
VA1504	KAFB-106124-025	15	25	31-May-12	SG06	REG	
VA1819	KAFB-106124-025	15	25	15-Aug-12	SG07	REG	
VA1820	KAFB-106124-025	15	25	15-Aug-12	SG07	FD	Yes
VA2133	KAFB-106124-025	15	25	3-Dec-12	SG08	REG	
VA2447	KAFB-106124-025	15	25	7-Mar-13	SG09	REG	
VA2761	KAFB-106124-025	15	25	28-May-13	SG10	REG	
VA0562	KAFB-106124-050	40	50	19-Jul-11	SG03	REG	
VA0878	KAFB-106124-050	40	50	5-Dec-11	SG04	REG	
VA1191	KAFB-106124-050	40	50	17-Jan-12	SG05	REG	
VA1192	KAFB-106124-050	40	50	17-Jan-12	SG05	FD	Yes
VA1505	KAFB-106124-050	40	50	31-May-12	SG06	REG	
VA1821	KAFB-106124-050	40	50	15-Aug-12	SG07	REG	
VA2134	KAFB-106124-050	40	50	3-Dec-12	SG08	REG	
VA2135	KAFB-106124-050	40	50	3-Dec-12	SG08	FD	Yes
VA2448	KAFB-106124-050	40	50	7-Mar-13	SG09	REG	
VA2449	KAFB-106124-050	40	50	7-Mar-13	SG09	FD	Yes
VA2762	KAFB-106124-050	40	50	28-May-13	SG10	REG	
VA0563	KAFB-106124-150	140	150	20-Jul-11	SG03	REG	
VA0879	KAFB-106124-150	140	150	5-Dec-11	SG04	REG	
VA0880	KAFB-106124-150	140	150	5-Dec-11	SG04	FD	Yes
VA1193	KAFB-106124-150	140	150	17-Jan-12	SG05	REG	
VA1193-R	KAFB-106124-150	140	150	5-Mar-12	SG05	REG	
VA1506	KAFB-106124-150	140	150	31-May-12	SG06	REG	
VA1822	KAFB-106124-150	140	150	15-Aug-12	SG07	REG	
VA2136	KAFB-106124-150	140	150	3-Dec-12	SG08	REG	
VA2450	KAFB-106124-150	140	150	12-Mar-13	SG09	REG	
VA2763	KAFB-106124-150	140	150	28-May-13	SG10	REG	
VA2764	KAFB-106124-150	140	150	28-May-13	SG10	FD	Yes
VA0564	KAFB-106124-250	240	250	20-Jul-11	SG03	REG	
VA0881	KAFB-106124-250	240	250	6-Dec-11	SG04	REG	
VA1194	KAFB-106124-250	240	250	17-Jan-12	SG05	REG	
VA1507	KAFB-106124-250	240	250	31-May-12	SG06	REG	
VA1508	KAFB-106124-250	240	250	31-May-12	SG06	FD	Yes
VA1823	KAFB-106124-250	240	250	15-Aug-12	SG07	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2137	KAFB-106124-250	240	250	3-Dec-12	SG08	REG	
VA2451	KAFB-106124-250	240	250	12-Mar-13	SG09	REG	
VA2765	KAFB-106124-250	240	250	28-May-13	SG10	REG	
VA0565	KAFB-106124-350	340	350	20-Jul-11	SG03	REG	
VA0882	KAFB-106124-350	340	350	6-Dec-11	SG04	REG	
VA1195	KAFB-106124-350	340	350	17-Jan-12	SG05	REG	
VA1195-R	KAFB-106124-350	340	350	15-Mar-12	SG05	REG	
VA1509	KAFB-106124-350	340	350	31-May-12	SG06	REG	
VA1824	KAFB-106124-350	340	350	15-Aug-12	SG07	REG	
VA2138	KAFB-106124-350	340	350	3-Dec-12	SG08	REG	
VA2452	KAFB-106124-350	340	350	12-Mar-13	SG09	REG	
VA2766	KAFB-106124-350	340	350	28-May-13	SG10	REG	
VA0566	KAFB-106124-450	440	450	20-Jul-11	SG03	REG	
VA0883	KAFB-106124-450	440	450	6-Dec-11	SG04	REG	
VA1196	KAFB-106124-450	440	450	17-Jan-12	SG05	REG	
VA1510	KAFB-106124-450	440	450	31-May-12	SG06	REG	
VA1825	KAFB-106124-450	440	450	15-Aug-12	SG07	REG	
VA2139	KAFB-106124-450	440	450	3-Dec-12	SG08	REG	
VA2453	KAFB-106124-450	440	450	12-Mar-13	SG09	REG	
VA2767	KAFB-106124-450	440	450	28-May-13	SG10	REG	
VA0567	KAFB-106125-025	15	25	21-Jul-11	SG03	REG	
VA0884	KAFB-106125-025	15	25	7-Dec-11	SG04	REG	
VA1197	KAFB-106125-025	15	25	18-Jan-12	SG05	REG	
VA1511	KAFB-106125-025	15	25	14-May-12	SG06	REG	
VA1826	KAFB-106125-025	15	25	14-Aug-12	SG07	REG	
VA2140	KAFB-106125-025	15	25	20-Nov-12	SG08	REG	
VA2454	KAFB-106125-025	15	25	7-Mar-13	SG09	REG	
VA2768	KAFB-106125-025	15	25	28-May-13	SG10	REG	
VA0568	KAFB-106125-050	40	50	21-Jul-11	SG03	REG	
VA0885	KAFB-106125-050	40	50	7-Dec-11	SG04	REG	
VA1198	KAFB-106125-050	40	50	18-Jan-12	SG05	REG	
VA1512	KAFB-106125-050	40	50	14-May-12	SG06	REG	
VA1827	KAFB-106125-050	40	50	14-Aug-12	SG07	REG	
VA2141	KAFB-106125-050	40	50	20-Nov-12	SG08	REG	
VA2455	KAFB-106125-050	40	50	7-Mar-13	SG09	REG	
VA2769	KAFB-106125-050	40	50	28-May-13	SG10	REG	
VA0569	KAFB-106125-150	140	150	21-Jul-11	SG03	REG	
VA0886	KAFB-106125-150	140	150	7-Dec-11	SG04	REG	
VA1199	KAFB-106125-150	140	150	18-Jan-12	SG05	REG	
VA1513	KAFB-106125-150	140	150	14-May-12	SG06	REG	
VA1828	KAFB-106125-150	140	150	14-Aug-12	SG07	REG	
VA2142	KAFB-106125-150	140	150	20-Nov-12	SG08	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2456	KAFB-106125-150	140	150	7-Mar-13	SG09	REG	
VA2770	KAFB-106125-150	140	150	28-May-13	SG10	REG	
VA0570	KAFB-106125-250	240	250	22-Jul-11	SG03	REG	
VA0887	KAFB-106125-250	240	250	7-Dec-11	SG04	REG	
VA1200	KAFB-106125-250	240	250	18-Jan-12	SG05	REG	
VA1514	KAFB-106125-250	240	250	14-May-12	SG06	REG	
VA1829	KAFB-106125-250	240	250	14-Aug-12	SG07	REG	
VA2143	KAFB-106125-250	240	250	20-Nov-12	SG08	REG	
VA2457	KAFB-106125-250	240	250	7-Mar-13	SG09	REG	
VA2771	KAFB-106125-250	240	250	28-May-13	SG10	REG	
VA0571	KAFB-106125-350	340	350	22-Jul-11	SG03	REG	
VA0888	KAFB-106125-350	340	350	7-Dec-11	SG04	REG	
VA0889	KAFB-106125-350	340	350	7-Dec-11	SG04	FD	Yes
VA1201	KAFB-106125-350	340	350	18-Jan-12	SG05	REG	
VA1202	KAFB-106125-350	340	350	18-Jan-12	SG05	FD	Yes
VA1515	KAFB-106125-350	340	350	14-May-12	SG06	REG	
VA1830	KAFB-106125-350	340	350	14-Aug-12	SG07	REG	
VA1831	KAFB-106125-350	340	350	14-Aug-12	SG07	FD	Yes
VA2144	KAFB-106125-350	340	350	20-Nov-12	SG08	REG	
VA2458	KAFB-106125-350	340	350	7-Mar-13	SG09	REG	
VA2772	KAFB-106125-350	340	350	28-May-13	SG10	REG	
VA0572	KAFB-106125-450	440	450	22-Jul-11	SG03	REG	
VA0890	KAFB-106125-450	440	450	7-Dec-11	SG04	REG	
VA1203	KAFB-106125-450	440	450	18-Jan-12	SG05	REG	
VA1516	KAFB-106125-450	440	450	14-May-12	SG06	REG	
VA1832	KAFB-106125-450	440	450	14-Aug-12	SG07	REG	
VA2145	KAFB-106125-450	440	450	20-Nov-12	SG08	REG	
VA2459	KAFB-106125-450	440	450	7-Mar-13	SG09	REG	
VA2773	KAFB-106125-450	440	450	29-May-13	SG10	REG	
VA0573	KAFB-106126-025	15	25	15-Aug-11	SG03	REG	
VA0891	KAFB-106126-025	15	25	8-Dec-11	SG04	REG	
VA1204	KAFB-106126-025	15	25	19-Jan-12	SG05	REG	
VA1517	KAFB-106126-025	15	25	14-May-12	SG06	REG	
VA1833	KAFB-106126-025	15	25	13-Aug-12	SG07	REG	
VA2146	KAFB-106126-025	15	25	20-Nov-12	SG08	REG	
VA2460	KAFB-106126-025	15	25	14-Feb-13	SG09	REG	
VA2774	KAFB-106126-025	15	25	28-May-13	SG10	REG	
VA2775	KAFB-106126-025	15	25	28-May-13	SG10	FD	Yes
VA0574	KAFB-106126-050	40	50	15-Aug-11	SG03	REG	
VA0892	KAFB-106126-050	40	50	8-Dec-11	SG04	REG	
VA1205	KAFB-106126-050	40	50	19-Jan-12	SG05	REG	
VA1518	KAFB-106126-050	40	50	14-May-12	SG06	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1834	KAFB-106126-050	40	50	13-Aug-12	SG07	REG	
VA2147	KAFB-106126-050	40	50	20-Nov-12	SG08	REG	
VA2148	KAFB-106126-050	40	50	20-Nov-12	SG08	FD	Yes
VA2461	KAFB-106126-050	40	50	14-Feb-13	SG09	REG	
VA2462	KAFB-106126-050	40	50	14-Feb-13	SG09	FD	Yes
VA2776	KAFB-106126-050	40	50	28-May-13	SG10	REG	
VA0575	KAFB-106126-150	140	150	15-Aug-11	SG03	REG	
VA0893	KAFB-106126-150	140	150	8-Dec-11	SG04	REG	
VA1206	KAFB-106126-150	140	150	19-Jan-12	SG05	REG	
VA1519	KAFB-106126-150	140	150	14-May-12	SG06	REG	
VA1835	KAFB-106126-150	140	150	13-Aug-12	SG07	REG	
VA2149	KAFB-106126-150	140	150	20-Nov-12	SG08	REG	
VA2463	KAFB-106126-150	140	150	14-Feb-13	SG09	REG	
VA2777	KAFB-106126-150	140	150	28-May-13	SG10	REG	
VA0576	KAFB-106126-250	240	250	15-Aug-11	SG03	REG	
VA0894	KAFB-106126-250	240	250	8-Dec-11	SG04	REG	
VA1207	KAFB-106126-250	240	250	19-Jan-12	SG05	REG	
VA1520	KAFB-106126-250	240	250	14-May-12	SG06	REG	
VA1836	KAFB-106126-250	240	250	13-Aug-12	SG07	REG	
VA2150	KAFB-106126-250	240	250	20-Nov-12	SG08	REG	
VA2464	KAFB-106126-250	240	250	14-Feb-13	SG09	REG	
VA2778	KAFB-106126-250	240	250	28-May-13	SG10	REG	
VA0577	KAFB-106126-350	340	350	15-Aug-11	SG03	REG	
VA0895	KAFB-106126-350	340	350	8-Dec-11	SG04	REG	
VA1208	KAFB-106126-350	340	350	19-Jan-12	SG05	REG	
VA1521	KAFB-106126-350	340	350	15-May-12	SG06	REG	
VA1522	KAFB-106126-350	340	350	15-May-12	SG06	FD	Yes
VA1837	KAFB-106126-350	340	350	13-Aug-12	SG07	REG	
VA2151	KAFB-106126-350	340	350	20-Nov-12	SG08	REG	
VA2465	KAFB-106126-350	340	350	14-Feb-13	SG09	REG	
VA2779	KAFB-106126-350	340	350	28-May-13	SG10	REG	
VA0578	KAFB-106126-450	440	450	15-Aug-11	SG03	REG	
VA0896	KAFB-106126-450	440	450	12-Dec-11	SG04	REG	
VA1209	KAFB-106126-450	440	450	19-Jan-12	SG05	REG	
VA1523	KAFB-106126-450	440	450	15-May-12	SG06	REG	
VA1838	KAFB-106126-450	440	450	13-Aug-12	SG07	REG	
VA2152	KAFB-106126-450	440	450	20-Nov-12	SG08	REG	
VA2466	KAFB-106126-450	440	450	14-Feb-13	SG09	REG	
VA2780	KAFB-106126-450	440	450	28-May-13	SG10	REG	
VA0579	KAFB-106127-025	15	25	19-Aug-11	SG03	REG	
VA0897	KAFB-106127-025	15	25	13-Dec-11	SG04	REG	
VA0897R	KAFB-106127-025	15	25	22-Dec-11	SG04	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1210	KAFB-106127-025	15	25	19-Jan-12	SG05	REG	
VA1524	KAFB-106127-025	15	25	14-May-12	SG06	REG	
VA1839	KAFB-106127-025	15	25	13-Aug-12	SG07	REG	
VA2153	KAFB-106127-025	15	25	3-Dec-12	SG08	REG	
VA2467	KAFB-106127-025	15	25	14-Feb-13	SG09	REG	
VA2781	KAFB-106127-025	15	25	28-May-13	SG10	REG	
VA0580	KAFB-106127-050	40	50	18-Aug-11	SG03	REG	
VA0898	KAFB-106127-050	40	50	13-Dec-11	SG04	REG	
VA0899	KAFB-106127-050	40	50	13-Dec-11	SG04	FD	Yes
VA1211	KAFB-106127-050	40	50	19-Jan-12	SG05	REG	
VA1212	KAFB-106127-050	40	50	19-Jan-12	SG05	FD	Yes
VA1525	KAFB-106127-050	40	50	14-May-12	SG06	REG	
VA1840	KAFB-106127-050	40	50	13-Aug-12	SG07	REG	
VA2154	KAFB-106127-050	40	50	3-Dec-12	SG08	REG	
VA2468	KAFB-106127-050	40	50	14-Feb-13	SG09	REG	
VA2782	KAFB-106127-050	40	50	28-May-13	SG10	REG	
VA0581	KAFB-106127-150	140	150	18-Aug-11	SG03	REG	
VA0900	KAFB-106127-150	140	150	13-Dec-11	SG04	REG	
VA1213	KAFB-106127-150	140	150	19-Jan-12	SG05	REG	
VA1526	KAFB-106127-150	140	150	14-May-12	SG06	REG	
VA1841	KAFB-106127-150	140	150	13-Aug-12	SG07	REG	
VA1842	KAFB-106127-150	140	150	13-Aug-12	SG07	FD	Yes
VA2155	KAFB-106127-150	140	150	3-Dec-12	SG08	REG	
VA2469	KAFB-106127-150	140	150	14-Feb-13	SG09	REG	
VA2783	KAFB-106127-150	140	150	28-May-13	SG10	REG	
VA0582	KAFB-106127-250	240	250	18-Aug-11	SG03	REG	
VA0901	KAFB-106127-250	240	250	13-Dec-11	SG04	REG	
VA1214	KAFB-106127-250	240	250	19-Jan-12	SG05	REG	
VA1527	KAFB-106127-250	240	250	14-May-12	SG06	REG	
VA1843	KAFB-106127-250	240	250	14-Aug-12	SG07	REG	
VA2156	KAFB-106127-250	240	250	3-Dec-12	SG08	REG	
VA2470	KAFB-106127-250	240	250	14-Feb-13	SG09	REG	
VA2784	KAFB-106127-250	240	250	28-May-13	SG10	REG	
VA0583	KAFB-106127-350	340	350	19-Aug-11	SG03	REG	
VA0902	KAFB-106127-350	340	350	13-Dec-11	SG04	REG	
VA1215	KAFB-106127-350	340	350	19-Jan-12	SG05	REG	
VA1528	KAFB-106127-350	340	350	14-May-12	SG06	REG	
VA1844	KAFB-106127-350	340	350	14-Aug-12	SG07	REG	
VA2157	KAFB-106127-350	340	350	3-Dec-12	SG08	REG	
VA2471	KAFB-106127-350	340	350	14-Feb-13	SG09	REG	
VA2785	KAFB-106127-350	340	350	28-May-13	SG10	REG	
VA2786	KAFB-106127-350	340	350	28-May-13	SG10	FD	Yes

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0584	KAFB-106127-450	440	450	19-Aug-11	SG03	REG	
VA0903	KAFB-106127-450	440	450	13-Dec-11	SG04	REG	
VA1216	KAFB-106127-450	440	450	20-Jan-12	SG05	REG	
VA1529	KAFB-106127-450	440	450	15-May-12	SG06	REG	
VA1845	KAFB-106127-450	440	450	14-Aug-12	SG07	REG	
VA2158	KAFB-106127-450	440	450	3-Dec-12	SG08	REG	
VA2472	KAFB-106127-450	440	450	14-Feb-13	SG09	REG	
VA2787	KAFB-106127-450	440	450	29-May-13	SG10	REG	
VA0585	KAFB-106128-025	15.04	25.04	29-Aug-11	SG03	REG	
VA0586	KAFB-106128-025	15.04	25.04	29-Aug-11	SG03	FD	Yes
VA0904	KAFB-106128-025	15.04	25.04	20-Oct-11	SG04	REG	
VA1217	KAFB-106128-025	15.04	25.04	6-Mar-12	SG05	REG	
VA1530	KAFB-106128-025	15.04	25.04	5-Jun-12	SG06	REG	
VA1846	KAFB-106128-025	15.04	25.04	27-Aug-12	SG07	REG	
VA2159	KAFB-106128-025	15.04	25.04	5-Dec-12	SG08	REG	
VA2473	KAFB-106128-025	15.04	25.04	18-Mar-13	SG09	REG	
VA2788	KAFB-106128-025	15.04	25.04	18-Jun-13	SG10	REG	
VA0587	KAFB-106128-050	40.07	50.07	6-Sep-11	SG03	REG	
VA0905	KAFB-106128-050	40.07	50.07	20-Oct-11	SG04	REG	
VA1218	KAFB-106128-050	40.07	50.07	6-Mar-12	SG05	REG	
VA1531	KAFB-106128-050	40.07	50.07	5-Jun-12	SG06	REG	
VA1847	KAFB-106128-050	40.07	50.07	27-Aug-12	SG07	REG	
VA2160	KAFB-106128-050	40.07	50.07	5-Dec-12	SG08	REG	
VA2474	KAFB-106128-050	40.07	50.07	18-Mar-13	SG09	REG	
VA2789	KAFB-106128-050	40.07	50.07	18-Jun-13	SG10	REG	
VA0588	KAFB-106128-150	140.19	150.19	6-Sep-11	SG03	REG	
VA0906	KAFB-106128-150	140.19	150.19	20-Oct-11	SG04	REG	
VA1219	KAFB-106128-150	140.19	150.19	6-Mar-12	SG05	REG	
VA1532	KAFB-106128-150	140.19	150.19	6-Jun-12	SG06	REG	
VA1533	KAFB-106128-150	140.19	150.19	6-Jun-12	SG06	FD	Yes
VA1848	KAFB-106128-150	140.19	150.19	27-Aug-12	SG07	REG	
VA2161	KAFB-106128-150	140.19	150.19	5-Dec-12	SG08	REG	
VA2475	KAFB-106128-150	140.19	150.19	18-Mar-13	SG09	REG	
VA2790	KAFB-106128-150	140.19	150.19	18-Jun-13	SG10	REG	
VA0589	KAFB-106128-250	240.29	250.29	6-Sep-11	SG03	REG	
VA0907	KAFB-106128-250	240.29	250.29	20-Oct-11	SG04	REG	
VA1220	KAFB-106128-250	240.29	250.29	6-Mar-12	SG05	REG	
VA1534	KAFB-106128-250	240.29	250.29	6-Jun-12	SG06	REG	
VA1849	KAFB-106128-250	240.29	250.29	27-Aug-12	SG07	REG	
VA2162	KAFB-106128-250	240.29	250.29	5-Dec-12	SG08	REG	
VA2163	KAFB-106128-250	240.29	250.29	5-Dec-12	SG08	FD	Yes
VA2476	KAFB-106128-250	240.29	250.29	18-Mar-13	SG09	REG	

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Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2477	KAFB-106128-250	240.29	250.29	18-Mar-13	SG09	FD	Yes
VA2791	KAFB-106128-250	240.29	250.29	18-Jun-13	SG10	REG	
VA0590	KAFB-106128-350	340.39	350.39	6-Sep-11	SG03	REG	
VA0908	KAFB-106128-350	340.39	350.39	20-Oct-11	SG04	REG	
VA1221	KAFB-106128-350	340.39	350.39	6-Mar-12	SG05	REG	
VA1222	KAFB-106128-350	340.39	350.39	6-Mar-12	SG05	FD	Yes
VA1535	KAFB-106128-350	340.39	350.39	6-Jun-12	SG06	REG	
VA1850	KAFB-106128-350	340.39	350.39	27-Aug-12	SG07	REG	
VA2164	KAFB-106128-350	340.39	350.39	5-Dec-12	SG08	REG	
VA2478	KAFB-106128-350	340.39	350.39	19-Mar-13	SG09	REG	
VA2792	KAFB-106128-350	340.39	350.39	18-Jun-13	SG10	REG	
VA0591	KAFB-106128-450	440.06	450.06	6-Sep-11	SG03	REG	
VA0909	KAFB-106128-450	440.06	450.06	20-Oct-11	SG04	REG	
VA1223	KAFB-106128-450	440.06	450.06	6-Mar-12	SG05	REG	
VA1536	KAFB-106128-450	440.06	450.06	6-Jun-12	SG06	REG	
VA1851	KAFB-106128-450	440.06	450.06	27-Aug-12	SG07	REG	
VA2165	KAFB-106128-450	440.06	450.06	5-Dec-12	SG08	REG	
VA2479	KAFB-106128-450	440.06	450.06	19-Mar-13	SG09	REG	
VA2793	KAFB-106128-450	440.06	450.06	18-Jun-13	SG10	REG	
VA0592	KAFB-106129-025	15.1	25.1	21-Sep-11	SG03	REG	
VA0910	KAFB-106129-025	15.1	25.1	17-Nov-11	SG04	REG	
VA1224	KAFB-106129-025	15.1	25.1	5-Mar-12	SG05	REG	
VA1537	KAFB-106129-025	15	25	18-Jun-12	SG06	REG	
VA1852	KAFB-106129-025	15.1	25.1	21-Aug-12	SG07	REG	
VA2166	KAFB-106129-025	15.1	25.1	13-Dec-12	SG08	REG	
VA2480	KAFB-106129-025	15.1	25.1	11-Mar-13	SG09	REG	
VA2794	KAFB-106129-025	15.1	25.1	18-Jun-13	SG10	REG	
VA0593	KAFB-106129-050	39.7	49.7	21-Sep-11	SG03	REG	
VA0594	KAFB-106129-050	39.7	49.7	21-Sep-11	SG03	FD	Yes
VA0911	KAFB-106129-050	39.7	49.7	17-Nov-11	SG04	REG	
VA1225	KAFB-106129-050	39.7	49.7	5-Mar-12	SG05	REG	
VA1538	KAFB-106129-050	40	50	18-Jun-12	SG06	REG	
VA1853	KAFB-106129-050	39.7	49.7	21-Aug-12	SG07	REG	
VA1854	KAFB-106129-050	39.7	49.7	21-Aug-12	SG07	FD	Yes
VA2167	KAFB-106129-050	39.7	49.7	13-Dec-12	SG08	REG	
VA2481	KAFB-106129-050	39.7	49.7	11-Mar-13	SG09	REG	
VA2795	KAFB-106129-050	39.7	49.7	18-Jun-13	SG10	REG	
VA0595	KAFB-106129-150	140.2	150.2	21-Sep-11	SG03	REG	
VA0912	KAFB-106129-150	140.2	150.2	17-Nov-11	SG04	REG	
VA0913	KAFB-106129-150	140.2	150.2	17-Nov-11	SG04	FD	Yes
VA1226	KAFB-106129-150	140.2	150.2	5-Mar-12	SG05	REG	
VA1539	KAFB-106129-150	140	150	19-Jun-12	SG06	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1855	KAFB-106129-150	140.2	150.2	21-Aug-12	SG07	REG	
VA2168	KAFB-106129-150	140.2	150.2	13-Dec-12	SG08	REG	
VA2482	KAFB-106129-150	140.2	150.2	11-Mar-13	SG09	REG	
VA2796	KAFB-106129-150	140.2	150.2	18-Jun-13	SG10	REG	
VA2797	KAFB-106129-150	140.2	150.2	18-Jun-13	SG10	FD	Yes
VA0596	KAFB-106129-250	240.1	250.1	21-Sep-11	SG03	REG	
VA0914	KAFB-106129-250	240.1	250.1	17-Nov-11	SG04	REG	
VA1227	KAFB-106129-250	240.1	250.1	5-Mar-12	SG05	REG	
VA1540	KAFB-106129-250	240	250	19-Jun-12	SG06	REG	
VA1856	KAFB-106129-250	240.1	250.1	22-Aug-12	SG07	REG	
VA2169	KAFB-106129-250	240.1	250.1	13-Dec-12	SG08	REG	
VA2483	KAFB-106129-250	240.1	250.1	11-Mar-13	SG09	REG	
VA2798	KAFB-106129-250	240.1	250.1	18-Jun-13	SG10	REG	
VA0597	KAFB-106129-350	347.4	350.7	26-Sep-11	SG03	REG	
VA0915	KAFB-106129-350	340	350	17-Nov-11	SG04	REG	
VA1228	KAFB-106129-350	337.4	347.4	5-Mar-12	SG05	REG	
VA1541	KAFB-106129-350	340	350	19-Jun-12	SG06	REG	
VA1857	KAFB-106129-350	337.4	347.4	22-Aug-12	SG07	REG	
VA2170	KAFB-106129-350	337.4	347.4	13-Dec-12	SG08	REG	
VA2484	KAFB-106129-350	337.4	347.4	11-Mar-13	SG09	REG	
VA2799	KAFB-106129-350	337.4	347.4	18-Jun-13	SG10	REG	
VA0598	KAFB-106129-450	440.7	450.7	22-Sep-11	SG03	REG	
VA0916	KAFB-106129-450	440.7	450.7	17-Nov-11	SG04	REG	
VA1229	KAFB-106129-450	440.7	450.7	5-Mar-12	SG05	REG	
VA1542	KAFB-106129-450	440	450	19-Jun-12	SG06	REG	
VA1858	KAFB-106129-450	440.7	450.7	22-Aug-12	SG07	REG	
VA2171	KAFB-106129-450	440.7	450.7	13-Dec-12	SG08	REG	
VA2485	KAFB-106129-450	440.7	450.7	11-Mar-13	SG09	REG	
VA2800	KAFB-106129-450	440.7	450.7	18-Jun-13	SG10	REG	
VA0599	KAFB-106130-025	15	25	26-Sep-11	SG03	REG	
VA0917	KAFB-106130-025	15	25	13-Oct-11	SG04	REG	
VA1230	KAFB-106130-025	15	25	12-Jan-12	SG05	REG	
VA1543	KAFB-106130-025	15	25	19-Jun-12	SG06	REG	
VA1859	KAFB-106130-025	15	25	10-Sep-12	SG07	REG	
VA2172	KAFB-106130-025	15	25	17-Dec-12	SG08	REG	
VA2486	KAFB-106130-025	15	25	25-Feb-13	SG09	REG	
VA2801	KAFB-106130-025	15	25	30-May-13	SG10	REG	
VA0600	KAFB-106130-050	40	50	26-Sep-11	SG03	REG	
VA0918	KAFB-106130-050	40	50	13-Oct-11	SG04	REG	
VA1231	KAFB-106130-050	40	50	12-Jan-12	SG05	REG	
VA1232	KAFB-106130-050	40	50	12-Jan-12	SG05	FD	Yes
VA1544	KAFB-106130-050	40	50	19-Jun-12	SG06	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1545	KAFB-106130-050	40	50	19-Jun-12	SG06	FD	Yes
VA1860	KAFB-106130-050	40	50	10-Sep-12	SG07	REG	
VA2173	KAFB-106130-050	40	50	17-Dec-12	SG08	REG	
VA2174	KAFB-106130-050	40	50	17-Dec-12	SG08	FD	Yes
VA2487	KAFB-106130-050	40	50	25-Feb-13	SG09	REG	
VA2488	KAFB-106130-050	40	50	25-Feb-13	SG09	FD	Yes
VA2802	KAFB-106130-050	40	50	30-May-13	SG10	REG	
VA0601	KAFB-106130-150	150	160	26-Sep-11	SG03	REG	
VA0919	KAFB-106130-150	150	160	13-Oct-11	SG04	REG	
VA1233	KAFB-106130-150	140	150	12-Jan-12	SG05	REG	
VA1546	KAFB-106130-150	140	150	19-Jun-12	SG06	REG	
VA1861	KAFB-106130-150	140	150	10-Sep-12	SG07	REG	
VA2175	KAFB-106130-150	140	150	17-Dec-12	SG08	REG	
VA2489	KAFB-106130-150	140	150	25-Feb-13	SG09	REG	
VA2803	KAFB-106130-150	140	150	30-May-13	SG10	REG	
VA0602	KAFB-106130-250	240	250	26-Sep-11	SG03	REG	
VA0603	KAFB-106130-250	240	250	26-Sep-11	SG03	FD	Yes
VA0920	KAFB-106130-250	240	250	13-Oct-11	SG04	REG	
VA1234	KAFB-106130-250	240	250	12-Jan-12	SG05	REG	
VA1547	KAFB-106130-250	240	250	19-Jun-12	SG06	REG	
VA1862	KAFB-106130-250	240	250	10-Sep-12	SG07	REG	
VA2176	KAFB-106130-250	240	250	17-Dec-12	SG08	REG	
VA2490	KAFB-106130-250	240	250	25-Feb-13	SG09	REG	
VA2804	KAFB-106130-250	240	250	30-May-13	SG10	REG	
VA0604	KAFB-106130-350	340	350	27-Sep-11	SG03	REG	
VA0921	KAFB-106130-350	340	350	13-Oct-11	SG04	REG	
VA0922	KAFB-106130-350	340	350	13-Oct-11	SG04	FD	Yes
VA1235	KAFB-106130-350	340	350	13-Jan-12	SG05	REG	
VA1548	KAFB-106130-350	340	350	19-Jun-12	SG06	REG	
VA1863	KAFB-106130-350	340	350	10-Sep-12	SG07	REG	
VA2177	KAFB-106130-350	340	350	17-Dec-12	SG08	REG	
VA2491	KAFB-106130-350	340	350	25-Feb-13	SG09	REG	
VA2805	KAFB-106130-350	340	350	30-May-13	SG10	REG	
VA0605	KAFB-106130-450	440	450	27-Sep-11	SG03	REG	
VA0923	KAFB-106130-450	440	450	13-Oct-11	SG04	REG	
VA1236	KAFB-106130-450	440	450	13-Jan-12	SG05	REG	
VA1549	KAFB-106130-450	440	450	19-Jun-12	SG06	REG	
VA1864	KAFB-106130-450	440	450	11-Sep-12	SG07	REG	
VA2178	KAFB-106130-450	440	450	17-Dec-12	SG08	REG	
VA2492	KAFB-106130-450	440	450	25-Feb-13	SG09	REG	
VA2806	KAFB-106130-450	440	450	30-May-13	SG10	REG	
VA0606	KAFB-106131-025	15	25	3-Aug-11	SG03	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0924	KAFB-106131-025	15	25	26-Oct-11	SG04	REG	
VA1237	KAFB-106131-025	15	25	12-Mar-12	SG05	REG	
VA1550	KAFB-106131-025	15	25	20-Jun-12	SG06	REG	
VA1865	KAFB-106131-025	15	25	16-Aug-12	SG07	REG	
VA2179	KAFB-106131-025	15	25	17-Dec-12	SG08	REG	
VA2493	KAFB-106131-025	15	25	4-Mar-13	SG09	REG	
VA2807	KAFB-106131-025	15	25	10-Jun-13	SG10	REG	
VA2808	KAFB-106131-025	15	25	10-Jun-13	SG10	FD	Yes
VA0607	KAFB-106131-055	45	55	3-Aug-11	SG03	REG	
VA0925	KAFB-106131-055	45	55	26-Oct-11	SG04	REG	
VA1238	KAFB-106131-055	45	55	12-Mar-12	SG05	REG	
VA1551	KAFB-106131-055	45	55	20-Jun-12	SG06	REG	
VA1866	KAFB-106131-055	45	55	16-Aug-12	SG07	REG	
VA1867	KAFB-106131-055	45	55	16-Aug-12	SG07	FD	Yes
VA2180	KAFB-106131-055	45	55	17-Dec-12	SG08	REG	
VA2494	KAFB-106131-055	45	55	4-Mar-13	SG09	REG	
VA2809	KAFB-106131-055	45	55	10-Jun-13	SG10	REG	
VA0608	KAFB-106131-150	140	150	4-Aug-11	SG03	REG	
VA0926	KAFB-106131-150	140	150	26-Oct-11	SG04	REG	
VA1239	KAFB-106131-150	140	150	12-Mar-12	SG05	REG	
VA1552	KAFB-106131-150	140	150	20-Jun-12	SG06	REG	
VA1868	KAFB-106131-150	140	150	21-Aug-12	SG07	REG	
VA2181	KAFB-106131-150	140	150	17-Dec-12	SG08	REG	
VA2495	KAFB-106131-150	140	150	4-Mar-13	SG09	REG	
VA2810	KAFB-106131-150	140	150	10-Jun-13	SG10	REG	
VA0609	KAFB-106131-245	235	245	4-Aug-11	SG03	REG	
VA0927	KAFB-106131-245	235	245	27-Oct-11	SG04	REG	
VA1240	KAFB-106131-245	235	245	13-Mar-12	SG05	REG	
VA1553	KAFB-106131-245	235	245	20-Jun-12	SG06	REG	
VA1554	KAFB-106131-245	235	245	20-Jun-12	SG06	FD	Yes
VA1869	KAFB-106131-245	235	245	21-Aug-12	SG07	REG	
VA2182	KAFB-106131-245	235	245	18-Dec-12	SG08	REG	
VA2496	KAFB-106131-245	235	245	4-Mar-13	SG09	REG	
VA2811	KAFB-106131-245	235	245	10-Jun-13	SG10	REG	
VA0610	KAFB-106131-350	340	350	4-Aug-11	SG03	REG	
VA0611	KAFB-106131-350	340	350	4-Aug-11	SG03	FD	Yes
VA0928	KAFB-106131-350	340	350	27-Oct-11	SG04	REG	
VA1241	KAFB-106131-350	340	350	13-Mar-12	SG05	REG	
VA1242	KAFB-106131-350	340	350	13-Mar-12	SG05	FD	Yes
VA1555	KAFB-106131-350	340	350	21-Jun-12	SG06	REG	
VA1870	KAFB-106131-350	340	350	21-Aug-12	SG07	REG	
VA2183	KAFB-106131-350	340	350	17-Dec-12	SG08	REG	

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2497	KAFB-106131-350	340	350	4-Mar-13	SG09	REG	
VA2812	KAFB-106131-350	340	350	10-Jun-13	SG10	REG	
VA0612	KAFB-106131-450	430	440	4-Aug-11	SG03	REG	
VA0929	KAFB-106131-450	430	440	27-Oct-11	SG04	REG	
VA1243	KAFB-106131-450	430	440	13-Mar-12	SG05	REG	
VA1556	KAFB-106131-450	430	440	21-Jun-12	SG06	REG	
VA1871	KAFB-106131-450	430	440	21-Aug-12	SG07	REG	
VA2184	KAFB-106131-450	430	440	17-Dec-12	SG08	REG	
VA2498	KAFB-106131-450	430	440	4-Mar-13	SG09	REG	
VA2813	KAFB-106131-450	430	440	10-Jun-13	SG10	REG	
VA0613	KAFB-106132-025	15	25	11-Jul-11	SG03	REG	
VA0930	KAFB-106132-025	15	25	19-Dec-11	SG04	REG	
VA1244	KAFB-106132-025	15	25	12-Mar-12	SG05	REG	
VA1557	KAFB-106132-025	15	25	21-May-12	SG06	REG	
VA1872	KAFB-106132-025	15	25	5-Sep-12	SG07	REG	
VA2185	KAFB-106132-025	15	25	5-Dec-12	SG08	REG	
VA2499	KAFB-106132-025	15	25	20-Feb-13	SG09	REG	
VA2814	KAFB-106132-025	15	25	10-Jun-13	SG10	REG	
VA0614	KAFB-106132-050	40	50	11-Jul-11	SG03	REG	
VA0931	KAFB-106132-050	40	50	19-Dec-11	SG04	REG	
VA1245	KAFB-106132-050	40	50	12-Mar-12	SG05	REG	
VA1558	KAFB-106132-050	40	50	21-May-12	SG06	REG	
VA1873	KAFB-106132-050	40	50	5-Sep-12	SG07	REG	
VA2186	KAFB-106132-050	40	50	5-Dec-12	SG08	REG	
VA2187	KAFB-106132-050	40	50	5-Dec-12	SG08	FD	Yes
VA2500	KAFB-106132-050	40	50	20-Feb-13	SG09	REG	
VA2501	KAFB-106132-050	40	50	20-Feb-13	SG09	FD	Yes
VA2815	KAFB-106132-050	40	50	10-Jun-13	SG10	REG	
VA0615	KAFB-106132-175	165	175	11-Jul-11	SG03	REG	
VA0932	KAFB-106132-175	165	175	19-Dec-11	SG04	REG	
VA1246	KAFB-106132-175	165	175	12-Mar-12	SG05	REG	
VA1559	KAFB-106132-175	165	175	21-May-12	SG06	REG	
VA1874	KAFB-106132-175	165	175	5-Sep-12	SG07	REG	
VA2188	KAFB-106132-175	165	175	6-Dec-12	SG08	REG	
VA2502	KAFB-106132-175	165	175	20-Feb-13	SG09	REG	
VA2816	KAFB-106132-175	165	175	10-Jun-13	SG10	REG	
VA0616	KAFB-106132-250	240	250	11-Jul-11	SG03	REG	
VA0617	KAFB-106132-250	240	250	11-Jul-11	SG03	FD	Yes
VA0933	KAFB-106132-250	240	250	19-Dec-11	SG04	REG	
VA1247	KAFB-106132-250	240	250	12-Mar-12	SG05	REG	
VA1560	KAFB-106132-250	240	250	21-May-12	SG06	REG	
VA1875	KAFB-106132-250	240	250	5-Sep-12	SG07	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2189	KAFB-106132-250	240	250	6-Dec-12	SG08	REG	
VA2503	KAFB-106132-250	240	250	20-Feb-13	SG09	REG	
VA2817	KAFB-106132-250	240	250	10-Jun-13	SG10	REG	
VA0618	KAFB-106132-350	340	350	11-Jul-11	SG03	REG	
VA0934	KAFB-106132-350	340	350	19-Dec-11	SG04	REG	
VA1248	KAFB-106132-350	340	350	12-Mar-12	SG05	REG	
VA1561	KAFB-106132-350	340	350	21-May-12	SG06	REG	
VA1876	KAFB-106132-350	340	350	5-Sep-12	SG07	REG	
VA1877	KAFB-106132-350	340	350	5-Sep-12	SG07	FD	Yes
VA2190	KAFB-106132-350	340	350	6-Dec-12	SG08	REG	
VA2504	KAFB-106132-350	340	350	20-Feb-13	SG09	REG	
VA2818	KAFB-106132-350	340	350	10-Jun-13	SG10	REG	
VA2819	KAFB-106132-350	340	350	10-Jun-13	SG10	FD	Yes
VA0619	KAFB-106132-450	440	450	11-Jul-11	SG03	REG	
VA0935	KAFB-106132-450	440	450	19-Dec-11	SG04	REG	
VA1249	KAFB-106132-450	440	450	12-Mar-12	SG05	REG	
VA1562	KAFB-106132-450	440	450	21-May-12	SG06	REG	
VA1878	KAFB-106132-450	440	450	10-Sep-12	SG07	REG	
VA2191	KAFB-106132-450	440	450	6-Dec-12	SG08	REG	
VA2505	KAFB-106132-450	440	450	20-Feb-13	SG09	REG	
VA2820	KAFB-106132-450	440	450	10-Jun-13	SG10	REG	
VA0620	KAFB-106133-025	15	25	12-Jul-11	SG03	REG	
VA0936	KAFB-106133-025	15	25	21-Nov-11	SG04	REG	
VA0937	KAFB-106133-025	15	25	21-Nov-11	SG04	FD	Yes
VA1250	KAFB-106133-025	15	25	16-Jan-12	SG05	REG	
VA1563	KAFB-106133-025	15	25	16-May-12	SG06	REG	
VA1879	KAFB-106133-025	15	25	15-Aug-12	SG07	REG	
VA2192	KAFB-106133-025	15	25	6-Dec-12	SG08	REG	
VA2506	KAFB-106133-025	15	25	21-Feb-13	SG09	REG	
VA2821	KAFB-106133-025	15	25	5-Jun-13	SG10	REG	
VA0621	KAFB-106133-050	40	50	12-Jul-11	SG03	REG	
VA0938	KAFB-106133-050	40	50	21-Nov-11	SG04	REG	
VA1251	KAFB-106133-050	40	50	16-Jan-12	SG05	REG	
VA1252	KAFB-106133-050	40	50	16-Jan-12	SG05	FD	Yes
VA1564	KAFB-106133-050	40	50	16-May-12	SG06	REG	
VA1565	KAFB-106133-050	40	50	16-May-12	SG06	FD	Yes
VA1880	KAFB-106133-050	40	50	15-Aug-12	SG07	REG	
VA2193	KAFB-106133-050	40	50	6-Dec-12	SG08	REG	
VA2507	KAFB-106133-050	40	50	21-Feb-13	SG09	REG	
VA2822	KAFB-106133-050	40	50	5-Jun-13	SG10	REG	
VA0622	KAFB-106133-170	160	170	12-Jul-11	SG03	REG	
VA0623	KAFB-106133-170	160	170	12-Jul-11	SG03	FD	Yes

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0939	KAFB-106133-170	160	170	21-Nov-11	SG04	REG	
VA1253	KAFB-106133-170	160	170	16-Jan-12	SG05	REG	
VA1566	KAFB-106133-170	160	170	16-May-12	SG06	REG	
VA1881	KAFB-106133-170	160	170	15-Aug-12	SG07	REG	
VA2194	KAFB-106133-170	160	170	6-Dec-12	SG08	REG	
VA2508	KAFB-106133-170	160	170	21-Feb-13	SG09	REG	
VA2823	KAFB-106133-170	160	170	5-Jun-13	SG10	REG	
VA0624	KAFB-106133-250	240	250	12-Jul-11	SG03	REG	
VA0940	KAFB-106133-250	240	250	21-Nov-11	SG04	REG	
VA1254	KAFB-106133-250	240	250	16-Jan-12	SG05	REG	
VA1567	KAFB-106133-250	240	250	16-May-12	SG06	REG	
VA1882	KAFB-106133-250	240	250	16-Aug-12	SG07	REG	
VA2195	KAFB-106133-250	240	250	6-Dec-12	SG08	REG	
VA2509	KAFB-106133-250	240	250	21-Feb-13	SG09	REG	
VA2824	KAFB-106133-250	240	250	5-Jun-13	SG10	REG	
VA0625	KAFB-106133-350	339	349	12-Jul-11	SG03	REG	
VA0941	KAFB-106133-350	339	349	21-Nov-11	SG04	REG	
VA1255	KAFB-106133-350	339	349	16-Jan-12	SG05	REG	
VA1568	KAFB-106133-350	339	349	16-May-12	SG06	REG	
VA1883	KAFB-106133-350	339	349	16-Aug-12	SG07	REG	
VA2196	KAFB-106133-350	339	349	6-Dec-12	SG08	REG	
VA2510	KAFB-106133-350	339	349	21-Feb-13	SG09	REG	
VA2825	KAFB-106133-350	339	349	5-Jun-13	SG10	REG	
VA0626	KAFB-106133-450	439	449	12-Jul-11	SG03	REG	
VA0942	KAFB-106133-450	439	449	21-Nov-11	SG04	REG	
VA1256	KAFB-106133-450	439	449	16-Jan-12	SG05	REG	
VA1569	KAFB-106133-450	439	449	16-May-12	SG06	REG	
VA1884	KAFB-106133-450	439	449	16-Aug-12	SG07	REG	
VA2197	KAFB-106133-450	439	449	10-Dec-12	SG08	REG	
VA2511	KAFB-106133-450	439	449	21-Feb-13	SG09	REG	
VA2826	KAFB-106133-450	439	449	5-Jun-13	SG10	REG	
VA0627	KAFB-106134-025	15	25	13-Jul-11	SG03	REG	
VA0943	KAFB-106134-025	15	25	21-Nov-11	SG04	REG	
VA1257	KAFB-106134-025	15	25	16-Jan-12	SG05	REG	
VA1570	KAFB-106134-025	15	25	19-Jun-12	SG06	REG	
VA1885	KAFB-106134-025	15	25	30-Aug-12	SG07	REG	
VA2198	KAFB-106134-025	15	25	10-Dec-12	SG08	REG	
VA2199	KAFB-106134-025	15	25	10-Dec-12	SG08	FD	Yes
VA2512	KAFB-106134-025	15	25	19-Feb-13	SG09	REG	
VA2513	KAFB-106134-025	15	25	19-Feb-13	SG09	FD	Yes
VA2827	KAFB-106134-025	15	25	10-Jun-13	SG10	REG	
VA0628	KAFB-106134-050	40	50	13-Jul-11	SG03	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0944	KAFB-106134-050	40	50	21-Nov-11	SG04	REG	
VA1258	KAFB-106134-050	40	50	16-Jan-12	SG05	REG	
VA1571	KAFB-106134-050	40	50	19-Jun-12	SG06	REG	
VA1886	KAFB-106134-050	40	50	30-Aug-12	SG07	REG	
VA2200	KAFB-106134-050	40	50	10-Dec-12	SG08	REG	
VA2514	KAFB-106134-050	40	50	19-Feb-13	SG09	REG	
VA2828	KAFB-106134-050	40	50	10-Jun-13	SG10	REG	
VA0629	KAFB-106134-170	160	170	13-Jul-11	SG03	REG	
VA0945	KAFB-106134-170	160	170	21-Nov-11	SG04	REG	
VA1259	KAFB-106134-170	160	170	16-Jan-12	SG05	REG	
VA1572	KAFB-106134-170	160	170	19-Jun-12	SG06	REG	
VA1887	KAFB-106134-170	160	170	30-Aug-12	SG07	REG	
VA1888	KAFB-106134-170	160	170	30-Aug-12	SG07	FD	Yes
VA2201	KAFB-106134-170	160	170	10-Dec-12	SG08	REG	
VA2201R	KAFB-106134-170	160	170	19-Dec-12	SG08	REG	
VA2515	KAFB-106134-170	160	170	19-Feb-13	SG09	REG	
VA2829	KAFB-106134-170	160	170	10-Jun-13	SG10	REG	
VA2830	KAFB-106134-170	160	170	10-Jun-13	SG10	FD	Yes
VA0630	KAFB-106134-250	240	250	13-Jul-11	SG03	REG	
VA0946	KAFB-106134-250	240	250	22-Nov-11	SG04	REG	
VA1260	KAFB-106134-250	240	250	16-Jan-12	SG05	REG	
VA1573	KAFB-106134-250	240	250	19-Jun-12	SG06	REG	
VA1889	KAFB-106134-250	240	250	4-Sep-12	SG07	REG	
VA2202	KAFB-106134-250	240	250	10-Dec-12	SG08	REG	
VA2516	KAFB-106134-250	240	250	19-Feb-13	SG09	REG	
VA2831	KAFB-106134-250	240	250	10-Jun-13	SG10	REG	
VA0631	KAFB-106134-350	340	350	13-Jul-11	SG03	REG	
VA0947	KAFB-106134-350	340	350	22-Nov-11	SG04	REG	
VA0948	KAFB-106134-350	340	350	22-Nov-11	SG04	FD	Yes
VA1261	KAFB-106134-350	340	350	17-Jan-12	SG05	REG	
VA1262	KAFB-106134-350	340	350	17-Jan-12	SG05	FD	Yes
VA1574	KAFB-106134-350	340	350	19-Jun-12	SG06	REG	
VA1890	KAFB-106134-350	340	350	4-Sep-12	SG07	REG	
VA2203	KAFB-106134-350	340	350	10-Dec-12	SG08	REG	
VA2517	KAFB-106134-350	340	350	19-Feb-13	SG09	REG	
VA2832	KAFB-106134-350	340	350	10-Jun-13	SG10	REG	
VA0632	KAFB-106134-450	440	450	13-Jul-11	SG03	REG	
VA0633	KAFB-106134-450	440	450	13-Jul-11	SG03	FD	Yes
VA0949	KAFB-106134-450	440	450	22-Nov-11	SG04	REG	
VA1263	KAFB-106134-450	440	450	17-Jan-12	SG05	REG	
VA1575	KAFB-106134-450	440	450	20-Jun-12	SG06	REG	
VA1576	KAFB-106134-450	440	450	20-Jun-12	SG06	FD	Yes

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1891	KAFB-106134-450	440	450	4-Sep-12	SG07	REG	
VA2204	KAFB-106134-450	440	450	10-Dec-12	SG08	REG	
VA2518	KAFB-106134-450	440	450	19-Feb-13	SG09	REG	
VA2833	KAFB-106134-450	440	450	10-Jun-13	SG10	REG	
VA0634	KAFB-106135-025	15	25	15-Jul-11	SG03	REG	
VA0950	KAFB-106135-025	15	25	19-Dec-11	SG04	REG	
VA1264	KAFB-106135-025	15	25	16-Jan-12	SG05	REG	
VA1577	KAFB-106135-025	15	25	21-May-12	SG06	REG	
VA1892	KAFB-106135-025	15	25	22-Aug-12	SG07	REG	
VA2205	KAFB-106135-025	15	25	3-Dec-12	SG08	REG	
VA2519	KAFB-106135-025	15	25	21-Feb-13	SG09	REG	
VA2834	KAFB-106135-025	15	25	22-May-13	SG10	REG	
VA0635	KAFB-106135-050	40	50	15-Jul-11	SG03	REG	
VA0951	KAFB-106135-050	40	50	19-Dec-11	SG04	REG	
VA1265	KAFB-106135-050	40	50	16-Jan-12	SG05	REG	
VA1578	KAFB-106135-050	40	50	21-May-12	SG06	REG	
VA1893	KAFB-106135-050	40	50	22-Aug-12	SG07	REG	
VA2206	KAFB-106135-050	40	50	3-Dec-12	SG08	REG	
VA2520	KAFB-106135-050	40	50	21-Feb-13	SG09	REG	
VA2835	KAFB-106135-050	40	50	22-May-13	SG10	REG	
VA0636	KAFB-106135-150	140	160	15-Jul-11	SG03	REG	
VA0952	KAFB-106135-150	140	160	19-Dec-11	SG04	REG	
VA1266	KAFB-106135-150	140	150	16-Jan-12	SG05	REG	
VA1579	KAFB-106135-150	140	150	21-May-12	SG06	REG	
VA1894	KAFB-106135-150	140	150	22-Aug-12	SG07	REG	
VA2207	KAFB-106135-150	140	150	3-Dec-12	SG08	REG	
VA2521	KAFB-106135-150	140	150	21-Feb-13	SG09	REG	
VA2836	KAFB-106135-150	140	150	22-May-13	SG10	REG	
VA0637	KAFB-106135-250	240	250	15-Jul-11	SG03	REG	
VA0638	KAFB-106135-250	240	250	15-Jul-11	SG03	FD	Yes
VA0953	KAFB-106135-250	240	250	19-Dec-11	SG04	REG	
VA1267	KAFB-106135-250	240	250	16-Jan-12	SG05	REG	
VA1580	KAFB-106135-250	240	250	21-May-12	SG06	REG	
VA1895	KAFB-106135-250	240	250	22-Aug-12	SG07	REG	
VA2208	KAFB-106135-250	240	250	3-Dec-12	SG08	REG	
VA2209	KAFB-106135-250	240	250	3-Dec-12	SG08	FD	Yes
VA2522	KAFB-106135-250	240	250	21-Feb-13	SG09	REG	
VA2523	KAFB-106135-250	240	250	21-Feb-13	SG09	FD	Yes
VA2837	KAFB-106135-250	240	250	22-May-13	SG10	REG	
VA0639	KAFB-106135-350	340	350	15-Jul-11	SG03	REG	
VA0954	KAFB-106135-350	340	350	19-Dec-11	SG04	REG	
VA1268	KAFB-106135-350	340	350	16-Jan-12	SG05	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1581	KAFB-106135-350	340	350	22-May-12	SG06	REG	
VA1896	KAFB-106135-350	340	350	23-Aug-12	SG07	REG	
VA2210	KAFB-106135-350	340	350	3-Dec-12	SG08	REG	
VA2524	KAFB-106135-350	340	350	21-Feb-13	SG09	REG	
VA2838	KAFB-106135-350	340	350	22-May-13	SG10	REG	
VA0640	KAFB-106135-450	440	450	15-Jul-11	SG03	REG	
VA0955	KAFB-106135-450	440	450	19-Dec-11	SG04	REG	
VA1269	KAFB-106135-450	440	450	17-Jan-12	SG05	REG	
VA1582	KAFB-106135-450	440	450	22-May-12	SG06	REG	
VA1897	KAFB-106135-450	440	450	23-Aug-12	SG07	REG	
VA2211	KAFB-106135-450	440	450	4-Dec-12	SG08	REG	
VA2525	KAFB-106135-450	440	450	21-Feb-13	SG09	REG	
VA2839	KAFB-106135-450	440	450	22-May-13	SG10	REG	
VA0641	KAFB-106136-025	15	25	14-Jul-11	SG03	REG	
VA0956	KAFB-106136-025	15	25	21-Dec-11	SG04	REG	
VA1270	KAFB-106136-025	15	25	7-Mar-12	SG05	REG	
VA1583	KAFB-106136-025	15	25	21-May-12	SG06	REG	
VA1898	KAFB-106136-025	15	25	15-Aug-12	SG07	REG	
VA2212	KAFB-106136-025	15	25	28-Nov-12	SG08	REG	
VA2526	KAFB-106136-025	15	25	27-Feb-13	SG09	REG	
VA2840	KAFB-106136-025	15	25	19-Jun-13	SG10	REG	
VA0642	KAFB-106136-050	40	50	14-Jul-11	SG03	REG	
VA0957	KAFB-106136-050	40	50	21-Dec-11	SG04	REG	
VA0958	KAFB-106136-050	40	50	21-Dec-11	SG04	FD	Yes
VA1271	KAFB-106136-050	40	50	7-Mar-12	SG05	REG	
VA1272	KAFB-106136-050	40	50	7-Mar-12	SG05	FD	Yes
VA1584	KAFB-106136-050	40	50	21-May-12	SG06	REG	
VA1899	KAFB-106136-050	40	50	15-Aug-12	SG07	REG	
VA1900	KAFB-106136-050	40	50	15-Aug-12	SG07	FD	Yes
VA2213	KAFB-106136-050	40	50	28-Nov-12	SG08	REG	
VA2527	KAFB-106136-050	40	50	27-Feb-13	SG09	REG	
VA2841	KAFB-106136-050	40	50	19-Jun-13	SG10	REG	
VA2842	KAFB-106136-050	40	50	19-Jun-13	SG10	FD	Yes
VA0643	KAFB-106136-150	140	150	14-Jul-11	SG03	REG	
VA0959	KAFB-106136-150	140	150	21-Dec-11	SG04	REG	
VA1273	KAFB-106136-150	140	150	7-Mar-12	SG05	REG	
VA1585	KAFB-106136-150	140	150	21-May-12	SG06	REG	
VA1901	KAFB-106136-150	140	150	15-Aug-12	SG07	REG	
VA2214	KAFB-106136-150	140	150	28-Nov-12	SG08	REG	
VA2528	KAFB-106136-150	140	150	27-Feb-13	SG09	REG	
VA2843	KAFB-106136-150	140	150	19-Jun-13	SG10	REG	
VA0644	KAFB-106136-250	240	250	14-Jul-11	SG03	REG	

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0960	KAFB-106136-250	240	250	21-Dec-11	SG04	REG	
VA1274	KAFB-106136-250	240	250	7-Mar-12	SG05	REG	
VA1586	KAFB-106136-250	240	250	21-May-12	SG06	REG	
VA1587	KAFB-106136-250	240	250	21-May-12	SG06	FD	Yes
VA1902	KAFB-106136-250	240	250	15-Aug-12	SG07	REG	
VA2215	KAFB-106136-250	240	250	28-Nov-12	SG08	REG	
VA2529	KAFB-106136-250	240	250	27-Feb-13	SG09	REG	
VA2844	KAFB-106136-250	240	250	19-Jun-13	SG10	REG	
VA0645	KAFB-106136-350	340	350	14-Jul-11	SG03	REG	
VA0961	KAFB-106136-350	340	350	21-Dec-11	SG04	REG	
VA1275	KAFB-106136-350	340	350	7-Mar-12	SG05	REG	
VA1588	KAFB-106136-350	340	350	21-May-12	SG06	REG	
VA1903	KAFB-106136-350	340	350	16-Aug-12	SG07	REG	
VA2216	KAFB-106136-350	340	350	28-Nov-12	SG08	REG	
VA2217	KAFB-106136-350	340	350	28-Nov-12	SG08	FD	Yes
VA2530	KAFB-106136-350	340	350	27-Feb-13	SG09	REG	
VA2531	KAFB-106136-350	340	350	27-Feb-13	SG09	FD	Yes
VA2845	KAFB-106136-350	340	350	19-Jun-13	SG10	REG	
VA0646	KAFB-106136-450	440	450	14-Jul-11	SG03	REG	
VA0962	KAFB-106136-450	440	450	21-Dec-11	SG04	REG	
VA1276	KAFB-106136-450	440	450	7-Mar-12	SG05	REG	
VA1589	KAFB-106136-450	440	450	21-May-12	SG06	REG	
VA1904	KAFB-106136-450	440	450	16-Aug-12	SG07	REG	
VA2218	KAFB-106136-450	440	450	28-Nov-12	SG08	REG	
VA2532	KAFB-106136-450	440	450	27-Feb-13	SG09	REG	
VA2846	KAFB-106136-450	440	450	19-Jun-13	SG10	REG	
VA0647	KAFB-106137-025	15	25	28-Jul-11	SG03	REG	
VA0963	KAFB-106137-025	15	25	22-Dec-11	SG04	REG	
VA1277	KAFB-106137-025	15	25	16-Jan-12	SG05	REG	
VA1590	KAFB-106137-025	15	25	16-May-12	SG06	REG	
VA1905	KAFB-106137-025	15	25	23-Aug-12	SG07	REG	
VA2219	KAFB-106137-025	15	25	4-Dec-12	SG08	REG	
VA2533	KAFB-106137-025	15	25	21-Mar-13	SG09	REG	
VA2847	KAFB-106137-025	15	25	22-May-13	SG10	REG	
VA0648	KAFB-106137-050	40	50	28-Jul-11	SG03	REG	
VA0964	KAFB-106137-050	40	50	22-Dec-11	SG04	REG	
VA1278	KAFB-106137-050	40	50	16-Jan-12	SG05	REG	
VA1591	KAFB-106137-050	40	50	16-May-12	SG06	REG	
VA1906	KAFB-106137-050	40	50	23-Aug-12	SG07	REG	
VA2220	KAFB-106137-050	40	50	4-Dec-12	SG08	REG	
VA2534	KAFB-106137-050	40	50	21-Mar-13	SG09	REG	
VA2848	KAFB-106137-050	40	50	22-May-13	SG10	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0649	KAFB-106137-150	140	150	29-Jul-11	SG03	REG	
VA0965	KAFB-106137-150	140	150	22-Dec-11	SG04	REG	
VA1279	KAFB-106137-150	140	150	16-Jan-12	SG05	REG	
VA1592	KAFB-106137-150	140	150	16-May-12	SG06	REG	
VA1907	KAFB-106137-150	140	150	27-Aug-12	SG07	REG	
VA2221	KAFB-106137-150	140	150	4-Dec-12	SG08	REG	
VA2535	KAFB-106137-150	140	150	21-Mar-13	SG09	REG	
VA2849	KAFB-106137-150	140	150	22-May-13	SG10	REG	
VA0650	KAFB-106137-250	240.1	250.1	29-Jul-11	SG03	REG	
VA0966	KAFB-106137-250	240.1	250.1	22-Dec-11	SG04	REG	
VA1280	KAFB-106137-250	240.1	250.1	16-Jan-12	SG05	REG	
VA1593	KAFB-106137-250	240.1	250.1	17-May-12	SG06	REG	
VA1908	KAFB-106137-250	240.1	250.1	27-Aug-12	SG07	REG	
VA2222	KAFB-106137-250	240.1	250.1	4-Dec-12	SG08	REG	
VA2536	KAFB-106137-250	240.1	250.1	20-Mar-13	SG09	REG	
VA2850	KAFB-106137-250	240.1	250.1	22-May-13	SG10	REG	
VA0651	KAFB-106137-350	340.5	350.5	29-Jul-11	SG03	REG	
VA0652	KAFB-106137-350	340.5	350.5	29-Jul-11	SG03	FD	Yes
VA0967	KAFB-106137-350	340.5	350.5	22-Dec-11	SG04	REG	
VA1281	KAFB-106137-350	340.5	350.5	16-Jan-12	SG05	REG	
VA1594	KAFB-106137-350	340.5	350.5	16-May-12	SG06	REG	
VA1909	KAFB-106137-350	340.5	350.5	27-Aug-12	SG07	REG	
VA2223	KAFB-106137-350	340.5	350.5	4-Dec-12	SG08	REG	
VA2537	KAFB-106137-350	340.5	350.5	21-Mar-13	SG09	REG	
VA2851	KAFB-106137-350	340.5	350.5	22-May-13	SG10	REG	
VA0653	KAFB-106137-450	440	450	29-Jul-11	SG03	REG	
VA0968	KAFB-106137-450	440	450	22-Dec-11	SG04	REG	
VA1282	KAFB-106137-450	440	450	16-Jan-12	SG05	REG	
VA1595	KAFB-106137-450	440	450	17-May-12	SG06	REG	
VA1596	KAFB-106137-450	440	450	17-May-12	SG06	FD	Yes
VA1910	KAFB-106137-450	440	450	27-Aug-12	SG07	REG	
VA1911	KAFB-106137-450	440	450	27-Aug-12	SG07	FD	Yes
VA2224	KAFB-106137-450	440	450	4-Dec-12	SG08	REG	
VA2538	KAFB-106137-450	440	450	20-Mar-13	SG09	REG	
VA2852	KAFB-106137-450	440	450	22-May-13	SG10	REG	
VA2853	KAFB-106137-450	440	450	22-May-13	SG10	FD	Yes
VA0654	KAFB-106138-025	15	25	22-Aug-11	SG03	REG	
VA0969	KAFB-106138-025	15	25	7-Dec-11	SG04	REG	
VA1283	KAFB-106138-025	15	25	7-Mar-12	SG05	REG	
VA1597	KAFB-106138-025	15	25	23-May-12	SG06	REG	
VA1912	KAFB-106138-025	15	25	29-Aug-12	SG07	REG	
VA2225	KAFB-106138-025	15	25	5-Dec-12	SG08	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2539	KAFB-106138-025	15	25	20-Feb-13	SG09	REG	
VA2854	KAFB-106138-025	15	25	19-Jun-13	SG10	REG	
VA0655	KAFB-106138-050	40	50	22-Aug-11	SG03	REG	
VA0970	KAFB-106138-050	40	50	7-Dec-11	SG04	REG	
VA1284	KAFB-106138-050	40	50	7-Mar-12	SG05	REG	
VA1598	KAFB-106138-050	40	50	23-May-12	SG06	REG	
VA1913	KAFB-106138-050	40	50	29-Aug-12	SG07	REG	
VA2226	KAFB-106138-050	40	50	5-Dec-12	SG08	REG	
VA2227	KAFB-106138-050	40	50	5-Dec-12	SG08	FD	Yes
VA2540	KAFB-106138-050	40	50	20-Feb-13	SG09	REG	
VA2541	KAFB-106138-050	40	50	20-Feb-13	SG09	FD	Yes
VA2855	KAFB-106138-050	40	50	19-Jun-13	SG10	REG	
VA0656	KAFB-106138-150	140	150	22-Aug-11	SG03	REG	
VA0657	KAFB-106138-150	140	150	22-Aug-11	SG03	FD	Yes
VA0971	KAFB-106138-150	140	150	7-Dec-11	SG04	REG	
VA1285	KAFB-106138-150	140	150	8-Mar-12	SG05	REG	
VA1599	KAFB-106138-150	140	150	23-May-12	SG06	REG	
VA1914	KAFB-106138-150	140	150	29-Aug-12	SG07	REG	
VA2228	KAFB-106138-150	140	150	5-Dec-12	SG08	REG	
VA2542	KAFB-106138-150	140	150	20-Feb-13	SG09	REG	
VA2856	KAFB-106138-150	140	150	19-Jun-13	SG10	REG	
VA0658	KAFB-106138-250	240	250	22-Aug-11	SG03	REG	
VA0972	KAFB-106138-250	240	250	12-Dec-11	SG04	REG	
VA0973	KAFB-106138-250	240	250	12-Dec-11	SG04	FD	Yes
VA1286	KAFB-106138-250	240	250	8-Mar-12	SG05	REG	
VA1287	KAFB-106138-250	240	250	8-Mar-12	SG05	FD	Yes
VA1600	KAFB-106138-250	240	250	23-May-12	SG06	REG	
VA1915	KAFB-106138-250	240	250	29-Aug-12	SG07	REG	
VA2229	KAFB-106138-250	240	250	5-Dec-12	SG08	REG	
VA2543	KAFB-106138-250	240	250	20-Feb-13	SG09	REG	
VA2857	KAFB-106138-250	240	250	20-Jun-13	SG10	REG	
VA0659	KAFB-106138-350	340	350	22-Aug-11	SG03	REG	
VA0974	KAFB-106138-350	340	350	12-Dec-11	SG04	REG	
VA1288	KAFB-106138-350	340	350	8-Mar-12	SG05	REG	
VA1601	KAFB-106138-350	340	350	23-May-12	SG06	REG	
VA1916	KAFB-106138-350	340	350	30-Aug-12	SG07	REG	
VA2230	KAFB-106138-350	340	350	5-Dec-12	SG08	REG	
VA2544	KAFB-106138-350	340	350	20-Feb-13	SG09	REG	
VA2858	KAFB-106138-350	340	350	20-Jun-13	SG10	REG	
VA0660	KAFB-106138-450	440	450	22-Aug-11	SG03	REG	
VA0975	KAFB-106138-450	440	450	12-Dec-11	SG04	REG	
VA1289	KAFB-106138-450	440	450	12-Mar-12	SG05	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1602	KAFB-106138-450	440	450	23-May-12	SG06	REG	
VA1917	KAFB-106138-450	440	450	30-Aug-12	SG07	REG	
VA2231	KAFB-106138-450	440	450	5-Dec-12	SG08	REG	
VA2545	KAFB-106138-450	440	450	20-Feb-13	SG09	REG	
VA2859	KAFB-106138-450	440	450	20-Jun-13	SG10	REG	
VA0661	KAFB-106139-025	15	25	1-Aug-11	SG03	REG	
VA0976	KAFB-106139-025	15	25	29-Nov-11	SG04	REG	
VA1290	KAFB-106139-025	15	25	12-Mar-12	SG05	REG	
VA1603	KAFB-106139-025	15	25	7-Jun-12	SG06	REG	
VA1918	KAFB-106139-025	15	25	27-Aug-12	SG07	REG	
VA2232	KAFB-106139-025	15	25	10-Dec-12	SG08	REG	
VA2546	KAFB-106139-025	15	25	25-Feb-13	SG09	REG	
VA2860	KAFB-106139-025	15	25	5-Jun-13	SG10	REG	
VA0662	KAFB-106139-050	40	50	1-Aug-11	SG03	REG	
VA0977	KAFB-106139-050	40	50	29-Nov-11	SG04	REG	
VA1291	KAFB-106139-050	40	50	12-Mar-12	SG05	REG	
VA1604	KAFB-106139-050	40	50	7-Jun-12	SG06	REG	
VA1919	KAFB-106139-050	40	50	27-Aug-12	SG07	REG	
VA2233	KAFB-106139-050	40	50	10-Dec-12	SG08	REG	
VA2547	KAFB-106139-050	40	50	25-Feb-13	SG09	REG	
VA2861	KAFB-106139-050	40	50	5-Jun-13	SG10	REG	
VA0663	KAFB-106139-150	140	150	1-Aug-11	SG03	REG	
VA0978	KAFB-106139-150	140	150	29-Nov-11	SG04	REG	
VA1292	KAFB-106139-150	140	150	12-Mar-12	SG05	REG	
VA1605	KAFB-106139-150	140	150	7-Jun-12	SG06	REG	
VA1920	KAFB-106139-150	140	150	27-Aug-12	SG07	REG	
VA2234	KAFB-106139-150	140	150	10-Dec-12	SG08	REG	
VA2548	KAFB-106139-150	140	150	25-Feb-13	SG09	REG	
VA2862	KAFB-106139-150	140	150	5-Jun-13	SG10	REG	
VA0664	KAFB-106139-250	240	250	1-Aug-11	SG03	REG	
VA0665	KAFB-106139-250	240	250	1-Aug-11	SG03	FD	Yes
VA0979	KAFB-106139-250	240	250	29-Nov-11	SG04	REG	
VA1293	KAFB-106139-250	240	250	12-Mar-12	SG05	REG	
VA1606	KAFB-106139-250	240	250	11-Jun-12	SG06	REG	
VA1607	KAFB-106139-250	240	250	11-Jun-12	SG06	FD	Yes
VA1921	KAFB-106139-250	240	250	27-Aug-12	SG07	REG	
VA1922	KAFB-106139-250	240	250	27-Aug-12	SG07	FD	Yes
VA2235	KAFB-106139-250	240	250	10-Dec-12	SG08	REG	
VA2236	KAFB-106139-250	240	250	10-Dec-12	SG08	FD	Yes
VA2549	KAFB-106139-250	240	250	25-Feb-13	SG09	REG	
VA2550	KAFB-106139-250	240	250	25-Feb-13	SG09	FD	Yes
VA2863	KAFB-106139-250	240	250	5-Jun-13	SG10	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2864	KAFB-106139-250	240	250	5-Jun-13	SG10	FD	Yes
VA0666	KAFB-106139-350	340	350	1-Aug-11	SG03	REG	
VA0980	KAFB-106139-350	340	350	29-Nov-11	SG04	REG	
VA1294	KAFB-106139-350	340	350	12-Mar-12	SG05	REG	
VA1608	KAFB-106139-350	340	350	11-Jun-12	SG06	REG	
VA1923	KAFB-106139-350	340	350	30-Aug-12	SG07	REG	
VA2237	KAFB-106139-350	340	350	10-Dec-12	SG08	REG	
VA2551	KAFB-106139-350	340	350	25-Feb-13	SG09	REG	
VA2865	KAFB-106139-350	340	350	5-Jun-13	SG10	REG	
VA0667	KAFB-106139-450	440	450	2-Aug-11	SG03	REG	
VA0981	KAFB-106139-450	440	450	29-Nov-11	SG04	REG	
VA1295	KAFB-106139-450	440	450	12-Mar-12	SG05	REG	
VA1609	KAFB-106139-450	440	450	11-Jun-12	SG06	REG	
VA1924	KAFB-106139-450	440	450	30-Aug-12	SG07	REG	
VA2238	KAFB-106139-450	440	450	11-Dec-12	SG08	REG	
VA2552	KAFB-106139-450	440	450	25-Feb-13	SG09	REG	
VA2866	KAFB-106139-450	440	450	5-Jun-13	SG10	REG	
VA0668	KAFB-106140-025	15	25	26-Jul-11	SG03	REG	
VA0982	KAFB-106140-025	15	25	29-Nov-11	SG04	REG	
VA1296	KAFB-106140-025	15	25	12-Mar-12	SG05	REG	
VA1610	KAFB-106140-025	15	25	22-May-12	SG06	REG	
VA1925	KAFB-106140-025	15	25	11-Sep-12	SG07	REG	
VA2239	KAFB-106140-025	15	25	12-Dec-12	SG08	REG	
VA2553	KAFB-106140-025	15	25	11-Mar-13	SG09	REG	
VA2867	KAFB-106140-025	15	25	10-Jun-13	SG10	REG	
VA0669	KAFB-106140-050	40	50	26-Jul-11	SG03	REG	
VA0670	KAFB-106140-050	40	50	26-Jul-11	SG03	FD	Yes
VA0983	KAFB-106140-050	40	50	29-Nov-11	SG04	REG	
VA1297	KAFB-106140-050	40	50	12-Mar-12	SG05	REG	
VA1611	KAFB-106140-050	40	50	22-May-12	SG06	REG	
VA1926	KAFB-106140-050	40	50	11-Sep-12	SG07	REG	
VA2240	KAFB-106140-050	40	50	12-Dec-12	SG08	REG	
VA2554	KAFB-106140-050	40	50	11-Mar-13	SG09	REG	
VA2868	KAFB-106140-050	40	50	10-Jun-13	SG10	REG	
VA0671	KAFB-106140-150	140.8	151.8	26-Jul-11	SG03	REG	
VA0984	KAFB-106140-150	140.8	151.8	29-Nov-11	SG04	REG	
VA1298	KAFB-106140-150	140.8	151.8	13-Mar-12	SG05	REG	
VA1612	KAFB-106140-150	140.8	151.8	22-May-12	SG06	REG	
VA1927	KAFB-106140-150	140.8	151.8	11-Sep-12	SG07	REG	
VA2241	KAFB-106140-150	140.8	151.8	12-Dec-12	SG08	REG	
VA2555	KAFB-106140-150	140.8	151.8	11-Mar-13	SG09	REG	
VA2869	KAFB-106140-150	140.8	151.8	10-Jun-13	SG10	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0672	KAFB-106140-250	240	250	26-Jul-11	SG03	REG	
VA0985	KAFB-106140-250	240	250	29-Nov-11	SG04	REG	
VA1299	KAFB-106140-250	240	250	13-Mar-12	SG05	REG	
VA1613	KAFB-106140-250	240	250	22-May-12	SG06	REG	
VA1928	KAFB-106140-250	240	250	11-Sep-12	SG07	REG	
VA2242	KAFB-106140-250	240	250	12-Dec-12	SG08	REG	
VA2556	KAFB-106140-250	240	250	11-Mar-13	SG09	REG	
VA2870	KAFB-106140-250	240	250	10-Jun-13	SG10	REG	
VA0673	KAFB-106140-350	340	350	26-Jul-11	SG03	REG	
VA0986	KAFB-106140-350	340	350	29-Nov-11	SG04	REG	
VA1300	KAFB-106140-350	340	350	13-Mar-12	SG05	REG	
VA1301	KAFB-106140-350	340	350	13-Mar-12	SG05	FD	Yes
VA1614	KAFB-106140-350	340	350	22-May-12	SG06	REG	
VA1929	KAFB-106140-350	340	350	11-Sep-12	SG07	REG	
VA2243	KAFB-106140-350	340	350	12-Dec-12	SG08	REG	
VA2557	KAFB-106140-350	340	350	11-Mar-13	SG09	REG	
VA2871	KAFB-106140-350	340	350	10-Jun-13	SG10	REG	
VA0674	KAFB-106140-450	440	450	26-Jul-11	SG03	REG	
VA0987	KAFB-106140-450	440	450	29-Nov-11	SG04	REG	
VA1302	KAFB-106140-450	440	450	14-Mar-12	SG05	REG	
VA1615	KAFB-106140-450	440	450	22-May-12	SG06	REG	
VA1930	KAFB-106140-450	440	450	11-Sep-12	SG07	REG	
VA2244	KAFB-106140-450	440	450	12-Dec-12	SG08	REG	
VA2558	KAFB-106140-450	440	450	11-Mar-13	SG09	REG	
VA2872	KAFB-106140-450	440	450	10-Jun-13	SG10	REG	
VA0675	KAFB-106141-025	15	25	2-Aug-11	SG03	REG	
VA0988	KAFB-106141-025	15	25	21-Dec-11	SG04	REG	
VA1303	KAFB-106141-025	15	25	7-Mar-12	SG05	REG	
VA1616	KAFB-106141-025	15	25	29-May-12	SG06	REG	
VA1617	KAFB-106141-025	15	25	29-May-12	SG06	FD	Yes
VA1931	KAFB-106141-025	15	25	22-Aug-12	SG07	REG	
VA2245	KAFB-106141-025	15	25	3-Dec-12	SG08	REG	
VA2559	KAFB-106141-025	15	25	27-Feb-13	SG09	REG	
VA2873	KAFB-106141-025	15	25	12-Jun-13	SG10	REG	
VA0676	KAFB-106141-050	50	60	2-Aug-11	SG03	REG	
VA0989	KAFB-106141-050	50	60	21-Dec-11	SG04	REG	
VA0990	KAFB-106141-050	50	60	21-Dec-11	SG04	FD	Yes
VA1304	KAFB-106141-050	50	60	7-Mar-12	SG05	REG	
VA1618	KAFB-106141-050	50	60	29-May-12	SG06	REG	
VA1932	KAFB-106141-050	50	60	22-Aug-12	SG07	REG	
VA1933	KAFB-106141-050	50	60	22-Aug-12	SG07	FD	Yes
VA2246	KAFB-106141-050	50	60	3-Dec-12	SG08	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2560	KAFB-106141-050	50	60	27-Feb-13	SG09	REG	
VA2874	KAFB-106141-050	50	60	12-Jun-13	SG10	REG	
VA2875	KAFB-106141-050	50	60	12-Jun-13	SG10	FD	Yes
VA0677	KAFB-106141-170	160	170	3-Aug-11	SG03	REG	
VA0991	KAFB-106141-170	160	170	21-Dec-11	SG04	REG	
VA1305	KAFB-106141-170	160	170	7-Mar-12	SG05	REG	
VA1619	KAFB-106141-170	160	170	29-May-12	SG06	REG	
VA1934	KAFB-106141-170	160	170	22-Aug-12	SG07	REG	
VA2247	KAFB-106141-170	160	170	3-Dec-12	SG08	REG	
VA2248	KAFB-106141-170	160	170	3-Dec-12	SG08	FD	Yes
VA2561	KAFB-106141-170	160	170	27-Feb-13	SG09	REG	
VA2562	KAFB-106141-170	160	170	27-Feb-13	SG09	FD	Yes
VA2876	KAFB-106141-170	160	170	12-Jun-13	SG10	REG	
VA0678	KAFB-106141-250	240	250	3-Aug-11	SG03	REG	
VA0992	KAFB-106141-250	240	250	21-Dec-11	SG04	REG	
VA1306	KAFB-106141-250	240	250	8-Mar-12	SG05	REG	
VA1620	KAFB-106141-250	240	250	29-May-12	SG06	REG	
VA1935	KAFB-106141-250	240	250	22-Aug-12	SG07	REG	
VA2249	KAFB-106141-250	240	250	3-Dec-12	SG08	REG	
VA2563	KAFB-106141-250	240	250	27-Feb-13	SG09	REG	
VA2877	KAFB-106141-250	240	250	12-Jun-13	SG10	REG	
VA0679	KAFB-106141-350	340	350	3-Aug-11	SG03	REG	
VA0993	KAFB-106141-350	340	350	21-Dec-11	SG04	REG	
VA1307	KAFB-106141-350	340	350	8-Mar-12	SG05	REG	
VA1621	KAFB-106141-350	340	350	29-May-12	SG06	REG	
VA1936	KAFB-106141-350	340	350	23-Aug-12	SG07	REG	
VA2250	KAFB-106141-350	340	350	3-Dec-12	SG08	REG	
VA2564	KAFB-106141-350	340	350	27-Feb-13	SG09	REG	
VA2878	KAFB-106141-350	340	350	12-Jun-13	SG10	REG	
VA0680	KAFB-106141-450	440	450	3-Aug-11	SG03	REG	
VA0994	KAFB-106141-450	440	450	21-Dec-11	SG04	REG	
VA1308	KAFB-106141-450	440	450	8-Mar-12	SG05	REG	
VA1622	KAFB-106141-450	440	450	29-May-12	SG06	REG	
VA1937	KAFB-106141-450	440	450	23-Aug-12	SG07	REG	
VA2251	KAFB-106141-450	440	450	3-Dec-12	SG08	REG	
VA2565	KAFB-106141-450	440	450	27-Feb-13	SG09	REG	
VA2879	KAFB-106141-450	440	450	12-Jun-13	SG10	REG	
VA0681	KAFB-106142-030	20	30	25-Jul-11	SG03	REG	
VA0995	KAFB-106142-030	20	30	14-Dec-11	SG04	REG	
VA1309	KAFB-106142-030	20	30	7-Mar-12	SG05	REG	
VA1623	KAFB-106142-030	20	30	21-May-12	SG06	REG	
VA1938	KAFB-106142-030	20	30	16-Aug-12	SG07	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2252	KAFB-106142-030	20	30	12-Dec-12	SG08	REG	
VA2566	KAFB-106142-030	20	30	26-Feb-13	SG09	REG	
VA2880	KAFB-106142-030	20	30	12-Jun-13	SG10	REG	
VA0682	KAFB-106142-050	40	50	25-Jul-11	SG03	REG	
VA0996	KAFB-106142-050	40	50	14-Dec-11	SG04	REG	
VA1310	KAFB-106142-050	40	50	7-Mar-12	SG05	REG	
VA1624	KAFB-106142-050	40	50	21-May-12	SG06	REG	
VA1939	KAFB-106142-050	40	50	16-Aug-12	SG07	REG	
VA2253	KAFB-106142-050	40	50	12-Dec-12	SG08	REG	
VA2567	KAFB-106142-050	40	50	26-Feb-13	SG09	REG	
VA2881	KAFB-106142-050	40	50	12-Jun-13	SG10	REG	
VA0683	KAFB-106142-170	160	170	25-Jul-11	SG03	REG	
VA0997	KAFB-106142-170	160	170	14-Dec-11	SG04	REG	
VA1311	KAFB-106142-170	160	170	7-Mar-12	SG05	REG	
VA1625	KAFB-106142-170	160	170	21-May-12	SG06	REG	
VA1626	KAFB-106142-170	160	170	21-May-12	SG06	FD	Yes
VA1940	KAFB-106142-170	160	170	16-Aug-12	SG07	REG	
VA2254	KAFB-106142-170	160	170	12-Dec-12	SG08	REG	
VA2568	KAFB-106142-170	160	170	26-Feb-13	SG09	REG	
VA2882	KAFB-106142-170	160	170	12-Jun-13	SG10	REG	
VA0684	KAFB-106142-250	240	250	25-Jul-11	SG03	REG	
VA0998	KAFB-106142-250	240	250	14-Dec-11	SG04	REG	
VA1312	KAFB-106142-250	240	250	7-Mar-12	SG05	REG	
VA1313	KAFB-106142-250	240	250	7-Mar-12	SG05	FD	Yes
VA1627	KAFB-106142-250	240	250	21-May-12	SG06	REG	
VA1941	KAFB-106142-250	240	250	20-Aug-12	SG07	REG	
VA2255	KAFB-106142-250	240	250	12-Dec-12	SG08	REG	
VA2569	KAFB-106142-250	240	250	26-Feb-13	SG09	REG	
VA2883	KAFB-106142-250	240	250	12-Jun-13	SG10	REG	
VA0685	KAFB-106142-350	340	350	25-Jul-11	SG03	REG	
VA0999	KAFB-106142-350	340	350	14-Dec-11	SG04	REG	
VA1000	KAFB-106142-350	340	350	14-Dec-11	SG04	FD	Yes
VA1314	KAFB-106142-350	340	350	7-Mar-12	SG05	REG	
VA1628	KAFB-106142-350	340	350	22-May-12	SG06	REG	
VA1942	KAFB-106142-350	340	350	20-Aug-12	SG07	REG	
VA1943	KAFB-106142-350	340	350	20-Aug-12	SG07	FD	Yes
VA2256	KAFB-106142-350	340	350	12-Dec-12	SG08	REG	
VA2570	KAFB-106142-350	340	350	26-Feb-13	SG09	REG	
VA2884	KAFB-106142-350	340	350	12-Jun-13	SG10	REG	
VA0686	KAFB-106142-450	440	450	28-Jul-11	SG03	REG	
VA0686-R	KAFB-106142-450	440	450	10-Aug-11	SG03	REG	
VA1001	KAFB-106142-450	440	450	14-Dec-11	SG04	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1315	KAFB-106142-450	440	450	7-Mar-12	SG05	REG	
VA1629	KAFB-106142-450	440	450	22-May-12	SG06	REG	
VA1944	KAFB-106142-450	440	450	20-Aug-12	SG07	REG	
VA2257	KAFB-106142-450	440	450	12-Dec-12	SG08	REG	
VA2258	KAFB-106142-450	440	450	12-Dec-12	SG08	FD	Yes
VA2571	KAFB-106142-450	440	450	26-Feb-13	SG09	REG	
VA2572	KAFB-106142-450	440	450	26-Feb-13	SG09	FD	Yes
VA2885	KAFB-106142-450	440	450	12-Jun-13	SG10	REG	
VA2886	KAFB-106142-450	440	450	12-Jun-13	SG10	FD	Yes
VA9061	KAFB106149-IN	0	0	14-Jun-12	SG06	REG	
VA9074	KAFB106149-IN			20-Sep-12	SG07	REG	
VA9089	KAFB106149-IN	0	0	19-Dec-12	SG08	REG	
VA9060	KAFB106149-POSTC1	0	0	14-Jun-12	SG06	REG	
VA9075	KAFB106149-POSTC1			20-Sep-12	SG07	REG	
VA9088	KAFB106149-POSTC1	0	0	19-Dec-12	SG08	REG	
VA9062	KAFB106149-POSTC2	0	0	14-Jun-12	SG06	REG	
VA9063	KAFB106160-IN	0	0	14-Jun-12	SG06	REG	
VA9077	KAFB106160-IN			19-Sep-12	SG07	REG	
VA9094	KAFB106160-IN	0	0	19-Dec-12	SG08	REG	
VA9108	KAFB106160-IN	0	0.16	20-Mar-13	SG09	REG	
VA9078	KAFB106160-POSTC1			19-Sep-12	SG07	REG	
VA9079	KAFB106160-POSTC1			19-Sep-12	SG07	FD	Yes
VA9095	KAFB106160-POSTC1	0	0	19-Dec-12	SG08	REG	
VA9096	KAFB106160-POSTC1	0	0	19-Dec-12	SG08	FD	Yes
VA9065	KAFB106160-POSTC2	0	0	14-Jun-12	SG06	REG	
VA9066	KAFB106161-IN	0	0	14-Jun-12	SG06	REG	
VA9067	KAFB106161-IN	0	0	14-Jun-12	SG06	FD	Yes
VA9083	KAFB106161-IN			20-Sep-12	SG07	REG	
VA9093	KAFB106161-IN	0	0	18-Dec-12	SG08	REG	
VA9105	KAFB106161-IN	0	0.16	20-Mar-13	SG09	REG	
VA9068	KAFB106161-POSTC1	0	0	14-Jun-12	SG06	REG	
VA9081	KAFB106161-POSTC2			20-Sep-12	SG07	REG	
VA9091	KAFB106161-POSTC2	0	0	18-Dec-12	SG08	REG	
VA9032	KAFB1065-IN	0	0	18-Jul-11	SG03	REG	
VA9046	KAFB1065-IN	0	0	3-Oct-11	SG04	REG	
VA9033	KAFB1065-POSTC1	0	0	18-Jul-11	SG03	REG	
VA9047	KAFB1065-POSTC1	0	0	3-Oct-11	SG04	REG	
VA9034	KAFB1065-POSTC2	0	0	16-Aug-11	SG03	REG	
VA9048	KAFB1065-POSTC2	0	0	3-Oct-11	SG04	REG	
VA9035	KAFB1066-IN	0	0	18-Jul-11	SG03	REG	
VA9049	KAFB1066-IN	0	0	3-Oct-11	SG04	REG	
VA9036	KAFB1066-POSTC1	0	0	18-Jul-11	SG03	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA9037	KAFB1066-POSTC1	0	0	18-Jul-11	SG03	FD	Yes
VA9050	KAFB1066-POSTC1	0	0	3-Oct-11	SG04	REG	
VA9038	KAFB1066-POSTC2	0	0	18-Jul-11	SG03	REG	
VA9051	KAFB1066-POSTC2	0	0	3-Oct-11	SG04	REG	
VA9039	KAFB1068-IN	0	0	18-Jul-11	SG03	REG	
VA9040	KAFB1068-IN	0	0	18-Jul-11	SG03	FD	Yes
VA9052	KAFB1068-IN	0	0	4-Oct-11	SG04	REG	
VA9041	KAFB1068-POSTC1	0	0	18-Jul-11	SG03	REG	
VA9053	KAFB1068-POSTC1	0	0	3-Oct-11	SG04	REG	
VA9042	KAFB1068-POSTC2	0	0	18-Jul-11	SG03	REG	
VA9054	KAFB1068-POSTC2	0	0	4-Oct-11	SG04	REG	
VA9055	KAFB1068-POSTC2	0	0	4-Oct-11	SG04	FD	Yes
VA9029	ST106-IN	0	0	16-Aug-11	SG03	REG	
VA9043	ST106-IN	0	0	4-Oct-11	SG04	REG	
VA9056	ST106-IN	0	0	13-Jun-12	SG06	REG	
VA9057	ST106-IN	0	0	13-Jun-12	SG06	FD	Yes
VA9070	ST106-IN			19-Sep-12	SG07	REG	
VA9071	ST106-IN			19-Sep-12	SG07	FD	Yes
VA9084	ST106-IN	0	0	18-Dec-12	SG08	REG	
VA9085	ST106-IN	0	0	18-Dec-12	SG08	FD	Yes
VA9030	ST106-POSTC1	0	0	16-Aug-11	SG03	REG	
VA9044	ST106-POSTC1	0	0	4-Oct-11	SG04	REG	
VA9058	ST106-POSTC1	0	0	13-Jun-12	SG06	REG	
VA9072	ST106-POSTC1			19-Sep-12	SG07	REG	
VA9086	ST106-POSTC1	0	0	18-Dec-12	SG08	REG	
VA9031	ST106-POSTC2	0	0	16-Aug-11	SG03	REG	
VA9045	ST106-POSTC2	0	0	4-Oct-11	SG04	REG	
VA9059	ST106-POSTC2	0	0	14-Jun-12	SG06	REG	
VA0441	SVEW-01-260	245	260	16-Aug-11	SG03	REG	
VA0756	SVEW-01-260	245	260	4-Oct-11	SG04	REG	
VA1070	SVEW-01-260	245	260	21-Mar-12	SG05	REG	
VA1384	SVEW-01-260	245	260	13-Jun-12	SG06	REG	
VA1699	SVEW-01-260	245	260	19-Sep-12	SG07	REG	
VA1700	SVEW-01-260	245	260	19-Sep-12	SG07	FD	Yes
VA2014	SVEW-01-260	245	260	17-Dec-12	SG08	REG	
VA2328	SVEW-01-260	245	260	19-Mar-13	SG09	REG	
VA2641	SVEW-01-260	245	260	19-Jun-13	SG10	REG	
VA0442	SVEW-02-060	45	60	16-Aug-11	SG03	REG	
VA0757	SVEW-02-060	45	60	4-Oct-11	SG04	REG	
VA1071	SVEW-02-060	45	60	21-Mar-12	SG05	REG	
VA1072	SVEW-02-060	45	60	21-Mar-12	SG05	FD	Yes
VA1385	SVEW-02-060	45	60	13-Jun-12	SG06	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1701	SVEW-02-060	45	60	19-Sep-12	SG07	REG	
VA2015	SVEW-02-060	45	60	17-Dec-12	SG08	REG	
VA2329	SVEW-02-060	45	60	19-Mar-13	SG09	REG	
VA2642	SVEW-02-060	45	60	19-Jun-13	SG10	REG	
VA0443	SVEW-03-160	145	160	16-Aug-11	SG03	REG	
VA0758	SVEW-03-160	145	160	4-Oct-11	SG04	REG	
VA1073	SVEW-03-160	145	160	21-Mar-12	SG05	REG	
VA1386	SVEW-03-160	145	160	13-Jun-12	SG06	REG	
VA1387	SVEW-03-160	145	160	13-Jun-12	SG06	FD	Yes
VA1702	SVEW-03-160	145	160	19-Sep-12	SG07	REG	
VA2016	SVEW-03-160	145	160	17-Dec-12	SG08	REG	
VA2330	SVEW-03-160	145	160	20-Mar-13	SG09	REG	
VA2643	SVEW-03-160	145	160	19-Jun-13	SG10	REG	
VA2644	SVEW-03-160	145	160	19-Jun-13	SG10	FD	Yes
VA0444	SVEW-04-313	298	313	16-Aug-11	SG03	REG	
VA0759	SVEW-04-313	298	313	30-Nov-11	SG04	REG	
VA0760	SVEW-04-313	298	313	30-Nov-11	SG04	FD	Yes
VA1074	SVEW-04-313	298	313	21-Mar-12	SG05	REG	
VA1388	SVEW-04-313	298	313	13-Jun-12	SG06	REG	
VA1703	SVEW-04-313	298	313	19-Sep-12	SG07	REG	
VA2017	SVEW-04-313	298	313	17-Dec-12	SG08	REG	
VA2331	SVEW-04-313	298	313	18-Mar-13	SG09	REG	
VA2645	SVEW-04-313	298	313	19-Jun-13	SG10	REG	
VA0445	SVEW-05-460	445	460	16-Aug-11	SG03	REG	
VA0761	SVEW-05-460	445	460	4-Oct-11	SG04	REG	
VA1075	SVEW-05-460	445	460	21-Mar-12	SG05	REG	
VA1389	SVEW-05-460	445	460	13-Jun-12	SG06	REG	
VA1704	SVEW-05-460	445	460	19-Sep-12	SG07	REG	
VA2018	SVEW-05-460	445	460	17-Dec-12	SG08	REG	
VA2332	SVEW-05-460	445	460	18-Mar-13	SG09	REG	
VA2646	SVEW-05-460	445	460	19-Jun-13	SG10	REG	
VA0446	SVEW-06-060	45	60	17-Aug-11	SG03	REG	
VA0447	SVEW-06-060	45	60	17-Aug-11	SG03	FD	Yes
VA0762	SVEW-06-060	45	60	4-Oct-11	SG04	REG	
VA1076	SVEW-06-060	45	60	21-Mar-12	SG05	REG	
VA1390	SVEW-06-060	45	60	13-Jun-12	SG06	REG	
VA1705	SVEW-06-060	45	60	19-Sep-12	SG07	REG	
VA2019	SVEW-06-060	45	60	17-Dec-12	SG08	REG	
VA2333	SVEW-06-060	45	60	18-Mar-13	SG09	REG	
VA2647	SVEW-06-060	45	60	19-Jun-13	SG10	REG	
VA0448	SVEW-07-160	145	160	17-Aug-11	SG03	REG	
VA0763	SVEW-07-160	145	160	4-Oct-11	SG04	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1077	SVEW-07-160	145	160	21-Mar-12	SG05	REG	
VA1391	SVEW-07-160	145	160	13-Jun-12	SG06	REG	
VA1706	SVEW-07-160	145	160	19-Sep-12	SG07	REG	
VA2020	SVEW-07-160	145	160	17-Dec-12	SG08	REG	
VA2334	SVEW-07-160	145	160	18-Mar-13	SG09	REG	
VA2648	SVEW-07-160	145	160	19-Jun-13	SG10	REG	
VA0449	SVEW-08-260	245	260	17-Aug-11	SG03	REG	
VA0764	SVEW-08-260	245	260	30-Nov-11	SG04	REG	
VA1078	SVEW-08-260	245	260	21-Mar-12	SG05	REG	
VA1392	SVEW-08-260	245	260	13-Jun-12	SG06	REG	
VA1707	SVEW-08-260	245	260	19-Sep-12	SG07	REG	
VA1708	SVEW-08-260	245	260	19-Sep-12	SG07	FD	Yes
VA2021	SVEW-08-260	245	260	18-Dec-12	SG08	REG	
VA2335	SVEW-08-260	245	260	18-Mar-13	SG09	REG	
VA2649	SVEW-08-260	245	260	19-Jun-13	SG10	REG	
VA0450	SVEW-09-460	435	450	17-Aug-11	SG03	REG	
VA0765	SVEW-09-460	435	450	30-Nov-11	SG04	REG	
VA1079	SVEW-09-460	435	450	21-Mar-12	SG05	REG	
VA1393	SVEW-09-460	435	450	13-Jun-12	SG06	REG	
VA1709	SVEW-09-460	435	450	19-Sep-12	SG07	REG	
VA2022	SVEW-09-460	435	450	18-Dec-12	SG08	REG	
VA2336	SVEW-09-460	435	450	18-Mar-13	SG09	REG	
VA2650	SVEW-09-460	435	450	19-Jun-13	SG10	REG	
VA0451	SVEW-10-410	400	410	19-Jul-11	SG03	REG	
VA0766	SVEW-10-410	40	410	6-Dec-11	SG04	REG	
VA1080	SVEW-10-410	400	410	6-Mar-12	SG05	REG	
VA1394	SVEW-10-410	400	410	25-Jun-12	SG06	REG	
VA1710	SVEW-10-410	400	410	12-Sep-12	SG07	REG	
VA2023	SVEW-10-410	400	410	11-Dec-12	SG08	REG	
VA2024	SVEW-10-410	400	410	11-Dec-12	SG08	FD	Yes
VA2337	SVEW-10-410	400	410	4-Mar-13	SG09	REG	
VA2338	SVEW-10-410	400	410	4-Mar-13	SG09	FD	Yes
VA2651	SVEW-10-410	400	410	4-Jun-13	SG10	REG	
VA0452	SVEW-11-410	400	410	7-Sep-11	SG03	REG	
VA0767	SVEW-11-410	40	410	15-Dec-11	SG04	REG	
VA1081	SVEW-11-410	400	410	22-Mar-12	SG05	REG	
VA1395	SVEW-11-410	400	410	21-Jun-12	SG06	REG	
VA1711	SVEW-11-410	400	410	13-Sep-12	SG07	REG	
VA2025	SVEW-11-410	400	410	18-Dec-12	SG08	REG	
VA2339	SVEW-11-410	400	410	20-Feb-13	SG09	REG	
VA2652	SVEW-11-410	400	410	30-May-13	SG10	REG	
VA0453	SVEW-12-410	400	410	21-Jul-11	SG03	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0768	SVEW-12-410	40	410	28-Nov-11	SG04	REG	
VA1082	SVEW-12-410	400	410	8-Mar-12	SG05	REG	
VA1396	SVEW-12-410	400	410	25-Jun-12	SG06	REG	
VA1712	SVEW-12-410	407.5	410	17-Sep-12	SG07	REG	
VA2026	SVEW-12-410	400	410	5-Dec-12	SG08	REG	
VA2340	SVEW-12-410	400	410	7-Mar-13	SG09	REG	
VA2653	SVEW-12-410	400	410	11-Jun-13	SG10	REG	
VA0454	SVEW-13-410	400	410	26-Sep-11	SG03	REG	
VA0769	SVEW-13-410	40	410	16-Nov-11	SG04	REG	
VA1083	SVEW-13-410	400	410	12-Jan-12	SG05	REG	
VA1397	SVEW-13-410	400	410	6-Jun-12	SG06	REG	
VA1713	SVEW-13-410	407.5	410	18-Sep-12	SG07	REG	
VA2027	SVEW-13-410	400	410	18-Dec-12	SG08	REG	
VA2341	SVEW-13-410	400	410	5-Mar-13	SG09	REG	
VA2654	SVEW-13-410	400	410	23-May-13	SG10	REG	
VA2655	SVEW-13-410	400	410	23-May-13	SG10	FD	Yes
VA0687	SVMW-01-050	50	52.5	19-Sep-11	SG03	REG	
VA0687FQ	SVMW-01-050	50	52.5	13-Dec-11	SG04	REG	
VA0688FQ	SVMW-01-050	50	52.5	13-Dec-11	SG04	FD	Yes
VA1002	SVMW-01-050	50	52.4	10-Jan-12	SG05	REG	
VA1003	SVMW-01-050	50	52.4	10-Jan-12	SG05	FD	Yes
VA1316	SVMW-01-050	50	52.4	17-May-12	SG06	REG	
VA1630	SVMW-01-050	50	52.4	22-Aug-12	SG07	REG	
VA1945	SVMW-01-050	50	52.4	17-Dec-12	SG08	REG	
VA2259	SVMW-01-050	50	52.4	26-Feb-13	SG09	REG	
VA2573	SVMW-01-050	50	52.5	13-Jun-13	SG10	REG	
VA0688	SVMW-01-100	100	102.5	19-Sep-11	SG03	REG	
VA0689	SVMW-01-100	100	102.5	19-Sep-11	SG03	FD	Yes
VA0689FQ	SVMW-01-100	100	102.5	13-Dec-11	SG04	REG	
VA1004	SVMW-01-100	100	102.5	10-Jan-12	SG05	REG	
VA1317	SVMW-01-100	100	102.5	17-May-12	SG06	REG	
VA1631	SVMW-01-100	100	102.5	22-Aug-12	SG07	REG	
VA1632	SVMW-01-100	100	102.5	22-Aug-12	SG07	FD	Yes
VA1946	SVMW-01-100	100	102.5	17-Dec-12	SG08	REG	
VA1947	SVMW-01-100	100	102.5	17-Dec-12	SG08	FD	Yes
VA2260	SVMW-01-100	100	102.5	27-Feb-13	SG09	REG	
VA2261	SVMW-01-100	100	102.5	27-Feb-13	SG09	FD	Yes
VA2574	SVMW-01-100	100	102.5	13-Jun-13	SG10	REG	
VA0690	SVMW-01-250	250.7	253.2	19-Sep-11	SG03	REG	
VA0690FQ	SVMW-01-250	250.7	253.2	13-Dec-11	SG04	REG	
VA1005	SVMW-01-250	250.7	253.2	10-Jan-12	SG05	REG	
VA1005R	SVMW-01-250	250.7	253.2	20-Jan-12	SG05	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1318	SVMW-01-250	250.7	253.2	17-May-12	SG06	REG	
VA1633	SVMW-01-250	250.7	253.2	22-Aug-12	SG07	REG	
VA1948	SVMW-01-250	250.7	253.2	17-Dec-12	SG08	REG	
VA2262	SVMW-01-250	250.7	253.2	26-Feb-13	SG09	REG	
VA2575	SVMW-01-250	250.7	253.2	13-Jun-13	SG10	REG	
VA0691	SVMW-01-300	308.5	311	19-Sep-11	SG03	REG	
VA0691FQ	SVMW-01-300	308.5	311	13-Dec-11	SG04	REG	
VA1006	SVMW-01-300	308.5	311	10-Jan-12	SG05	REG	
VA1319	SVMW-01-300	308.5	311	17-May-12	SG06	REG	
VA1634	SVMW-01-300	308.5	311	22-Aug-12	SG07	REG	
VA1949	SVMW-01-300	300	302.5	17-Dec-12	SG08	REG	
VA2263	SVMW-01-300	308.5	311	27-Feb-13	SG09	REG	
VA2576	SVMW-01-300	308.5	311	13-Jun-13	SG10	REG	
VA0692	SVMW-02-050	50	52.5	23-Aug-11	SG03	REG	
VA0692-FQ	SVMW-02-050	50	52.5	2-Nov-11	SG04	REG	
VA1007	SVMW-02-050	50	52.5	14-Mar-12	SG05	REG	
VA1320	SVMW-02-050	50	52.5	4-Jun-12	SG06	REG	
VA1635	SVMW-02-050	50	52.5	17-Sep-12	SG07	REG	
VA1950	SVMW-02-050	50	52.5	13-Dec-12	SG08	REG	
VA2264	SVMW-02-050	50	52.5	4-Mar-13	SG09	REG	
VA2577	SVMW-02-050	50	52.5	24-Jun-13	SG10	REG	
VA2578	SVMW-02-050	50	52.5	24-Jun-13	SG10	FD	Yes
VA0693	SVMW-02-100	97	99.5	23-Aug-11	SG03	REG	
VA0693-FQ	SVMW-02-100	97	99.5	2-Nov-11	SG04	REG	
VA0694	SVMW-02-100	97	99.5	23-Aug-11	SG03	FD	Yes
VA1008	SVMW-02-100	97	99.5	14-Mar-12	SG05	REG	
VA1321	SVMW-02-100	97	99.5	4-Jun-12	SG06	REG	
VA1636	SVMW-02-100	97	99.5	17-Sep-12	SG07	REG	
VA1951	SVMW-02-100	97	99.5	13-Dec-12	SG08	REG	
VA2265	SVMW-02-100	97	99.5	4-Mar-13	SG09	REG	
VA2579	SVMW-02-100	97	99.5	24-Jun-13	SG10	REG	
VA0694-FQ	SVMW-02-150	150	152.5	2-Nov-11	SG04	REG	
VA0695	SVMW-02-150	150	152.5	23-Aug-11	SG03	REG	
VA0695-FQ	SVMW-02-150	50	52.5	19-Oct-11	SG04	REG	
VA1009	SVMW-02-150	150	152.5	14-Mar-12	SG05	REG	
VA1322	SVMW-02-150	150	152.5	4-Jun-12	SG06	REG	
VA1637	SVMW-02-150	150	152.5	17-Sep-12	SG07	REG	
VA1952	SVMW-02-150	150	152.5	13-Dec-12	SG08	REG	
VA2266	SVMW-02-150	150	152.5	4-Mar-13	SG09	REG	
VA2580	SVMW-02-150	150	152.5	24-Jun-13	SG10	REG	
VA0696	SVMW-03-050	50	52.5	20-Sep-11	SG03	REG	
VA0696-FQ	SVMW-03-050	50	52.5	19-Oct-11	SG04	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1010	SVMW-03-050	50	52.5	5-Mar-12	SG05	REG	
VA1323	SVMW-03-050	50	52.5	17-May-12	SG06	REG	
VA1638	SVMW-03-050	50	52.5	14-Aug-12	SG07	REG	
VA1953	SVMW-03-050	50	52.5	21-Nov-12	SG08	REG	
VA2267	SVMW-03-050	50	52.5	28-Feb-13	SG09	REG	
VA2581	SVMW-03-050	50	52.5	13-Jun-13	SG10	REG	
VA0697	SVMW-03-100	100	102.5	20-Sep-11	SG03	REG	
VA0697-FQ	SVMW-03-100	100	102.5	20-Oct-11	SG04	REG	
VA1011	SVMW-03-100	100	102.5	5-Mar-12	SG05	REG	
VA1324	SVMW-03-100	100	102.5	17-May-12	SG06	REG	
VA1639	SVMW-03-100	100	102.5	14-Aug-12	SG07	REG	
VA1954	SVMW-03-100	100	102.5	21-Nov-12	SG08	REG	
VA2268	SVMW-03-100	100	102.5	28-Feb-13	SG09	REG	
VA2582	SVMW-03-100	100	102.5	13-Jun-13	SG10	REG	
VA0698	SVMW-03-250	250	252.5	20-Sep-11	SG03	REG	
VA0698-FQ	SVMW-03-250	250	252.5	21-Oct-11	SG04	REG	
VA1012	SVMW-03-250	250	252.5	5-Mar-12	SG05	REG	
VA1325	SVMW-03-250	250	252.5	17-May-12	SG06	REG	
VA1326	SVMW-03-250	250	252.5	17-May-12	SG06	FD	Yes
VA1640	SVMW-03-250	250	252.5	14-Aug-12	SG07	REG	
VA1955	SVMW-03-250	250	252.5	21-Nov-12	SG08	REG	
VA2269	SVMW-03-250	250	252.5	4-Mar-13	SG09	REG	
VA2583	SVMW-03-250	250	252.5	13-Jun-13	SG10	REG	
VA0699	SVMW-03-300	300	302.5	20-Sep-11	SG03	REG	
VA0699-FQ	SVMW-03-300	300	302.5	20-Oct-11	SG04	REG	
VA1013	SVMW-03-300	300	302.5	5-Mar-12	SG05	REG	
VA1327	SVMW-03-300	300	302.5	17-May-12	SG06	REG	
VA1641	SVMW-03-300	300	302.5	15-Aug-12	SG07	REG	
VA1956	SVMW-03-300	300	302.5	21-Nov-12	SG08	REG	
VA2270	SVMW-03-300	300	302.5	4-Mar-13	SG09	REG	
VA2584	SVMW-03-300	300	302.5	13-Jun-13	SG10	REG	
VA0700	SVMW-04-050	50	52.5	20-Sep-11	SG03	REG	
VA0700-FQ	SVMW-04-050	50	52.5	6-Oct-11	SG04	REG	
VA0701	SVMW-04-050	50	52.5	20-Sep-11	SG03	FD	Yes
VA1014	SVMW-04-050	50	52.5	13-Mar-12	SG05	REG	
VA1328	SVMW-04-050	50	52.5	29-May-12	SG06	REG	
VA1642	SVMW-04-050	50	52.5	21-Aug-12	SG07	REG	
VA1957	SVMW-04-050	50	52.5	19-Nov-12	SG08	REG	
VA2271	SVMW-04-050	50	52.5	19-Feb-13	SG09	REG	
VA2585	SVMW-04-050	50	52.5	11-Jun-13	SG10	REG	
VA0384	SVMW-04-100	98	100.5	20-Sep-11	SG03	REG	
VA0701-FQ	SVMW-04-100	98	100.5	6-Oct-11	SG04	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1015	SVMW-04-100	98	100.5	13-Mar-12	SG05	REG	
VA1016	SVMW-04-100	98	100.5	13-Mar-12	SG05	FD	Yes
VA1329	SVMW-04-100	98	100.5	29-May-12	SG06	REG	
VA1643	SVMW-04-100	98	100.5	21-Aug-12	SG07	REG	
VA1644	SVMW-04-100	98	100.5	21-Aug-12	SG07	FD	Yes
VA1958	SVMW-04-100	100	102.5	19-Nov-12	SG08	REG	
VA1959	SVMW-04-100	100	102.5	19-Nov-12	SG08	FD	Yes
VA2272	SVMW-04-100	98	100.5	19-Feb-13	SG09	REG	
VA2273	SVMW-04-100	98	100.5	19-Feb-13	SG09	FD	Yes
VA2586	SVMW-04-100	98	100.5	11-Jun-13	SG10	REG	
VA0385	SVMW-04-250	250	252.5	20-Sep-11	SG03	REG	
VA0702	SVMW-04-250	250	252.5	10-Oct-11	SG04	REG	
VA1017	SVMW-04-250	250	252.5	13-Mar-12	SG05	REG	
VA1330	SVMW-04-250	250	252.5	29-May-12	SG06	REG	
VA1645	SVMW-04-250	250	252.5	21-Aug-12	SG07	REG	
VA1960	SVMW-04-250	250	252.5	19-Nov-12	SG08	REG	
VA2274	SVMW-04-250	250	252.5	19-Feb-13	SG09	REG	
VA2587	SVMW-04-250	250	252.5	11-Jun-13	SG10	REG	
VA0386	SVMW-04-300	297.5	300	20-Sep-11	SG03	REG	
VA0703	SVMW-04-300	297.5	300	10-Oct-11	SG04	REG	
VA1018	SVMW-04-300	297.5	300	13-Mar-12	SG05	REG	
VA1331	SVMW-04-300	297.5	300	29-May-12	SG06	REG	
VA1646	SVMW-04-300	297.5	300	21-Aug-12	SG07	REG	
VA1961	SVMW-04-300	300	302.5	19-Nov-12	SG08	REG	
VA2275	SVMW-04-300	297.5	300	19-Feb-13	SG09	REG	
VA2588	SVMW-04-300	297.5	300	11-Jun-13	SG10	REG	
VA2589	SVMW-04-300	297.5	300	11-Jun-13	SG10	FD	Yes
VA0387	SVMW-05-050	50	52.5	22-Sep-11	SG03	REG	
VA0704	SVMW-05-050	50	52.5	9-Nov-11	SG04	REG	
VA1019	SVMW-05-050	50	52.5	14-Mar-12	SG05	REG	
VA1332	SVMW-05-050	50	52.5	30-May-12	SG06	REG	
VA1647	SVMW-05-050	50	52.5	15-Aug-12	SG07	REG	
VA1962	SVMW-05-050	50	52.5	11-Dec-12	SG08	REG	
VA2276	SVMW-05-050	50	52.5	27-Feb-13	SG09	REG	
VA2590	SVMW-05-050	50	52.5	24-Jun-13	SG10	REG	
VA0388	SVMW-05-100	100	102.5	22-Sep-11	SG03	REG	
VA0705	SVMW-05-100	100	102.5	9-Nov-11	SG04	REG	
VA1020	SVMW-05-100	100	102.5	14-Mar-12	SG05	REG	
VA1333	SVMW-05-100	100	102.5	30-May-12	SG06	REG	
VA1334	SVMW-05-100	100	102.5	30-May-12	SG06	FD	Yes
VA1648	SVMW-05-100	100	102.5	15-Aug-12	SG07	REG	
VA1963	SVMW-05-100	100	102.5	11-Dec-12	SG08	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2277	SVMW-05-100	100	102.5	27-Feb-13	SG09	REG	
VA2591	SVMW-05-100	100	102.5	24-Jun-13	SG10	REG	
VA0389	SVMW-05-230	229.5	231	22-Sep-11	SG03	REG	
VA0706	SVMW-05-230	229.5	231	9-Nov-11	SG04	REG	
VA1021	SVMW-05-230	229.5	231	14-Mar-12	SG05	REG	
VA1335	SVMW-05-230	229.5	231	30-May-12	SG06	REG	
VA1649	SVMW-05-230	229.5	231	15-Aug-12	SG07	REG	
VA1964	SVMW-05-230	229.5	231	11-Dec-12	SG08	REG	
VA2278	SVMW-05-230	229.5	231	28-Feb-13	SG09	REG	
VA2592	SVMW-05-230	229.5	231	24-Jun-13	SG10	REG	
VA0390	SVMW-05-290	287.5	290	22-Sep-11	SG03	REG	
VA0707	SVMW-05-290	287.5	290	9-Nov-11	SG04	REG	
VA1022	SVMW-05-290	287.5	290	14-Mar-12	SG05	REG	
VA1336	SVMW-05-290	287.5	290	30-May-12	SG06	REG	
VA1650	SVMW-05-290	287.5	290	15-Aug-12	SG07	REG	
VA1965	SVMW-05-290	287.5	290	11-Dec-12	SG08	REG	
VA2279	SVMW-05-290	287.5	290	28-Feb-13	SG09	REG	
VA2279R	SVMW-05-290	287.5	290	19-Mar-13	SG09	REG	
VA2593	SVMW-05-290	287.5	290	24-Jun-13	SG10	REG	
VA0391	SVMW-06-050	50	52.5	22-Sep-11	SG03	REG	
VA0708	SVMW-06-050	50	52.5	15-Dec-11	SG04	REG	
VA1023	SVMW-06-050	50	52.5	10-Jan-12	SG05	REG	
VA1337	SVMW-06-050	50	52.5	5-Jun-12	SG06	REG	
VA1651	SVMW-06-050	50	52.5	11-Sep-12	SG07	REG	
VA1966	SVMW-06-050	50	52.5	11-Dec-12	SG08	REG	
VA2280	SVMW-06-050	50	52.5	25-Feb-13	SG09	REG	
VA2594	SVMW-06-050	50	52.5	29-May-13	SG10	REG	
VA0392	SVMW-06-100	99.5	102	22-Sep-11	SG03	REG	
VA0709	SVMW-06-100	99.5	102	15-Dec-11	SG04	REG	
VA0710	SVMW-06-100	99.5	102	15-Dec-11	SG04	FD	Yes
VA1024	SVMW-06-100	99.5	102	10-Jan-12	SG05	REG	
VA1338	SVMW-06-100	99.5	102	5-Jun-12	SG06	REG	
VA1652	SVMW-06-100	99.5	102	17-Sep-12	SG07	REG	
VA1653	SVMW-06-100	99.5	102	17-Sep-12	SG07	FD	Yes
VA1967	SVMW-06-100	99.5	102	11-Dec-12	SG08	REG	
VA2281	SVMW-06-100	99.5	102	25-Feb-13	SG09	REG	
VA2595	SVMW-06-100	100	102.5	29-May-13	SG10	REG	
VA0393	SVMW-06-252	252	254.5	22-Sep-11	SG03	REG	
VA0711	SVMW-06-252	252	254.5	15-Dec-11	SG04	REG	
VA0711R	SVMW-06-252	252	254.5	22-Dec-11	SG04	REG	
VA1025	SVMW-06-252	252	254.5	10-Jan-12	SG05	REG	
VA1339	SVMW-06-252	252	254.5	5-Jun-12	SG06	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1654	SVMW-06-252	252	254.5	17-Sep-12	SG07	REG	
VA1968	SVMW-06-252	252	254.5	11-Dec-12	SG08	REG	
VA1969	SVMW-06-252	252	254.5	11-Dec-12	SG08	FD	Yes
VA2282	SVMW-06-252	252	254.5	25-Feb-13	SG09	REG	
VA2283	SVMW-06-252	252	254.5	25-Feb-13	SG09	FD	Yes
VA2596	SVMW-06-252	252	254.5	29-May-13	SG10	REG	
VA0394	SVMW-06-302	302.5	305	22-Sep-11	SG03	REG	
VA0712	SVMW-06-302	302.5	305	15-Dec-11	SG04	REG	
VA1026	SVMW-06-302	302.5	305	10-Jan-12	SG05	REG	
VA1026R	SVMW-06-302	302.5	305	20-Jan-12	SG05	REG	
VA1340	SVMW-06-302	302.5	305	6-Jun-12	SG06	REG	
VA1655	SVMW-06-302	302.5	305	17-Sep-12	SG07	REG	
VA1970	SVMW-06-302	302.5	305	11-Dec-12	SG08	REG	
VA2284	SVMW-06-302	302.5	305	25-Feb-13	SG09	REG	
VA2597	SVMW-06-302	302.5	305	29-May-13	SG10	REG	
VA0395	SVMW-07-050	49.5	52	23-Aug-11	SG03	REG	
VA0713	SVMW-07-050	49.5	52	12-Dec-11	SG04	REG	
VA1027	SVMW-07-050	49.5	52	19-Mar-12	SG05	REG	
VA1341	SVMW-07-050	49.5	52	5-Jun-12	SG06	REG	
VA1656	SVMW-07-050	49.5	52	17-Sep-12	SG07	REG	
VA1971	SVMW-07-050	49.5	52	13-Dec-12	SG08	REG	
VA2285	SVMW-07-050	49.5	52	18-Mar-13	SG09	REG	
VA2598	SVMW-07-050	49.5	52	24-Jun-13	SG10	REG	
VA0396	SVMW-07-100	95.5	98	23-Aug-11	SG03	REG	
VA0397	SVMW-07-100	95.5	98	23-Aug-11	SG03	FD	Yes
VA0714	SVMW-07-100	95.5	98	12-Dec-11	SG04	REG	
VA1028	SVMW-07-100	95.5	98	19-Mar-12	SG05	REG	
VA1029	SVMW-07-100	95.5	98	19-Mar-12	SG05	FD	Yes
VA1342	SVMW-07-100	95.5	98	5-Jun-12	SG06	REG	
VA1343	SVMW-07-100	95.5	98	5-Jun-12	SG06	FD	Yes
VA1657	SVMW-07-100	95.5	98	17-Sep-12	SG07	REG	
VA1972	SVMW-07-100	95.5	98	13-Dec-12	SG08	REG	
VA2286	SVMW-07-100	95.5	98	18-Mar-13	SG09	REG	
VA2599	SVMW-07-100	95.5	98	24-Jun-13	SG10	REG	
VA2600	SVMW-07-100	95.5	98	24-Jun-13	SG10	FD	Yes
VA0398	SVMW-07-150	147.5	150	23-Aug-11	SG03	REG	
VA0715	SVMW-07-150	147.5	150	12-Dec-11	SG04	REG	
VA1030	SVMW-07-150	147.5	150	19-Mar-12	SG05	REG	
VA1344	SVMW-07-150	147.5	150	5-Jun-12	SG06	REG	
VA1658	SVMW-07-150	147.5	150	17-Sep-12	SG07	REG	
VA1973	SVMW-07-150	147.5	150	13-Dec-12	SG08	REG	
VA2287	SVMW-07-150	147.5	150	18-Mar-13	SG09	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2601	SVMW-07-150	147.5	150	24-Jun-13	SG10	REG	
VA0399	SVMW-08-050	50	52.5	24-Aug-11	SG03	REG	
VA0716	SVMW-08-050	50	52.5	31-Oct-11	SG04	REG	
VA1031	SVMW-08-050	50	52.5	14-Mar-12	SG05	REG	
VA1345	SVMW-08-050	50	52.5	15-May-12	SG06	REG	
VA1659	SVMW-08-050	50	52.5	18-Sep-12	SG07	REG	
VA1974	SVMW-08-050	50	52.5	28-Nov-12	SG08	REG	
VA2288	SVMW-08-050	50	52.5	28-Feb-13	SG09	REG	
VA2602	SVMW-08-050	50	52.5	6-Jun-13	SG10	REG	
VA0400	SVMW-08-100	100	102.5	24-Aug-11	SG03	REG	
VA0717	SVMW-08-100	100	102.5	31-Oct-11	SG04	REG	
VA1032	SVMW-08-100	100	102.5	14-Mar-12	SG05	REG	
VA1346	SVMW-08-100	100	102.5	15-May-12	SG06	REG	
VA1660	SVMW-08-100	100	102.5	18-Sep-12	SG07	REG	
VA1975	SVMW-08-100	100	102.5	28-Nov-12	SG08	REG	
VA2289	SVMW-08-100	100	102.5	28-Feb-13	SG09	REG	
VA2603	SVMW-08-100	100	102.5	6-Jun-13	SG10	REG	
VA0401	SVMW-08-250	250	252.5	24-Aug-11	SG03	REG	
VA0718	SVMW-08-250	250	252.5	31-Oct-11	SG04	REG	
VA0719	SVMW-08-250	250	252.5	31-Oct-11	SG04	FD	Yes
VA1033	SVMW-08-250	250	252.5	14-Mar-12	SG05	REG	
VA1347	SVMW-08-250	250	252.5	15-May-12	SG06	REG	
VA1661	SVMW-08-250	250	252.5	18-Sep-12	SG07	REG	
VA1976	SVMW-08-250	250	252.5	28-Nov-12	SG08	REG	
VA2290	SVMW-08-250	250	252.5	28-Feb-13	SG09	REG	
VA2604	SVMW-08-250	250	252.5	6-Jun-13	SG10	REG	
VA0403	SVMW-09-050	50	52.5	27-Sep-11	SG03	REG	
VA0721	SVMW-09-050	50	52.5	10-Oct-11	SG04	REG	
VA1035	SVMW-09-050	50	52.5	5-Mar-12	SG05	REG	
VA1349	SVMW-09-050	50	52.5	12-Jun-12	SG06	REG	
VA1663	SVMW-09-050	50	52.5	23-Aug-12	SG07	REG	
VA1664	SVMW-09-050	50	52.5	23-Aug-12	SG07	FD	Yes
VA1978	SVMW-09-050	50	52.5	4-Dec-12	SG08	REG	
VA2292	SVMW-09-050	50	52.5	20-Feb-13	SG09	REG	
VA2606	SVMW-09-050	50	52.5	6-Jun-13	SG10	REG	
VA0404	SVMW-09-100	100	102.5	27-Sep-11	SG03	REG	
VA0405	SVMW-09-100	100	102.5	27-Sep-11	SG03	FD	Yes
VA0722	SVMW-09-100	100	102.5	10-Oct-11	SG04	REG	
VA1036	SVMW-09-100	100	102.5	5-Mar-12	SG05	REG	
VA1350	SVMW-09-100	100	102.5	12-Jun-12	SG06	REG	
VA1665	SVMW-09-100	100	102.5	23-Aug-12	SG07	REG	
VA1979	SVMW-09-100	100	102.5	4-Dec-12	SG08	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1980	SVMW-09-100	100	102.5	4-Dec-12	SG08	FD	Yes
VA2293	SVMW-09-100	100	102.5	20-Feb-13	SG09	REG	
VA2294	SVMW-09-100	100	102.5	20-Feb-13	SG09	FD	Yes
VA2607	SVMW-09-100	100	102.5	6-Jun-13	SG10	REG	
VA0406	SVMW-09-250	250	252.5	27-Sep-11	SG03	REG	
VA0723	SVMW-09-250	250	252.5	10-Oct-11	SG04	REG	
VA1037	SVMW-09-250	250	252.5	5-Mar-12	SG05	REG	
VA1038	SVMW-09-250	250	252.5	5-Mar-12	SG05	FD	Yes
VA1351	SVMW-09-250	250	252.5	12-Jun-12	SG06	REG	
VA1666	SVMW-09-250	250	252.5	23-Aug-12	SG07	REG	
VA1981	SVMW-09-250	250	252.5	4-Dec-12	SG08	REG	
VA2295	SVMW-09-250	250	252.5	20-Feb-13	SG09	REG	
VA2608	SVMW-09-250	250	252.5	6-Jun-13	SG10	REG	
VA0407	SVMW-09-266	266	268.5	27-Sep-11	SG03	REG	
VA0724	SVMW-09-266	266	268.5	10-Oct-11	SG04	REG	
VA1039	SVMW-09-266	266	268.5	5-Mar-12	SG05	REG	
VA1352	SVMW-09-266	266	268.5	12-Jun-12	SG06	REG	
VA1667	SVMW-09-266	266	268.5	27-Aug-12	SG07	REG	
VA1982	SVMW-09-266	266	268.5	4-Dec-12	SG08	REG	
VA2296	SVMW-09-266	266	268.5	20-Feb-13	SG09	REG	
VA2609	SVMW-09-266	266	268.5	6-Jun-13	SG10	REG	
VA0408	SVMW-10-050	50	52.5	27-Sep-11	SG03	REG	
VA0725	SVMW-10-050	50	52.5	1-Nov-11	SG04	REG	
VA1040	SVMW-10-050	50	52.5	14-Mar-12	SG05	REG	
VA1353	SVMW-10-050	50	52.5	13-Jun-12	SG06	REG	
VA1668	SVMW-10-050	50	52.5	10-Sep-12	SG07	REG	
VA1983	SVMW-10-050	50	52.5	26-Nov-12	SG08	REG	
VA2297	SVMW-10-050	50	52.5	28-Feb-13	SG09	REG	
VA2610	SVMW-10-050	50	52.5	4-Jun-13	SG10	REG	
VA2611	SVMW-10-050	50	52.5	4-Jun-13	SG10	FD	Yes
VA0409	SVMW-10-100	100	102.5	27-Sep-11	SG03	REG	
VA0726	SVMW-10-100	100	102.5	1-Nov-11	SG04	REG	
VA1041	SVMW-10-100	100	102.5	14-Mar-12	SG05	REG	
VA1354	SVMW-10-100	100	102.5	13-Jun-12	SG06	REG	
VA1669	SVMW-10-100	100	102.5	10-Sep-12	SG07	REG	
VA1984	SVMW-10-100	100	102.5	26-Nov-12	SG08	REG	
VA2298	SVMW-10-100	100	102.5	28-Feb-13	SG09	REG	
VA2612	SVMW-10-100	100	102.5	4-Jun-13	SG10	REG	
VA0410	SVMW-10-150	150	152.5	27-Sep-11	SG03	REG	
VA0727	SVMW-10-150	150	152.5	1-Nov-11	SG04	REG	
VA1042	SVMW-10-150	150	152.5	14-Mar-12	SG05	REG	
VA1355	SVMW-10-150	150	152.5	13-Jun-12	SG06	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1356	SVMW-10-150	150	152.5	13-Jun-12	SG06	FD	Yes
VA1670	SVMW-10-150	150	152.5	10-Sep-12	SG07	REG	
VA1985	SVMW-10-150	150	152.5	19-Nov-12	SG08	REG	
VA2299	SVMW-10-150	150	152.5	28-Feb-13	SG09	REG	
VA2613	SVMW-10-150	150	152.5	4-Jun-13	SG10	REG	
VA0411	SVMW-10-250	250	252.5	27-Sep-11	SG03	REG	
VA0728	SVMW-10-250	250	252.5	1-Nov-11	SG04	REG	
VA1043	SVMW-10-250	250	252.5	14-Mar-12	SG05	REG	
VA1357	SVMW-10-250	250	252.5	13-Jun-12	SG06	REG	
VA1671	SVMW-10-250	250	252.5	10-Sep-12	SG07	REG	
VA1986	SVMW-10-250	250	252.5	26-Nov-12	SG08	REG	
VA2300	SVMW-10-250	250	252.5	28-Feb-13	SG09	REG	
VA2614	SVMW-10-250	250	252.5	4-Jun-13	SG10	REG	
VA0412	SVMW-11-050	50	52.5	25-Aug-11	SG03	REG	
VA0729	SVMW-11-050	50	52.5	2-Nov-11	SG04	REG	
VA1044	SVMW-11-050	50	52.5	22-Mar-12	SG05	REG	
VA1358	SVMW-11-050	50	52.5	30-May-12	SG06	REG	
VA1672	SVMW-11-050	50	52.5	29-Aug-12	SG07	REG	
VA1987	SVMW-11-050	50	52.5	6-Dec-12	SG08	REG	
VA2301	SVMW-11-050	50	52.5	27-Feb-13	SG09	REG	
VA2615	SVMW-11-050	50	52.5	6-Jun-13	SG10	REG	
VA0413	SVMW-11-100	100	102.5	25-Aug-11	SG03	REG	
VA0730	SVMW-11-100	100	102.5	2-Nov-11	SG04	REG	
VA0731	SVMW-11-100	100	102.5	2-Nov-11	SG04	FD	Yes
VA1045	SVMW-11-100	100	102.5	22-Mar-12	SG05	REG	
VA1359	SVMW-11-100	100	102.5	30-May-12	SG06	REG	
VA1673	SVMW-11-100	100	102.5	29-Aug-12	SG07	REG	
VA1988	SVMW-11-100	100	102.5	6-Dec-12	SG08	REG	
VA2302	SVMW-11-100	100	102.5	27-Feb-13	SG09	REG	
VA2616	SVMW-11-100	100	102.5	6-Jun-13	SG10	REG	
VA0414	SVMW-11-250	250	252.5	25-Aug-11	SG03	REG	
VA0415	SVMW-11-250	250	252.5	25-Aug-11	SG03	FD	Yes
VA0732	SVMW-11-250	250	252.5	2-Nov-11	SG04	REG	
VA1046	SVMW-11-250	250	252.5	22-Mar-12	SG05	REG	
VA1360	SVMW-11-250	250	252.5	30-May-12	SG06	REG	
VA1674	SVMW-11-250	250	252.5	29-Aug-12	SG07	REG	
VA1675	SVMW-11-250	250	252.5	29-Aug-12	SG07	FD	Yes
VA1989	SVMW-11-250	250	252.5	6-Dec-12	SG08	REG	
VA1990	SVMW-11-250	250	252.5	6-Dec-12	SG08	FD	Yes
VA2303	SVMW-11-250	250	252.5	27-Feb-13	SG09	REG	
VA2304	SVMW-11-250	250	252.5	27-Feb-13	SG09	FD	Yes
VA2617	SVMW-11-250	250	252.5	6-Jun-13	SG10	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0416	SVMW-11-260	260	262.5	26-Aug-11	SG03	REG	
VA0733	SVMW-11-260	260	262.5	2-Nov-11	SG04	REG	
VA1047	SVMW-11-260	260	262.5	22-Mar-12	SG05	REG	
VA1361	SVMW-11-260	260	262.5	30-May-12	SG06	REG	
VA1676	SVMW-11-260	260	262.5	29-Aug-12	SG07	REG	
VA1991	SVMW-11-260	260	262.5	6-Dec-12	SG08	REG	
VA2305	SVMW-11-260	260	262.5	27-Feb-13	SG09	REG	
VA2618	SVMW-11-260	260	262.5	6-Jun-13	SG10	REG	
VA0417	SVMW-12-150	150	152.5	19-Jul-11	SG03	REG	
VA0734	SVMW-12-150	150	152.5	6-Dec-11	SG04	REG	
VA1048	SVMW-12-150	150	152.5	5-Mar-12	SG05	REG	
VA1362	SVMW-12-150	150	152.5	14-Jun-12	SG06	REG	
VA1677	SVMW-12-150	150	152.5	12-Sep-12	SG07	REG	
VA1992	SVMW-12-150	150	152.5	11-Dec-12	SG08	REG	
VA2306	SVMW-12-150	150	152.5	4-Mar-13	SG09	REG	
VA2619	SVMW-12-150	150	152.5	4-Jun-13	SG10	REG	
VA0418	SVMW-12-250	250	252.5	19-Jul-11	SG03	REG	
VA0735	SVMW-12-250	250	252.5	6-Dec-11	SG04	REG	
VA1049	SVMW-12-250	250	252.5	5-Mar-12	SG05	REG	
VA1050	SVMW-12-250	250	252.5	5-Mar-12	SG05	FD	Yes
VA1363	SVMW-12-250	250	252.5	14-Jun-12	SG06	REG	
VA1678	SVMW-12-250	250	252.5	12-Sep-12	SG07	REG	
VA1993	SVMW-12-250	250	252.5	11-Dec-12	SG08	REG	
VA2307	SVMW-12-250	250	252.5	4-Mar-13	SG09	REG	
VA2620	SVMW-12-250	250	252.5	4-Jun-13	SG10	REG	
VA0419	SVMW-12-350	350	352.5	19-Jul-11	SG03	REG	
VA0736	SVMW-12-350	350	352.5	6-Dec-11	SG04	REG	
VA1051	SVMW-12-350	350	352.5	5-Mar-12	SG05	REG	
VA1364	SVMW-12-350	350	352.5	14-Jun-12	SG06	REG	
VA1679	SVMW-12-350	350	352.5	12-Sep-12	SG07	REG	
VA1994	SVMW-12-350	350	352.5	11-Dec-12	SG08	REG	
VA2308	SVMW-12-350	350	352.5	4-Mar-13	SG09	REG	
VA2621	SVMW-12-350	350	352.5	4-Jun-13	SG10	REG	
VA2622	SVMW-12-350	350	352.5	4-Jun-13	SG10	FD	Yes
VA0420	SVMW-12-450	450	452.5	19-Jul-11	SG03	REG	
VA0737	SVMW-12-450	450	452.5	6-Dec-11	SG04	REG	
VA1052	SVMW-12-450	450	452.5	5-Mar-12	SG05	REG	
VA1365	SVMW-12-450	450	452.5	14-Jun-12	SG06	REG	
VA1680	SVMW-12-450	450	452.5	12-Sep-12	SG07	REG	
VA1995	SVMW-12-450	450	452.5	11-Dec-12	SG08	REG	
VA2309	SVMW-12-450	450	452.5	4-Mar-13	SG09	REG	
VA2623	SVMW-12-450	450	452.5	4-Jun-13	SG10	REG	

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Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA0421	SVMW-13-150	150	152.5	7-Sep-11	SG03	REG	
VA0738	SVMW-13-150	150	152.5	14-Dec-11	SG04	REG	
VA1053	SVMW-13-150	150	152.5	22-Mar-12	SG05	REG	
VA1366	SVMW-13-150	150	152.5	21-Jun-12	SG06	REG	
VA1681	SVMW-13-150	150	152.5	13-Sep-12	SG07	REG	
VA1996	SVMW-13-150	150	152.5	18-Dec-12	SG08	REG	
VA2310	SVMW-13-150	150	152.5	20-Feb-13	SG09	REG	
VA2624	SVMW-13-150	150	152.5	30-May-13	SG10	REG	
VA0422	SVMW-13-250	250	252.5	7-Sep-11	SG03	REG	
VA0739	SVMW-13-250	250	252.5	14-Dec-11	SG04	REG	
VA0740	SVMW-13-250	250	252.5	14-Dec-11	SG04	FD	Yes
VA1054	SVMW-13-250	250	252.5	22-Mar-12	SG05	REG	
VA1367	SVMW-13-250	250	252.5	21-Jun-12	SG06	REG	
VA1368	SVMW-13-250	250	252.5	21-Jun-12	SG06	FD	Yes
VA1682	SVMW-13-250	250	252.5	13-Sep-12	SG07	REG	
VA1997	SVMW-13-250	250	252.5	18-Dec-12	SG08	REG	
VA2311	SVMW-13-250	250	252.5	20-Feb-13	SG09	REG	
VA2625	SVMW-13-250	250	252.5	30-May-13	SG10	REG	
VA0423	SVMW-13-350	350	352.5	7-Sep-11	SG03	REG	
VA0424	SVMW-13-350	350	352.5	7-Sep-11	SG03	FD	Yes
VA0741	SVMW-13-350	350	352.5	14-Dec-11	SG04	REG	
VA1055	SVMW-13-350	350	352.5	22-Mar-12	SG05	REG	
VA1369	SVMW-13-350	350	352.5	21-Jun-12	SG06	REG	
VA1683	SVMW-13-350	350	352.5	13-Sep-12	SG07	REG	
VA1684	SVMW-13-350	350	352.5	13-Sep-12	SG07	FD	Yes
VA1998	SVMW-13-350	350	352.5	18-Dec-12	SG08	REG	
VA2312	SVMW-13-350	350	352.5	20-Feb-13	SG09	REG	
VA2626	SVMW-13-350	350	352.5	30-May-13	SG10	REG	
VA0425	SVMW-13-450	450	452.5	7-Sep-11	SG03	REG	
VA0742	SVMW-13-450	450	452.5	14-Dec-11	SG04	REG	
VA1056	SVMW-13-450	450	452.5	22-Mar-12	SG05	REG	
VA1370	SVMW-13-450	450	452.5	21-Jun-12	SG06	REG	
VA1685	SVMW-13-450	450	452.5	13-Sep-12	SG07	REG	
VA1999	SVMW-13-450	450	452.5	18-Dec-12	SG08	REG	
VA2313	SVMW-13-450	450	452.5	20-Feb-13	SG09	REG	
VA2627	SVMW-13-450	450	452.5	30-May-13	SG10	REG	
VA0426	SVMW-14-150	150	152.5	20-Jul-11	SG03	REG	
VA0743	SVMW-14-150	150	152.5	28-Nov-11	SG04	REG	
VA1057	SVMW-14-150	150	152.5	6-Mar-12	SG05	REG	
VA1371	SVMW-14-150	150	152.5	21-Jun-12	SG06	REG	
VA1686	SVMW-14-150	147.5	150	17-Sep-12	SG07	REG	
VA2000	SVMW-14-150	150	152.5	5-Dec-12	SG08	REG	

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Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA2314	SVMW-14-150	150	152.5	7-Mar-13	SG09	REG	
VA2628	SVMW-14-150	150	152.5	11-Jun-13	SG10	REG	
VA0427	SVMW-14-250	250	252.5	20-Jul-11	SG03	REG	
VA0744	SVMW-14-250	250	252.5	28-Nov-11	SG04	REG	
VA1058	SVMW-14-250	250	252.5	6-Mar-12	SG05	REG	
VA1372	SVMW-14-250	250	252.5	21-Jun-12	SG06	REG	
VA1687	SVMW-14-250	247.5	250	17-Sep-12	SG07	REG	
VA2001	SVMW-14-250	250	252.5	5-Dec-12	SG08	REG	
VA2002	SVMW-14-250	250	252.5	5-Dec-12	SG08	FD	Yes
VA2315	SVMW-14-250	250	252.5	7-Mar-13	SG09	REG	
VA2316	SVMW-14-250	250	252.5	7-Mar-13	SG09	FD	Yes
VA2629	SVMW-14-250	250	252.5	11-Jun-13	SG10	REG	
VA0428	SVMW-14-350	350	352.5	21-Jul-11	SG03	REG	
VA0745	SVMW-14-350	350	352.5	28-Nov-11	SG04	REG	
VA1059	SVMW-14-350	350	352.5	6-Mar-12	SG05	REG	
VA1373	SVMW-14-350	350	352.5	21-Jun-12	SG06	REG	
VA1688	SVMW-14-350	347.5	350	17-Sep-12	SG07	REG	
VA2003	SVMW-14-350	350	352.5	5-Dec-12	SG08	REG	
VA2317	SVMW-14-350	350	352.5	7-Mar-13	SG09	REG	
VA2630	SVMW-14-350	350	352.5	11-Jun-13	SG10	REG	
VA0429	SVMW-14-450	450	452.5	21-Jul-11	SG03	REG	
VA0431	SVMW-14-450	450	452.5	21-Jul-11	SG03	FD	Yes
VA0746	SVMW-14-450	450	452.5	28-Nov-11	SG04	REG	
VA1060	SVMW-14-450	450	452.5	6-Mar-12	SG05	REG	
VA1061	SVMW-14-450	450	452.5	6-Mar-12	SG05	FD	Yes
VA1374	SVMW-14-450	450	452.5	21-Jun-12	SG06	REG	
VA1689	SVMW-14-450	447.5	450	18-Sep-12	SG07	REG	
VA2004	SVMW-14-450	450	452.5	5-Dec-12	SG08	REG	
VA2318	SVMW-14-450	450	452.5	7-Mar-13	SG09	REG	
VA2631	SVMW-14-450	450	452.5	11-Jun-13	SG10	REG	
VA0432	SVMW-15-150	150	152.5	26-Sep-11	SG03	REG	
VA0747	SVMW-15-150	150	152.5	16-Nov-11	SG04	REG	
VA1062	SVMW-15-150	150	152.5	12-Jan-12	SG05	REG	
VA1375	SVMW-15-150	150	152.5	6-Jun-12	SG06	REG	
VA1690	SVMW-15-150	147.5	150	17-Sep-12	SG07	REG	
VA2005	SVMW-15-150	150	152.5	18-Dec-12	SG08	REG	
VA2319	SVMW-15-150	150	152.5	4-Mar-13	SG09	REG	
VA2632	SVMW-15-150	150	152.5	23-May-13	SG10	REG	
VA2633	SVMW-15-150	150	152.5	23-May-13	SG10	FD	Yes
VA0433	SVMW-15-250	250	252.5	26-Sep-11	SG03	REG	
VA0748	SVMW-15-250	250	252.5	16-Nov-11	SG04	REG	
VA0749	SVMW-15-250	250	252.5	16-Nov-11	SG04	FD	Yes

Appendix A-2a
Soil Gas Sample Used in HHRA

Sample Number	Location	Start Depth (ft)	End Depth (ft)	Sample Date	Sample Round	Purpose	Sample Duplicate?
VA1063	SVMW-15-250	250	252.5	12-Jan-12	SG05	REG	
VA1376	SVMW-15-250	250	252.5	6-Jun-12	SG06	REG	
VA1691	SVMW-15-250	247.5	250	17-Sep-12	SG07	REG	
VA2006	SVMW-15-250	250	252.5	18-Dec-12	SG08	REG	
VA2320	SVMW-15-250	250	252.5	4-Mar-13	SG09	REG	
VA2634	SVMW-15-250	250	252.5	23-May-13	SG10	REG	
VA0434	SVMW-15-350	350	352.5	26-Sep-11	SG03	REG	
VA0750	SVMW-15-350	350	352.5	16-Nov-11	SG04	REG	
VA1064	SVMW-15-350	350	352.5	12-Jan-12	SG05	REG	
VA1377	SVMW-15-350	350	352.5	6-Jun-12	SG06	REG	
VA1378	SVMW-15-350	350	352.5	6-Jun-12	SG06	FD	Yes
VA1692	SVMW-15-350	347.5	350	18-Sep-12	SG07	REG	
VA2007	SVMW-15-350	350	352.5	18-Dec-12	SG08	REG	
VA2321	SVMW-15-350	350	352.5	4-Mar-13	SG09	REG	
VA2635	SVMW-15-350	350	352.5	23-May-13	SG10	REG	
VA0435	SVMW-15-450	450	452.5	26-Sep-11	SG03	REG	
VA0751	SVMW-15-450	450	452.5	16-Nov-11	SG04	REG	
VA1065	SVMW-15-450	450	452.5	12-Jan-12	SG05	REG	
VA1379	SVMW-15-450	450	452.5	6-Jun-12	SG06	REG	
VA1693	SVMW-15-450	447.5	450	18-Sep-12	SG07	REG	
VA2008	SVMW-15-450	450	452.5	18-Dec-12	SG08	REG	
VA2322	SVMW-15-450	450	452.5	5-Mar-13	SG09	REG	
VA2636	SVMW-15-450	450	452.5	23-May-13	SG10	REG	

Appendix A-2b Table 1

Initial Screen of Chemicals in Groundwater, Subset of Monitoring Wells[a] , KAFB BFF

GROUP	CASNO	PARAMETER [b]	Tapwater RSL Nov 2013 THQ = 0.1 and TR = 1.0E-05 (ug/L) [c]	NM Screening Value (ug/L) [d]	Selected Screening Value (ug/L) [e]	MINHIT	MAXHIT	UNITS	Min Hit (ug/L)	Max Hit (ug/L)	NO_HITS	NUMBER SAMPLES	Exceeds Screening Value (Yes/No)	Percent Detected	Spatial Analysis Needed (Yes/No) [f]	Low FOD COPC Not Spatially Isolated and Retained [g]	LOCATION of Max Hit	SDATE	SAMPLE_NO	START [h]	END [h]
EDB	106-93-4	**1,2-DIBROMOETHANE**	0.065	0.1	0.065	0.0107	459	ug/L	0.0107	459	336	829	**Yes**	40.53%	No		KAFB-106014	6-Sep-11	GW0144	486	511
FIELD TESTS	10-08-2	TURBIDITY, NTU	--	--	NSV	0.23	19.1	NTU	N/A	N/A	280	280	No	100.00%	No		KAFB-106070	24-Apr-13	GW1094	460	480
	10-29-7	PH	--	--	NSV	6.75	8.22	PH UNITS	N/A	N/A	278	278	No	100.00%	No		KAFB-106023	23-Apr-13	GW1133	473	498
	10-34-4	SPECIFIC CONDUCTIVITY	--	--	NSV	212.4	1104	mS/cm	N/A	N/A	280	280	No	100.00%	No		KAFB-106074	25-Jul-11	GW0207	570	584
	10-88-8	DISSOLVED OXYGEN	--	--	NSV	0	20.5	mg/L	0	0	276	276	No	100.00%	No		KAFB-106072	7-Nov-11	GW0330	475	495
	11-43-8	ALKALINITY, TOTAL	--	--	NSV	77	332	mg/L	77000	332000	279	279	No	100.00%	No		KAFB-106080	24-Oct-11	GW0338	504.4	519.4
	12-17-9	TEMPERATURE	--	--	NSV	9.07	21.76	C	N/A	N/A	280	280	No	100.00%	No		KAFB-106002	12-Sep-11	GW0133	479	504
	12-46-4	OXIDATION-REDUCTION POTENTIAL	--	--	NSV	-328	1361	mV	N/A	N/A	278	278	No	100.00%	No		KAFB-106077	2-May-13	GW1101	504	519
GEN CHEMISTRY	10-09-3	ALKALINITY, BICARBONATE (AS CACO3)	--	--	NSV	73.1	381	mg/L	73100	381000	825	825	No	100.00%	No		KAFB-106079	21-Feb-12	GW0462	483.92	503.92
	10-28-6	NITROGEN, NITRATE-NITRITE	--	--	NSV	0.252	34.9	mg/L	252	34900	285	828	No	34.42%	No		KAFB-106016	19-Jul-12	GW0643	475	500
	13-01-4	ALKALINITY, CARBONATE (AS CACO3)	--	--	NSV	1.58	8.32	mg/L	1580	8320	9	825	No	**1.09%**	No		KAFB-106098	21-Jul-11	GW0235	531	546
	14808-79-8	SULFATE	--	600000	600000	1.22	185	mg/L	1220	185000	825	828	No	99.64%	No		KAFB-106024	8-Apr-13	GW1044	481	506
	16887-00-6	CHLORIDE	--	250000	250000	5.96	150	mg/L	5960	150000	828	828	No	100.00%	No		KAFB-106085	28-Jan-13	GW0975	446.5	476.5
	18496-25-8	SULFIDE, TOTAL	--	--	NSV	0.678	6.07	mg/L	678	6070	106	828	No	12.80%	No		KAFB-106010	13-Jul-11	GW0140	483	508
	7664-41-7	AMMONIA (AS N)	--	--	NSV	0.11	0.638	mg/L	110	638	58	828	No	7.00%	No		KAFB-106075	22-Jul-11	GW0208	480	500
METALS	7439-92-1	LEAD	15	--	15 (Action Level)	1.54	2.27	ug/L	1.54	2.27	9	828	No	**1.09%**	No		KAFB-106079	9-May-13	GW1104		
	7439-95-4	MAGNESIUM	--	--	175,000 (RDA)	3700	26500	ug/L	3700	26500	828	828	No	100.00%	No		KAFB-106024	21-Mar-12	GW0403	481	506
	7440-09-7	POTASSIUM	--	--	1,000,000 (RDA)	1800	4400	ug/L	1800	4400	828	828	No	100.00%	No		KAFB-106080	22-Jul-11	GW0214	504.4	519.4
	7440-23-5	**SODIUM**	--	--	20,000 (RDA)	18700	50600	ug/L	18700	50600	826	828	**Yes**	99.76%	No		KAFB-106101	20-Oct-11	GW0366	495.93	511.21
	7440-70-2	CALCIUM	--	--	500,000 (RDA)	30100	172000	ug/L	30100	172000	828	828	No	100.00%	No		KAFB-106079	21-Feb-12	GW0462	483.92	503.92
METALS (DISS)	7439-89-6	**IRON, DISSOLVED**	1100	1000	1000	30.8	15600	ug/L	30.8	15600	131	828	**Yes**	15.82%	No		KAFB-106161	16-Jan-13	GW1006	490	525
	7439-96-5	**MANGANESE, DISSOLVED**	32	87.6	32	3.06	5690	ug/L	3.06	5690	383	828	**Yes**	46.26%	No		KAFB-106079	9-May-13	GW1103		
SEMI-VOLATILES	100-52-7	BENZALDEHYDE	150	--	150	27.3	27.3	ug/L	27.3	27.3	1	827	No	**0.12%**	No		KAFB-106010	26-Apr-12	GW0514	483	508
	105-60-2	CAPROLACTAM	770	--	770	1.25	7.17	ug/L	1.25	7.17	21	827	No	**2.54%**	No		KAFB-106085	16-Nov-11	GW0344	446.5	476.5
	105-67-9	2,4-DIMETHYLPHENOL	27	--	27	99	99.1	ug/L	99	99.1	2	827	**Yes**	**0.24%**	Yes	No	KAFB-106079	22-Jul-11	GW0213	484.92	503.92
	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	31	48	31	1.22	23.5	ug/L	1.22	23.5	31	827	No	**3.75%**	No		KAFB-106094	13-Oct-11	GW0354	484.2	504.2
	129-00-0	PYRENE	8.7	110	8.7	1.77	1.77	ug/L	1.77	1.77	1	827	No	**0.12%**	No		KAFB-106101	18-Apr-13	GW1131	495.93	511.21
	206-44-0	FLUORANTHENE	63	146	63	2.42	2.42	ug/L	2.42	2.42	1	827	No	**0.12%**	No		KAFB-106101	18-Apr-13	GW1131	495.93	511.21
	65794-96-9	**3-METHYLPHENOL & 4-METHYLPHENOL**	72	--	72	1.28	99.5	ug/L	1.28	99.5	25	827	**Yes**	**3.02%**	Yes	Yes	KAFB-106010	13-Jul-11	GW0140	483	508
	78-59-1	ISOPHORONE	670	707	670	1.42	5.68	ug/L	1.42	5.68	13	827	No	**1.57%**	No		KAFB-106079	22-Jul-11	GW0213	484.92	503.92
	84-66-2	DIETHYL PHTHALATE	1100	2920	1100	1.38	40.2	ug/L	1.38	40.2	7	827	No	**0.85%**	No		KAFB-106010	13-Jul-11	GW0140	483	508
	85-01-8	PHENANTHRENE	--	110	110	1.67	1.67	ug/L	1.67	1.67	1	827	No	**0.12%**	No		KAFB-106101	18-Apr-13	GW1131	495.93	511.21
	86-73-7	FLUORENE	22	146	22	1.55	1.55	ug/L	1.55	1.55	1	827	No	**0.12%**	No		KAFB-106010	13-May-13	GW1031	483	508
	90-12-0	**1-METHYL NAPHTHALENE**	9.7	--	9.7	1.19	34.2	ug/L	1.19	34.2	45	827	**Yes**	5.44%	No		KAFB-106010	29-Jan-13	GW0896	483	508
	91-57-6	**2-METHYLNAPHTHALENE**	2.7	--	2.7	1.34	40.7	ug/L	1.34	40.7	42	827	**Yes**	5.08%	No		KAFB-106010	29-Jan-13	GW0896	483	508
	95-48-7	**2-METHYLPHENOL**	72	--	72	1.36	130	ug/L	1.36	130	8	827	**Yes**	**0.97%**	Yes	Yes	KAFB-106079	24-Oct-11	GW0337	484.92	503.92
	95-57-8	2-CHLOROPHENOL	7.1	18.3	7.1	5.35	5.35	ug/L	5.35	5.35	1	827	No	**0.12%**	No		KAFB-106014	21-Nov-11	GW0268	486	511
	98-86-2	**ACETOPHENONE**	150	365	150	1.33	8910	ug/L	1.33	8910	65	827	**Yes**	7.86%	No		KAFB-106014	7-May-12	GW0517	486	511
TPH	11-84-7	**DIESEL RANGE ORGANICS**	--	400	400	0.0956	98.6	mg/L	95.6	98600	210	828	**Yes**	25.36%	No		KAFB-106079	24-Oct-11	GW0337	484.92	503.92
	8006-61-9	**GASOLINE RANGE ORGANICS**	--	550	550	0.0517	72.1	mg/L	51.7	72100	214	828	**Yes**	25.85%	No		KAFB-106014	5-Nov-12	GW0765	486	511
VOLATILES	100-41-4	**ETHYLBENZENE**	13	14.8	13	0.25	1840	ug/L	0.25	1840	107	828	**Yes**	12.92%	No		KAFB-106014	6-Sep-11	GW0144	486	511
	103-65-1	**N-PROPYLBENZENE**	53	--	53	0.264	128	ug/L	0.264	128	123	828	**Yes**	14.86%	No		KAFB-106010	29-Jan-13	GW0896	483	508
	104-51-8	N-BUTYLBENZENE	78	--	78	0.25	14.6	ug/L	0.25	14.6	32	828	No	**3.86%**	No		KAFB-106014	21-Nov-11	GW0268	486	511
	107-06-2	**1,2-DICHLOROETHANE**	1.3	1.49	1.3	0.27	4.3	ug/L	0.27	4.3	102	828	**Yes**	12.32%	No		KAFB-106079	5-Feb-13	GW0968	483.92	503.92
	108-10-1	**4-METHYL-2-PENTANONE**	100	199	100	1.51	458	ug/L	1.51	458	29	828	**Yes**	**3.50%**	Yes	Yes	KAFB-106161	16-Jan-13	GW1006	490	525
	108-67-8	**1,3,5-TRIMETHYLBENZENE**	8.7	--	8.7	0.26	130	ug/L	0.26	130	121	828	**Yes**	14.61%	No		KAFB-106010	1-Nov-12	GW0762	483	508
	108-88-3	**TOLUENE**	86	228	86	0.253	19000	ug/L	0.253	19000	137	828	**Yes**	16.55%	No		KAFB-106014	6-Sep-11	GW0144	486	511
	108-90-7	CHLOROBENZENE	7.2	9.13	7.2	1.2	3.2	ug/L	1.2	3.2	5	828	No	**0.60%**	No		KAFB-106065	9-May-13	GW1088		
	124-48-1	DIBROMOCHLOROMETHANE	1.5	1.47	1.47	2.63	2.63	ug/L	2.63	2.63	1	828	**Yes**	**0.12%**	- [i]	No	KAFB-106095	16-Aug-11	GW0231	503.75	518.75
	127-18-4	TETRACHLOROETHENE	3.5	1.08	1.08	0.26	0.59	ug/L	0.26	0.59	29	828	No	**3.50%**	No		KAFB-106063	10-Feb-12	GW0442	505	520
	1330-20-7	**XYLENES**	19	20.3	19	0.752	4380	ug/L	0.752	4380	90	724	**Yes**	12.43%	No		KAFB-106014	5-Nov-12	GW0765	486	511
	135-98-8	SEC-BUTYLBENZENE	160	--	160	0.258	15.2	ug/L	0.258	15.2	72	828	No	8.70%	No		KAFB-106014	21-Nov-11	GW0268	486	511
	136777-61-2	**M,P-XYLENES**	19	20.3	19	0.614	3750	ug/L	0.614	3750	14	104	**Yes**	13.46%	No		KAFB-106014	6-Sep-11	GW0144	486	511
	1634-04-4	METHYL TERT-BUTYL ETHER	120	125	120	0.273	1.15	ug/L	0.273	1.15	9	828	No	**1.09%**	No		KAFB-106095	19-Oct-11	GW0356	503.75	518.75
	591-78-6	**2-HEXANONE**	3.4	--	3.4	37.2	626	ug/L	37.2	626	17	828	**Yes**	**2.05%**	Yes	Yes	KAFB-106161	16-Jan-13	GW1006	490	525

Appendix A-2b Table 1

Initial Screen of Chemicals in Groundwater, Subset of Monitoring Wells[a] , KAFB BFF

GROUP	CASNO	PARAMETER [b]	Tapwater RSL Nov 2013 THQ = 0.1 and TR = 1.0E-05 (ug/L) [c]	NM Screening Value (ug/L) [d]	Selected Screening Value (ug/L) [e]	MINHIT	MAXHIT	UNITS	Min Hit (ug/L)	Max Hit (ug/L)	NO_HITS	NUMBER SAMPLES	Exceeds Screening Value (Yes/No)	Percent Detected	Spatial Analysis Needed (Yes/No) [f]	Low FOD COPC Not Spatially Isolated and Retained [g]	LOCATION of Max Hit	SDATE	SAMPLE_NO	START [h]	END [h]
	67-64-1	**ACETONE**	1200	2180	1200	2.51	26300	ug/L	2.51	26300	163	828	**Yes**	19.69%	No		KAFB-106161	16-Jan-13	GW1006	490	525
	67-66-3	CHLOROFORM	1.9	1.93	1.9	0.27	13.4	ug/L	0.27	13.4	9	828	**Yes**	**1.09%**	Yes	No	KAFB-106014	21-Nov-11	GW0268	486	511
	71-43-2	**BENZENE**	2.9	4.13	2.9	0.253	13400	ug/L	0.253	13400	147	828	**Yes**	17.75%	No		KAFB-106079	8-May-12	GW0586	483.92	503.92
	74-87-3	CHLOROMETHANE	19	18.8	18.8	0.257	0.677	ug/L	0.257	0.677	20	828	No	**2.42%**	No		KAFB-106100	9-Nov-11	GW0364	526	541
	75-09-2	METHYLENE CHLORIDE	8.4	18.6	8.4	3.6	17.1	ug/L	3.6	17.1	2	828	**Yes**	**0.24%**	Yes	No	KAFB-106094	4-Oct-12	GW0851	484.2	504.2
	75-15-0	**CARBON DISULFIDE**	72	104	72	0.32	448	ug/L	0.32	448	26	828	**Yes**	**3.14%**	Yes	Yes	KAFB-106079	1-Aug-12	GW0710	483.92	503.92
	75-27-4	BROMODICHLOROMETHANE	1.2	1.17	1.17	1.01	6.63	ug/L	1.01	6.63	4	828	**Yes**	**0.48%**	Yes	No	KAFB-106091	4-Aug-11	GW0226	454	474
	75-34-3	1,1-DICHLOROETHANE	24	24.2	24	0.26	0.56	ug/L	0.26	0.56	16	828	No	**1.93%**	No		KAFB-106063	25-Jul-12	GW0692	505	520
	75-71-8	DICHLORODIFLUOROMETHANE	19	20.3	19	0.52	1.53	ug/L	0.52	1.53	41	828	No	**4.95%**	No		KAFB-106063	25-Jul-12	GW0692	505	520
	78-93-3	**2-BUTANONE**	490	706	490	2.62	9390	ug/L	2.62	9390	26	828	**Yes**	**3.14%**	Yes	Yes	KAFB-106161	16-Jan-13	GW1006	490	525
	79-01-6	TRICHLOROETHENE	0.26	0.34	0.26	0.27	0.65	ug/L	0.27	0.65	39	828	**Yes**	**4.71%**	Yes	No	KAFB-106063	9-Nov-11	GW0319	505	520
	79-34-5	1,1,2,2-TETRACHLOROETHANE	0.66	0.671	0.66	0.259	0.747	ug/L	0.259	0.747	3	828	**Yes**	**0.36%**	Yes	No	KAFB-106067	12-Jul-11	GW0199	485	505
	87-68-3	HEXACHLOROBUTADIENE	0.47	8.62	0.47	0.666	0.666	ug/L	0.666	0.666	1	828	**Yes**	**0.12%**	- [i]	No	KAFB-106017	7-Jul-11	GW0147	482	507
	91-20-3	**NAPHTHALENE**	0.61	1.43	0.61	0.32	233	ug/L	0.32	233	78	828	**Yes**	9.42%	No		KAFB-106079	21-Feb-12	GW0462	483.92	503.92
	95-47-6	**O-XYLENE**	19	20.3	19	0.266	1590	ug/L	0.266	1590	11	104	**Yes**	10.58%	No		KAFB-106014	6-Sep-11	GW0144	486	511
	95-63-6	**1,2,4-TRIMETHYLBENZENE**	1.5	--	1.5	0.26	429	ug/L	0.26	429	102	828	**Yes**	12.32%	No		KAFB-106010	1-Nov-12	GW0762	483	508
	98-06-6	TERT-BUTYLBENZENE	51	--	51	0.417	3.94	ug/L	0.417	3.94	4	828	No	**0.48%**	No		KAFB-106082	13-Oct-11	GW0341	472	492
	98-82-8	**ISOPROPYLBENZENE**	39	67.9	39	0.26	135	ug/L	0.26	135	222	828	**Yes**	26.81%	No		KAFB-106010	1-Nov-12	GW0762	483	508
	99-87-6	**P-ISOPROPYLTOLUENE**	--	--	NSV	0.278	211	ug/L	0.278	211	68	828	**Yes - NSV**	8.21%	No		KAFB-106010	1-Nov-12	GW0762	483	508

Footnotes

[a] A subset of BFF monitoring wells has been used for the HHRA, excluding wells with documented NAPL (as these wells would not be used for drinking water) and excluding clean perimeter wells (see text for discussion).

[b] Parameters listed include those detected at least once in eight quarters of monitoring (GW03 - GW10; July 2011-May 2013).

[c] Residential Tapwater Regional Screening Level (RSL) from EPA, Fall, 2013, for lower of (1) target cancer risk (TCR) of 1E-5 and (2) target hazard quotient (THQ) of 0.1.

[d] Lower of (1) New Mexico Environment Department (2012) tapwater screening value (from Appendix A-1), TCR of 1E-5 and THQ of 0.1; and (2) New Mexico Administrative Code 20.6.2 (Environmental Protection, Water Quality, Groundwater and Surface Water Protection, Human Health Standards).

[e] Selected Screening Value is lower of EPA RSLs and NM screening values.

[f] A spatial analysis was performed for those chemicals detected in less than 5 percent of the samples and exceeding a screening value, to see if any spatial hotspots exist (see Appendix A-2c for plots).

[g] A COPC with a low FOD (<5 percent) was retained for the HHRA if the wells in which it was detected were located in close proximity to one another, and not spatially isolated. If the hits were found to be spatially isolated, the low FOD COPC was not retained.

[h] Start and End depths (in feet) indicate monitoring well screen interval, for well with maximum detected concentration.

[i] Dibromochloromethane and hexachlorobutadiene had only one detection, and thus are deemed spatially isolated.

For essential nutrients (Mg, K, Na, Ca), recommended daily allowances (RDAs) were used to derive screening values (see text).

Parameters in **bold font** are those selected as COPCs for the HHRA.

Appendix A-2b Table 3
Occurrence, Distribution and Selection of Chemicals of Potential Concern
Site Name: Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Medium: Soil Gas
Exposure Medium: Soil Gas

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Molecular Weight	Concentration Used for Screening (1) (ug/m^3)	Background Value (2)	Screening Toxicity Value (3) (ug/m^3)	Screening Toxicity Value Basis (N/C)	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Soil Gas	TPH1	C5-C8 Aliphatic Hydrocarbons	500	170000000	ug/m3	VA1988	2309/2316	240-24,000	NA	170,000,000	N/A	630	HQ=0.1 (N)	Y	ASL
	TPH2	C9-C12 Aliphatic Hydrocarbons	220J	3200000J	ug/m3	VA2641	865/2316	100-15,000,000	NA	3,200,000	N/A	54	1E-5 (C)	Y	ASL
	TPH3	C9-C10 Aromatic Hydrocarbons	88J	290000J	ug/m3	VA695	88/2316	130-11,000,000	NA	290,000	N/A	3.1	HQ=0.1 (N)	Y	ASL
	79-34-5	1,1,2,2-Tetrachloroethane	6.9J-	43	ppbv	VA1594	3/2322	0.42-80,000	167.85	295	N/A	4.2	1E-5 (C)	Y	ASL
	75-35-4	1,1-Dichloroethene	1.9J-	5.6J-	ppbv	VA0427	2/2322	0.19-80,000	96.94	22	N/A	210	HQ=0.1 (N)	N	BSL
	95-63-6	1,2,4-Trimethylbenzene	2.1J-	56000	ppbv	VA0838	257/2322	0.49-80,000	120.19	275,282	N/A	7.3	HQ=0.1 (N)	Y	ASL
	106-93-4	1,2-Dibromoethane	1.4J-	1800J+	ppbv	VA1986	18/2322	0.37-80,000	187.86	13,830	N/A	0.41	1E-5 (C)	Y	ASL
	108-67-8	1,3,5-Trimethylbenzene	1.4J-	23000	ppbv	VA0838	115/2322	0.48-80,000	120.19	113,062	N/A	7.3	HQ=0.1 (N)	Y	ASL
	106-99-0	1,3-Butadiene	2.5U	72000	ppbv	VA9089	30/2320	0.30-80,000	54.09	159,283	N/A	2.1	HQ=0.1 (N)	Y	ASL
	78-93-3	2-Butanone	3.5	610000	ppbv	VA1991	318/2322	0.57-40,000	72.11	1,799,063	N/A	5,200	HQ=0.1 (N)	Y	ASL
	591-78-6	2-Hexanone	3.225J-	3600J+	ppbv	VA1986	26/2322	0.27-80,000	100.16	14,747	N/A	31	HQ=0.1 (N)	Y	ASL
	108-10-1	4-Methyl-2-pentanone	2.6J-	4500J+	ppbv	VA1986	17/2322	0.31-80,000	100.16	18,434	N/A	3,100	HQ=0.1 (N)	Y	ASL
	67-64-1	Acetone	6.4J-	2900000	ppbv	VA1991	944/2321	0.86-40,000	58.08	6,888,834	N/A	32,000	HQ=0.1 (N)	Y	ASL
	71-43-2	Benzene	1.4	1400000	ppbv	VA1359	2059/2321	0.25-4,000	78.11	4,472,556	N/A	31	1E-5 (C)	Y	ASL
	75-27-4	Bromodichloromethane	7.2	8200	ppbv	VA0696-FQ	19/2322	0.31-80,000	163.83	54,945	N/A	6.6	1E-5 (C)	Y	ASL
	74-83-9	Bromomethane	1.2UJ	1.2J	ppbv	VA0426	1/2322	0.15-80,000	94.94	4.7	N/A	5.2	HQ=0.1 (N)	N	BSL
	75-15-0	Carbon disulfide	0.835J-	72	ppbv	VA1259	28/2321	0.19-80,000	76.13	224	N/A	730	HQ=0.1 (N)	N	BSL
	56-23-5	Carbon tetrachloride	3J-	400J	ppbv	VA479	69/2321	0.23-80,000	153.82	2,516	N/A	41	1E-5 (C)	Y	ASL
	67-66-3	Chloroform	1.4J-	1400J-	ppbv	VA0561	79/2321	0.25-80,000	119.38	6,836	N/A	11	1E-5 (C)	Y	ASL
	74-87-3	Chloromethane	3.4J-	820	ppbv	VA1254	10/2321	0.21-80,000	50.49	1,693	N/A	94	HQ=0.1 (N)	Y	ASL
	110-82-7	Cyclohexane	5.4J	5100000J-	ppbv	VA1991	2105/2320	1.4-5,500	84.16	17,554,847	N/A	1,000	HQ=0.1 (N)	Y	ASL
	124-48-1	Dibromochloromethane	23	23	ppbv	VA0549	1/2321	0.33-80,000	208.28	196	N/A	9.0	1E-5 (C)	Y	ASL
	75-71-8	Dichlorodifluoromethane	270J-	310J-	ppbv	VA0566	2/2321	0.17-80,000	120.91	1,533	N/A	100	HQ=0.1 (N)	Y	ASL
	141-78-6	Ethyl acetate	5.825	2400J-	ppbv	VA9042	5/2321	0.31-80,000	88.11	8,649	N/A	73	HQ=0.1 (N)	Y	ASL
	100-41-4	Ethylbenzene	2.1J	60000J	ppbv	VA1361	894/2321	1.5-160,000	106.17	260,540	N/A	97	1E-5 (C)	Y	ASL
	76-13-1	Freon 113	1.9J-	230	ppbv	VA2237	43/2321	0.22-80,000	187.38	1,763	N/A	31,000	HQ=0.1 (N)	N	BSL
	NA	m&p-Xylenes	4.075J	150000	ppbv	VA0838	1645/2321	1.0-160,000	106.17	651,350	N/A	100	HQ=0.1 (N)	Y	ASL
	75-09-2	Methylene chloride	1.4J-	530000	ppbv	VA1477	498/2320	1.2-640,000	84.93	1,841,018	N/A	630	HQ=0.1 (N)	Y	ASL
	91-20-3	Naphthalene	2.1	2.1	ppbv	VA2685	1/2322	0.49-80,000	128.18	11	N/A	3.1	HQ=0.1 (N)	Y	ASL
	142-82-5	n-Heptane	2.6	3500000	ppbv	VA1991	1949/2320	0.50-10,000	100.21	14,344,990	N/A	NA	NA	N	NTX
	110-54-3	n-Hexane	4.55J	5300000	ppbv	VA1359	2016/2320	1.4-14,000	86.18	18,681,145	N/A	730	HQ=0.1 (N)	Y	ASL
	95-47-6	o-Xylene	2	52000	ppbv	VA0838	784/2322	0.52-80,000	106.17	225,801	N/A	100	HQ=0.1 (N)	Y	ASL
	115-07-1	Propene	2.175	630000	ppbv	VA9075	409/2322	0.15-80,000	42.08	1,084,270	N/A	3,100	HQ=0.1 (N)	Y	ASL
	100-42-5	Styrene	1.2U	95	ppbv	VA9068	5/2322	0.53-80,000	104.15	405	N/A	1,000	HQ=0.1 (N)	N	BSL
	127-18-4	Tetrachloroethene	1.5UJ	66J-	ppbv	VA9042	5/2322	0.30-80,000	165.83	448	N/A	42	HQ=0.1 (N)	Y	ASL
	109-99-9	Tetrahydrofuran	1.3J-	39000	ppbv	VA0800	18/2322	0.40-80,000	72.11	115,022	N/A	2,100	HQ=0.1 (N)	Y	ASL
	108-88-3	Toluene	12	2000000	ppbv	VA1991	2152/2321	0.32-3,200	92.14	7,537,014	N/A	5,200	HQ=0.1 (N)	Y	ASL
	156-60-5	trans-1,2-Dichloroethene	440	440	ppbv	VA2312	1/2322	0.23-80,000	96.94	1,745	N/A	63	HQ=0.1 (N)	Y	ASL
	79-01-6	Trichloroethene	1.3J-	430	ppbv	VA2503	23/2322	0.24-80,000	131.39	2,311	N/A	2.1	HQ=0.1 (N)	Y	ASL
	75-69-4	Trichlorofluoromethane	1.2U	130J-	ppbv	VA0566	4/2322	0.30-80,000	137.37	730	N/A	730	HQ=0.1 (N)	N	BSL
	1330-20-7	Xylenes (total)	4.1J	210000	ppbv	VA0838	1644/2322	1.6-240,000	106.17	911,890	N/A	100	HQ=0.1 (N)	Y	ASL

Appendix A-2b Table 3
Occurrence, Distribution and Selection of Chemicals of Potential Concern
Site Name: Bulk Fuels Facility, Kirtland Air Force Base

Scenario Timeframe: Current/Future
Medium: Soil Gas
Exposure Medium: Soil Gas

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Molecular Weight	Concentration Used for Screening (1) (ug/m^3)	Background Value (2)	Screening Toxicity Value (3) (ug/m^3)	Screening Toxicity Value Basis (N/C)	COPC Flag (Y/N)	Rationale for Selection or Deletion (4)
Soil Gas	71-55-6	1,1,1-Trichloroethane			ppbv		0/2322	0.21-80,000			N/A			N	ND
	79-00-5	1,1,2-Trichloroethane			ppbv		0/2322	0.40-80,000			N/A			N	ND
	75-34-3	1,1-Dichloroethane			ppbv		0/2322	0.22-80,000			N/A			N	ND
	120-82-1	1,2,4-Trichlorobenzene			ppbv		0/2322	0.54-80,000			N/A			N	ND
	95-50-1	1,2-Dichlorobenzene			ppbv		0/2322	0.42-80,000			N/A			N	ND
	107-06-2	1,2-Dichloroethane			ppbv		0/2322	0.39-80,000			N/A			N	ND
	78-87-5	1,2-Dichloropropane			ppbv		0/2322	0.45-80,000			N/A			N	ND
	541-73-1	1,3-Dichlorobenzene			ppbv		0/2322	0.40-80,000			N/A			N	ND
	106-46-7	1,4-Dichlorobenzene			ppbv		0/2322	0.39-80,000			N/A			N	ND
	100-44-7	Benzyl chloride			ppbv		0/2322	0.31-80,000			N/A			N	ND
	108-90-7	Chlorobenzene			ppbv		0/2321	0.55-80,000			N/A			N	ND
	75-00-3	Chloroethane			ppbv		0/2321	0.13-80,000			N/A			N	ND
	156-59-2	cis-1,2-Dichloroethene			ppbv		0/2321	0.21-80,000			N/A			N	ND
	10061-01-5	cis-1,3-Dichloro-1-propene			ppbv		0/2321	0.33-80,000			N/A			N	ND
	87-68-3	Hexachlorobutadiene			ppbv		0/2321	0.75-80,000			N/A			N	ND
	1634-04-4	Methyl tert-butyl ether			ppbv		0/2321	0.46-80,000			N/A			N	ND
	10061-02-6	trans-1,3-Dichloropropene			ppbv		0/2322	0.34-80,000			N/A			N	ND
	75-25-2	Tribromomethane			ppbv		0/2322	0.39-80,000			N/A			N	ND
	108-05-4	Vinyl acetate			ppbv		0/2322	0.53-80,000			N/A			N	ND
	75-01-4	Vinyl Chloride			ppbv		0/2322	0.14-80,000			N/A			N	ND

(1) Maximum concentration used for screening. Maximum detection converted from parts per billion by volume (ppbv) to ug/m^3 by multiplying by molecular weight and dividing by 24.45 (MWt values from EPA's EpiSuite version 4.1.1).

(2) N/A - Refer to supporting information for background discussion.

(3) Screening toxicity values from Residential Indoor Air Regional Screening Level (RSL) from EPA, Fall, 2013, fo
(1) target cancer risk (TCR) of 1E-5 and (2) target hazard quotient (THQ) of 0.1.
Indoor air RSL divided by an attenuation factor of 0.1 (to account for potential migration of soil gas to indoor air).

(4) Rationale Codes Selection Reason:
Toxicity Information Available (TX)
Above Screening Levels (ASL)
Deletion Reason:
Background Levels (BKG)
No Toxicity Information (NTX)
Below or equal to Screening Level (BSL)
Non-detect (ND)

Definitions:
N/A = Not Applicable or Not Available
COPC = Chemical of Potential Concern
J = Estimated Value
C = Carcinogenic
N = Non-Carcinogenic

Appendix A-2b Table 4
Results of Vapor Intrusion Modeling Using Maximum Soil Gas Results
Site Name: Bulk Fuels Facility, Kirtland Air Force Base

CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration (Sample ID)	Detection Frequency	Range of Detection Limits	Molecular Weight	Concentration Used for JEM (1) (ug/m^3)	Location of Maximum Concentration	Sample Date	START (ft)	END (ft)	Average Start Depth of Sample (ft)	JEM Model Results (2) Risk	JEM Model Results (2) Hazard
106-99-0	1,3-Butadiene	2.5	72000	ppbv	VA9089	30/2320	0.30-80,000	54.09	159,283	KAFB106149-IN	19-Dec-12	Soil gas results from influent SVE samples (IN) and effluent SVE treatment samples (POST) not used in risk assessment, as they are not representative of baseline conditions. See results below for these four VOCs.				
141-78-6	Ethyl acetate	5.825	2400J-	ppbv	VA9042	5/2321	0.31-80,000	88.11	8,649	KAFB1068-POSTC2	18-Jul-11					
115-07-1	Propene	2.175	630000	ppbv	VA9075	409/2322	0.15-80,000	42.08	1,084,270	KAFB106149-POSTC1	20-Sep-12					
127-18-4	Tetrachloroethene	1.5J	66J-	ppbv	VA9042	5/2322	0.30-80,000	165.83	448	KAFB1068-POSTC2	18-Jul-11					
95-63-6	1,2,4-Trimethylbenzene	2.1J-	56000	ppbv	VA0838	257/2322	0.49-80,000	120.19	275,282	KAFB-106118-025	10-Nov-11	15	25		NA	18
108-67-8	1,3,5-Trimethylbenzene	1.4J-	23000	ppbv	VA0838	115/2322	0.48-80,000	120.19	113,062	KAFB-106118-025	10-Nov-11	15	25		NA	NA
67-66-3	Chloroform	1.4J-	1400J-	ppbv	VA0561	79/2321	0.25-80,000	119.38	6,836	KAFB-106124-025	19-Jul-11	15	25		4.7E-05	0.048
124-48-1	Dibromochloromethane	23	23	ppbv	VA0549	1/2321	0.33-80,000	208.28	196	KAFB-106122-025	11-Jul-11	15	25	15	3.9E-07	NA
NA	m&p-Xylenes	4.075J	150000	ppbv	VA0838	1645/2321	1.0-160,000	106.17	651,350	KAFB-106118-025	10-Nov-11	15	25		NA	3.6
95-47-6	o-Xylene	2	52000	ppbv	VA0838	784/2322	0.52-80,000	106.17	225,801	KAFB-106118-025	10-Nov-11	15	25		NA	1.4
1330-20-7	Xylenes (total)	4.1J	210000	ppbv	VA0838	1644/2322	1.6-240,000	106.17	911,890	KAFB-106118-025	10-Nov-11	15	25		NA	4.7
75-27-4	Bromodichloromethane	7.2	8200	ppbv	VA0696-FQ	19/2322	0.31-80,000	163.83	54,945	SVMW-03-050	19-Oct-11	50	52.5	50	6.9E-05	NA
TPH1	C5-C8 Aliphatic Hydrocarbons	500	170000000	ug/m3	VA1988	2309/2316	240-24,000	NA	170,000,000	SVMW-11-100	6-Dec-12	100	102.5		NA	NA
71-43-2	Benzene	1.4	1400000	ppbv	VA1359	2059/2321	0.25-4,000	78.11	4,472,556	SVMW-11-100	30-May-12	100	102.5	100	1.7E-03	17.1
110-54-3	n-Hexane	4.55J	5300000	ppbv	VA1359	2016/2320	1.4-14,000	86.18	18,681,145	SVMW-11-100	30-May-12	100	102.5		NA	6.6
TPH3	C9-C10 Aromatic Hydrocarbons	88J	290000J	ug/m3	VA0695	88/2316	130-11,000,000	NA	290,000	SVMW-02-150	23-Aug-11	150	152.5	155	NA	NA
127-18-4	Tetrachloroethene	-	45	ppbv	VA2823	3/2257	-	165.83	305	KAFB-106133-170	5-Jun-13	160	170		2.1E-09	0.00047
74-87-3	Chloromethane	3.4J-	820	ppbv	VA1254	10/2321	0.21-80,000	50.49	1,693	KAFB-106133-250	16-Jan-12	240	250		5.0E-08	0.0013
91-20-3	Naphthalene	2.1	2.1	ppbv	VA2685	1/2322	0.49-80,000	128.18	11	KAFB-106112-250	17-Jun-13	240	250		5.2E-09	0.00012
109-99-9	Tetrahydrofuran	1.3J-	39000	ppbv	VA0800	18/2322	0.40-80,000	72.11	115,022	KAFB-106112-250	9-Nov-11	240	250		NA	0.0030
79-01-6	Trichloroethene	1.3J-	430	ppbv	VA2503	23/2322	0.24-80,000	131.39	2,311	KAFB-106132-250	20-Feb-13	240	250		8.6E-08	0.00017
56-23-5	Carbon tetrachloride	3J-	400J	ppbv	VA479	69/2321	0.23-80,000	153.82	2,516	KAFB-106111-250	6-Sep-11	240.27	250.27	245	1.9E-06	0.0027
TPH2	C9-C12 Aliphatic Hydrocarbons	220J	3200000J	ug/m3	VA2641	865/2316	100-15,000,000	NA	3,200,000	SVEW-01-260	19-Jun-13	245	260		NA	NA
106-93-4	1,2-Dibromoethane	1.4J-	1800J+	ppbv	VA1986	18/2322	0.37-80,000	187.86	13,830	SVMW-10-250	26-Nov-12	250	252.5		5.1E-06	0.21
591-78-6	2-Hexanone	3.225J-	3600J+	ppbv	VA1986	26/2322	0.27-80,000	100.16	14,747	SVMW-10-250	26-Nov-12	250	252.5		NA	0.019
108-10-1	4-Methyl-2-pentanone	2.6J-	4500J+	ppbv	VA1986	17/2322	0.31-80,000	100.16	18,434	SVMW-10-250	26-Nov-12	250	252.5		NA	0.0095
115-07-1	Propene	-	68000	ppbv	VA0393	404/2257	-	42.08	117,032	SVMW-06-252	22-Sep-11	252.5	254.5		NA	0.0023
78-93-3	2-Butanone	3.5	610000	ppbv	VA1991	318/2322	0.57-40,000	72.11	1,799,063	SVMW-11-260	6-Dec-12	260	262.5		NA	0.015
67-64-1	Acetone	6.4J-	2900000	ppbv	VA1991	944/2321	0.86-40,000	58.08	6,888,834	SVMW-11-260	6-Dec-12	260	262.5		NA	1.3
110-82-7	Cyclohexane	5.4J	5100000J-	ppbv	VA1991	2105/2320	1.4-5,500	84.16	17,554,847	SVMW-11-260	6-Dec-12	260	262.5	260	NA	0.12
100-41-4	Ethylbenzene	2.1J	60000J	ppbv	VA1361	894/2321	1.5-160,000	106.17	260,540	SVMW-11-260	30-May-12	260	262.5		NA	0.010
108-88-3	Toluene	12	2000000	ppbv	VA1991	2152/2321	0.32-3,200	92.14	7,537,014	SVMW-11-260	6-Dec-12	260	262.5		NA	0.068
106-99-0	1,3-Butadiene	-	230	ppbv	VA0815	7/2257	-	54.09	509	KAFB-106114-350	31-Oct-11	340	350		6.2E-07	0.024
79-34-5	1,1,2,2-Tetrachloroethane	6.9J-	43	ppbv	VA1594	3/2322	0.42-80,000	167.85	295	KAFB-106137-350	16-May-12	340.5	350.5	343.5	2.1E-07	NA
156-60-5	trans-1,2-Dichloroethene	440	440	ppbv	VA2312	1/2322	0.23-80,000	96.94	1,745	SVMW-13-350	20-Feb-13	350	352.5		NA	0.00081
75-71-8	Dichlorodifluoromethane	270J-	310J-	ppbv	VA0566	2/2321	0.17-80,000	120.91	1,533	KAFB-106124-450	20-Jul-11	440	450		NA	0.00031
75-09-2	Methylene chloride	1.4J-	530000	ppbv	VA1477	498/2320	1.2-640,000	84.93	1,841,018	KAFB-106119-450	13-Jun-12	440	450	443.3	2.4E-07	0.094
141-78-6	Ethyl acetate	-	610J-	ppbv	VA0420	4/2257	-	88.11	2,198	SVMW-12-450	19-Jul-11	450	452.5		NA	0.00070

(1) Maximum concentration used for modeling, except as noted. Maximum detection converted from parts per billion by volume (ppbv) to ug/m^3 by multiplying by molecular weight and dividing by 24.45 (MWt values from EPA's EpiSuite version 4.1.1).

(2) JEM results based on maximum detected concentration and site-specific sample depth, for conservative default residential exposure scenario (JEM input and output data in Appendix A-9).

Appendix A-2b Table 5
List of Soil Gas Sample Numbers Associated with COPCs

Sample Number [a]	Location Code	Start Depth (ft)	End Depth (ft)	Sample Date	ROUND	Purpose	Soil Gas COPCs [b]
VA0523	KAFB-106118-025	15	25	24-Aug-11	SG03	REG	1,2,4-TMB; Total xylenes
VA0838	KAFB-106118-025	15	25	10-Nov-11	SG04	REG	1,2,4-TMB; Total xylenes
VA1151	KAFB-106118-025	15	25	20-Mar-12	SG05	REG	1,2,4-TMB; Total xylenes
VA1465	KAFB-106118-025	15	25	4-Jun-12	SG06	REG	1,2,4-TMB; Total xylenes
VA1780	KAFB-106118-025	15	25	6-Sep-12	SG07	REG	1,2,4-TMB; Total xylenes
VA2094	KAFB-106118-025	15	25	11-Dec-12	SG08	REG	1,2,4-TMB; Total xylenes
VA2408	KAFB-106118-025	15	25	18-Feb-13	SG09	REG	1,2,4-TMB; Total xylenes
VA2722	KAFB-106118-025	15	25	5-Jun-13	SG10	REG	1,2,4-TMB; Total xylenes
VA0561	KAFB-106124-025	15	25	19-Jul-11	SG03	REG	chloroform
VA0877	KAFB-106124-025	15	25	5-Dec-11	SG04	REG	chloroform
VA1190	KAFB-106124-025	15	25	17-Jan-12	SG05	REG	chloroform
VA1504	KAFB-106124-025	15	25	31-May-12	SG06	REG	chloroform
VA1819	KAFB-106124-025	15	25	15-Aug-12	SG07	REG	chloroform
VA1820	KAFB-106124-025	15	25	15-Aug-12	SG07	FD	chloroform
VA2133	KAFB-106124-025	15	25	3-Dec-12	SG08	REG	chloroform
VA2447	KAFB-106124-025	15	25	7-Mar-13	SG09	REG	chloroform
VA2761	KAFB-106124-025	15	25	28-May-13	SG10	REG	chloroform
VA0549	KAFB-106122-025	15	25	11-Jul-11	SG03	REG	dibromochloromethane
VA0864	KAFB-106122-025	15	25	18-Oct-11	SG04	REG	dibromochloromethane
VA1177	KAFB-106122-025	15	25	10-Jan-12	SG05	REG	dibromochloromethane
VA1491	KAFB-106122-025	15	25	12-Jun-12	SG06	REG	dibromochloromethane
VA1806	KAFB-106122-025	15	25	4-Sep-12	SG07	REG	dibromochloromethane
VA2120	KAFB-106122-025	15	25	28-Nov-12	SG08	REG	dibromochloromethane
VA2434	KAFB-106122-025	15	25	6-Mar-13	SG09	REG	dibromochloromethane
VA2748	KAFB-106122-025	15	25	29-May-13	SG10	REG	dibromochloromethane
VA0696	SVMW-03-050	50	52.5	20-Sep-11	SG03	REG	bromodichloromethane
VA0696-FQ	SVMW-03-050	50	52.5	19-Oct-11	SG04	REG	bromodichloromethane
VA1010	SVMW-03-050	50	52.5	5-Mar-12	SG05	REG	bromodichloromethane
VA1323	SVMW-03-050	50	52.5	17-May-12	SG06	REG	bromodichloromethane
VA1638	SVMW-03-050	50	52.5	14-Aug-12	SG07	REG	bromodichloromethane
VA1953	SVMW-03-050	50	52.5	21-Nov-12	SG08	REG	bromodichloromethane
VA2267	SVMW-03-050	50	52.5	28-Feb-13	SG09	REG	bromodichloromethane
VA2581	SVMW-03-050	50	52.5	13-Jun-13	SG10	REG	bromodichloromethane
VA0413	SVMW-11-100	100	102.5	25-Aug-11	SG03	REG	benzene; n-hexane
VA0730	SVMW-11-100	100	102.5	2-Nov-11	SG04	REG	benzene; n-hexane
VA0731	SVMW-11-100	100	102.5	2-Nov-11	SG04	FD	benzene; n-hexane
VA1045	SVMW-11-100	100	102.5	22-Mar-12	SG05	REG	benzene; n-hexane
VA1359	SVMW-11-100	100	102.5	30-May-12	SG06	REG	benzene; n-hexane
VA1673	SVMW-11-100	100	102.5	29-Aug-12	SG07	REG	benzene; n-hexane
VA1988	SVMW-11-100	100	102.5	6-Dec-12	SG08	REG	benzene; n-hexane
VA2302	SVMW-11-100	100	102.5	27-Feb-13	SG09	REG	benzene; n-hexane
VA2616	SVMW-11-100	100	102.5	6-Jun-13	SG10	REG	benzene; n-hexane
VA0416	SVMW-11-260	260	262.5	26-Aug-11	SG03	REG	acetone, cyclohexane
VA0733	SVMW-11-260	260	262.5	2-Nov-11	SG04	REG	acetone, cyclohexane
VA1047	SVMW-11-260	260	262.5	22-Mar-12	SG05	REG	acetone, cyclohexane
VA1361	SVMW-11-260	260	262.5	30-May-12	SG06	REG	acetone, cyclohexane
VA1676	SVMW-11-260	260	262.5	29-Aug-12	SG07	REG	acetone, cyclohexane
VA1991	SVMW-11-260	260	262.5	6-Dec-12	SG08	REG	acetone, cyclohexane
VA2305	SVMW-11-260	260	262.5	27-Feb-13	SG09	REG	acetone, cyclohexane
VA2618	SVMW-11-260	260	262.5	6-Jun-13	SG10	REG	acetone, cyclohexane

Appendix A-2b Table 5
List of Soil Gas Sample Numbers Associated with COPCs

Sample Number [a]	Location Code	Start Depth (ft)	End Depth (ft)	Sample Date	ROUND	Purpose	Soil Gas COPCs [b]
VA0479	KAFB-106111-250	240.3	250.3	6-Sep-11	SG03	REG	carbon tetrachloride
VA0793	KAFB-106111-250	240.3	250.3	15-Nov-11	SG04	REG	carbon tetrachloride
VA1108	KAFB-106111-250	240.3	250.3	15-Mar-12	SG05	REG	carbon tetrachloride
VA1422	KAFB-106111-250	240.3	250.3	13-Jun-12	SG06	REG	carbon tetrachloride
VA1737	KAFB-106111-250	240.3	250.3	11-Sep-12	SG07	REG	carbon tetrachloride
VA2051	KAFB-106111-250	240.3	250.3	11-Dec-12	SG08	REG	carbon tetrachloride
VA2365	KAFB-106111-250	240.3	250.3	4-Mar-13	SG09	REG	carbon tetrachloride
VA2679	KAFB-106111-250	240.3	250.3	17-Jun-13	SG10	REG	carbon tetrachloride
VA0411	SVMW-10-250	250	252.5	27-Sep-11	SG03	REG	1,2-dibromomethane
VA0728	SVMW-10-250	250	252.5	1-Nov-11	SG04	REG	1,2-dibromomethane
VA1043	SVMW-10-250	250	252.5	14-Mar-12	SG05	REG	1,2-dibromomethane
VA1357	SVMW-10-250	250	252.5	13-Jun-12	SG06	REG	1,2-dibromomethane
VA1671	SVMW-10-250	250	252.5	10-Sep-12	SG07	REG	1,2-dibromomethane
VA1986	SVMW-10-250	250	252.5	26-Nov-12	SG08	REG	1,2-dibromomethane
VA2300	SVMW-10-250	250	252.5	28-Feb-13	SG09	REG	1,2-dibromomethane
VA2614	SVMW-10-250	250	252.5	4-Jun-13	SG10	REG	1,2-dibromomethane
VA0500	KAFB-106114-350	340	350	5-Aug-11	SG03	REG	1,3-butadiene
VA0501	KAFB-106114-350	340	350	5-Aug-11	SG03	FD	1,3-butadiene
VA0815	KAFB-106114-350	340	350	31-Oct-11	SG04	REG	1,3-butadiene
VA1128	KAFB-106114-350	340	350	20-Mar-12	SG05	REG	1,3-butadiene
VA1129	KAFB-106114-350	340	350	20-Mar-12	SG05	FD	1,3-butadiene
VA1442	KAFB-106114-350	340	350	30-May-12	SG06	REG	1,3-butadiene
VA1758	KAFB-106114-350	340	350	14-Aug-12	SG07	REG	1,3-butadiene
VA2072	KAFB-106114-350	340	350	27-Nov-12	SG08	REG	1,3-butadiene
VA2386	KAFB-106114-350	340	350	21-Mar-13	SG09	REG	1,3-butadiene
VA2700	KAFB-106114-350	340	350	12-Jun-13	SG10	REG	1,3-butadiene
VA0651	KAFB-106137-350	340.5	350.5	29-Jul-11	SG03	REG	1,1,2,2-tetrachloroethane
VA0967	KAFB-106137-350	340.5	350.5	22-Dec-11	SG04	REG	1,1,2,2-tetrachloroethane
VA1281	KAFB-106137-350	340.5	350.5	16-Jan-12	SG05	REG	1,1,2,2-tetrachloroethane
VA1594	KAFB-106137-350	340.5	350.5	16-May-12	SG06	REG	1,1,2,2-tetrachloroethane
VA1909	KAFB-106137-350	340.5	350.5	27-Aug-12	SG07	REG	1,1,2,2-tetrachloroethane
VA2223	KAFB-106137-350	340.5	350.5	4-Dec-12	SG08	REG	1,1,2,2-tetrachloroethane
VA2537	KAFB-106137-350	340.5	350.5	21-Mar-13	SG09	REG	1,1,2,2-tetrachloroethane
VA2851	KAFB-106137-350	340.5	350.5	22-May-13	SG10	REG	1,1,2,2-tetrachloroethane
VA0536	KAFB-106119-450	440	450	19-Sep-11	SG03	REG	methylene chloride
VA0850	KAFB-106119-450	440	450	19-Oct-11	SG04	REG	methylene chloride
VA1163	KAFB-106119-450	440	450	20-Mar-12	SG05	REG	methylene chloride
VA1477	KAFB-106119-450	440	450	13-Jun-12	SG06	REG	methylene chloride
VA1792	KAFB-106119-450	440	450	10-Sep-12	SG07	REG	methylene chloride
VA2106	KAFB-106119-450	440	450	12-Dec-12	SG08	REG	methylene chloride
VA2420	KAFB-106119-450	440	450	26-Feb-13	SG09	REG	methylene chloride
VA2734	KAFB-106119-450	440	450	24-Jun-13	SG10	REG	methylene chloride

[a] Bolded Sample Number represents those with maximum detected COPC concentration.

[b] Soil gas chemicals of potential concern (COPC) are those VOCs with maximum detected concentrations that had estimated indoor air risk ≥ 1E-7 and/or estimated indoor air hazard ≥ 0.1, using depth-specific JEM for future residential exposure scenario.

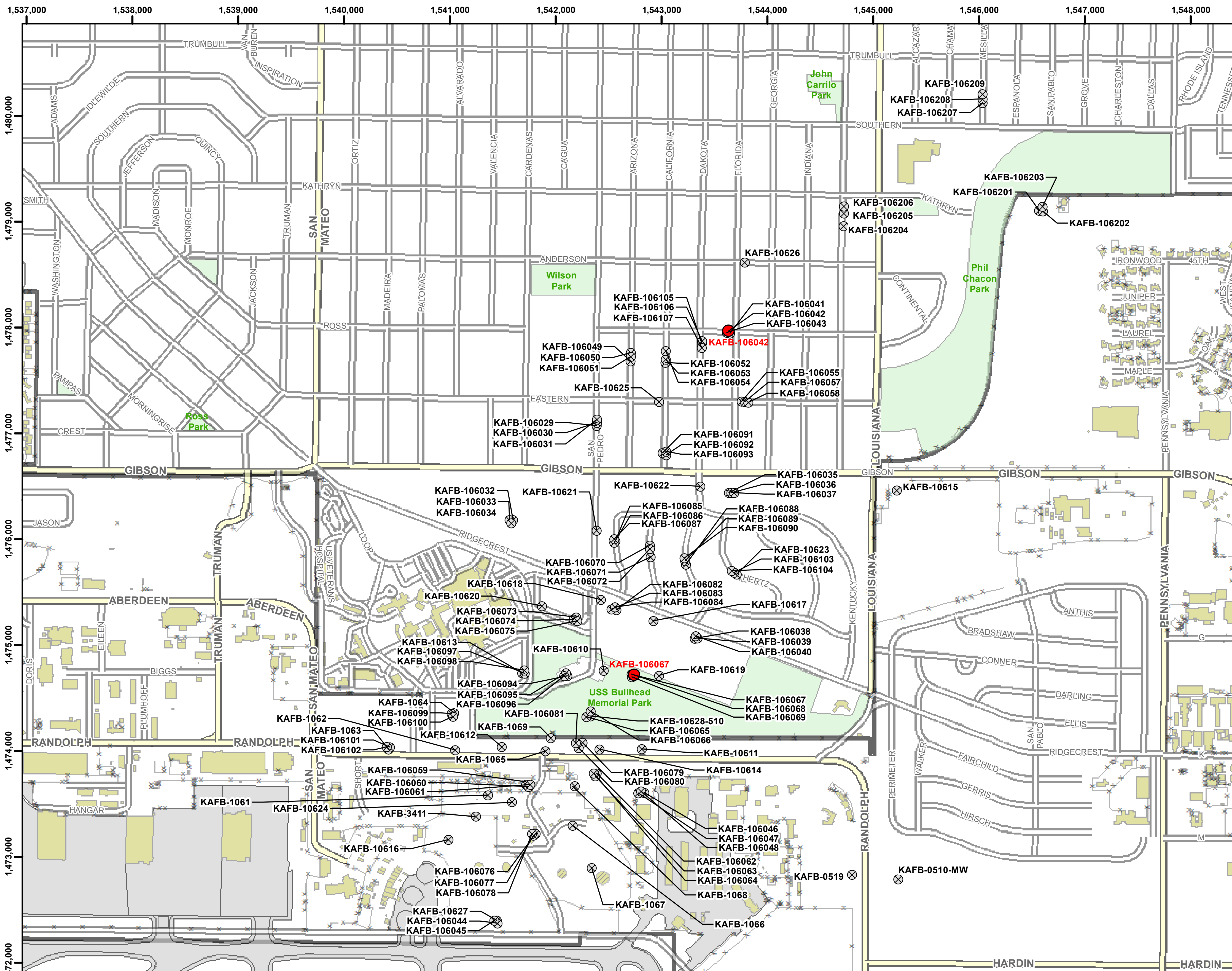
1,2,4-TMB = 1,2,4-trimethylbenzene
REG = regular sample
FD = field duplicate sample

Appendix A-2b Table 2
Initial Screen of Chemicals in Soil Gas, KAFB BFF

PARAMETER [a]	MINHIT	MAXHIT	UNITS	NO_HITS	NUMBER SAMPLES	FOD	LOCATION	SDATE	SAMPLE_NO	START [b]	END [b]	RSL (res air) (ug/m^3) [c]	RSL Basis [d]	Soil Gas Screening Value (ug/m^3) [e]	Molecular weight	MAXHIT (ug/m^3) [f]	Exceeds Screening Value (Yes/No)
C5-C8 ALIPHATIC HYDROCARBONS	500	170,000,000	ug/m^3	2555	2562	99.7%	SVMW-11-100	6-Dec-12	VA1988	100	102.5	63	HQ=0.1	630	NA	170,000,000	Yes
C9-C12 ALIPHATIC HYDROCARBONS	160	3,200,000	ug/m^3	933	2562	36.4%	SVEW-01-260	19-Jun-13	VA2641	245	260	5.4	1E-5 c	54	NA	3,200,000	Yes
C9-C10 AROMATIC HYDROCARBONS	88	290,000	ug/m^3	92	2562	3.6%	SVMW-02-150	23-Aug-11	VA0695	150	152.5	0.31	HQ=0.1	3.1	NA	290,000	Yes
1,1,2,2-TETRACHLOROETHANE	6.9	58	ppbv	3	2567	0.1%	KAFB-106135-250	3-Dec-12	VA2208	240	250	0.42	1E-5 c	4.2	167.85	398	Yes
1,1-DICHLOROETHENE	1.9	6	ppbv	2	2567	0.1%	SVMW-14-250	20-Jul-11	VA0427	250	252.5	21	HQ=0.1	210	96.94	22	No
1,2,4-TRIMETHYLBENZENE	2.1	56,000	ppbv	277	2567	10.8%	KAFB-106118-025	10-Nov-11	VA0838	15	25	0.73	HQ=0.1	7.3	120.19	275,282	Yes
1,2-DIBROMOETHANE	1.4	1,800	ppbv	20	2567	0.8%	SVMW-10-250	26-Nov-12	VA1986	250	252.5	0.041	1E-5 c	0.41	187.86	13,830	Yes
1,3,5-TRIMETHYLBENZENE	1.4	23,000	ppbv	123	2567	4.8%	KAFB-106118-025	10-Nov-11	VA0838	15	25	0.73	HQ=0.1	7.3	120.19	113,062	Yes
ERYTHRENE (1,3-butadiene)	2.5	72,000	ppbv	33	2566	1.3%	KAFB106149-IN	19-Dec-12	VA9089	0	0	0.21	HQ=0.1	2.1	54.09	159,283	Yes
2-BUTANONE	3.5	610,000	ppbv	342	2567	13.3%	SVMW-11-260	6-Dec-12	VA1991	260	262.5	520	HQ=0.1	5200	72.11	1,799,063	Yes
2-HEXANONE	4.2	3,600	ppbv	27	2567	1.1%	SVMW-10-250	26-Nov-12	VA1986	250	252.5	3.1	HQ=0.1	31	100.16	14,747	Yes
4-METHYL-2-PENTANONE	2.6	4,500	ppbv	18	2567	0.7%	SVMW-10-250	26-Nov-12	VA1986	250	252.5	310	HQ=0.1	3100	100.16	18,434	Yes
ACETONE	6.4	2,900,000	ppbv	1019	2566	39.7%	SVMW-11-260	6-Dec-12	VA1991	260	262.5	3200	HQ=0.1	32000	58.08	6,888,834	Yes
BENZENE	2	1,400,000	ppbv	2273	2565	88.6%	SVMW-11-100	30-May-12	VA1359	100	102.5	3.1	1E-5 c	31	78.11	4,472,556	Yes
BROMODICHLOROMETHANE	7.2	8,200	ppbv	19	2567	0.7%	SVMW-03-050	19-Oct-11	VA0696-FQ	50	52.5	0.66	1E-5 c	6.6	163.83	54,945	Yes
BROMOMETHANE	1.2	1	ppbv	1	2567	0.04%	SVMW-14-150	20-Jul-11	VA0426	150	152.5	0.52	HQ=0.1	5.2	94.94	5	No
CARBON DISULFIDE	1.2	72	ppbv	29	2567	1.1%	KAFB-106134-170	16-Jan-12	VA1259	160	170	73	HQ=0.1	730	76.13	224	No
CARBON TETRACHLORIDE	3	400	ppbv	76	2567	3.0%	KAFB-106111-250	6-Sep-11	VA0479	240.27	250.27	4.1	1E-5 c	41	153.82	2,516	Yes
CHLOROFORM	1.4	1,400	ppbv	87	2567	3.4%	KAFB-106124-025	19-Jul-11	VA0561	15	25	1.1	1E-5 c	11	119.38	6,836	Yes
CHLOROMETHANE	3.4	820	ppbv	10	2567	0.4%	KAFB-106133-250	16-Jan-12	VA1254	240	250	9.4	HQ=0.1	94	50.49	1,693	Yes
CYCLOHEXANE	5.4	5,100,000	ppbv	2322	2566	90.5%	SVMW-11-260	6-Dec-12	VA1991	260	262.5	100	HQ=0.1	1000	84.16	17,554,847	Yes
DIBROMOCHLOROMETHANE	23	23	ppbv	1	2567	0.0%	KAFB-106122-025	11-Jul-11	VA0549	15	25	0.9	1E-5 c	9	208.28	196	Yes
DICHLORODIFLUOROMETHANE	270	310	ppbv	2	2567	0.1%	KAFB-106124-450	20-Jul-11	VA0566	440	450	10	HQ=0.1	100	120.91	1,533	Yes
ETHYL ACETATE	9.8	2,400	ppbv	5	2567	0.2%	KAFB1068-POSTC2	18-Jul-11	VA9042	0	0	7.3	HQ=0.1	73	88.11	8,649	Yes
ETHYLBENZENE	2.1	60,000	ppbv	982	2567	38.3%	SVMW-11-260	30-May-12	VA1361	260	262.5	9.7	1E-5 c	97	106.17	260,540	Yes
FREON 113	1.9	230	ppbv	46	2567	1.8%	KAFB-106139-350	10-Dec-12	VA2237	340	350	3100	HQ=0.1	31000	187.38	1,763	No
M,P-XYLENES	4.1	150,000	ppbv	1805	2567	70.3%	KAFB-106118-025	10-Nov-11	VA0838	15	25	10	HQ=0.1	100	106.17	651,350	Yes
METHYLENE CHLORIDE	1.4	530,000	ppbv	525	2566	20.5%	KAFB-106119-450	13-Jun-12	VA1477	440	450	63	HQ=0.1	630	84.93	1,841,018	Yes
NAPHTHALENE	2.1	2	ppbv	1	2567	0.04%	KAFB-106112-250	17-Jun-13	VA2685	240	250	0.31	HQ=0.1	3.1	128.18	11	Yes
HEPTANE	4.7	3,500,000	ppbv	2150	2565	83.8%	SVMW-11-260	6-Dec-12	VA1991	260	262.5	NA		NA	100.21	14,344,990	-
HEXANE	4.3	5,300,000	ppbv	2227	2566	86.8%	SVMW-11-100	30-May-12	VA1359	100	102.5	73	HQ=0.1	730	86.18	18,681,145	Yes
O-XYLENE	2	52,000	ppbv	857	2567	33.4%	KAFB-106118-025	10-Nov-11	VA0838	15	25	10	HQ=0.1	100	106.17	225,801	Yes
PROPYLENE	4.2	630,000	ppbv	441	2567	17.2%	KAFB106149-POSTC	20-Sep-12	VA9075	0	0	310	HQ=0.1	3100	42.08	1,084,270	Yes
STYRENE	1.2	95	ppbv	5	2567	0.2%	KAFB106161-POSTC	14-Jun-12	VA9068	0	0	100	HQ=0.1	1000	104.15	405	No
TETRACHLOROETHENE	1.5	66	ppbv	5	2567	0.2%	KAFB1068-POSTC2	18-Jul-11	VA9042	0	0	4.2	HQ=0.1	42	165.83	448	Yes
THF	1.3	39,000	ppbv	18	2567	0.7%	KAFB-106112-250	9-Nov-11	VA0800	240	250	210	HQ=0.1	2100	72.11	115,022	Yes
TOLUENE	8.6	2,000,000	ppbv	2373	2566	92.5%	SVMW-11-260	6-Dec-12	VA1991	260	262.5	520	HQ=0.1	5200	92.14	7,537,014	Yes
TRANS-1,2-DICHLOROETHENE	440	440	ppbv	1	2567	0.04%	SVMW-13-350	20-Feb-13	VA2312	350	352.5	6.3	HQ=0.1	63	96.94	1,745	Yes
TRICHLOROETHENE	2	430	ppbv	23	2567	0.9%	KAFB-106132-250	20-Feb-13	VA2503	240	250	0.21	HQ=0.1	2.1	131.39	2,311	Yes
TRICHLOROFLUOROMETHANE	1.2	130	ppbv	5	2567	0.2%	KAFB-106124-450	20-Jul-11	VA0566	440	450	73	HQ=0.1	730	137.37	730	No
XYLENES	4.1	210,000	ppbv	1803	2567	70.2%	KAFB-106118-025	10-Nov-11	VA0838	15	25	10	HQ=0.1	100	106.17	911,890	Yes

[a] Parameters listed include those detected at least once in eight quarters of monitoring (SG03- SG10; July 2011-June 2013).
[b] Start and End depths (in feet) indicate soil gas screen interval, for sample with maximum detected concentration.
[c] Residential Indoor Air Regional Screening Level (RSL) from EPA, Fall, 2013, for lower of (1) target cancer risk (TCR) of 1E-5 and (2) target hazard quotient (THQ) of 0.1.
[d] Basis of RSL (see footnote "c"). 1,2,4-trimethyl benzene used as surrogate for 1,3,5-trimethylbenzene.
[e] Indoor air RSL divided by an attenuation factor of 0.1 (to account for potential migration of soil gas to indoor air).
[f] VOC maximum detection converted from parts per billion by volume (ppbv) by multiplying by molecular weight and dividing by 24.45 (MWt values from EPA's EpiSuite version 4.1.1).

Number of hits and number of samples include field duplicates counted as individual samples.
Parameters in **bold font** are those selected as initial COPCs for the HHRA.



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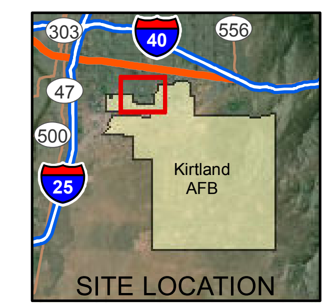
Legend

- Location with 1,1,2,2-Tetrachloroethane
- Monitor Well



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Revision Date: 04/14/14

N

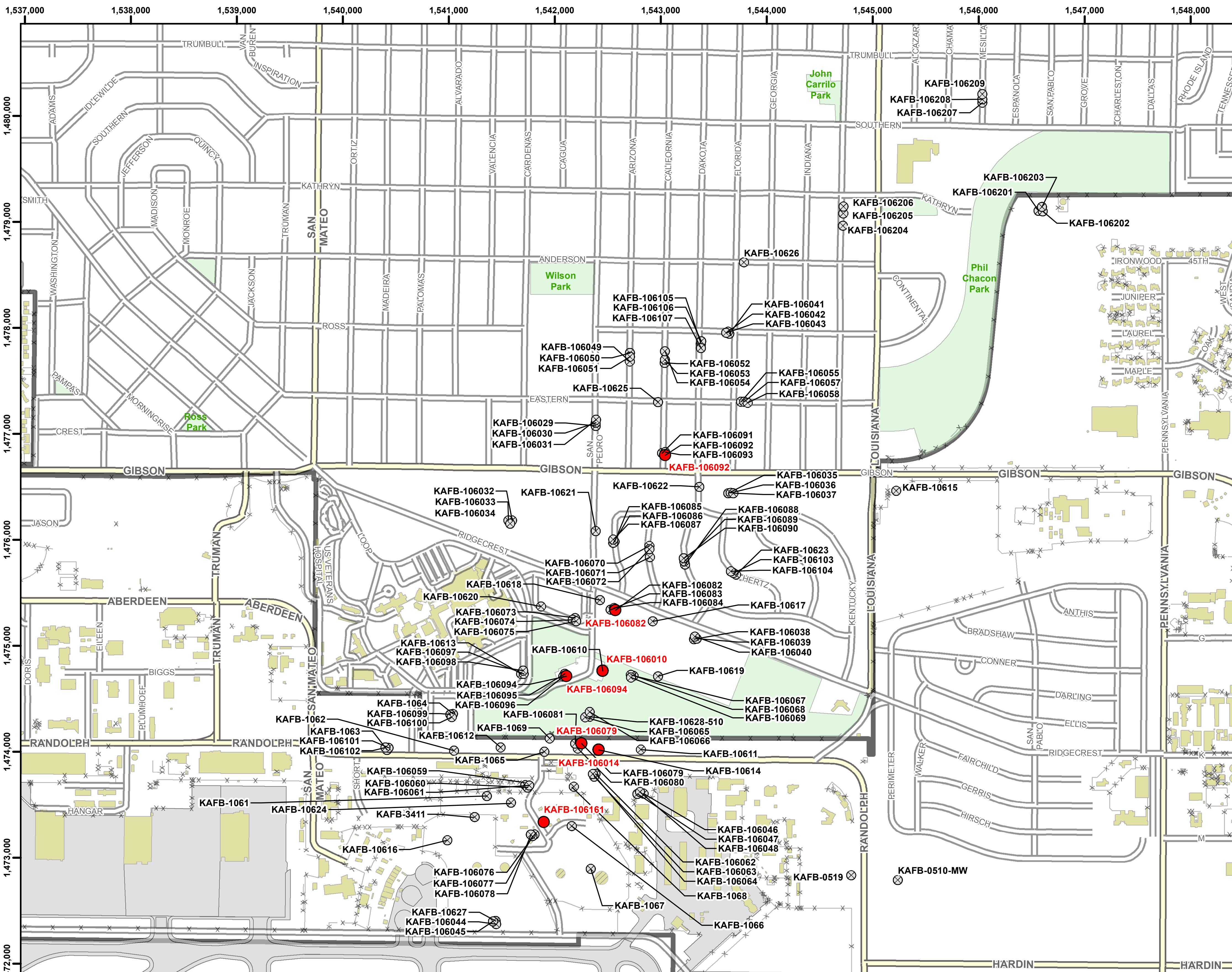
0 500 1,000 2,000
Feet
1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

RISK ASSESSMENT REPORT
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 1

MONITORING WELL LOCATIONS
WITH 1,1,2,2-TETRACHLOROETHANE



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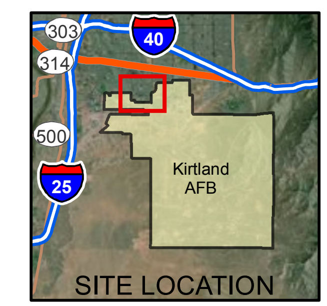
Legend

- Location with 2-Butanone
- Monitor Well



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Revision Date: 04/14/14

N

0 500 1,000 2,000

Feet

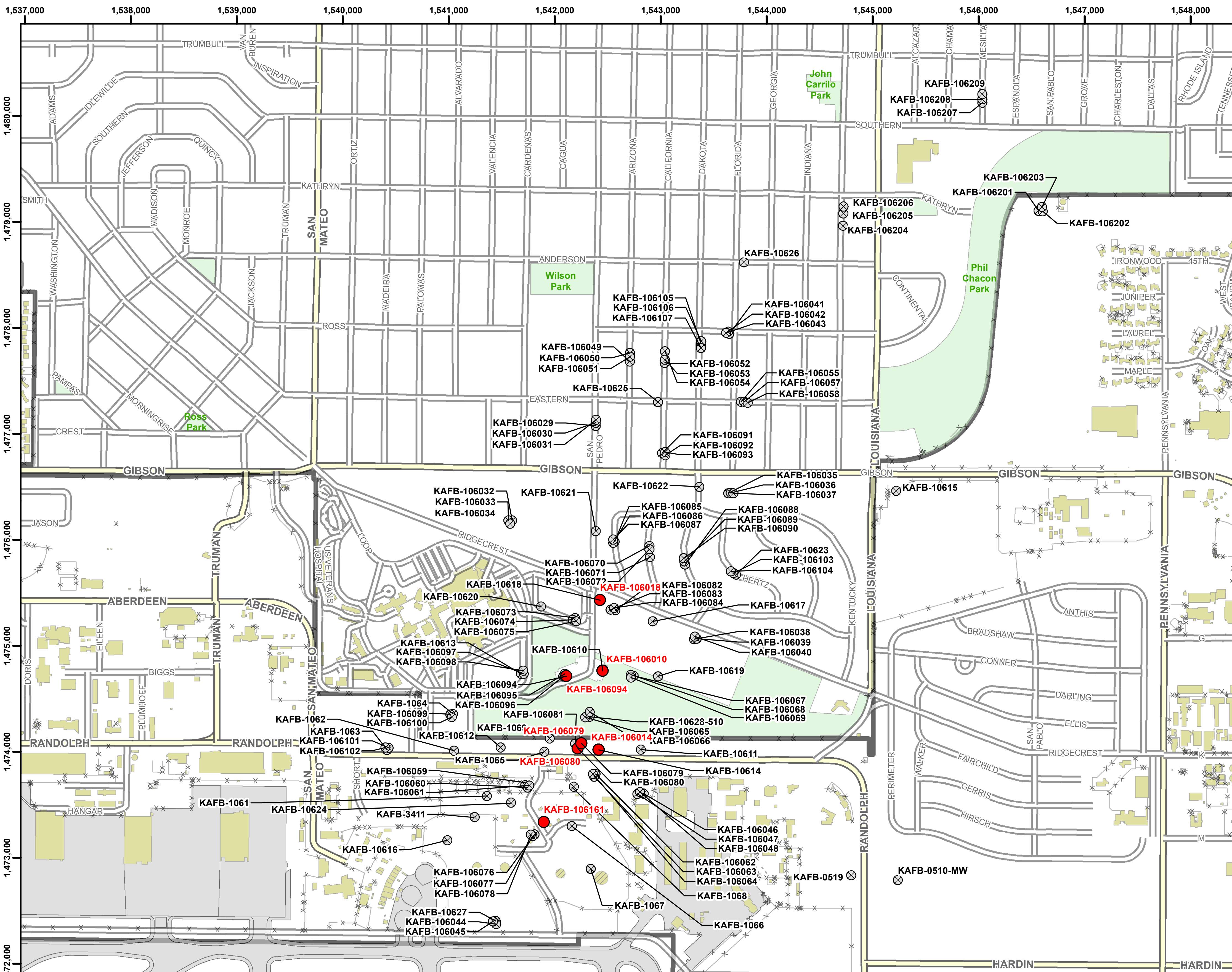
1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

RISK ASSESSMENT REPORT
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

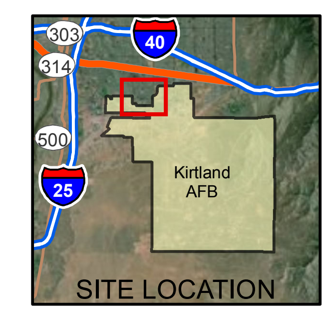
FIGURE 2

MONITORING WELL LOCATIONS
WITH 2-BUTANONE



Legend

- Location with 2-Hexanone
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Revision Date: 04/14/14

N

0 500 1,000 2,000
Feet
1 inch = 1,000 feet

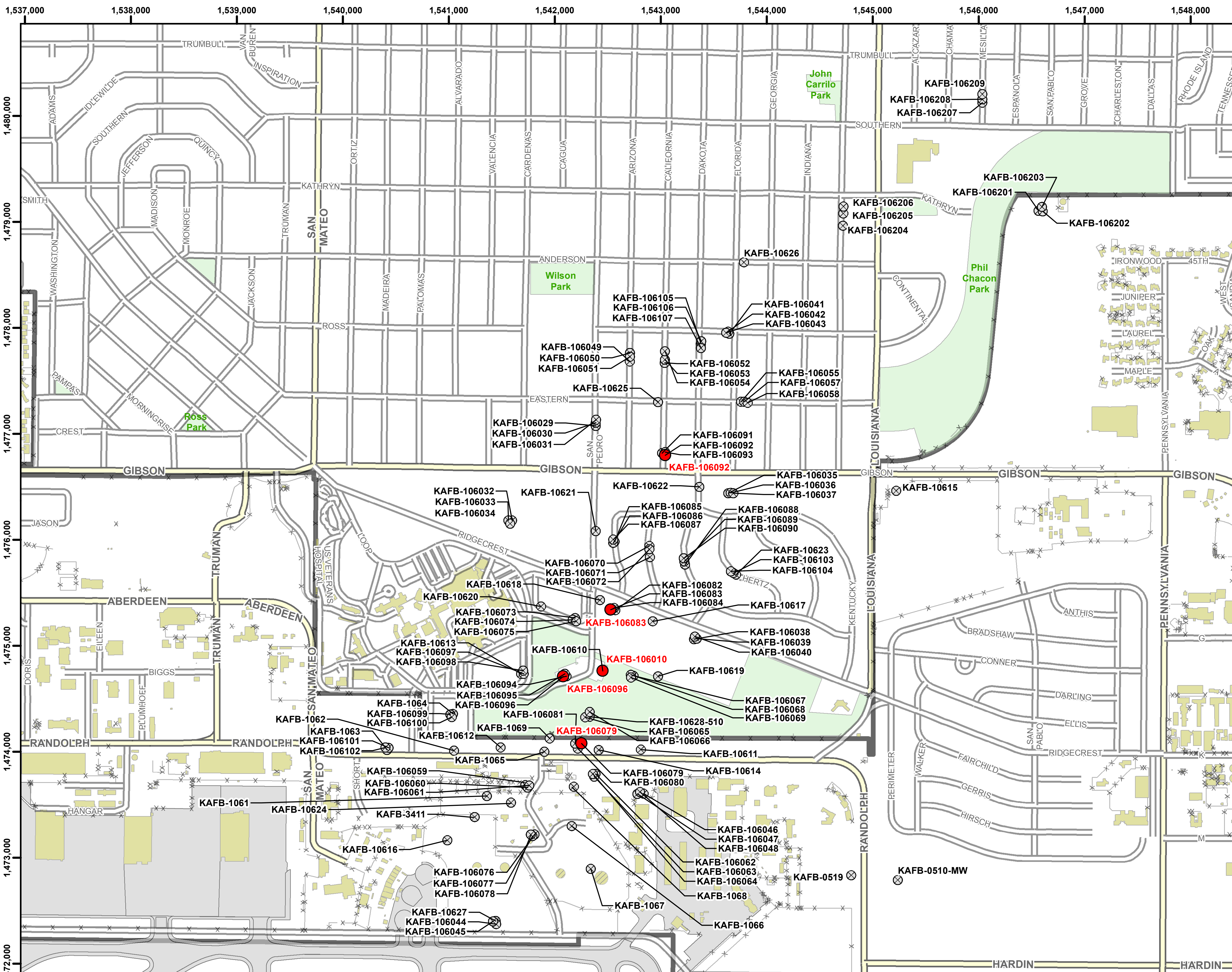
Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

RISK ASSESSMENT REPORT
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 3

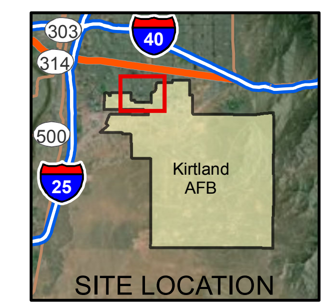
MONITORING WELL LOCATIONS
WITH 2-HEXANONE

H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_105_COC_2-Hexanone.mxd 04/14/14



Legend

- Location with 2-Methylphenol
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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N

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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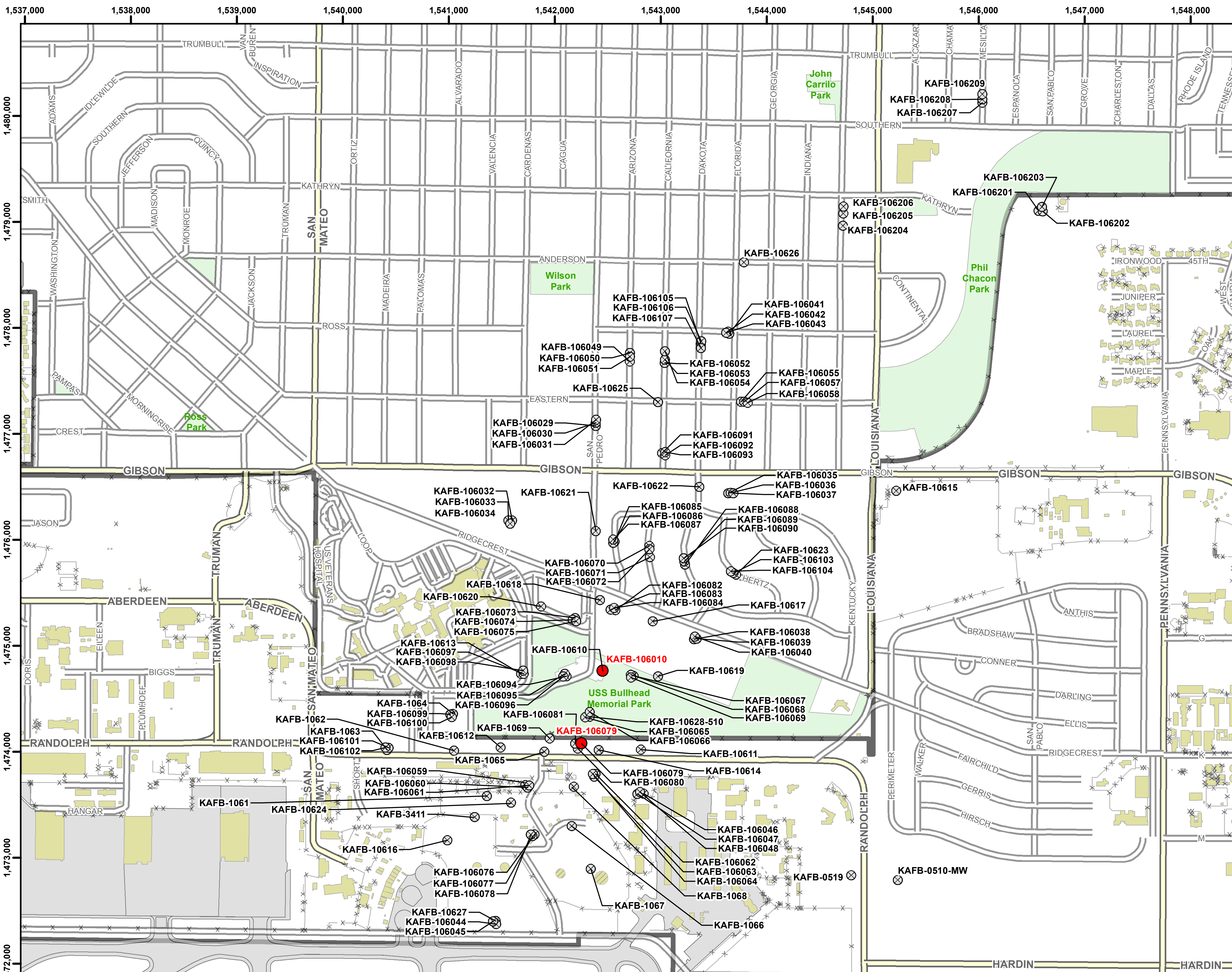
FIGURE 4

MONITORING WELL LOCATIONS
WITH 2-METHYLPHENOL

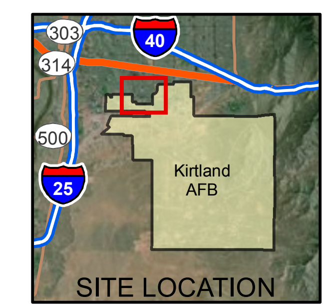
H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_106_COC_2-Methylphenol.mxd 04/14/14



Legend

● Location with 2,4-Dimethylphenol

⊗ Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N

Revision Date: 04/14/14

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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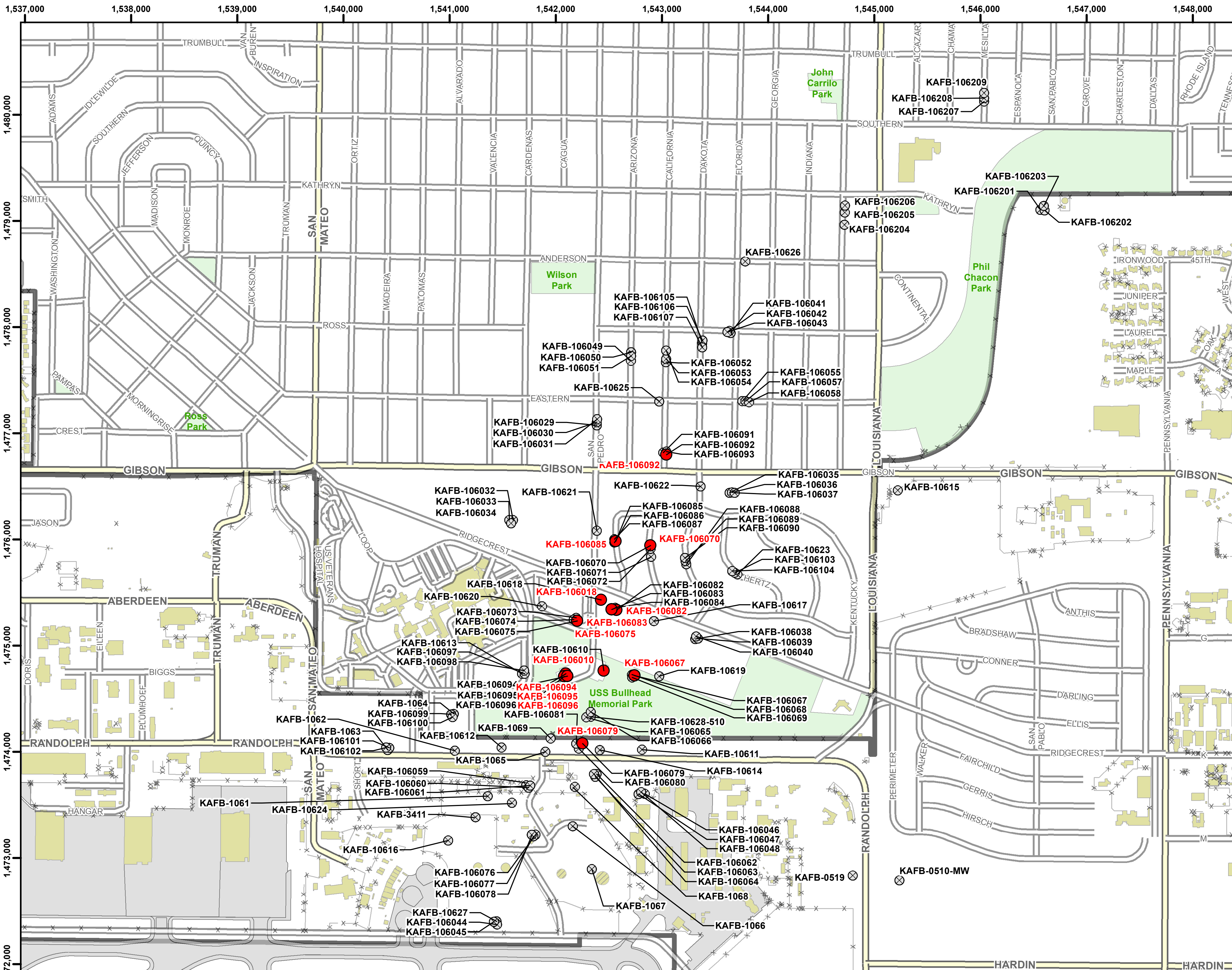
FIGURE 5

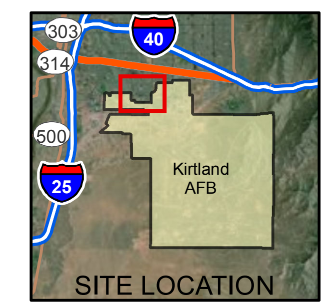
MONITORING WELL LOCATIONS
WITH 2,4-DIMETHYLPHENOL

H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_107_COC_2,4-Dimethylphenol.mxd 04/14/14



Legend

- Location with 3-Methylphenol and 4-methylphenol
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N

Revision Date: 04/14/14

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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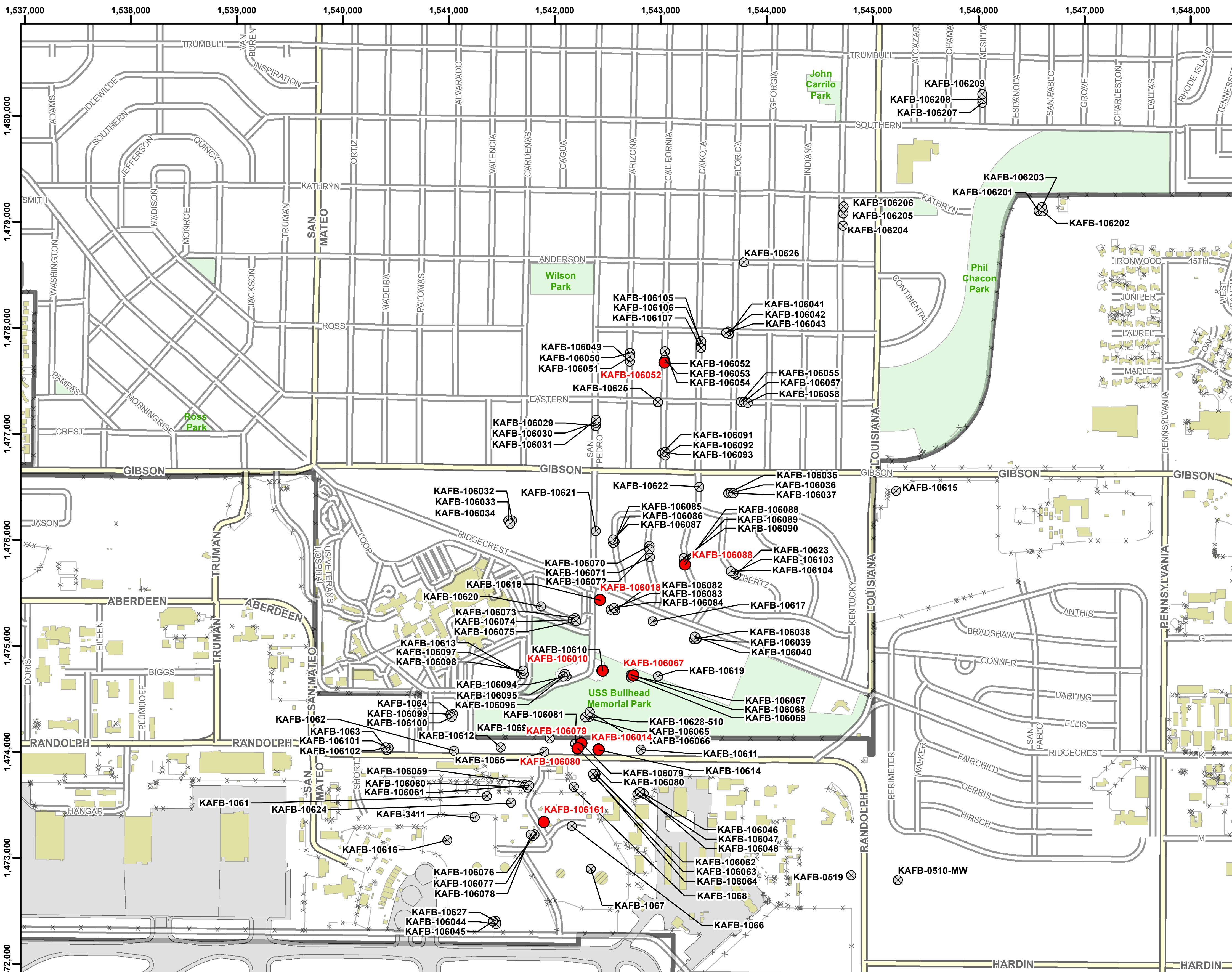
FIGURE 6

MONITORING WELL LOCATIONS WITH 3-METHYLPHENOL AND 4-METHYLPHENOL

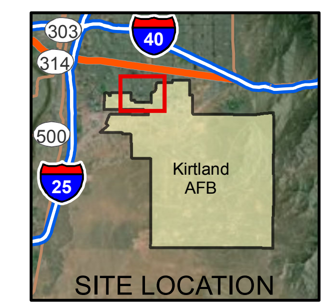
H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_108_COC_3-Methylphenol and 4-methylphenol.mxd 04/14/14



H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_109_COC_4-Methyl-2-pentanone.mxd 04/14/14

Legend

- Location with 4-Methyl-2-pentanone
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N

Revision Date: 04/14/14

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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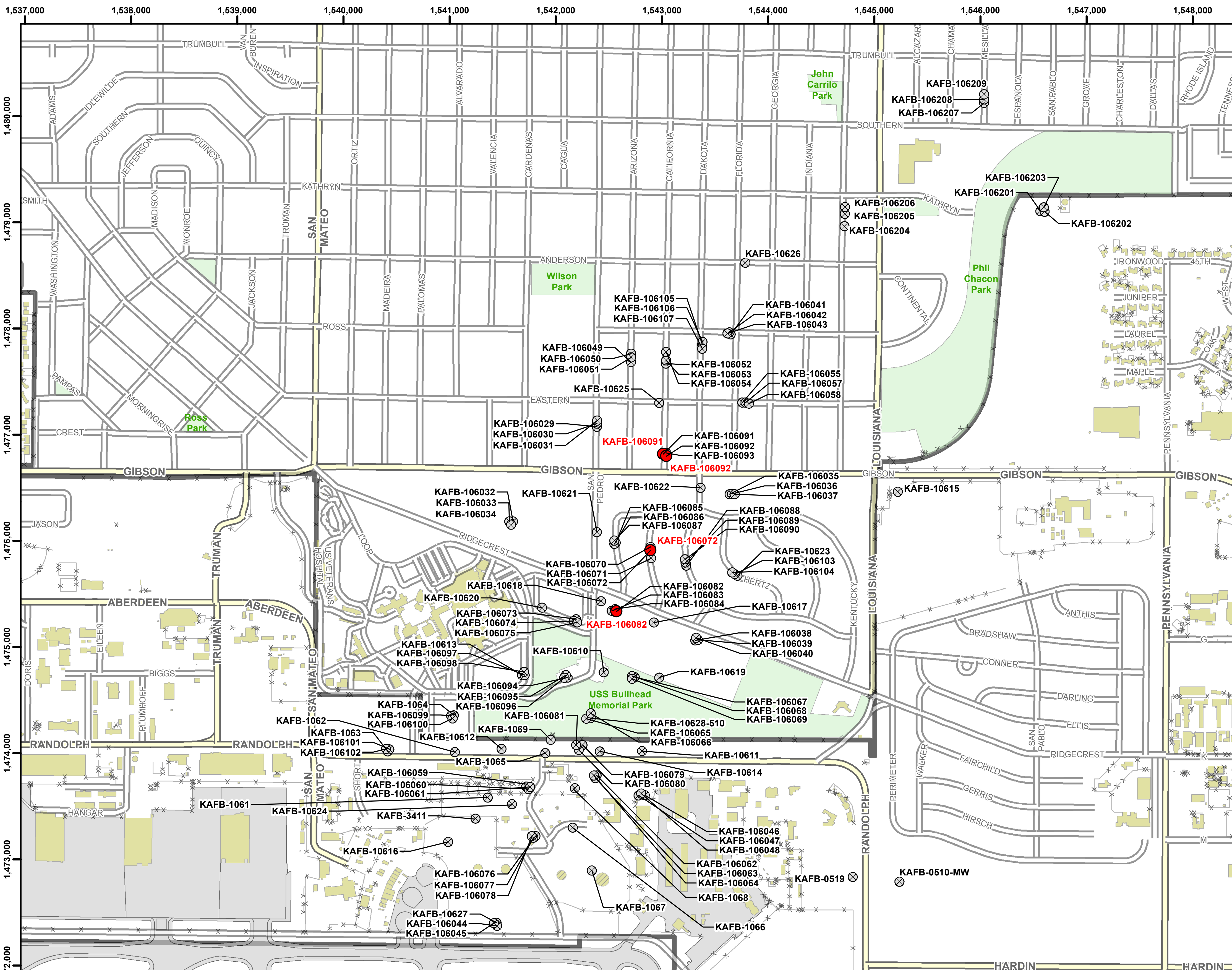
FIGURE 7

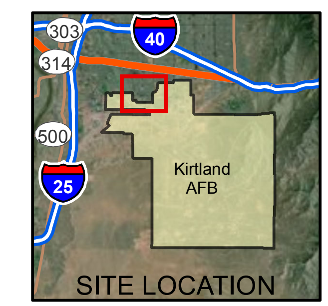
MONITORING WELL LOCATIONS
WITH 4-METHYL-2-PENTANONE



H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_110_COC_Bromodichloromethane.mxd 04/14/14

Legend

- Location with Bromodichloromethane
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Revision Date: 04/14/14

N

0 500 1,000 2,000
Feet
1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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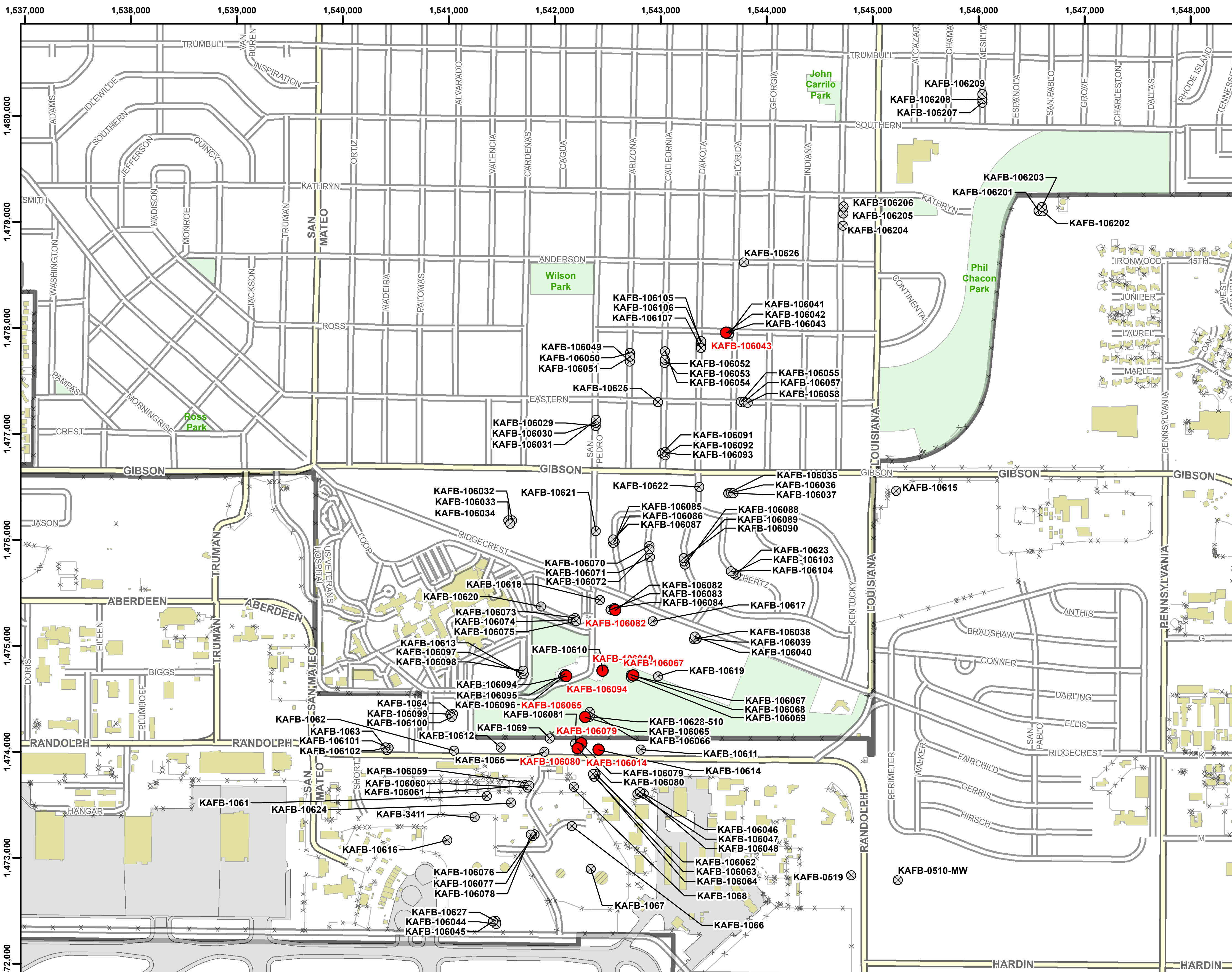
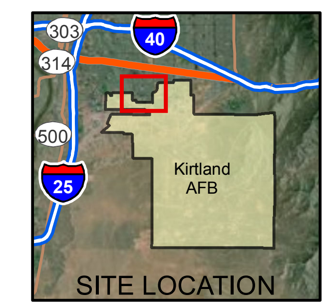
FIGURE 8

MONITORING WELL LOCATIONS
WITH BROMODICHLOROMETHANE



Legend

- Location with Carbon disulfide
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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N

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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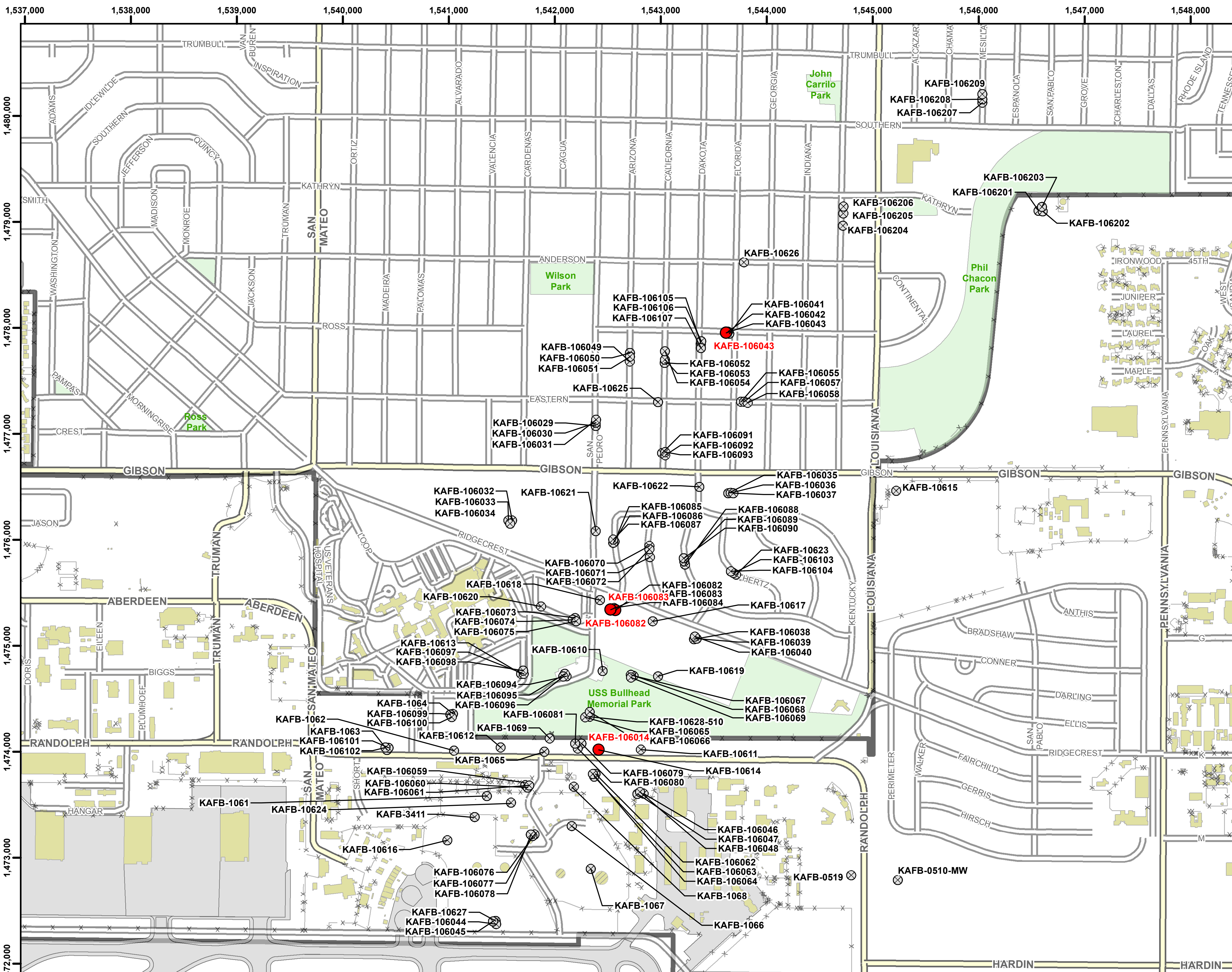
FIGURE 9

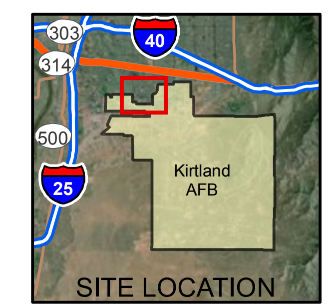
MONITORING WELL LOCATIONS WITH CARBON DISULFIDE

H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_111_COC_Carbon disulfide.mxd 04/14/14



Legend

- Location with Chloroform
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N

Revision Date: 04/14/14

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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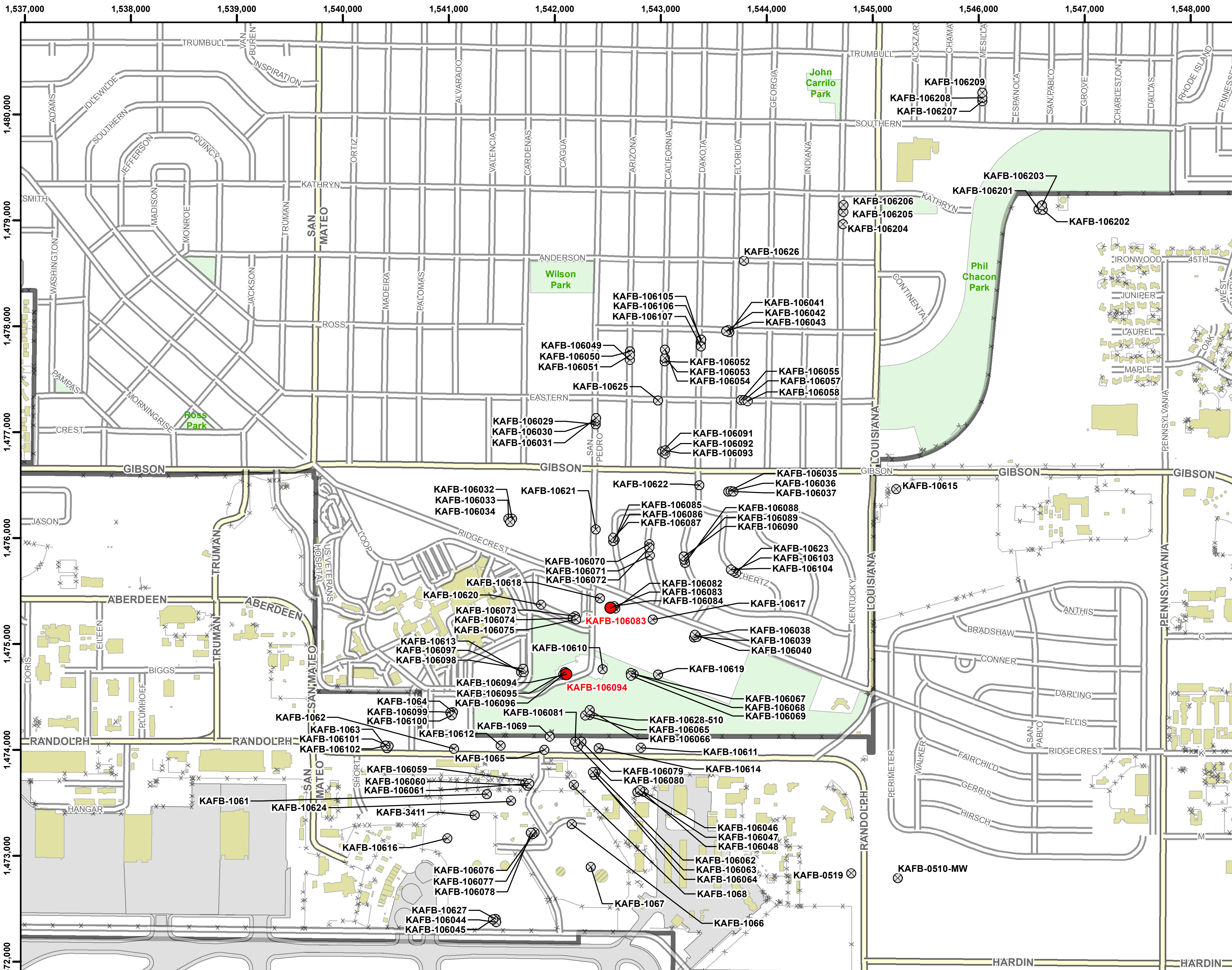
FIGURE 10

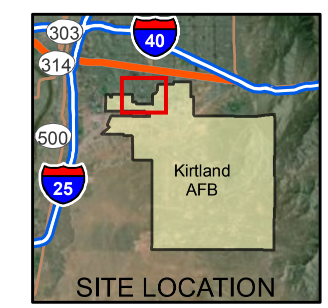
MONITORING WELL LOCATIONS
WITH CHLOROFORM

H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_112_COC_Chloroform.mxd 04/14/14



Legend

- Location with Methylene Chloride
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Revision Date: 04/14/14

N

0 500 1,000 2,000

Feet

1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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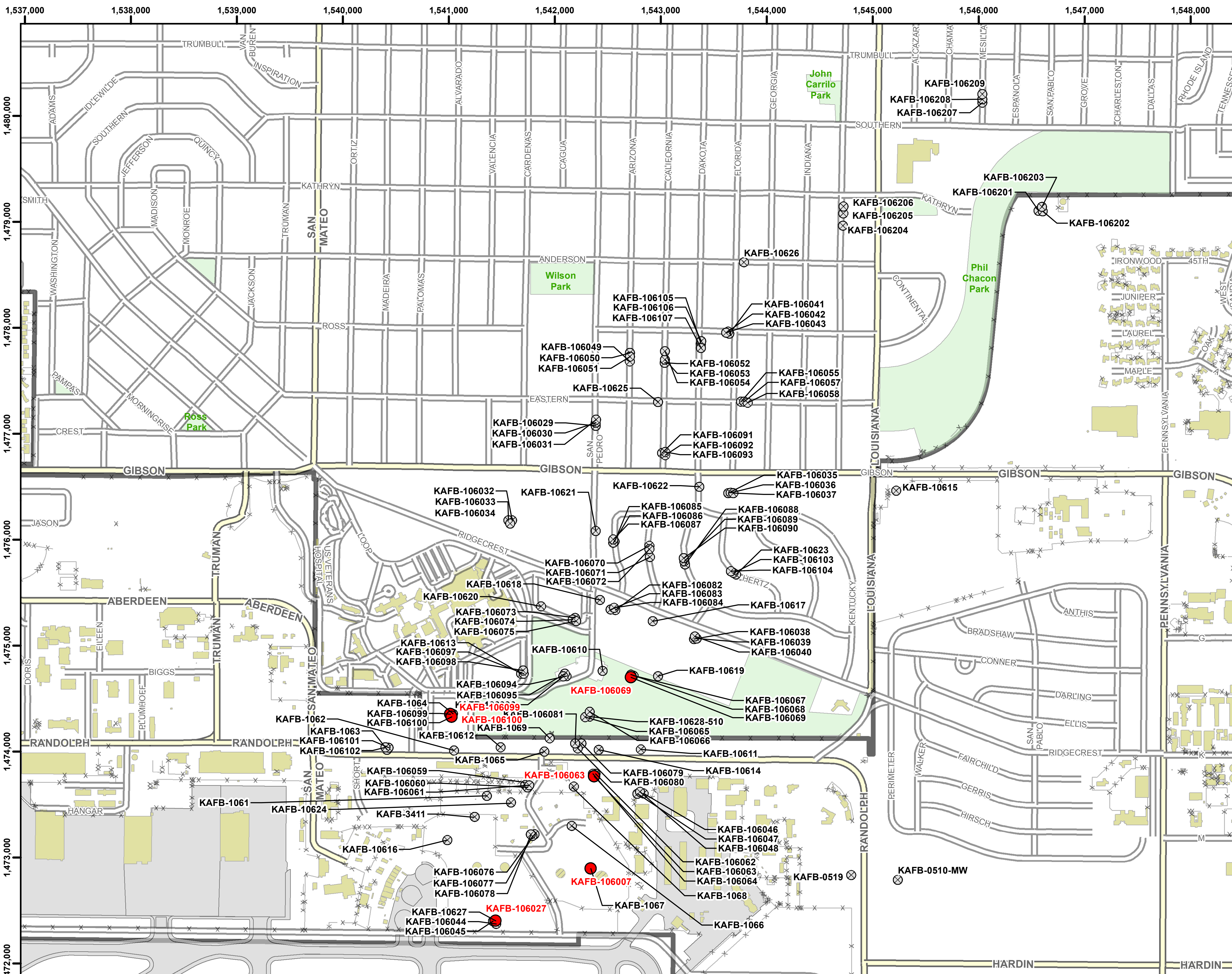
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

FIGURE 11

MONITORING WELL LOCATIONS
WITH METHYLENE CHLORIDE

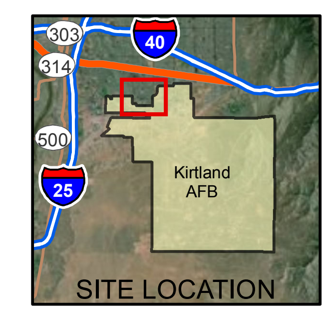
H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_113_COC_Methylene Chloride.mxd 04/14/14



H:\Kirtland_AFB\GIS_Documents\Project_Maps\2001CA_RFI_Vadose_Zone\Archive\Risk_Assessment\KAFB_114_COC_Trichloroethene.mxd 04/14/14

Legend

- Location with Trichloroethene
- Monitor Well



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N

Revision Date: 04/14/14

0 500 1,000 2,000
Feet
1 inch = 1,000 feet

Projection : NAD83 State Plane New Mexico Central FIPS3002 Feet

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BULK FUELS FACILITY
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FIGURE 12

MONITORING WELL LOCATIONS WITH TRICHLOROETHENE

Appendix A-3
ProUCL Output for Water Supply Well COPCs
BFF KAFB

UCL Statistics for Data Sets with Non-Detects

KAFB GW Supply Wells (mg/L)

User Selected Options	
Date/Time of Computation	1/7/2014 3:01:39 PM
From File	GW Supply_ProUCL input.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Sodium

General Statistics

Total Number of Observations	27	Number of Distinct Observations	25
		Number of Missing Observations	0
Minimum	21.6	Mean	27.2
Maximum	37.9	Median	24.05
SD	5.42	Std. Error of Mean	1.043
Coefficient of Variation	0.199	Skewness	0.853

Normal GOF Test

Shapiro Wilk Test Statistic	0.828	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.923	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.238	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.171	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	28.98	95% Adjusted-CLT UCL (Chen-1995)	29.1
		95% Modified-t UCL (Johnson-1978)	29.01

Gamma GOF Test

A-D Test Statistic	1.738	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.744	Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.237	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.168	Data Not Gamma Distributed at 5% Significance Level

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	28.31	k star (bias corrected MLE)	25.19
Theta hat (MLE)	0.961	Theta star (bias corrected MLE)	1.08
nu hat (MLE)	1529	nu star (bias corrected)	1360
MLE Mean (bias corrected)	27.2	MLE Sd (bias corrected)	5.419
		Approximate Chi Square Value (0.05)	1276
Adjusted Level of Significance	0.0401	Adjusted Chi Square Value	1270

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	29	95% Adjusted Gamma UCL (use when n<50)	29.12

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.848	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.923	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.23	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.171	Data Not Lognormal at 5% Significance Level

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	3.073	Mean of logged Data	3.285
Maximum of Logged Data	3.635	SD of logged Data	0.189

Appendix A-3
ProUCL Output for Water Supply Well COPCs
BFF KAFB

Assuming Lognormal Distribution

95% H-UCL	29.02	90% Chebyshev (MVUE) UCL	30.16
95% Chebyshev (MVUE) UCL	31.51	97.5% Chebyshev (MVUE) UCL	33.38
99% Chebyshev (MVUE) UCL	37.06		

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution (0.05)

Nonparametric Distribution Free UCLs

95% CLT UCL	28.91	95% Jackknife UCL	28.98
95% Standard Bootstrap UCL	28.9	95% Bootstrap-t UCL	29.24
95% Hall's Bootstrap UCL	29.05	95% Percentile Bootstrap UCL	28.88
95% BCA Bootstrap UCL	29.08		
90% Chebyshev(Mean, Sd) UCL	30.33	95% Chebyshev(Mean, Sd) UCL	31.74
97.5% Chebyshev(Mean, Sd) UCL	33.71	99% Chebyshev(Mean, Sd) UCL	37.58

Suggested UCL to Use

95% Student's-t UCL	28.98	or 95% Modified-t UCL	29.01

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options			KAFB - BFF Surface Soil (0-1 ft bgs)_03-06-14								
4	Date/Time of Computation			3/6/2014 2:31:52 PM								
5	From File			ProUCL input_SS (0-1 ft)_03-06-14.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10	2-METHYLNAPHTHALENE											
11												
12	General Statistics											
13	Total Number of Observations					311	Number of Distinct Observations					105
14	Number of Detects					31	Number of Non-Detects					280
15	Number of Distinct Detects					31	Number of Distinct Non-Detects					74
16	Minimum Detect					0.00995	Minimum Non-Detect					0.0336
17	Maximum Detect					23.2	Maximum Non-Detect					0.371
18	Variance Detects					17.42	Percent Non-Detects					90.03%
19	Mean Detects					0.894	SD Detects					4.174
20	Median Detects					0.0217	CV Detects					4.669
21	Skewness Detects					5.435	Kurtosis Detects					29.9
22	Mean of Logged Detects					-3.206	SD of Logged Detects					1.718
23												
24	Normal GOF Test on Detects Only											
25	Shapiro Wilk Test Statistic					0.226	Shapiro Wilk GOF Test					
26	5% Shapiro Wilk Critical Value					0.929	Detected Data Not Normal at 5% Significance Level					
27	Lilliefors Test Statistic					0.475	Lilliefors GOF Test					
28	5% Lilliefors Critical Value					0.159	Detected Data Not Normal at 5% Significance Level					
29	Detected Data Not Normal at 5% Significance Level											
30												
31	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
32	Mean					0.104	Standard Error of Mean					0.0763
33	SD					1.323	95% KM (BCA) UCL					0.254
34	95% KM (t) UCL					0.23	95% KM (Percentile Bootstrap) UCL					0.25
35	95% KM (z) UCL					0.23	95% KM Bootstrap t UCL					3.031
36	90% KM Chebyshev UCL					0.333	95% KM Chebyshev UCL					0.437
37	97.5% KM Chebyshev UCL					0.58	99% KM Chebyshev UCL					0.863
38												
39	Gamma GOF Tests on Detected Observations Only											
40	A-D Test Statistic					7.117	Anderson-Darling GOF Test					
41	5% A-D Critical Value					0.888	Detected Data Not Gamma Distributed at 5% Significance Level					
42	K-S Test Statistic					0.399	Kolmogrov-Smirnoff GOF					
43	5% K-S Critical Value					0.174	Detected Data Not Gamma Distributed at 5% Significance Level					
44	Detected Data Not Gamma Distributed at 5% Significance Level											
45												
46	Gamma Statistics on Detected Data Only											
47	k hat (MLE)					0.232	k star (bias corrected MLE)					0.231

Theta hat (MLE)	3.848	Theta star (bias corrected MLE)	3.865
nu hat (MLE)	14.4	nu star (bias corrected)	14.34
MLE Mean (bias corrected)	0.894	MLE Sd (bias corrected)	1.859
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.00621	nu hat (KM)	3.865
Approximate Chi Square Value (3.86, α)	0.669	Adjusted Chi Square Value (3.86, β)	0.663
95% Gamma Approximate KM-UCL (use when n>=50)	0.602	95% Gamma Adjusted KM-UCL (use when n<50)	0.607
Gamma (KM) may not be used when k hat (KM) is < 0.1			
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.00995	Mean	0.107
Maximum	23.2	Median	0.01
SD	1.326	CV	12.35
k hat (MLE)	0.325	k star (bias corrected MLE)	0.324
Theta hat (MLE)	0.331	Theta star (bias corrected MLE)	0.332
nu hat (MLE)	201.9	nu star (bias corrected)	201.3
MLE Mean (bias corrected)	0.107	MLE Sd (bias corrected)	0.189
		Adjusted Level of Significance (β)	0.0492
Approximate Chi Square Value (201.29, α)	169.5	Adjusted Chi Square Value (201.29, β)	169.3
95% Gamma Approximate UCL (use when n>=50)	0.128	95% Gamma Adjusted UCL (use when n<50)	0.128
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.728	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.929	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.207	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.159	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.108	Mean in Log Scale	-3.995
SD in Original Scale	1.325	SD in Log Scale	0.872
95% t UCL (assumes normality of ROS data)	0.232	95% Percentile Bootstrap UCL	0.257
95% BCA Bootstrap UCL	0.358	95% Bootstrap t UCL	3.28
95% H-UCL (Log ROS)	0.0298		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.111	Mean in Log Scale	-3.844
SD in Original Scale	1.325	SD in Log Scale	0.724
95% t UCL (Assumes normality)	0.235	95% H-Stat UCL	0.0301
DL/2 is not a recommended method, provided for comparisons and historical reasons			

	A–E	F	G–K	L
95	**Nonparametric Distribution Free UCL Statistics**			
96	**Data do not follow a Discernible Distribution at 5% Significance Level**			
97				
98	**Suggested UCL to Use**			
99	95% KM (Chebyshev) UCL	0.437		
100				
101	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
102	Recommendations are based upon data size, data distribution, and skewness.			
103	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
104	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
105				
106	BENZO(A)ANTHRACENE			
107				
108	**General Statistics**			
109	Total Number of Observations	311	Number of Distinct Observations	135
110	Number of Detects	81	Number of Non-Detects	230
111	Number of Distinct Detects	80	Number of Distinct Non-Detects	65
112	Minimum Detect	0.0222	Minimum Non-Detect	0.0337
113	Maximum Detect	5.39	Maximum Non-Detect	0.705
114	Variance Detects	0.599	Percent Non-Detects	73.95%
115	Mean Detects	0.257	SD Detects	0.774
116	Median Detects	0.0583	CV Detects	3.01
117	Skewness Detects	5.627	Kurtosis Detects	33.18
118	Mean of Logged Detects	-2.448	SD of Logged Detects	1.126
119				
120	**Normal GOF Test on Detects Only**			
121	Shapiro Wilk Test Statistic	0.313	**Normal GOF Test on Detected Observations Only**	
122	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
123	Lilliefors Test Statistic	0.381	**Lilliefors GOF Test**	
124	5% Lilliefors Critical Value	0.0984	Detected Data Not Normal at 5% Significance Level	
125	**Detected Data Not Normal at 5% Significance Level**			
126				
127	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
128	Mean	0.0877	Standard Error of Mean	0.0231
129	SD	0.405	95% KM (BCA) UCL	0.128
130	95% KM (t) UCL	0.126	95% KM (Percentile Bootstrap) UCL	0.133
131	95% KM (z) UCL	0.126	95% KM Bootstrap t UCL	0.206
132	90% KM Chebyshev UCL	0.157	95% KM Chebyshev UCL	0.189
133	97.5% KM Chebyshev UCL	0.232	99% KM Chebyshev UCL	0.318
134				
135	**Gamma GOF Tests on Detected Observations Only**			
136	A-D Test Statistic	10.41	**Anderson-Darling GOF Test**	
137	5% A-D Critical Value	0.812	Detected Data Not Gamma Distributed at 5% Significance Level	
138	K-S Test Statistic	0.267	**Kolmogrov-Smirnoff GOF**	
139	5% K-S Critical Value	0.104	Detected Data Not Gamma Distributed at 5% Significance Level	
140	**Detected Data Not Gamma Distributed at 5% Significance Level**			
141				

142	**Gamma Statistics on Detected Data Only**			
143	k hat (MLE)	0.571	k star (bias corrected MLE)	0.558
144	Theta hat (MLE)	0.45	Theta star (bias corrected MLE)	0.46
145	nu hat (MLE)	92.56	nu star (bias corrected)	90.47
146	MLE Mean (bias corrected)	0.257	MLE Sd (bias corrected)	0.344
147				
148	**Gamma Kaplan-Meier (KM) Statistics**			
149	k hat (KM)	0.0469	nu hat (KM)	29.15
150	Approximate Chi Square Value (29.15, α)	17.82	Adjusted Chi Square Value (29.15, β)	17.78
151	95% Gamma Approximate KM-UCL (use when n>=50)	0.143	95% Gamma Adjusted KM-UCL (use when n<50)	0.144
152	Gamma (KM) may not be used when k hat (KM) is < 0.1			
153				
154	**Gamma ROS Statistics using Imputed Non-Detects**			
155	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
156	GROS may not be used when kstar of detected data is small such as < 0.1			
157	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
158	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
159	Minimum	0.01	Mean	0.0744
160	Maximum	5.39	Median	0.01
161	SD	0.408	CV	5.485
162	k hat (MLE)	0.448	k star (bias corrected MLE)	0.445
163	Theta hat (MLE)	0.166	Theta star (bias corrected MLE)	0.167
164	nu hat (MLE)	278.3	nu star (bias corrected)	277
165	MLE Mean (bias corrected)	0.0744	MLE Sd (bias corrected)	0.111
166			Adjusted Level of Significance (β)	0.0492
167	Approximate Chi Square Value (277.00, α)	239.5	Adjusted Chi Square Value (277.00, β)	239.3
168	95% Gamma Approximate UCL (use when n>=50)	0.086	95% Gamma Adjusted UCL (use when n<50)	0.0861
169				
170	**Lognormal GOF Test on Detected Observations Only**			
171	Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**	
172	5% Lilliefors Critical Value	0.0984	Detected Data Not Lognormal at 5% Significance Level	
173	**Detected Data Not Lognormal at 5% Significance Level**			
174				
175	**Lognormal ROS Statistics Using Imputed Non-Detects**			
176	Mean in Original Scale	0.0788	Mean in Log Scale	-3.848
177	SD in Original Scale	0.407	SD in Log Scale	1.166
178	95% t UCL (assumes normality of ROS data)	0.117	95% Percentile Bootstrap UCL	0.12
179	95% BCA Bootstrap UCL	0.135	95% Bootstrap t UCL	0.19
180	95% H-UCL (Log ROS)	0.0489		
181				
182	**DL/2 Statistics**			
183	**DL/2 Normal**		**DL/2 Log-Transformed**	
184	Mean in Original Scale	0.0875	Mean in Log Scale	-3.504
185	SD in Original Scale	0.407	SD in Log Scale	0.972
186	95% t UCL (Assumes normality)	0.126	95% H-Stat UCL	0.0542
187	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
188				

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.128		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

BENZO(A)PYRENE

General Statistics

Total Number of Observations	322	Number of Distinct Observations	181
Number of Detects	115	Number of Non-Detects	207
Number of Distinct Detects	107	Number of Distinct Non-Detects	79
Minimum Detect	0.00935	Minimum Non-Detect	0.0337
Maximum Detect	4.45	Maximum Non-Detect	1.71
Variance Detects	0.3	Percent Non-Detects	64.29%
Mean Detects	0.176	SD Detects	0.547
Median Detects	0.0387	CV Detects	3.105
Skewness Detects	6.262	Kurtosis Detects	43.14
Mean of Logged Detects	-2.932	SD of Logged Detects	1.222

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.317	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.38	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0826	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0784	Standard Error of Mean	0.0187
SD	0.334	95% KM (BCA) UCL	0.112
95% KM (t) UCL	0.109	95% KM (Percentile Bootstrap) UCL	0.113
95% KM (z) UCL	0.109	95% KM Bootstrap t UCL	0.157
90% KM Chebyshev UCL	0.135	95% KM Chebyshev UCL	0.16
97.5% KM Chebyshev UCL	0.195	99% KM Chebyshev UCL	0.265

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	13.04	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.816	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.259	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0903	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

	A–E	F	G–K	L
236	**Gamma Statistics on Detected Data Only**			
237	k hat (MLE)	0.527	k star (bias corrected MLE)	0.519
238	Theta hat (MLE)	0.335	Theta star (bias corrected MLE)	0.34
239	nu hat (MLE)	121.1	nu star (bias corrected)	119.3
240	MLE Mean (bias corrected)	0.176	MLE Sd (bias corrected)	0.245
241				
242	**Gamma Kaplan-Meier (KM) Statistics**			
243	k hat (KM)	0.0551	nu hat (KM)	35.45
244	Approximate Chi Square Value (35.45, α)	22.83	Adjusted Chi Square Value (35.45, β)	22.78
245	95% Gamma Approximate KM-UCL (use when n>=50)	0.122	95% Gamma Adjusted KM-UCL (use when n<50)	0.122
246	Gamma (KM) may not be used when k hat (KM) is < 0.1			
247				
248	**Gamma ROS Statistics using Imputed Non-Detects**			
249	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
250	GROS may not be used when kstar of detected data is small such as < 0.1			
251	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
252	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
253	Minimum	0.00935	Mean	0.0697
254	Maximum	4.45	Median	0.01
255	SD	0.336	CV	4.82
256	k hat (MLE)	0.479	k star (bias corrected MLE)	0.477
257	Theta hat (MLE)	0.145	Theta star (bias corrected MLE)	0.146
258	nu hat (MLE)	308.7	nu star (bias corrected)	307.2
259	MLE Mean (bias corrected)	0.0697	MLE Sd (bias corrected)	0.101
260			Adjusted Level of Significance (β)	0.0493
261	Approximate Chi Square Value (307.18, α)	267.6	Adjusted Chi Square Value (307.18, β)	267.4
262	95% Gamma Approximate UCL (use when n>=50)	0.08	95% Gamma Adjusted UCL (use when n<50)	0.08
263				
264	**Lognormal GOF Test on Detected Observations Only**			
265	Lilliefors Test Statistic	0.131	**Lilliefors GOF Test**	
266	5% Lilliefors Critical Value	0.0826	Detected Data Not Lognormal at 5% Significance Level	
267	**Detected Data Not Lognormal at 5% Significance Level**			
268				
269	**Lognormal ROS Statistics Using Imputed Non-Detects**			
270	Mean in Original Scale	0.0791	Mean in Log Scale	-3.489
271	SD in Original Scale	0.334	SD in Log Scale	0.928
272	95% t UCL (assumes normality of ROS data)	0.11	95% Percentile Bootstrap UCL	0.111
273	95% BCA Bootstrap UCL	0.124	95% Bootstrap t UCL	0.156
274	95% H-UCL (Log ROS)	0.0523		
275				
276	**DL/2 Statistics**			
277	**DL/2 Normal**		**DL/2 Log-Transformed**	
278	Mean in Original Scale	0.0917	Mean in Log Scale	-3.411
279	SD in Original Scale	0.339	SD in Log Scale	1.048
280	95% t UCL (Assumes normality)	0.123	95% H-Stat UCL	0.0648
281	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
282				

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.112		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

BENZO(B)FLUORANTHENE

General Statistics

Total Number of Observations	311	Number of Distinct Observations	146
Number of Detects	70	Number of Non-Detects	241
Number of Distinct Detects	69	Number of Distinct Non-Detects	84
Minimum Detect	0.0271	Minimum Non-Detect	0.0337
Maximum Detect	5.15	Maximum Non-Detect	1.71
Variance Detects	0.635	Percent Non-Detects	77.49%
Mean Detects	0.304	SD Detects	0.797
Median Detects	0.0697	CV Detects	2.626
Skewness Detects	4.977	Kurtosis Detects	26.45
Mean of Logged Detects	-2.262	SD of Logged Detects	1.174

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.37	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.369	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.106	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0942	Standard Error of Mean	0.0224
SD	0.392	95% KM (BCA) UCL	0.138
95% KM (t) UCL	0.131	95% KM (Percentile Bootstrap) UCL	0.135
95% KM (z) UCL	0.131	95% KM Bootstrap t UCL	0.185
90% KM Chebyshev UCL	0.162	95% KM Chebyshev UCL	0.192
97.5% KM Chebyshev UCL	0.234	99% KM Chebyshev UCL	0.317

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	8.398	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.809	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.266	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.112	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

	A–E	F	G–K	L
330	**Gamma Statistics on Detected Data Only**			
331	k hat (MLE)	0.58	k star (bias corrected MLE)	0.565
332	Theta hat (MLE)	0.523	Theta star (bias corrected MLE)	0.537
333	nu hat (MLE)	81.25	nu star (bias corrected)	79.1
334	MLE Mean (bias corrected)	0.304	MLE Sd (bias corrected)	0.404
335				
336	**Gamma Kaplan-Meier (KM) Statistics**			
337	k hat (KM)	0.0577	nu hat (KM)	35.87
338	Approximate Chi Square Value (35.87, α)	23.16	Adjusted Chi Square Value (35.87, β)	23.12
339	95% Gamma Approximate KM-UCL (use when n>=50)	0.146	95% Gamma Adjusted KM-UCL (use when n<50)	0.146
340	Gamma (KM) may not be used when k hat (KM) is < 0.1			
341				
342	**Gamma ROS Statistics using Imputed Non-Detects**			
343	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
344	GROS may not be used when kstar of detected data is small such as < 0.1			
345	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
346	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
347	Minimum	0.01	Mean	0.0761
348	Maximum	5.15	Median	0.01
349	SD	0.396	CV	5.2
350	k hat (MLE)	0.433	k star (bias corrected MLE)	0.431
351	Theta hat (MLE)	0.176	Theta star (bias corrected MLE)	0.177
352	nu hat (MLE)	269.1	nu star (bias corrected)	267.9
353	MLE Mean (bias corrected)	0.0761	MLE Sd (bias corrected)	0.116
354			Adjusted Level of Significance (β)	0.0492
355	Approximate Chi Square Value (267.88, α)	231	Adjusted Chi Square Value (267.88, β)	230.8
356	95% Gamma Approximate UCL (use when n>=50)	0.0882	95% Gamma Adjusted UCL (use when n<50)	0.0883
357				
358	**Lognormal GOF Test on Detected Observations Only**			
359	Lilliefors Test Statistic	0.176	**Lilliefors GOF Test**	
360	5% Lilliefors Critical Value	0.106	Detected Data Not Lognormal at 5% Significance Level	
361	**Detected Data Not Lognormal at 5% Significance Level**			
362				
363	**Lognormal ROS Statistics Using Imputed Non-Detects**			
364	Mean in Original Scale	0.0779	Mean in Log Scale	-4.126
365	SD in Original Scale	0.395	SD in Log Scale	1.344
366	95% t UCL (assumes normality of ROS data)	0.115	95% Percentile Bootstrap UCL	0.117
367	95% BCA Bootstrap UCL	0.133	95% Bootstrap t UCL	0.172
368	95% H-UCL (Log ROS)	0.048		
369				
370	**DL/2 Statistics**			
371	**DL/2 Normal**		**DL/2 Log-Transformed**	
372	Mean in Original Scale	0.102	Mean in Log Scale	-3.362
373	SD in Original Scale	0.398	SD in Log Scale	1.082
374	95% t UCL (Assumes normality)	0.139	95% H-Stat UCL	0.0712
375	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
376				

Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (BCA) UCL	0.138		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
CARBAZOLE			
General Statistics			
Total Number of Observations	311	Number of Distinct Observations	123
Number of Detects	56	Number of Non-Detects	255
Number of Distinct Detects	56	Number of Distinct Non-Detects	71
Minimum Detect	0.0201	Minimum Non-Detect	0.0336
Maximum Detect	0.533	Maximum Non-Detect	0.371
Variance Detects	0.00821	Percent Non-Detects	81.99%
Mean Detects	0.0719	SD Detects	0.0906
Median Detects	0.0389	CV Detects	1.261
Skewness Detects	3.452	Kurtosis Detects	13.42
Mean of Logged Detects	-3.009	SD of Logged Detects	0.761
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.564	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.284	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.118	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.0352	Standard Error of Mean	0.00255
SD	0.0424	95% KM (BCA) UCL	0.0394
95% KM (t) UCL	0.0394	95% KM (Percentile Bootstrap) UCL	0.0394
95% KM (z) UCL	0.0394	95% KM Bootstrap t UCL	0.0418
90% KM Chebyshev UCL	0.0428	95% KM Chebyshev UCL	0.0463
97.5% KM Chebyshev UCL	0.0511	99% KM Chebyshev UCL	0.0605
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	3.656	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.769	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.173	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.121	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only			
k hat (MLE)	1.472	k star (bias corrected MLE)	1.405
Theta hat (MLE)	0.0488	Theta star (bias corrected MLE)	0.0512
nu hat (MLE)	164.9	nu star (bias corrected)	157.4
MLE Mean (bias corrected)	0.0719	MLE Sd (bias corrected)	0.0606
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.687	nu hat (KM)	427.4
Approximate Chi Square Value (427.37, α)	380.4	Adjusted Chi Square Value (427.37, β)	380.2
95% Gamma Approximate KM-UCL (use when n>=50)	0.0395	95% Gamma Adjusted KM-UCL (use when n<50)	0.0395
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.0267
Maximum	0.533	Median	0.01
SD	0.0451	CV	1.686
k hat (MLE)	1.336	k star (bias corrected MLE)	1.325
Theta hat (MLE)	0.02	Theta star (bias corrected MLE)	0.0202
nu hat (MLE)	831.1	nu star (bias corrected)	824.4
MLE Mean (bias corrected)	0.0267	MLE Sd (bias corrected)	0.0232
		Adjusted Level of Significance (β)	0.0492
Approximate Chi Square Value (824.42, α)	758.8	Adjusted Chi Square Value (824.42, β)	758.5
95% Gamma Approximate UCL (use when n>=50)	0.029	95% Gamma Adjusted UCL (use when n<50)	0.029
Lognormal GOF Test on Detected Observations Only			
Lilliefors Test Statistic	0.144	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.118	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.0363	Mean in Log Scale	-3.507
SD in Original Scale	0.0425	SD in Log Scale	0.505
95% t UCL (assumes normality of ROS data)	0.0403	95% Percentile Bootstrap UCL	0.0406
95% BCA Bootstrap UCL	0.0421	95% Bootstrap t UCL	0.0425
95% H-UCL (Log ROS)	0.0358		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0339	Mean in Log Scale	-3.74
SD in Original Scale	0.0512	SD in Log Scale	0.649
95% t UCL (Assumes normality)	0.0387	95% H-Stat UCL	0.0314
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			

	A	B	C	D	E	F	G	H	I	J	K	L
471	**Data do not follow a Discernible Distribution at 5% Significance Level**											
472												
473	**Suggested UCL to Use**											
474					95% KM (t) UCL	0.0394					95% KM (% Bootstrap) UCL	0.0394
475												
476	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
477	Recommendations are based upon data size, data distribution, and skewness.											
478	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
479	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
480												
481	DIBENZO(A,H)ANTHRACENE											
482												
483	**General Statistics**											
484					Total Number of Observations	313					Number of Distinct Observations	91
485					Number of Detects	26					Number of Non-Detects	287
486					Number of Distinct Detects	26					Number of Distinct Non-Detects	67
487					Minimum Detect	0.0105					Minimum Non-Detect	0.0168
488					Maximum Detect	0.683					Maximum Non-Detect	0.859
489					Variance Detects	0.0206					Percent Non-Detects	91.69%
490					Mean Detects	0.102					SD Detects	0.143
491					Median Detects	0.0318					CV Detects	1.407
492					Skewness Detects	2.881					Kurtosis Detects	10.51
493					Mean of Logged Detects	-3.034					SD of Logged Detects	1.24
494												
495	**Normal GOF Test on Detects Only**											
496					Shapiro Wilk Test Statistic	0.648	**Shapiro Wilk GOF Test**					
497					5% Shapiro Wilk Critical Value	0.92	Detected Data Not Normal at 5% Significance Level					
498					Lilliefors Test Statistic	0.262	**Lilliefors GOF Test**					
499					5% Lilliefors Critical Value	0.174	Detected Data Not Normal at 5% Significance Level					
500	**Detected Data Not Normal at 5% Significance Level**											
501												
502	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
503					Mean	0.0216					Standard Error of Mean	0.00284
504					SD	0.0476					95% KM (BCA) UCL	0.0268
505					95% KM (t) UCL	0.0263					95% KM (Percentile Bootstrap) UCL	0.0266
506					95% KM (z) UCL	0.0263					95% KM Bootstrap t UCL	0.0296
507					90% KM Chebyshev UCL	0.0302					95% KM Chebyshev UCL	0.034
508					97.5% KM Chebyshev UCL	0.0394					99% KM Chebyshev UCL	0.0499
509												
510	**Gamma GOF Tests on Detected Observations Only**											
511					A-D Test Statistic	1.404	**Anderson-Darling GOF Test**					
512					5% A-D Critical Value	0.782	Detected Data Not Gamma Distributed at 5% Significance Level					
513					K-S Test Statistic	0.21	**Kolmogrov-Smirnoff GOF**					
514					5% K-S Critical Value	0.178	Detected Data Not Gamma Distributed at 5% Significance Level					
515	**Detected Data Not Gamma Distributed at 5% Significance Level**											
516												
517	**Gamma Statistics on Detected Data Only**											

	A–E	F	G–K	L
518	k hat (MLE)	0.791	k star (bias corrected MLE)	0.725
519	Theta hat (MLE)	0.129	Theta star (bias corrected MLE)	0.141
520	nu hat (MLE)	41.13	nu star (bias corrected)	37.71
521	MLE Mean (bias corrected)	0.102	MLE Sd (bias corrected)	0.12
522				
523	**Gamma Kaplan-Meier (KM) Statistics**			
524	k hat (KM)	0.207	nu hat (KM)	129.6
525	Approximate Chi Square Value (129.58, α)	104.3	Adjusted Chi Square Value (129.58, β)	104.2
526	95% Gamma Approximate KM-UCL (use when n>=50)	0.0269	95% Gamma Adjusted KM-UCL (use when n<50)	0.0269
527				
528	**Gamma ROS Statistics using Imputed Non-Detects**			
529	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
530	GROS may not be used when kstar of detected data is small such as < 0.1			
531	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
532	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
533	Minimum	0.01	Mean	0.0204
534	Maximum	0.683	Median	0.01
535	SD	0.0484	CV	2.374
536	k hat (MLE)	1.233	k star (bias corrected MLE)	1.223
537	Theta hat (MLE)	0.0165	Theta star (bias corrected MLE)	0.0167
538	nu hat (MLE)	771.6	nu star (bias corrected)	765.5
539	MLE Mean (bias corrected)	0.0204	MLE Sd (bias corrected)	0.0184
540			Adjusted Level of Significance (β)	0.0492
541	Approximate Chi Square Value (765.52, α)	702.3	Adjusted Chi Square Value (765.52, β)	702
542	95% Gamma Approximate UCL (use when n>=50)	0.0222	95% Gamma Adjusted UCL (use when n<50)	0.0222
543				
544	**Lognormal GOF Test on Detected Observations Only**			
545	Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk GOF Test**	
546	5% Shapiro Wilk Critical Value	0.92	Detected Data Not Lognormal at 5% Significance Level	
547	Lilliefors Test Statistic	0.158	**Lilliefors GOF Test**	
548	5% Lilliefors Critical Value	0.174	Detected Data appear Lognormal at 5% Significance Level	
549	**Detected Data appear Approximate Lognormal at 5% Significance Level**			
550				
551	**Lognormal ROS Statistics Using Imputed Non-Detects**			
552	Mean in Original Scale	0.0236	Mean in Log Scale	-4.185
553	SD in Original Scale	0.048	SD in Log Scale	0.772
554	95% t UCL (assumes normality of ROS data)	0.028	95% Percentile Bootstrap UCL	0.0283
555	95% BCA Bootstrap UCL	0.0297	95% Bootstrap t UCL	0.0312
556	95% H-UCL (Log ROS)	0.0223		
557				
558	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
559	KM Mean (logged)	-4.164	95% H-UCL (KM -Log)	0.0187
560	KM SD (logged)	0.519	95% Critical H Value (KM-Log)	1.8
561	KM Standard Error of Mean (logged)	0.0563		
562				
563	**DL/2 Statistics**			
564	**DL/2 Normal**		**DL/2 Log-Transformed**	

Mean in Original Scale	0.0269	Mean in Log Scale	-4.298
SD in Original Scale	0.0583	SD in Log Scale	0.9
95% t UCL (Assumes normality)	0.0324	95% H-Stat UCL	0.0226
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Detected Data appear Approximate Lognormal Distributed at 5% Significance Level			
Suggested UCL to Use			
95% KM (BCA) UCL	0.0268		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
DIESEL RANGE ORGANICS			
General Statistics			
Total Number of Observations	311	Number of Distinct Observations	253
Number of Detects	265	Number of Non-Detects	46
Number of Distinct Detects	234	Number of Distinct Non-Detects	25
Minimum Detect	1.34	Minimum Non-Detect	2.09
Maximum Detect	4520	Maximum Non-Detect	4.39
Variance Detects	80284	Percent Non-Detects	14.79%
Mean Detects	39	SD Detects	283.3
Median Detects	6.645	CV Detects	7.265
Skewness Detects	15.17	Kurtosis Detects	239.5
Mean of Logged Detects	2.026	SD of Logged Detects	1.3
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.126	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.447	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0544	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	33.5	Standard Error of Mean	14.85
SD	261.4	95% KM (BCA) UCL	65.58
95% KM (t) UCL	58	95% KM (Percentile Bootstrap) UCL	62.34
95% KM (z) UCL	57.92	95% KM Bootstrap t UCL	152.4
90% KM Chebyshev UCL	78.05	95% KM Chebyshev UCL	98.23
97.5% KM Chebyshev UCL	126.2	99% KM Chebyshev UCL	181.3
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	3.774E+28	**Anderson-Darling GOF Test**	

	A B C D E	F	G H I J K	L
612	5% A-D Critical Value	0.845	Detected Data Not Gamma Distributed at 5% Significance Level	
613	K-S Test Statistic	0.28	**Kolmogrov-Smirnoff GOF**	
614	5% K-S Critical Value	0.0602	Detected Data Not Gamma Distributed at 5% Significance Level	
615	**Detected Data Not Gamma Distributed at 5% Significance Level**			
616				
617	**Gamma Statistics on Detected Data Only**			
618	k hat (MLE)	0.402	k star (bias corrected MLE)	0.399
619	Theta hat (MLE)	97.14	Theta star (bias corrected MLE)	97.64
620	nu hat (MLE)	212.8	nu star (bias corrected)	211.7
621	MLE Mean (bias corrected)	39	MLE Sd (bias corrected)	61.71
622				
623	**Gamma Kaplan-Meier (KM) Statistics**			
624	k hat (KM)	0.0164	nu hat (KM)	10.21
625	Approximate Chi Square Value (10.21, α)	4.076	Adjusted Chi Square Value (10.21, β)	4.058
626	95% Gamma Approximate KM-UCL (use when n>=50)	83.94	95% Gamma Adjusted KM-UCL (use when n<50)	84.31
627	Gamma (KM) may not be used when k hat (KM) is < 0.1			
628				
629	**Gamma ROS Statistics using Imputed Non-Detects**			
630	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
631	GROS may not be used when kstar of detected data is small such as < 0.1			
632	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
633	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
634	Minimum	0.01	Mean	33.24
635	Maximum	4520	Median	5.14
636	SD	261.8	CV	7.878
637	k hat (MLE)	0.283	k star (bias corrected MLE)	0.283
638	Theta hat (MLE)	117.4	Theta star (bias corrected MLE)	117.6
639	nu hat (MLE)	176.1	nu star (bias corrected)	175.7
640	MLE Mean (bias corrected)	33.24	MLE Sd (bias corrected)	62.53
641			Adjusted Level of Significance (β)	0.0492
642	Approximate Chi Square Value (175.74, α)	146.1	Adjusted Chi Square Value (175.74, β)	146
643	95% Gamma Approximate UCL (use when n>=50)	39.98	95% Gamma Adjusted UCL (use when n<50)	40.02
644				
645	**Lognormal GOF Test on Detected Observations Only**			
646	Lilliefors Test Statistic	0.0966	**Lilliefors GOF Test**	
647	5% Lilliefors Critical Value	0.0544	Detected Data Not Lognormal at 5% Significance Level	
648	**Detected Data Not Lognormal at 5% Significance Level**			
649				
650	**Lognormal ROS Statistics Using Imputed Non-Detects**			
651	Mean in Original Scale	33.46	Mean in Log Scale	1.779
652	SD in Original Scale	261.8	SD in Log Scale	1.345
653	95% t UCL (assumes normality of ROS data)	57.95	95% Percentile Bootstrap UCL	62.47
654	95% BCA Bootstrap UCL	82.57	95% Bootstrap t UCL	155.1
655	95% H-UCL (Log ROS)	17.6		
656				
657	**DL/2 Statistics**			
658	**DL/2 Normal**		**DL/2 Log-Transformed**	

	A	B	C	D	E	F	G	H	I	J	K	L
659					Mean in Original Scale	33.41					Mean in Log Scale	1.746
660					SD in Original Scale	261.8					SD in Log Scale	1.377
661					95% t UCL (Assumes normality)	57.9					95% H-Stat UCL	17.9
662	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
663												
664	**Nonparametric Distribution Free UCL Statistics**											
665	**Data do not follow a Discernible Distribution at 5% Significance Level**											
666												
667	**Suggested UCL to Use**											
668					95% KM (Chebyshev) UCL	98.23						
669												
670	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
671	Recommendations are based upon data size, data distribution, and skewness.											
672	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
673	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
674												
675	GASOLINE RANGE ORGANICS											
676												
677	**General Statistics**											
678					Total Number of Observations	311					Number of Distinct Observations	161
679					Number of Detects	43					Number of Non-Detects	268
680					Number of Distinct Detects	43					Number of Distinct Non-Detects	131
681					Minimum Detect	0.737					Minimum Non-Detect	1.01
682					Maximum Detect	1750					Maximum Non-Detect	8.38
683					Variance Detects	70918					Percent Non-Detects	86.17%
684					Mean Detects	45.96					SD Detects	266.3
685					Median Detects	1.76					CV Detects	5.794
686					Skewness Detects	6.538					Kurtosis Detects	42.82
687					Mean of Logged Detects	0.989					SD of Logged Detects	1.464
688												
689	**Normal GOF Test on Detects Only**											
690					Shapiro Wilk Test Statistic	0.174	**Shapiro Wilk GOF Test**					
691					5% Shapiro Wilk Critical Value	0.943	Detected Data Not Normal at 5% Significance Level					
692					Lilliefors Test Statistic	0.476	**Lilliefors GOF Test**					
693					5% Lilliefors Critical Value	0.135	Detected Data Not Normal at 5% Significance Level					
694	**Detected Data Not Normal at 5% Significance Level**											
695												
696	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
697					Mean	7.381					Standard Error of Mean	5.685
698					SD	99.08					95% KM (BCA) UCL	18.69
699					95% KM (t) UCL	16.76					95% KM (Percentile Bootstrap) UCL	18.59
700					95% KM (z) UCL	16.73					95% KM Bootstrap t UCL	258.2
701					90% KM Chebyshev UCL	24.44					95% KM Chebyshev UCL	32.16
702					97.5% KM Chebyshev UCL	42.88					99% KM Chebyshev UCL	63.94
703												
704	**Gamma GOF Tests on Detected Observations Only**											
705					A-D Test Statistic	10.29	**Anderson-Darling GOF Test**					

	A–E	F	G–K	L
706	5% A-D Critical Value	0.885	Detected Data Not Gamma Distributed at 5% Significance Level	
707	K-S Test Statistic	0.373	**Kolmogrov-Smirnoff GOF**	
708	5% K-S Critical Value	0.148	Detected Data Not Gamma Distributed at 5% Significance Level	
709	**Detected Data Not Gamma Distributed at 5% Significance Level**			
710				
711	**Gamma Statistics on Detected Data Only**			
712	k hat (MLE)	0.25	k star (bias corrected MLE)	0.248
713	Theta hat (MLE)	183.7	Theta star (bias corrected MLE)	185.1
714	nu hat (MLE)	21.52	nu star (bias corrected)	21.35
715	MLE Mean (bias corrected)	45.96	MLE Sd (bias corrected)	92.24
716				
717	**Gamma Kaplan-Meier (KM) Statistics**			
718	k hat (KM)	0.00555	nu hat (KM)	3.452
719	Approximate Chi Square Value (3.45, α)	0.518	Adjusted Chi Square Value (3.45, β)	0.513
720	95% Gamma Approximate KM-UCL (use when n>=50)	49.19	95% Gamma Adjusted KM-UCL (use when n<50)	49.64
721	Gamma (KM) may not be used when k hat (KM) is < 0.1			
722				
723	**Gamma ROS Statistics using Imputed Non-Detects**			
724	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
725	GROS may not be used when kstar of detected data is small such as < 0.1			
726	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
727	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
728	Minimum	0.01	Mean	6.363
729	Maximum	1750	Median	0.01
730	SD	99.3	CV	15.61
731	k hat (MLE)	0.137	k star (bias corrected MLE)	0.138
732	Theta hat (MLE)	46.44	Theta star (bias corrected MLE)	46.16
733	nu hat (MLE)	85.23	nu star (bias corrected)	85.74
734	MLE Mean (bias corrected)	6.363	MLE Sd (bias corrected)	17.14
735			Adjusted Level of Significance (β)	0.0492
736	Approximate Chi Square Value (85.74, α)	65.4	Adjusted Chi Square Value (85.74, β)	65.32
737	95% Gamma Approximate UCL (use when n>=50)	8.343	95% Gamma Adjusted UCL (use when n<50)	8.353
738				
739	**Lognormal GOF Test on Detected Observations Only**			
740	Shapiro Wilk Test Statistic	0.739	**Shapiro Wilk GOF Test**	
741	5% Shapiro Wilk Critical Value	0.943	Detected Data Not Lognormal at 5% Significance Level	
742	Lilliefors Test Statistic	0.249	**Lilliefors GOF Test**	
743	5% Lilliefors Critical Value	0.135	Detected Data Not Lognormal at 5% Significance Level	
744	**Detected Data Not Lognormal at 5% Significance Level**			
745				
746	**Lognormal ROS Statistics Using Imputed Non-Detects**			
747	Mean in Original Scale	7.42	Mean in Log Scale	0.237
748	SD in Original Scale	99.24	SD in Log Scale	0.742
749	95% t UCL (assumes normality of ROS data)	16.7	95% Percentile Bootstrap UCL	18.56
750	95% BCA Bootstrap UCL	24.47	95% Bootstrap t UCL	282
751	95% H-UCL (Log ROS)	1.81		
752				

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	7.327	Mean in Log Scale	0.22
SD in Original Scale	99.24	SD in Log Scale	0.649
95% t UCL (Assumes normality)	16.61	95% H-Stat UCL	1.649

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	18.69

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

INDENO(1,2,3-CD)PYRENE

General Statistics

Total Number of Observations	311	Number of Distinct Observations	133
Number of Detects	49	Number of Non-Detects	262
Number of Distinct Detects	48	Number of Distinct Non-Detects	88
Minimum Detect	0.0274	Minimum Non-Detect	0.0337
Maximum Detect	2.26	Maximum Non-Detect	1.71
Variance Detects	0.161	Percent Non-Detects	84.24%
Mean Detects	0.218	SD Detects	0.402
Median Detects	0.053	CV Detects	1.846
Skewness Detects	3.599	Kurtosis Detects	15
Mean of Logged Detects	-2.401	SD of Logged Detects	1.179

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.527	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.947	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.343	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.127	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0614	Standard Error of Mean	0.00991
SD	0.172	95% KM (BCA) UCL	0.0807
95% KM (t) UCL	0.0777	95% KM (Percentile Bootstrap) UCL	0.0789
95% KM (z) UCL	0.0777	95% KM Bootstrap t UCL	0.0915
90% KM Chebyshev UCL	0.0911	95% KM Chebyshev UCL	0.105
97.5% KM Chebyshev UCL	0.123	99% KM Chebyshev UCL	0.16

Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	4.697	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.798	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.25	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.132	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.691	k star (bias corrected MLE)	0.662
Theta hat (MLE)	0.315	Theta star (bias corrected MLE)	0.329
nu hat (MLE)	67.72	nu star (bias corrected)	64.91
MLE Mean (bias corrected)	0.218	MLE Sd (bias corrected)	0.268
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.127	nu hat (KM)	78.96
Approximate Chi Square Value (78.96, α)	59.49	Adjusted Chi Square Value (78.96, β)	59.41
95% Gamma Approximate KM-UCL (use when n>=50)	0.0814	95% Gamma Adjusted KM-UCL (use when n<50)	0.0815
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.0427
Maximum	2.26	Median	0.01
SD	0.175	CV	4.104
k hat (MLE)	0.564	k star (bias corrected MLE)	0.561
Theta hat (MLE)	0.0757	Theta star (bias corrected MLE)	0.0762
nu hat (MLE)	351	nu star (bias corrected)	349
MLE Mean (bias corrected)	0.0427	MLE Sd (bias corrected)	0.057
		Adjusted Level of Significance (β)	0.0492
Approximate Chi Square Value (348.97, α)	306.7	Adjusted Chi Square Value (348.97, β)	306.5
95% Gamma Approximate UCL (use when n>=50)	0.0486	95% Gamma Adjusted UCL (use when n<50)	0.0486
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.835	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.947	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.203	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.127	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.0553	Mean in Log Scale	-3.609
SD in Original Scale	0.173	SD in Log Scale	0.866
95% t UCL (assumes normality of ROS data)	0.0715	95% Percentile Bootstrap UCL	0.0737
95% BCA Bootstrap UCL	0.0773	95% Bootstrap t UCL	0.0827
95% H-UCL (Log ROS)	0.0435		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.0692	Mean in Log Scale	-3.5
SD in Original Scale	0.184	SD in Log Scale	0.98
95% t UCL (Assumes normality)	0.0865	95% H-Stat UCL	0.0549

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.0807

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

P-ISOPROPYLTOLUENE

General Statistics

Total Number of Observations	311	Number of Distinct Observations	219
Number of Detects	5	Number of Non-Detects	306
Number of Distinct Detects	5	Number of Distinct Non-Detects	214
Minimum Detect	9.8100E-4	Minimum Non-Detect	3.1400E-4
Maximum Detect	0.354	Maximum Non-Detect	0.0288
Variance Detects	0.0241	Percent Non-Detects	98.39%
Mean Detects	0.0768	SD Detects	0.155
Median Detects	0.0074	CV Detects	2.019
Skewness Detects	2.224	Kurtosis Detects	4.956
Mean of Logged Detects	-4.568	SD of Logged Detects	2.271

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.592	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.762	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.445	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.396	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.00155	Standard Error of Mean	0.00127
SD	0.0201	95% KM (BCA) UCL	0.00392
95% KM (t) UCL	0.00364	95% KM (Percentile Bootstrap) UCL	0.00385
95% KM (z) UCL	0.00364	95% KM Bootstrap t UCL	0.0398
90% KM Chebyshev UCL	0.00536	95% KM Chebyshev UCL	0.00709
97.5% KM Chebyshev UCL	0.00948	99% KM Chebyshev UCL	0.0142

	A	B	C	D	E	F	G	H	I	J	K	L
894												
895	**Gamma GOF Tests on Detected Observations Only**											
896	A-D Test Statistic					0.546	**Anderson-Darling GOF Test**					
897	5% A-D Critical Value					0.734	Detected data appear Gamma Distributed at 5% Significance Level					
898	K-S Test Statistic					0.323	**Kolmogrov-Smirnoff GOF**					
899	5% K-S Critical Value					0.378	Detected data appear Gamma Distributed at 5% Significance Level					
900	**Detected data appear Gamma Distributed at 5% Significance Level**											
901												
902	**Gamma Statistics on Detected Data Only**											
903	k hat (MLE)					0.338	k star (bias corrected MLE)					0.268
904	Theta hat (MLE)					0.227	Theta star (bias corrected MLE)					0.286
905	nu hat (MLE)					3.379	nu star (bias corrected)					2.685
906	MLE Mean (bias corrected)					0.0768	MLE Sd (bias corrected)					0.148
907												
908	**Gamma Kaplan-Meier (KM) Statistics**											
909	k hat (KM)					0.00594	nu hat (KM)					3.693
910	Approximate Chi Square Value (3.69, α)					0.604	Adjusted Chi Square Value (3.69, β)					0.599
911	95% Gamma Approximate KM-UCL (use when n>=50)					0.00944	95% Gamma Adjusted KM-UCL (use when n<50)					0.00953
912	Gamma (KM) may not be used when k hat (KM) is < 0.1											
913												
914	**Gamma ROS Statistics using Imputed Non-Detects**											
915	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
916	GROS may not be used when kstar of detected data is small such as < 0.1											
917	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
918	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
919	Minimum					9.8100E-4	Mean					0.0111
920	Maximum					0.354	Median					0.01
921	SD					0.0195	CV					1.763
922	k hat (MLE)					5.09	k star (bias corrected MLE)					5.043
923	Theta hat (MLE)					0.00218	Theta star (bias corrected MLE)					0.0022
924	nu hat (MLE)					3166	nu star (bias corrected)					3137
925	MLE Mean (bias corrected)					0.0111	MLE Sd (bias corrected)					0.00493
926							Adjusted Level of Significance (β)					0.0492
927	Approximate Chi Square Value (N/A, α)					3007	Adjusted Chi Square Value (N/A, β)					3007
928	95% Gamma Approximate UCL (use when n>=50)					0.0115	95% Gamma Adjusted UCL (use when n<50)					0.0116
929												
930	**Lognormal GOF Test on Detected Observations Only**											
931	Shapiro Wilk Test Statistic					0.944	**Shapiro Wilk GOF Test**					
932	5% Shapiro Wilk Critical Value					0.762	Detected Data appear Lognormal at 5% Significance Level					
933	Lilliefors Test Statistic					0.192	**Lilliefors GOF Test**					
934	5% Lilliefors Critical Value					0.396	Detected Data appear Lognormal at 5% Significance Level					
935	**Detected Data appear Lognormal at 5% Significance Level**											
936												
937	**Lognormal ROS Statistics Using Imputed Non-Detects**											
938	Mean in Original Scale					0.00124	Mean in Log Scale					-23.26
939	SD in Original Scale					0.0201	SD in Log Scale					3.568
940	95% t UCL (assumes normality of ROS data)					0.00312	95% Percentile Bootstrap UCL					0.00348

	A	B	C	D	E	F	G	H	I	J	K	L
941				95% BCA Bootstrap UCL		0.00578				95% Bootstrap t UCL		0.0593
942				95% H-UCL (Log ROS)		1.2491E-7						
943												
944	UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed											
945				KM Mean (logged)		-8.009				95% H-UCL (KM -Log)		3.9900E-4
946				KM SD (logged)		0.511				95% Critical H Value (KM-Log)		1.796
947				KM Standard Error of Mean (logged)		0.0325						
948												
949	DL/2 Statistics											
950	DL/2 Normal						DL/2 Log-Transformed					
951				Mean in Original Scale		0.00165				Mean in Log Scale		-8.075
952				SD in Original Scale		0.0201				SD in Log Scale		0.7
953				95% t UCL (Assumes normality)		0.00353				95% H-Stat UCL		4.2886E-4
954	DL/2 is not a recommended method, provided for comparisons and historical reasons											
955												
956	Nonparametric Distribution Free UCL Statistics											
957	Detected Data appear Gamma Distributed at 5% Significance Level											
958												
959	Suggested UCL to Use											
960				95% KM (t) UCL		0.00364				95% GROS Approximate Gamma UCL		0.0115
961				95% Approximate Gamma KM-UCL		0.00944						
962												
963	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
964	Recommendations are based upon data size, data distribution, and skewness.											
965	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
966	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
967												

UCL Statistics for Data Sets with Non-Detects			
User Selected Options	**KAFB - BFF Total Soil (0-10 ft bgs)_03-06-14**		
Date/Time of Computation	3/6/2014 10:35:31 AM		
From File	ProUCL input_TS_03-06-14.xls		
Full Precision	OFF		
Confidence Coefficient	95%		
Number of Bootstrap Operations	2000		
1,2,4-TRIMETHYLBENZENE			
General Statistics			
Total Number of Observations	652	Number of Distinct Observations	407
Number of Detects	106	Number of Non-Detects	546
Number of Distinct Detects	101	Number of Distinct Non-Detects	318
Minimum Detect	1.0500E-4	Minimum Non-Detect	3.6900E-4
Maximum Detect	59.2	Maximum Non-Detect	0.383
Variance Detects	77.52	Percent Non-Detects	83.74%
Mean Detects	1.621	SD Detects	8.804
Median Detects	4.0100E-4	CV Detects	5.431
Skewness Detects	6.012	Kurtosis Detects	35.95
Mean of Logged Detects	-6.775	SD of Logged Detects	3.025
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.196	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.472	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0861	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.264	Standard Error of Mean	0.141
SD	3.583	95% KM (BCA) UCL	0.525
95% KM (t) UCL	0.496	95% KM (Percentile Bootstrap) UCL	0.521
95% KM (z) UCL	0.496	95% KM Bootstrap t UCL	2.111
90% KM Chebyshev UCL	0.687	95% KM Chebyshev UCL	0.878
97.5% KM Chebyshev UCL	1.144	99% KM Chebyshev UCL	1.667
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	27.14	**Anderson-Darling GOF Test**	
5% A-D Critical Value	1.005	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.427	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.101	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.11	k star (bias corrected MLE)	0.114

	A–E	F	G–K	L
48	Theta hat (MLE)	14.67	Theta star (bias corrected MLE)	14.27
49	nu hat (MLE)	23.42	nu star (bias corrected)	24.09
50	MLE Mean (bias corrected)	1.621	MLE Sd (bias corrected)	4.809
51				
52	**Gamma Kaplan-Meier (KM) Statistics**			
53	k hat (KM)	0.00542	nu hat (KM)	7.063
54	Approximate Chi Square Value (7.06, α)	2.205	Adjusted Chi Square Value (7.06, β)	2.199
55	95% Gamma Approximate KM-UCL (use when n>=50)	0.845	95% Gamma Adjusted KM-UCL (use when n<50)	0.847
56	Gamma (KM) may not be used when k hat (KM) is < 0.1			
57				
58	**Gamma ROS Statistics using Imputed Non-Detects**			
59	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
60	GROS may not be used when kstar of detected data is small such as < 0.1			
61	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
62	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
63	Minimum	1.0500E-4	Mean	0.272
64	Maximum	59.2	Median	0.01
65	SD	3.586	CV	13.19
66	k hat (MLE)	0.201	k star (bias corrected MLE)	0.201
67	Theta hat (MLE)	1.352	Theta star (bias corrected MLE)	1.351
68	nu hat (MLE)	262.3	nu star (bias corrected)	262.4
69	MLE Mean (bias corrected)	0.272	MLE Sd (bias corrected)	0.606
70			Adjusted Level of Significance (β)	0.0496
71	Approximate Chi Square Value (262.40, α)	225.9	Adjusted Chi Square Value (262.40, β)	225.8
72	95% Gamma Approximate UCL (use when n>=50)	0.316	95% Gamma Adjusted UCL (use when n<50)	0.316
73				
74	**Lognormal GOF Test on Detected Observations Only**			
75	Lilliefors Test Statistic	0.278	**Lilliefors GOF Test**	
76	5% Lilliefors Critical Value	0.0861	Detected Data Not Lognormal at 5% Significance Level	
77	**Detected Data Not Lognormal at 5% Significance Level**			
78				
79	**Lognormal ROS Statistics Using Imputed Non-Detects**			
80	Mean in Original Scale	0.264	Mean in Log Scale	-8.15
81	SD in Original Scale	3.586	SD in Log Scale	1.509
82	95% t UCL (assumes normality of ROS data)	0.495	95% Percentile Bootstrap UCL	0.502
83	95% BCA Bootstrap UCL	0.617	95% Bootstrap t UCL	1.789
84	95% H-UCL (Log ROS)	0.00105		
85				
86	**DL/2 Statistics**			
87	**DL/2 Normal**		**DL/2 Log-Transformed**	
88	Mean in Original Scale	0.264	Mean in Log Scale	-7.844
89	SD in Original Scale	3.586	SD in Log Scale	1.408
90	95% t UCL (Assumes normality)	0.496	95% H-Stat UCL	0.00121
91	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
92				
93	**Nonparametric Distribution Free UCL Statistics**			
94	**Data do not follow a Discernible Distribution at 5% Significance Level**			

Suggested UCL to Use			
97.5% KM (Chebyshev) UCL	1.144		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

2-METHYLNAPHTHALENE

General Statistics			
Total Number of Observations	652	Number of Distinct Observations	153
Number of Detects	55	Number of Non-Detects	597
Number of Distinct Detects	54	Number of Distinct Non-Detects	99
Minimum Detect	0.00995	Minimum Non-Detect	0.0336
Maximum Detect	32.4	Maximum Non-Detect	0.385
Variance Detects	59.51	Percent Non-Detects	91.56%
Mean Detects	2.524	SD Detects	7.714
Median Detects	0.0281	CV Detects	3.056
Skewness Detects	3.215	Kurtosis Detects	9.208
Mean of Logged Detects	-2.674	SD of Logged Detects	2.329
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.368	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.44	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.119	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.228	Standard Error of Mean	0.092
SD	2.327	95% KM (BCA) UCL	0.373
95% KM (t) UCL	0.38	95% KM (Percentile Bootstrap) UCL	0.391
95% KM (z) UCL	0.379	95% KM Bootstrap t UCL	0.495
90% KM Chebyshev UCL	0.504	95% KM Chebyshev UCL	0.629
97.5% KM Chebyshev UCL	0.803	99% KM Chebyshev UCL	1.143
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	10.31	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.911	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.382	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.133	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.204	k star (bias corrected MLE)	0.205

	A–E	F	G–K	L
142	Theta hat (MLE)	12.38	Theta star (bias corrected MLE)	12.32
143	nu hat (MLE)	22.42	nu star (bias corrected)	22.53
144	MLE Mean (bias corrected)	2.524	MLE Sd (bias corrected)	5.577
145				
146	**Gamma Kaplan-Meier (KM) Statistics**			
147	k hat (KM)	0.00962	nu hat (KM)	12.54
148	Approximate Chi Square Value (12.54, α)	5.586	Adjusted Chi Square Value (12.54, β)	5.576
149	95% Gamma Approximate KM-UCL (use when n>=50)	0.512	95% Gamma Adjusted KM-UCL (use when n<50)	0.513
150	Gamma (KM) may not be used when k hat (KM) is < 0.1			
151				
152	**Gamma ROS Statistics using Imputed Non-Detects**			
153	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
154	GROS may not be used when kstar of detected data is small such as < 0.1			
155	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
156	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
157	Minimum	0.00995	Mean	0.264
158	Maximum	32.4	Median	0.01
159	SD	2.335	CV	8.833
160	k hat (MLE)	0.245	k star (bias corrected MLE)	0.245
161	Theta hat (MLE)	1.078	Theta star (bias corrected MLE)	1.078
162	nu hat (MLE)	319.9	nu star (bias corrected)	319.8
163	MLE Mean (bias corrected)	0.264	MLE Sd (bias corrected)	0.534
164			Adjusted Level of Significance (β)	0.0496
165	Approximate Chi Square Value (319.80, α)	279.4	Adjusted Chi Square Value (319.80, β)	279.3
166	95% Gamma Approximate UCL (use when n>=50)	0.303	95% Gamma Adjusted UCL (use when n<50)	0.303
167				
168	**Lognormal GOF Test on Detected Observations Only**			
169	Lilliefors Test Statistic	0.226	**Lilliefors GOF Test**	
170	5% Lilliefors Critical Value	0.119	Detected Data Not Lognormal at 5% Significance Level	
171	**Detected Data Not Lognormal at 5% Significance Level**			
172				
173	**Lognormal ROS Statistics Using Imputed Non-Detects**			
174	Mean in Original Scale	0.238	Mean in Log Scale	-3.936
175	SD in Original Scale	2.328	SD in Log Scale	1.238
176	95% t UCL (assumes normality of ROS data)	0.389	95% Percentile Bootstrap UCL	0.411
177	95% BCA Bootstrap UCL	0.446	95% Bootstrap t UCL	0.484
178	95% H-UCL (Log ROS)	0.047		
179				
180	**DL/2 Statistics**			
181	**DL/2 Normal**		**DL/2 Log-Transformed**	
182	Mean in Original Scale	0.234	Mean in Log Scale	-3.837
183	SD in Original Scale	2.328	SD in Log Scale	0.842
184	95% t UCL (Assumes normality)	0.384	95% H-Stat UCL	0.0328
185	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
186				
187	**Nonparametric Distribution Free UCL Statistics**			
188	**Data do not follow a Discernible Distribution at 5% Significance Level**			

Row				
189				
190	**Suggested UCL to Use**			
191	97.5% KM (Chebyshev) UCL	0.803		
192				
193	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
194	Recommendations are based upon data size, data distribution, and skewness.			
195	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
196	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
197				
198	BENZO(A)ANTHRACENE			
199				
200	**General Statistics**			
201	Total Number of Observations	652	Number of Distinct Observations	196
202	Number of Detects	125	Number of Non-Detects	527
203	Number of Distinct Detects	119	Number of Distinct Non-Detects	94
204	Minimum Detect	0.0222	Minimum Non-Detect	0.0337
205	Maximum Detect	9	Maximum Non-Detect	0.705
206	Variance Detects	1.018	Percent Non-Detects	80.83%
207	Mean Detects	0.286	SD Detects	1.009
208	Median Detects	0.0603	CV Detects	3.526
209	Skewness Detects	6.865	Kurtosis Detects	51.68
210	Mean of Logged Detects	-2.438	SD of Logged Detects	1.147
211				
212	**Normal GOF Test on Detects Only**			
213	Shapiro Wilk Test Statistic	0.272	**Normal GOF Test on Detected Observations Only**	
214	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
215	Lilliefors Test Statistic	0.397	**Lilliefors GOF Test**	
216	5% Lilliefors Critical Value	0.0792	Detected Data Not Normal at 5% Significance Level	
217	**Detected Data Not Normal at 5% Significance Level**			
218				
219	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
220	Mean	0.0787	Standard Error of Mean	0.0178
221	SD	0.452	95% KM (BCA) UCL	0.112
222	95% KM (t) UCL	0.108	95% KM (Percentile Bootstrap) UCL	0.109
223	95% KM (z) UCL	0.108	95% KM Bootstrap t UCL	0.139
224	90% KM Chebyshev UCL	0.132	95% KM Chebyshev UCL	0.156
225	97.5% KM Chebyshev UCL	0.19	99% KM Chebyshev UCL	0.255
226				
227	**Gamma GOF Tests on Detected Observations Only**			
228	A-D Test Statistic	15.94	**Anderson-Darling GOF Test**	
229	5% A-D Critical Value	0.816	Detected Data Not Gamma Distributed at 5% Significance Level	
230	K-S Test Statistic	0.266	**Kolmogrov-Smirnoff GOF**	
231	5% K-S Critical Value	0.0876	Detected Data Not Gamma Distributed at 5% Significance Level	
232	**Detected Data Not Gamma Distributed at 5% Significance Level**			
233				
234	**Gamma Statistics on Detected Data Only**			
235	k hat (MLE)	0.53	k star (bias corrected MLE)	0.523

	A–E	F	G–K	L
236	Theta hat (MLE)	0.54	Theta star (bias corrected MLE)	0.547
237	nu hat (MLE)	132.6	nu star (bias corrected)	130.8
238	MLE Mean (bias corrected)	0.286	MLE Sd (bias corrected)	0.396
239				
240	**Gamma Kaplan-Meier (KM) Statistics**			
241	k hat (KM)	0.0303	nu hat (KM)	39.57
242	Approximate Chi Square Value (39.57, α)	26.16	Adjusted Chi Square Value (39.57, β)	26.14
243	95% Gamma Approximate KM-UCL (use when n>=50)	0.119	95% Gamma Adjusted KM-UCL (use when n<50)	0.119
244	Gamma (KM) may not be used when k hat (KM) is < 0.1			
245				
246	**Gamma ROS Statistics using Imputed Non-Detects**			
247	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
248	GROS may not be used when kstar of detected data is small such as < 0.1			
249	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
250	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
251	Minimum	0.01	Mean	0.063
252	Maximum	9	Median	0.01
253	SD	0.454	CV	7.206
254	k hat (MLE)	0.453	k star (bias corrected MLE)	0.452
255	Theta hat (MLE)	0.139	Theta star (bias corrected MLE)	0.139
256	nu hat (MLE)	590.6	nu star (bias corrected)	589.2
257	MLE Mean (bias corrected)	0.063	MLE Sd (bias corrected)	0.0937
258			Adjusted Level of Significance (β)	0.0496
259	Approximate Chi Square Value (589.24, α)	533.9	Adjusted Chi Square Value (589.24, β)	533.8
260	95% Gamma Approximate UCL (use when n>=50)	0.0695	95% Gamma Adjusted UCL (use when n<50)	0.0695
261				
262	**Lognormal GOF Test on Detected Observations Only**			
263	Lilliefors Test Statistic	0.162	**Lilliefors GOF Test**	
264	5% Lilliefors Critical Value	0.0792	Detected Data Not Lognormal at 5% Significance Level	
265	**Detected Data Not Lognormal at 5% Significance Level**			
266				
267	**Lognormal ROS Statistics Using Imputed Non-Detects**			
268	Mean in Original Scale	0.0718	Mean in Log Scale	-3.774
269	SD in Original Scale	0.453	SD in Log Scale	1.038
270	95% t UCL (assumes normality of ROS data)	0.101	95% Percentile Bootstrap UCL	0.103
271	95% BCA Bootstrap UCL	0.12	95% Bootstrap t UCL	0.139
272	95% H-UCL (Log ROS)	0.0429		
273				
274	**DL/2 Statistics**			
275	**DL/2 Normal**		**DL/2 Log-Transformed**	
276	Mean in Original Scale	0.0754	Mean in Log Scale	-3.626
277	SD in Original Scale	0.453	SD in Log Scale	0.877
278	95% t UCL (Assumes normality)	0.105	95% H-Stat UCL	0.0419
279	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
280				
281	**Nonparametric Distribution Free UCL Statistics**			
282	**Data do not follow a Discernible Distribution at 5% Significance Level**			

Row	Label	Value	Label	Value
283				
284	**Suggested UCL to Use**			
285	95% KM (BCA) UCL	0.112		
286				
287	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
288	Recommendations are based upon data size, data distribution, and skewness.			
289	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
290	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
291				
292	BENZO(A)PYRENE			
293				
294	**General Statistics**			
295	Total Number of Observations	672	Number of Distinct Observations	270
296	Number of Detects	187	Number of Non-Detects	485
297	Number of Distinct Detects	171	Number of Distinct Non-Detects	111
298	Minimum Detect	0.00935	Minimum Non-Detect	0.0337
299	Maximum Detect	9.04	Maximum Non-Detect	1.71
300	Variance Detects	0.632	Percent Non-Detects	72.17%
301	Mean Detects	0.204	SD Detects	0.795
302	Median Detects	0.0431	CV Detects	3.895
303	Skewness Detects	8.746	Kurtosis Detects	87.94
304	Mean of Logged Detects	-2.858	SD of Logged Detects	1.223
305				
306	**Normal GOF Test on Detects Only**			
307	Shapiro Wilk Test Statistic	0.25	**Normal GOF Test on Detected Observations Only**	
308	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
309	Lilliefors Test Statistic	0.403	**Lilliefors GOF Test**	
310	5% Lilliefors Critical Value	0.0648	Detected Data Not Normal at 5% Significance Level	
311	**Detected Data Not Normal at 5% Significance Level**			
312				
313	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
314	Mean	0.074	Standard Error of Mean	0.0165
315	SD	0.426	95% KM (BCA) UCL	0.104
316	95% KM (t) UCL	0.101	95% KM (Percentile Bootstrap) UCL	0.104
317	95% KM (z) UCL	0.101	95% KM Bootstrap t UCL	0.138
318	90% KM Chebyshev UCL	0.123	95% KM Chebyshev UCL	0.146
319	97.5% KM Chebyshev UCL	0.177	99% KM Chebyshev UCL	0.238
320				
321	**Gamma GOF Tests on Detected Observations Only**			
322	A-D Test Statistic	20.51	**Anderson-Darling GOF Test**	
323	5% A-D Critical Value	0.821	Detected Data Not Gamma Distributed at 5% Significance Level	
324	K-S Test Statistic	0.242	**Kolmogrov-Smirnoff GOF**	
325	5% K-S Critical Value	0.0709	Detected Data Not Gamma Distributed at 5% Significance Level	
326	**Detected Data Not Gamma Distributed at 5% Significance Level**			
327				
328	**Gamma Statistics on Detected Data Only**			
329	k hat (MLE)	0.5	k star (bias corrected MLE)	0.496

Row	Statistic	Value	Statistic	Value
330	Theta hat (MLE)	0.408	Theta star (bias corrected MLE)	0.412
331	nu hat (MLE)	187.2	nu star (bias corrected)	185.5
332	MLE Mean (bias corrected)	0.204	MLE Sd (bias corrected)	0.29
333				
334	**Gamma Kaplan-Meier (KM) Statistics**			
335	k hat (KM)	0.0302	nu hat (KM)	40.53
336	Approximate Chi Square Value (40.53, α)	26.94	Adjusted Chi Square Value (40.53, β)	26.92
337	95% Gamma Approximate KM-UCL (use when n>=50)	0.111	95% Gamma Adjusted KM-UCL (use when n<50)	0.111
338	Gamma (KM) may not be used when k hat (KM) is < 0.1			
339				
340	**Gamma ROS Statistics using Imputed Non-Detects**			
341	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
342	GROS may not be used when kstar of detected data is small such as < 0.1			
343	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
344	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
345	Minimum	0.00935	Mean	0.0647
346	Maximum	9.04	Median	0.01
347	SD	0.427	CV	6.604
348	k hat (MLE)	0.475	k star (bias corrected MLE)	0.473
349	Theta hat (MLE)	0.136	Theta star (bias corrected MLE)	0.137
350	nu hat (MLE)	637.9	nu star (bias corrected)	636.4
351	MLE Mean (bias corrected)	0.0647	MLE Sd (bias corrected)	0.0941
352			Adjusted Level of Significance (β)	0.0496
353	Approximate Chi Square Value (636.35, α)	578.8	Adjusted Chi Square Value (636.35, β)	578.7
354	95% Gamma Approximate UCL (use when n>=50)	0.0712	95% Gamma Adjusted UCL (use when n<50)	0.0712
355				
356	**Lognormal GOF Test on Detected Observations Only**			
357	Lilliefors Test Statistic	0.114	**Lilliefors GOF Test**	
358	5% Lilliefors Critical Value	0.0648	Detected Data Not Lognormal at 5% Significance Level	
359	**Detected Data Not Lognormal at 5% Significance Level**			
360				
361	**Lognormal ROS Statistics Using Imputed Non-Detects**			
362	Mean in Original Scale	0.0757	Mean in Log Scale	-3.54
363	SD in Original Scale	0.426	SD in Log Scale	0.924
364	95% t UCL (assumes normality of ROS data)	0.103	95% Percentile Bootstrap UCL	0.106
365	95% BCA Bootstrap UCL	0.12	95% Bootstrap t UCL	0.138
366	95% H-UCL (Log ROS)	0.0478		
367				
368	**DL/2 Statistics**			
369	**DL/2 Normal**		**DL/2 Log-Transformed**	
370	Mean in Original Scale	0.0812	Mean in Log Scale	-3.54
371	SD in Original Scale	0.429	SD in Log Scale	0.953
372	95% t UCL (Assumes normality)	0.108	95% H-Stat UCL	0.0493
373	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
374				
375	**Nonparametric Distribution Free UCL Statistics**			
376	**Data do not follow a Discernible Distribution at 5% Significance Level**			

	A–E	F	G–K	L
377				
378	**Suggested UCL to Use**			
379	95% KM (BCA) UCL	0.104		
380				
381	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
382	Recommendations are based upon data size, data distribution, and skewness.			
383	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
384	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
385				
386	BENZO(B)FLUORANTHENE			
387				
388	**General Statistics**			
389	Total Number of Observations	653	Number of Distinct Observations	219
390	Number of Detects	116	Number of Non-Detects	537
391	Number of Distinct Detects	113	Number of Distinct Non-Detects	118
392	Minimum Detect	0.0261	Minimum Non-Detect	0.0337
393	Maximum Detect	9.85	Maximum Non-Detect	1.71
394	Variance Detects	1.218	Percent Non-Detects	82.24%
395	Mean Detects	0.349	SD Detects	1.104
396	Median Detects	0.0727	CV Detects	3.162
397	Skewness Detects	6.742	Kurtosis Detects	51.74
398	Mean of Logged Detects	-2.211	SD of Logged Detects	1.2
399				
400	**Normal GOF Test on Detects Only**			
401	Shapiro Wilk Test Statistic	0.311	**Normal GOF Test on Detected Observations Only**	
402	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
403	Lilliefors Test Statistic	0.385	**Lilliefors GOF Test**	
404	5% Lilliefors Critical Value	0.0823	Detected Data Not Normal at 5% Significance Level	
405	**Detected Data Not Normal at 5% Significance Level**			
406				
407	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
408	Mean	0.0883	Standard Error of Mean	0.0188
409	SD	0.479	95% KM (BCA) UCL	0.12
410	95% KM (t) UCL	0.119	95% KM (Percentile Bootstrap) UCL	0.121
411	95% KM (z) UCL	0.119	95% KM Bootstrap t UCL	0.158
412	90% KM Chebyshev UCL	0.145	95% KM Chebyshev UCL	0.17
413	97.5% KM Chebyshev UCL	0.206	99% KM Chebyshev UCL	0.276
414				
415	**Gamma GOF Tests on Detected Observations Only**			
416	A-D Test Statistic	12.88	**Anderson-Darling GOF Test**	
417	5% A-D Critical Value	0.815	Detected Data Not Gamma Distributed at 5% Significance Level	
418	K-S Test Statistic	0.25	**Kolmogrov-Smirnoff GOF**	
419	5% K-S Critical Value	0.09	Detected Data Not Gamma Distributed at 5% Significance Level	
420	**Detected Data Not Gamma Distributed at 5% Significance Level**			
421				
422	**Gamma Statistics on Detected Data Only**			
423	k hat (MLE)	0.542	k star (bias corrected MLE)	0.533

Row	A–E	F	G–K	L
424	Theta hat (MLE)	0.644	Theta star (bias corrected MLE)	0.654
425	nu hat (MLE)	125.6	nu star (bias corrected)	123.7
426	MLE Mean (bias corrected)	0.349	MLE Sd (bias corrected)	0.478
427				
428	**Gamma Kaplan-Meier (KM) Statistics**			
429	k hat (KM)	0.034	nu hat (KM)	44.43
430	Approximate Chi Square Value (44.43, α)	30.14	Adjusted Chi Square Value (44.43, β)	30.12
431	95% Gamma Approximate KM-UCL (use when n>=50)	0.13	95% Gamma Adjusted KM-UCL (use when n<50)	0.13
432	Gamma (KM) may not be used when k hat (KM) is < 0.1			
433				
434	**Gamma ROS Statistics using Imputed Non-Detects**			
435	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
436	GROS may not be used when kstar of detected data is small such as < 0.1			
437	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
438	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
439	Minimum	0.01	Mean	0.0702
440	Maximum	9.85	Median	0.01
441	SD	0.481	CV	6.854
442	k hat (MLE)	0.427	k star (bias corrected MLE)	0.426
443	Theta hat (MLE)	0.164	Theta star (bias corrected MLE)	0.165
444	nu hat (MLE)	558	nu star (bias corrected)	556.8
445	MLE Mean (bias corrected)	0.0702	MLE Sd (bias corrected)	0.108
446			Adjusted Level of Significance (β)	0.0496
447	Approximate Chi Square Value (556.80, α)	503.1	Adjusted Chi Square Value (556.80, β)	503
448	95% Gamma Approximate UCL (use when n>=50)	0.0777	95% Gamma Adjusted UCL (use when n<50)	0.0777
449				
450	**Lognormal GOF Test on Detected Observations Only**			
451	Lilliefors Test Statistic	0.158	**Lilliefors GOF Test**	
452	5% Lilliefors Critical Value	0.0823	Detected Data Not Lognormal at 5% Significance Level	
453	**Detected Data Not Lognormal at 5% Significance Level**			
454				
455	**Lognormal ROS Statistics Using Imputed Non-Detects**			
456	Mean in Original Scale	0.0751	Mean in Log Scale	-4.068
457	SD in Original Scale	0.481	SD in Log Scale	1.275
458	95% t UCL (assumes normality of ROS data)	0.106	95% Percentile Bootstrap UCL	0.108
459	95% BCA Bootstrap UCL	0.122	95% Bootstrap t UCL	0.144
460	95% H-UCL (Log ROS)	0.0433		
461				
462	**DL/2 Statistics**			
463	**DL/2 Normal**		**DL/2 Log-Transformed**	
464	Mean in Original Scale	0.0902	Mean in Log Scale	-3.509
465	SD in Original Scale	0.482	SD in Log Scale	0.994
466	95% t UCL (Assumes normality)	0.121	95% H-Stat UCL	0.0532
467	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
468				
469	**Nonparametric Distribution Free UCL Statistics**			
470	**Data do not follow a Discernible Distribution at 5% Significance Level**			

Suggested UCL to Use

95% KM (BCA) UCL	0.12

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

CARBAZOLE

General Statistics

Total Number of Observations	652	Number of Distinct Observations	171
Number of Detects	78	Number of Non-Detects	574
Number of Distinct Detects	77	Number of Distinct Non-Detects	100
Minimum Detect	0.0201	Minimum Non-Detect	0.0336
Maximum Detect	1.62	Maximum Non-Detect	0.385
Variance Detects	0.0387	Percent Non-Detects	88.04%
Mean Detects	0.0886	SD Detects	0.197
Median Detects	0.0388	CV Detects	2.221
Skewness Detects	6.545	Kurtosis Detects	48.95
Mean of Logged Detects	-3.007	SD of Logged Detects	0.841

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.347	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.364	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.1	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.034	Standard Error of Mean	0.00286
SD	0.0708	95% KM (BCA) UCL	0.0393
95% KM (t) UCL	0.0387	95% KM (Percentile Bootstrap) UCL	0.0392
95% KM (z) UCL	0.0387	95% KM Bootstrap t UCL	0.0435
90% KM Chebyshev UCL	0.0425	95% KM Chebyshev UCL	0.0464
97.5% KM Chebyshev UCL	0.0518	99% KM Chebyshev UCL	0.0624

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	8.015	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.782	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.238	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.104	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.99	k star (bias corrected MLE)	0.961

Theta hat (MLE)	0.0895	Theta star (bias corrected MLE)	0.0922
nu hat (MLE)	154.5	nu star (bias corrected)	149.8
MLE Mean (bias corrected)	0.0886	MLE Sd (bias corrected)	0.0904
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.23	nu hat (KM)	300.5
Approximate Chi Square Value (300.50, α)	261.3	Adjusted Chi Square Value (300.50, β)	261.3
95% Gamma Approximate KM-UCL (use when n>=50)	0.0391	95% Gamma Adjusted KM-UCL (use when n<50)	0.0391
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.0241
Maximum	1.62	Median	0.01
SD	0.073	CV	3.022
k hat (MLE)	1.154	k star (bias corrected MLE)	1.149
Theta hat (MLE)	0.0209	Theta star (bias corrected MLE)	0.021
nu hat (MLE)	1504	nu star (bias corrected)	1499
MLE Mean (bias corrected)	0.0241	MLE Sd (bias corrected)	0.0225
		Adjusted Level of Significance (β)	0.0496
Approximate Chi Square Value (N/A, α)	1410	Adjusted Chi Square Value (N/A, β)	1410
95% Gamma Approximate UCL (use when n>=50)	0.0257	95% Gamma Adjusted UCL (use when n<50)	0.0257
Lognormal GOF Test on Detected Observations Only			
Lilliefors Test Statistic	0.143	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.1	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.0354	Mean in Log Scale	-3.569
SD in Original Scale	0.0712	SD in Log Scale	0.517
95% t UCL (assumes normality of ROS data)	0.04	95% Percentile Bootstrap UCL	0.0405
95% BCA Bootstrap UCL	0.0425	95% Bootstrap t UCL	0.0458
95% H-UCL (Log ROS)	0.0334		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0315	Mean in Log Scale	-3.818
SD in Original Scale	0.0759	SD in Log Scale	0.578
95% t UCL (Assumes normality)	0.0364	95% H-Stat UCL	0.0271
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			

Suggested UCL to Use

95% KM (t) UCL	0.0387	95% KM (% Bootstrap) UCL	0.0392

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

DIBENZO(A,H)ANTHRACENE

General Statistics

Total Number of Observations	655	Number of Distinct Observations	137
Number of Detects	46	Number of Non-Detects	609
Number of Distinct Detects	45	Number of Distinct Non-Detects	97
Minimum Detect	0.0105	Minimum Non-Detect	0.0168
Maximum Detect	0.839	Maximum Non-Detect	0.859
Variance Detects	0.0353	Percent Non-Detects	92.98%
Mean Detects	0.108	SD Detects	0.188
Median Detects	0.0348	CV Detects	1.741
Skewness Detects	3.002	Kurtosis Detects	8.761
Mean of Logged Detects	-3.09	SD of Logged Detects	1.213

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.541	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.302	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.131	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.021	Standard Error of Mean	0.00222
SD	0.0549	95% KM (BCA) UCL	0.0247
95% KM (t) UCL	0.0246	95% KM (Percentile Bootstrap) UCL	0.0249
95% KM (z) UCL	0.0246	95% KM Bootstrap t UCL	0.0266
90% KM Chebyshev UCL	0.0276	95% KM Chebyshev UCL	0.0307
97.5% KM Chebyshev UCL	0.0349	99% KM Chebyshev UCL	0.0431

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.147	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.795	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.213	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.136	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.7	k star (bias corrected MLE)	0.669
Theta hat (MLE)	0.154	Theta star (bias corrected MLE)	0.161

	A–E	F	G–K	L
612	nu hat (MLE)	64.39	nu star (bias corrected)	61.53
613	MLE Mean (bias corrected)	0.108	MLE Sd (bias corrected)	0.132
614				
615	**Gamma Kaplan-Meier (KM) Statistics**			
616	k hat (KM)	0.146	nu hat (KM)	190.8
617	Approximate Chi Square Value (190.83, α)	159.9	Adjusted Chi Square Value (190.83, β)	159.8
618	95% Gamma Approximate KM-UCL (use when n>=50)	0.025	95% Gamma Adjusted KM-UCL (use when n<50)	0.025
619				
620	**Gamma ROS Statistics using Imputed Non-Detects**			
621	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
622	GROS may not be used when kstar of detected data is small such as < 0.1			
623	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
624	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
625	Minimum	0.01	Mean	0.0192
626	Maximum	0.839	Median	0.01
627	SD	0.0558	CV	2.905
628	k hat (MLE)	1.256	k star (bias corrected MLE)	1.252
629	Theta hat (MLE)	0.0153	Theta star (bias corrected MLE)	0.0154
630	nu hat (MLE)	1646	nu star (bias corrected)	1640
631	MLE Mean (bias corrected)	0.0192	MLE Sd (bias corrected)	0.0172
632			Adjusted Level of Significance (β)	0.0496
633	Approximate Chi Square Value (N/A, α)	1547	Adjusted Chi Square Value (N/A, β)	1546
634	95% Gamma Approximate UCL (use when n>=50)	0.0204	95% Gamma Adjusted UCL (use when n<50)	0.0204
635				
636	**Lognormal GOF Test on Detected Observations Only**			
637	Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**	
638	5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level	
639	Lilliefors Test Statistic	0.137	**Lilliefors GOF Test**	
640	5% Lilliefors Critical Value	0.131	Detected Data Not Lognormal at 5% Significance Level	
641	**Detected Data Not Lognormal at 5% Significance Level**			
642				
643	**Lognormal ROS Statistics Using Imputed Non-Detects**			
644	Mean in Original Scale	0.0225	Mean in Log Scale	-4.238
645	SD in Original Scale	0.0554	SD in Log Scale	0.763
646	95% t UCL (assumes normality of ROS data)	0.0261	95% Percentile Bootstrap UCL	0.0264
647	95% BCA Bootstrap UCL	0.0274	95% Bootstrap t UCL	0.0276
648	95% H-UCL (Log ROS)	0.0205		
649				
650	**DL/2 Statistics**			
651	**DL/2 Normal**		**DL/2 Log-Transformed**	
652	Mean in Original Scale	0.0231	Mean in Log Scale	-4.393
653	SD in Original Scale	0.0612	SD in Log Scale	0.791
654	95% t UCL (Assumes normality)	0.027	95% H-Stat UCL	0.0179
655	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
656				
657	**Nonparametric Distribution Free UCL Statistics**			
658	**Data do not follow a Discernible Distribution at 5% Significance Level**			

	A–E	F	G–K	L
659				
660	**Suggested UCL to Use**			
661	95% KM (BCA) UCL	0.0247		
662				
663	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
664	Recommendations are based upon data size, data distribution, and skewness.			
665	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
666	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
667				
668	DIESEL RANGE ORGANICS			
669				
670	**General Statistics**			
671	Total Number of Observations	652	Number of Distinct Observations	420
672	Number of Detects	483	Number of Non-Detects	169
673	Number of Distinct Detects	393	Number of Distinct Non-Detects	43
674	Minimum Detect	1.34	Minimum Non-Detect	2.07
675	Maximum Detect	8380	Maximum Non-Detect	6
676	Variance Detects	464768	Percent Non-Detects	25.92%
677	Mean Detects	103.6	SD Detects	681.7
678	Median Detects	6.56	CV Detects	6.583
679	Skewness Detects	9.635	Kurtosis Detects	99.71
680	Mean of Logged Detects	2.109	SD of Logged Detects	1.493
681				
682	**Normal GOF Test on Detects Only**			
683	Shapiro Wilk Test Statistic	0.149	**Normal GOF Test on Detected Observations Only**	
684	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
685	Lilliefors Test Statistic	0.442	**Lilliefors GOF Test**	
686	5% Lilliefors Critical Value	0.0403	Detected Data Not Normal at 5% Significance Level	
687	**Detected Data Not Normal at 5% Significance Level**			
688				
689	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
690	Mean	77.17	Standard Error of Mean	23.05
691	SD	587.9	95% KM (BCA) UCL	123.2
692	95% KM (t) UCL	115.1	95% KM (Percentile Bootstrap) UCL	117.2
693	95% KM (z) UCL	115.1	95% KM Bootstrap t UCL	137.9
694	90% KM Chebyshev UCL	146.3	95% KM Chebyshev UCL	177.6
695	97.5% KM Chebyshev UCL	221.1	99% KM Chebyshev UCL	306.5
696				
697	**Gamma GOF Tests on Detected Observations Only**			
698	A-D Test Statistic	90.45	**Anderson-Darling GOF Test**	
699	5% A-D Critical Value	0.883	Detected Data Not Gamma Distributed at 5% Significance Level	
700	K-S Test Statistic	0.342	**Kolmogrov-Smirnoff GOF**	
701	5% K-S Critical Value	0.045	Detected Data Not Gamma Distributed at 5% Significance Level	
702	**Detected Data Not Gamma Distributed at 5% Significance Level**			
703				
704	**Gamma Statistics on Detected Data Only**			
705	k hat (MLE)	0.276	k star (bias corrected MLE)	0.276

	A–E	F	G–K	L
706	Theta hat (MLE)	375.1	Theta star (bias corrected MLE)	375.5
707	nu hat (MLE)	266.8	nu star (bias corrected)	266.4
708	MLE Mean (bias corrected)	103.6	MLE Sd (bias corrected)	197.2
709				
710	**Gamma Kaplan-Meier (KM) Statistics**			
711	k hat (KM)	0.0172	nu hat (KM)	22.47
712	Approximate Chi Square Value (22.47, α)	12.69	Adjusted Chi Square Value (22.47, β)	12.68
713	95% Gamma Approximate KM-UCL (use when n>=50)	136.6	95% Gamma Adjusted KM-UCL (use when n<50)	136.8
714	Gamma (KM) may not be used when k hat (KM) is < 0.1			
715				
716	**Gamma ROS Statistics using Imputed Non-Detects**			
717	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
718	GROS may not be used when kstar of detected data is small such as < 0.1			
719	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
720	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
721	Minimum	0.01	Mean	76.73
722	Maximum	8380	Median	3.74
723	SD	588.4	CV	7.668
724	k hat (MLE)	0.187	k star (bias corrected MLE)	0.187
725	Theta hat (MLE)	409.8	Theta star (bias corrected MLE)	409.5
726	nu hat (MLE)	244.1	nu star (bias corrected)	244.3
727	MLE Mean (bias corrected)	76.73	MLE Sd (bias corrected)	177.3
728			Adjusted Level of Significance (β)	0.0496
729	Approximate Chi Square Value (244.33, α)	209.1	Adjusted Chi Square Value (244.33, β)	209.1
730	95% Gamma Approximate UCL (use when n>=50)	89.64	95% Gamma Adjusted UCL (use when n<50)	89.67
731				
732	**Lognormal GOF Test on Detected Observations Only**			
733	Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**	
734	5% Lilliefors Critical Value	0.0403	Detected Data Not Lognormal at 5% Significance Level	
735	**Detected Data Not Lognormal at 5% Significance Level**			
736				
737	**Lognormal ROS Statistics Using Imputed Non-Detects**			
738	Mean in Original Scale	77.05	Mean in Log Scale	1.583
739	SD in Original Scale	588.3	SD in Log Scale	1.594
740	95% t UCL (assumes normality of ROS data)	115	95% Percentile Bootstrap UCL	118.8
741	95% BCA Bootstrap UCL	127.6	95% Bootstrap t UCL	137.1
742	95% H-UCL (Log ROS)	20.41		
743				
744	**DL/2 Statistics**			
745	**DL/2 Normal**		**DL/2 Log-Transformed**	
746	Mean in Original Scale	77.02	Mean in Log Scale	1.593
747	SD in Original Scale	588.3	SD in Log Scale	1.555
748	95% t UCL (Assumes normality)	115	95% H-Stat UCL	19.28
749	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
750				
751	**Nonparametric Distribution Free UCL Statistics**			
752	**Data do not follow a Discernible Distribution at 5% Significance Level**			

Suggested UCL to Use

95% KM (Chebyshev) UCL	177.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

GASOLINE RANGE ORGANICS

General Statistics

Total Number of Observations	652	Number of Distinct Observations	235
Number of Detects	75	Number of Non-Detects	577
Number of Distinct Detects	73	Number of Distinct Non-Detects	180
Minimum Detect	0.737	Minimum Non-Detect	1.01
Maximum Detect	1750	Maximum Non-Detect	8.38
Variance Detects	114743	Percent Non-Detects	88.5%
Mean Detects	106	SD Detects	338.7
Median Detects	1.83	CV Detects	3.196
Skewness Detects	3.888	Kurtosis Detects	14.83
Mean of Logged Detects	1.628	SD of Logged Detects	2.164

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.359	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.409	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.102	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	13.2	Standard Error of Mean	4.689
SD	118.9	95% KM (BCA) UCL	20.91
95% KM (t) UCL	20.92	95% KM (Percentile Bootstrap) UCL	21.62
95% KM (z) UCL	20.91	95% KM Bootstrap t UCL	26.21
90% KM Chebyshev UCL	27.26	95% KM Chebyshev UCL	33.63
97.5% KM Chebyshev UCL	42.48	99% KM Chebyshev UCL	59.85

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	11.91	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.897	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.316	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.114	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.236	k star (bias corrected MLE)	0.236

Row	A–E	F	G–K	L
800	Theta hat (MLE)	448.9	Theta star (bias corrected MLE)	450
801	nu hat (MLE)	35.42	nu star (bias corrected)	35.34
802	MLE Mean (bias corrected)	106	MLE Sd (bias corrected)	218.4
803				
804	**Gamma Kaplan-Meier (KM) Statistics**			
805	k hat (KM)	0.0123	nu hat (KM)	16.05
806	Approximate Chi Square Value (16.05, α)	8.001	Adjusted Chi Square Value (16.05, β)	7.988
807	95% Gamma Approximate KM-UCL (use when n>=50)	26.48	95% Gamma Adjusted KM-UCL (use when n<50)	26.52
808	Gamma (KM) may not be used when k hat (KM) is < 0.1			
809				
810	**Gamma ROS Statistics using Imputed Non-Detects**			
811	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
812	GROS may not be used when kstar of detected data is small such as < 0.1			
813	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
814	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
815	Minimum	0.01	Mean	12.21
816	Maximum	1750	Median	0.01
817	SD	119.1	CV	9.759
818	k hat (MLE)	0.124	k star (bias corrected MLE)	0.124
819	Theta hat (MLE)	98.63	Theta star (bias corrected MLE)	98.27
820	nu hat (MLE)	161.4	nu star (bias corrected)	162
821	MLE Mean (bias corrected)	12.21	MLE Sd (bias corrected)	34.63
822			Adjusted Level of Significance (β)	0.0496
823	Approximate Chi Square Value (161.96, α)	133.5	Adjusted Chi Square Value (161.96, β)	133.5
824	95% Gamma Approximate UCL (use when n>=50)	14.8	95% Gamma Adjusted UCL (use when n<50)	14.81
825				
826	**Lognormal GOF Test on Detected Observations Only**			
827	Lilliefors Test Statistic	0.247	**Lilliefors GOF Test**	
828	5% Lilliefors Critical Value	0.102	Detected Data Not Lognormal at 5% Significance Level	
829	**Detected Data Not Lognormal at 5% Significance Level**			
830				
831	**Lognormal ROS Statistics Using Imputed Non-Detects**			
832	Mean in Original Scale	13.51	Mean in Log Scale	0.247
833	SD in Original Scale	119	SD in Log Scale	1.182
834	95% t UCL (assumes normality of ROS data)	21.18	95% Percentile Bootstrap UCL	21.99
835	95% BCA Bootstrap UCL	23.92	95% Bootstrap t UCL	24.93
836	95% H-UCL (Log ROS)	2.855		
837				
838	**DL/2 Statistics**			
839	**DL/2 Normal**		**DL/2 Log-Transformed**	
840	Mean in Original Scale	13.19	Mean in Log Scale	0.278
841	SD in Original Scale	119	SD in Log Scale	0.895
842	95% t UCL (Assumes normality)	20.87	95% H-Stat UCL	2.116
843	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
844				
845	**Nonparametric Distribution Free UCL Statistics**			
846	**Data do not follow a Discernible Distribution at 5% Significance Level**			

Row	A–E	F	G–K	L
847				
848	**Suggested UCL to Use**			
849	97.5% KM (Chebyshev) UCL	42.48		
850				
851	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
852	Recommendations are based upon data size, data distribution, and skewness.			
853	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
854	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
855				
856	**INDENO(1,2,3-CD)PYRENE**			
857				
858	**General Statistics**			
859	Total Number of Observations	654	Number of Distinct Observations	203
860	Number of Detects	88	Number of Non-Detects	566
861	Number of Distinct Detects	87	Number of Distinct Non-Detects	123
862	Minimum Detect	0.0274	Minimum Non-Detect	0.0337
863	Maximum Detect	6.71	Maximum Non-Detect	1.71
864	Variance Detects	0.768	Percent Non-Detects	86.54%
865	Mean Detects	0.332	SD Detects	0.876
866	Median Detects	0.0921	CV Detects	2.639
867	Skewness Detects	5.482	Kurtosis Detects	34.65
868	Mean of Logged Detects	-2.165	SD of Logged Detects	1.21
869				
870	**Normal GOF Test on Detects Only**			
871	Shapiro Wilk Test Statistic	0.375	**Normal GOF Test on Detected Observations Only**	
872	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
873	Lilliefors Test Statistic	0.364	**Lilliefors GOF Test**	
874	5% Lilliefors Critical Value	0.0944	Detected Data Not Normal at 5% Significance Level	
875	**Detected Data Not Normal at 5% Significance Level**			
876				
877	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
878	Mean	0.0725	Standard Error of Mean	0.0132
879	SD	0.336	95% KM (BCA) UCL	0.0971
880	95% KM (t) UCL	0.0942	95% KM (Percentile Bootstrap) UCL	0.0958
881	95% KM (z) UCL	0.0942	95% KM Bootstrap t UCL	0.115
882	90% KM Chebyshev UCL	0.112	95% KM Chebyshev UCL	0.13
883	97.5% KM Chebyshev UCL	0.155	99% KM Chebyshev UCL	0.204
884				
885	**Gamma GOF Tests on Detected Observations Only**			
886	A-D Test Statistic	7.934	**Anderson-Darling GOF Test**	
887	5% A-D Critical Value	0.81	Detected Data Not Gamma Distributed at 5% Significance Level	
888	K-S Test Statistic	0.212	**Kolmogrov-Smirnoff GOF**	
889	5% K-S Critical Value	0.1	Detected Data Not Gamma Distributed at 5% Significance Level	
890	**Detected Data Not Gamma Distributed at 5% Significance Level**			
891				
892	**Gamma Statistics on Detected Data Only**			
893	k hat (MLE)	0.584	k star (bias corrected MLE)	0.572

Row	A–E	F	G–K	L
894	Theta hat (MLE)	0.568	Theta star (bias corrected MLE)	0.581
895	nu hat (MLE)	102.8	nu star (bias corrected)	100.6
896	MLE Mean (bias corrected)	0.332	MLE Sd (bias corrected)	0.439
897				
898	**Gamma Kaplan-Meier (KM) Statistics**			
899	k hat (KM)	0.0466	nu hat (KM)	60.91
900	Approximate Chi Square Value (60.91, α)	43.96	Adjusted Chi Square Value (60.91, β)	43.93
901	95% Gamma Approximate KM-UCL (use when n>=50)	0.1	95% Gamma Adjusted KM-UCL (use when n<50)	0.1
902	Gamma (KM) may not be used when k hat (KM) is < 0.1			
903				
904	**Gamma ROS Statistics using Imputed Non-Detects**			
905	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
906	GROS may not be used when kstar of detected data is small such as < 0.1			
907	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
908	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
909	Minimum	0.01	Mean	0.0533
910	Maximum	6.71	Median	0.01
911	SD	0.338	CV	6.342
912	k hat (MLE)	0.476	k star (bias corrected MLE)	0.475
913	Theta hat (MLE)	0.112	Theta star (bias corrected MLE)	0.112
914	nu hat (MLE)	622.3	nu star (bias corrected)	620.8
915	MLE Mean (bias corrected)	0.0533	MLE Sd (bias corrected)	0.0774
916			Adjusted Level of Significance (β)	0.0496
917	Approximate Chi Square Value (620.80, α)	564	Adjusted Chi Square Value (620.80, β)	563.9
918	95% Gamma Approximate UCL (use when n>=50)	0.0587	95% Gamma Adjusted UCL (use when n<50)	0.0587
919				
920	**Lognormal GOF Test on Detected Observations Only**			
921	Lilliefors Test Statistic	0.125	**Lilliefors GOF Test**	
922	5% Lilliefors Critical Value	0.0944	Detected Data Not Lognormal at 5% Significance Level	
923	**Detected Data Not Lognormal at 5% Significance Level**			
924				
925	**Lognormal ROS Statistics Using Imputed Non-Detects**			
926	Mean in Original Scale	0.0616	Mean in Log Scale	-3.951
927	SD in Original Scale	0.337	SD in Log Scale	1.127
928	95% t UCL (assumes normality of ROS data)	0.0834	95% Percentile Bootstrap UCL	0.0861
929	95% BCA Bootstrap UCL	0.0947	95% Bootstrap t UCL	0.108
930	95% H-UCL (Log ROS)	0.04		
931				
932	**DL/2 Statistics**			
933	**DL/2 Normal**		**DL/2 Log-Transformed**	
934	Mean in Original Scale	0.0742	Mean in Log Scale	-3.571
935	SD in Original Scale	0.34	SD in Log Scale	0.944
936	95% t UCL (Assumes normality)	0.0962	95% H-Stat UCL	0.0474
937	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
938				
939	**Nonparametric Distribution Free UCL Statistics**			
940	**Data do not follow a Discernible Distribution at 5% Significance Level**			

Suggested UCL to Use			
95% KM (BCA) UCL	0.0971		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

NAPHTHALENE

General Statistics			
Total Number of Observations	652	Number of Distinct Observations	370
Number of Detects	34	Number of Non-Detects	618
Number of Distinct Detects	34	Number of Distinct Non-Detects	337
Minimum Detect	1.9000E-4	Minimum Non-Detect	3.1400E-4
Maximum Detect	45	Maximum Non-Detect	0.383
Variance Detects	98.15	Percent Non-Detects	94.79%
Mean Detects	3.926	SD Detects	9.907
Median Detects	0.0122	CV Detects	2.523
Skewness Detects	3.127	Kurtosis Detects	9.841
Mean of Logged Detects	-3.091	SD of Logged Detects	3.684
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.471	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.933	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.353	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.152	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.205	Standard Error of Mean	0.0952
SD	2.394	95% KM (BCA) UCL	0.389
95% KM (t) UCL	0.362	95% KM (Percentile Bootstrap) UCL	0.367
95% KM (z) UCL	0.361	95% KM Bootstrap t UCL	0.541
90% KM Chebyshev UCL	0.49	95% KM Chebyshev UCL	0.62
97.5% KM Chebyshev UCL	0.799	99% KM Chebyshev UCL	1.152
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	2.75	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.935	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.264	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.169	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			

	Label	Value	Label	Value
988	k hat (MLE)	0.169	k star (bias corrected MLE)	0.174
989	Theta hat (MLE)	23.19	Theta star (bias corrected MLE)	22.57
990	nu hat (MLE)	11.51	nu star (bias corrected)	11.83
991	MLE Mean (bias corrected)	3.926	MLE Sd (bias corrected)	9.413
992				
993	**Gamma Kaplan-Meier (KM) Statistics**			
994	k hat (KM)	0.00733	nu hat (KM)	9.563
995	Approximate Chi Square Value (9.56, α)	3.671	Adjusted Chi Square Value (9.56, β)	3.662
996	95% Gamma Approximate KM-UCL (use when n>=50)	0.534	95% Gamma Adjusted KM-UCL (use when n<50)	0.535
997	Gamma (KM) may not be used when k hat (KM) is < 0.1			
998				
999	**Gamma ROS Statistics using Imputed Non-Detects**			
1000	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1001	GROS may not be used when kstar of detected data is small such as < 0.1			
1002	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1003	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1004	Minimum	1.9000E-4	Mean	0.214
1005	Maximum	45	Median	0.01
1006	SD	2.395	CV	11.18
1007	k hat (MLE)	0.24	k star (bias corrected MLE)	0.239
1008	Theta hat (MLE)	0.894	Theta star (bias corrected MLE)	0.895
1009	nu hat (MLE)	312.4	nu star (bias corrected)	312.3
1010	MLE Mean (bias corrected)	0.214	MLE Sd (bias corrected)	0.438
1011			Adjusted Level of Significance (β)	0.0496
1012	Approximate Chi Square Value (312.27, α)	272.3	Adjusted Chi Square Value (312.27, β)	272.3
1013	95% Gamma Approximate UCL (use when n>=50)	0.246	95% Gamma Adjusted UCL (use when n<50)	0.246
1014				
1015	**Lognormal GOF Test on Detected Observations Only**			
1016	Shapiro Wilk Test Statistic	0.897	**Shapiro Wilk GOF Test**	
1017	5% Shapiro Wilk Critical Value	0.933	Detected Data Not Lognormal at 5% Significance Level	
1018	Lilliefors Test Statistic	0.172	**Lilliefors GOF Test**	
1019	5% Lilliefors Critical Value	0.152	Detected Data Not Lognormal at 5% Significance Level	
1020	**Detected Data Not Lognormal at 5% Significance Level**			
1021				
1022	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1023	Mean in Original Scale	0.205	Mean in Log Scale	-12.06
1024	SD in Original Scale	2.396	SD in Log Scale	3.027
1025	95% t UCL (assumes normality of ROS data)	0.359	95% Percentile Bootstrap UCL	0.373
1026	95% BCA Bootstrap UCL	0.425	95% Bootstrap t UCL	0.533
1027	95% H-UCL (Log ROS)	9.2162E-4		
1028				
1029	**DL/2 Statistics**			
1030	**DL/2 Normal**		**DL/2 Log-Transformed**	
1031	Mean in Original Scale	0.205	Mean in Log Scale	-7.838
1032	SD in Original Scale	2.395	SD in Log Scale	1.475
1033	95% t UCL (Assumes normality)	0.36	95% H-Stat UCL	0.00135
1034	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			

	A	B	C	D	E	F	G	H	I	J	K	L
1035												
1036	**Nonparametric Distribution Free UCL Statistics**											
1037	**Data do not follow a Discernible Distribution at 5% Significance Level**											
1038												
1039	**Suggested UCL to Use**											
1040					97.5% KM (Chebyshev) UCL	0.799						
1041												
1042	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1043	Recommendations are based upon data size, data distribution, and skewness.											
1044	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1045	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1046												
1047	**P-ISOPROPYLTOLUENE**											
1048												
1049	**General Statistics**											
1050					Total Number of Observations	652					Number of Distinct Observations	349
1051					Number of Detects	19					Number of Non-Detects	633
1052					Number of Distinct Detects	19					Number of Distinct Non-Detects	331
1053					Minimum Detect	4.6700E-4					Minimum Non-Detect	3.1400E-4
1054					Maximum Detect	17.3					Maximum Non-Detect	1.13
1055					Variance Detects	19.03					Percent Non-Detects	97.09%
1056					Mean Detects	1.814					SD Detects	4.362
1057					Median Detects	0.0627					CV Detects	2.405
1058					Skewness Detects	3.068					Kurtosis Detects	9.541
1059					Mean of Logged Detects	-2.852					SD of Logged Detects	3.395
1060												
1061	**Normal GOF Test on Detects Only**											
1062					Shapiro Wilk Test Statistic	0.485	**Shapiro Wilk GOF Test**					
1063					5% Shapiro Wilk Critical Value	0.901	Detected Data Not Normal at 5% Significance Level					
1064					Lilliefors Test Statistic	0.367	**Lilliefors GOF Test**					
1065					5% Lilliefors Critical Value	0.203	Detected Data Not Normal at 5% Significance Level					
1066	**Detected Data Not Normal at 5% Significance Level**											
1067												
1068	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
1069					Mean	0.0532					Standard Error of Mean	0.0316
1070					SD	0.786					95% KM (BCA) UCL	0.114
1071					95% KM (t) UCL	0.105					95% KM (Percentile Bootstrap) UCL	0.108
1072					95% KM (z) UCL	0.105					95% KM Bootstrap t UCL	0.333
1073					90% KM Chebyshev UCL	0.148					95% KM Chebyshev UCL	0.191
1074					97.5% KM Chebyshev UCL	0.251					99% KM Chebyshev UCL	0.368
1075												
1076	**Gamma GOF Tests on Detected Observations Only**											
1077					A-D Test Statistic	0.85	**Anderson-Darling GOF Test**					
1078					5% A-D Critical Value	0.885	Detected data appear Gamma Distributed at 5% Significance Level					
1079					K-S Test Statistic	0.18	**Kolmogrov-Smirnoff GOF**					
1080					5% K-S Critical Value	0.22	Detected data appear Gamma Distributed at 5% Significance Level					
1081	**Detected data appear Gamma Distributed at 5% Significance Level**											

Row	A–E	F	G–K	L
1082				
1083	**Gamma Statistics on Detected Data Only**			
1084	k hat (MLE)	0.212	k star (bias corrected MLE)	0.213
1085	Theta hat (MLE)	8.573	Theta star (bias corrected MLE)	8.505
1086	nu hat (MLE)	8.04	nu star (bias corrected)	8.104
1087	MLE Mean (bias corrected)	1.814	MLE Sd (bias corrected)	3.928
1088				
1089	**Gamma Kaplan-Meier (KM) Statistics**			
1090	k hat (KM)	0.00457	nu hat (KM)	5.961
1091	Approximate Chi Square Value (5.96, α)	1.62	Adjusted Chi Square Value (5.96, β)	1.615
1092	95% Gamma Approximate KM-UCL (use when n>=50)	0.196	95% Gamma Adjusted KM-UCL (use when n<50)	0.196
1093	Gamma (KM) may not be used when k hat (KM) is < 0.1			
1094				
1095	**Gamma ROS Statistics using Imputed Non-Detects**			
1096	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1097	GROS may not be used when kstar of detected data is small such as < 0.1			
1098	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1099	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1100	Minimum	4.6700E-4	Mean	0.0626
1101	Maximum	17.3	Median	0.01
1102	SD	0.786	CV	12.57
1103	k hat (MLE)	0.373	k star (bias corrected MLE)	0.373
1104	Theta hat (MLE)	0.168	Theta star (bias corrected MLE)	0.168
1105	nu hat (MLE)	486.8	nu star (bias corrected)	485.9
1106	MLE Mean (bias corrected)	0.0626	MLE Sd (bias corrected)	0.102
1107			Adjusted Level of Significance (β)	0.0496
1108	Approximate Chi Square Value (485.87, α)	435.8	Adjusted Chi Square Value (485.87, β)	435.7
1109	95% Gamma Approximate UCL (use when n>=50)	0.0698	95% Gamma Adjusted UCL (use when n<50)	0.0698
1110				
1111	**Lognormal GOF Test on Detected Observations Only**			
1112	Shapiro Wilk Test Statistic	0.937	**Shapiro Wilk GOF Test**	
1113	5% Shapiro Wilk Critical Value	0.901	Detected Data appear Lognormal at 5% Significance Level	
1114	Lilliefors Test Statistic	0.148	**Lilliefors GOF Test**	
1115	5% Lilliefors Critical Value	0.203	Detected Data appear Lognormal at 5% Significance Level	
1116	**Detected Data appear Lognormal at 5% Significance Level**			
1117				
1118	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1119	Mean in Original Scale	0.0529	Mean in Log Scale	-25.57
1120	SD in Original Scale	0.787	SD in Log Scale	6.082
1121	95% t UCL (assumes normality of ROS data)	0.104	95% Percentile Bootstrap UCL	0.106
1122	95% BCA Bootstrap UCL	0.135	95% Bootstrap t UCL	0.299
1123	95% H-UCL (Log ROS)	0.00549		
1124				
1125	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
1126	KM Mean (logged)	-7.91	95% H-UCL (KM -Log)	6.9027E-4
1127	KM SD (logged)	1.044	95% Critical H Value (KM-Log)	2.121
1128	KM Standard Error of Mean (logged)	0.0422		

	A-E	F	G-K	L
1129				
1130	**DL/2 Statistics**			
1131	**DL/2 Normal**		**DL/2 Log-Transformed**	
1132	Mean in Original Scale	0.0545	Mean in Log Scale	-7.967
1133	SD in Original Scale	0.787	SD in Log Scale	1.193
1134	95% t UCL (Assumes normality)	0.105	95% H-Stat UCL	7.8469E-4
1135	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
1136				
1137	**Nonparametric Distribution Free UCL Statistics**			
1138	**Detected Data appear Gamma Distributed at 5% Significance Level**			
1139				
1140	**Suggested UCL to Use**			
1141	95% KM (t) UCL	0.105	95% GROS Approximate Gamma UCL	0.0698
1142	95% Approximate Gamma KM-UCL	0.196		
1143				
1144	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
1145	Recommendations are based upon data size, data distribution, and skewness.			
1146	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
1147	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
1148				

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

UCL Statistics for Data Sets with Non-Detects

ProUCL output_UCLs_subset samples_GW_12-16-13.xlsx

User Selected Options	
Date/Time of Computation	12/16/2013 11:47:16 AM
From File	ProUCL input_subset samples_GW_12-16-13.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Ethylbenzene (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	96
Number of Detects	97	Number of Non-Detects	651
Number of Distinct Detects	92	Number of Distinct Non-Detects	5
Minimum Detect	0.25	Minimum Non-Detect	0.5
Maximum Detect	1840	Maximum Non-Detect	5
Variance Detects	299203	Percent Non-Detects	87.03%
Mean Detects	370.1	SD Detects	547
Median Detects	8.4	CV Detects	1.478
Skewness Detects	1.204	Kurtosis Detects	-0.0155
Mean of Logged Detects	2.884	SD of Logged Detects	3.317

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.694	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.09	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	48.3	Standard Error of Mean	8.528
SD	232	95% KM (BCA) UCL	62.46
95% KM (t) UCL	62.35	95% KM (Percentile Bootstrap) UCL	62.6
95% KM (z) UCL	62.33	95% KM Bootstrap t UCL	64.72
90% KM Chebyshev UCL	73.89	95% KM Chebyshev UCL	85.48
97.5% KM Chebyshev UCL	101.6	99% KM Chebyshev UCL	133.2

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.821	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.899	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.19	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.1	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.237	k star (bias corrected MLE)	0.236
Theta hat (MLE)	1565	Theta star (bias corrected MLE)	1568
nu hat (MLE)	45.89	nu star (bias corrected)	45.8
MLE Mean (bias corrected)	370.1	MLE Sd (bias corrected)	761.8

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0433	nu hat (KM)	64.84
Approximate Chi Square Value (64.84, α)	47.31	Adjusted Chi Square Value (64.84, β)	47.28
95% Gamma Approximate KM-UCL (use when n>=50)	66.2	95% Gamma Adjusted KM-UCL (use when n<50)	66.24

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	49.73
Maximum	1840	Median	0.01
SD	232.1	CV	4.668
k hat (MLE)	0.111	k star (bias corrected MLE)	0.111
Theta hat (MLE)	450	Theta star (bias corrected MLE)	448.2
nu hat (MLE)	165.3	nu star (bias corrected)	166
MLE Mean (bias corrected)	49.73	MLE Sd (bias corrected)	149.3
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (165.99, α)	137.2	Adjusted Chi Square Value (165.99, β)	137.1
95% Gamma Approximate UCL (use when n>=50)	60.17	95% Gamma Adjusted UCL (use when n<50)	60.19

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.161	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.09	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	49.15	Mean in Log Scale	-1.005
SD in Original Scale	232	SD in Log Scale	2.937
95% t UCL (assumes normality of ROS data)	63.12	95% Percentile Bootstrap UCL	63.01
95% BCA Bootstrap UCL	64.64	95% Bootstrap t UCL	65.36
95% H-UCL (Log ROS)	42.29		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	48.27	Mean in Log Scale	-0.759
SD in Original Scale	232.2	SD in Log Scale	1.874
95% t UCL (Assumes normality)	62.25	95% H-Stat UCL	3.308

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	101.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

N-PROPYLBENZENE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	105
Number of Detects	108	Number of Non-Detects	640
Number of Distinct Detects	103	Number of Distinct Non-Detects	4
Minimum Detect	0.264	Minimum Non-Detect	0.5
Maximum Detect	128	Maximum Non-Detect	5
Variance Detects	1275	Percent Non-Detects	85.56%
Mean Detects	25.15	SD Detects	35.71
Median Detects	3.63	CV Detects	1.42
Skewness Detects	1.378	Kurtosis Detects	0.723
Mean of Logged Detects	1.616	SD of Logged Detects	2.08

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.714	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.273	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0853	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	3.942	Standard Error of Mean	0.591
SD	16.07	95% KM (BCA) UCL	4.958
95% KM (t) UCL	4.915	95% KM (Percentile Bootstrap) UCL	4.957
95% KM (z) UCL	4.914	95% KM Bootstrap t UCL	5.071
90% KM Chebyshev UCL	5.714	95% KM Chebyshev UCL	6.517
97.5% KM Chebyshev UCL	7.631	99% KM Chebyshev UCL	9.819

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	4.65	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.841	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.165	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0935	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.408	k star (bias corrected MLE)	0.403
Theta hat (MLE)	61.66	Theta star (bias corrected MLE)	62.45
nu hat (MLE)	88.09	nu star (bias corrected)	86.97
MLE Mean (bias corrected)	25.15	MLE Sd (bias corrected)	39.63

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0602	nu hat (KM)	90.02
Approximate Chi Square Value (90.02, α)	69.15	Adjusted Chi Square Value (90.02, β)	69.11
95% Gamma Approximate KM-UCL (use when n>=50)	5.133	95% Gamma Adjusted KM-UCL (use when n<50)	5.135

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	3.774
Maximum	128	Median	0.01
SD	16.14	CV	4.276
k hat (MLE)	0.158	k star (bias corrected MLE)	0.159
Theta hat (MLE)	23.84	Theta star (bias corrected MLE)	23.8
nu hat (MLE)	236.8	nu star (bias corrected)	237.2
MLE Mean (bias corrected)	3.774	MLE Sd (bias corrected)	9.478
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (237.21, α)	202.6	Adjusted Chi Square Value (237.21, β)	202.5
95% Gamma Approximate UCL (use when n>=50)	4.42	95% Gamma Adjusted UCL (use when n<50)	4.421

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.133	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0853	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.123	Mean in Log Scale	-1.083
SD in Original Scale	16.06	SD in Log Scale	2.034
95% t UCL (assumes normality of ROS data)	5.09	95% Percentile Bootstrap UCL	5.093
95% BCA Bootstrap UCL	5.216	95% Bootstrap t UCL	5.297
95% H-UCL (Log ROS)	3.369		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	3.883	Mean in Log Scale	-0.895
SD in Original Scale	16.1	SD in Log Scale	1.333
95% t UCL (Assumes normality)	4.852	95% H-Stat UCL	1.116

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	7.631

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,2-Dibromoethane (ug/L)

General Statistics

Total Number of Observations	749	Number of Distinct Observations	312
Number of Detects	302	Number of Non-Detects	447
Number of Distinct Detects	274	Number of Distinct Non-Detects	38
Minimum Detect	0.0107	Minimum Non-Detect	0.0182
Maximum Detect	459	Maximum Non-Detect	0.0218
Variance Detects	1931	Percent Non-Detects	59.68%
Mean Detects	9.382	SD Detects	43.94
Median Detects	0.245	CV Detects	4.684
Skewness Detects	6.653	Kurtosis Detects	51.93
Mean of Logged Detects	-1.058	SD of Logged Detects	1.908

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.244	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.483	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.051	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	3.791	Standard Error of Mean	1.033
SD	28.23	95% KM (BCA) UCL	5.704
95% KM (t) UCL	5.493	95% KM (Percentile Bootstrap) UCL	5.603
95% KM (z) UCL	5.49	95% KM Bootstrap t UCL	6.113
90% KM Chebyshev UCL	6.891	95% KM Chebyshev UCL	8.295
97.5% KM Chebyshev UCL	10.24	99% KM Chebyshev UCL	14.07

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	58.88	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.911	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.362	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0574	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.22	k star (bias corrected MLE)	0.22
Theta hat (MLE)	42.66	Theta star (bias corrected MLE)	42.65
nu hat (MLE)	132.8	nu star (bias corrected)	132.9
MLE Mean (bias corrected)	9.382	MLE Sd (bias corrected)	20

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.018	nu hat (KM)	27.01
Approximate Chi Square Value (27.01, α)	16.16	Adjusted Chi Square Value (27.01, β)	16.14
95% Gamma Approximate KM-UCL (use when n>=50)	6.337	95% Gamma Adjusted KM-UCL (use when n<50)	6.343

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	3.789
Maximum	459	Median	0.01
SD	28.25	CV	7.457
k hat (MLE)	0.168	k star (bias corrected MLE)	0.168
Theta hat (MLE)	22.59	Theta star (bias corrected MLE)	22.56
nu hat (MLE)	251.3	nu star (bias corrected)	251.6
MLE Mean (bias corrected)	3.789	MLE Sd (bias corrected)	9.244
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (251.61, α)	215.9	Adjusted Chi Square Value (251.61, β)	215.8
95% Gamma Approximate UCL (use when n>=50)	4.416	95% Gamma Adjusted UCL (use when n<50)	4.417

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.131	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.051	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	3.788	Mean in Log Scale	-3.839
SD in Original Scale	28.25	SD in Log Scale	2.928
95% t UCL (assumes normality of ROS data)	5.488	95% Percentile Bootstrap UCL	5.584
95% BCA Bootstrap UCL	5.864	95% Bootstrap t UCL	6.262
95% H-UCL (Log ROS)	2.414		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	3.788	Mean in Log Scale	-3.209
SD in Original Scale	28.25	SD in Log Scale	2.144
95% t UCL (Assumes normality)	5.488	95% H-Stat UCL	0.516

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	8.295

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,2-DICHLOROETHANE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	87
Number of Detects	90	Number of Non-Detects	658
Number of Distinct Detects	79	Number of Distinct Non-Detects	9
Minimum Detect	0.27	Minimum Non-Detect	0.5
Maximum Detect	4.3	Maximum Non-Detect	100
Variance Detects	0.814	Percent Non-Detects	87.97%
Mean Detects	1.369	SD Detects	0.902
Median Detects	1.22	CV Detects	0.659
Skewness Detects	0.753	Kurtosis Detects	-0.0166
Mean of Logged Detects	0.0663	SD of Logged Detects	0.747

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.913	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	1.4157E-6	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.112	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0934	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.504	Standard Error of Mean	0.0219
SD	0.467	95% KM (BCA) UCL	0.542
95% KM (t) UCL	0.54	95% KM (Percentile Bootstrap) UCL	0.541
95% KM (z) UCL	0.54	95% KM Bootstrap t UCL	0.544
90% KM Chebyshev UCL	0.57	95% KM Chebyshev UCL	0.6
97.5% KM Chebyshev UCL	0.641	99% KM Chebyshev UCL	0.722

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.119	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.764	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.101	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0953	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.172	k star (bias corrected MLE)	2.107
Theta hat (MLE)	0.63	Theta star (bias corrected MLE)	0.65
nu hat (MLE)	391	nu star (bias corrected)	379.3
MLE Mean (bias corrected)	1.369	MLE Sd (bias corrected)	0.943

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	1.165	nu hat (KM)	1743
Approximate Chi Square Value (N/A, α)	1647	Adjusted Chi Square Value (N/A, β)	1647
95% Gamma Approximate KM-UCL (use when n>=50)	0.534	95% Gamma Adjusted KM-UCL (use when n<50)	0.534

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.412
Maximum	4.3	Median	0.204
SD	0.569	CV	1.382
k hat (MLE)	0.475	k star (bias corrected MLE)	0.474
Theta hat (MLE)	0.866	Theta star (bias corrected MLE)	0.868
nu hat (MLE)	711.2	nu star (bias corrected)	709.7
MLE Mean (bias corrected)	0.412	MLE Sd (bias corrected)	0.598
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (709.70, α)	648.9	Adjusted Chi Square Value (709.70, β)	648.8
95% Gamma Approximate UCL (use when n>=50)	0.45	95% Gamma Adjusted UCL (use when n<50)	0.45

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0961	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0934	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.551	Mean in Log Scale	-0.856
SD in Original Scale	0.489	SD in Log Scale	0.701
95% t UCL (assumes normality of ROS data)	0.581	95% Percentile Bootstrap UCL	0.58
95% BCA Bootstrap UCL	0.585	95% Bootstrap t UCL	0.584
95% H-UCL (Log ROS)	0.57		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	1.258	Mean in Log Scale	-0.955
SD in Original Scale	4.468	SD in Log Scale	1.019
95% t UCL (Assumes normality)	1.527	95% H-Stat UCL	0.699

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	0.54	95% KM (% Bootstrap) UCL	0.541

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,3,5-TRIMETHYLBENZENE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	105
Number of Detects	110	Number of Non-Detects	638
Number of Distinct Detects	101	Number of Distinct Non-Detects	5
Minimum Detect	0.26	Minimum Non-Detect	0.5
Maximum Detect	130	Maximum Non-Detect	25
Variance Detects	1108	Percent Non-Detects	85.29%
Mean Detects	22.68	SD Detects	33.28
Median Detects	4.215	CV Detects	1.467
Skewness Detects	1.566	Kurtosis Detects	1.436
Mean of Logged Detects	1.556	SD of Logged Detects	2.038

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.703	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.261	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0845	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	3.63	Standard Error of Mean	0.55
SD	14.97	95% KM (BCA) UCL	4.679
95% KM (t) UCL	4.536	95% KM (Percentile Bootstrap) UCL	4.601
95% KM (z) UCL	4.535	95% KM Bootstrap t UCL	4.749
90% KM Chebyshev UCL	5.28	95% KM Chebyshev UCL	6.027
97.5% KM Chebyshev UCL	7.064	99% KM Chebyshev UCL	9.101

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.931	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.839	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.15	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0929	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.418	k star (bias corrected MLE)	0.412
Theta hat (MLE)	54.31	Theta star (bias corrected MLE)	55.01
nu hat (MLE)	91.86	nu star (bias corrected)	90.69
MLE Mean (bias corrected)	22.68	MLE Sd (bias corrected)	35.32

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0588	nu hat (KM)	88.03
Approximate Chi Square Value (88.03, α)	67.4	Adjusted Chi Square Value (88.03, β)	67.37
95% Gamma Approximate KM-UCL (use when n>=50)	4.742	95% Gamma Adjusted KM-UCL (use when n<50)	4.744

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	3.537
Maximum	130	Median	0.01
SD	15.03	CV	4.249
k hat (MLE)	0.162	k star (bias corrected MLE)	0.163
Theta hat (MLE)	21.78	Theta star (bias corrected MLE)	21.75
nu hat (MLE)	242.9	nu star (bias corrected)	243.3
MLE Mean (bias corrected)	3.537	MLE Sd (bias corrected)	8.771
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (243.30, α)	208.2	Adjusted Chi Square Value (243.30, β)	208.1
95% Gamma Approximate UCL (use when n>=50)	4.134	95% Gamma Adjusted UCL (use when n<50)	4.135

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.106	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0845	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	3.899	Mean in Log Scale	-0.89
SD in Original Scale	14.94	SD in Log Scale	1.918
95% t UCL (assumes normality of ROS data)	4.798	95% Percentile Bootstrap UCL	4.784
95% BCA Bootstrap UCL	4.925	95% Bootstrap t UCL	5.01
95% H-UCL (Log ROS)	3.176		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	3.607	Mean in Log Scale	-0.883
SD in Original Scale	14.99	SD in Log Scale	1.325
95% t UCL (Assumes normality)	4.509	95% H-Stat UCL	1.116

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 7.064

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Toluene (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	122
Number of Detects	122	Number of Non-Detects	626
Number of Distinct Detects	116	Number of Distinct Non-Detects	7
Minimum Detect	0.253	Minimum Non-Detect	0.5
Maximum Detect	19000	Maximum Non-Detect	10
Variance Detects	17630742	Percent Non-Detects	83.69%
Mean Detects	1763	SD Detects	4199
Median Detects	1.66	CV Detects	2.381
Skewness Detects	2.571	Kurtosis Detects	6.009
Mean of Logged Detects	2.126	SD of Logged Detects	3.749

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.489	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.431	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0802	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	287.9	Standard Error of Mean	66.46
SD	1810	95% KM (BCA) UCL	399.8
95% KM (t) UCL	397.3	95% KM (Percentile Bootstrap) UCL	401.6
95% KM (z) UCL	397.2	95% KM Bootstrap t UCL	424.3
90% KM Chebyshev UCL	487.3	95% KM Chebyshev UCL	577.6
97.5% KM Chebyshev UCL	702.9	99% KM Chebyshev UCL	949.1

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	16.64	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.973	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.319	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0948	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.144	k star (bias corrected MLE)	0.146
Theta hat (MLE)	12205	Theta star (bias corrected MLE)	12046
nu hat (MLE)	35.25	nu star (bias corrected)	35.72
MLE Mean (bias corrected)	1763	MLE Sd (bias corrected)	4609

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0253	nu hat (KM)	37.85
Approximate Chi Square Value (37.85, α)	24.76	Adjusted Chi Square Value (37.85, β)	24.74
95% Gamma Approximate KM-UCL (use when n>=50)	440.1	95% Gamma Adjusted KM-UCL (use when n<50)	440.4

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	288.2
Maximum	19000	Median	0.01
SD	1811	CV	6.285
k hat (MLE)	0.0899	k star (bias corrected MLE)	0.0904
Theta hat (MLE)	3207	Theta star (bias corrected MLE)	3188
nu hat (MLE)	134.4	nu star (bias corrected)	135.2
MLE Mean (bias corrected)	288.2	MLE Sd (bias corrected)	958.5
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (135.23, α)	109.4	Adjusted Chi Square Value (135.23, β)	109.3
95% Gamma Approximate UCL (use when n>=50)	356.4	95% Gamma Adjusted UCL (use when n<50)	356.5

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.205	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0802	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	288.4	Mean in Log Scale	-1.191
SD in Original Scale	1811	SD in Log Scale	2.971
95% t UCL (assumes normality of ROS data)	397.4	95% Percentile Bootstrap UCL	404
95% BCA Bootstrap UCL	415.6	95% Bootstrap t UCL	429.4
95% H-UCL (Log ROS)	39.26		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	287.9	Mean in Log Scale	-0.702
SD in Original Scale	1811	SD in Log Scale	2.004
95% t UCL (Assumes normality)	397	95% H-Stat UCL	4.608

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	702.9

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

DIESEL RANGE ORGANICS (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	214
Number of Detects	188	Number of Non-Detects	560
Number of Distinct Detects	176	Number of Distinct Non-Detects	41
Minimum Detect	95.6	Minimum Non-Detect	92.6
Maximum Detect	98600	Maximum Non-Detect	250
Variance Detects	3.204E+8	Percent Non-Detects	74.87%
Mean Detects	8233	SD Detects	17899
Median Detects	1105	CV Detects	2.174
Skewness Detects	3.088	Kurtosis Detects	9.791
Mean of Logged Detects	7.272	SD of Logged Detects	1.881

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.51	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.35	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0646	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2141	Standard Error of Mean	352.7
SD	9620	95% KM (BCA) UCL	2724
95% KM (t) UCL	2722	95% KM (Percentile Bootstrap) UCL	2755
95% KM (z) UCL	2721	95% KM Bootstrap t UCL	2856
90% KM Chebyshev UCL	3199	95% KM Chebyshev UCL	3678
97.5% KM Chebyshev UCL	4343	99% KM Chebyshev UCL	5650

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	10.93	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.85	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.19	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0717	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.38	k star (bias corrected MLE)	0.378
Theta hat (MLE)	21643	Theta star (bias corrected MLE)	21788
nu hat (MLE)	143	nu star (bias corrected)	142.1
MLE Mean (bias corrected)	8233	MLE Sd (bias corrected)	13393

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0495	nu hat (KM)	74.08
Approximate Chi Square Value (74.08, α)	55.26	Adjusted Chi Square Value (74.08, β)	55.23
95% Gamma Approximate KM-UCL (use when n>=50)	2870	95% Gamma Adjusted KM-UCL (use when n<50)	2872

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2069
Maximum	98600	Median	0.01
SD	9642	CV	4.66
k hat (MLE)	0.089	k star (bias corrected MLE)	0.0895
Theta hat (MLE)	23246	Theta star (bias corrected MLE)	23107
nu hat (MLE)	133.2	nu star (bias corrected)	134
MLE Mean (bias corrected)	2069	MLE Sd (bias corrected)	6915
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (133.96, α)	108.2	Adjusted Chi Square Value (133.96, β)	108.2
95% Gamma Approximate UCL (use when n>=50)	2561	95% Gamma Adjusted UCL (use when n<50)	2562

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0747	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0646	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2085	Mean in Log Scale	2.705
SD in Original Scale	9639	SD in Log Scale	3.521
95% t UCL (assumes normality of ROS data)	2666	95% Percentile Bootstrap UCL	2711
95% BCA Bootstrap UCL	2721	95% Bootstrap t UCL	2783
95% H-UCL (Log ROS)	13567		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	2127	Mean in Log Scale	5.028
SD in Original Scale	9630	SD in Log Scale	1.636
95% t UCL (Assumes normality)	2706	95% H-Stat UCL	682.5

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 3678

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

m,p-Xylene (ug/L)

General Statistics

Total Number of Observations	95	Number of Distinct Observations	14
Number of Detects	13	Number of Non-Detects	82
Number of Distinct Detects	12	Number of Distinct Non-Detects	2
Minimum Detect	0.614	Minimum Non-Detect	1
Maximum Detect	3750	Maximum Non-Detect	50
Variance Detects	1091150	Percent Non-Detects	86.32%
Mean Detects	419.5	SD Detects	1045
Median Detects	31.6	CV Detects	2.49
Skewness Detects	3.169	Kurtosis Detects	10.37
Mean of Logged Detects	3.278	SD of Logged Detects	2.775

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.465	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.432	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	58.07	Standard Error of Mean	42.52
SD	398.2	95% KM (BCA) UCL	136.2
95% KM (t) UCL	128.7	95% KM (Percentile Bootstrap) UCL	135.1
95% KM (z) UCL	128	95% KM Bootstrap t UCL	783.7
90% KM Chebyshev UCL	185.6	95% KM Chebyshev UCL	243.4
97.5% KM Chebyshev UCL	323.6	99% KM Chebyshev UCL	481.1

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.739	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.849	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.222	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.259	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.256	k star (bias corrected MLE)	0.248
Theta hat (MLE)	1637	Theta star (bias corrected MLE)	1689
nu hat (MLE)	6.663	nu star (bias corrected)	6.458
MLE Mean (bias corrected)	419.5	MLE Sd (bias corrected)	841.8

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0213	nu hat (KM)	4.041
Approximate Chi Square Value (4.04, α)	0.738	Adjusted Chi Square Value (4.04, β)	0.718
95% Gamma Approximate KM-UCL (use when n>=50)	318	95% Gamma Adjusted KM-UCL (use when n<50)	327

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	57.42
Maximum	3750	Median	0.01
SD	400.4	CV	6.973
k hat (MLE)	0.106	k star (bias corrected MLE)	0.11
Theta hat (MLE)	539.9	Theta star (bias corrected MLE)	522
nu hat (MLE)	20.21	nu star (bias corrected)	20.9
MLE Mean (bias corrected)	57.42	MLE Sd (bias corrected)	173.1
		Adjusted Level of Significance (β)	0.0475
Approximate Chi Square Value (20.90, α)	11.52	Adjusted Chi Square Value (20.90, β)	11.41
95% Gamma Approximate UCL (use when n>=50)	104.2	95% Gamma Adjusted UCL (use when n<50)	105.2

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.95	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.156	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	58.62	Mean in Log Scale	-0.91
SD in Original Scale	400.2	SD in Log Scale	2.987
95% t UCL (assumes normality of ROS data)	126.8	95% Percentile Bootstrap UCL	134.5
95% BCA Bootstrap UCL	214.1	95% Bootstrap t UCL	823
95% H-UCL (Log ROS)	149.2		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.191	95% H-UCL (KM -Log)	6.84
KM SD (logged)	1.587	95% Critical H Value (KM-Log)	2.892
KM Standard Error of Mean (logged)	0.208		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	58.1	Mean in Log Scale	-0.109
SD in Original Scale	400.3	SD in Log Scale	1.727
95% t UCL (Assumes normality)	126.3	95% H-Stat UCL	6.873

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	128.7	95% GROS Approximate Gamma UCL	104.2
95% Approximate Gamma KM-UCL	318		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

XYLENES (ug/L)

General Statistics

Total Number of Observations	653	Number of Distinct Observations	89
Number of Detects	82	Number of Non-Detects	571
Number of Distinct Detects	82	Number of Distinct Non-Detects	7
Minimum Detect	0.752	Minimum Non-Detect	1.5
Maximum Detect	4380	Maximum Non-Detect	150
Variance Detects	1053883	Percent Non-Detects	87.44%
Mean Detects	557.8	SD Detects	1027
Median Detects	13.05	CV Detects	1.84
Skewness Detects	1.91	Kurtosis Detects	2.722
Mean of Logged Detects	3.476	SD of Logged Detects	2.841

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.61	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.376	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0978	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	70.99	Standard Error of Mean	15.98
SD	405.9	95% KM (BCA) UCL	98.62
95% KM (t) UCL	97.32	95% KM (Percentile Bootstrap) UCL	97.28
95% KM (z) UCL	97.28	95% KM Bootstrap t UCL	103.2
90% KM Chebyshev UCL	118.9	95% KM Chebyshev UCL	140.7
97.5% KM Chebyshev UCL	170.8	99% KM Chebyshev UCL	230

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.24	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.891	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.206	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.108	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.249	k star (bias corrected MLE)	0.248
Theta hat (MLE)	2236	Theta star (bias corrected MLE)	2245
nu hat (MLE)	40.91	nu star (bias corrected)	40.75
MLE Mean (bias corrected)	557.8	MLE Sd (bias corrected)	1119

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0306	nu hat (KM)	39.95
Approximate Chi Square Value (39.95, α)	26.47	Adjusted Chi Square Value (39.95, β)	26.44
95% Gamma Approximate KM-UCL (use when n>=50)	107.2	95% Gamma Adjusted KM-UCL (use when n<50)	107.2

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	70.13
Maximum	4380	Median	0.01
SD	406.4	CV	5.794
k hat (MLE)	0.103	k star (bias corrected MLE)	0.104
Theta hat (MLE)	678.8	Theta star (bias corrected MLE)	675.2
nu hat (MLE)	134.9	nu star (bias corrected)	135.6
MLE Mean (bias corrected)	70.13	MLE Sd (bias corrected)	217.6
		Adjusted Level of Significance (β)	0.0496
Approximate Chi Square Value (135.65, α)	109.7	Adjusted Chi Square Value (135.65, β)	109.7
95% Gamma Approximate UCL (use when n>=50)	86.69	95% Gamma Adjusted UCL (use when n<50)	86.73

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.179	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0978	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	71.58	Mean in Log Scale	-0.643
SD in Original Scale	406.1	SD in Log Scale	2.865
95% t UCL (assumes normality of ROS data)	97.76	95% Percentile Bootstrap UCL	99.24
95% BCA Bootstrap UCL	105.2	95% Bootstrap t UCL	104.7
95% H-UCL (Log ROS)	49.64		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	71.05	Mean in Log Scale	0.3
SD in Original Scale	406.2	SD in Log Scale	1.63
95% t UCL (Assumes normality)	97.23	95% H-Stat UCL	6.029

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	170.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ACETONE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	147
Number of Detects	147	Number of Non-Detects	601
Number of Distinct Detects	140	Number of Distinct Non-Detects	8
Minimum Detect	2.51	Minimum Non-Detect	5
Maximum Detect	26300	Maximum Non-Detect	1000
Variance Detects	5100841	Percent Non-Detects	80.35%
Mean Detects	460.2	SD Detects	2259
Median Detects	12.6	CV Detects	4.907
Skewness Detects	10.47	Kurtosis Detects	119.3
Mean of Logged Detects	3.286	SD of Logged Detects	2.155

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.217	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.42	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0731	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	93.33	Standard Error of Mean	37.21
SD	1014	95% KM (BCA) UCL	170.3
95% KM (t) UCL	154.6	95% KM (Percentile Bootstrap) UCL	161.5
95% KM (z) UCL	154.5	95% KM Bootstrap t UCL	273.2
90% KM Chebyshev UCL	205	95% KM Chebyshev UCL	255.5
97.5% KM Chebyshev UCL	325.7	99% KM Chebyshev UCL	463.6

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	17.48	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.894	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.265	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0849	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.25	k star (bias corrected MLE)	0.249
Theta hat (MLE)	1843	Theta star (bias corrected MLE)	1847
nu hat (MLE)	73.41	nu star (bias corrected)	73.24
MLE Mean (bias corrected)	460.2	MLE Sd (bias corrected)	922.1

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.00847	nu hat (KM)	12.67
Approximate Chi Square Value (12.67, α)	5.672	Adjusted Chi Square Value (12.67, β)	5.663
95% Gamma Approximate KM-UCL (use when n>=50)	208.5	95% Gamma Adjusted KM-UCL (use when n<50)	208.8

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	90.45
Maximum	26300	Median	0.01
SD	1015	CV	11.22
k hat (MLE)	0.107	k star (bias corrected MLE)	0.107
Theta hat (MLE)	848.8	Theta star (bias corrected MLE)	845.1
nu hat (MLE)	159.4	nu star (bias corrected)	160.1
MLE Mean (bias corrected)	90.45	MLE Sd (bias corrected)	276.5
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (160.12, α)	131.9	Adjusted Chi Square Value (160.12, β)	131.8
95% Gamma Approximate UCL (use when n>=50)	109.8	95% Gamma Adjusted UCL (use when n<50)	109.9

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.157	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0731	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	94.47	Mean in Log Scale	1.331
SD in Original Scale	1015	SD in Log Scale	1.861
95% t UCL (assumes normality of ROS data)	155.6	95% Percentile Bootstrap UCL	167.3
95% BCA Bootstrap UCL	217.4	95% Bootstrap t UCL	268.3
95% H-UCL (Log ROS)	25.99		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	94.3	Mean in Log Scale	1.447
SD in Original Scale	1015	SD in Log Scale	1.388
95% t UCL (Assumes normality)	155.4	95% H-Stat UCL	12.6

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 325.7

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

BENZENE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	131
Number of Detects	133	Number of Non-Detects	615
Number of Distinct Detects	128	Number of Distinct Non-Detects	4
Minimum Detect	0.253	Minimum Non-Detect	0.5
Maximum Detect	13400	Maximum Non-Detect	5
Variance Detects	8481180	Percent Non-Detects	82.22%
Mean Detects	1453	SD Detects	2912
Median Detects	3.06	CV Detects	2.004
Skewness Detects	2.138	Kurtosis Detects	3.997
Mean of Logged Detects	2.647	SD of Logged Detects	3.8

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.573	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.394	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0768	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	258.7	Standard Error of Mean	49.31
SD	1344	95% KM (BCA) UCL	347.9
95% KM (t) UCL	339.9	95% KM (Percentile Bootstrap) UCL	344.2
95% KM (z) UCL	339.8	95% KM Bootstrap t UCL	356.7
90% KM Chebyshev UCL	406.6	95% KM Chebyshev UCL	473.6
97.5% KM Chebyshev UCL	566.6	99% KM Chebyshev UCL	749.3

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	13.4	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.954	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.265	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.091	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.164	k star (bias corrected MLE)	0.165
Theta hat (MLE)	8876	Theta star (bias corrected MLE)	8805
nu hat (MLE)	43.55	nu star (bias corrected)	43.9
MLE Mean (bias corrected)	1453	MLE Sd (bias corrected)	3577

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0371	nu hat (KM)	55.44
Approximate Chi Square Value (55.44, α)	39.33	Adjusted Chi Square Value (55.44, β)	39.31
95% Gamma Approximate KM-UCL (use when n>=50)	364.6	95% Gamma Adjusted KM-UCL (use when n<50)	364.9

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	258.4
Maximum	13400	Median	0.01
SD	1345	CV	5.204
k hat (MLE)	0.0925	k star (bias corrected MLE)	0.093
Theta hat (MLE)	2793	Theta star (bias corrected MLE)	2777
nu hat (MLE)	138.4	nu star (bias corrected)	139.2
MLE Mean (bias corrected)	258.4	MLE Sd (bias corrected)	847.1
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (139.17, α)	112.9	Adjusted Chi Square Value (139.17, β)	112.9
95% Gamma Approximate UCL (use when n>=50)	318.5	95% Gamma Adjusted UCL (use when n<50)	318.6

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.187	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0768	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	259.1	Mean in Log Scale	-1.254
SD in Original Scale	1344	SD in Log Scale	3.365
95% t UCL (assumes normality of ROS data)	340.1	95% Percentile Bootstrap UCL	340.7
95% BCA Bootstrap UCL	356.7	95% Bootstrap t UCL	358.9
95% H-UCL (Log ROS)	144.2		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	258.6	Mean in Log Scale	-0.606
SD in Original Scale	1344	SD in Log Scale	2.223
95% t UCL (Assumes normality)	339.6	95% H-Stat UCL	8.411

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 566.6

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

IRON, DISSOLVED (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	115
Number of Detects	118	Number of Non-Detects	630
Number of Distinct Detects	113	Number of Distinct Non-Detects	2
Minimum Detect	30.8	Minimum Non-Detect	60
Maximum Detect	15600	Maximum Non-Detect	109
Variance Detects	3765125	Percent Non-Detects	84.22%
Mean Detects	937.5	SD Detects	1940
Median Detects	281	CV Detects	2.07
Skewness Detects	4.761	Kurtosis Detects	29.54
Mean of Logged Detects	5.662	SD of Logged Detects	1.524

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.507	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.32	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0816	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	182.6	Standard Error of Mean	30.65
SD	834.1	95% KM (BCA) UCL	239.9
95% KM (t) UCL	233.1	95% KM (Percentile Bootstrap) UCL	236.7
95% KM (z) UCL	233	95% KM Bootstrap t UCL	256.3
90% KM Chebyshev UCL	274.5	95% KM Chebyshev UCL	316.2
97.5% KM Chebyshev UCL	374	99% KM Chebyshev UCL	487.5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	4.515	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.816	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.156	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0895	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.532	k star (bias corrected MLE)	0.525
Theta hat (MLE)	1761	Theta star (bias corrected MLE)	1787
nu hat (MLE)	125.6	nu star (bias corrected)	123.8
MLE Mean (bias corrected)	937.5	MLE Sd (bias corrected)	1294

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0479	nu hat (KM)	71.69
Approximate Chi Square Value (71.69, α)	53.19	Adjusted Chi Square Value (71.69, β)	53.16
95% Gamma Approximate KM-UCL (use when n>=50)	246.1	95% Gamma Adjusted KM-UCL (use when n<50)	246.2

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	150.3
Maximum	15600	Median	0.01
SD	840.4	CV	5.591
k hat (MLE)	0.104	k star (bias corrected MLE)	0.104
Theta hat (MLE)	1448	Theta star (bias corrected MLE)	1441
nu hat (MLE)	155.3	nu star (bias corrected)	156
MLE Mean (bias corrected)	150.3	MLE Sd (bias corrected)	465.4
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (156.03, α)	128.2	Adjusted Chi Square Value (156.03, β)	128.1
95% Gamma Approximate UCL (use when n>=50)	183	95% Gamma Adjusted UCL (use when n<50)	183.1

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0731	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0816	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	194.5	Mean in Log Scale	3.79
SD in Original Scale	834.1	SD in Log Scale	1.493
95% t UCL (assumes normality of ROS data)	244.7	95% Percentile Bootstrap UCL	245.5
95% BCA Bootstrap UCL	259.9	95% Bootstrap t UCL	269.2
95% H-UCL (Log ROS)	155		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	4.016	95% H-UCL (KM -Log)	92.82
KM SD (logged)	0.942	95% Critical H Value (KM-Log)	2.048
KM Standard Error of Mean (logged)	0.0434		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	173.2	Mean in Log Scale	3.759
SD in Original Scale	836.2	SD in Log Scale	1.021
95% t UCL (Assumes normality)	223.5	95% H-Stat UCL	78.18

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 316.2

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

MANGANESE, DISSOLVED (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	324
Number of Detects	351	Number of Non-Detects	397
Number of Distinct Detects	323	Number of Distinct Non-Detects	1
Minimum Detect	3.06	Minimum Non-Detect	6
Maximum Detect	5685	Maximum Non-Detect	6
Variance Detects	1008134	Percent Non-Detects	53.07%
Mean Detects	453.7	SD Detects	1004
Median Detects	57	CV Detects	2.213
Skewness Detects	3.531	Kurtosis Detects	12.97
Mean of Logged Detects	4.24	SD of Logged Detects	2.063

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.488	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.327	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0473	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	215.2	Standard Error of Mean	26.46
SD	722.5	95% KM (BCA) UCL	259
95% KM (t) UCL	258.8	95% KM (Percentile Bootstrap) UCL	261.5
95% KM (z) UCL	258.7	95% KM Bootstrap t UCL	265.9
90% KM Chebyshev UCL	294.6	95% KM Chebyshev UCL	330.5
97.5% KM Chebyshev UCL	380.4	99% KM Chebyshev UCL	478.4

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	15.25	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.857	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.154	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0524	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.357	k star (bias corrected MLE)	0.356
Theta hat (MLE)	1271	Theta star (bias corrected MLE)	1275
nu hat (MLE)	250.6	nu star (bias corrected)	249.8
MLE Mean (bias corrected)	453.7	MLE Sd (bias corrected)	760.7

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0887	nu hat (KM)	132.7
Approximate Chi Square Value (132.71, α)	107.1	Adjusted Chi Square Value (132.71, β)	107.1
95% Gamma Approximate KM-UCL (use when n>=50)	266.7	95% Gamma Adjusted KM-UCL (use when n<50)	266.8

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	212.9
Maximum	5685	Median	0.01
SD	723.7	CV	3.399
k hat (MLE)	0.134	k star (bias corrected MLE)	0.135
Theta hat (MLE)	1586	Theta star (bias corrected MLE)	1582
nu hat (MLE)	200.9	nu star (bias corrected)	201.4
MLE Mean (bias corrected)	212.9	MLE Sd (bias corrected)	580.3
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (201.39, α)	169.6	Adjusted Chi Square Value (201.39, β)	169.5
95% Gamma Approximate UCL (use when n>=50)	252.9	95% Gamma Adjusted UCL (use when n<50)	253

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0789	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0473	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	215.7	Mean in Log Scale	2.439
SD in Original Scale	722.9	SD in Log Scale	2.481
95% t UCL (assumes normality of ROS data)	259.2	95% Percentile Bootstrap UCL	260.2
95% BCA Bootstrap UCL	265.6	95% Bootstrap t UCL	265.7
95% H-UCL (Log ROS)	343.6		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	214.5	Mean in Log Scale	2.573
SD in Original Scale	723.2	SD in Log Scale	2.11
95% t UCL (Assumes normality)	258.1	95% H-Stat UCL	154.8

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	380.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

SODIUM (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	202
Number of Detects	746	Number of Non-Detects	2
Number of Distinct Detects	201	Number of Distinct Non-Detects	1
Minimum Detect	18700	Minimum Non-Detect	3000
Maximum Detect	50600	Maximum Non-Detect	3000
Variance Detects	24788908	Percent Non-Detects	0.267%
Mean Detects	26159	SD Detects	4979
Median Detects	25000	CV Detects	0.19
Skewness Detects	1.874	Kurtosis Detects	4.462
Mean of Logged Detects	10.16	SD of Logged Detects	0.17

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.828	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.149	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0324	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	26097	Standard Error of Mean	187
SD	5111	95% KM (BCA) UCL	26410
95% KM (t) UCL	26405	95% KM (Percentile Bootstrap) UCL	26415
95% KM (z) UCL	26405	95% KM Bootstrap t UCL	26416
90% KM Chebyshev UCL	26658	95% KM Chebyshev UCL	26912
97.5% KM Chebyshev UCL	27265	99% KM Chebyshev UCL	27957

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	19.21	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.751	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.128	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0346	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	32.61	k star (bias corrected MLE)	32.48
Theta hat (MLE)	802.1	Theta star (bias corrected MLE)	805.4
nu hat (MLE)	48656	nu star (bias corrected)	48461
MLE Mean (bias corrected)	26159	MLE Sd (bias corrected)	4590

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	26.07	nu hat (KM)	39007
Approximate Chi Square Value (N/A, α)	38549	Adjusted Chi Square Value (N/A, β)	38548
95% Gamma Approximate KM-UCL (use when n>=50)	26407	95% Gamma Adjusted KM-UCL (use when n<50)	26408

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	13652	Mean	26126
Maximum	50600	Median	25000
SD	5012	CV	0.192
k hat (MLE)	31.81	k star (bias corrected MLE)	31.69
Theta hat (MLE)	821.3	Theta star (bias corrected MLE)	824.5
nu hat (MLE)	47592	nu star (bias corrected)	47402
MLE Mean (bias corrected)	26126	MLE Sd (bias corrected)	4641
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (N/A, α)	46897	Adjusted Chi Square Value (N/A, β)	46896
95% Gamma Approximate UCL (use when n>=50)	26408	95% Gamma Adjusted UCL (use when n<50)	26408

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.116	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0324	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	26131	Mean in Log Scale	10.16
SD in Original Scale	5002	SD in Log Scale	0.171
95% t UCL (assumes normality of ROS data)	26432	95% Percentile Bootstrap UCL	26460
95% BCA Bootstrap UCL	26448	95% Bootstrap t UCL	26451
95% H-UCL (Log ROS)	26379		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	26093	Mean in Log Scale	10.15
SD in Original Scale	5133	SD in Log Scale	0.224
95% t UCL (Assumes normality)	26402	95% H-Stat UCL	26578

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL 26410

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

1-Methylnaphthalene (ug/L)

General Statistics

Total Number of Observations	747	Number of Distinct Observations	86
Number of Detects	40	Number of Non-Detects	707
Number of Distinct Detects	40	Number of Distinct Non-Detects	47
Minimum Detect	1.19	Minimum Non-Detect	2.31
Maximum Detect	34.2	Maximum Non-Detect	278
Variance Detects	100.1	Percent Non-Detects	94.65%
Mean Detects	13.23	SD Detects	10
Median Detects	11.85	CV Detects	0.756
Skewness Detects	0.345	Kurtosis Detects	-1.276
Mean of Logged Detects	2.165	SD of Logged Detects	1.038

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.94	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.178	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.14	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.344	Standard Error of Mean	0.193
SD	3.497	95% KM (BCA) UCL	2.716
95% KM (t) UCL	2.663	95% KM (Percentile Bootstrap) UCL	2.68
95% KM (z) UCL	2.662	95% KM Bootstrap t UCL	2.708
90% KM Chebyshev UCL	2.924	95% KM Chebyshev UCL	3.187
97.5% KM Chebyshev UCL	3.551	99% KM Chebyshev UCL	4.268

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.22	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.77	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.144	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.143	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.34	k star (bias corrected MLE)	1.256
Theta hat (MLE)	9.871	Theta star (bias corrected MLE)	10.53
nu hat (MLE)	107.2	nu star (bias corrected)	100.5
MLE Mean (bias corrected)	13.23	MLE Sd (bias corrected)	11.8

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.449	nu hat (KM)	671.3
Approximate Chi Square Value (671.30, α)	612.2	Adjusted Chi Square Value (671.30, β)	612.1
95% Gamma Approximate KM-UCL (use when n>=50)	2.571	95% Gamma Adjusted KM-UCL (use when n<50)	2.571

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.497
Maximum	34.2	Median	0.01
SD	4.087	CV	2.73
k hat (MLE)	0.211	k star (bias corrected MLE)	0.211
Theta hat (MLE)	7.081	Theta star (bias corrected MLE)	7.079
nu hat (MLE)	315.9	nu star (bias corrected)	315.9
MLE Mean (bias corrected)	1.497	MLE Sd (bias corrected)	3.255
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (315.92, α)	275.7	Adjusted Chi Square Value (315.92, β)	275.7
95% Gamma Approximate UCL (use when n>=50)	1.715	95% Gamma Adjusted UCL (use when n<50)	1.716

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.891	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.94	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.15	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.14	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.505	Mean in Log Scale	0.424
SD in Original Scale	3.732	SD in Log Scale	0.938
95% t UCL (assumes normality of ROS data)	2.73	95% Percentile Bootstrap UCL	2.723
95% BCA Bootstrap UCL	2.77	95% Bootstrap t UCL	2.751
95% H-UCL (Log ROS)	2.547		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	3.004	Mean in Log Scale	0.378
SD in Original Scale	10.87	SD in Log Scale	0.692
95% t UCL (Assumes normality)	3.659	95% H-Stat UCL	1.944

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL 2.716

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

NAPHTHALENE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	73
Number of Detects	70	Number of Non-Detects	678
Number of Distinct Detects	67	Number of Distinct Non-Detects	7
Minimum Detect	0.32	Minimum Non-Detect	0.5
Maximum Detect	233	Maximum Non-Detect	50
Variance Detects	3162	Percent Non-Detects	90.64%
Mean Detects	48.91	SD Detects	56.23
Median Detects	12.5	CV Detects	1.15
Skewness Detects	0.976	Kurtosis Detects	0.203
Mean of Logged Detects	2.52	SD of Logged Detects	2.083

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.813	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	4.669E-12	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.25	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.106	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	4.878	Standard Error of Mean	0.817
SD	22.18	95% KM (BCA) UCL	6.32
95% KM (t) UCL	6.224	95% KM (Percentile Bootstrap) UCL	6.281
95% KM (z) UCL	6.222	95% KM Bootstrap t UCL	6.431
90% KM Chebyshev UCL	7.329	95% KM Chebyshev UCL	8.439
97.5% KM Chebyshev UCL	9.979	99% KM Chebyshev UCL	13.01

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	2.771	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.824	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.15	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.113	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.468	k star (bias corrected MLE)	0.458
Theta hat (MLE)	104.4	Theta star (bias corrected MLE)	106.8
nu hat (MLE)	65.58	nu star (bias corrected)	64.1
MLE Mean (bias corrected)	48.91	MLE Sd (bias corrected)	72.28

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0484	nu hat (KM)	72.38
Approximate Chi Square Value (72.38, α)	53.79	Adjusted Chi Square Value (72.38, β)	53.76
95% Gamma Approximate KM-UCL (use when n>=50)	6.564	95% Gamma Adjusted KM-UCL (use when n<50)	6.568

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.605
Maximum	233	Median	0.01
SD	22.25	CV	4.832
k hat (MLE)	0.143	k star (bias corrected MLE)	0.143
Theta hat (MLE)	32.23	Theta star (bias corrected MLE)	32.16
nu hat (MLE)	213.7	nu star (bias corrected)	214.2
MLE Mean (bias corrected)	4.605	MLE Sd (bias corrected)	12.17
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (214.19, α)	181.3	Adjusted Chi Square Value (214.19, β)	181.3
95% Gamma Approximate UCL (use when n>=50)	5.439	95% Gamma Adjusted UCL (use when n<50)	5.441

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.182	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.106	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.871	Mean in Log Scale	-2.719
SD in Original Scale	22.2	SD in Log Scale	3.04
95% t UCL (assumes normality of ROS data)	6.208	95% Percentile Bootstrap UCL	6.266
95% BCA Bootstrap UCL	6.386	95% Bootstrap t UCL	6.48
95% H-UCL (Log ROS)	10.68		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	4.888	Mean in Log Scale	-0.937
SD in Original Scale	22.21	SD in Log Scale	1.336
95% t UCL (Assumes normality)	6.226	95% H-Stat UCL	1.075

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 9.979

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

2-METHYLNAPHTHALENE (ug/L)

General Statistics

Total Number of Observations	747	Number of Distinct Observations	81
Number of Detects	36	Number of Non-Detects	711
Number of Distinct Detects	36	Number of Distinct Non-Detects	46
Minimum Detect	1.35	Minimum Non-Detect	2.31
Maximum Detect	40.7	Maximum Non-Detect	278
Variance Detects	130.8	Percent Non-Detects	95.18%
Mean Detects	15.12	SD Detects	11.44
Median Detects	15.18	CV Detects	0.757
Skewness Detects	0.369	Kurtosis Detects	-0.932
Mean of Logged Detects	2.258	SD of Logged Detects	1.127

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.915	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.171	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.183	Standard Error of Mean	0.154
SD	3.851	95% KM (BCA) UCL	2.445
95% KM (t) UCL	2.436	95% KM (Percentile Bootstrap) UCL	2.439
95% KM (z) UCL	2.435	95% KM Bootstrap t UCL	2.491
90% KM Chebyshev UCL	2.643	95% KM Chebyshev UCL	2.852
97.5% KM Chebyshev UCL	3.142	99% KM Chebyshev UCL	3.711

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.231	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.772	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.169	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.15	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.231	k star (bias corrected MLE)	1.147
Theta hat (MLE)	12.28	Theta star (bias corrected MLE)	13.18
nu hat (MLE)	88.63	nu star (bias corrected)	82.58
MLE Mean (bias corrected)	15.12	MLE Sd (bias corrected)	14.11

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.321	nu hat (KM)	479.9
Approximate Chi Square Value (479.89, α)	430.1	Adjusted Chi Square Value (479.89, β)	430
95% Gamma Approximate KM-UCL (use when n>=50)	2.435	95% Gamma Adjusted KM-UCL (use when n<50)	2.436

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.878
Maximum	40.7	Median	0.01
SD	4.617	CV	2.458
k hat (MLE)	0.215	k star (bias corrected MLE)	0.215
Theta hat (MLE)	8.747	Theta star (bias corrected MLE)	8.746
nu hat (MLE)	320.8	nu star (bias corrected)	320.9
MLE Mean (bias corrected)	1.878	MLE Sd (bias corrected)	4.053
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (320.88, α)	280.4	Adjusted Chi Square Value (320.88, β)	280.3
95% Gamma Approximate UCL (use when n>=50)	2.15	95% Gamma Adjusted UCL (use when n<50)	2.15

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.862	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.935	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.209	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.148	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.779	Mean in Log Scale	0.515
SD in Original Scale	4.12	SD in Log Scale	0.96
95% t UCL (assumes normality of ROS data)	3.027	95% Percentile Bootstrap UCL	3.037
95% BCA Bootstrap UCL	3.051	95% Bootstrap t UCL	3.062
95% H-UCL (Log ROS)	2.852		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	3.023	Mean in Log Scale	0.37
SD in Original Scale	10.98	SD in Log Scale	0.692
95% t UCL (Assumes normality)	3.685	95% H-Stat UCL	1.927

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL 2.445

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

o-Xylene (ug/L)

General Statistics

Total Number of Observations	95	Number of Distinct Observations	14
Number of Detects	11	Number of Non-Detects	84
Number of Distinct Detects	11	Number of Distinct Non-Detects	3
Minimum Detect	0.266	Minimum Non-Detect	0.5
Maximum Detect	1590	Maximum Non-Detect	12.5
Variance Detects	261677	Percent Non-Detects	88.42%
Mean Detects	243.3	SD Detects	511.5
Median Detects	3.15	CV Detects	2.102
Skewness Detects	2.334	Kurtosis Detects	5.053
Mean of Logged Detects	2.123	SD of Logged Detects	3.255

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.564	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.394	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.267	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	28.44	Standard Error of Mean	19.72
SD	183.3	95% KM (BCA) UCL	66.99
95% KM (t) UCL	61.21	95% KM (Percentile Bootstrap) UCL	62.47
95% KM (z) UCL	60.88	95% KM Bootstrap t UCL	350.5
90% KM Chebyshev UCL	87.61	95% KM Chebyshev UCL	114.4
97.5% KM Chebyshev UCL	151.6	99% KM Chebyshev UCL	224.7

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.813	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.855	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.238	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.281	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.216	k star (bias corrected MLE)	0.217
Theta hat (MLE)	1128	Theta star (bias corrected MLE)	1119
nu hat (MLE)	4.746	nu star (bias corrected)	4.785
MLE Mean (bias corrected)	243.3	MLE Sd (bias corrected)	521.8

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0241	nu hat (KM)	4.576
Approximate Chi Square Value (4.58, α)	0.961	Adjusted Chi Square Value (4.58, β)	0.937
95% Gamma Approximate KM-UCL (use when n>=50)	135.4	95% Gamma Adjusted KM-UCL (use when n<50)	138.9

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	29.48
Maximum	1590	Median	0.01
SD	184.3	CV	6.251
k hat (MLE)	0.115	k star (bias corrected MLE)	0.118
Theta hat (MLE)	257	Theta star (bias corrected MLE)	249.6
nu hat (MLE)	21.8	nu star (bias corrected)	22.44
MLE Mean (bias corrected)	29.48	MLE Sd (bias corrected)	85.78
		Adjusted Level of Significance (β)	0.0475
Approximate Chi Square Value (22.44, α)	12.67	Adjusted Chi Square Value (22.44, β)	12.56
95% Gamma Approximate UCL (use when n>=50)	52.22	95% Gamma Adjusted UCL (use when n<50)	52.69

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.89	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.163	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	29.01	Mean in Log Scale	-1.336
SD in Original Scale	184.2	SD in Log Scale	2.672
95% t UCL (assumes normality of ROS data)	60.4	95% Percentile Bootstrap UCL	63.67
95% BCA Bootstrap UCL	79.48	95% Bootstrap t UCL	360.4
95% H-UCL (Log ROS)	30.47		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-0.826	95% H-UCL (KM -Log)	2.106
KM SD (logged)	1.507	95% Critical H Value (KM-Log)	2.798
KM Standard Error of Mean (logged)	0.177		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	28.46	Mean in Log Scale	-0.939
SD in Original Scale	184.3	SD in Log Scale	1.575
95% t UCL (Assumes normality)	59.87	95% H-Stat UCL	2.159

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	61.21	95% GROS Approximate Gamma UCL	52.22
95% Approximate Gamma KM-UCL	135.4		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

1,2,4-TRIMETHYLBENZENE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	97
Number of Detects	93	Number of Non-Detects	655
Number of Distinct Detects	91	Number of Distinct Non-Detects	6
Minimum Detect	0.26	Minimum Non-Detect	0.5
Maximum Detect	429	Maximum Non-Detect	50
Variance Detects	10423	Percent Non-Detects	87.57%
Mean Detects	67.45	SD Detects	102.1
Median Detects	15	CV Detects	1.514
Skewness Detects	1.645	Kurtosis Detects	1.847
Mean of Logged Detects	2.226	SD of Logged Detects	2.483

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.701	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.278	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0919	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	8.728	Standard Error of Mean	1.547
SD	42.09	95% KM (BCA) UCL	11.41
95% KM (t) UCL	11.28	95% KM (Percentile Bootstrap) UCL	11.57
95% KM (z) UCL	11.27	95% KM Bootstrap t UCL	11.92
90% KM Chebyshev UCL	13.37	95% KM Chebyshev UCL	15.47
97.5% KM Chebyshev UCL	18.39	99% KM Chebyshev UCL	24.12

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.093	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.858	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.154	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.1	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.34	k star (bias corrected MLE)	0.336
Theta hat (MLE)	198.3	Theta star (bias corrected MLE)	200.5
nu hat (MLE)	63.28	nu star (bias corrected)	62.57
MLE Mean (bias corrected)	67.45	MLE Sd (bias corrected)	116.3

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.043	nu hat (KM)	64.33
Approximate Chi Square Value (64.33, α)	46.87	Adjusted Chi Square Value (64.33, β)	46.85
95% Gamma Approximate KM-UCL (use when n>=50)	11.98	95% Gamma Adjusted KM-UCL (use when n<50)	11.99

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	9.071
Maximum	429	Median	0.01
SD	42.19	CV	4.651
k hat (MLE)	0.139	k star (bias corrected MLE)	0.139
Theta hat (MLE)	65.46	Theta star (bias corrected MLE)	65.31
nu hat (MLE)	207.3	nu star (bias corrected)	207.8
MLE Mean (bias corrected)	9.071	MLE Sd (bias corrected)	24.34
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (207.79, α)	175.4	Adjusted Chi Square Value (207.79, β)	175.4
95% Gamma Approximate UCL (use when n>=50)	10.74	95% Gamma Adjusted UCL (use when n<50)	10.75

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.126	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0919	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	9.391	Mean in Log Scale	-0.654
SD in Original Scale	42.02	SD in Log Scale	2.196
95% t UCL (assumes normality of ROS data)	11.92	95% Percentile Bootstrap UCL	12.09
95% BCA Bootstrap UCL	12.46	95% Bootstrap t UCL	12.35
95% H-UCL (Log ROS)	7.511		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	8.695	Mean in Log Scale	-0.844
SD in Original Scale	42.14	SD in Log Scale	1.504
95% t UCL (Assumes normality)	11.23	95% H-Stat UCL	1.53

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	18.39

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ISOPROPYLBENZENE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	180
Number of Detects	197	Number of Non-Detects	551
Number of Distinct Detects	179	Number of Distinct Non-Detects	2
Minimum Detect	0.26	Minimum Non-Detect	0.5
Maximum Detect	135	Maximum Non-Detect	2.5
Variance Detects	851.2	Percent Non-Detects	73.66%
Mean Detects	17.61	SD Detects	29.18
Median Detects	4.01	CV Detects	1.657
Skewness Detects	2.02	Kurtosis Detects	3.194
Mean of Logged Detects	1.507	SD of Logged Detects	1.743

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.629	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.315	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0631	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	4.897	Standard Error of Mean	0.614
SD	16.76	95% KM (BCA) UCL	5.933
95% KM (t) UCL	5.909	95% KM (Percentile Bootstrap) UCL	5.952
95% KM (z) UCL	5.908	95% KM Bootstrap t UCL	6.031
90% KM Chebyshev UCL	6.741	95% KM Chebyshev UCL	7.576
97.5% KM Chebyshev UCL	8.734	99% KM Chebyshev UCL	11.01

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	8.138	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.828	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.177	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0684	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.471	k star (bias corrected MLE)	0.467
Theta hat (MLE)	37.4	Theta star (bias corrected MLE)	37.71
nu hat (MLE)	185.5	nu star (bias corrected)	184
MLE Mean (bias corrected)	17.61	MLE Sd (bias corrected)	25.77

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0854	nu hat (KM)	127.8
Approximate Chi Square Value (127.76, α)	102.7	Adjusted Chi Square Value (127.76, β)	102.6
95% Gamma Approximate KM-UCL (use when n>=50)	6.095	95% Gamma Adjusted KM-UCL (use when n<50)	6.098

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.646
Maximum	135	Median	0.01
SD	16.84	CV	3.625
k hat (MLE)	0.167	k star (bias corrected MLE)	0.167
Theta hat (MLE)	27.83	Theta star (bias corrected MLE)	27.79
nu hat (MLE)	249.8	nu star (bias corrected)	250.1
MLE Mean (bias corrected)	4.646	MLE Sd (bias corrected)	11.36
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (250.10, α)	214.5	Adjusted Chi Square Value (250.10, β)	214.4
95% Gamma Approximate UCL (use when n>=50)	5.417	95% Gamma Adjusted UCL (use when n<50)	5.419

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.0734	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0631	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4.958	Mean in Log Scale	-0.84
SD in Original Scale	16.76	SD in Log Scale	2.132
95% t UCL (assumes normality of ROS data)	5.967	95% Percentile Bootstrap UCL	5.963
95% BCA Bootstrap UCL	6.059	95% Bootstrap t UCL	6.064
95% H-UCL (Log ROS)	5.361		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	4.828	Mean in Log Scale	-0.616
SD in Original Scale	16.79	SD in Log Scale	1.557
95% t UCL (Assumes normality)	5.839	95% H-Stat UCL	2.102

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	7.576

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ACETOPHENONE (ug/L)

General Statistics

Total Number of Observations	747	Number of Distinct Observations	94
Number of Detects	57	Number of Non-Detects	690
Number of Distinct Detects	57	Number of Distinct Non-Detects	37
Minimum Detect	1.33	Minimum Non-Detect	2.31
Maximum Detect	8910	Maximum Non-Detect	46.3
Variance Detects	7437511	Percent Non-Detects	92.37%
Mean Detects	1854	SD Detects	2727
Median Detects	59.4	CV Detects	1.471
Skewness Detects	1.225	Kurtosis Detects	0.0843
Mean of Logged Detects	4.622	SD of Logged Detects	3.235

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.703	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	1.377E-14	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.343	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.117	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	143.1	Standard Error of Mean	33.01
SD	894.1	95% KM (BCA) UCL	198
95% KM (t) UCL	197.5	95% KM (Percentile Bootstrap) UCL	200.7
95% KM (z) UCL	197.4	95% KM Bootstrap t UCL	210.9
90% KM Chebyshev UCL	242.1	95% KM Chebyshev UCL	287
97.5% KM Chebyshev UCL	349.3	99% KM Chebyshev UCL	471.5

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	3.284	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.891	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.177	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.13	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.245	k star (bias corrected MLE)	0.244
Theta hat (MLE)	7558	Theta star (bias corrected MLE)	7596
nu hat (MLE)	27.97	nu star (bias corrected)	27.83
MLE Mean (bias corrected)	1854	MLE Sd (bias corrected)	3753

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0256	nu hat (KM)	38.28
Approximate Chi Square Value (38.28, α)	25.11	Adjusted Chi Square Value (38.28, β)	25.09
95% Gamma Approximate KM-UCL (use when n>=50)	218.2	95% Gamma Adjusted KM-UCL (use when n<50)	218.4

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	143.9
Maximum	8910	Median	0.01
SD	894.9	CV	6.218
k hat (MLE)	0.0937	k star (bias corrected MLE)	0.0942
Theta hat (MLE)	1537	Theta star (bias corrected MLE)	1528
nu hat (MLE)	139.9	nu star (bias corrected)	140.7
MLE Mean (bias corrected)	143.9	MLE Sd (bias corrected)	469
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (140.70, α)	114.3	Adjusted Chi Square Value (140.70, β)	114.2
95% Gamma Approximate UCL (use when n>=50)	177.2	95% Gamma Adjusted UCL (use when n<50)	177.3

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.173	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.117	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	145.4	Mean in Log Scale	-0.174
SD in Original Scale	894.4	SD in Log Scale	2.829
95% t UCL (assumes normality of ROS data)	199.3	95% Percentile Bootstrap UCL	203.8
95% BCA Bootstrap UCL	202.4	95% Bootstrap t UCL	211.2
95% H-UCL (Log ROS)	69.06		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	142.7	Mean in Log Scale	0.554
SD in Original Scale	894.8	SD in Log Scale	1.474
95% t UCL (Assumes normality)	196.6	95% H-Stat UCL	5.903

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	349.3

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

P-ISOPROPYLTOLUENE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	68
Number of Detects	60	Number of Non-Detects	688
Number of Distinct Detects	58	Number of Distinct Non-Detects	10
Minimum Detect	0.278	Minimum Non-Detect	0.5
Maximum Detect	211	Maximum Non-Detect	100
Variance Detects	1379	Percent Non-Detects	91.98%
Mean Detects	12.27	SD Detects	37.13
Median Detects	1.055	CV Detects	3.027
Skewness Detects	4.06	Kurtosis Detects	17.12
Mean of Logged Detects	0.6	SD of Logged Detects	1.59

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.369	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.437	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.114	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	1.331	Standard Error of Mean	0.403
SD	10.92	95% KM (BCA) UCL	2.042
95% KM (t) UCL	1.996	95% KM (Percentile Bootstrap) UCL	2.036
95% KM (z) UCL	1.995	95% KM Bootstrap t UCL	2.647
90% KM Chebyshev UCL	2.541	95% KM Chebyshev UCL	3.089
97.5% KM Chebyshev UCL	3.85	99% KM Chebyshev UCL	5.344

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	8.661	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.851	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.288	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.124	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.352	k star (bias corrected MLE)	0.346
Theta hat (MLE)	34.82	Theta star (bias corrected MLE)	35.48
nu hat (MLE)	42.27	nu star (bias corrected)	41.49
MLE Mean (bias corrected)	12.27	MLE Sd (bias corrected)	20.86

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0149	nu hat (KM)	22.24
Approximate Chi Square Value (22.24, α)	12.52	Adjusted Chi Square Value (22.24, β)	12.5
95% Gamma Approximate KM-UCL (use when n>=50)	2.366	95% Gamma Adjusted KM-UCL (use when n<50)	2.368

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.996
Maximum	211	Median	0.01
SD	10.95	CV	11
k hat (MLE)	0.179	k star (bias corrected MLE)	0.179
Theta hat (MLE)	5.558	Theta star (bias corrected MLE)	5.553
nu hat (MLE)	268.1	nu star (bias corrected)	268.4
MLE Mean (bias corrected)	0.996	MLE Sd (bias corrected)	2.352
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (268.36, α)	231.4	Adjusted Chi Square Value (268.36, β)	231.4
95% Gamma Approximate UCL (use when n>=50)	1.155	95% Gamma Adjusted UCL (use when n<50)	1.155

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.166	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.114	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.255	Mean in Log Scale	-1.621
SD in Original Scale	10.94	SD in Log Scale	1.391
95% t UCL (assumes normality of ROS data)	1.914	95% Percentile Bootstrap UCL	1.961
95% BCA Bootstrap UCL	2.249	95% Bootstrap t UCL	2.553
95% H-UCL (Log ROS)	0.589		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	1.959	Mean in Log Scale	-1.003
SD in Original Scale	11.66	SD in Log Scale	1.063
95% t UCL (Assumes normality)	2.661	95% H-Stat UCL	0.701

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	3.089

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

GASOLINE RANGE ORGANICS (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	180
Number of Detects	191	Number of Non-Detects	557
Number of Distinct Detects	179	Number of Distinct Non-Detects	1
Minimum Detect	51.6	Minimum Non-Detect	100
Maximum Detect	72100	Maximum Non-Detect	100
Variance Detects	1.803E+8	Percent Non-Detects	74.47%
Mean Detects	5706	SD Detects	13429
Median Detects	381	CV Detects	2.353
Skewness Detects	2.903	Kurtosis Detects	8.328
Mean of Logged Detects	6.493	SD of Logged Detects	1.964

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.484	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.405	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0641	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	1511	Standard Error of Mean	264
SD	7200	95% KM (BCA) UCL	2021
95% KM (t) UCL	1945	95% KM (Percentile Bootstrap) UCL	1971
95% KM (z) UCL	1945	95% KM Bootstrap t UCL	2001
90% KM Chebyshev UCL	2302	95% KM Chebyshev UCL	2661
97.5% KM Chebyshev UCL	3159	99% KM Chebyshev UCL	4137

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	19.79	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.865	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.262	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.0715	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.317	k star (bias corrected MLE)	0.315
Theta hat (MLE)	18004	Theta star (bias corrected MLE)	18089
nu hat (MLE)	121.1	nu star (bias corrected)	120.5
MLE Mean (bias corrected)	5706	MLE Sd (bias corrected)	10160

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.044	nu hat (KM)	65.84
Approximate Chi Square Value (65.84, α)	48.17	Adjusted Chi Square Value (65.84, β)	48.14
95% Gamma Approximate KM-UCL (use when n>=50)	2065	95% Gamma Adjusted KM-UCL (use when n<50)	2066

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1457
Maximum	72100	Median	0.01
SD	7216	CV	4.952
k hat (MLE)	0.0908	k star (bias corrected MLE)	0.0913
Theta hat (MLE)	16055	Theta star (bias corrected MLE)	15962
nu hat (MLE)	135.8	nu star (bias corrected)	136.6
MLE Mean (bias corrected)	1457	MLE Sd (bias corrected)	4823
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (136.57, α)	110.6	Adjusted Chi Square Value (136.57, β)	110.5
95% Gamma Approximate UCL (use when n>=50)	1800	95% Gamma Adjusted UCL (use when n<50)	1801

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.129	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0641	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1511	Mean in Log Scale	4.206
SD in Original Scale	7205	SD in Log Scale	2.147
95% t UCL (assumes normality of ROS data)	1945	95% Percentile Bootstrap UCL	1948
95% BCA Bootstrap UCL	2029	95% Bootstrap t UCL	2013
95% H-UCL (Log ROS)	862.3		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	1494	Mean in Log Scale	4.571
SD in Original Scale	7208	SD in Log Scale	1.5
95% t UCL (Assumes normality)	1928	95% H-Stat UCL	341.9

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL 2661

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

2-BUTANONE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	35
Number of Detects	24	Number of Non-Detects	724
Number of Distinct Detects	24	Number of Distinct Non-Detects	11
Minimum Detect	2.62	Minimum Non-Detect	5
Maximum Detect	9390	Maximum Non-Detect	1000
Variance Detects	3392058	Percent Non-Detects	96.79%
Mean Detects	920.5	SD Detects	1842
Median Detects	540.3	CV Detects	2.001
Skewness Detects	4.579	Kurtosis Detects	21.83
Mean of Logged Detects	5.686	SD of Logged Detects	2.065

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.389	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.916	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.378	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.181	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	32.56	Standard Error of Mean	13.49
SD	361.2	95% KM (BCA) UCL	59.58
95% KM (t) UCL	54.78	95% KM (Percentile Bootstrap) UCL	57.79
95% KM (z) UCL	54.76	95% KM Bootstrap t UCL	95.58
90% KM Chebyshev UCL	73.04	95% KM Chebyshev UCL	91.38
97.5% KM Chebyshev UCL	116.8	99% KM Chebyshev UCL	166.8

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.61	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.802	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.196	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.187	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.55	k star (bias corrected MLE)	0.509
Theta hat (MLE)	1675	Theta star (bias corrected MLE)	1810
nu hat (MLE)	26.38	nu star (bias corrected)	24.41
MLE Mean (bias corrected)	920.5	MLE Sd (bias corrected)	1291

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.00813	nu hat (KM)	12.16
Approximate Chi Square Value (12.16, α)	5.331	Adjusted Chi Square Value (12.16, β)	5.322
95% Gamma Approximate KM-UCL (use when n>=50)	74.25	95% Gamma Adjusted KM-UCL (use when n<50)	74.37

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	31.56
Maximum	9390	Median	0.01
SD	362.1	CV	11.47
k hat (MLE)	0.106	k star (bias corrected MLE)	0.106
Theta hat (MLE)	297.6	Theta star (bias corrected MLE)	296.3
nu hat (MLE)	158.6	nu star (bias corrected)	159.3
MLE Mean (bias corrected)	31.56	MLE Sd (bias corrected)	96.69
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (159.32, α)	131.1	Adjusted Chi Square Value (159.32, β)	131.1
95% Gamma Approximate UCL (use when n>=50)	38.34	95% Gamma Adjusted UCL (use when n<50)	38.35

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.766	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.916	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.281	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.181	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	40.45	Mean in Log Scale	0.799
SD in Original Scale	361.6	SD in Log Scale	2.325
95% t UCL (assumes normality of ROS data)	62.22	95% Percentile Bootstrap UCL	65.3
95% BCA Bootstrap UCL	83.83	95% Bootstrap t UCL	104.9
95% H-UCL (Log ROS)	44.21		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	35.33	Mean in Log Scale	1.249
SD in Original Scale	362.1	SD in Log Scale	1.097
95% t UCL (Assumes normality)	57.13	95% H-Stat UCL	6.944

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL 116.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

2-HEXANONE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	27
Number of Detects	16	Number of Non-Detects	732
Number of Distinct Detects	16	Number of Distinct Non-Detects	11
Minimum Detect	37.2	Minimum Non-Detect	2.5
Maximum Detect	626	Maximum Non-Detect	500
Variance Detects	27515	Percent Non-Detects	97.86%
Mean Detects	231	SD Detects	165.9
Median Detects	179.5	CV Detects	0.718
Skewness Detects	1.175	Kurtosis Detects	0.796
Mean of Logged Detects	5.195	SD of Logged Detects	0.756

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.887	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.887	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.181	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.222	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	7.42	Standard Error of Mean	1.537
SD	40.63	95% KM (BCA) UCL	10.29
95% KM (t) UCL	9.952	95% KM (Percentile Bootstrap) UCL	9.894
95% KM (z) UCL	9.949	95% KM Bootstrap t UCL	11.06
90% KM Chebyshev UCL	12.03	95% KM Chebyshev UCL	14.12
97.5% KM Chebyshev UCL	17.02	99% KM Chebyshev UCL	22.71

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.181	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.749	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0994	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.218	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	2.172	k star (bias corrected MLE)	1.806
Theta hat (MLE)	106.3	Theta star (bias corrected MLE)	127.9
nu hat (MLE)	69.5	nu star (bias corrected)	57.8
MLE Mean (bias corrected)	231	MLE Sd (bias corrected)	171.9

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0334	nu hat (KM)	49.91
Approximate Chi Square Value (49.91, α)	34.69	Adjusted Chi Square Value (49.91, β)	34.66
95% Gamma Approximate KM-UCL (use when n>=50)	10.68	95% Gamma Adjusted KM-UCL (use when n<50)	10.68

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.098
Maximum	626	Median	0.01
SD	40.91	CV	8.025
k hat (MLE)	0.131	k star (bias corrected MLE)	0.131
Theta hat (MLE)	38.89	Theta star (bias corrected MLE)	38.78
nu hat (MLE)	196.1	nu star (bias corrected)	196.7
MLE Mean (bias corrected)	5.098	MLE Sd (bias corrected)	14.06
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (196.67, α)	165.2	Adjusted Chi Square Value (196.67, β)	165.2
95% Gamma Approximate UCL (use when n>=50)	6.069	95% Gamma Adjusted UCL (use when n<50)	6.071

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.887	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.0988	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.222	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	9.513	Mean in Log Scale	0.0419
SD in Original Scale	41.52	SD in Log Scale	2.121
95% t UCL (assumes normality of ROS data)	12.01	95% Percentile Bootstrap UCL	12.14
95% BCA Bootstrap UCL	12.63	95% Bootstrap t UCL	13.13
95% H-UCL (Log ROS)	12.62		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.009	95% H-UCL (KM -Log)	3.492
KM SD (logged)	0.631	95% Critical H Value (KM-Log)	1.845
KM Standard Error of Mean (logged)	0.0239		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	9.012	Mean in Log Scale	0.547
SD in Original Scale	44.48	SD in Log Scale	1.033
95% t UCL (Assumes normality)	11.69	95% H-Stat UCL	3.193

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	9.952	95% KM (Percentile Bootstrap) UCL	9.894

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

2-METHYLPHENOL (ug/L)

General Statistics

Total Number of Observations	747	Number of Distinct Observations	62
Number of Detects	8	Number of Non-Detects	739
Number of Distinct Detects	8	Number of Distinct Non-Detects	54
Minimum Detect	1.36	Minimum Non-Detect	2.31
Maximum Detect	130	Maximum Non-Detect	278
Variance Detects	2084	Percent Non-Detects	98.93%
Mean Detects	32.05	SD Detects	45.65
Median Detects	7.08	CV Detects	1.424
Skewness Detects	1.705	Kurtosis Detects	2.68
Mean of Logged Detects	2.305	SD of Logged Detects	1.756

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.743	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.33	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	1.806	Standard Error of Mean	0.23
SD	5.445	95% KM (BCA) UCL	2.874
95% KM (t) UCL	2.185	95% KM (Percentile Bootstrap) UCL	2.665
95% KM (z) UCL	2.185	95% KM Bootstrap t UCL	2.686
90% KM Chebyshev UCL	2.497	95% KM Chebyshev UCL	2.81
97.5% KM Chebyshev UCL	3.245	99% KM Chebyshev UCL	4.098

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.508	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.76	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.274	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.308	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.54	k star (bias corrected MLE)	0.421
Theta hat (MLE)	59.36	Theta star (bias corrected MLE)	76.16
nu hat (MLE)	8.639	nu star (bias corrected)	6.733
MLE Mean (bias corrected)	32.05	MLE Sd (bias corrected)	49.41

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.11	nu hat (KM)	164.3
Approximate Chi Square Value (164.29, α)	135.7	Adjusted Chi Square Value (164.29, β)	135.6
95% Gamma Approximate KM-UCL (use when n>=50)	2.187	95% Gamma Adjusted KM-UCL (use when n<50)	2.188

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	1.105
Maximum	130	Median	0.01
SD	6.349	CV	5.747
k hat (MLE)	0.182	k star (bias corrected MLE)	0.182
Theta hat (MLE)	6.07	Theta star (bias corrected MLE)	6.065
nu hat (MLE)	271.9	nu star (bias corrected)	272.2
MLE Mean (bias corrected)	1.105	MLE Sd (bias corrected)	2.588
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (272.15, α)	234.9	Adjusted Chi Square Value (272.15, β)	234.9
95% Gamma Approximate UCL (use when n>=50)	1.28	95% Gamma Adjusted UCL (use when n<50)	1.28

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.904	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.193	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.083	Mean in Log Scale	0.166
SD in Original Scale	5.698	SD in Log Scale	0.975
95% t UCL (assumes normality of ROS data)	2.426	95% Percentile Bootstrap UCL	2.474
95% BCA Bootstrap UCL	2.591	95% Bootstrap t UCL	2.809
95% H-UCL (Log ROS)	2.045		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.407	95% H-UCL (KM -Log)	1.586
KM SD (logged)	0.273	95% Critical H Value (KM-Log)	1.694
KM Standard Error of Mean (logged)	0.0595		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	2.748	Mean in Log Scale	0.32
SD in Original Scale	11.52	SD in Log Scale	0.595
95% t UCL (Assumes normality)	3.442	95% H-Stat UCL	1.71

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	2.185	95% GROS Approximate Gamma UCL	1.28
95% Approximate Gamma KM-UCL	2.187		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

3-METHYLPHENOL AND 4-METHYLPHENOL (ug/L)

General Statistics

Total Number of Observations	747	Number of Distinct Observations	74
Number of Detects	21	Number of Non-Detects	726
Number of Distinct Detects	21	Number of Distinct Non-Detects	55
Minimum Detect	1.28	Minimum Non-Detect	2.31
Maximum Detect	99.5	Maximum Non-Detect	278
Variance Detects	447.6	Percent Non-Detects	97.19%
Mean Detects	12.09	SD Detects	21.16
Median Detects	6	CV Detects	1.749
Skewness Detects	3.853	Kurtosis Detects	16.21
Mean of Logged Detects	1.77	SD of Logged Detects	1.136

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.493	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.908	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.305	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.193	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.072	Standard Error of Mean	0.178
SD	3.894	95% KM (BCA) UCL	2.363
95% KM (t) UCL	2.364	95% KM (Percentile Bootstrap) UCL	2.395
95% KM (z) UCL	2.364	95% KM Bootstrap t UCL	2.495
90% KM Chebyshev UCL	2.604	95% KM Chebyshev UCL	2.846
97.5% KM Chebyshev UCL	3.181	99% KM Chebyshev UCL	3.839

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.032	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.779	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.165	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.196	Detected data appear Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.819	k star (bias corrected MLE)	0.734
Theta hat (MLE)	14.77	Theta star (bias corrected MLE)	16.48
nu hat (MLE)	34.4	nu star (bias corrected)	30.82
MLE Mean (bias corrected)	12.09	MLE Sd (bias corrected)	14.12

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.283	nu hat (KM)	422.9
Approximate Chi Square Value (422.86, α)	376.2	Adjusted Chi Square Value (422.86, β)	376.1
95% Gamma Approximate KM-UCL (use when n>=50)	2.329	95% Gamma Adjusted KM-UCL (use when n<50)	2.329

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.809
Maximum	99.5	Median	0.01
SD	4.286	CV	5.296
k hat (MLE)	0.205	k star (bias corrected MLE)	0.205
Theta hat (MLE)	3.94	Theta star (bias corrected MLE)	3.939
nu hat (MLE)	306.8	nu star (bias corrected)	306.9
MLE Mean (bias corrected)	0.809	MLE Sd (bias corrected)	1.785
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (306.94, α)	267.4	Adjusted Chi Square Value (306.94, β)	267.3
95% Gamma Approximate UCL (use when n>=50)	0.929	95% Gamma Adjusted UCL (use when n<50)	0.929

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.931	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.908	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.147	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.193	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.208	Mean in Log Scale	0.484
SD in Original Scale	4.05	SD in Log Scale	0.709
95% t UCL (assumes normality of ROS data)	2.452	95% Percentile Bootstrap UCL	2.476
95% BCA Bootstrap UCL	2.624	95% Bootstrap t UCL	2.729
95% H-UCL (Log ROS)	2.191		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.598	95% H-UCL (KM -Log)	1.948
KM SD (logged)	0.314	95% Critical H Value (KM-Log)	1.706
KM Standard Error of Mean (logged)	0.0631		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	2.802	Mean in Log Scale	0.347
SD in Original Scale	11.08	SD in Log Scale	0.628
95% t UCL (Assumes normality)	3.469	95% H-Stat UCL	1.798

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	2.364	95% GROS Approximate Gamma UCL	0.929
95% Approximate Gamma KM-UCL	2.329		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

4-METHYL-2-PENTANONE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	35
Number of Detects	25	Number of Non-Detects	723
Number of Distinct Detects	24	Number of Distinct Non-Detects	11
Minimum Detect	1.51	Minimum Non-Detect	2.5
Maximum Detect	458	Maximum Non-Detect	500
Variance Detects	14491	Percent Non-Detects	96.66%
Mean Detects	137.1	SD Detects	120.4
Median Detects	142	CV Detects	0.878
Skewness Detects	0.742	Kurtosis Detects	0.285
Mean of Logged Detects	4.119	SD of Logged Detects	1.689

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.91	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.918	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.132	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.177	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	6.082	Standard Error of Mean	1.222
SD	32.64	95% KM (BCA) UCL	9.433
95% KM (t) UCL	8.094	95% KM (Percentile Bootstrap) UCL	8.615
95% KM (z) UCL	8.091	95% KM Bootstrap t UCL	8.182
90% KM Chebyshev UCL	9.747	95% KM Chebyshev UCL	11.41
97.5% KM Chebyshev UCL	13.71	99% KM Chebyshev UCL	18.24

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.916	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.784	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.183	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.181	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.748	k star (bias corrected MLE)	0.685
Theta hat (MLE)	183.3	Theta star (bias corrected MLE)	200.2
nu hat (MLE)	37.38	nu star (bias corrected)	34.23
MLE Mean (bias corrected)	137.1	MLE Sd (bias corrected)	165.7

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0347	nu hat (KM)	51.94
Approximate Chi Square Value (51.94, α)	36.39	Adjusted Chi Square Value (51.94, β)	36.36
95% Gamma Approximate KM-UCL (use when n>=50)	8.681	95% Gamma Adjusted KM-UCL (use when n<50)	8.687

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	5.28
Maximum	458	Median	0.01
SD	33.03	CV	6.254
k hat (MLE)	0.135	k star (bias corrected MLE)	0.136
Theta hat (MLE)	39.06	Theta star (bias corrected MLE)	38.96
nu hat (MLE)	202.3	nu star (bias corrected)	202.8
MLE Mean (bias corrected)	5.28	MLE Sd (bias corrected)	14.34
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (202.78, α)	170.8	Adjusted Chi Square Value (202.78, β)	170.8
95% Gamma Approximate UCL (use when n>=50)	6.268	95% Gamma Adjusted UCL (use when n<50)	6.27

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.857	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.918	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.214	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.177	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	6.405	Mean in Log Scale	-0.972
SD in Original Scale	32.75	SD in Log Scale	2.346
95% t UCL (assumes normality of ROS data)	8.377	95% Percentile Bootstrap UCL	8.415
95% BCA Bootstrap UCL	8.904	95% Bootstrap t UCL	8.953
95% H-UCL (Log ROS)	7.937		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	8.34	Mean in Log Scale	0.547
SD in Original Scale	36.91	SD in Log Scale	1.026
95% t UCL (Assumes normality)	10.56	95% H-Stat UCL	3.167

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	8.094	95% KM (Percentile Bootstrap) UCL	8.615

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

CARBON DISULFIDE (ug/L)

General Statistics

Total Number of Observations	748	Number of Distinct Observations	32
Number of Detects	23	Number of Non-Detects	725
Number of Distinct Detects	22	Number of Distinct Non-Detects	10
Minimum Detect	0.32	Minimum Non-Detect	0.5
Maximum Detect	448	Maximum Non-Detect	100
Variance Detects	9996	Percent Non-Detects	96.93%
Mean Detects	65.84	SD Detects	99.98
Median Detects	27	CV Detects	1.518
Skewness Detects	2.858	Kurtosis Detects	9.74
Mean of Logged Detects	2.85	SD of Logged Detects	2.041

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.655	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.914	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.185	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.34	Standard Error of Mean	0.768
SD	20.55	95% KM (BCA) UCL	3.887
95% KM (t) UCL	3.605	95% KM (Percentile Bootstrap) UCL	3.737
95% KM (z) UCL	3.604	95% KM Bootstrap t UCL	4.598
90% KM Chebyshev UCL	4.645	95% KM Chebyshev UCL	5.689
97.5% KM Chebyshev UCL	7.138	99% KM Chebyshev UCL	9.985

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.62	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.81	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.156	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.192	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.478	k star (bias corrected MLE)	0.445
Theta hat (MLE)	137.6	Theta star (bias corrected MLE)	148
nu hat (MLE)	22.01	nu star (bias corrected)	20.47
MLE Mean (bias corrected)	65.84	MLE Sd (bias corrected)	98.7

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.013	nu hat (KM)	19.4
Approximate Chi Square Value (19.40, α)	10.41	Adjusted Chi Square Value (19.40, β)	10.4
95% Gamma Approximate KM-UCL (use when n>=50)	4.361	95% Gamma Adjusted KM-UCL (use when n<50)	4.366

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	2.038
Maximum	448	Median	0.01
SD	20.58	CV	10.1
k hat (MLE)	0.151	k star (bias corrected MLE)	0.151
Theta hat (MLE)	13.48	Theta star (bias corrected MLE)	13.46
nu hat (MLE)	226.1	nu star (bias corrected)	226.5
MLE Mean (bias corrected)	2.038	MLE Sd (bias corrected)	5.237
		Adjusted Level of Significance (β)	0.0497
Approximate Chi Square Value (226.51, α)	192.7	Adjusted Chi Square Value (226.51, β)	192.6
95% Gamma Approximate UCL (use when n>=50)	2.396	95% Gamma Adjusted UCL (use when n<50)	2.396

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.92	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.914	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.181	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.185	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.36	Mean in Log Scale	-3.283
SD in Original Scale	20.57	SD in Log Scale	2.791
95% t UCL (assumes normality of ROS data)	3.599	95% Percentile Bootstrap UCL	3.658
95% BCA Bootstrap UCL	4.249	95% Bootstrap t UCL	4.893
95% H-UCL (Log ROS)	2.747		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	-1.015	95% H-UCL (KM -Log)	0.517
KM SD (logged)	0.775	95% Critical H Value (KM-Log)	1.932
KM Standard Error of Mean (logged)	0.0291		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	2.812	Mean in Log Scale	-1.053
SD in Original Scale	20.83	SD in Log Scale	1.081
95% t UCL (Assumes normality)	4.066	95% H-Stat UCL	0.681

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	3.605	95% GROS Approximate Gamma UCL	2.396
95% Approximate Gamma KM-UCL	4.361		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Appendix A-3
ProUCL Ouput for Subset Samples
BFF KAFB

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Appendix A-3
Soil Gas COPCs, ProUCL Ouput for Current Exposure Scenario
BFF KAFB

UCL Statistics for Data Sets with Non-Detects

User Selected Options	Results in ppb-v
Date/Time of Computation	1/2/2014 4:36:50 PM
From File	SG EPCs (ppb-v) for CURRENT exposure.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ACETONE

General Statistics

Total Number of Observations	24	Number of Distinct Observations	20
Number of Detects	13	Number of Non-Detects	11
Number of Distinct Detects	13	Number of Distinct Non-Detects	7
Minimum Detect	61	Minimum Non-Detect	17
Maximum Detect	600000	Maximum Non-Detect	8600
Variance Detects	2.995E+10	Percent Non-Detects	45.83%
Mean Detects	136983	SD Detects	173061
Median Detects	110000	CV Detects	1.263
Skewness Detects	1.7	Kurtosis Detects	3.527
Mean of Logged Detects	9.991	SD of Logged Detects	2.877

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.787	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.23	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	74261	Standard Error of Mean	29763
SD	140088	95% KM (BCA) UCL	125269
95% KM (t) UCL	125271	95% KM (Percentile Bootstrap) UCL	125294
95% KM (z) UCL	123217	95% KM Bootstrap t UCL	158314
90% KM Chebyshev UCL	163550	95% KM Chebyshev UCL	203995
97.5% KM Chebyshev UCL	260131	99% KM Chebyshev UCL	370399

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.566	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.817	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.205	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.254	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.364	k star (bias corrected MLE)	0.331
Theta hat (MLE)	376491	Theta star (bias corrected MLE)	413646
nu hat (MLE)	9.46	nu star (bias corrected)	8.61
MLE Mean (bias corrected)	136983	MLE Sd (bias corrected)	238039

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.281	nu hat (KM)	13.49
Approximate Chi Square Value (13.49, α)	6.223	Adjusted Chi Square Value (13.49, β)	5.877
95% Gamma Approximate KM-UCL (use when n>=50)	160971	95% Gamma Adjusted KM-UCL (use when n<50)	170427

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	74199
Maximum	600000	Median	290.5
SD	143134	CV	1.929
k hat (MLE)	0.102	k star (bias corrected MLE)	0.117
Theta hat (MLE)	725114	Theta star (bias corrected MLE)	632481
nu hat (MLE)	4.912	nu star (bias corrected)	5.631
MLE Mean (bias corrected)	74199	MLE Sd (bias corrected)	216632
		Adjusted Level of Significance (β)	0.0392
Approximate Chi Square Value (5.63, α)	1.454	Adjusted Chi Square Value (5.63, β)	1.312
95% Gamma Approximate UCL (use when n>=50)	287294	95% Gamma Adjusted UCL (use when n<50)	318549

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.888	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.866	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.251	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.246	Detected Data Not Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	74228	Mean in Log Scale	7.028
SD in Original Scale	143118	SD in Log Scale	3.993
95% t UCL (assumes normality of ROS data)	124296	95% Percentile Bootstrap UCL	126123
95% BCA Bootstrap UCL	140885	95% Bootstrap t UCL	161609
95% H-UCL (Log ROS)	1.840E+9		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	6.894	95% H-UCL (KM -Log)	1.724E+9

KM SD (logged)	4.003	95% Critical H Value (KM-Log)	7.625
KM Standard Error of Mean (logged)	0.866		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	74490	Mean in Log Scale	7.504
SD in Original Scale	142979	SD in Log Scale	3.746
95% t UCL (Assumes normality)	124510	95% H-Stat UCL	5.455E+8

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	125271	95% KM (Percentile Bootstrap) UCL	125294

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

BENZENE

General Statistics

Total Number of Observations	24	Number of Distinct Observations	23
		Number of Missing Observations	0
Minimum	91	Mean	38792
Maximum	220000	Median	9400
SD	54811	Std. Error of Mean	11188
Coefficient of Variation	1.413	Skewness	1.889

Normal GOF Test

Shapiro Wilk Test Statistic	0.74	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.916	Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.245	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.181	Data Not Normal at 5% Significance Level

Data Not Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	57967	95% Adjusted-CLT UCL (Chen-1995)	61803
		95% Modified-t UCL (Johnson-1978)	58686

Appendix A-3
Soil Gas COPCs, ProUCL Ouput for Current Exposure Scenario
BFF KAFB

Gamma GOF Test

A-D Test Statistic	0.404	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.832	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.126	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.191	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.387	k star (bias corrected MLE)	0.367
Theta hat (MLE)	100128	Theta star (bias corrected MLE)	105765
nu hat (MLE)	18.6	nu star (bias corrected)	17.61
MLE Mean (bias corrected)	38792	MLE Sd (bias corrected)	64053
		Approximate Chi Square Value (0.05)	9.106
Adjusted Level of Significance	0.0392	Adjusted Chi Square Value	8.677

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50)	74997	95% Adjusted Gamma UCL (use when n<50)	78704

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.917	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.916	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.138	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.181	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	4.511	Mean of logged Data	8.859
Maximum of Logged Data	12.3	SD of logged Data	2.494

Assuming Lognormal Distribution

95% H-UCL	2051014	90% Chebyshev (MVUE) UCL	311799
95% Chebyshev (MVUE) UCL	405592	97.5% Chebyshev (MVUE) UCL	535772
99% Chebyshev (MVUE) UCL	791486		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	57195	95% Jackknife UCL	57967
95% Standard Bootstrap UCL	56923	95% Bootstrap-t UCL	64550
95% Hall's Bootstrap UCL	67509	95% Percentile Bootstrap UCL	57061
95% BCA Bootstrap UCL	62004		
90% Chebyshev(Mean, Sd) UCL	72357	95% Chebyshev(Mean, Sd) UCL	87560
97.5% Chebyshev(Mean, Sd) UCL	108663	99% Chebyshev(Mean, Sd) UCL	150114

Suggested UCL to Use

95% Adjusted Gamma UCL	78704

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

BROMODICHLOROMETHANE

General Statistics

Total Number of Observations	24	Number of Distinct Observations	9
Number of Detects	1	Number of Non-Detects	23
Number of Distinct Detects	1	Number of Distinct Non-Detects	8

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable BROMODICHLOROMETHANE was not processed!

HEXANE

General Statistics

Total Number of Observations	24	Number of Distinct Observations	20
Number of Detects	22	Number of Non-Detects	2
Number of Distinct Detects	18	Number of Distinct Non-Detects	2
Minimum Detect	90	Minimum Non-Detect	28
Maximum Detect	520000	Maximum Non-Detect	550
Variance Detects	1.670E+10	Percent Non-Detects	8.333%
Mean Detects	91802	SD Detects	129211
Median Detects	16000	CV Detects	1.407
Skewness Detects	1.919	Kurtosis Detects	4.591
Mean of Logged Detects	9.455	SD of Logged Detects	2.755

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.734	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.911	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.259	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.189	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	84161	Standard Error of Mean	25802
SD	123495	95% KM (BCA) UCL	132132
95% KM (t) UCL	128381	95% KM (Percentile Bootstrap) UCL	126888
95% KM (z) UCL	126600	95% KM Bootstrap t UCL	146738
90% KM Chebyshev UCL	161565	95% KM Chebyshev UCL	196627
97.5% KM Chebyshev UCL	245291	99% KM Chebyshev UCL	340882

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.673	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.838	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.175	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.2	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.342	k star (bias corrected MLE)	0.326
Theta hat (MLE)	268307	Theta star (bias corrected MLE)	281776
nu hat (MLE)	15.05	nu star (bias corrected)	14.34
MLE Mean (bias corrected)	91802	MLE Sd (bias corrected)	160834

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.464	nu hat (KM)	22.29
Approximate Chi Square Value (22.29, α)	12.56	Adjusted Chi Square Value (22.29, β)	12.04
95% Gamma Approximate KM-UCL (use when n>=50)	149401	95% Gamma Adjusted KM-UCL (use when n<50)	155769

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	84164
Maximum	520000	Median	9100
SD	126149	CV	1.499
k hat (MLE)	0.267	k star (bias corrected MLE)	0.261
Theta hat (MLE)	315118	Theta star (bias corrected MLE)	321876
nu hat (MLE)	12.82	nu star (bias corrected)	12.55
MLE Mean (bias corrected)	84164	MLE Sd (bias corrected)	164591
		Adjusted Level of Significance (β)	0.0392
Approximate Chi Square Value (12.55, α)	5.592	Adjusted Chi Square Value (12.55, β)	5.267
95% Gamma Approximate UCL (use when n>=50)	188898	95% Gamma Adjusted UCL (use when n<50)	200538

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.914	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.911	Detected Data appear Lognormal at 5% Significance Level

Lilliefors Test Statistic	0.201	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.189	Detected Data Not Lognormal at 5% Significance Level	

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	84161	Mean in Log Scale	9.004
SD in Original Scale	126150	SD in Log Scale	3.067
95% t UCL (assumes normality of ROS data)	128294	95% Percentile Bootstrap UCL	129631
95% BCA Bootstrap UCL	138425	95% Bootstrap t UCL	151705
95% H-UCL (Log ROS)	40078501		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	9.006	95% H-UCL (KM -Log)	26608325
KM SD (logged)	2.99	95% Critical H Value (KM-Log)	5.807
KM Standard Error of Mean (logged)	0.626		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	84164	Mean in Log Scale	9.011
SD in Original Scale	126149	SD in Log Scale	3.063
95% t UCL (Assumes normality)	128296	95% H-Stat UCL	39625844

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	196627	95% GROS Adjusted Gamma UCL	200538
95% Adjusted Gamma KM-UCL	155769		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

METHYLENE CHLORIDE

General Statistics

Total Number of Observations	24	Number of Distinct Observations	11
Number of Detects	4	Number of Non-Detects	20
Number of Distinct Detects	4	Number of Distinct Non-Detects	7
Minimum Detect	2500	Minimum Non-Detect	83
Maximum Detect	5400	Maximum Non-Detect	42000
Variance Detects	2033333	Percent Non-Detects	83.33%

Appendix A-3
Soil Gas COPCs, ProUCL Ouput for Current Exposure Scenario
BFF KAFB

Mean Detects	3800	SD Detects	1426
Median Detects	3650	CV Detects	0.375
Skewness Detects	0.248	Kurtosis Detects	-4.403
Mean of Logged Detects	8.188	SD of Logged Detects	0.383

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.876	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.28	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	1074	Standard Error of Mean	525.7
SD	1763	95% KM (BCA) UCL	N/A
95% KM (t) UCL	1975	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	1939	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	2651	95% KM Chebyshev UCL	3365
97.5% KM Chebyshev UCL	4357	99% KM Chebyshev UCL	6304

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.435	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.657	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.309	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.395	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	9.338	k star (bias corrected MLE)	2.501
Theta hat (MLE)	407	Theta star (bias corrected MLE)	1519
nu hat (MLE)	74.7	nu star (bias corrected)	20.01
MLE Mean (bias corrected)	3800	MLE Sd (bias corrected)	2403

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.371	nu hat (KM)	17.82
Approximate Chi Square Value (17.82, α)	9.26	Adjusted Chi Square Value (17.82, β)	8.827
95% Gamma Approximate KM-UCL (use when n>=50)	2067	95% Gamma Adjusted KM-UCL (use when n<50)	2168

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	958.6

Maximum	5400	Median	0.01
SD	1609	CV	1.678
k hat (MLE)	0.115	k star (bias corrected MLE)	0.129
Theta hat (MLE)	8301	Theta star (bias corrected MLE)	7442
nu hat (MLE)	5.543	nu star (bias corrected)	6.183
MLE Mean (bias corrected)	958.6	MLE Sd (bias corrected)	2671
		Adjusted Level of Significance (β)	0.0392
Approximate Chi Square Value (6.18, α)	1.734	Adjusted Chi Square Value (6.18, β)	1.574
95% Gamma Approximate UCL (use when n>=50)	3418	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.869	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.273	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1504	Mean in Log Scale	7.016
SD in Original Scale	1327	SD in Log Scale	0.764
95% t UCL (assumes normality of ROS data)	1968	95% Percentile Bootstrap UCL	1972
95% BCA Bootstrap UCL	2079	95% Bootstrap t UCL	2175
95% H-UCL (Log ROS)	2135		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	5.424	95% H-UCL (KM -Log)	3196
KM SD (logged)	1.676	95% Critical H Value (KM-Log)	3.554
KM Standard Error of Mean (logged)	0.5		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	6057	Mean in Log Scale	7.237
SD in Original Scale	7550	SD in Log Scale	2.277
95% t UCL (Assumes normality)	8698	95% H-Stat UCL	162052

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	1975	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

	A	B	C	D	E	F	G	H	I	J	K	L
1	UCL Statistics for Data Sets with Non-Detects											
2												
3	User Selected Options											
4	Date/Time of Computation			12/30/2013 2:55:45 PM								
5	From File			SG ProUCL input_for COPCs.xls								
6	Full Precision			OFF								
7	Confidence Coefficient			95%								
8	Number of Bootstrap Operations			2000								
9												
10	1,2,4-TRIMETHYLBENZENE											
11												
12	General Statistics											
13	Total Number of Observations					8	Number of Distinct Observations					7
14	Number of Detects					2	Number of Non-Detects					6
15	Number of Distinct Detects					2	Number of Distinct Non-Detects					5
16	Minimum Detect					440	Minimum Non-Detect					2
17	Maximum Detect					56000	Maximum Non-Detect					2000
18	Variance Detects					1.543E+9	Percent Non-Detects					75%
19	Mean Detects					28220	SD Detects					39287
20	Median Detects					28220	CV Detects					1.392
21	Skewness Detects					N/A	Kurtosis Detects					N/A
22	Mean of Logged Detects					8.51	SD of Logged Detects					3.427
23												
24	Warning: Data set has only 2 Detected Values.											
25	This is not enough to compute meaningful or reliable statistics and estimates.											
26												
27												
28	Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use											
29	guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.											
30	For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).											
31	Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0											
32												
33	Normal GOF Test on Detects Only											
34	Not Enough Data to Perform GOF Test											
35												
36	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
37	Mean					7066	Standard Error of Mean					9248
38	SD					18496	95% KM (BCA) UCL					N/A
39	95% KM (t) UCL					24587	95% KM (Percentile Bootstrap) UCL					N/A
40	95% KM (z) UCL					22277	95% KM Bootstrap t UCL					N/A
41	90% KM Chebyshev UCL					34810	95% KM Chebyshev UCL					47377
42	97.5% KM Chebyshev UCL					64820	99% KM Chebyshev UCL					99083
43												

Row				
44	**Gamma GOF Tests on Detected Observations Only**			
45	**Not Enough Data to Perform GOF Test**			
46				
47	**Gamma Statistics on Detected Data Only**			
48	k hat (MLE)	0.382	k star (bias corrected MLE)	N/A
49	Theta hat (MLE)	73961	Theta star (bias corrected MLE)	N/A
50	nu hat (MLE)	1.526	nu star (bias corrected)	N/A
51	MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A
52				
53	**Gamma Kaplan-Meier (KM) Statistics**			
54	k hat (KM)	0.146	nu hat (KM)	2.335
55			Adjusted Level of Significance (β)	0.0195
56	Approximate Chi Square Value (2.33, α)	0.206	Adjusted Chi Square Value (2.33, β)	0.125
57	95% Gamma Approximate KM-UCL (use when n>=50)	80028	95% Gamma Adjusted KM-UCL (use when n<50)	131769
58				
59	**Lognormal GOF Test on Detected Observations Only**			
60	**Not Enough Data to Perform GOF Test**			
61				
62	**Lognormal ROS Statistics Using Imputed Non-Detects**			
63	Mean in Original Scale	7055	Mean in Log Scale	0.483
64	SD in Original Scale	19777	SD in Log Scale	5.294
65	95% t UCL (assumes normality of ROS data)	20303	95% Percentile Bootstrap UCL	21000
66	95% BCA Bootstrap UCL	28000	95% Bootstrap t UCL	4.905E+8
67	95% H-UCL (Log ROS)	8.656E+19		
68				
69	**DL/2 Statistics**			
70	**DL/2 Normal**		**DL/2 Log-Transformed**	
71	Mean in Original Scale	7197	Mean in Log Scale	4.364
72	SD in Original Scale	19723	SD in Log Scale	3.555
73	95% t UCL (Assumes normality)	20408	95% H-Stat UCL	6.845E+10
74	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
75				
76	**Nonparametric Distribution Free UCL Statistics**			
77	**Data do not follow a Discernible Distribution at 5% Significance Level**			
78				
79	**Suggested UCL to Use**			
80	99% KM (Chebyshev) UCL	99083		
81	**Warning: Recommended UCL exceeds the maximum observation**			
82				
83	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
84	Recommendations are based upon data size, data distribution, and skewness.			
85	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
86	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

	A	B	C	D	E	F	G	H	I	J	K	L
87												
88	XYLENES											
89												
90	General Statistics											
91	Total Number of Observations					8	Number of Distinct Observations					8
92	Number of Detects					7	Number of Non-Detects					1
93	Number of Distinct Detects					7	Number of Distinct Non-Detects					1
94	Minimum Detect					15	Minimum Non-Detect					160
95	Maximum Detect					210000	Maximum Non-Detect					160
96	Variance Detects					6.132E+9	Percent Non-Detects					12.5%
97	Mean Detects					32960	SD Detects					78306
98	Median Detects					1000	CV Detects					2.376
99	Skewness Detects					2.613	Kurtosis Detects					6.861
100	Mean of Logged Detects					7.097	SD of Logged Detects					3.218
101												
102	Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use											
103	guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.											
104	For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).											
105	Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0											
106												
107	Normal GOF Test on Detects Only											
108	Shapiro Wilk Test Statistic					0.505	Shapiro Wilk GOF Test					
109	5% Shapiro Wilk Critical Value					0.803	Detected Data Not Normal at 5% Significance Level					
110	Lilliefors Test Statistic					0.438	Lilliefors GOF Test					
111	5% Lilliefors Critical Value					0.335	Detected Data Not Normal at 5% Significance Level					
112	Detected Data Not Normal at 5% Significance Level											
113												
114	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
115	Mean					28845	Standard Error of Mean					26229
116	SD					68683	95% KM (BCA) UCL					79267
117	95% KM (t) UCL					78538	95% KM (Percentile Bootstrap) UCL					79170
118	95% KM (z) UCL					71988	95% KM Bootstrap t UCL					2704780
119	90% KM Chebyshev UCL					107531	95% KM Chebyshev UCL					143174
120	97.5% KM Chebyshev UCL					192643	99% KM Chebyshev UCL					289817
121												
122	Gamma GOF Tests on Detected Observations Only											
123	A-D Test Statistic					0.528	Anderson-Darling GOF Test					
124	5% A-D Critical Value					0.815	Detected data appear Gamma Distributed at 5% Significance Level					
125	K-S Test Statistic					0.282	Kolmogrov-Smirnoff GOF					
126	5% K-S Critical Value					0.341	Detected data appear Gamma Distributed at 5% Significance Level					
127	Detected data appear Gamma Distributed at 5% Significance Level											
128												
129	Gamma Statistics on Detected Data Only											

	A	B	C	D	E	F	G	H	I	J	K	L
130					k hat (MLE)	0.219					k star (bias corrected MLE)	0.221
131					Theta hat (MLE)	150257					Theta star (bias corrected MLE)	149421
132					nu hat (MLE)	3.071					nu star (bias corrected)	3.088
133					MLE Mean (bias corrected)	32960					MLE Sd (bias corrected)	70177
134												
135	**Gamma Kaplan-Meier (KM) Statistics**											
136					k hat (KM)	0.176					nu hat (KM)	2.822
137					Approximate Chi Square Value (2.82, α)	0.322					Adjusted Chi Square Value (2.82, β)	0.185
138					95% Gamma Approximate KM-UCL (use when n>=50)	253019					95% Gamma Adjusted KM-UCL (use when n<50)	440671
139												
140	**Gamma ROS Statistics using Imputed Non-Detects**											
141	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
142	GROS may not be used when kstar of detected data is small such as < 0.1											
143	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
144	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
145					Minimum	0.01					Mean	28840
146					Maximum	210000					Median	715
147					SD	73427					CV	2.546
148					k hat (MLE)	0.164					k star (bias corrected MLE)	0.186
149					Theta hat (MLE)	176196					Theta star (bias corrected MLE)	155359
150					nu hat (MLE)	2.619					nu star (bias corrected)	2.97
151					MLE Mean (bias corrected)	28840					MLE Sd (bias corrected)	66937
152											Adjusted Level of Significance (β)	0.0195
153					Approximate Chi Square Value (2.97, α)	0.364					Adjusted Chi Square Value (2.97, β)	0.209
154					95% Gamma Approximate UCL (use when n>=50)	235567					95% Gamma Adjusted UCL (use when n<50)	410092
155												
156	**Lognormal GOF Test on Detected Observations Only**											
157					Shapiro Wilk Test Statistic	0.986	**Shapiro Wilk GOF Test**					
158					5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level					
159					Lilliefors Test Statistic	0.14	**Lilliefors GOF Test**					
160					5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level					
161	**Detected Data appear Lognormal at 5% Significance Level**											
162												
163	**Lognormal ROS Statistics Using Imputed Non-Detects**											
164					Mean in Original Scale	28843					Mean in Log Scale	6.616
165					SD in Original Scale	73426					SD in Log Scale	3.274
166					95% t UCL (assumes normality of ROS data)	78026					95% Percentile Bootstrap UCL	79316
167					95% BCA Bootstrap UCL	105306					95% Bootstrap t UCL	2708185
168					95% H-UCL (Log ROS)	2.943E+10						
169												
170	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
171					KM Mean (logged)	6.648					95% H-UCL (KM -Log)	2.850E+9
172					KM SD (logged)	3.042					95% Critical H Value (KM-Log)	9.128

	A	B	C	D	E	F	G	H	I	J	K	L
173					KM Standard Error of Mean (logged)	1.169						
174												
175	**DL/2 Statistics**											
176	**DL/2 Normal**						**DL/2 Log-Transformed**					
177					Mean in Original Scale	28850					Mean in Log Scale	6.757
178					SD in Original Scale	73423					SD in Log Scale	3.13
179					95% t UCL (Assumes normality)	78031					95% H-Stat UCL	7.616E+9
180	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
181												
182	**Nonparametric Distribution Free UCL Statistics**											
183	**Detected Data appear Gamma Distributed at 5% Significance Level**											
184												
185	**Suggested UCL to Use**											
186					95% KM (Chebyshev) UCL	143174					95% GROS Adjusted Gamma UCL	410092
187					95% Adjusted Gamma KM-UCL	440671						
188	**Warning: Recommended UCL exceeds the maximum observation**											
189												
190	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
191	Recommendations are based upon data size, data distribution, and skewness.											
192	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
193	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
194												
195	**CHLOROFORM**											
196												
197	**General Statistics**											
198					Total Number of Observations	8					Number of Distinct Observations	7
199					Number of Detects	7					Number of Non-Detects	1
200					Number of Distinct Detects	6					Number of Distinct Non-Detects	1
201					Minimum Detect	200					Minimum Non-Detect	100
202					Maximum Detect	1400					Maximum Non-Detect	100
203					Variance Detects	158033					Percent Non-Detects	12.5%
204					Mean Detects	880					SD Detects	397.5
205					Median Detects	970					CV Detects	0.452
206					Skewness Detects	-0.698					Kurtosis Detects	0.272
207					Mean of Logged Detects	6.638					SD of Logged Detects	0.659
208												
209	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**											
210	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**											
211	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**											
212	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0**											
213												
214	**Normal GOF Test on Detects Only**											
215					Shapiro Wilk Test Statistic	0.954	**Shapiro Wilk GOF Test**					

	A–E	F	G–K	L
216	5% Shapiro Wilk Critical Value	0.803	Detected Data appear Normal at 5% Significance Level	
217	Lilliefors Test Statistic	0.174	**Lilliefors GOF Test**	
218	5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level	
219	**Detected Data appear Normal at 5% Significance Level**			
220				
221	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
222	Mean	782.5	Standard Error of Mean	164.3
223	SD	430.2	95% KM (BCA) UCL	1019
224	95% KM (t) UCL	1094	95% KM (Percentile Bootstrap) UCL	1036
225	95% KM (z) UCL	1053	95% KM Bootstrap t UCL	1046
226	90% KM Chebyshev UCL	1275	95% KM Chebyshev UCL	1499
227	97.5% KM Chebyshev UCL	1808	99% KM Chebyshev UCL	2417
228				
229	**Gamma GOF Tests on Detected Observations Only**			
230	A-D Test Statistic	0.502	**Anderson-Darling GOF Test**	
231	5% A-D Critical Value	0.71	Detected data appear Gamma Distributed at 5% Significance Level	
232	K-S Test Statistic	0.249	**Kolmogrov-Smirnoff GOF**	
233	5% K-S Critical Value	0.313	Detected data appear Gamma Distributed at 5% Significance Level	
234	**Detected data appear Gamma Distributed at 5% Significance Level**			
235				
236	**Gamma Statistics on Detected Data Only**			
237	k hat (MLE)	3.693	k star (bias corrected MLE)	2.206
238	Theta hat (MLE)	238.3	Theta star (bias corrected MLE)	399
239	nu hat (MLE)	51.7	nu star (bias corrected)	30.88
240	MLE Mean (bias corrected)	880	MLE Sd (bias corrected)	592.5
241				
242	**Gamma Kaplan-Meier (KM) Statistics**			
243	k hat (KM)	3.309	nu hat (KM)	52.94
244	Approximate Chi Square Value (52.94, α)	37.22	Adjusted Chi Square Value (52.94, β)	33.92
245	95% Gamma Approximate KM-UCL (use when n>=50)	1113	95% Gamma Adjusted KM-UCL (use when n<50)	1221
246				
247	**Gamma ROS Statistics using Imputed Non-Detects**			
248	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
249	GROS may not be used when kstar of detected data is small such as < 0.1			
250	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
251	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
252	Minimum	182.2	Mean	792.8
253	Maximum	1400	Median	905
254	SD	443.1	CV	0.559
255	k hat (MLE)	2.466	k star (bias corrected MLE)	1.625
256	Theta hat (MLE)	321.5	Theta star (bias corrected MLE)	488
257	nu hat (MLE)	39.46	nu star (bias corrected)	25.99
258	MLE Mean (bias corrected)	792.8	MLE Sd (bias corrected)	622

	A-E	F	G-K	L
259			Adjusted Level of Significance (β)	0.0195
260	Approximate Chi Square Value (25.99, α)	15.37	Adjusted Chi Square Value (25.99, β)	13.35
261	95% Gamma Approximate UCL (use when n>=50)	1340	95% Gamma Adjusted UCL (use when n<50)	1543
262				
263	**Lognormal GOF Test on Detected Observations Only**			
264	Shapiro Wilk Test Statistic	0.82	**Shapiro Wilk GOF Test**	
265	5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level	
266	Lilliefors Test Statistic	0.272	**Lilliefors GOF Test**	
267	5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	
268	**Detected Data appear Lognormal at 5% Significance Level**			
269				
270	**Lognormal ROS Statistics Using Imputed Non-Detects**			
271	Mean in Original Scale	792.5	Mean in Log Scale	6.458
272	SD in Original Scale	443.6	SD in Log Scale	0.796
273	95% t UCL (assumes normality of ROS data)	1090	95% Percentile Bootstrap UCL	1029
274	95% BCA Bootstrap UCL	1025	95% Bootstrap t UCL	1057
275	95% H-UCL (Log ROS)	2121		
276				
277	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
278	KM Mean (logged)	6.384	95% H-UCL (KM -Log)	2489
279	KM SD (logged)	0.882	95% Critical H Value (KM-Log)	3.141
280	KM Standard Error of Mean (logged)	0.337		
281				
282	**DL/2 Statistics**			
283	**DL/2 Normal**		**DL/2 Log-Transformed**	
284	Mean in Original Scale	776.3	Mean in Log Scale	6.298
285	SD in Original Scale	470.7	SD in Log Scale	1.141
286	95% t UCL (Assumes normality)	1092	95% H-Stat UCL	5314
287	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
288				
289	**Nonparametric Distribution Free UCL Statistics**			
290	**Detected Data appear Normal Distributed at 5% Significance Level**			
291				
292	**Suggested UCL to Use**			
293	95% KM (t) UCL	1094	95% KM (Percentile Bootstrap) UCL	1036
294				
295	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
296	Recommendations are based upon data size, data distribution, and skewness.			
297	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
298	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
299				
300	**DIBROMOCHLOROMETHANE**			
301				

	A	B	C	D	E	F	G	H	I	J	K	L
302	General Statistics											
303				Total Number of Observations		8				Number of Distinct Observations		7
304				Number of Detects		1				Number of Non-Detects		7
305				Number of Distinct Detects		1				Number of Distinct Non-Detects		6
306												
307	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
308	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
309												
310	The data set for variable DIBROMOCHLOROMETHANE was not processed!											
311												
312												
313	BROMODICHLOROMETHANE											
314												
315	General Statistics											
316				Total Number of Observations		8				Number of Distinct Observations		6
317				Number of Detects		1				Number of Non-Detects		7
318				Number of Distinct Detects		1				Number of Distinct Non-Detects		5
319												
320	Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!											
321	It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).											
322												
323	The data set for variable BROMODICHLOROMETHANE was not processed!											
324												
325												
326												
327	BENZENE											
328												
329	General Statistics											
330				Total Number of Observations		8				Number of Distinct Observations		8
331										Number of Missing Observations		0
332				Minimum		69000				Mean		575500
333				Maximum		1400000				Median		560000
334				SD		419470				Std. Error of Mean		148305
335				Coefficient of Variation		0.729				Skewness		0.968
336												
337	Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use											
338	guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.											
339	For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).											
340	Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0											
341												
342	Normal GOF Test											
343				Shapiro Wilk Test Statistic		0.939	Shapiro Wilk GOF Test					
344				5% Shapiro Wilk Critical Value		0.818	Data appear Normal at 5% Significance Level					

	A	B	C	D	E	F	G	H	I	J	K	L
345					Lilliefors Test Statistic	0.18	**Lilliefors GOF Test**					
346					5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level					
347	**Data appear Normal at 5% Significance Level**											
348												
349	**Assuming Normal Distribution**											
350	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
351					95% Student's-t UCL	856475					95% Adjusted-CLT UCL (Chen-1995)	873646
352											95% Modified-t UCL (Johnson-1978)	864930
353												
354	**Gamma GOF Test**											
355					A-D Test Statistic	0.194	**Anderson-Darling Gamma GOF Test**					
356					5% A-D Critical Value	0.726	Detected data appear Gamma Distributed at 5% Significance Level					
357					K-S Test Statistic	0.146	**Kolmogrov-Smirnoff Gamma GOF Test**					
358					5% K-S Critical Value	0.298	Detected data appear Gamma Distributed at 5% Significance Level					
359	**Detected data appear Gamma Distributed at 5% Significance Level**											
360												
361	**Gamma Statistics**											
362					k hat (MLE)	1.763					k star (bias corrected MLE)	1.185
363					Theta hat (MLE)	326348					Theta star (bias corrected MLE)	485453
364					nu hat (MLE)	28.22					nu star (bias corrected)	18.97
365					MLE Mean (bias corrected)	575500					MLE Sd (bias corrected)	528562
366											Approximate Chi Square Value (0.05)	10.09
367					Adjusted Level of Significance	0.0195					Adjusted Chi Square Value	8.506
368												
369	**Assuming Gamma Distribution**											
370					95% Approximate Gamma UCL (use when n>=50))	1081444					95% Adjusted Gamma UCL (use when n<50)	1283289
371												
372	**Lognormal GOF Test**											
373					Shapiro Wilk Test Statistic	0.936	**Shapiro Wilk Lognormal GOF Test**					
374					5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level					
375					Lilliefors Test Statistic	0.187	**Lilliefors Lognormal GOF Test**					
376					5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level					
377	**Data appear Lognormal at 5% Significance Level**											
378												
379	**Lognormal Statistics**											
380					Minimum of Logged Data	11.14					Mean of logged Data	12.95
381					Maximum of Logged Data	14.15					SD of logged Data	0.951
382												
383	**Assuming Lognormal Distribution**											
384					95% H-UCL	2176501					90% Chebyshev (MVUE) UCL	1252668
385					95% Chebyshev (MVUE) UCL	1540499					97.5% Chebyshev (MVUE) UCL	1939998
386					99% Chebyshev (MVUE) UCL	2724735						
387												

Row				
388	**Nonparametric Distribution Free UCL Statistics**			
389	**Data appear to follow a Discernible Distribution at 5% Significance Level**			
390				
391	**Nonparametric Distribution Free UCLs**			
392	95% CLT UCL	819440	95% Jackknife UCL	856475
393	95% Standard Bootstrap UCL	803202	95% Bootstrap-t UCL	946665
394	95% Hall's Bootstrap UCL	1081953	95% Percentile Bootstrap UCL	817500
395	95% BCA Bootstrap UCL	873625		
396	90% Chebyshev(Mean, Sd) UCL	1020415	95% Chebyshev(Mean, Sd) UCL	1221946
397	97.5% Chebyshev(Mean, Sd) UCL	1501664	99% Chebyshev(Mean, Sd) UCL	2051116
398				
399	**Suggested UCL to Use**			
400	95% Student's-t UCL	856475		
401				
402	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
403	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
404	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.			
405	For additional insight the user may want to consult a statistician.			
406				
407				
408	HEXANE			
409				
410	**General Statistics**			
411	Total Number of Observations	8	Number of Distinct Observations	8
412			Number of Missing Observations	0
413	Minimum	170000	Mean	2292500
414	Maximum	5300000	Median	1900000
415	SD	1759194	Std. Error of Mean	621969
416	Coefficient of Variation	0.767	Skewness	0.644
417				
418	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**			
419	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**			
420	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**			
421	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0**			
422				
423	**Normal GOF Test**			
424	Shapiro Wilk Test Statistic	0.932	**Shapiro Wilk GOF Test**	
425	5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level	
426	Lilliefors Test Statistic	0.233	**Lilliefors GOF Test**	
427	5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level	
428	**Data appear Normal at 5% Significance Level**			
429				
430	**Assuming Normal Distribution**			

	A–E	F	G–K	L
431	**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**	
432	95% Student's-t UCL	3470869	95% Adjusted-CLT UCL (Chen-1995)	3466962
433			95% Modified-t UCL (Johnson-1978)	3494487
434				
435	**Gamma GOF Test**			
436	A-D Test Statistic	0.253	**Anderson-Darling Gamma GOF Test**	
437	5% A-D Critical Value	0.729	Detected data appear Gamma Distributed at 5% Significance Level	
438	K-S Test Statistic	0.167	**Kolmogrov-Smirnoff Gamma GOF Test**	
439	5% K-S Critical Value	0.299	Detected data appear Gamma Distributed at 5% Significance Level	
440	**Detected data appear Gamma Distributed at 5% Significance Level**			
441				
442	**Gamma Statistics**			
443	k hat (MLE)	1.446	k star (bias corrected MLE)	0.987
444	Theta hat (MLE)	1585023	Theta star (bias corrected MLE)	2321983
445	nu hat (MLE)	23.14	nu star (bias corrected)	15.8
446	MLE Mean (bias corrected)	2292500	MLE Sd (bias corrected)	2307194
447			Approximate Chi Square Value (0.05)	7.819
448	Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	6.452
449				
450	**Assuming Gamma Distribution**			
451	95% Approximate Gamma UCL (use when n>=50))	4631545	95% Adjusted Gamma UCL (use when n<50)	5612658
452				
453	**Lognormal GOF Test**			
454	Shapiro Wilk Test Statistic	0.903	**Shapiro Wilk Lognormal GOF Test**	
455	5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level	
456	Lilliefors Test Statistic	0.19	**Lilliefors Lognormal GOF Test**	
457	5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level	
458	**Data appear Lognormal at 5% Significance Level**			
459				
460	**Lognormal Statistics**			
461	Minimum of Logged Data	12.04	Mean of logged Data	14.26
462	Maximum of Logged Data	15.48	SD of logged Data	1.097
463				
464	**Assuming Lognormal Distribution**			
465	95% H-UCL	13063224	90% Chebyshev (MVUE) UCL	5630127
466	95% Chebyshev (MVUE) UCL	7014881	97.5% Chebyshev (MVUE) UCL	8936864
467	99% Chebyshev (MVUE) UCL	12712229		
468				
469	**Nonparametric Distribution Free UCL Statistics**			
470	**Data appear to follow a Discernible Distribution at 5% Significance Level**			
471				
472	**Nonparametric Distribution Free UCLs**			
473	95% CLT UCL	3315548	95% Jackknife UCL	3470869

	A–E	F	G–K	L
474	95% Standard Bootstrap UCL	3241724	95% Bootstrap-t UCL	3739919
475	95% Hall's Bootstrap UCL	3631541	95% Percentile Bootstrap UCL	3306250
476	95% BCA Bootstrap UCL	3267500		
477	90% Chebyshev(Mean, Sd) UCL	4158407	95% Chebyshev(Mean, Sd) UCL	5003600
478	97.5% Chebyshev(Mean, Sd) UCL	6176696	99% Chebyshev(Mean, Sd) UCL	8481014
479				
480	**Suggested UCL to Use**			
481	95% Student's-t UCL	3470869		
482				
483	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
484	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
485	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.			
486	For additional insight the user may want to consult a statistician.			
487				
488				
489	**ACETONE**			
490				
491	**General Statistics**			
492	Total Number of Observations	8	Number of Distinct Observations	8
493			Number of Missing Observations	0
494	Minimum	1400	Mean	686125
495	Maximum	2900000	Median	330000
496	SD	960098	Std. Error of Mean	339446
497	Coefficient of Variation	1.399	Skewness	2.148
498				
499	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**			
500	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**			
501	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**			
502	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0**			
503				
504	**Normal GOF Test**			
505	Shapiro Wilk Test Statistic	0.728	**Shapiro Wilk GOF Test**	
506	5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level	
507	Lilliefors Test Statistic	0.291	**Lilliefors GOF Test**	
508	5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level	
509	**Data appear Approximate Normal at 5% Significance Level**			
510				
511	**Assuming Normal Distribution**			
512	**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**	
513	95% Student's-t UCL	1329232	95% Adjusted-CLT UCL (Chen-1995)	1519871
514			95% Modified-t UCL (Johnson-1978)	1372190
515				
516	**Gamma GOF Test**			

	A–E	F	G–K	L
517	A-D Test Statistic	0.235	**Anderson-Darling Gamma GOF Test**	
518	5% A-D Critical Value	0.773	Detected data appear Gamma Distributed at 5% Significance Level	
519	K-S Test Statistic	0.151	**Kolmogrov-Smirnoff Gamma GOF Test**	
520	5% K-S Critical Value	0.311	Detected data appear Gamma Distributed at 5% Significance Level	
521	**Detected data appear Gamma Distributed at 5% Significance Level**			
522				
523	**Gamma Statistics**			
524	k hat (MLE)	0.441	k star (bias corrected MLE)	0.359
525	Theta hat (MLE)	1556234	Theta star (bias corrected MLE)	1911806
526	nu hat (MLE)	7.054	nu star (bias corrected)	5.742
527	MLE Mean (bias corrected)	686125	MLE Sd (bias corrected)	1145311
528			Approximate Chi Square Value (0.05)	1.51
529	Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.029
530				
531	**Assuming Gamma Distribution**			
532	95% Approximate Gamma UCL (use when n>=50))	2609921	95% Adjusted Gamma UCL (use when n<50)	3829703
533				
534	**Lognormal GOF Test**			
535	Shapiro Wilk Test Statistic	0.886	**Shapiro Wilk Lognormal GOF Test**	
536	5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level	
537	Lilliefors Test Statistic	0.252	**Lilliefors Lognormal GOF Test**	
538	5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level	
539	**Data appear Lognormal at 5% Significance Level**			
540				
541	**Lognormal Statistics**			
542	Minimum of Logged Data	7.244	Mean of logged Data	11.97
543	Maximum of Logged Data	14.88	SD of logged Data	2.592
544				
545	**Assuming Lognormal Distribution**			
546	95% H-UCL	9.740E+9	90% Chebyshev (MVUE) UCL	5673359
547	95% Chebyshev (MVUE) UCL	7491813	97.5% Chebyshev (MVUE) UCL	10015757
548	99% Chebyshev (MVUE) UCL	14973555		
549				
550	**Nonparametric Distribution Free UCL Statistics**			
551	**Data appear to follow a Discernible Distribution at 5% Significance Level**			
552				
553	**Nonparametric Distribution Free UCLs**			
554	95% CLT UCL	1244464	95% Jackknife UCL	1329232
555	95% Standard Bootstrap UCL	1221712	95% Bootstrap-t UCL	2164432
556	95% Hall's Bootstrap UCL	3198643	95% Percentile Bootstrap UCL	1245000
557	95% BCA Bootstrap UCL	1466250		
558	90% Chebyshev(Mean, Sd) UCL	1704463	95% Chebyshev(Mean, Sd) UCL	2165736
559	97.5% Chebyshev(Mean, Sd) UCL	2805964	99% Chebyshev(Mean, Sd) UCL	4063570

Row				
560				
561	**Suggested UCL to Use**			
562	95% Student's-t UCL	1329232		
563				
564	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
565	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
566	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.			
567	For additional insight the user may want to consult a statistician.			
568				
569	CARBON TETRACHLORIDE			
570				
571	**General Statistics**			
572	Total Number of Observations	8	Number of Distinct Observations	6
573	Number of Detects	3	Number of Non-Detects	5
574	Number of Distinct Detects	3	Number of Distinct Non-Detects	3
575	Minimum Detect	140	Minimum Non-Detect	46
576	Maximum Detect	400	Maximum Non-Detect	180
577	Variance Detects	17433	Percent Non-Detects	62.5%
578	Mean Detects	256.7	SD Detects	132
579	Median Detects	230	CV Detects	0.514
580	Skewness Detects	0.872	Kurtosis Detects	N/A
581	Mean of Logged Detects	5.457	SD of Logged Detects	0.525
582				
583	**Warning: Data set has only 3 Detected Values.**			
584	**This is not enough to compute meaningful or reliable statistics and estimates.**			
585				
586				
587	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**			
588	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**			
589	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**			
590	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0**			
591				
592	**Normal GOF Test on Detects Only**			
593	Shapiro Wilk Test Statistic	0.969	**Shapiro Wilk GOF Test**	
594	5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level	
595	Lilliefors Test Statistic	0.247	**Lilliefors GOF Test**	
596	5% Lilliefors Critical Value	0.512	Detected Data appear Normal at 5% Significance Level	
597	**Detected Data appear Normal at 5% Significance Level**			
598				
599	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
600	Mean	127.4	Standard Error of Mean	52.71
601	SD	120.8	95% KM (BCA) UCL	N/A
602	95% KM (t) UCL	227.2	95% KM (Percentile Bootstrap) UCL	N/A

	A	B	C	D	E	F	G	H	I	J	K	L
603	95% KM (z) UCL					214	95% KM Bootstrap t UCL					N/A
604	90% KM Chebyshev UCL					285.5	95% KM Chebyshev UCL					357.1
605	97.5% KM Chebyshev UCL					456.5	99% KM Chebyshev UCL					651.8
606												
607	**Gamma GOF Tests on Detected Observations Only**											
608	**Not Enough Data to Perform GOF Test**											
609												
610	**Gamma Statistics on Detected Data Only**											
611	k hat (MLE)					5.673	k star (bias corrected MLE)					N/A
612	Theta hat (MLE)					45.24	Theta star (bias corrected MLE)					N/A
613	nu hat (MLE)					34.04	nu star (bias corrected)					N/A
614	MLE Mean (bias corrected)					N/A	MLE Sd (bias corrected)					N/A
615												
616	**Gamma Kaplan-Meier (KM) Statistics**											
617	k hat (KM)					1.111	nu hat (KM)					17.77
618							Adjusted Level of Significance (β)					0.0195
619	Approximate Chi Square Value (17.77, α)					9.224	Adjusted Chi Square Value (17.77, β)					7.717
620	95% Gamma Approximate KM-UCL (use when n>=50)					245.3	95% Gamma Adjusted KM-UCL (use when n<50)					293.2
621												
622	**Lognormal GOF Test on Detected Observations Only**											
623	Shapiro Wilk Test Statistic					0.999	**Shapiro Wilk GOF Test**					
624	5% Shapiro Wilk Critical Value					0.767	Detected Data appear Lognormal at 5% Significance Level					
625	Lilliefors Test Statistic					0.181	**Lilliefors GOF Test**					
626	5% Lilliefors Critical Value					0.512	Detected Data appear Lognormal at 5% Significance Level					
627	**Detected Data appear Lognormal at 5% Significance Level**											
628												
629	**Lognormal ROS Statistics Using Imputed Non-Detects**											
630	Mean in Original Scale					126.9	Mean in Log Scale					4.446
631	SD in Original Scale					129.2	SD in Log Scale					0.929
632	95% t UCL (assumes normality of ROS data)					213.4	95% Percentile Bootstrap UCL					201.4
633	95% BCA Bootstrap UCL					218	95% Bootstrap t UCL					364.5
634	95% H-UCL (Log ROS)					411.7						
635												
636	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
637	KM Mean (logged)					4.467	95% H-UCL (KM -Log)					315.9
638	KM SD (logged)					0.829	95% Critical H Value (KM-Log)					3.017
639	KM Standard Error of Mean (logged)					0.367						
640												
641	**DL/2 Statistics**											
642	**DL/2 Normal**						**DL/2 Log-Transformed**					
643	Mean in Original Scale					127.4	Mean in Log Scale					4.432
644	SD in Original Scale					129.5	SD in Log Scale					0.965
645	95% t UCL (Assumes normality)					214.2	95% H-Stat UCL					453.5

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	227.2	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,2-DIBROMOETHANE

General Statistics

Total Number of Observations	8	Number of Distinct Observations	5
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	4

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable 1,2-DIBROMOETHANE was not processed!

ERYTHRENE

General Statistics

Total Number of Observations	8	Number of Distinct Observations	3
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	2

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!

It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable ERYTHRENE was not processed!

1,1,2,2-TETRACHLOROETHANE

General Statistics

Row	A–E	F	G–K	L
689	Total Number of Observations	8	Number of Distinct Observations	6
690	Number of Detects	1	Number of Non-Detects	7
691	Number of Distinct Detects	1	Number of Distinct Non-Detects	5
692				
693	**Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!**			
694	**It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).**			
695				
696	**The data set for variable 1,1,2,2-TETRACHLOROETHANE was not processed!**			
697				
698				
699	**METHYLENE CHLORIDE**			
700				
701	**General Statistics**			
702	Total Number of Observations	8	Number of Distinct Observations	7
703	Number of Detects	3	Number of Non-Detects	5
704	Number of Distinct Detects	3	Number of Distinct Non-Detects	4
705	Minimum Detect	2000	Minimum Non-Detect	1600
706	Maximum Detect	530000	Maximum Non-Detect	42000
707	Variance Detects	9.275E+10	Percent Non-Detects	62.5%
708	Mean Detects	178333	SD Detects	304553
709	Median Detects	3000	CV Detects	1.708
710	Skewness Detects	1.732	Kurtosis Detects	N/A
711	Mean of Logged Detects	9.596	SD of Logged Detects	3.111
712				
713	**Warning: Data set has only 3 Detected Values.**			
714	**This is not enough to compute meaningful or reliable statistics and estimates.**			
715				
716				
717	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**			
718	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**			
719	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**			
720	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0**			
721				
722	**Normal GOF Test on Detects Only**			
723	Shapiro Wilk Test Statistic	0.751	**Shapiro Wilk GOF Test**	
724	5% Shapiro Wilk Critical Value	0.767	Detected Data Not Normal at 5% Significance Level	
725	Lilliefors Test Statistic	0.384	**Lilliefors GOF Test**	
726	5% Lilliefors Critical Value	0.512	Detected Data appear Normal at 5% Significance Level	
727	**Detected Data appear Approximate Normal at 5% Significance Level**			
728				
729	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
730	Mean	68044	Standard Error of Mean	75606
731	SD	174604	95% KM (BCA) UCL	N/A

	A–E	F	G–K	L
732	95% KM (t) UCL	211285	95% KM (Percentile Bootstrap) UCL	N/A
733	95% KM (z) UCL	192404	95% KM Bootstrap t UCL	N/A
734	90% KM Chebyshev UCL	294862	95% KM Chebyshev UCL	397602
735	97.5% KM Chebyshev UCL	540203	99% KM Chebyshev UCL	820314
736				
737	**Gamma GOF Tests on Detected Observations Only**			
738	**Not Enough Data to Perform GOF Test**			
739				
740	**Gamma Statistics on Detected Data Only**			
741	k hat (MLE)	0.28	k star (bias corrected MLE)	N/A
742	Theta hat (MLE)	637974	Theta star (bias corrected MLE)	N/A
743	nu hat (MLE)	1.677	nu star (bias corrected)	N/A
744	MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A
745				
746	**Gamma Kaplan-Meier (KM) Statistics**			
747	k hat (KM)	0.152	nu hat (KM)	2.43
748			Adjusted Level of Significance (β)	0.0195
749	Approximate Chi Square Value (2.43, α)	0.226	Adjusted Chi Square Value (2.43, β)	0.134
750	95% Gamma Approximate KM-UCL (use when n>=50)	732507	95% Gamma Adjusted KM-UCL (use when n<50)	1231418
751				
752	**Lognormal GOF Test on Detected Observations Only**			
753	Shapiro Wilk Test Statistic	0.804	**Shapiro Wilk GOF Test**	
754	5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level	
755	Lilliefors Test Statistic	0.362	**Lilliefors GOF Test**	
756	5% Lilliefors Critical Value	0.512	Detected Data appear Lognormal at 5% Significance Level	
757	**Detected Data appear Lognormal at 5% Significance Level**			
758				
759	**Lognormal ROS Statistics Using Imputed Non-Detects**			
760	Mean in Original Scale	67053	Mean in Log Scale	6.268
761	SD in Original Scale	187062	SD in Log Scale	3.529
762	95% t UCL (assumes normality of ROS data)	192354	95% Percentile Bootstrap UCL	199042
763	95% BCA Bootstrap UCL	265380	95% Bootstrap t UCL	17162222
764	95% H-UCL (Log ROS)	3.415E+11		
765				
766	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
767	KM Mean (logged)	8.289	95% H-UCL (KM -Log)	1302544
768	KM SD (logged)	1.864	95% Critical H Value (KM-Log)	5.752
769	KM Standard Error of Mean (logged)	0.812		
770				
771	**DL/2 Statistics**			
772	**DL/2 Normal**		**DL/2 Log-Transformed**	
773	Mean in Original Scale	71831	Mean in Log Scale	8.783
774	SD in Original Scale	185250	SD in Log Scale	2.118

Row	A–E	F	G–K	L
775	95% t UCL (Assumes normality)	195918	95% H-Stat UCL	10912342
776	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
777				
778	**Nonparametric Distribution Free UCL Statistics**			
779	**Detected Data appear Approximate Normal Distributed at 5% Significance Level**			
780				
781	**Suggested UCL to Use**			
782	95% KM (t) UCL	211285	95% KM (Percentile Bootstrap) UCL	N/A
783	**Warning: One or more Recommended UCL(s) not available!**			
784				
785	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
786	Recommendations are based upon data size, data distribution, and skewness.			
787	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
788	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
789				
790	CYCLOHEXANE			
791				
792	**General Statistics**			
793	Total Number of Observations	8	Number of Distinct Observations	8
794			Number of Missing Observations	0
795	Minimum	9600	Mean	1306200
796	Maximum	5100000	Median	590000
797	SD	1695921	Std. Error of Mean	599598
798	Coefficient of Variation	1.298	Skewness	1.926
799				
800	**Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use**			
801	**guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.**			
802	**For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).**			
803	**Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0**			
804				
805	**Normal GOF Test**			
806	Shapiro Wilk Test Statistic	0.766	**Shapiro Wilk GOF Test**	
807	5% Shapiro Wilk Critical Value	0.818	Data Not Normal at 5% Significance Level	
808	Lilliefors Test Statistic	0.286	**Lilliefors GOF Test**	
809	5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level	
810	**Data appear Approximate Normal at 5% Significance Level**			
811				
812	**Assuming Normal Distribution**			
813	**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**	
814	95% Student's-t UCL	2442186	95% Adjusted-CLT UCL (Chen-1995)	2728822
815			95% Modified-t UCL (Johnson-1978)	2510251
816				
817	**Gamma GOF Test**			

Appendix A-3
Soil Gas COPC EPCs (ppb-v)
BFF KAFB

	A–E	F	G–K	L
818	A-D Test Statistic	0.255	**Anderson-Darling Gamma GOF Test**	
819	5% A-D Critical Value	0.76	Detected data appear Gamma Distributed at 5% Significance Level	
820	K-S Test Statistic	0.168	**Kolmogrov-Smirnoff Gamma GOF Test**	
821	5% K-S Critical Value	0.308	Detected data appear Gamma Distributed at 5% Significance Level	
822	**Detected data appear Gamma Distributed at 5% Significance Level**			
823				
824	**Gamma Statistics**			
825	k hat (MLE)	0.538	k star (bias corrected MLE)	0.42
826	Theta hat (MLE)	2427144	Theta star (bias corrected MLE)	3112331
827	nu hat (MLE)	8.611	nu star (bias corrected)	6.715
828	MLE Mean (bias corrected)	1306200	MLE Sd (bias corrected)	2016266
829			Approximate Chi Square Value (0.05)	2.016
830	Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.43
831				
832	**Assuming Gamma Distribution**			
833	95% Approximate Gamma UCL (use when n>=50))	4351812	95% Adjusted Gamma UCL (use when n<50)	6132412
834				
835	**Lognormal GOF Test**			
836	Shapiro Wilk Test Statistic	0.898	**Shapiro Wilk Lognormal GOF Test**	
837	5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level	
838	Lilliefors Test Statistic	0.26	**Lilliefors Lognormal GOF Test**	
839	5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level	
840	**Data appear Lognormal at 5% Significance Level**			
841				
842	**Lognormal Statistics**			
843	Minimum of Logged Data	9.17	Mean of logged Data	12.92
844	Maximum of Logged Data	15.44	SD of logged Data	2.141
845				
846	**Assuming Lognormal Distribution**			
847	95% H-UCL	7.968E+8	90% Chebyshev (MVUE) UCL	6967826
848	95% Chebyshev (MVUE) UCL	9119521	97.5% Chebyshev (MVUE) UCL	12105990
849	99% Chebyshev (MVUE) UCL	17972330		
850				
851	**Nonparametric Distribution Free UCL Statistics**			
852	**Data appear to follow a Discernible Distribution at 5% Significance Level**			
853				
854	**Nonparametric Distribution Free UCLs**			
855	95% CLT UCL	2292452	95% Jackknife UCL	2442186
856	95% Standard Bootstrap UCL	2224173	95% Bootstrap-t UCL	3750442
857	95% Hall's Bootstrap UCL	5702998	95% Percentile Bootstrap UCL	2329950
858	95% BCA Bootstrap UCL	2683750		
859	90% Chebyshev(Mean, Sd) UCL	3104995	95% Chebyshev(Mean, Sd) UCL	3919789
860	97.5% Chebyshev(Mean, Sd) UCL	5050691	99% Chebyshev(Mean, Sd) UCL	7272129

Appendix A-3
Soil Gas COPC EPCs (ppb-v)
BFF KAFB

	A	B	C	D	E	F	G	H	I	J	K	L
861												
862	**Suggested UCL to Use**											
863				95% Student's-t UCL		2442186						
864												
865	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
866	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)											
867	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.											
868	For additional insight the user may want to consult a statistician.											
869												

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106002	1,2-DIBROMOETHANE	NA	NA	NA	0.0183	0.0408	8	1	0.13	1	FALSE
KAFB-106007	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0217	9	0	0.00	0	FALSE
KAFB-106010	1,2-DIBROMOETHANE	-1.13E-01	-5.11E-01	4.73E-02	39.8	129	10	10	1.00	8	FALSE
KAFB-106011	1,2-DIBROMOETHANE	NA	NA	NA	0.0144	0.019	9	1	0.11	1	FALSE
KAFB-106014	1,2-DIBROMOETHANE	-3.68E-01	-1.43E-01	7.11E-01	56.9	459	8	8	1.00	8	FALSE
KAFB-106015	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0746	8	1	0.13	1	FALSE
KAFB-106016	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0212	8	0	0.00	0	FALSE
KAFB-106017	1,2-DIBROMOETHANE	-1.04E-03	-2.22E-01	4.15E-01	0.605	1.33	10	10	1.00	8	FALSE
KAFB-106018	1,2-DIBROMOETHANE	-5.88E-04	-6.00E-01	1.91E-02	0.165	2.34	10	10	1.00	8	FALSE
KAFB-106019	1,2-DIBROMOETHANE	-2.73E-04	-6.39E-01	2.11E-02	0.142	0.372	9	9	1.00	8	FALSE
KAFB-106020	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0376	9	1	0.11	1	FALSE
KAFB-106021	1,2-DIBROMOETHANE	-2.23E-05	-2.78E-02	1.00E+00	0.0214	0.15	9	8	0.89	7	FALSE
KAFB-106022	1,2-DIBROMOETHANE	-8.73E-04	-9.17E-01	7.95E-04	0.39	1	9	9	1.00	8	FALSE
KAFB-106024	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0191	8	0	0.00	0	FALSE
KAFB-106025	1,2-DIBROMOETHANE	1.85E-05	2.22E-02	1.00E+00	0.0193	0.258	10	8	0.80	8	FALSE
KAFB-106026	1,2-DIBROMOETHANE	NA	NA	NA	0.0116	0.0205	10	1	0.10	1	FALSE
KAFB-106029	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0206	8	0	0.00	0	FALSE
KAFB-106030	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0194	10	0	0.00	0	FALSE
KAFB-106031	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0194	9	0	0.00	0	FALSE
KAFB-106032	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0196	8	0	0.00	0	FALSE
KAFB-106033	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0192	10	0	0.00	0	FALSE
KAFB-106034	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0319	8	1	0.13	1	FALSE
KAFB-106035	1,2-DIBROMOETHANE	8.61E-04	5.71E-01	6.35E-02	0.237	0.868	8	8	1.00	8	FALSE
KAFB-106036	1,2-DIBROMOETHANE	9.10E-05	2.14E-01	5.36E-01	0.277	0.515	8	8	1.00	8	FALSE
KAFB-106037	1,2-DIBROMOETHANE	-8.84E-05	-2.14E-01	5.36E-01	0.176	0.588	8	8	1.00	8	FALSE
KAFB-106038	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0191	8	0	0.00	0	FALSE
KAFB-106039	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0189	10	0	0.00	0	FALSE
KAFB-106040	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0425	9	1	0.11	1	FALSE
KAFB-106042	1,2-DIBROMOETHANE	-1.37E-03	-8.00E-01	7.29E-04	0.0891	0.952	11	11	1.00	8	FALSE
KAFB-106043	1,2-DIBROMOETHANE	NA	NA	NA	0.0184	0.0209	9	0	0.00	0	FALSE
KAFB-106027	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0193	8	0	0.00	0	FALSE
KAFB-106044	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0199	9	0	0.00	0	FALSE
KAFB-106045	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0191	8	0	0.00	0	FALSE
KAFB-106046	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0193	8	0	0.00	0	FALSE
KAFB-106047	1,2-DIBROMOETHANE	NA	NA	NA	0.0182	0.0193	9	0	0.00	0	FALSE
KAFB-106048	1,2-DIBROMOETHANE	NA	NA	NA	0.0183	0.0198	8	0	0.00	0	FALSE
KAFB-106050	1,2-DIBROMOETHANE	NA	NA	NA	0.0183	0.019	11	0	0.00	0	FALSE
KAFB-106051	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0193	9	0	0.00	0	FALSE
KAFB-106052	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0192	8	0	0.00	0	FALSE
KAFB-106053	1,2-DIBROMOETHANE	NA	NA	NA	0.0184	0.0192	9	0	0.00	0	FALSE
KAFB-106054	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0191	8	0	0.00	0	FALSE
KAFB-106055	1,2-DIBROMOETHANE	2.17E-03	4.64E-01	1.35E-01	0.645	2.92	8	8	1.00	8	FALSE
KAFB-106057	1,2-DIBROMOETHANE	-6.29E-04	-3.06E-01	2.95E-01	0.182	1.16	9	9	1.00	8	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106058	1,2-DIBROMOETHANE	-8.72E-04	-1.00E+00	8.37E-04	0.185	0.713	8	8	1.00	8	FALSE
KAFB-106060	1,2-DIBROMOETHANE	NA	NA	NA	0.0107	0.0193	11	1	0.09	1	FALSE
KAFB-106061	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0191	8	0	0.00	0	FALSE
KAFB-106062	1,2-DIBROMOETHANE	NA	NA	NA	0.0184	0.019	10	0	0.00	0	FALSE
KAFB-106063	1,2-DIBROMOETHANE	-4.24E-06	-2.22E-02	1.00E+00	0.0175	0.067	10	3	0.30	3	FALSE
KAFB-106065	1,2-DIBROMOETHANE	-2.75E-04	-1.79E-01	6.18E-01	0.0189	2.19	8	6	0.75	6	FALSE
KAFB-106066	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.019	8	0	0.00	0	FALSE
KAFB-106067	1,2-DIBROMOETHANE	1.75E-04	2.50E-01	4.02E-01	0.097	0.383	9	9	1.00	8	FALSE
KAFB-106068	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.228	10	1	0.10	1	FALSE
KAFB-106069	1,2-DIBROMOETHANE	-2.31E-04	-5.28E-01	5.92E-02	0.0187	0.353	9	8	0.89	7	FALSE
KAFB-106070	1,2-DIBROMOETHANE	6.36E-05	1.39E-01	6.75E-01	0.0618	0.213	9	9	1.00	8	FALSE
KAFB-106071	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0201	11	0	0.00	0	FALSE
KAFB-106072	1,2-DIBROMOETHANE	-1.15E-03	-3.57E-01	2.66E-01	0.199	1.14	8	8	1.00	8	FALSE
KAFB-106073	1,2-DIBROMOETHANE	5.10E-05	3.57E-01	2.66E-01	0.0261	0.0718	8	8	1.00	8	FALSE
KAFB-106074	1,2-DIBROMOETHANE	NA	NA	NA	0.0183	0.0189	8	0	0.00	0	FALSE
KAFB-106075	1,2-DIBROMOETHANE	-3.16E-04	-5.28E-01	5.92E-02	0.0679	0.353	9	9	1.00	8	FALSE
KAFB-106077	1,2-DIBROMOETHANE	-4.35E-04	-4.17E-01	8.09E-02	0.0187	0.0665	9	2	0.22	2	FALSE
KAFB-106078	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0192	7	0	0.00	0	FALSE
KAFB-106079	1,2-DIBROMOETHANE	-1.56E-02	-5.83E-01	3.60E-02	0.0187	162	9	8	0.89	8	FALSE
KAFB-106080	1,2-DIBROMOETHANE	-1.07E-03	-6.18E-01	9.52E-03	0.0186	1.36	11	10	0.91	7	FALSE
KAFB-106081	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0191	9	0	0.00	0	FALSE
KAFB-106082	1,2-DIBROMOETHANE	-1.39E-03	-6.43E-01	3.54E-02	0.271	2.52	8	8	1.00	8	FALSE
KAFB-106083	1,2-DIBROMOETHANE	-1.79E-03	-7.22E-01	8.41E-03	0.0185	1.18	9	7	0.78	6	FALSE
KAFB-106084	1,2-DIBROMOETHANE	NA	NA	NA	0.0183	0.0193	8	0	0.00	0	FALSE
KAFB-106085	1,2-DIBROMOETHANE	6.00E-05	2.14E-01	5.36E-01	0.0187	0.132	8	7	0.88	7	FALSE
KAFB-106086	1,2-DIBROMOETHANE	-8.02E-04	-7.86E-01	9.37E-03	0.236	0.75	8	8	1.00	8	FALSE
KAFB-106087	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0191	8	0	0.00	0	FALSE
KAFB-106088	1,2-DIBROMOETHANE	-6.04E-04	-6.94E-01	1.19E-02	0.194	0.616	9	9	1.00	8	FALSE
KAFB-106089	1,2-DIBROMOETHANE	-5.81E-04	-7.27E-01	1.14E-03	0.0977	0.523	12	12	1.00	8	FALSE
KAFB-106090	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.0192	9	0	0.00	0	FALSE
KAFB-106091	1,2-DIBROMOETHANE	-4.47E-05	-1.94E-01	5.29E-01	0.0187	0.142	9	8	0.89	7	FALSE
KAFB-106092	1,2-DIBROMOETHANE	3.52E-04	3.61E-01	2.08E-01	0.0971	0.47	9	9	1.00	8	FALSE
KAFB-106093	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0191	8	0	0.00	0	FALSE
KAFB-106094	1,2-DIBROMOETHANE	-5.12E-04	-7.14E-02	9.02E-01	0.221	5.95	8	8	1.00	8	FALSE
KAFB-106095	1,2-DIBROMOETHANE	-1.39E-04	-4.22E-01	1.02E-01	0.0134	0.192	10	9	0.90	7	FALSE
KAFB-106096	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0191	8	0	0.00	0	FALSE
KAFB-106013	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0191	8	0	0.00	0	FALSE
KAFB-106097	1,2-DIBROMOETHANE	NA	NA	NA	0.0186	0.0191	9	0	0.00	0	FALSE
KAFB-106098	1,2-DIBROMOETHANE	NA	NA	NA	0.0184	0.0192	10	0	0.00	0	FALSE
KAFB-106099	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0196	11	0	0.00	0	FALSE
KAFB-106100	1,2-DIBROMOETHANE	NA	NA	NA	0.0188	0.0191	10	0	0.00	0	FALSE
KAFB-106101	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0192	8	0	0.00	0	FALSE
KAFB-106102	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0197	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106023	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.0218	8	0	0.00	0	FALSE
KAFB-106103	1,2-DIBROMOETHANE	NA	NA	NA	0.0187	0.019	9	0	0.00	0	FALSE
KAFB-106104	1,2-DIBROMOETHANE	NA	NA	NA	0.0184	0.0191	9	0	0.00	0	FALSE
KAFB-106105	1,2-DIBROMOETHANE	-5.88E-05	-5.00E-01	1.02E-01	0.014	0.0784	8	8	1.00	7	FALSE
KAFB-106106	1,2-DIBROMOETHANE	-1.06E-04	-2.73E-01	2.70E-01	0.109	0.23	11	11	1.00	7	FALSE
KAFB-106107	1,2-DIBROMOETHANE	NA	NA	NA	0.0185	0.019	7	0	0.00	0	FALSE
KAFB-106001	SODIUM	6.50E+00	7.86E-01	9.37E-03	23400	28000	8	8	1.00	8	TRUE
KAFB-106002	SODIUM	1.06E+00	2.50E-01	4.54E-01	22800	25800	8	8	1.00	8	FALSE
KAFB-106007	SODIUM	-2.07E+00	-7.14E-02	9.02E-01	25200	32900	8	8	1.00	8	FALSE
KAFB-106010	SODIUM	-3.24E+00	-6.67E-02	8.57E-01	26600	33700	10	10	1.00	8	FALSE
KAFB-106011	SODIUM	-8.89E+00	-7.50E-01	6.42E-03	22700	28500	9	9	1.00	8	FALSE
KAFB-106014	SODIUM	-1.76E+00	-7.14E-02	9.02E-01	27000	31600	8	8	1.00	8	FALSE
KAFB-106015	SODIUM	-2.58E+00	-5.00E-01	1.08E-01	3000	21500	8	7	0.88	7	FALSE
KAFB-106016	SODIUM	7.74E-01	2.14E-01	5.21E-01	20900	22700	8	8	1.00	8	FALSE
KAFB-106017	SODIUM	-1.28E+00	-2.44E-01	3.58E-01	24600	26800	10	10	1.00	8	FALSE
KAFB-106018	SODIUM	-2.70E-01	-1.33E-01	6.51E-01	23700	26500	10	10	1.00	8	FALSE
KAFB-106019	SODIUM	-1.40E+00	-1.67E-01	5.98E-01	24100	36500	9	9	1.00	8	FALSE
KAFB-106020	SODIUM	9.74E+00	5.83E-01	3.60E-02	25100	32200	9	9	1.00	8	TRUE
KAFB-106021	SODIUM	-1.12E+01	-5.83E-01	3.60E-02	26900	34000	9	9	1.00	8	FALSE
KAFB-106022	SODIUM	5.59E-01	2.22E-01	4.56E-01	24000	26100	9	9	1.00	8	FALSE
KAFB-106024	SODIUM	-2.62E+00	-7.14E-02	9.02E-01	29400	44800	8	8	1.00	8	FALSE
KAFB-106025	SODIUM	-6.35E+00	-3.33E-01	2.07E-01	22900	31100	10	10	1.00	9	FALSE
KAFB-106026	SODIUM	-6.48E-01	-6.67E-02	8.57E-01	29200	33300	10	10	1.00	9	FALSE
KAFB-106029	SODIUM	1.36E+00	2.50E-01	4.54E-01	30400	34200	8	8	1.00	8	FALSE
KAFB-106030	SODIUM	1.50E+01	7.78E-01	2.17E-03	25800	35500	10	10	1.00	8	TRUE
KAFB-106031	SODIUM	-3.80E+00	-4.72E-01	9.35E-02	24400	30300	9	9	1.00	8	FALSE
KAFB-106032	SODIUM	1.04E+00	7.14E-02	9.02E-01	21100	23900	8	8	1.00	8	FALSE
KAFB-106033	SODIUM	-2.16E+00	-1.56E-01	5.89E-01	29200	33300	10	10	1.00	8	FALSE
KAFB-106034	SODIUM	-3.11E+00	-4.29E-01	1.58E-01	30300	32200	8	8	1.00	8	FALSE
KAFB-106035	SODIUM	3.35E+00	5.00E-01	1.08E-01	26400	30700	8	8	1.00	8	FALSE
KAFB-106036	SODIUM	-7.73E-08	-3.57E-02	1.00E+00	31100	33200	8	8	1.00	8	FALSE
KAFB-106037	SODIUM	-2.63E+00	-4.64E-01	1.26E-01	24700	28500	8	8	1.00	8	FALSE
KAFB-106038	SODIUM	-2.14E+00	-2.50E-01	4.54E-01	24200	26500	8	8	1.00	8	FALSE
KAFB-106039	SODIUM	-2.59E+00	-2.00E-01	4.71E-01	22300	27200	10	10	1.00	8	FALSE
KAFB-106040	SODIUM	-8.09E-01	-1.67E-01	5.98E-01	22700	24500	9	9	1.00	8	FALSE
KAFB-106042	SODIUM	-1.24E+00	-1.27E-01	6.34E-01	27300	33200	11	11	1.00	8	FALSE
KAFB-106043	SODIUM	-6.85E-01	-1.94E-01	5.25E-01	23400	24900	9	9	1.00	8	FALSE
KAFB-106027	SODIUM	-2.49E+00	-3.57E-01	2.66E-01	21500	24000	8	8	1.00	8	FALSE
KAFB-106044	SODIUM	-5.73E-01	-1.39E-01	6.75E-01	20400	22500	9	9	1.00	8	FALSE
KAFB-106045	SODIUM	-2.95E-01	-3.57E-02	1.00E+00	19800	21600	8	8	1.00	8	FALSE
KAFB-106046	SODIUM	-5.35E+00	-2.86E-01	3.86E-01	24700	31100	8	8	1.00	8	FALSE
KAFB-106047	SODIUM	-4.13E+00	-5.56E-01	4.52E-02	22100	26200	9	9	1.00	8	FALSE
KAFB-106048	SODIUM	-1.67E+00	-3.57E-01	2.58E-01	21100	23100	8	8	1.00	8	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106050	SODIUM	-1.60E+00	-2.36E-01	3.44E-01	26000	29100	11	11	1.00	8	FALSE
KAFB-106051	SODIUM	-2.71E+00	-3.61E-01	1.97E-01	21900	25700	9	9	1.00	8	FALSE
KAFB-106052	SODIUM	-1.92E+00	-2.86E-01	3.86E-01	24800	27700	8	8	1.00	8	FALSE
KAFB-106053	SODIUM	-2.86E+00	-3.33E-01	2.46E-01	23200	26900	9	9	1.00	8	FALSE
KAFB-106054	SODIUM	2.34E-01	0.00E+00	1.00E+00	21500	25900	8	8	1.00	8	FALSE
KAFB-106055	SODIUM	-3.83E-01	-1.43E-01	7.00E-01	23600	26800	8	8	1.00	8	FALSE
KAFB-106057	SODIUM	1.43E+00	2.50E-01	3.94E-01	23300	25900	9	9	1.00	8	FALSE
KAFB-106058	SODIUM	-1.91E+00	-4.29E-01	1.74E-01	22700	25500	8	8	1.00	8	FALSE
KAFB-106060	SODIUM	-1.67E+00	-2.73E-01	2.70E-01	22600	26000	11	11	1.00	8	FALSE
KAFB-106061	SODIUM	-1.71E+00	-4.64E-01	1.35E-01	20300	22100	8	8	1.00	8	FALSE
KAFB-106062	SODIUM	5.57E-01	1.56E-01	5.83E-01	21200	23000	10	10	1.00	8	FALSE
KAFB-106063	SODIUM	5.18E-01	2.00E-01	4.67E-01	24800	26900	10	10	1.00	8	FALSE
KAFB-106065	SODIUM	-2.34E+01	-5.36E-01	8.09E-02	27400	44100	8	8	1.00	8	FALSE
KAFB-106066	SODIUM	-5.37E+00	-5.36E-01	8.09E-02	20300	25000	8	8	1.00	8	FALSE
KAFB-106067	SODIUM	1.79E-01	5.56E-02	9.16E-01	25400	32300	9	9	1.00	8	FALSE
KAFB-106068	SODIUM	4.71E-08	0.00E+00	1.00E+00	21100	23700	10	10	1.00	8	FALSE
KAFB-106069	SODIUM	1.05E+00	1.94E-01	5.29E-01	22200	25600	9	9	1.00	8	FALSE
KAFB-106070	SODIUM	-5.76E+00	-6.67E-01	1.53E-02	26800	30500	9	9	1.00	8	FALSE
KAFB-106071	SODIUM	-1.74E+00	-2.36E-01	3.44E-01	21500	23800	11	11	1.00	8	FALSE
KAFB-106072	SODIUM	-3.63E+00	-4.29E-01	1.74E-01	25200	30100	8	8	1.00	8	FALSE
KAFB-106073	SODIUM	8.96E+00	5.36E-01	8.09E-02	22100	29400	8	8	1.00	8	FALSE
KAFB-106074	SODIUM	-3.47E-01	-7.14E-02	9.02E-01	21100	23100	8	8	1.00	8	FALSE
KAFB-106075	SODIUM	-2.47E+00	-3.33E-01	2.46E-01	25100	29100	9	9	1.00	8	FALSE
KAFB-106077	SODIUM	-6.31E-01	-8.33E-02	8.34E-01	20700	23600	9	9	1.00	8	FALSE
KAFB-106078	SODIUM	-1.10E+00	-1.90E-01	6.49E-01	18700	23400	7	7	1.00	7	FALSE
KAFB-106079	SODIUM	-1.28E+01	-4.17E-01	1.42E-01	38100	46200	9	9	1.00	8	FALSE
KAFB-106080	SODIUM	-3.20E+00	-3.27E-01	1.79E-01	41600	47100	11	11	1.00	8	FALSE
KAFB-106081	SODIUM	-2.46E+00	-4.72E-01	9.35E-02	20200	23100	9	9	1.00	8	FALSE
KAFB-106082	SODIUM	8.19E-01	7.14E-02	9.02E-01	27400	31400	8	8	1.00	8	FALSE
KAFB-106083	SODIUM	1.30E+01	6.39E-01	2.11E-02	24700	35700	9	9	1.00	8	TRUE
KAFB-106084	SODIUM	-1.62E+00	-5.36E-01	8.09E-02	21300	24000	8	8	1.00	8	FALSE
KAFB-106085	SODIUM	9.52E+00	8.57E-01	4.43E-03	29100	36200	8	8	1.00	8	TRUE
KAFB-106086	SODIUM	-3.28E+00	-6.43E-01	3.27E-02	23500	27500	8	8	1.00	8	FALSE
KAFB-106087	SODIUM	-2.83E+00	-4.29E-01	1.67E-01	20700	23600	8	8	1.00	8	FALSE
KAFB-106088	SODIUM	-1.33E+00	-1.11E-01	7.52E-01	24400	26900	9	9	1.00	8	FALSE
KAFB-106089	SODIUM	-7.67E+00	-7.12E-01	1.29E-03	22500	28100	12	12	1.00	8	FALSE
KAFB-106090	SODIUM	-5.66E+00	-4.17E-01	1.42E-01	21300	25200	9	9	1.00	8	FALSE
KAFB-106091	SODIUM	-6.45E+00	-6.39E-01	1.97E-02	24900	29100	9	9	1.00	8	FALSE
KAFB-106092	SODIUM	-6.42E+00	-5.83E-01	3.60E-02	23700	28600	9	9	1.00	8	FALSE
KAFB-106093	SODIUM	-3.00E+00	-4.29E-01	1.74E-01	19900	23300	8	8	1.00	8	FALSE
KAFB-106094	SODIUM	-3.73E+00	-2.86E-01	3.86E-01	26300	34500	8	8	1.00	8	FALSE
KAFB-106095	SODIUM	-7.84E+00	-4.67E-01	7.13E-02	21800	28000	10	10	1.00	8	FALSE
KAFB-106096	SODIUM	-3.40E+00	-6.07E-01	4.61E-02	21100	23700	8	8	1.00	8	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106013	SODIUM	-1.04E+01	-4.29E-01	1.74E-01	3000	27500	8	7	0.88	7	FALSE
KAFB-106097	SODIUM	-2.94E+00	-5.56E-01	4.52E-02	21200	25900	9	9	1.00	8	FALSE
KAFB-106098	SODIUM	-8.79E-01	-2.67E-01	3.14E-01	19800	21800	10	10	1.00	8	FALSE
KAFB-106099	SODIUM	-3.30E+00	-5.64E-01	1.88E-02	22500	26800	11	11	1.00	9	FALSE
KAFB-106100	SODIUM	-1.05E+00	-2.67E-01	3.19E-01	20900	22700	10	10	1.00	8	FALSE
KAFB-106101	SODIUM	-2.11E+00	-3.57E-01	2.66E-01	40700	50600	8	8	1.00	8	FALSE
KAFB-106102	SODIUM	-5.56E+00	-3.61E-01	2.08E-01	20200	27200	9	9	1.00	8	FALSE
KAFB-106023	SODIUM	-9.48E-01	-1.79E-01	6.18E-01	23300	26600	8	8	1.00	8	FALSE
KAFB-106103	SODIUM	-1.15E+00	-8.33E-02	8.34E-01	24500	28100	9	9	1.00	8	FALSE
KAFB-106104	SODIUM	-9.57E-01	-1.39E-01	6.75E-01	23800	26700	9	9	1.00	8	FALSE
KAFB-106105	SODIUM	1.58E+00	3.21E-01	3.19E-01	22100	23900	8	8	1.00	7	FALSE
KAFB-106106	SODIUM	3.28E+00	3.64E-01	1.33E-01	22500	24900	11	11	1.00	7	FALSE
KAFB-106107	SODIUM	2.79E+00	3.33E-01	3.68E-01	20800	22900	7	7	1.00	7	FALSE
KAFB-106001	IRON, DISSOLVED	5.65E-01	4.64E-01	1.35E-01	86.6	668	8	7	0.88	7	FALSE
KAFB-106002	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106007	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106010	IRON, DISSOLVED	-1.21E-01	-2.44E-01	3.67E-01	39.4	262	10	10	1.00	8	FALSE
KAFB-106011	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106014	IRON, DISSOLVED	-4.48E-01	-3.57E-01	2.66E-01	263	694	8	8	1.00	8	FALSE
KAFB-106015	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106016	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106017	IRON, DISSOLVED	2.64E-02	6.67E-02	7.97E-01	32	60	10	4	0.40	3	FALSE
KAFB-106018	IRON, DISSOLVED	8.07E-02	2.00E-01	4.71E-01	129	324	10	10	1.00	8	FALSE
KAFB-106019	IRON, DISSOLVED	NA	NA	NA	32.8	60	9	1	0.11	1	FALSE
KAFB-106020	IRON, DISSOLVED	2.21E-02	2.78E-02	1.00E+00	40.2	60	9	2	0.22	2	FALSE
KAFB-106021	IRON, DISSOLVED	1.82E-01	5.28E-01	4.07E-02	38.4	139	9	6	0.67	5	TRUE
KAFB-106022	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106024	IRON, DISSOLVED	-6.69E-03	0.00E+00	1.00E+00	30.8	297	8	3	0.38	3	FALSE
KAFB-106025	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106026	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106029	IRON, DISSOLVED	-1.14E-02	-3.57E-02	1.00E+00	35.2	60	8	2	0.25	2	FALSE
KAFB-106030	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106031	IRON, DISSOLVED	NA	NA	NA	39.8	60	9	1	0.11	1	FALSE
KAFB-106032	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106033	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106034	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106035	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106036	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106037	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106038	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106039	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106040	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106042	IRON, DISSOLVED	NA	NA	NA	60	60	11	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106043	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106027	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106044	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106045	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106046	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106047	IRON, DISSOLVED	NA	NA	NA	37.9	60	9	1	0.11	1	FALSE
KAFB-106048	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106050	IRON, DISSOLVED	NA	NA	NA	60	60	11	0	0.00	0	FALSE
KAFB-106051	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106052	IRON, DISSOLVED	NA	NA	NA	60	63.5	8	1	0.13	1	FALSE
KAFB-106053	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106054	IRON, DISSOLVED	NA	NA	NA	45.8	60	8	1	0.13	1	FALSE
KAFB-106055	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106057	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106058	IRON, DISSOLVED	NA	NA	NA	60	175	8	1	0.13	1	FALSE
KAFB-106060	IRON, DISSOLVED	NA	NA	NA	60	60	11	0	0.00	0	FALSE
KAFB-106061	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106062	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106063	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106065	IRON, DISSOLVED	-3.86E+00	-6.43E-01	3.54E-02	751	3700	8	8	1.00	8	FALSE
KAFB-106066	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106067	IRON, DISSOLVED	5.63E-01	1.67E-01	5.98E-01	60	1110	9	7	0.78	6	FALSE
KAFB-106068	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106069	IRON, DISSOLVED	3.25E-02	0.00E+00	1.00E+00	38.3	132	9	2	0.22	2	FALSE
KAFB-106070	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106071	IRON, DISSOLVED	NA	NA	NA	60	60	11	0	0.00	0	FALSE
KAFB-106072	IRON, DISSOLVED	6.43E-02	1.07E-01	6.63E-01	42.9	89.1	8	2	0.25	2	FALSE
KAFB-106073	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106074	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106075	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106077	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106078	IRON, DISSOLVED	NA	NA	NA	60	60	7	0	0.00	0	FALSE
KAFB-106079	IRON, DISSOLVED	1.17E+00	2.78E-02	1.00E+00	60	8050	9	8	0.89	7	FALSE
KAFB-106080	IRON, DISSOLVED	-2.72E+00	-9.09E-01	1.13E-04	1360	3390	11	11	1.00	8	FALSE
KAFB-106081	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106082	IRON, DISSOLVED	-4.19E-01	-4.29E-01	1.74E-01	277	625	8	8	1.00	8	FALSE
KAFB-106083	IRON, DISSOLVED	5.19E-01	6.67E-01	1.53E-02	60	349	9	7	0.78	6	TRUE
KAFB-106084	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106085	IRON, DISSOLVED	-3.36E-02	-7.14E-02	8.61E-01	42.4	90.3	8	3	0.38	3	FALSE
KAFB-106086	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106087	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106088	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106089	IRON, DISSOLVED	NA	NA	NA	60	60	12	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106090	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106091	IRON, DISSOLVED	NA	NA	NA	60	181	9	1	0.11	1	FALSE
KAFB-106092	IRON, DISSOLVED	2.18E-02	5.56E-02	8.84E-01	43.4	67.9	9	3	0.33	2	FALSE
KAFB-106093	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106094	IRON, DISSOLVED	1.93E+00	2.86E-01	3.86E-01	322	2380	8	8	1.00	8	FALSE
KAFB-106095	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106096	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106013	IRON, DISSOLVED	NA	NA	NA	41.1	60	8	1	0.13	1	FALSE
KAFB-106097	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106098	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106099	IRON, DISSOLVED	NA	NA	NA	60	60	11	0	0.00	0	FALSE
KAFB-106100	IRON, DISSOLVED	NA	NA	NA	60	60	10	0	0.00	0	FALSE
KAFB-106101	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106102	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106023	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106103	IRON, DISSOLVED	NA	NA	NA	60	60	9	0	0.00	0	FALSE
KAFB-106104	IRON, DISSOLVED	NA	NA	NA	60	105	9	1	0.11	1	FALSE
KAFB-106105	IRON, DISSOLVED	NA	NA	NA	60	60	8	0	0.00	0	FALSE
KAFB-106106	IRON, DISSOLVED	NA	NA	NA	60	60	11	0	0.00	0	FALSE
KAFB-106107	IRON, DISSOLVED	NA	NA	NA	60	60	7	0	0.00	0	FALSE
KAFB-106001	MANGANESE, DISSOLVED	2.25E-02	7.14E-02	9.02E-01	185	360	8	8	1.00	8	FALSE
KAFB-106002	MANGANESE, DISSOLVED	NA	NA	NA	6	6	8	0	0.00	0	FALSE
KAFB-106007	MANGANESE, DISSOLVED	-3.89E-01	-3.57E-01	2.19E-01	6	208	8	4	0.50	4	FALSE
KAFB-106010	MANGANESE, DISSOLVED	1.77E-01	5.11E-01	4.56E-02	847	1250	10	10	1.00	8	TRUE
KAFB-106011	MANGANESE, DISSOLVED	-2.26E-01	-5.28E-01	2.94E-02	6	69.3	9	4	0.44	3	FALSE
KAFB-106014	MANGANESE, DISSOLVED	7.25E-01	4.29E-01	1.74E-01	784	1370	8	8	1.00	8	FALSE
KAFB-106015	MANGANESE, DISSOLVED	-1.12E-02	-3.57E-01	2.11E-01	3.27	8.3	8	5	0.63	5	FALSE
KAFB-106016	MANGANESE, DISSOLVED	-1.88E-02	-2.86E-01	3.86E-01	13.9	50.9	8	8	1.00	8	FALSE
KAFB-106017	MANGANESE, DISSOLVED	2.56E-01	6.00E-01	1.91E-02	21.1	254	10	10	1.00	8	TRUE
KAFB-106018	MANGANESE, DISSOLVED	1.18E-01	2.44E-01	3.67E-01	735	897	10	10	1.00	8	FALSE
KAFB-106019	MANGANESE, DISSOLVED	6.18E-02	1.39E-01	6.73E-01	106	357	9	9	1.00	8	FALSE
KAFB-106020	MANGANESE, DISSOLVED	1.76E-02	3.06E-01	2.86E-01	5.46	33.9	9	7	0.78	7	FALSE
KAFB-106021	MANGANESE, DISSOLVED	-1.85E-01	-3.61E-01	2.08E-01	61.8	255	9	9	1.00	8	FALSE
KAFB-106022	MANGANESE, DISSOLVED	-1.68E-01	-4.72E-01	9.35E-02	77	343	9	9	1.00	8	FALSE
KAFB-106024	MANGANESE, DISSOLVED	-5.98E-01	-6.43E-01	3.54E-02	7.72	1150	8	8	1.00	8	FALSE
KAFB-106025	MANGANESE, DISSOLVED	9.53E-03	4.44E-02	8.71E-01	6	82.9	10	2	0.20	2	FALSE
KAFB-106026	MANGANESE, DISSOLVED	NA	NA	NA	6	6	10	0	0.00	0	FALSE
KAFB-106029	MANGANESE, DISSOLVED	NA	NA	NA	3.95	6	8	1	0.13	1	FALSE
KAFB-106030	MANGANESE, DISSOLVED	NA	NA	NA	6	30.7	10	1	0.10	1	FALSE
KAFB-106031	MANGANESE, DISSOLVED	-1.22E-02	-2.22E-01	1.59E-01	4.01	11.8	9	2	0.22	2	FALSE
KAFB-106032	MANGANESE, DISSOLVED	-1.09E-01	-2.86E-01	2.21E-01	3.48	40.3	8	3	0.38	3	FALSE
KAFB-106033	MANGANESE, DISSOLVED	-3.86E-01	-3.78E-01	8.23E-03	6	36.2	10	2	0.20	2	FALSE
KAFB-106034	MANGANESE, DISSOLVED	-6.94E-08	-4.64E-01	2.09E-02	6	52.2	8	2	0.25	2	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106035	MANGANESE, DISSOLVED	-4.65E-01	-4.64E-01	2.09E-02	6	65.7	8	2	0.25	2	FALSE
KAFB-106036	MANGANESE, DISSOLVED	-2.97E-01	-4.64E-01	5.06E-02	3.22	48.6	8	3	0.38	3	FALSE
KAFB-106037	MANGANESE, DISSOLVED	NA	NA	NA	6	6	8	0	0.00	0	FALSE
KAFB-106038	MANGANESE, DISSOLVED	-3.31E-01	-6.43E-01	1.59E-02	4.23	81.5	8	4	0.50	4	FALSE
KAFB-106039	MANGANESE, DISSOLVED	-7.26E-01	-6.44E-01	2.34E-03	6	118	10	4	0.40	3	FALSE
KAFB-106040	MANGANESE, DISSOLVED	-5.49E-01	-4.17E-01	4.04E-02	4.44	88.5	9	3	0.33	3	FALSE
KAFB-106042	MANGANESE, DISSOLVED	NA	NA	NA	6	17.5	11	2	0.18	1	FALSE
KAFB-106043	MANGANESE, DISSOLVED	-6.26E-08	-4.17E-01	1.29E-02	6	33.8	9	2	0.22	2	FALSE
KAFB-106027	MANGANESE, DISSOLVED	NA	NA	NA	6	6	8	0	0.00	0	FALSE
KAFB-106044	MANGANESE, DISSOLVED	NA	NA	NA	3.2	6	9	1	0.11	1	FALSE
KAFB-106045	MANGANESE, DISSOLVED	NA	NA	NA	6	6	8	0	0.00	0	FALSE
KAFB-106046	MANGANESE, DISSOLVED	-6.84E-03	-1.07E-01	7.45E-01	3.67	32.2	8	3	0.38	3	FALSE
KAFB-106047	MANGANESE, DISSOLVED	-5.71E-01	-6.39E-01	2.11E-02	11.1	387	9	9	1.00	8	FALSE
KAFB-106048	MANGANESE, DISSOLVED	NA	NA	NA	4.15	6	8	1	0.13	1	FALSE
KAFB-106050	MANGANESE, DISSOLVED	NA	NA	NA	4.43	6	11	2	0.18	1	FALSE
KAFB-106051	MANGANESE, DISSOLVED	NA	NA	NA	3.8	6	9	1	0.11	1	FALSE
KAFB-106052	MANGANESE, DISSOLVED	NA	NA	NA	4.76	6	8	1	0.13	1	FALSE
KAFB-106053	MANGANESE, DISSOLVED	NA	NA	NA	6	24.1	9	1	0.11	1	FALSE
KAFB-106054	MANGANESE, DISSOLVED	-8.79E-02	-3.93E-01	5.43E-02	6	17.5	8	2	0.25	2	FALSE
KAFB-106055	MANGANESE, DISSOLVED	-7.28E-01	-2.50E-01	1.90E-01	4.83	35.4	8	2	0.25	2	FALSE
KAFB-106057	MANGANESE, DISSOLVED	-2.04E-02	-1.67E-01	5.45E-01	6	34.1	9	4	0.44	4	FALSE
KAFB-106058	MANGANESE, DISSOLVED	-5.72E-08	-2.50E-01	1.90E-01	4.3	6.7	8	2	0.25	2	FALSE
KAFB-106060	MANGANESE, DISSOLVED	-1.58E-01	-1.82E-01	2.44E-01	5.24	14.2	11	3	0.27	2	FALSE
KAFB-106061	MANGANESE, DISSOLVED	NA	NA	NA	3.06	6	8	1	0.13	1	FALSE
KAFB-106062	MANGANESE, DISSOLVED	NA	NA	NA	6	7.33	10	2	0.20	1	FALSE
KAFB-106063	MANGANESE, DISSOLVED	-2.39E-03	-1.33E-01	6.23E-01	3.65	11.1	10	7	0.70	6	FALSE
KAFB-106065	MANGANESE, DISSOLVED	-2.58E+00	-6.43E-01	3.54E-02	1170	3090	8	8	1.00	8	FALSE
KAFB-106066	MANGANESE, DISSOLVED	5.01E-02	8.93E-01	2.77E-03	4.1	30.9	8	7	0.88	7	TRUE
KAFB-106067	MANGANESE, DISSOLVED	3.20E-01	2.78E-02	1.00E+00	48.3	1020	9	9	1.00	8	FALSE
KAFB-106068	MANGANESE, DISSOLVED	NA	NA	NA	6	9.12	10	1	0.10	1	FALSE
KAFB-106069	MANGANESE, DISSOLVED	1.12E-02	2.78E-02	1.00E+00	3.87	84.1	9	8	0.89	7	FALSE
KAFB-106070	MANGANESE, DISSOLVED	-4.24E-02	-2.78E-02	1.00E+00	51.1	230	9	9	1.00	8	FALSE
KAFB-106071	MANGANESE, DISSOLVED	NA	NA	NA	6	74.3	11	1	0.09	1	FALSE
KAFB-106072	MANGANESE, DISSOLVED	5.16E-03	7.14E-02	9.02E-01	21.2	83.6	8	8	1.00	8	FALSE
KAFB-106073	MANGANESE, DISSOLVED	1.92E-02	4.64E-01	5.06E-02	4.49	8.23	8	3	0.38	3	FALSE
KAFB-106074	MANGANESE, DISSOLVED	-5.21E-02	-2.50E-01	1.90E-01	3.6	9.43	8	2	0.25	2	FALSE
KAFB-106075	MANGANESE, DISSOLVED	-1.67E-01	-4.44E-01	1.14E-01	9.74	165	9	9	1.00	8	FALSE
KAFB-106077	MANGANESE, DISSOLVED	NA	NA	NA	6	6	9	0	0.00	0	FALSE
KAFB-106078	MANGANESE, DISSOLVED	-6.91E-02	-2.86E-01	2.21E-01	5.32	18.1	7	2	0.29	2	FALSE
KAFB-106079	MANGANESE, DISSOLVED	4.95E+00	8.06E-01	3.33E-03	2210	5690	9	9	1.00	8	TRUE
KAFB-106080	MANGANESE, DISSOLVED	1.30E+00	2.18E-01	3.87E-01	3130	5330	11	11	1.00	8	FALSE
KAFB-106081	MANGANESE, DISSOLVED	-8.99E-08	-4.17E-01	1.29E-02	6	62.2	9	2	0.22	2	FALSE
KAFB-106082	MANGANESE, DISSOLVED	6.36E-01	4.29E-01	1.74E-01	611	1240	8	8	1.00	8	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106083	MANGANESE, DISSOLVED	2.07E+00	7.50E-01	6.14E-03	11.8	1230	9	9	1.00	8	TRUE
KAFB-106084	MANGANESE, DISSOLVED	NA	NA	NA	6	6	8	0	0.00	0	FALSE
KAFB-106085	MANGANESE, DISSOLVED	6.89E-01	5.71E-01	6.35E-02	95.1	604	8	8	1.00	8	FALSE
KAFB-106086	MANGANESE, DISSOLVED	9.85E-02	2.86E-01	3.86E-01	33.6	227	8	8	1.00	8	FALSE
KAFB-106087	MANGANESE, DISSOLVED	NA	NA	NA	6	6	8	0	0.00	0	FALSE
KAFB-106088	MANGANESE, DISSOLVED	-2.44E-03	-1.67E-01	5.85E-01	4.39	19.2	9	7	0.78	6	FALSE
KAFB-106089	MANGANESE, DISSOLVED	NA	NA	NA	6	6.5	12	1	0.08	1	FALSE
KAFB-106090	MANGANESE, DISSOLVED	-7.50E-02	-2.78E-01	2.14E-01	4.69	26.7	9	4	0.44	4	FALSE
KAFB-106091	MANGANESE, DISSOLVED	2.09E-02	1.39E-01	6.75E-01	5.42	49.4	9	9	1.00	8	FALSE
KAFB-106092	MANGANESE, DISSOLVED	3.09E-01	4.72E-01	9.35E-02	15.9	269	9	9	1.00	8	FALSE
KAFB-106093	MANGANESE, DISSOLVED	NA	NA	NA	6	13.1	8	1	0.13	1	FALSE
KAFB-106094	MANGANESE, DISSOLVED	5.36E-01	7.14E-01	1.87E-02	683	1040	8	8	1.00	8	TRUE
KAFB-106095	MANGANESE, DISSOLVED	-3.42E-01	-5.56E-01	2.78E-02	3.74	206	10	8	0.80	6	FALSE
KAFB-106096	MANGANESE, DISSOLVED	-7.72E-08	-2.50E-01	1.90E-01	4.21	24.6	8	2	0.25	2	FALSE
KAFB-106013	MANGANESE, DISSOLVED	1.37E-03	7.14E-02	9.02E-01	5.99	18.4	8	8	1.00	8	FALSE
KAFB-106097	MANGANESE, DISSOLVED	NA	NA	NA	3.49	6	9	1	0.11	1	FALSE
KAFB-106098	MANGANESE, DISSOLVED	NA	NA	NA	6	6	10	0	0.00	0	FALSE
KAFB-106099	MANGANESE, DISSOLVED	-1.37E-01	-4.73E-01	4.30E-03	6	26.3	11	3	0.27	2	FALSE
KAFB-106100	MANGANESE, DISSOLVED	NA	NA	NA	6	13.4	10	1	0.10	1	FALSE
KAFB-106101	MANGANESE, DISSOLVED	NA	NA	NA	6	6.09	8	1	0.13	1	FALSE
KAFB-106102	MANGANESE, DISSOLVED	NA	NA	NA	6	6	9	0	0.00	0	FALSE
KAFB-106023	MANGANESE, DISSOLVED	NA	NA	NA	6	8.64	8	1	0.13	1	FALSE
KAFB-106103	MANGANESE, DISSOLVED	NA	NA	NA	4.3	6	9	1	0.11	1	FALSE
KAFB-106104	MANGANESE, DISSOLVED	NA	NA	NA	4.45	6	9	1	0.11	1	FALSE
KAFB-106105	MANGANESE, DISSOLVED	NA	NA	NA	3.86	6	8	1	0.13	1	FALSE
KAFB-106106	MANGANESE, DISSOLVED	NA	NA	NA	6	30.4	11	2	0.18	1	FALSE
KAFB-106107	MANGANESE, DISSOLVED	-2.21E-02	-4.29E-01	1.49E-01	3.09	12	7	4	0.57	4	FALSE
KAFB-106001	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106002	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106007	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106010	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106011	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106014	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106015	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106016	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106017	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106018	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106019	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106020	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106021	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106022	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106024	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106025	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106026	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106029	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106030	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106031	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106032	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106033	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106034	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106035	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106036	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106037	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106038	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106039	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106040	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106042	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106043	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106027	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106044	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106045	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106046	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106047	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106048	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106050	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106051	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106052	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106053	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106054	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106055	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106057	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106058	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106060	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106061	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106062	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106063	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106065	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106066	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106067	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106068	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106069	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106070	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106071	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106072	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106073	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106074	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106075	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106077	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106078	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106079	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106080	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106081	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106082	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106083	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106084	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106085	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106086	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106087	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106088	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106089	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106090	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106091	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106092	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106093	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106094	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106095	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106096	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106013	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106097	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106098	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106099	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106100	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106101	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106102	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106023	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106103	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106104	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106105	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106106	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106107	3-METHYLPHENOL & 4-METHYLPHENOL	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106001	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106002	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106007	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106010	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106011	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106014	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106015	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106016	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106017	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106018	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106019	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106020	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106021	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106022	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106024	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106025	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106026	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106029	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106030	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106031	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106032	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106033	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106034	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106035	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106036	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106037	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106038	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106039	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106040	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106042	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106043	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106027	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106044	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106045	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106046	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106047	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106048	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106050	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106051	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106052	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106053	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106054	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106055	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106057	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106058	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106060	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106061	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106062	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106063	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106065	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106066	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106067	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106068	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106069	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106070	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106071	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106072	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106073	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106074	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106075	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106077	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106078	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106079	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106080	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106081	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106082	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106083	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106084	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106085	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106086	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106087	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106088	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106089	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106090	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106091	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106092	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106093	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106094	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106095	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106096	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106013	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106097	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106098	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106099	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106100	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106101	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106102	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106023	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106103	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106104	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106105	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106106	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106107	1-METHYLNAPHTHALENE	NA	NA	NA	NA	NA	0	NA	NA	NA	FALSE
KAFB-106001	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.86	8	0	0.00	0	FALSE
KAFB-106002	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.94	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106007	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.86	8	0	0.00	0	FALSE
KAFB-106010	2-METHYLNAPHTHALENE	8.21E-04	4.44E-02	9.25E-01	14.7	245	10	9	0.90	7	FALSE
KAFB-106011	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.94	9	0	0.00	0	FALSE
KAFB-106014	2-METHYLNAPHTHALENE	-2.01E-02	-7.14E-02	8.79E-01	12.8	278	8	4	0.50	4	FALSE
KAFB-106015	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106016	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106017	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.94	10	0	0.00	0	FALSE
KAFB-106018	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106019	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106020	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.86	9	0	0.00	0	FALSE
KAFB-106021	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106022	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106024	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.86	8	0	0.00	0	FALSE
KAFB-106025	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106026	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106029	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106030	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.63	10	0	0.00	0	FALSE
KAFB-106031	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.5	9	0	0.00	0	FALSE
KAFB-106032	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	8	0	0.00	0	FALSE
KAFB-106033	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	10	0	0.00	0	FALSE
KAFB-106034	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.6	8	0	0.00	0	FALSE
KAFB-106035	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106036	2-METHYLNAPHTHALENE	NA	NA	NA	2.4	2.5	8	0	0.00	0	FALSE
KAFB-106037	2-METHYLNAPHTHALENE	NA	NA	NA	2.4	2.5	8	0	0.00	0	FALSE
KAFB-106038	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.7	8	0	0.00	0	FALSE
KAFB-106039	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	10	0	0.00	0	FALSE
KAFB-106040	2-METHYLNAPHTHALENE	NA	NA	NA	2.4	2.63	9	0	0.00	0	FALSE
KAFB-106042	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.63	11	0	0.00	0	FALSE
KAFB-106043	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.7	9	0	0.00	0	FALSE
KAFB-106027	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.94	8	0	0.00	0	FALSE
KAFB-106044	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.94	9	0	0.00	0	FALSE
KAFB-106045	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106046	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106047	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106048	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	8	0	0.00	0	FALSE
KAFB-106050	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	11	0	0.00	0	FALSE
KAFB-106051	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106052	2-METHYLNAPHTHALENE	NA	NA	NA	2.4	2.63	8	0	0.00	0	FALSE
KAFB-106053	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106054	2-METHYLNAPHTHALENE	NA	NA	NA	2.4	2.63	8	0	0.00	0	FALSE
KAFB-106055	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.94	8	0	0.00	0	FALSE
KAFB-106057	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106058	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106060	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.63	11	0	0.00	0	FALSE
KAFB-106061	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.5	8	0	0.00	0	FALSE
KAFB-106062	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.63	10	0	0.00	0	FALSE
KAFB-106063	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.78	10	0	0.00	0	FALSE
KAFB-106065	2-METHYLNAPHTHALENE	-4.48E-03	-1.79E-01	5.80E-01	2.45	24.5	8	3	0.38	3	FALSE
KAFB-106066	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106067	2-METHYLNAPHTHALENE	7.62E-05	5.56E-02	8.96E-01	1.34	2.86	9	3	0.33	2	FALSE
KAFB-106068	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	5	10	0	0.00	0	FALSE
KAFB-106069	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.63	9	0	0.00	0	FALSE
KAFB-106070	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106071	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	11	0	0.00	0	FALSE
KAFB-106072	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	12	8	0	0.00	0	FALSE
KAFB-106073	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106074	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106075	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106077	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106078	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.63	7	0	0.00	0	FALSE
KAFB-106079	2-METHYLNAPHTHALENE	-2.23E-02	-1.11E-01	7.31E-01	7.85	120	9	7	0.78	6	FALSE
KAFB-106080	2-METHYLNAPHTHALENE	-1.76E-02	-3.27E-01	1.43E-01	8.79	125	11	8	0.73	6	FALSE
KAFB-106081	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106082	2-METHYLNAPHTHALENE	-1.30E-04	-3.57E-02	1.00E+00	1.62	2.45	8	3	0.38	3	FALSE
KAFB-106083	2-METHYLNAPHTHALENE	6.69E-03	4.17E-01	1.08E-01	1.57	4.89	9	4	0.44	4	FALSE
KAFB-106084	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.7	8	0	0.00	0	FALSE
KAFB-106085	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106086	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106087	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.86	8	0	0.00	0	FALSE
KAFB-106088	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106089	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.5	12	0	0.00	0	FALSE
KAFB-106090	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106091	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106092	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106093	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106094	2-METHYLNAPHTHALENE	NA	NA	NA	1.45	2.5	8	1	0.13	1	FALSE
KAFB-106095	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.5	10	0	0.00	0	FALSE
KAFB-106096	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106013	2-METHYLNAPHTHALENE	NA	NA	NA	2.38	2.78	8	0	0.00	0	FALSE
KAFB-106097	2-METHYLNAPHTHALENE	NA	NA	NA	2.4	2.78	9	0	0.00	0	FALSE
KAFB-106098	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	3.12	10	0	0.00	0	FALSE
KAFB-106099	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	5	11	0	0.00	0	FALSE
KAFB-106100	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	2.5	10	0	0.00	0	FALSE
KAFB-106101	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106102	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	3.12	9	0	0.00	0	FALSE
KAFB-106023	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.63	7	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106103	2-METHYLNAPHTHALENE	NA	NA	NA	2.34	3.12	9	0	0.00	0	FALSE
KAFB-106104	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.94	9	0	0.00	0	FALSE
KAFB-106105	2-METHYLNAPHTHALENE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106106	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.78	11	0	0.00	0	FALSE
KAFB-106107	2-METHYLNAPHTHALENE	NA	NA	NA	2.31	2.5	7	0	0.00	0	FALSE
KAFB-106001	2-METHYLPHENOL	NA	NA	NA	2.36	2.86	8	0	0.00	0	FALSE
KAFB-106002	2-METHYLPHENOL	NA	NA	NA	2.36	2.94	8	0	0.00	0	FALSE
KAFB-106007	2-METHYLPHENOL	NA	NA	NA	2.31	2.86	8	0	0.00	0	FALSE
KAFB-106010	2-METHYLPHENOL	NA	NA	NA	2.36	245	10	1	0.10	1	FALSE
KAFB-106011	2-METHYLPHENOL	NA	NA	NA	2.36	2.94	9	0	0.00	0	FALSE
KAFB-106014	2-METHYLPHENOL	NA	NA	NA	2.45	278	8	0	0.00	0	FALSE
KAFB-106015	2-METHYLPHENOL	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106016	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106017	2-METHYLPHENOL	NA	NA	NA	2.31	2.94	10	0	0.00	0	FALSE
KAFB-106018	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106019	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106020	2-METHYLPHENOL	NA	NA	NA	2.36	2.86	9	0	0.00	0	FALSE
KAFB-106021	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106022	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106024	2-METHYLPHENOL	NA	NA	NA	2.36	2.86	8	0	0.00	0	FALSE
KAFB-106025	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106026	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106029	2-METHYLPHENOL	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106030	2-METHYLPHENOL	NA	NA	NA	2.36	2.63	10	0	0.00	0	FALSE
KAFB-106031	2-METHYLPHENOL	NA	NA	NA	2.36	2.5	9	0	0.00	0	FALSE
KAFB-106032	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	8	0	0.00	0	FALSE
KAFB-106033	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	10	0	0.00	0	FALSE
KAFB-106034	2-METHYLPHENOL	NA	NA	NA	2.31	2.6	8	0	0.00	0	FALSE
KAFB-106035	2-METHYLPHENOL	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106036	2-METHYLPHENOL	NA	NA	NA	2.4	2.5	8	0	0.00	0	FALSE
KAFB-106037	2-METHYLPHENOL	NA	NA	NA	2.4	2.5	8	0	0.00	0	FALSE
KAFB-106038	2-METHYLPHENOL	NA	NA	NA	2.36	2.7	8	0	0.00	0	FALSE
KAFB-106039	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	10	0	0.00	0	FALSE
KAFB-106040	2-METHYLPHENOL	NA	NA	NA	2.4	2.63	9	0	0.00	0	FALSE
KAFB-106042	2-METHYLPHENOL	NA	NA	NA	2.36	2.63	11	0	0.00	0	FALSE
KAFB-106043	2-METHYLPHENOL	NA	NA	NA	2.34	2.7	9	0	0.00	0	FALSE
KAFB-106027	2-METHYLPHENOL	NA	NA	NA	2.31	2.94	8	0	0.00	0	FALSE
KAFB-106044	2-METHYLPHENOL	NA	NA	NA	2.34	2.94	9	0	0.00	0	FALSE
KAFB-106045	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106046	2-METHYLPHENOL	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106047	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106048	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	8	0	0.00	0	FALSE
KAFB-106050	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	11	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106051	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106052	2-METHYLPHENOL	NA	NA	NA	2.4	2.63	8	0	0.00	0	FALSE
KAFB-106053	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106054	2-METHYLPHENOL	NA	NA	NA	2.4	2.63	8	0	0.00	0	FALSE
KAFB-106055	2-METHYLPHENOL	NA	NA	NA	2.34	2.94	8	0	0.00	0	FALSE
KAFB-106057	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106058	2-METHYLPHENOL	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106060	2-METHYLPHENOL	NA	NA	NA	2.36	2.63	11	0	0.00	0	FALSE
KAFB-106061	2-METHYLPHENOL	NA	NA	NA	2.34	2.5	8	0	0.00	0	FALSE
KAFB-106062	2-METHYLPHENOL	NA	NA	NA	2.36	2.63	10	0	0.00	0	FALSE
KAFB-106063	2-METHYLPHENOL	NA	NA	NA	2.34	2.78	10	0	0.00	0	FALSE
KAFB-106065	2-METHYLPHENOL	NA	NA	NA	2.31	24.5	8	0	0.00	0	FALSE
KAFB-106066	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106067	2-METHYLPHENOL	NA	NA	NA	2.31	2.86	9	0	0.00	0	FALSE
KAFB-106068	2-METHYLPHENOL	NA	NA	NA	2.36	5	10	0	0.00	0	FALSE
KAFB-106069	2-METHYLPHENOL	NA	NA	NA	2.34	2.63	9	0	0.00	0	FALSE
KAFB-106070	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106071	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	11	0	0.00	0	FALSE
KAFB-106072	2-METHYLPHENOL	NA	NA	NA	2.31	12	8	0	0.00	0	FALSE
KAFB-106073	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106074	2-METHYLPHENOL	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106075	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106077	2-METHYLPHENOL	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106078	2-METHYLPHENOL	NA	NA	NA	2.36	2.63	7	0	0.00	0	FALSE
KAFB-106079	2-METHYLPHENOL	-6.51E-01	-3.33E-01	1.85E-01	2.36	130	9	2	0.22	2	FALSE
KAFB-106080	2-METHYLPHENOL	NA	NA	NA	2.36	125	11	0	0.00	0	FALSE
KAFB-106081	2-METHYLPHENOL	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106082	2-METHYLPHENOL	NA	NA	NA	2.31	2.7	8	0	0.00	0	FALSE
KAFB-106083	2-METHYLPHENOL	7.28E-04	2.78E-02	1.00E+00	1.59	2.78	9	2	0.22	2	FALSE
KAFB-106084	2-METHYLPHENOL	NA	NA	NA	2.36	2.7	8	0	0.00	0	FALSE
KAFB-106085	2-METHYLPHENOL	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106086	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106087	2-METHYLPHENOL	NA	NA	NA	2.34	2.86	8	0	0.00	0	FALSE
KAFB-106088	2-METHYLPHENOL	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106089	2-METHYLPHENOL	NA	NA	NA	2.31	2.5	12	0	0.00	0	FALSE
KAFB-106090	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106091	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106092	2-METHYLPHENOL	-1.91E-02	-1.67E-01	5.09E-01	1.36	7.43	9	2	0.22	2	FALSE
KAFB-106093	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106094	2-METHYLPHENOL	NA	NA	NA	2.31	2.5	8	0	0.00	0	FALSE
KAFB-106095	2-METHYLPHENOL	NA	NA	NA	2.36	2.5	10	0	0.00	0	FALSE
KAFB-106096	2-METHYLPHENOL	NA	NA	NA	2.36	6.73	8	1	0.13	1	FALSE
KAFB-106013	2-METHYLPHENOL	NA	NA	NA	2.38	2.78	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106097	2-METHYLPHENOL	NA	NA	NA	2.4	2.78	9	0	0.00	0	FALSE
KAFB-106098	2-METHYLPHENOL	NA	NA	NA	2.36	3.12	10	0	0.00	0	FALSE
KAFB-106099	2-METHYLPHENOL	NA	NA	NA	2.34	5	11	0	0.00	0	FALSE
KAFB-106100	2-METHYLPHENOL	NA	NA	NA	2.34	2.5	10	0	0.00	0	FALSE
KAFB-106101	2-METHYLPHENOL	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106102	2-METHYLPHENOL	NA	NA	NA	2.31	3.12	9	0	0.00	0	FALSE
KAFB-106023	2-METHYLPHENOL	NA	NA	NA	2.31	2.63	7	0	0.00	0	FALSE
KAFB-106103	2-METHYLPHENOL	NA	NA	NA	2.34	3.12	9	0	0.00	0	FALSE
KAFB-106104	2-METHYLPHENOL	NA	NA	NA	2.36	2.94	9	0	0.00	0	FALSE
KAFB-106105	2-METHYLPHENOL	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106106	2-METHYLPHENOL	NA	NA	NA	2.31	2.78	11	0	0.00	0	FALSE
KAFB-106107	2-METHYLPHENOL	NA	NA	NA	2.31	2.5	7	0	0.00	0	FALSE
KAFB-106001	ACETOPHENONE	NA	NA	NA	2.36	2.86	8	0	0.00	0	FALSE
KAFB-106002	ACETOPHENONE	NA	NA	NA	2.36	2.94	8	0	0.00	0	FALSE
KAFB-106007	ACETOPHENONE	NA	NA	NA	2.31	2.86	8	0	0.00	0	FALSE
KAFB-106010	ACETOPHENONE	-1.90E+00	-3.33E-01	2.07E-01	2990	7070	10	10	1.00	8	FALSE
KAFB-106011	ACETOPHENONE	NA	NA	NA	2.36	2.94	9	0	0.00	0	FALSE
KAFB-106014	ACETOPHENONE	1.31E+00	7.14E-02	9.02E-01	1930	8910	8	8	1.00	8	FALSE
KAFB-106015	ACETOPHENONE	NA	NA	NA	2.36	6.65	8	1	0.13	1	FALSE
KAFB-106016	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106017	ACETOPHENONE	NA	NA	NA	2.13	2.94	10	2	0.20	1	FALSE
KAFB-106018	ACETOPHENONE	NA	NA	NA	1.34	2.78	10	1	0.10	1	FALSE
KAFB-106019	ACETOPHENONE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106020	ACETOPHENONE	NA	NA	NA	2.36	2.86	9	0	0.00	0	FALSE
KAFB-106021	ACETOPHENONE	NA	NA	NA	2.1	2.78	9	1	0.11	1	FALSE
KAFB-106022	ACETOPHENONE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106024	ACETOPHENONE	NA	NA	NA	2.36	2.86	8	0	0.00	0	FALSE
KAFB-106025	ACETOPHENONE	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106026	ACETOPHENONE	NA	NA	NA	2.31	2.78	10	0	0.00	0	FALSE
KAFB-106029	ACETOPHENONE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106030	ACETOPHENONE	NA	NA	NA	2.36	2.63	10	0	0.00	0	FALSE
KAFB-106031	ACETOPHENONE	NA	NA	NA	2.36	2.5	9	0	0.00	0	FALSE
KAFB-106032	ACETOPHENONE	NA	NA	NA	2.31	2.63	8	0	0.00	0	FALSE
KAFB-106033	ACETOPHENONE	NA	NA	NA	2.31	2.63	10	0	0.00	0	FALSE
KAFB-106034	ACETOPHENONE	NA	NA	NA	2.31	2.6	8	0	0.00	0	FALSE
KAFB-106035	ACETOPHENONE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106036	ACETOPHENONE	NA	NA	NA	2.4	2.5	8	0	0.00	0	FALSE
KAFB-106037	ACETOPHENONE	NA	NA	NA	2.4	2.5	8	0	0.00	0	FALSE
KAFB-106038	ACETOPHENONE	NA	NA	NA	2.36	2.7	8	0	0.00	0	FALSE
KAFB-106039	ACETOPHENONE	NA	NA	NA	2.36	2.78	10	0	0.00	0	FALSE
KAFB-106040	ACETOPHENONE	NA	NA	NA	2.4	2.63	9	0	0.00	0	FALSE
KAFB-106042	ACETOPHENONE	NA	NA	NA	2.36	2.63	11	0	0.00	0	FALSE
KAFB-106043	ACETOPHENONE	NA	NA	NA	2.34	2.7	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106027	ACETOPHENONE	NA	NA	NA	2.31	2.94	8	0	0.00	0	FALSE
KAFB-106044	ACETOPHENONE	NA	NA	NA	2.34	2.94	9	0	0.00	0	FALSE
KAFB-106045	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106046	ACETOPHENONE	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106047	ACETOPHENONE	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106048	ACETOPHENONE	NA	NA	NA	2.31	2.78	8	0	0.00	0	FALSE
KAFB-106050	ACETOPHENONE	NA	NA	NA	2.31	2.63	11	0	0.00	0	FALSE
KAFB-106051	ACETOPHENONE	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106052	ACETOPHENONE	NA	NA	NA	2.4	2.63	8	0	0.00	0	FALSE
KAFB-106053	ACETOPHENONE	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106054	ACETOPHENONE	NA	NA	NA	2.4	2.63	8	0	0.00	0	FALSE
KAFB-106055	ACETOPHENONE	NA	NA	NA	2.34	2.94	8	0	0.00	0	FALSE
KAFB-106057	ACETOPHENONE	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106058	ACETOPHENONE	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106060	ACETOPHENONE	NA	NA	NA	2.36	2.63	11	0	0.00	0	FALSE
KAFB-106061	ACETOPHENONE	NA	NA	NA	2.34	2.5	8	0	0.00	0	FALSE
KAFB-106062	ACETOPHENONE	NA	NA	NA	2.36	2.63	10	0	0.00	0	FALSE
KAFB-106063	ACETOPHENONE	NA	NA	NA	2.34	2.78	10	0	0.00	0	FALSE
KAFB-106065	ACETOPHENONE	-1.44E+00	-4.64E-01	9.08E-02	2.45	123	8	2	0.25	2	FALSE
KAFB-106066	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106067	ACETOPHENONE	-1.83E-03	-1.11E-01	7.40E-01	1.76	6.8	9	6	0.67	5	FALSE
KAFB-106068	ACETOPHENONE	NA	NA	NA	2.36	5	10	0	0.00	0	FALSE
KAFB-106069	ACETOPHENONE	NA	NA	NA	2.34	2.63	9	0	0.00	0	FALSE
KAFB-106070	ACETOPHENONE	NA	NA	NA	2.31	2.63	9	0	0.00	0	FALSE
KAFB-106071	ACETOPHENONE	NA	NA	NA	2.31	2.63	11	0	0.00	0	FALSE
KAFB-106072	ACETOPHENONE	NA	NA	NA	2.31	12	8	0	0.00	0	FALSE
KAFB-106073	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106074	ACETOPHENONE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106075	ACETOPHENONE	NA	NA	NA	2.36	2.78	9	0	0.00	0	FALSE
KAFB-106077	ACETOPHENONE	NA	NA	NA	2.31	5.9	9	1	0.11	1	FALSE
KAFB-106078	ACETOPHENONE	NA	NA	NA	2.36	2.63	7	0	0.00	0	FALSE
KAFB-106079	ACETOPHENONE	-5.96E+00	-8.06E-01	3.16E-03	9.91	4710	9	8	0.89	8	FALSE
KAFB-106080	ACETOPHENONE	-4.91E-01	-7.45E-01	1.41E-03	16.1	373	11	10	0.91	7	FALSE
KAFB-106081	ACETOPHENONE	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106082	ACETOPHENONE	-5.49E-03	-4.29E-01	1.39E-01	2.18	5.4	8	4	0.50	4	FALSE
KAFB-106083	ACETOPHENONE	2.98E-03	1.67E-01	5.56E-01	2.31	5.71	9	3	0.33	2	FALSE
KAFB-106084	ACETOPHENONE	NA	NA	NA	2.36	2.7	8	0	0.00	0	FALSE
KAFB-106085	ACETOPHENONE	NA	NA	NA	2.34	2.78	8	0	0.00	0	FALSE
KAFB-106086	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106087	ACETOPHENONE	NA	NA	NA	2.34	2.86	8	0	0.00	0	FALSE
KAFB-106088	ACETOPHENONE	NA	NA	NA	2.31	2.5	9	0	0.00	0	FALSE
KAFB-106089	ACETOPHENONE	NA	NA	NA	2.31	2.5	12	0	0.00	0	FALSE
KAFB-106090	ACETOPHENONE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106091	ACETOPHENONE	NA	NA	NA	2.31	5.63	9	1	0.11	1	FALSE
KAFB-106092	ACETOPHENONE	NA	NA	NA	2.31	2.78	9	0	0.00	0	FALSE
KAFB-106093	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106094	ACETOPHENONE	-1.32E-01	-5.00E-01	6.96E-02	1.33	84.9	8	4	0.50	4	FALSE
KAFB-106095	ACETOPHENONE	NA	NA	NA	2.36	2.5	10	0	0.00	0	FALSE
KAFB-106096	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	1	0.13	1	FALSE
KAFB-106013	ACETOPHENONE	NA	NA	NA	2.38	5.44	8	1	0.13	1	FALSE
KAFB-106097	ACETOPHENONE	NA	NA	NA	2.4	2.78	9	0	0.00	0	FALSE
KAFB-106098	ACETOPHENONE	NA	NA	NA	2.36	3.12	10	0	0.00	0	FALSE
KAFB-106099	ACETOPHENONE	NA	NA	NA	2.34	5	11	0	0.00	0	FALSE
KAFB-106100	ACETOPHENONE	NA	NA	NA	2.34	2.5	10	0	0.00	0	FALSE
KAFB-106101	ACETOPHENONE	NA	NA	NA	2.36	2.78	8	0	0.00	0	FALSE
KAFB-106102	ACETOPHENONE	NA	NA	NA	2.31	3.12	9	0	0.00	0	FALSE
KAFB-106023	ACETOPHENONE	NA	NA	NA	2.31	2.63	7	0	0.00	0	FALSE
KAFB-106103	ACETOPHENONE	NA	NA	NA	2.34	3.12	9	0	0.00	0	FALSE
KAFB-106104	ACETOPHENONE	NA	NA	NA	2.36	2.94	9	0	0.00	0	FALSE
KAFB-106105	ACETOPHENONE	NA	NA	NA	2.36	2.5	8	0	0.00	0	FALSE
KAFB-106106	ACETOPHENONE	NA	NA	NA	2.31	2.78	11	0	0.00	0	FALSE
KAFB-106107	ACETOPHENONE	NA	NA	NA	2.31	2.5	7	0	0.00	0	FALSE
KAFB-106001	DRO	NA	NA	NA	0.1	0.229	8	1	0.13	1	FALSE
KAFB-106002	DRO	NA	NA	NA	0.0943	0.235	8	0	0.00	0	FALSE
KAFB-106007	DRO	NA	NA	NA	0.0926	0.222	8	1	0.13	1	FALSE
KAFB-106010	DRO	4.66E-03	2.22E-02	1.00E+00	24.7	84.3	10	10	1.00	8	FALSE
KAFB-106011	DRO	NA	NA	NA	0.0943	0.235	9	0	0.00	0	FALSE
KAFB-106014	DRO	2.56E-02	4.29E-01	1.67E-01	22.1	57.1	8	8	1.00	8	FALSE
KAFB-106015	DRO	NA	NA	NA	0.098	1.37	8	1	0.13	1	FALSE
KAFB-106016	DRO	NA	NA	NA	0.0962	0.222	8	0	0.00	0	FALSE
KAFB-106017	DRO	1.77E-03	8.22E-01	8.74E-04	0.0926	0.754	10	6	0.60	4	TRUE
KAFB-106018	DRO	-7.57E-04	-1.56E-01	5.89E-01	0.719	2.22	10	10	1.00	8	FALSE
KAFB-106019	DRO	NA	NA	NA	0.0926	0.235	9	0	0.00	0	FALSE
KAFB-106020	DRO	NA	NA	NA	0.0943	0.222	9	0	0.00	0	FALSE
KAFB-106021	DRO	NA	NA	NA	0.0926	0.222	9	0	0.00	0	FALSE
KAFB-106022	DRO	1.01E-04	4.72E-01	7.36E-02	0.0943	0.196	9	5	0.56	5	FALSE
KAFB-106024	DRO	NA	NA	NA	0.0943	0.229	8	0	0.00	0	FALSE
KAFB-106025	DRO	NA	NA	NA	0.0926	0.229	10	0	0.00	0	FALSE
KAFB-106026	DRO	NA	NA	NA	0.0935	0.216	10	0	0.00	0	FALSE
KAFB-106029	DRO	NA	NA	NA	0.0943	0.222	8	0	0.00	0	FALSE
KAFB-106030	DRO	NA	NA	NA	0.0943	0.235	10	0	0.00	0	FALSE
KAFB-106031	DRO	NA	NA	NA	0.0943	0.211	9	0	0.00	0	FALSE
KAFB-106032	DRO	NA	NA	NA	0.0943	0.2	8	1	0.13	1	FALSE
KAFB-106033	DRO	NA	NA	NA	0.0943	0.211	10	1	0.10	1	FALSE
KAFB-106034	DRO	NA	NA	NA	0.0962	0.195	8	1	0.13	1	FALSE
KAFB-106035	DRO	NA	NA	NA	0.0962	0.2	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106036	DRO	NA	NA	NA	0.0962	0.2	8	0	0.00	0	FALSE
KAFB-106037	DRO	NA	NA	NA	0.0962	0.2	8	0	0.00	0	FALSE
KAFB-106038	DRO	NA	NA	NA	0.0935	0.222	8	0	0.00	0	FALSE
KAFB-106039	DRO	NA	NA	NA	0.0962	0.222	10	0	0.00	0	FALSE
KAFB-106040	DRO	NA	NA	NA	0.0962	0.2	9	0	0.00	0	FALSE
KAFB-106042	DRO	1.16E-04	4.00E-01	8.01E-02	0.112	0.235	11	9	0.82	6	FALSE
KAFB-106043	DRO	NA	NA	NA	0.0926	0.222	9	0	0.00	0	FALSE
KAFB-106027	DRO	NA	NA	NA	0.0943	0.2	8	0	0.00	0	FALSE
KAFB-106044	DRO	NA	NA	NA	0.0962	0.211	9	0	0.00	0	FALSE
KAFB-106045	DRO	NA	NA	NA	0.0943	0.2	8	0	0.00	0	FALSE
KAFB-106046	DRO	NA	NA	NA	0.0943	0.222	8	0	0.00	0	FALSE
KAFB-106047	DRO	NA	NA	NA	0.0962	0.222	9	0	0.00	0	FALSE
KAFB-106048	DRO	NA	NA	NA	0.0935	0.222	8	0	0.00	0	FALSE
KAFB-106050	DRO	NA	NA	NA	0.0962	0.2	11	0	0.00	0	FALSE
KAFB-106051	DRO	NA	NA	NA	0.0962	0.192	9	0	0.00	0	FALSE
KAFB-106052	DRO	NA	NA	NA	0.0962	0.222	8	0	0.00	0	FALSE
KAFB-106053	DRO	NA	NA	NA	0.098	0.229	9	1	0.11	1	FALSE
KAFB-106054	DRO	NA	NA	NA	0.0935	0.222	8	0	0.00	0	FALSE
KAFB-106055	DRO	-7.05E-05	-7.14E-02	8.84E-01	0.0956	0.24	8	3	0.38	3	FALSE
KAFB-106057	DRO	1.06E-04	1.39E-01	6.49E-01	0.0962	0.222	9	5	0.56	4	FALSE
KAFB-106058	DRO	NA	NA	NA	0.0962	0.235	8	1	0.13	1	FALSE
KAFB-106060	DRO	-1.02E-03	-3.64E-02	9.27E-01	0.0943	0.571	11	2	0.18	2	FALSE
KAFB-106061	DRO	NA	NA	NA	0.0962	0.211	8	1	0.13	1	FALSE
KAFB-106062	DRO	NA	NA	NA	0.0971	0.222	10	0	0.00	0	FALSE
KAFB-106063	DRO	8.37E-04	2.89E-01	2.09E-01	0.0952	0.332	10	2	0.20	2	FALSE
KAFB-106065	DRO	-8.26E-03	-3.57E-01	2.66E-01	1.46	15	8	8	1.00	8	FALSE
KAFB-106066	DRO	NA	NA	NA	0.0962	0.222	8	0	0.00	0	FALSE
KAFB-106067	DRO	3.54E-03	4.72E-01	9.35E-02	0.0962	4.01	9	8	0.89	7	FALSE
KAFB-106068	DRO	NA	NA	NA	0.0935	0.235	10	0	0.00	0	FALSE
KAFB-106069	DRO	3.21E-04	2.22E-01	3.78E-01	0.0926	0.211	9	2	0.22	2	FALSE
KAFB-106070	DRO	1.43E-04	8.33E-02	8.34E-01	0.282	1.14	9	9	1.00	8	FALSE
KAFB-106071	DRO	NA	NA	NA	0.0935	0.222	11	0	0.00	0	FALSE
KAFB-106072	DRO	-8.35E-04	-2.14E-01	5.36E-01	0.124	1.69	8	8	1.00	8	FALSE
KAFB-106073	DRO	4.49E-03	8.21E-01	5.33E-03	0.0935	1.94	8	5	0.63	5	TRUE
KAFB-106074	DRO	NA	NA	NA	0.0943	0.196	8	0	0.00	0	FALSE
KAFB-106075	DRO	-1.16E-03	-2.22E-01	4.45E-01	0.0962	1.61	9	6	0.67	5	FALSE
KAFB-106077	DRO	NA	NA	NA	0.0943	0.222	9	0	0.00	0	FALSE
KAFB-106078	DRO	NA	NA	NA	0.0935	0.211	7	1	0.14	1	FALSE
KAFB-106079	DRO	-1.42E-02	-1.39E-01	6.75E-01	3.54	98.6	9	9	1.00	8	FALSE
KAFB-106080	DRO	-1.97E-03	-3.64E-02	9.37E-01	8.56	21.7	11	11	1.00	8	FALSE
KAFB-106081	DRO	NA	NA	NA	0.0943	0.249	9	1	0.11	1	FALSE
KAFB-106082	DRO	-2.66E-03	-7.14E-02	9.02E-01	2.05	7.47	8	8	1.00	8	FALSE
KAFB-106083	DRO	1.20E-02	9.17E-01	7.95E-04	0.491	9.69	9	9	1.00	8	TRUE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106084	DRO	NA	NA	NA	0.0943	0.506	8	1	0.13	1	FALSE
KAFB-106085	DRO	-4.17E-05	0.00E+00	1.00E+00	0.0935	1.88	8	7	0.88	7	FALSE
KAFB-106086	DRO	4.25E-04	2.86E-01	3.86E-01	0.322	1.23	8	8	1.00	8	FALSE
KAFB-106087	DRO	NA	NA	NA	0.0943	0.222	8	0	0.00	0	FALSE
KAFB-106088	DRO	NA	NA	NA	0.0962	0.211	9	0	0.00	0	FALSE
KAFB-106089	DRO	NA	NA	NA	0.0962	0.2	12	0	0.00	0	FALSE
KAFB-106090	DRO	NA	NA	NA	0.0943	0.2	9	0	0.00	0	FALSE
KAFB-106091	DRO	-5.72E-04	-5.83E-01	3.60E-02	0.74	1.72	9	9	1.00	8	FALSE
KAFB-106092	DRO	-3.66E-03	-5.28E-01	5.92E-02	0.77	3.18	9	9	1.00	8	FALSE
KAFB-106093	DRO	NA	NA	NA	0.0943	0.222	8	0	0.00	0	FALSE
KAFB-106094	DRO	6.20E-04	0.00E+00	1.00E+00	2.01	13.1	8	8	1.00	8	FALSE
KAFB-106095	DRO	-1.58E-03	-2.44E-01	3.59E-01	0.0962	1.65	10	7	0.70	5	FALSE
KAFB-106096	DRO	NA	NA	NA	0.0943	3.79	8	1	0.13	1	FALSE
KAFB-106013	DRO	-1.70E-05	-7.14E-02	8.84E-01	0.0943	0.2	8	3	0.38	3	FALSE
KAFB-106097	DRO	NA	NA	NA	0.0952	0.235	9	0	0.00	0	FALSE
KAFB-106098	DRO	NA	NA	NA	0.0935	0.25	10	0	0.00	0	FALSE
KAFB-106099	DRO	NA	NA	NA	0.0943	0.211	11	0	0.00	0	FALSE
KAFB-106100	DRO	NA	NA	NA	0.0935	0.25	10	0	0.00	0	FALSE
KAFB-106101	DRO	NA	NA	NA	0.0962	0.25	8	1	0.13	1	FALSE
KAFB-106102	DRO	NA	NA	NA	0.0943	0.25	9	0	0.00	0	FALSE
KAFB-106023	DRO	NA	NA	NA	0.0943	0.211	8	0	0.00	0	FALSE
KAFB-106103	DRO	NA	NA	NA	0.0962	0.211	9	1	0.11	1	FALSE
KAFB-106104	DRO	NA	NA	NA	0.0943	0.2	9	0	0.00	0	FALSE
KAFB-106105	DRO	NA	NA	NA	0.098	0.2	8	0	0.00	0	FALSE
KAFB-106106	DRO	NA	NA	NA	0.0943	0.2	11	0	0.00	0	FALSE
KAFB-106107	DRO	NA	NA	NA	0.0962	0.196	7	0	0.00	0	FALSE
KAFB-106001	GRO	4.78E-05	1.43E-01	6.93E-01	0.0949	0.165	8	5	0.63	5	FALSE
KAFB-106002	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106007	GRO	NA	NA	NA	0.1	0.184	8	1	0.13	1	FALSE
KAFB-106010	GRO	-2.30E-02	-3.11E-01	2.39E-01	21.3	58.3	10	10	1.00	8	FALSE
KAFB-106011	GRO	-3.22E-04	-4.17E-01	9.84E-02	0.0999	13	9	5	0.56	4	FALSE
KAFB-106014	GRO	3.04E-02	2.14E-01	5.36E-01	20.3	72.1	8	8	1.00	8	FALSE
KAFB-106015	GRO	NA	NA	NA	0.1	0.113	8	1	0.13	1	FALSE
KAFB-106016	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106017	GRO	6.15E-04	9.33E-01	2.06E-04	0.1	0.415	10	8	0.80	6	TRUE
KAFB-106018	GRO	-6.41E-04	-4.22E-01	1.05E-01	0.166	0.742	10	10	1.00	8	FALSE
KAFB-106019	GRO	-9.35E-05	-5.56E-01	4.52E-02	0.0715	0.205	9	9	1.00	8	FALSE
KAFB-106020	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106021	GRO	-1.88E-04	-1.39E-01	5.84E-01	0.0521	0.134	9	4	0.44	4	FALSE
KAFB-106022	GRO	-4.61E-06	-2.78E-02	1.00E+00	0.0624	0.1	9	4	0.44	3	FALSE
KAFB-106024	GRO	2.52E-05	3.57E-02	1.00E+00	0.0551	0.1	8	2	0.25	2	FALSE
KAFB-106025	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE
KAFB-106026	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106029	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106030	GRO	NA	NA	NA	0.0517	0.1	10	1	0.10	1	FALSE
KAFB-106031	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106032	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106033	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE
KAFB-106034	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106035	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106036	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106037	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106038	GRO	NA	NA	NA	0.0519	0.1	8	1	0.13	1	FALSE
KAFB-106039	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE
KAFB-106040	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106042	GRO	-3.88E-04	-5.45E-01	9.11E-03	0.1	0.224	11	5	0.45	3	FALSE
KAFB-106043	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106027	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106044	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106045	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106046	GRO	7.47E-05	1.43E-01	6.57E-01	0.0655	0.198	8	4	0.50	4	FALSE
KAFB-106047	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106048	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106050	GRO	NA	NA	NA	0.1	0.1	11	0	0.00	0	FALSE
KAFB-106051	GRO	NA	NA	NA	0.0634	0.1	9	1	0.11	1	FALSE
KAFB-106052	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106053	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106054	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106055	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106057	GRO	NA	NA	NA	0.0954	0.1	9	1	0.11	1	FALSE
KAFB-106058	GRO	NA	NA	NA	0.0538	0.1	8	1	0.13	1	FALSE
KAFB-106060	GRO	NA	NA	NA	0.0895	0.1	11	1	0.09	1	FALSE
KAFB-106061	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106062	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE
KAFB-106063	GRO	NA	NA	NA	0.0532	0.1	10	1	0.10	1	FALSE
KAFB-106065	GRO	-3.61E-03	-4.29E-01	1.74E-01	0.266	6.76	8	8	1.00	8	FALSE
KAFB-106066	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106067	GRO	1.92E-04	8.33E-02	8.34E-01	0.1	1.77	9	8	0.89	7	FALSE
KAFB-106068	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE
KAFB-106069	GRO	NA	NA	NA	0.098	0.1	9	1	0.11	1	FALSE
KAFB-106070	GRO	-4.81E-05	-1.67E-01	5.98E-01	0.0672	0.336	9	8	0.89	7	FALSE
KAFB-106071	GRO	NA	NA	NA	0.1	0.1	11	0	0.00	0	FALSE
KAFB-106072	GRO	-6.44E-04	-5.00E-01	1.02E-01	0.0566	0.602	8	7	0.88	7	FALSE
KAFB-106073	GRO	9.80E-04	7.50E-01	1.13E-02	0.06	0.528	8	6	0.75	6	TRUE
KAFB-106074	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106075	GRO	-5.38E-04	-2.22E-01	3.35E-01	0.1	0.352	9	3	0.33	2	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106077	GRO	-4.11E-04	-2.22E-01	1.59E-01	0.0611	0.133	9	2	0.22	2	FALSE
KAFB-106078	GRO	NA	NA	NA	0.1	0.1	7	0	0.00	0	FALSE
KAFB-106079	GRO	-2.29E-02	-2.50E-01	4.02E-01	1.37	38.6	9	9	1.00	8	FALSE
KAFB-106080	GRO	-1.74E-02	-6.00E-01	1.17E-02	4.24	27.1	11	11	1.00	8	FALSE
KAFB-106081	GRO	NA	NA	NA	0.1	0.317	9	1	0.11	1	FALSE
KAFB-106082	GRO	1.46E-04	1.43E-01	7.11E-01	0.89	1.42	8	8	1.00	8	FALSE
KAFB-106083	GRO	4.41E-03	8.06E-01	3.17E-03	0.485	3.02	9	9	1.00	8	TRUE
KAFB-106084	GRO	NA	NA	NA	0.063	0.1	8	1	0.13	1	FALSE
KAFB-106085	GRO	-2.02E-04	-1.07E-01	8.03E-01	0.0891	0.653	8	7	0.88	7	FALSE
KAFB-106086	GRO	-2.29E-04	-3.57E-01	2.66E-01	0.136	0.38	8	8	1.00	8	FALSE
KAFB-106087	GRO	NA	NA	NA	0.1	0.136	8	1	0.13	1	FALSE
KAFB-106088	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106089	GRO	NA	NA	NA	0.1	0.1	12	0	0.00	0	FALSE
KAFB-106090	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106091	GRO	-3.25E-04	-5.28E-01	5.92E-02	0.332	0.596	9	9	1.00	8	FALSE
KAFB-106092	GRO	-1.74E-03	-3.06E-01	2.95E-01	0.397	1.72	9	9	1.00	8	FALSE
KAFB-106093	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106094	GRO	-9.79E-04	-1.43E-01	7.11E-01	0.316	2.2	8	8	1.00	8	FALSE
KAFB-106095	GRO	-7.45E-04	-5.11E-01	2.81E-02	0.1	0.293	10	5	0.50	3	FALSE
KAFB-106096	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106013	GRO	NA	NA	NA	0.1	0.478	8	1	0.13	1	FALSE
KAFB-106097	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106098	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE
KAFB-106099	GRO	NA	NA	NA	0.1	0.1	11	0	0.00	0	FALSE
KAFB-106100	GRO	NA	NA	NA	0.1	0.1	10	0	0.00	0	FALSE
KAFB-106101	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106102	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106023	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106103	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106104	GRO	NA	NA	NA	0.1	0.1	9	0	0.00	0	FALSE
KAFB-106105	GRO	NA	NA	NA	0.1	0.1	8	0	0.00	0	FALSE
KAFB-106106	GRO	NA	NA	NA	0.1	0.1	11	0	0.00	0	FALSE
KAFB-106107	GRO	NA	NA	NA	0.1	0.1	7	0	0.00	0	FALSE
KAFB-106001	ETHYLBENZENE	9.53E-04	1.43E-01	6.70E-01	0.34	1.07	8	4	0.50	4	FALSE
KAFB-106002	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	ETHYLBENZENE	-3.73E-01	-1.56E-01	5.89E-01	673	1760	10	10	1.00	8	FALSE
KAFB-106011	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106014	ETHYLBENZENE	-4.15E-01	-7.14E-02	9.02E-01	705	1840	8	8	1.00	8	FALSE
KAFB-106015	ETHYLBENZENE	NA	NA	NA	0.5	1.25	8	1	0.13	1	FALSE
KAFB-106016	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	ETHYLBENZENE	NA	NA	NA	0.5	2.5	10	0	0.00	0	FALSE
KAFB-106018	ETHYLBENZENE	-2.41E-03	-2.44E-01	2.98E-01	0.27	2.5	10	6	0.60	5	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106019	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106020	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	ETHYLBENZENE	NA	NA	NA	0.336	0.5	9	2	0.22	1	FALSE
KAFB-106022	ETHYLBENZENE	-8.74E-03	-1.11E-01	5.46E-01	0.25	3.75	9	2	0.22	2	FALSE
KAFB-106024	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	ETHYLBENZENE	NA	NA	NA	0.26	0.5	8	1	0.13	1	FALSE
KAFB-106030	ETHYLBENZENE	NA	NA	NA	0.48	0.5	10	1	0.10	1	FALSE
KAFB-106031	ETHYLBENZENE	NA	NA	NA	0.27	0.5	9	1	0.11	1	FALSE
KAFB-106032	ETHYLBENZENE	NA	NA	NA	0.5	0.937	8	1	0.13	1	FALSE
KAFB-106033	ETHYLBENZENE	NA	NA	NA	0.5	0.818	10	1	0.10	1	FALSE
KAFB-106034	ETHYLBENZENE	NA	NA	NA	0.5	0.696	8	1	0.13	1	FALSE
KAFB-106035	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	ETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106043	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	ETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	ETHYLBENZENE	NA	NA	NA	0.323	0.5	8	1	0.13	1	FALSE
KAFB-106057	ETHYLBENZENE	NA	NA	NA	0.402	0.5	9	1	0.11	1	FALSE
KAFB-106058	ETHYLBENZENE	NA	NA	NA	0.5	0.902	8	1	0.13	1	FALSE
KAFB-106060	ETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	ETHYLBENZENE	NA	NA	NA	0.5	1.77	8	1	0.13	1	FALSE
KAFB-106062	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	ETHYLBENZENE	-6.52E-02	-3.57E-01	2.66E-01	6.65	88.2	8	8	1.00	8	FALSE
KAFB-106066	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	ETHYLBENZENE	1.93E-01	4.17E-01	1.42E-01	0.61	205	9	9	1.00	8	FALSE
KAFB-106068	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106069	ETHYLBENZENE	-9.58E-04	-5.28E-01	1.31E-02	0.5	0.758	9	3	0.33	3	FALSE
KAFB-106070	ETHYLBENZENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106071	ETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	ETHYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106073	ETHYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	ETHYLBENZENE	NA	NA	NA	0.277	2.5	9	1	0.11	1	FALSE
KAFB-106077	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	ETHYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	ETHYLBENZENE	3.53E-01	1.39E-01	6.75E-01	143	1470	9	9	1.00	8	FALSE
KAFB-106080	ETHYLBENZENE	-4.92E-01	-1.45E-01	5.82E-01	361	1230	11	11	1.00	8	FALSE
KAFB-106081	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	ETHYLBENZENE	-1.57E-02	-2.14E-01	4.77E-01	0.461	7.71	8	4	0.50	4	FALSE
KAFB-106083	ETHYLBENZENE	6.87E-03	2.50E-01	3.68E-01	0.279	5.38	9	6	0.67	5	FALSE
KAFB-106084	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	ETHYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106086	ETHYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106087	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	ETHYLBENZENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	ETHYLBENZENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106092	ETHYLBENZENE	NA	NA	NA	0.5	2.5	9	1	0.11	1	FALSE
KAFB-106093	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	ETHYLBENZENE	-2.23E-02	-3.21E-01	2.78E-01	1.35	11.9	8	5	0.63	5	FALSE
KAFB-106095	ETHYLBENZENE	NA	NA	NA	0.388	0.5	10	1	0.10	1	FALSE
KAFB-106096	ETHYLBENZENE	NA	NA	NA	0.257	0.5	8	1	0.13	1	FALSE
KAFB-106013	ETHYLBENZENE	NA	NA	NA	0.46	0.5	8	1	0.13	1	FALSE
KAFB-106097	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	ETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	ETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	ETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	ETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	ETHYLBENZENE	NA	NA	NA	0.388	0.5	8	1	0.13	1	FALSE
KAFB-106106	ETHYLBENZENE	NA	NA	NA	0.5	0.568	11	1	0.09	1	FALSE
KAFB-106107	ETHYLBENZENE	NA	NA	NA	0.41	0.5	7	1	0.14	1	FALSE
KAFB-106001	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106002	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106010	N-PROPYLBENZENE	1.12E-02	2.22E-02	1.00E+00	51.5	128	10	10	1.00	8	FALSE
KAFB-106011	N-PROPYLBENZENE	-8.73E-04	-5.56E-01	1.70E-02	0.33	0.721	9	4	0.44	3	FALSE
KAFB-106014	N-PROPYLBENZENE	-3.49E-02	-1.79E-01	6.18E-01	58	125	8	8	1.00	8	FALSE
KAFB-106015	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	N-PROPYLBENZENE	5.14E-03	8.89E-01	4.14E-04	0.5	2.7	10	8	0.80	6	TRUE
KAFB-106018	N-PROPYLBENZENE	-8.87E-04	-2.89E-01	2.63E-01	0.79	3.71	10	9	0.90	7	FALSE
KAFB-106019	N-PROPYLBENZENE	9.44E-05	1.11E-01	7.52E-01	0.455	1.16	9	9	1.00	8	FALSE
KAFB-106020	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106022	N-PROPYLBENZENE	-3.14E-04	-8.33E-02	7.84E-01	0.28	0.666	9	4	0.44	4	FALSE
KAFB-106024	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106033	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106034	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106035	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106043	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106057	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106058	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106060	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106061	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	N-PROPYLBENZENE	-1.65E-02	-4.64E-01	1.29E-01	2.3	14.2	8	6	0.75	6	FALSE
KAFB-106066	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	N-PROPYLBENZENE	6.59E-03	2.50E-01	4.02E-01	0.5	18	9	8	0.89	7	FALSE
KAFB-106068	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	N-PROPYLBENZENE	1.58E-04	2.78E-02	1.00E+00	0.27	0.5	9	3	0.33	3	FALSE
KAFB-106070	N-PROPYLBENZENE	1.05E-04	5.56E-02	8.97E-01	0.31	2.5	9	3	0.33	3	FALSE
KAFB-106071	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	N-PROPYLBENZENE	-1.54E-05	-3.57E-02	1.00E+00	0.49	2.5	8	2	0.25	2	FALSE
KAFB-106073	N-PROPYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	N-PROPYLBENZENE	-5.90E-03	-4.72E-01	3.94E-02	0.5	2.5	9	3	0.33	2	FALSE
KAFB-106077	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	N-PROPYLBENZENE	-2.18E-02	-8.33E-02	8.34E-01	17.5	101	9	9	1.00	8	FALSE
KAFB-106080	N-PROPYLBENZENE	-6.39E-02	-4.73E-01	4.95E-02	24.4	75.8	11	11	1.00	8	FALSE
KAFB-106081	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	N-PROPYLBENZENE	1.13E-02	7.50E-01	1.00E-02	0.301	8.85	8	7	0.88	7	TRUE
KAFB-106083	N-PROPYLBENZENE	5.14E-02	8.06E-01	3.33E-03	0.805	29.2	9	9	1.00	8	TRUE
KAFB-106084	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	N-PROPYLBENZENE	NA	NA	NA	0.5	2.6	8	1	0.13	1	FALSE
KAFB-106086	N-PROPYLBENZENE	5.27E-03	4.64E-01	7.90E-02	0.5	2.5	8	3	0.38	3	FALSE
KAFB-106087	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	N-PROPYLBENZENE	NA	NA	NA	0.297	2.5	9	1	0.11	1	FALSE
KAFB-106092	N-PROPYLBENZENE	NA	NA	NA	0.264	2.5	9	1	0.11	1	FALSE
KAFB-106093	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	N-PROPYLBENZENE	5.34E-03	1.79E-01	5.39E-01	0.493	5	8	2	0.25	2	FALSE
KAFB-106095	N-PROPYLBENZENE	NA	NA	NA	0.42	0.5	10	1	0.10	1	FALSE
KAFB-106096	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106097	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106104	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	N-PROPYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106001	1,2-DICHLOROETHANE	NA	NA	NA	0.49	0.5	8	1	0.13	1	FALSE
KAFB-106002	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	1,2-DICHLOROETHANE	NA	NA	NA	25	50	10	0	0.00	0	FALSE
KAFB-106011	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106014	1,2-DICHLOROETHANE	NA	NA	NA	25	50	8	0	0.00	0	FALSE
KAFB-106015	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	1,2-DICHLOROETHANE	1.09E-03	2.67E-01	2.14E-01	0.43	2.5	10	3	0.30	2	FALSE
KAFB-106018	1,2-DICHLOROETHANE	-2.37E-03	-1.56E-01	5.32E-01	0.41	2.5	10	5	0.50	4	FALSE
KAFB-106019	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106020	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106022	1,2-DICHLOROETHANE	1.12E-04	8.33E-02	7.34E-01	0.27	0.5	9	3	0.33	3	FALSE
KAFB-106024	1,2-DICHLOROETHANE	NA	NA	NA	0.36	0.5	8	1	0.13	1	FALSE
KAFB-106025	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106033	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106034	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106035	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	1,2-DICHLOROETHANE	-1.77E-04	-2.00E-01	3.95E-01	0.33	0.6	11	8	0.73	7	FALSE
KAFB-106043	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106052	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106057	1,2-DICHLOROETHANE	NA	NA	NA	0.33	0.5	9	1	0.11	1	FALSE
KAFB-106058	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106060	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	1,2-DICHLOROETHANE	3.05E-03	1.79E-01	5.09E-01	1.43	12.5	8	2	0.25	2	FALSE
KAFB-106066	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	1,2-DICHLOROETHANE	1.75E-03	8.33E-02	7.95E-01	0.55	2.5	9	5	0.56	4	FALSE
KAFB-106068	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106070	1,2-DICHLOROETHANE	-1.89E-03	-3.33E-01	2.07E-01	0.66	2.5	9	7	0.78	6	FALSE
KAFB-106071	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	1,2-DICHLOROETHANE	-2.46E-03	-4.64E-01	1.16E-01	0.32	2.5	8	7	0.88	7	FALSE
KAFB-106073	1,2-DICHLOROETHANE	1.25E-03	1.43E-01	6.34E-01	0.34	2.5	8	2	0.25	2	FALSE
KAFB-106074	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	1,2-DICHLOROETHANE	-1.78E-03	-4.72E-01	5.12E-02	0.33	2.5	9	4	0.44	3	FALSE
KAFB-106077	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	1,2-DICHLOROETHANE	NA	NA	NA	4.3	100	9	1	0.11	1	FALSE
KAFB-106080	1,2-DICHLOROETHANE	NA	NA	NA	3	25	11	2	0.18	1	FALSE
KAFB-106081	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	1,2-DICHLOROETHANE	-2.04E-03	-3.21E-01	2.50E-01	1.6	5	8	5	0.63	5	FALSE
KAFB-106083	1,2-DICHLOROETHANE	4.74E-03	5.83E-01	2.81E-02	0.9	5	9	8	0.89	7	TRUE
KAFB-106084	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	1,2-DICHLOROETHANE	-1.40E-03	-2.14E-01	5.16E-01	0.36	2.63	8	7	0.88	7	FALSE
KAFB-106086	1,2-DICHLOROETHANE	-1.22E-03	-4.64E-01	9.72E-02	0.53	2.5	8	6	0.75	6	FALSE
KAFB-106087	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	1,2-DICHLOROETHANE	-4.48E-04	-1.67E-01	5.66E-01	1.33	2.5	9	7	0.78	6	FALSE
KAFB-106092	1,2-DICHLOROETHANE	-1.00E-03	-2.22E-01	4.05E-01	2.25	3.05	9	6	0.67	5	FALSE
KAFB-106093	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	1,2-DICHLOROETHANE	9.97E-04	1.79E-01	5.65E-01	1.56	5	8	5	0.63	5	FALSE
KAFB-106095	1,2-DICHLOROETHANE	-2.10E-03	-4.67E-01	4.91E-02	0.45	1.75	10	6	0.60	4	FALSE
KAFB-106096	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106097	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106098	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	1,2-DICHLOROETHANE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106001	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106002	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106007	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106010	4-METHYL-2-PENTANONE	-3.24E-01	-5.56E-01	2.27E-02	120	275	10	7	0.70	5	FALSE
KAFB-106011	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106014	4-METHYL-2-PENTANONE	-9.13E-02	-7.14E-02	8.89E-01	86.4	299	8	5	0.63	5	FALSE
KAFB-106015	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106016	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106017	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	10	0	0.00	0	FALSE
KAFB-106018	4-METHYL-2-PENTANONE	-3.71E-02	-2.22E-01	3.16E-01	2.5	12.5	10	2	0.20	2	FALSE
KAFB-106019	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106020	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106021	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106022	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106024	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106025	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106026	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106029	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106030	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106031	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106032	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106033	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106034	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106035	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106036	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106037	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106038	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106039	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106040	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106042	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106043	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106027	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106044	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106045	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106046	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106047	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106048	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106050	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106051	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106052	4-METHYL-2-PENTANONE	NA	NA	NA	1.51	2.5	8	1	0.13	1	FALSE
KAFB-106053	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106054	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106055	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106057	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106058	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106060	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106061	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106062	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106063	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106065	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	62.5	8	0	0.00	0	FALSE
KAFB-106066	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106067	4-METHYL-2-PENTANONE	1.43E-02	2.50E-01	3.11E-01	2.5	12.5	9	2	0.22	2	FALSE
KAFB-106068	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106069	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106070	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106071	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106072	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106073	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106074	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106075	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106077	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106078	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	7	0	0.00	0	FALSE
KAFB-106079	4-METHYL-2-PENTANONE	-1.95E-01	-5.56E-02	8.97E-01	57.7	500	9	4	0.44	4	FALSE
KAFB-106080	4-METHYL-2-PENTANONE	-2.33E-01	-3.27E-01	1.41E-01	23.3	146	11	6	0.55	4	FALSE
KAFB-106081	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106082	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	25	8	0	0.00	0	FALSE
KAFB-106083	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	25	9	0	0.00	0	FALSE
KAFB-106084	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106085	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106086	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106087	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106088	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	3.73	9	1	0.11	1	FALSE
KAFB-106089	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	12	0	0.00	0	FALSE
KAFB-106090	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106091	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106092	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106093	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106094	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	25	8	0	0.00	0	FALSE
KAFB-106095	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106096	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106013	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106097	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106098	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106099	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106100	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106101	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106102	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106023	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106103	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106104	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106105	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106106	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106107	4-METHYL-2-PENTANONE	NA	NA	NA	2.5	2.5	7	0	0.00	0	FALSE
KAFB-106001	1,3,5-TRIMETHYLBENZENE	2.76E-04	3.57E-02	1.00E+00	0.32	0.5	8	2	0.25	2	FALSE
KAFB-106002	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	1,3,5-TRIMETHYLBENZENE	-1.95E-02	-6.67E-02	8.56E-01	44.5	130	10	10	1.00	8	FALSE
KAFB-106011	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106014	1,3,5-TRIMETHYLBENZENE	-9.80E-03	-7.14E-02	9.00E-01	47	127	8	8	1.00	8	FALSE
KAFB-106015	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	10	0	0.00	0	FALSE
KAFB-106018	1,3,5-TRIMETHYLBENZENE	-8.24E-03	-4.22E-01	6.67E-02	0.3	4.18	10	6	0.60	5	FALSE
KAFB-106019	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106020	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.531	9	1	0.11	1	FALSE
KAFB-106022	1,3,5-TRIMETHYLBENZENE	-4.79E-04	-8.33E-02	7.54E-01	0.28	0.926	9	3	0.33	3	FALSE
KAFB-106024	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.357	0.5	8	1	0.13	1	FALSE
KAFB-106033	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.343	0.5	10	1	0.10	1	FALSE
KAFB-106034	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.276	0.5	8	1	0.13	1	FALSE
KAFB-106035	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106037	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106043	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.26	0.5	8	1	0.13	1	FALSE
KAFB-106057	1,3,5-TRIMETHYLBENZENE	3.82E-04	5.56E-01	4.52E-02	0.277	0.51	9	9	1.00	8	TRUE
KAFB-106058	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.346	0.5	8	1	0.13	1	FALSE
KAFB-106060	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	1,3,5-TRIMETHYLBENZENE	-1.53E-01	-5.71E-01	3.33E-02	2.05	44.8	8	4	0.50	4	FALSE
KAFB-106066	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	1,3,5-TRIMETHYLBENZENE	-1.31E-02	-5.83E-01	3.60E-02	0.5	12.9	9	8	0.89	7	FALSE
KAFB-106068	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.422	0.5	9	1	0.11	1	FALSE
KAFB-106070	1,3,5-TRIMETHYLBENZENE	-1.32E-05	0.00E+00	1.00E+00	0.26	2.5	9	3	0.33	3	FALSE
KAFB-106071	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	1,3,5-TRIMETHYLBENZENE	-9.81E-03	-3.21E-01	1.80E-01	0.5	2.5	8	2	0.25	2	FALSE
KAFB-106073	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106077	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	1,3,5-TRIMETHYLBENZENE	-2.94E-02	-1.11E-01	7.51E-01	21.9	79	9	8	0.89	7	FALSE
KAFB-106080	1,3,5-TRIMETHYLBENZENE	-6.61E-03	-3.64E-02	9.37E-01	14.6	59	11	11	1.00	8	FALSE
KAFB-106081	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	1,3,5-TRIMETHYLBENZENE	-8.78E-03	-4.64E-01	1.35E-01	3.55	12.3	8	7	0.88	7	FALSE
KAFB-106083	1,3,5-TRIMETHYLBENZENE	9.96E-03	2.50E-01	4.02E-01	2.88	25.5	9	9	1.00	8	FALSE
KAFB-106084	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106085	1,3,5-TRIMETHYLBENZENE	-3.95E-03	-1.43E-01	6.75E-01	0.5	2.5	8	4	0.50	4	FALSE
KAFB-106086	1,3,5-TRIMETHYLBENZENE	-6.13E-03	-3.57E-01	2.09E-01	0.32	2.5	8	5	0.63	5	FALSE
KAFB-106087	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	1,3,5-TRIMETHYLBENZENE	-1.23E-03	-1.39E-01	5.61E-01	0.5	2.5	9	3	0.33	3	FALSE
KAFB-106092	1,3,5-TRIMETHYLBENZENE	-9.28E-03	-3.89E-01	8.87E-02	1.45	5.19	9	4	0.44	4	FALSE
KAFB-106093	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	1,3,5-TRIMETHYLBENZENE	2.23E-03	1.43E-01	6.69E-01	0.563	5	8	5	0.63	5	FALSE
KAFB-106095	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.639	10	2	0.20	1	FALSE
KAFB-106096	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106097	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	1,3,5-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106001	TOLUENE	-1.14E-03	-1.07E-01	8.03E-01	0.28	24.1	8	7	0.88	7	FALSE
KAFB-106002	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	TOLUENE	-8.63E+00	-3.56E-01	1.75E-01	3820	14100	10	10	1.00	8	FALSE
KAFB-106011	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106014	TOLUENE	-1.55E+00	-7.14E-02	9.02E-01	7010	19000	8	8	1.00	8	FALSE
KAFB-106015	TOLUENE	3.77E-02	4.29E-01	9.22E-02	0.5	14.8	8	3	0.38	3	FALSE
KAFB-106016	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	TOLUENE	NA	NA	NA	0.5	2.5	10	0	0.00	0	FALSE
KAFB-106018	TOLUENE	NA	NA	NA	0.5	2.5	10	0	0.00	0	FALSE
KAFB-106019	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106020	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	TOLUENE	NA	NA	NA	0.5	1.4	9	2	0.22	1	FALSE
KAFB-106022	TOLUENE	-6.98E-02	-1.94E-01	2.86E-01	0.5	27.6	9	2	0.22	2	FALSE
KAFB-106024	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	TOLUENE	1.31E-04	2.22E-02	1.00E+00	0.319	0.5	10	2	0.20	2	FALSE
KAFB-106026	TOLUENE	-5.34E-05	-8.89E-02	6.73E-01	0.48	0.55	10	3	0.30	3	FALSE
KAFB-106029	TOLUENE	-3.16E-03	-1.07E-01	6.63E-01	0.273	1.39	8	2	0.25	2	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106030	TOLUENE	-3.83E-03	-2.89E-01	1.33E-01	0.5	2.16	10	3	0.30	2	FALSE
KAFB-106031	TOLUENE	-5.75E-03	-1.39E-01	5.30E-01	0.304	1.63	9	3	0.33	3	FALSE
KAFB-106032	TOLUENE	-1.25E-02	-1.07E-01	6.63E-01	0.359	4.24	8	2	0.25	2	FALSE
KAFB-106033	TOLUENE	-4.02E-03	-6.67E-02	8.06E-01	0.298	3.03	10	4	0.40	3	FALSE
KAFB-106034	TOLUENE	-4.49E-03	-7.14E-02	8.61E-01	0.381	4.47	8	3	0.38	3	FALSE
KAFB-106035	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	TOLUENE	NA	NA	NA	0.332	0.5	8	1	0.13	1	FALSE
KAFB-106038	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	TOLUENE	-1.32E-03	-2.67E-01	1.44E-01	0.269	0.717	10	3	0.30	2	FALSE
KAFB-106040	TOLUENE	-1.62E-04	-1.67E-01	3.14E-01	0.453	0.523	9	2	0.22	2	FALSE
KAFB-106042	TOLUENE	NA	NA	NA	0.398	0.5	11	2	0.18	1	FALSE
KAFB-106043	TOLUENE	NA	NA	NA	0.387	0.5	9	1	0.11	1	FALSE
KAFB-106027	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	TOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	TOLUENE	NA	NA	NA	0.254	0.5	8	1	0.13	1	FALSE
KAFB-106053	TOLUENE	NA	NA	NA	0.276	0.5	9	1	0.11	1	FALSE
KAFB-106054	TOLUENE	NA	NA	NA	0.265	0.5	8	1	0.13	1	FALSE
KAFB-106055	TOLUENE	-3.52E-03	-2.50E-01	2.48E-01	0.5	1.51	8	2	0.25	2	FALSE
KAFB-106057	TOLUENE	-5.75E-03	-2.50E-01	1.55E-01	0.5	1.99	9	2	0.22	2	FALSE
KAFB-106058	TOLUENE	-6.10E-03	-2.50E-01	3.28E-01	0.33	5.09	8	3	0.38	3	FALSE
KAFB-106060	TOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	TOLUENE	NA	NA	NA	0.5	0.636	8	1	0.13	1	FALSE
KAFB-106062	TOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	TOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	TOLUENE	NA	NA	NA	0.5	10.6	8	1	0.13	1	FALSE
KAFB-106066	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	TOLUENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106068	TOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	TOLUENE	-2.97E-02	-5.83E-01	5.85E-03	0.5	9.68	9	3	0.33	3	FALSE
KAFB-106070	TOLUENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106071	TOLUENE	NA	NA	NA	0.5	0.762	11	1	0.09	1	FALSE
KAFB-106072	TOLUENE	NA	NA	NA	0.5	2.71	8	1	0.13	1	FALSE
KAFB-106073	TOLUENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	TOLUENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106077	TOLUENE	NA	NA	NA	0.32	0.5	9	1	0.11	1	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106078	TOLUENE	NA	NA	NA	0.5	1	7	1	0.14	1	FALSE
KAFB-106079	TOLUENE	-9.95E+00	-5.83E-01	3.60E-02	51	8530	9	9	1.00	8	FALSE
KAFB-106080	TOLUENE	-4.98E-01	-5.82E-01	1.49E-02	7	1330	11	11	1.00	8	FALSE
KAFB-106081	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	TOLUENE	-7.76E-04	-3.57E-02	1.00E+00	0.253	5	8	2	0.25	2	FALSE
KAFB-106083	TOLUENE	NA	NA	NA	0.325	5	9	1	0.11	1	FALSE
KAFB-106084	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	TOLUENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106086	TOLUENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106087	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	TOLUENE	NA	NA	NA	0.5	0.659	9	1	0.11	1	FALSE
KAFB-106089	TOLUENE	NA	NA	NA	0.5	0.676	12	2	0.17	1	FALSE
KAFB-106090	TOLUENE	NA	NA	NA	0.5	0.911	9	1	0.11	1	FALSE
KAFB-106091	TOLUENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106092	TOLUENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106093	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	TOLUENE	-6.35E-03	-7.14E-02	8.77E-01	0.299	5	8	3	0.38	3	FALSE
KAFB-106095	TOLUENE	-3.04E-04	-1.56E-01	4.99E-01	0.39	1.84	10	4	0.40	3	FALSE
KAFB-106096	TOLUENE	-1.56E-03	-2.86E-01	2.84E-01	0.5	1.78	8	3	0.38	3	FALSE
KAFB-106013	TOLUENE	1.26E-02	1.43E-01	6.46E-01	0.5	18.7	8	3	0.38	3	FALSE
KAFB-106097	TOLUENE	NA	NA	NA	0.436	0.5	9	1	0.11	1	FALSE
KAFB-106098	TOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	TOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	TOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	TOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	TOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	TOLUENE	-2.46E-03	-1.67E-01	3.14E-01	0.262	0.864	9	2	0.22	2	FALSE
KAFB-106104	TOLUENE	-1.86E-03	-1.11E-01	6.38E-01	0.36	0.958	9	3	0.33	2	FALSE
KAFB-106105	TOLUENE	-1.71E-02	-3.93E-01	4.99E-02	0.5	2.27	8	2	0.25	2	FALSE
KAFB-106106	TOLUENE	-2.35E-02	-4.00E-01	1.51E-02	0.5	2.95	11	3	0.27	2	FALSE
KAFB-106107	TOLUENE	-2.04E-02	-4.29E-01	8.57E-02	0.5	2.51	7	2	0.29	2	FALSE
KAFB-106001	XYLENES	2.28E-03	1.43E-01	7.59E-01	0.994	11.3	7	6	0.86	6	FALSE
KAFB-106002	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106007	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106010	XYLENES	-2.89E+00	-4.44E-01	1.14E-01	978	3400	9	9	1.00	7	FALSE
KAFB-106011	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106014	XYLENES	1.70E+00	2.38E-01	5.48E-01	1260	4380	7	7	1.00	7	FALSE
KAFB-106015	XYLENES	NA	NA	NA	1.5	5	7	1	0.14	1	FALSE
KAFB-106016	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106017	XYLENES	NA	NA	NA	1.05	7.5	9	1	0.11	1	FALSE
KAFB-106018	XYLENES	NA	NA	NA	1.5	9.28	9	1	0.11	1	FALSE
KAFB-106019	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106020	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106021	XYLENES	NA	NA	NA	1.44	1.54	8	2	0.25	1	FALSE
KAFB-106022	XYLENES	-3.20E-01	-2.86E-01	2.21E-01	1.3	15.4	7	2	0.29	2	FALSE
KAFB-106024	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106025	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106026	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106029	XYLENES	NA	NA	NA	1.31	1.5	7	1	0.14	1	FALSE
KAFB-106030	XYLENES	NA	NA	NA	1.5	2.71	9	1	0.11	1	FALSE
KAFB-106031	XYLENES	NA	NA	NA	1.5	1.61	8	1	0.13	1	FALSE
KAFB-106032	XYLENES	NA	NA	NA	1.5	4.93	7	1	0.14	1	FALSE
KAFB-106033	XYLENES	NA	NA	NA	1.5	3.99	9	1	0.11	1	FALSE
KAFB-106034	XYLENES	NA	NA	NA	1.5	3.97	7	1	0.14	1	FALSE
KAFB-106035	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106036	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106037	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106038	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106039	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106040	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106042	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106043	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106027	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106044	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106045	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106046	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106047	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106048	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106050	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106051	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106052	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106053	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106054	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106055	XYLENES	-2.76E-03	-1.90E-01	4.62E-01	1.04	2.06	7	2	0.29	2	FALSE
KAFB-106057	XYLENES	NA	NA	NA	1.5	2.11	8	1	0.13	1	FALSE
KAFB-106058	XYLENES	NA	NA	NA	1.5	5.15	7	1	0.14	1	FALSE
KAFB-106060	XYLENES	NA	NA	NA	1.5	1.5	10	0	0.00	0	FALSE
KAFB-106061	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106062	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106063	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106065	XYLENES	-2.91E+00	-5.24E-01	3.17E-02	7.5	322	7	2	0.29	2	FALSE
KAFB-106066	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106067	XYLENES	-1.84E-01	-4.29E-01	1.35E-01	1.5	41.1	7	2	0.29	2	FALSE
KAFB-106068	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106069	XYLENES	-3.25E-02	-4.64E-01	1.86E-02	1.5	5.21	8	2	0.25	2	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106070	XYLENES	NA	NA	NA	1.5	7.5	8	0	0.00	0	FALSE
KAFB-106071	XYLENES	NA	NA	NA	1.5	1.5	10	0	0.00	0	FALSE
KAFB-106072	XYLENES	NA	NA	NA	1.5	7.5	7	0	0.00	0	FALSE
KAFB-106073	XYLENES	NA	NA	NA	1.5	7.5	7	0	0.00	0	FALSE
KAFB-106074	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106075	XYLENES	NA	NA	NA	1.5	7.5	7	0	0.00	0	FALSE
KAFB-106077	XYLENES	NA	NA	NA	0.9	1.5	8	2	0.25	1	FALSE
KAFB-106078	XYLENES	NA	NA	NA	0.87	1.5	6	1	0.17	1	FALSE
KAFB-106079	XYLENES	-3.87E+00	-7.50E-01	1.07E-02	74.8	2330	8	6	0.75	6	FALSE
KAFB-106080	XYLENES	-4.14E-01	-5.78E-01	2.25E-02	19.2	564	10	9	0.90	6	FALSE
KAFB-106081	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106082	XYLENES	-2.59E-01	-6.67E-01	4.32E-02	7.5	108	7	4	0.57	4	FALSE
KAFB-106083	XYLENES	-1.45E-01	-3.21E-01	3.19E-01	15	143	8	7	0.88	6	FALSE
KAFB-106084	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106085	XYLENES	NA	NA	NA	1.5	7.5	7	0	0.00	0	FALSE
KAFB-106086	XYLENES	-7.58E-02	-4.29E-01	1.49E-01	1.5	9.48	7	2	0.29	2	FALSE
KAFB-106087	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106088	XYLENES	NA	NA	NA	1.5	2.08	7	1	0.14	1	FALSE
KAFB-106089	XYLENES	NA	NA	NA	1.5	1.5	11	0	0.00	0	FALSE
KAFB-106090	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106091	XYLENES	8.64E-04	3.57E-02	1.00E+00	0.752	7.5	8	2	0.25	2	FALSE
KAFB-106092	XYLENES	NA	NA	NA	3	7.5	8	1	0.13	1	FALSE
KAFB-106093	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106094	XYLENES	9.35E-03	9.52E-02	8.49E-01	3.53	15	7	3	0.43	3	FALSE
KAFB-106095	XYLENES	NA	NA	NA	1.5	2.21	8	1	0.13	1	FALSE
KAFB-106096	XYLENES	NA	NA	NA	1.5	1.65	7	1	0.14	1	FALSE
KAFB-106013	XYLENES	NA	NA	NA	1.5	2.04	7	1	0.14	1	FALSE
KAFB-106097	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106098	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106099	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106100	XYLENES	NA	NA	NA	1.5	1.5	9	0	0.00	0	FALSE
KAFB-106101	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106102	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106023	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106103	XYLENES	NA	NA	NA	1.5	1.5	8	0	0.00	0	FALSE
KAFB-106104	XYLENES	NA	NA	NA	1.5	1.5	7	0	0.00	0	FALSE
KAFB-106105	XYLENES	NA	NA	NA	1.5	2.1	8	1	0.13	1	FALSE
KAFB-106106	XYLENES	NA	NA	NA	1.5	3.13	11	1	0.09	1	FALSE
KAFB-106107	XYLENES	NA	NA	NA	1.5	2.4	7	1	0.14	1	FALSE
KAFB-106001	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106002	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106007	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106010	2-HEXANONE	-3.55E-01	-4.89E-01	4.07E-02	122	320	10	6	0.60	5	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106011	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106014	2-HEXANONE	-4.44E-01	-1.79E-01	5.89E-01	136	484	8	5	0.63	5	FALSE
KAFB-106015	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106016	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106017	2-HEXANONE	NA	NA	NA	2.5	12.5	10	0	0.00	0	FALSE
KAFB-106018	2-HEXANONE	NA	NA	NA	2.5	37.2	10	1	0.10	1	FALSE
KAFB-106019	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106020	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106021	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106022	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106024	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106025	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106026	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106029	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106030	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106031	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106032	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106033	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106034	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106035	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106036	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106037	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106038	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106039	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106040	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106042	2-HEXANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106043	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106027	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106044	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106045	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106046	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106047	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106048	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106050	2-HEXANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106051	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106052	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106053	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106054	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106055	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106057	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106058	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106060	2-HEXANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106061	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106062	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106063	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106065	2-HEXANONE	NA	NA	NA	2.5	62.5	8	0	0.00	0	FALSE
KAFB-106066	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106067	2-HEXANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106068	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106069	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106070	2-HEXANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106071	2-HEXANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106072	2-HEXANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106073	2-HEXANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106074	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106075	2-HEXANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106077	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106078	2-HEXANONE	NA	NA	NA	2.5	2.5	7	0	0.00	0	FALSE
KAFB-106079	2-HEXANONE	-2.20E-01	-2.78E-02	1.00E+00	25	500	9	2	0.22	2	FALSE
KAFB-106080	2-HEXANONE	NA	NA	NA	12.5	125	11	1	0.09	1	FALSE
KAFB-106081	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106082	2-HEXANONE	NA	NA	NA	2.5	25	8	0	0.00	0	FALSE
KAFB-106083	2-HEXANONE	NA	NA	NA	2.5	25	9	0	0.00	0	FALSE
KAFB-106084	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106085	2-HEXANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106086	2-HEXANONE	NA	NA	NA	2.5	12.5	8	0	0.00	0	FALSE
KAFB-106087	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106088	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106089	2-HEXANONE	NA	NA	NA	2.5	2.5	12	0	0.00	0	FALSE
KAFB-106090	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106091	2-HEXANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106092	2-HEXANONE	NA	NA	NA	2.5	12.5	9	0	0.00	0	FALSE
KAFB-106093	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106094	2-HEXANONE	NA	NA	NA	2.5	82.9	8	1	0.13	1	FALSE
KAFB-106095	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106096	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106013	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106097	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106098	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106099	2-HEXANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106100	2-HEXANONE	NA	NA	NA	2.5	2.5	10	0	0.00	0	FALSE
KAFB-106101	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106102	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106023	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106103	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE
KAFB-106104	2-HEXANONE	NA	NA	NA	2.5	2.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106105	2-HEXANONE	NA	NA	NA	2.5	2.5	8	0	0.00	0	FALSE
KAFB-106106	2-HEXANONE	NA	NA	NA	2.5	2.5	11	0	0.00	0	FALSE
KAFB-106107	2-HEXANONE	NA	NA	NA	2.5	2.5	7	0	0.00	0	FALSE
KAFB-106001	ACETONE	NA	NA	NA	5	9.63	8	1	0.13	1	FALSE
KAFB-106002	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106007	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106010	ACETONE	-2.94E+00	-7.33E-01	3.91E-03	710	3330	10	10	1.00	8	FALSE
KAFB-106011	ACETONE	NA	NA	NA	2.8	5	9	2	0.22	1	FALSE
KAFB-106014	ACETONE	-3.32E+00	-2.14E-01	5.36E-01	965	3760	8	8	1.00	8	FALSE
KAFB-106015	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106016	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106017	ACETONE	NA	NA	NA	5	25	10	1	0.10	1	FALSE
KAFB-106018	ACETONE	7.82E-03	1.11E-01	7.08E-01	4.01	54.8	10	7	0.70	6	FALSE
KAFB-106019	ACETONE	1.94E-03	8.33E-02	7.34E-01	2.75	5	9	3	0.33	3	FALSE
KAFB-106020	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106021	ACETONE	NA	NA	NA	3.96	5	9	1	0.11	1	FALSE
KAFB-106022	ACETONE	NA	NA	NA	2.74	5	9	1	0.11	1	FALSE
KAFB-106024	ACETONE	NA	NA	NA	3.97	5	8	1	0.13	1	FALSE
KAFB-106025	ACETONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106026	ACETONE	NA	NA	NA	5	5.91	10	1	0.10	1	FALSE
KAFB-106029	ACETONE	NA	NA	NA	3.51	5	8	1	0.13	1	FALSE
KAFB-106030	ACETONE	NA	NA	NA	2.8	5	10	1	0.10	1	FALSE
KAFB-106031	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106032	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106033	ACETONE	1.80E-04	2.22E-02	1.00E+00	3.29	5	10	2	0.20	2	FALSE
KAFB-106034	ACETONE	NA	NA	NA	5	6.35	8	1	0.13	1	FALSE
KAFB-106035	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106036	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106037	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106038	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106039	ACETONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106040	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106042	ACETONE	-2.89E-03	-7.27E-02	7.90E-01	2.78	5.88	11	7	0.64	5	FALSE
KAFB-106043	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106027	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106044	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106045	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106046	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106047	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106048	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106050	ACETONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106051	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106052	ACETONE	NA	NA	NA	3.49	5	8	1	0.13	1	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106053	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106054	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106055	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106057	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106058	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106060	ACETONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106061	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106062	ACETONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106063	ACETONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106065	ACETONE	-2.88E-03	-3.57E-02	1.00E+00	15.1	583	8	7	0.88	7	FALSE
KAFB-106066	ACETONE	NA	NA	NA	5	5.42	8	1	0.13	1	FALSE
KAFB-106067	ACETONE	-1.05E-02	-1.11E-01	7.34E-01	4.29	205	9	7	0.78	6	FALSE
KAFB-106068	ACETONE	NA	NA	NA	2.53	5	10	1	0.10	1	FALSE
KAFB-106069	ACETONE	-1.96E-02	-1.94E-01	3.80E-01	2.91	28.9	9	3	0.33	3	FALSE
KAFB-106070	ACETONE	-8.42E-03	-1.94E-01	5.22E-01	4.07	166	9	8	0.89	8	FALSE
KAFB-106071	ACETONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106072	ACETONE	-5.68E-03	-2.50E-01	4.47E-01	2.98	254	8	7	0.88	7	FALSE
KAFB-106073	ACETONE	2.70E-01	2.50E-01	3.90E-01	5	110	8	3	0.38	3	FALSE
KAFB-106074	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106075	ACETONE	-7.28E-03	-2.78E-01	3.15E-01	2.51	17	9	6	0.67	5	FALSE
KAFB-106077	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106078	ACETONE	NA	NA	NA	5	5	7	0	0.00	0	FALSE
KAFB-106079	ACETONE	-1.10E+01	-4.72E-01	6.35E-02	50	3220	9	4	0.44	4	FALSE
KAFB-106080	ACETONE	-4.59E-01	-5.45E-01	1.40E-02	17.3	277	11	7	0.64	5	FALSE
KAFB-106081	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106082	ACETONE	-9.11E-03	-1.07E-01	7.93E-01	13.2	174	8	6	0.75	6	FALSE
KAFB-106083	ACETONE	5.54E-02	6.11E-01	2.19E-02	6.64	354	9	8	0.89	7	TRUE
KAFB-106084	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106085	ACETONE	1.57E-02	2.86E-01	3.79E-01	4.19	92.2	8	7	0.88	7	FALSE
KAFB-106086	ACETONE	4.14E-03	1.07E-01	7.93E-01	3.63	26.2	8	6	0.75	6	FALSE
KAFB-106087	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106088	ACETONE	-1.42E-03	-2.78E-02	1.00E+00	2.68	10.3	9	3	0.33	3	FALSE
KAFB-106089	ACETONE	NA	NA	NA	5	5	12	0	0.00	0	FALSE
KAFB-106090	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106091	ACETONE	-4.18E-04	0.00E+00	1.00E+00	4.54	137	9	6	0.67	5	FALSE
KAFB-106092	ACETONE	1.58E-02	2.50E-01	3.86E-01	5	233	9	7	0.78	6	FALSE
KAFB-106093	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106094	ACETONE	6.64E-03	0.00E+00	1.00E+00	25	147	8	7	0.88	7	FALSE
KAFB-106095	ACETONE	-1.83E-02	-4.44E-01	5.17E-02	3.01	8.94	10	5	0.50	3	FALSE
KAFB-106096	ACETONE	NA	NA	NA	3.45	5	8	1	0.13	1	FALSE
KAFB-106013	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106097	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106098	ACETONE	NA	NA	NA	3.8	5	10	1	0.10	1	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106099	ACETONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106100	ACETONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106101	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106102	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106023	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106103	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106104	ACETONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106105	ACETONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106106	ACETONE	NA	NA	NA	3.65	5	11	2	0.18	1	FALSE
KAFB-106107	ACETONE	NA	NA	NA	5	5	7	0	0.00	0	FALSE
KAFB-106001	BENZENE	2.26E-04	0.00E+00	1.00E+00	0.3	35.6	8	8	1.00	8	FALSE
KAFB-106002	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	BENZENE	-7.63E+00	-3.78E-01	1.49E-01	2120	8250	10	10	1.00	8	FALSE
KAFB-106011	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106014	BENZENE	7.61E-01	0.00E+00	1.00E+00	3500	9700	8	8	1.00	8	FALSE
KAFB-106015	BENZENE	NA	NA	NA	0.5	1.24	8	1	0.13	1	FALSE
KAFB-106016	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	BENZENE	9.47E-04	4.00E-01	9.71E-02	0.5	2.5	10	6	0.60	5	FALSE
KAFB-106018	BENZENE	-5.44E-02	-4.44E-01	5.54E-02	0.47	28.4	10	6	0.60	5	FALSE
KAFB-106019	BENZENE	1.36E-04	2.78E-02	1.00E+00	0.253	0.5	9	5	0.56	4	FALSE
KAFB-106020	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	BENZENE	-8.90E-04	-3.89E-01	1.71E-01	0.5	5.68	9	7	0.78	6	FALSE
KAFB-106022	BENZENE	-3.76E-04	-1.94E-01	4.11E-01	0.26	6.38	9	4	0.44	4	FALSE
KAFB-106024	BENZENE	NA	NA	NA	0.29	0.5	8	1	0.13	1	FALSE
KAFB-106025	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	BENZENE	NA	NA	NA	0.267	0.5	8	1	0.13	1	FALSE
KAFB-106033	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106034	BENZENE	NA	NA	NA	0.275	0.5	8	1	0.13	1	FALSE
KAFB-106035	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	BENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106043	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106045	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	BENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	BENZENE	-1.13E-05	-3.57E-02	1.00E+00	0.498	0.8	8	3	0.38	3	FALSE
KAFB-106057	BENZENE	3.33E-04	1.39E-01	5.97E-01	0.325	0.59	9	4	0.44	3	FALSE
KAFB-106058	BENZENE	NA	NA	NA	0.29	0.5	8	1	0.13	1	FALSE
KAFB-106060	BENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	BENZENE	NA	NA	NA	0.5	0.725	8	1	0.13	1	FALSE
KAFB-106062	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	BENZENE	2.19E-03	2.00E-01	1.35E-01	0.4	0.83	10	2	0.20	2	FALSE
KAFB-106065	BENZENE	-2.69E+00	-3.21E-01	3.11E-01	2.45	2060	8	6	0.75	6	FALSE
KAFB-106066	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	BENZENE	1.58E-01	2.78E-02	1.00E+00	0.5	313	9	8	0.89	7	FALSE
KAFB-106068	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	BENZENE	-1.10E-02	-5.00E-01	3.97E-02	0.5	4.3	9	4	0.44	4	FALSE
KAFB-106070	BENZENE	3.25E-04	2.78E-02	1.00E+00	0.33	2.5	9	2	0.22	2	FALSE
KAFB-106071	BENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	BENZENE	-2.17E-03	-1.07E-01	7.48E-01	0.287	2.5	8	3	0.38	3	FALSE
KAFB-106073	BENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	BENZENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106077	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	BENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	BENZENE	-2.64E+00	-8.33E-02	8.34E-01	1960	13400	9	9	1.00	8	FALSE
KAFB-106080	BENZENE	-3.24E+00	-5.09E-01	3.34E-02	521	4780	11	11	1.00	8	FALSE
KAFB-106081	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	BENZENE	-7.64E-03	-4.64E-01	9.08E-02	1.25	5	8	5	0.63	5	FALSE
KAFB-106083	BENZENE	1.52E-03	1.39E-01	6.75E-01	0.498	3.8	9	9	1.00	8	FALSE
KAFB-106084	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	BENZENE	-6.33E-05	-3.57E-02	1.00E+00	0.3	2.5	8	3	0.38	3	FALSE
KAFB-106086	BENZENE	-2.91E-03	-2.50E-01	3.69E-01	0.333	2.5	8	3	0.38	3	FALSE
KAFB-106087	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	BENZENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	BENZENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106092	BENZENE	2.11E-03	8.33E-02	7.34E-01	0.518	2.5	9	3	0.33	3	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106093	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	BENZENE	-1.10E-01	-6.43E-01	3.54E-02	2.5	63.3	8	7	0.88	7	FALSE
KAFB-106095	BENZENE	NA	NA	NA	0.5	0.913	10	2	0.20	1	FALSE
KAFB-106096	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	BENZENE	NA	NA	NA	0.5	0.55	8	1	0.13	1	FALSE
KAFB-106097	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	BENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	BENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	BENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	BENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	BENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	BENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106001	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106002	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	CARBON DISULFIDE	-9.88E-02	-1.78E-01	5.12E-01	19.2	107	10	7	0.70	5	FALSE
KAFB-106011	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106014	CARBON DISULFIDE	-3.15E-01	-2.86E-01	3.00E-01	25	143	8	3	0.38	3	FALSE
KAFB-106015	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	10	0	0.00	0	FALSE
KAFB-106018	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	10	0	0.00	0	FALSE
KAFB-106019	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106020	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106022	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106024	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106033	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106034	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106035	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106038	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106043	CARBON DISULFIDE	NA	NA	NA	0.32	0.5	9	1	0.11	1	FALSE
KAFB-106027	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106057	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106058	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106060	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	CARBON DISULFIDE	NA	NA	NA	0.5	12.5	8	1	0.13	1	FALSE
KAFB-106066	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	CARBON DISULFIDE	5.53E-04	2.78E-02	1.00E+00	0.5	2.5	9	4	0.44	3	FALSE
KAFB-106068	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106070	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106071	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106073	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106077	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	CARBON DISULFIDE	-4.30E-01	-2.50E-01	3.47E-01	5	448	9	3	0.33	3	FALSE
KAFB-106080	CARBON DISULFIDE	-1.67E-01	-2.36E-01	2.97E-01	2.5	75.6	11	3	0.27	3	FALSE
KAFB-106081	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	CARBON DISULFIDE	NA	NA	NA	0.5	5	8	1	0.13	1	FALSE
KAFB-106083	CARBON DISULFIDE	NA	NA	NA	0.5	5	9	0	0.00	0	FALSE
KAFB-106084	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106086	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106087	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106092	CARBON DISULFIDE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106093	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	CARBON DISULFIDE	4.36E-03	0.00E+00	1.00E+00	0.5	5.45	8	3	0.38	3	FALSE
KAFB-106095	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106096	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106097	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	CARBON DISULFIDE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106001	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106002	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106007	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106010	2-BUTANONE	-1.18E+00	-6.44E-01	1.16E-02	264	1330	10	10	1.00	8	FALSE
KAFB-106011	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106014	2-BUTANONE	-5.41E-01	-7.14E-02	9.02E-01	325	1100	8	8	1.00	8	FALSE
KAFB-106015	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106016	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106017	2-BUTANONE	NA	NA	NA	5	25	10	0	0.00	0	FALSE
KAFB-106018	2-BUTANONE	NA	NA	NA	5	25	10	0	0.00	0	FALSE
KAFB-106019	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106020	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106021	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106022	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106024	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106025	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106026	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106029	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106030	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106031	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106032	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106033	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106034	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106035	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106036	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106037	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106038	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106039	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106040	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106042	2-BUTANONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106043	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106027	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106044	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106045	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106046	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106047	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106048	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106050	2-BUTANONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106051	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106052	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106053	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106054	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106055	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106057	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106058	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106060	2-BUTANONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106061	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106062	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106063	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106065	2-BUTANONE	NA	NA	NA	5	125	8	0	0.00	0	FALSE
KAFB-106066	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106067	2-BUTANONE	NA	NA	NA	5	25	9	0	0.00	0	FALSE
KAFB-106068	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106069	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106070	2-BUTANONE	NA	NA	NA	5	25	9	0	0.00	0	FALSE
KAFB-106071	2-BUTANONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106072	2-BUTANONE	NA	NA	NA	5	25	8	0	0.00	0	FALSE
KAFB-106073	2-BUTANONE	NA	NA	NA	5	25	8	0	0.00	0	FALSE
KAFB-106074	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106075	2-BUTANONE	NA	NA	NA	5	25	9	0	0.00	0	FALSE
KAFB-106077	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106078	2-BUTANONE	NA	NA	NA	5	5	7	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106079	2-BUTANONE	-1.38E+00	-2.78E-01	2.58E-01	50	1000	9	3	0.33	3	FALSE
KAFB-106080	2-BUTANONE	NA	NA	NA	25	250	11	0	0.00	0	FALSE
KAFB-106081	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106082	2-BUTANONE	-3.66E-02	-7.14E-02	8.73E-01	3.58	50	8	2	0.25	2	FALSE
KAFB-106083	2-BUTANONE	NA	NA	NA	5	50	9	0	0.00	0	FALSE
KAFB-106084	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106085	2-BUTANONE	NA	NA	NA	5	25	8	0	0.00	0	FALSE
KAFB-106086	2-BUTANONE	NA	NA	NA	5	25	8	0	0.00	0	FALSE
KAFB-106087	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106088	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106089	2-BUTANONE	NA	NA	NA	5	5	12	0	0.00	0	FALSE
KAFB-106090	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106091	2-BUTANONE	NA	NA	NA	5	25	9	0	0.00	0	FALSE
KAFB-106092	2-BUTANONE	NA	NA	NA	2.62	25	9	1	0.11	1	FALSE
KAFB-106093	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106094	2-BUTANONE	NA	NA	NA	5	50	8	1	0.13	1	FALSE
KAFB-106095	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106096	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106013	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106097	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106098	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106099	2-BUTANONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106100	2-BUTANONE	NA	NA	NA	5	5	10	0	0.00	0	FALSE
KAFB-106101	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106102	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106023	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106103	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106104	2-BUTANONE	NA	NA	NA	5	5	9	0	0.00	0	FALSE
KAFB-106105	2-BUTANONE	NA	NA	NA	5	5	8	0	0.00	0	FALSE
KAFB-106106	2-BUTANONE	NA	NA	NA	5	5	11	0	0.00	0	FALSE
KAFB-106107	2-BUTANONE	NA	NA	NA	5	5	7	0	0.00	0	FALSE
KAFB-106001	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106002	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	NAPHTHALENE	-8.36E-02	-2.44E-01	3.67E-01	57	170	10	10	1.00	8	FALSE
KAFB-106011	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106014	NAPHTHALENE	1.49E-02	7.14E-02	9.02E-01	50	150	8	7	0.88	7	FALSE
KAFB-106015	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	NAPHTHALENE	NA	NA	NA	0.5	0.79	8	1	0.13	1	FALSE
KAFB-106017	NAPHTHALENE	NA	NA	NA	0.5	2.5	10	0	0.00	0	FALSE
KAFB-106018	NAPHTHALENE	-3.55E-03	-2.22E-01	3.16E-01	0.5	2.5	10	2	0.20	2	FALSE
KAFB-106019	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106020	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106021	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106022	NAPHTHALENE	NA	NA	NA	0.5	1.07	9	1	0.11	1	FALSE
KAFB-106024	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106033	NAPHTHALENE	NA	NA	NA	0.32	0.5	10	1	0.10	1	FALSE
KAFB-106034	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106035	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	NAPHTHALENE	NA	NA	NA	0.5	1.03	11	1	0.09	1	FALSE
KAFB-106043	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	NAPHTHALENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	NAPHTHALENE	NA	NA	NA	0.5	0.95	9	1	0.11	1	FALSE
KAFB-106052	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106057	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106058	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106060	NAPHTHALENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	NAPHTHALENE	-7.26E-02	-1.43E-01	6.93E-01	0.5	50.8	8	4	0.50	4	FALSE
KAFB-106066	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	NAPHTHALENE	-1.21E-03	-2.78E-02	1.00E+00	0.5	13.4	9	8	0.89	7	FALSE
KAFB-106068	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	NAPHTHALENE	NA	NA	NA	0.5	0.897	9	1	0.11	1	FALSE
KAFB-106070	NAPHTHALENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106071	NAPHTHALENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	NAPHTHALENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106073	NAPHTHALENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	NAPHTHALENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106077	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	NAPHTHALENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	NAPHTHALENE	-9.95E-02	-2.50E-01	4.02E-01	37.9	233	9	9	1.00	8	FALSE
KAFB-106080	NAPHTHALENE	-1.29E-01	-2.91E-01	2.39E-01	21	118	11	11	1.00	8	FALSE
KAFB-106081	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	NAPHTHALENE	1.44E-04	3.57E-02	1.00E+00	0.856	5	8	3	0.38	3	FALSE
KAFB-106083	NAPHTHALENE	5.26E-03	6.94E-01	8.43E-03	0.5	5	9	7	0.78	6	TRUE
KAFB-106084	NAPHTHALENE	NA	NA	NA	0.35	0.5	8	1	0.13	1	FALSE
KAFB-106085	NAPHTHALENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106086	NAPHTHALENE	NA	NA	NA	0.322	2.5	8	1	0.13	1	FALSE
KAFB-106087	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	NAPHTHALENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	NAPHTHALENE	-5.59E-03	-2.78E-02	1.00E+00	0.5	6.57	9	2	0.22	2	FALSE
KAFB-106092	NAPHTHALENE	NA	NA	NA	0.5	2.94	9	1	0.11	1	FALSE
KAFB-106093	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	NAPHTHALENE	-1.94E-02	-2.86E-01	3.39E-01	0.879	11.6	8	4	0.50	4	FALSE
KAFB-106095	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106096	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	NAPHTHALENE	NA	NA	NA	0.5	0.57	8	1	0.13	1	FALSE
KAFB-106097	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	NAPHTHALENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	NAPHTHALENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	NAPHTHALENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	NAPHTHALENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	NAPHTHALENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	NAPHTHALENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106001	1,2,4-TRIMETHYLBENZENE	1.66E-04	3.57E-02	1.00E+00	0.29	0.5	8	3	0.38	3	FALSE
KAFB-106002	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	1,2,4-TRIMETHYLBENZENE	-1.02E-01	-1.56E-01	5.87E-01	129	429	10	10	1.00	8	FALSE
KAFB-106011	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	5.64	9	1	0.11	1	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106014	1,2,4-TRIMETHYLBENZENE	-2.54E-02	-1.43E-01	7.11E-01	131	375	8	8	1.00	8	FALSE
KAFB-106015	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	1,2,4-TRIMETHYLBENZENE	-6.20E-03	-6.67E-02	8.24E-01	0.322	4.8	10	2	0.20	2	FALSE
KAFB-106018	1,2,4-TRIMETHYLBENZENE	-3.82E-02	-3.78E-01	9.47E-02	0.403	8.01	10	3	0.30	3	FALSE
KAFB-106019	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	6.58	9	2	0.22	1	FALSE
KAFB-106020	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106022	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.2	9	1	0.11	1	FALSE
KAFB-106024	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.4	0.5	10	1	0.10	1	FALSE
KAFB-106031	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.31	0.5	9	1	0.11	1	FALSE
KAFB-106032	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.908	8	1	0.13	1	FALSE
KAFB-106033	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.901	10	1	0.10	1	FALSE
KAFB-106034	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.643	8	1	0.13	1	FALSE
KAFB-106035	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106043	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.352	0.5	8	1	0.13	1	FALSE
KAFB-106057	1,2,4-TRIMETHYLBENZENE	-3.35E-04	-8.33E-02	7.34E-01	0.404	0.5	9	3	0.33	3	FALSE
KAFB-106058	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.842	8	1	0.13	1	FALSE
KAFB-106060	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106063	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	1,2,4-TRIMETHYLBENZENE	-2.17E-01	-3.57E-01	2.36E-01	1.6	119	8	5	0.63	5	FALSE
KAFB-106066	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.421	0.5	8	1	0.13	1	FALSE
KAFB-106067	1,2,4-TRIMETHYLBENZENE	-1.72E-01	-5.28E-01	3.19E-02	0.5	42	9	4	0.44	3	FALSE
KAFB-106068	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	1,2,4-TRIMETHYLBENZENE	-3.22E-03	-1.67E-01	3.14E-01	0.393	1.06	9	2	0.22	2	FALSE
KAFB-106070	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106071	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.436	2.5	8	1	0.13	1	FALSE
KAFB-106073	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106074	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106077	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	1,2,4-TRIMETHYLBENZENE	-8.70E-02	-8.33E-02	8.30E-01	22.6	213	9	8	0.89	7	FALSE
KAFB-106080	1,2,4-TRIMETHYLBENZENE	-4.10E-02	-1.45E-01	5.82E-01	12	137	11	11	1.00	8	FALSE
KAFB-106081	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	1,2,4-TRIMETHYLBENZENE	-7.37E-02	-5.00E-01	1.02E-01	2.5	39.4	8	6	0.75	6	FALSE
KAFB-106083	1,2,4-TRIMETHYLBENZENE	-9.52E-04	0.00E+00	1.00E+00	2.46	58.9	9	8	0.89	7	FALSE
KAFB-106084	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.29	0.5	8	1	0.13	1	FALSE
KAFB-106085	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106086	1,2,4-TRIMETHYLBENZENE	-1.69E-02	-4.29E-01	1.19E-01	0.5	3.89	8	3	0.38	3	FALSE
KAFB-106087	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.631	9	1	0.11	1	FALSE
KAFB-106089	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	1,2,4-TRIMETHYLBENZENE	1.39E-03	2.78E-02	1.00E+00	0.455	2.5	9	2	0.22	2	FALSE
KAFB-106092	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	2.5	9	1	0.11	1	FALSE
KAFB-106093	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	1,2,4-TRIMETHYLBENZENE	-1.10E-03	0.00E+00	1.00E+00	0.863	5	8	2	0.25	2	FALSE
KAFB-106095	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.727	10	1	0.10	1	FALSE
KAFB-106096	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.26	0.5	8	1	0.13	1	FALSE
KAFB-106013	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106097	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.293	0.5	8	1	0.13	1	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106106	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.42	0.5	11	1	0.09	1	FALSE
KAFB-106107	1,2,4-TRIMETHYLBENZENE	NA	NA	NA	0.45	0.5	7	1	0.14	1	FALSE
KAFB-106001	ISOPROPYLBENZENE	-4.03E-05	0.00E+00	1.00E+00	0.27	0.56	8	4	0.50	4	FALSE
KAFB-106002	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	ISOPROPYLBENZENE	1.95E-02	2.22E-02	1.00E+00	61	135	10	10	1.00	8	FALSE
KAFB-106011	ISOPROPYLBENZENE	-1.38E-02	-5.28E-01	4.33E-02	0.5	6.07	9	5	0.56	4	FALSE
KAFB-106014	ISOPROPYLBENZENE	-3.68E-02	-2.86E-01	3.86E-01	62	118	8	8	1.00	8	FALSE
KAFB-106015	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	ISOPROPYLBENZENE	1.93E-02	8.22E-01	1.17E-03	0.712	12.6	10	10	1.00	8	TRUE
KAFB-106018	ISOPROPYLBENZENE	-5.96E-03	-3.33E-01	2.05E-01	2.58	12.5	10	10	1.00	8	FALSE
KAFB-106019	ISOPROPYLBENZENE	-3.63E-04	-2.78E-02	1.00E+00	5.07	8.35	9	9	1.00	8	FALSE
KAFB-106020	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	ISOPROPYLBENZENE	-1.57E-02	-8.06E-01	2.16E-03	0.43	6.36	9	6	0.67	5	FALSE
KAFB-106022	ISOPROPYLBENZENE	3.94E-03	3.61E-01	2.08E-01	1.31	4.57	9	9	1.00	8	FALSE
KAFB-106024	ISOPROPYLBENZENE	NA	NA	NA	0.27	0.5	8	1	0.13	1	FALSE
KAFB-106025	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106033	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106034	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106035	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	ISOPROPYLBENZENE	NA	NA	NA	0.437	0.5	11	2	0.18	1	FALSE
KAFB-106043	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106046	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106054	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	ISOPROPYLBENZENE	4.02E-04	1.07E-01	7.04E-01	0.282	0.5	8	3	0.38	3	FALSE
KAFB-106057	ISOPROPYLBENZENE	1.20E-04	2.78E-02	1.00E+00	0.26	1.23	9	9	1.00	8	FALSE
KAFB-106058	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106060	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	ISOPROPYLBENZENE	5.30E-04	3.78E-01	6.05E-02	0.36	0.56	10	4	0.40	3	FALSE
KAFB-106065	ISOPROPYLBENZENE	-2.92E-02	-2.14E-01	5.36E-01	2.1	50.9	8	8	1.00	8	FALSE
KAFB-106066	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	ISOPROPYLBENZENE	1.57E-02	4.72E-01	9.35E-02	0.5	31.6	9	8	0.89	7	FALSE
KAFB-106068	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	ISOPROPYLBENZENE	1.34E-03	6.11E-01	2.52E-02	0.341	1.19	9	7	0.78	6	TRUE
KAFB-106070	ISOPROPYLBENZENE	4.34E-03	5.00E-01	7.31E-02	0.5	3.03	9	7	0.78	6	FALSE
KAFB-106071	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	ISOPROPYLBENZENE	-5.06E-04	-1.79E-01	6.00E-01	0.29	2.54	8	6	0.75	6	FALSE
KAFB-106073	ISOPROPYLBENZENE	1.19E-02	8.21E-01	6.09E-03	0.5	5.9	8	6	0.75	6	TRUE
KAFB-106074	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	ISOPROPYLBENZENE	-4.64E-03	-3.06E-01	2.73E-01	0.35	4.08	9	6	0.67	5	FALSE
KAFB-106077	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	ISOPROPYLBENZENE	-3.37E-02	-8.33E-02	8.34E-01	26.9	96.8	9	9	1.00	8	FALSE
KAFB-106080	ISOPROPYLBENZENE	-7.77E-02	-6.55E-01	5.96E-03	23.8	81.1	11	11	1.00	8	FALSE
KAFB-106081	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	ISOPROPYLBENZENE	2.36E-02	6.43E-01	3.54E-02	2.04	20.7	8	8	1.00	8	TRUE
KAFB-106083	ISOPROPYLBENZENE	9.30E-02	9.17E-01	7.95E-04	3.96	55.2	9	9	1.00	8	TRUE
KAFB-106084	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	ISOPROPYLBENZENE	5.52E-03	4.64E-01	1.29E-01	0.41	7.1	8	6	0.75	6	FALSE
KAFB-106086	ISOPROPYLBENZENE	2.10E-03	2.86E-01	3.86E-01	1.83	5.4	8	8	1.00	8	FALSE
KAFB-106087	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	ISOPROPYLBENZENE	1.17E-04	1.67E-01	5.54E-01	0.36	0.55	9	5	0.56	5	FALSE
KAFB-106089	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	ISOPROPYLBENZENE	2.90E-03	3.33E-01	1.67E-01	1.15	3.22	9	5	0.56	5	FALSE
KAFB-106092	ISOPROPYLBENZENE	-1.39E-02	-7.22E-01	8.42E-03	1.85	12.5	9	9	1.00	8	FALSE
KAFB-106093	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106094	ISOPROPYLBENZENE	1.40E-02	8.21E-01	5.33E-03	0.892	11.3	8	7	0.88	7	TRUE
KAFB-106095	ISOPROPYLBENZENE	-2.99E-04	-6.67E-02	8.41E-01	0.32	2.72	10	6	0.60	4	FALSE
KAFB-106096	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106097	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

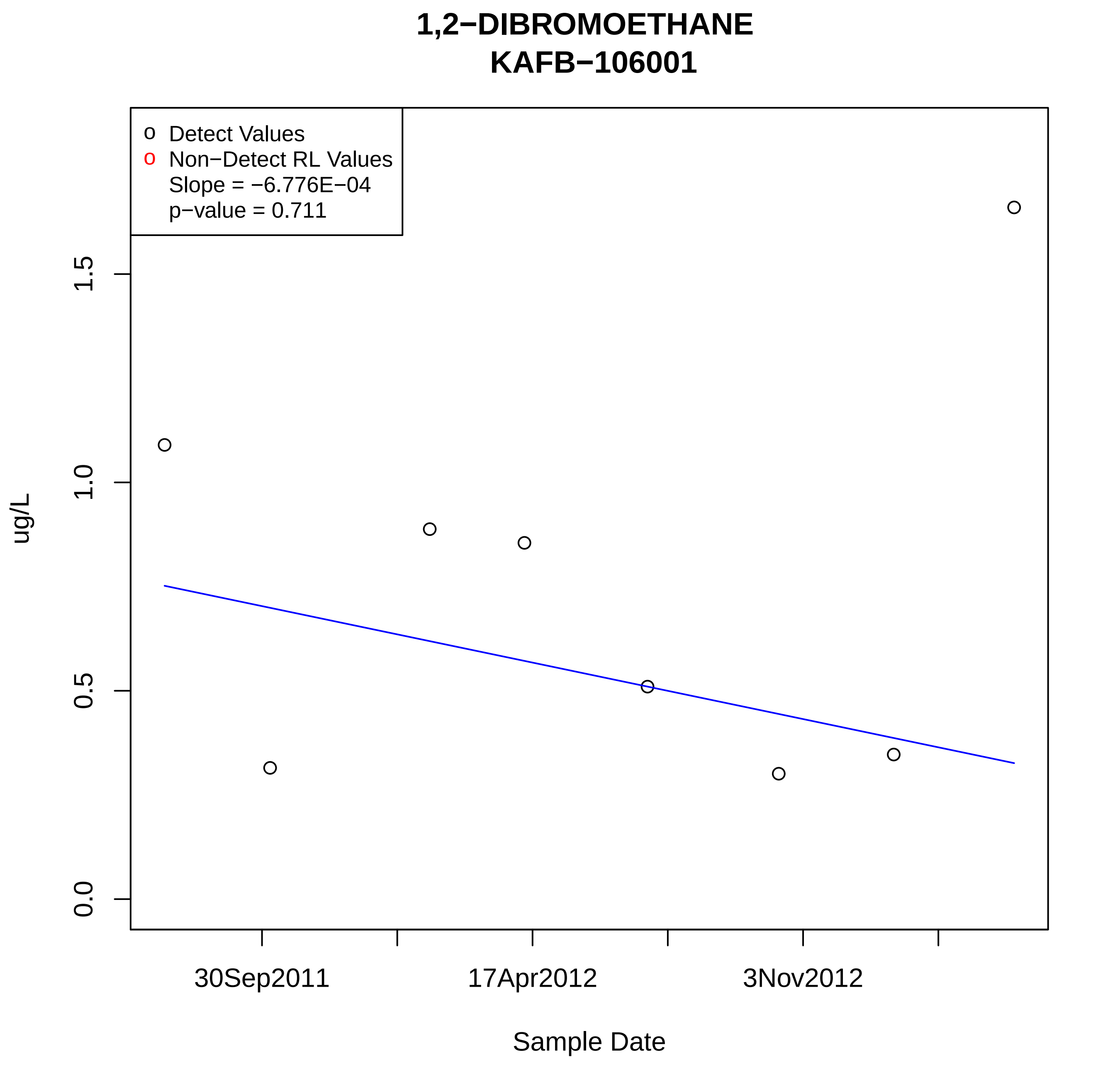
MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106100	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	ISOPROPYLBENZENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106001	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106002	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106007	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106010	P-ISOPROPYLTOLUENE	4.65E-01	6.00E-01	1.21E-02	25	211	10	5	0.50	5	TRUE
KAFB-106011	P-ISOPROPYLTOLUENE	-2.11E-03	-4.72E-01	5.12E-02	0.5	1.09	9	4	0.44	3	FALSE
KAFB-106014	P-ISOPROPYLTOLUENE	NA	NA	NA	25	50	8	0	0.00	0	FALSE
KAFB-106015	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106016	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106017	P-ISOPROPYLTOLUENE	1.24E-03	3.78E-01	9.23E-02	0.41	2.5	10	4	0.40	3	FALSE
KAFB-106018	P-ISOPROPYLTOLUENE	-2.84E-03	-2.22E-01	3.28E-01	0.455	2.5	10	3	0.30	3	FALSE
KAFB-106019	P-ISOPROPYLTOLUENE	-7.43E-04	-6.11E-01	2.52E-02	0.3	0.773	9	8	0.89	7	FALSE
KAFB-106020	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106021	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106022	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106024	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106025	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106026	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106029	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106030	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106031	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106032	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106033	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106034	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106035	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106036	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106037	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106038	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106039	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106040	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106042	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106043	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106027	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106044	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106045	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE

Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

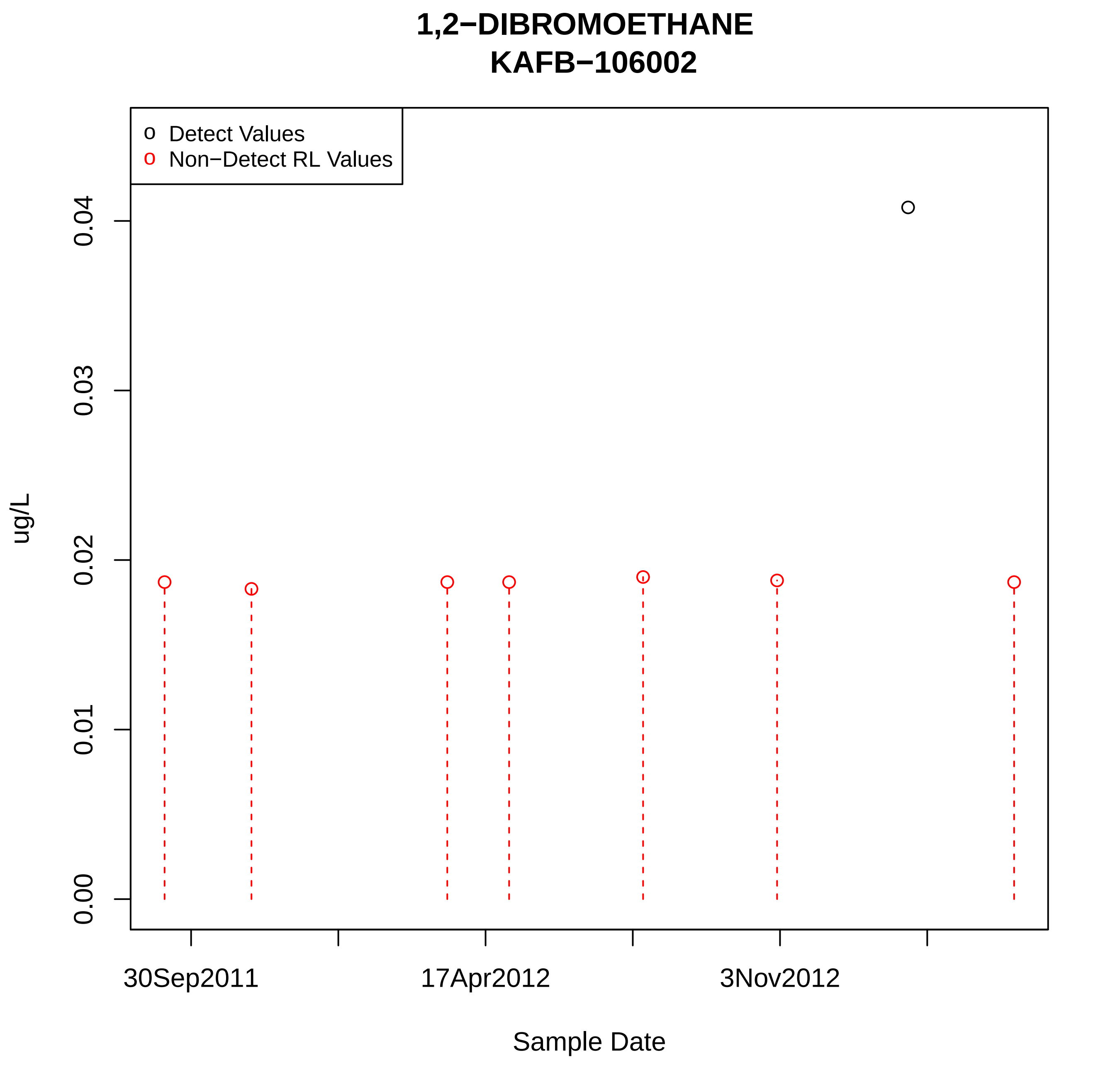
MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106046	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106047	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106048	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106050	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106051	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106052	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106053	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106054	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106055	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106057	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106058	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106060	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106061	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106062	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106063	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106065	P-ISOPROPYLTOLUENE	3.13E-03	3.57E-02	1.00E+00	2.5	24.3	8	4	0.50	4	FALSE
KAFB-106066	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106067	P-ISOPROPYLTOLUENE	1.82E-03	1.67E-01	5.71E-01	0.5	2.7	9	6	0.67	5	FALSE
KAFB-106068	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106069	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106070	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	2.5	9	0	0.00	0	FALSE
KAFB-106071	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106072	P-ISOPROPYLTOLUENE	1.07E-04	3.57E-02	1.00E+00	0.278	2.5	8	2	0.25	2	FALSE
KAFB-106073	P-ISOPROPYLTOLUENE	7.54E-03	5.00E-01	7.05E-02	0.36	3.5	8	4	0.50	4	FALSE
KAFB-106074	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106075	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	2.5	9	2	0.22	1	FALSE
KAFB-106077	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106078	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE
KAFB-106079	P-ISOPROPYLTOLUENE	NA	NA	NA	4.5	100	9	1	0.11	1	FALSE
KAFB-106080	P-ISOPROPYLTOLUENE	-2.29E-02	-7.27E-02	7.69E-01	3.1	25	11	5	0.45	3	FALSE
KAFB-106081	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106082	P-ISOPROPYLTOLUENE	-3.78E-03	-1.07E-01	7.74E-01	0.659	5	8	5	0.63	5	FALSE
KAFB-106083	P-ISOPROPYLTOLUENE	1.88E-03	2.22E-01	4.56E-01	0.735	8.2	9	8	0.89	7	FALSE
KAFB-106084	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106085	P-ISOPROPYLTOLUENE	-1.85E-03	-1.07E-01	7.54E-01	0.5	2.5	8	2	0.25	2	FALSE
KAFB-106086	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	2.5	8	0	0.00	0	FALSE
KAFB-106087	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106088	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106089	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	12	0	0.00	0	FALSE
KAFB-106090	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106091	P-ISOPROPYLTOLUENE	-3.85E-04	-8.33E-02	7.71E-01	0.5	2.5	9	2	0.22	2	FALSE
KAFB-106092	P-ISOPROPYLTOLUENE	-8.66E-03	-1.94E-01	3.47E-01	0.5	2.86	9	2	0.22	2	FALSE
KAFB-106093	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE

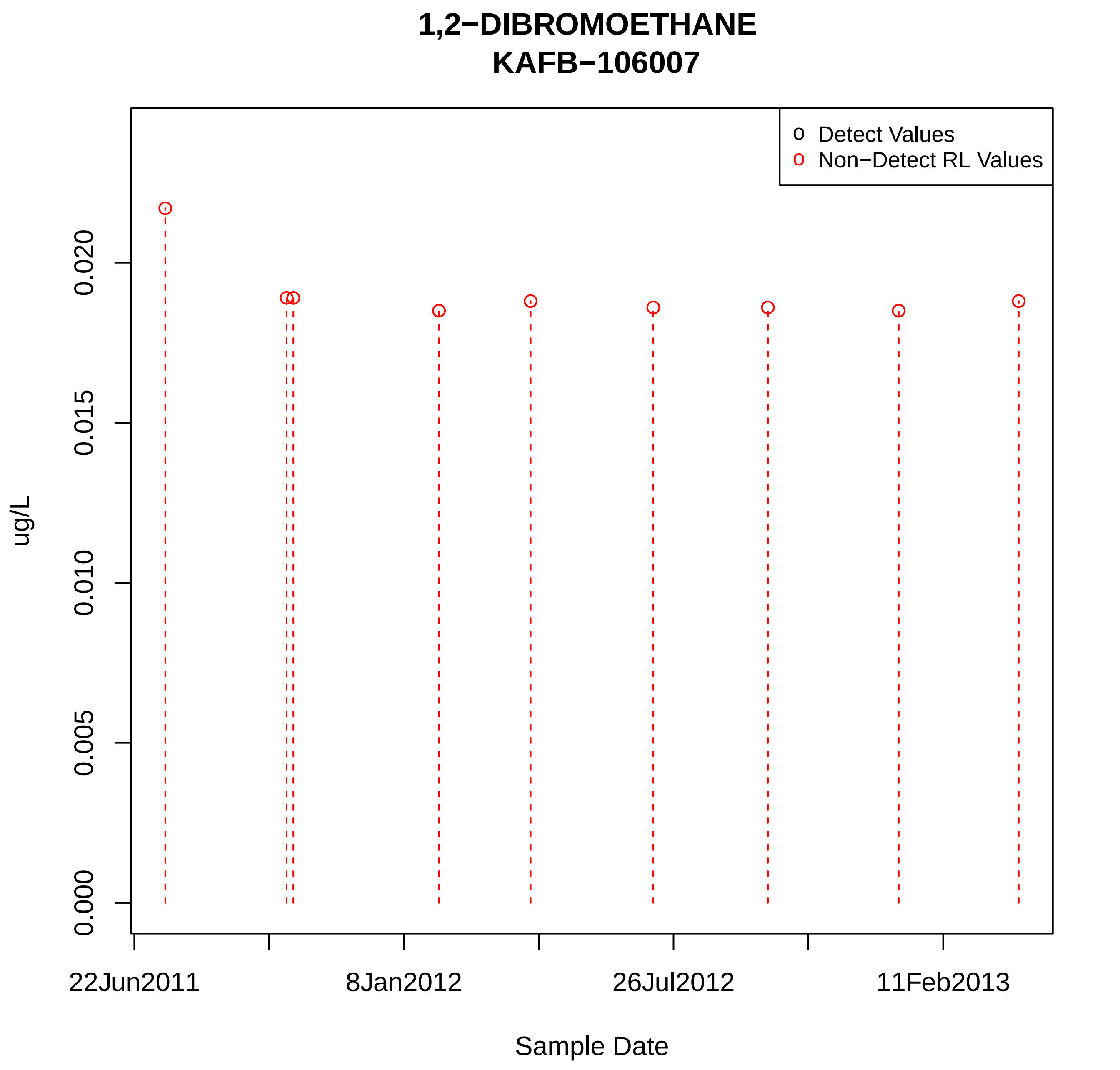
Appendix A-4
Results of Monitoring Well Chemicals Statistical Time Trend Analyses, BFF Kirtland AFB

MW	Analyte	Slope	Tau	p Value	Min	Max	N.Obs	N.Det	Frac.Det	Number of Detects	Possible Increasing Trend
KAFB-106094	P-ISOPROPYLTOLUENE	NA	NA	NA	0.411	5	8	1	0.13	1	FALSE
KAFB-106095	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106096	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106013	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106097	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106098	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106099	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106100	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	10	0	0.00	0	FALSE
KAFB-106101	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106102	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106023	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106103	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106104	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	9	0	0.00	0	FALSE
KAFB-106105	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	8	0	0.00	0	FALSE
KAFB-106106	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	11	0	0.00	0	FALSE
KAFB-106107	P-ISOPROPYLTOLUENE	NA	NA	NA	0.5	0.5	7	0	0.00	0	FALSE

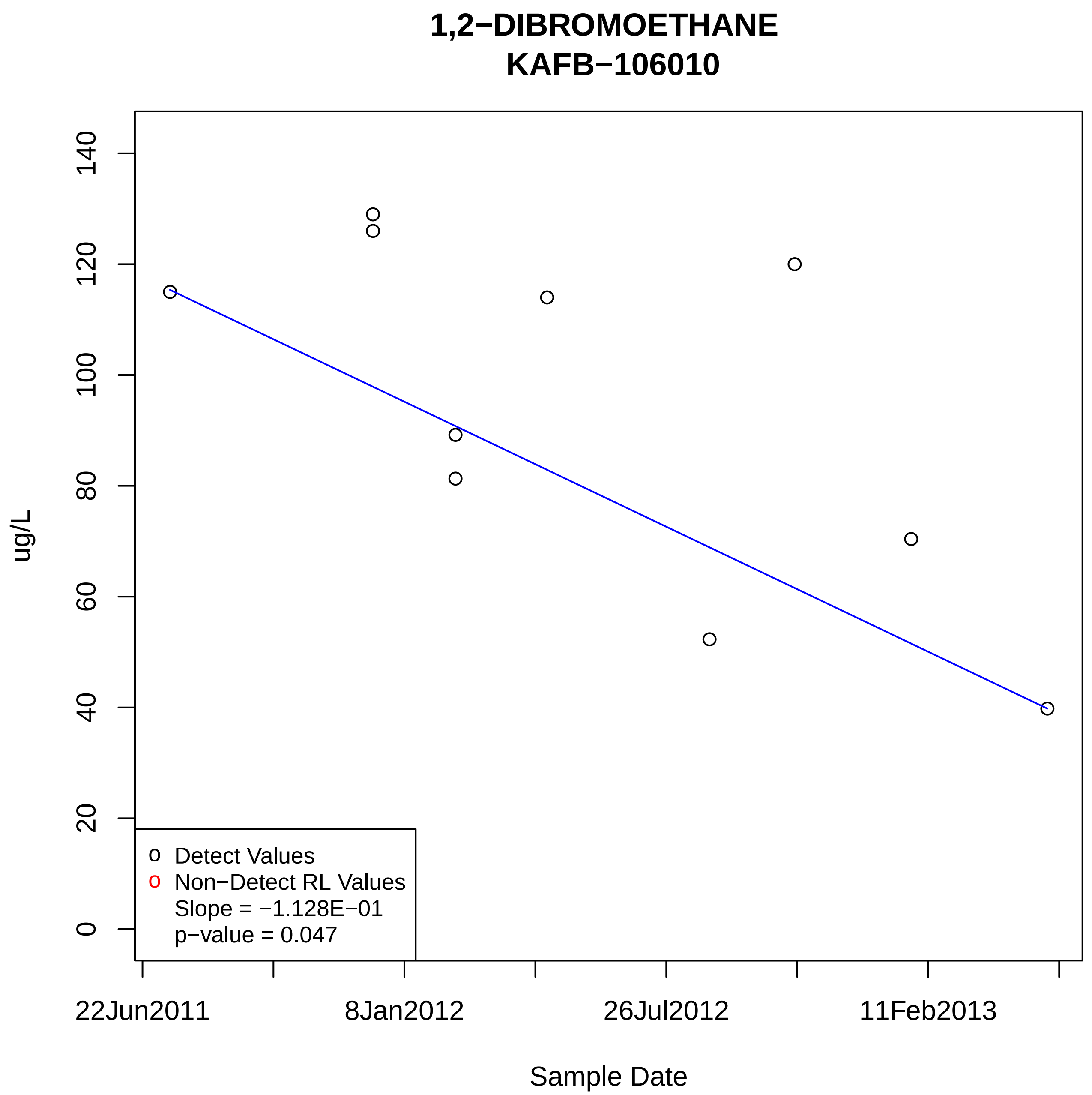


1,2−DIBROMOETHANE
KAFB−106001
o Detect Values
o Non−Detect RL Values
Slope = −6.776E−04
p−value = 0.711
0.0
0.5
1.0
1.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

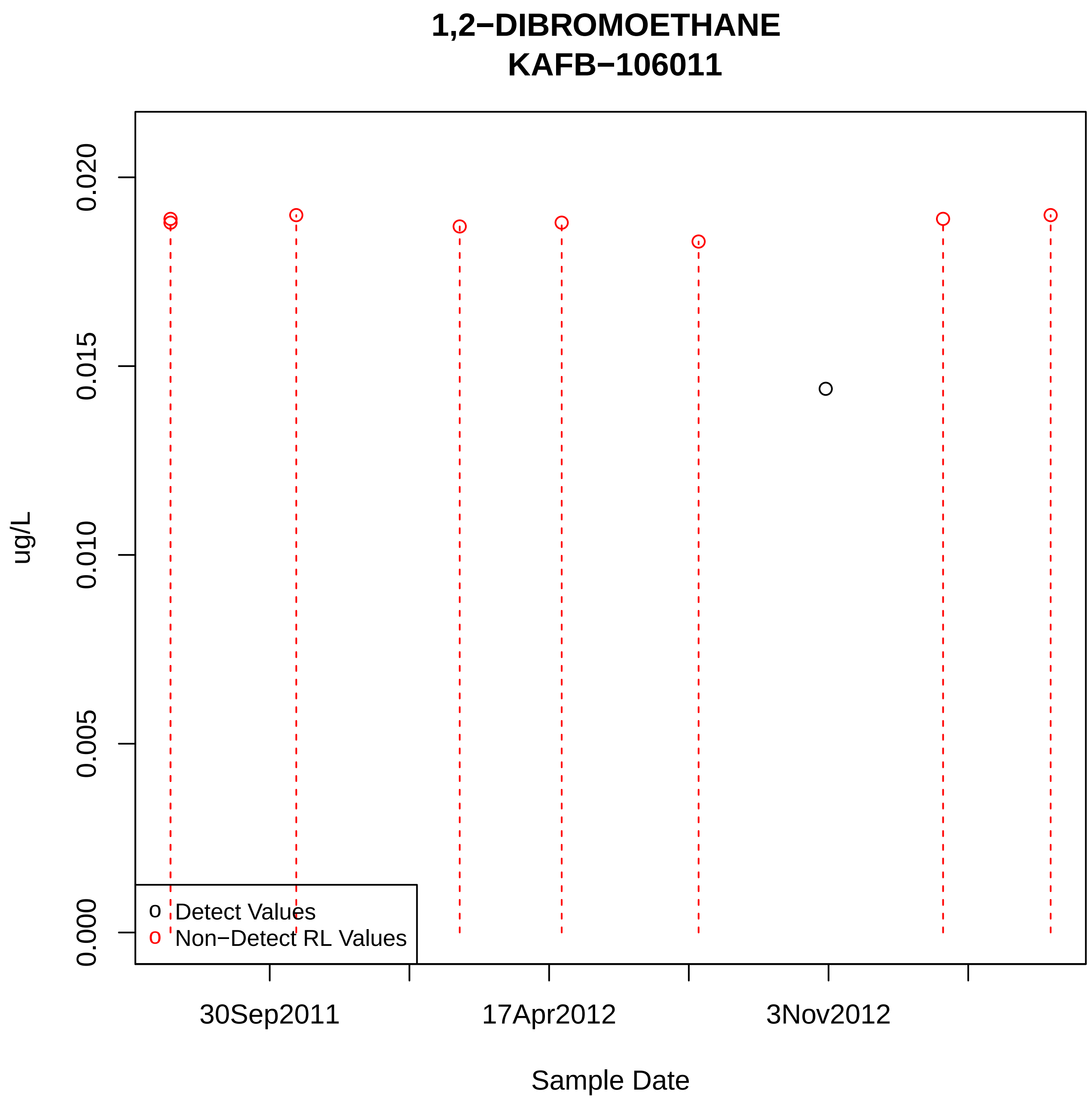

1,2−DIBROMOETHANE
KAFB−106002
Detect Values
Non−Detect RL Values
0.00
0.01
0.02
0.03
0.04
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



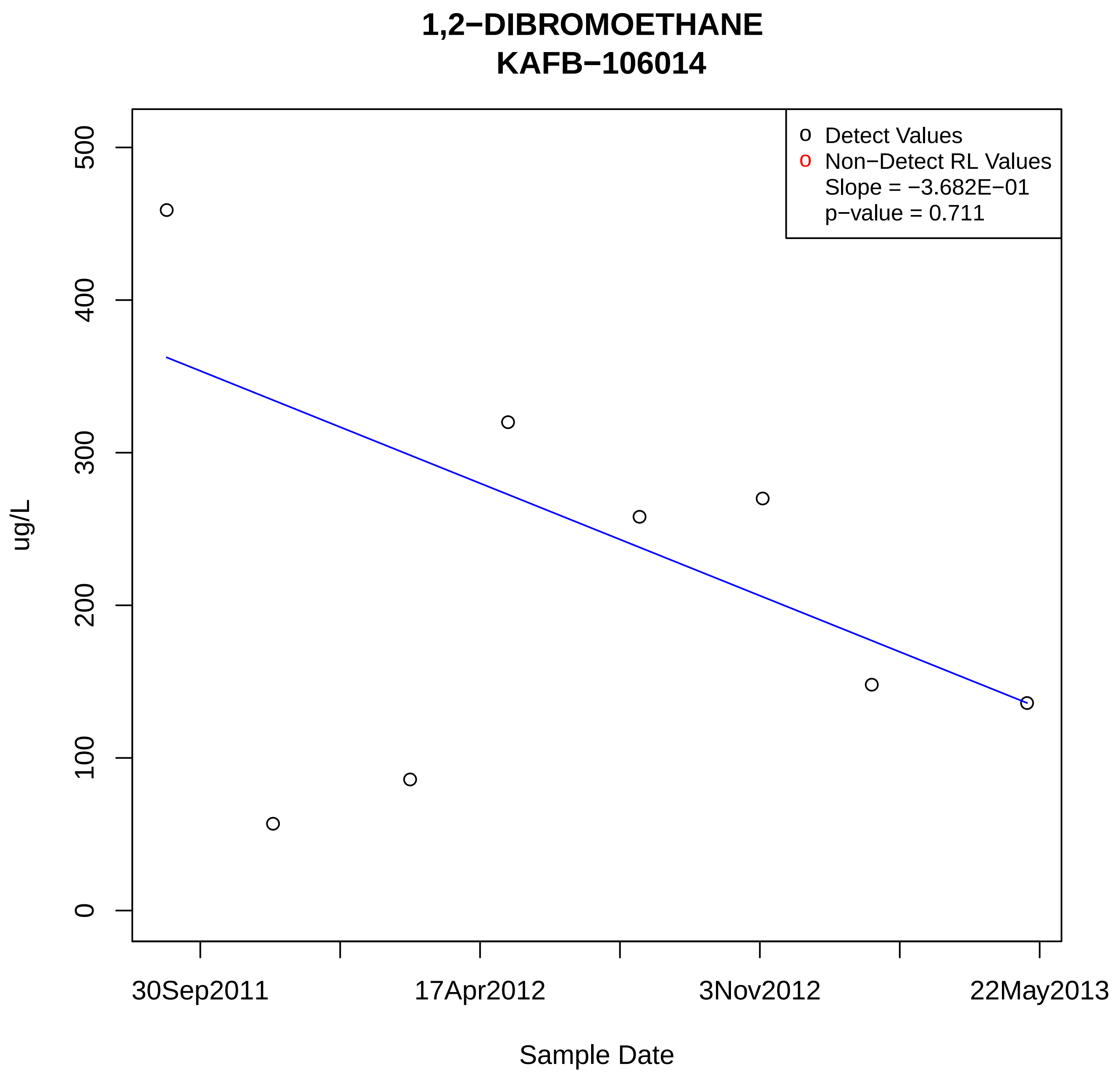
1,2−DIBROMOETHANE
KAFB−106007
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

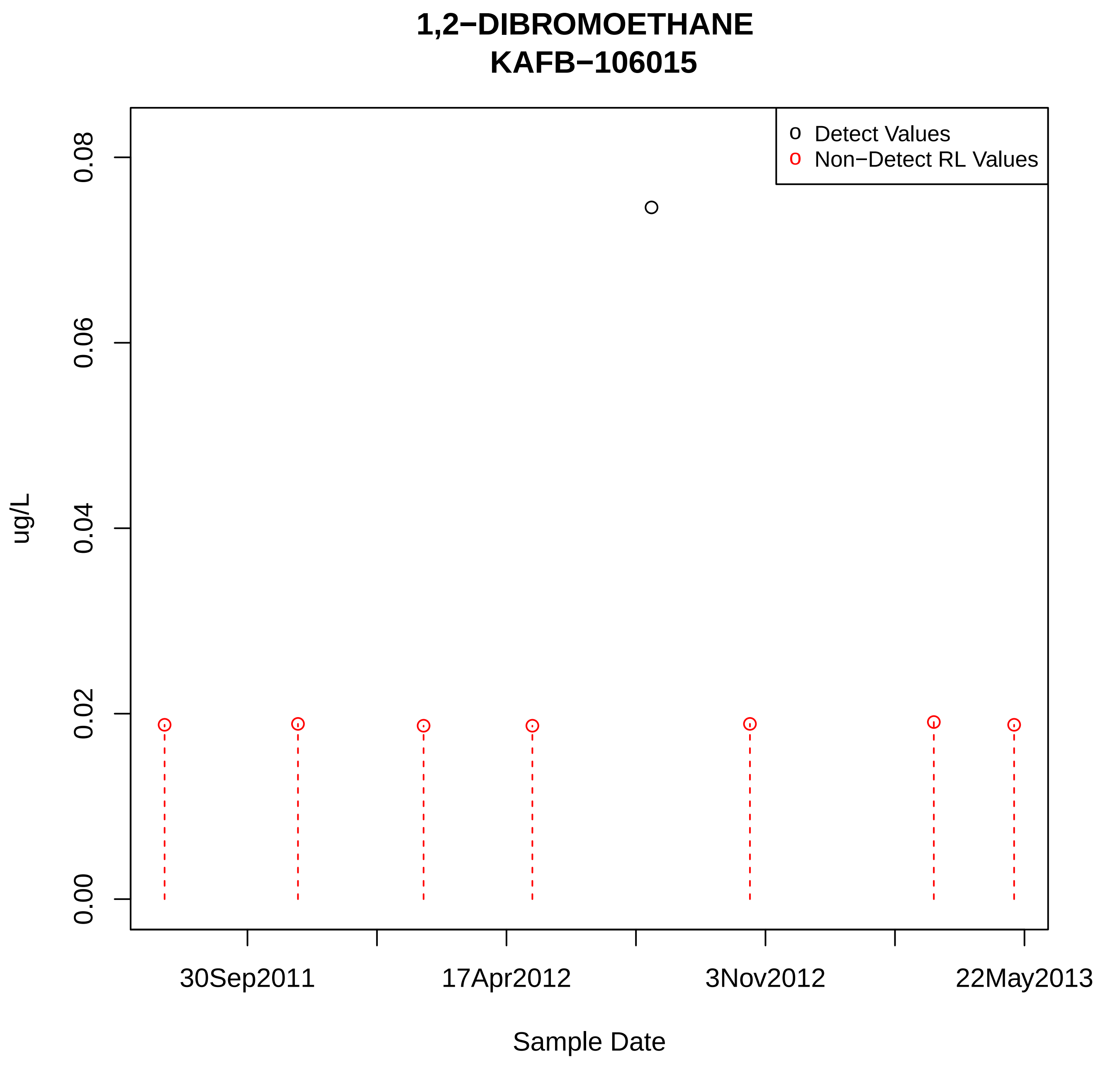


1,2−DIBROMOETHANE
KAFB−106010
ug/L
0
20
40
60
80
100
120
140
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −1.128E−01
p−value = 0.047

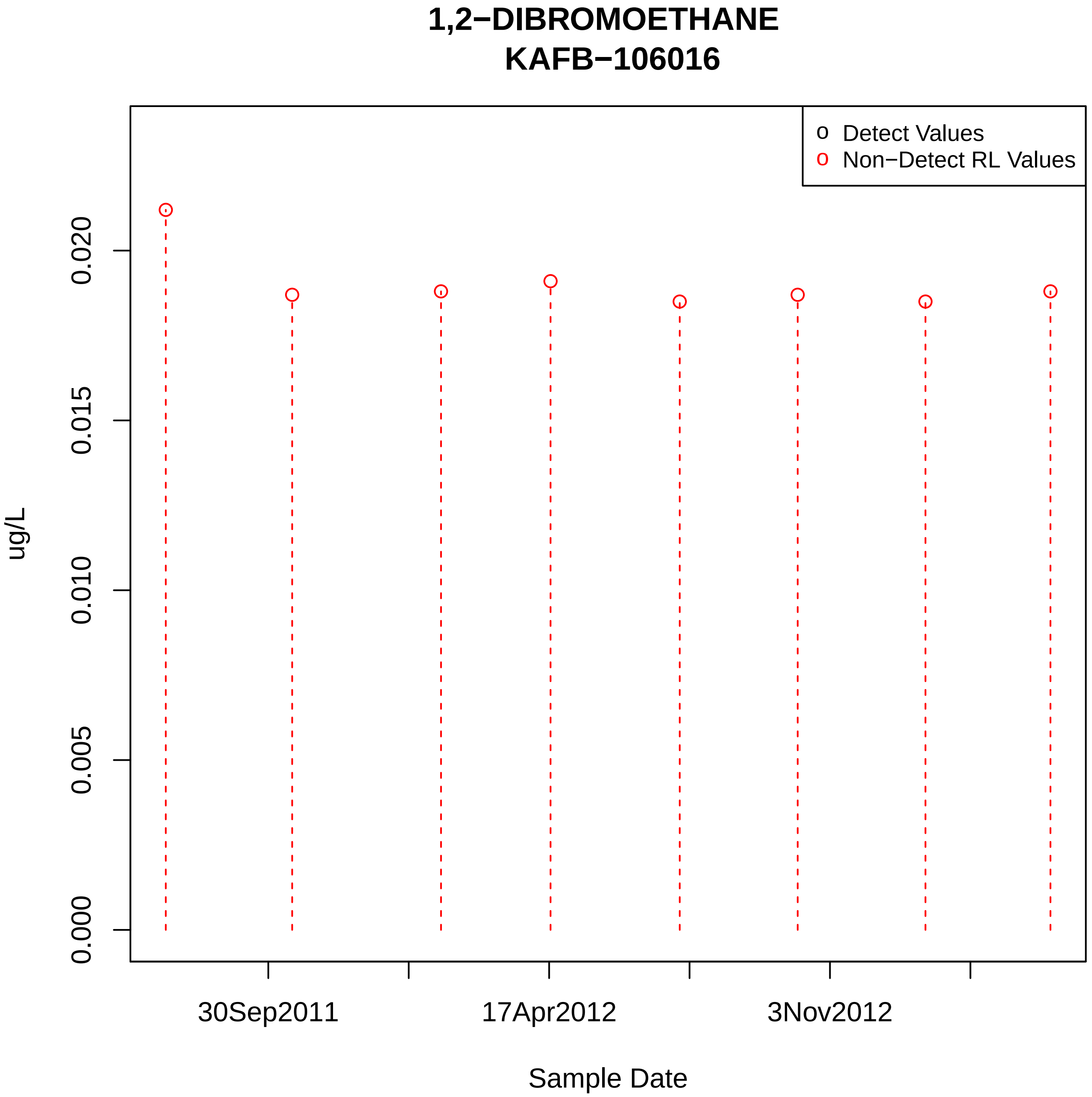


1,2−DIBROMOETHANE
KAFB−106011
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

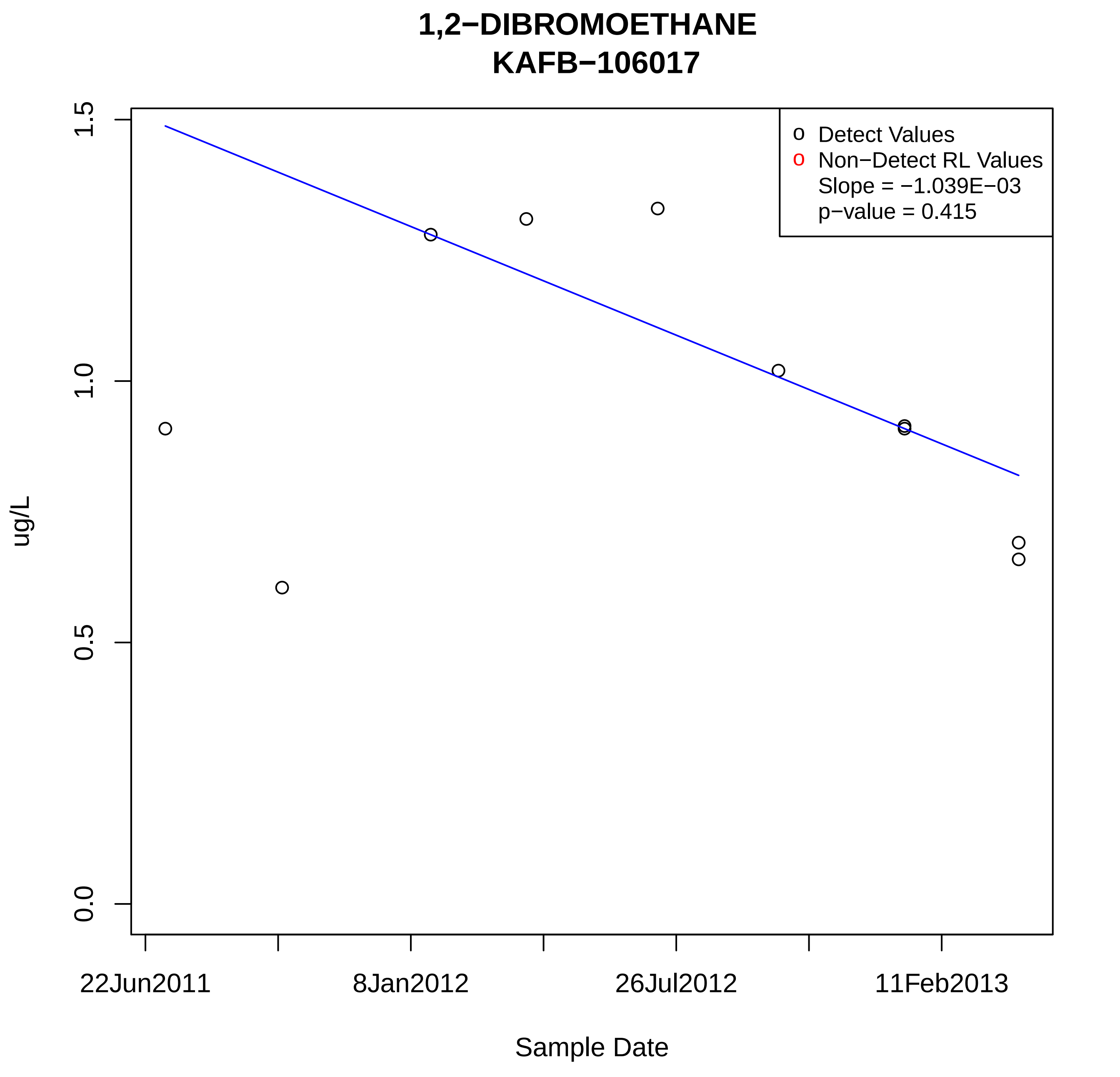

1,2−DIBROMOETHANE
KAFB−106014
o Detect Values
o Non−Detect RL Values
Slope = −3.682E−01
p−value = 0.711
ug/L
0
100
200
300
400
500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

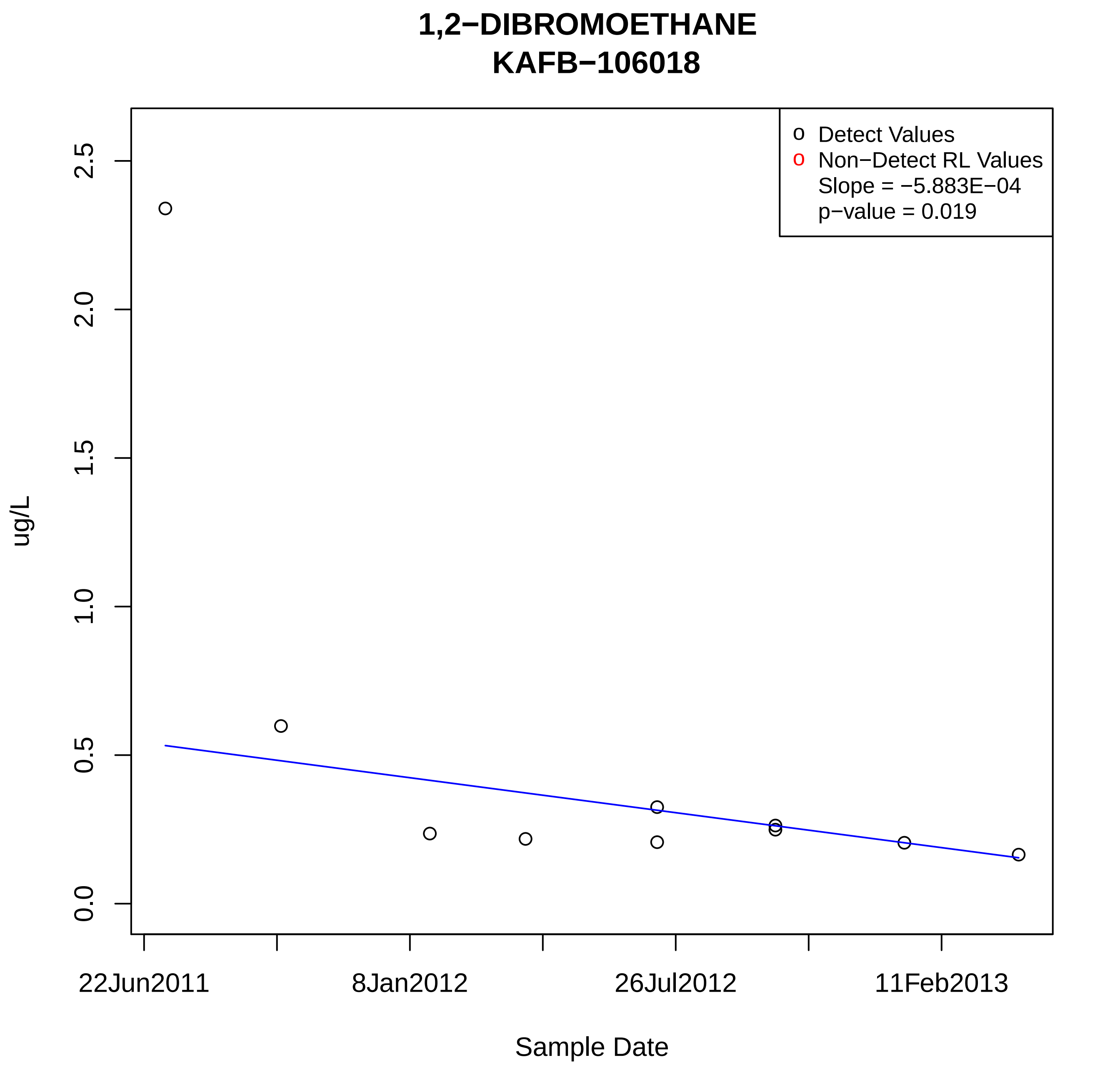


1,2−DIBROMOETHANE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.00
0.02
0.04
0.06
0.08
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

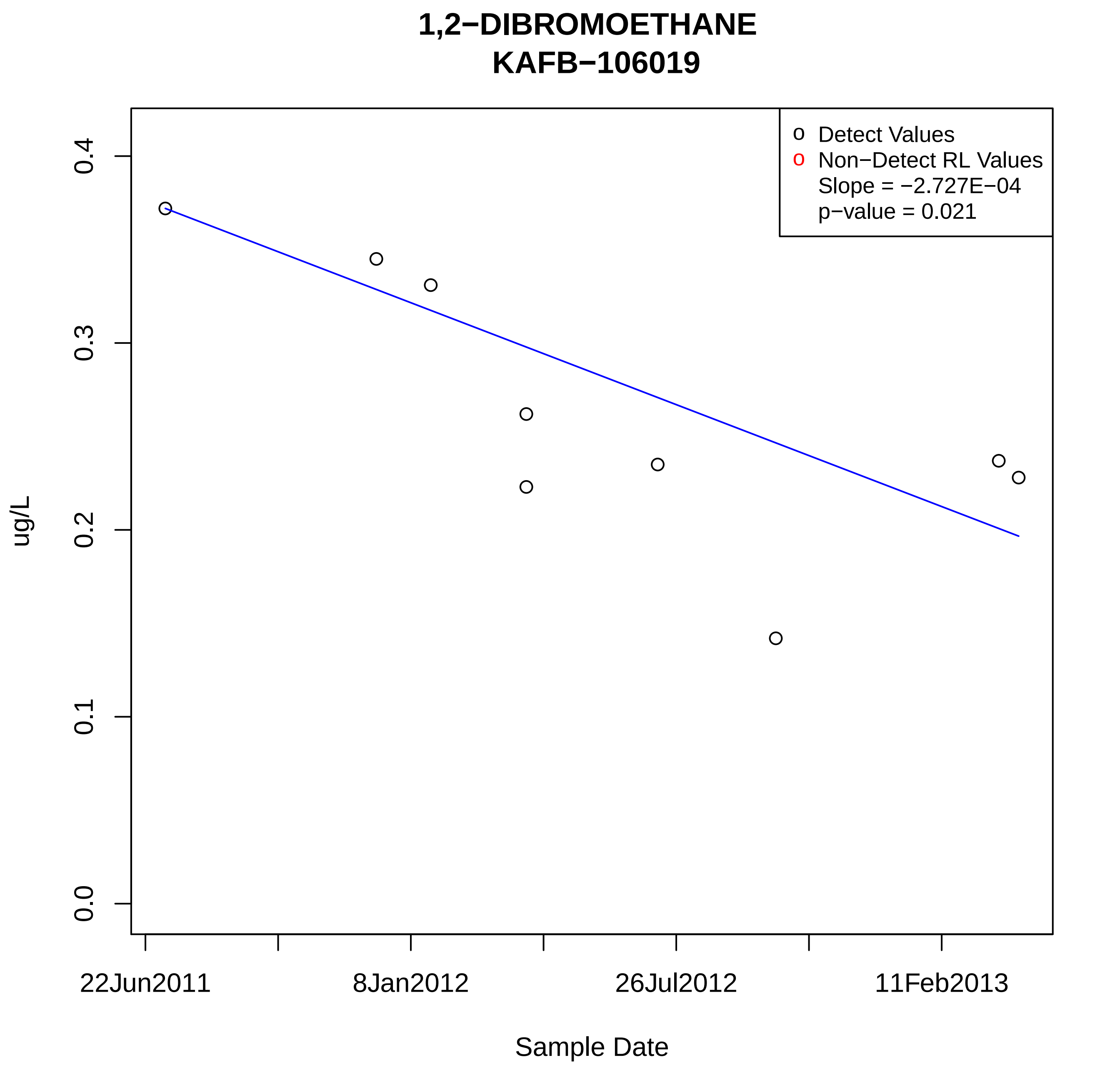


1,2−DIBROMOETHANE
KAFB−106016
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

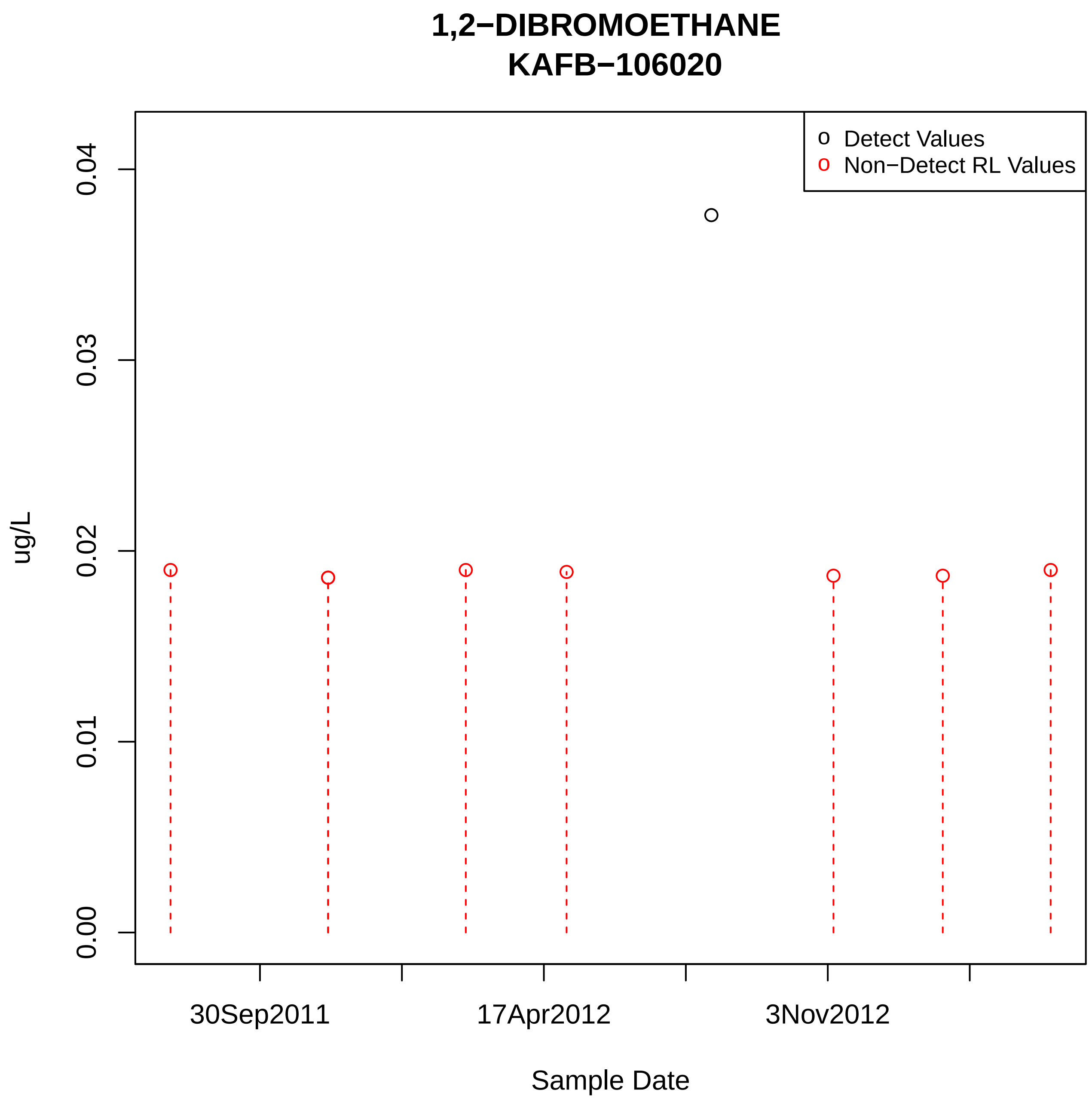

1,2−DIBROMOETHANE
KAFB−106017
Detect Values
Non−Detect RL Values
Slope = −1.039E−03
p−value = 0.415
ug/L
0.0
0.5
1.0
1.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

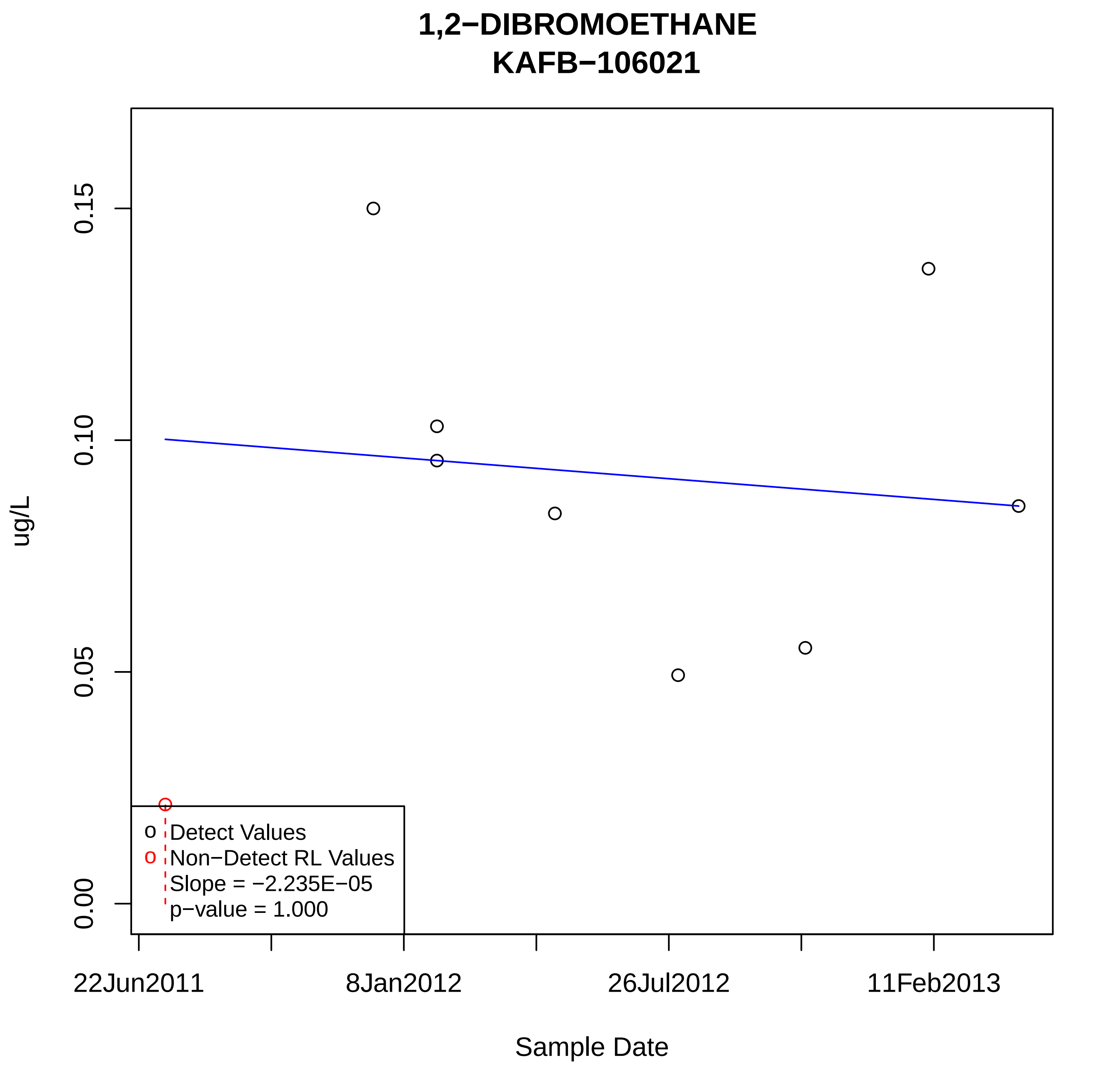


1,2−DIBROMOETHANE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −5.883E−04
p−value = 0.019
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

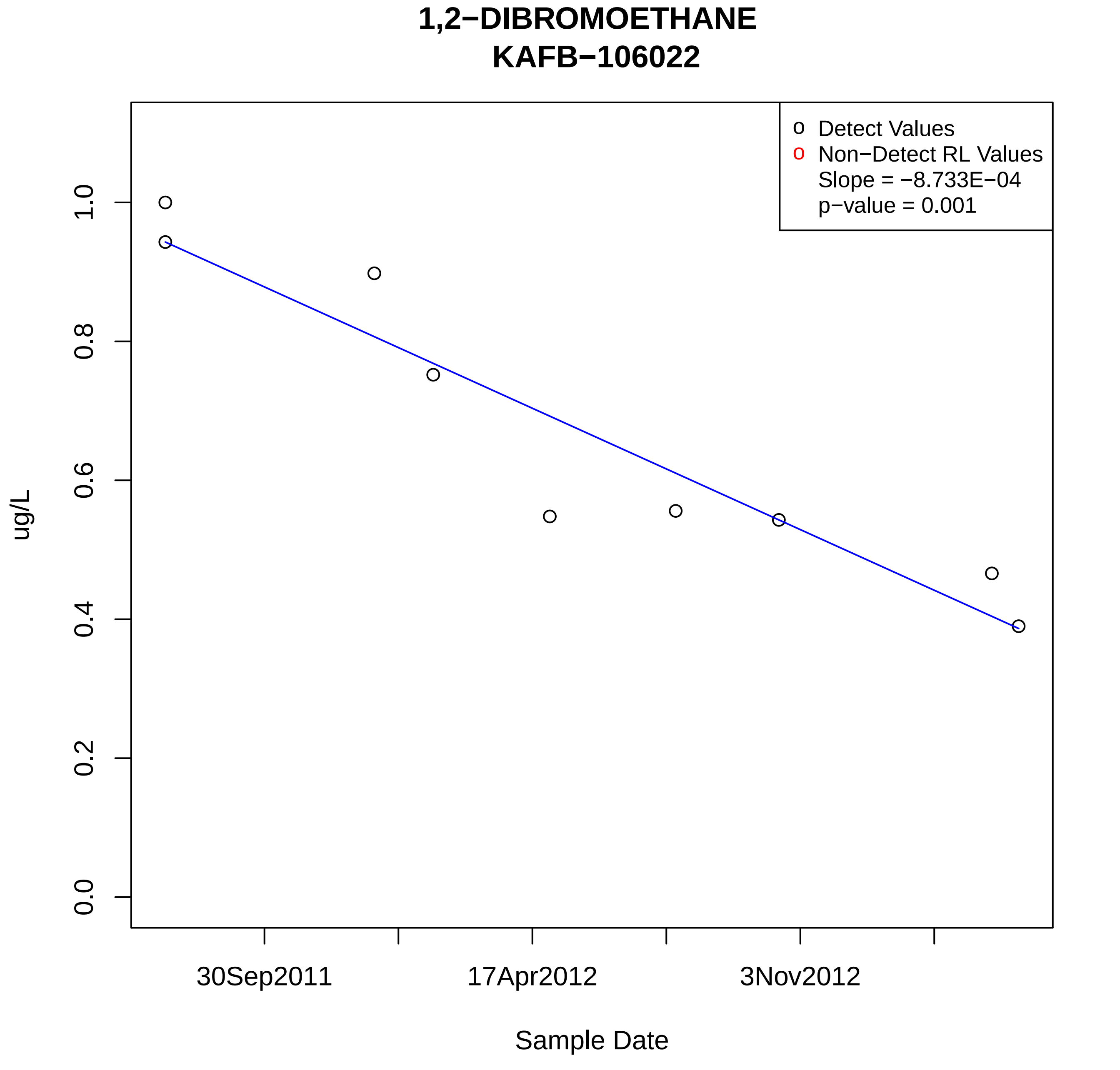


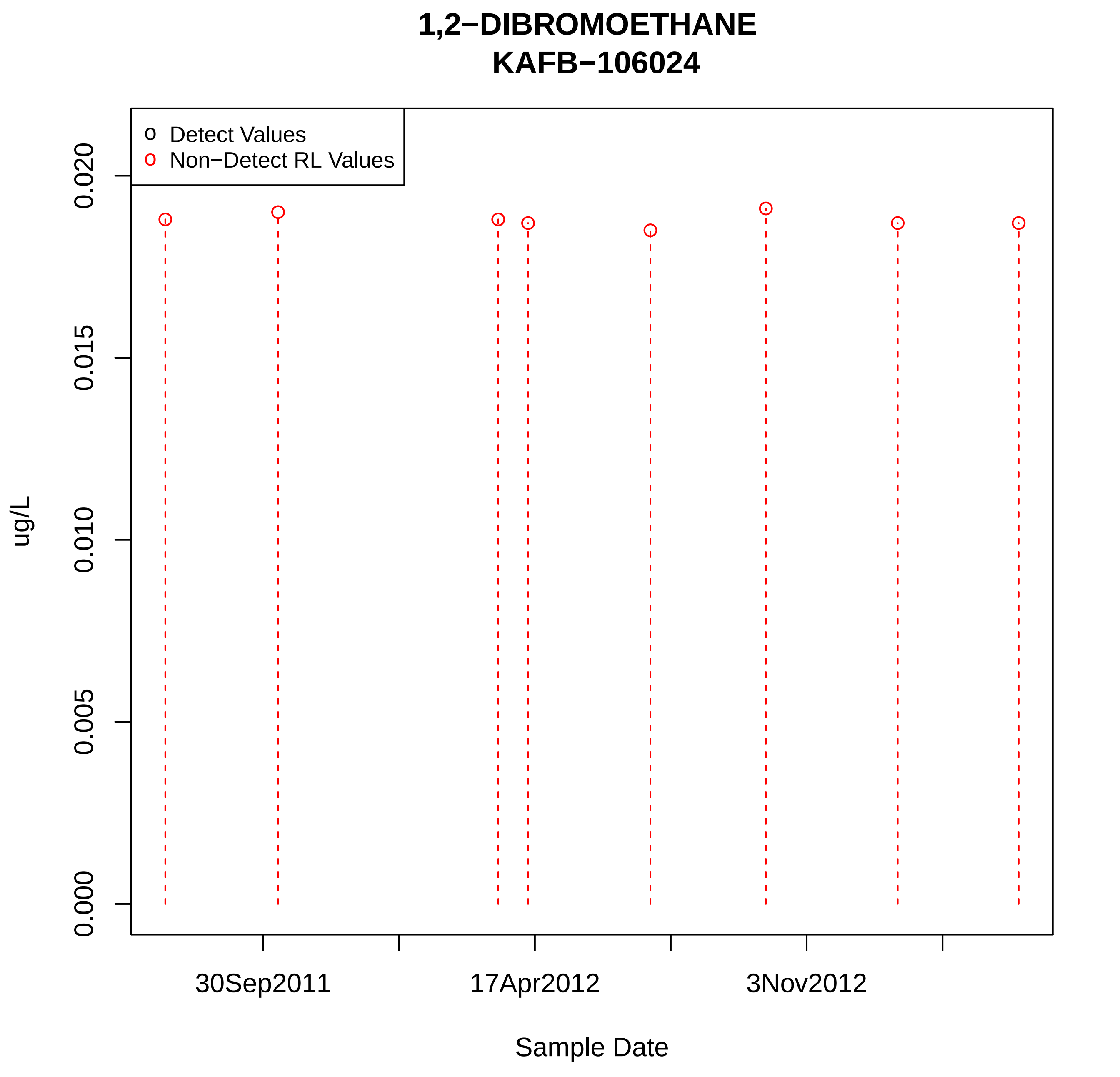
1,2−DIBROMOETHANE
KAFB−106019
o Detect Values
o Non−Detect RL Values
Slope = −2.727E−04
p−value = 0.021
ug/L
0.0
0.1
0.2
0.3
0.4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

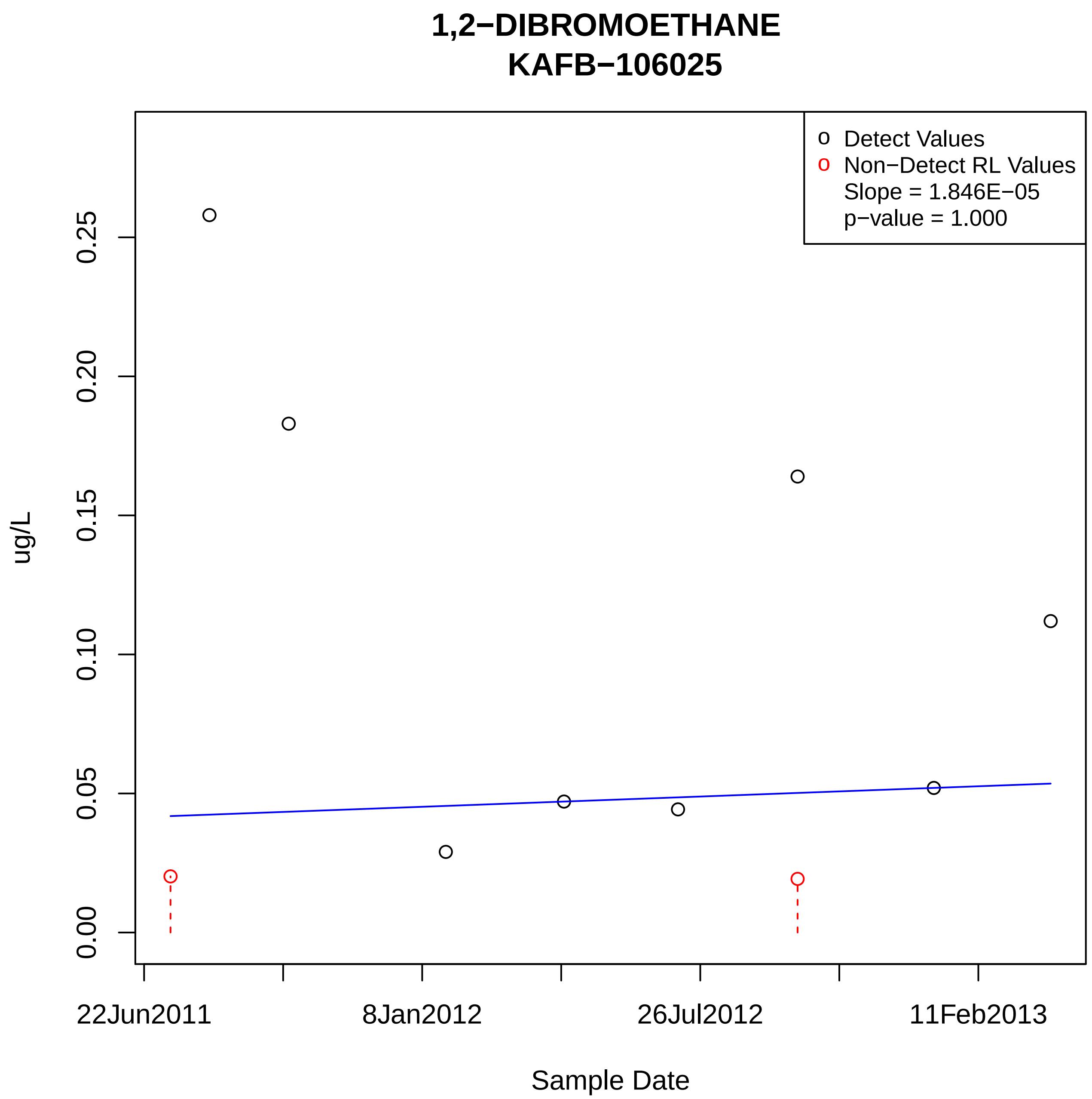

1,2−DIBROMOETHANE
KAFB−106020
Detect Values
Non−Detect RL Values
ug/L
0.00
0.01
0.02
0.03
0.04
30Sep2011
17Apr2012
3Nov2012
Sample Date

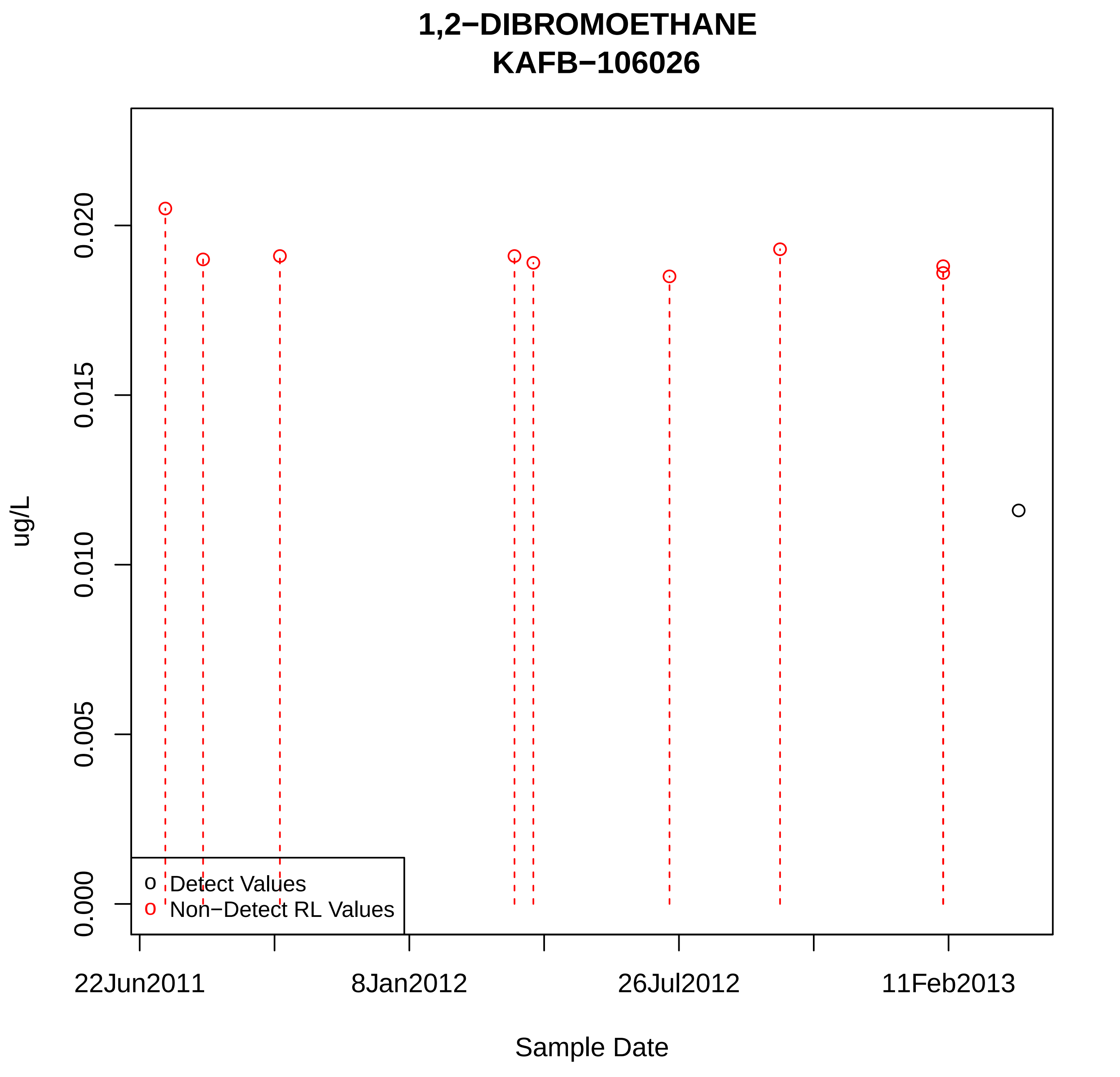


1,2−DIBROMOETHANE
KAFB−106021
0.00
0.05
0.10
0.15
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −2.235E−05
p−value = 1.000

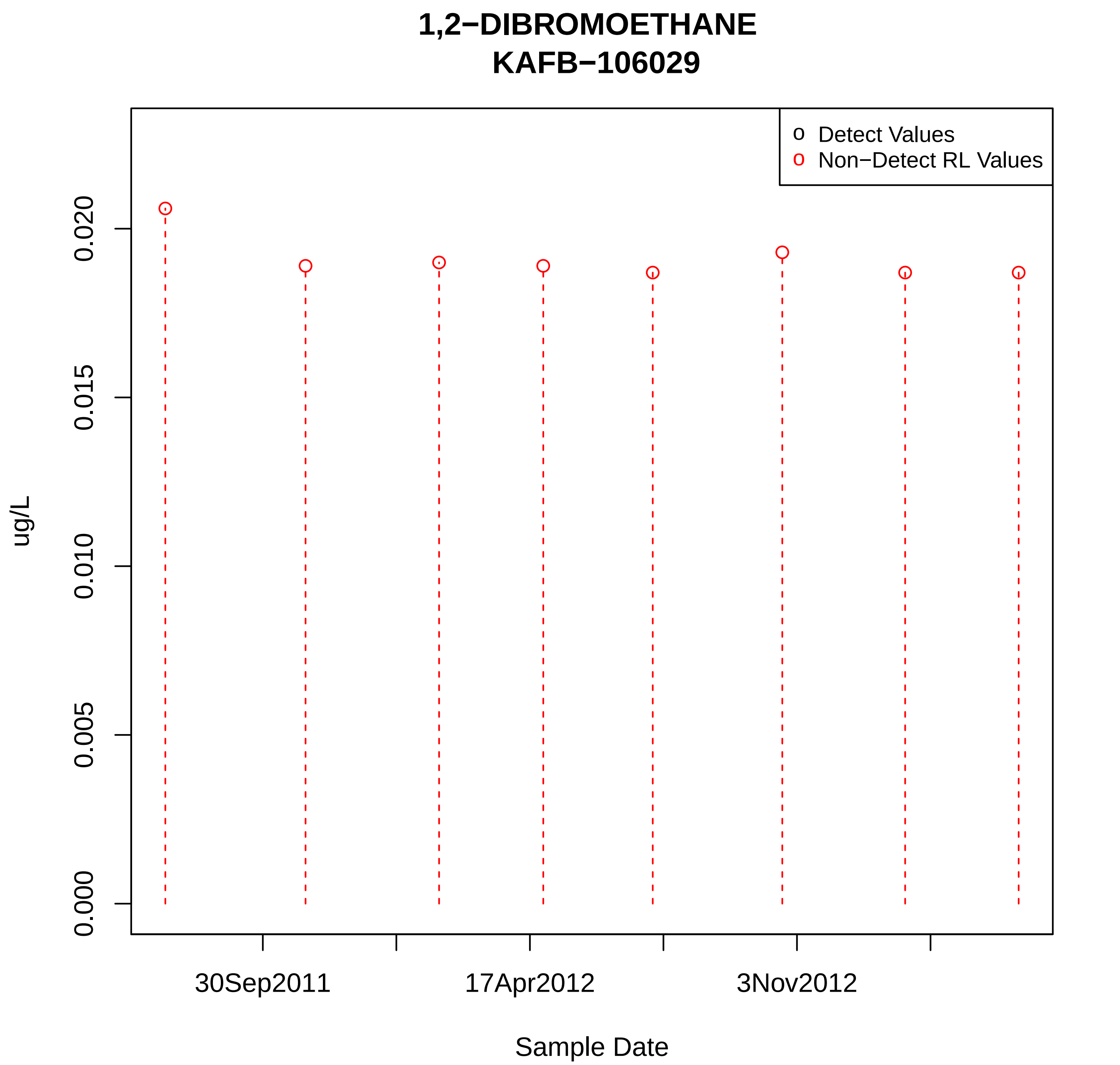

1,2−DIBROMOETHANE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −8.733E−04
p−value = 0.001
0.0
0.2
0.4
0.6
0.8
1.0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

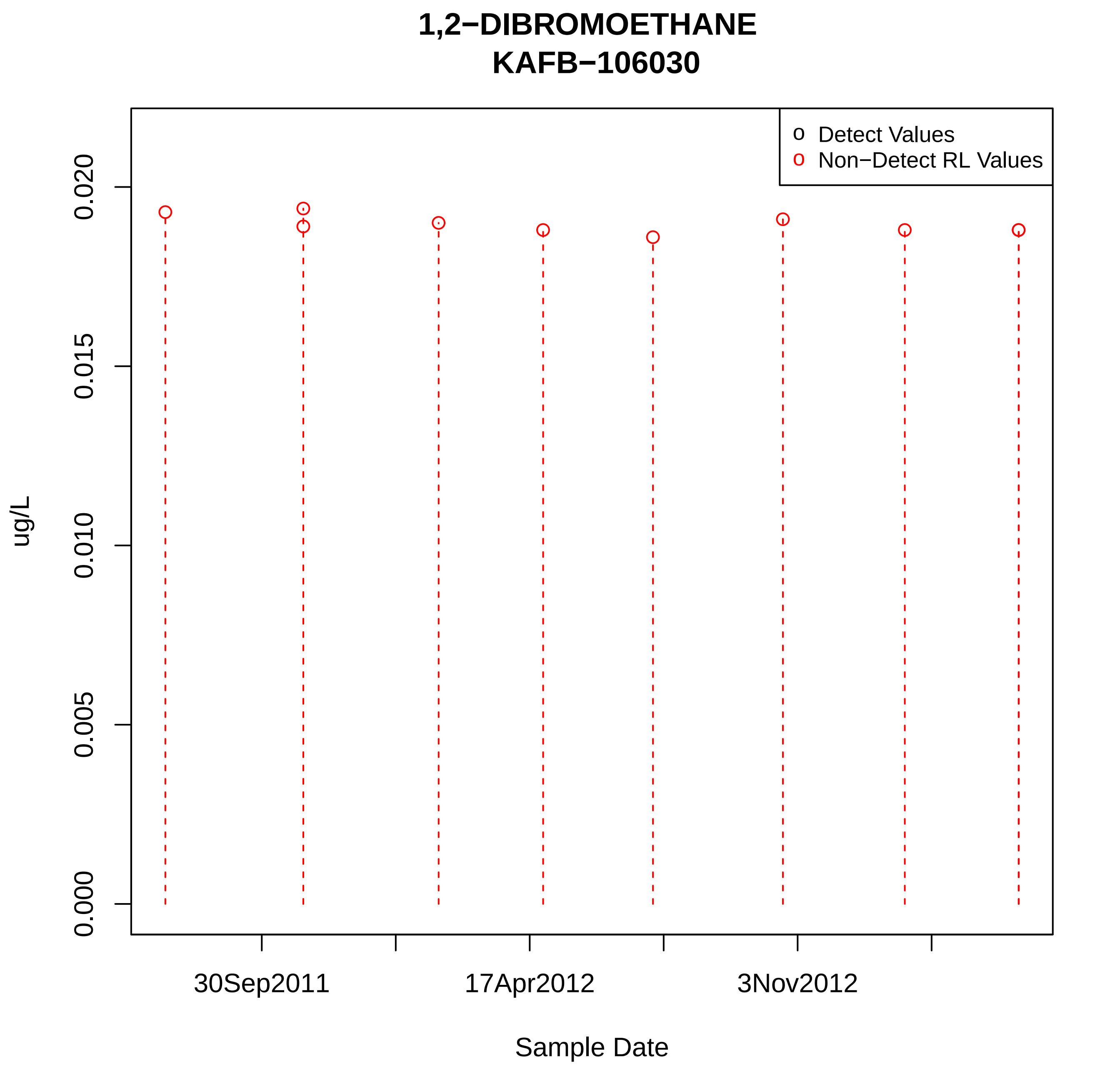

1,2−DIBROMOETHANE
KAFB−106024
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2−DIBROMOETHANE
KAFB−106025
Detect Values
Non−Detect RL Values
Slope = 1.846E−05
p−value = 1.000
ug/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

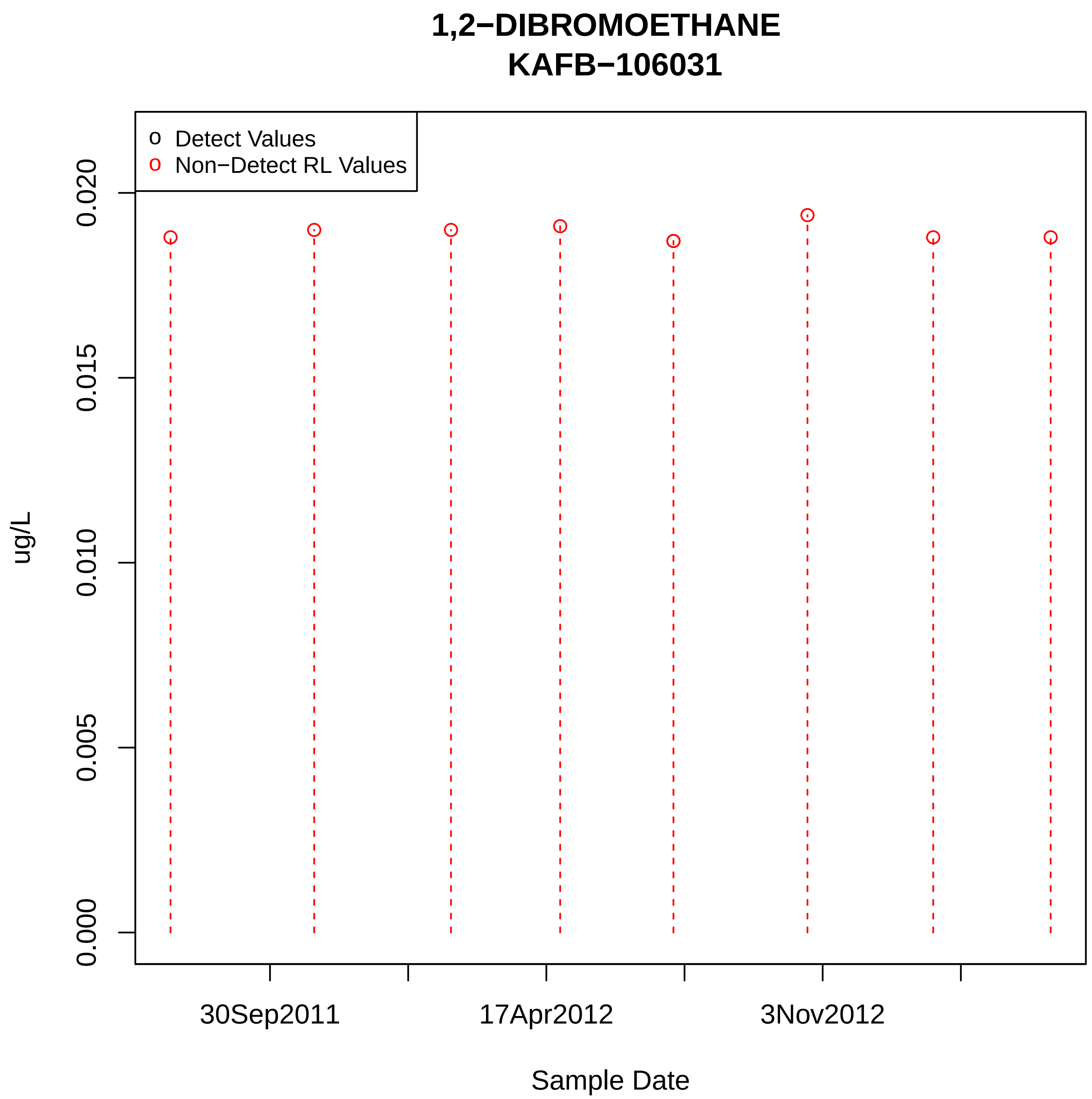


1,2−DIBROMOETHANE
KAFB−106026
ug/L
0.000
0.005
0.010
0.015
0.020
o Detect Values
o Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

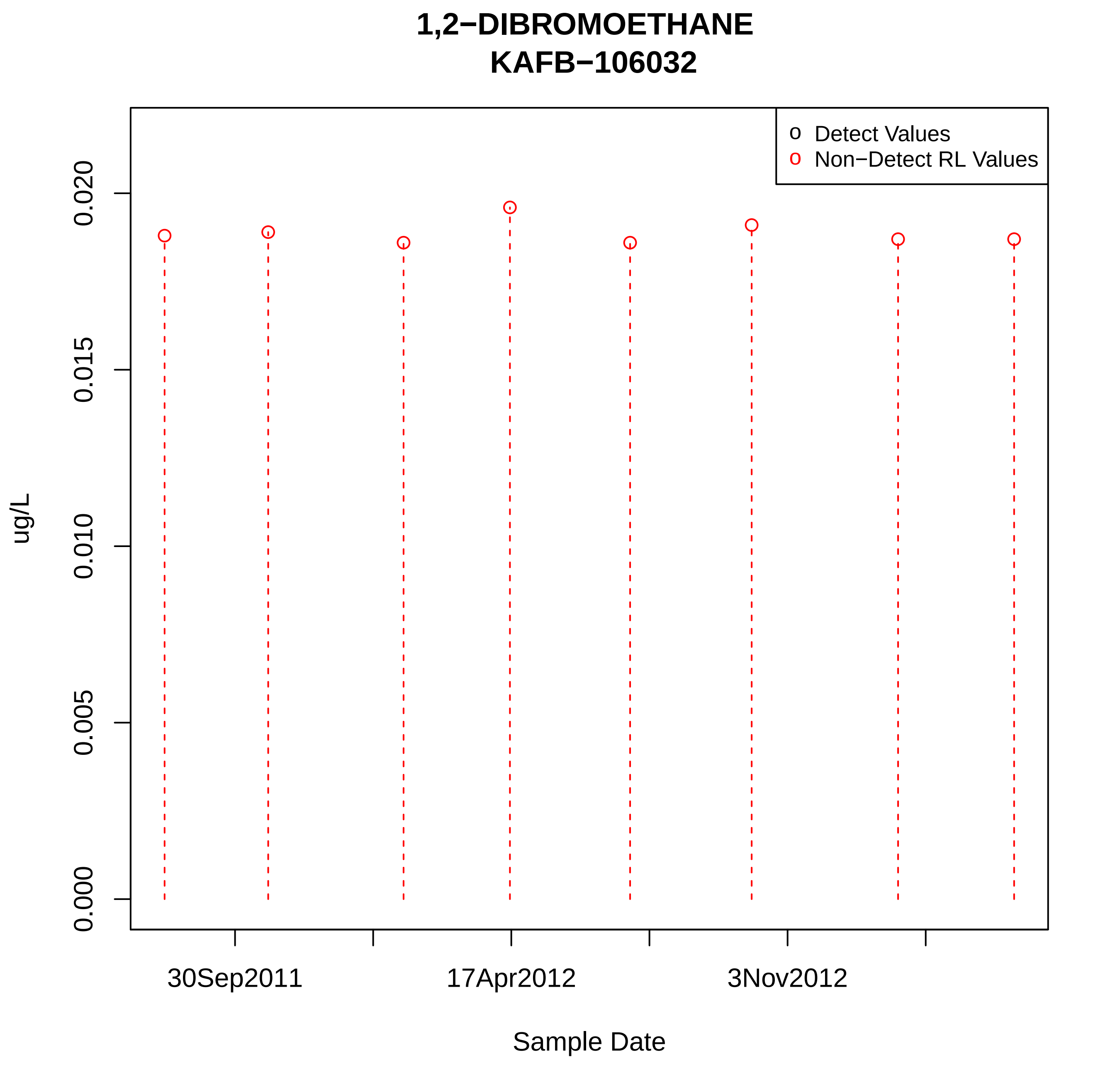

1,2−DIBROMOETHANE
KAFB−106029
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date



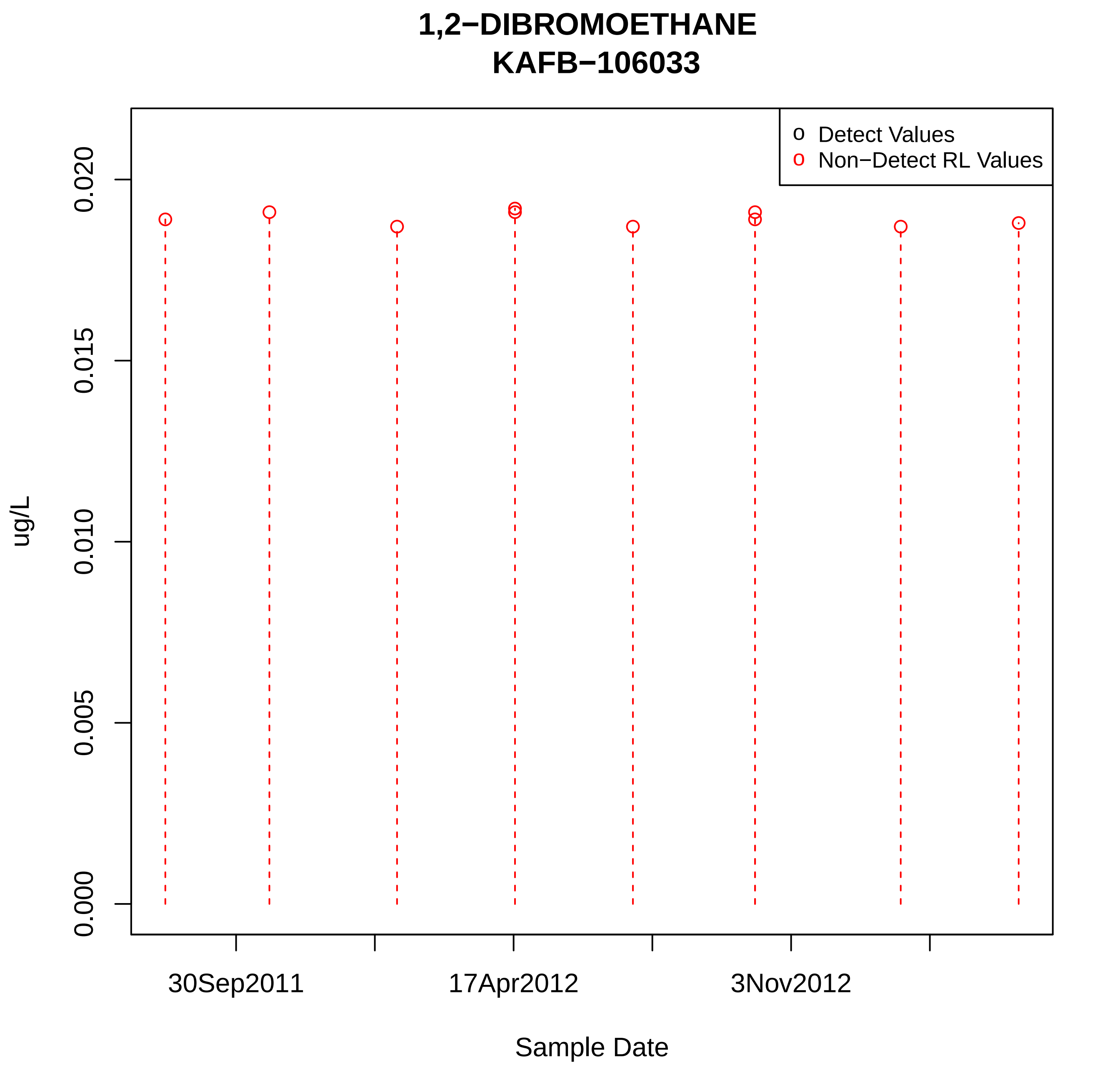
1,2−DIBROMOETHANE
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

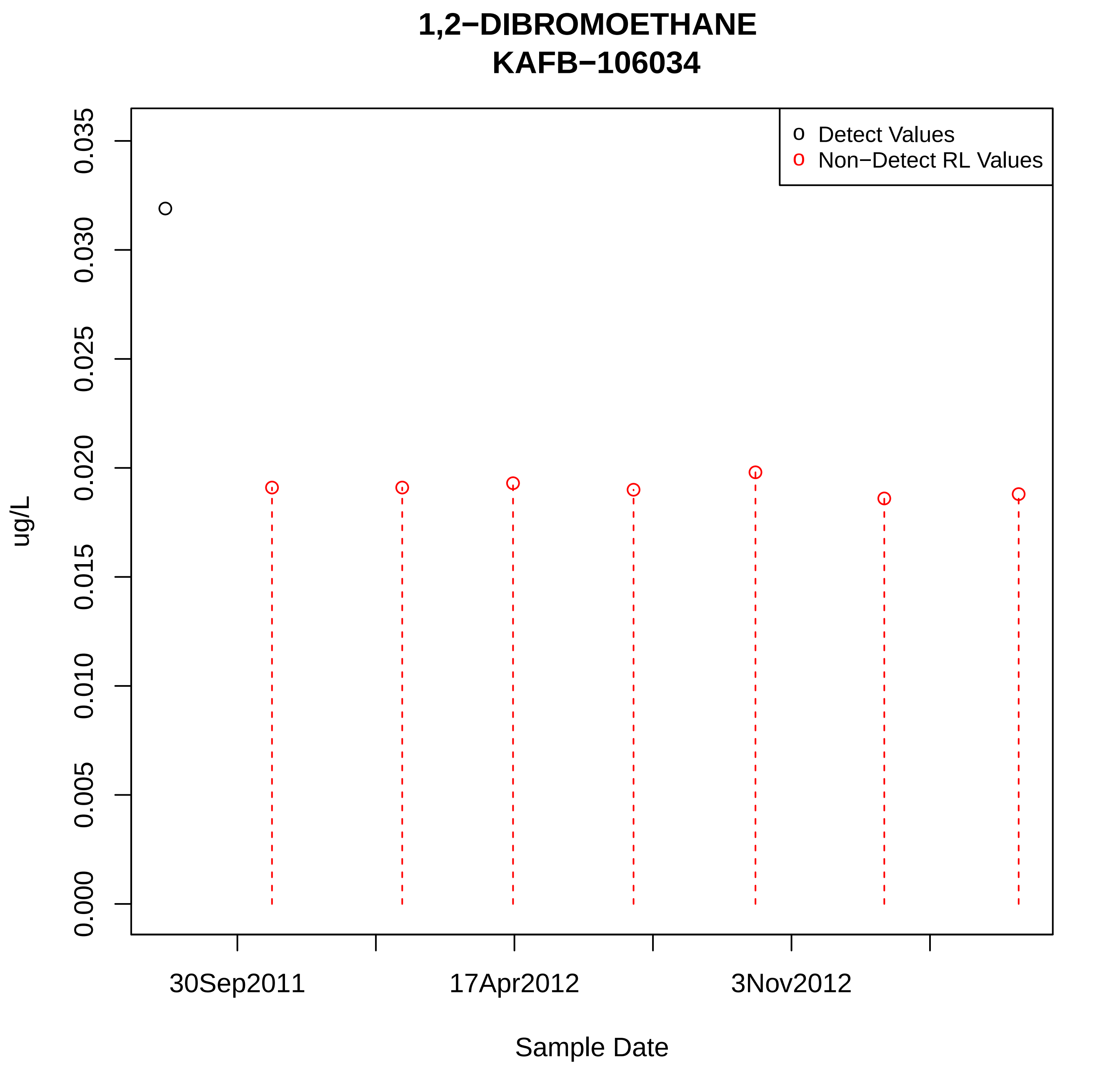


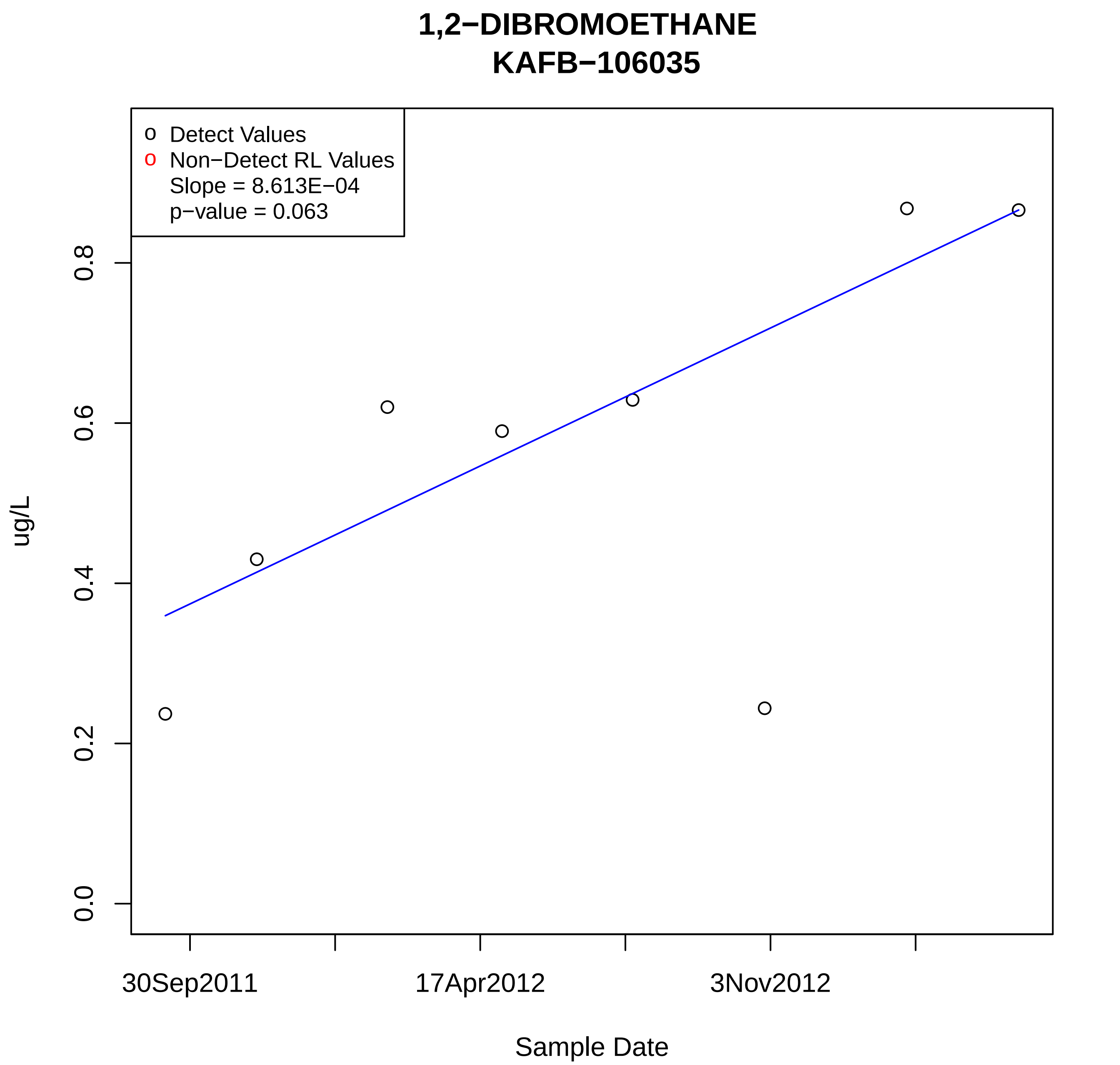
1,2−DIBROMOETHANE
KAFB−106031
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date



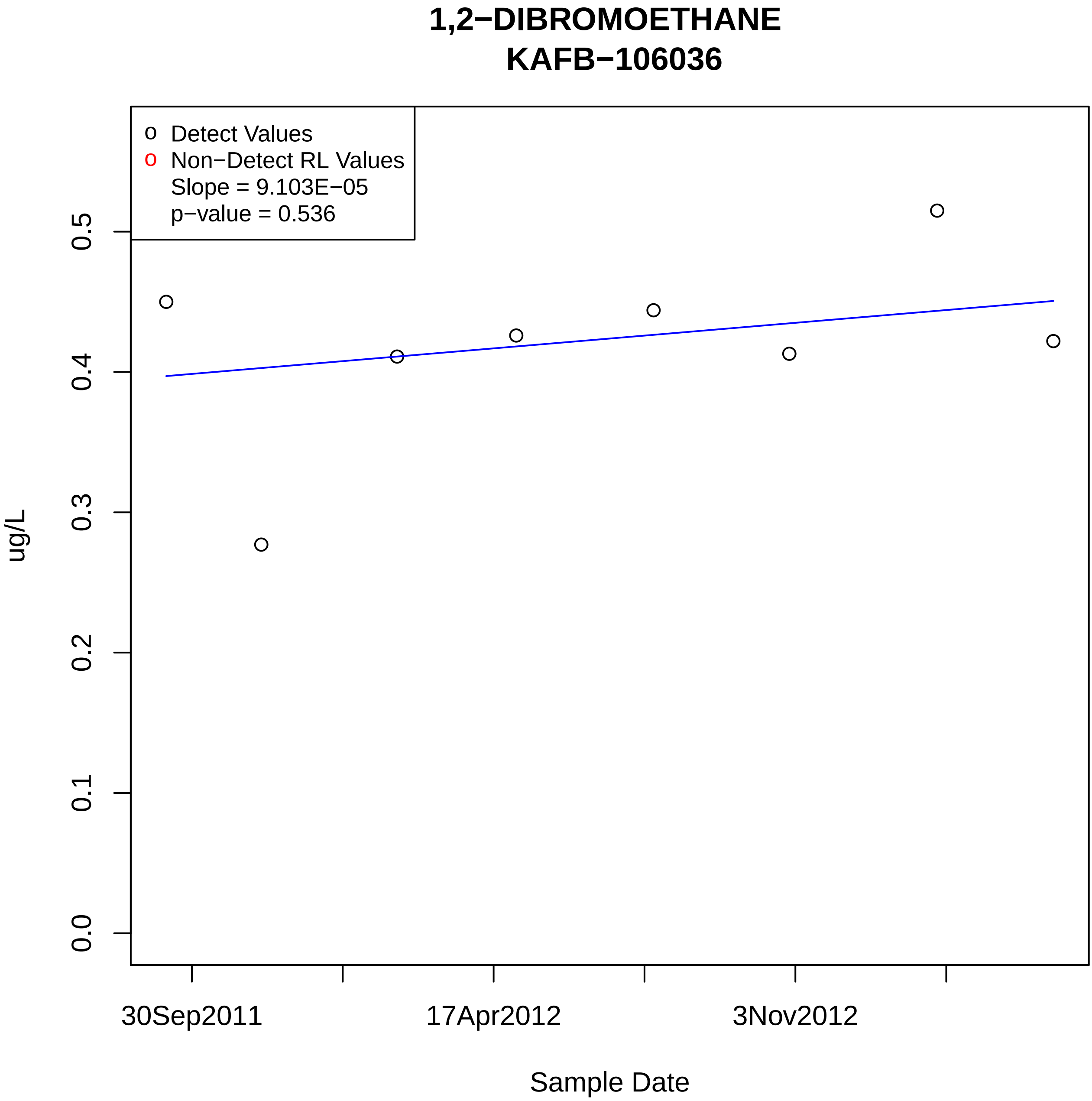
1,2−DIBROMOETHANE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

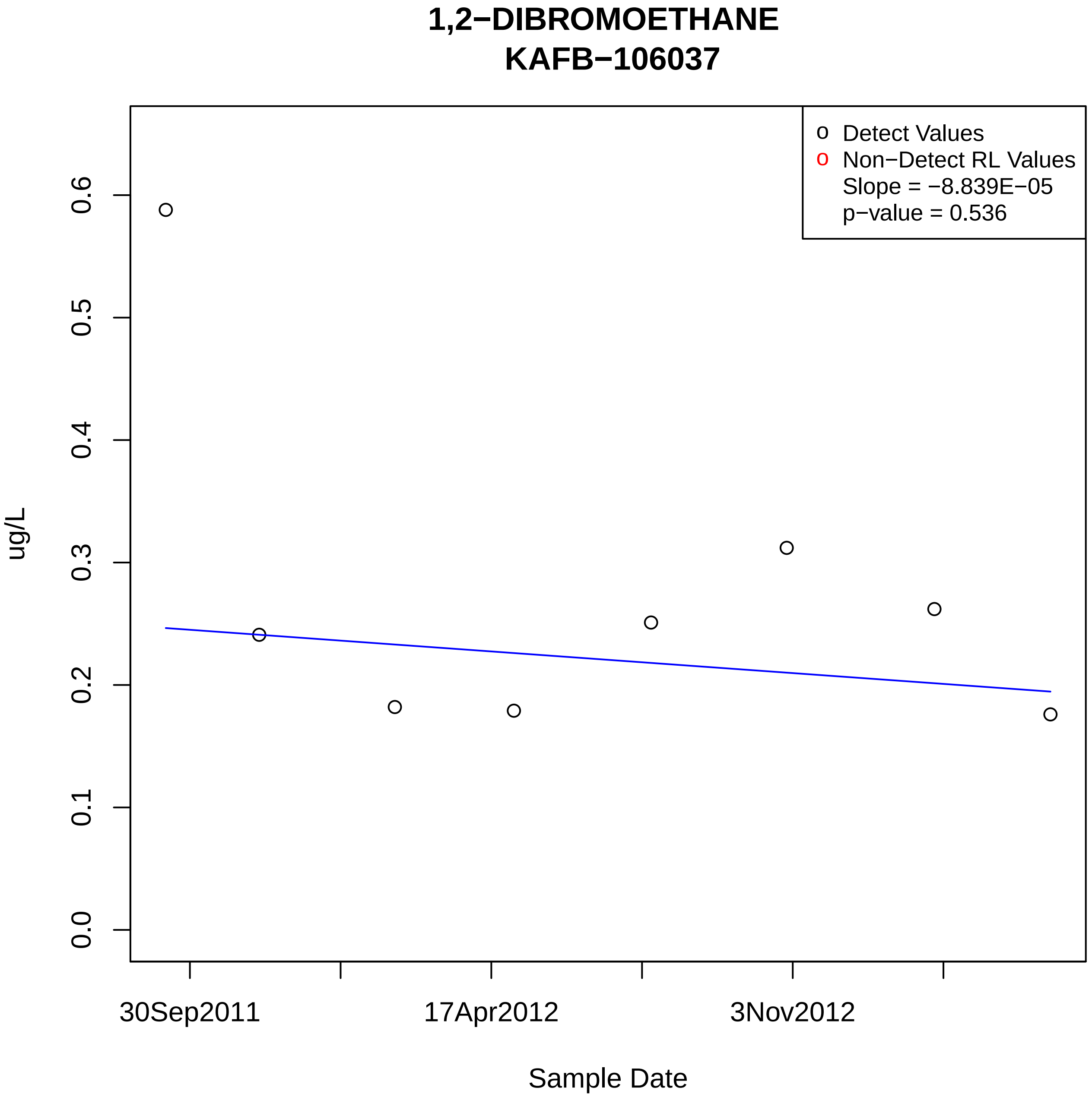

1,2−DIBROMOETHANE
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

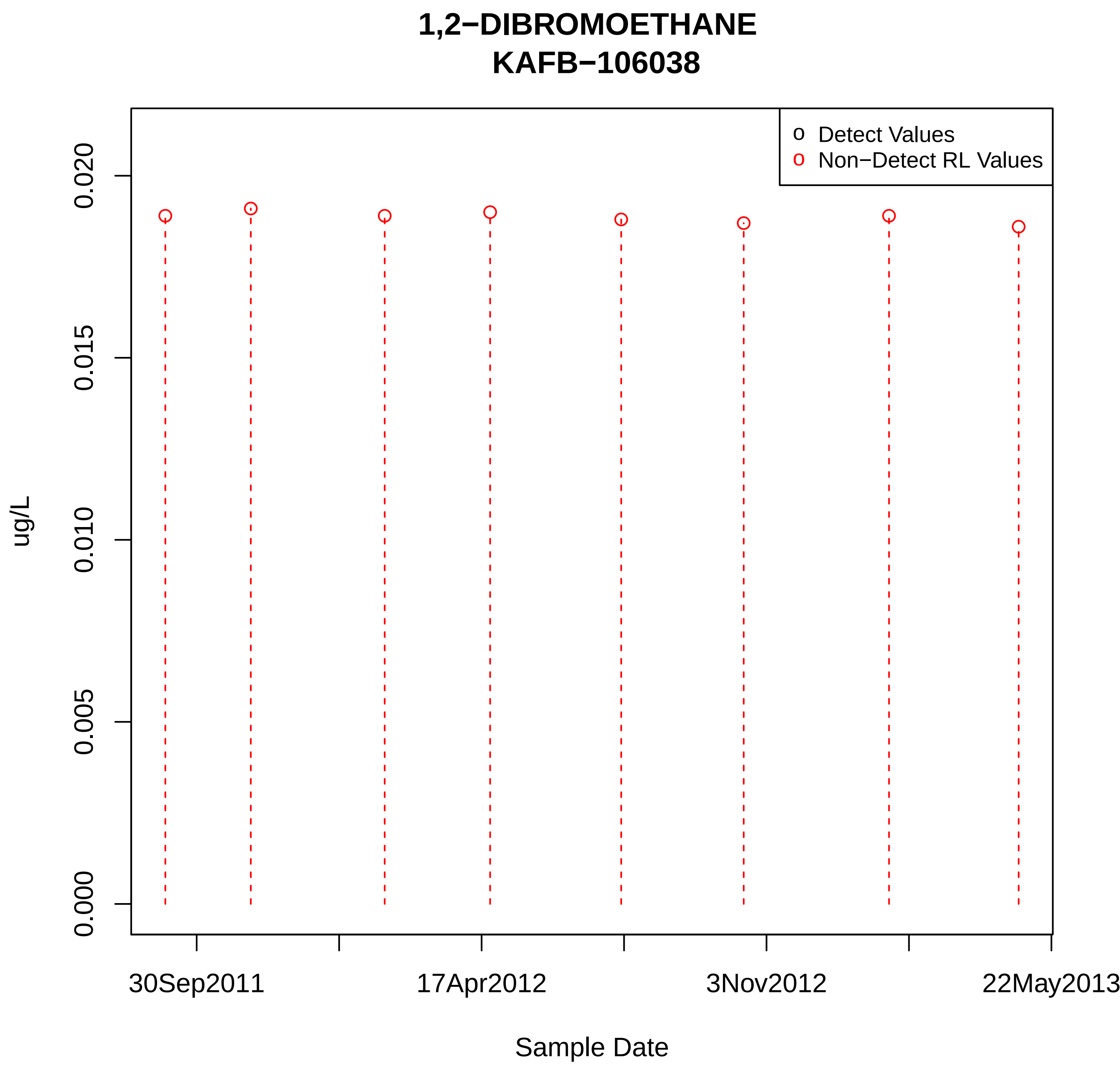

1,2−DIBROMOETHANE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
0.025
0.030
0.035
30Sep2011
17Apr2012
3Nov2012
Sample Date



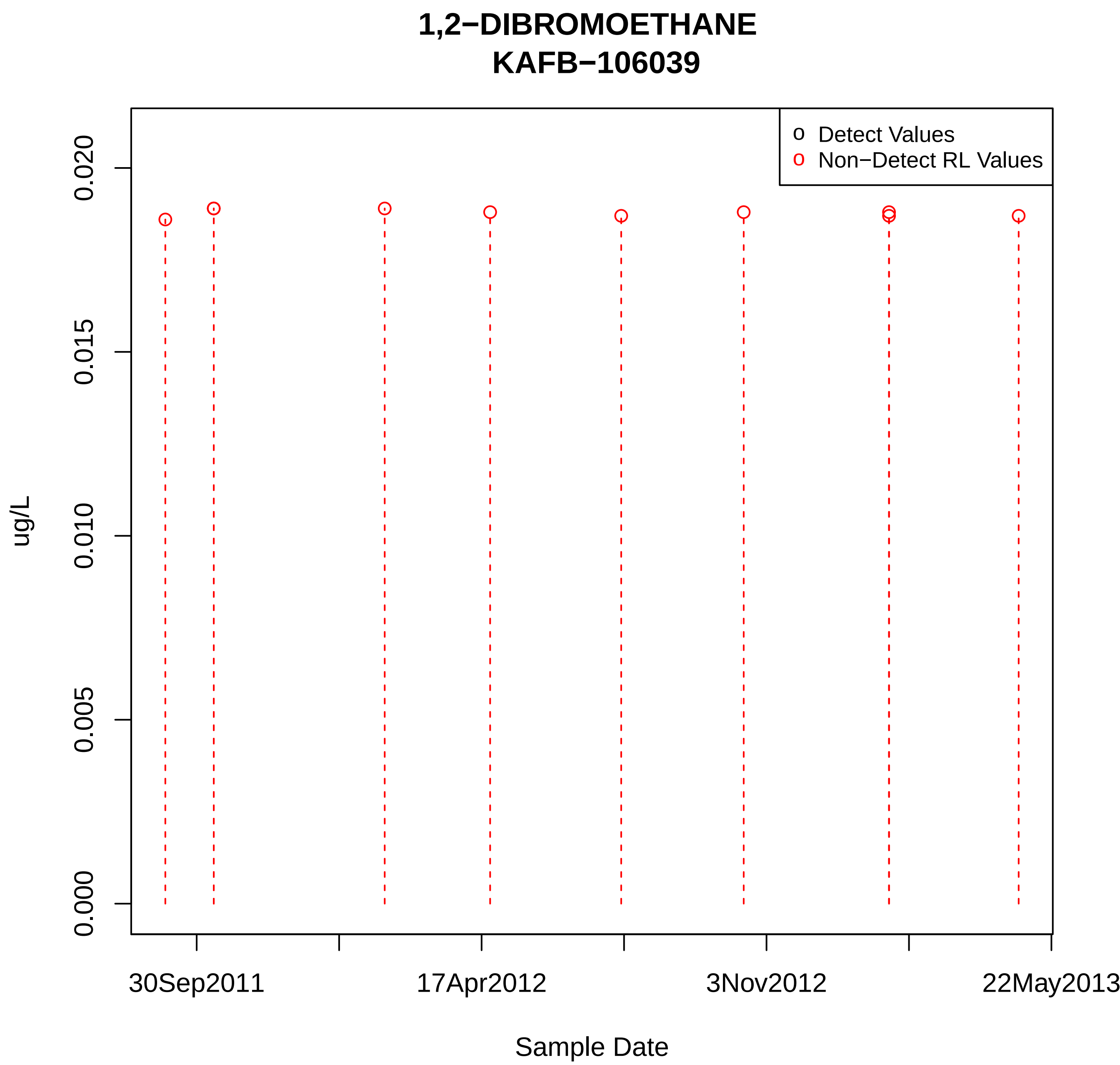
1,2−DIBROMOETHANE
KAFB−106035
o Detect Values
o Non−Detect RL Values
Slope = 8.613E−04
p−value = 0.063
0.0
0.2
0.4
0.6
0.8
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

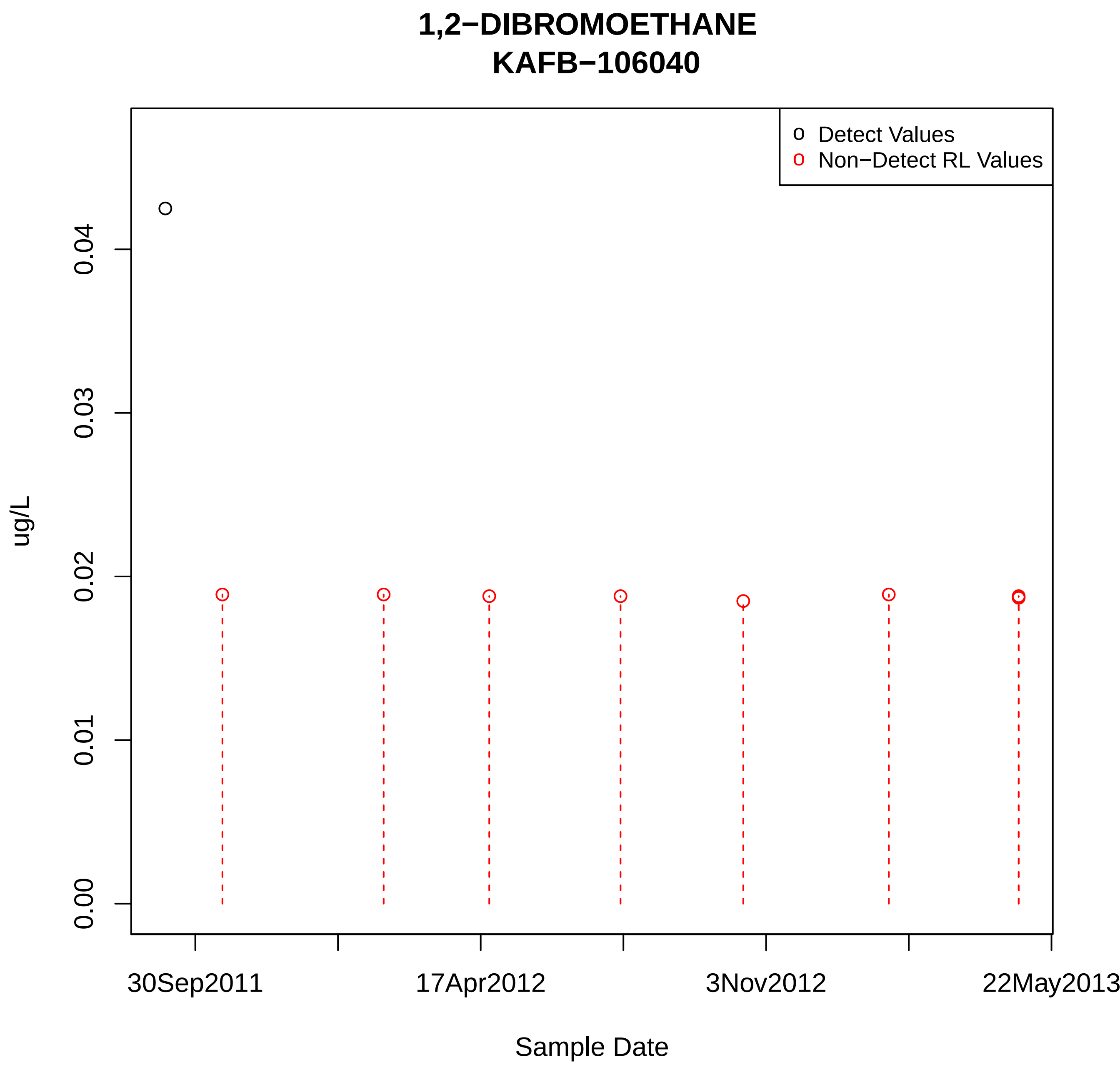

1,2−DIBROMOETHANE
KAFB−106036
Detect Values
Non−Detect RL Values
Slope = 9.103E−05
p−value = 0.536
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2−DIBROMOETHANE
KAFB−106037
Detect Values
Non−Detect RL Values
Slope = −8.839E−05
p−value = 0.536
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
Sample Date

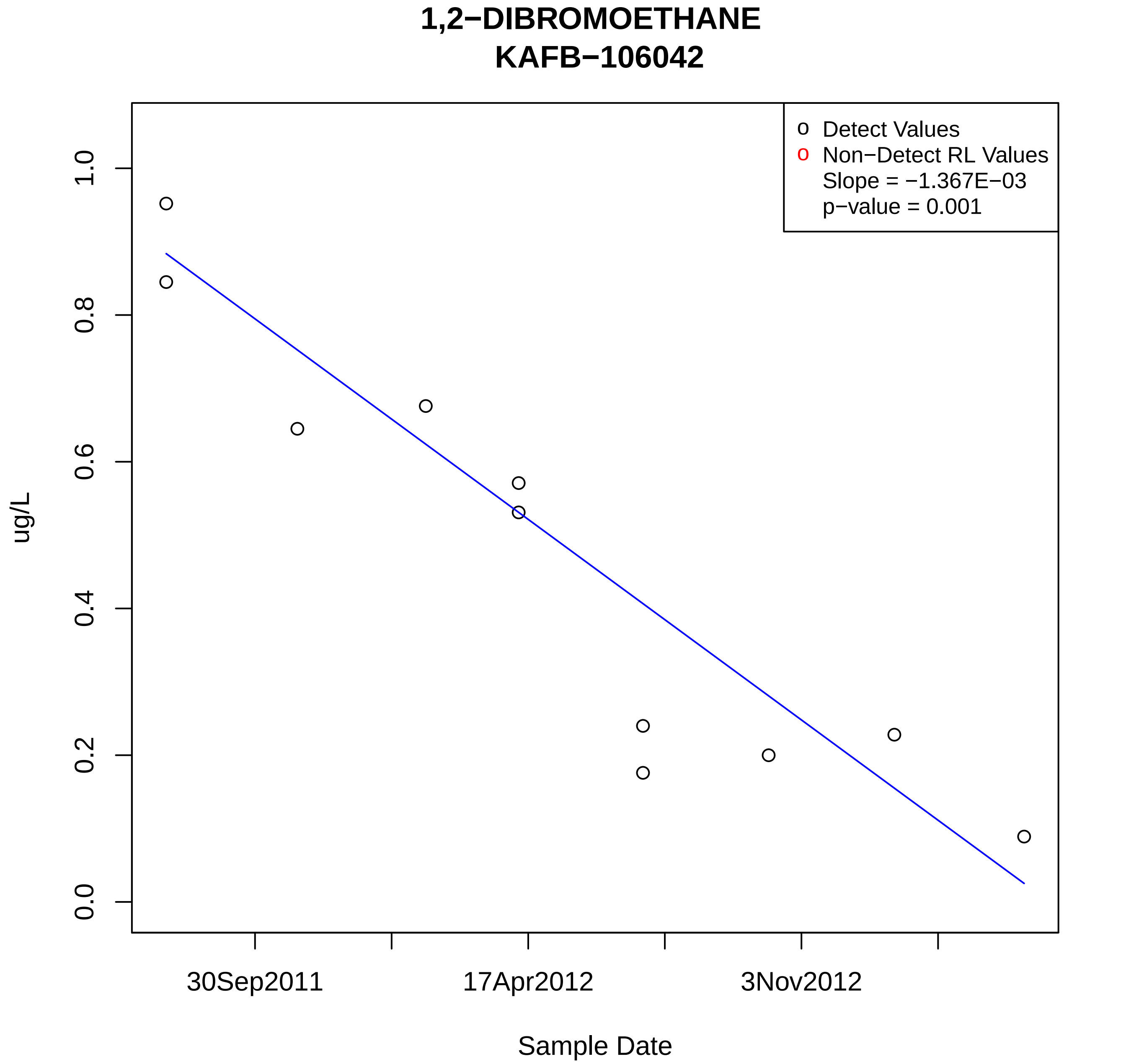


1,2−DIBROMOETHANE
KAFB−106038
o Detect Values
o Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

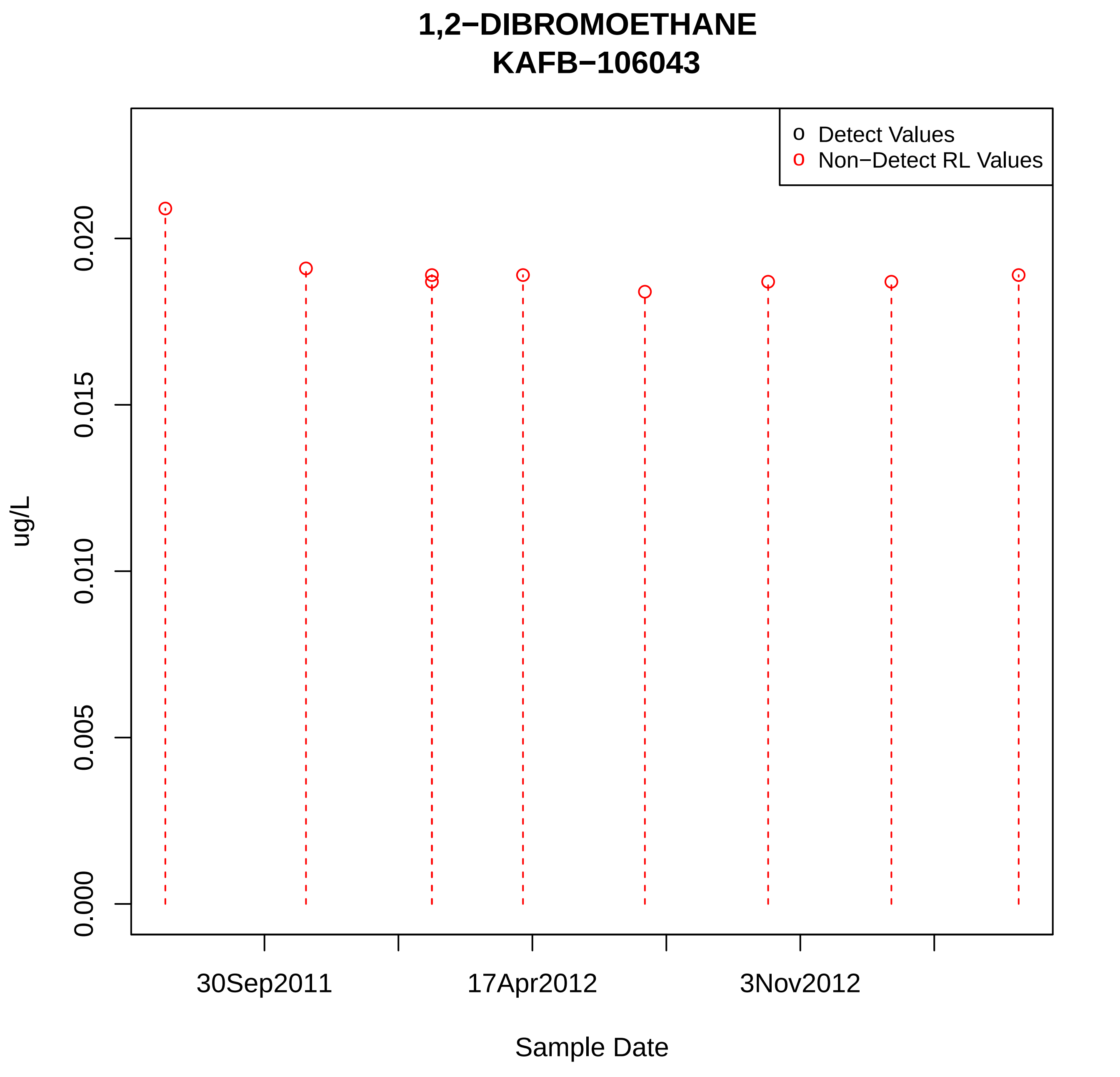

1,2−DIBROMOETHANE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



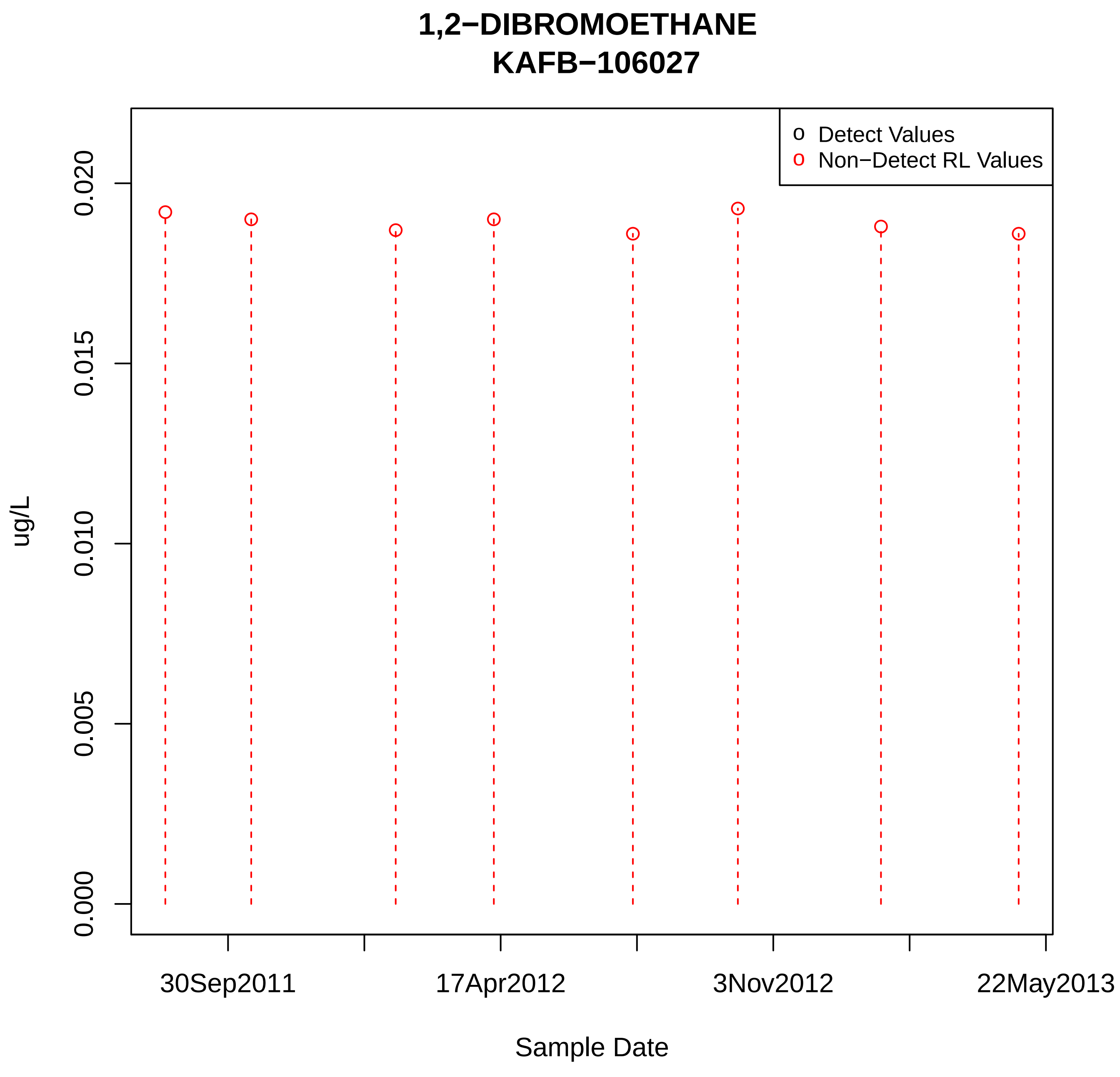
1,2−DIBROMOETHANE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.00
0.01
0.02
0.03
0.04
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



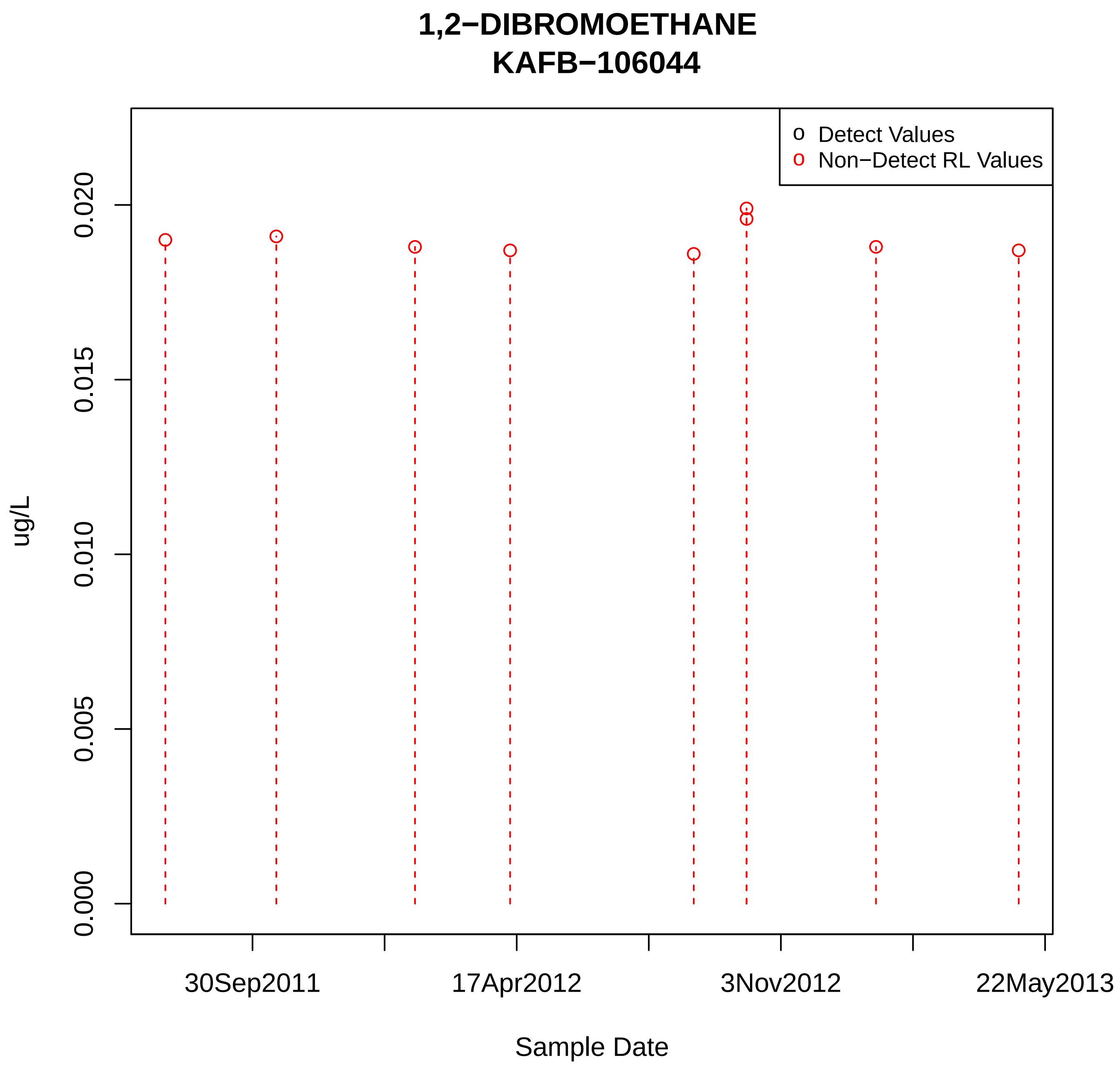
1,2−DIBROMOETHANE
KAFB−106042
Detect Values
Non−Detect RL Values
Slope = −1.367E−03
p−value = 0.001
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



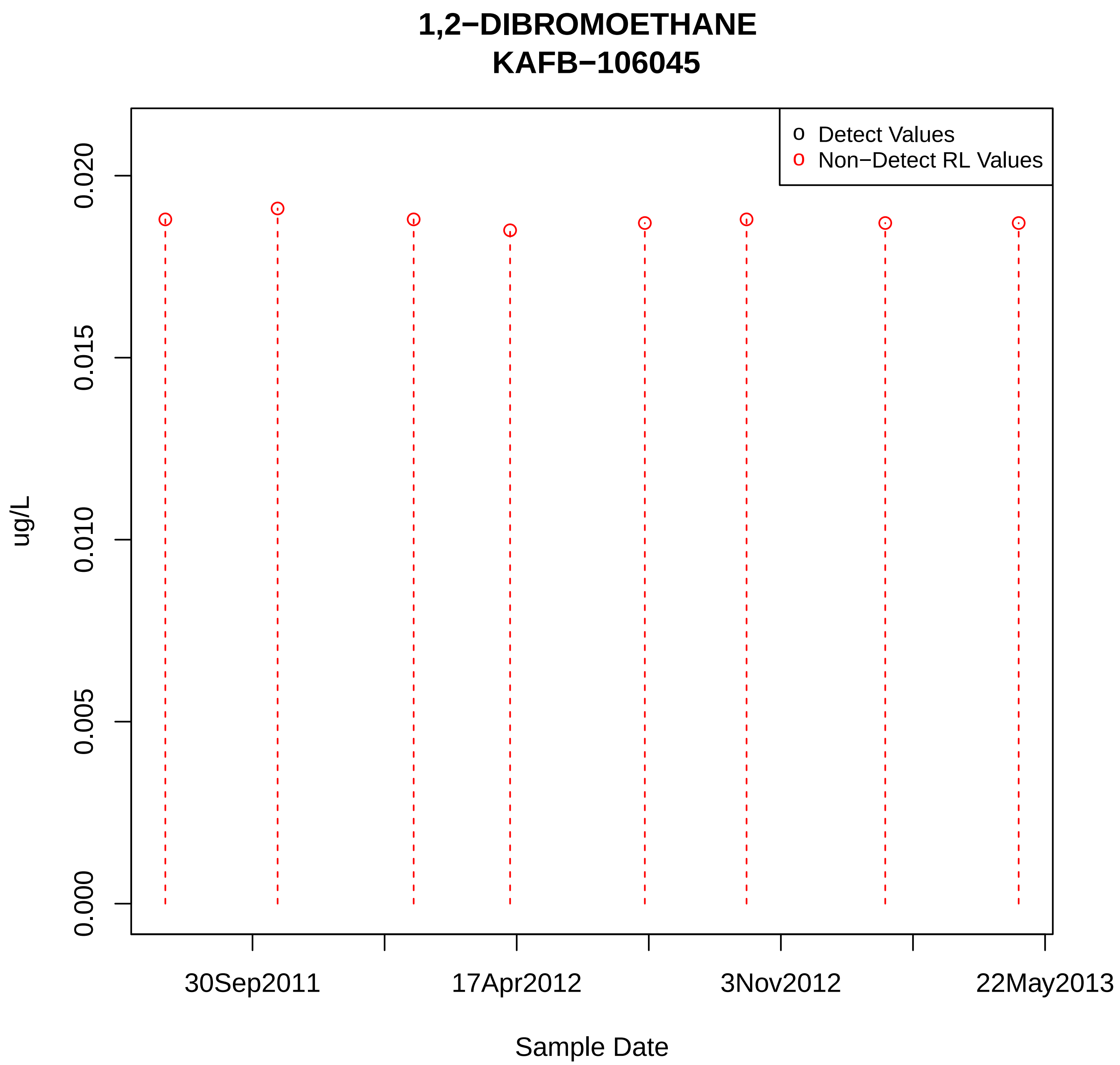
1,2−DIBROMOETHANE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

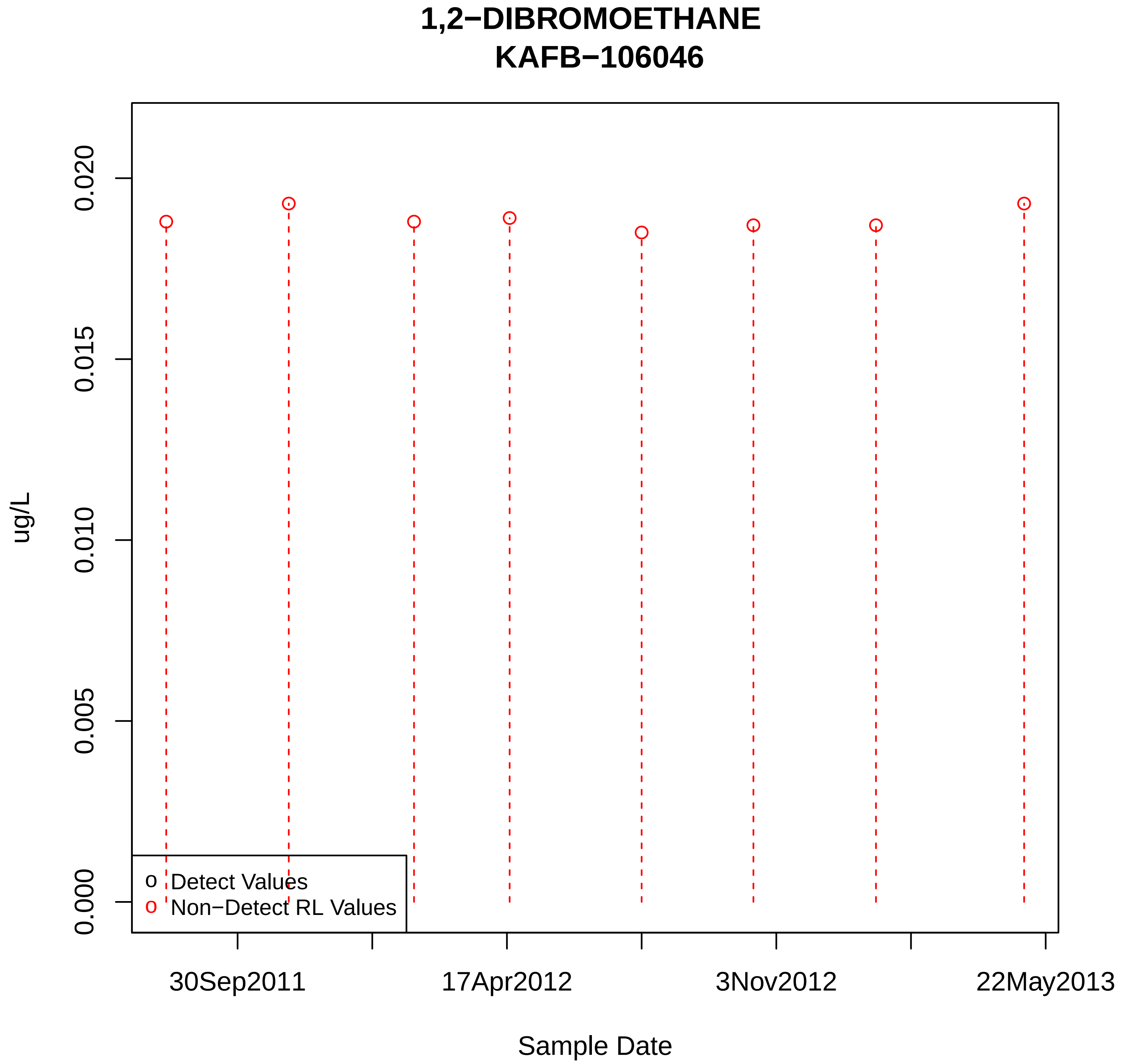


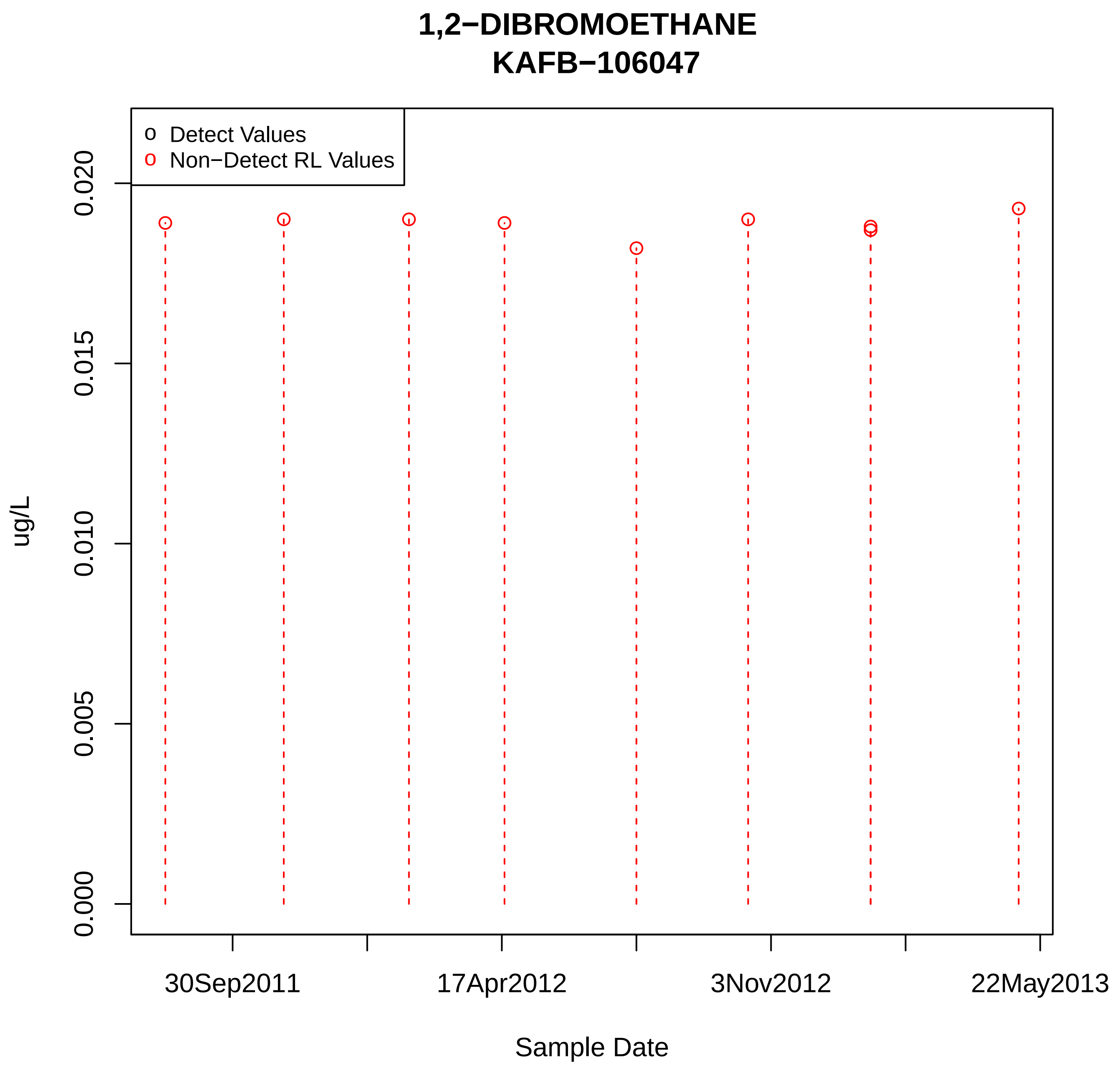
1,2−DIBROMOETHANE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



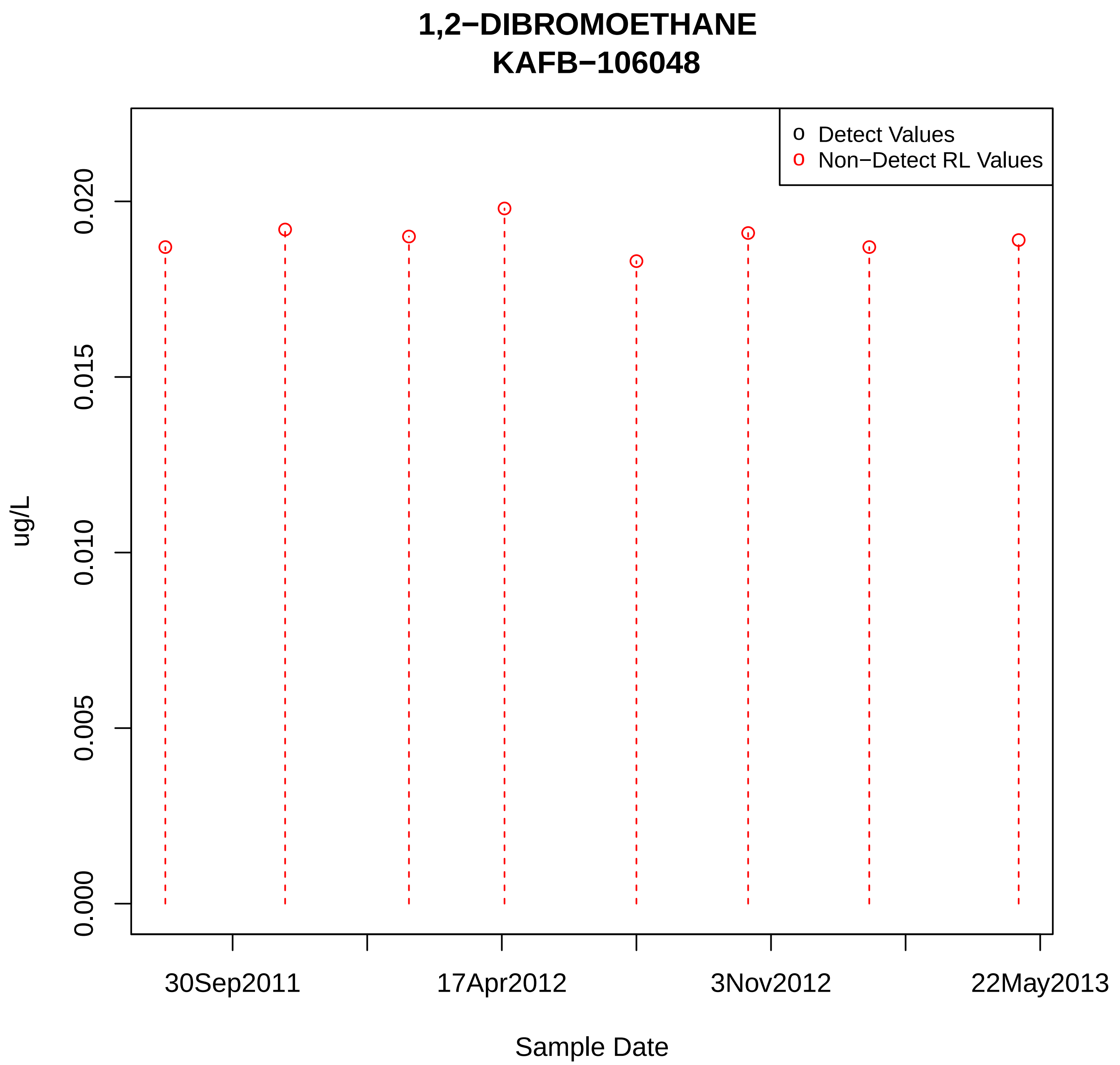
1,2−DIBROMOETHANE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DIBROMOETHANE
KAFB−106045
Detect Values
Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

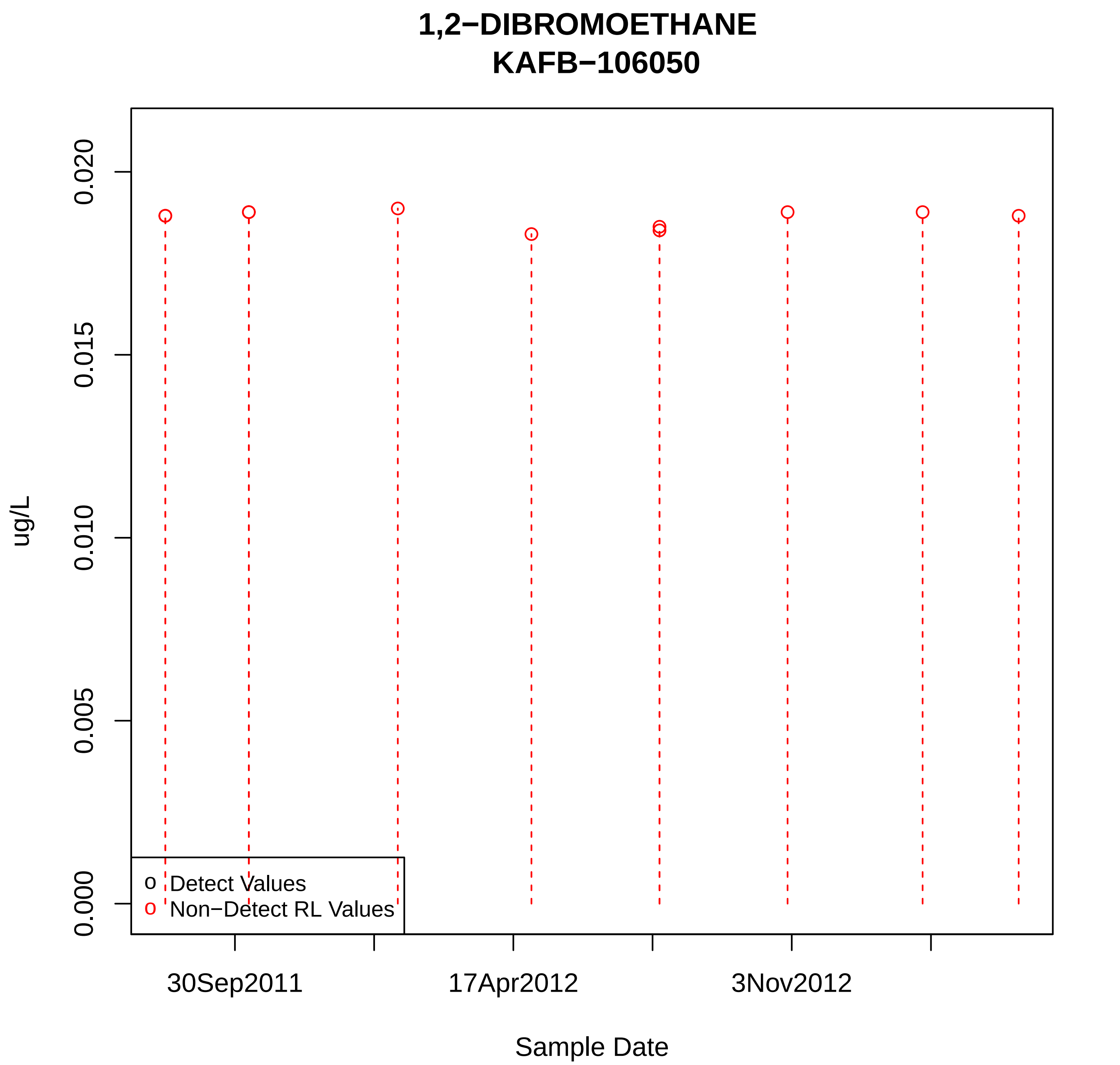

1,2−DIBROMOETHANE
KAFB−106046
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values



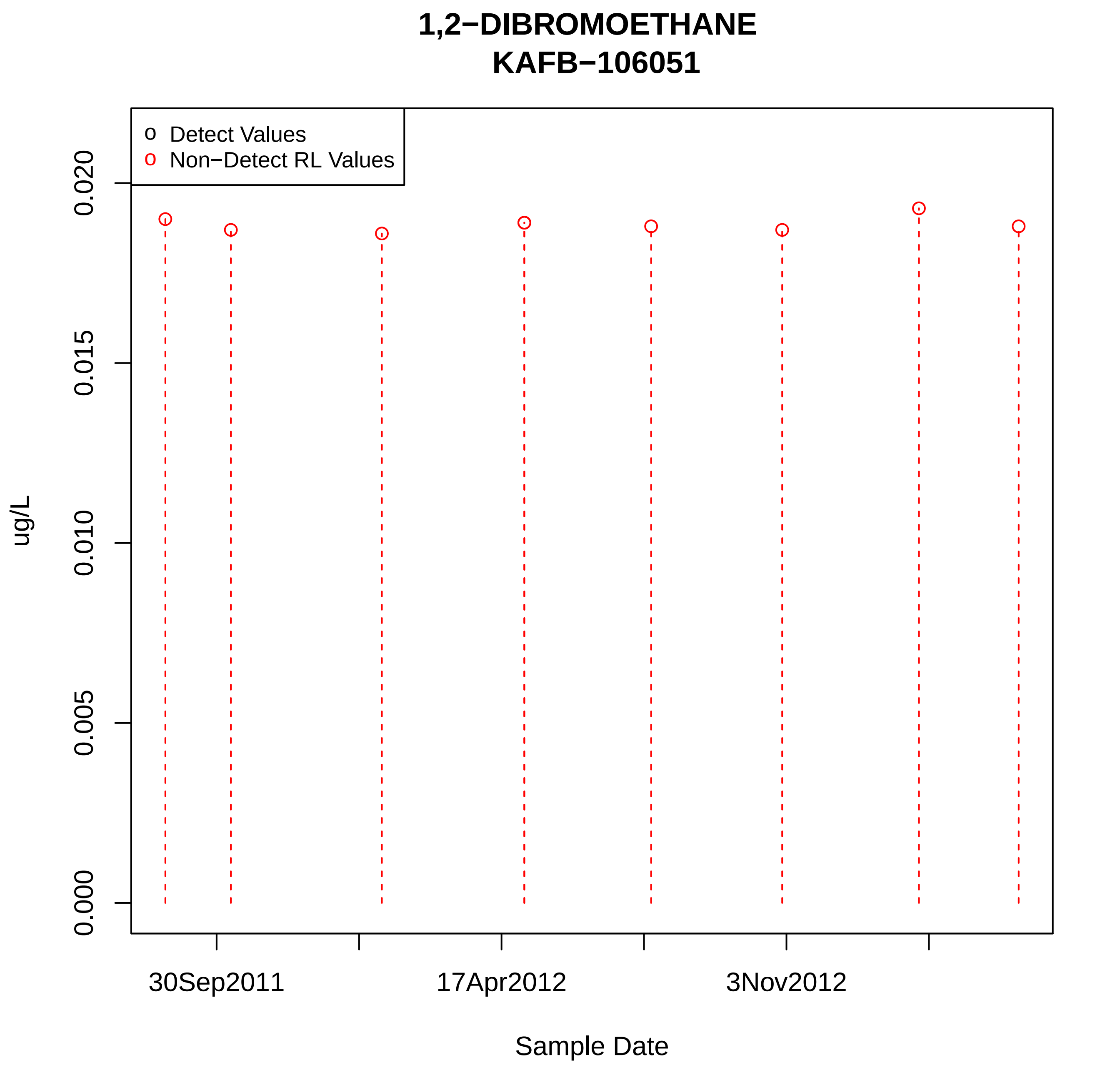
1,2−DIBROMOETHANE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



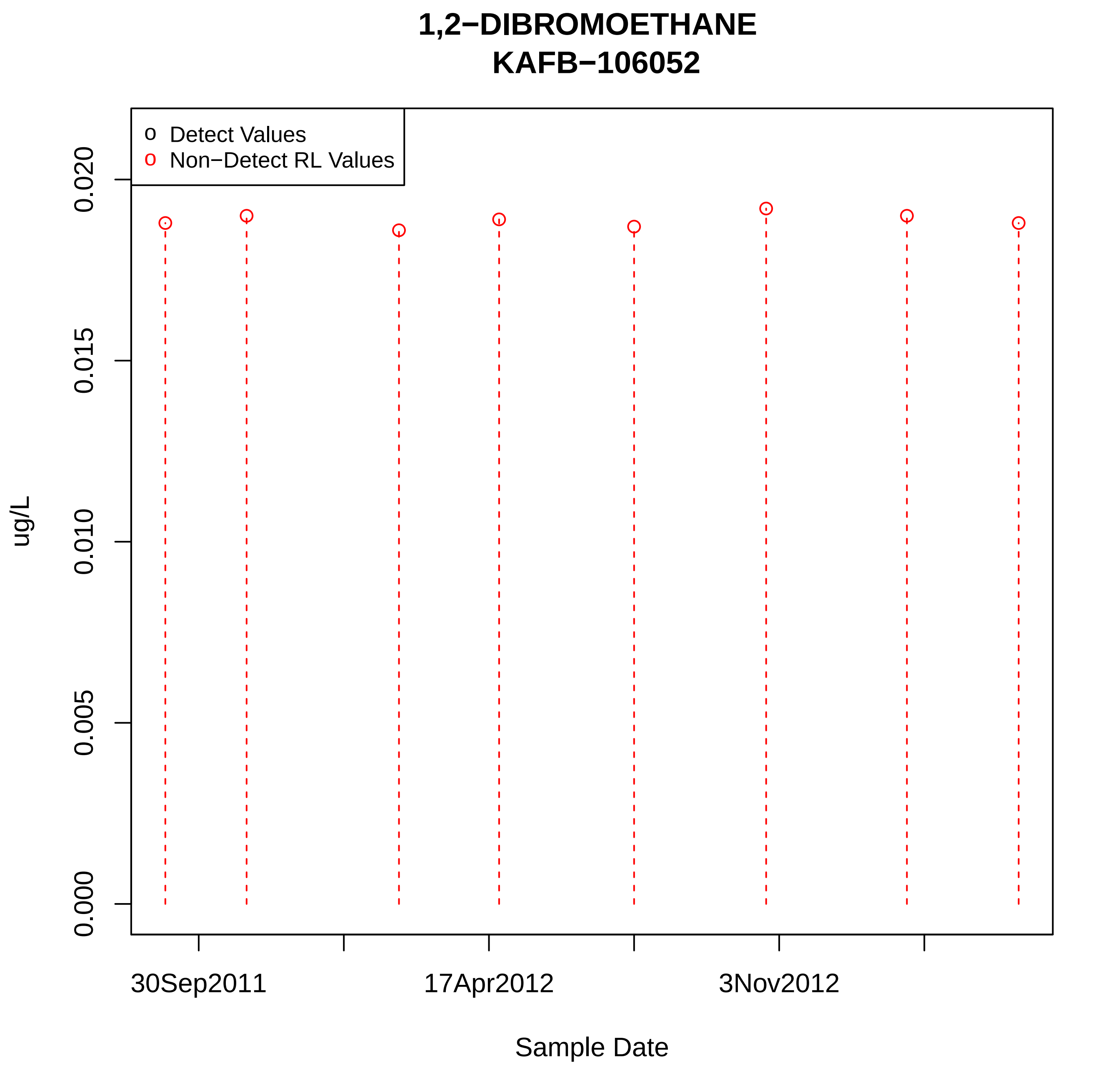
1,2−DIBROMOETHANE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



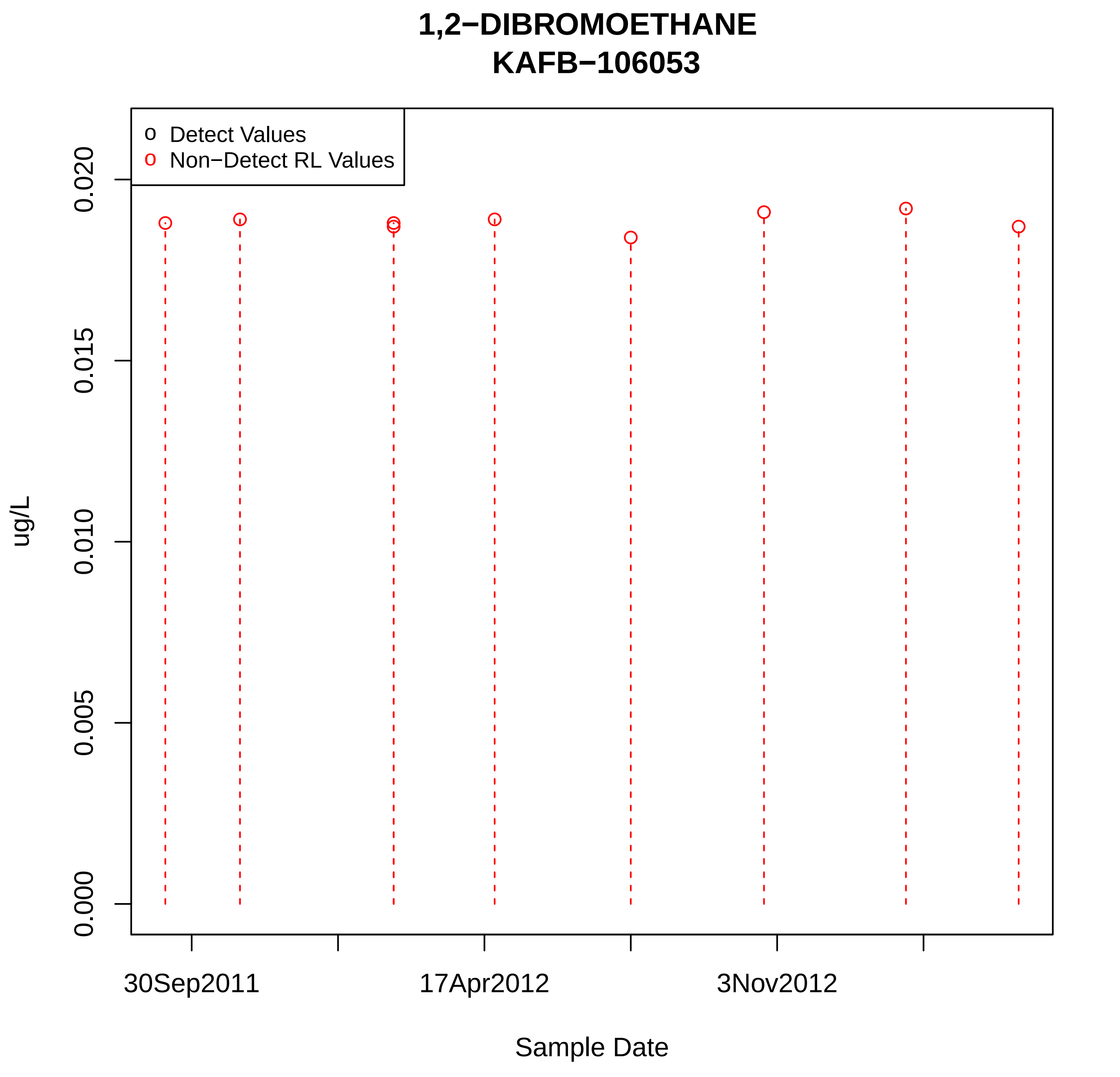
1,2−DIBROMOETHANE
KAFB−106050
ug/L
0.000
0.005
0.010
0.015
0.020
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

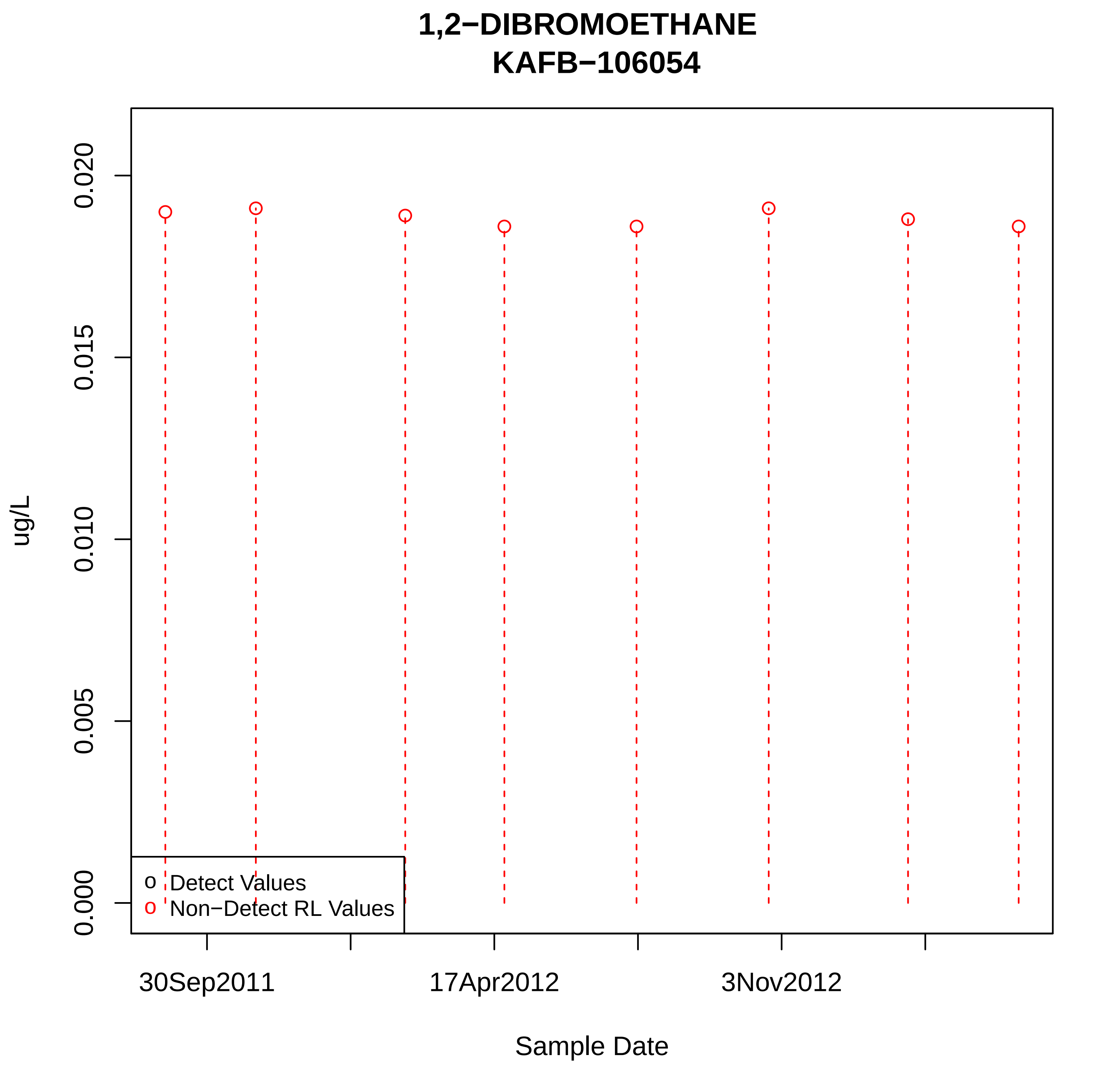


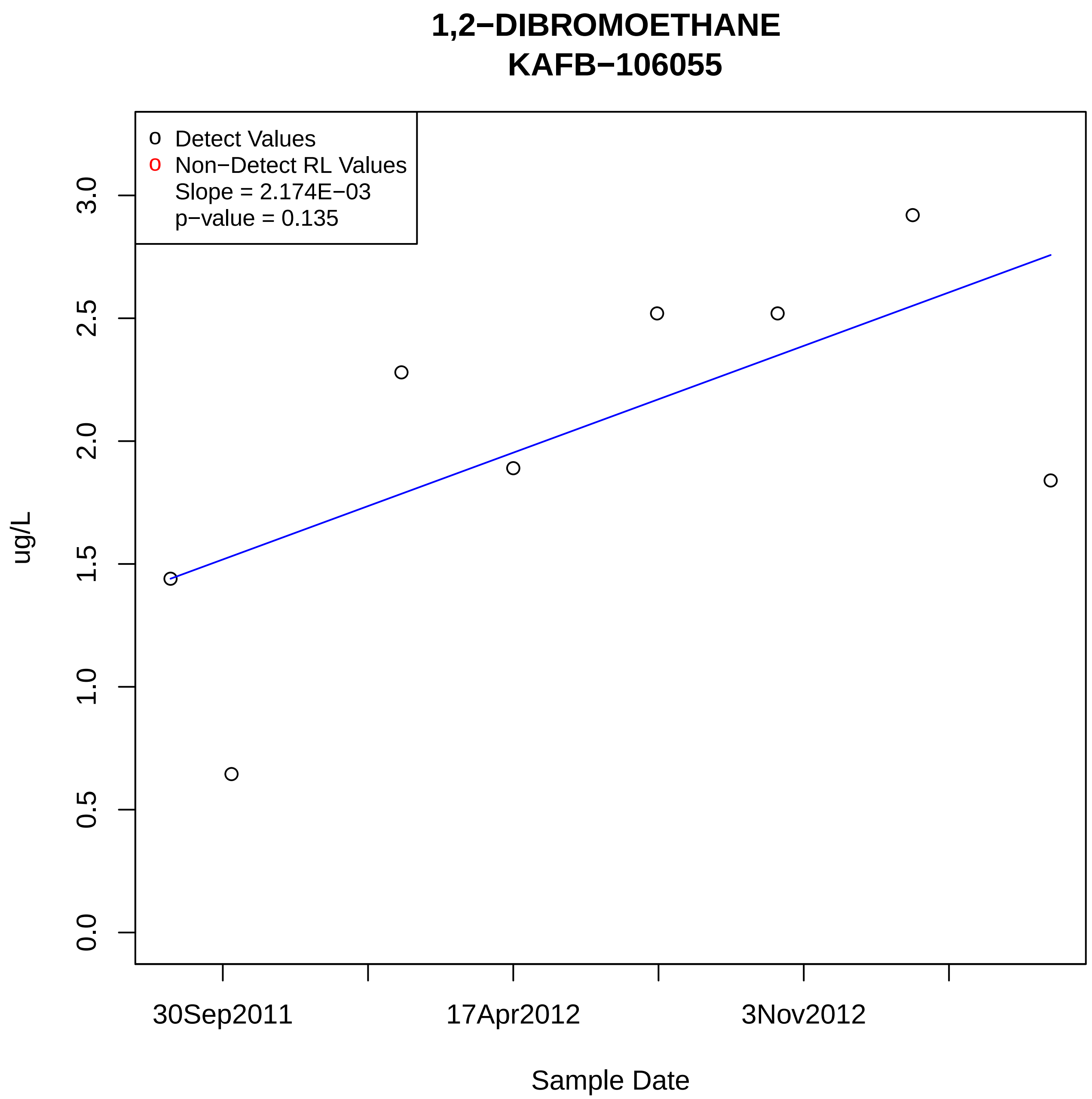
1,2−DIBROMOETHANE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

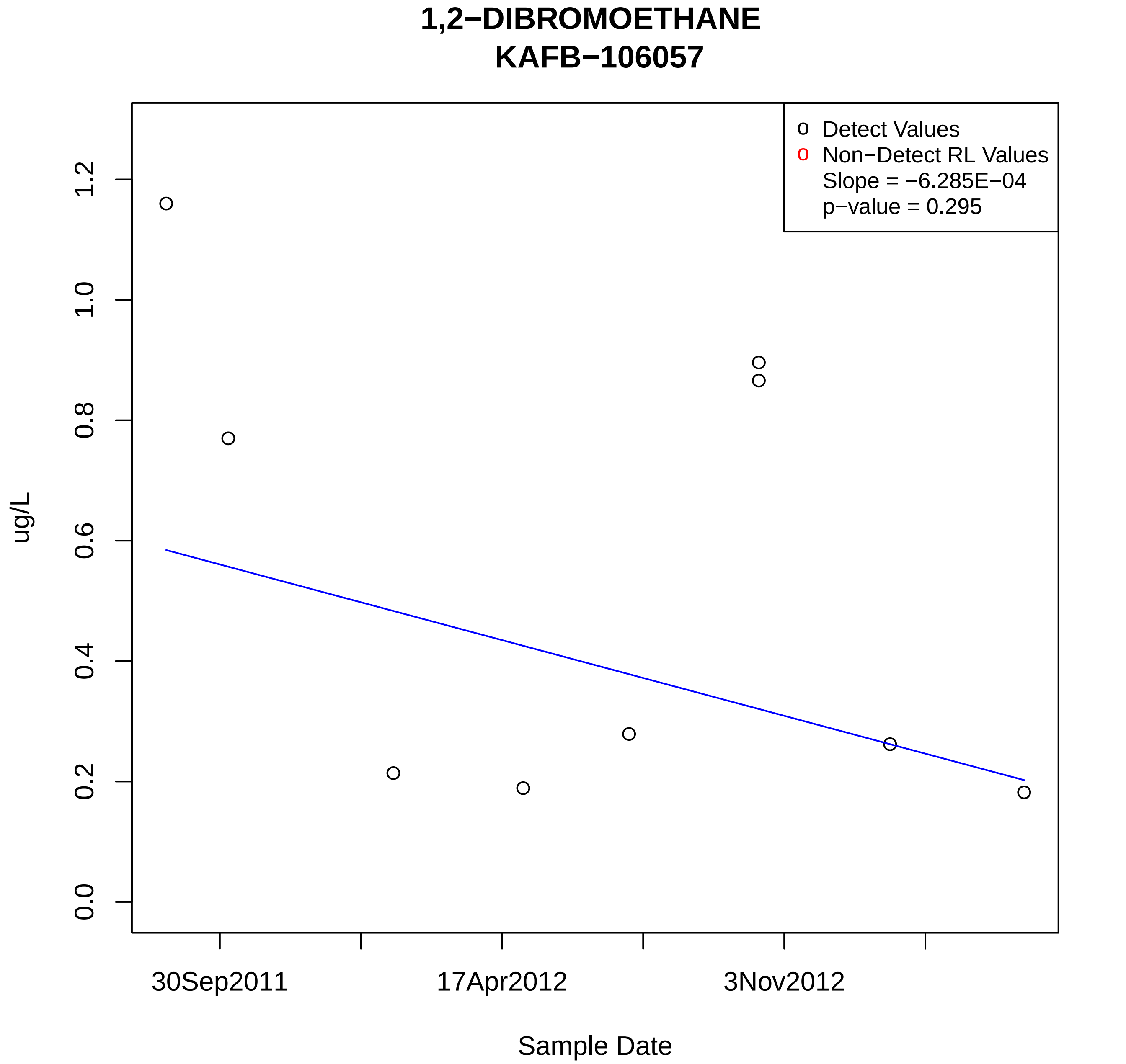


1,2−DIBROMOETHANE
KAFB−106052
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

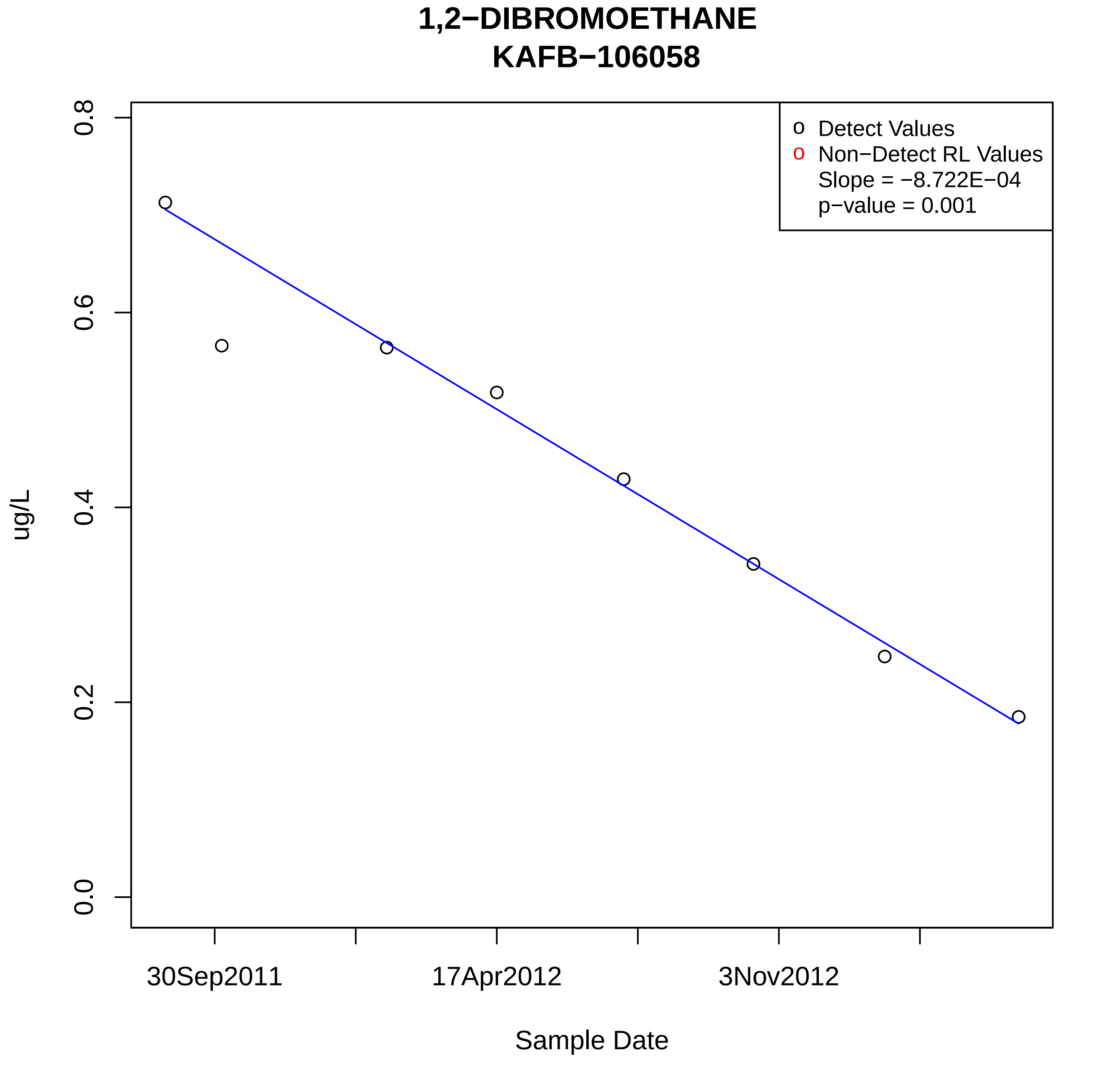

1,2−DIBROMOETHANE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2−DIBROMOETHANE
KAFB−106054
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

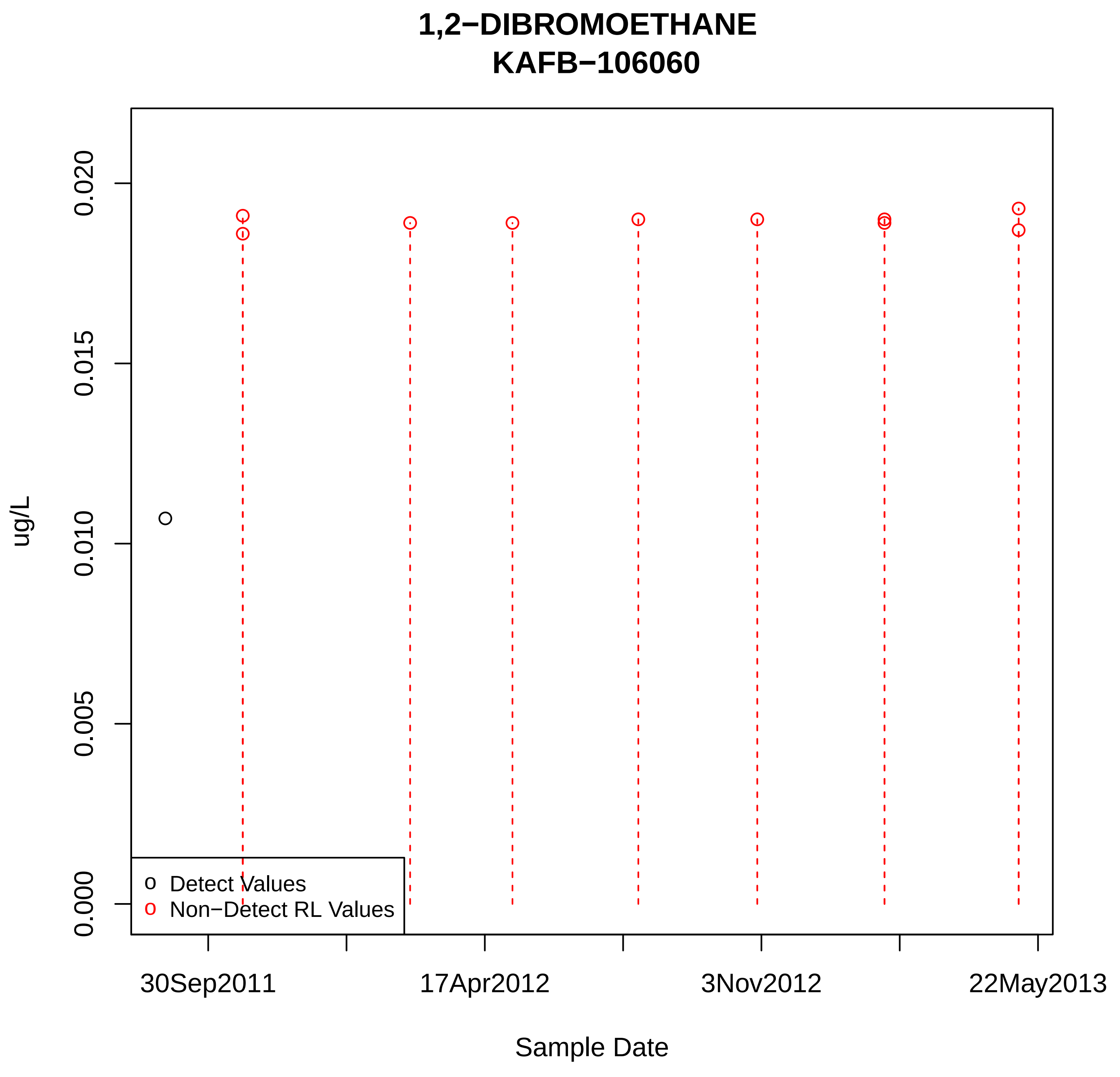

1,2−DIBROMOETHANE
KAFB−106055
Detect Values
Non−Detect RL Values
Slope = 2.174E−03
p−value = 0.135
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

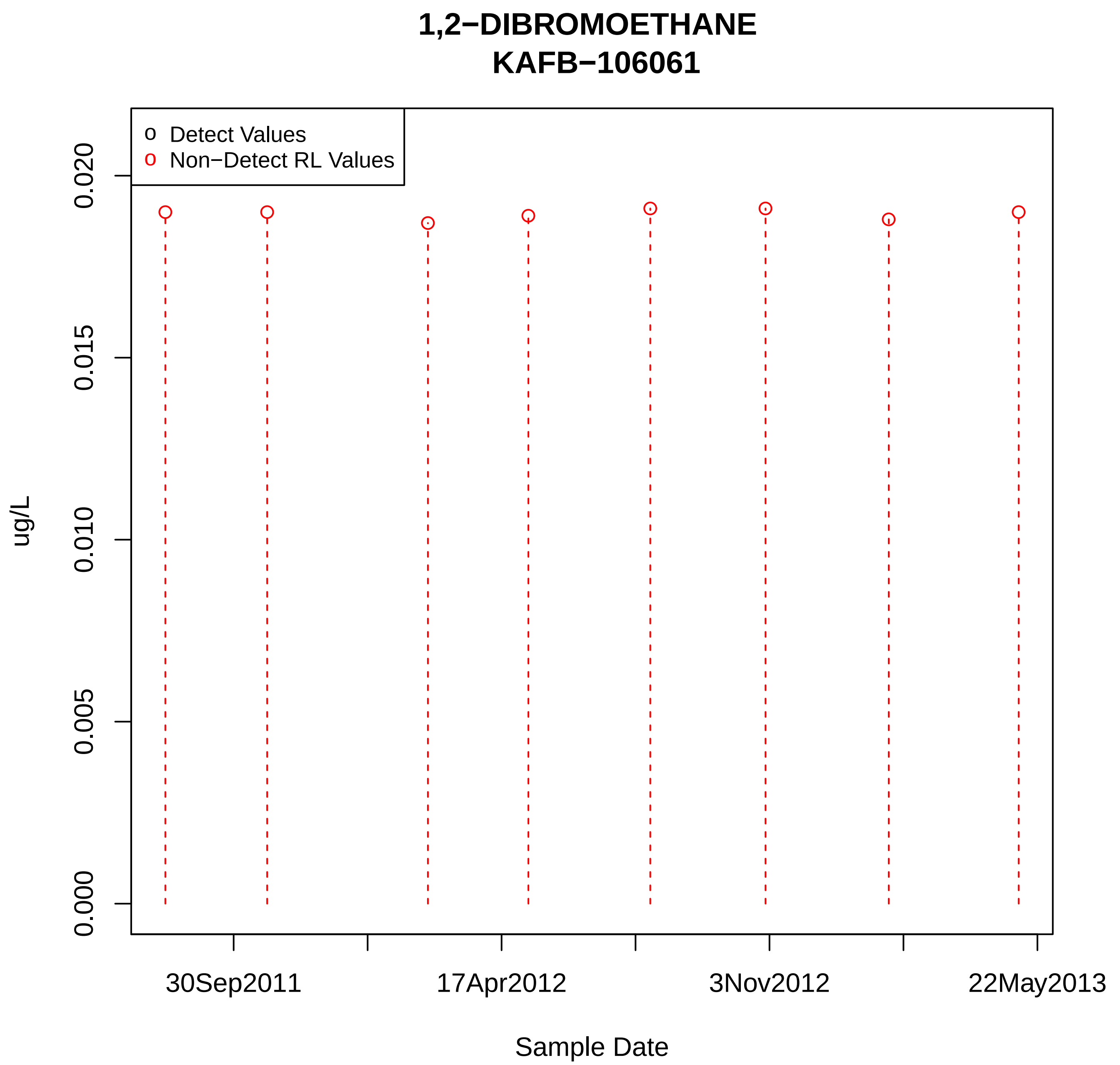


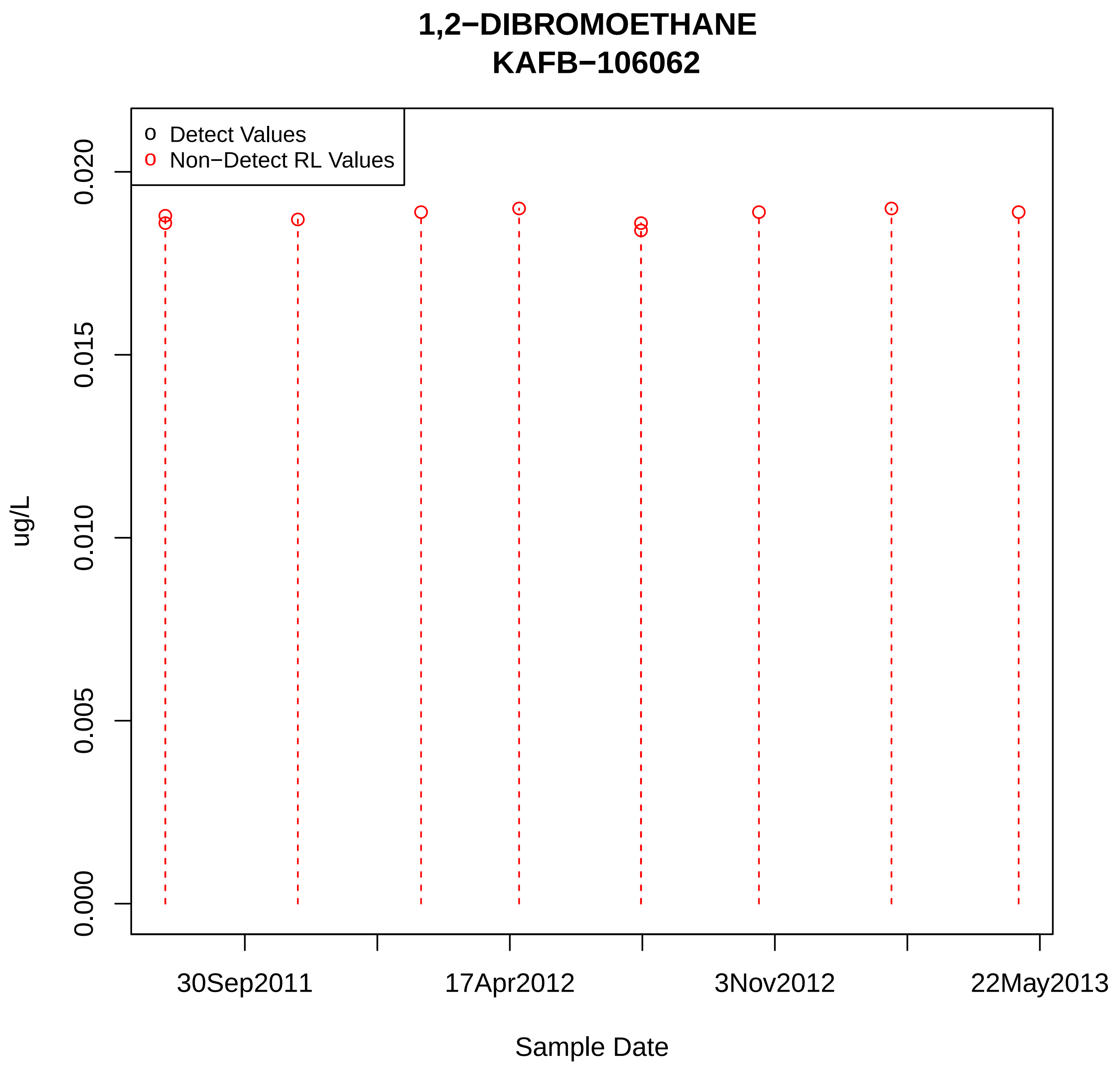
1,2−DIBROMOETHANE
KAFB−106057
Detect Values
Non−Detect RL Values
Slope = −6.285E−04
p−value = 0.295
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
30Sep2011
17Apr2012
3Nov2012
Sample Date

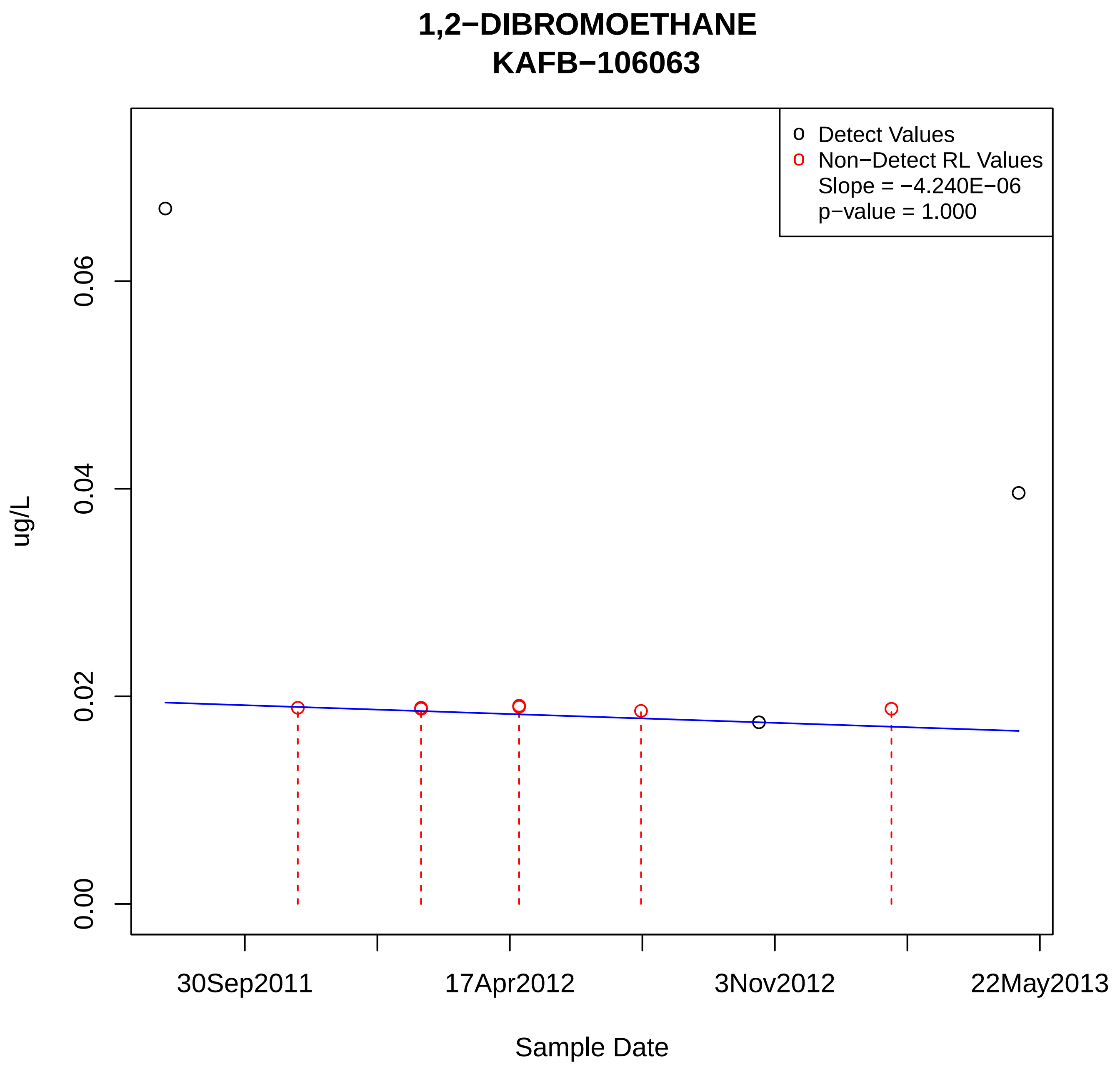


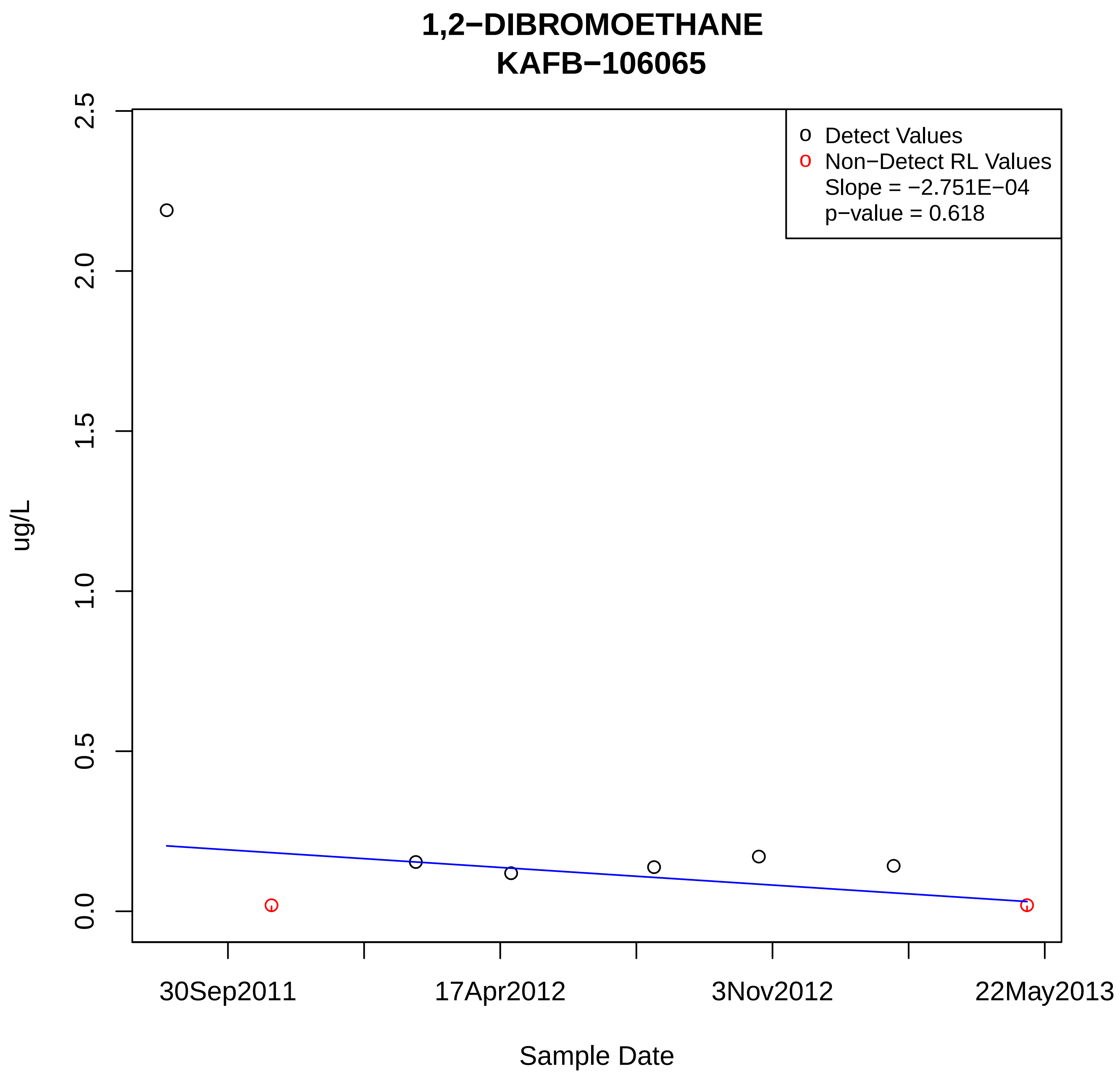
1,2−DIBROMOETHANE
KAFB−106058
Detect Values
Non−Detect RL Values
Slope = −8.722E−04
p−value = 0.001
0.0
0.2
0.4
0.6
0.8
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

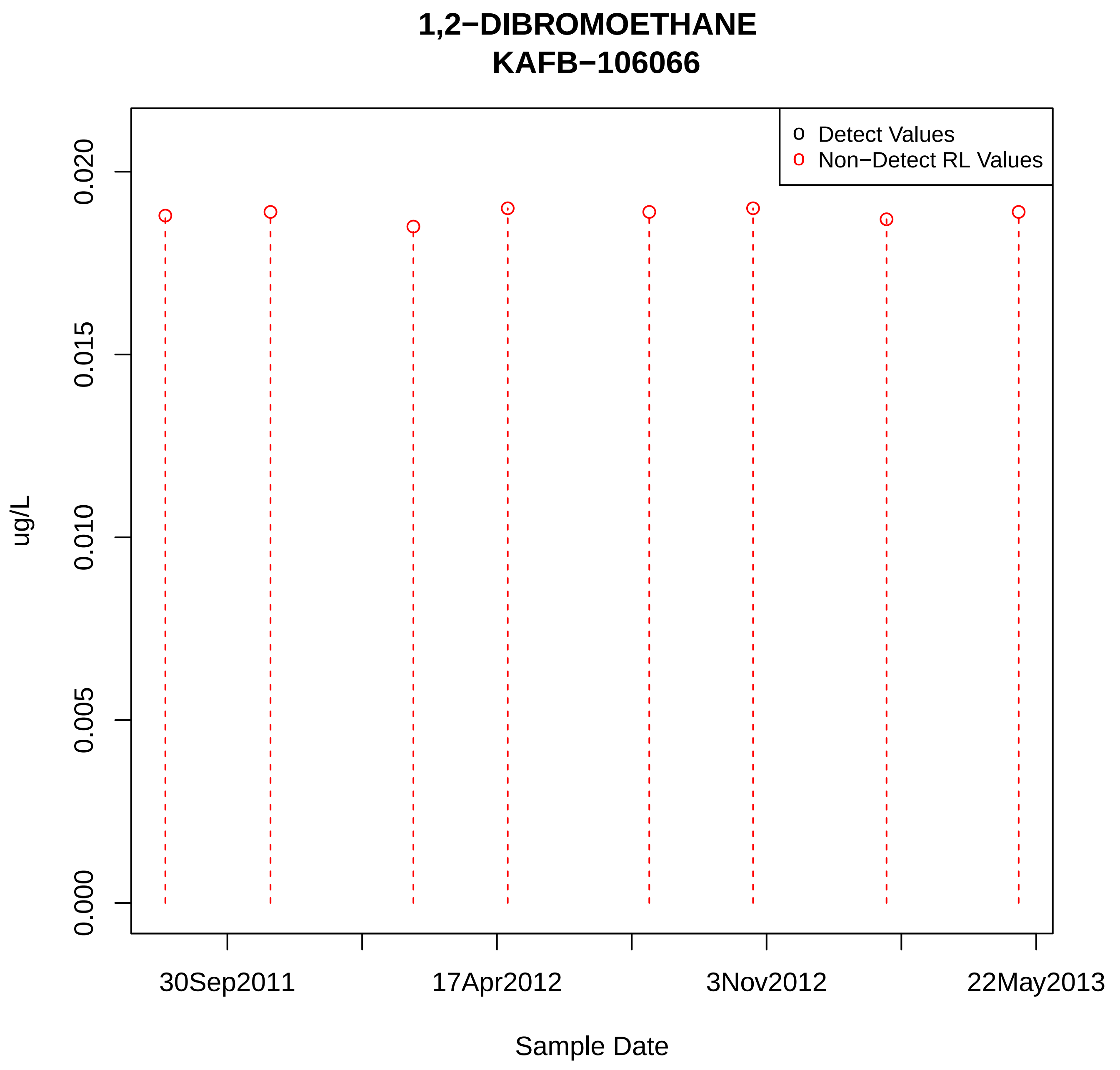

1,2−DIBROMOETHANE
KAFB−106060
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values


1,2−DIBROMOETHANE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

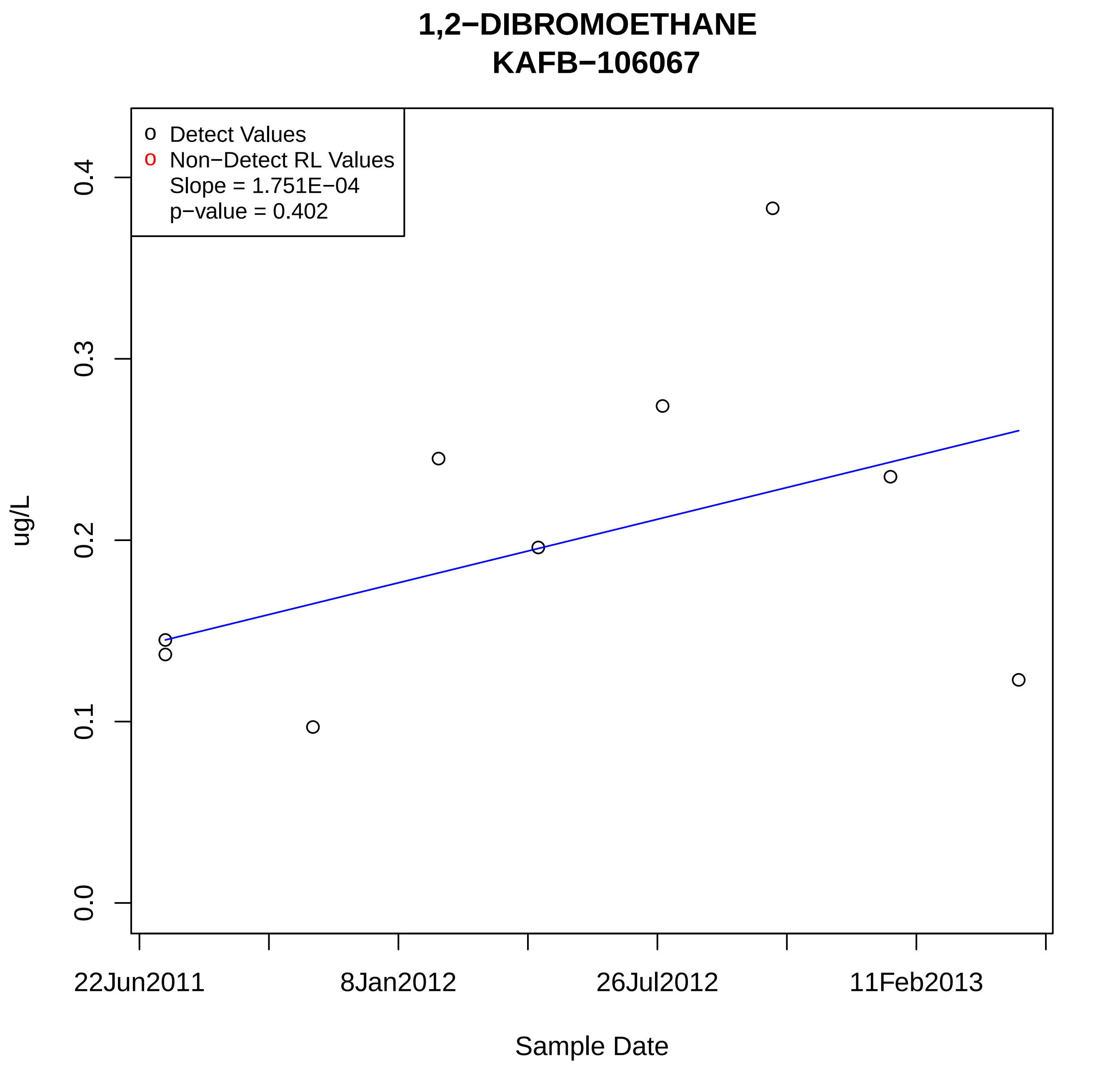

1,2−DIBROMOETHANE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

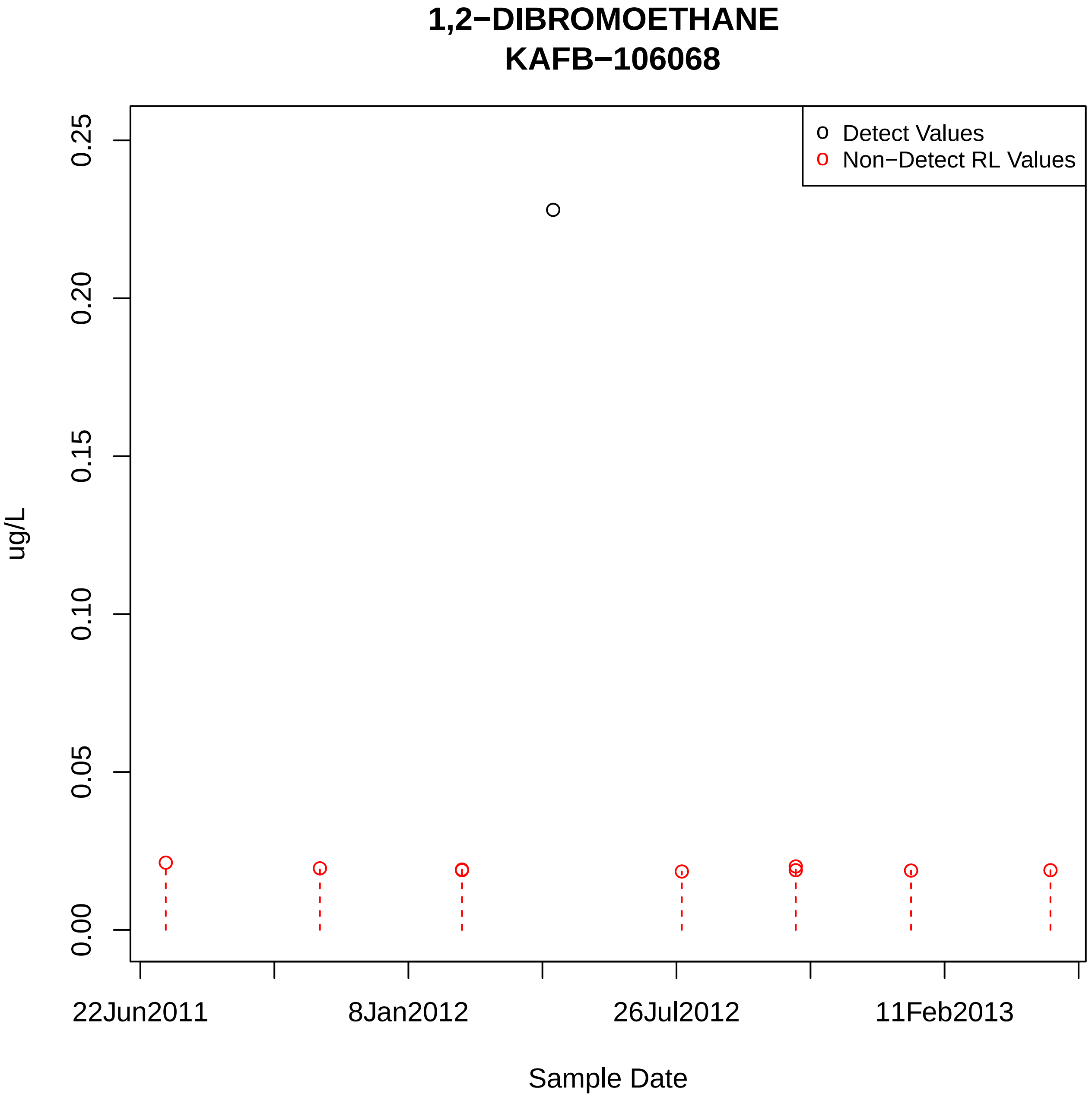

1,2−DIBROMOETHANE
KAFB−106063
Detect Values
Non−Detect RL Values
Slope = −4.240E−06
p−value = 1.000
ug/L
0.00
0.02
0.04
0.06
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DIBROMOETHANE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −2.751E−04
p−value = 0.618
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

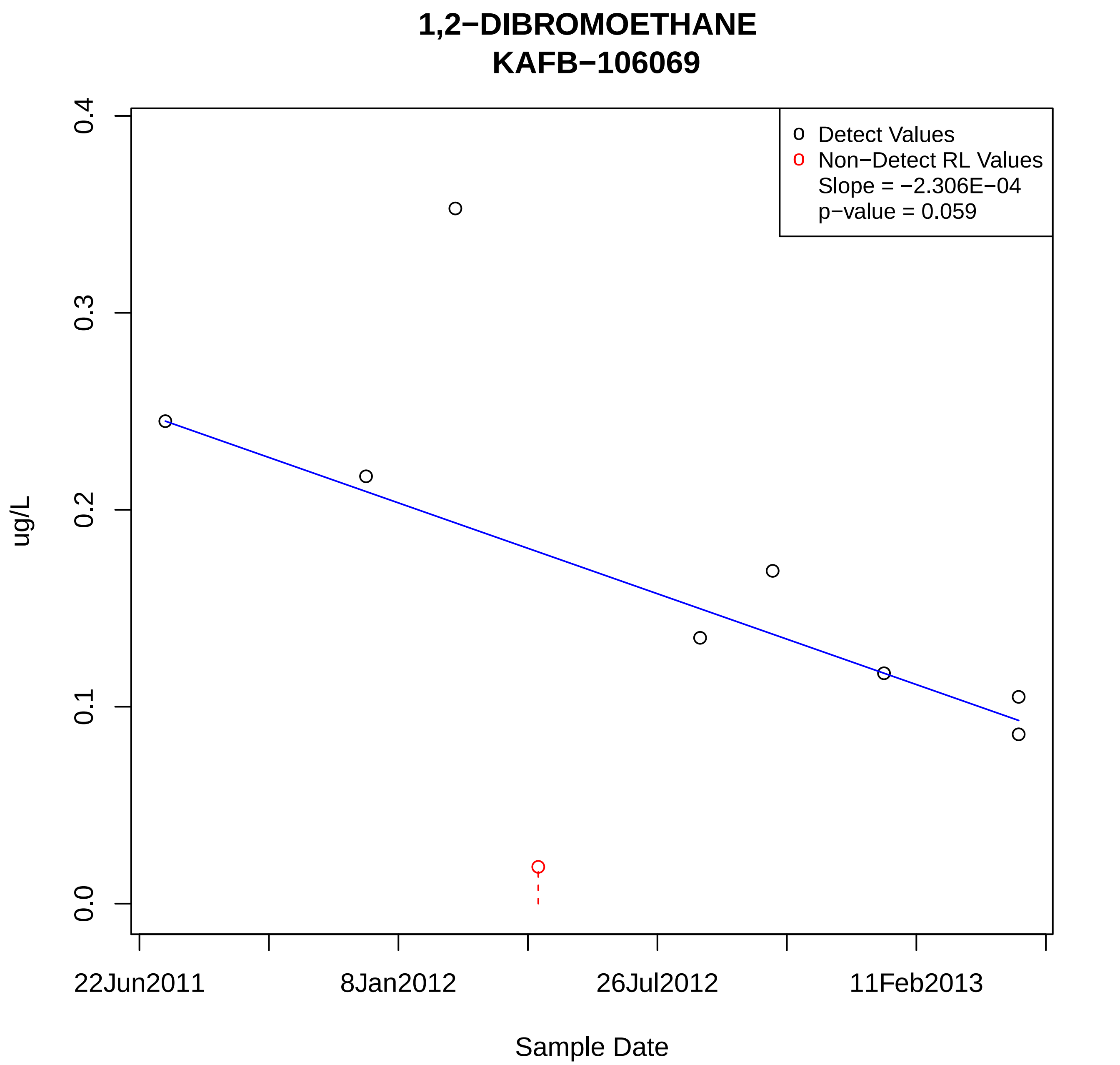


1,2−DIBROMOETHANE
KAFB−106066
Detect Values
Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

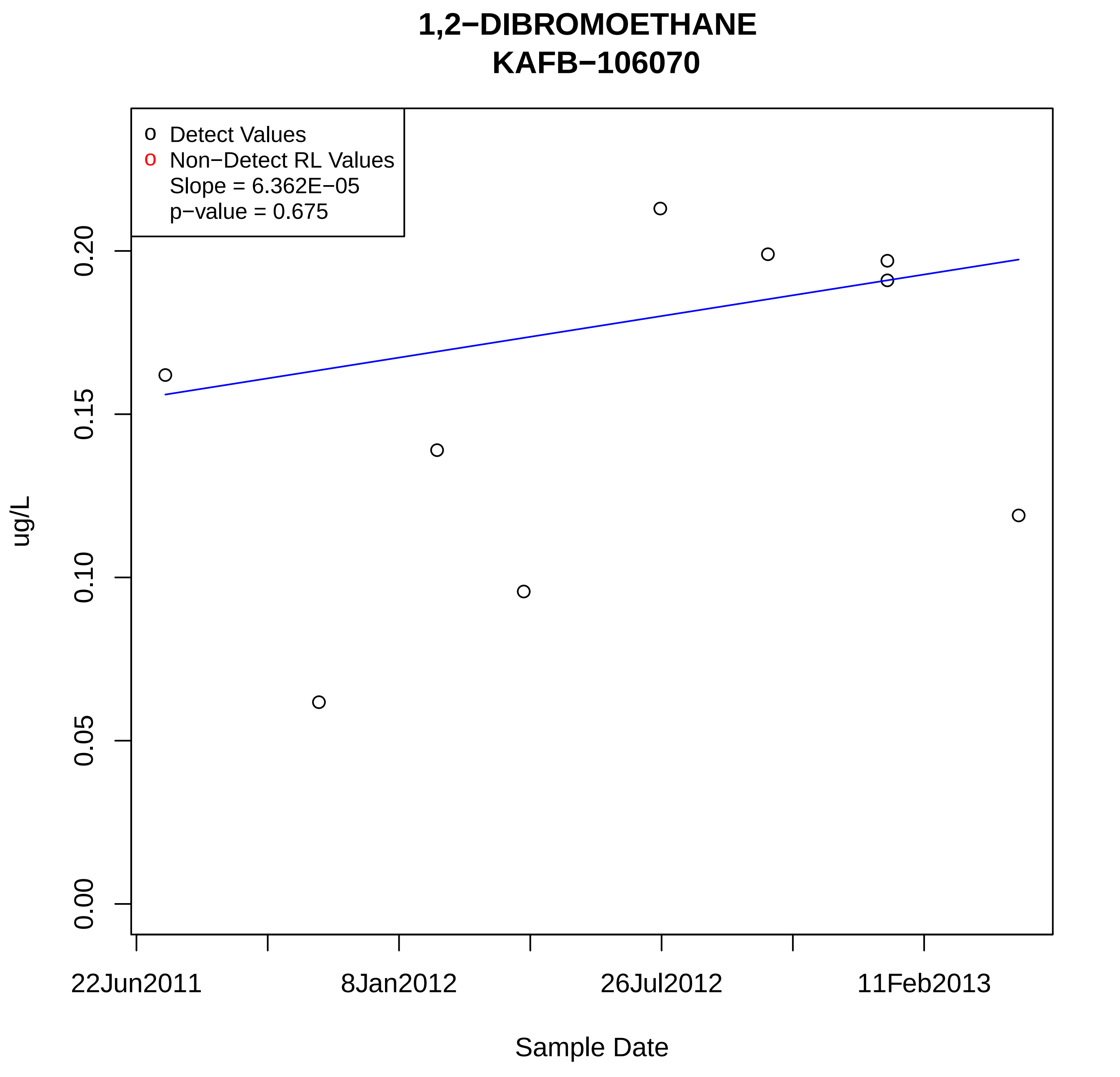

1,2−DIBROMOETHANE
KAFB−106067
o Detect Values
o Non−Detect RL Values
Slope = 1.751E−04
p−value = 0.402
ug/L
0.0
0.1
0.2
0.3
0.4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



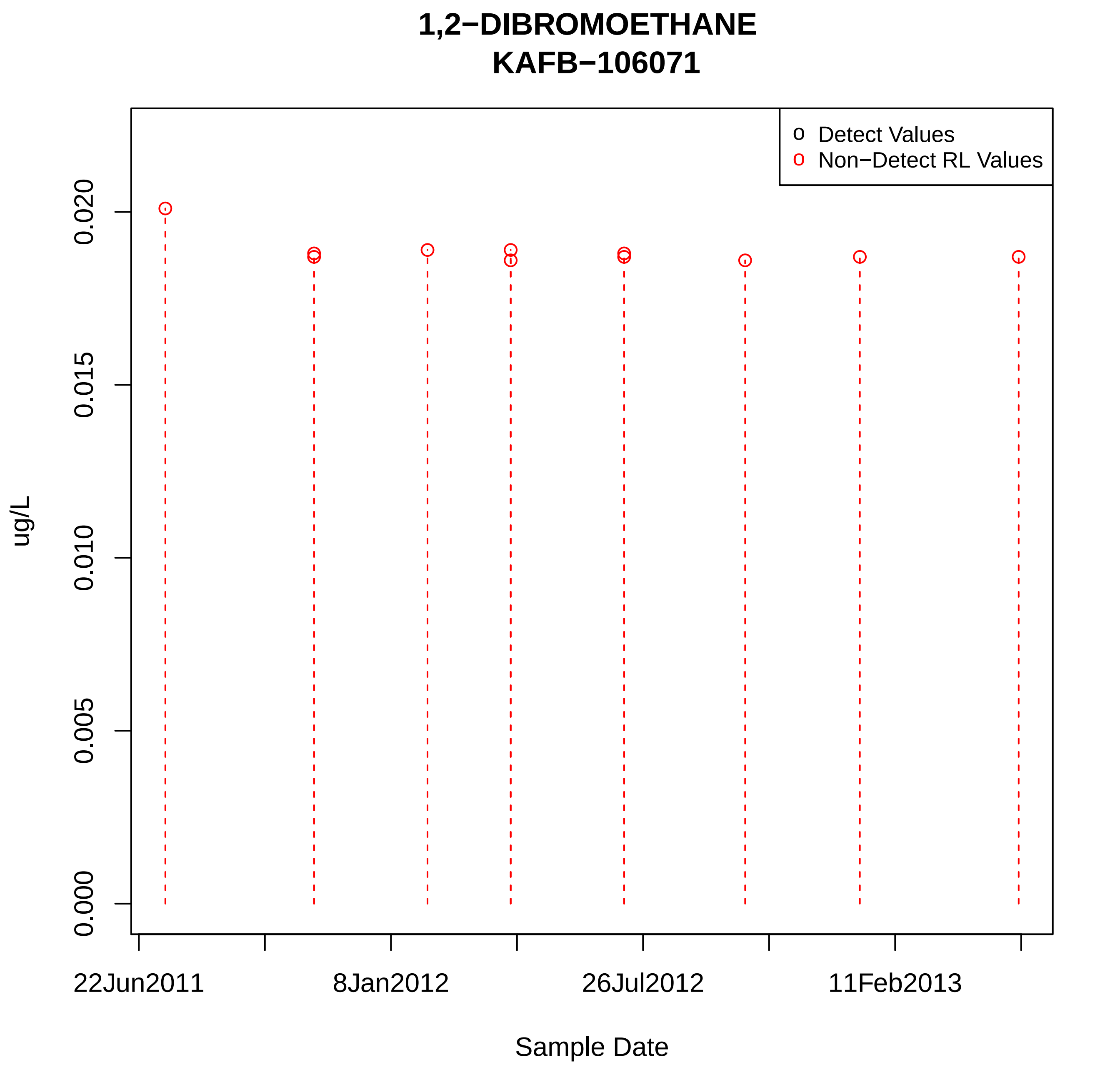
1,2−DIBROMOETHANE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

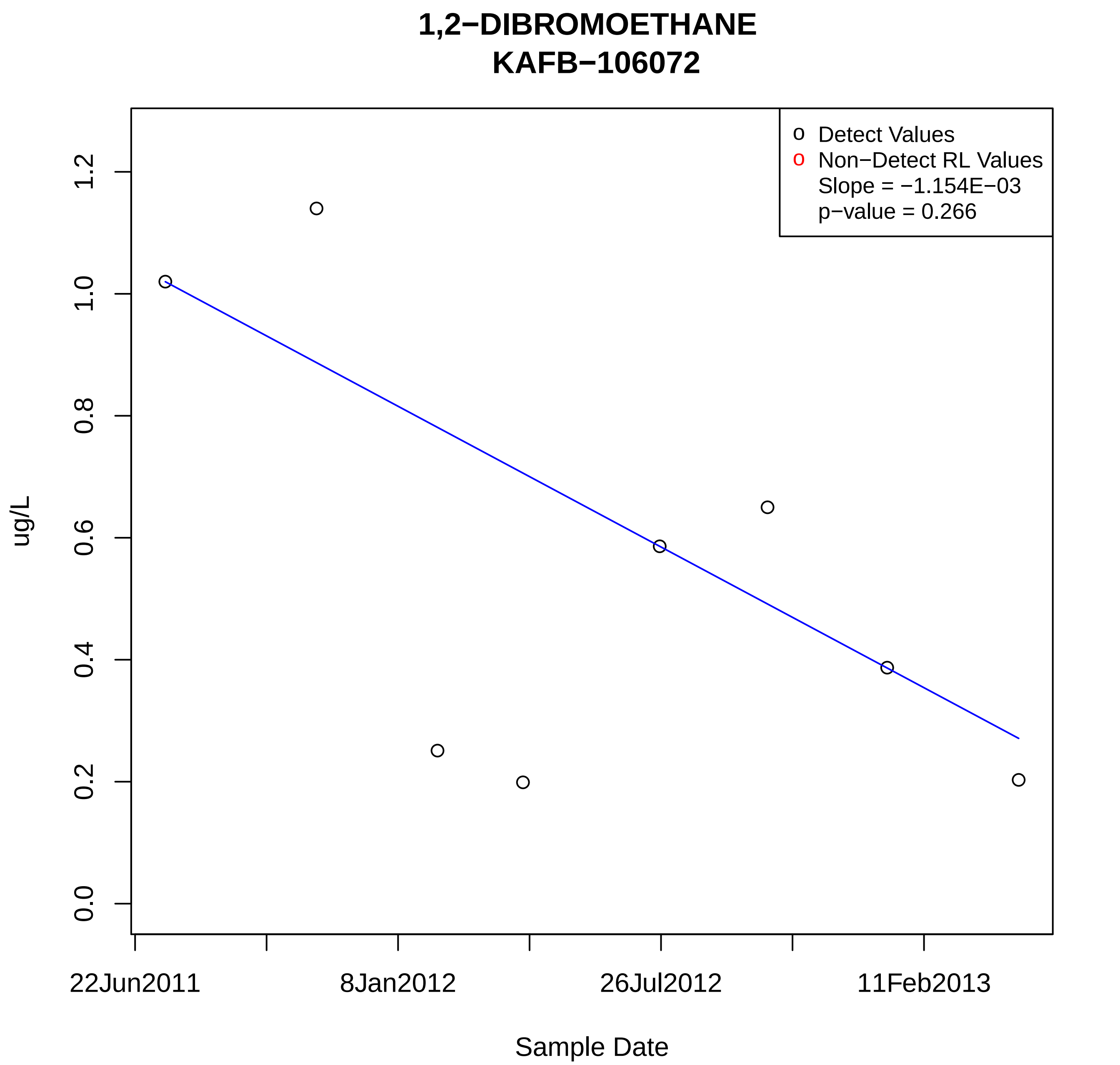


1,2−DIBROMOETHANE
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = −2.306E−04
p−value = 0.059
0.0
0.1
0.2
0.3
0.4
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

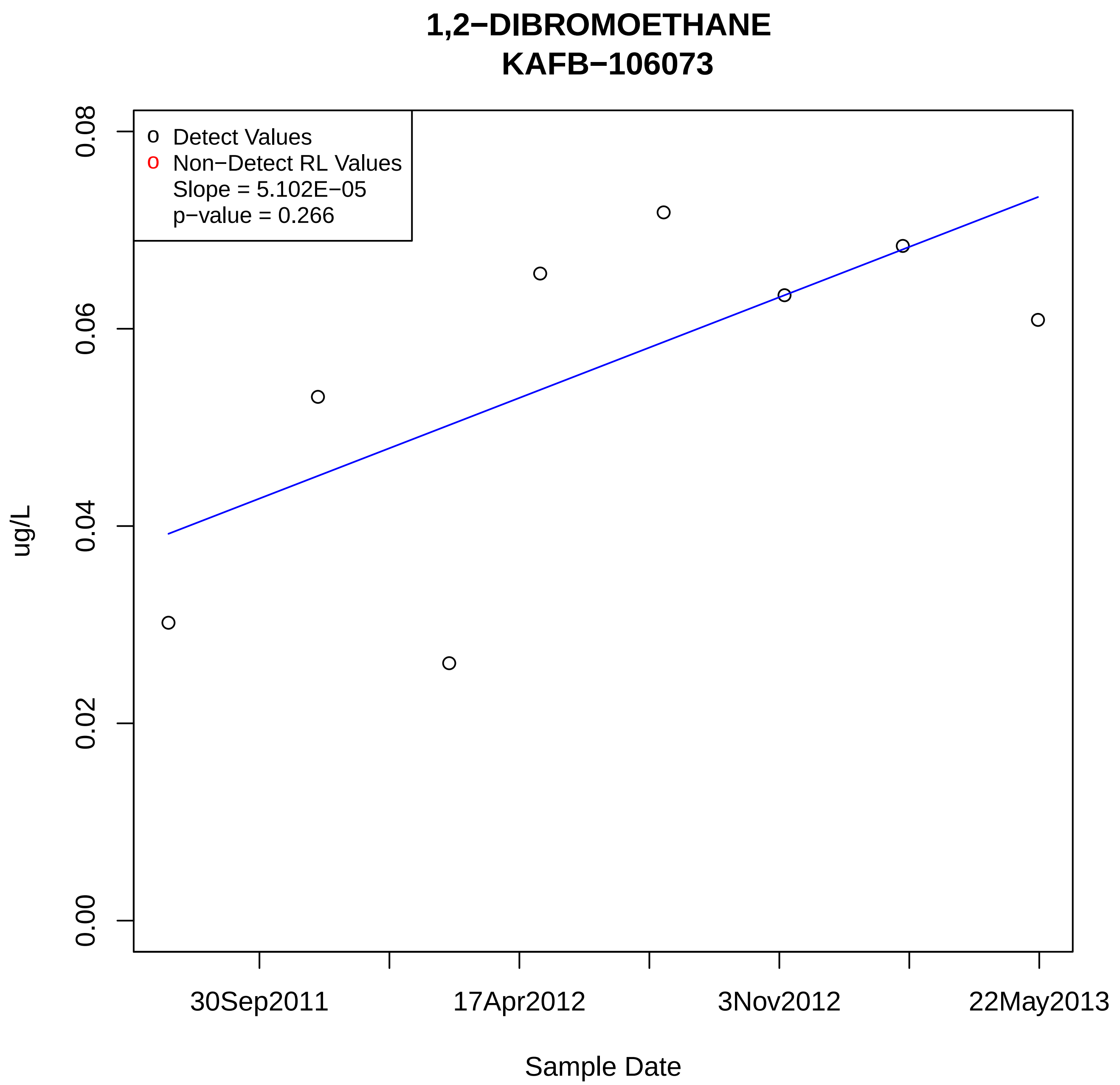


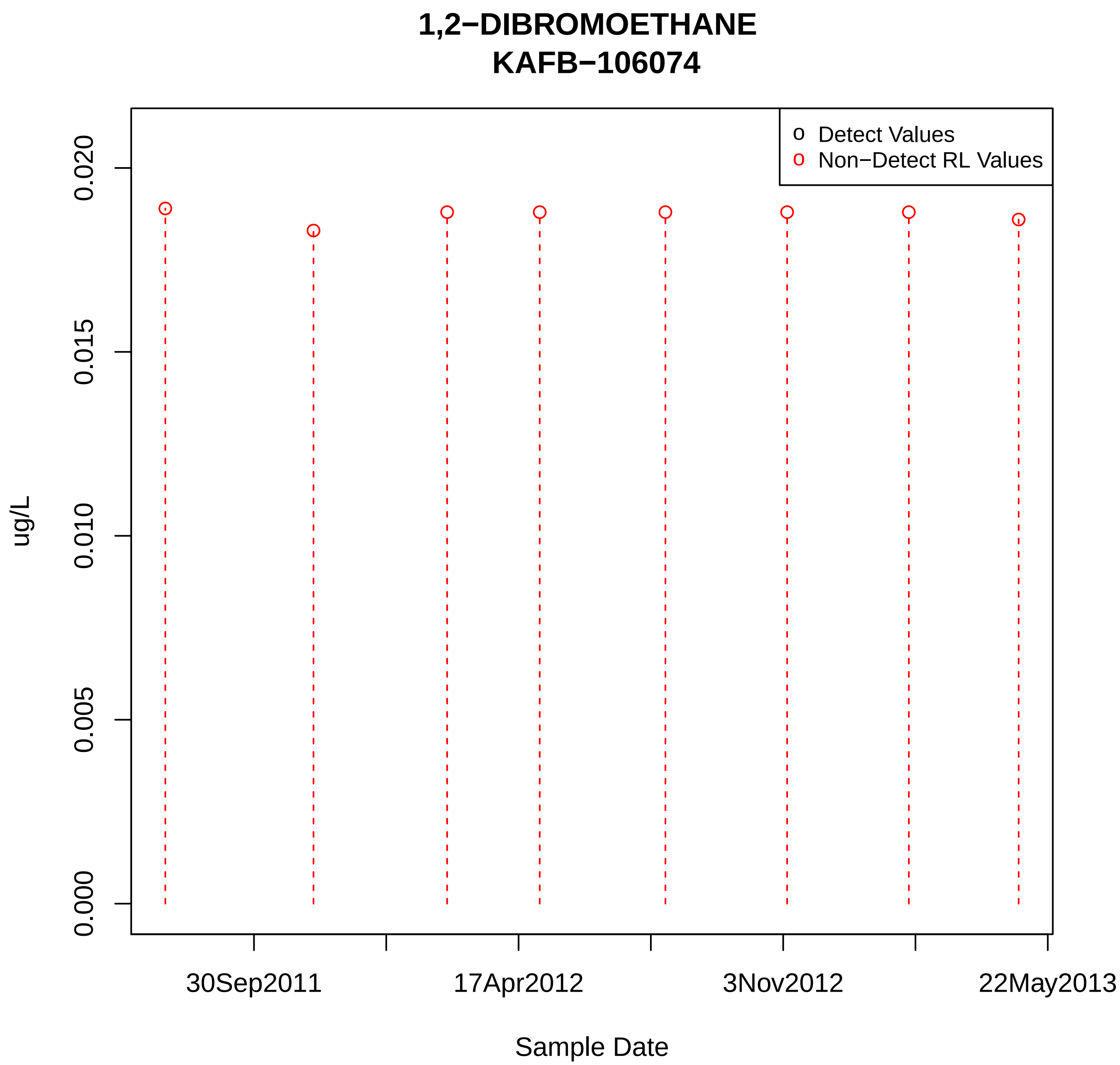
1,2−DIBROMOETHANE
KAFB−106070
o Detect Values
o Non−Detect RL Values
Slope = 6.362E−05
p−value = 0.675
0.00
0.05
0.10
0.15
0.20
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2−DIBROMOETHANE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

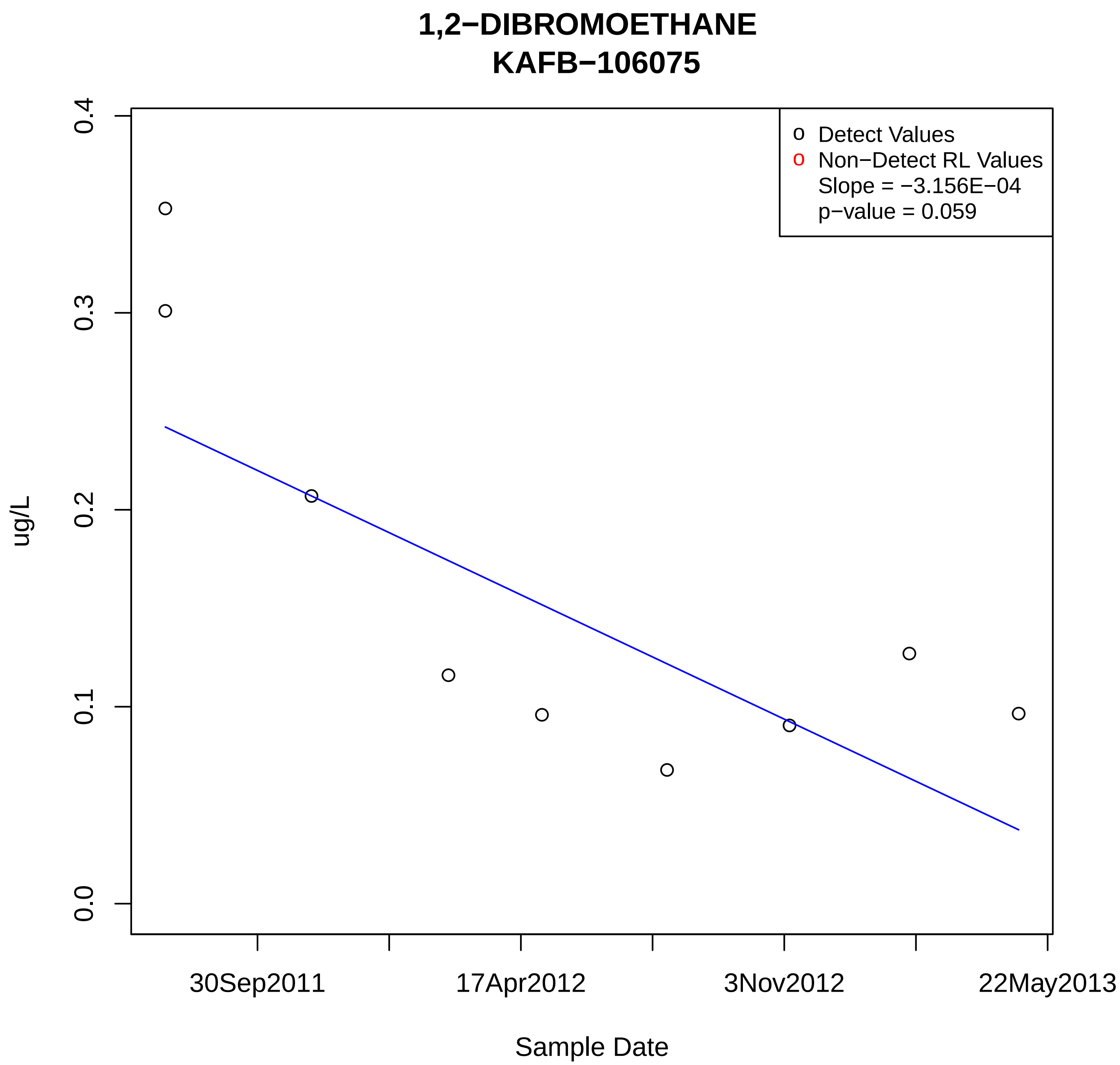


1,2−DIBROMOETHANE
KAFB−106072
o Detect Values
o Non−Detect RL Values
Slope = −1.154E−03
p−value = 0.266
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

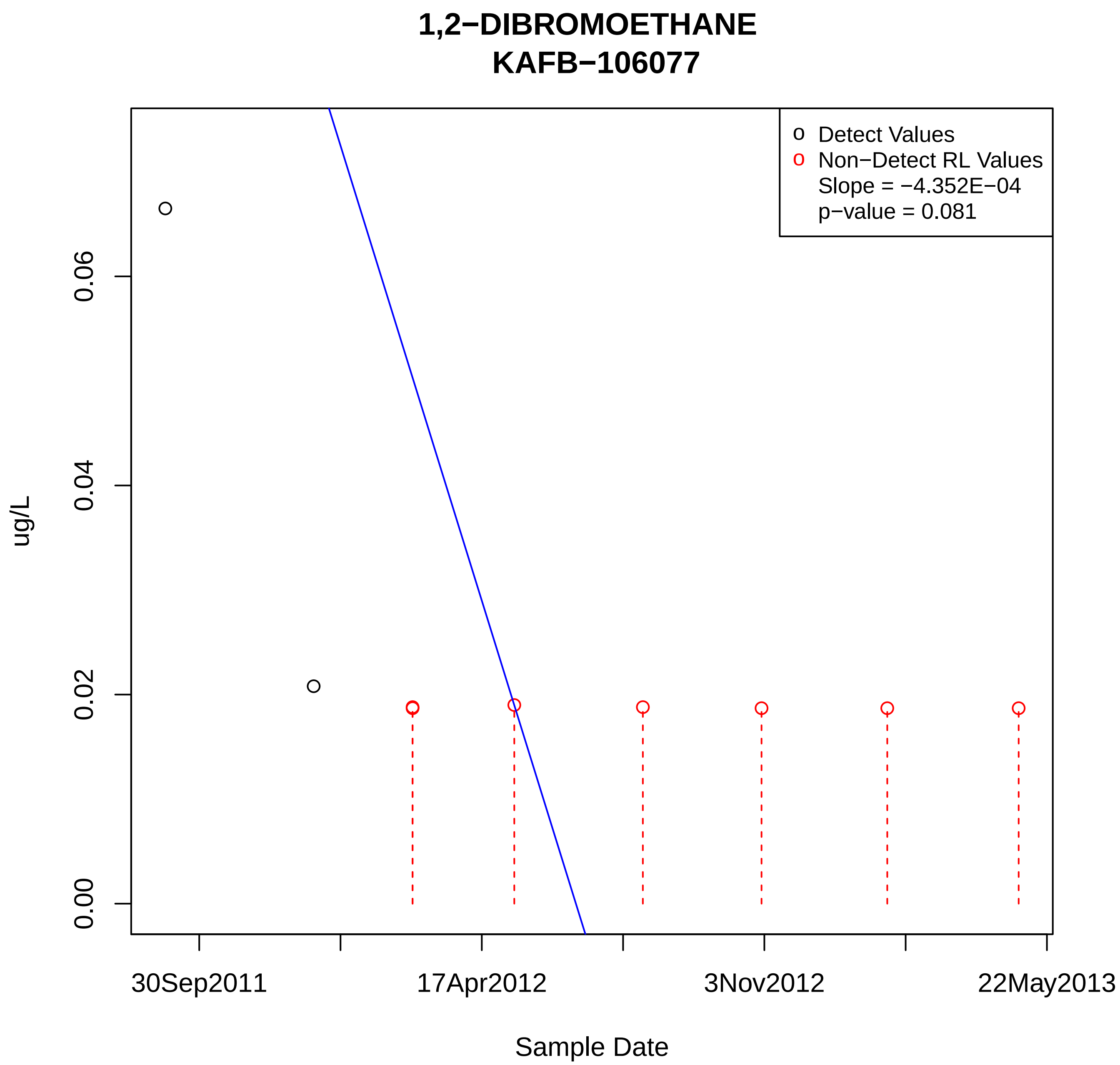

1,2−DIBROMOETHANE
KAFB−106073
Detect Values
Non−Detect RL Values
Slope = 5.102E−05
p−value = 0.266
0.00
0.02
0.04
0.06
0.08
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



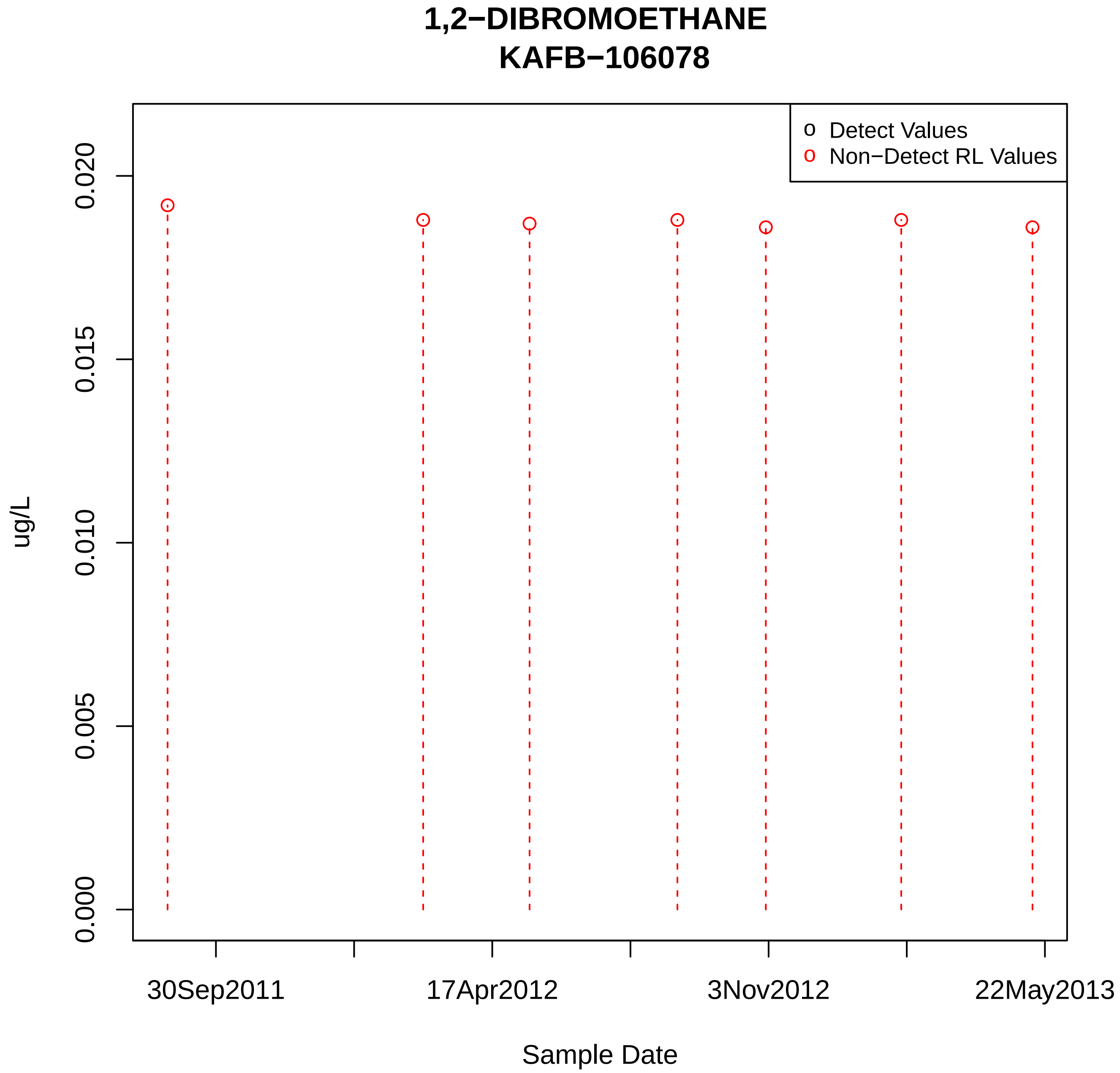
1,2−DIBROMOETHANE
KAFB−106074
o Detect Values
o Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

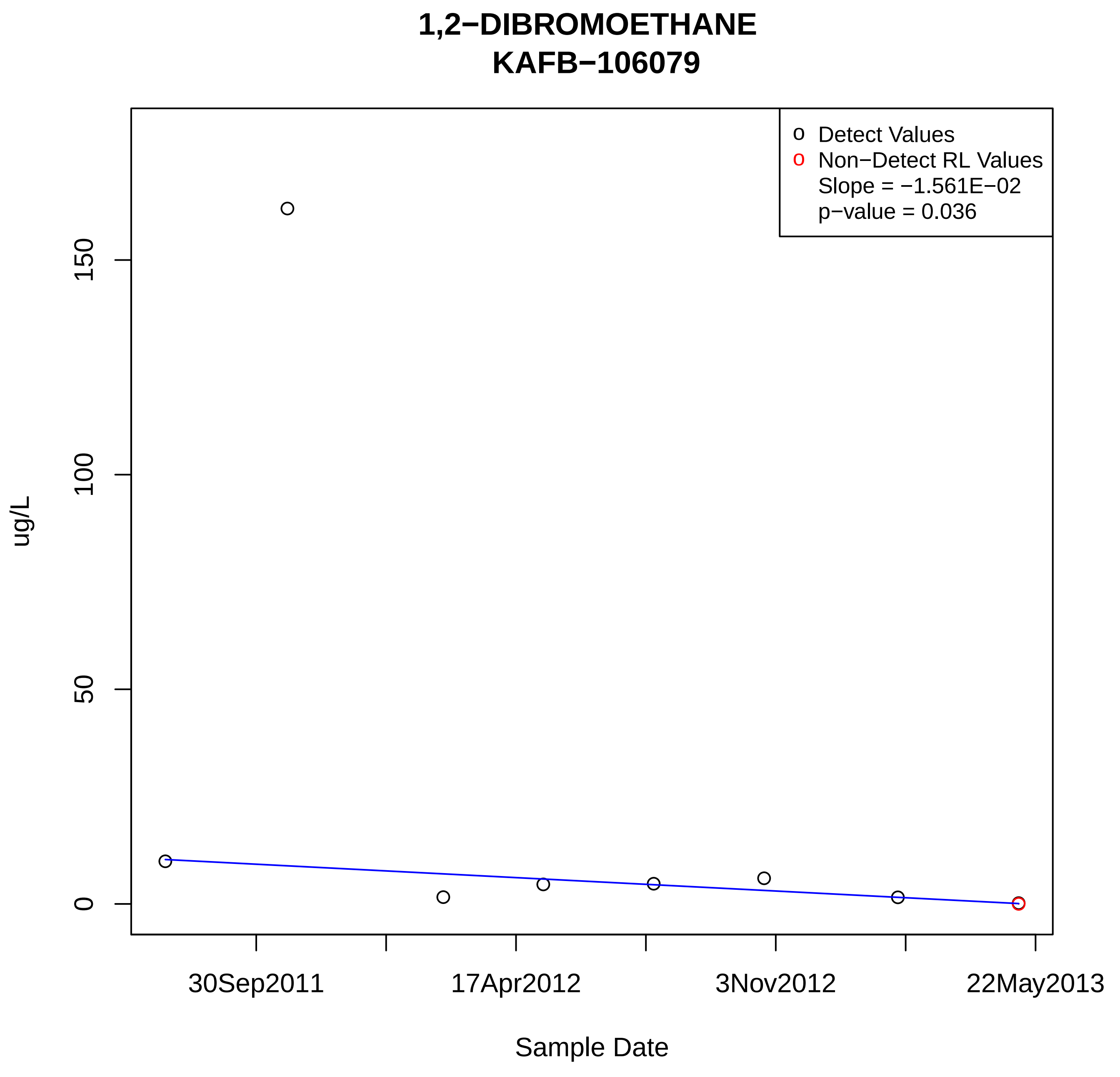


1,2−DIBROMOETHANE
KAFB−106075
o Detect Values
o Non−Detect RL Values
Slope = −3.156E−04
p−value = 0.059
ug/L
0.0
0.1
0.2
0.3
0.4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

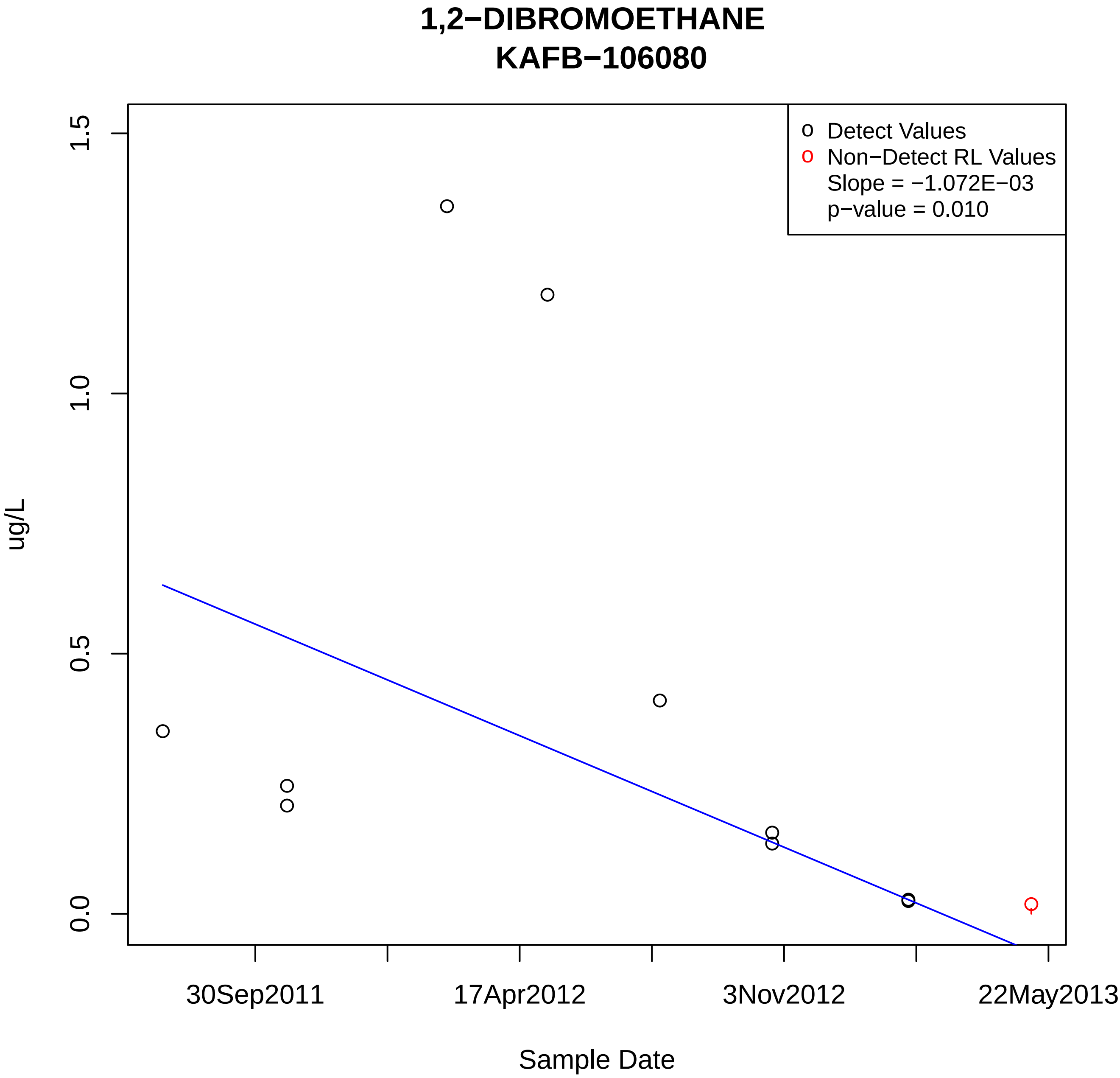


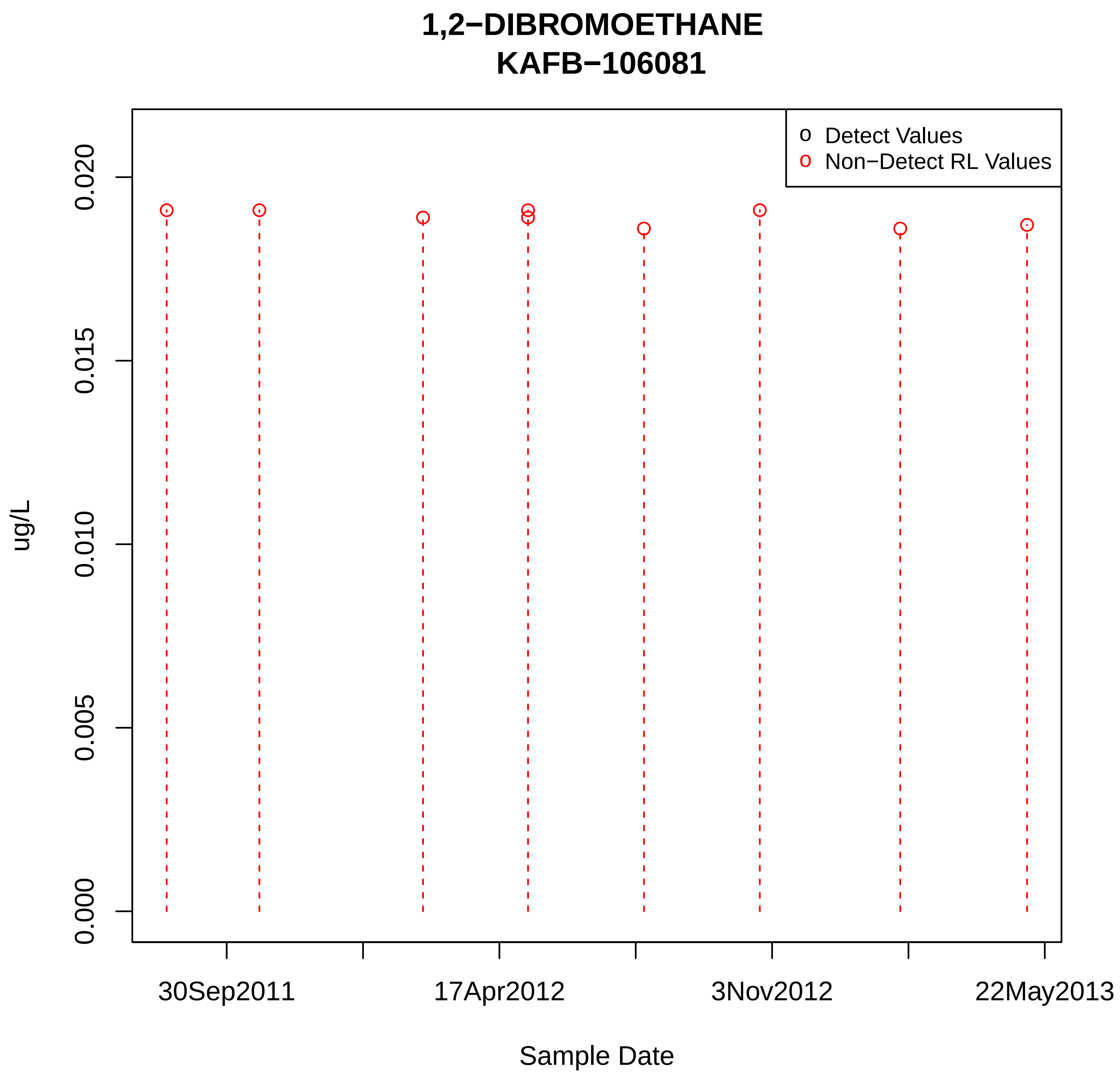
1,2−DIBROMOETHANE
KAFB−106077
Detect Values
Non−Detect RL Values
Slope = −4.352E−04
p−value = 0.081
0.00
0.02
0.04
0.06
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DIBROMOETHANE
KAFB−106078
o Detect Values
o Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

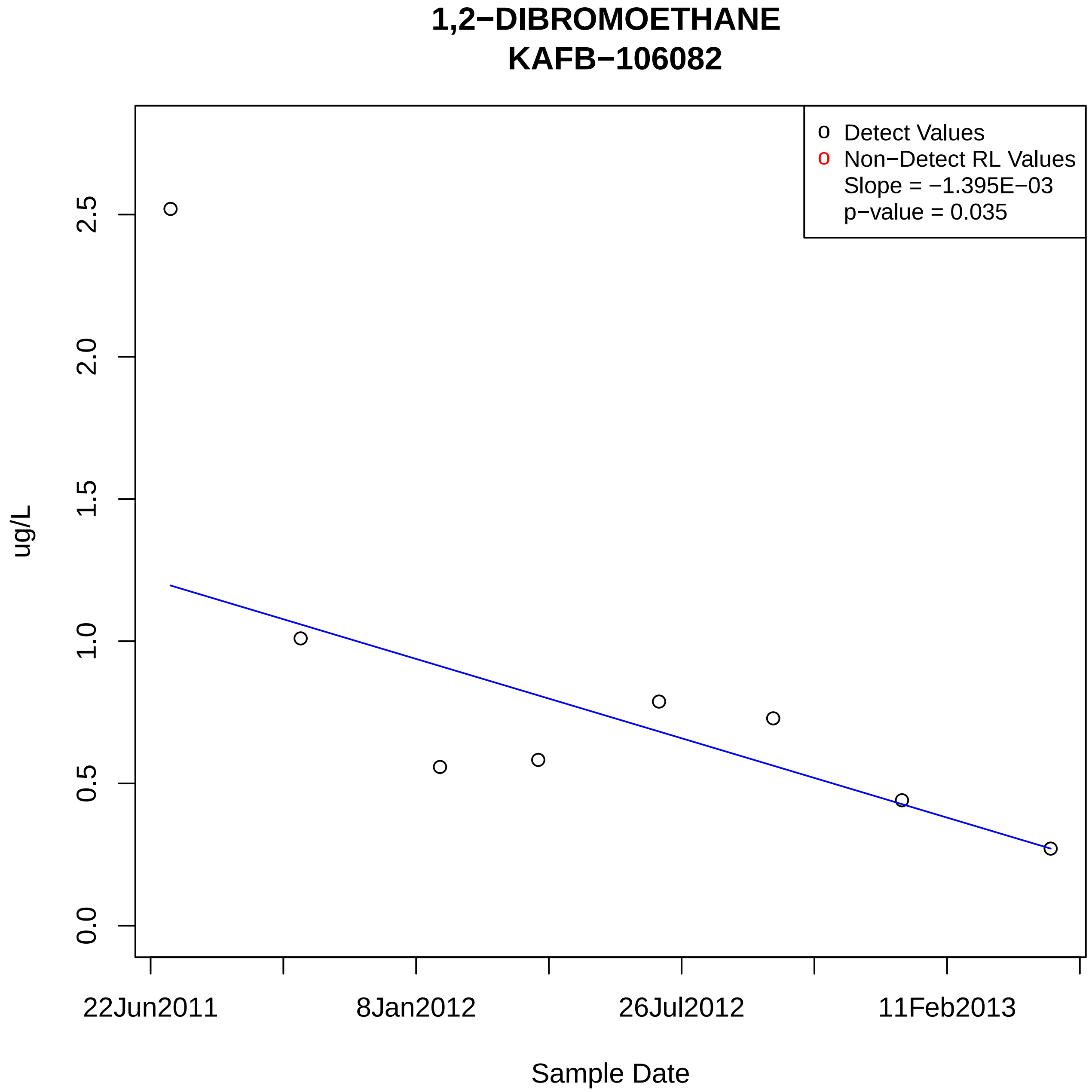


1,2−DIBROMOETHANE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −1.561E−02
p−value = 0.036
150
100
50
0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

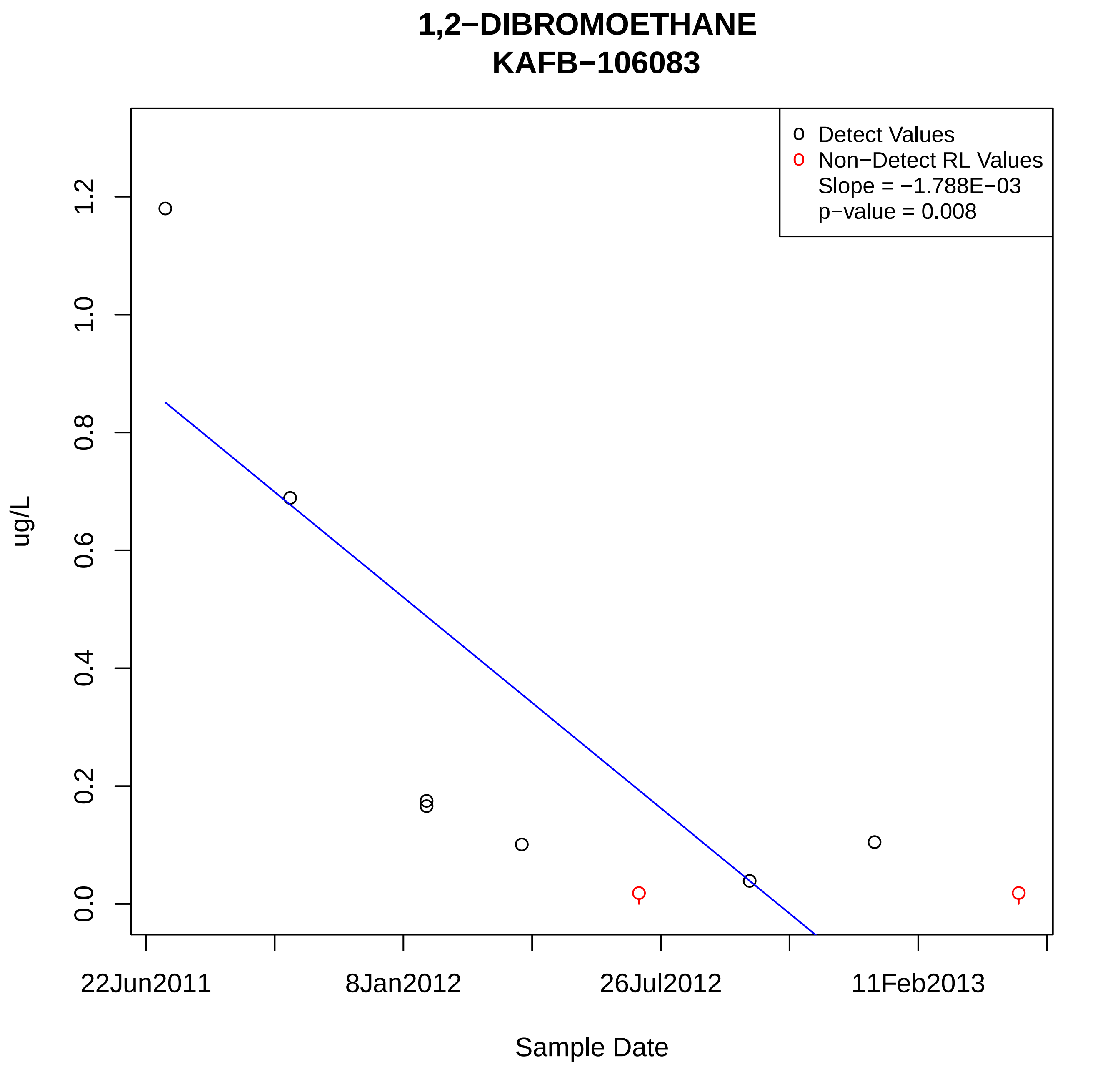

1,2−DIBROMOETHANE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −1.072E−03
p−value = 0.010
ug/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



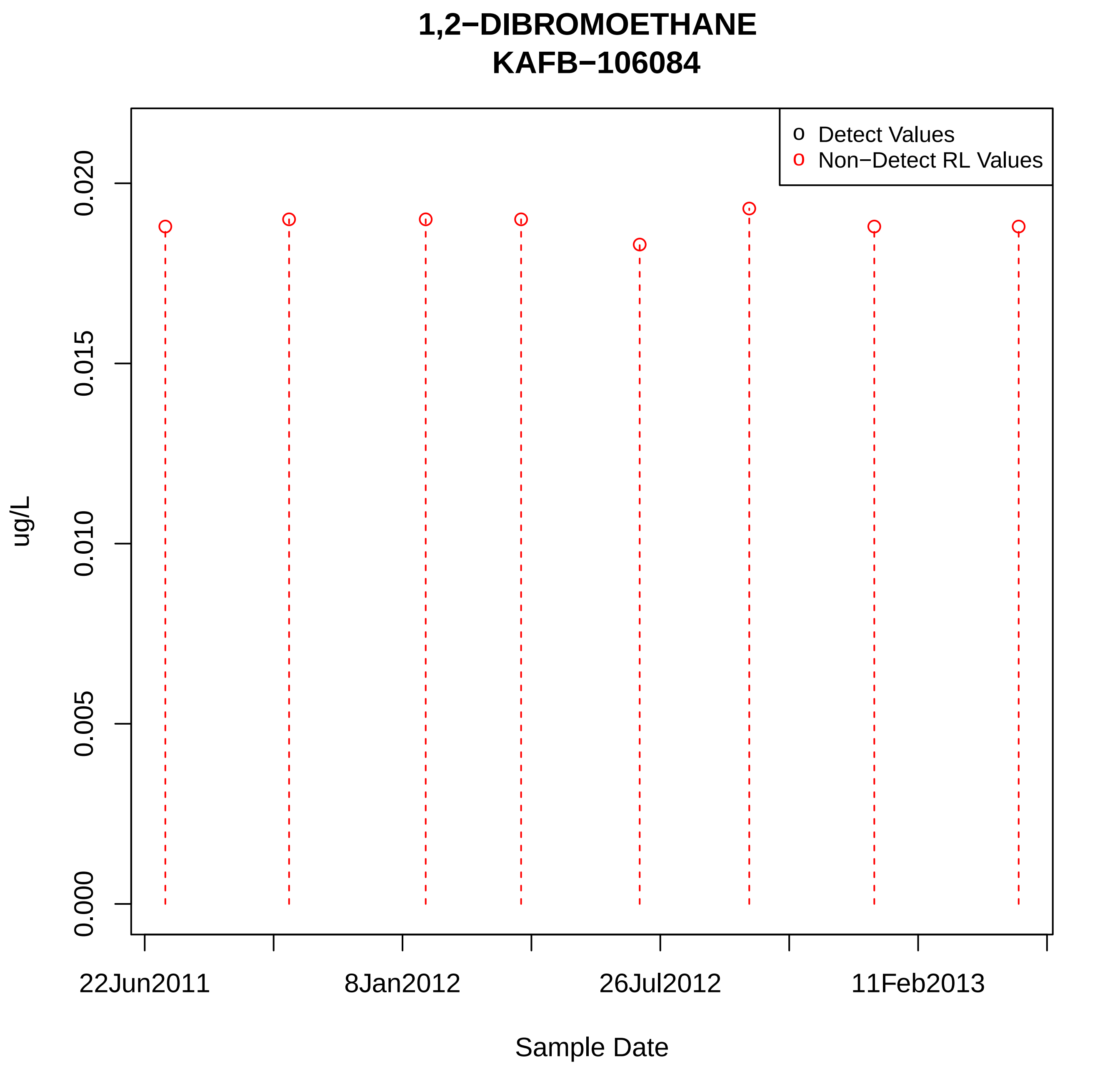
1,2−DIBROMOETHANE
KAFB−106081
Detect Values
Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



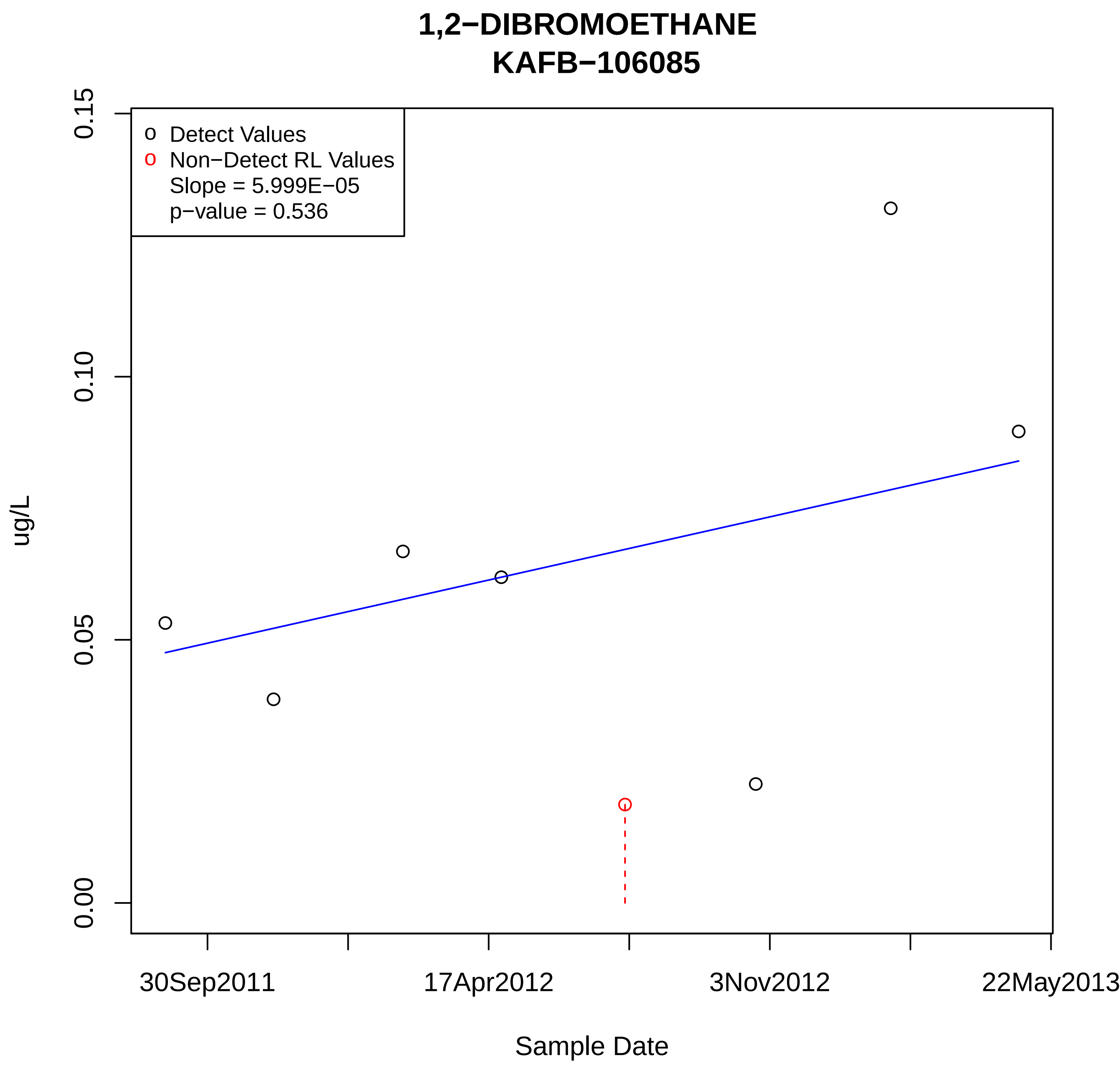
1,2−DIBROMOETHANE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −1.395E−03
p−value = 0.035
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

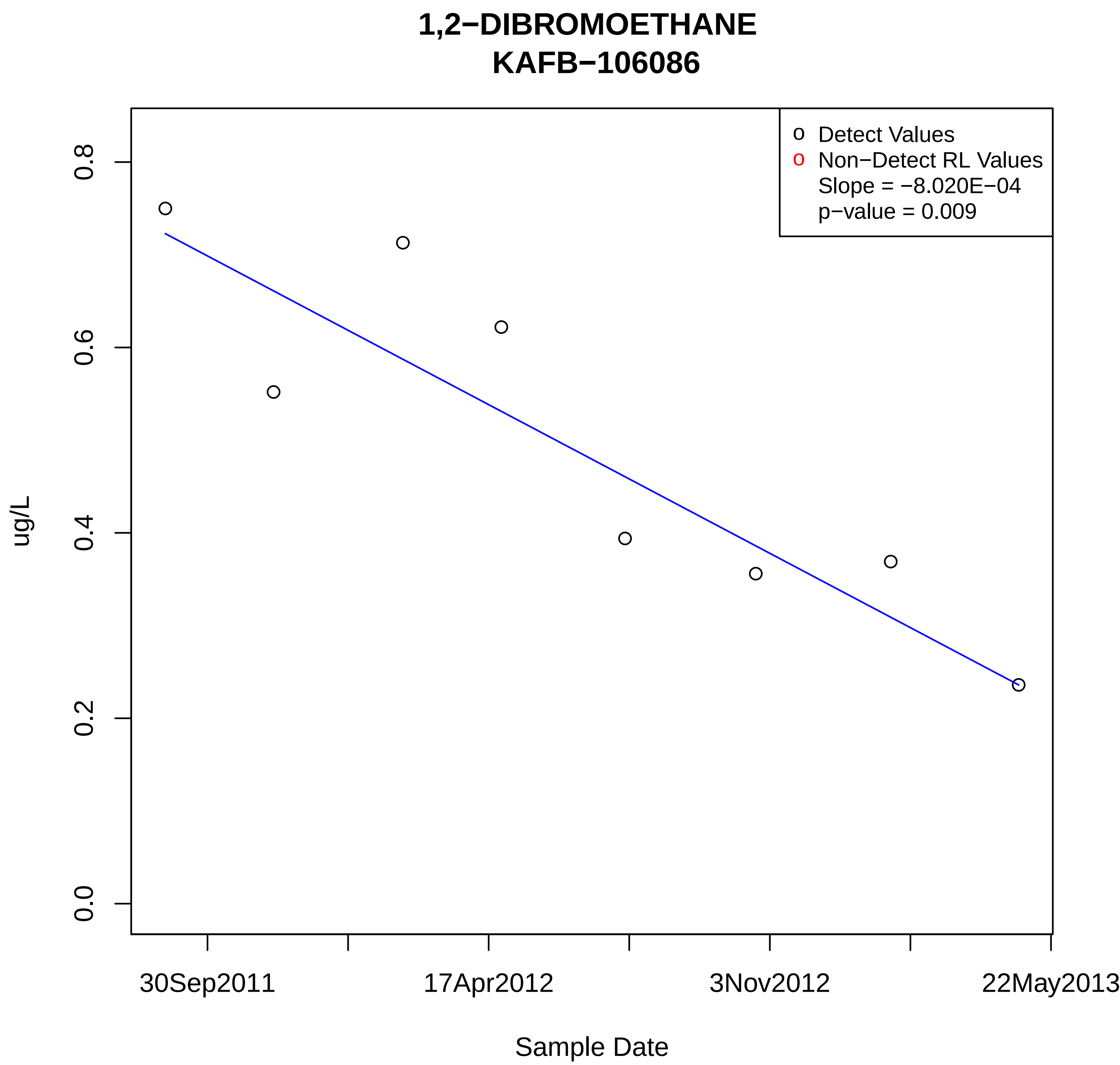


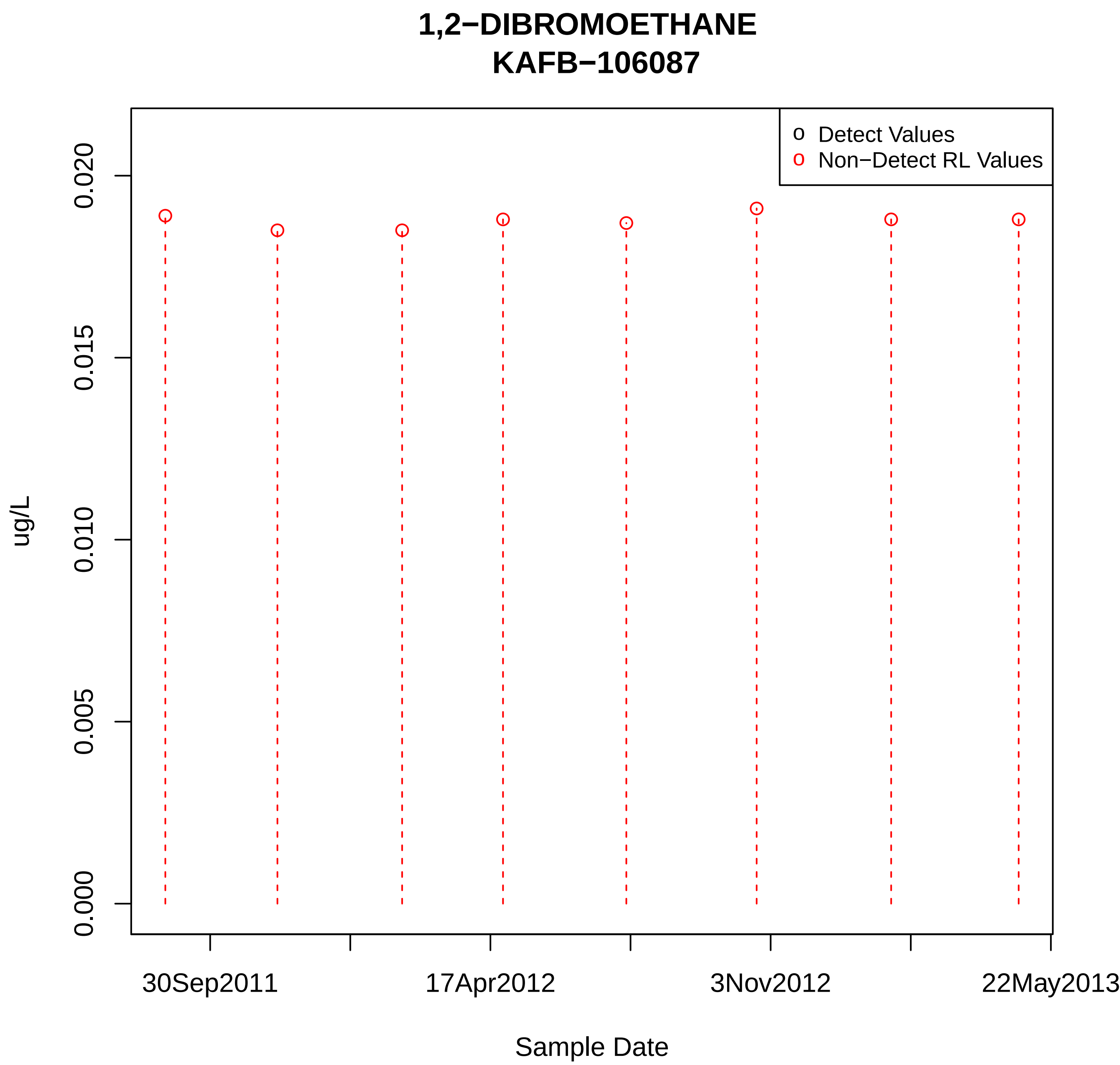
1,2−DIBROMOETHANE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = −1.788E−03
p−value = 0.008
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

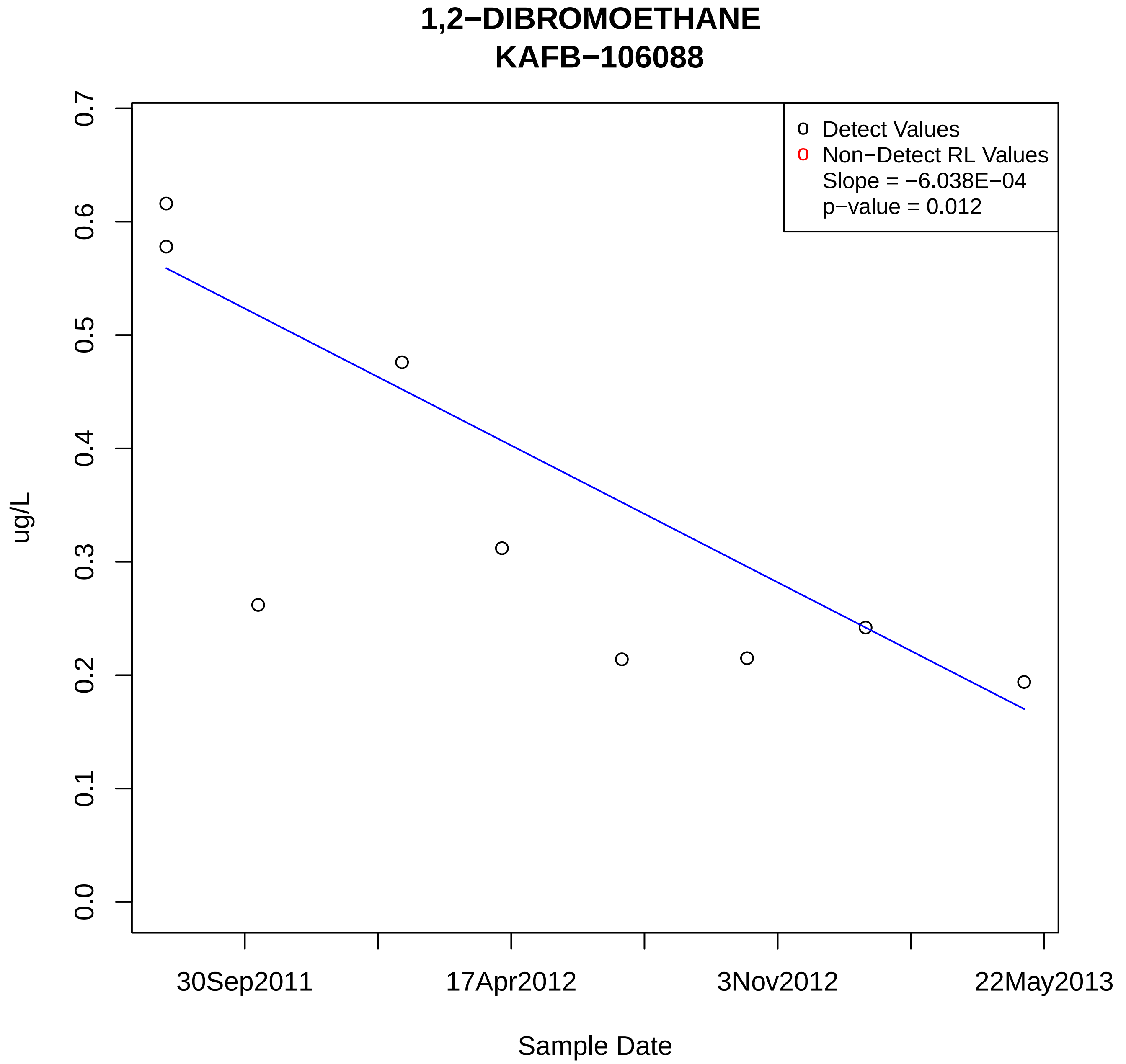


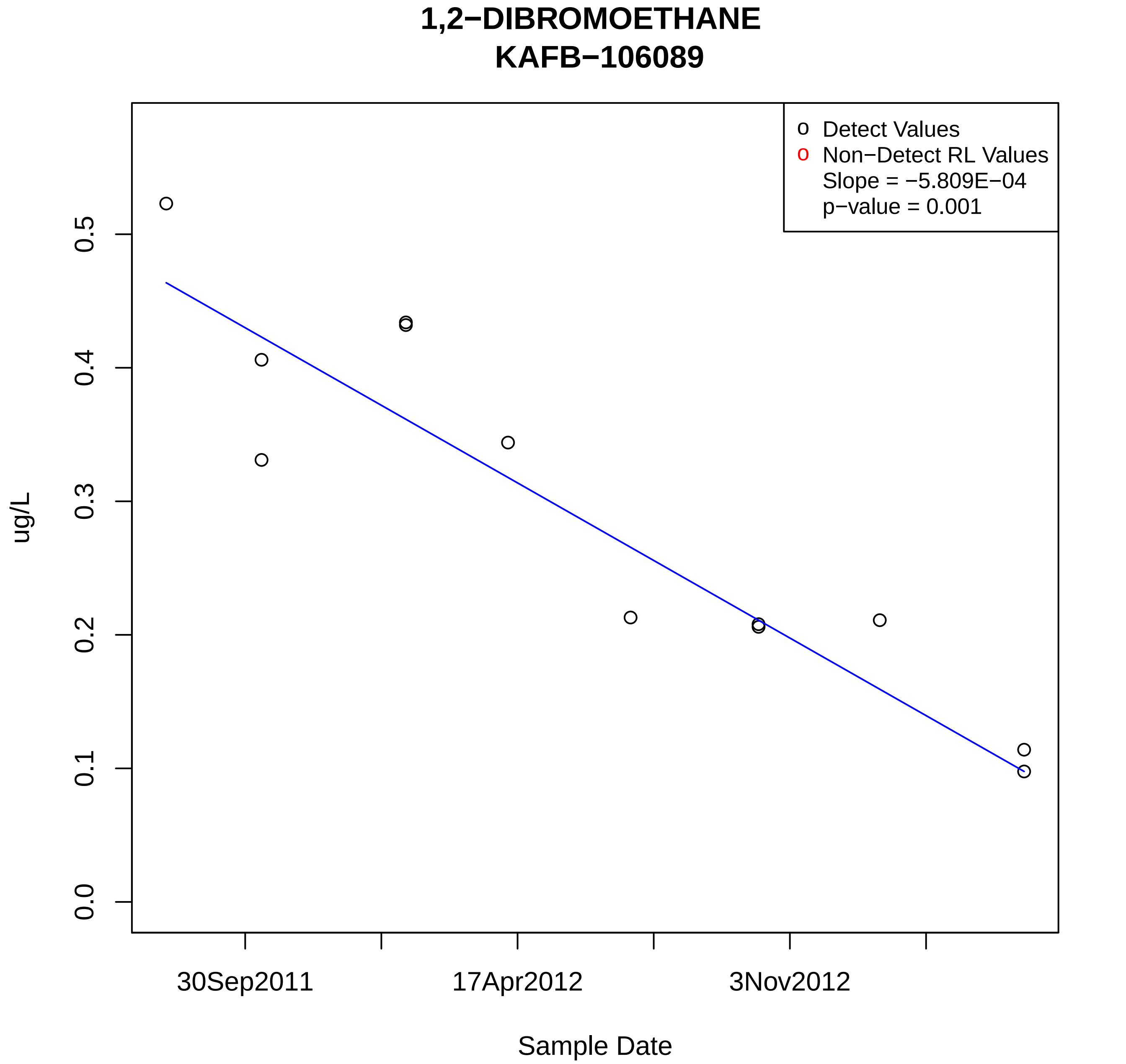
1,2−DIBROMOETHANE
KAFB−106084
o Detect Values
o Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

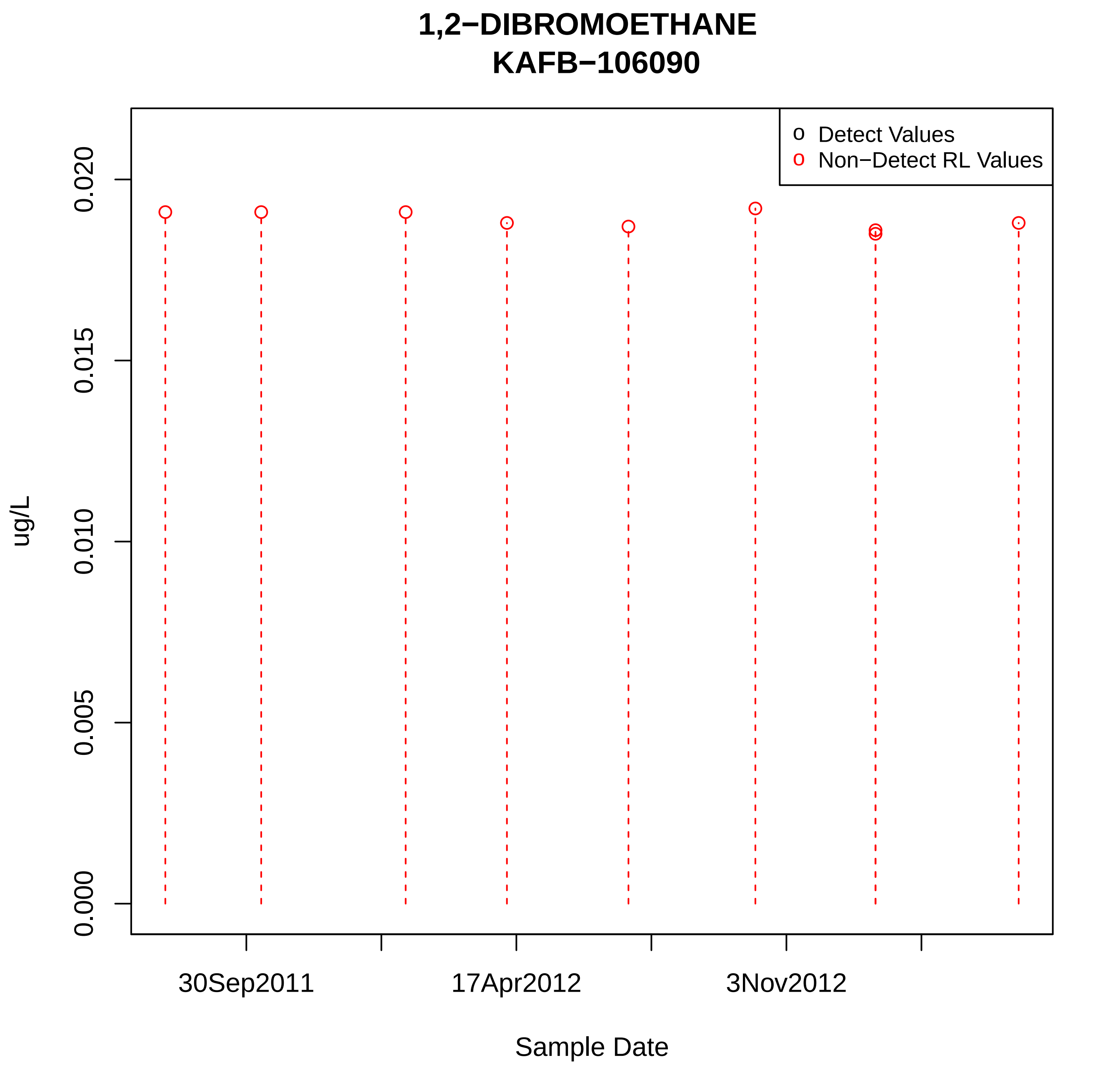

1,2−DIBROMOETHANE
KAFB−106085
o Detect Values
o Non−Detect RL Values
Slope = 5.999E−05
p−value = 0.536
0.15
0.10
0.05
0.00
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DIBROMOETHANE
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = −8.020E−04
p−value = 0.009
ug/L
0.0
0.2
0.4
0.6
0.8
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

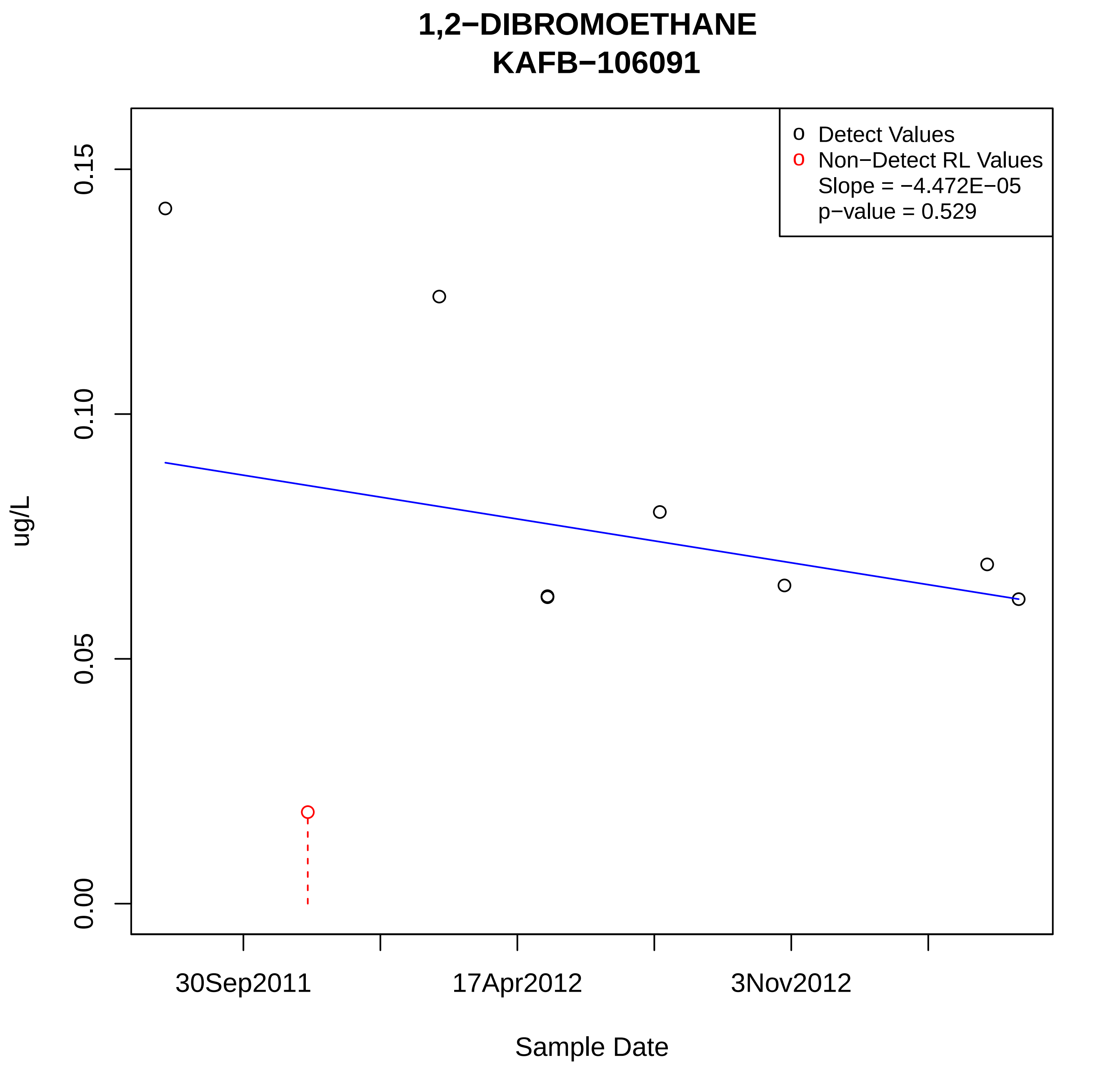

1,2−DIBROMOETHANE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

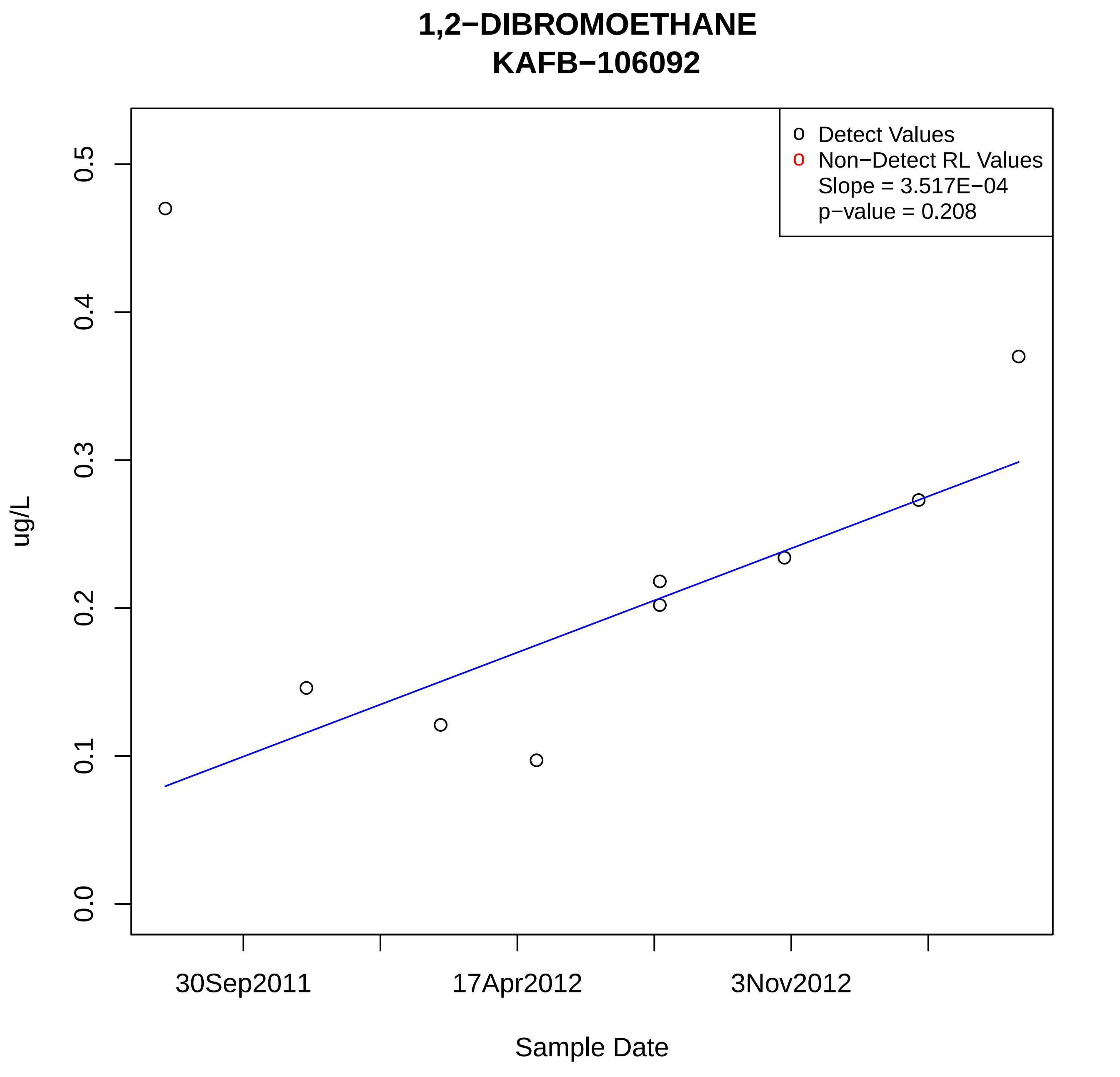

1,2−DIBROMOETHANE
KAFB−106088
Detect Values
Non−Detect RL Values
Slope = −6.038E−04
p−value = 0.012
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DIBROMOETHANE
KAFB−106089
Detect Values
Non−Detect RL Values
Slope = −5.809E−04
p−value = 0.001
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

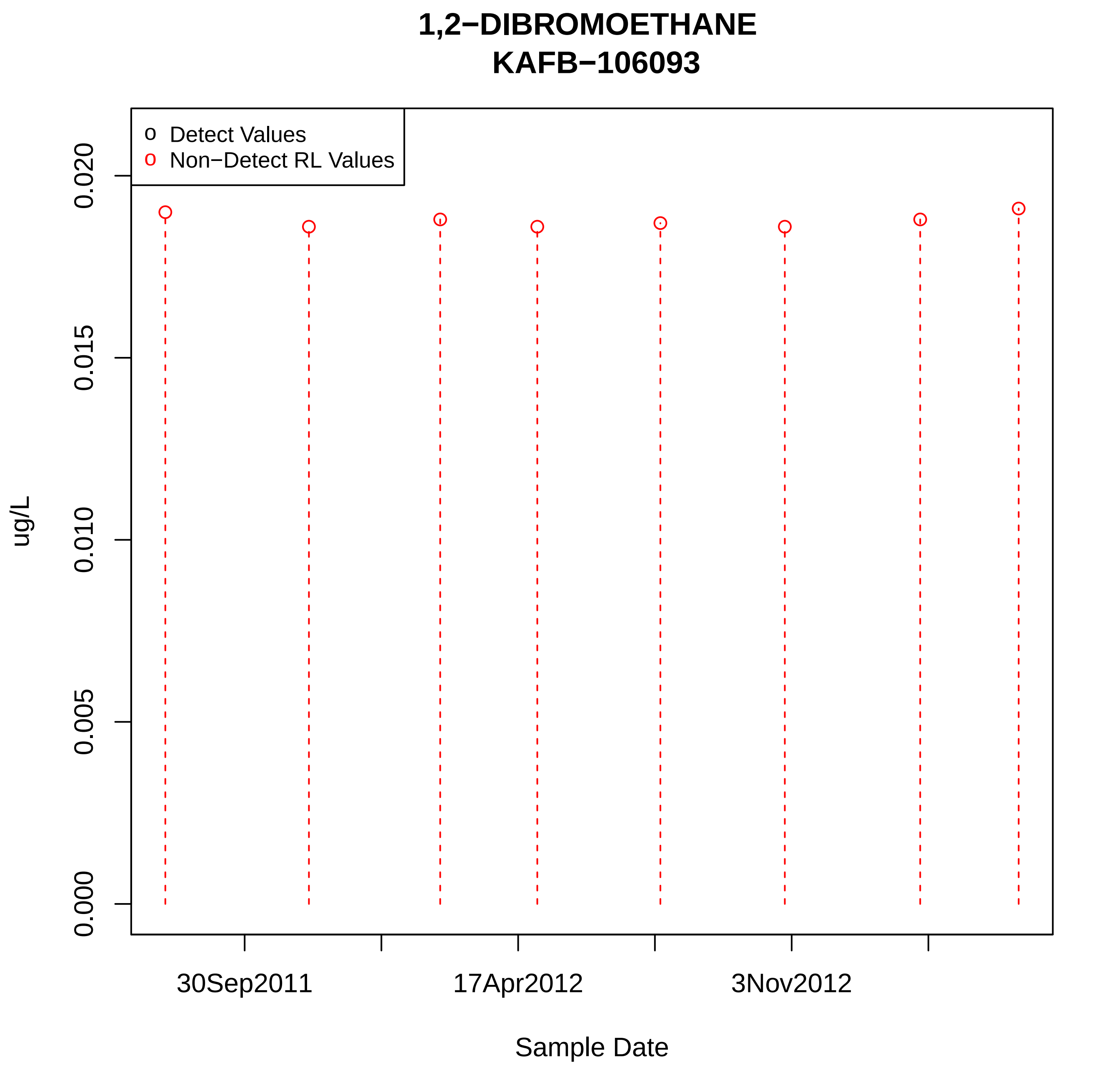


1,2−DIBROMOETHANE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date

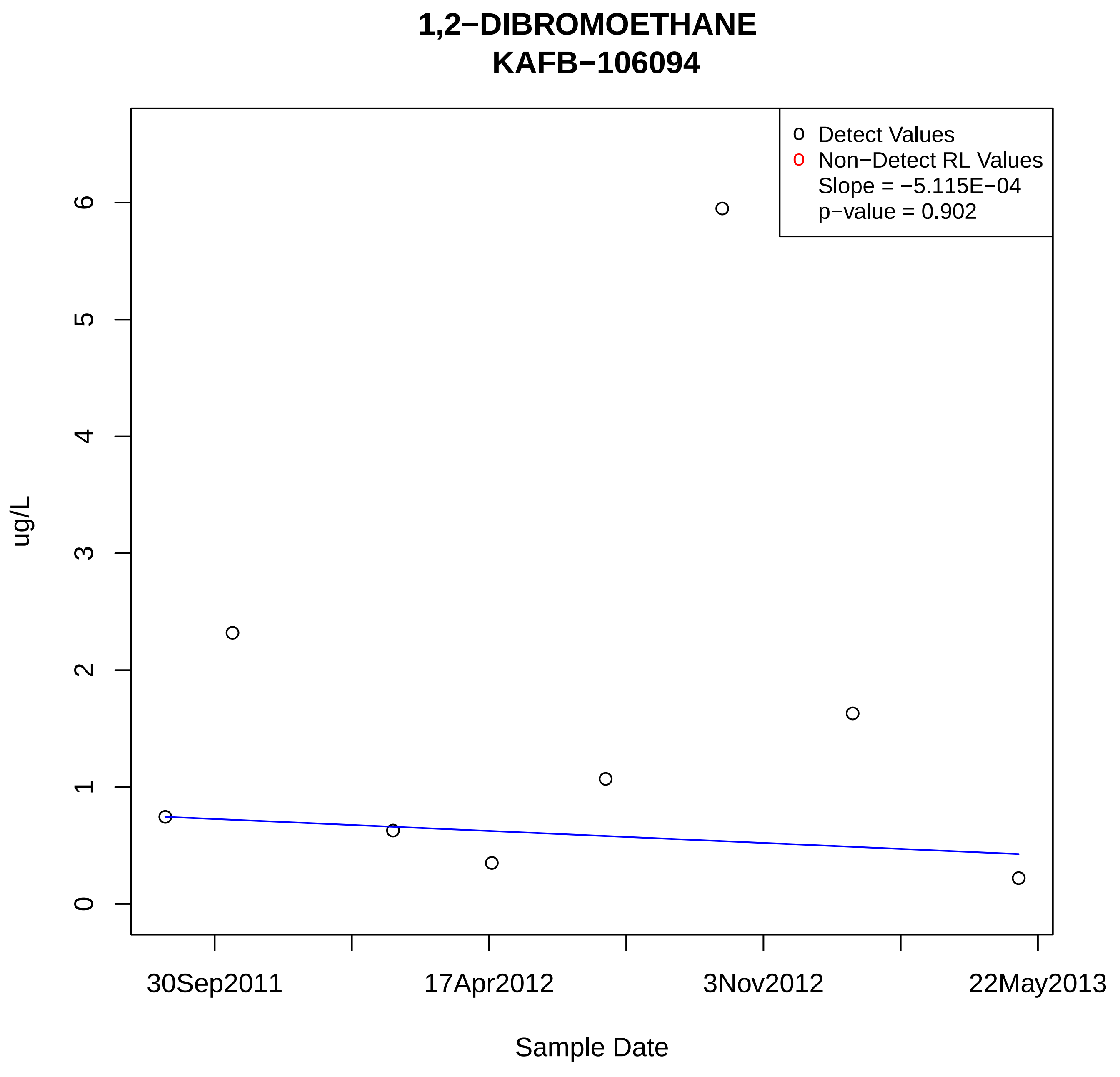

1,2−DIBROMOETHANE
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = −4.472E−05
p−value = 0.529
ug/L
0.00
0.05
0.10
0.15
30Sep2011
17Apr2012
3Nov2012
Sample Date



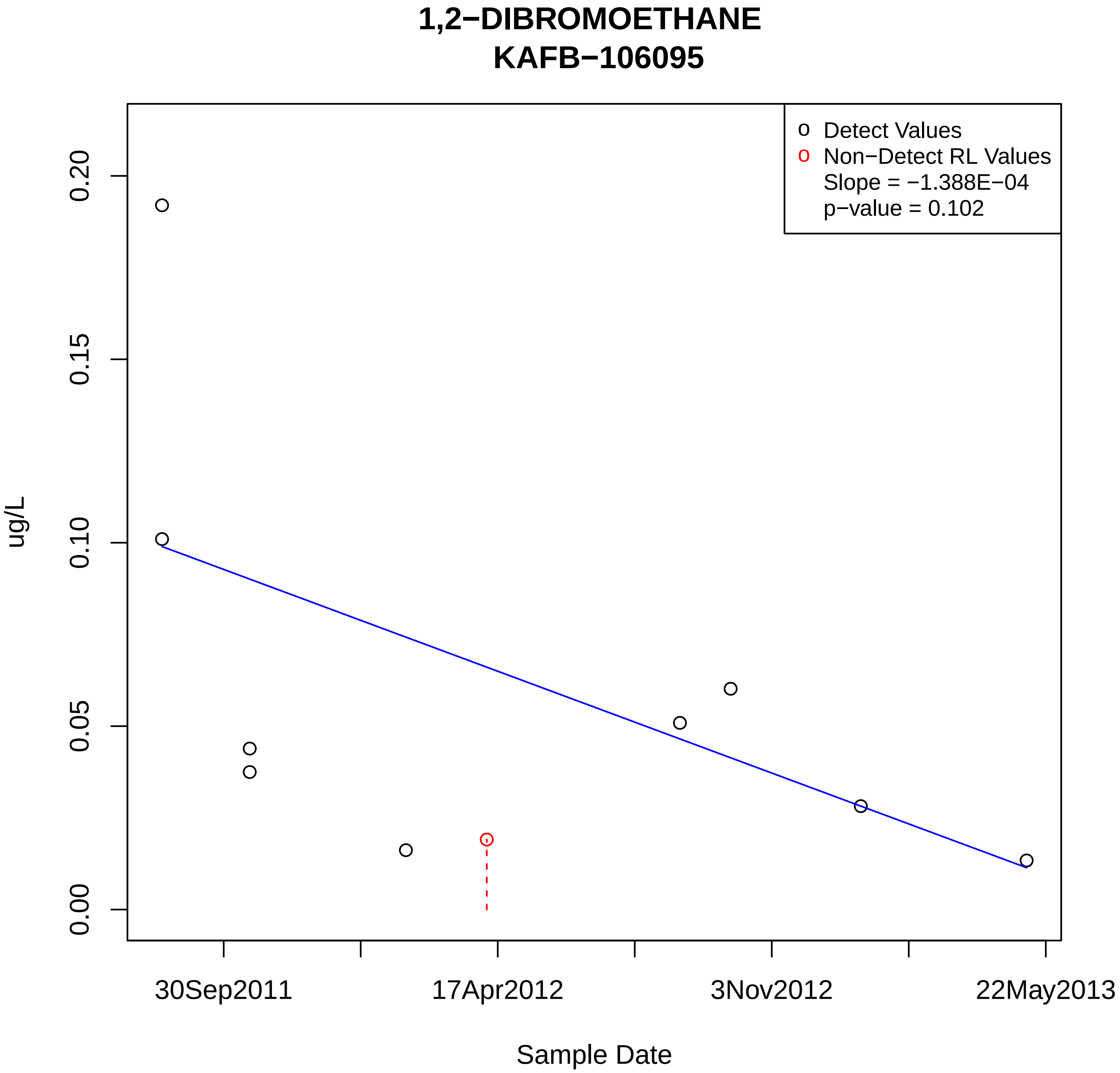
1,2−DIBROMOETHANE
KAFB−106092
Detect Values
Non−Detect RL Values
Slope = 3.517E−04
p−value = 0.208
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



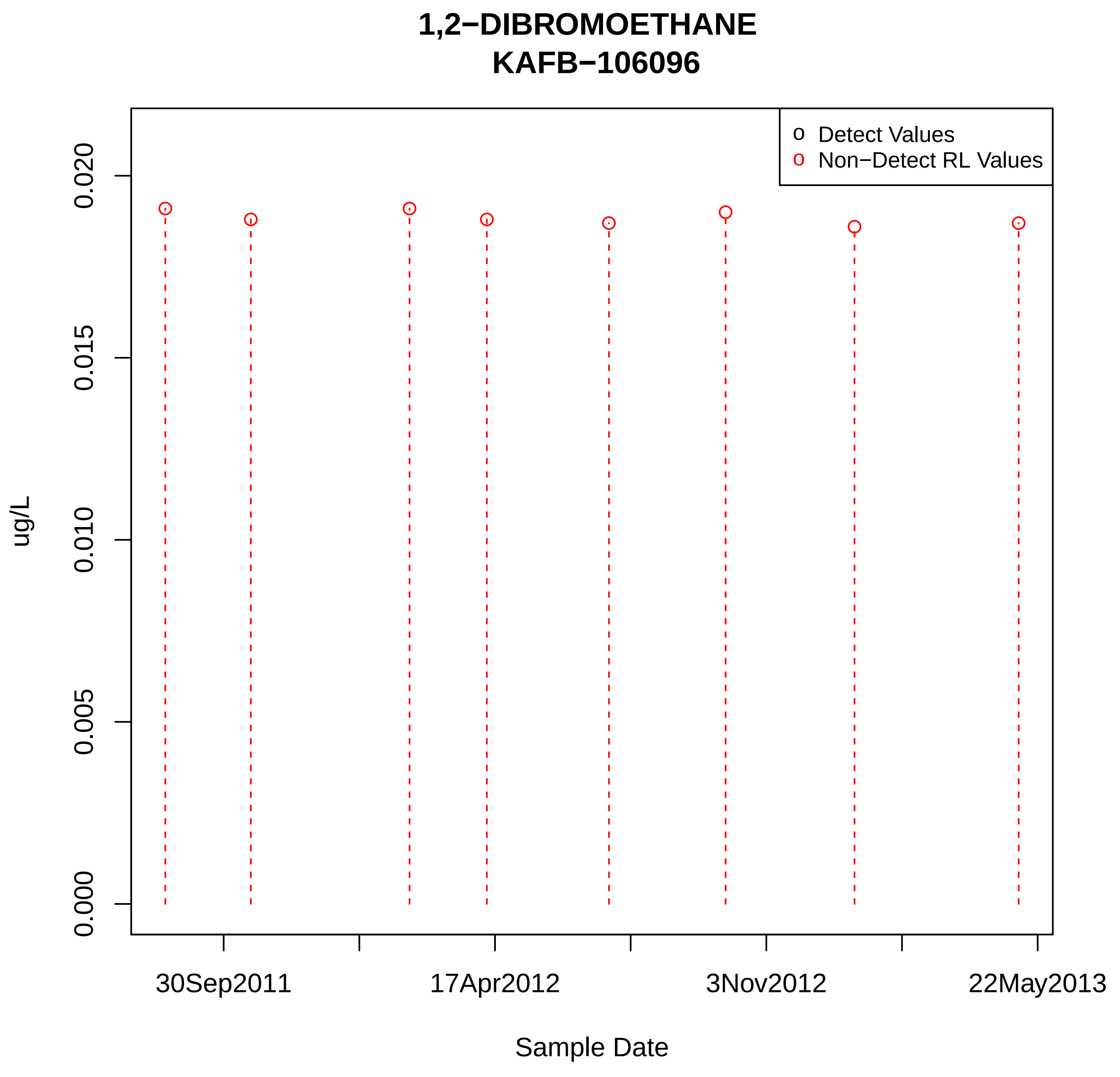
1,2−DIBROMOETHANE
KAFB−106093
Detect Values
Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

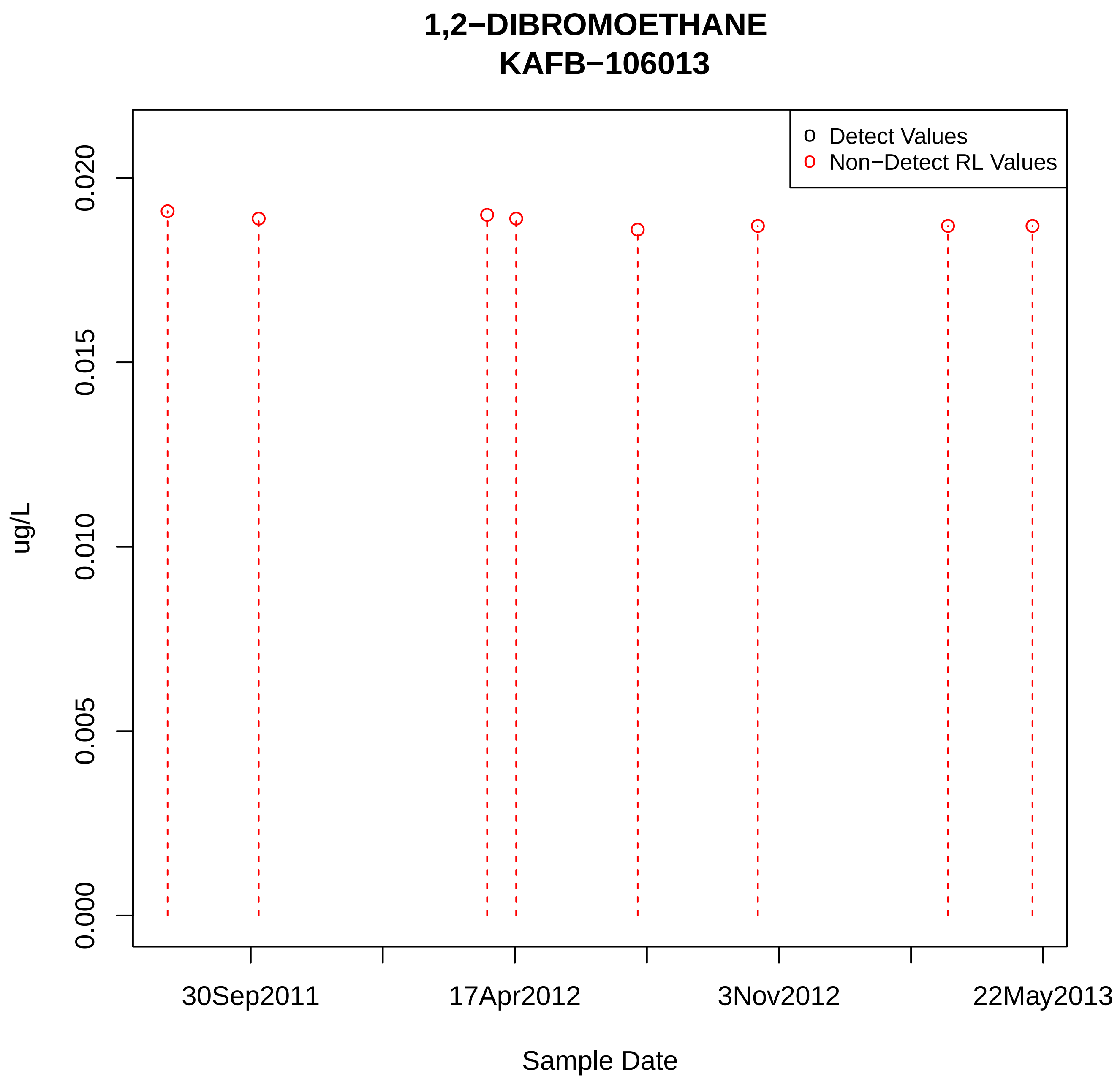


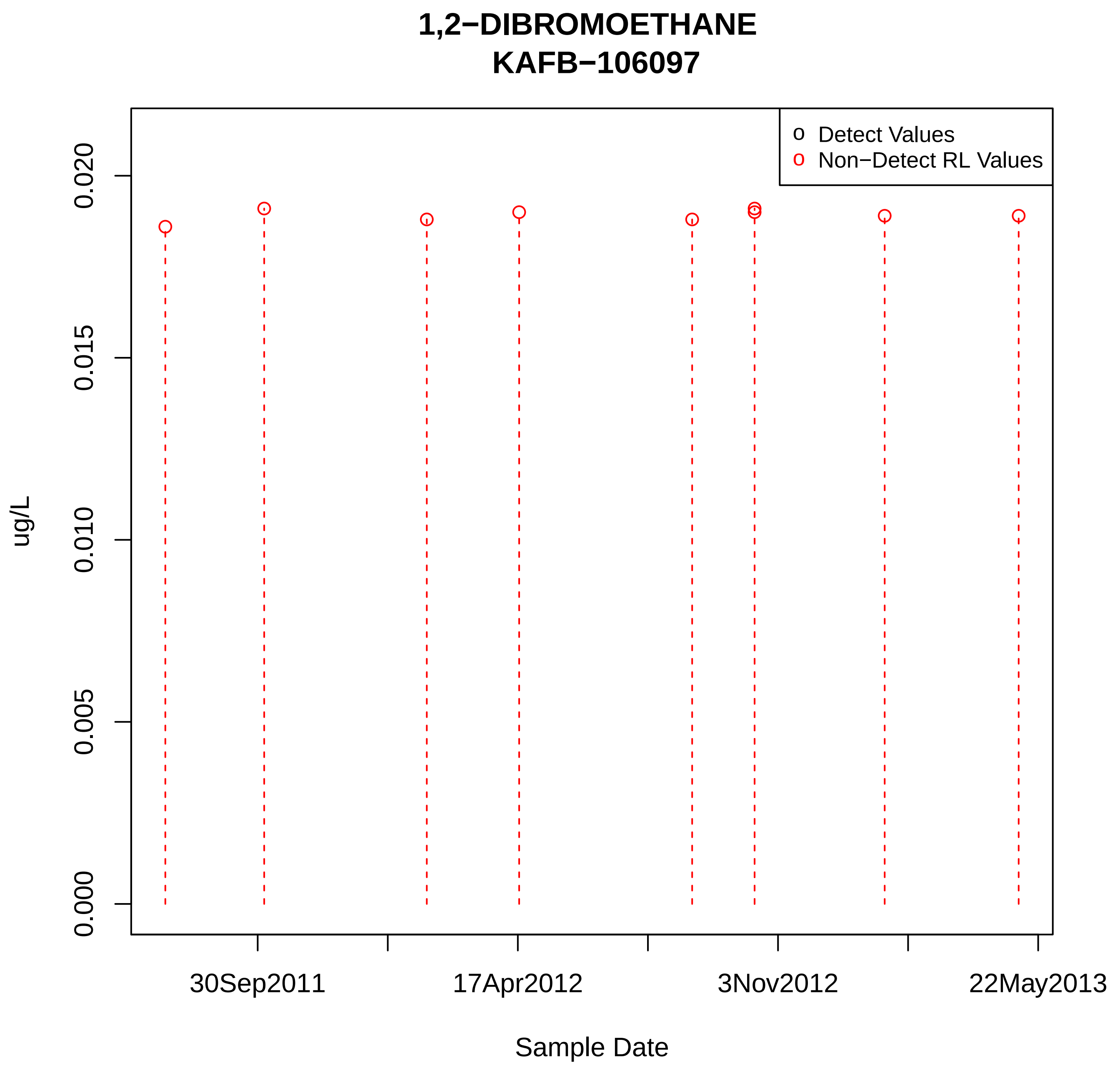
1,2−DIBROMOETHANE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = −5.115E−04
p−value = 0.902
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



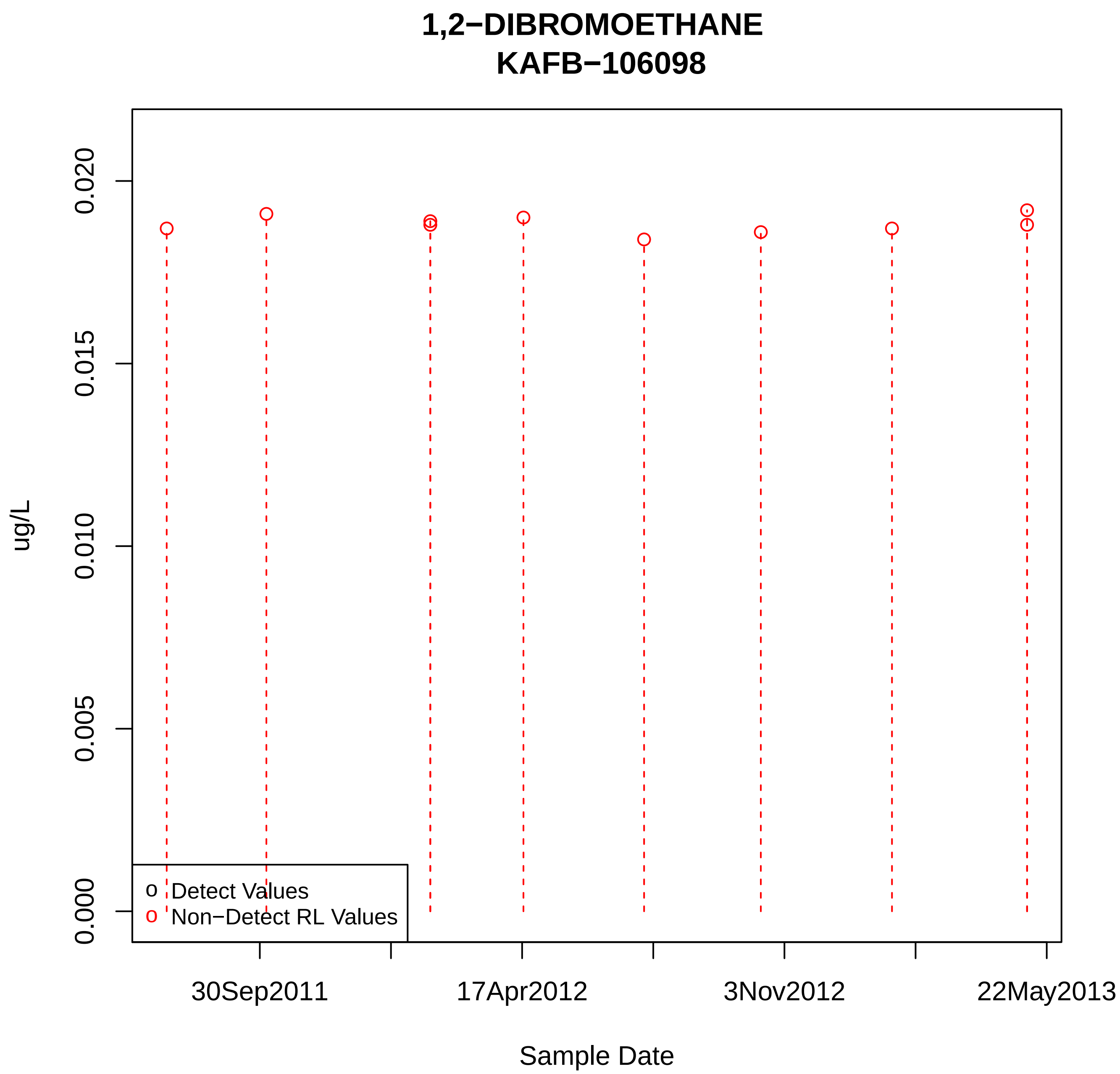
1,2−DIBROMOETHANE
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −1.388E−04
p−value = 0.102
ug/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DIBROMOETHANE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

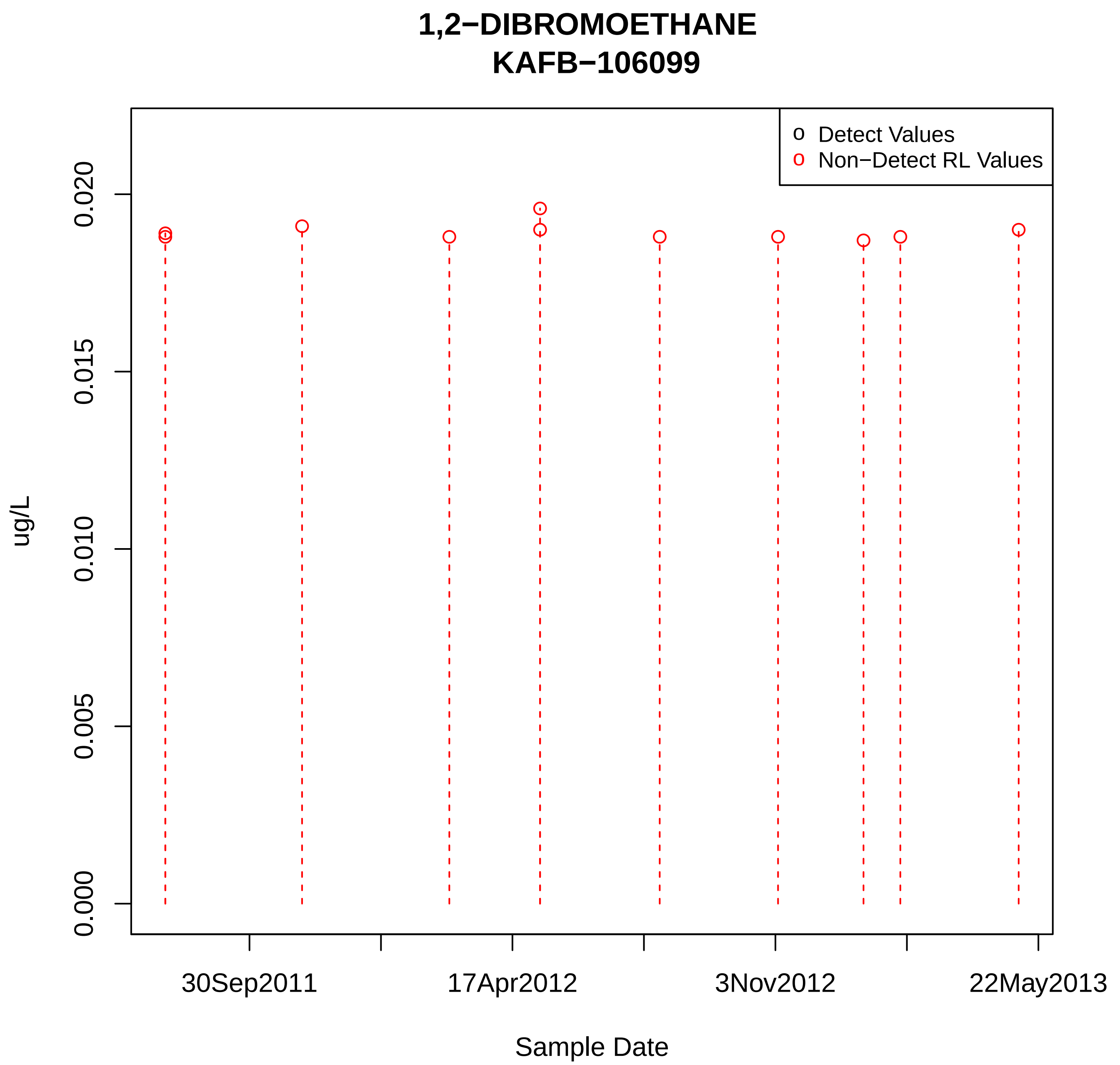

1,2−DIBROMOETHANE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



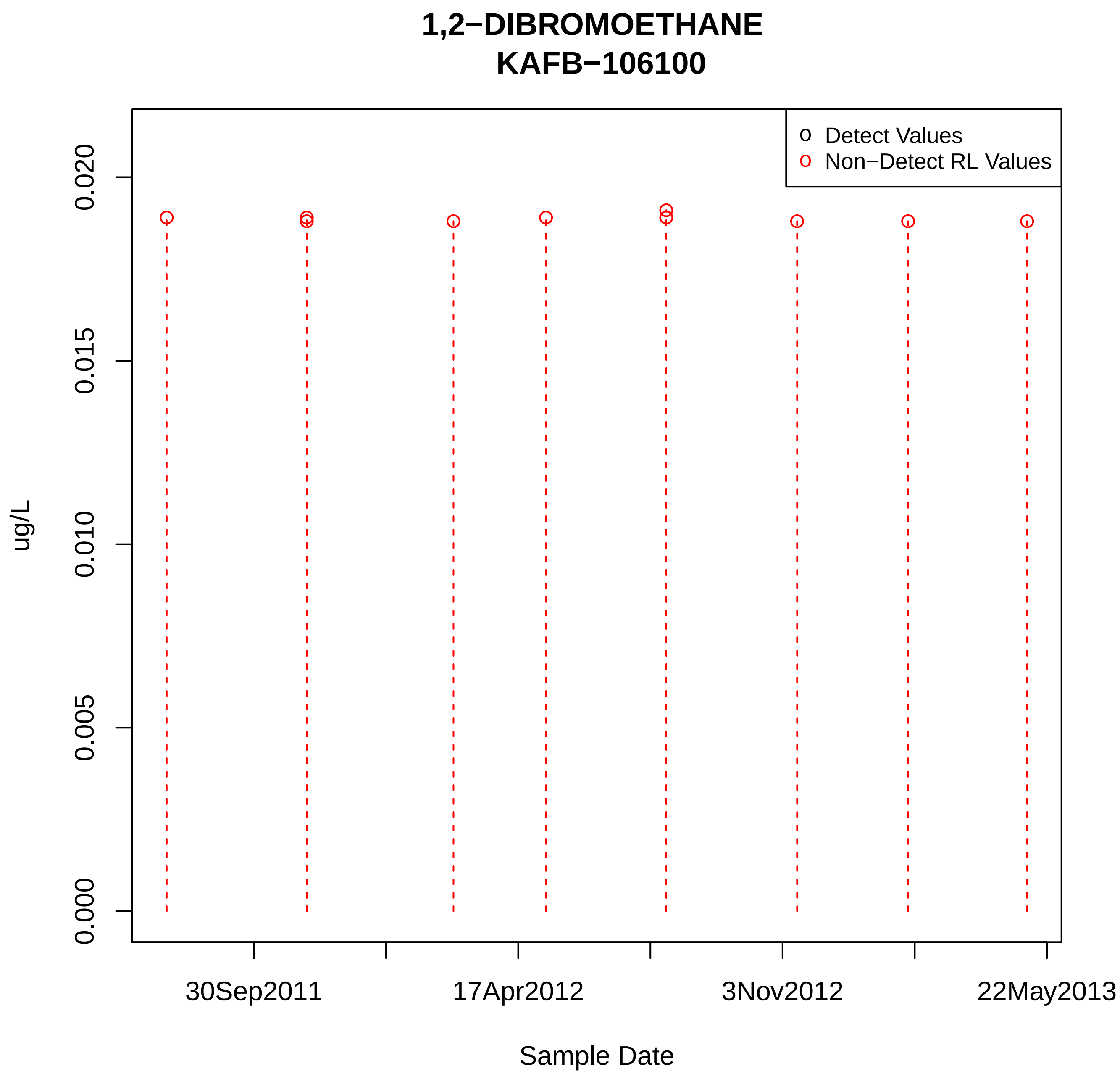
1,2−DIBROMOETHANE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



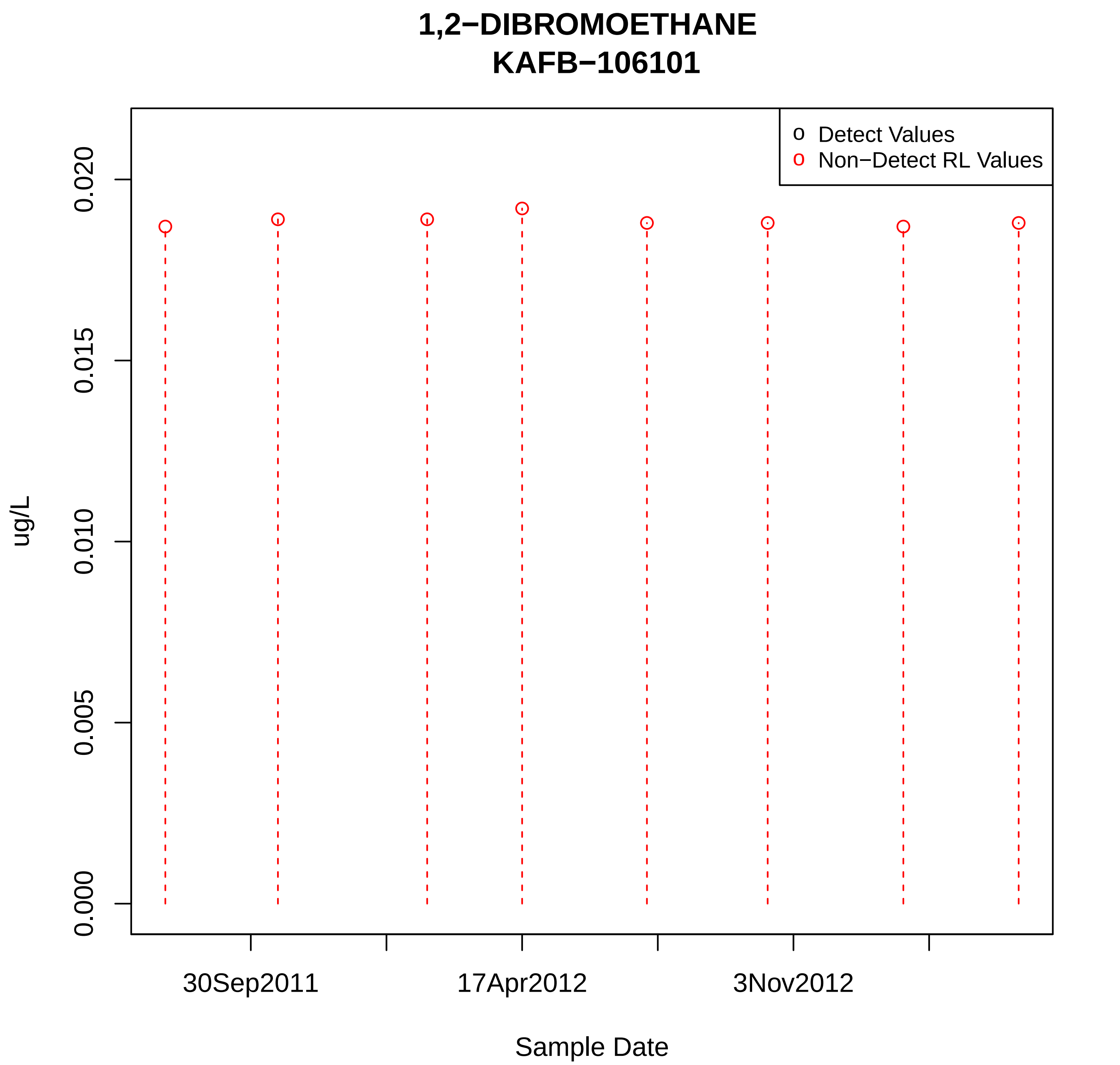
1,2−DIBROMOETHANE
KAFB−106098
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values



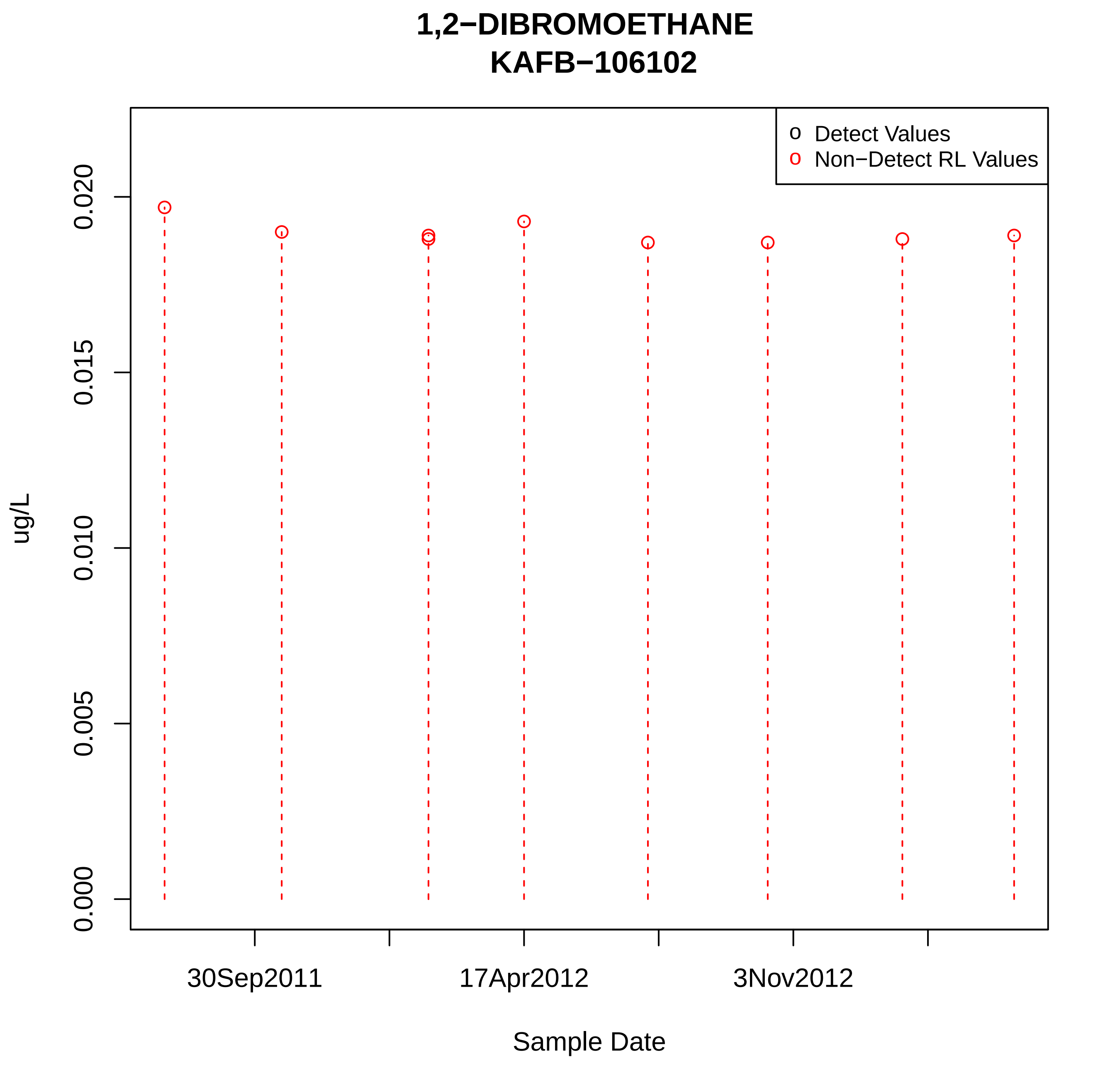
1,2−DIBROMOETHANE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

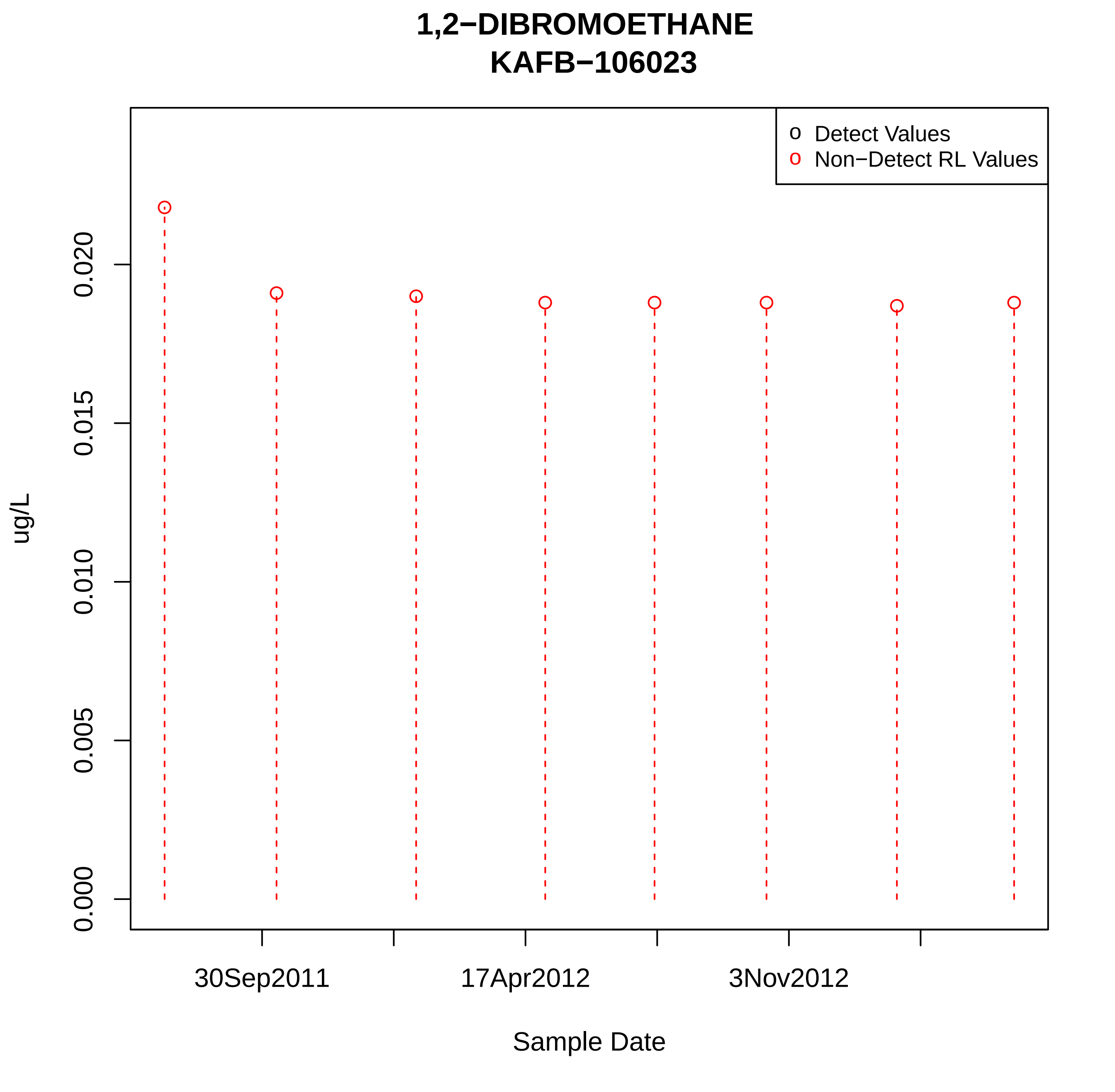


1,2−DIBROMOETHANE
KAFB−106100
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

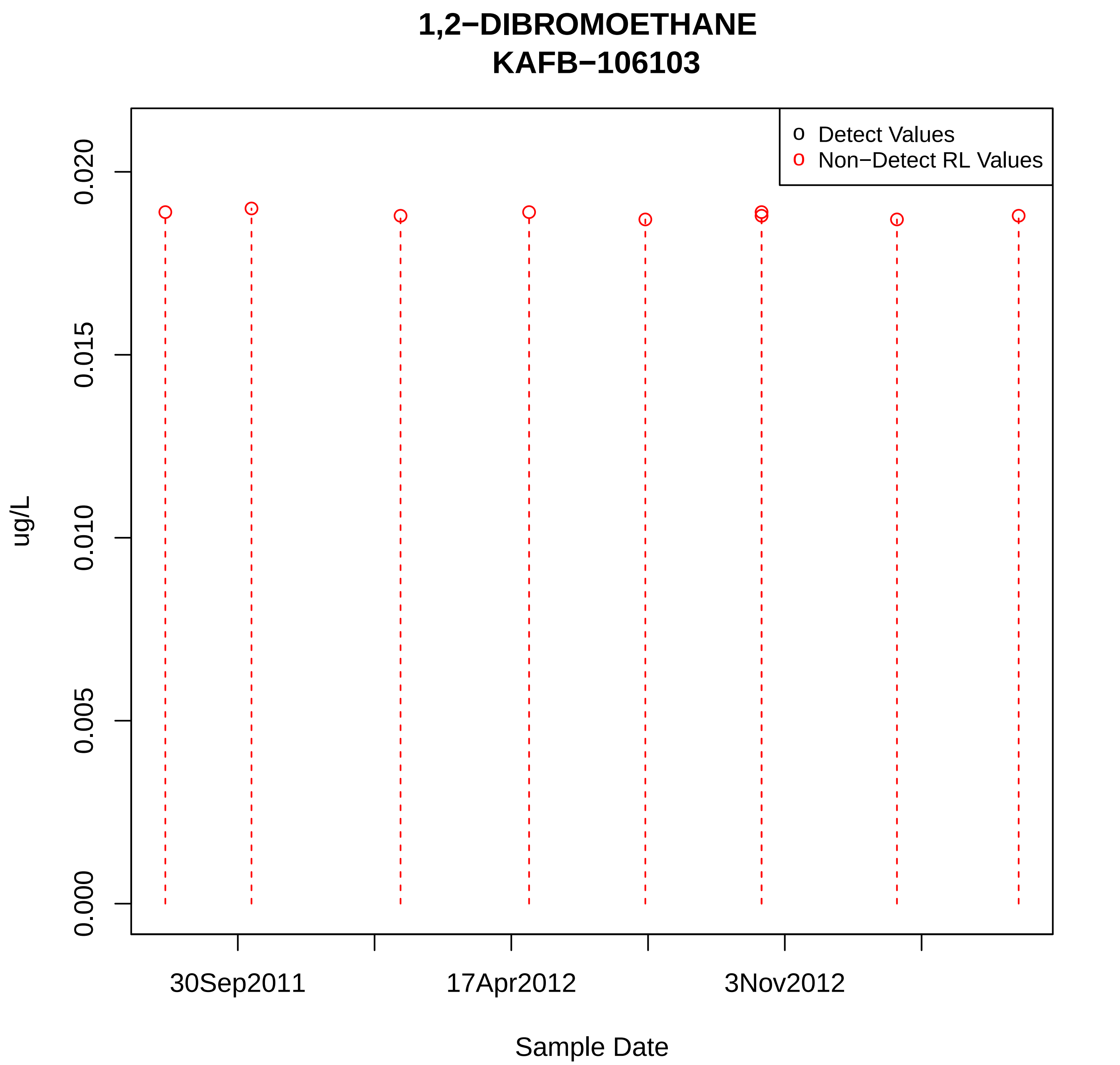


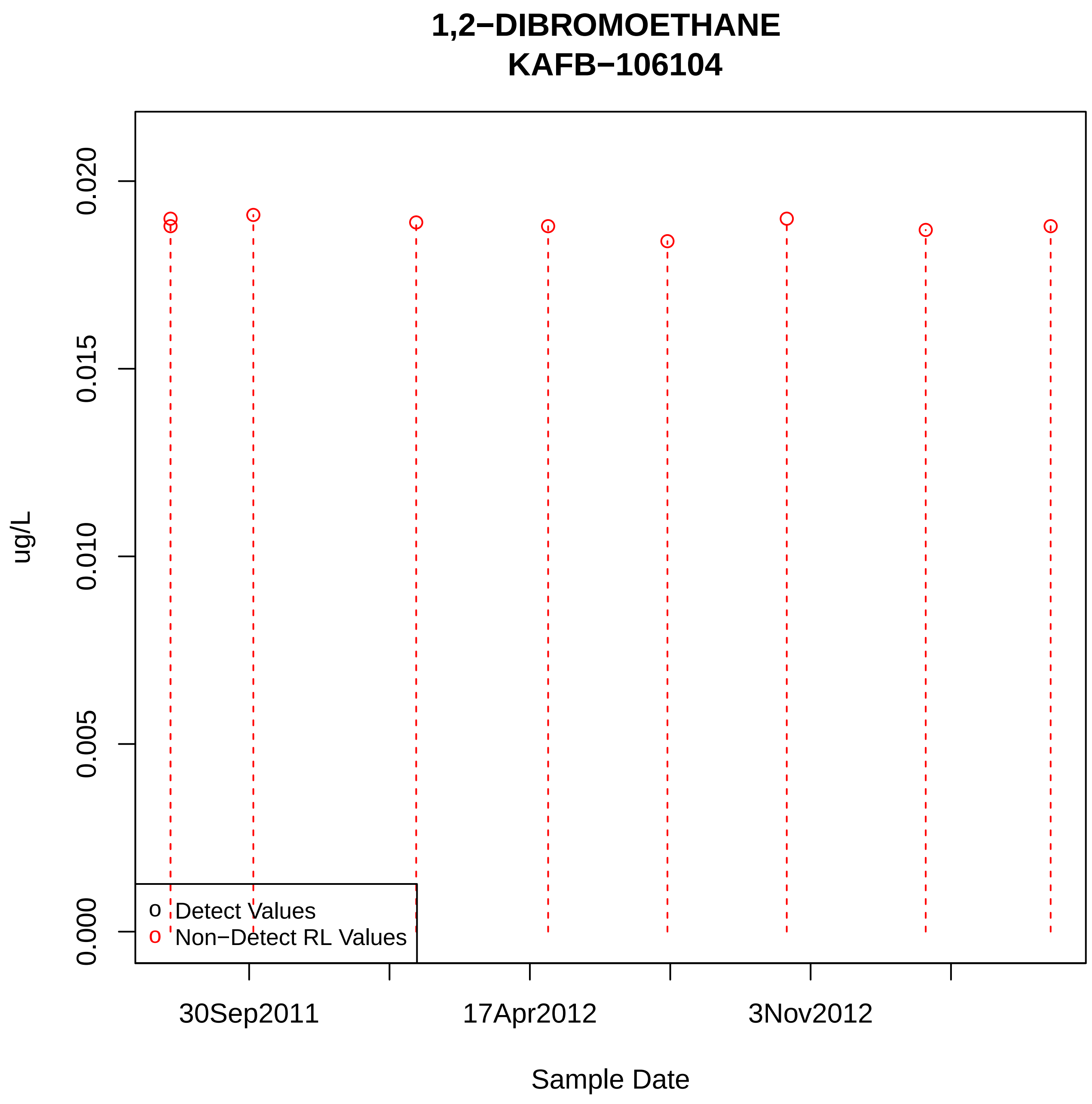
1,2−DIBROMOETHANE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2−DIBROMOETHANE
KAFB−106102
o Detect Values
o Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

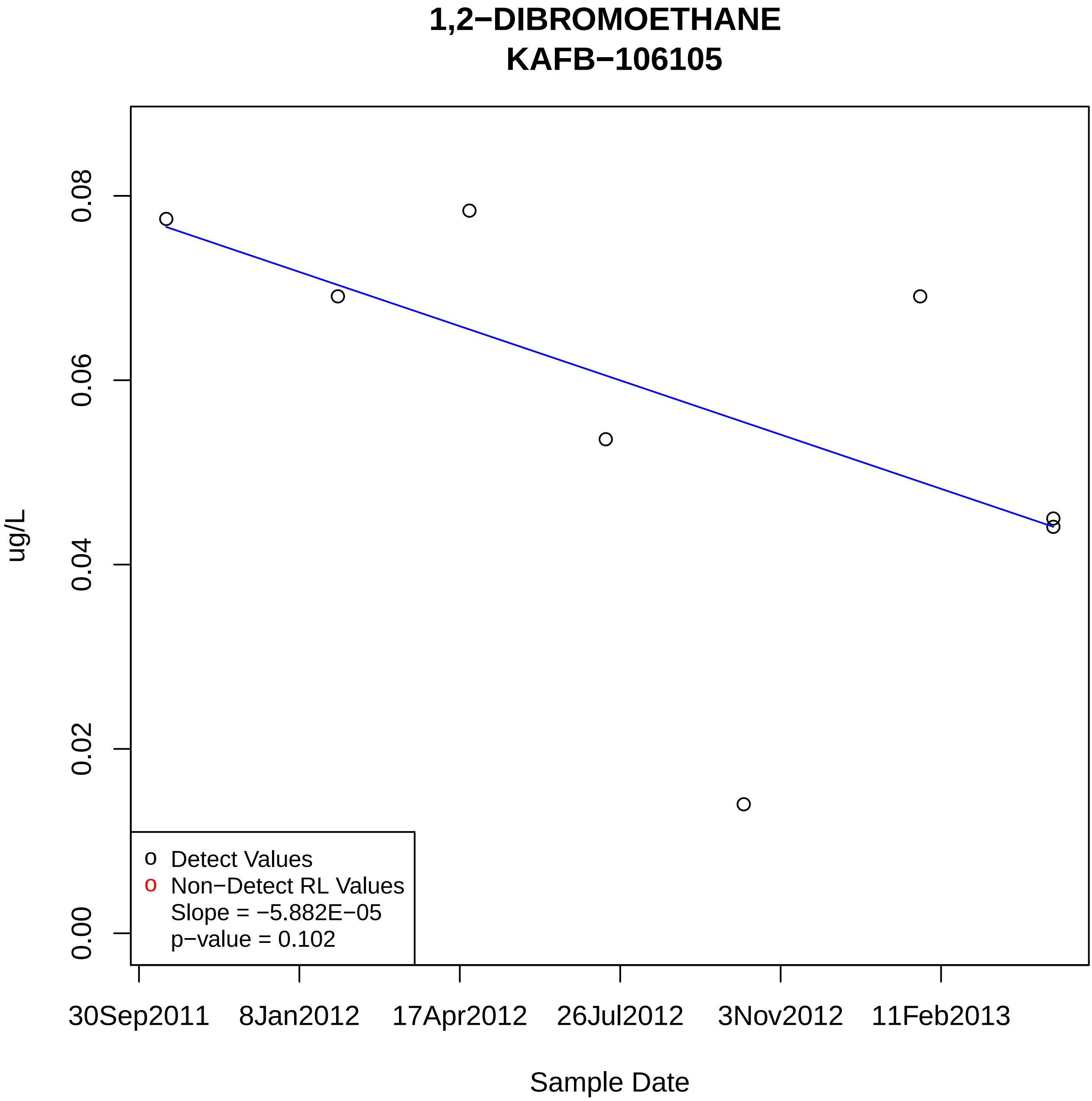


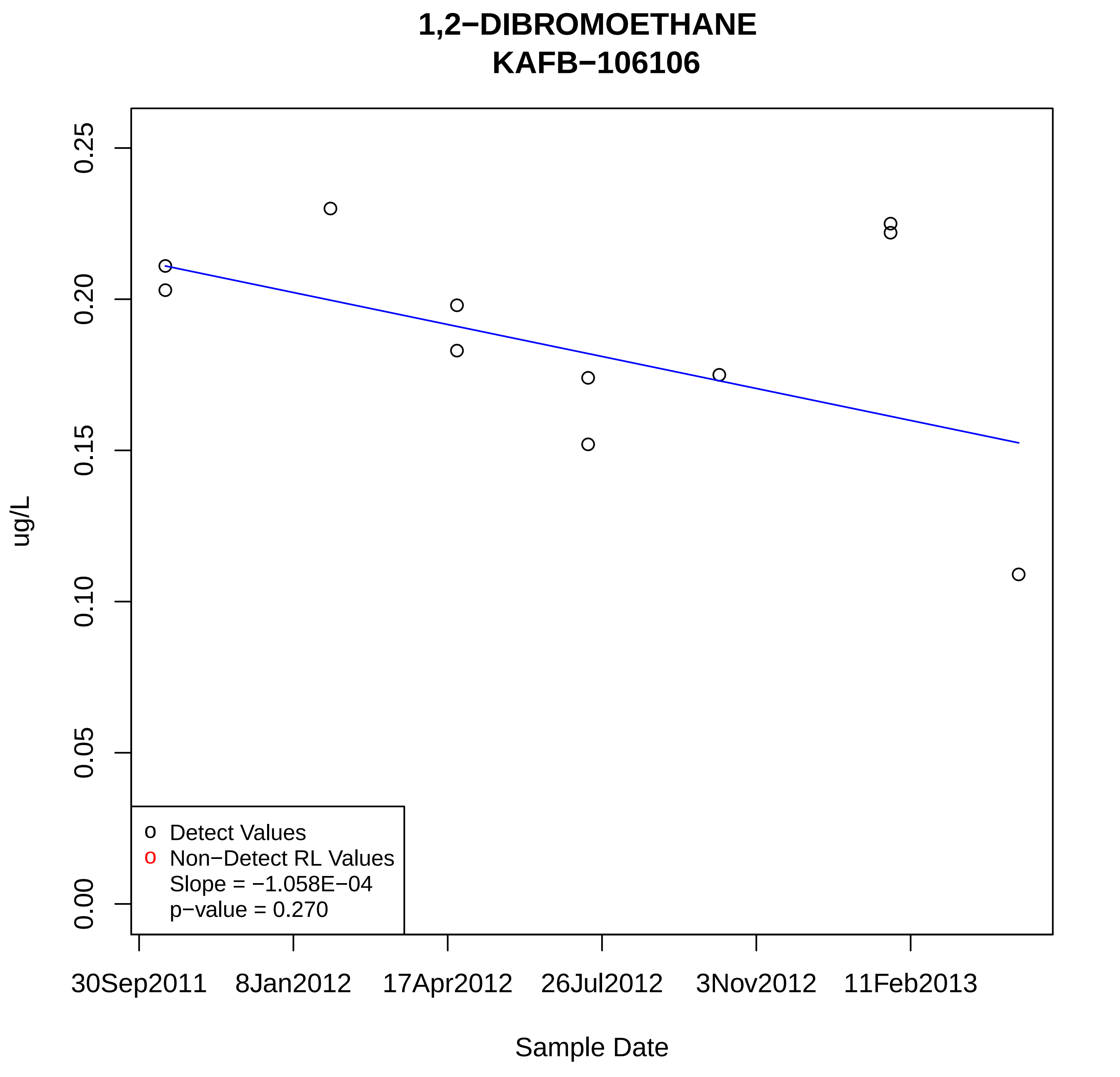
1,2−DIBROMOETHANE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2−DIBROMOETHANE
KAFB−106103
o Detect Values
o Non−Detect RL Values
0.000
0.005
0.010
0.015
0.020
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

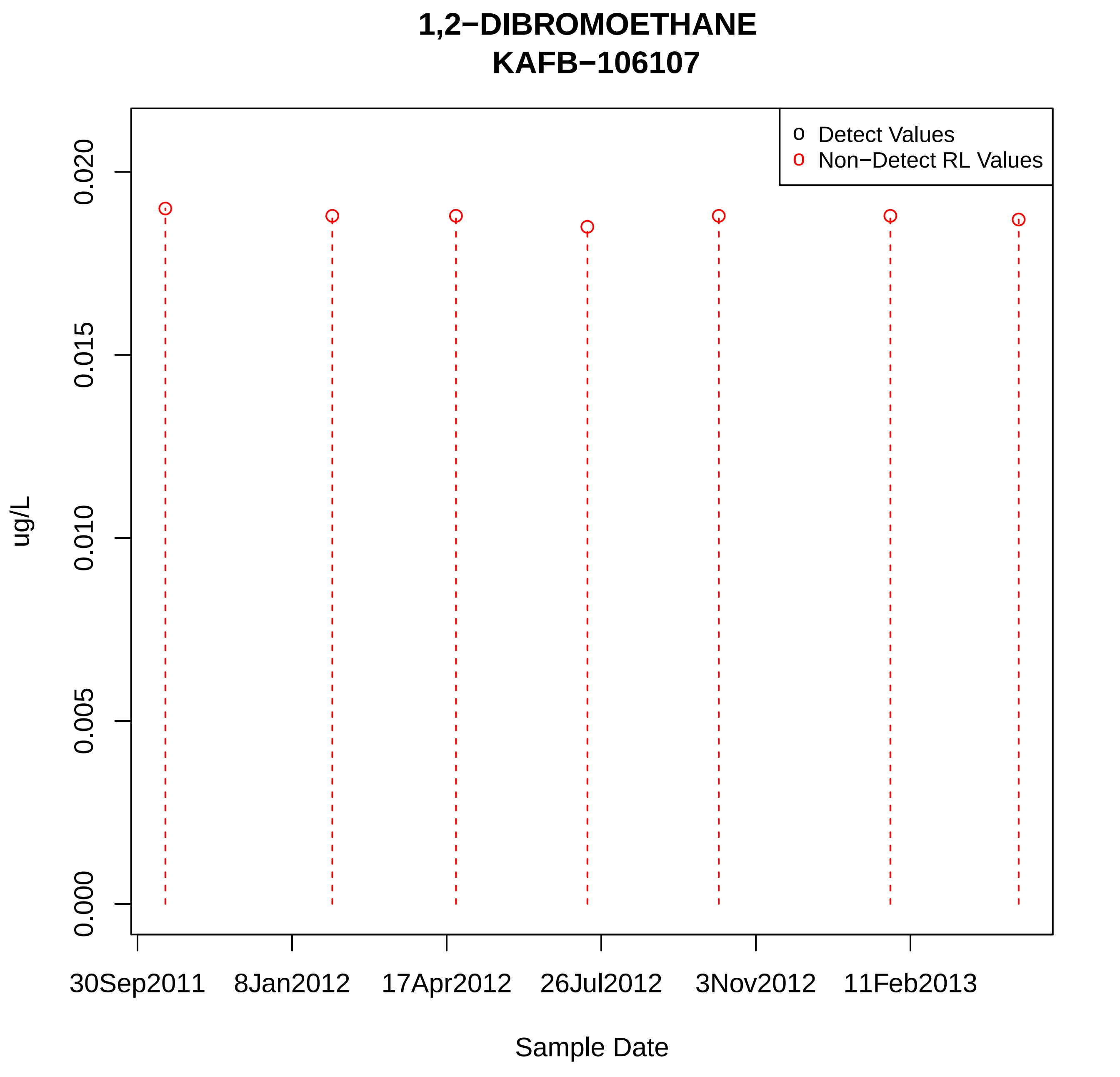


1,2−DIBROMOETHANE
KAFB−106104
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

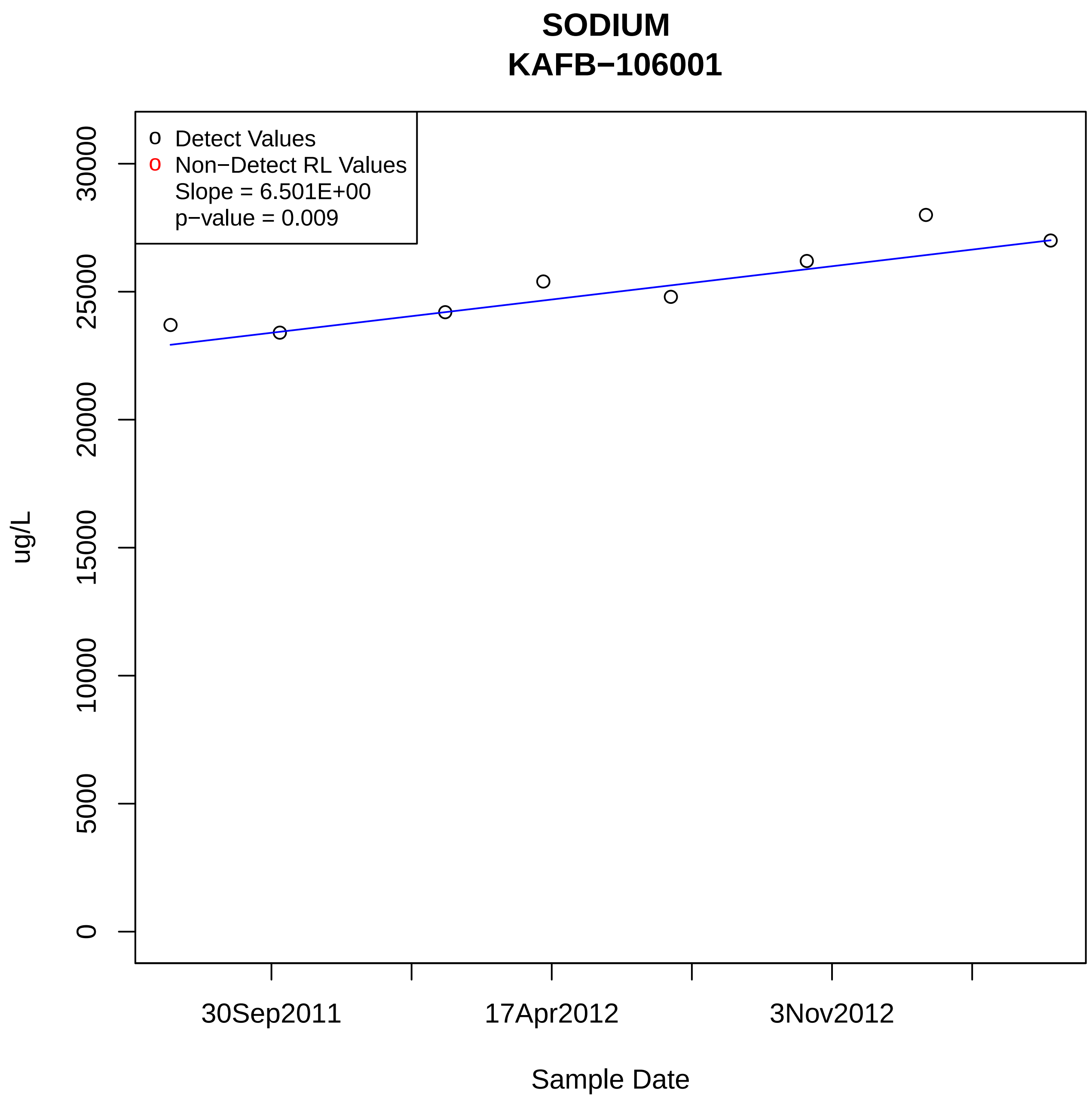

1,2−DIBROMOETHANE
KAFB−106105
ug/L
0.00
0.02
0.04
0.06
0.08
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −5.882E−05
p−value = 0.102



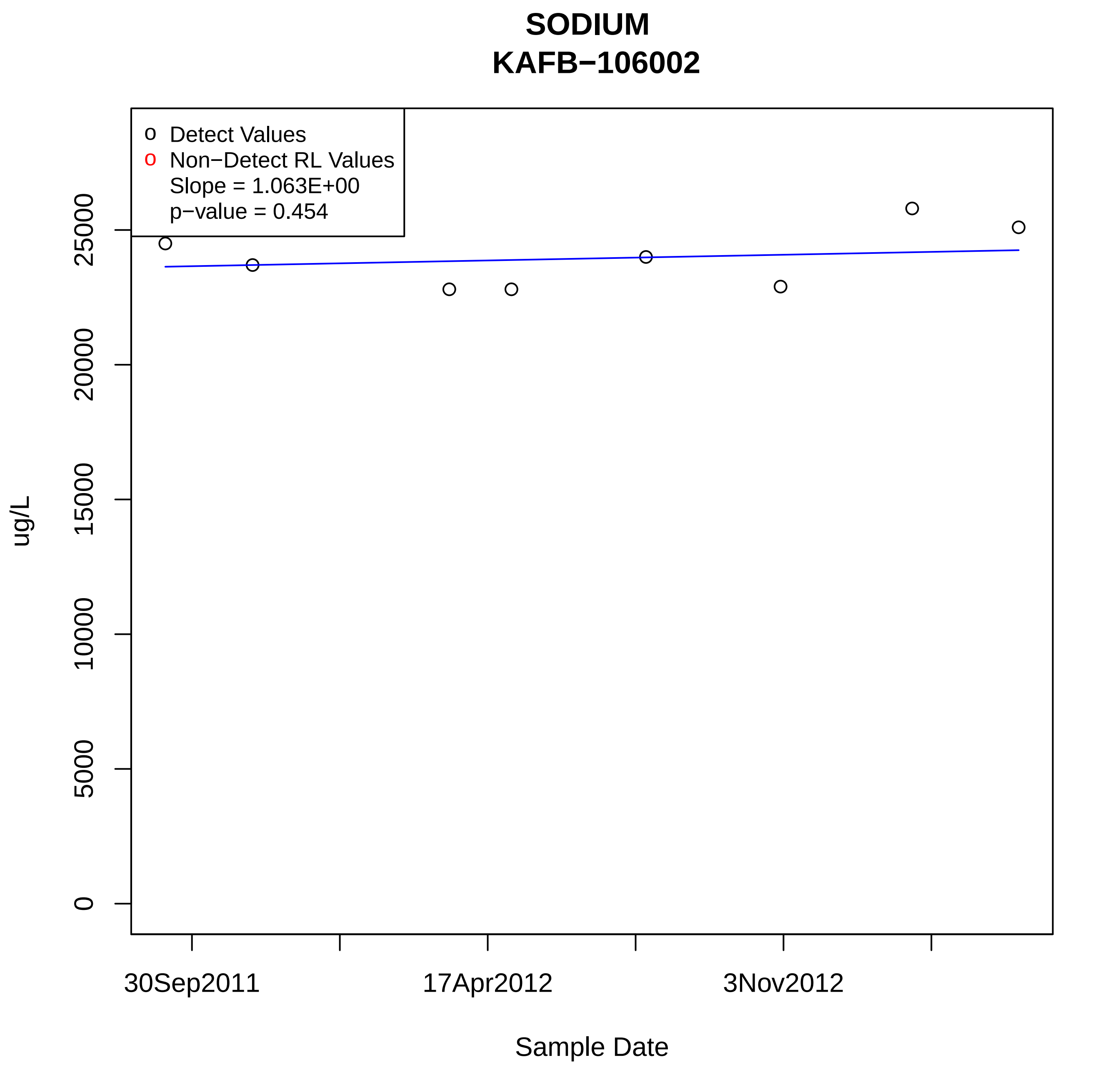
1,2−DIBROMOETHANE
KAFB−106106
ug/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = −1.058E−04
p−value = 0.270



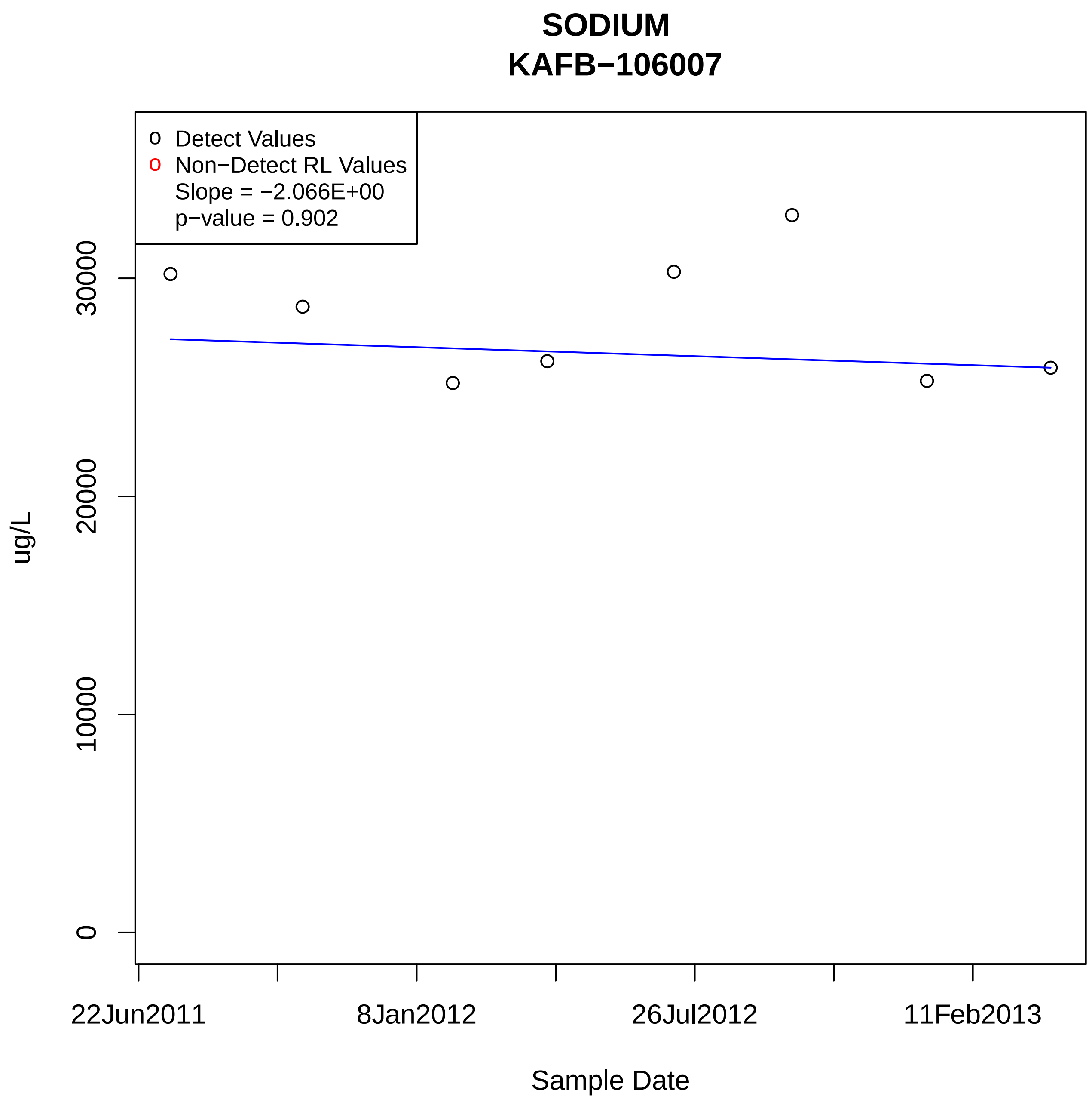
1,2−DIBROMOETHANE
KAFB−106107
Detect Values
Non−Detect RL Values
ug/L
0.000
0.005
0.010
0.015
0.020
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



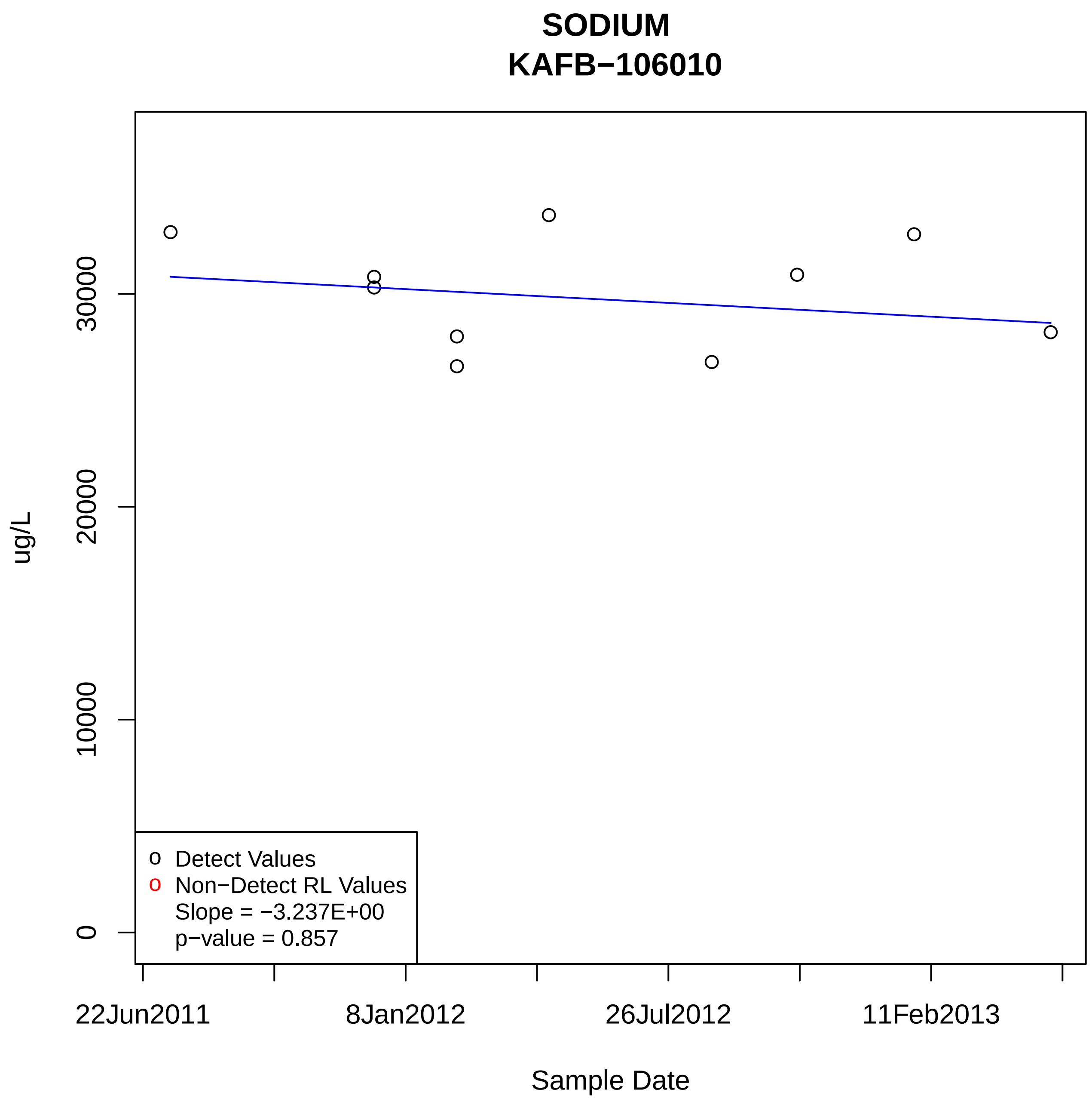
SODIUM
KAFB−106001
o Detect Values
o Non−Detect RL Values
Slope = 6.501E+00
p−value = 0.009
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date



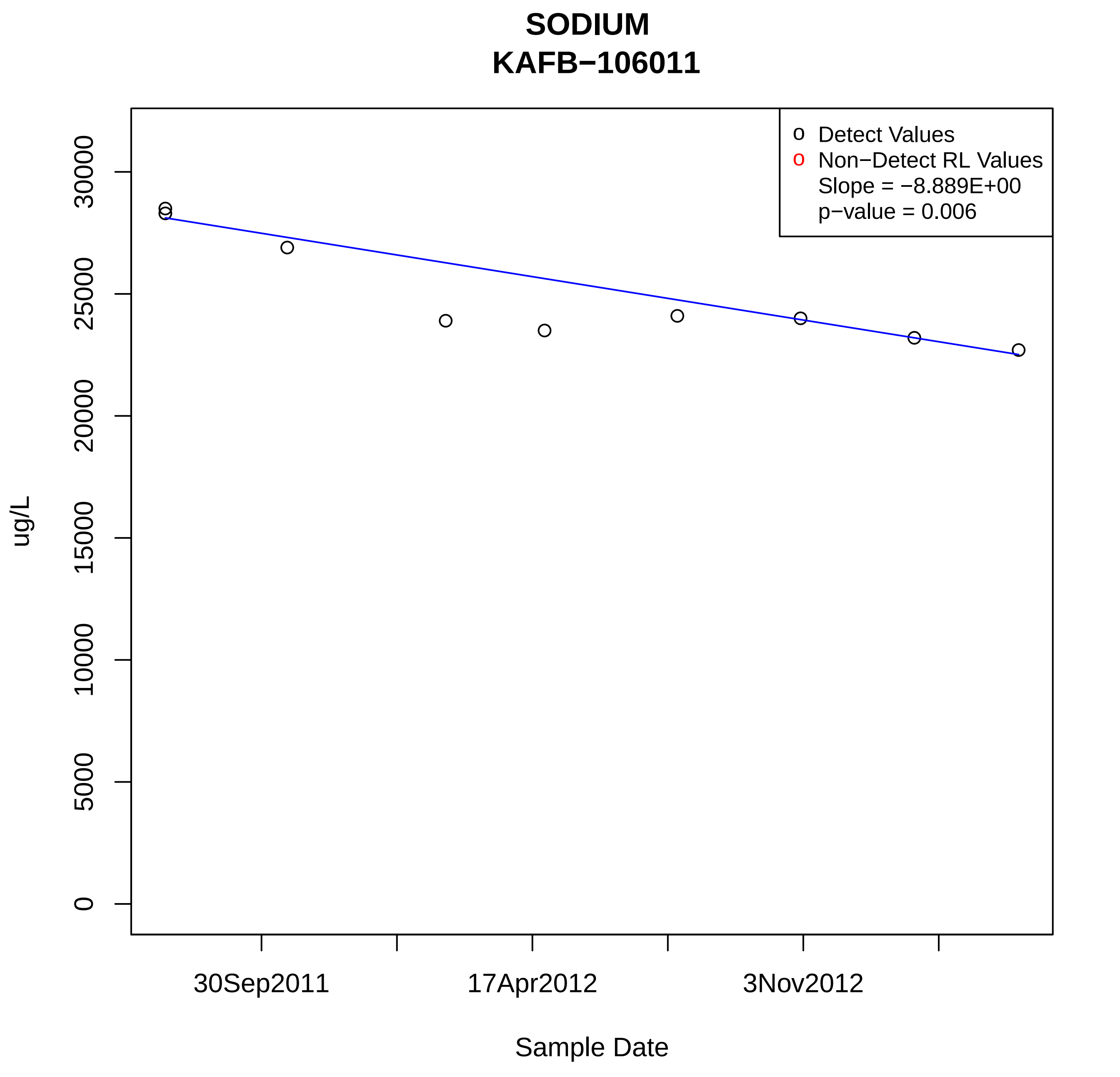
SODIUM
KAFB−106002
Detect Values
Non−Detect RL Values
Slope = 1.063E+00
p−value = 0.454
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date

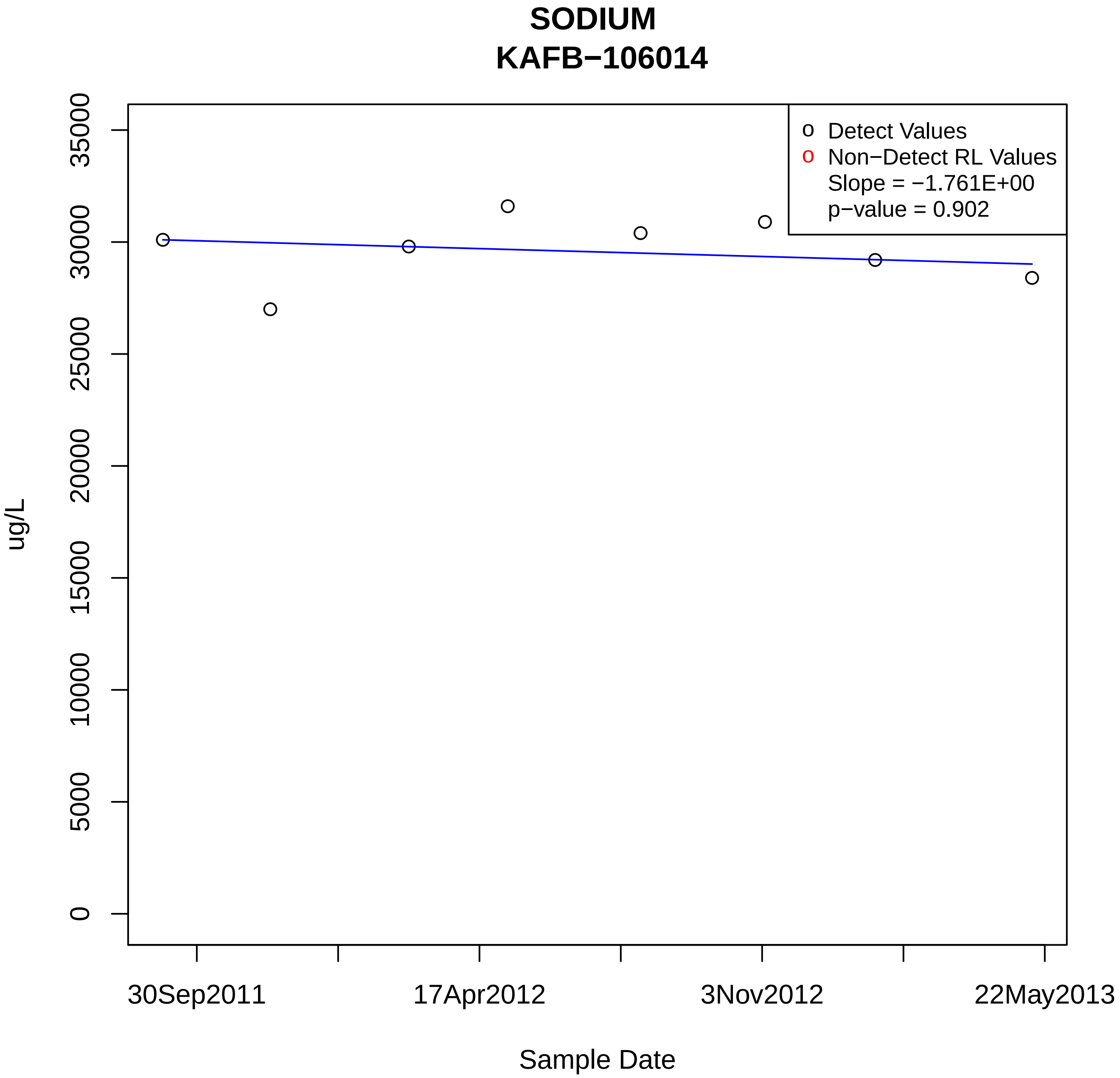


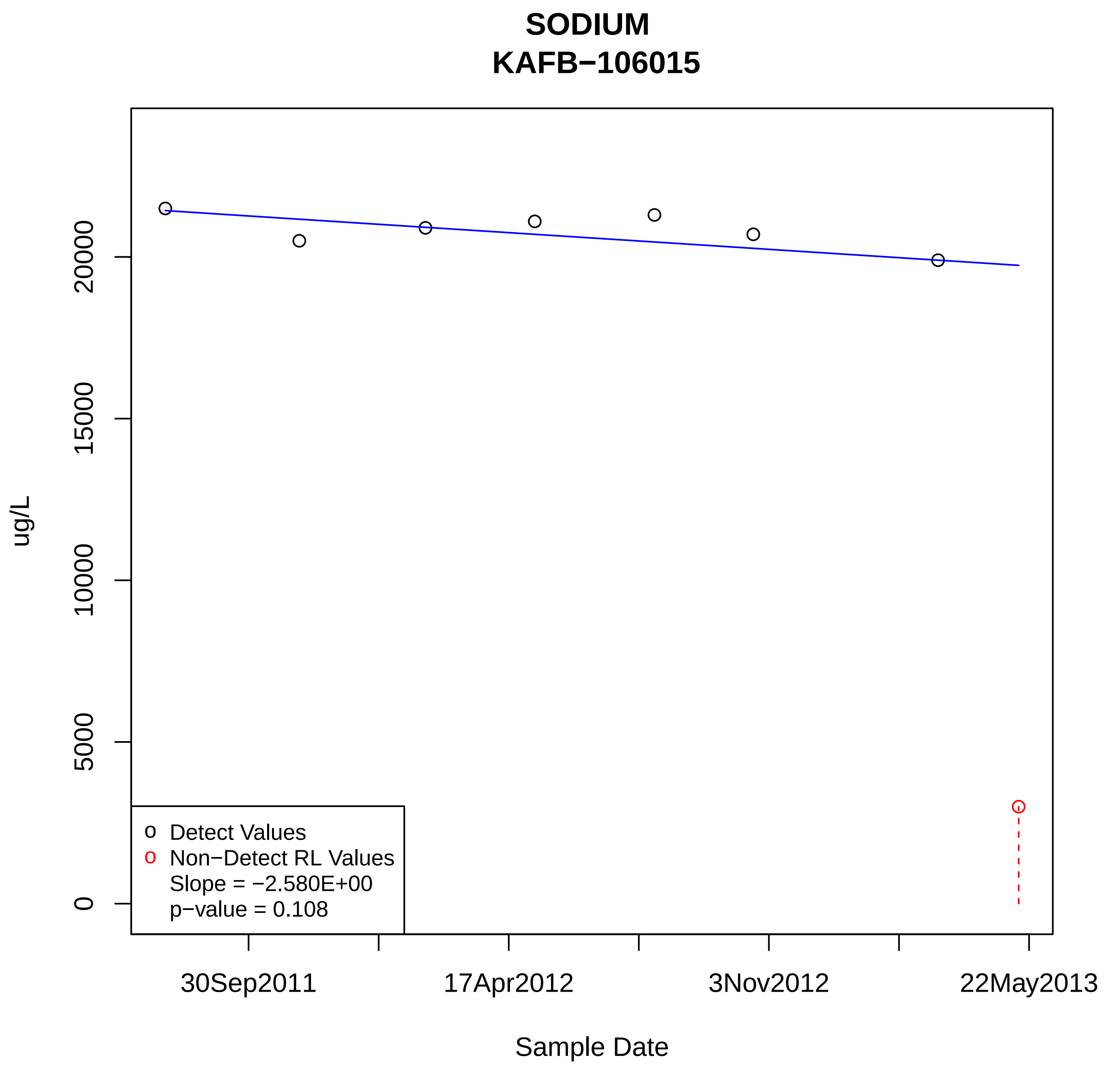
SODIUM
KAFB−106007
Detect Values
Non−Detect RL Values
Slope = −2.066E+00
p−value = 0.902
30000
20000
10000
0
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



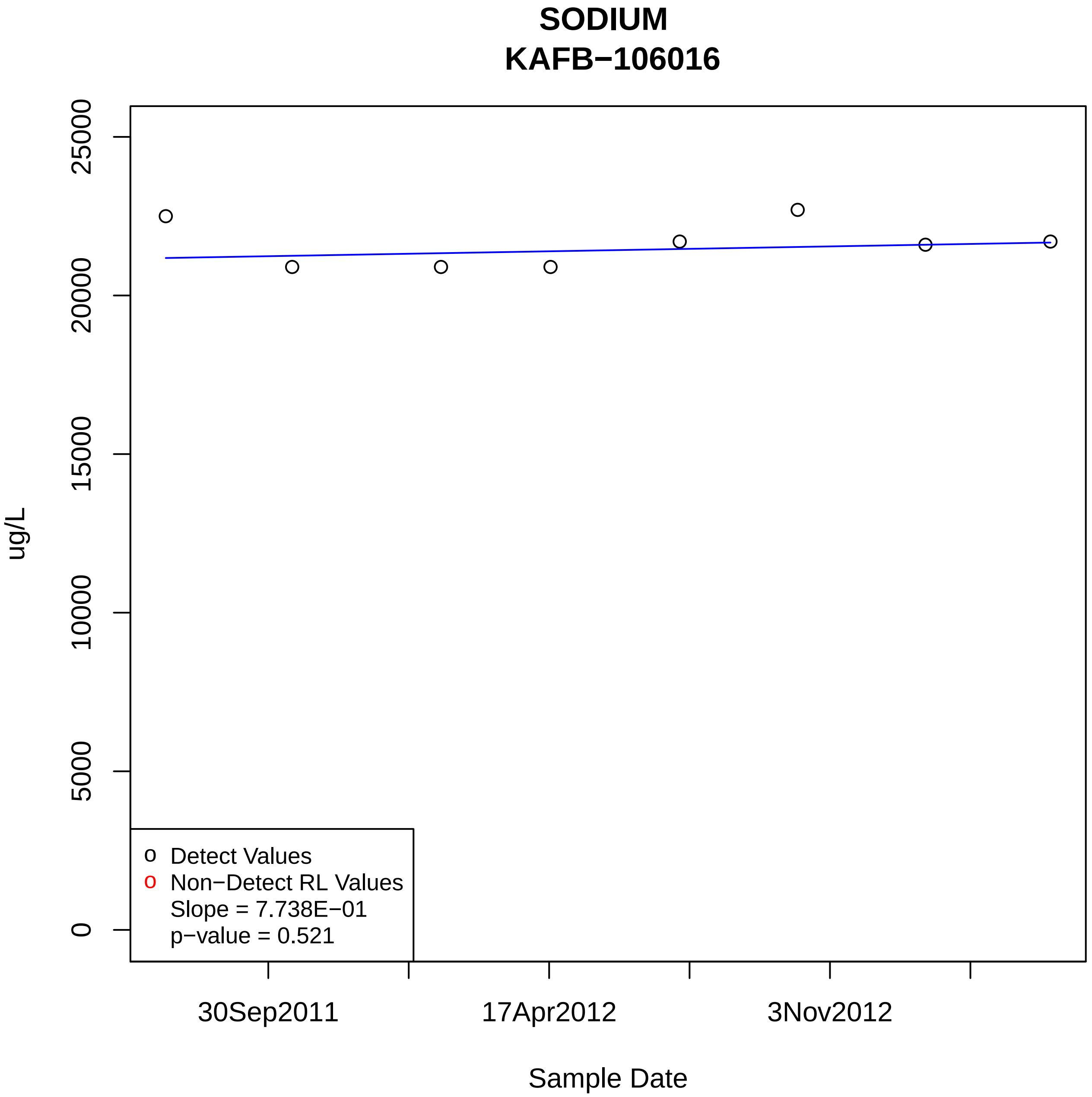
SODIUM
KAFB−106010
ug/L
0
10000
20000
30000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −3.237E+00
p−value = 0.857

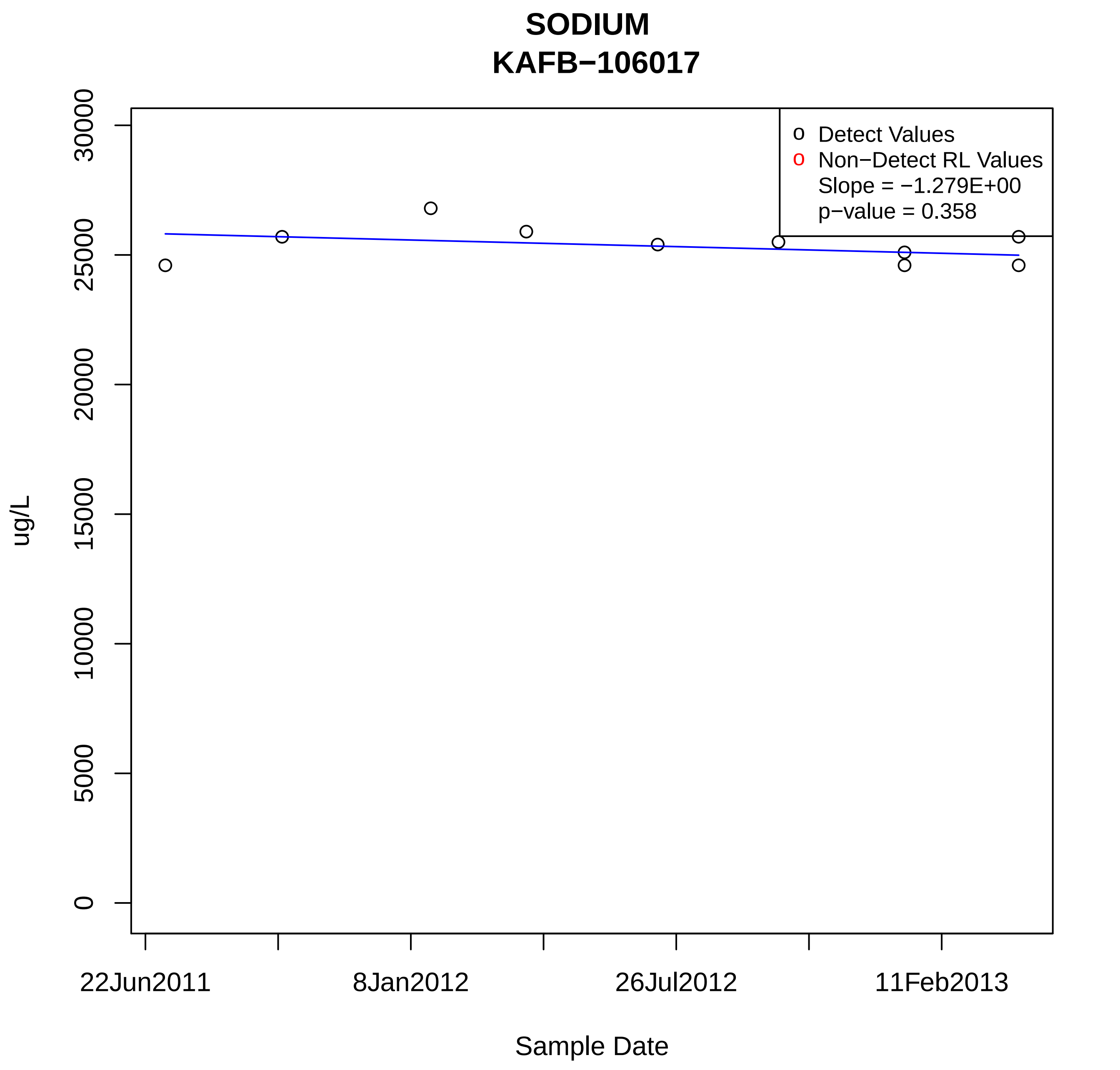

SODIUM
KAFB−106011
o Detect Values
o Non−Detect RL Values
Slope = −8.889E+00
p−value = 0.006
ug/L
30000
25000
20000
15000
10000
5000
0
30Sep2011
17Apr2012
3Nov2012
Sample Date


SODIUM
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −1.761E+00
p−value = 0.902
ug/L
0
5000
10000
15000
20000
25000
30000
35000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

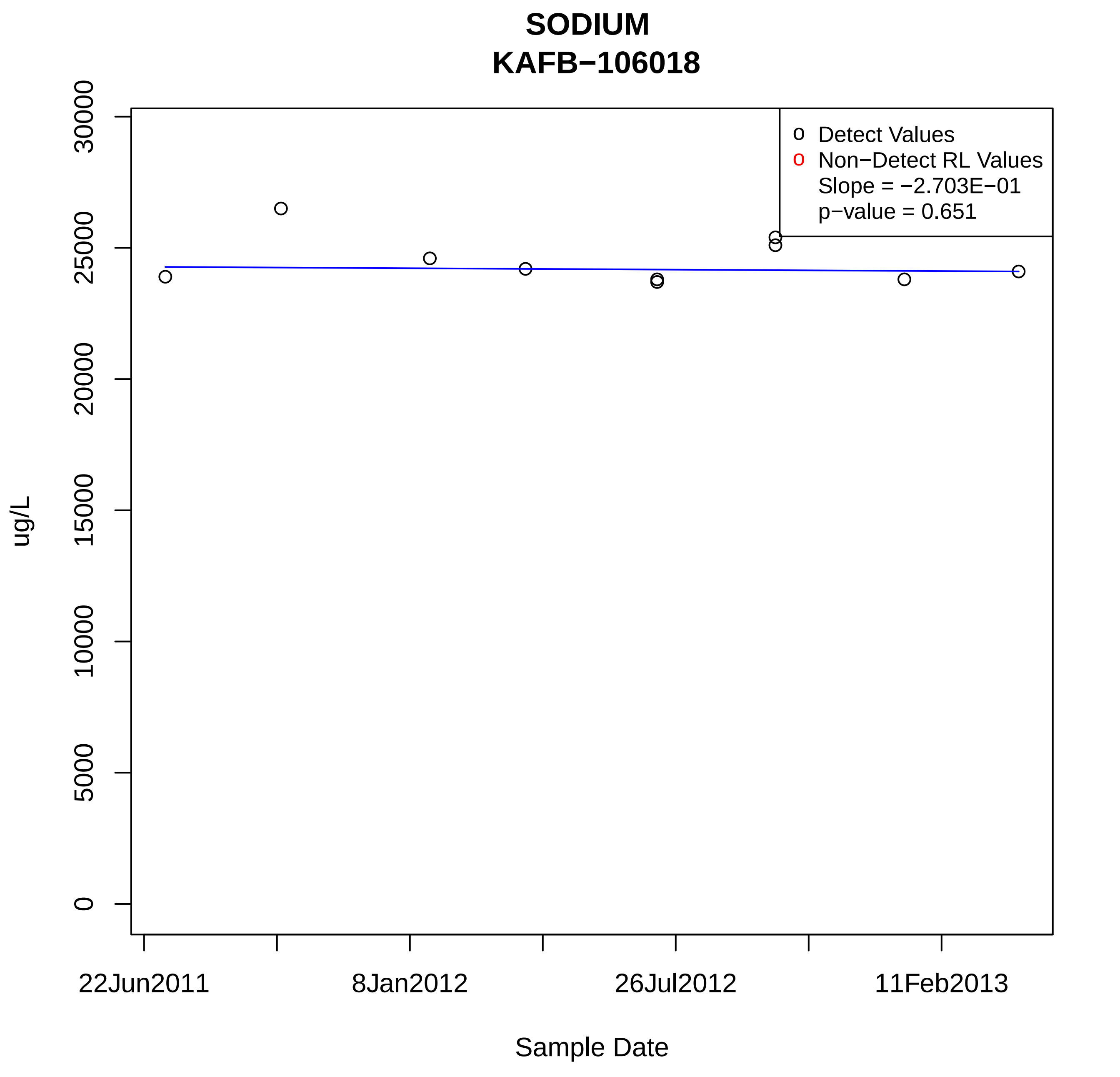


SODIUM
KAFB−106015
ug/L
0
5000
10000
15000
20000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −2.580E+00
p−value = 0.108

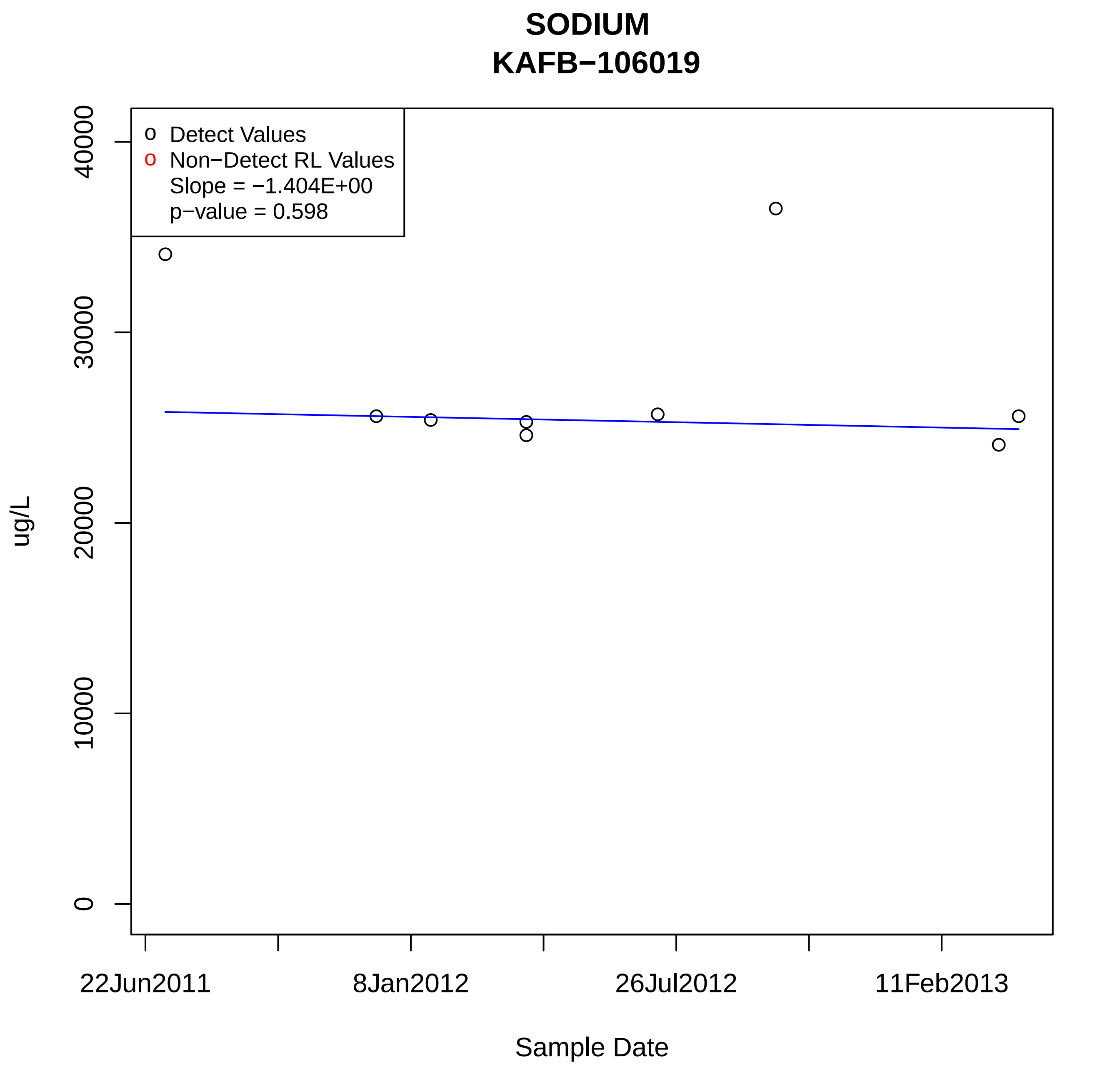

SODIUM
KAFB−106016
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 7.738E−01
p−value = 0.521



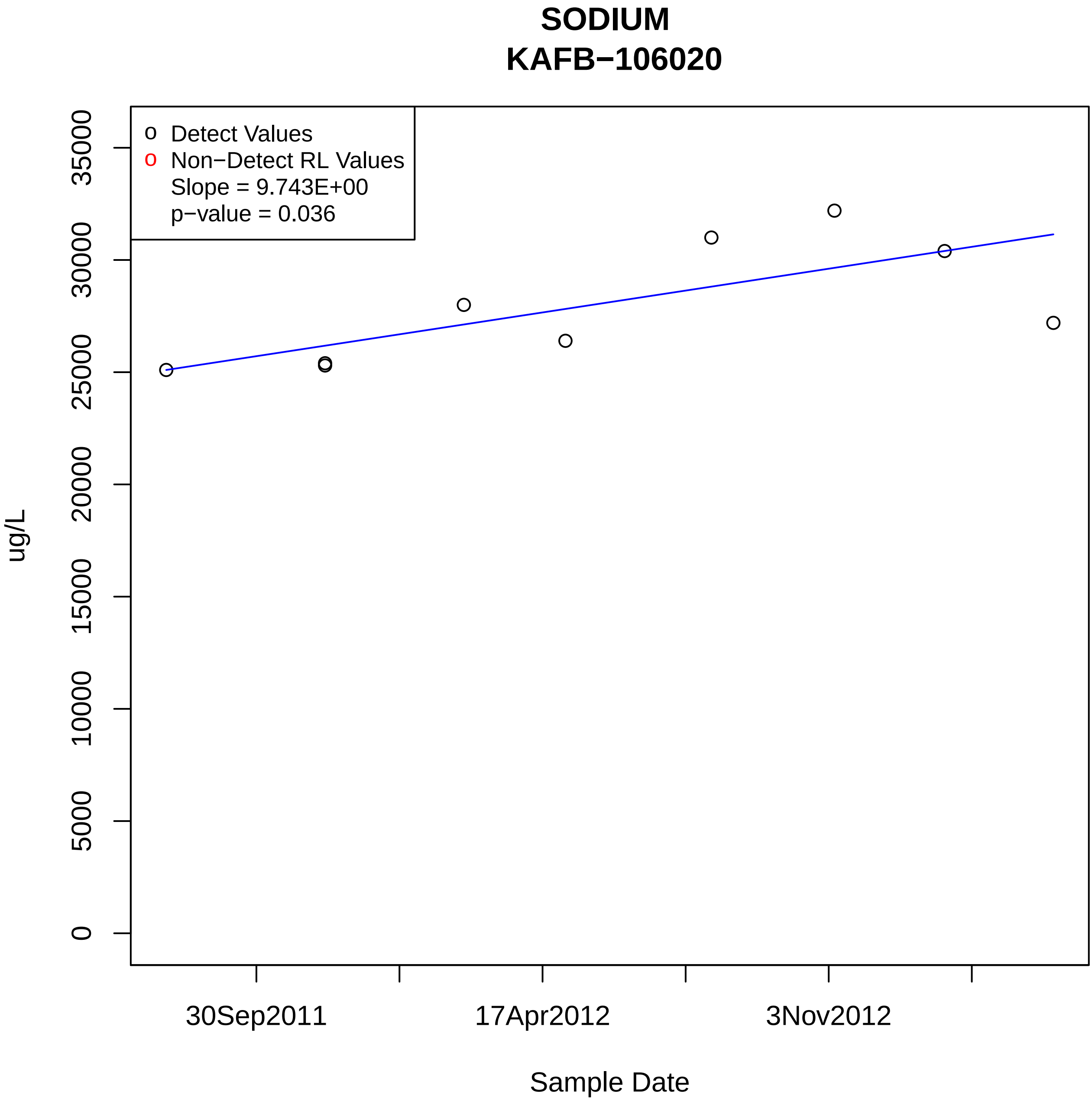
SODIUM
KAFB−106017
o Detect Values
o Non−Detect RL Values
Slope = −1.279E+00
p−value = 0.358
ug/L
0
5000
10000
15000
20000
25000
30000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



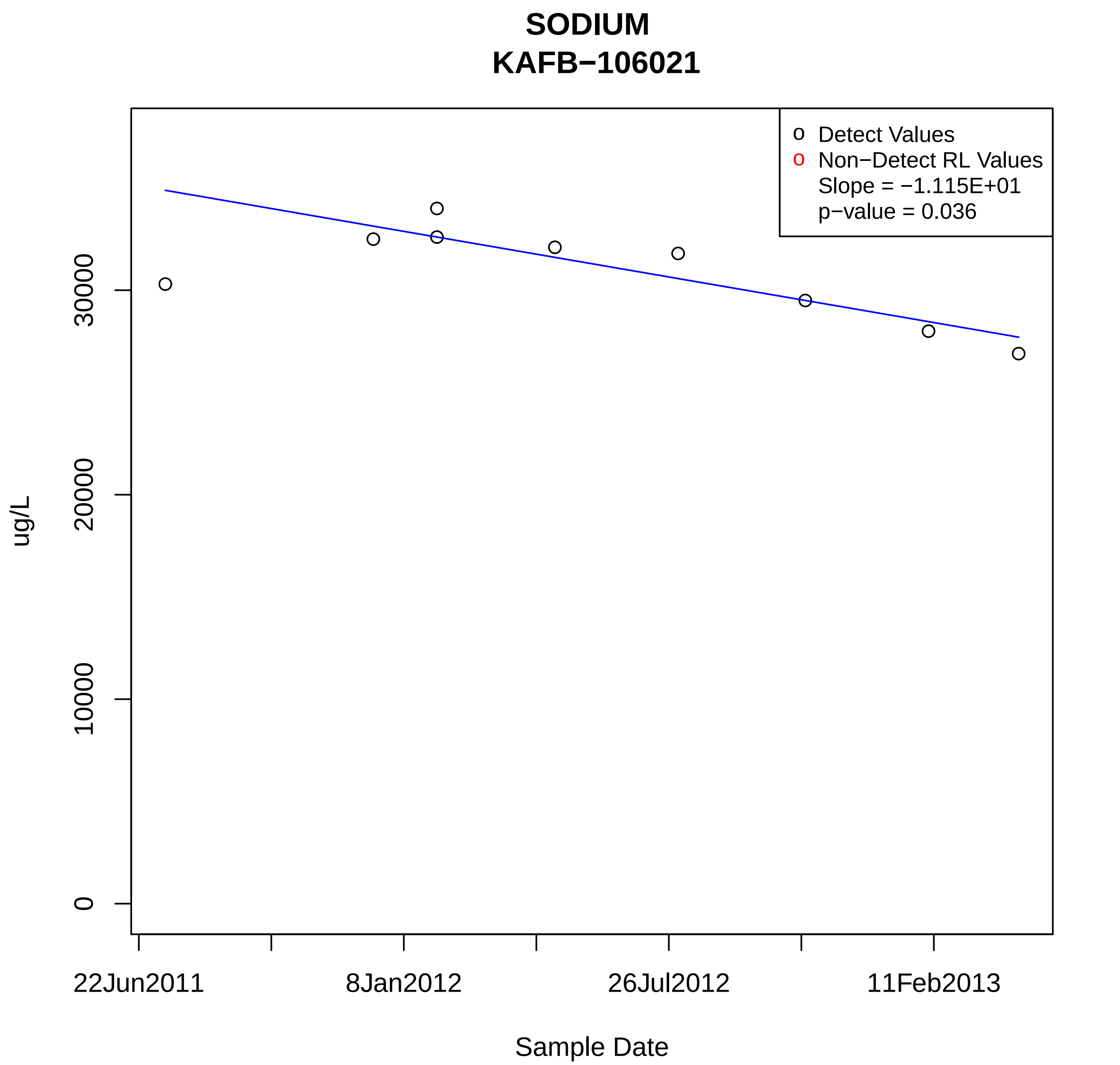
SODIUM
KAFB−106018
o Detect Values
o Non−Detect RL Values
Slope = −2.703E−01
p−value = 0.651
ug/L
0
5000
10000
15000
20000
25000
30000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

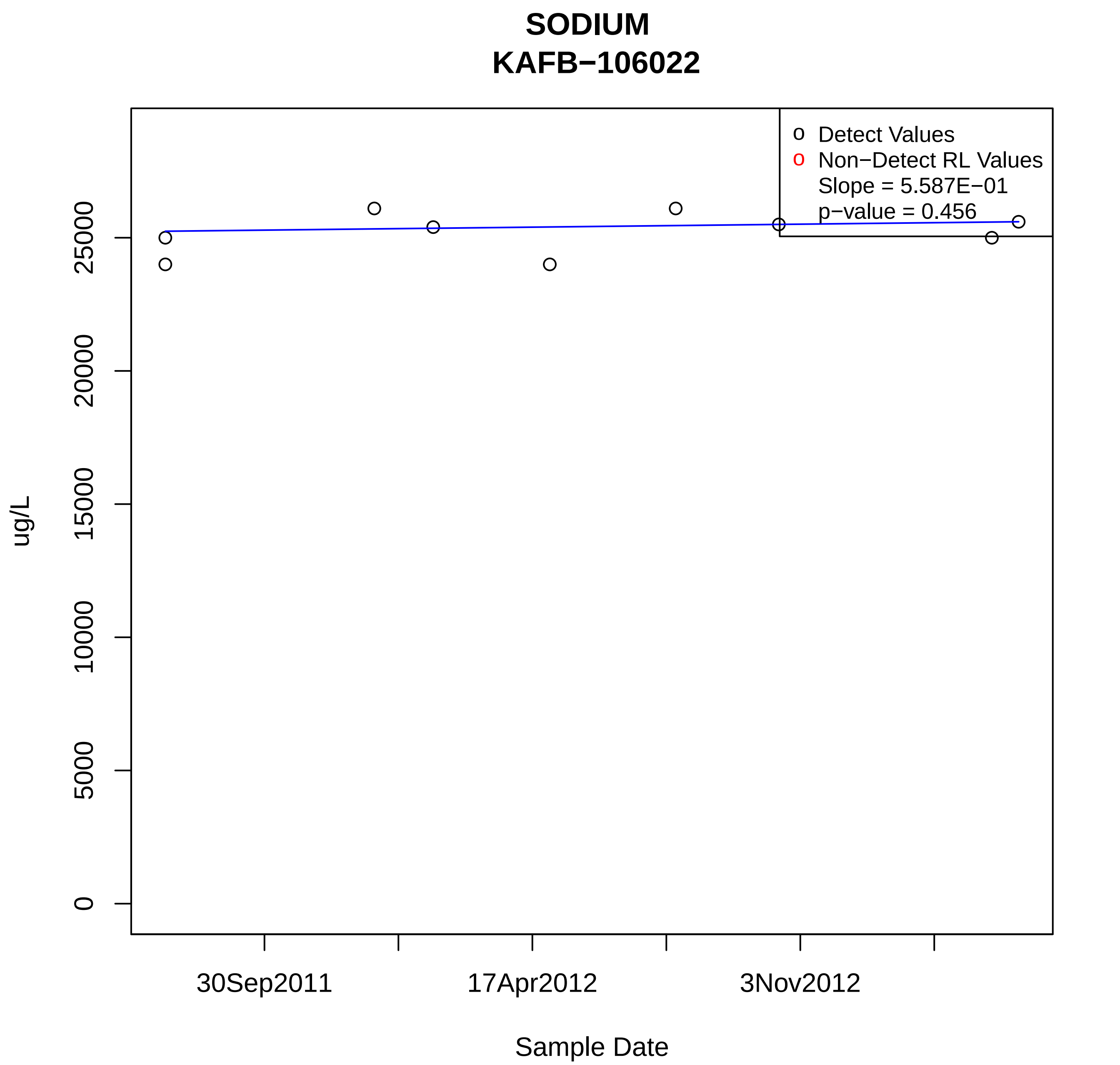


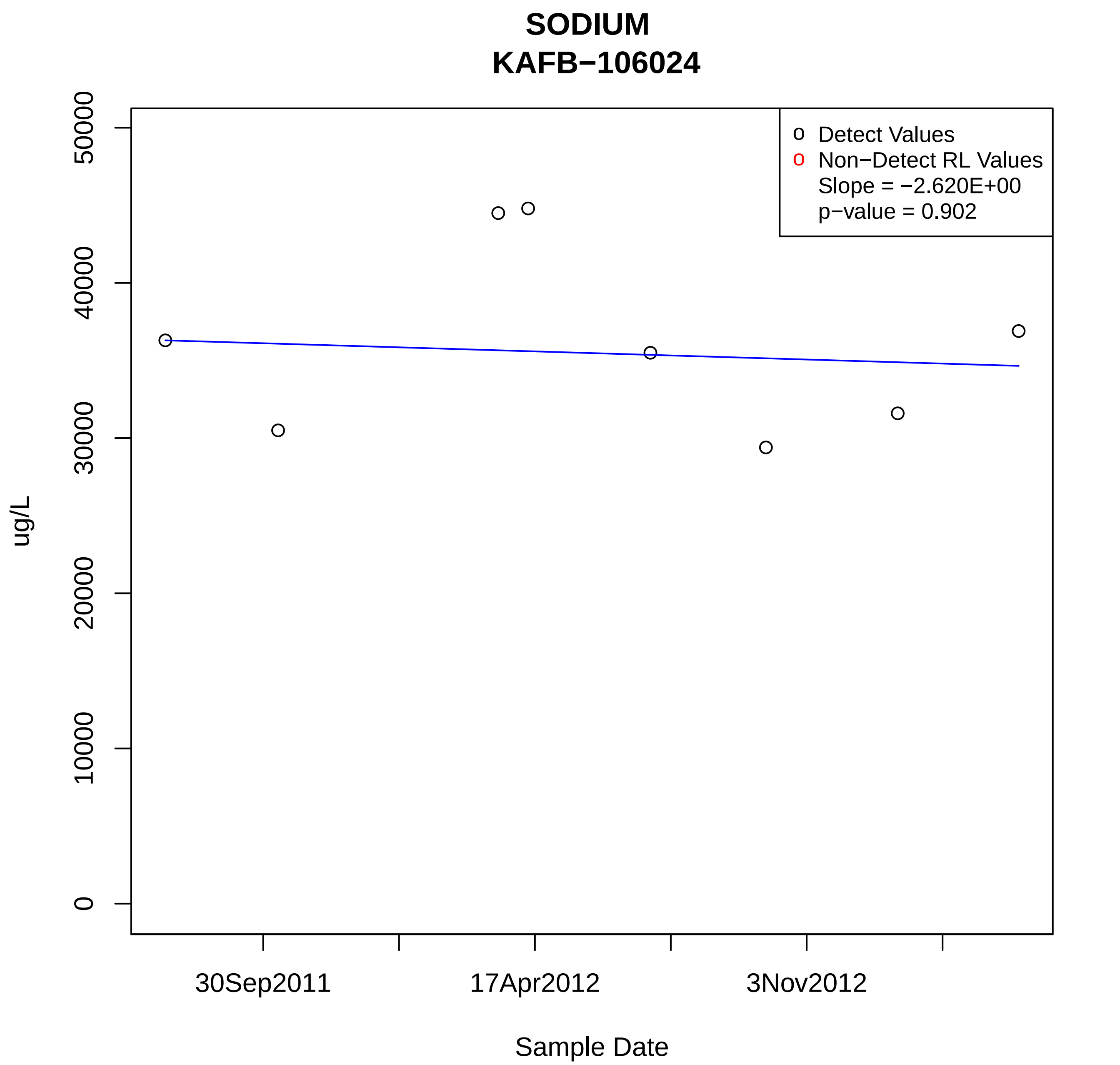
SODIUM
KAFB−106019
Detect Values
Non−Detect RL Values
Slope = −1.404E+00
p−value = 0.598
ug/L
0
10000
20000
30000
40000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

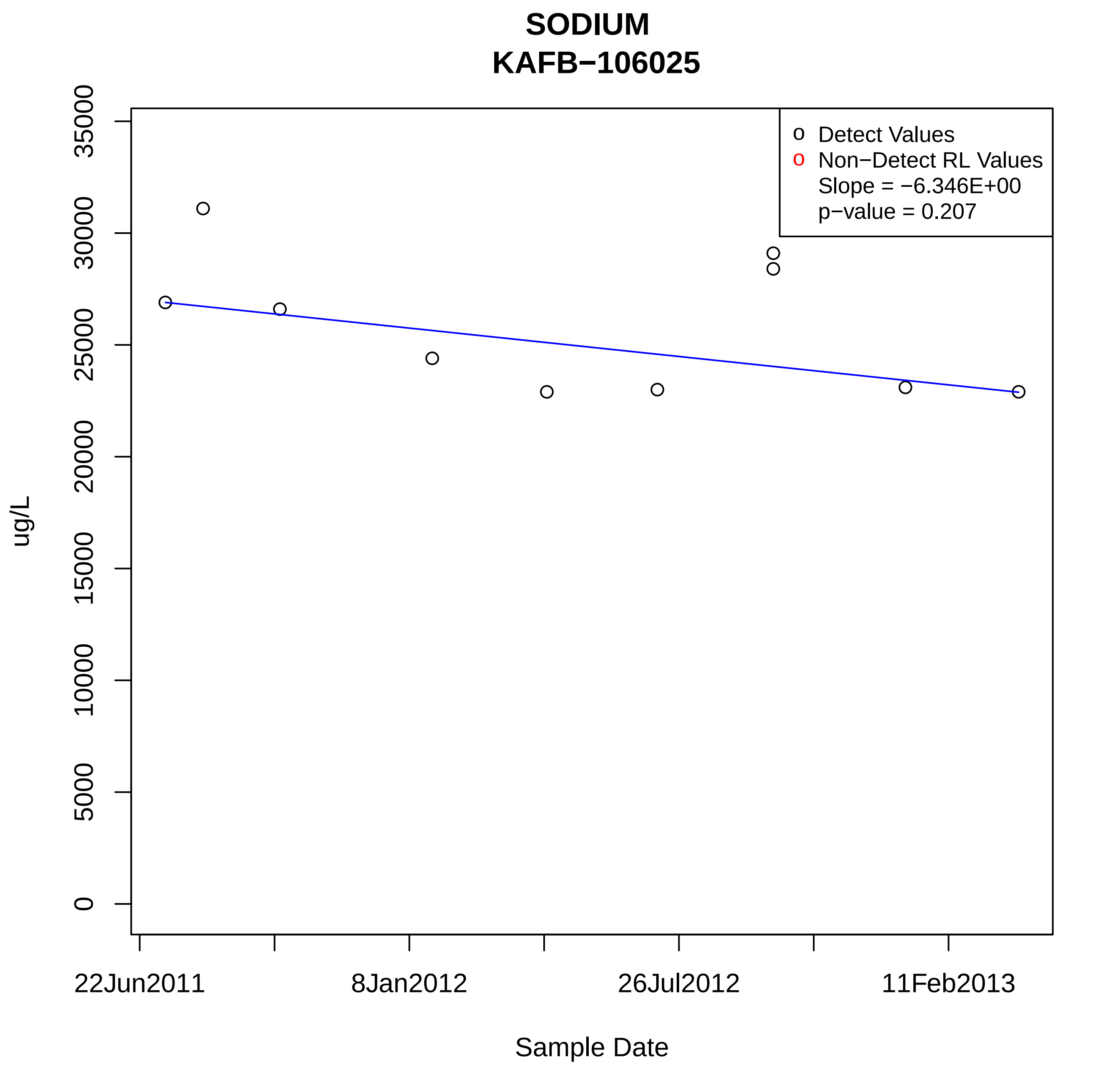


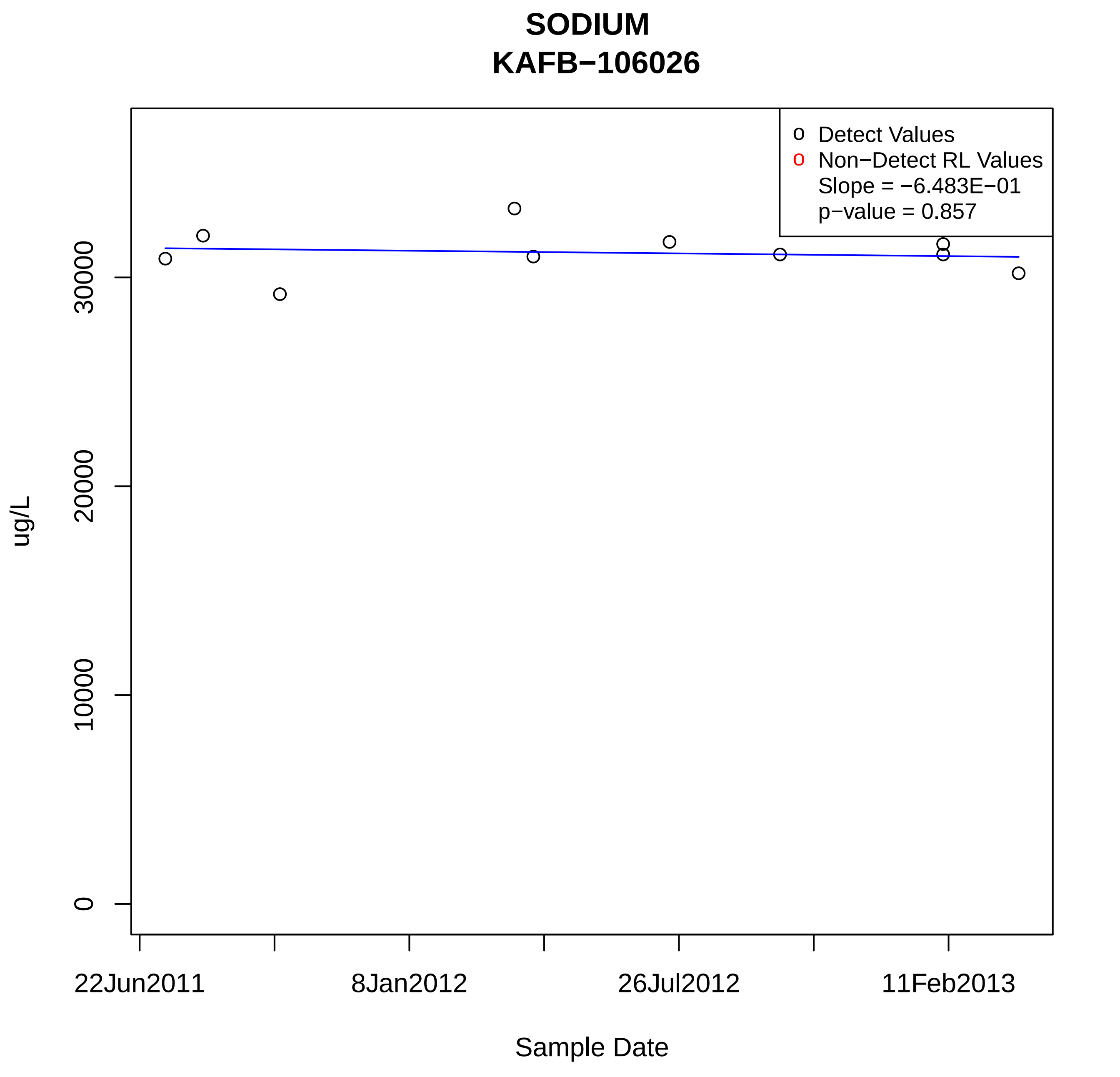
SODIUM
KAFB−106020
Detect Values
Non−Detect RL Values
Slope = 9.743E+00
p−value = 0.036
ug/L
0
5000
10000
15000
20000
25000
30000
35000
30Sep2011
17Apr2012
3Nov2012
Sample Date

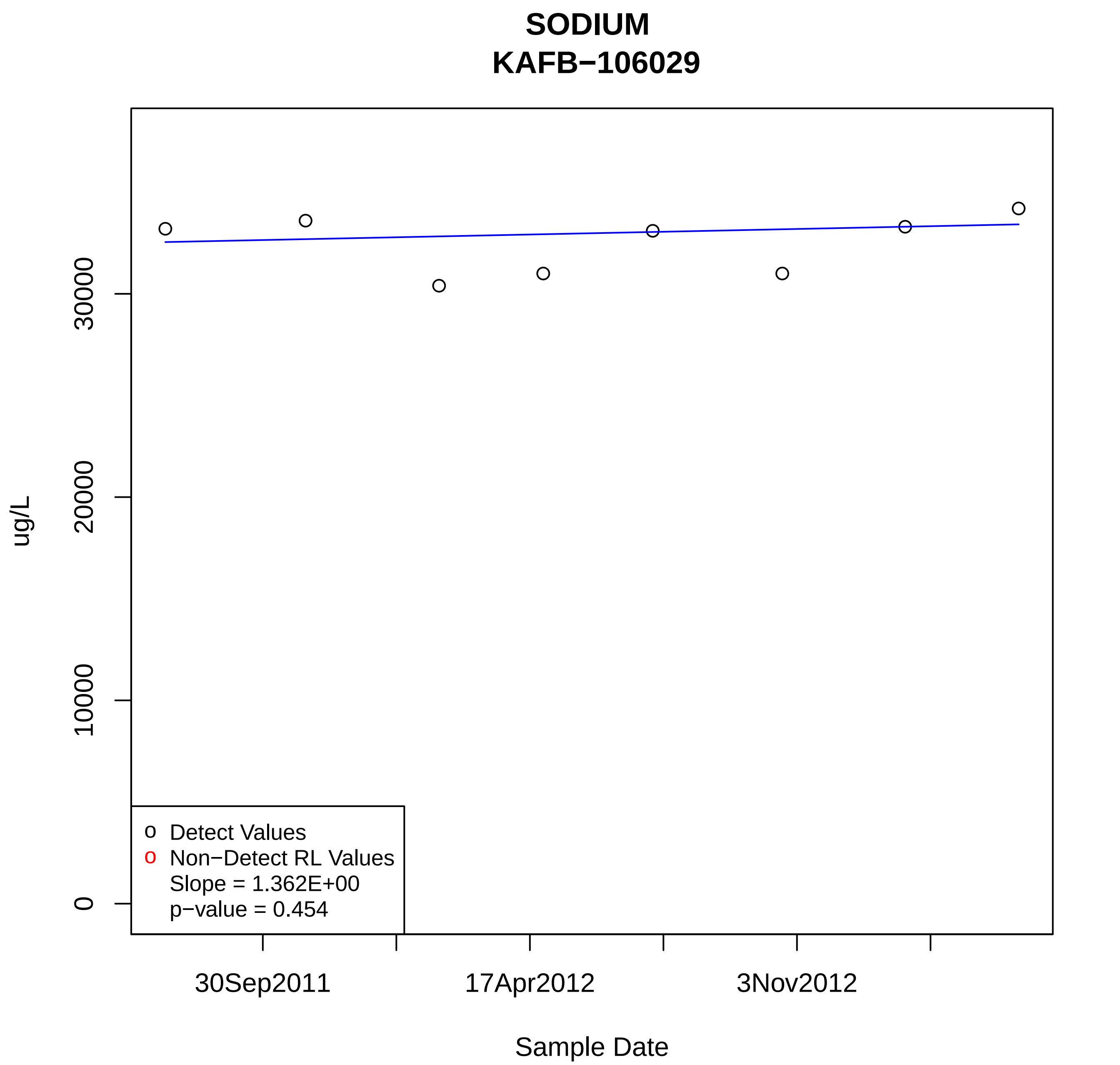

SODIUM
KAFB−106021
Detect Values
Non−Detect RL Values
Slope = −1.115E+01
p−value = 0.036
ug/L
0
10000
20000
30000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

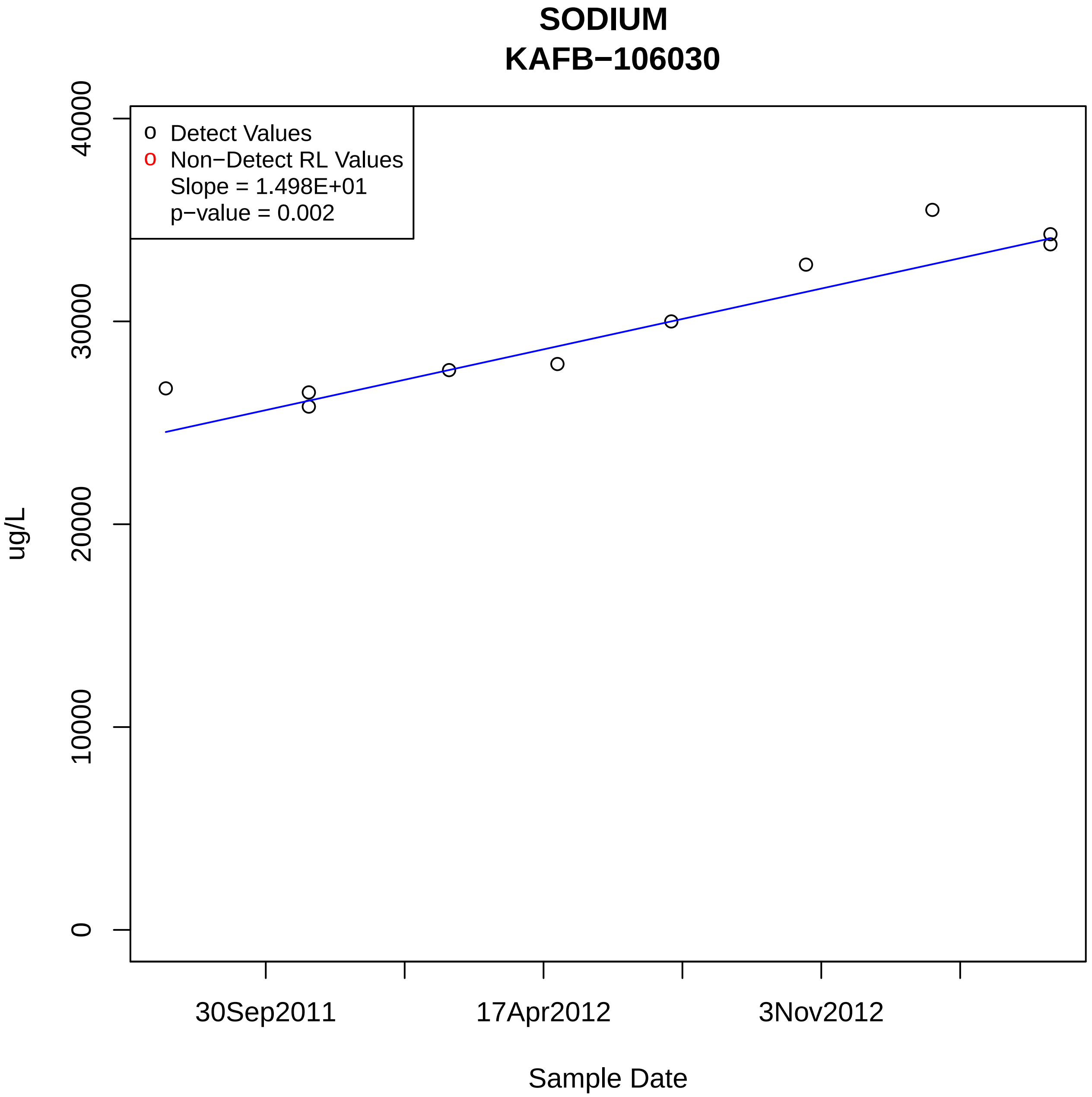

SODIUM
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = 5.587E−01
p−value = 0.456
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date


SODIUM
KAFB−106024
Detect Values
Non−Detect RL Values
Slope = −2.620E+00
p−value = 0.902
ug/L
0
10000
20000
30000
40000
50000
30Sep2011
17Apr2012
3Nov2012
Sample Date

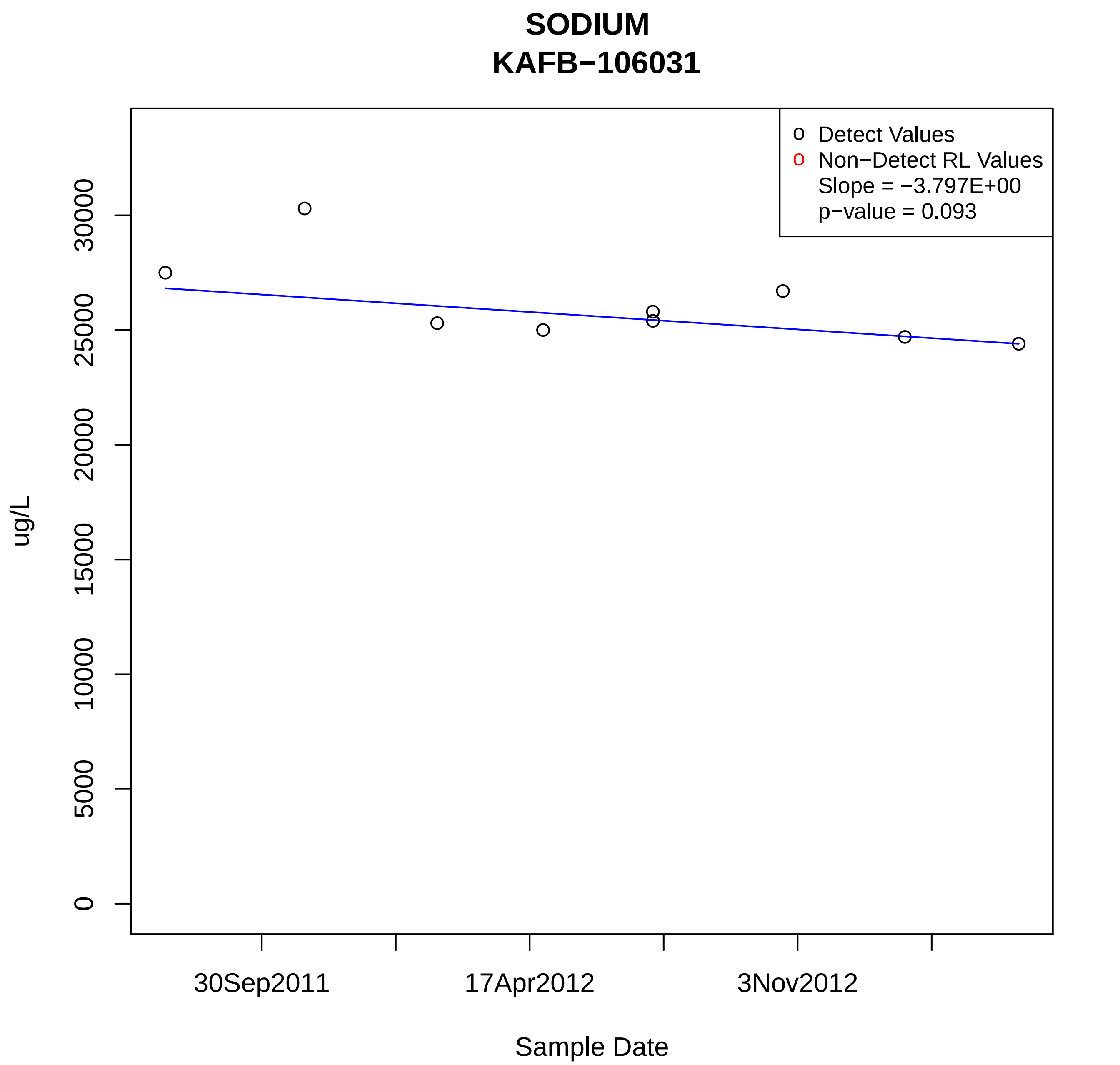

SODIUM
KAFB−106025
Detect Values
Non−Detect RL Values
Slope = −6.346E+00
p−value = 0.207
ug/L
0
5000
10000
15000
20000
25000
30000
35000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

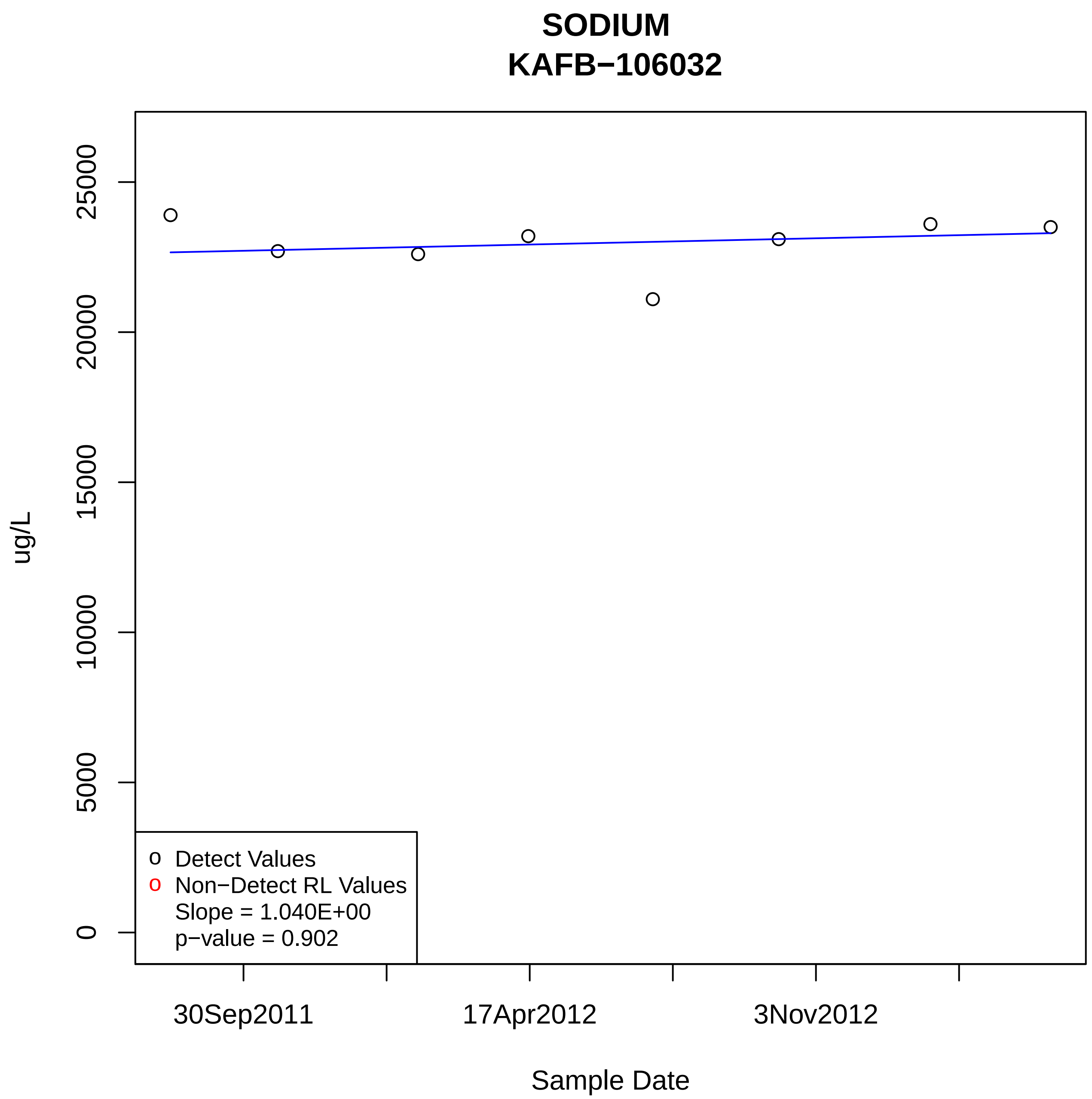

SODIUM
KAFB−106026
Detect Values
Non−Detect RL Values
Slope = −6.483E−01
p−value = 0.857
ug/L
0
10000
20000
30000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


SODIUM
KAFB−106029
ug/L
0
10000
20000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.362E+00
p−value = 0.454

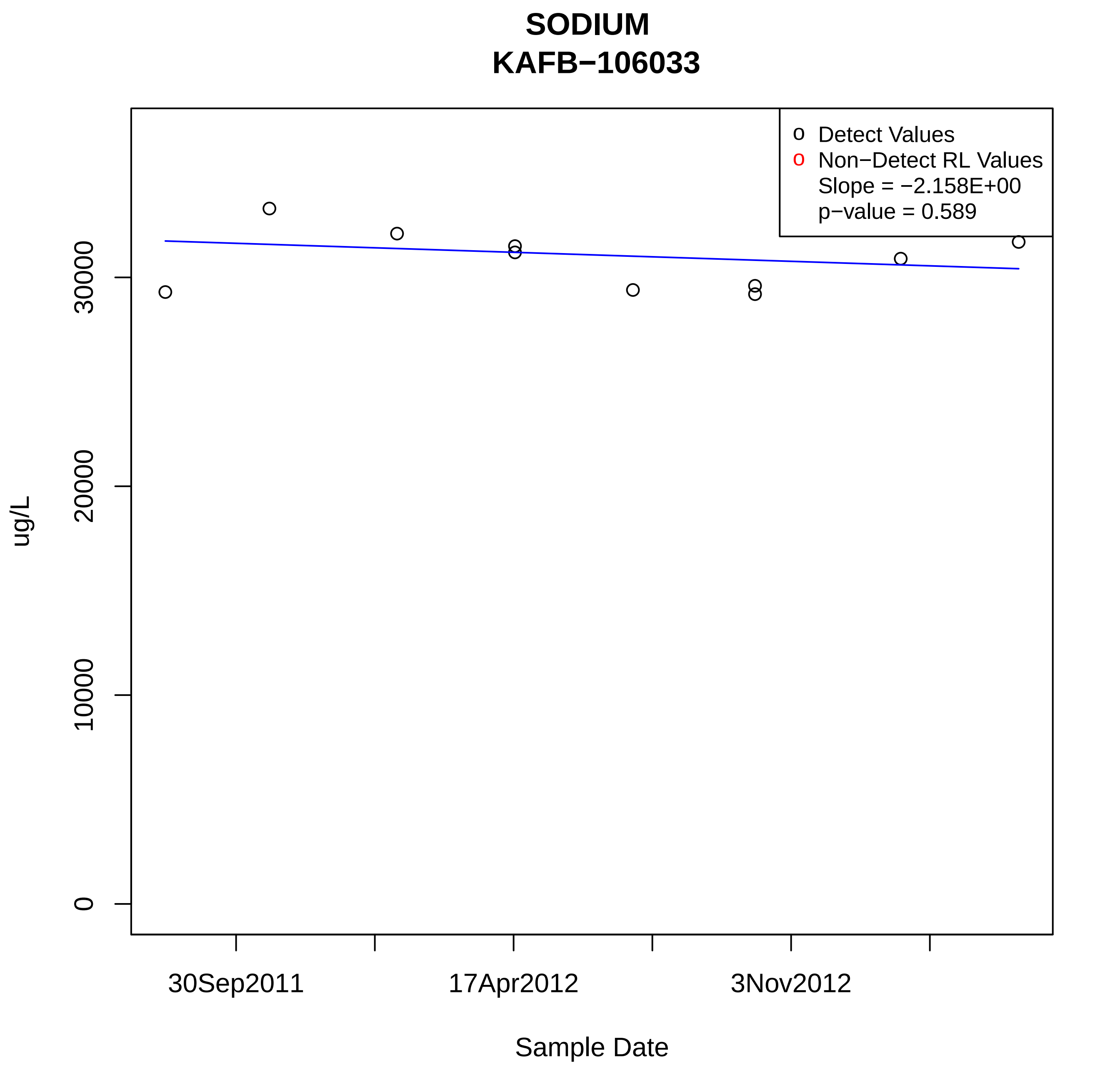


SODIUM
KAFB−106030
Detect Values
Non−Detect RL Values
Slope = 1.498E+01
p−value = 0.002
ug/L
0
10000
20000
30000
40000
30Sep2011
17Apr2012
3Nov2012
Sample Date

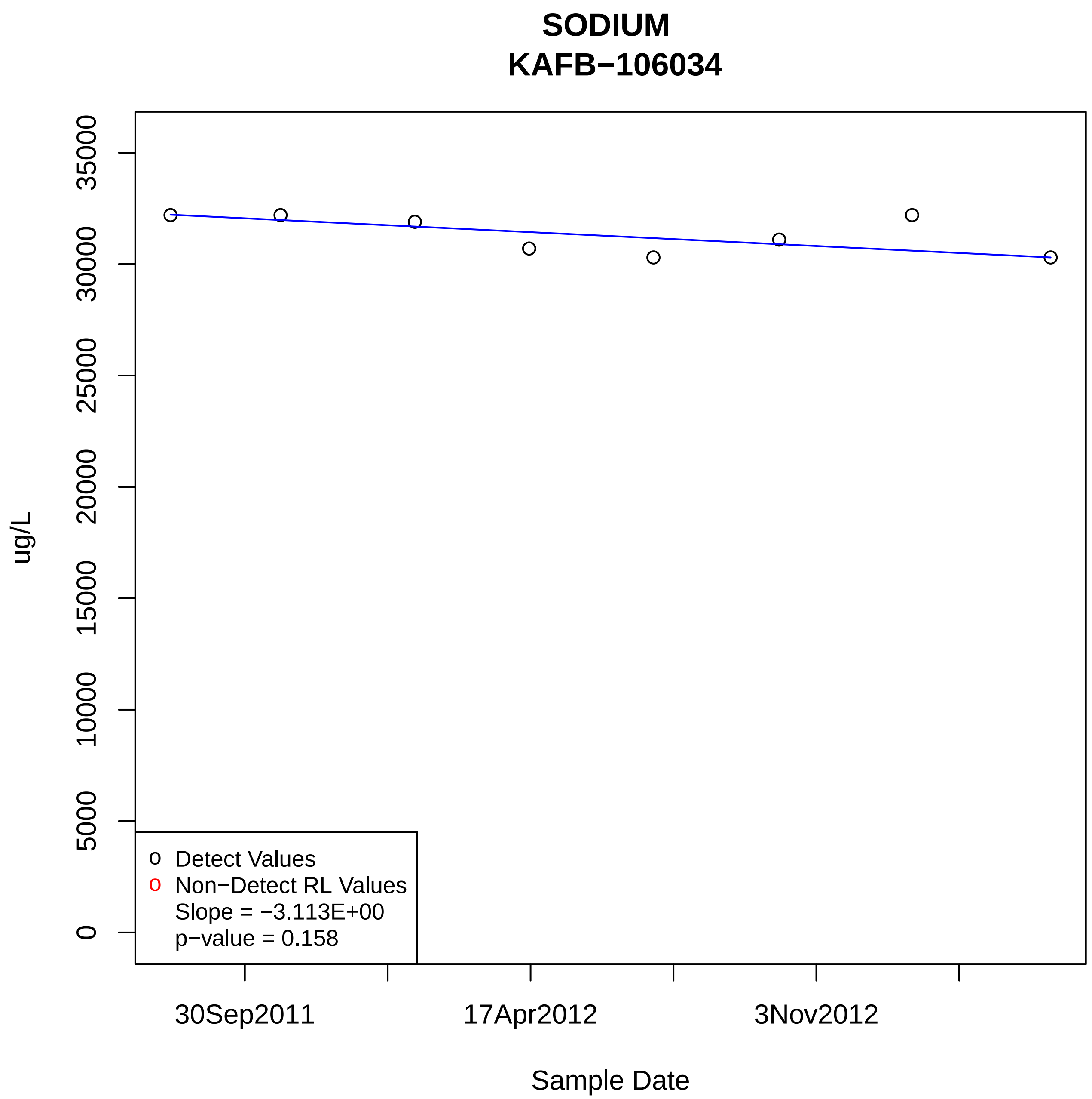

SODIUM
KAFB−106031
Detect Values
Non−Detect RL Values
Slope = −3.797E+00
p−value = 0.093
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date



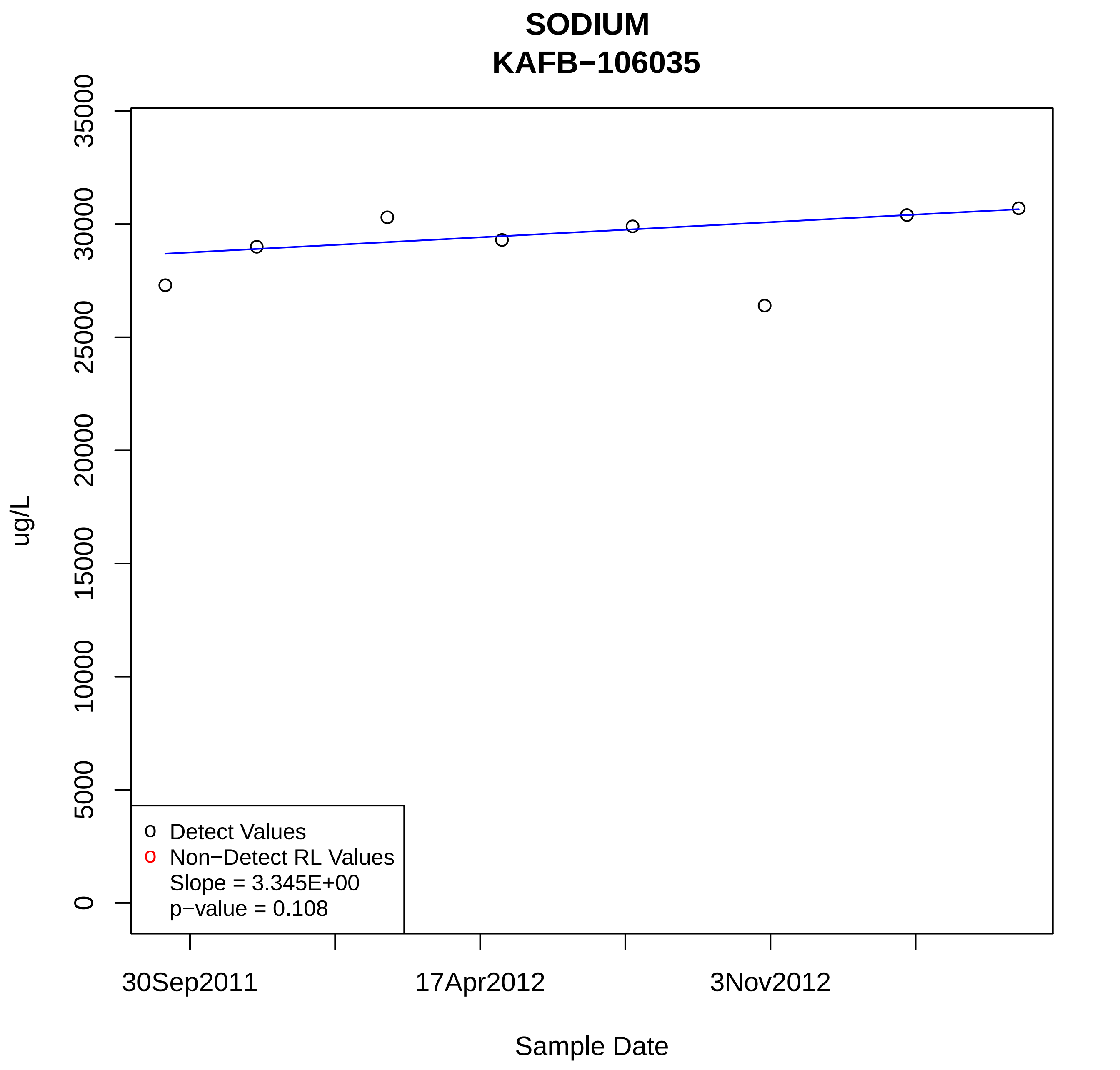
SODIUM
KAFB−106032
ug/L
25000
20000
15000
10000
5000
0
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.040E+00
p−value = 0.902



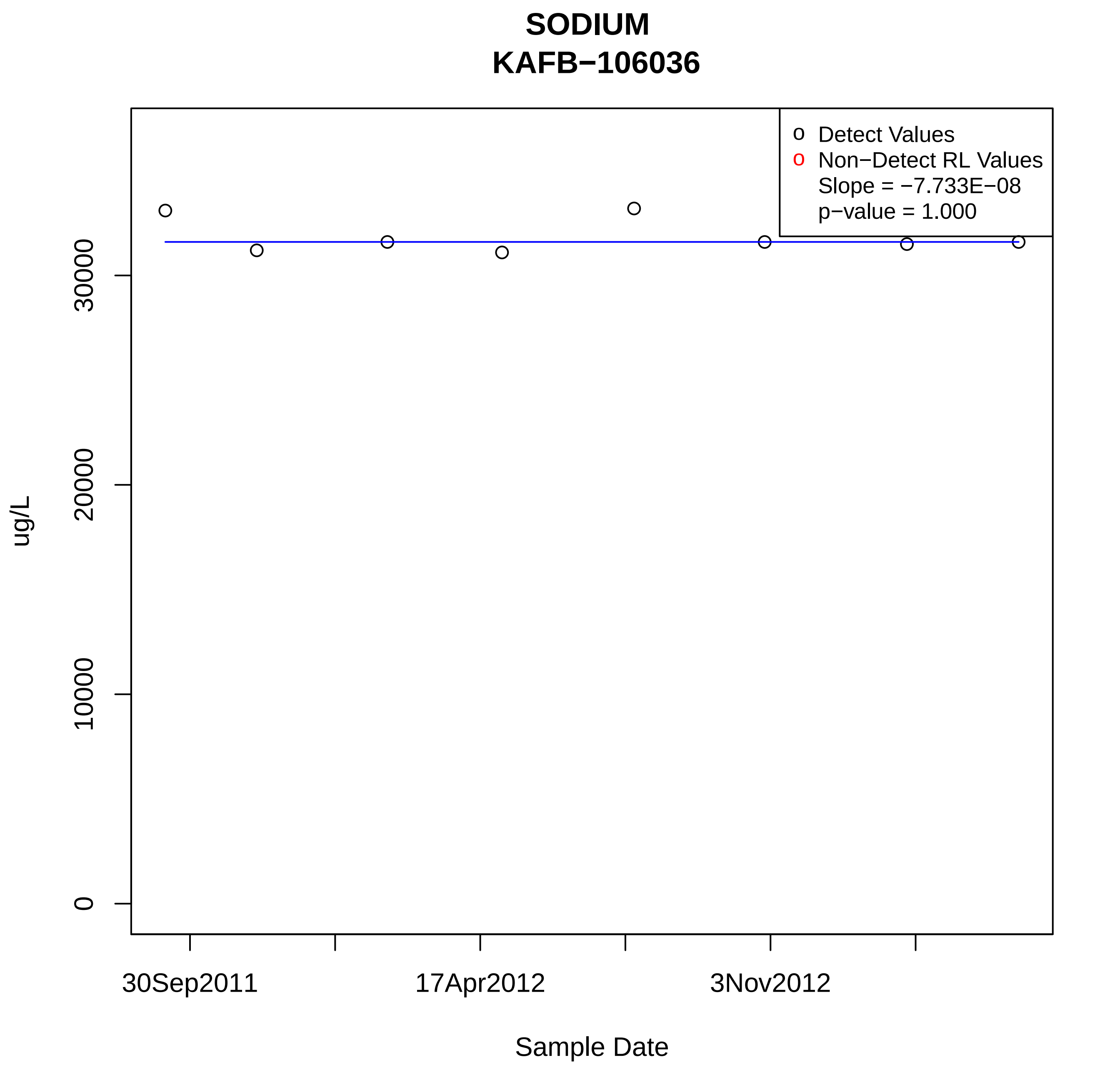
SODIUM
KAFB−106033
o Detect Values
o Non−Detect RL Values
Slope = −2.158E+00
p−value = 0.589
ug/L
0
10000
20000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date



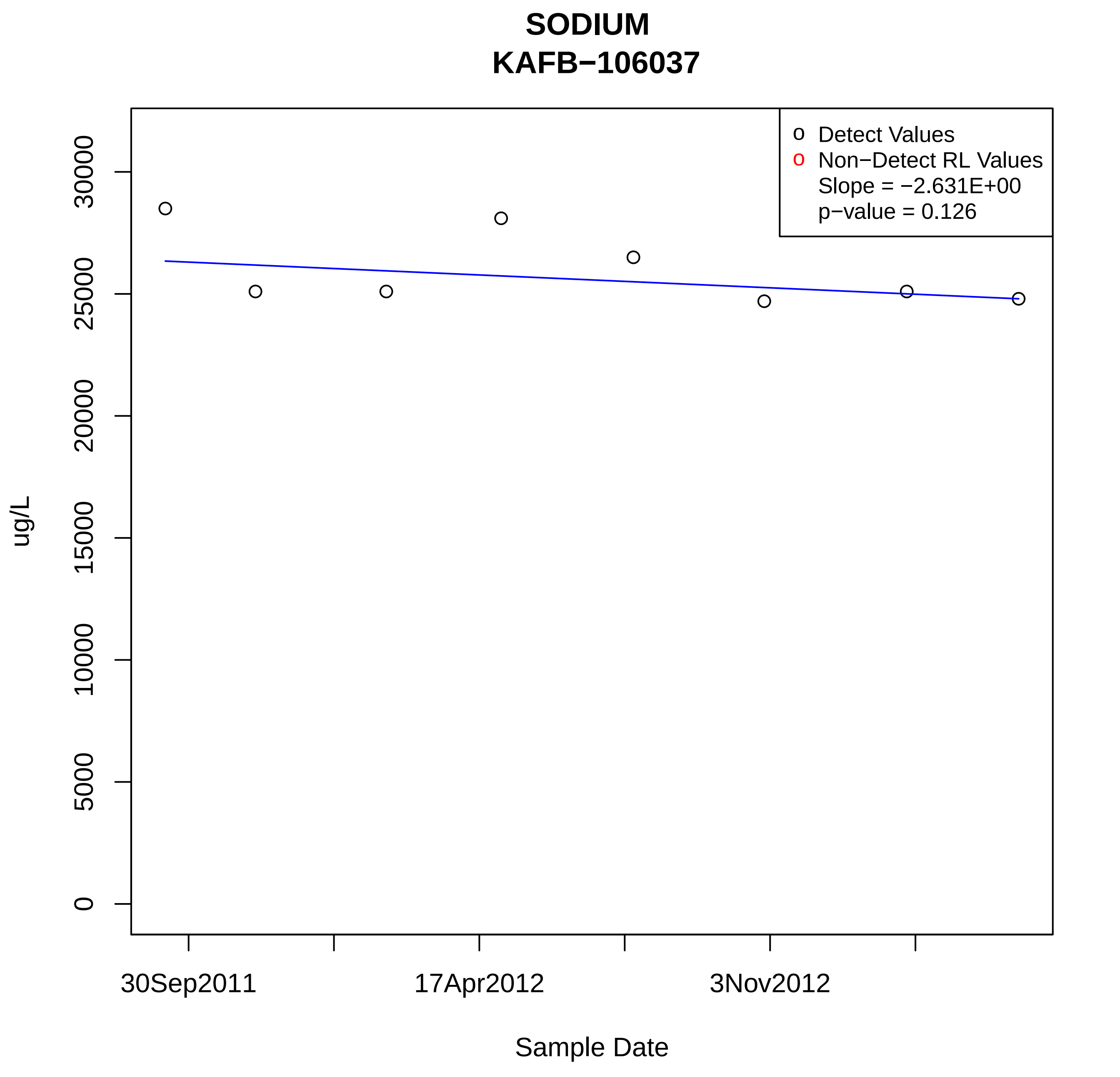
SODIUM
KAFB−106034
ug/L
0
5000
10000
15000
20000
25000
30000
35000
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −3.113E+00
p−value = 0.158

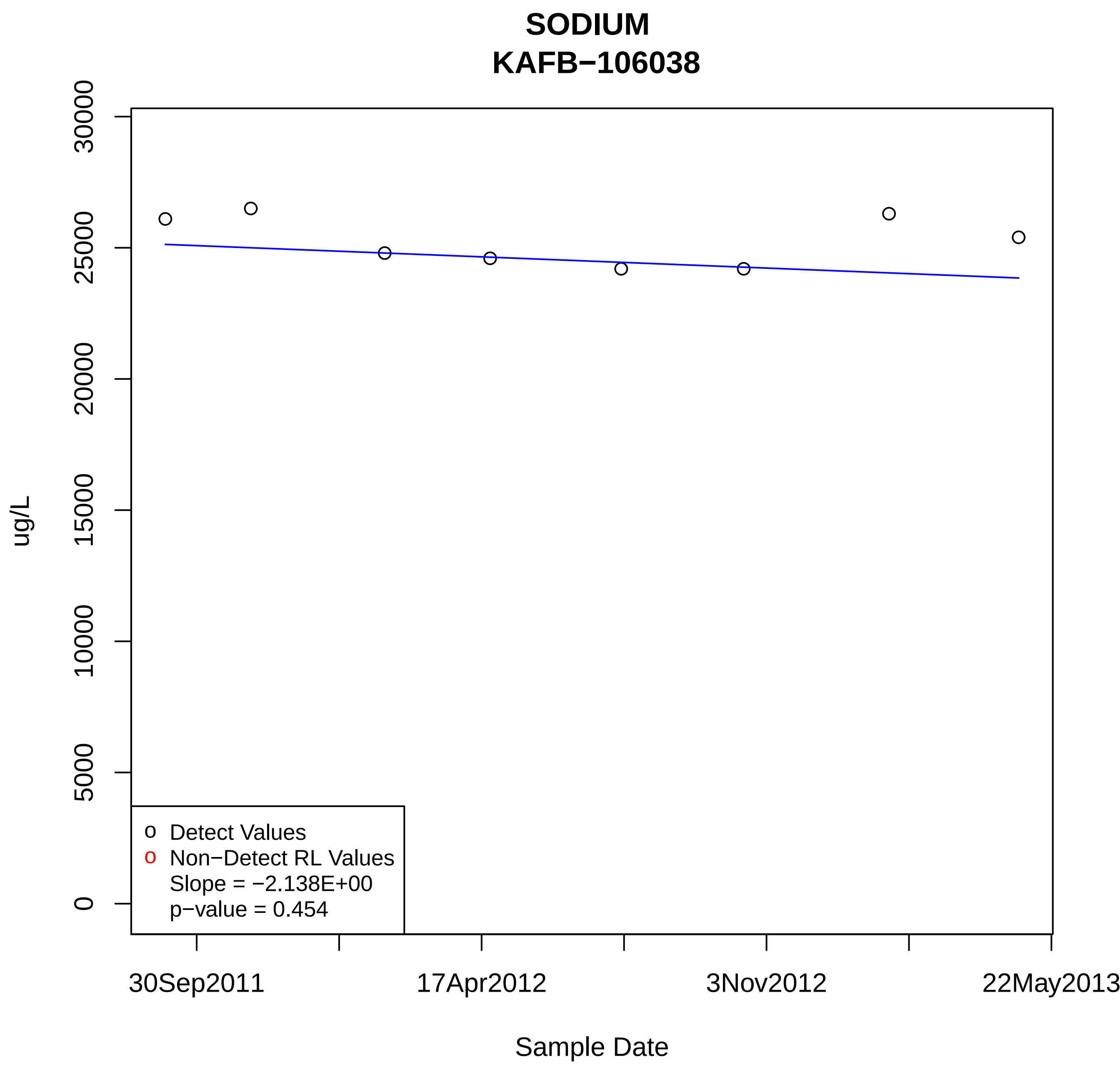


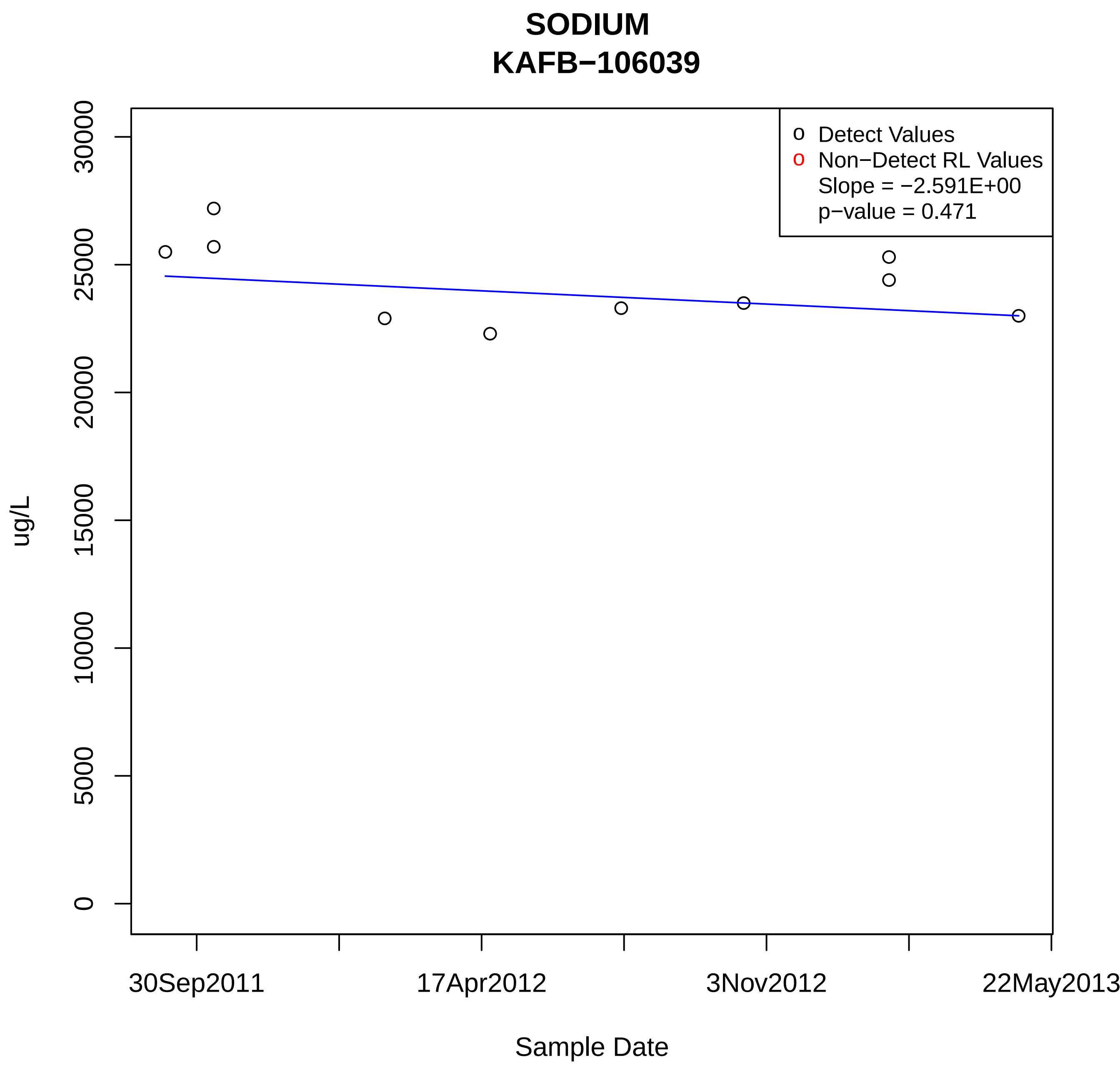
SODIUM
KAFB−106035
ug/L
35000
30000
25000
20000
15000
10000
5000
0
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 3.345E+00
p−value = 0.108

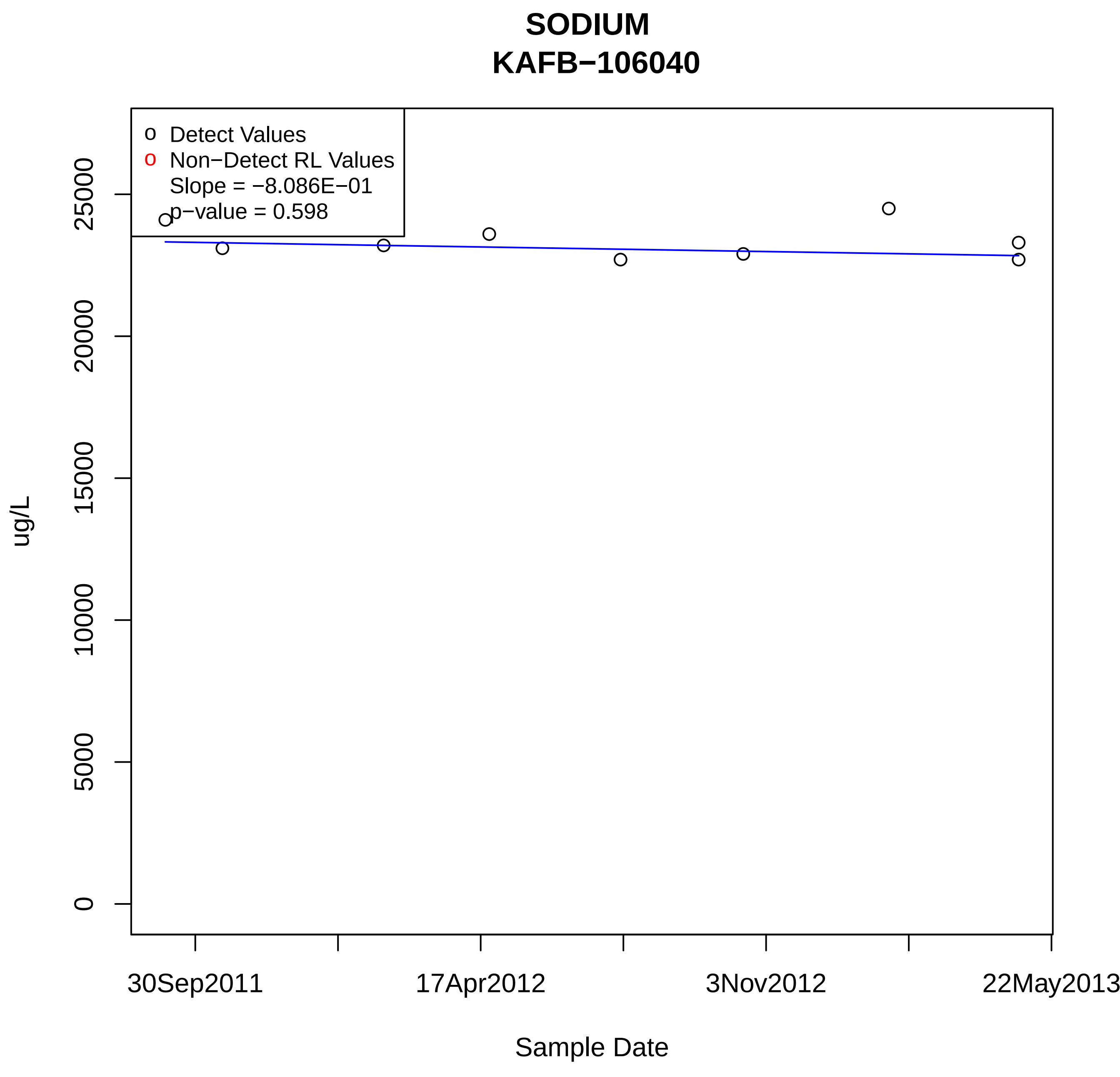


SODIUM
KAFB−106036
Detect Values
Non−Detect RL Values
Slope = −7.733E−08
p−value = 1.000
ug/L
0
10000
20000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date

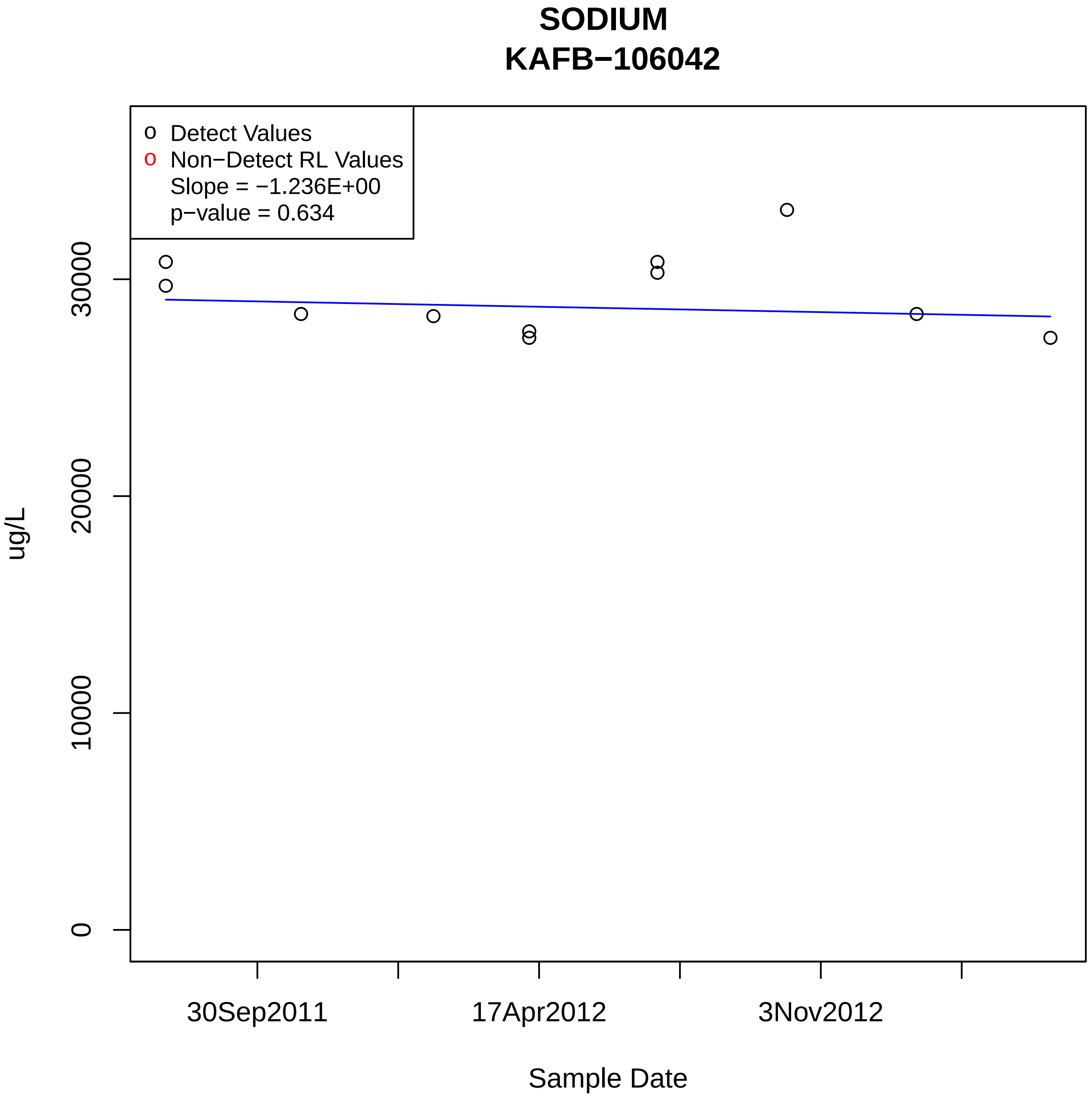

SODIUM
KAFB−106037
Detect Values
Non−Detect RL Values
Slope = −2.631E+00
p−value = 0.126
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date

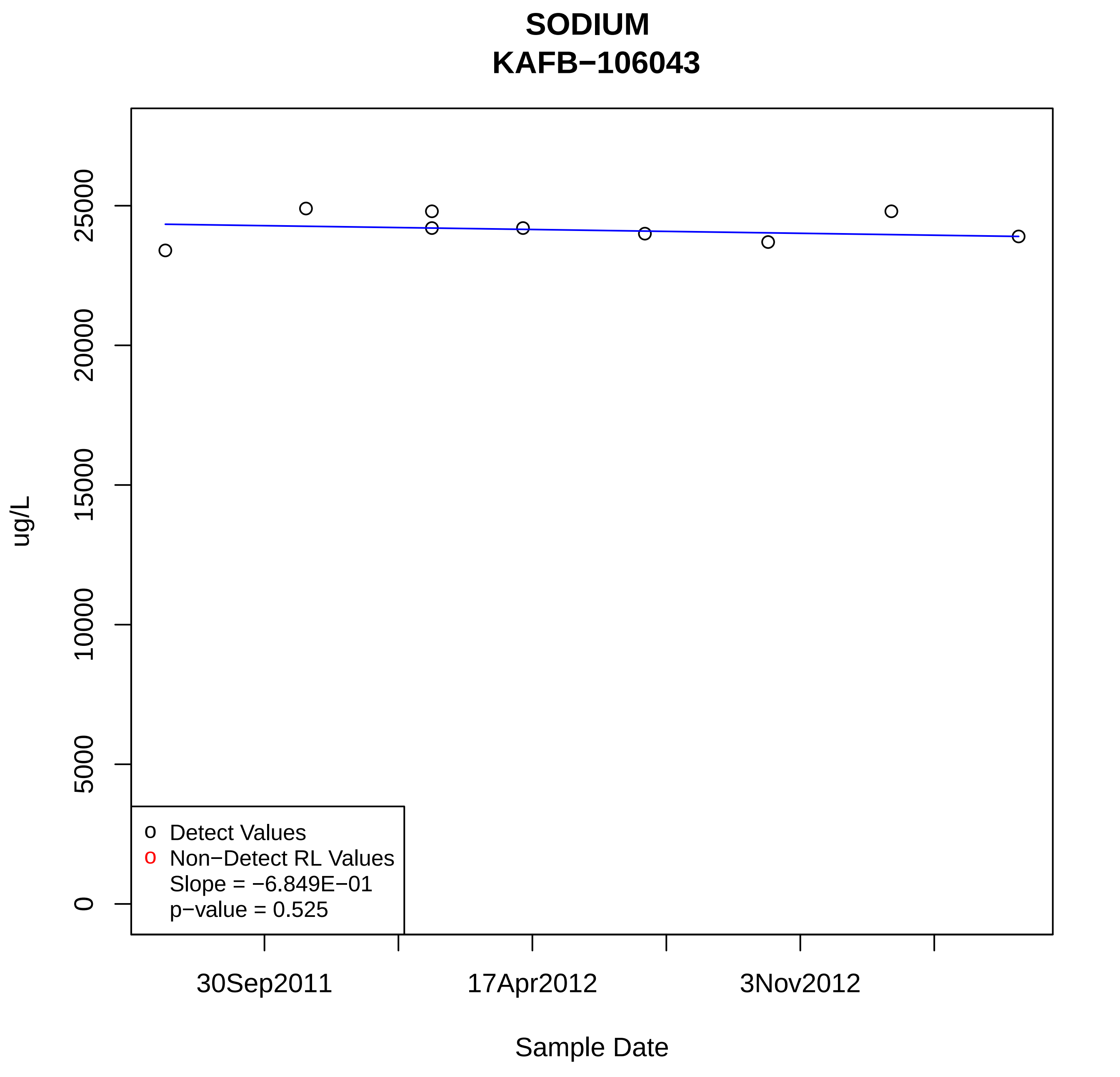

SODIUM
KAFB−106038
ug/L
30000
25000
20000
15000
10000
5000
0
o Detect Values
o Non−Detect RL Values
Slope = −2.138E+00
p−value = 0.454
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

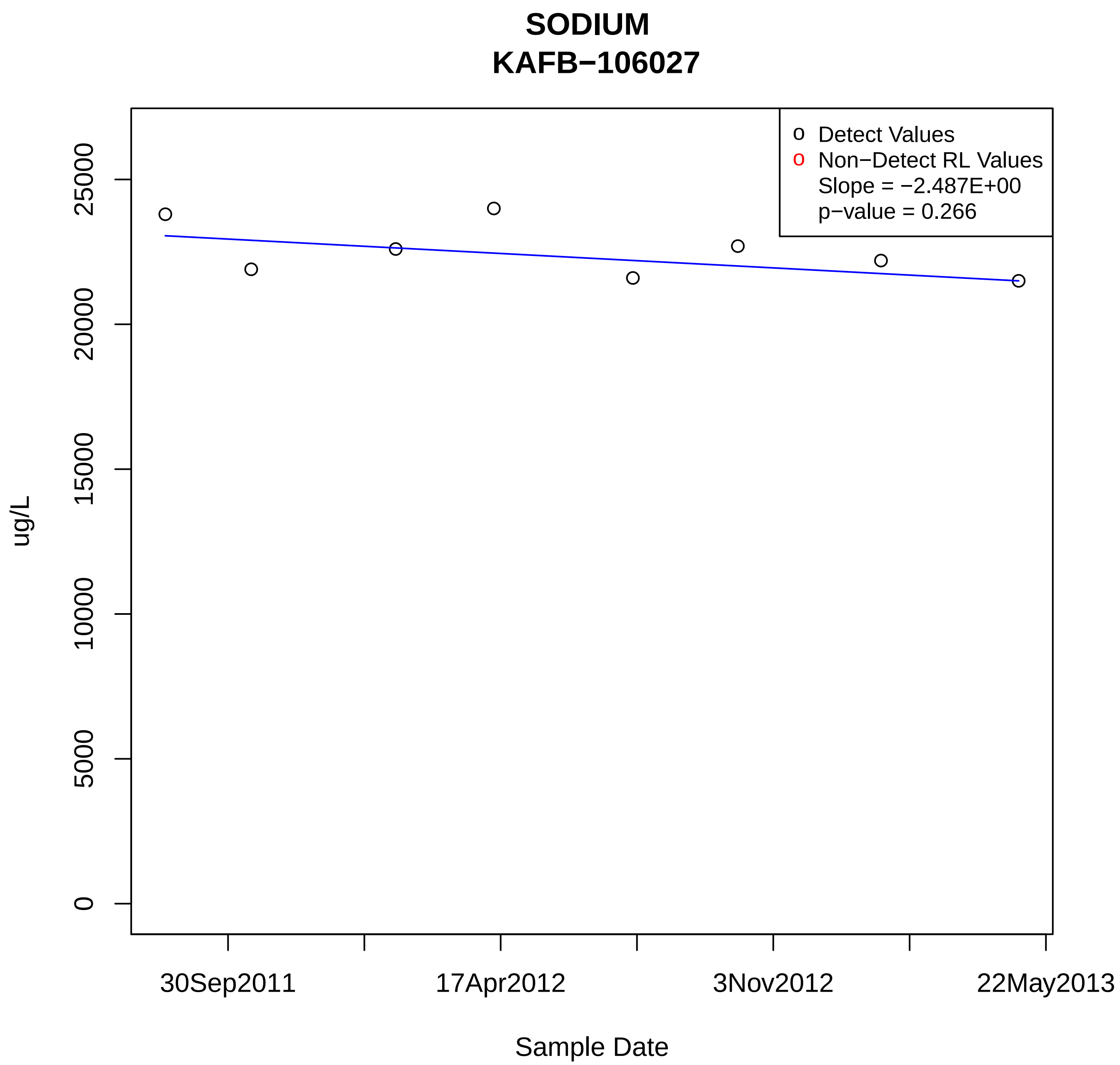

SODIUM
KAFB−106039
Detect Values
Non−Detect RL Values
Slope = −2.591E+00
p−value = 0.471
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



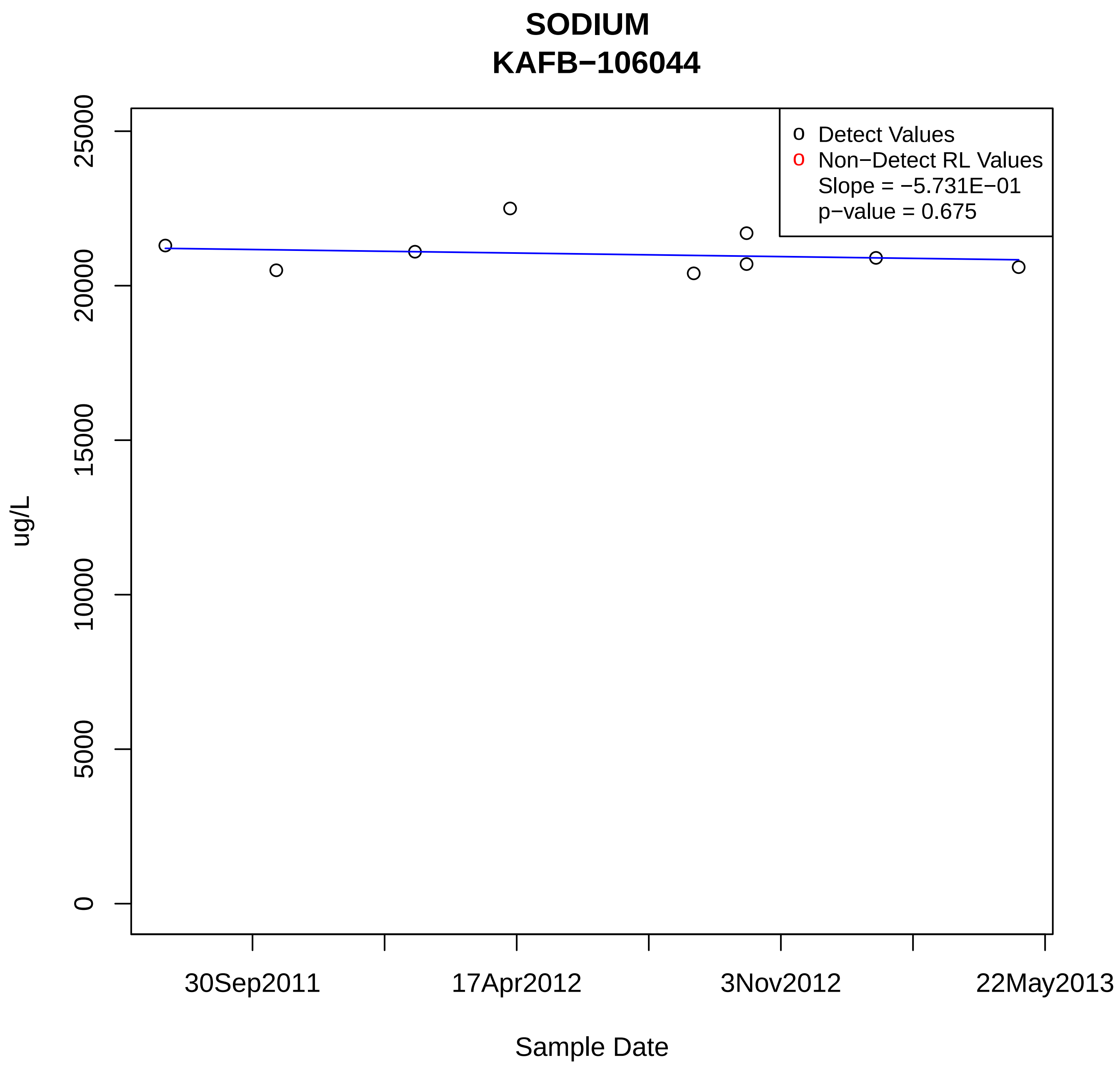
SODIUM
KAFB−106040
Detect Values
Non−Detect RL Values
Slope = −8.086E−01
p−value = 0.598
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


SODIUM
KAFB−106042
Detect Values
Non−Detect RL Values
Slope = −1.236E+00
p−value = 0.634
ug/L
0
10000
20000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date

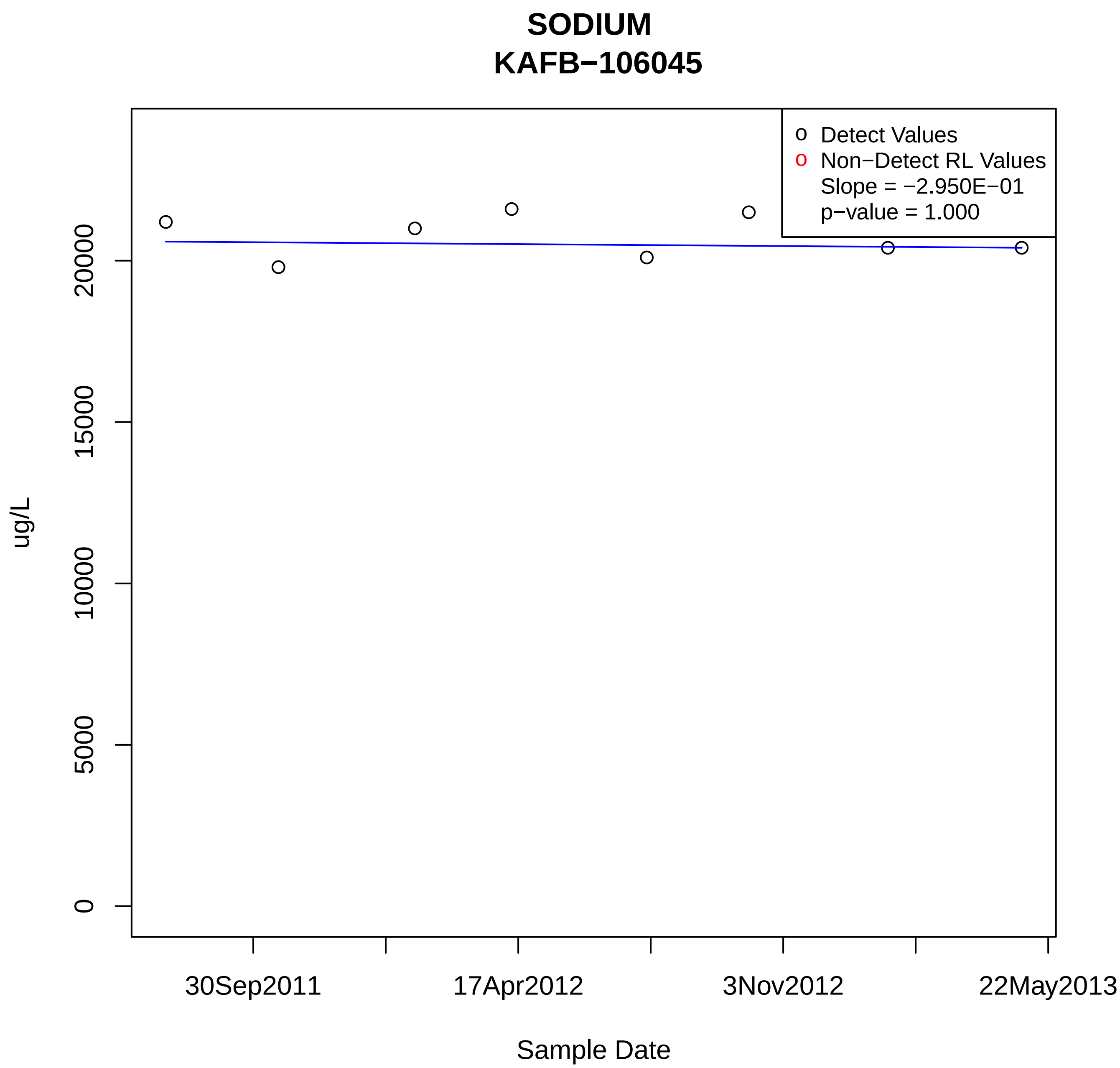

SODIUM
KAFB−106043
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −6.849E−01
p−value = 0.525



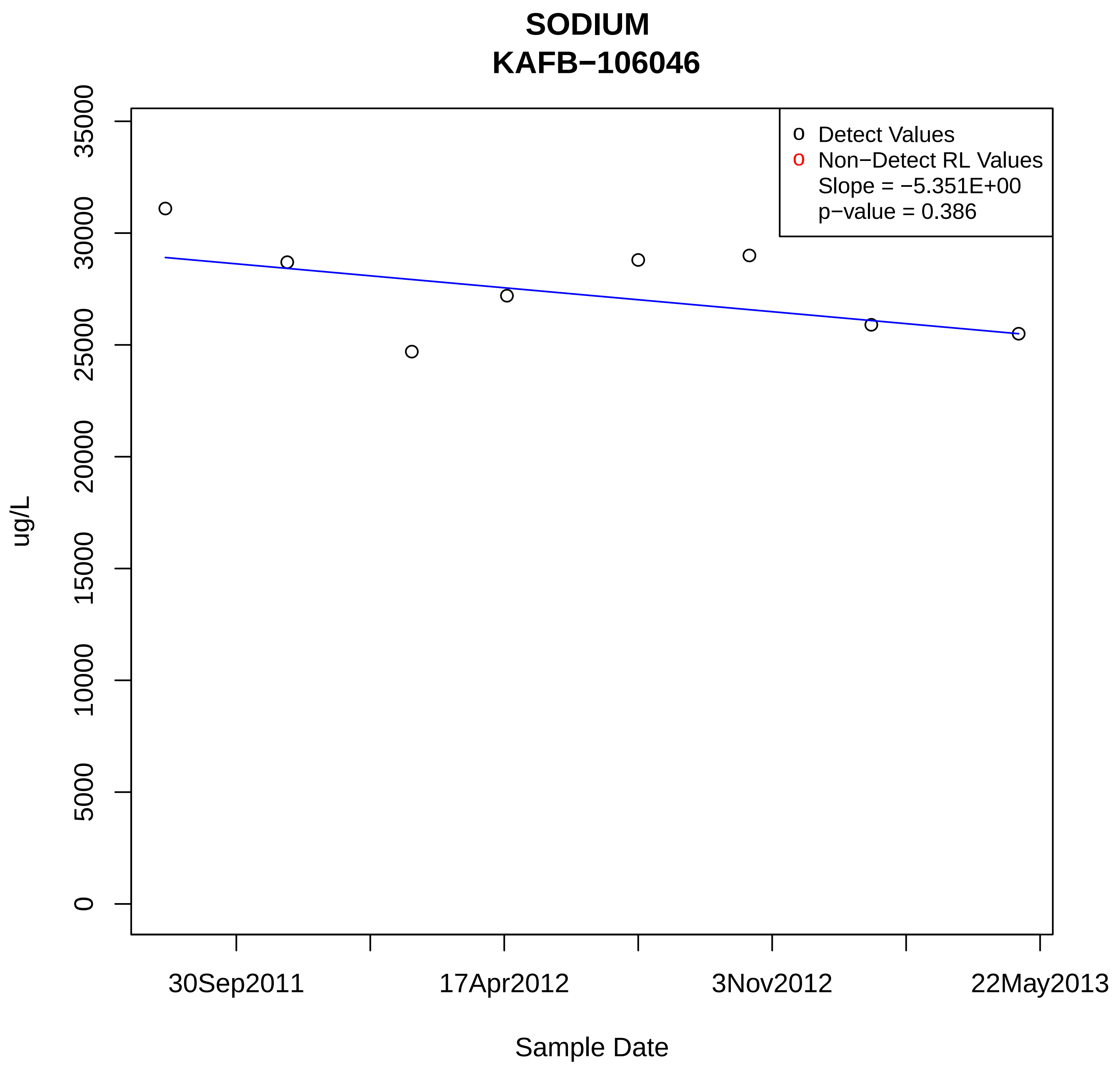
SODIUM
KAFB−106027
Detect Values
Non−Detect RL Values
Slope = −2.487E+00
p−value = 0.266
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

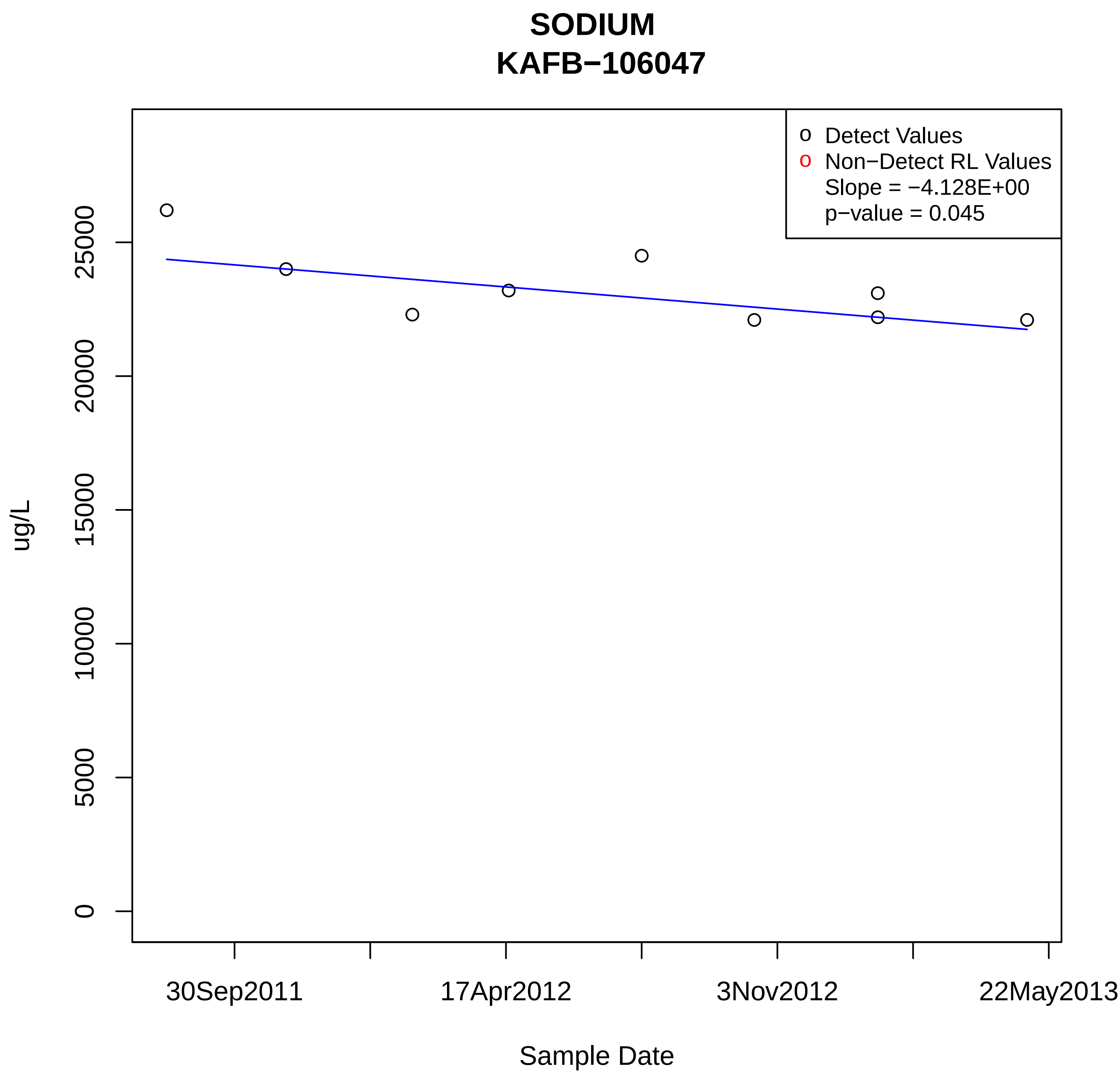


SODIUM
KAFB−106044
Detect Values
Non−Detect RL Values
Slope = −5.731E−01
p−value = 0.675
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

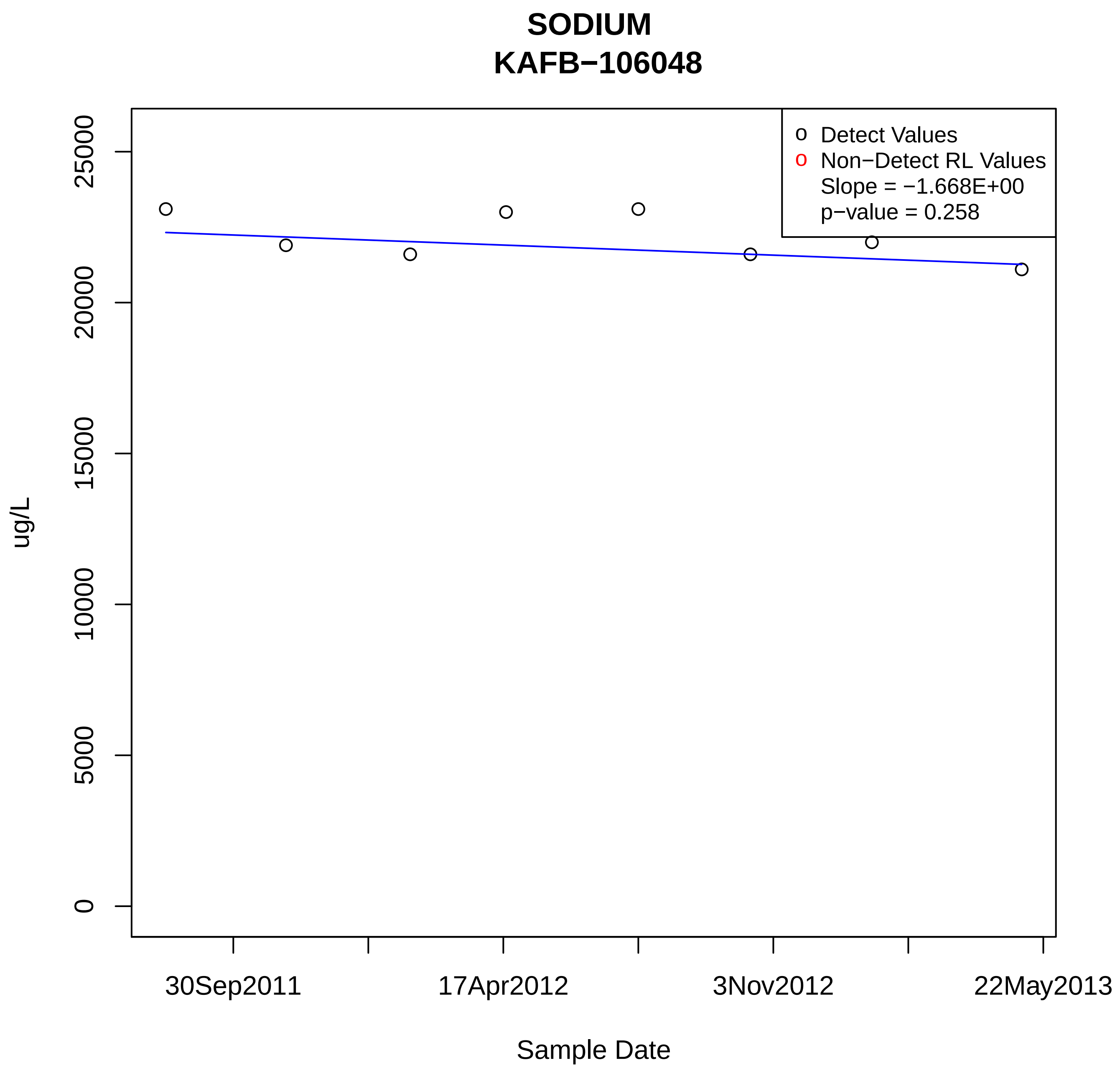


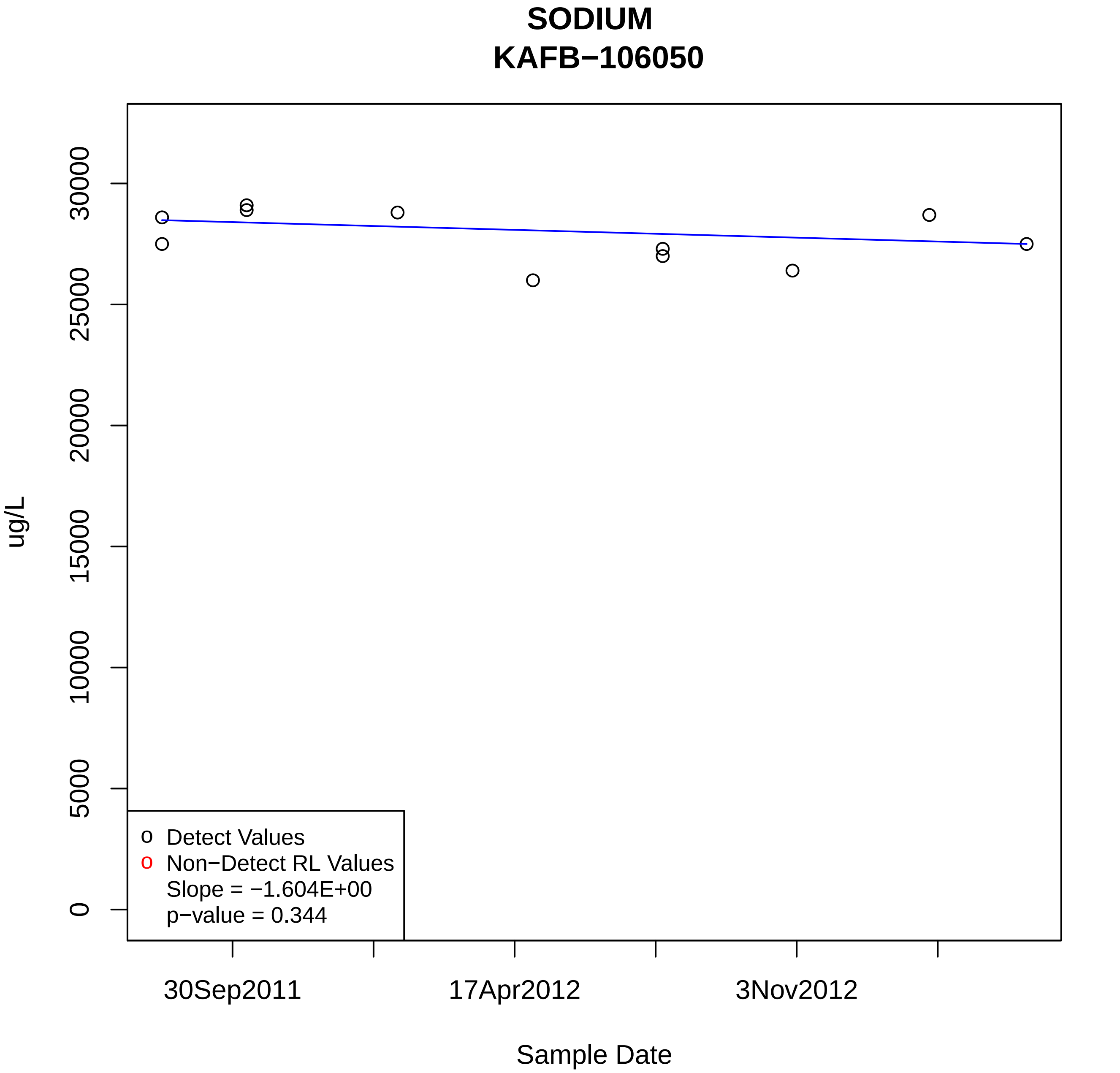
SODIUM
KAFB−106045
Detect Values
Non−Detect RL Values
Slope = −2.950E−01
p−value = 1.000
ug/L
0
5000
10000
15000
20000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


SODIUM
KAFB−106046
Detect Values
Non−Detect RL Values
Slope = −5.351E+00
p−value = 0.386
ug/L
0
5000
10000
15000
20000
25000
30000
35000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

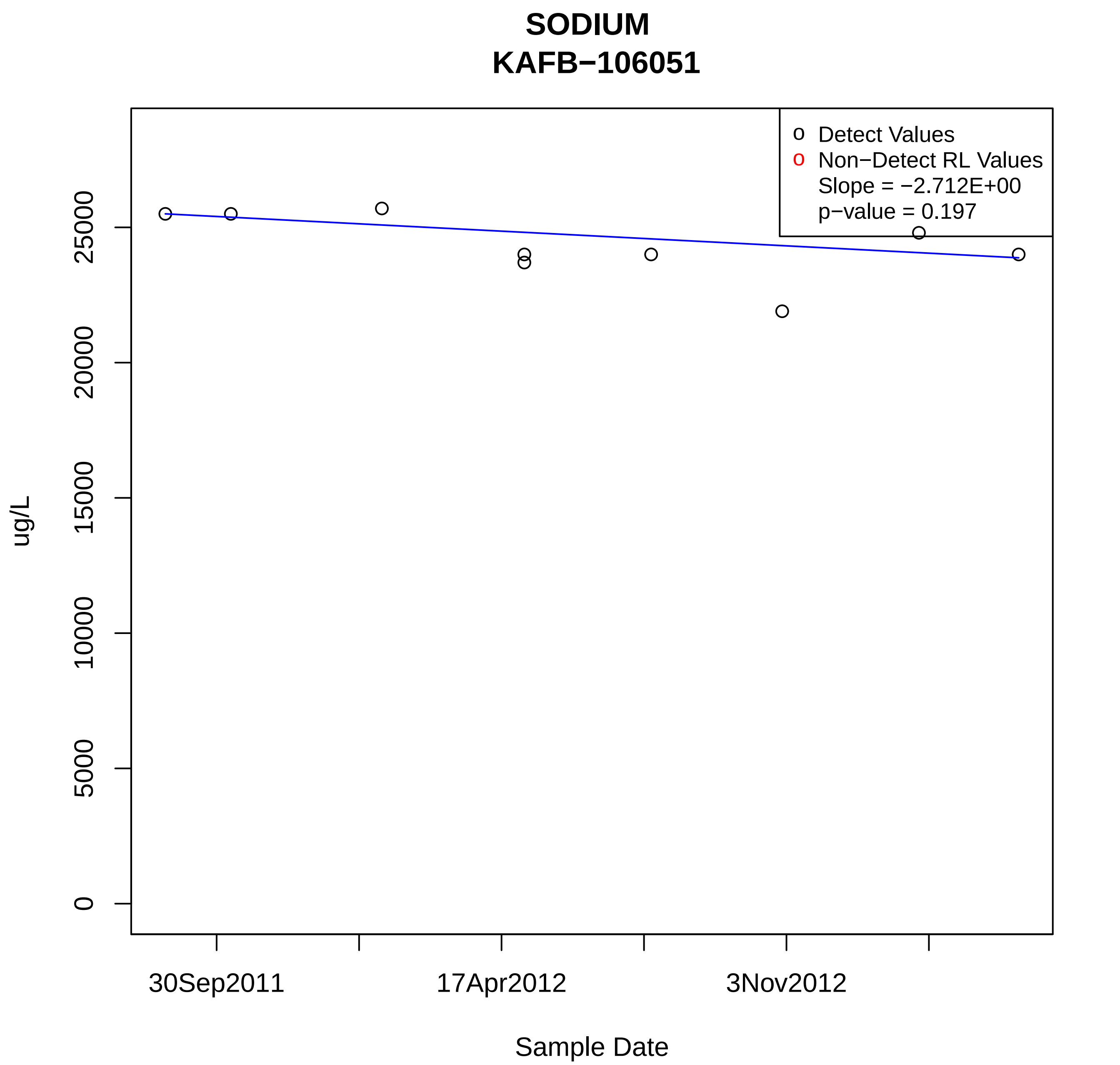


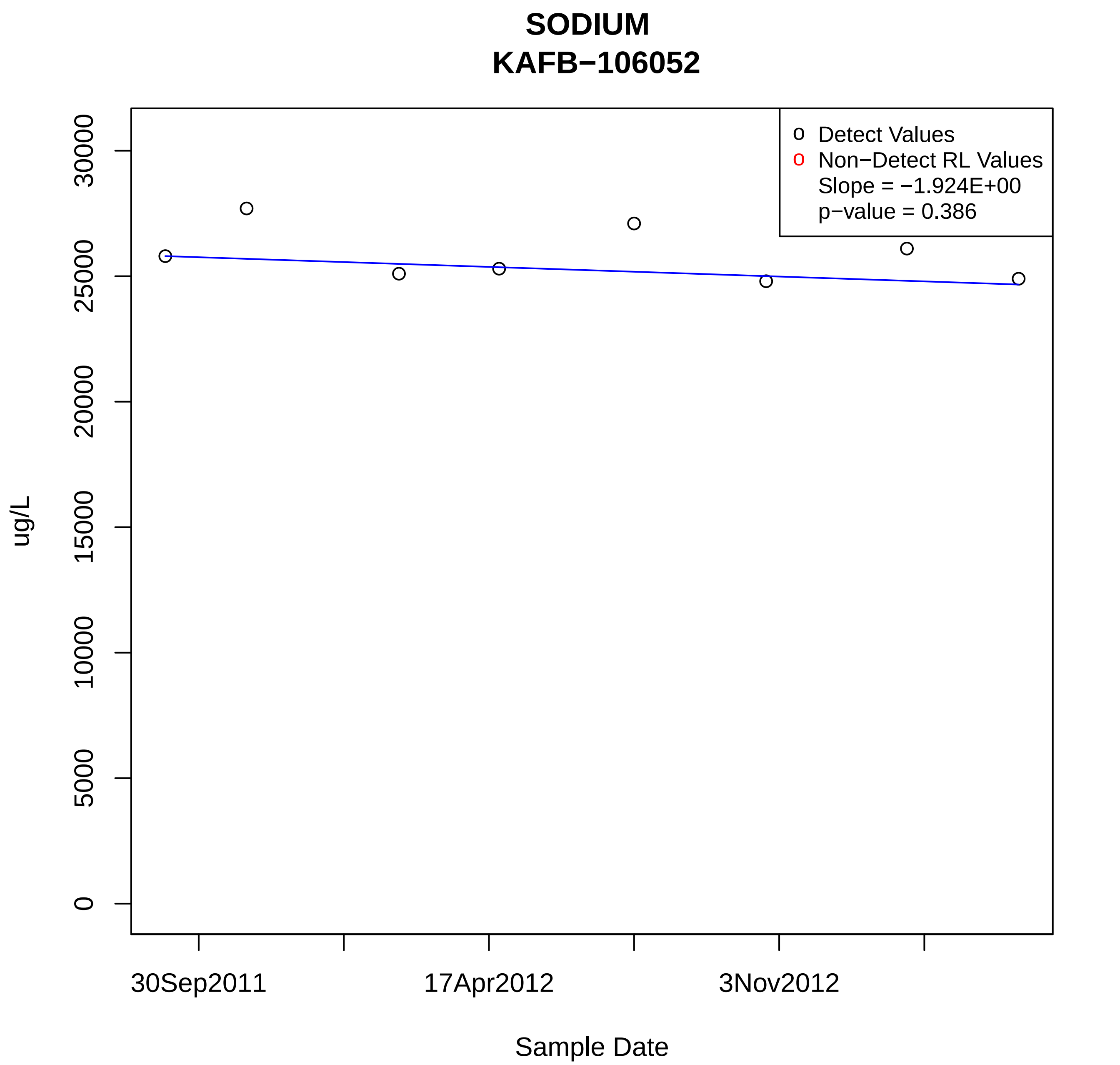
SODIUM
KAFB−106047
Detect Values
Non−Detect RL Values
Slope = −4.128E+00
p−value = 0.045
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

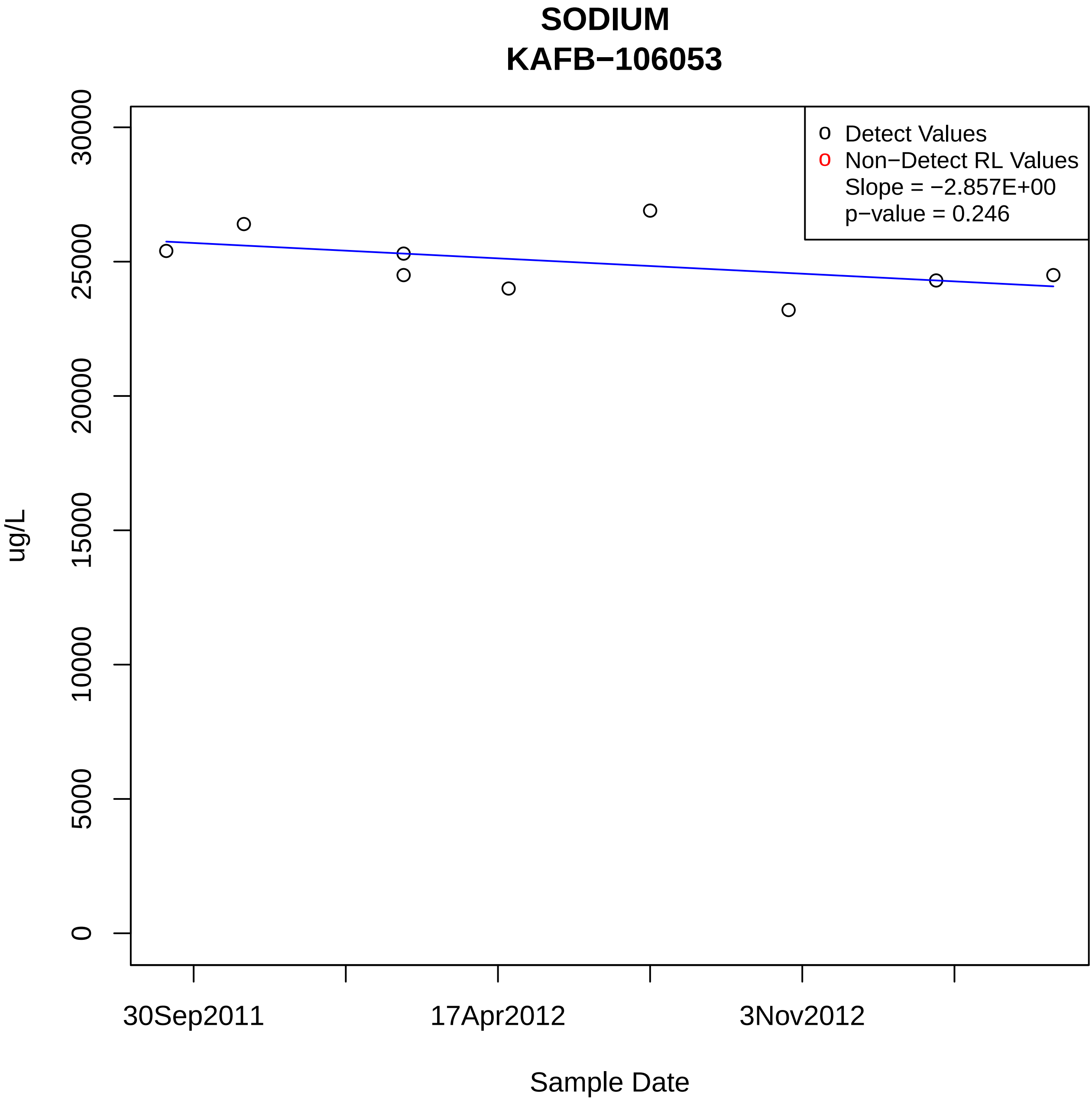

SODIUM
KAFB−106048
Detect Values
Non−Detect RL Values
Slope = −1.668E+00
p−value = 0.258
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



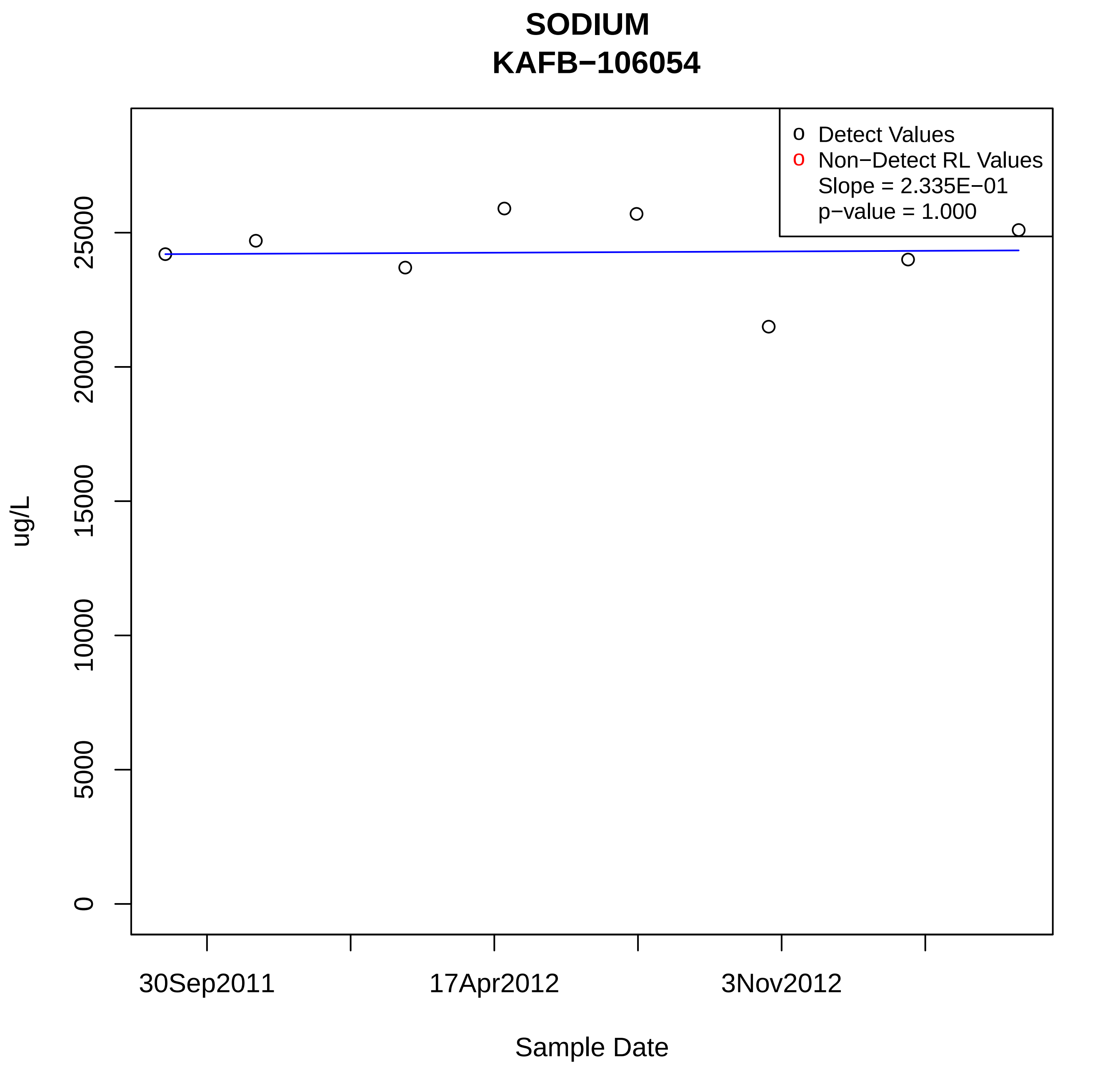
SODIUM
KAFB−106050
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −1.604E+00
p−value = 0.344

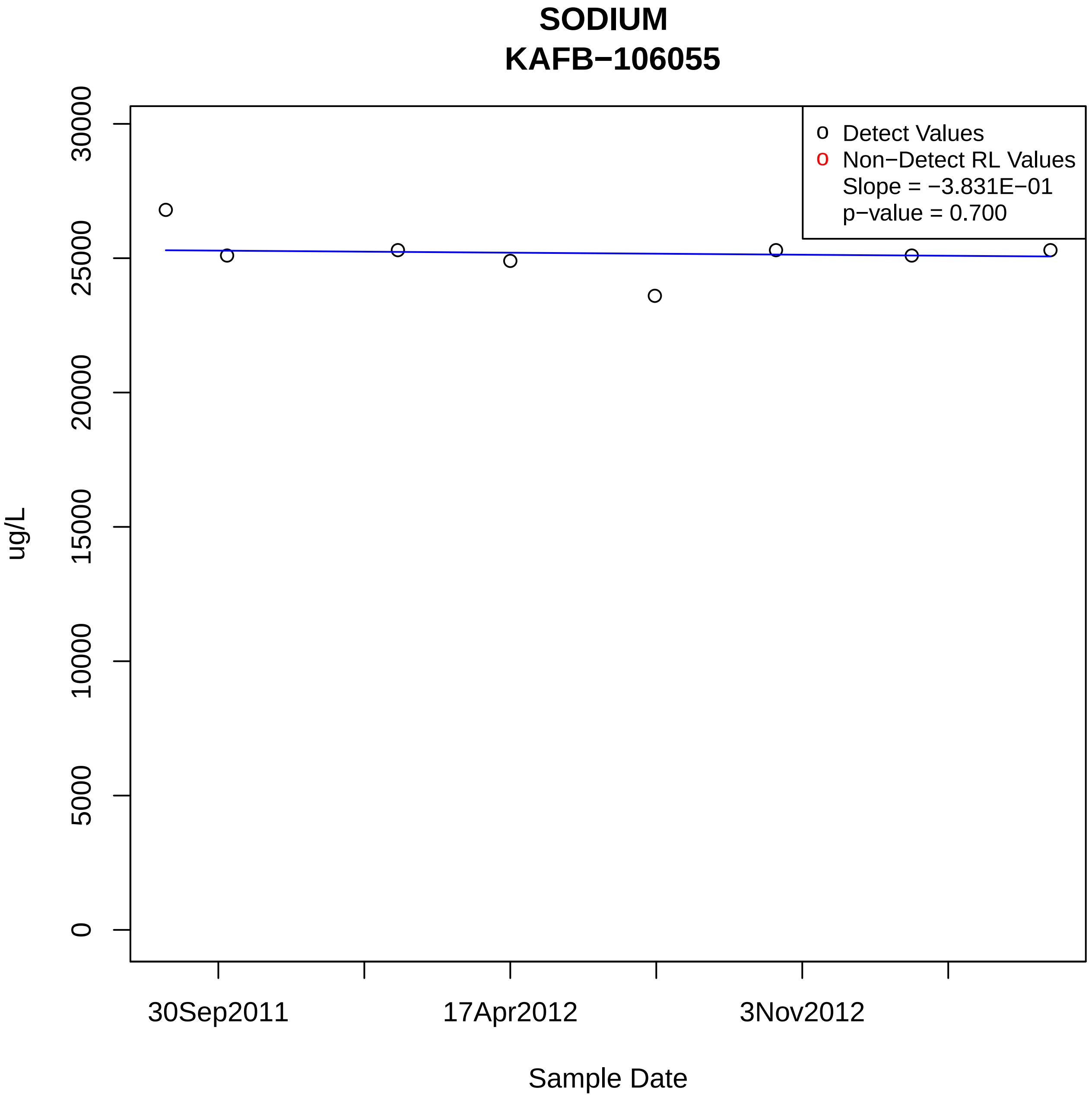

SODIUM
KAFB−106051
Detect Values
Non−Detect RL Values
Slope = −2.712E+00
p−value = 0.197
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date


SODIUM
KAFB−106052
Detect Values
Non−Detect RL Values
Slope = −1.924E+00
p−value = 0.386
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date

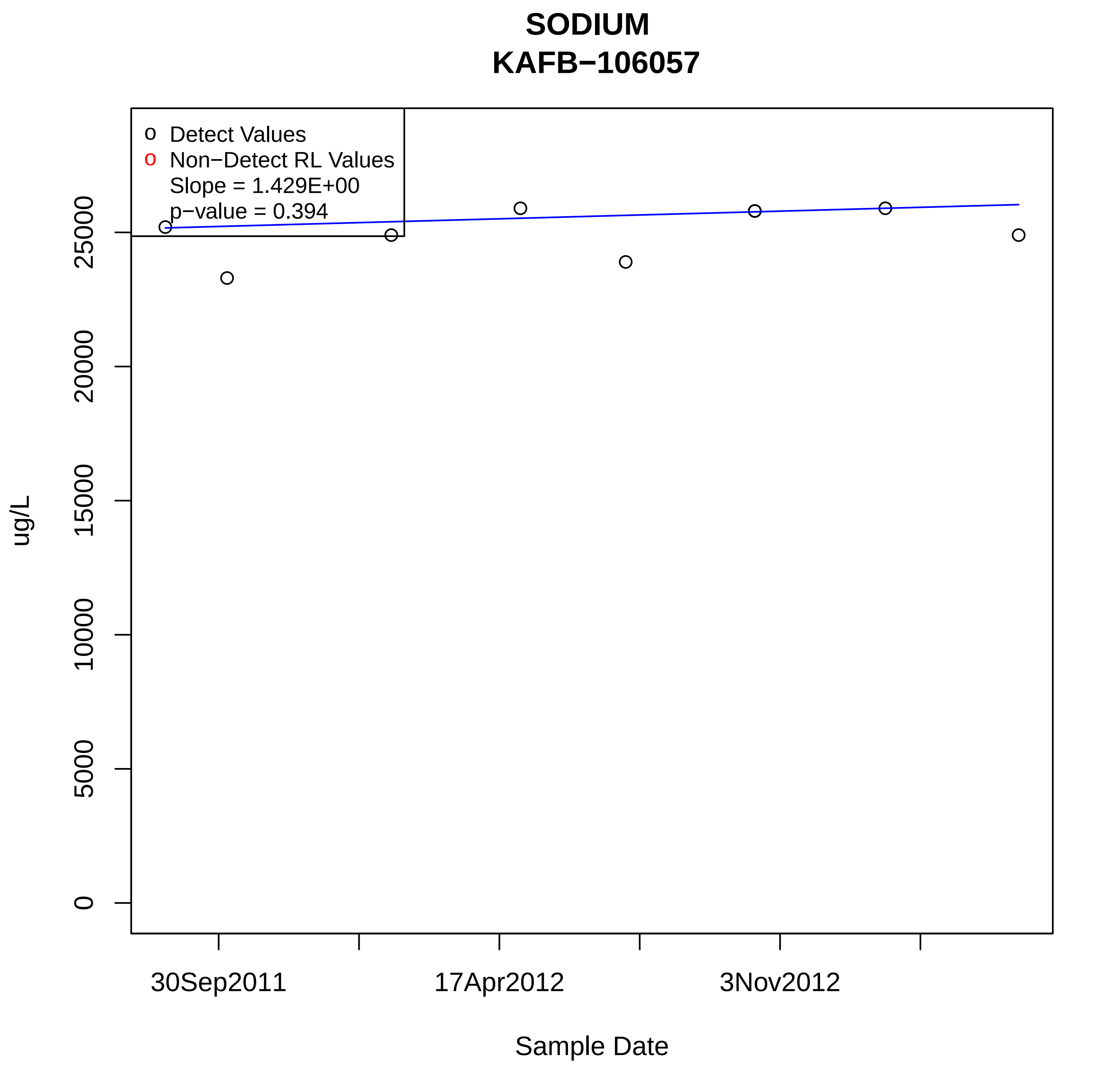


SODIUM
KAFB−106053
o Detect Values
o Non−Detect RL Values
Slope = −2.857E+00
p−value = 0.246
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date

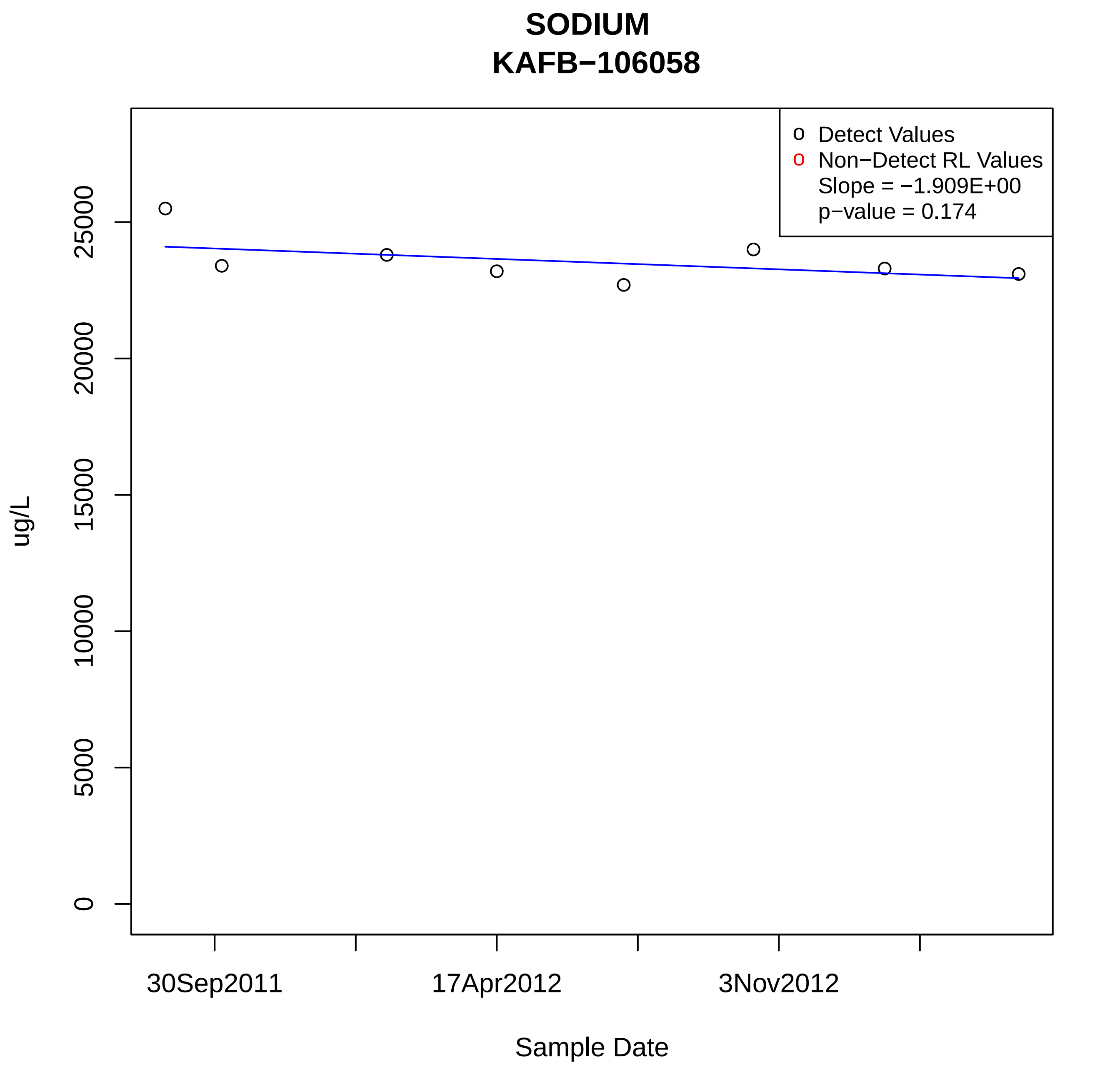

SODIUM
KAFB−106054
Detect Values
Non−Detect RL Values
Slope = 2.335E−01
p−value = 1.000
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date



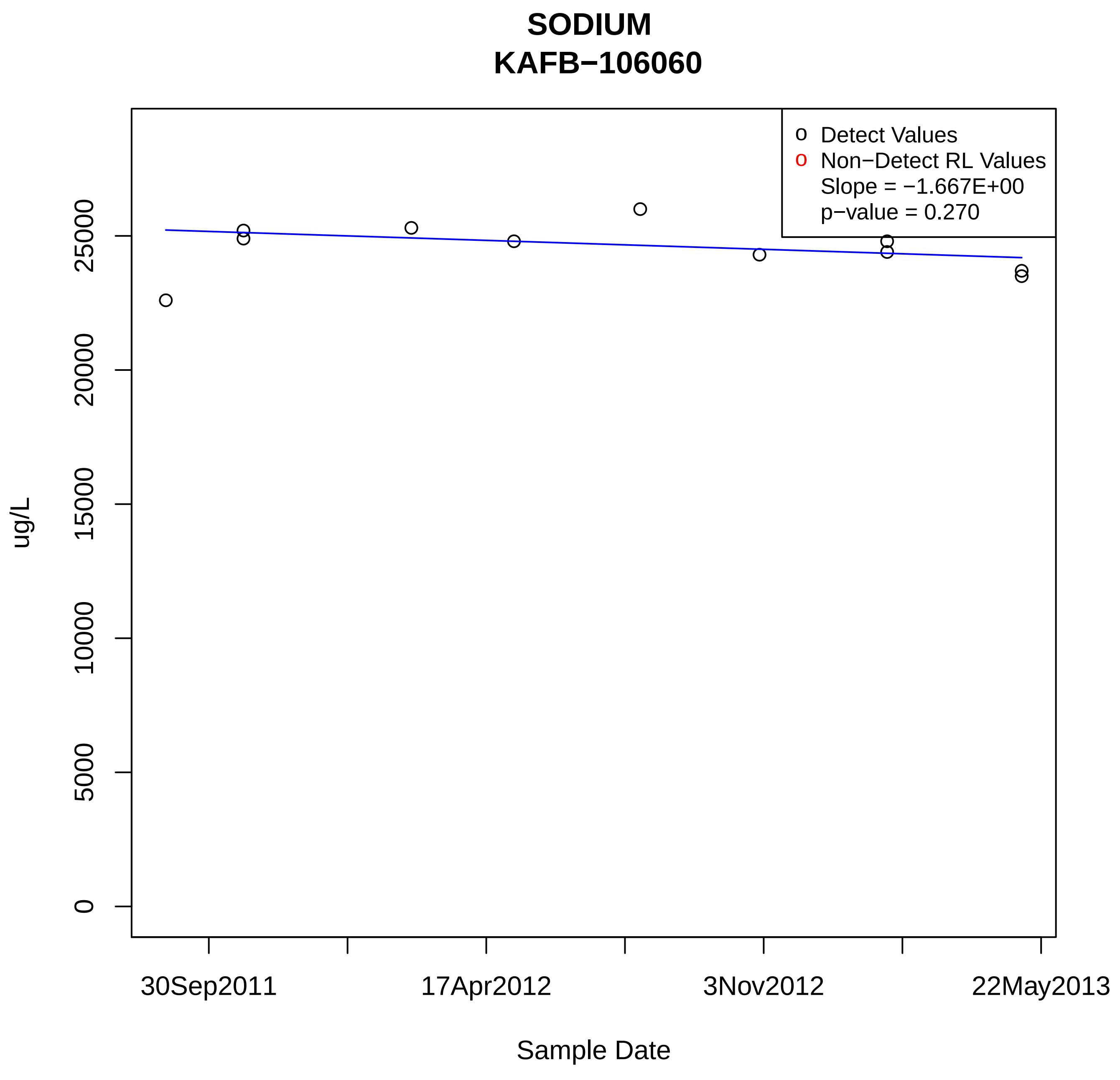
SODIUM
KAFB−106055
Detect Values
Non−Detect RL Values
Slope = −3.831E−01
p−value = 0.700
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date

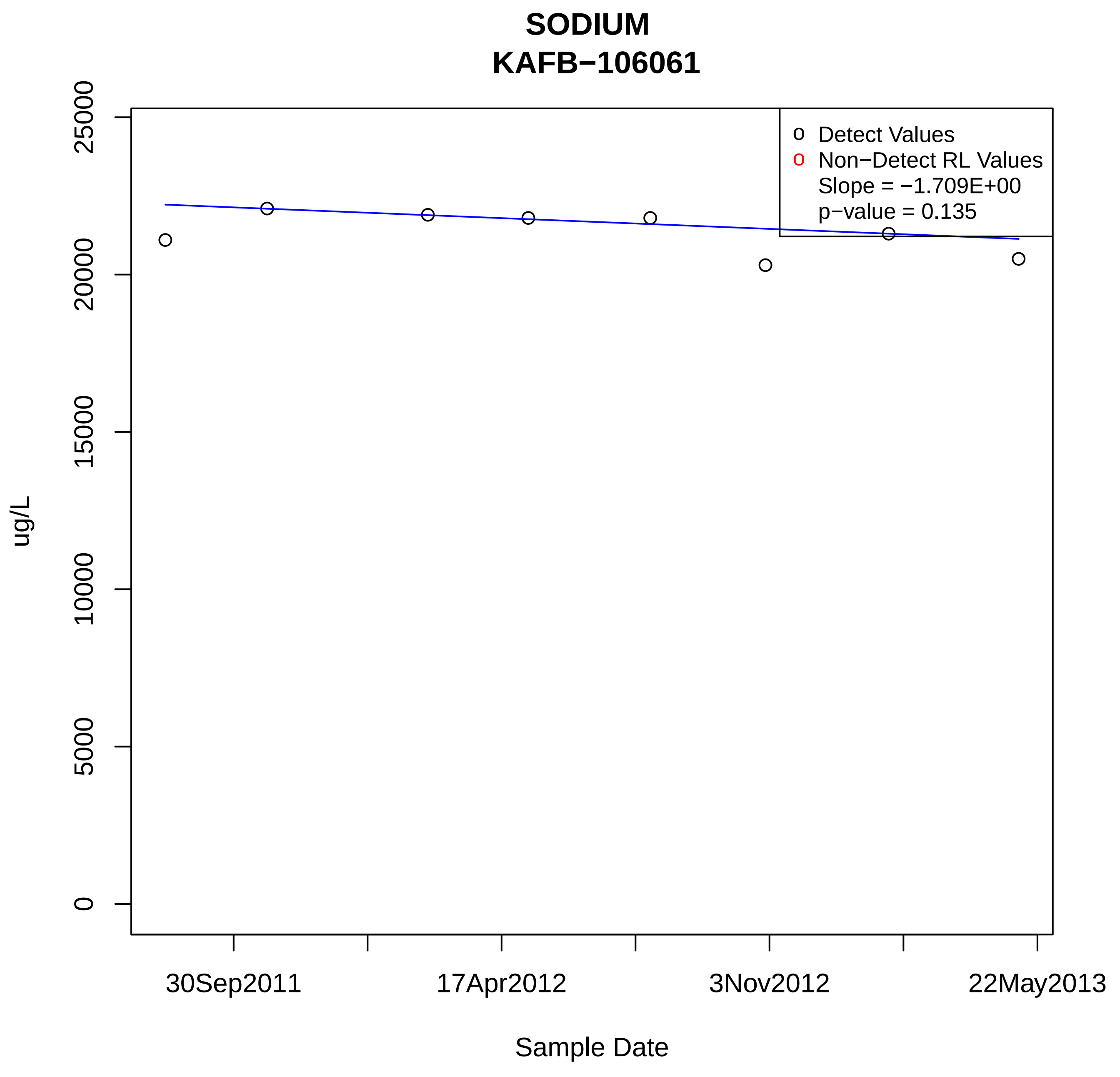


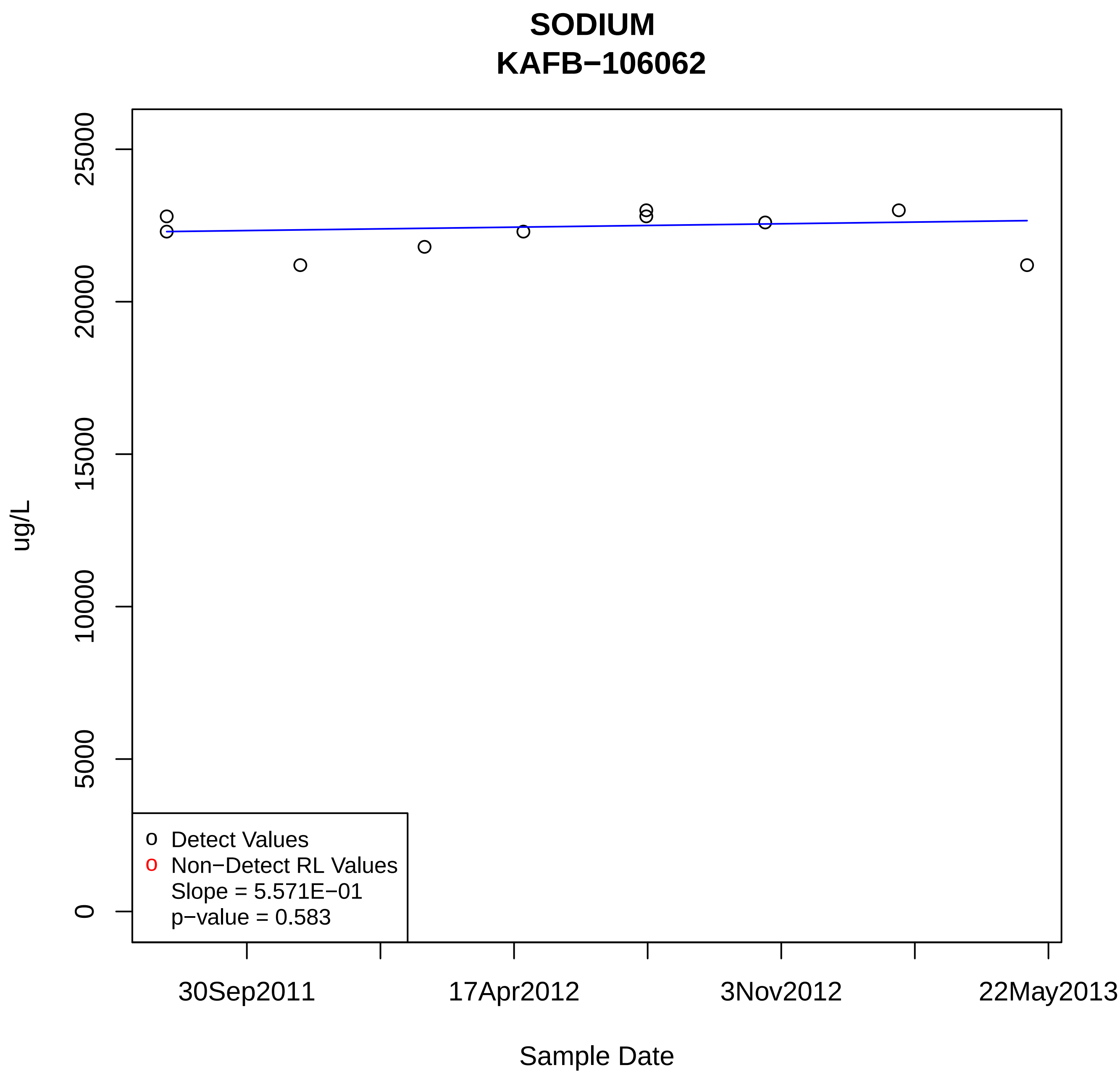
SODIUM
KAFB−106057
Detect Values
Non−Detect RL Values
Slope = 1.429E+00
p−value = 0.394
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date

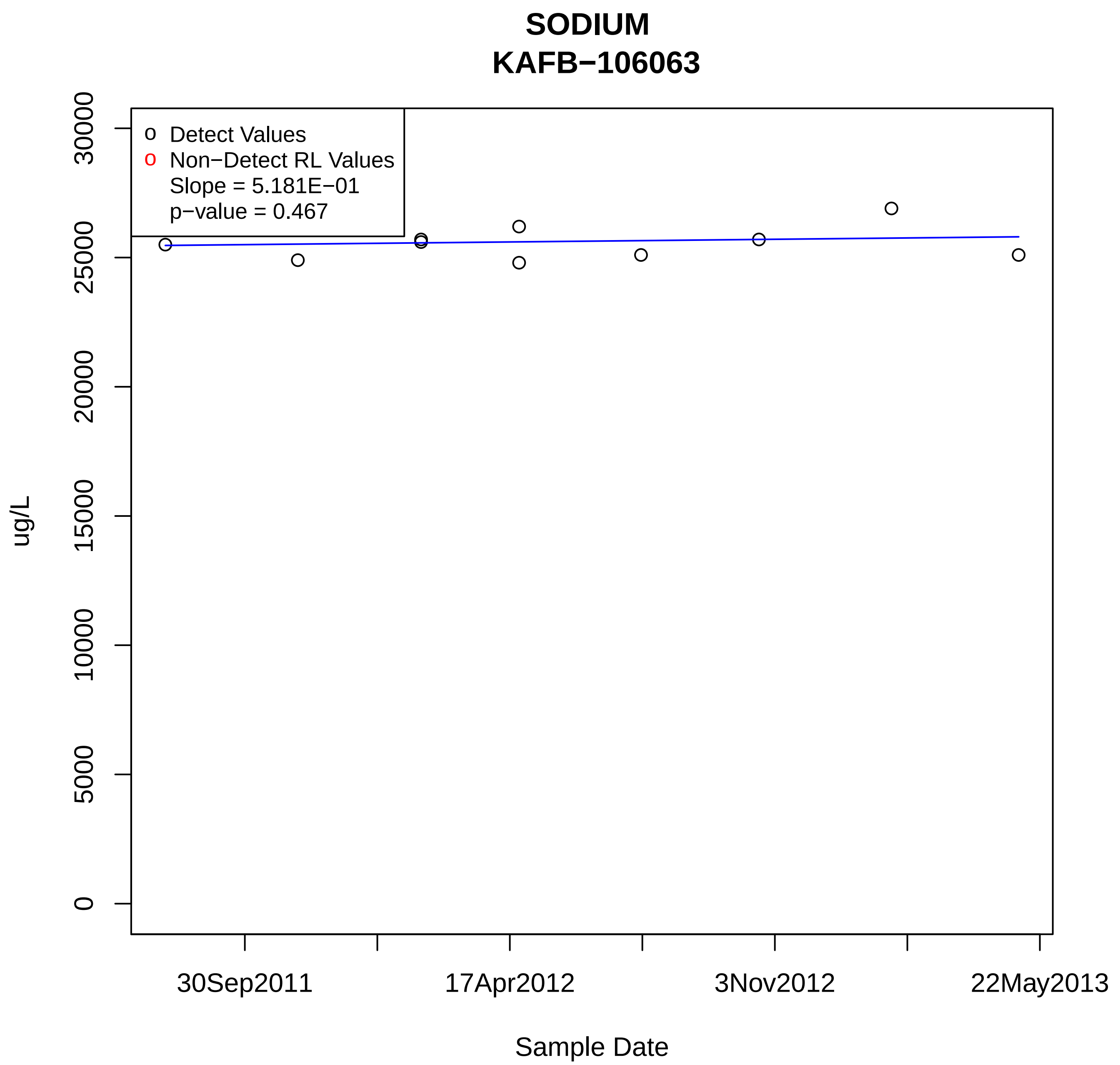


SODIUM
KAFB−106058
o Detect Values
o Non−Detect RL Values
Slope = −1.909E+00
p−value = 0.174
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date

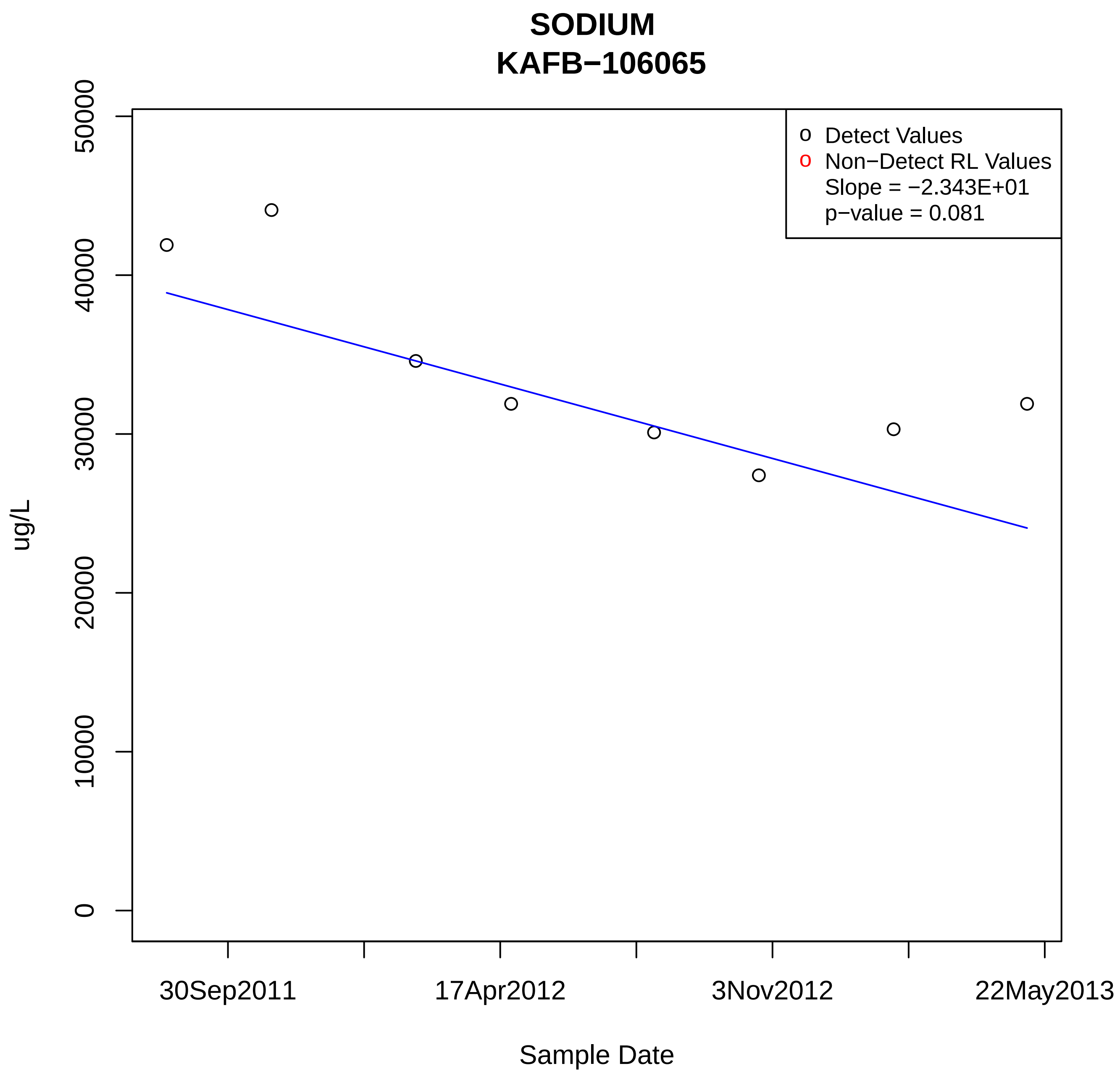

SODIUM
KAFB−106060
Detect Values
Non−Detect RL Values
Slope = −1.667E+00
p−value = 0.270
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

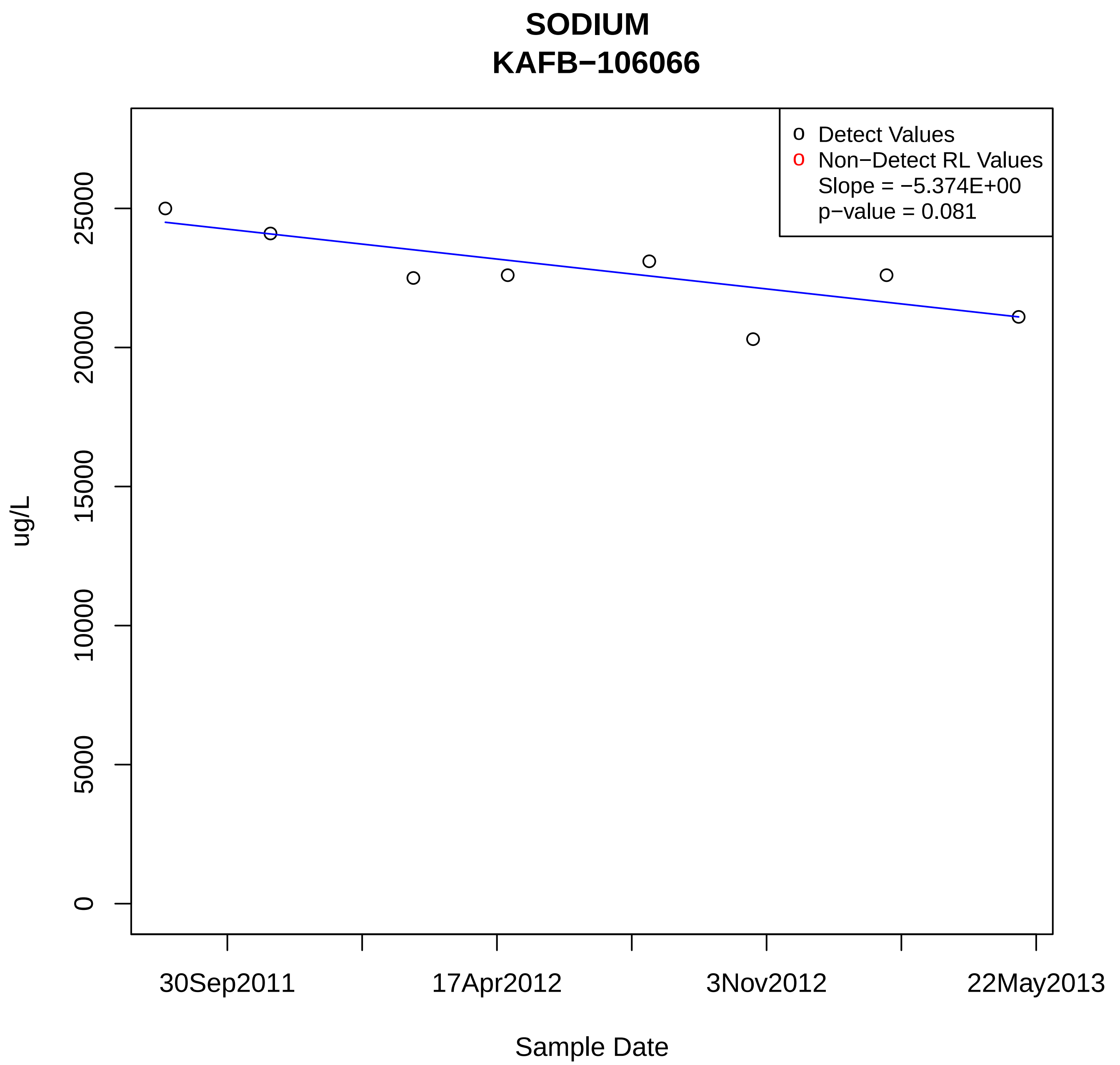

SODIUM
KAFB−106061
Detect Values
Non−Detect RL Values
Slope = −1.709E+00
p−value = 0.135
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

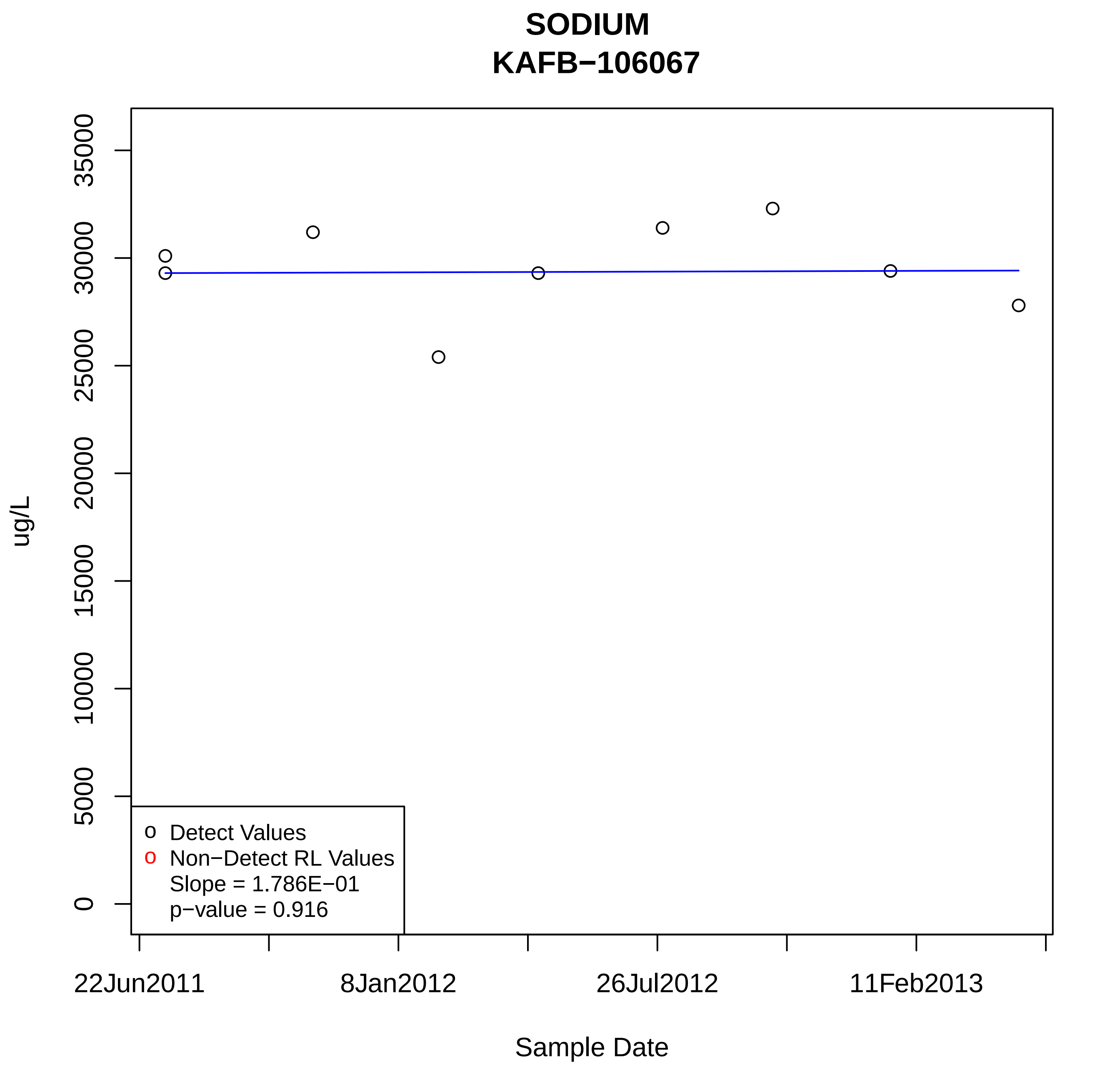

SODIUM
KAFB−106062
25000
20000
15000
10000
5000
0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 5.571E−01
p−value = 0.583

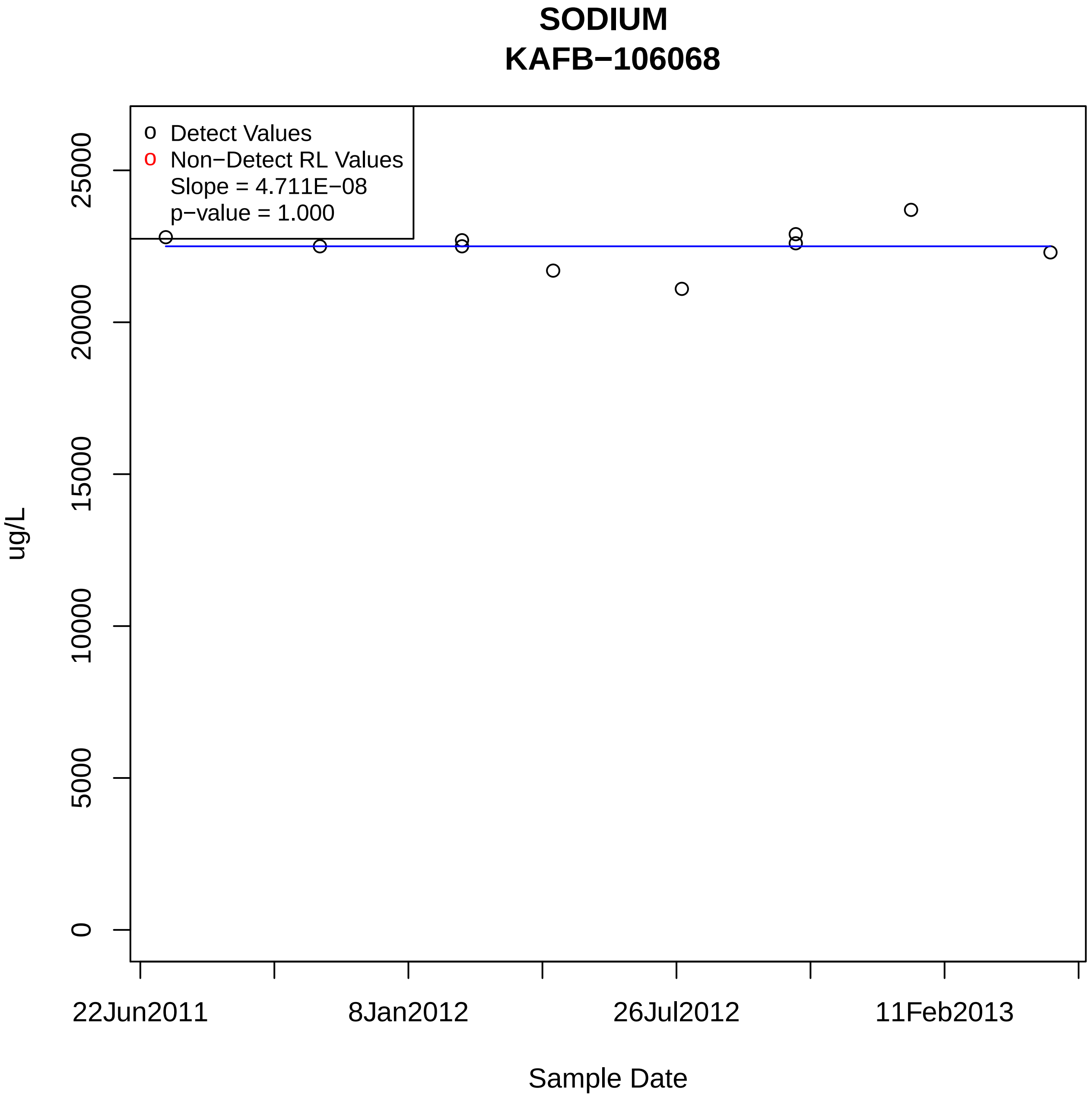


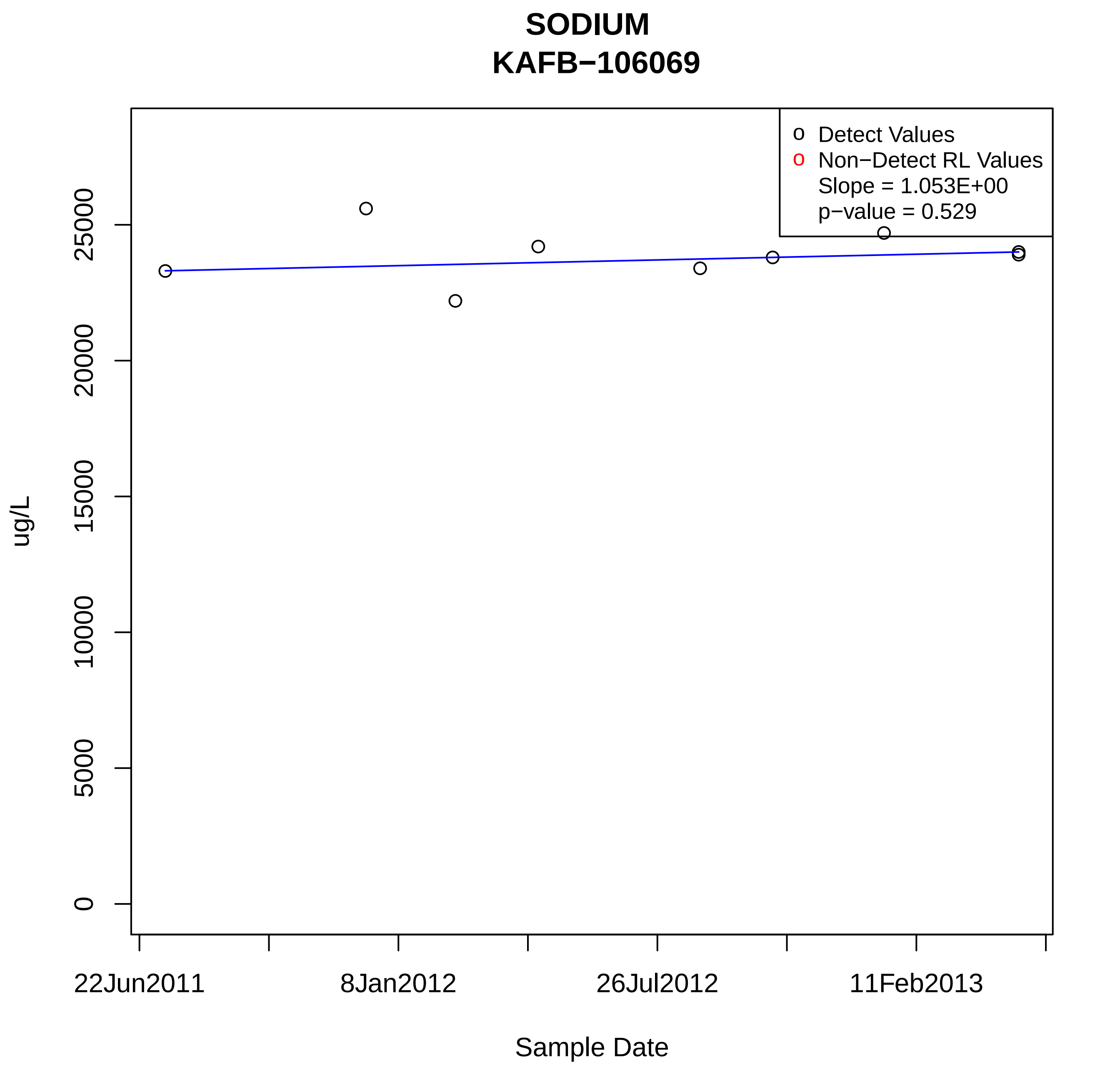
SODIUM
KAFB−106063
o Detect Values
o Non−Detect RL Values
Slope = 5.181E−01
p−value = 0.467
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

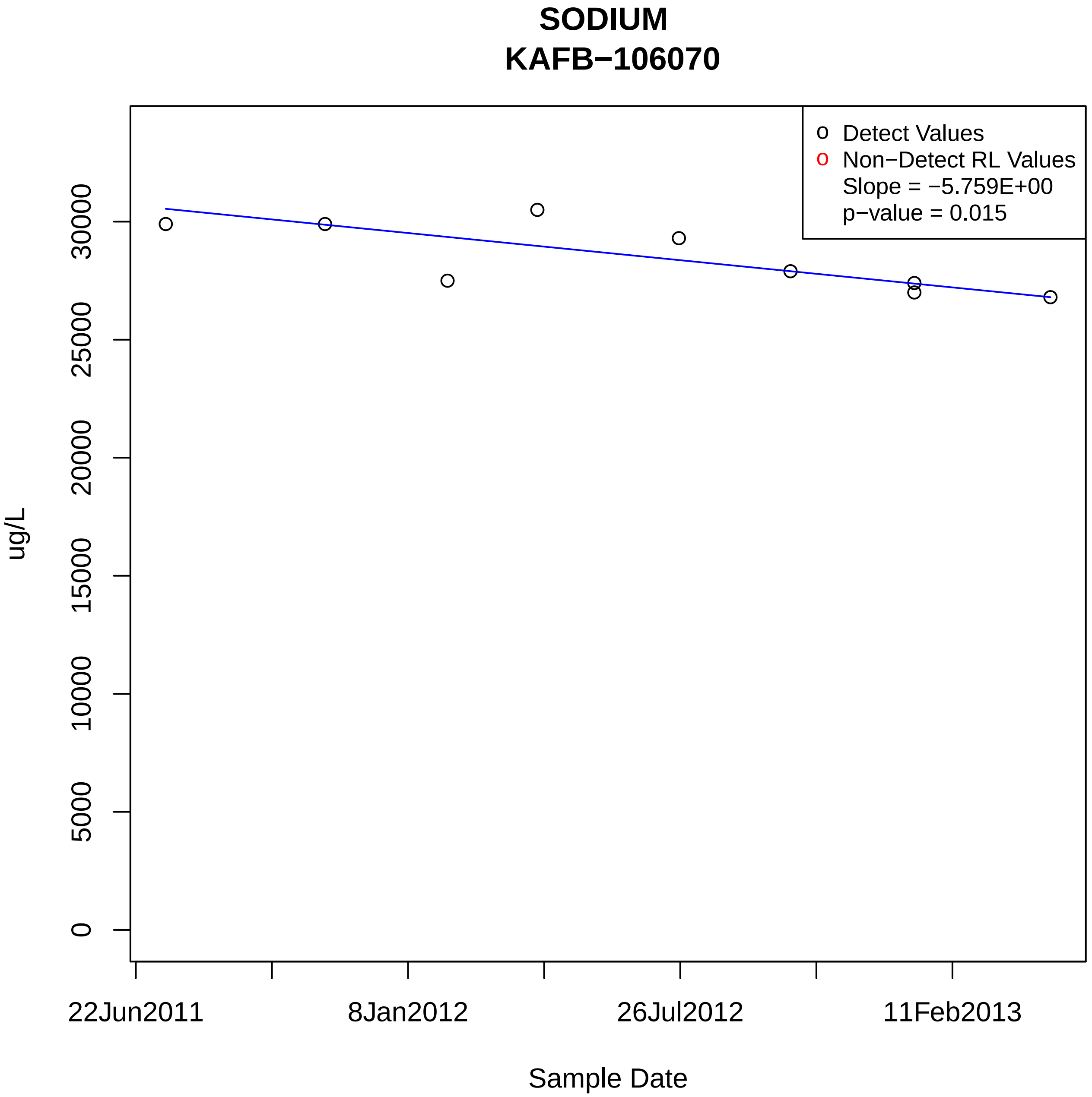

SODIUM
KAFB−106065
o Detect Values
o Non−Detect RL Values
Slope = −2.343E+01
p−value = 0.081
ug/L
0
10000
20000
30000
40000
50000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


SODIUM
KAFB−106066
o Detect Values
o Non−Detect RL Values
Slope = −5.374E+00
p−value = 0.081
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

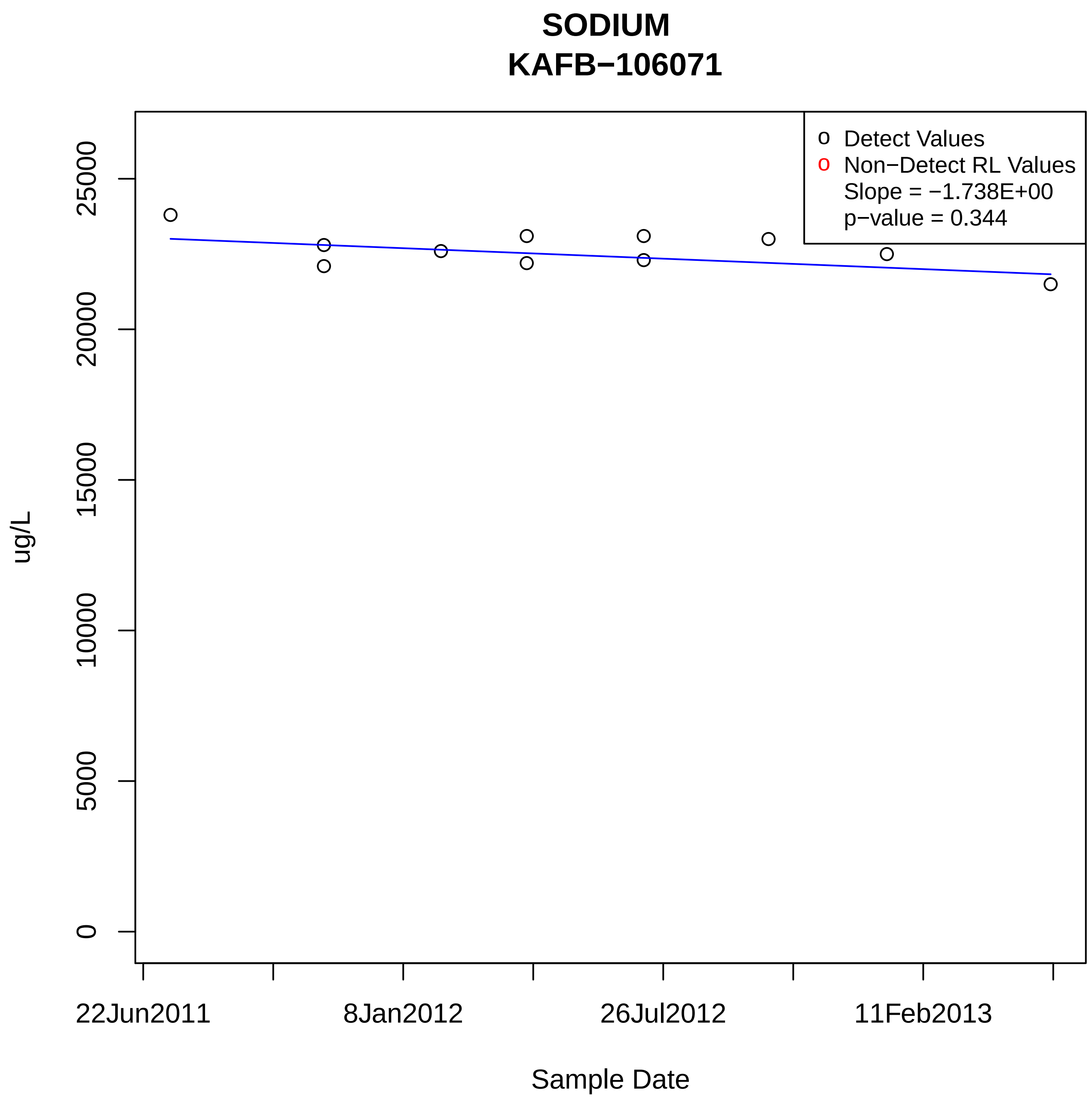

SODIUM
KAFB−106067
ug/L
0
5000
10000
15000
20000
25000
30000
35000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.786E−01
p−value = 0.916

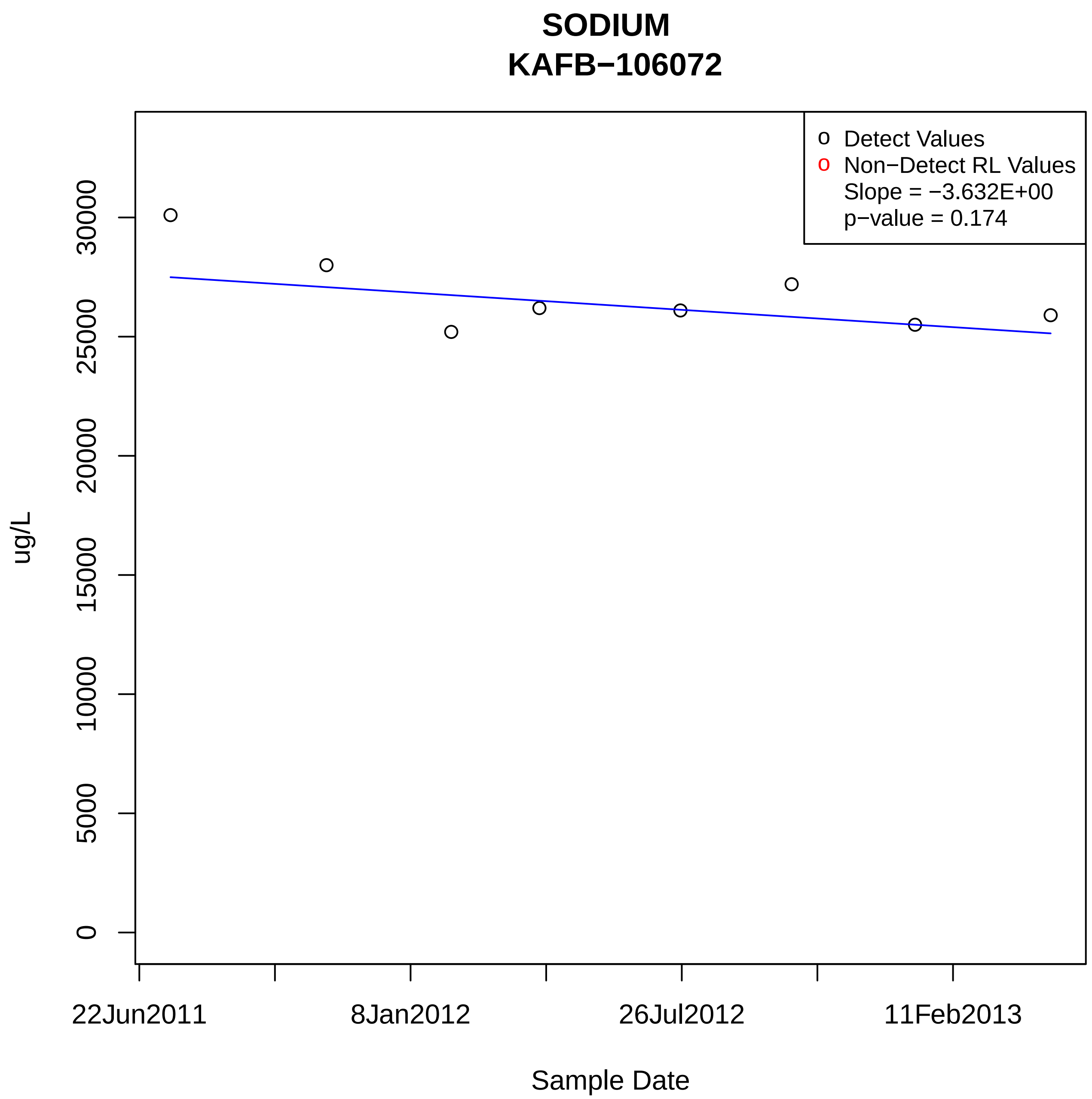

SODIUM
KAFB−106068
o Detect Values
o Non−Detect RL Values
Slope = 4.711E−08
p−value = 1.000
ug/L
0
5000
10000
15000
20000
25000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

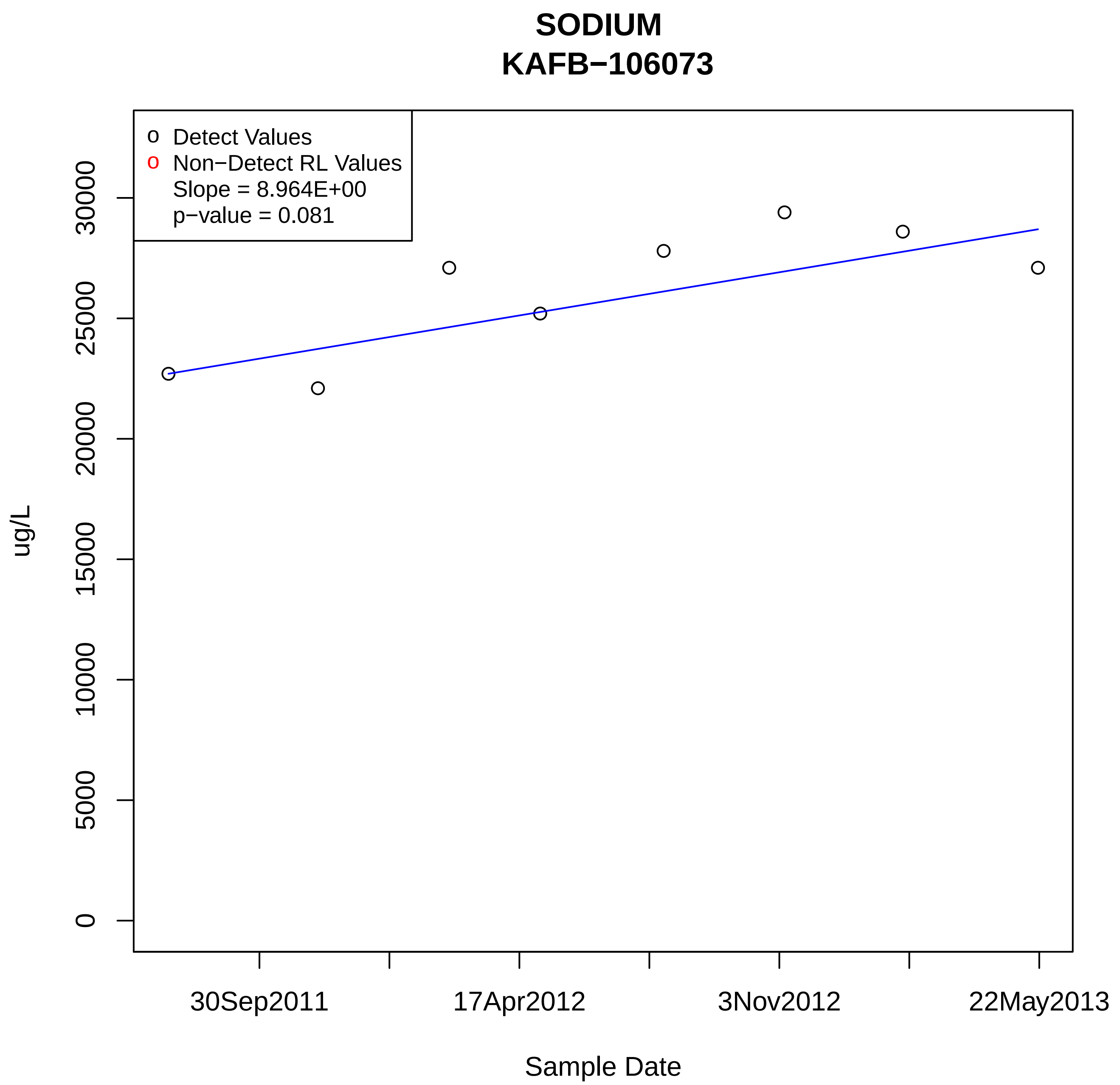

SODIUM
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = 1.053E+00
p−value = 0.529
ug/L
0
5000
10000
15000
20000
25000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



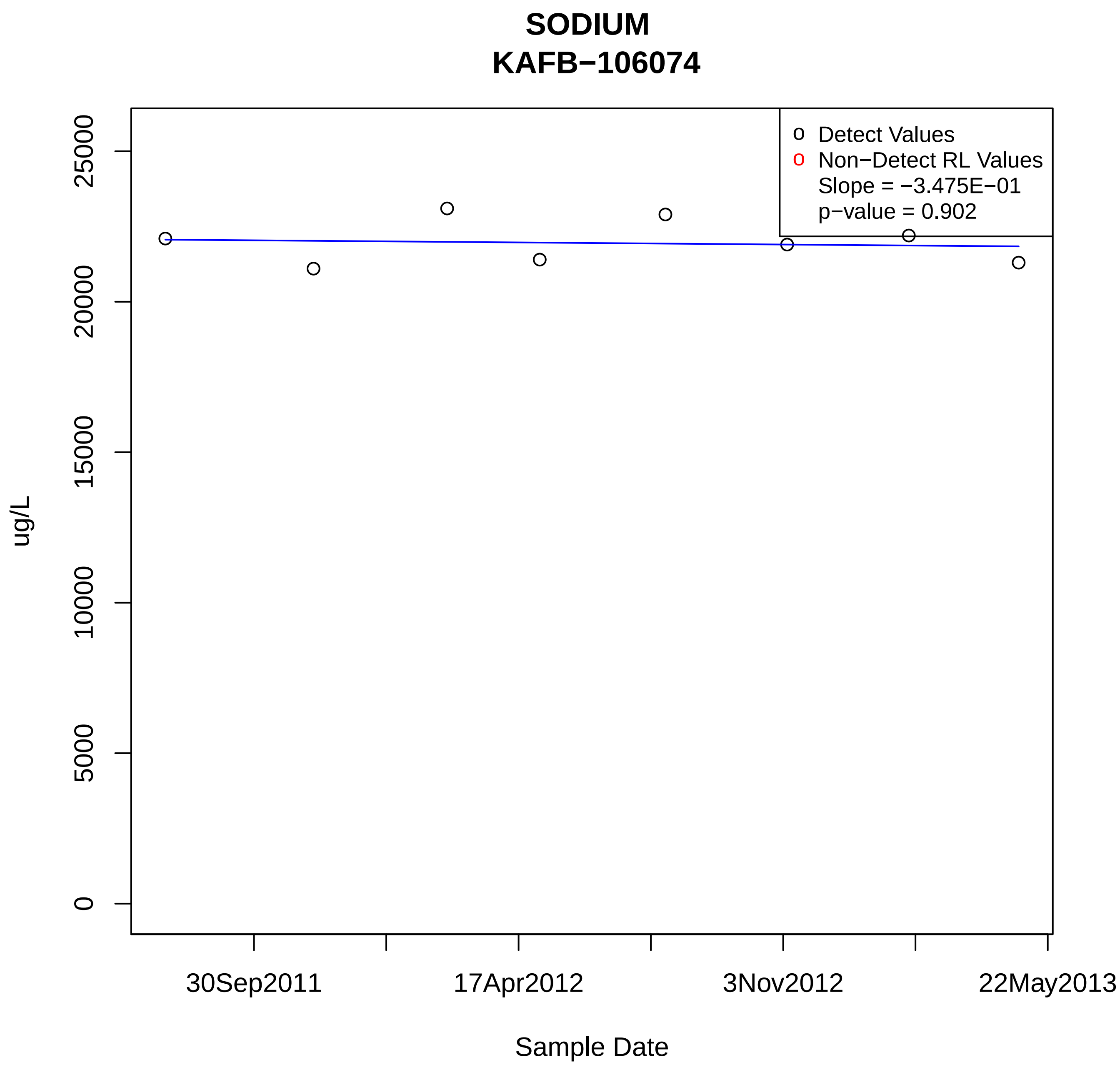
SODIUM
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = −5.759E+00
p−value = 0.015
ug/L
0
5000
10000
15000
20000
25000
30000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


SODIUM
KAFB−106071
Detect Values
Non−Detect RL Values
Slope = −1.738E+00
p−value = 0.344
ug/L
0
5000
10000
15000
20000
25000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

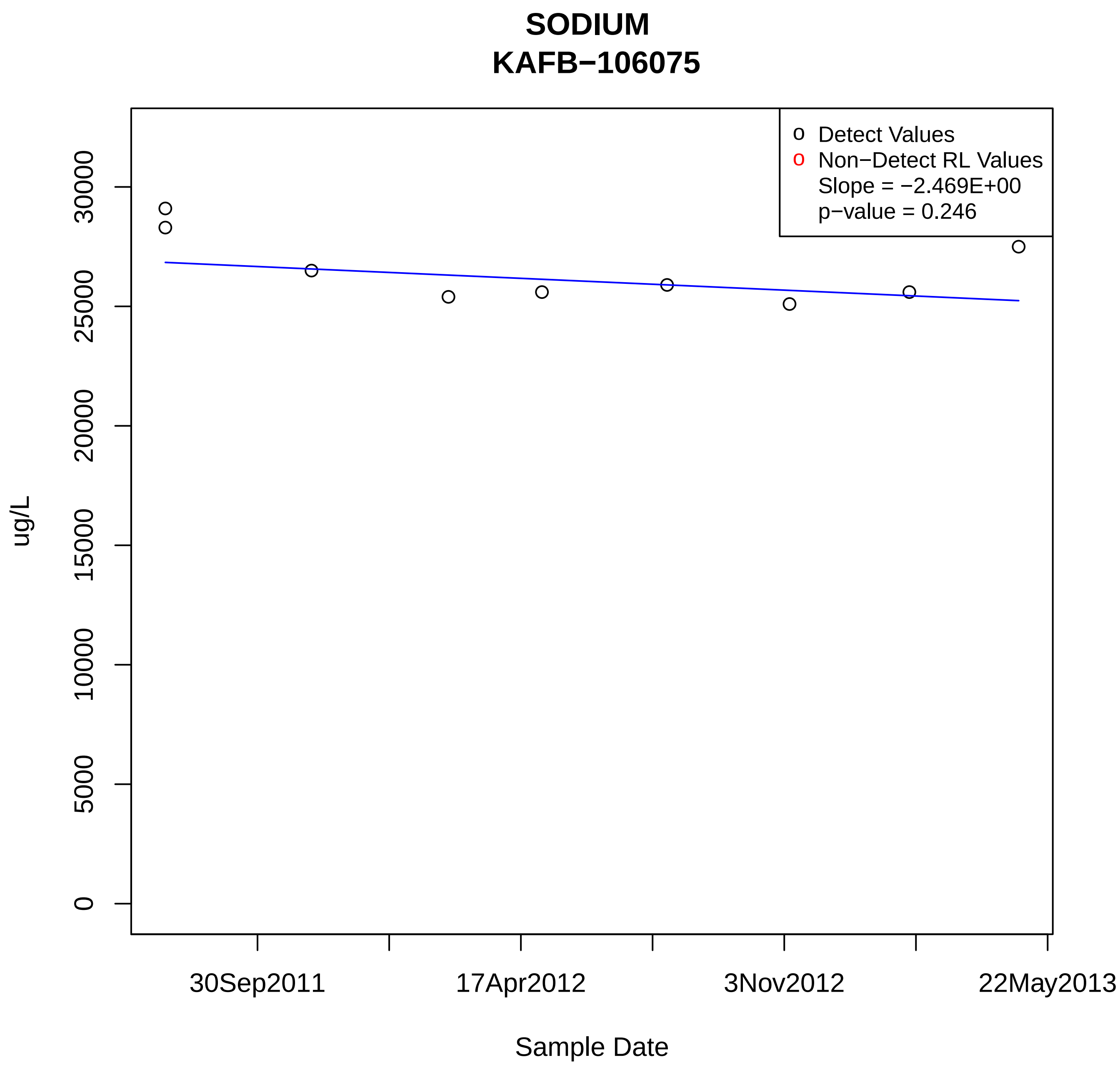

SODIUM
KAFB−106072
Detect Values
Non−Detect RL Values
Slope = −3.632E+00
p−value = 0.174
ug/L
0
5000
10000
15000
20000
25000
30000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



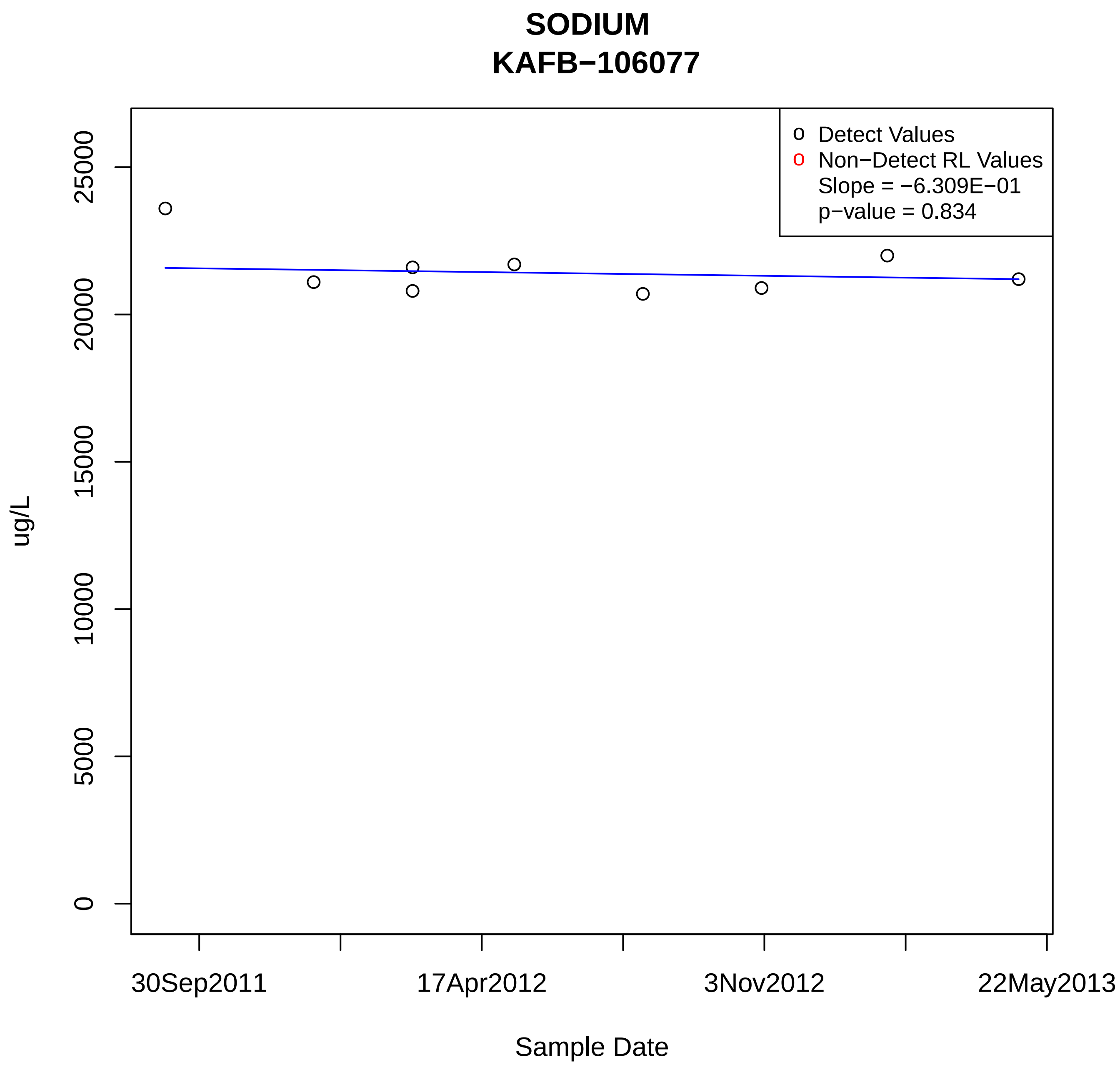
SODIUM
KAFB−106073
o Detect Values
o Non−Detect RL Values
Slope = 8.964E+00
p−value = 0.081
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



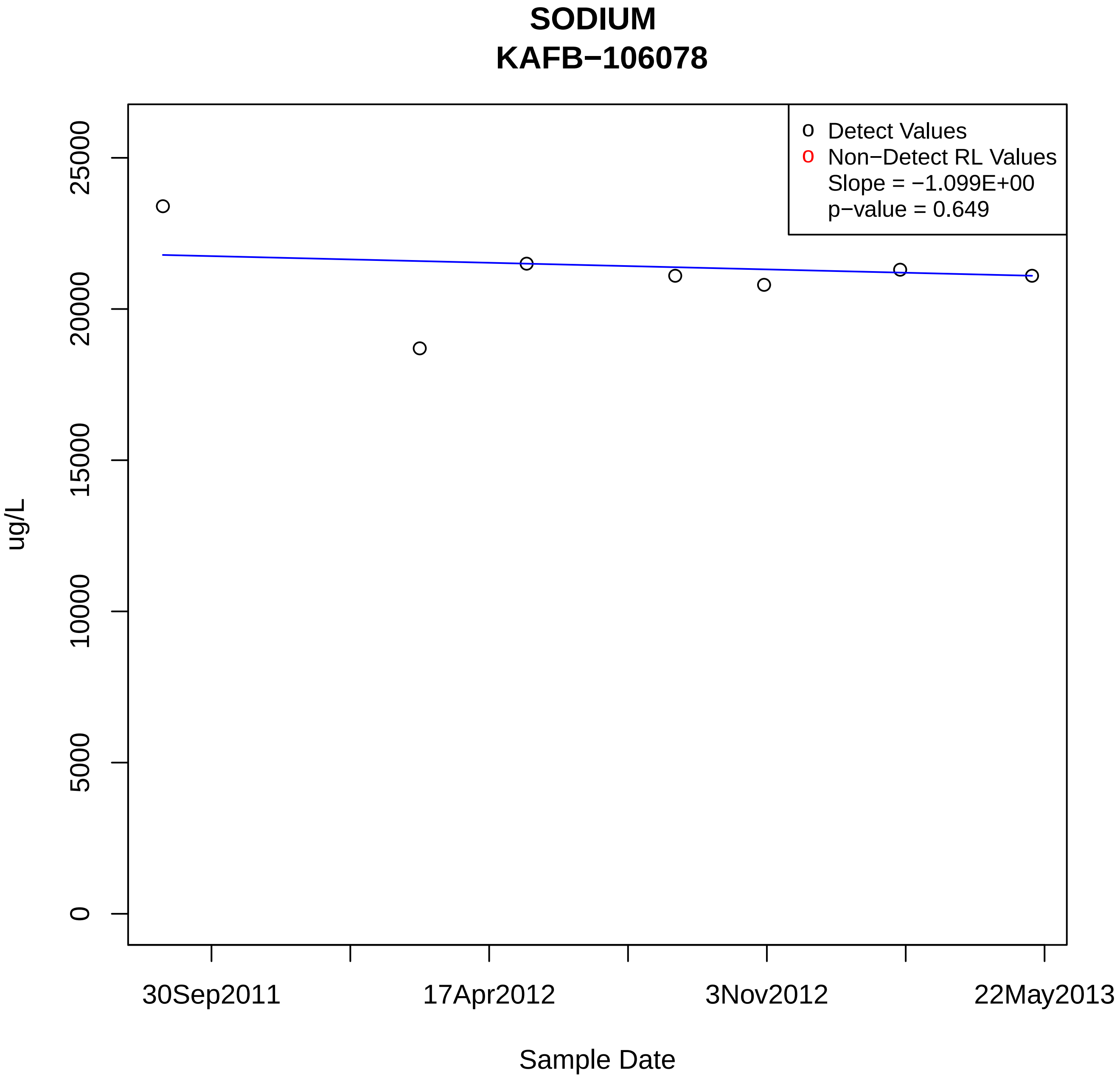
SODIUM
KAFB−106074
Detect Values
Non−Detect RL Values
Slope = −3.475E−01
p−value = 0.902
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



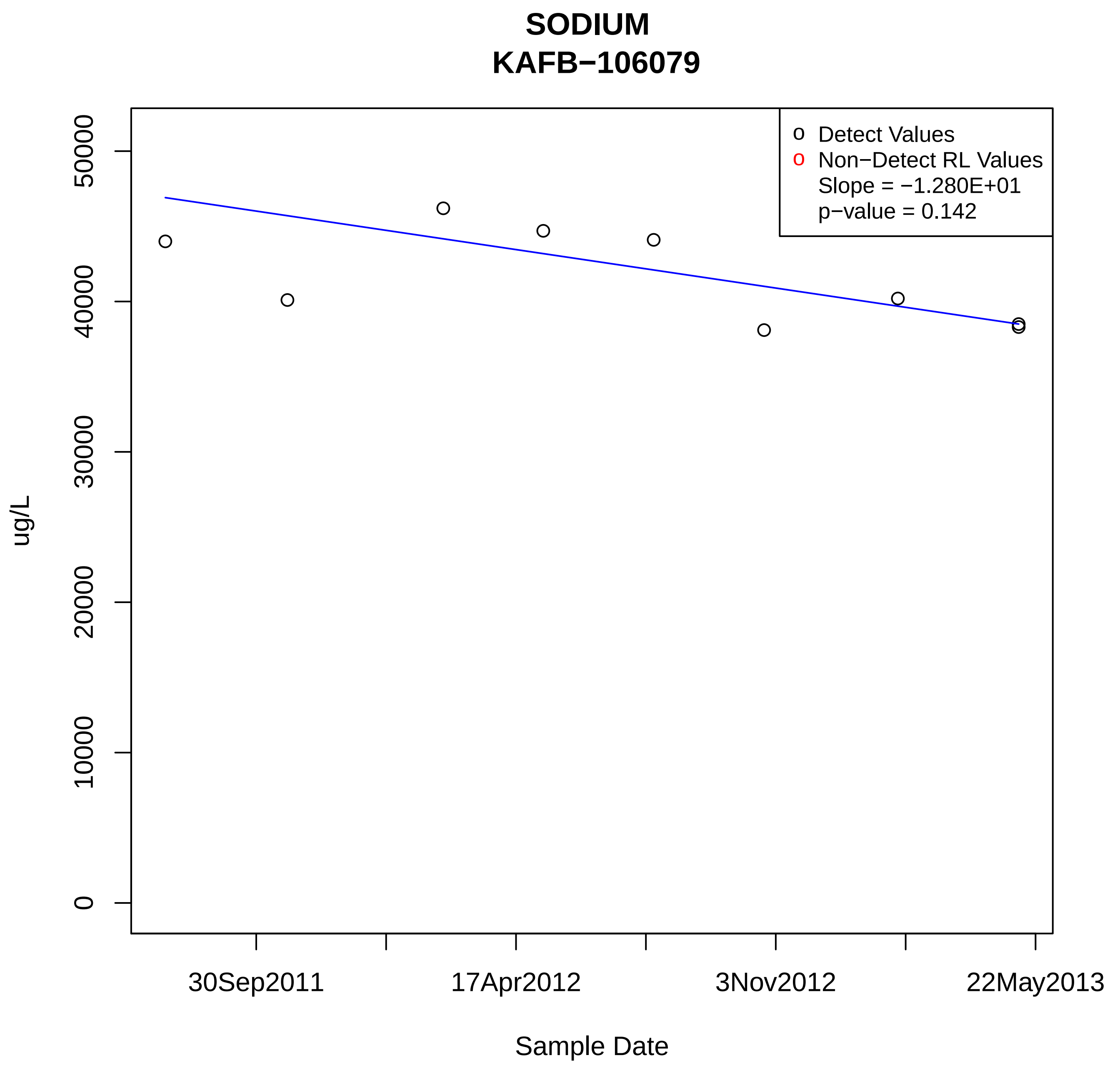
SODIUM
KAFB−106075
o Detect Values
o Non−Detect RL Values
Slope = −2.469E+00
p−value = 0.246
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



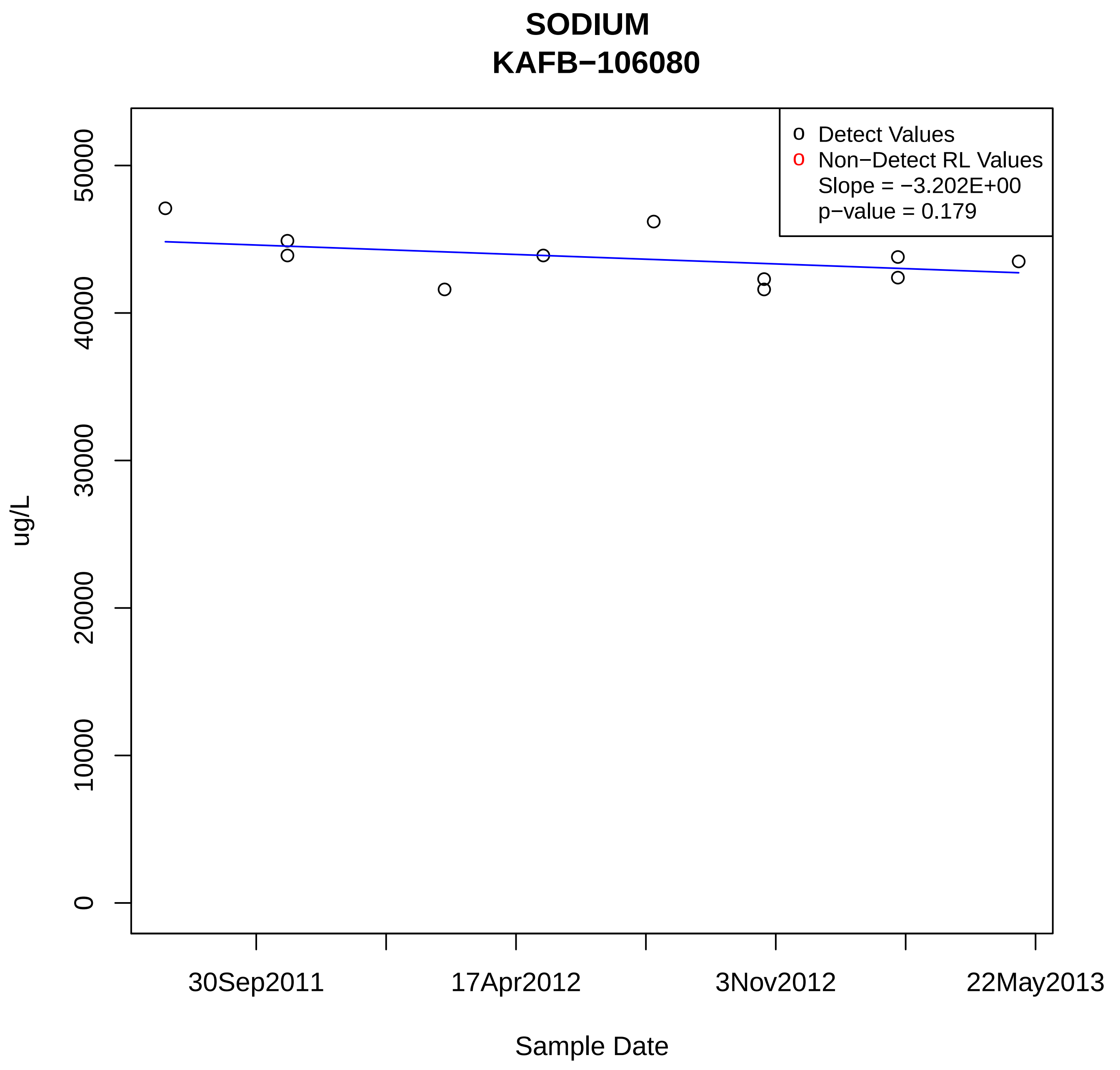
SODIUM
KAFB−106077
Detect Values
Non−Detect RL Values
Slope = −6.309E−01
p−value = 0.834
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



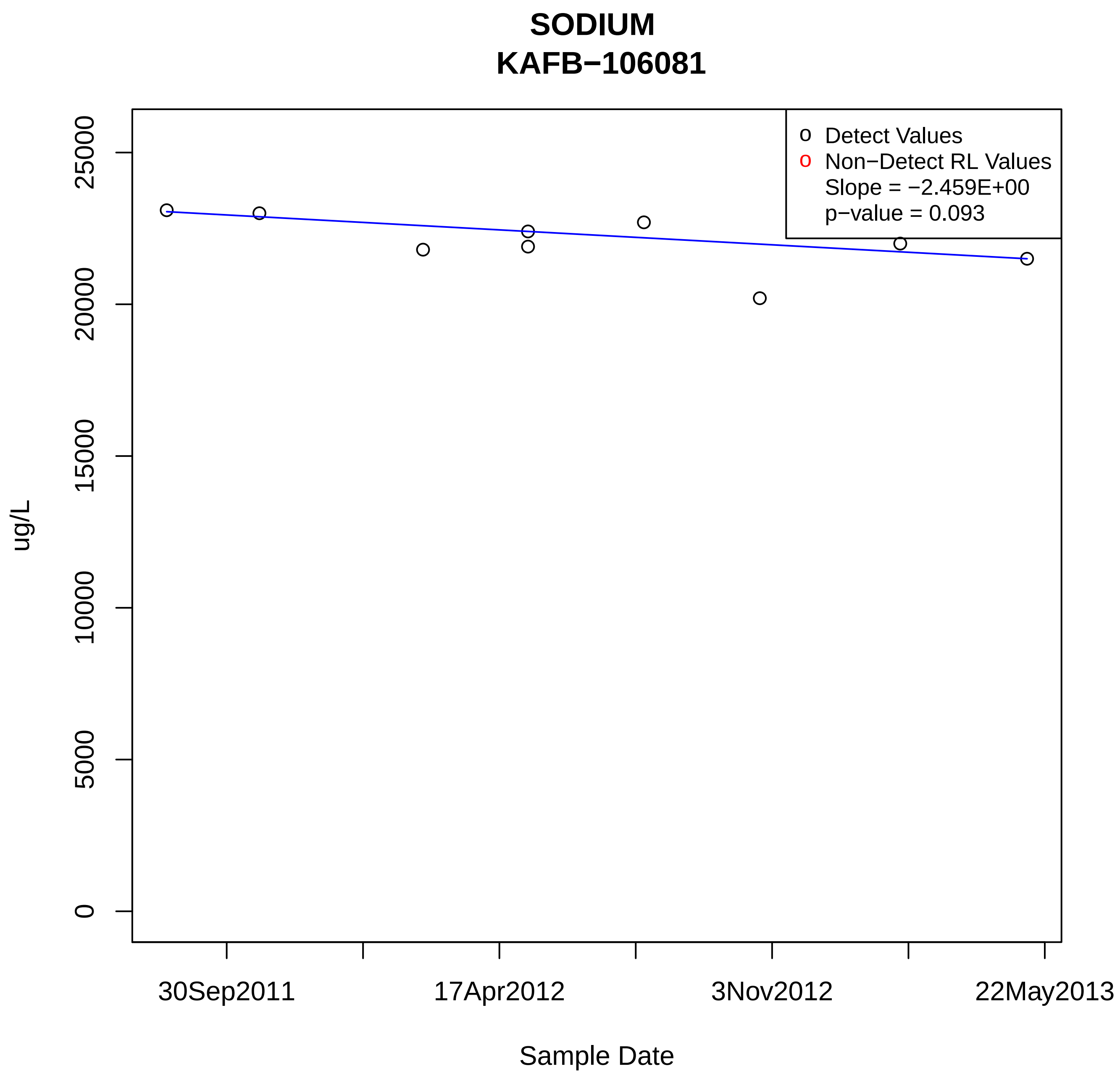
SODIUM
KAFB−106078
Detect Values
Non−Detect RL Values
Slope = −1.099E+00
p−value = 0.649
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

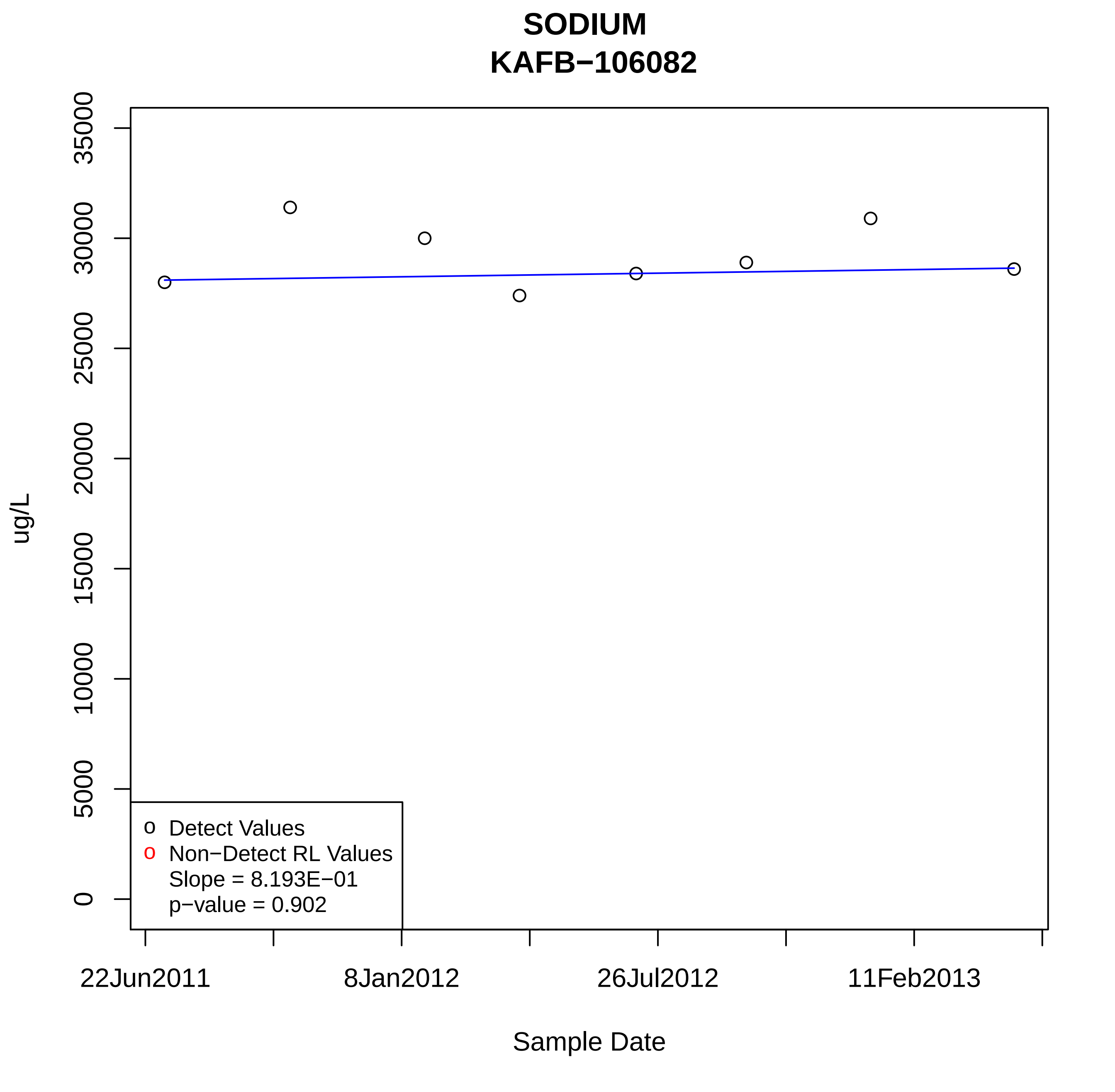


SODIUM
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −1.280E+01
p−value = 0.142
ug/L
0
10000
20000
30000
40000
50000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

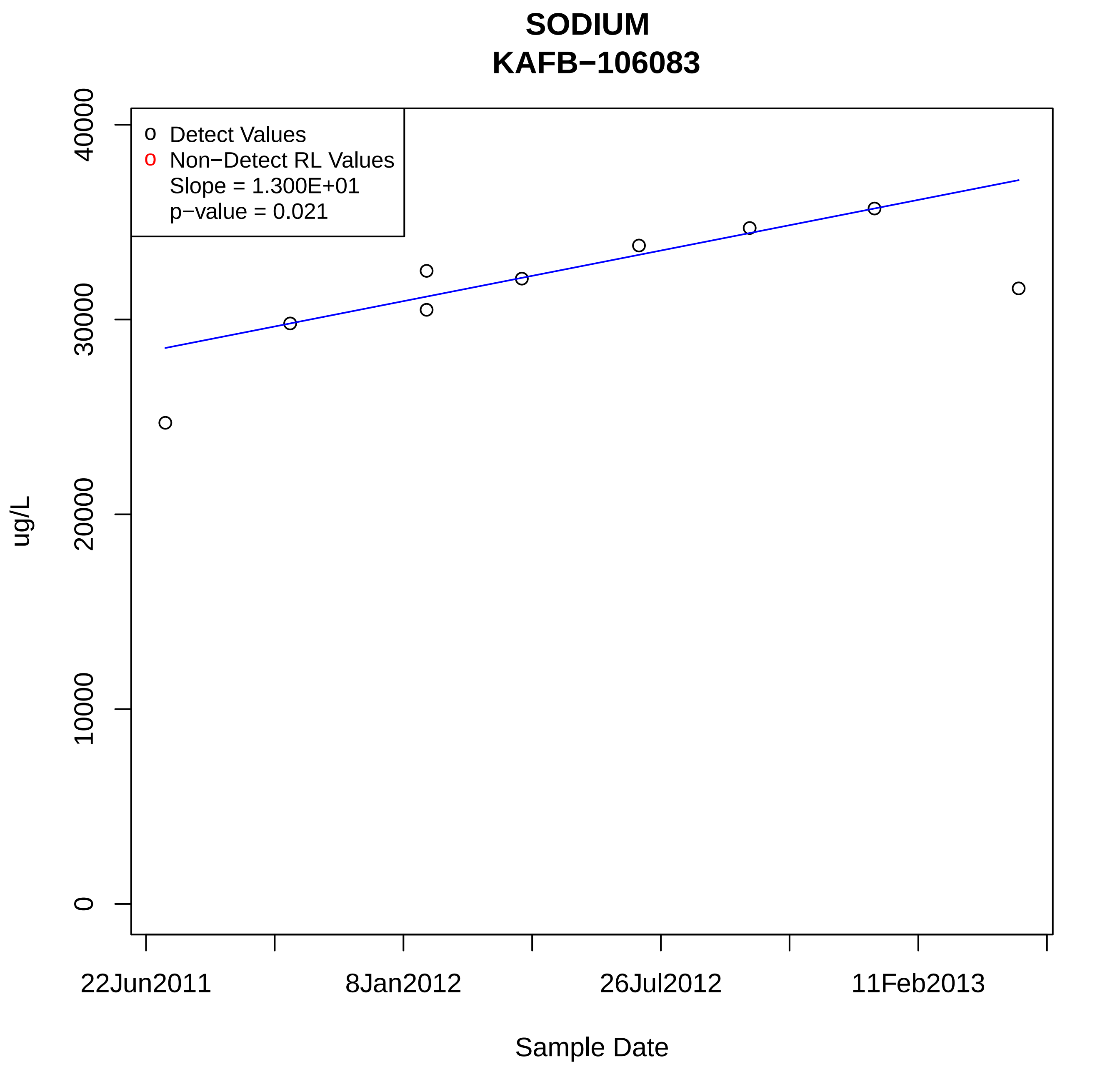


SODIUM
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −3.202E+00
p−value = 0.179
ug/L
0
10000
20000
30000
40000
50000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

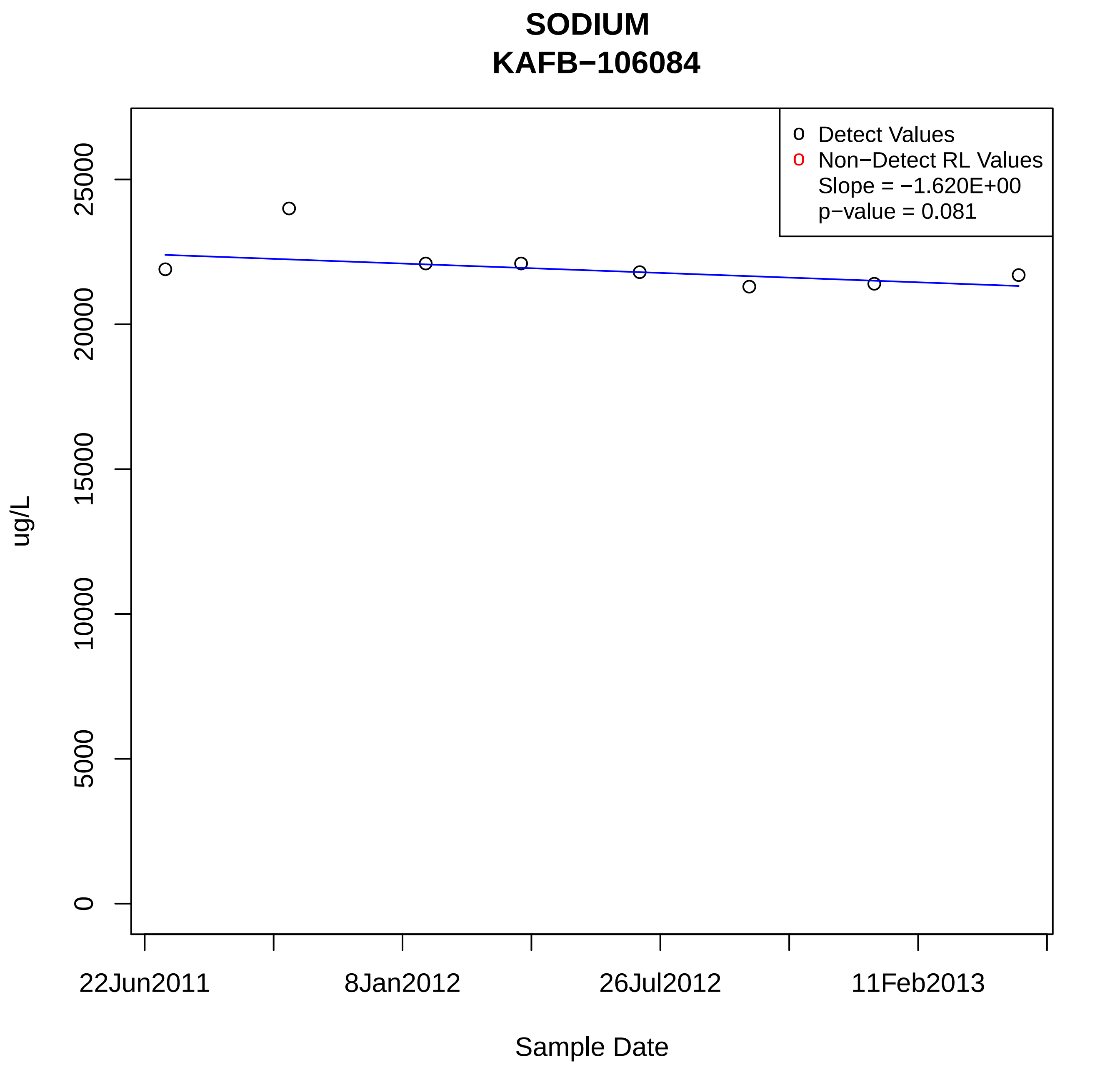

SODIUM
KAFB−106081
o Detect Values
o Non−Detect RL Values
Slope = −2.459E+00
p−value = 0.093
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

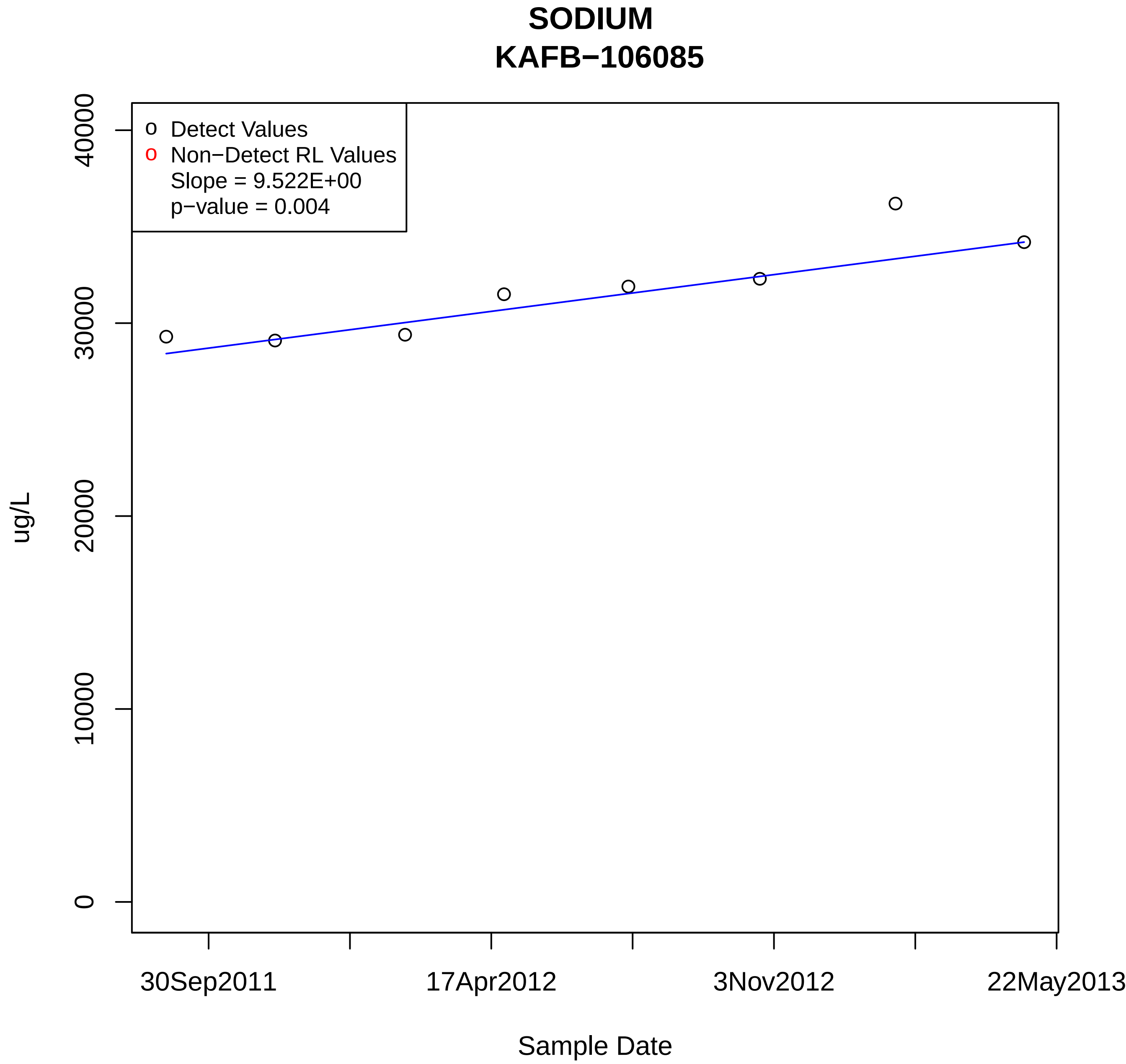


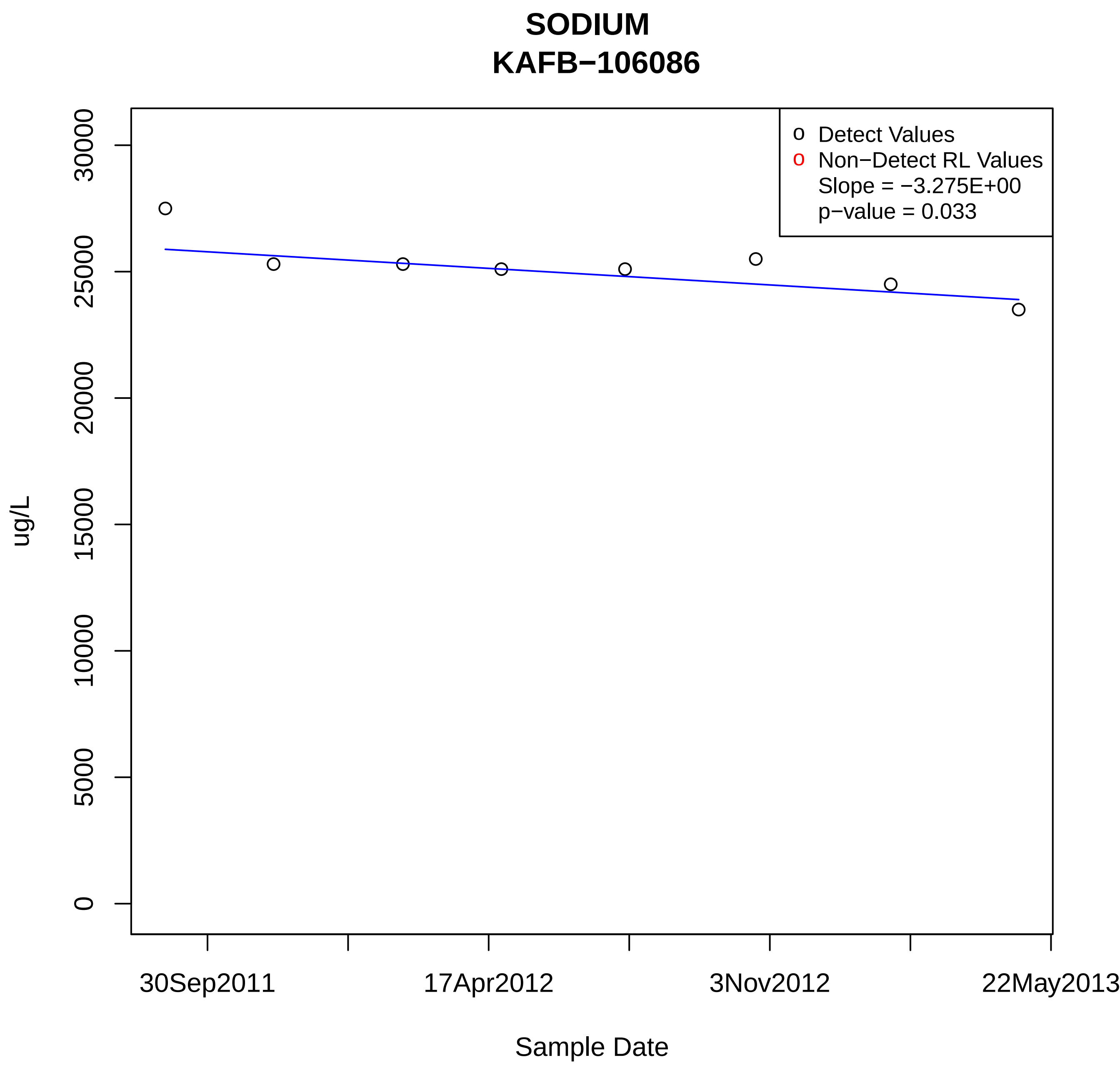
SODIUM
KAFB−106082
ug/L
0
5000
10000
15000
20000
25000
30000
35000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 8.193E−01
p−value = 0.902



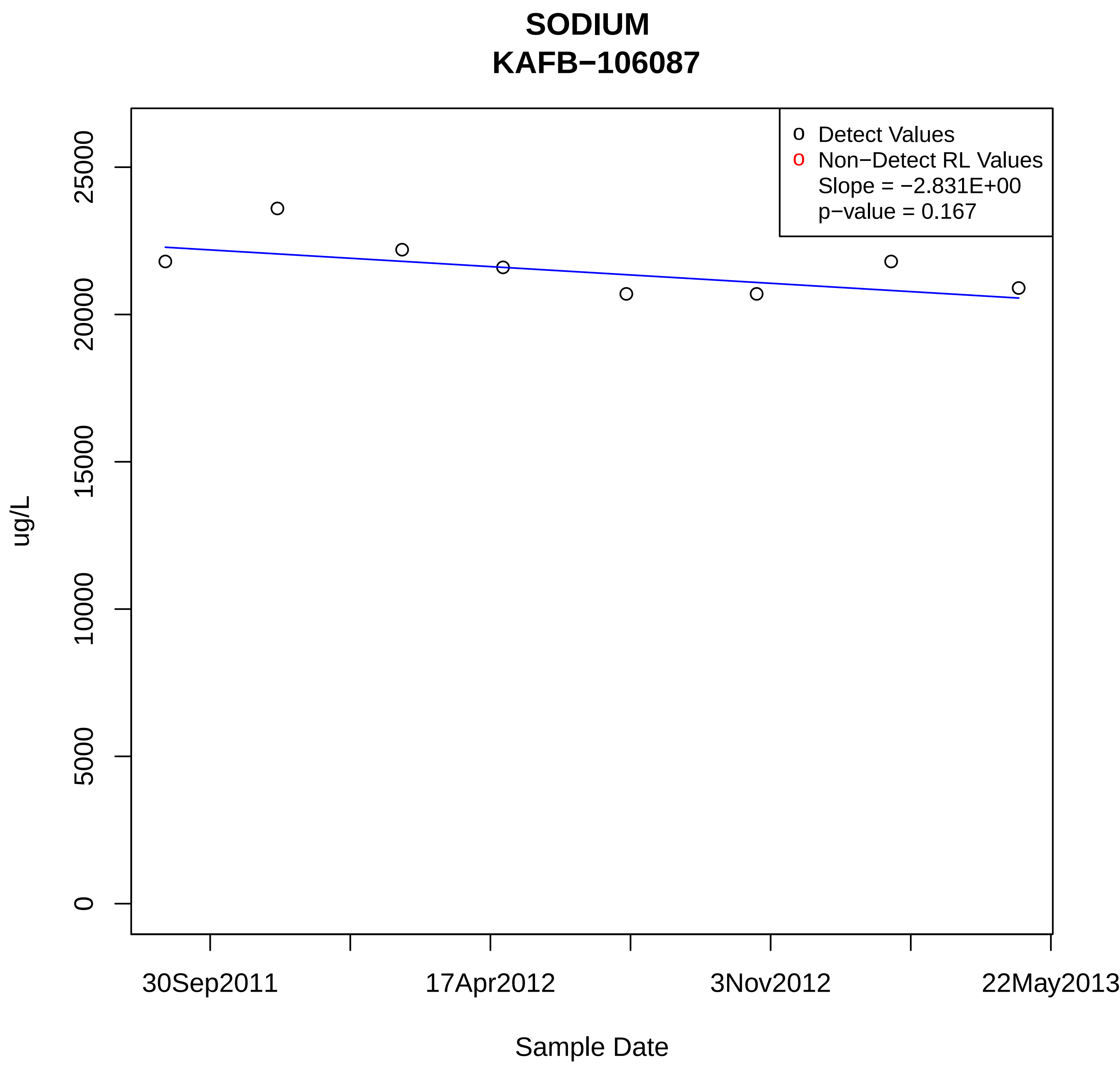
SODIUM
KAFB−106083
o Detect Values
o Non−Detect RL Values
Slope = 1.300E+01
p−value = 0.021
ug/L
0
10000
20000
30000
40000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

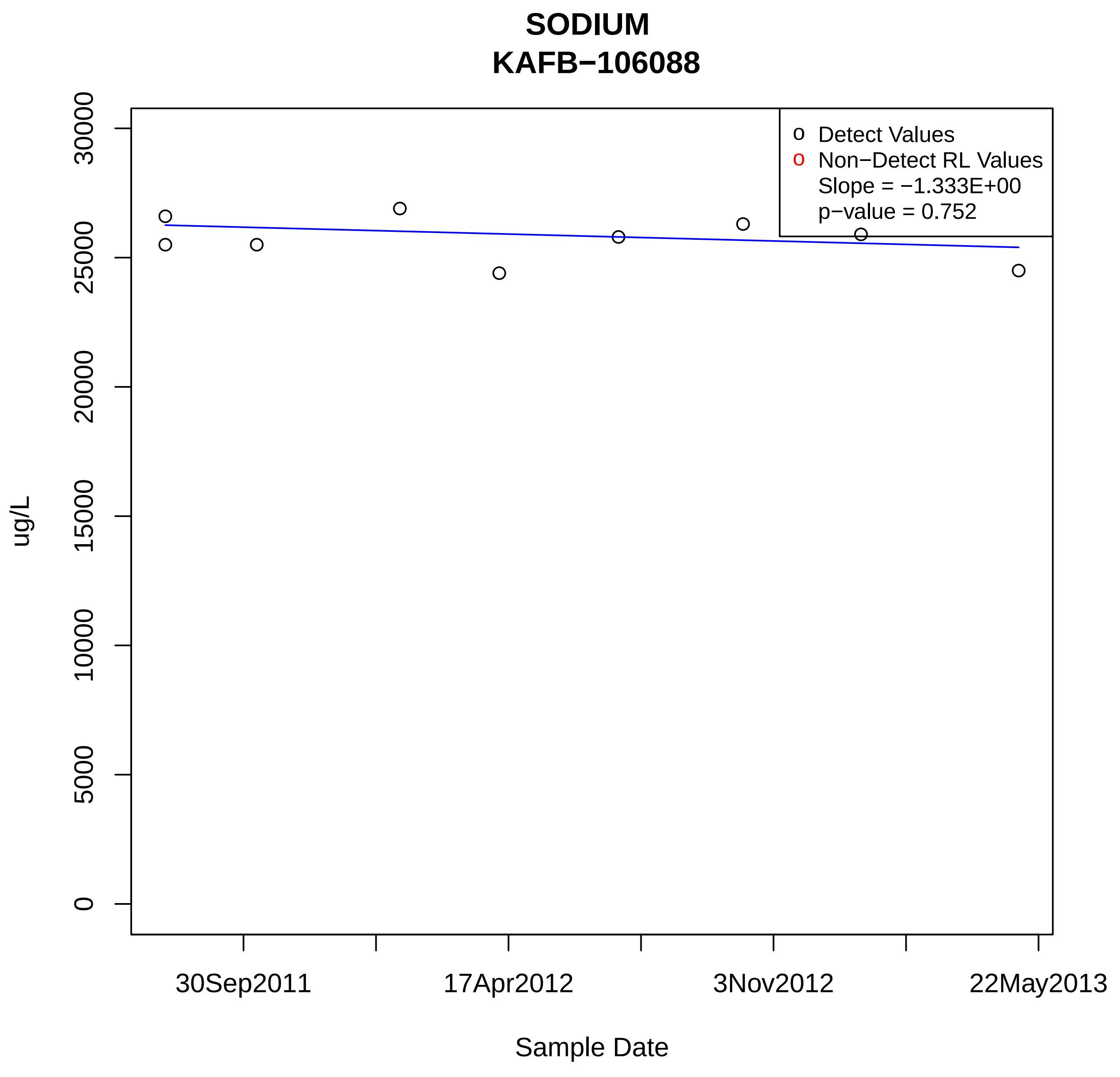

SODIUM
KAFB−106084
Detect Values
Non−Detect RL Values
Slope = −1.620E+00
p−value = 0.081
ug/L
0
5000
10000
15000
20000
25000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


SODIUM
KAFB−106085
Detect Values
Non−Detect RL Values
Slope = 9.522E+00
p−value = 0.004
ug/L
0
10000
20000
30000
40000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

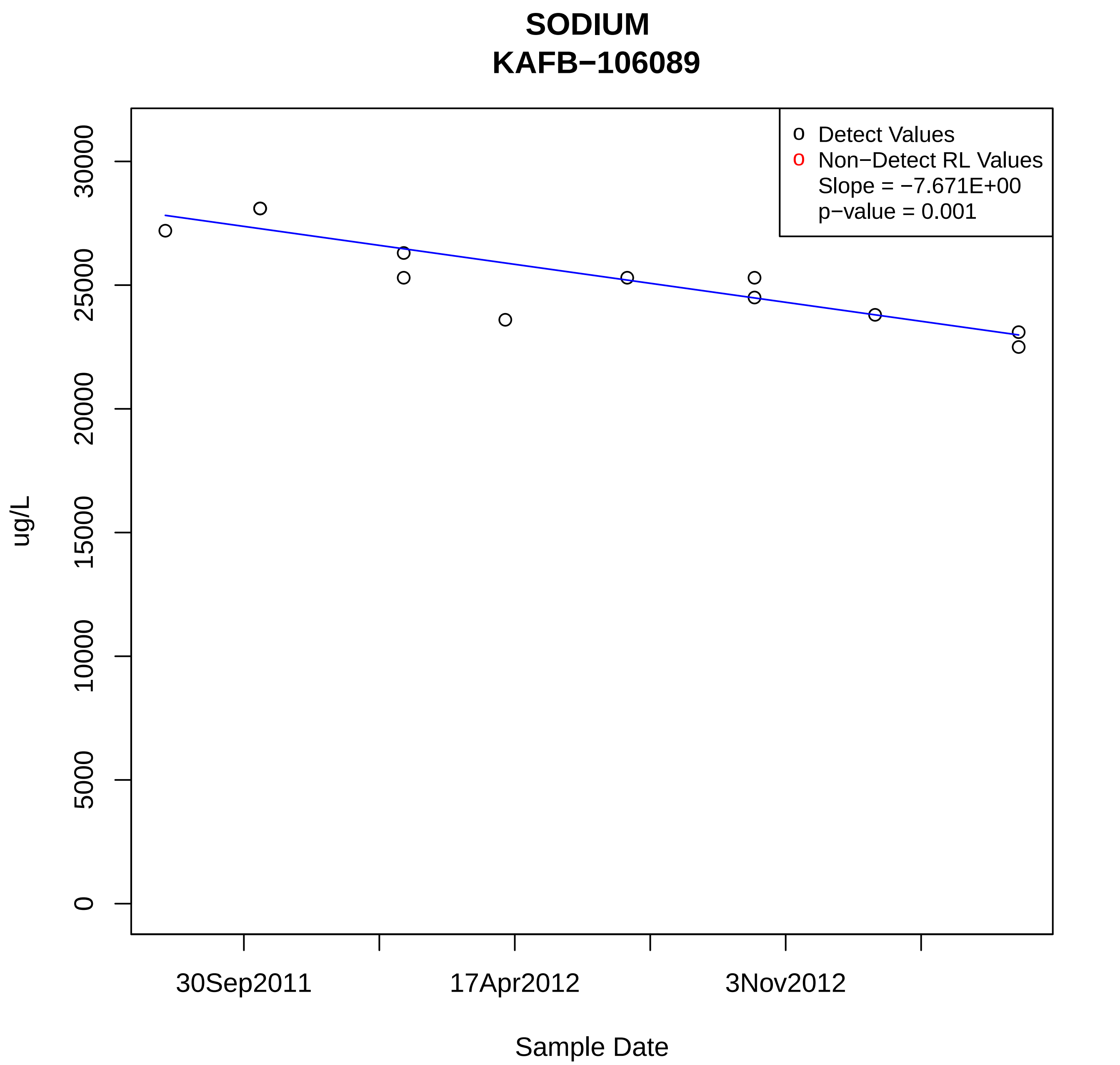


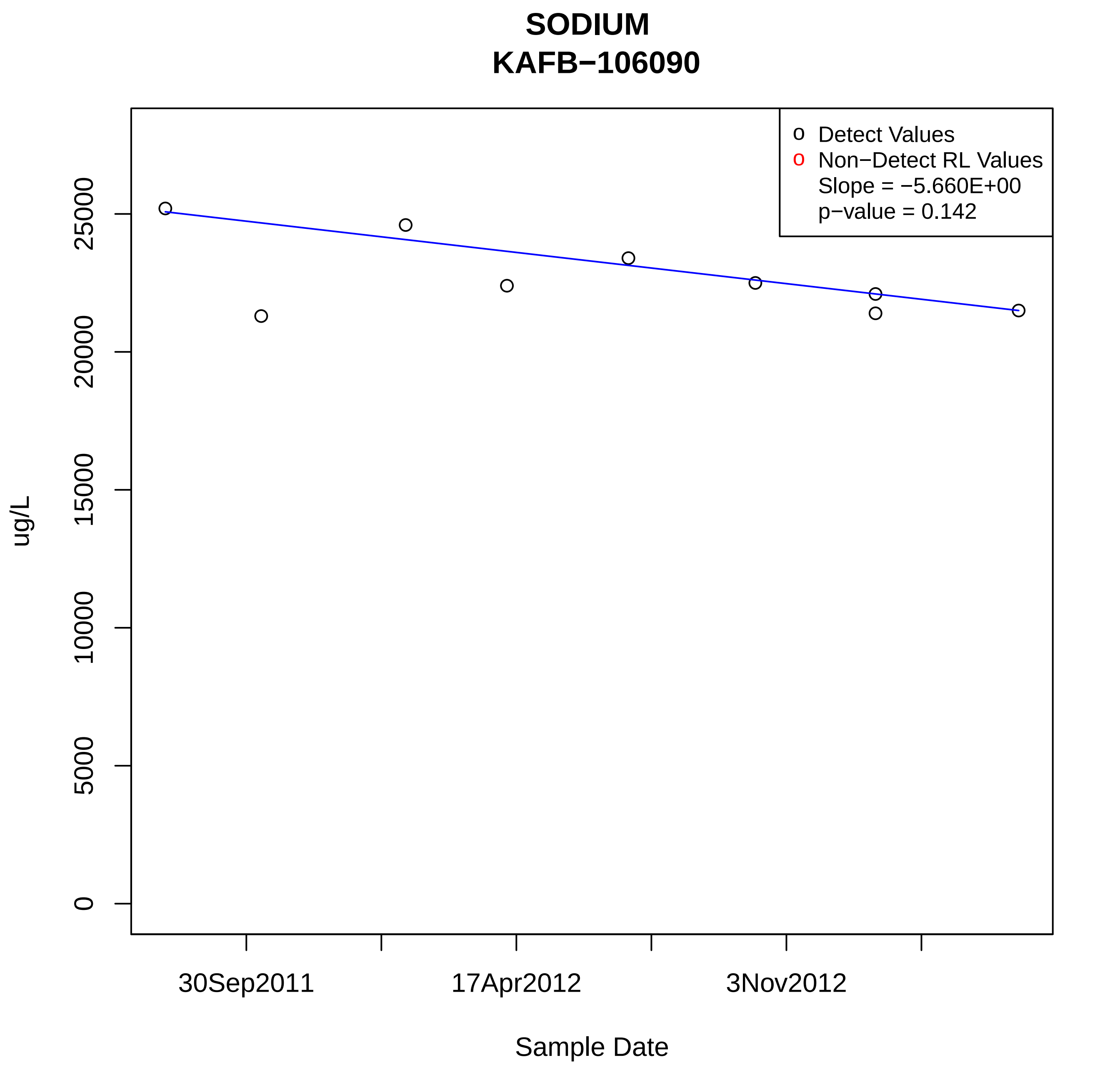
SODIUM
KAFB−106086
o Detect Values
o Non−Detect RL Values
Slope = −3.275E+00
p−value = 0.033
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


SODIUM
KAFB−106087
Detect Values
Non−Detect RL Values
Slope = −2.831E+00
p−value = 0.167
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

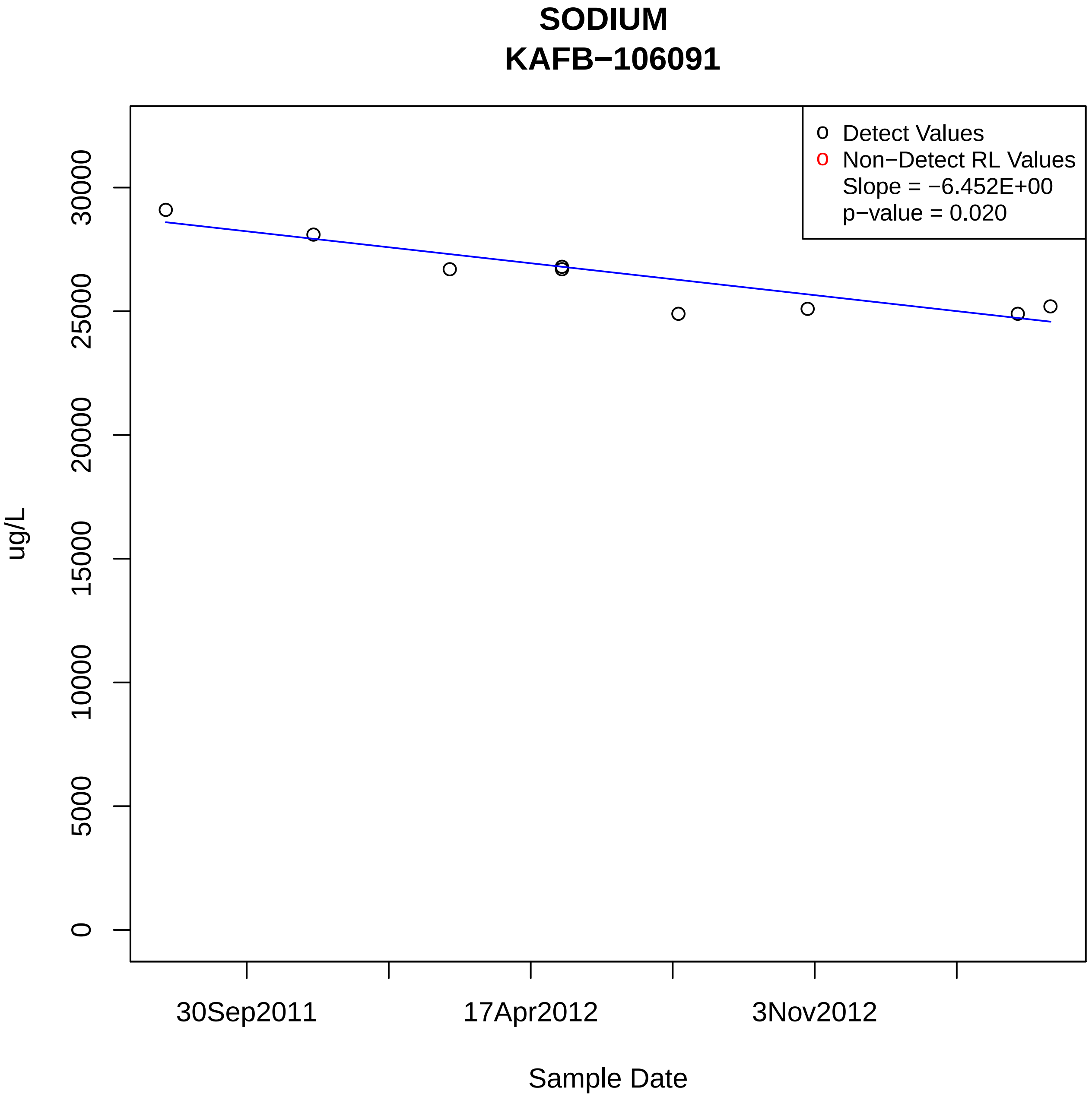


SODIUM
KAFB−106088
Detect Values
Non−Detect RL Values
Slope = −1.333E+00
p−value = 0.752
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

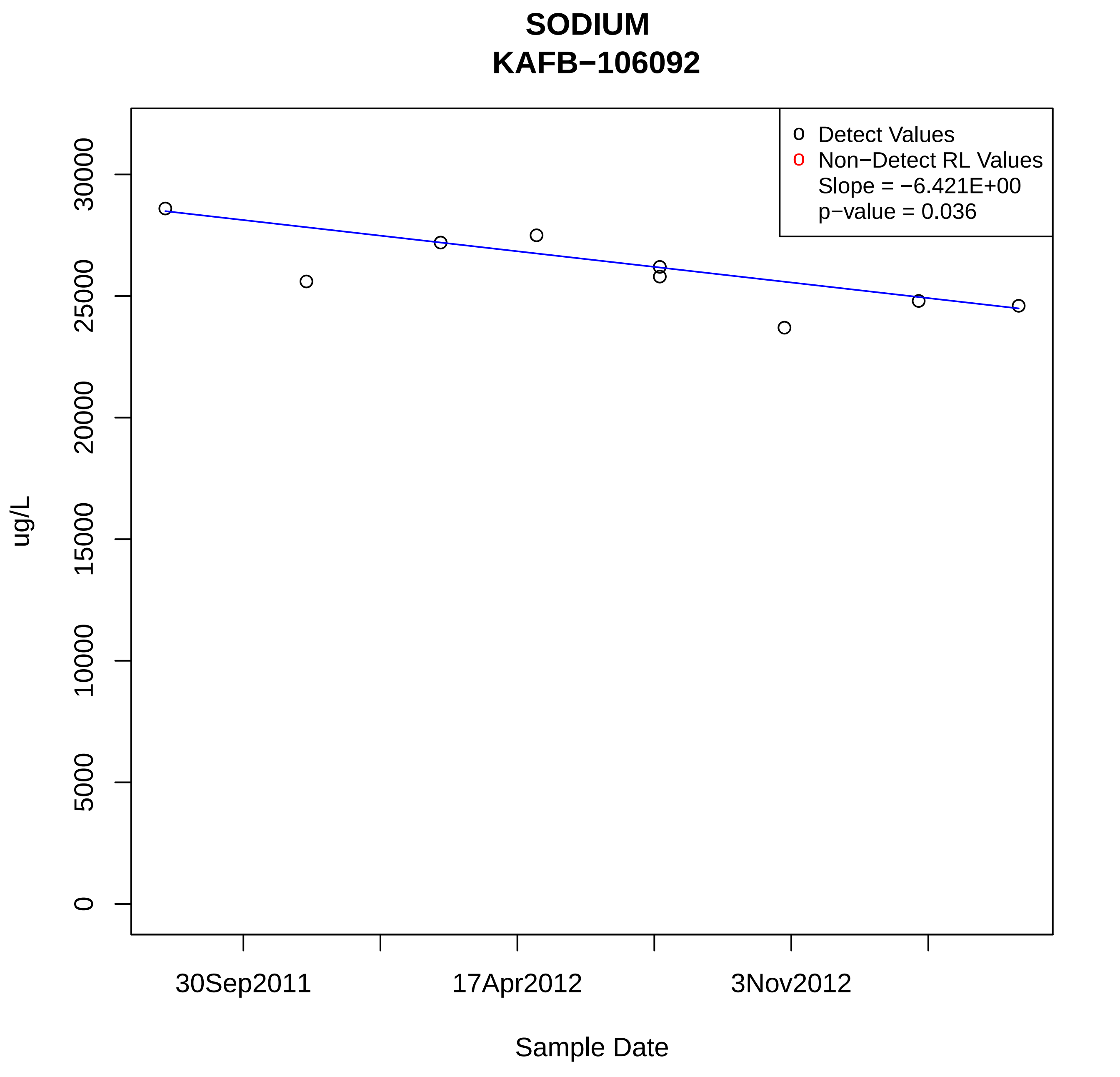

SODIUM
KAFB−106089
Detect Values
Non−Detect RL Values
Slope = −7.671E+00
p−value = 0.001
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date



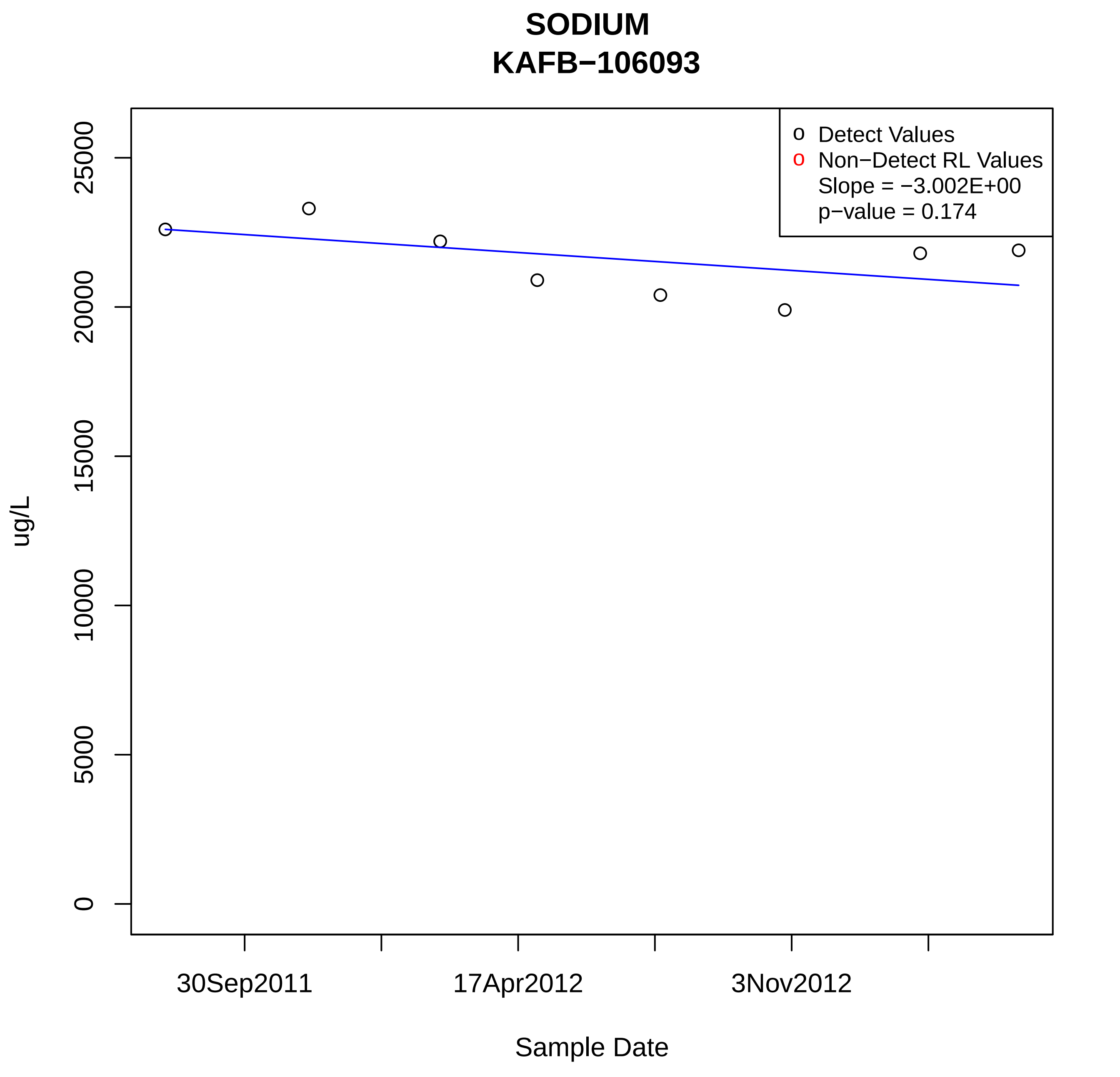
SODIUM
KAFB−106090
o Detect Values
o Non−Detect RL Values
Slope = −5.660E+00
p−value = 0.142
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date



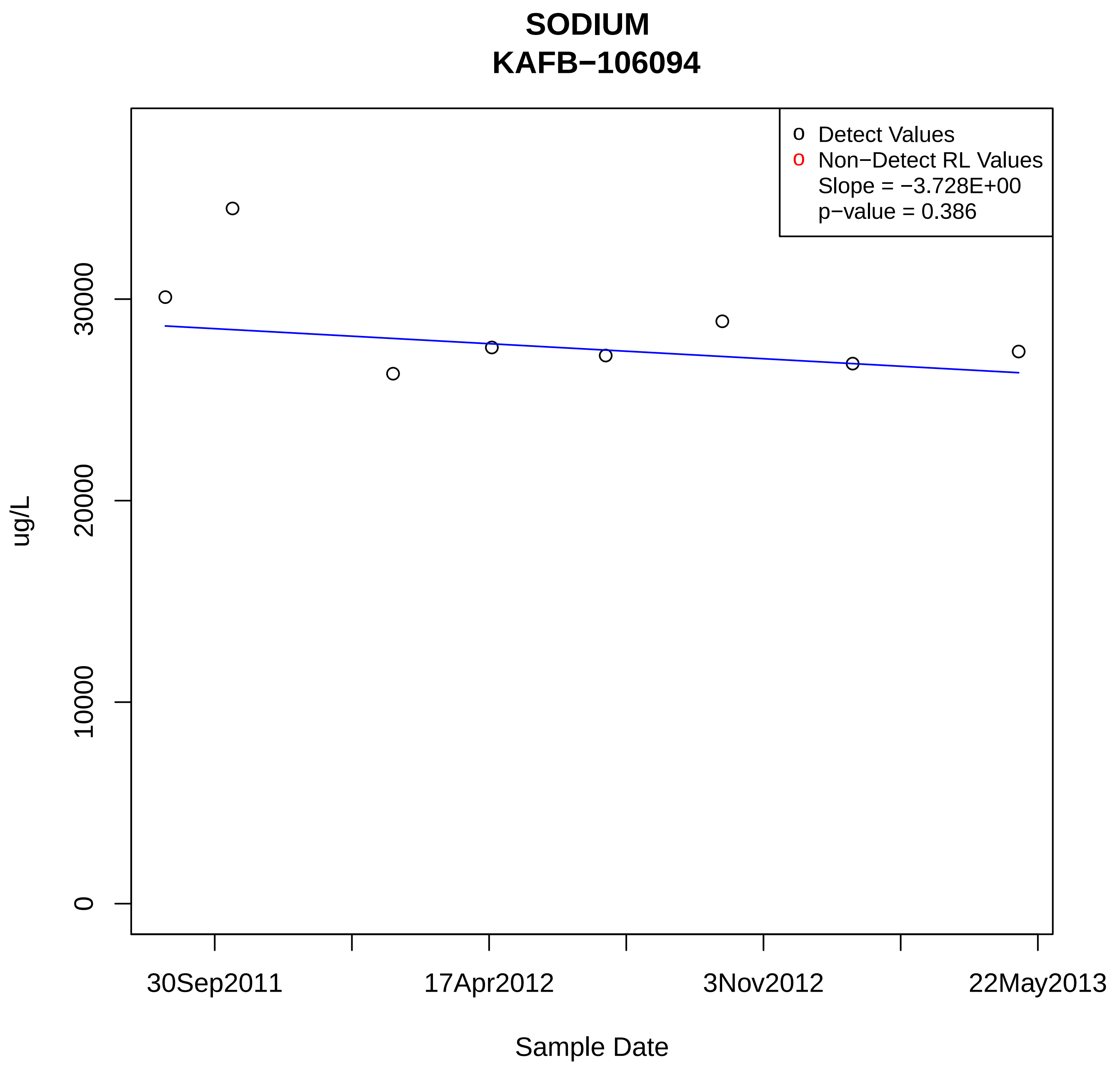
SODIUM
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = −6.452E+00
p−value = 0.020
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date



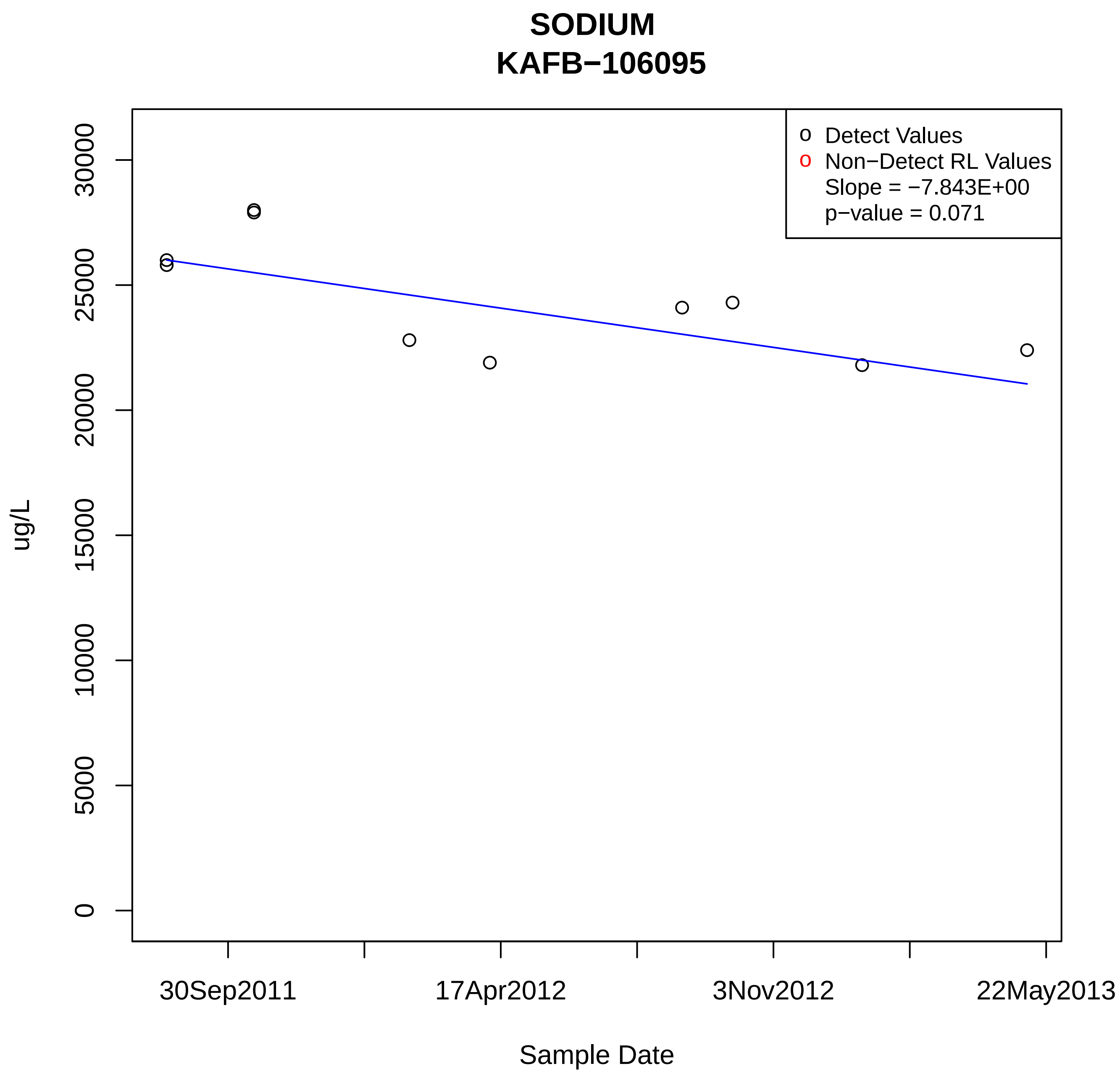
SODIUM
KAFB−106092
Detect Values
Non−Detect RL Values
Slope = −6.421E+00
p−value = 0.036
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date



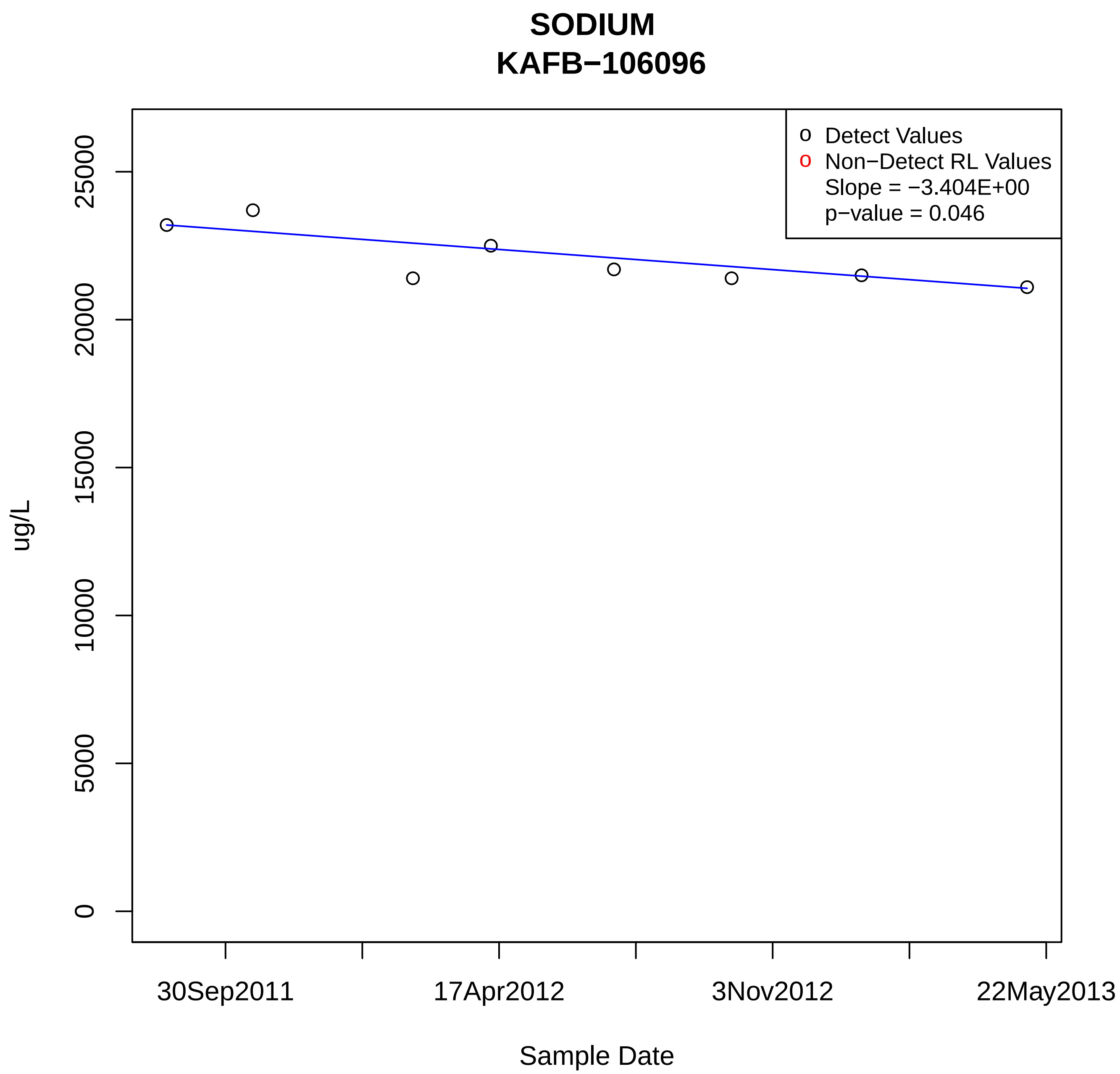
SODIUM
KAFB−106093
Detect Values
Non−Detect RL Values
Slope = −3.002E+00
p−value = 0.174
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
Sample Date

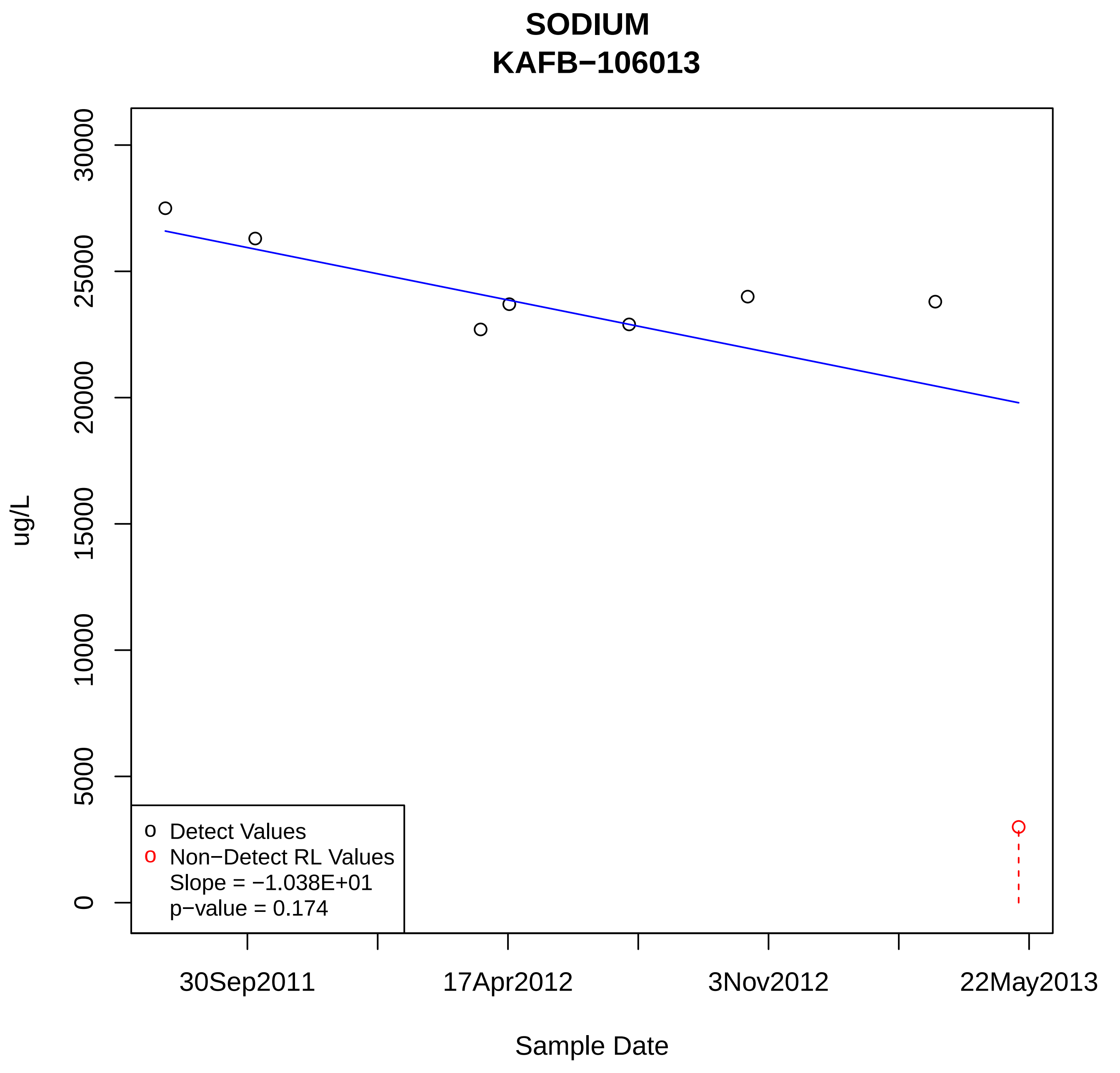


SODIUM
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = −3.728E+00
p−value = 0.386
ug/L
0
10000
20000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

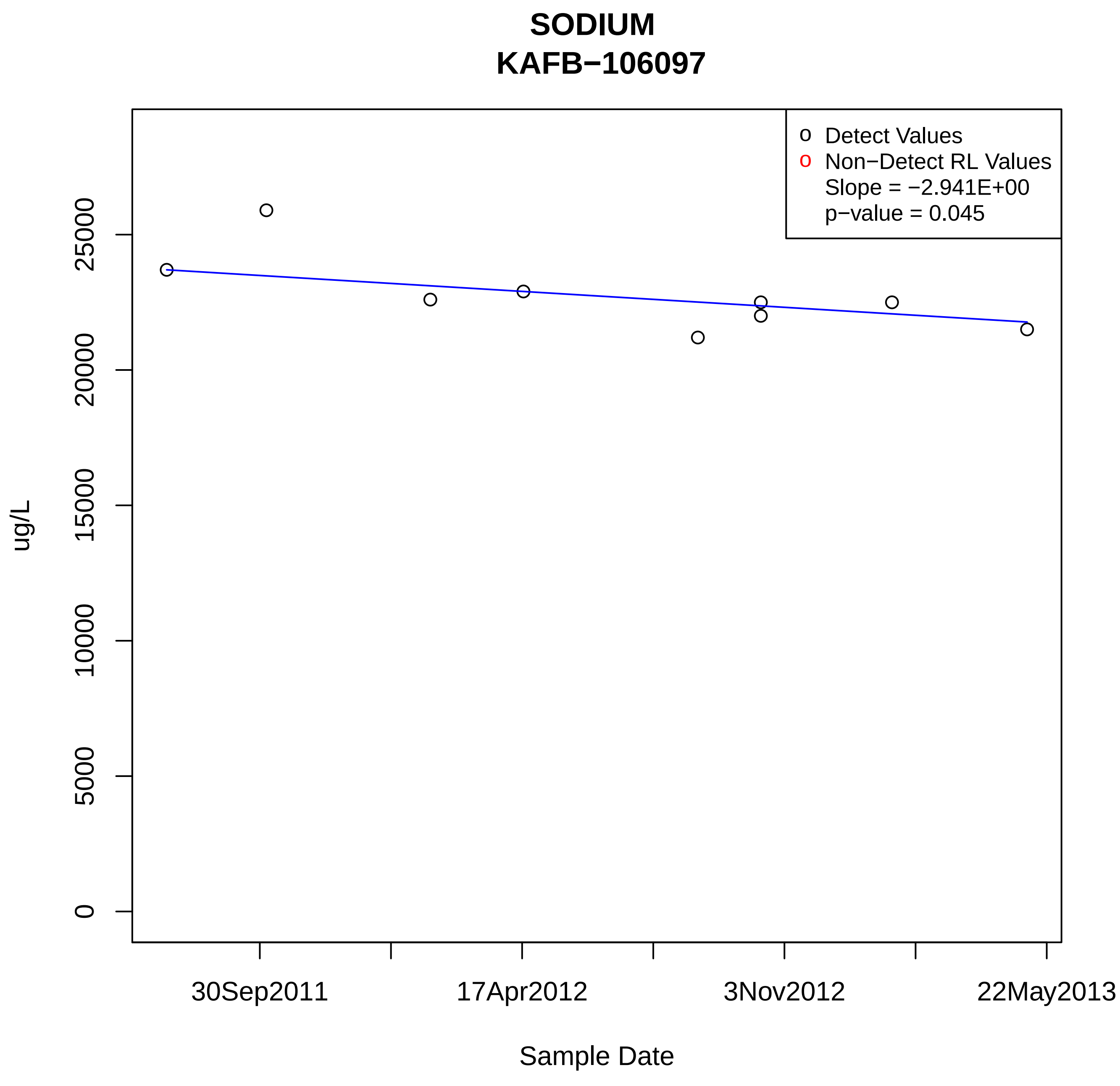


SODIUM
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −7.843E+00
p−value = 0.071
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

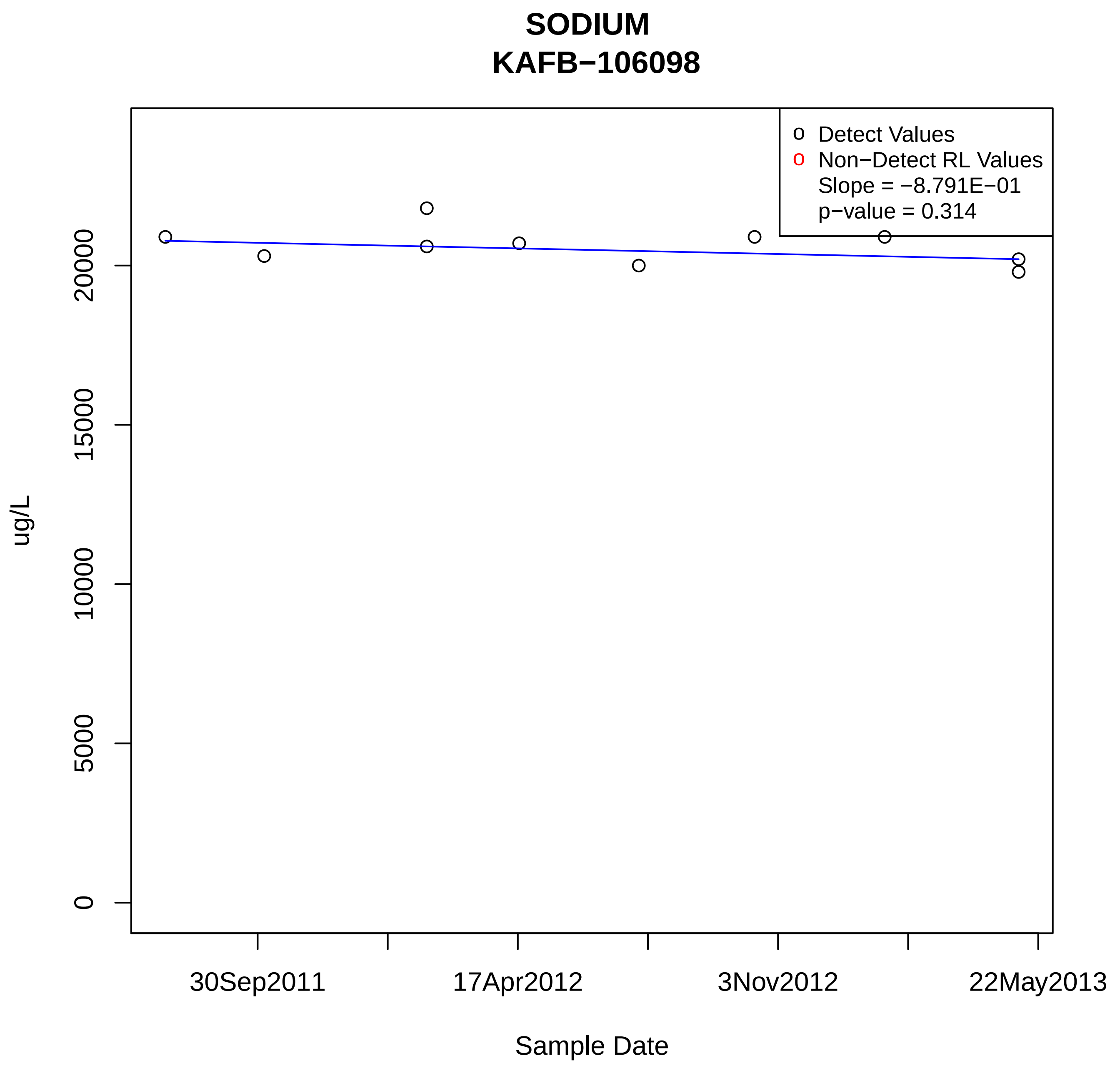

SODIUM
KAFB−106096
o Detect Values
o Non−Detect RL Values
Slope = −3.404E+00
p−value = 0.046
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



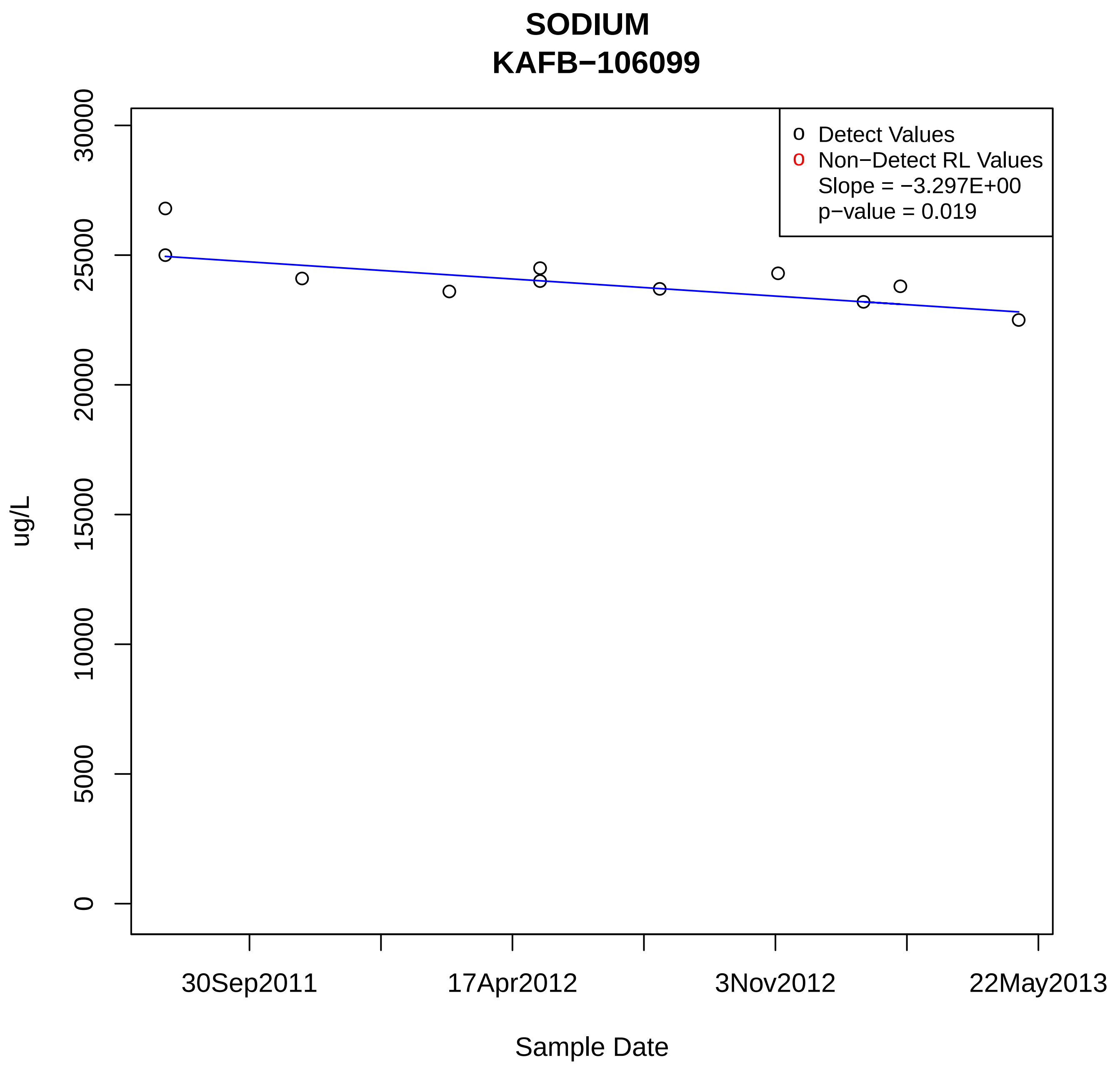
SODIUM
KAFB−106013
30000
25000
20000
15000
10000
5000
0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = −1.038E+01
p−value = 0.174

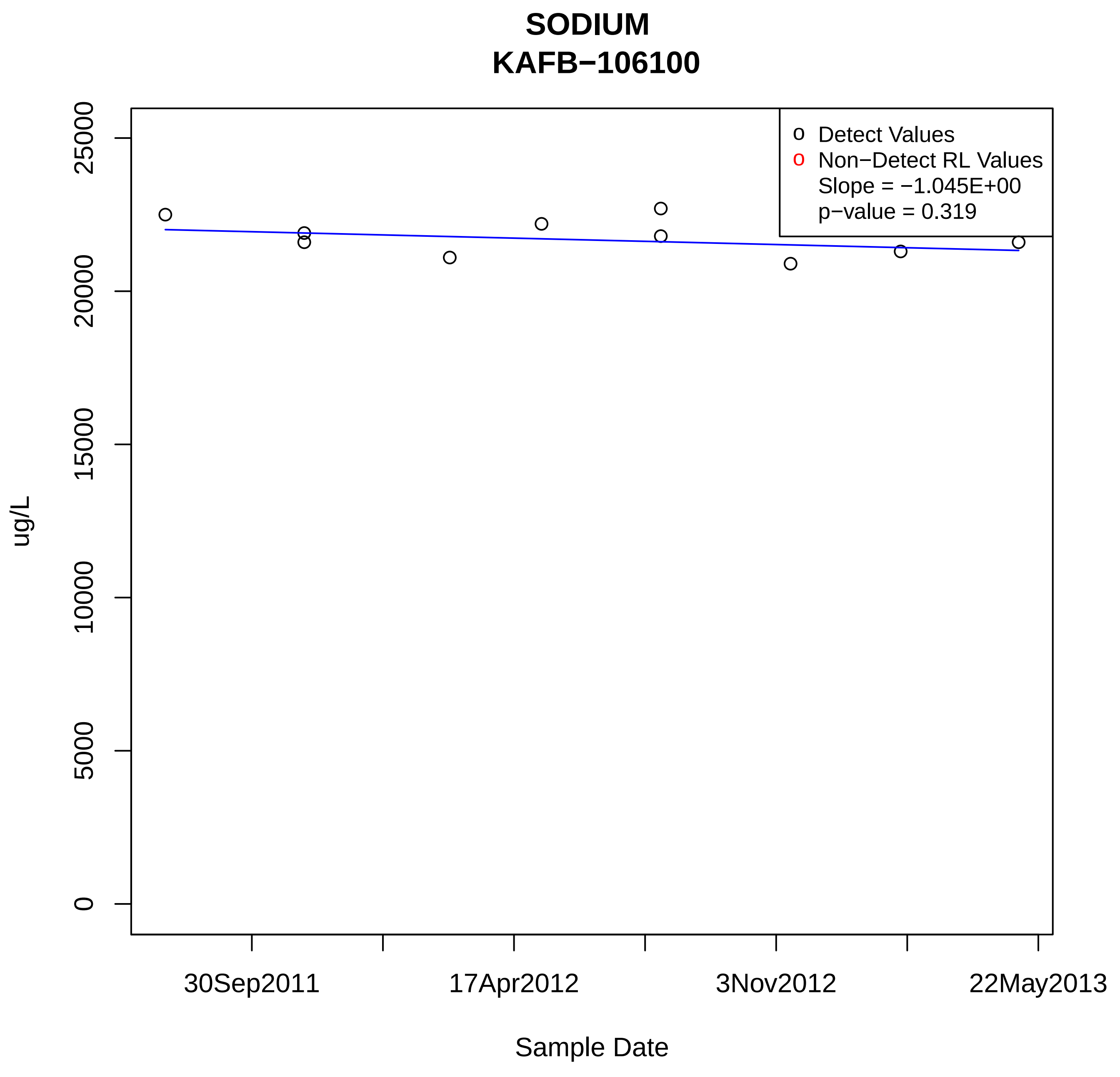


SODIUM
KAFB−106097
Detect Values
Non−Detect RL Values
Slope = −2.941E+00
p−value = 0.045
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

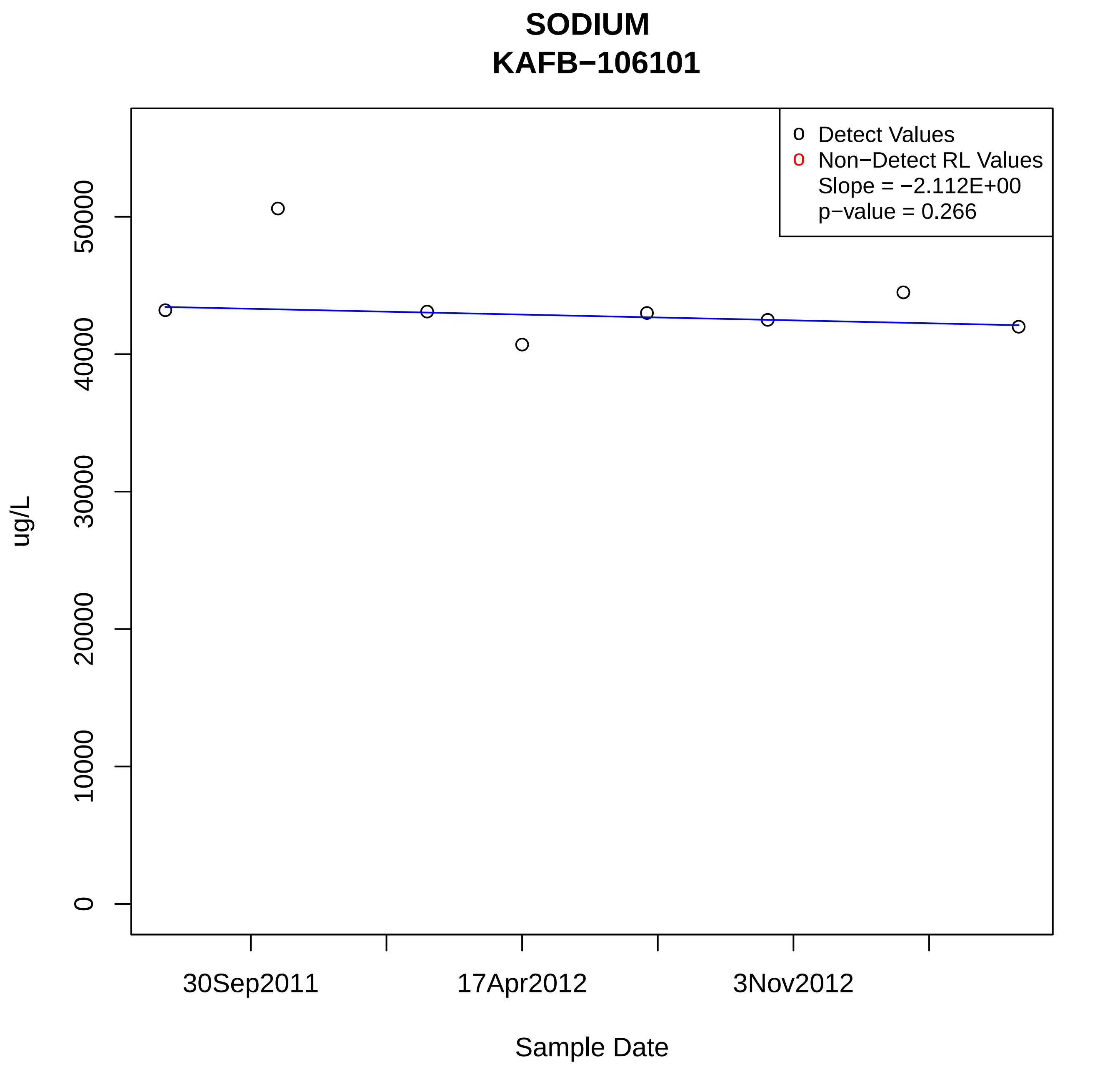


SODIUM
KAFB−106098
Detect Values
Non−Detect RL Values
Slope = −8.791E−01
p−value = 0.314
ug/L
0
5000
10000
15000
20000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

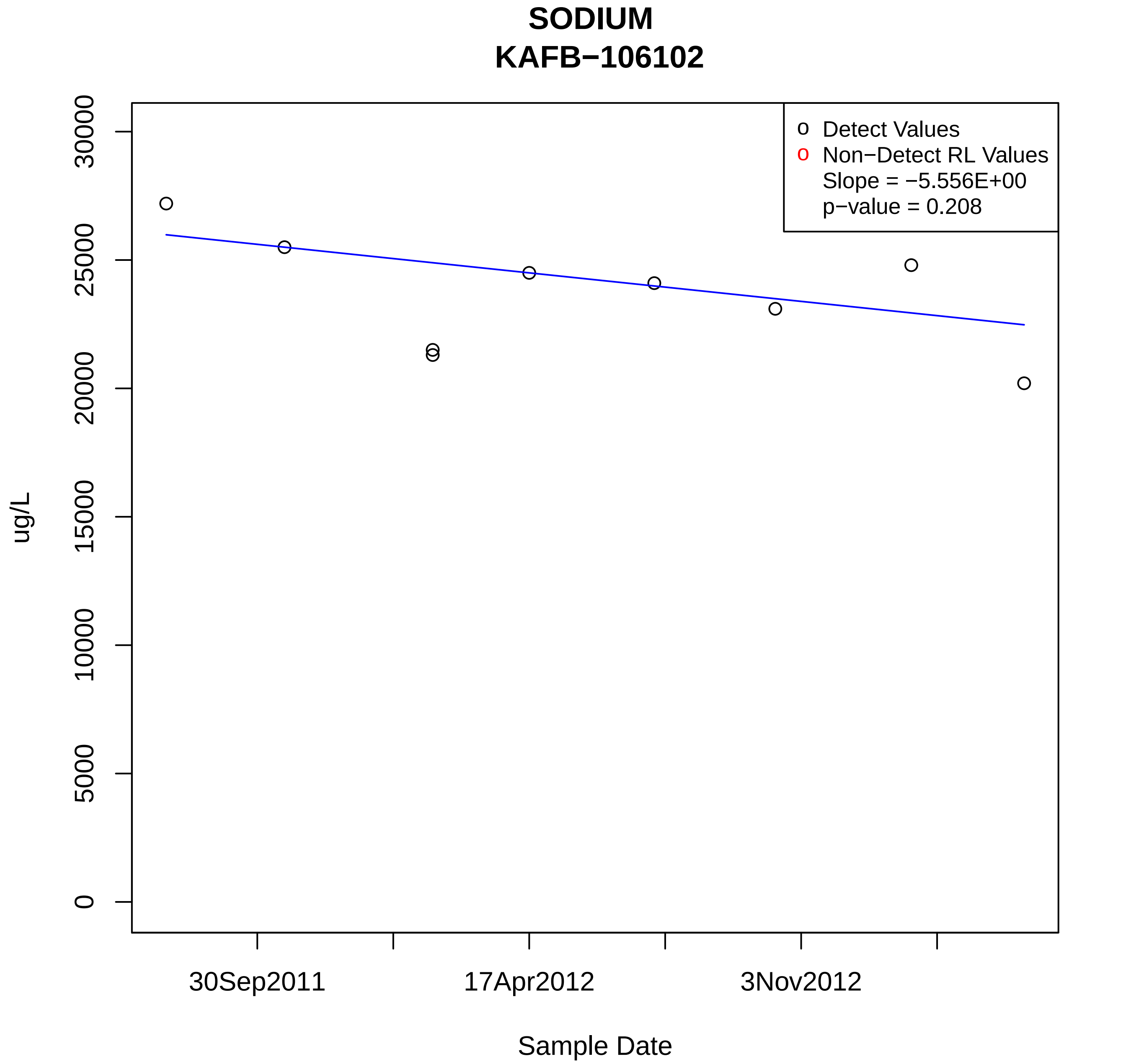

SODIUM
KAFB−106099
o Detect Values
o Non−Detect RL Values
Slope = −3.297E+00
p−value = 0.019
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

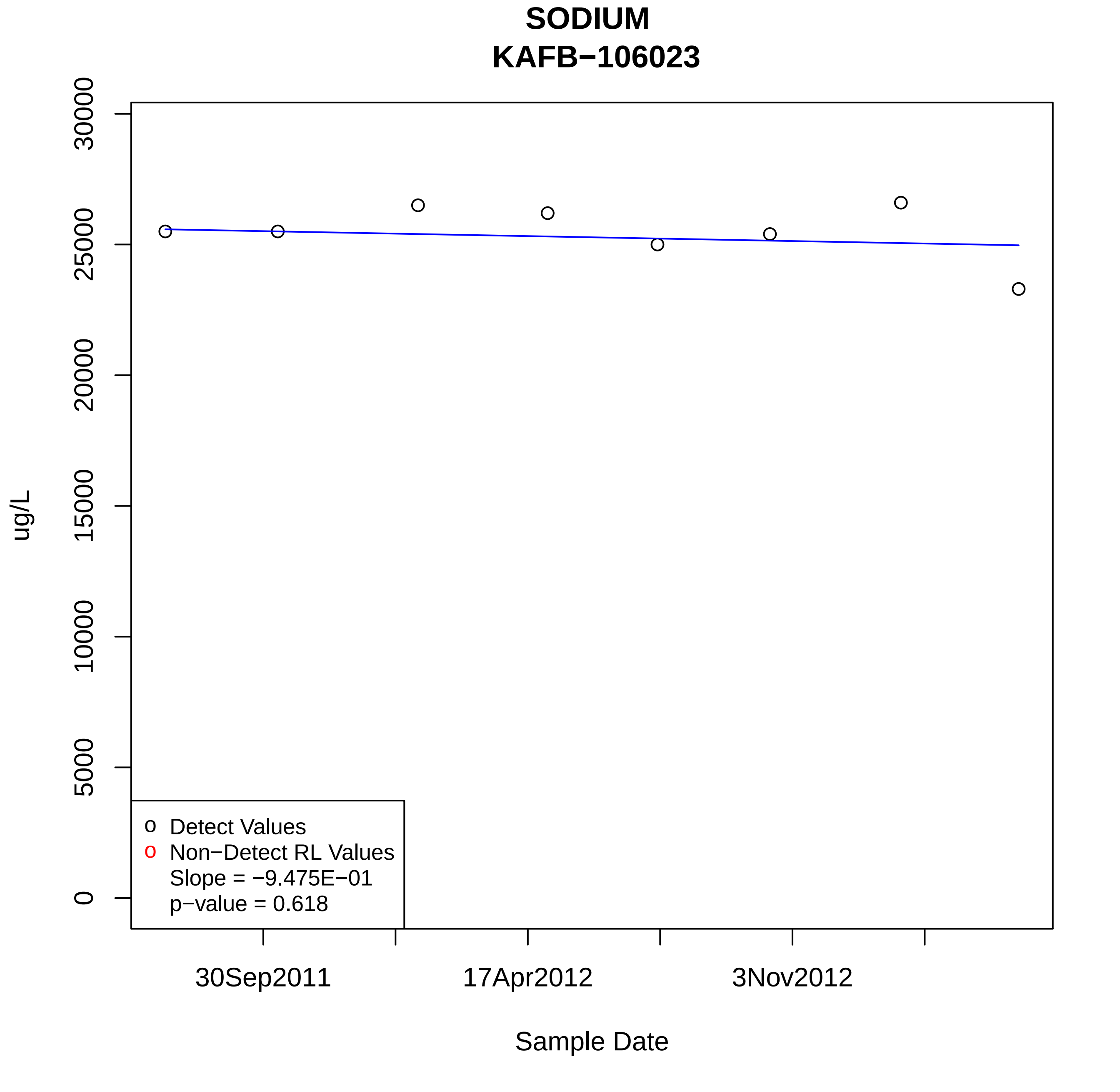


SODIUM
KAFB−106100
Detect Values
Non−Detect RL Values
Slope = −1.045E+00
p−value = 0.319
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

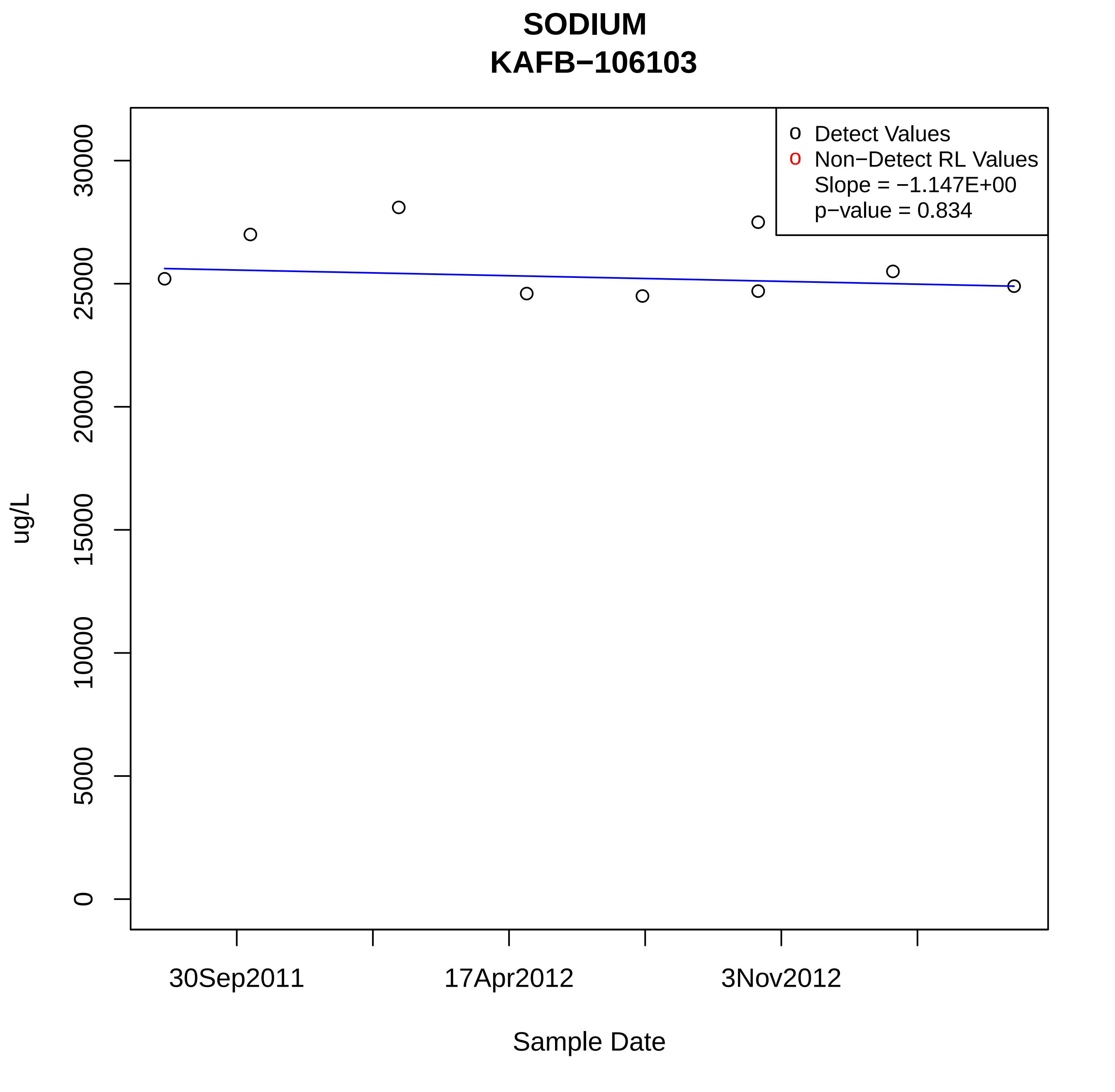


SODIUM
KAFB−106101
Detect Values
Non−Detect RL Values
Slope = −2.112E+00
p−value = 0.266
ug/L
0
10000
20000
30000
40000
50000
30Sep2011
17Apr2012
3Nov2012
Sample Date

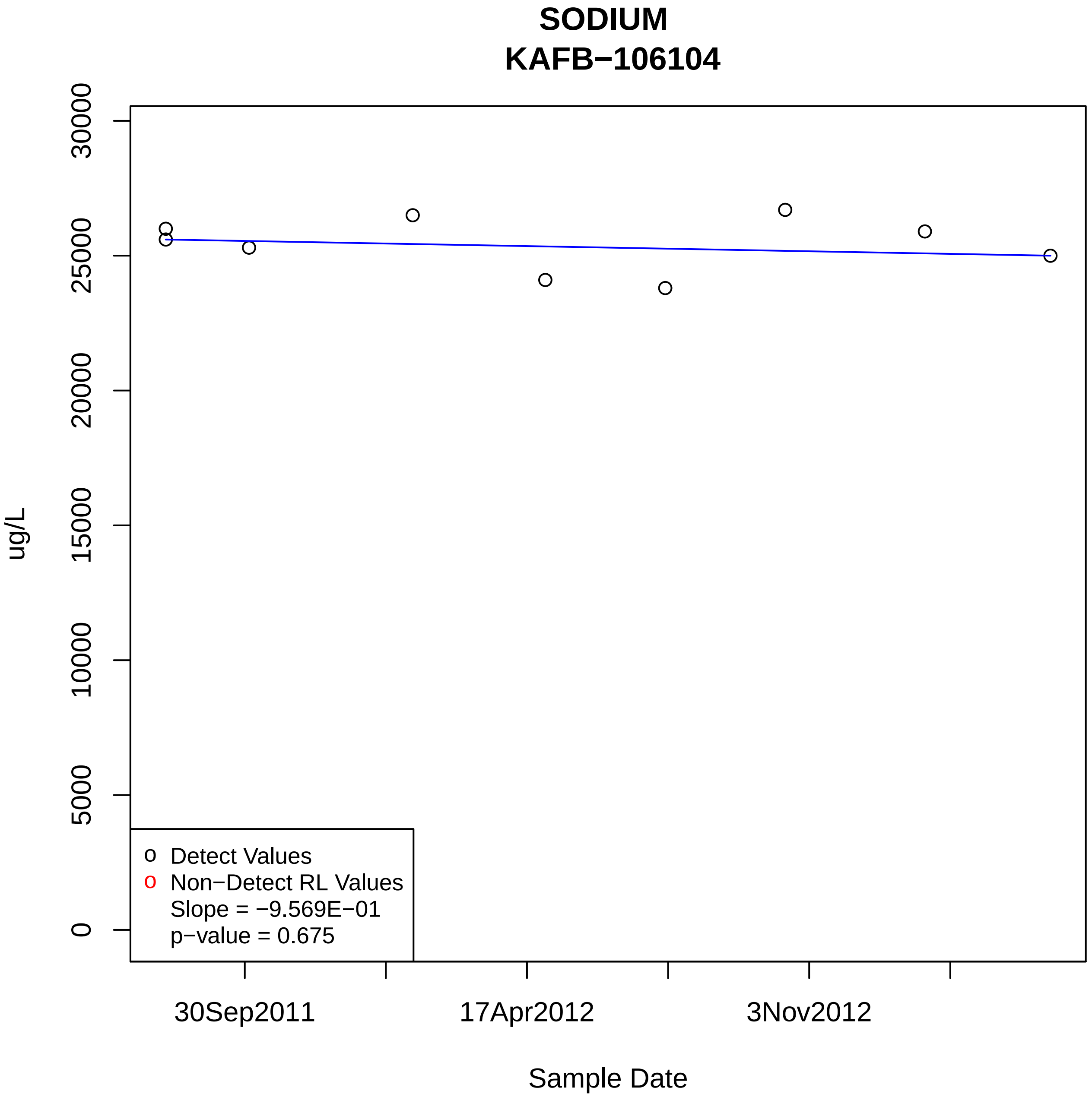

SODIUM
KAFB−106102
Detect Values
Non−Detect RL Values
Slope = −5.556E+00
p−value = 0.208
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date



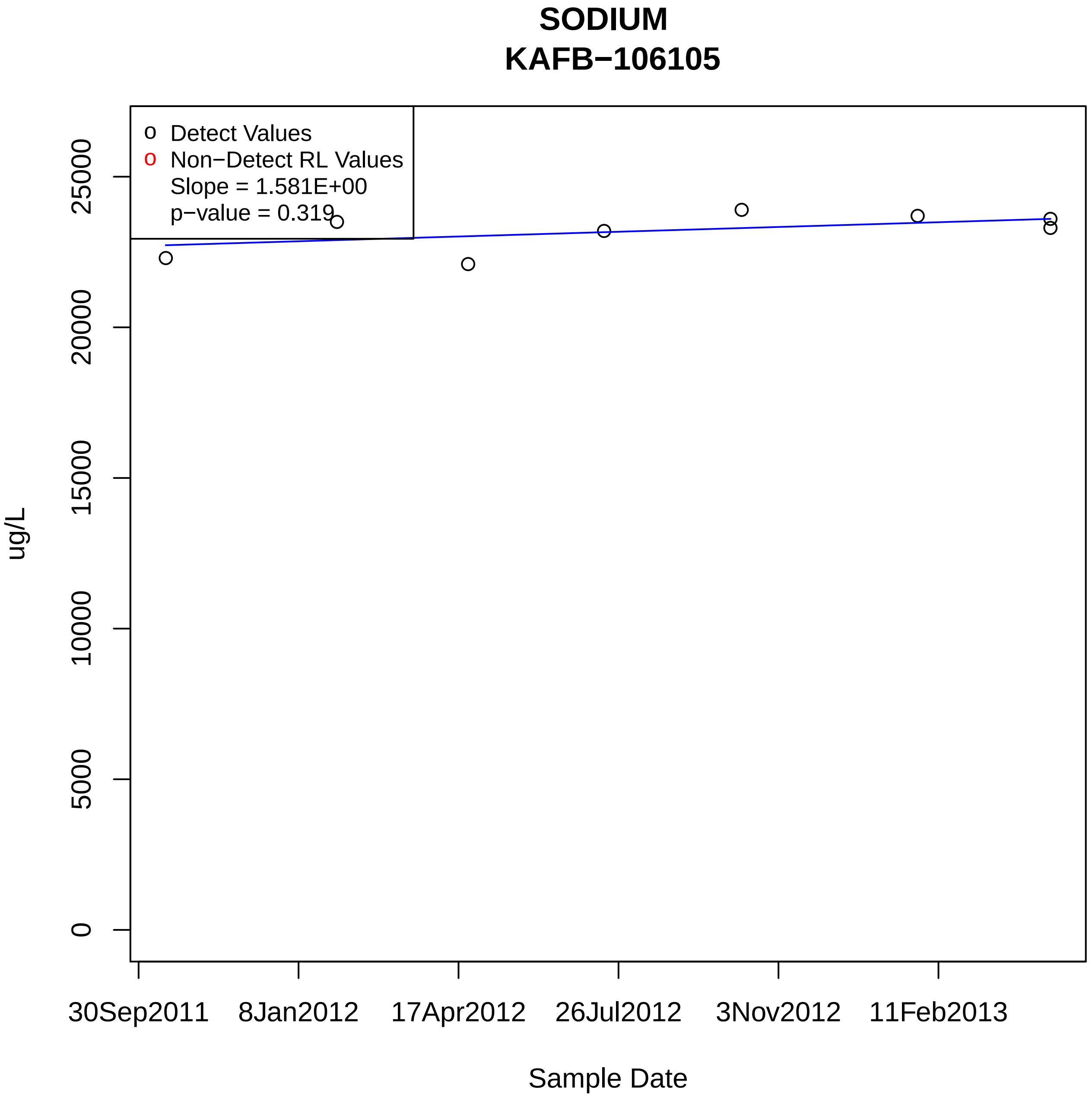
SODIUM
KAFB−106023
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −9.475E−01
p−value = 0.618

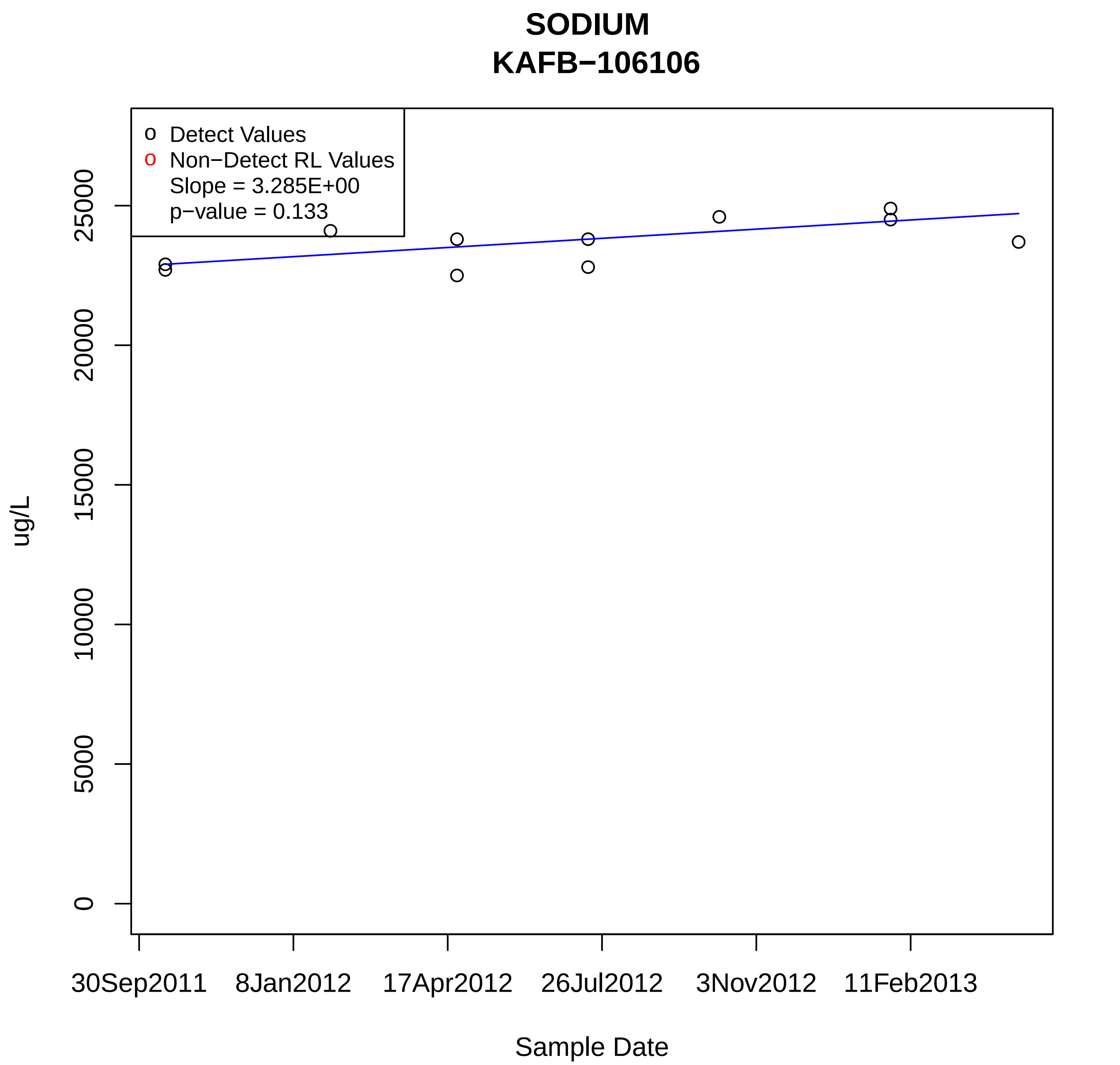


SODIUM
KAFB−106103
Detect Values
Non−Detect RL Values
Slope = −1.147E+00
p−value = 0.834
ug/L
0
5000
10000
15000
20000
25000
30000
30Sep2011
17Apr2012
3Nov2012
Sample Date

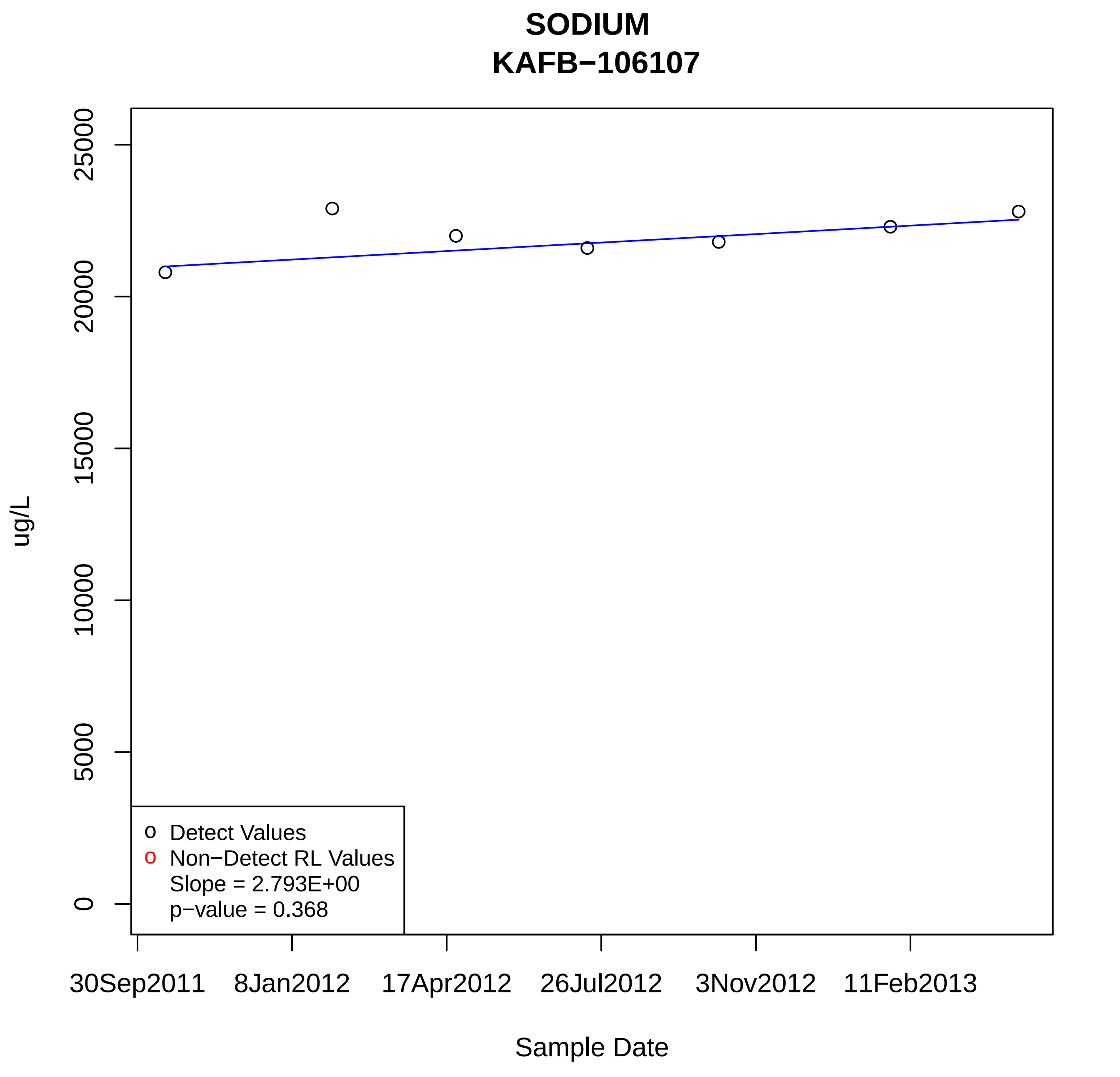


SODIUM
KAFB−106104
ug/L
30000
25000
20000
15000
10000
5000
0
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −9.569E−01
p−value = 0.675

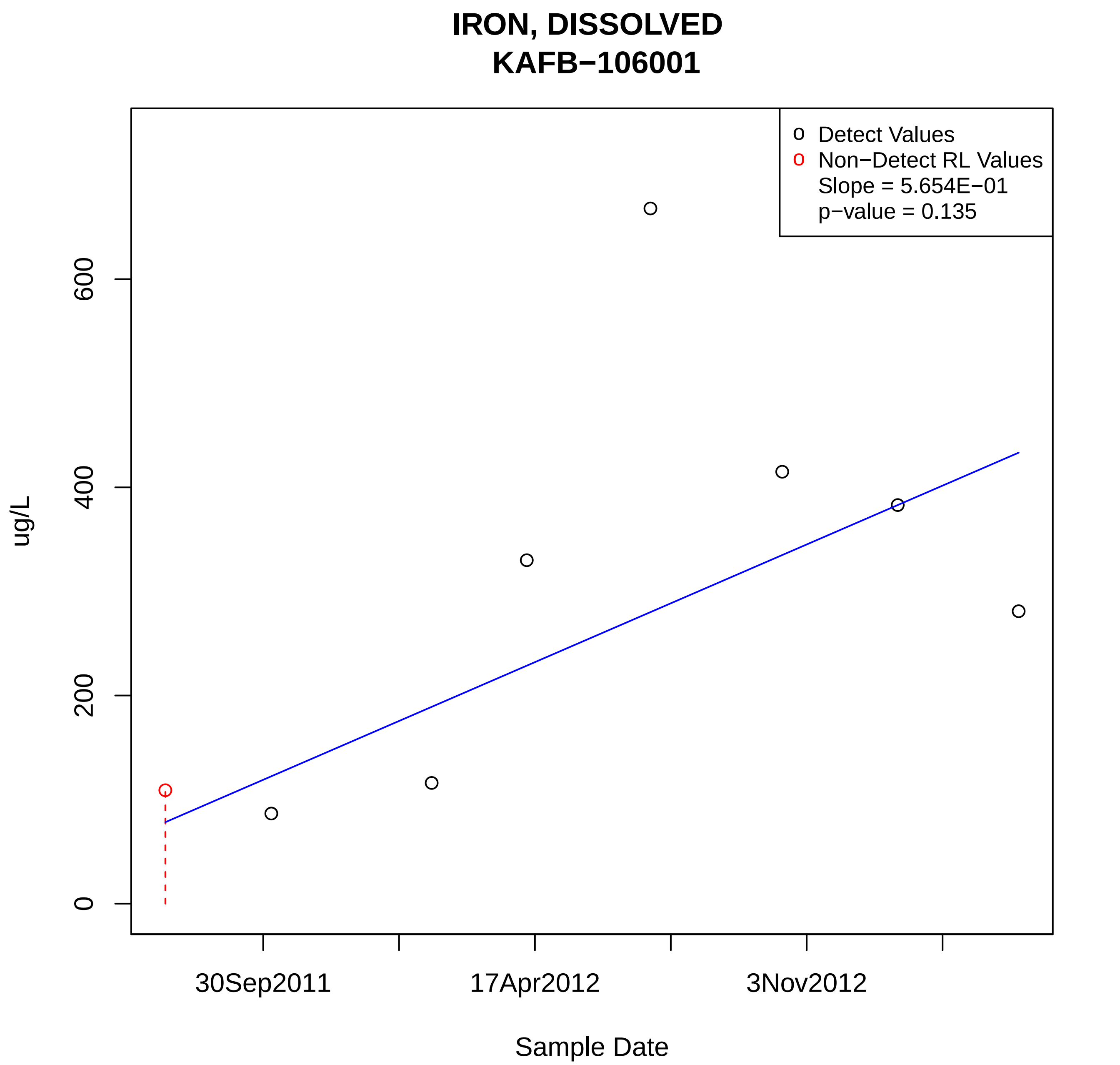

SODIUM
KAFB−106105
o Detect Values
o Non−Detect RL Values
Slope = 1.581E+00
p−value = 0.319
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



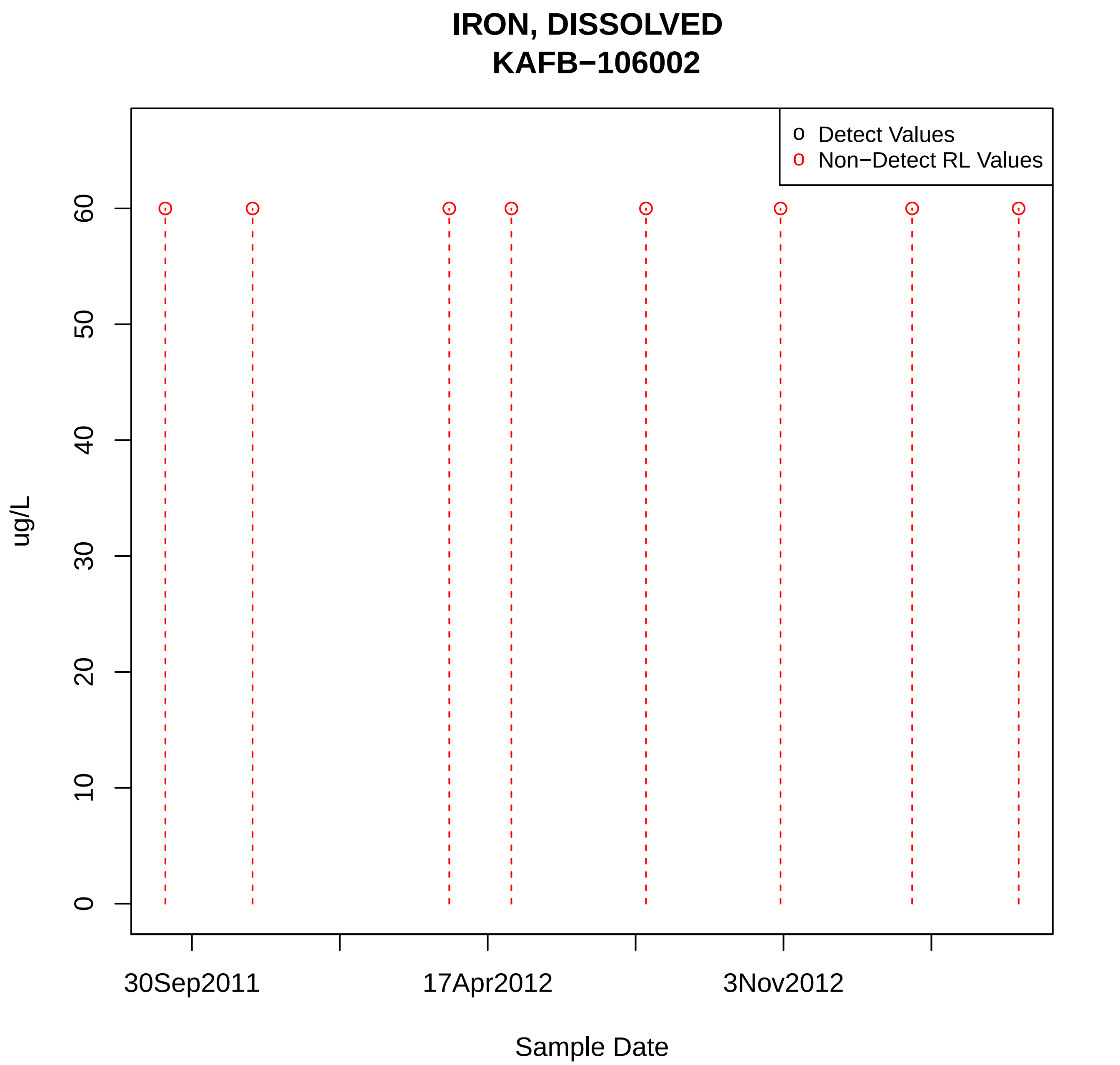
SODIUM
KAFB−106106
Detect Values
Non−Detect RL Values
Slope = 3.285E+00
p−value = 0.133
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



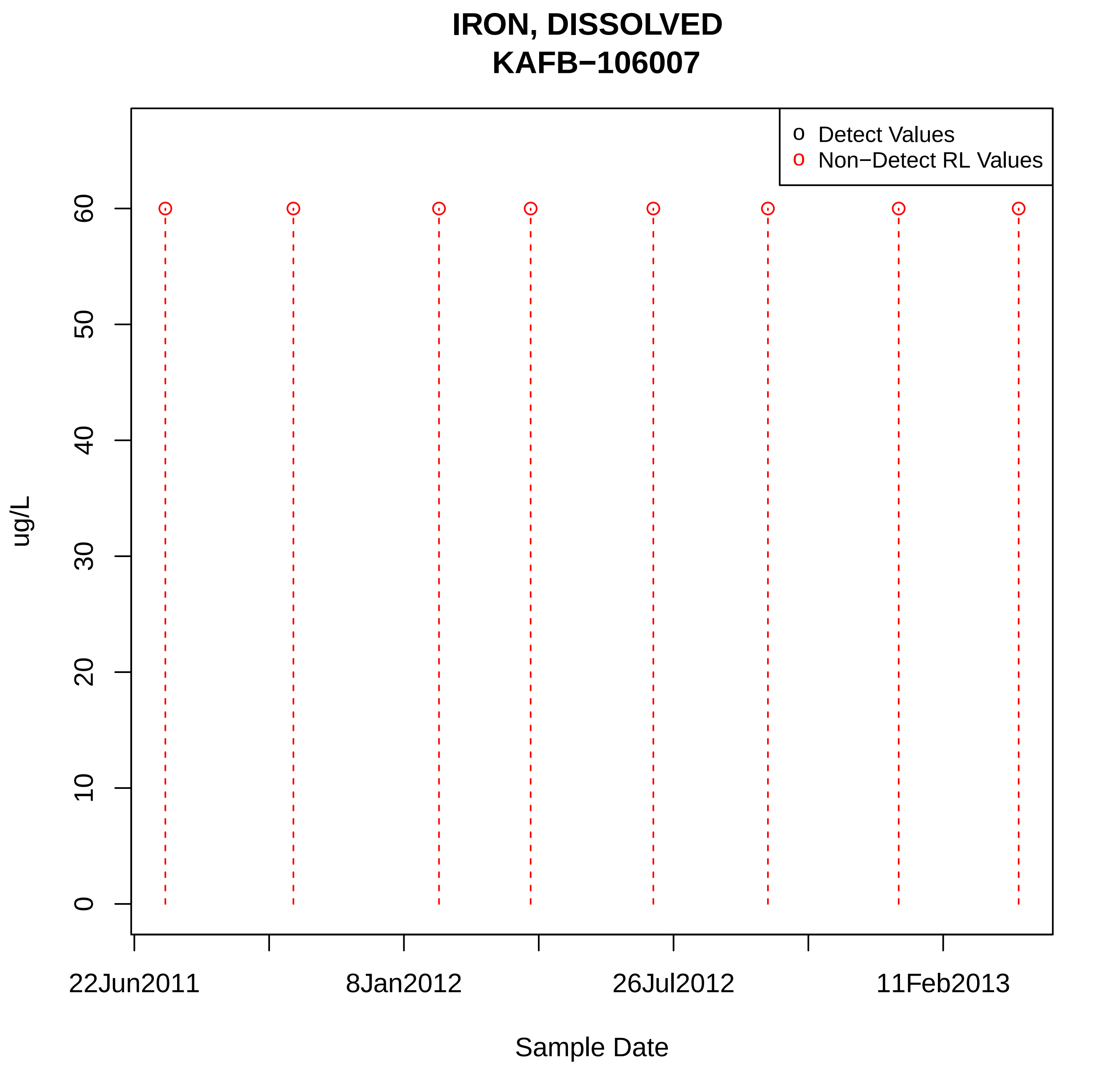
SODIUM
KAFB−106107
ug/L
0
5000
10000
15000
20000
25000
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 2.793E+00
p−value = 0.368



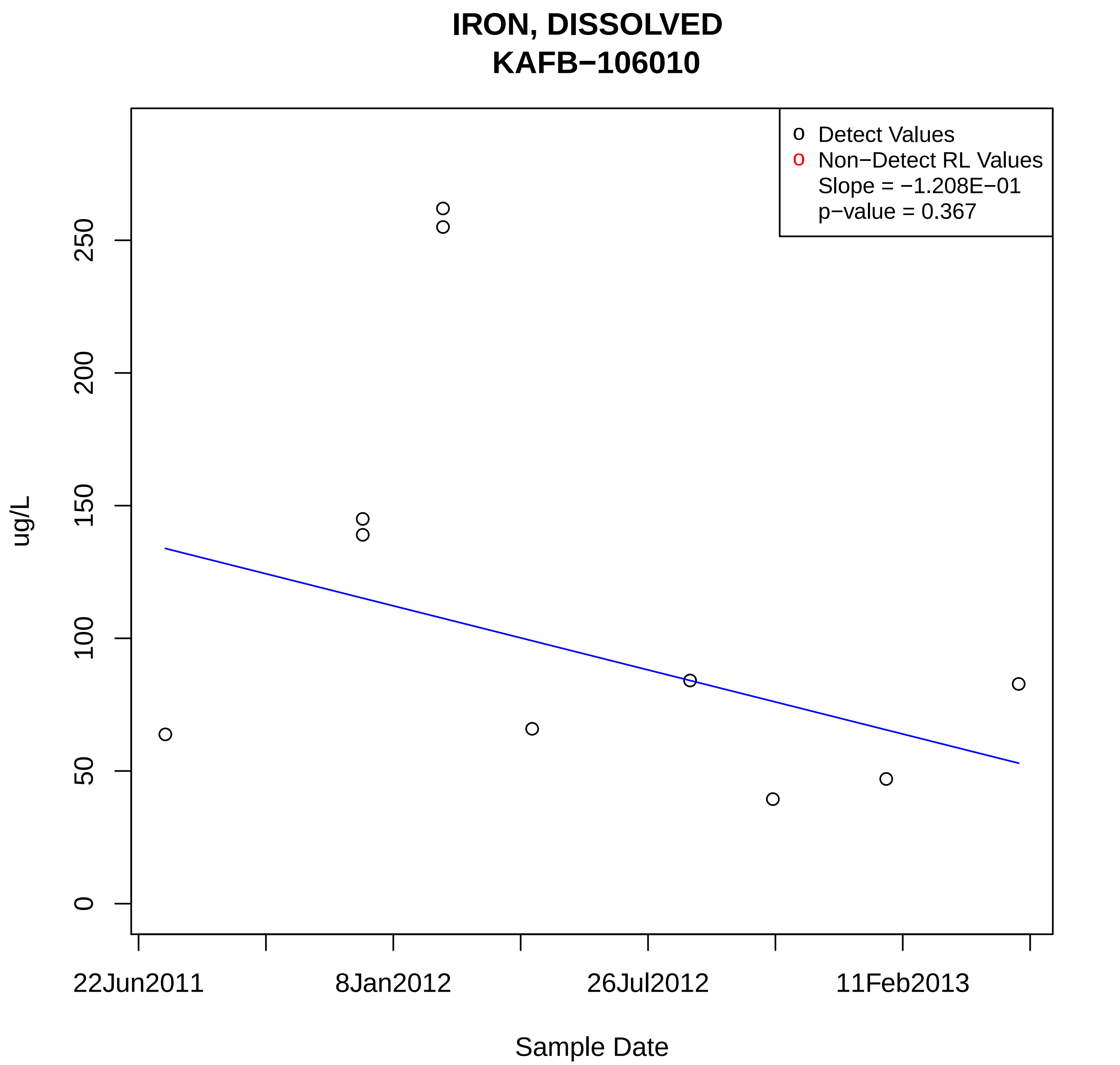
IRON, DISSOLVED
KAFB−106001
Detect Values
Non−Detect RL Values
Slope = 5.654E−01
p−value = 0.135
ug/L
0
200
400
600
30Sep2011
17Apr2012
3Nov2012
Sample Date



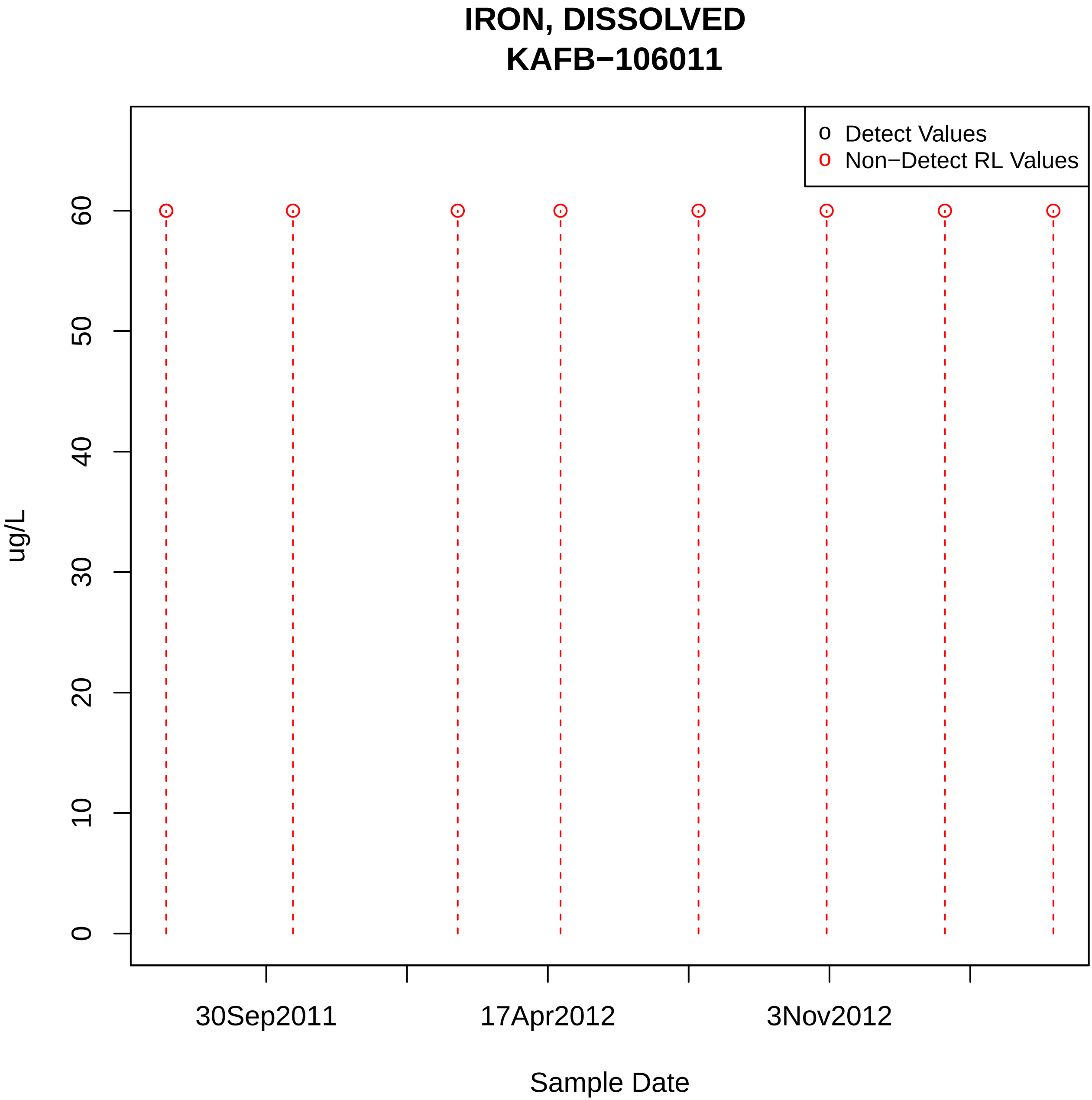
IRON, DISSOLVED
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

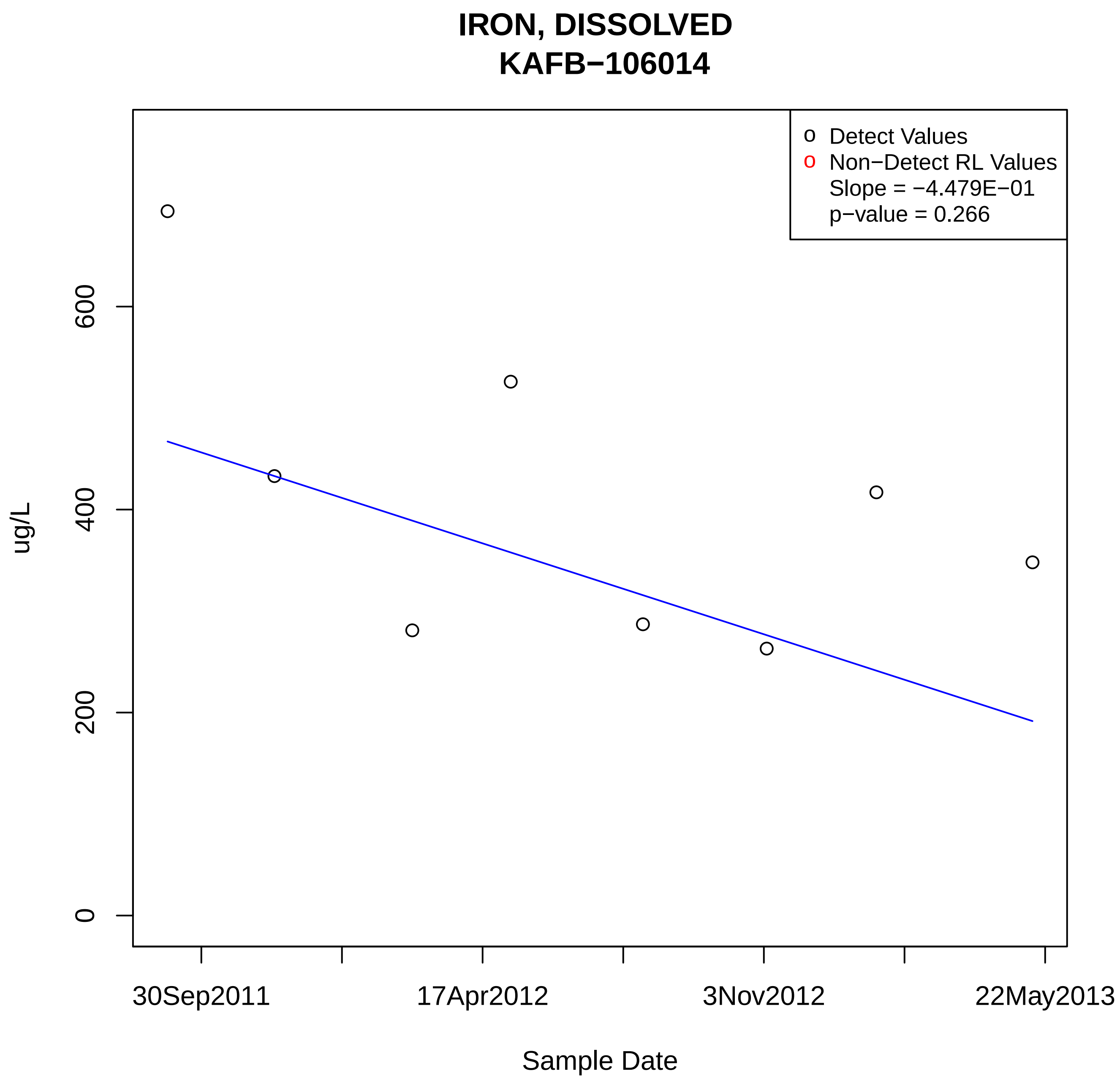


IRON, DISSOLVED
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

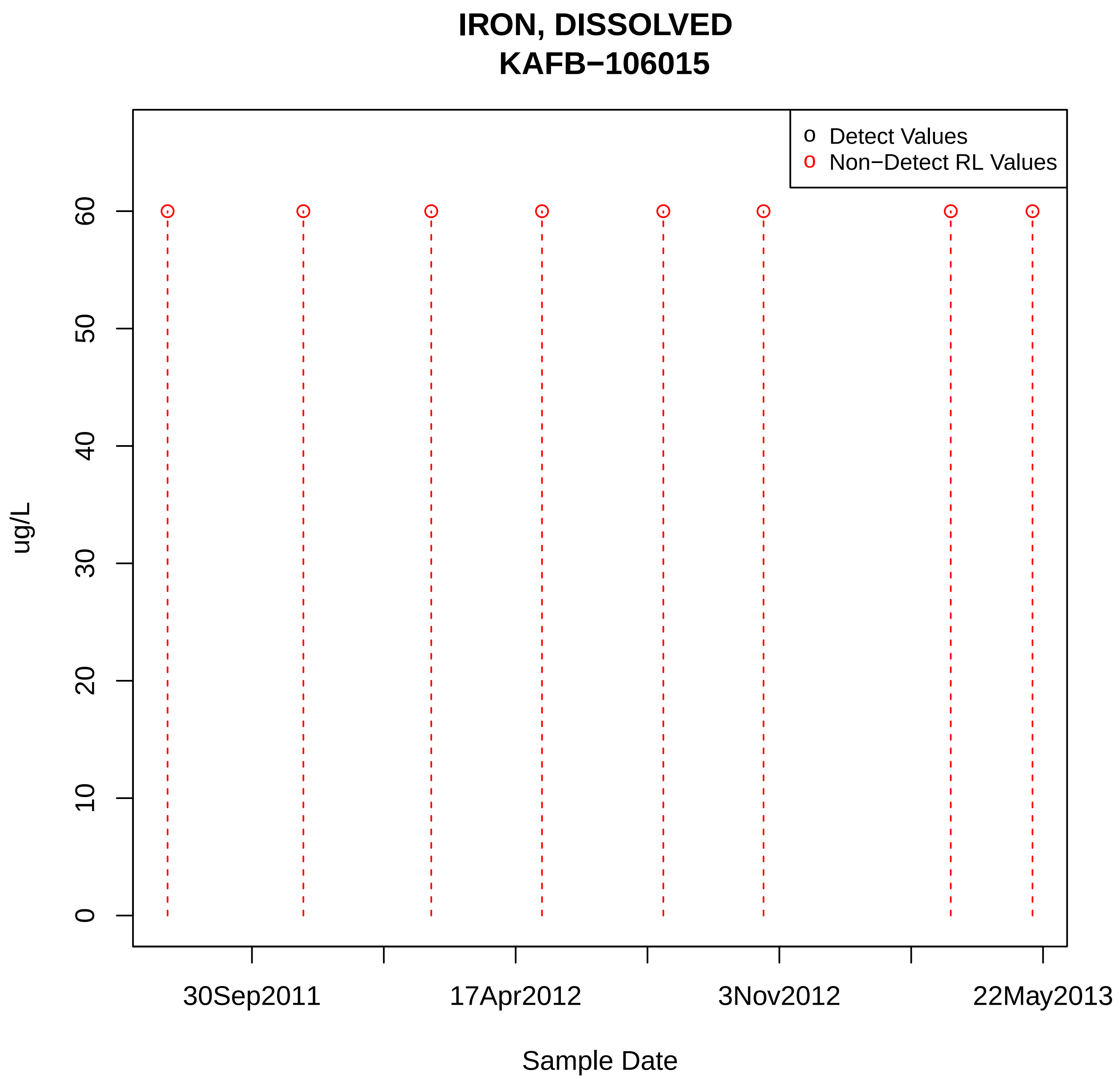


IRON, DISSOLVED
KAFB−106010
o Detect Values
o Non−Detect RL Values
Slope = −1.208E−01
p−value = 0.367
0
50
100
150
200
250
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

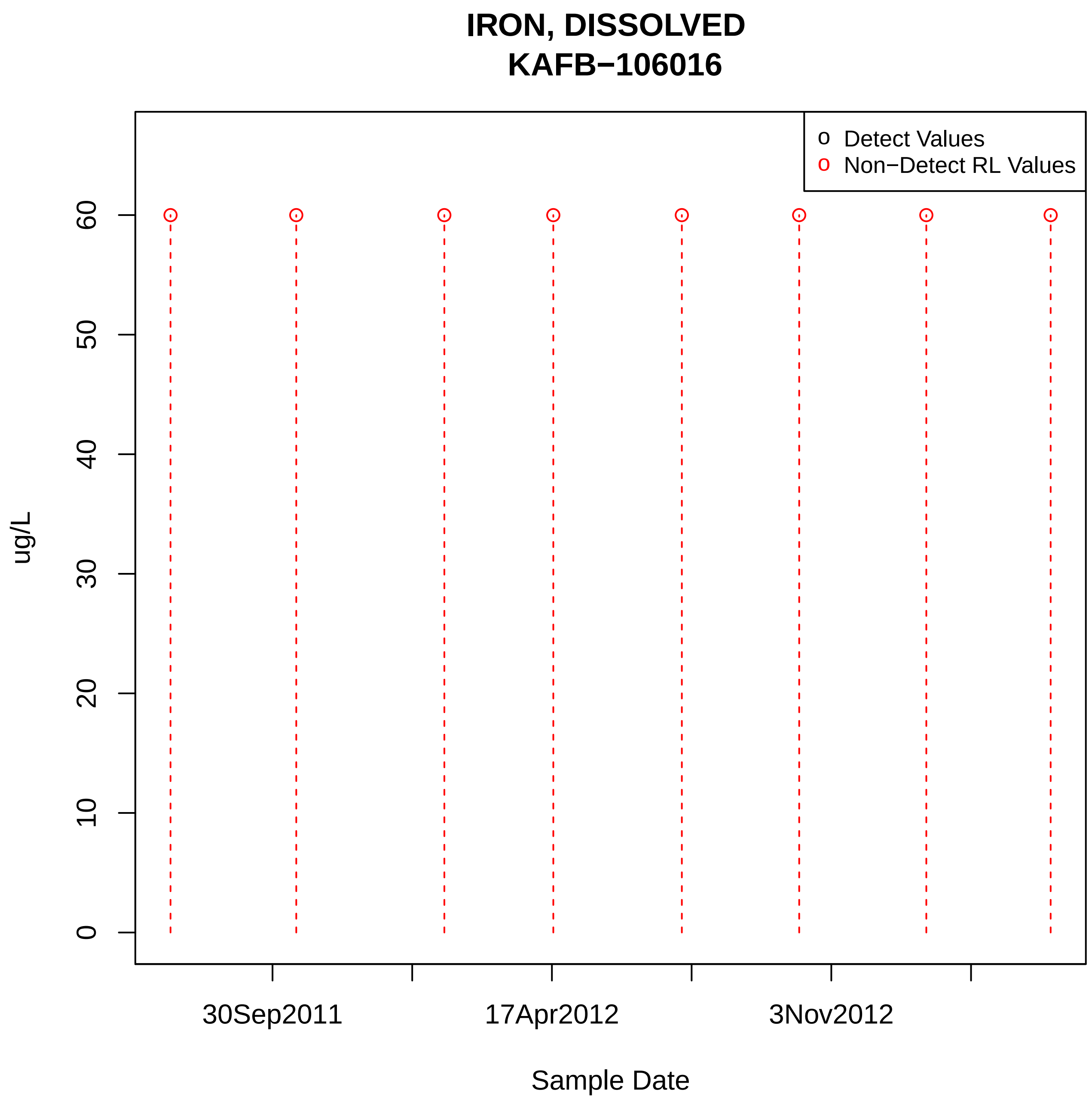

IRON, DISSOLVED
KAFB−106011
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date



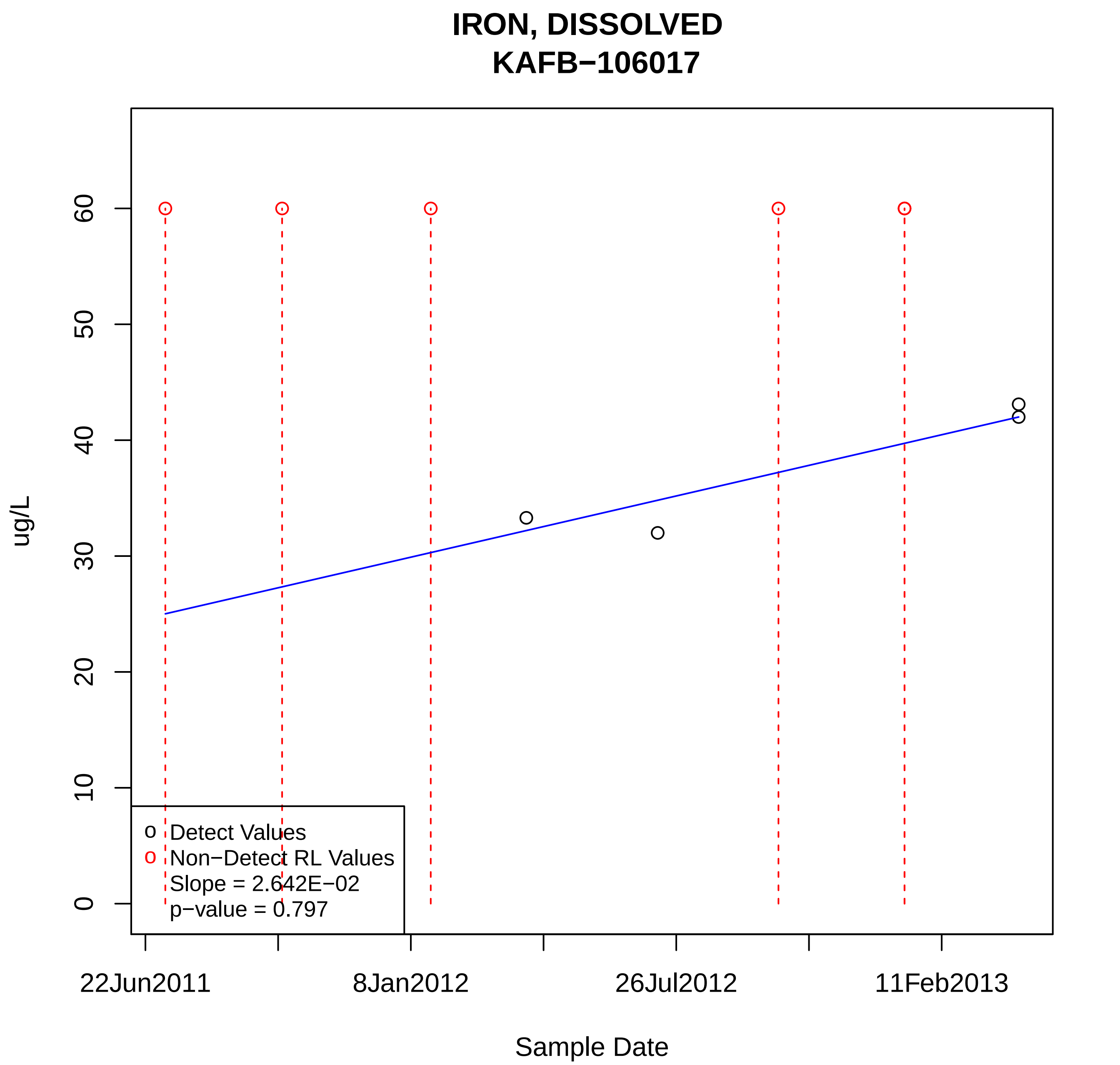
IRON, DISSOLVED
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −4.479E−01
p−value = 0.266
ug/L
0
200
400
600
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



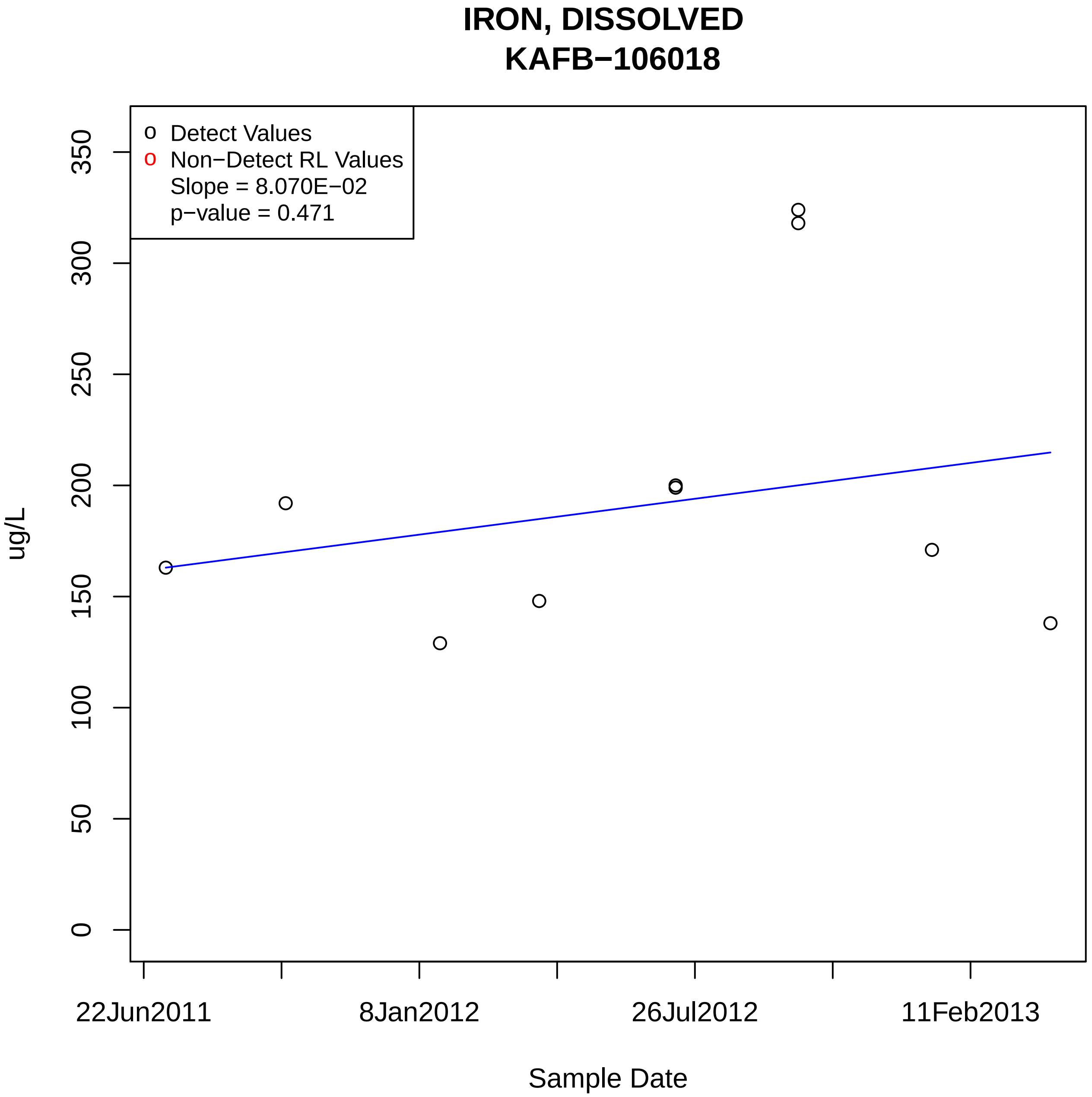
IRON, DISSOLVED
KAFB−106015
o Detect Values
o Non−Detect RL Values
0
10
20
30
40
50
60
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

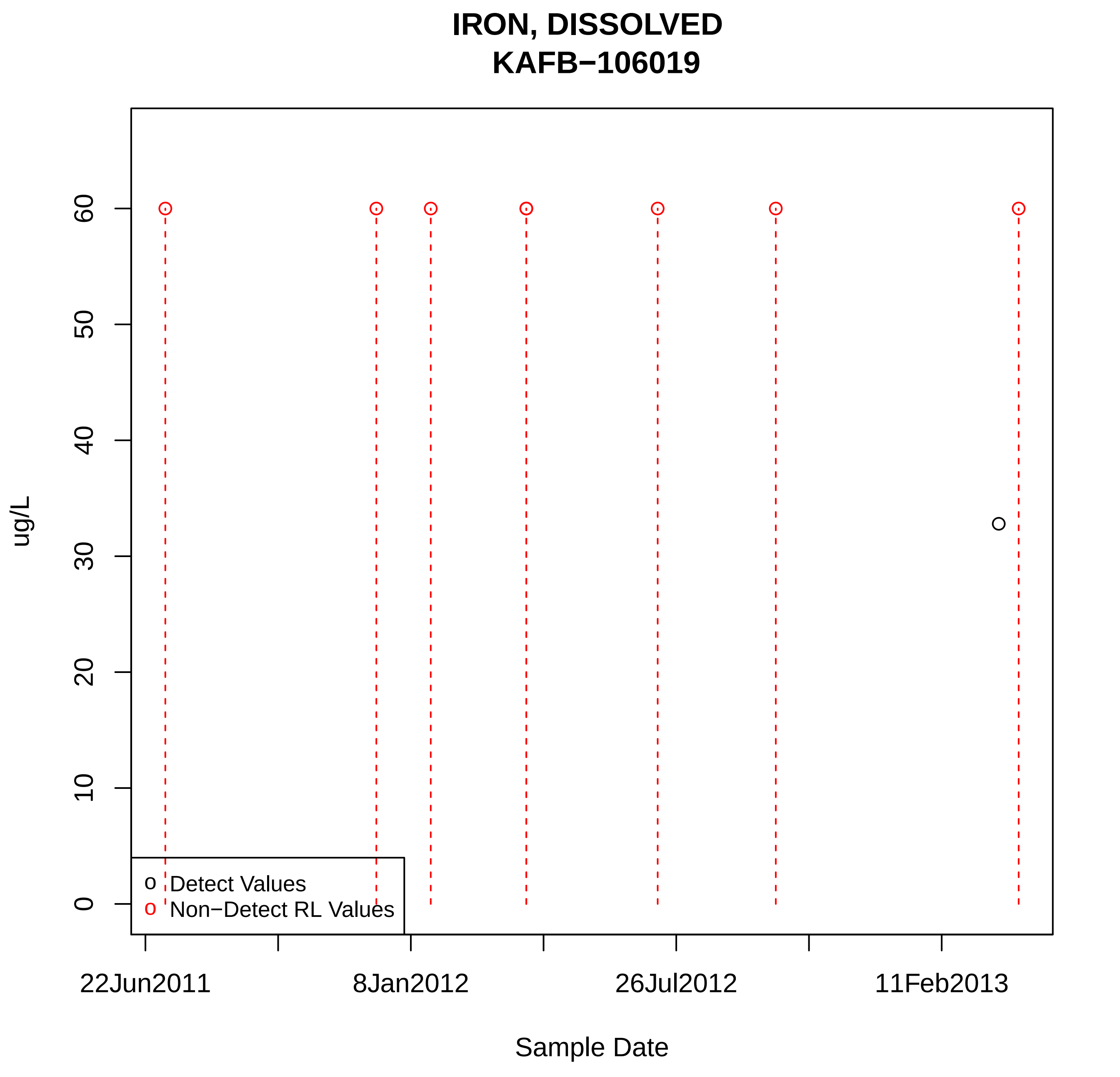


IRON, DISSOLVED
KAFB−106016
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

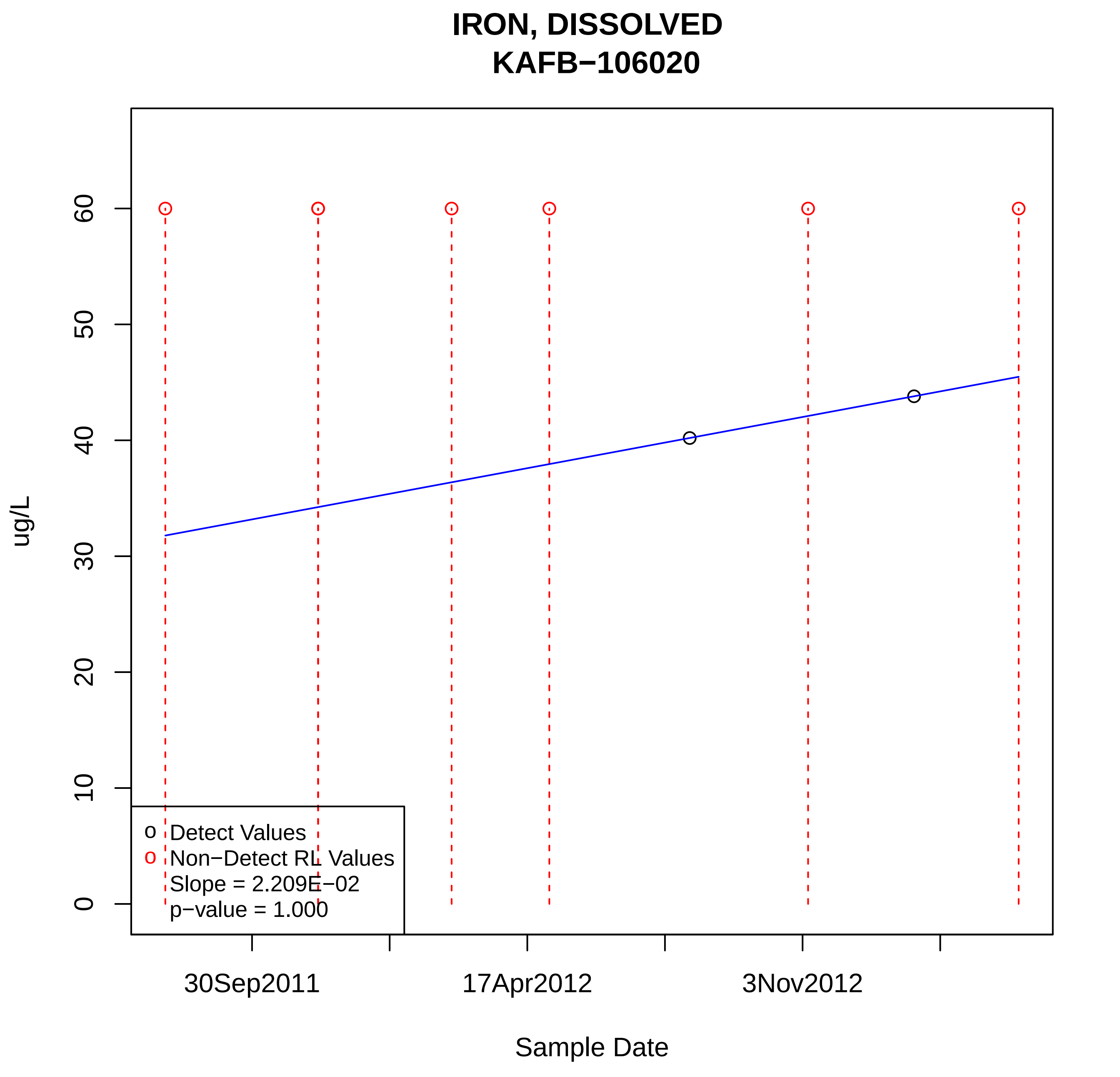


IRON, DISSOLVED
KAFB−106017
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = 2.642E−02
p−value = 0.797

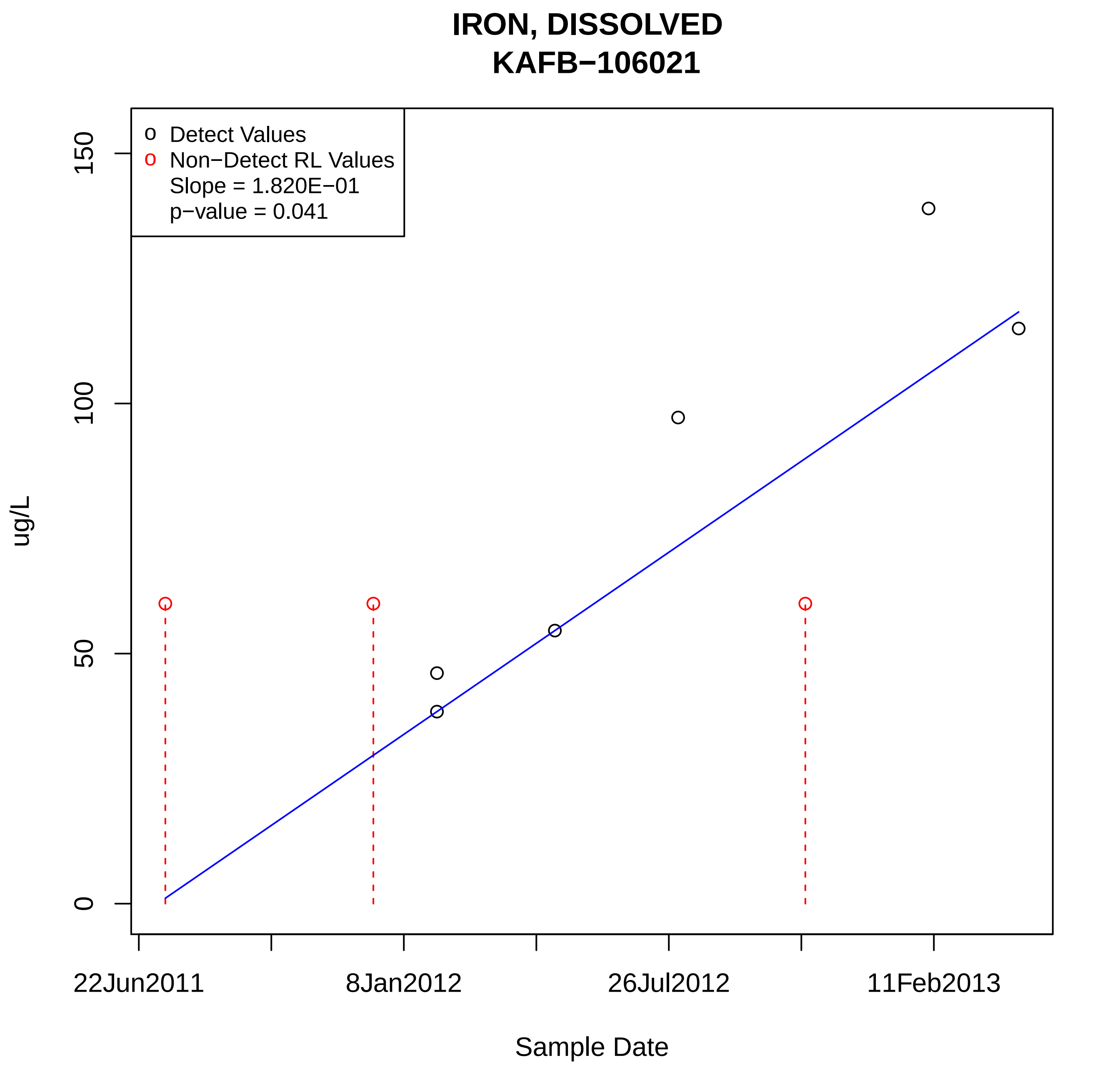

IRON, DISSOLVED
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = 8.070E−02
p−value = 0.471
ug/L
0
50
100
150
200
250
300
350
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

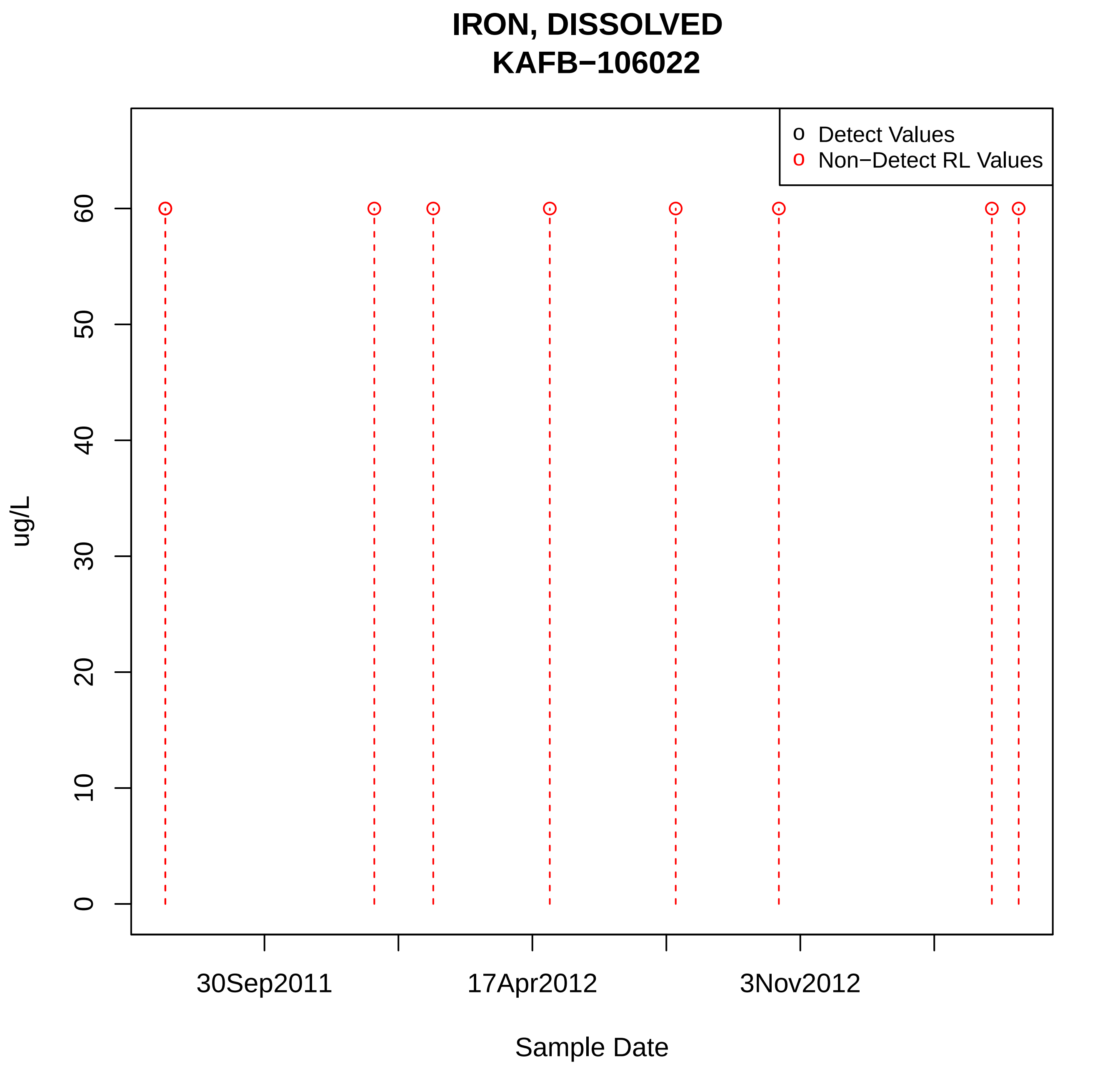


IRON, DISSOLVED
KAFB−106019
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values

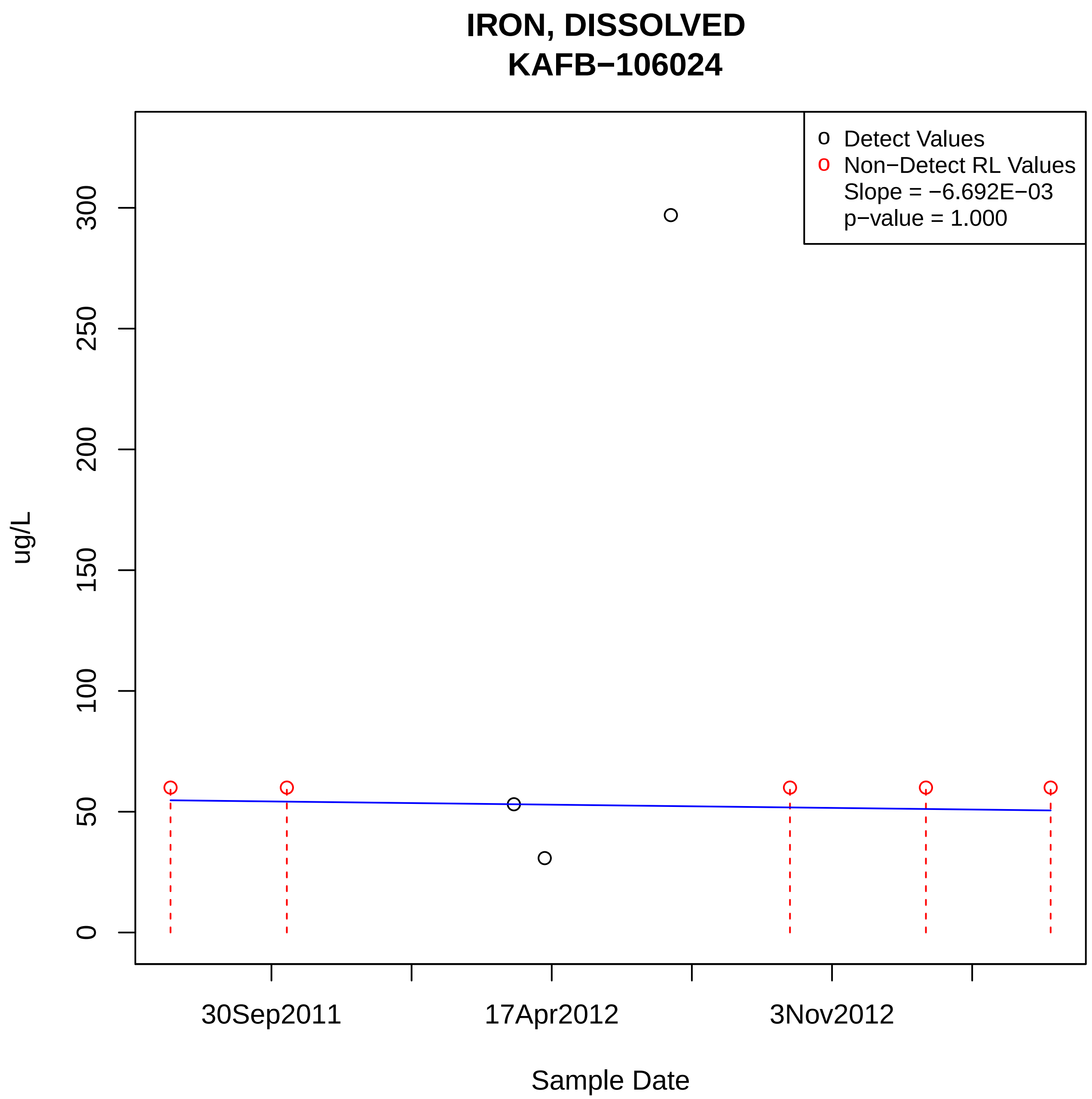


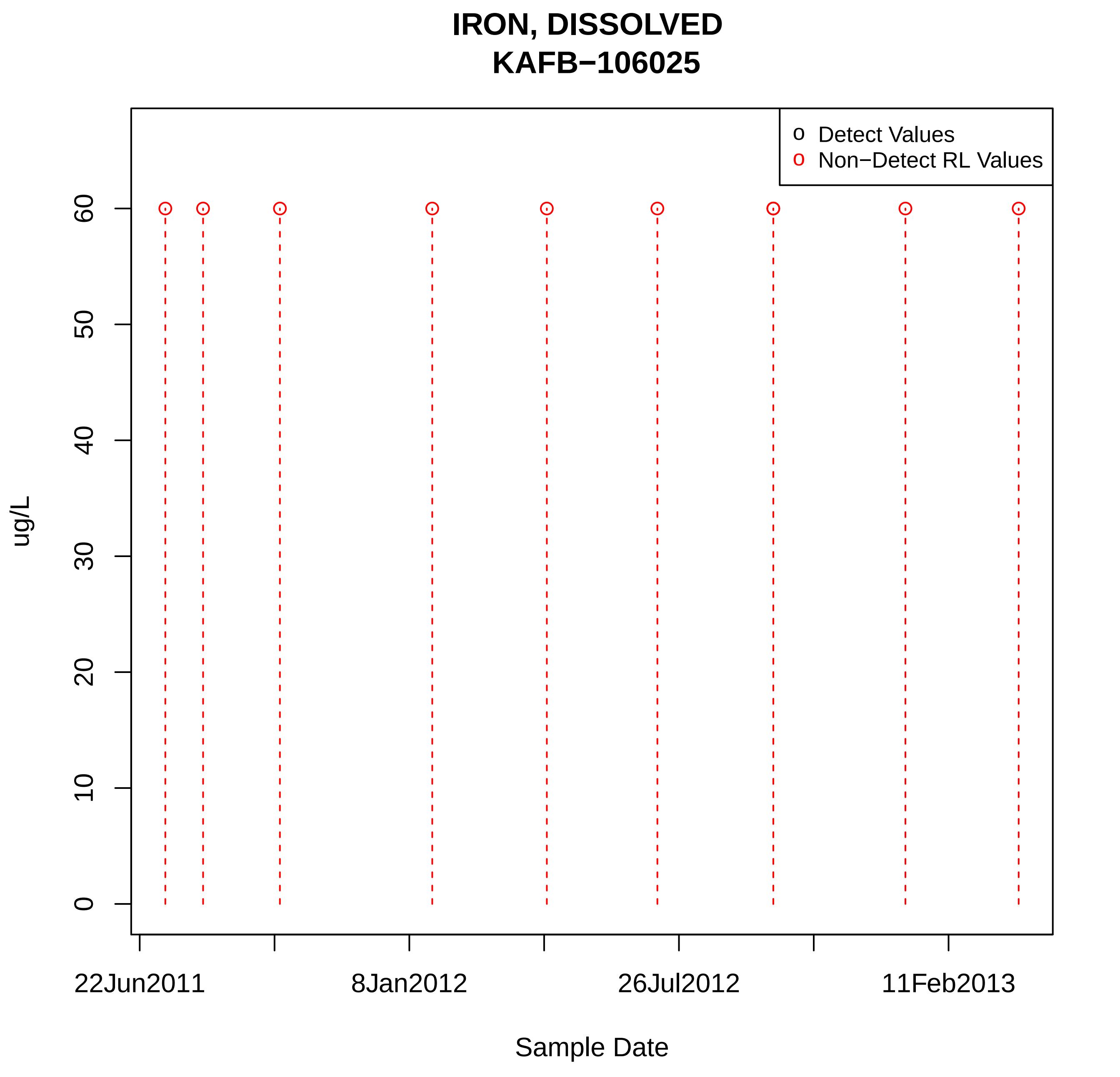
IRON, DISSOLVED
KAFB−106020
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 2.209E−02
p−value = 1.000


IRON, DISSOLVED
KAFB−106021
Detect Values
Non−Detect RL Values
Slope = 1.820E−01
p−value = 0.041
ug/L
0
50
100
150
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

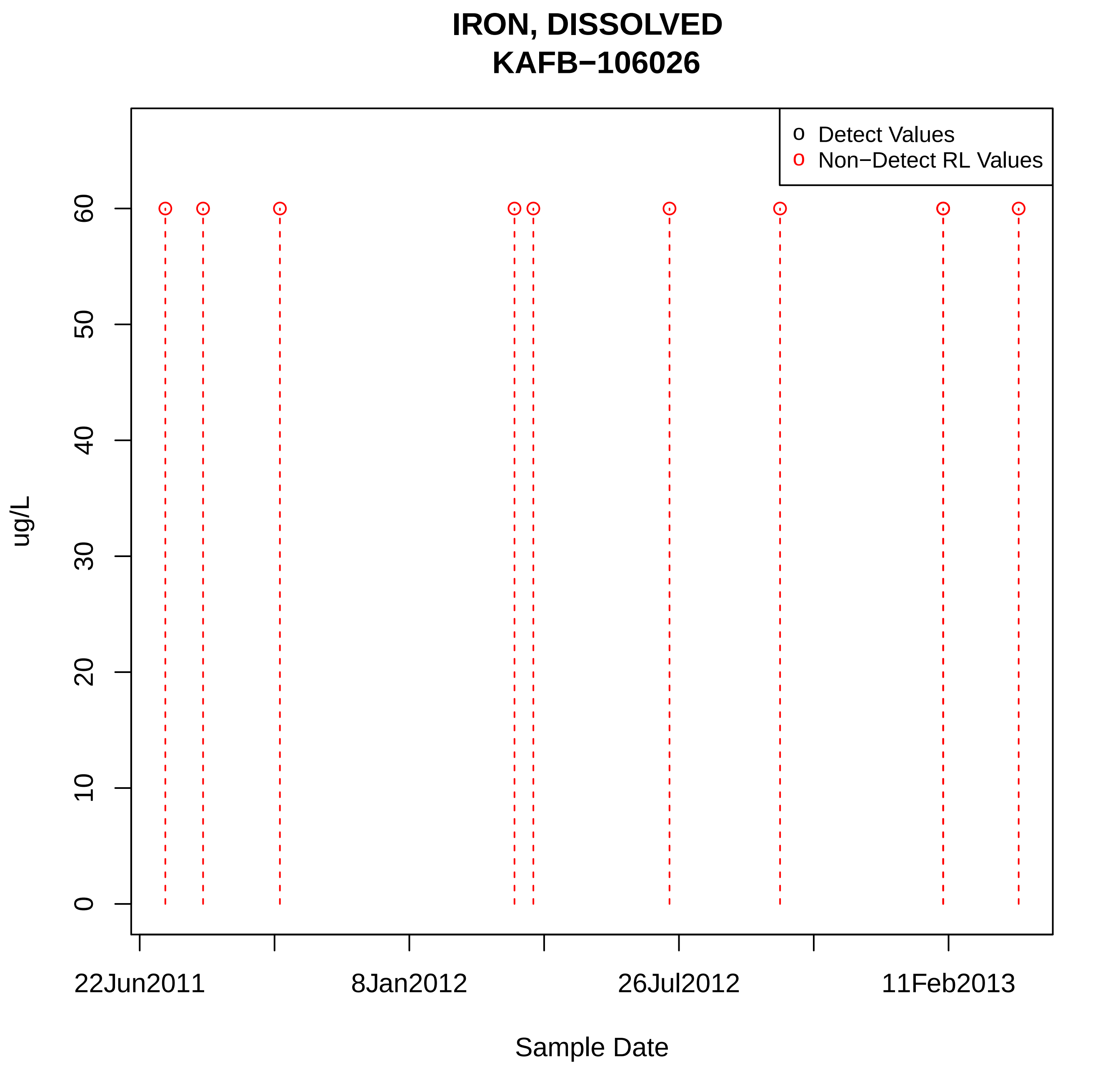


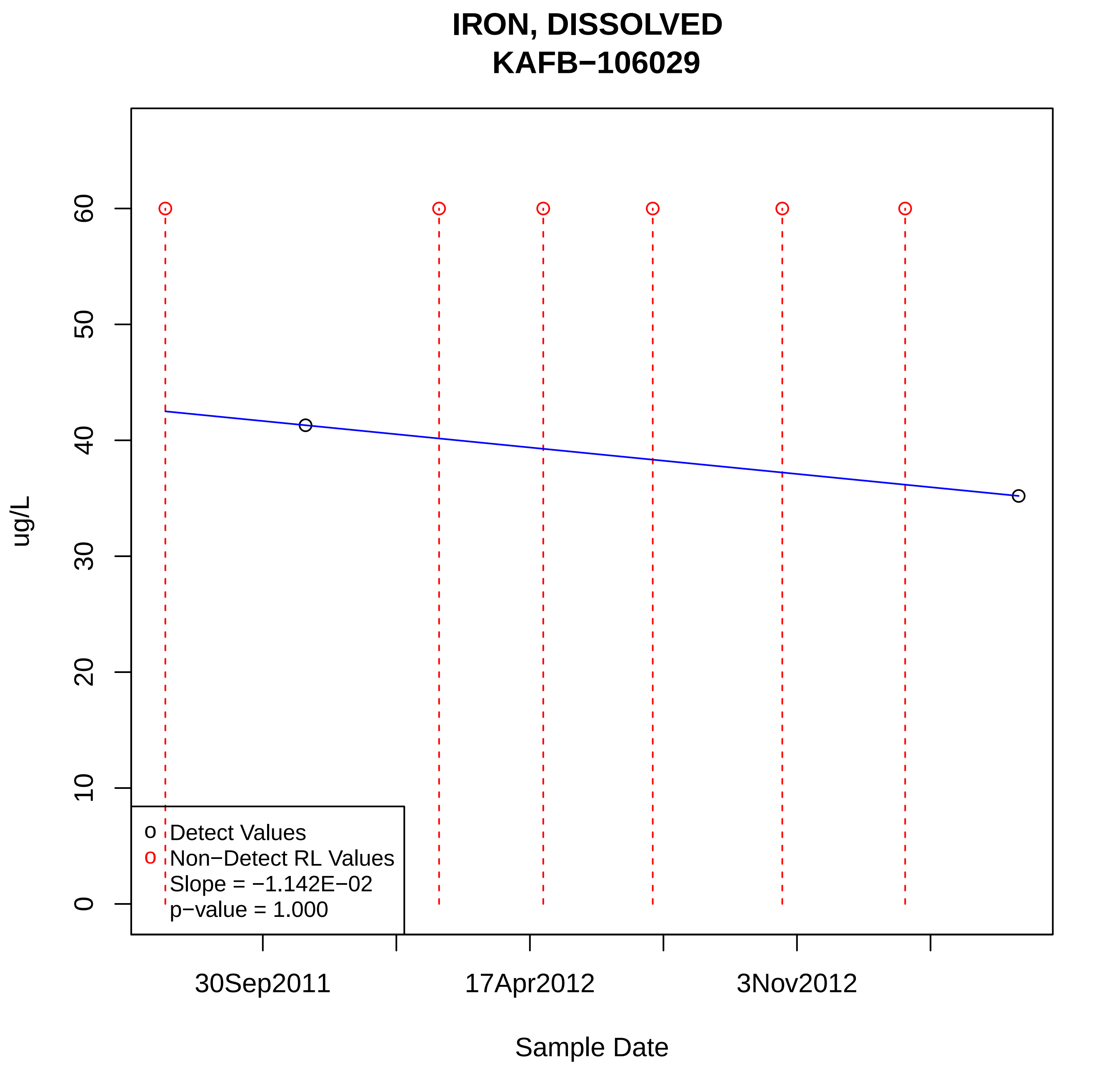
IRON, DISSOLVED
KAFB−106022
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date


IRON, DISSOLVED
KAFB−106024
o Detect Values
o Non−Detect RL Values
Slope = −6.692E−03
p−value = 1.000
ug/L
0
50
100
150
200
250
300
30Sep2011
17Apr2012
3Nov2012
Sample Date

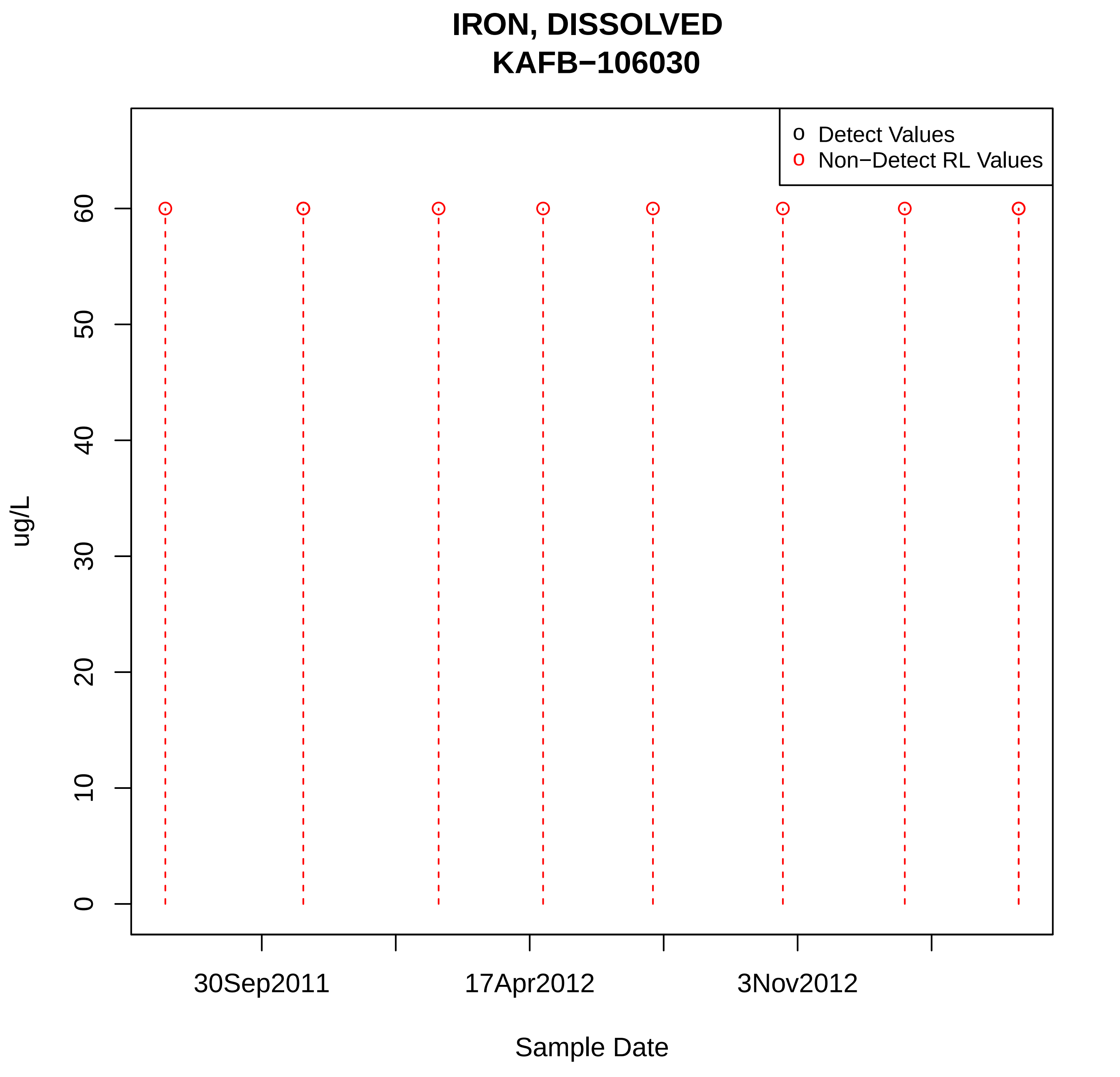


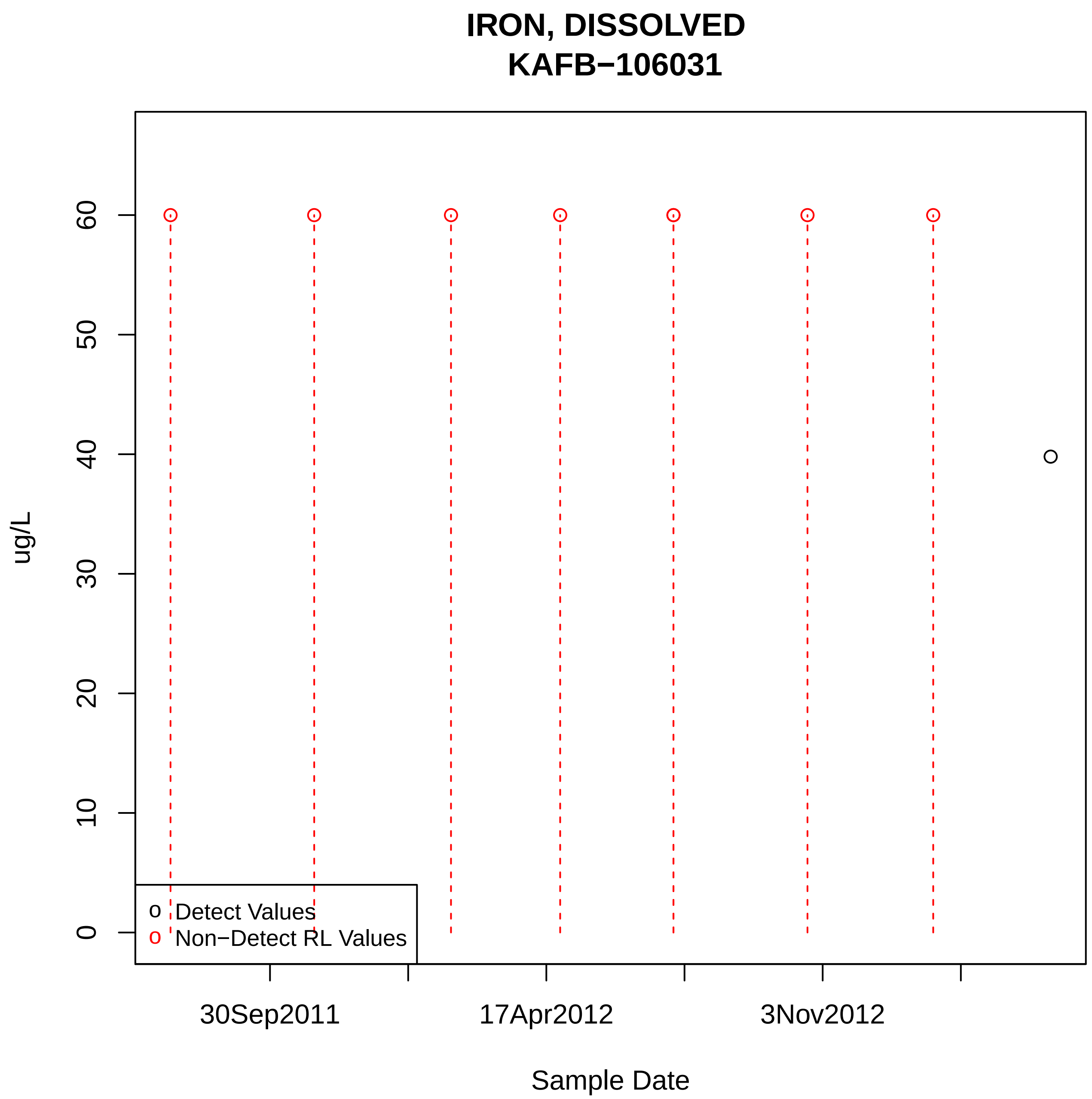
IRON, DISSOLVED
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


IRON, DISSOLVED
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

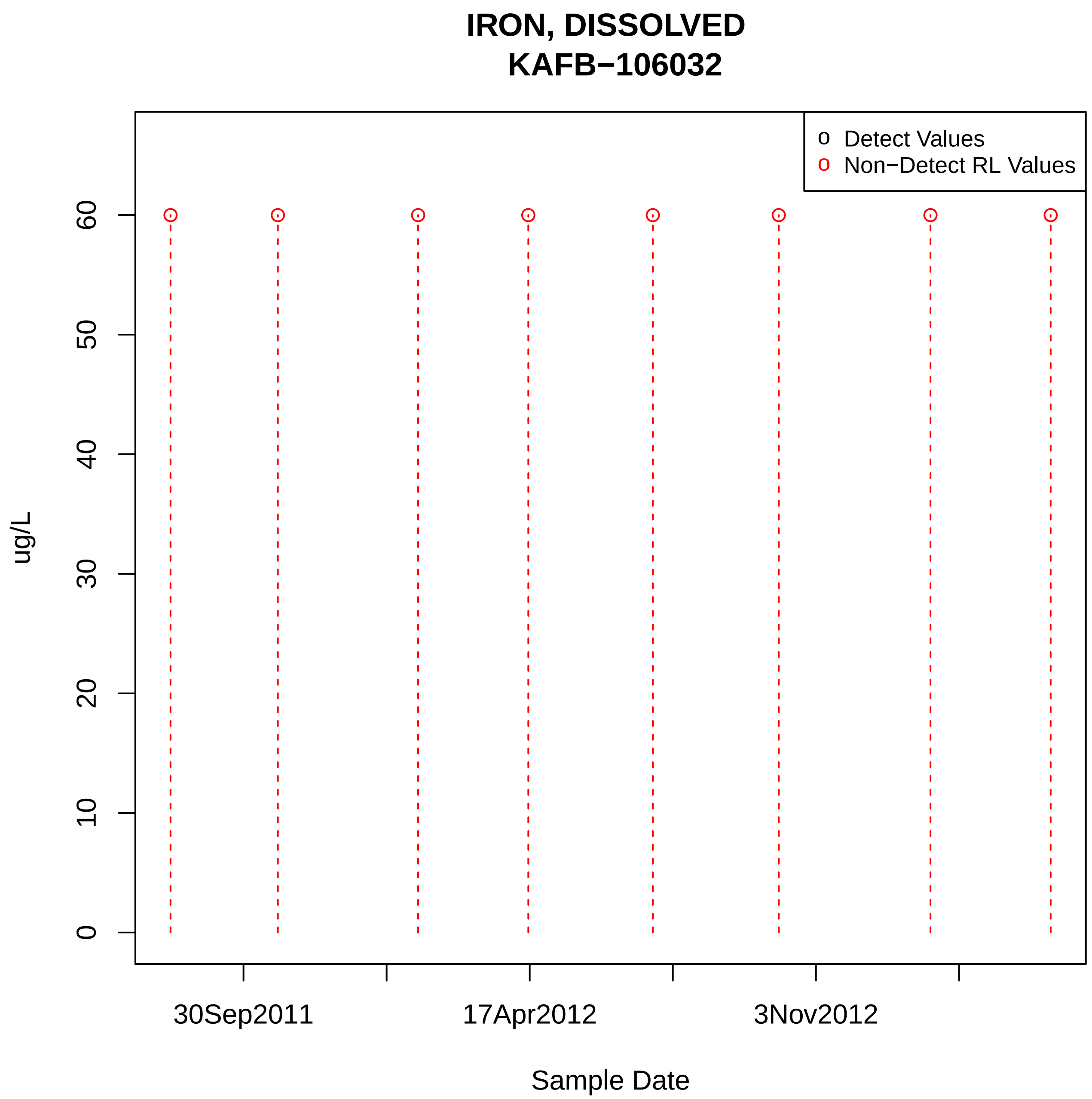


IRON, DISSOLVED
KAFB−106029
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −1.142E−02
p−value = 1.000

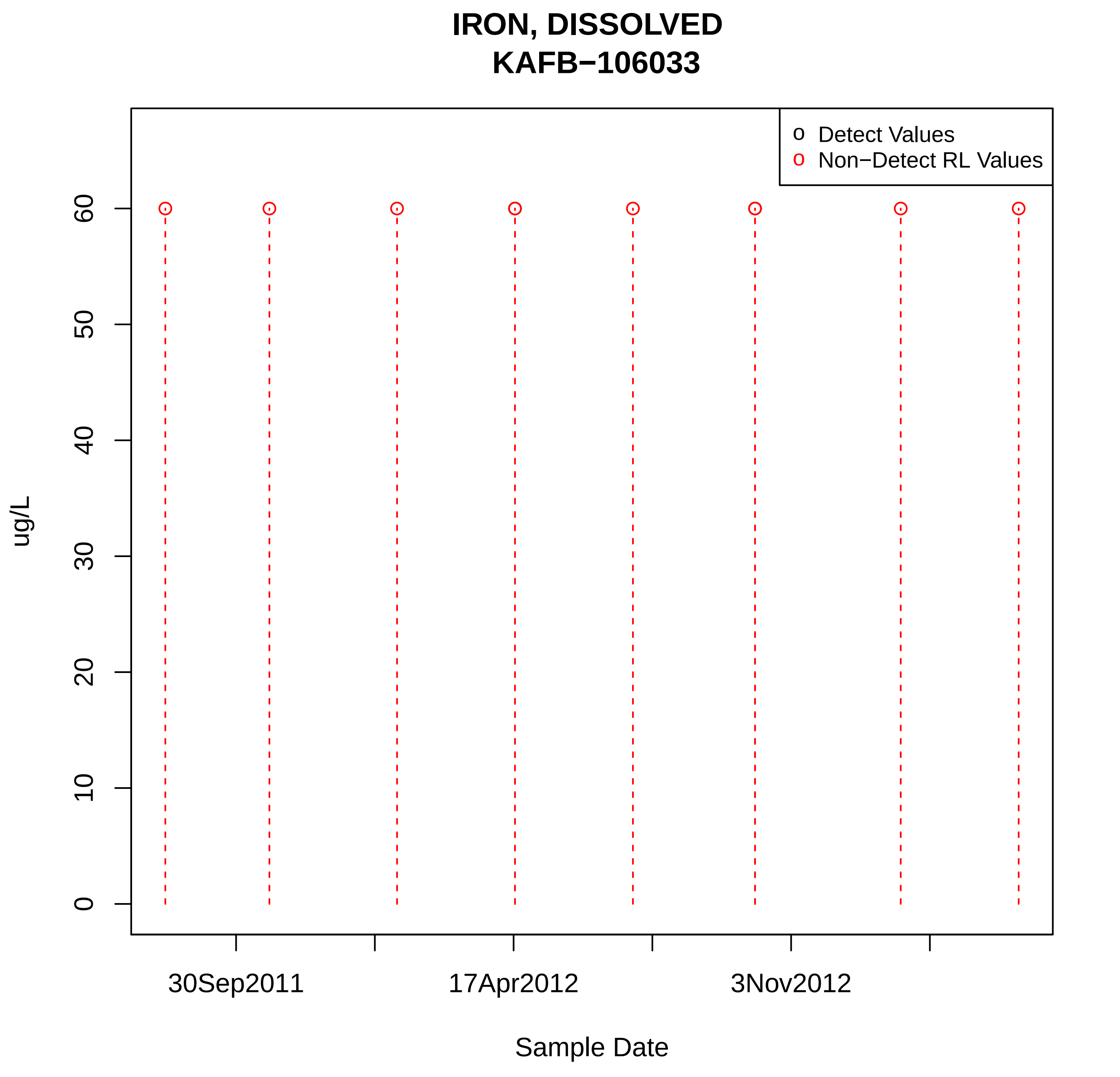

IRON, DISSOLVED
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

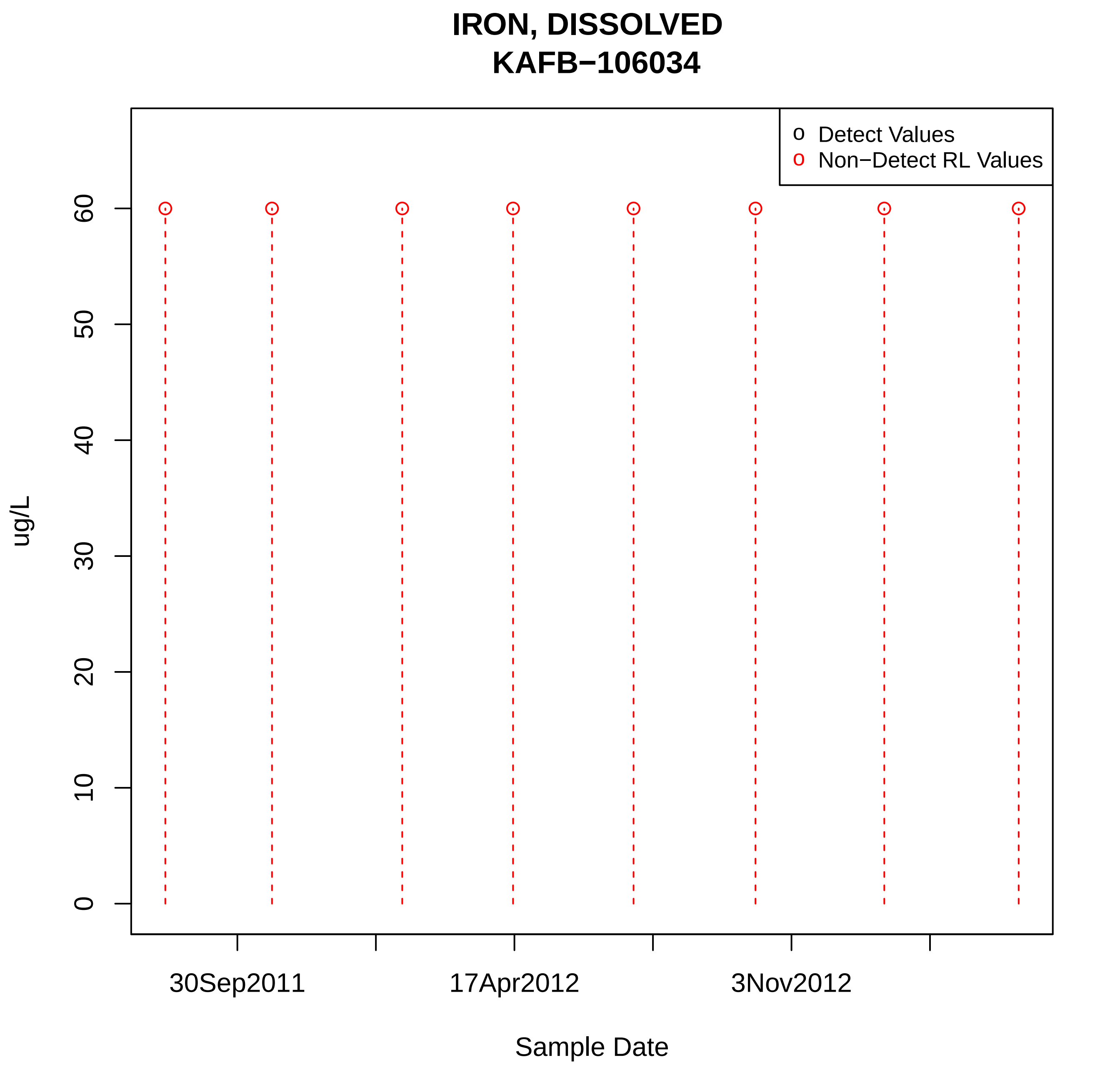


IRON, DISSOLVED
KAFB−106031
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

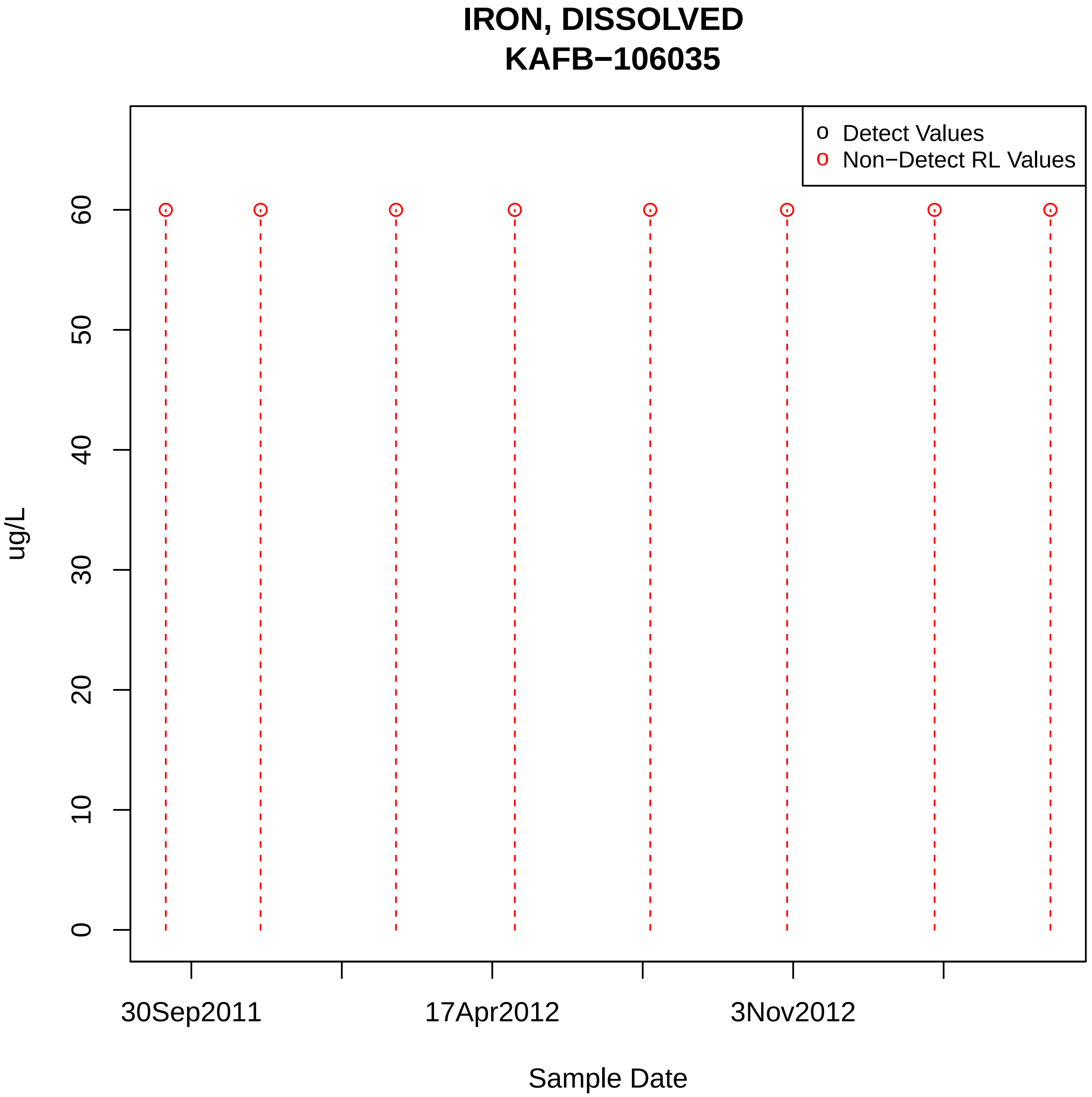


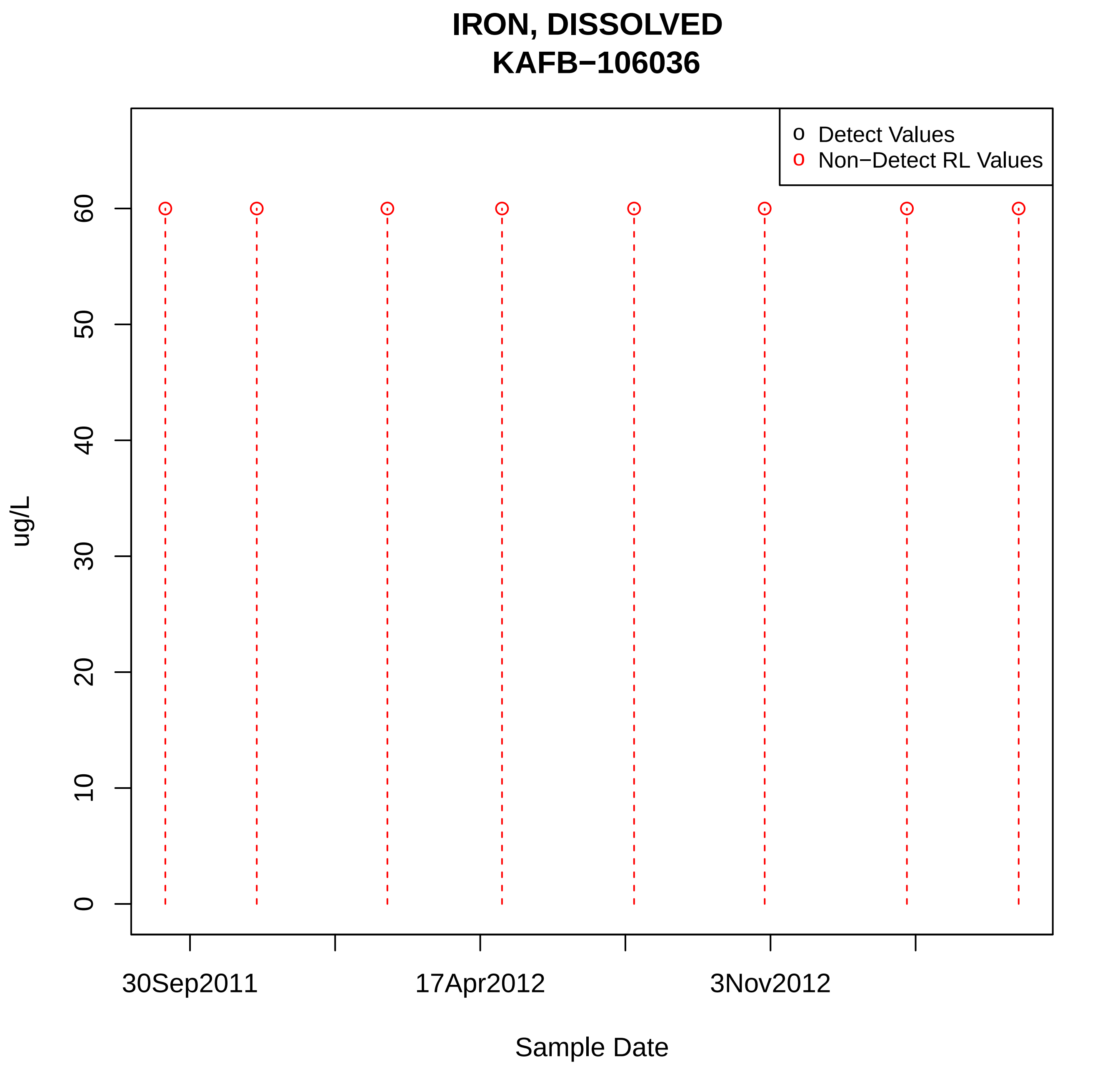
IRON, DISSOLVED
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date


IRON, DISSOLVED
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

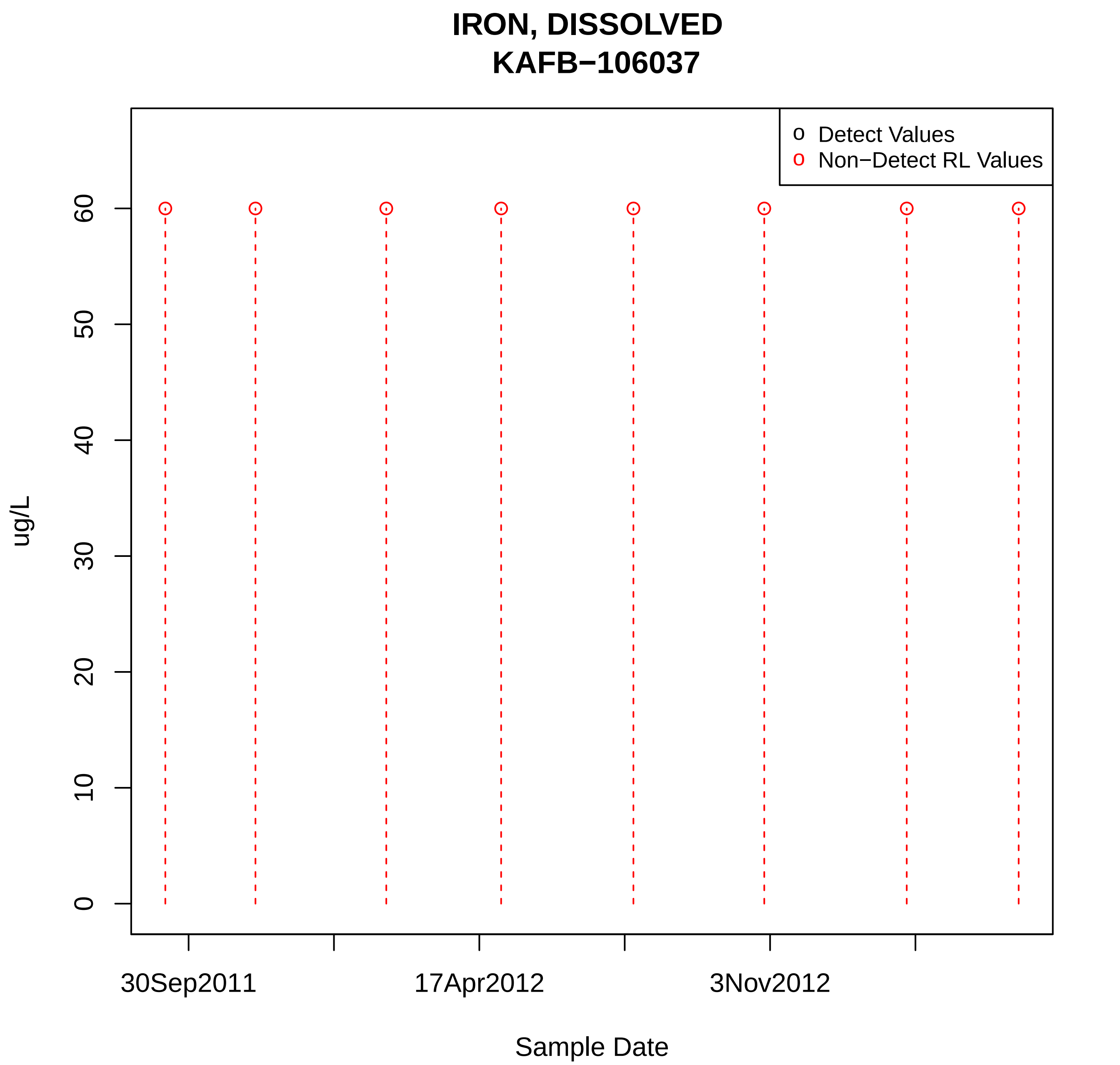


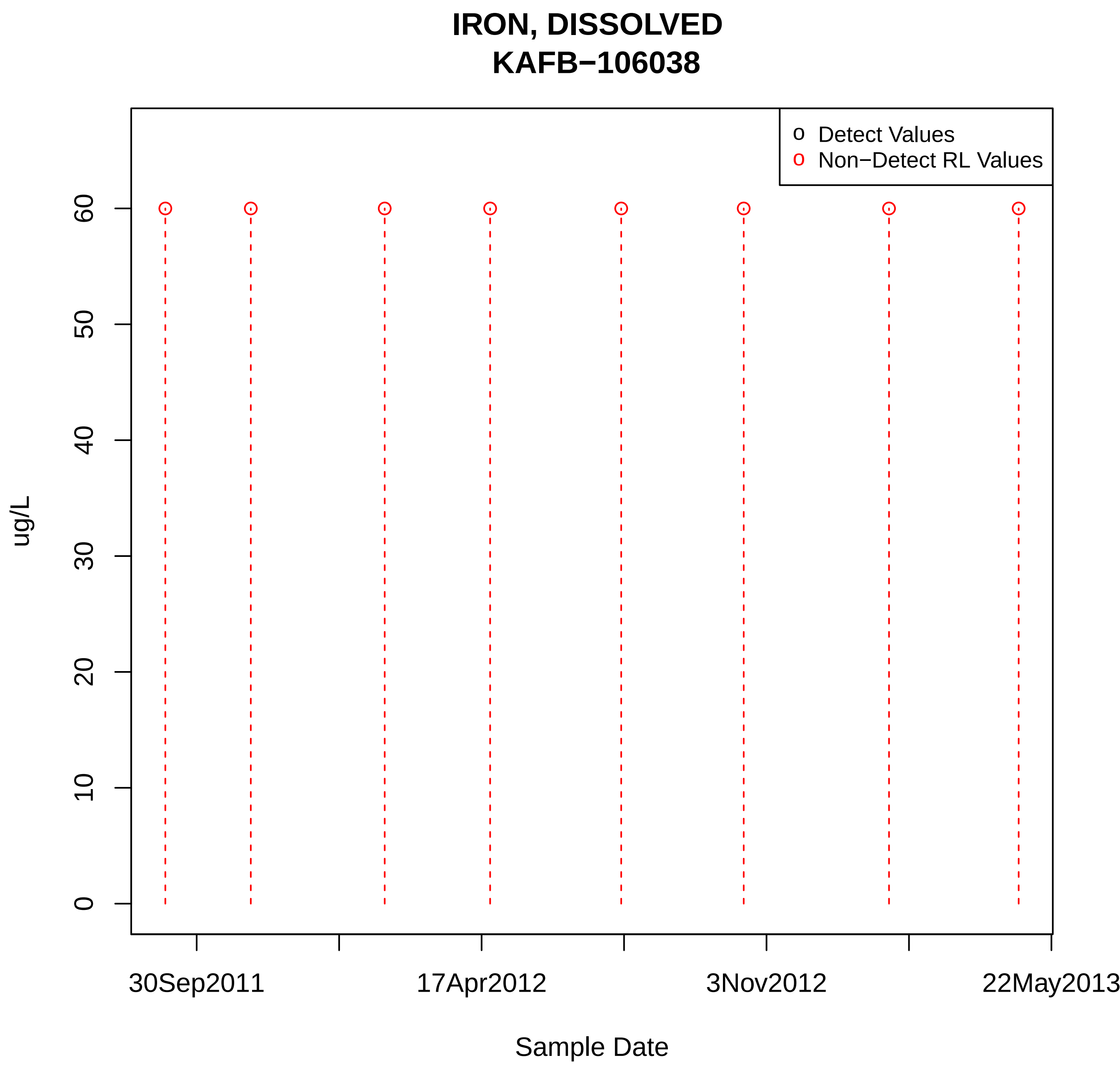
IRON, DISSOLVED
KAFB−106034
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

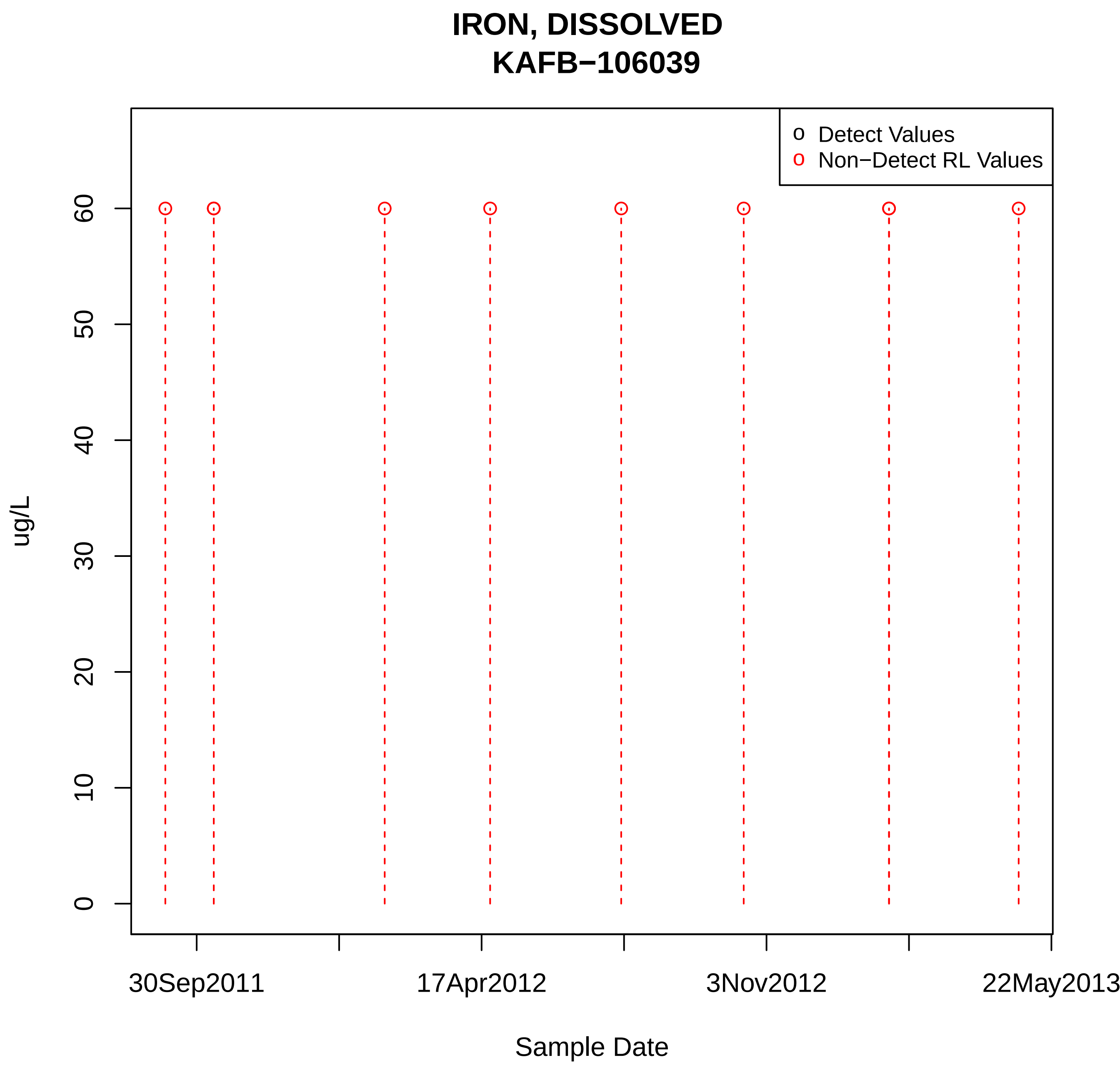

IRON, DISSOLVED
KAFB−106035
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date



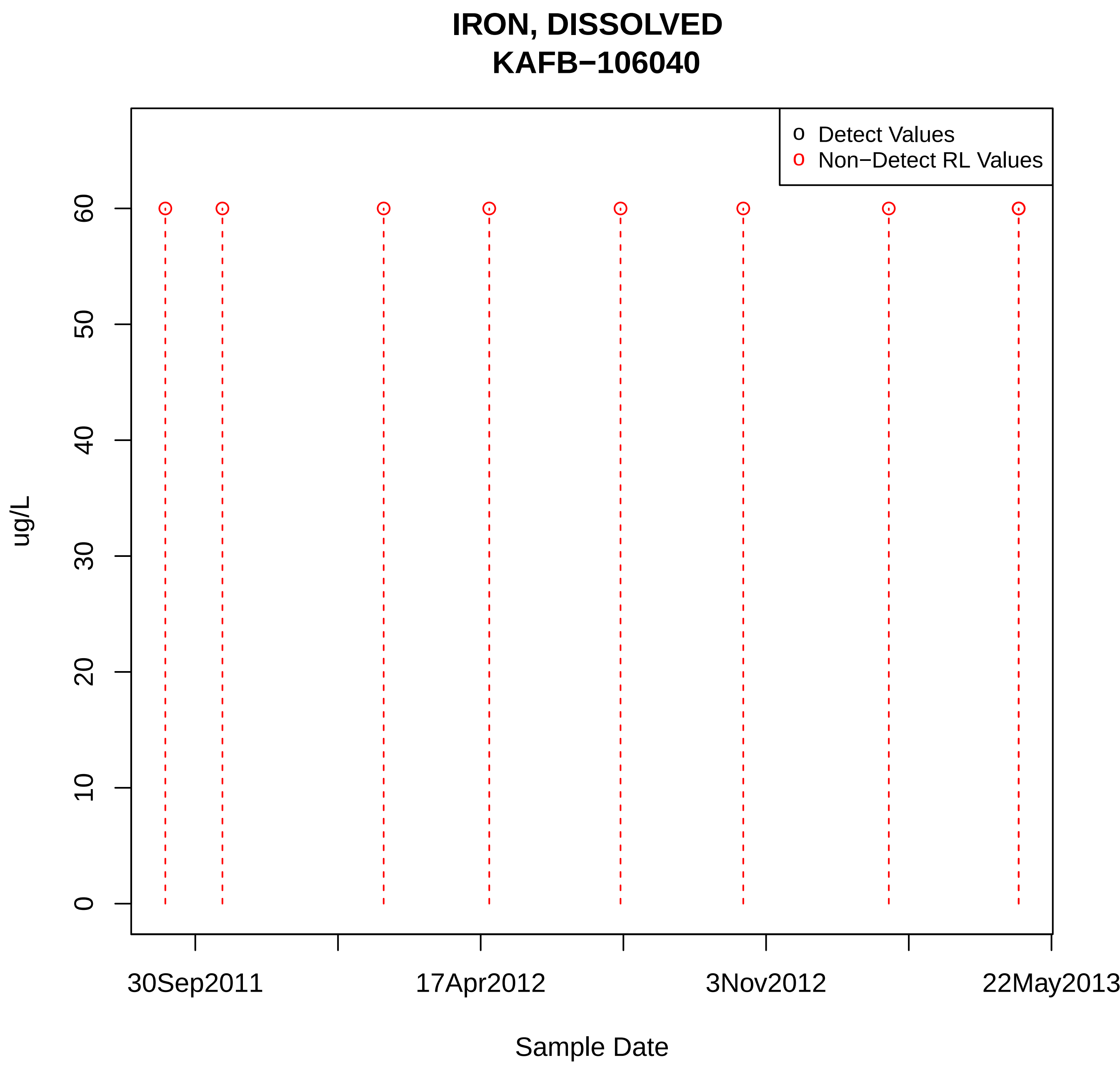
IRON, DISSOLVED
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date


IRON, DISSOLVED
KAFB−106037
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

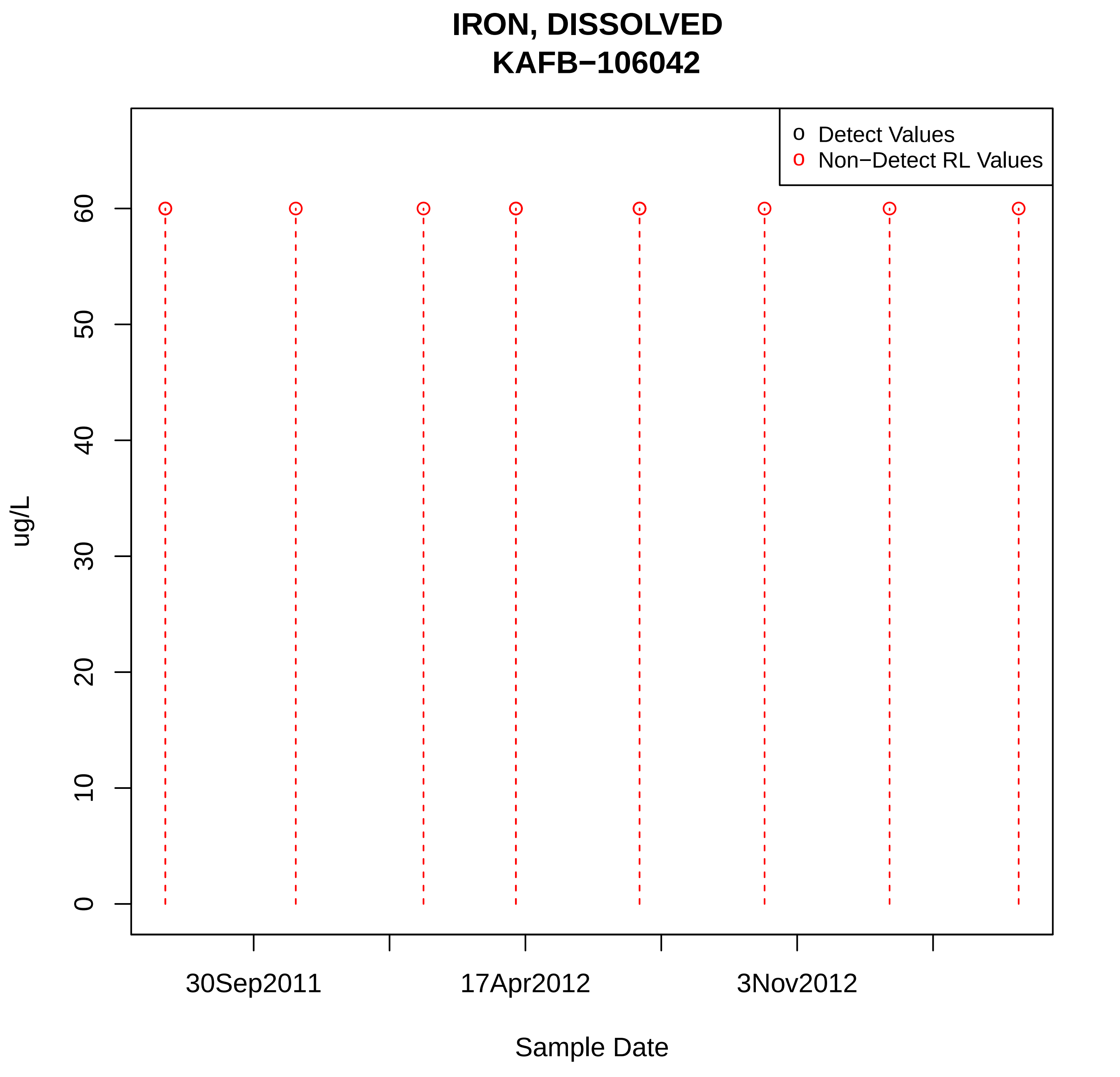

IRON, DISSOLVED
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



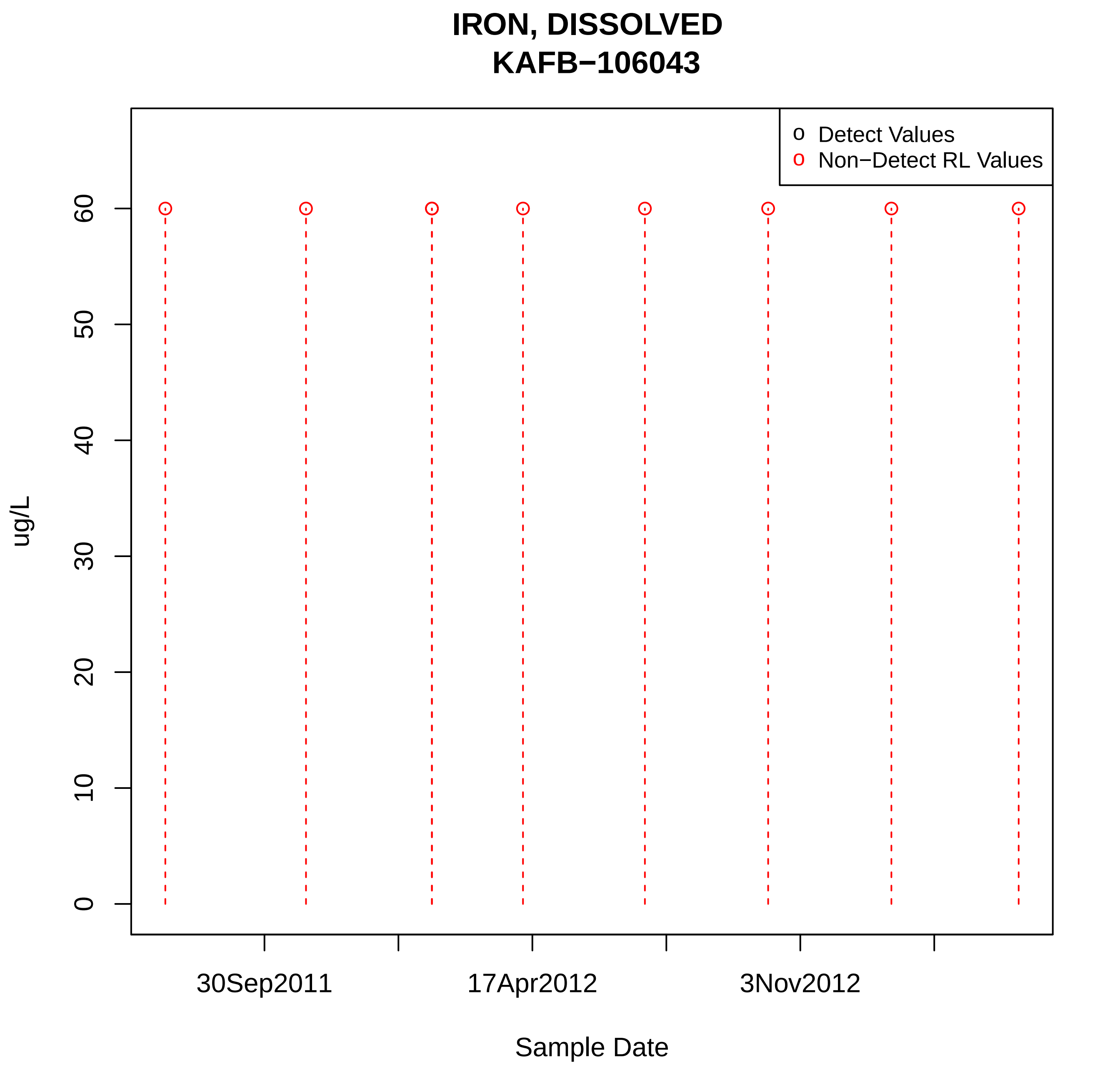
IRON, DISSOLVED
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

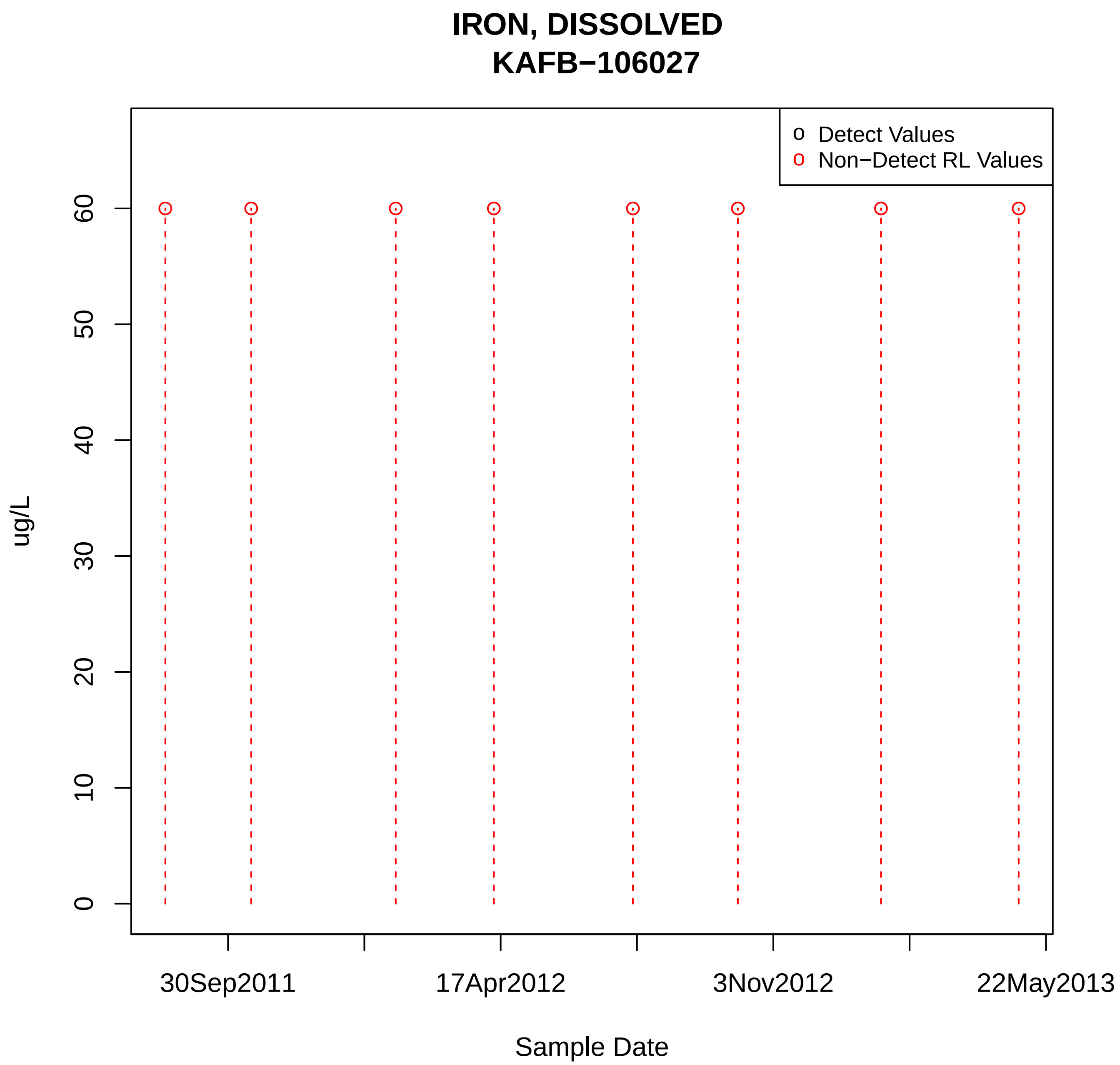


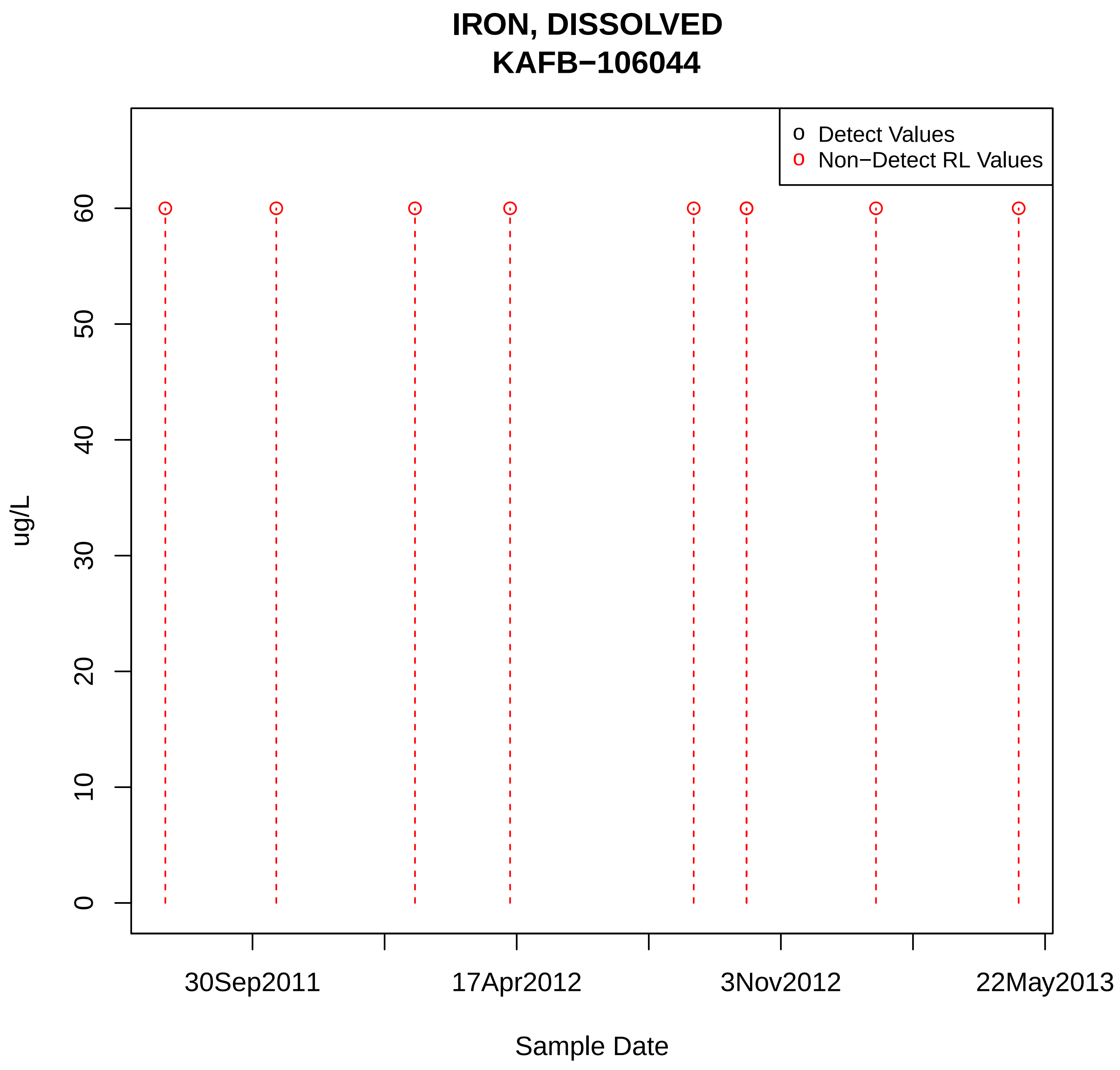
IRON, DISSOLVED
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

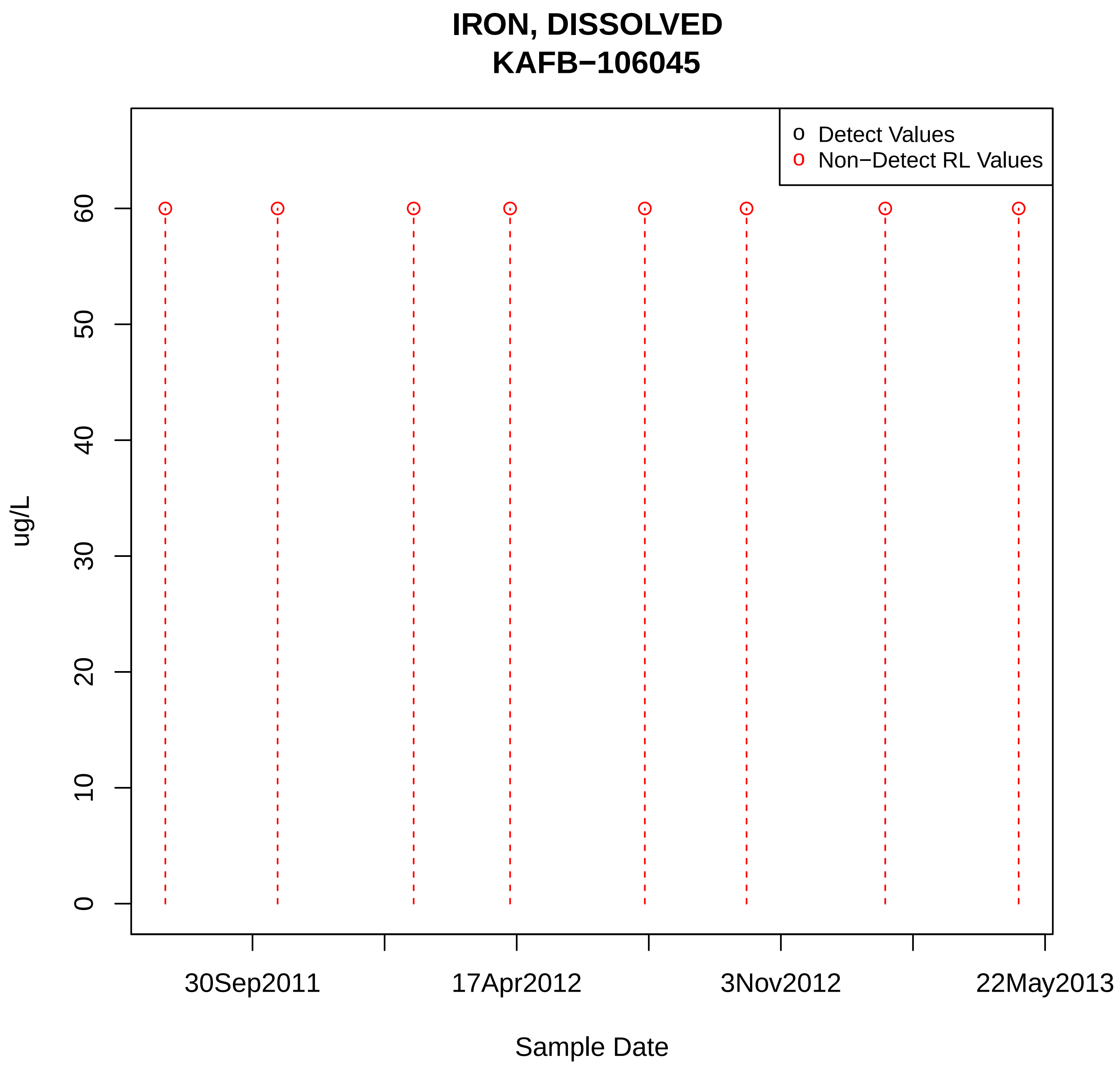


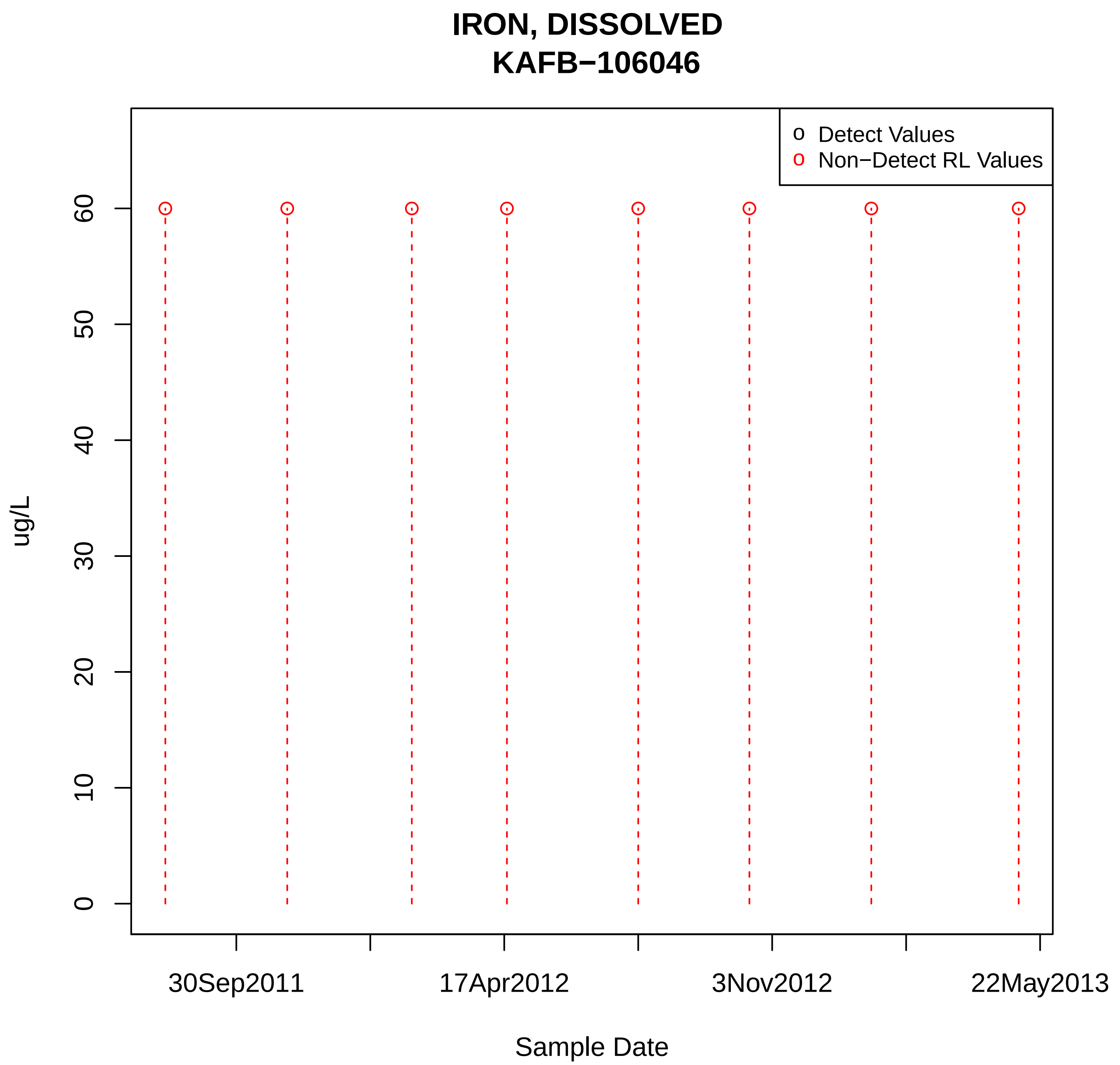
IRON, DISSOLVED
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

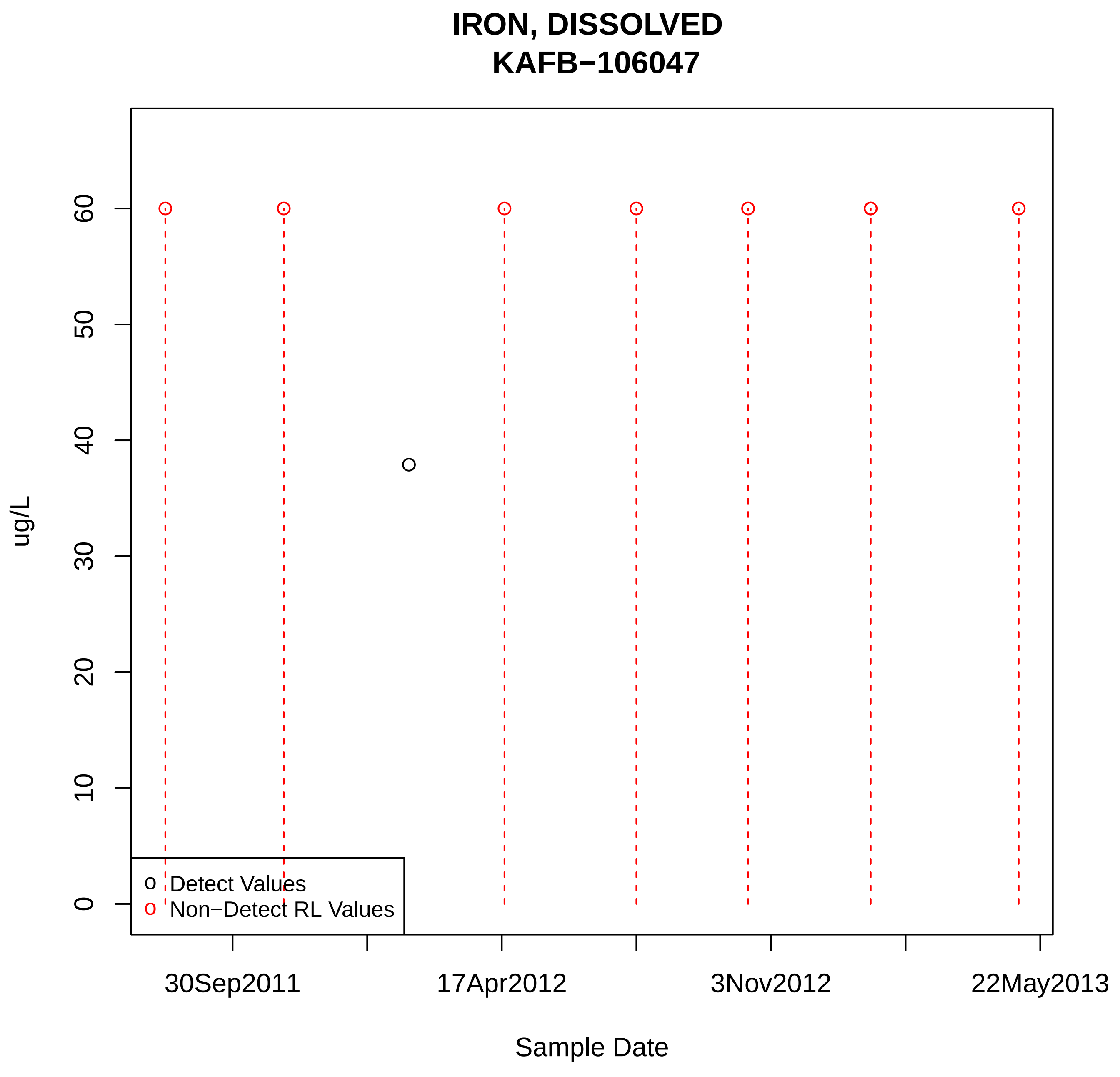

IRON, DISSOLVED
KAFB−106043
o Detect Values
o Non−Detect RL Values
0
10
20
30
40
50
60
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


IRON, DISSOLVED
KAFB−106027
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

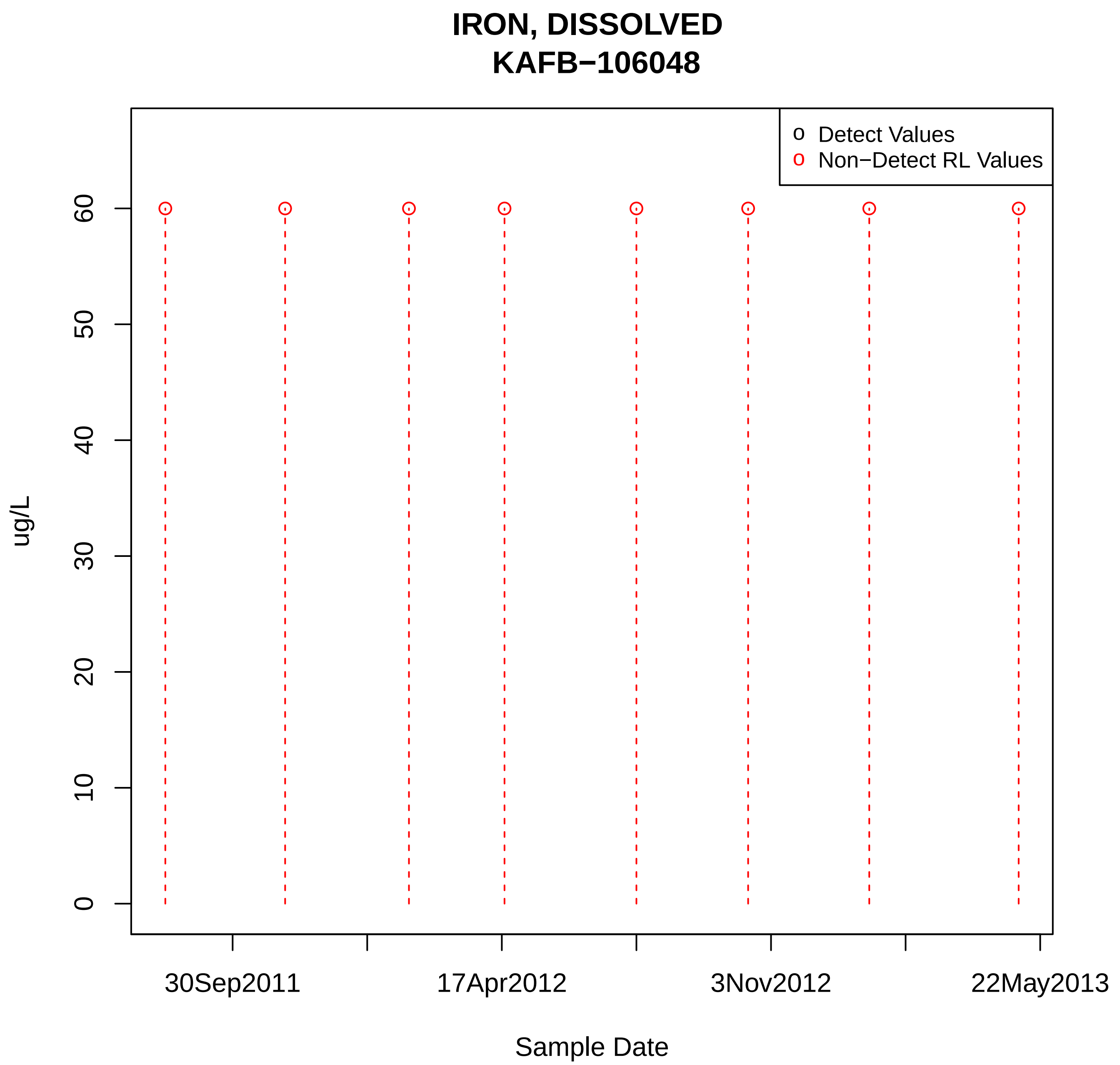

IRON, DISSOLVED
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


IRON, DISSOLVED
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

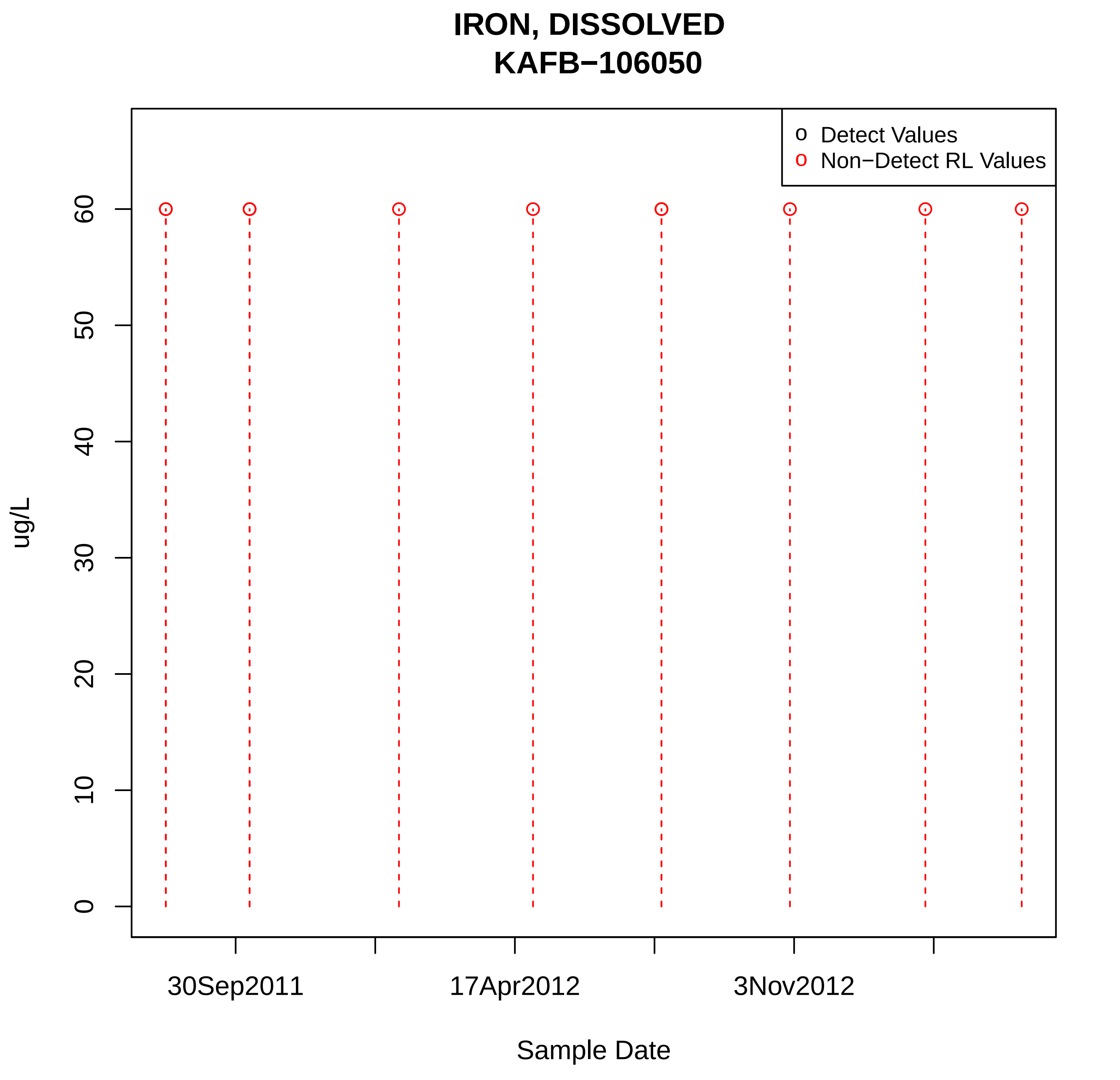

IRON, DISSOLVED
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



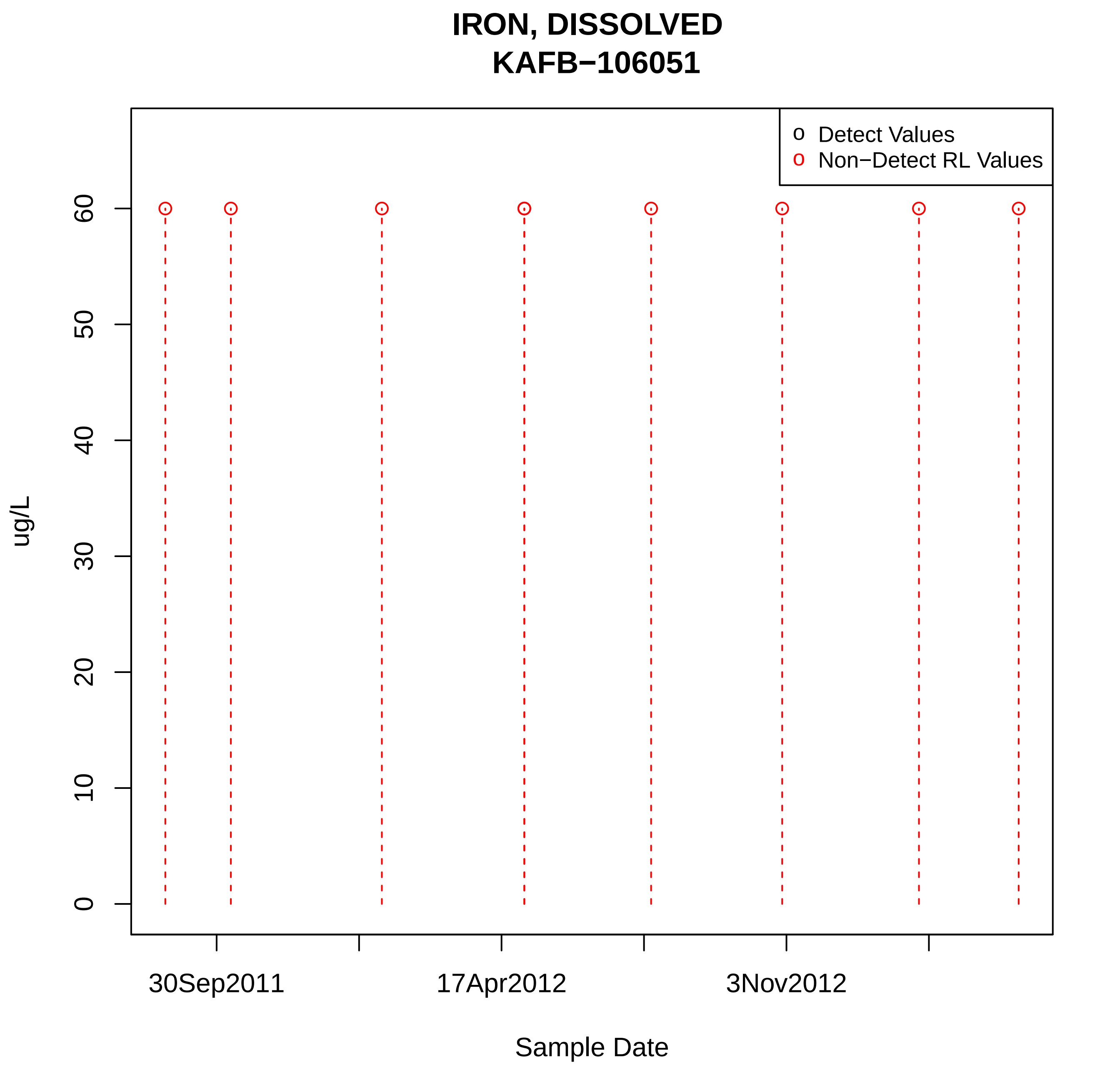
IRON, DISSOLVED
KAFB−106047
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

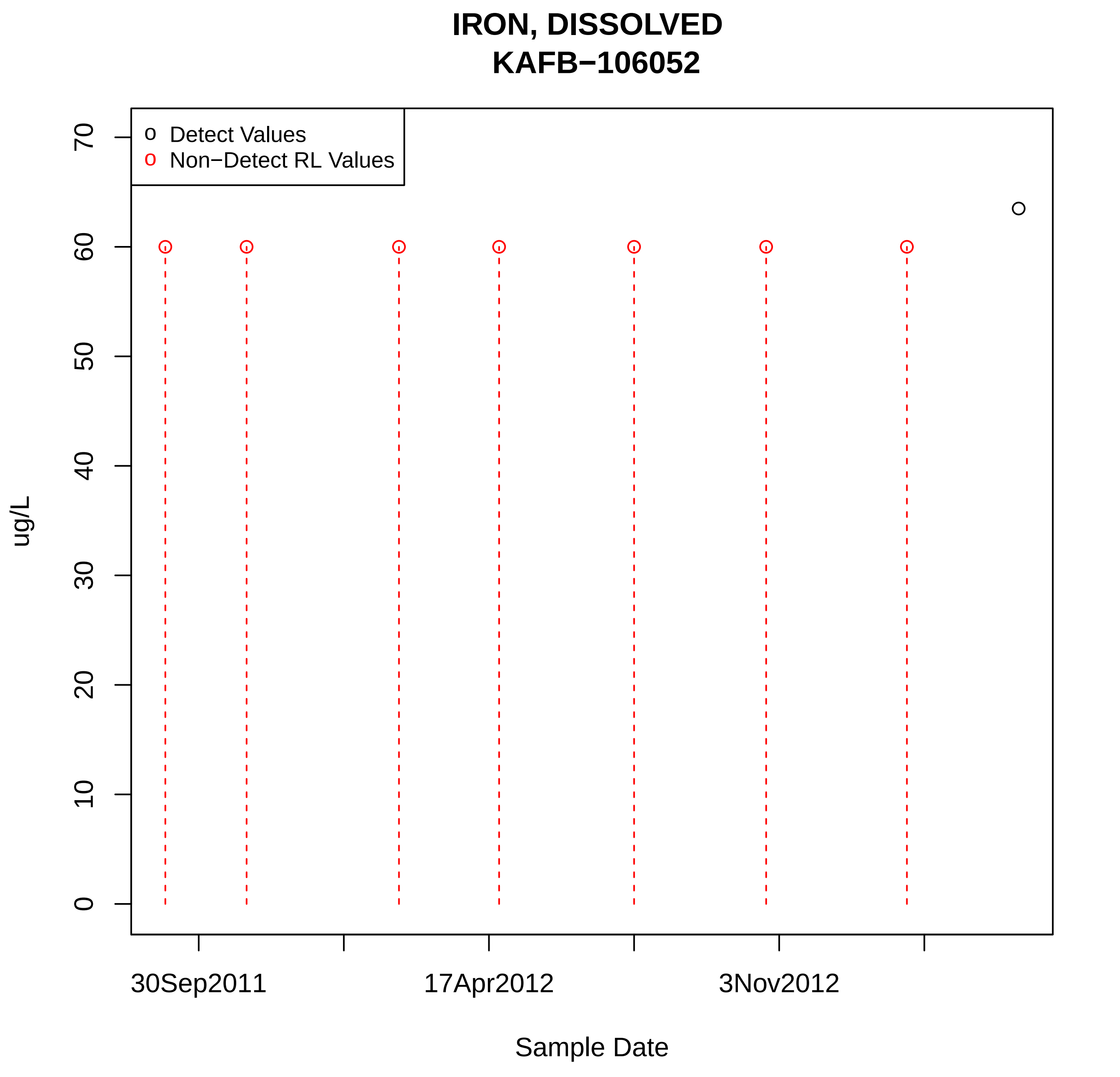


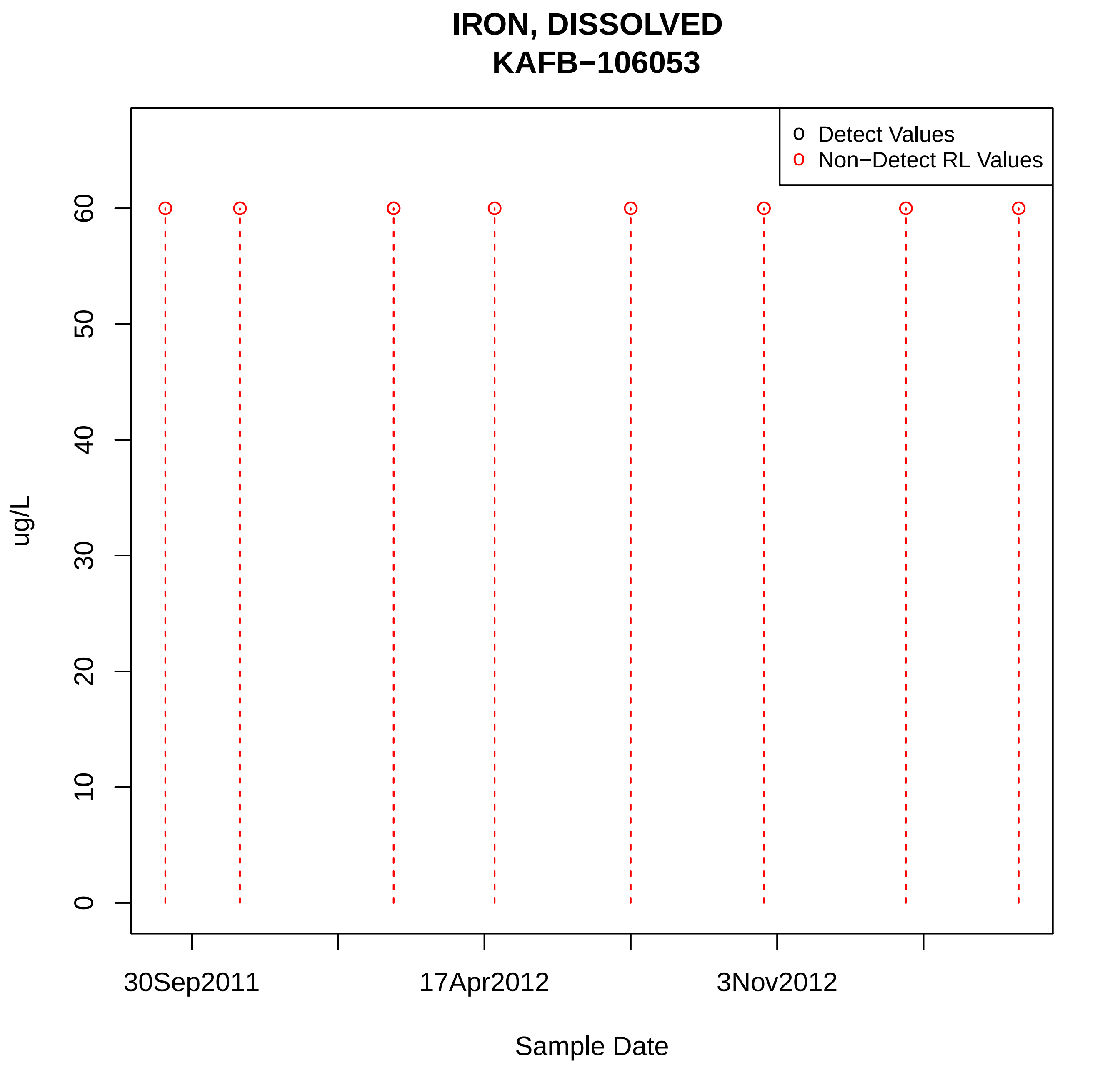
IRON, DISSOLVED
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



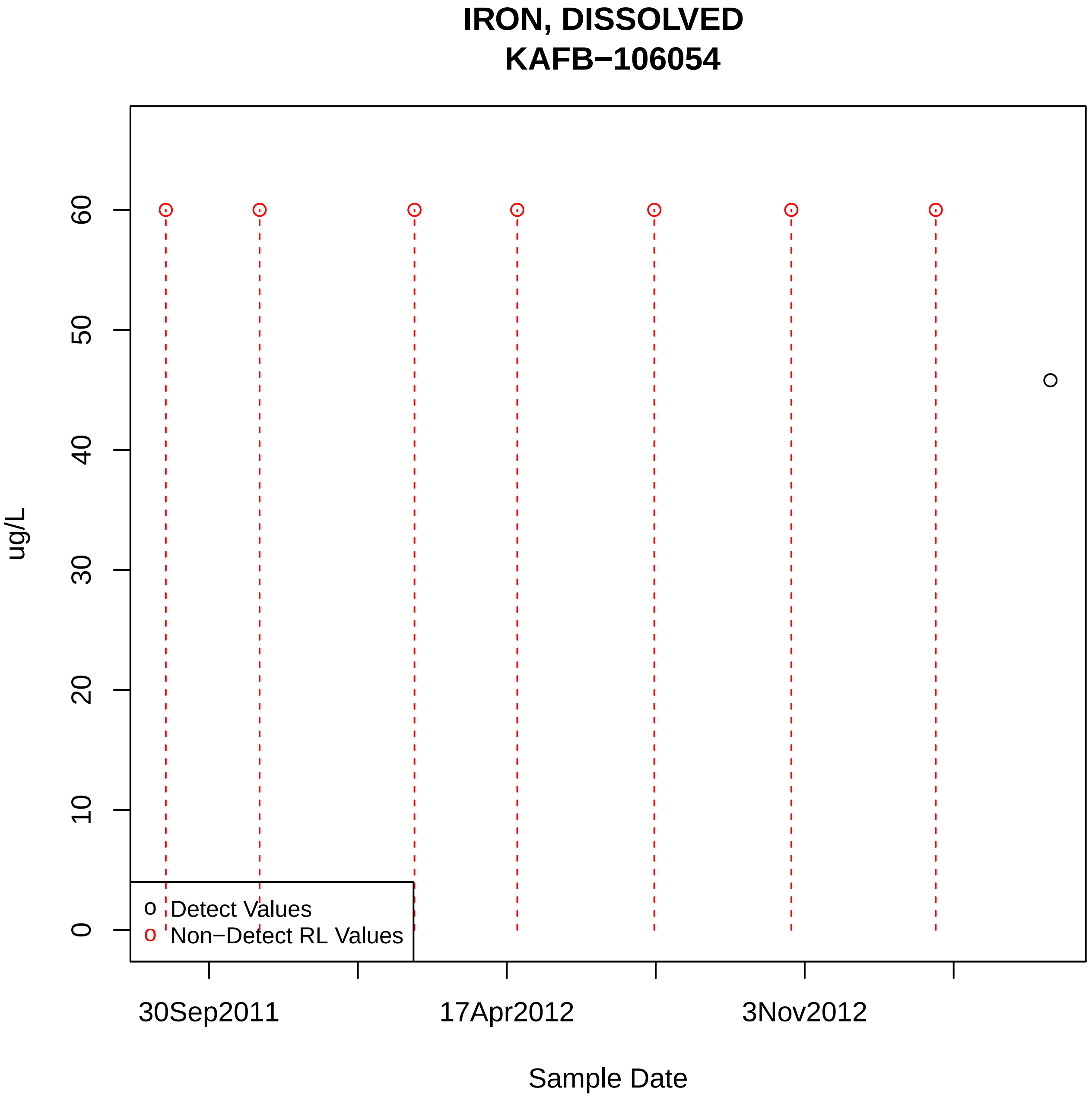
IRON, DISSOLVED
KAFB−106050
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date


IRON, DISSOLVED
KAFB−106051
o Detect Values
o Non−Detect RL Values
0
10
20
30
40
50
60
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

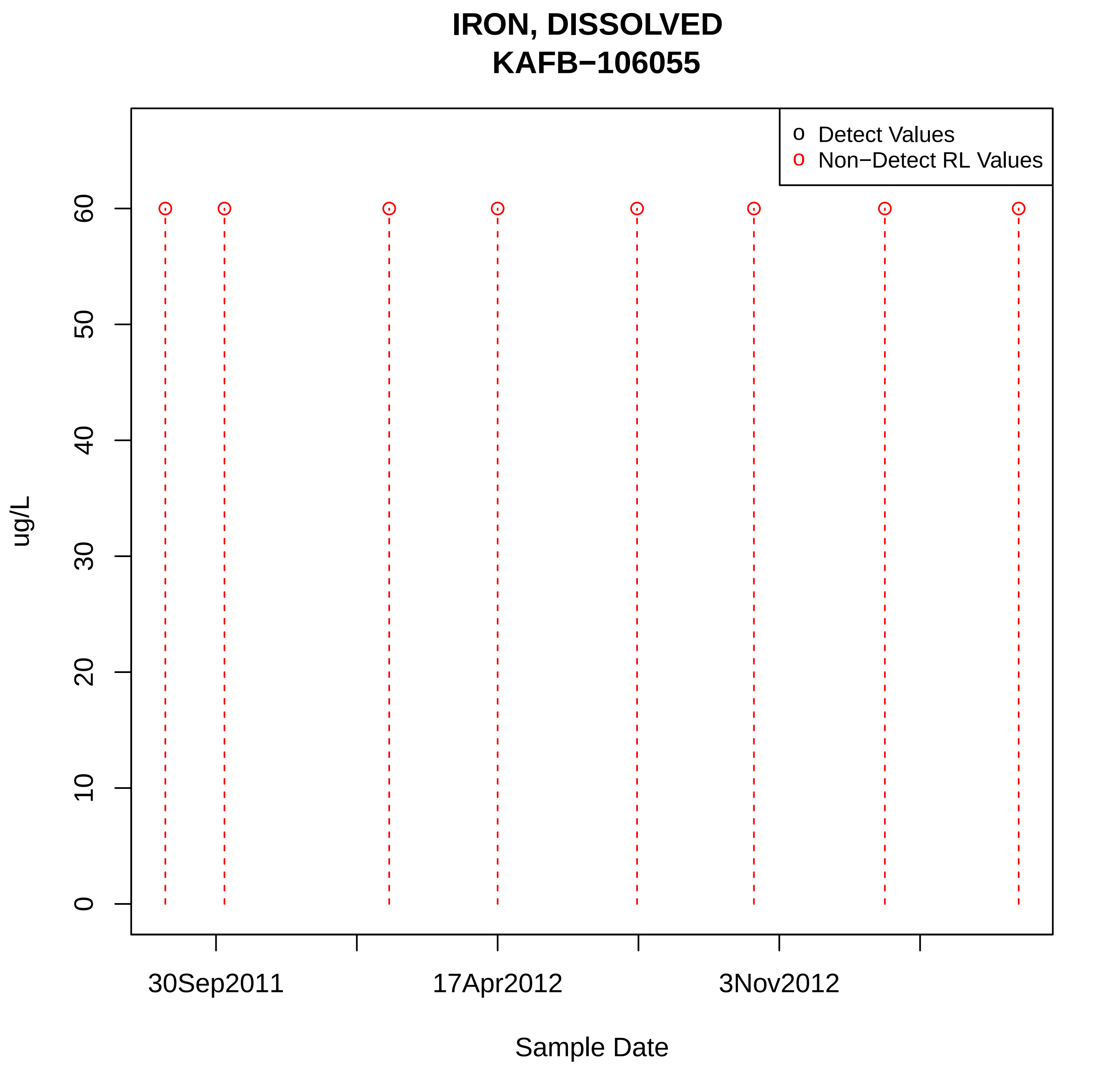

IRON, DISSOLVED
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
70
30Sep2011
17Apr2012
3Nov2012
Sample Date

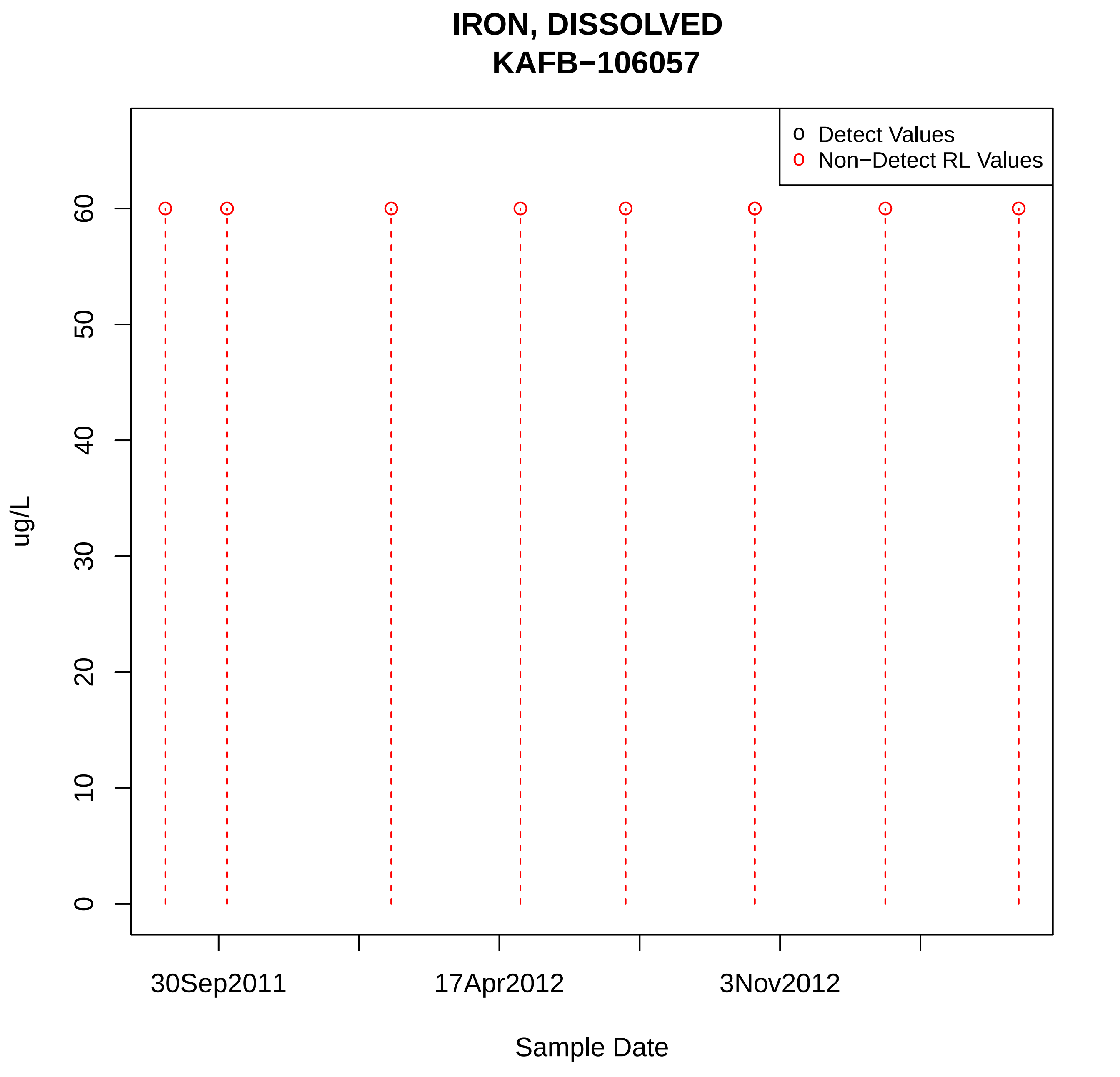


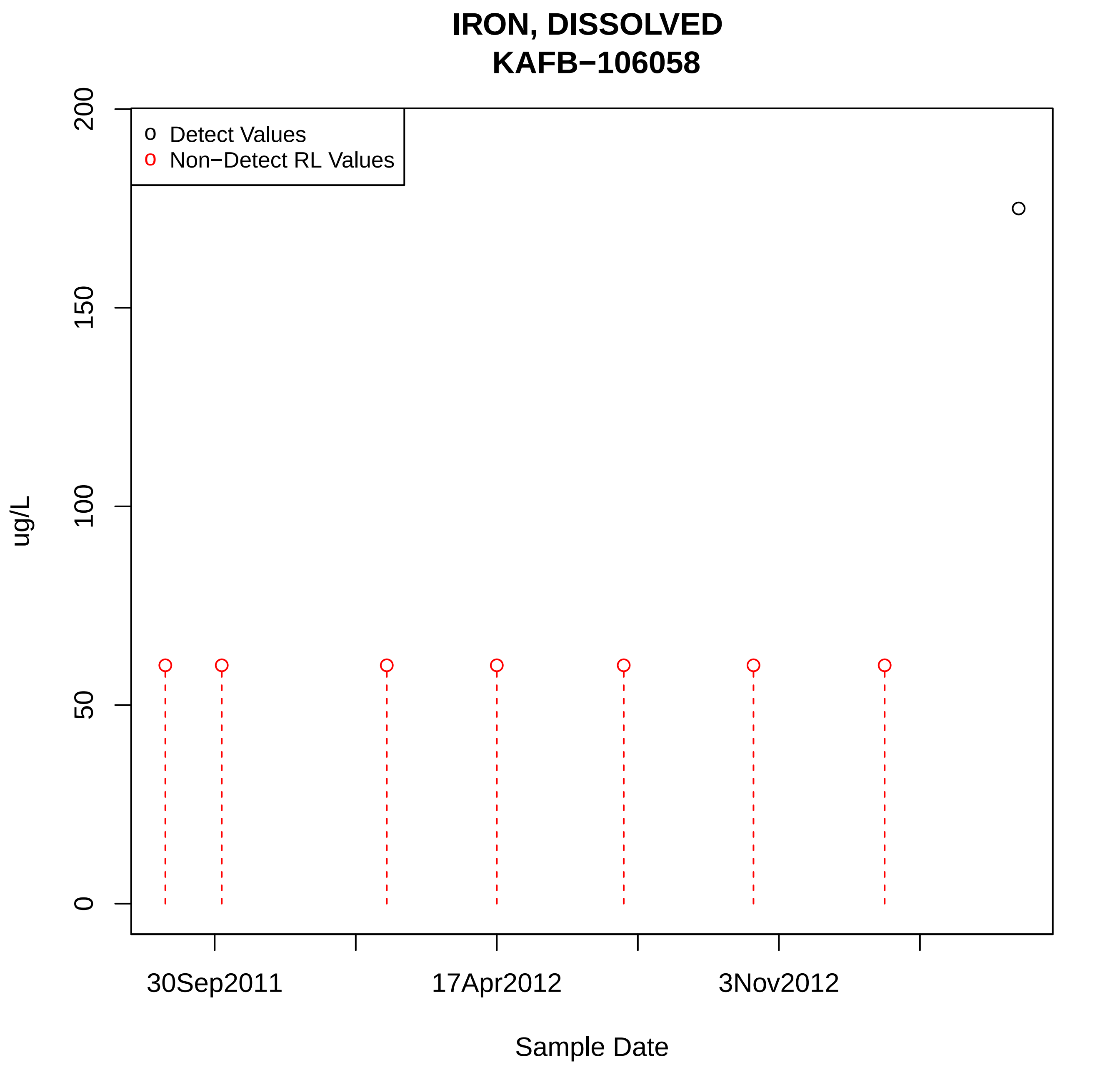
IRON, DISSOLVED
KAFB−106053
o Detect Values
o Non−Detect RL Values
0
10
20
30
40
50
60
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



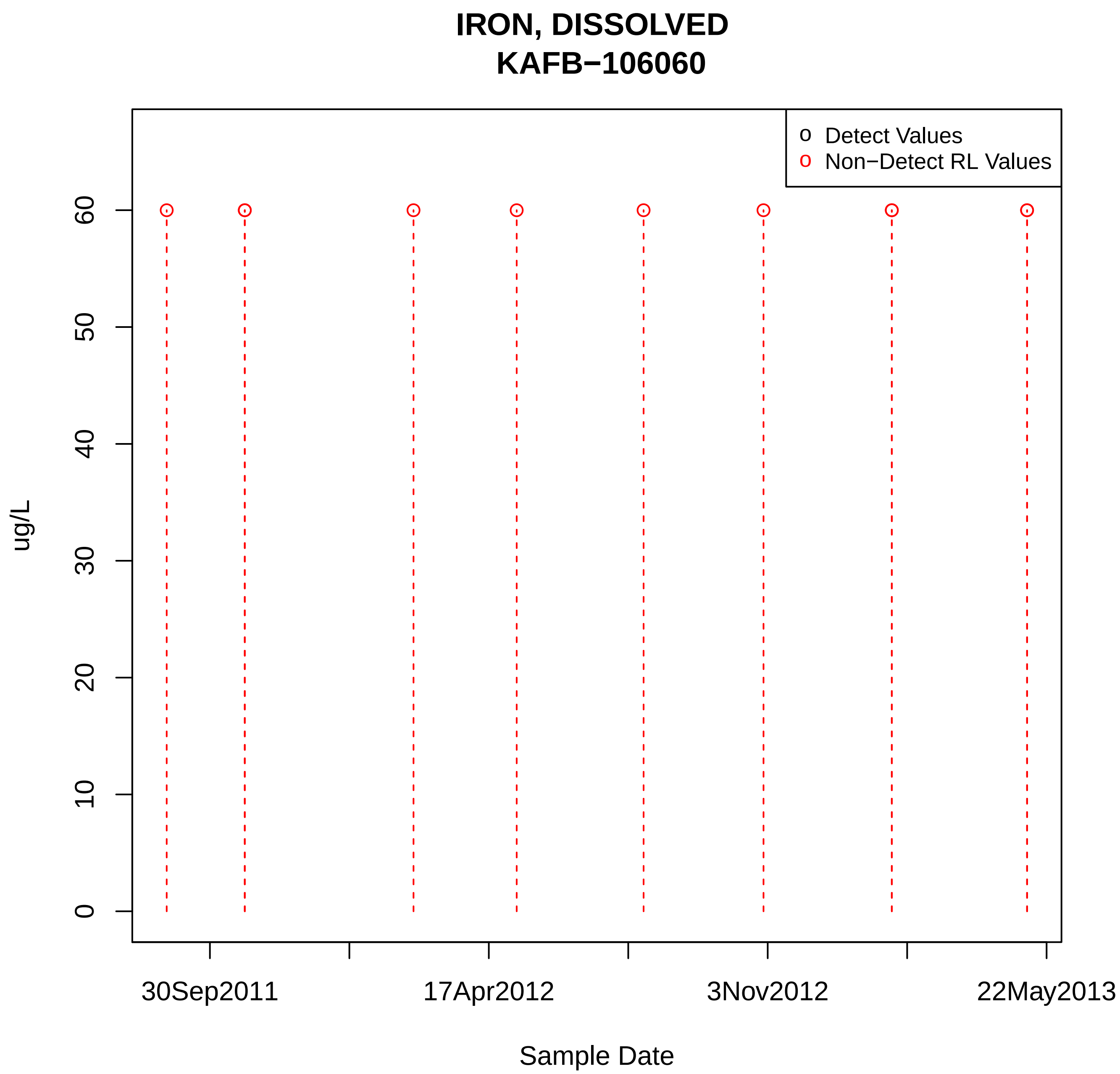
IRON, DISSOLVED
KAFB−106054
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values


IRON, DISSOLVED
KAFB−106055
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

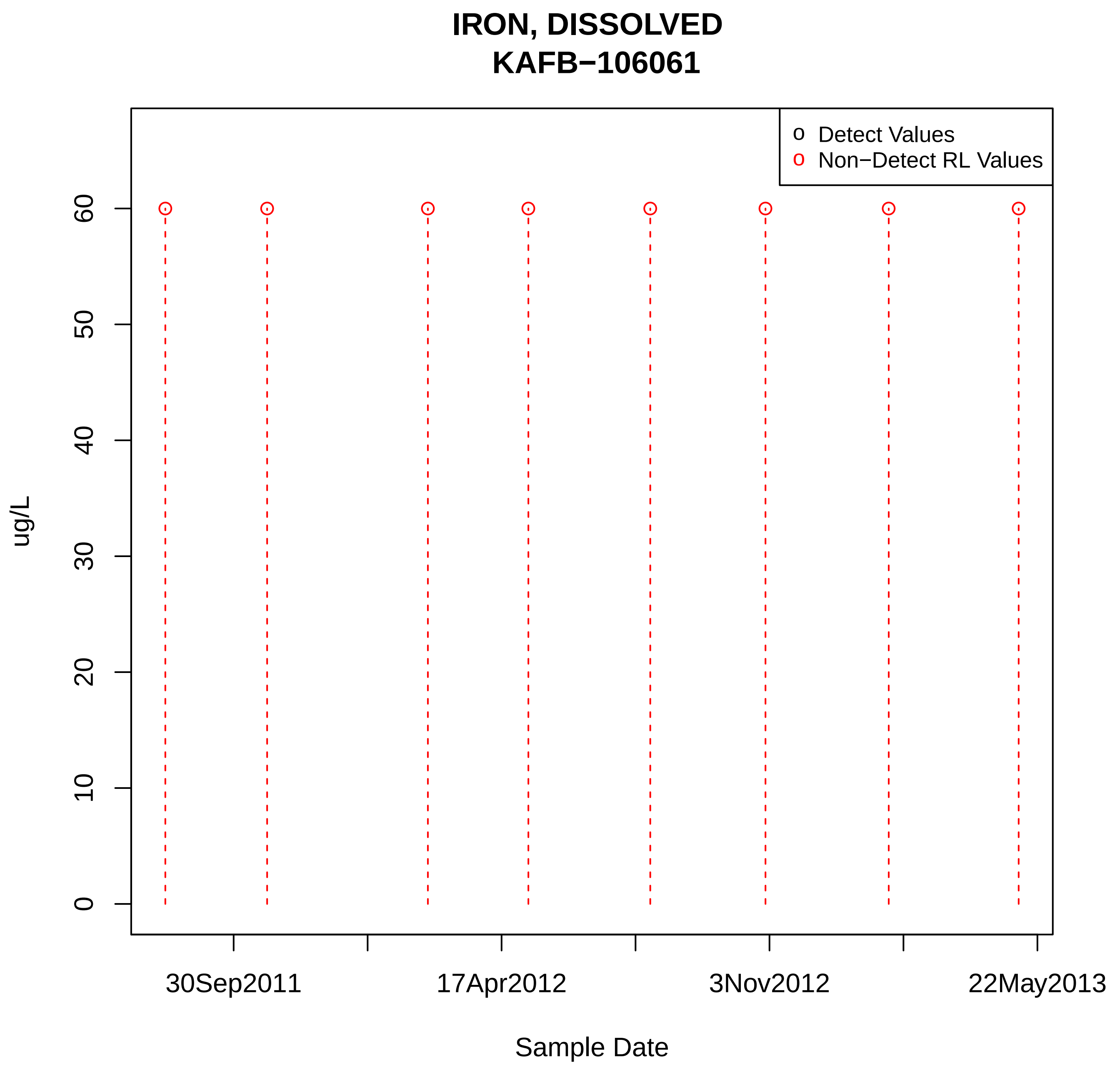

IRON, DISSOLVED
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date



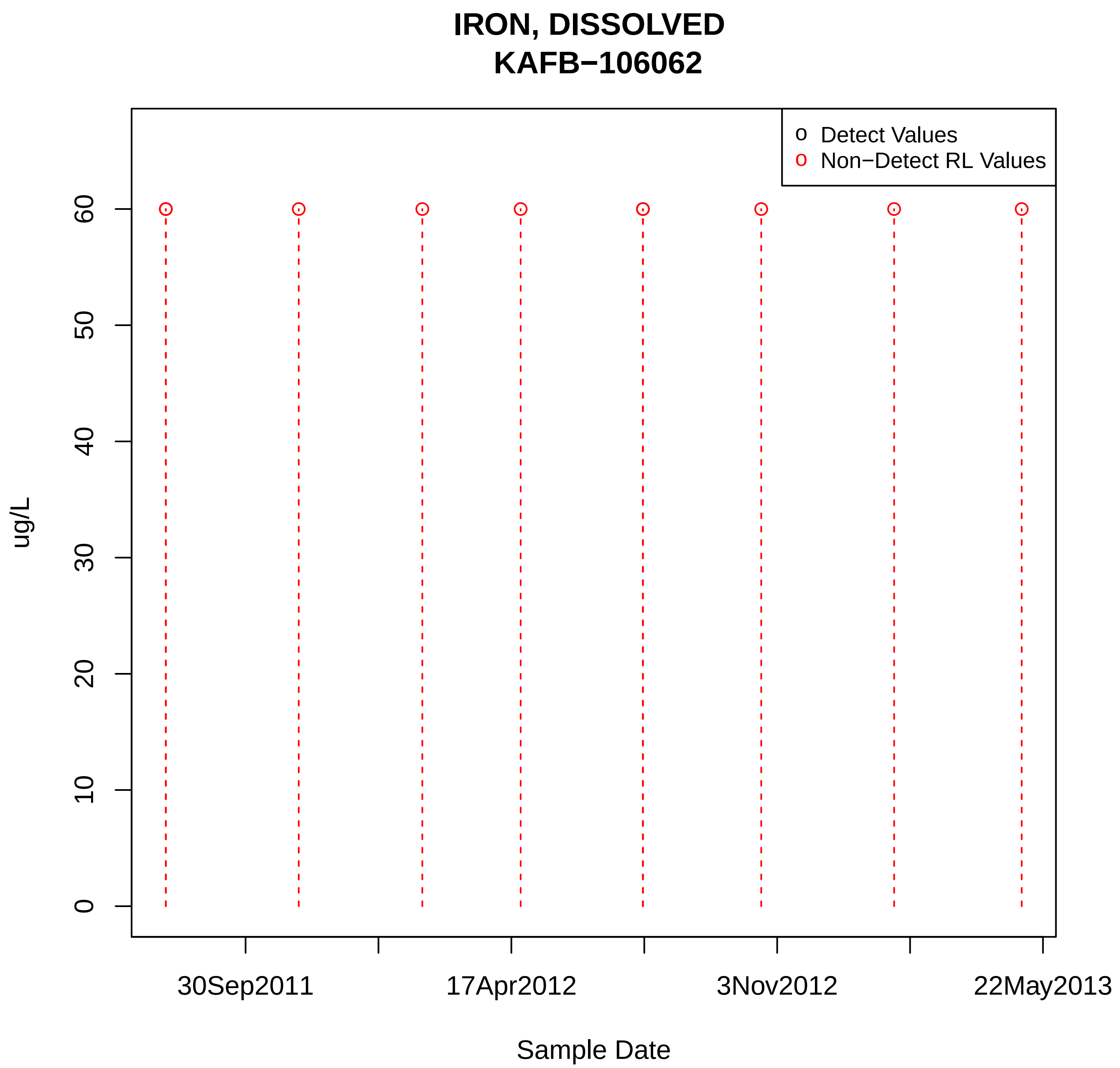
IRON, DISSOLVED
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0
50
100
150
200
30Sep2011
17Apr2012
3Nov2012
Sample Date

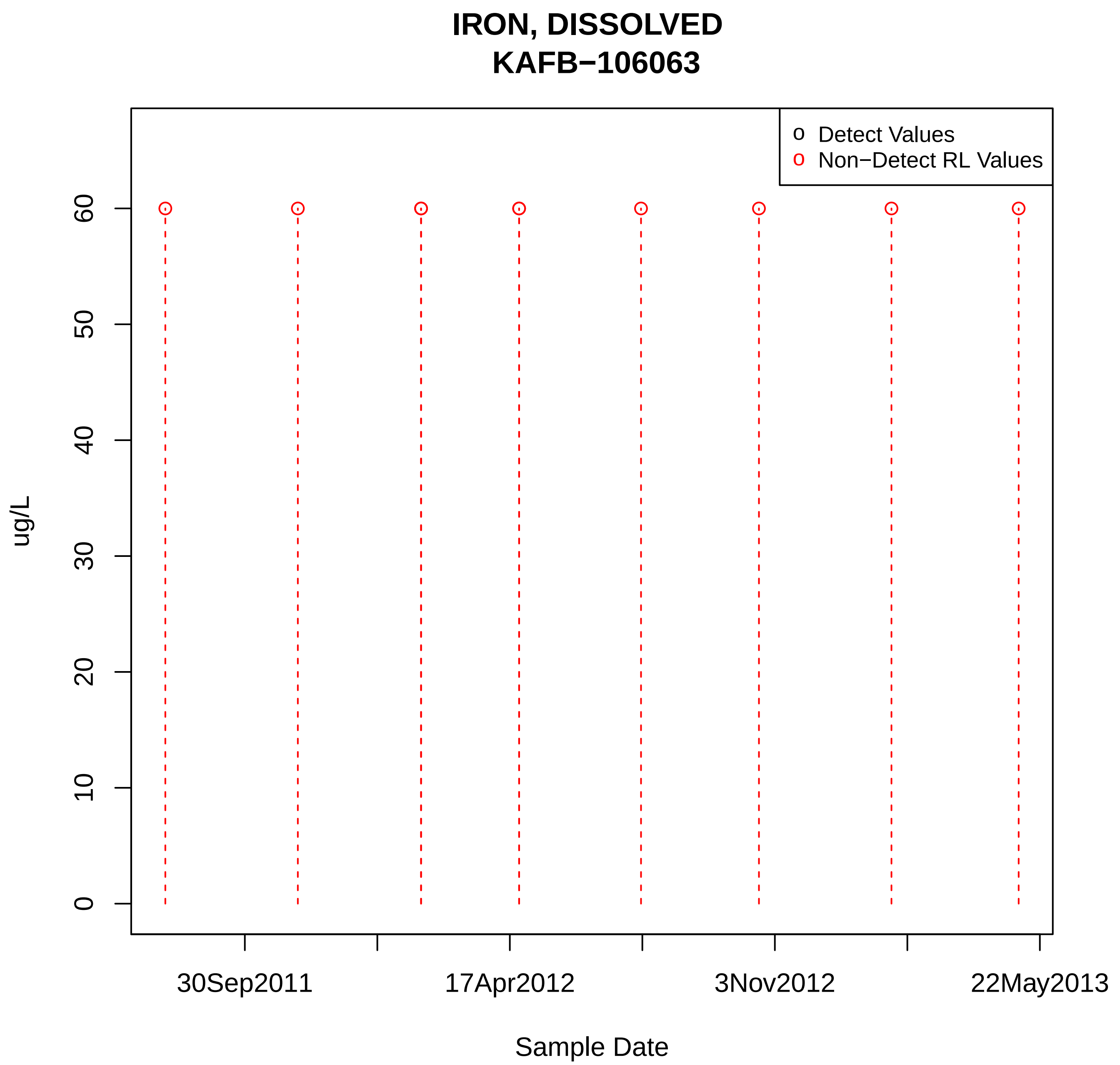


IRON, DISSOLVED
KAFB−106060
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

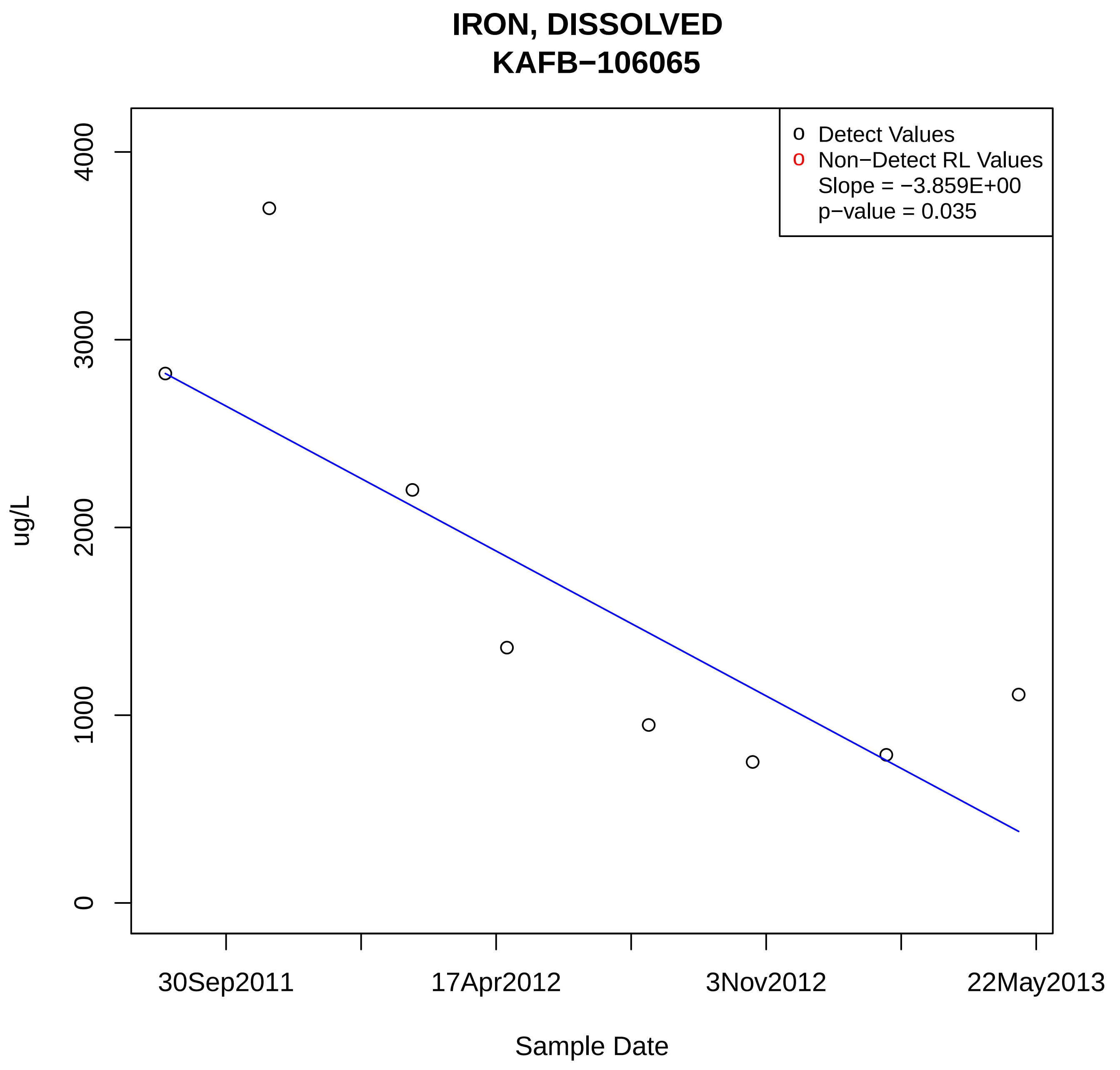


IRON, DISSOLVED
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

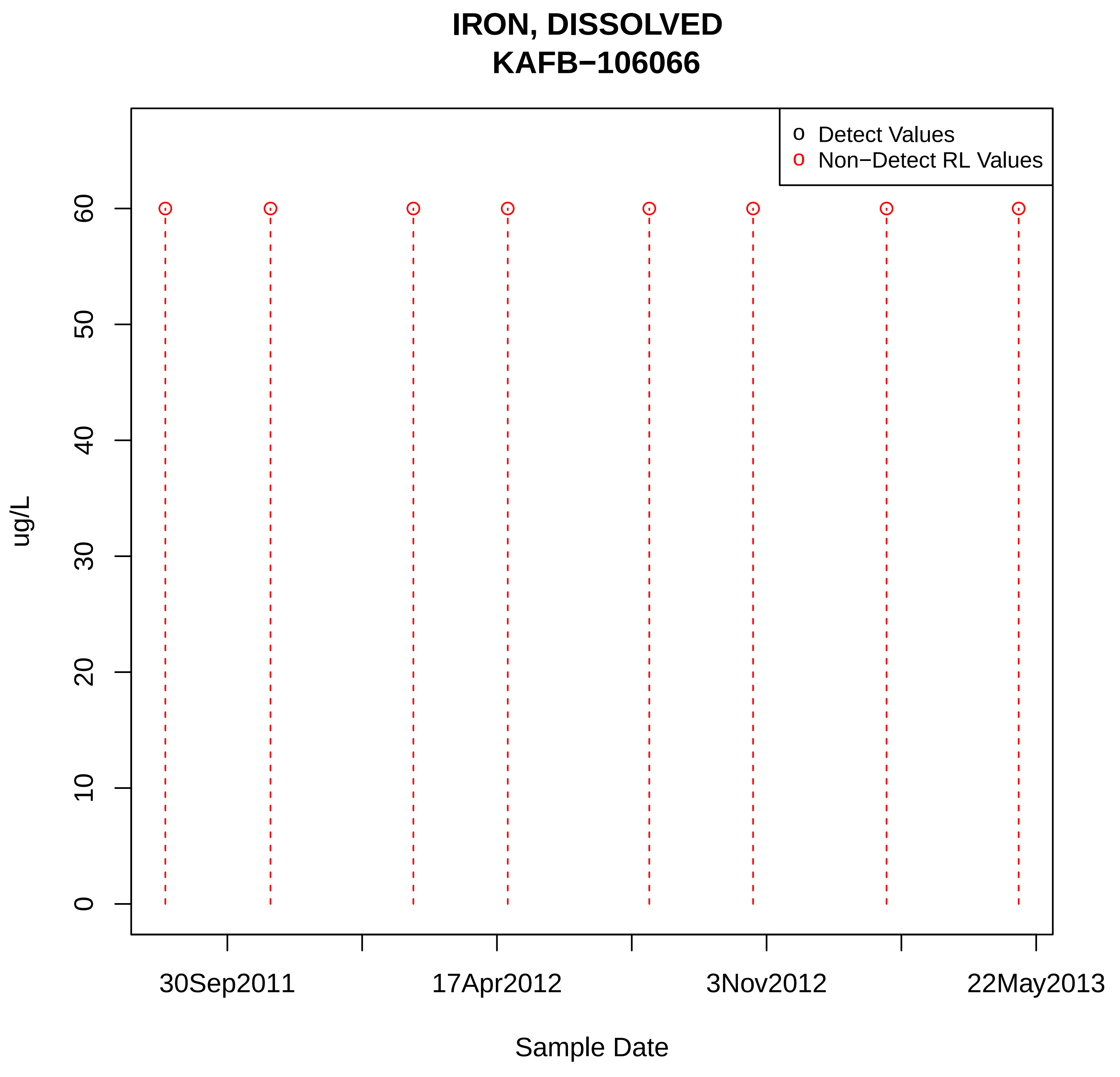

IRON, DISSOLVED
KAFB−106062
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



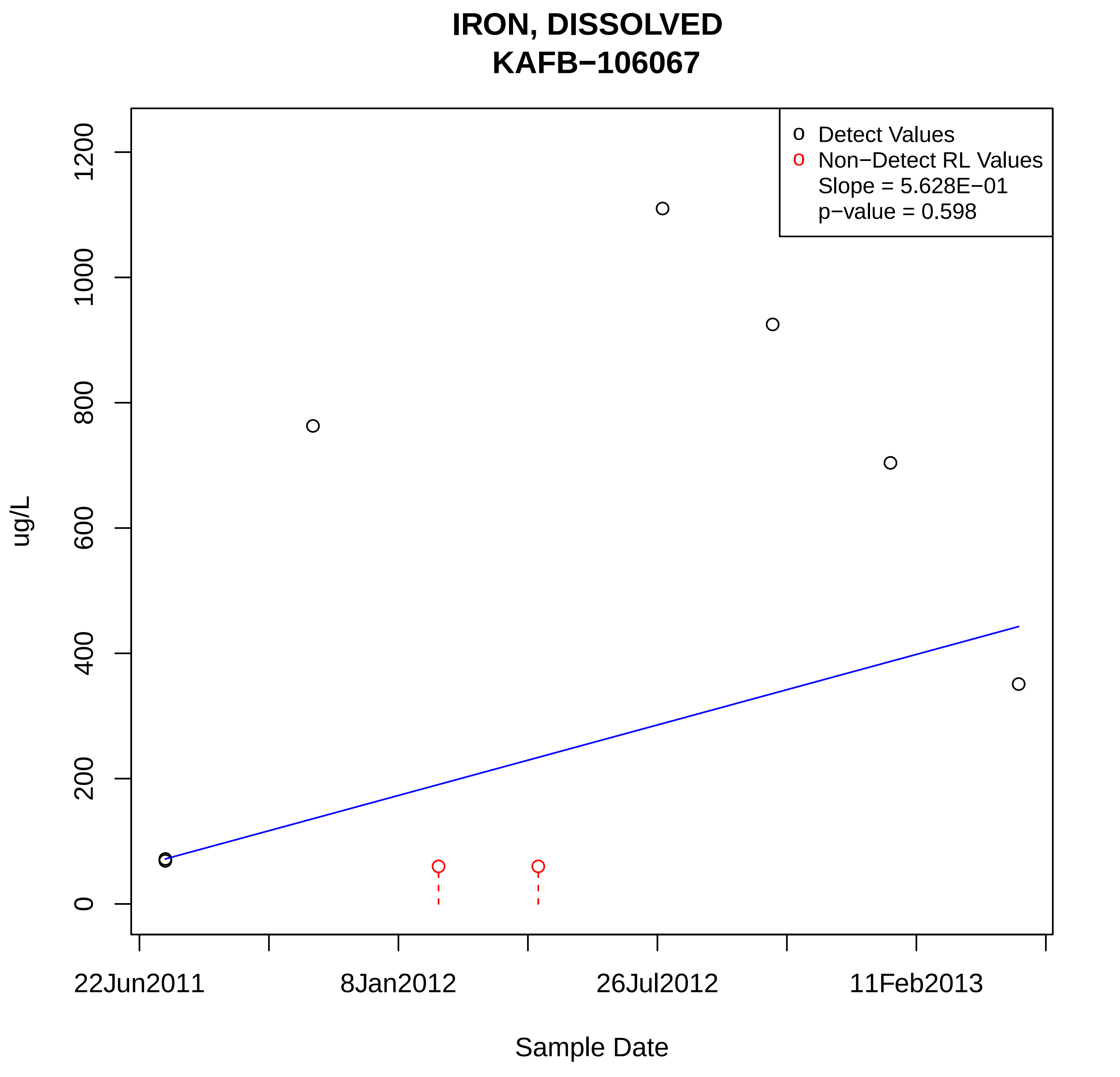
IRON, DISSOLVED
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



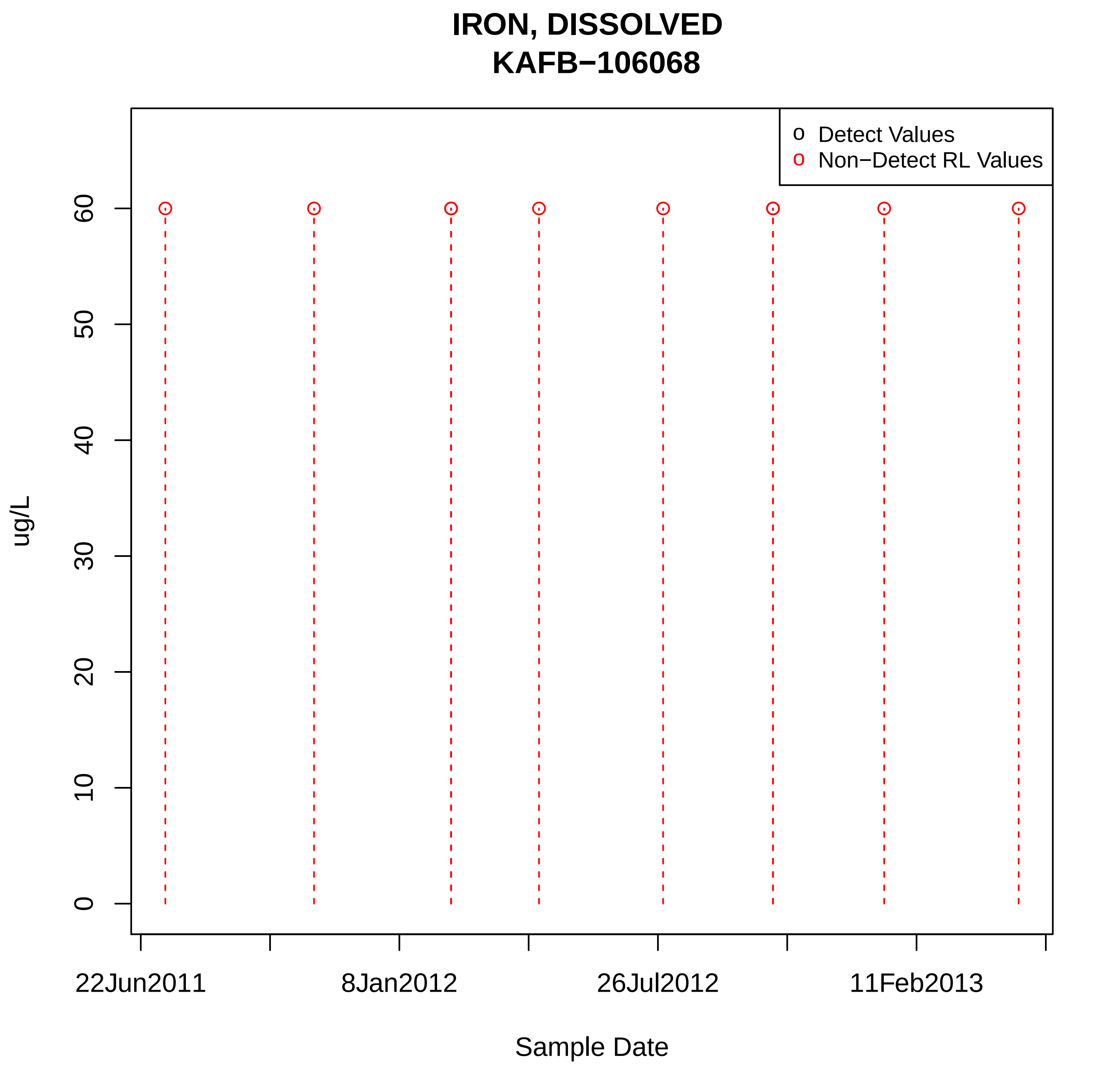
IRON, DISSOLVED
KAFB−106065
o Detect Values
o Non−Detect RL Values
Slope = −3.859E+00
p−value = 0.035
ug/L
0
1000
2000
3000
4000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

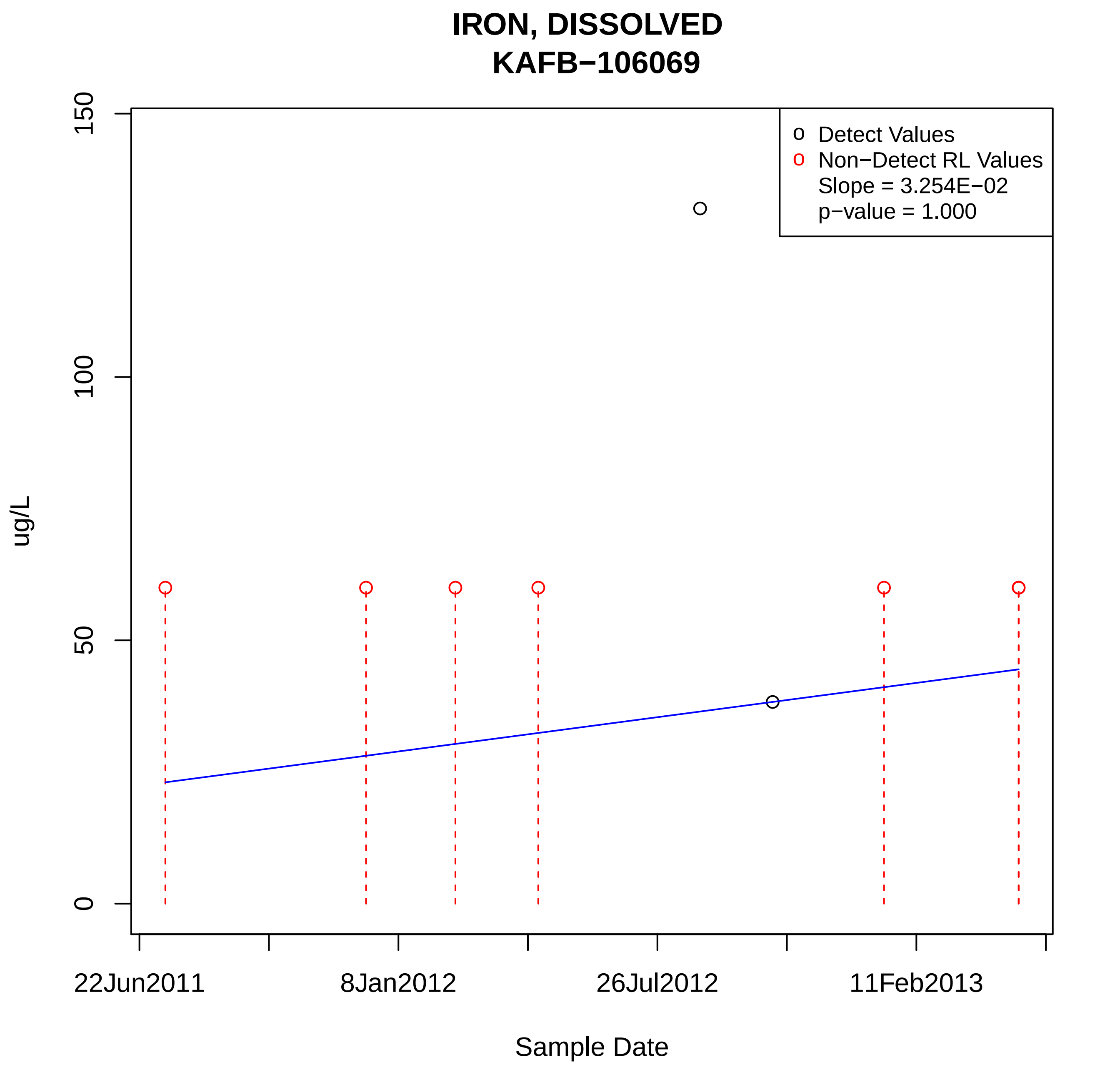


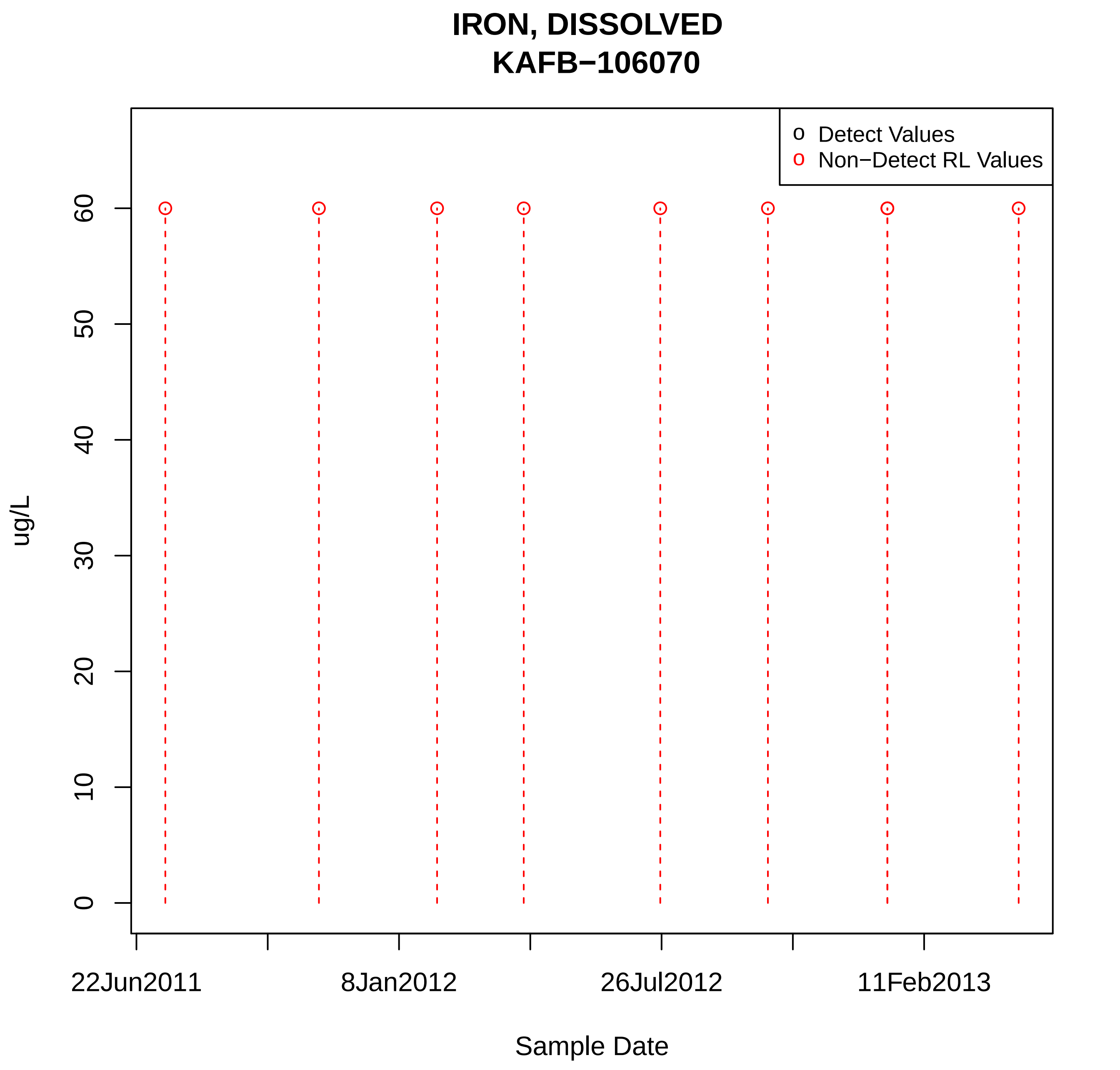
IRON, DISSOLVED
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



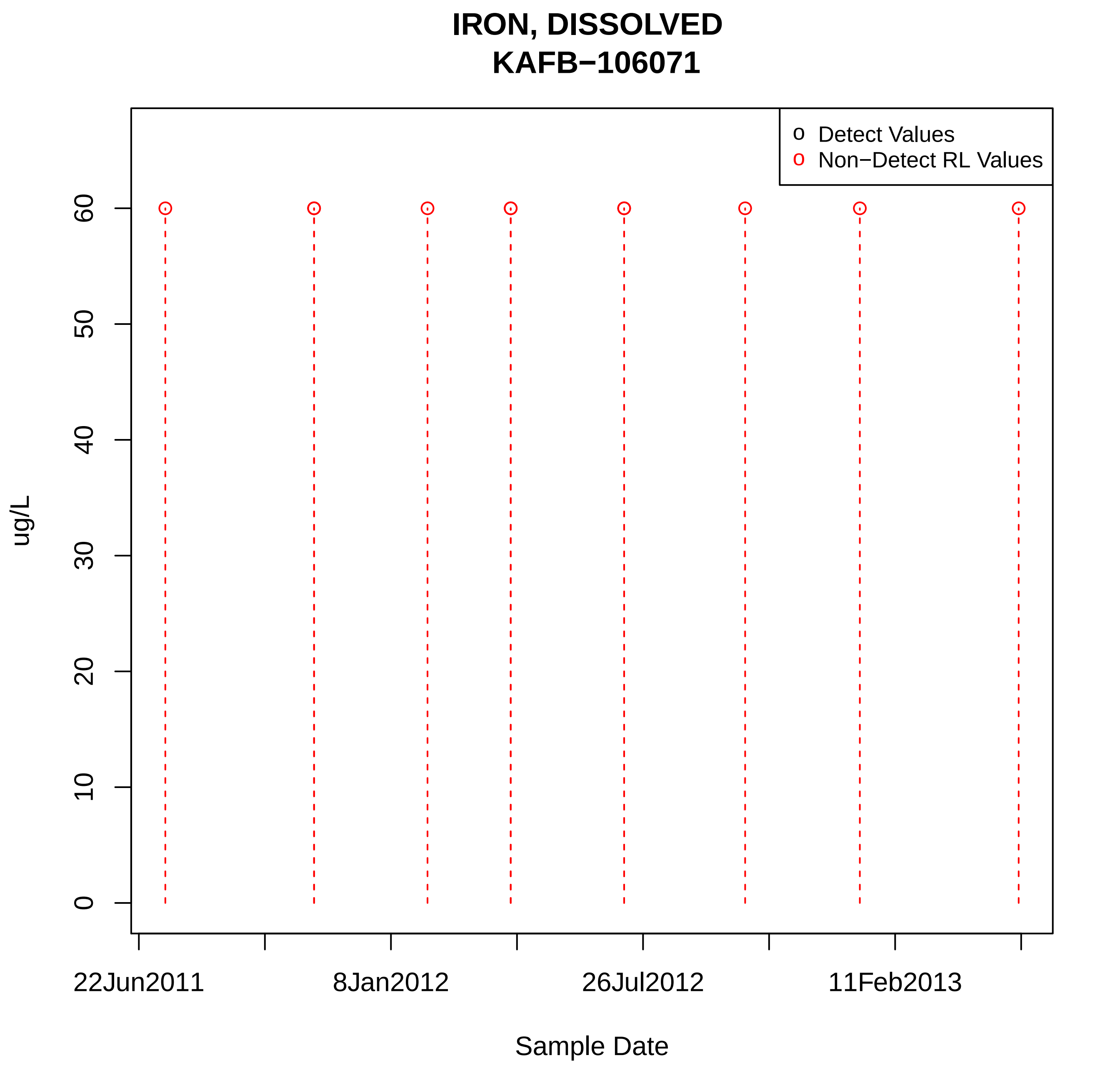
IRON, DISSOLVED
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = 5.628E−01
p−value = 0.598
ug/L
0
200
400
600
800
1000
1200
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

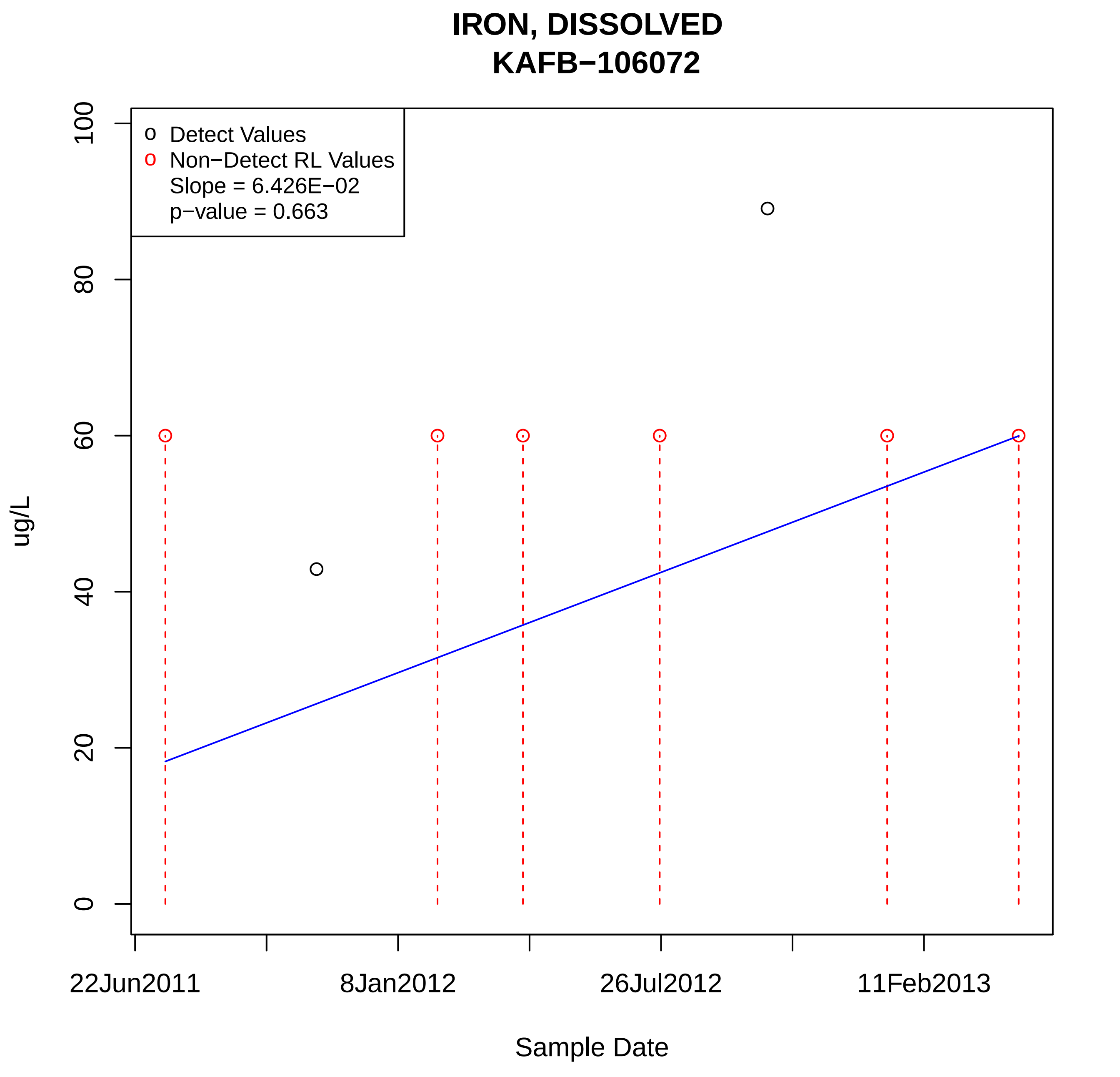

IRON, DISSOLVED
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


IRON, DISSOLVED
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = 3.254E−02
p−value = 1.000
150
100
50
0
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

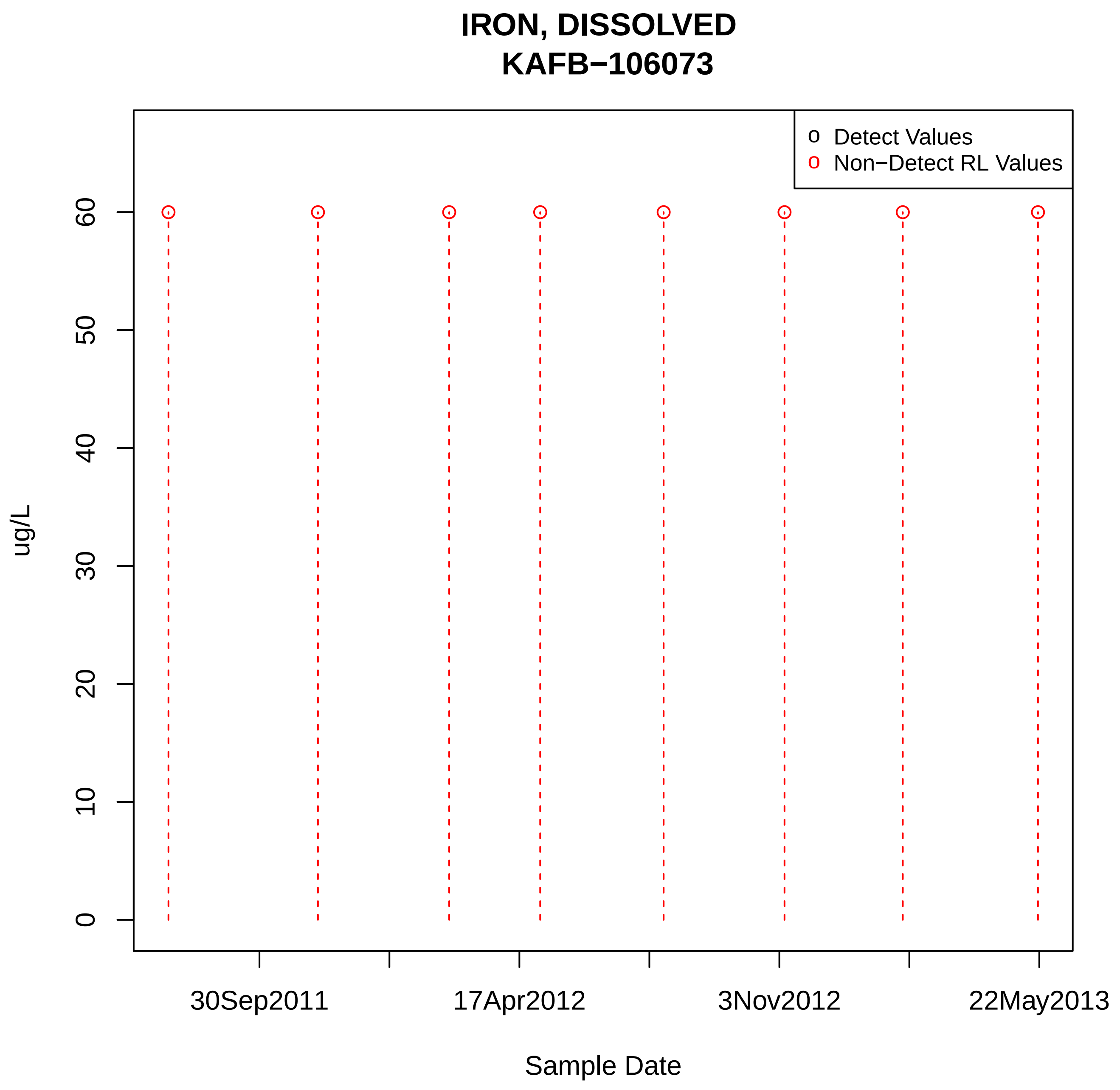


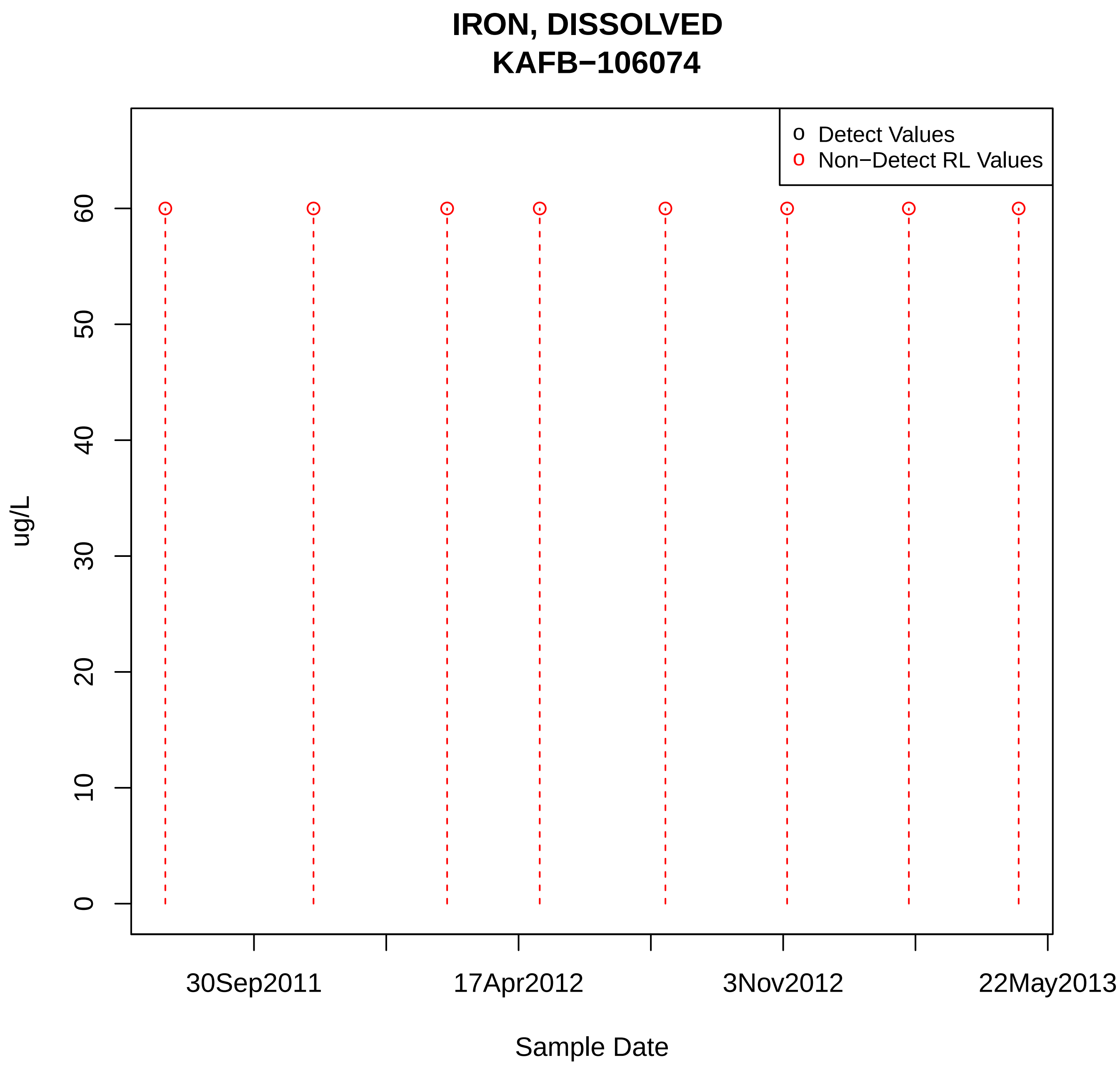
IRON, DISSOLVED
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


IRON, DISSOLVED
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

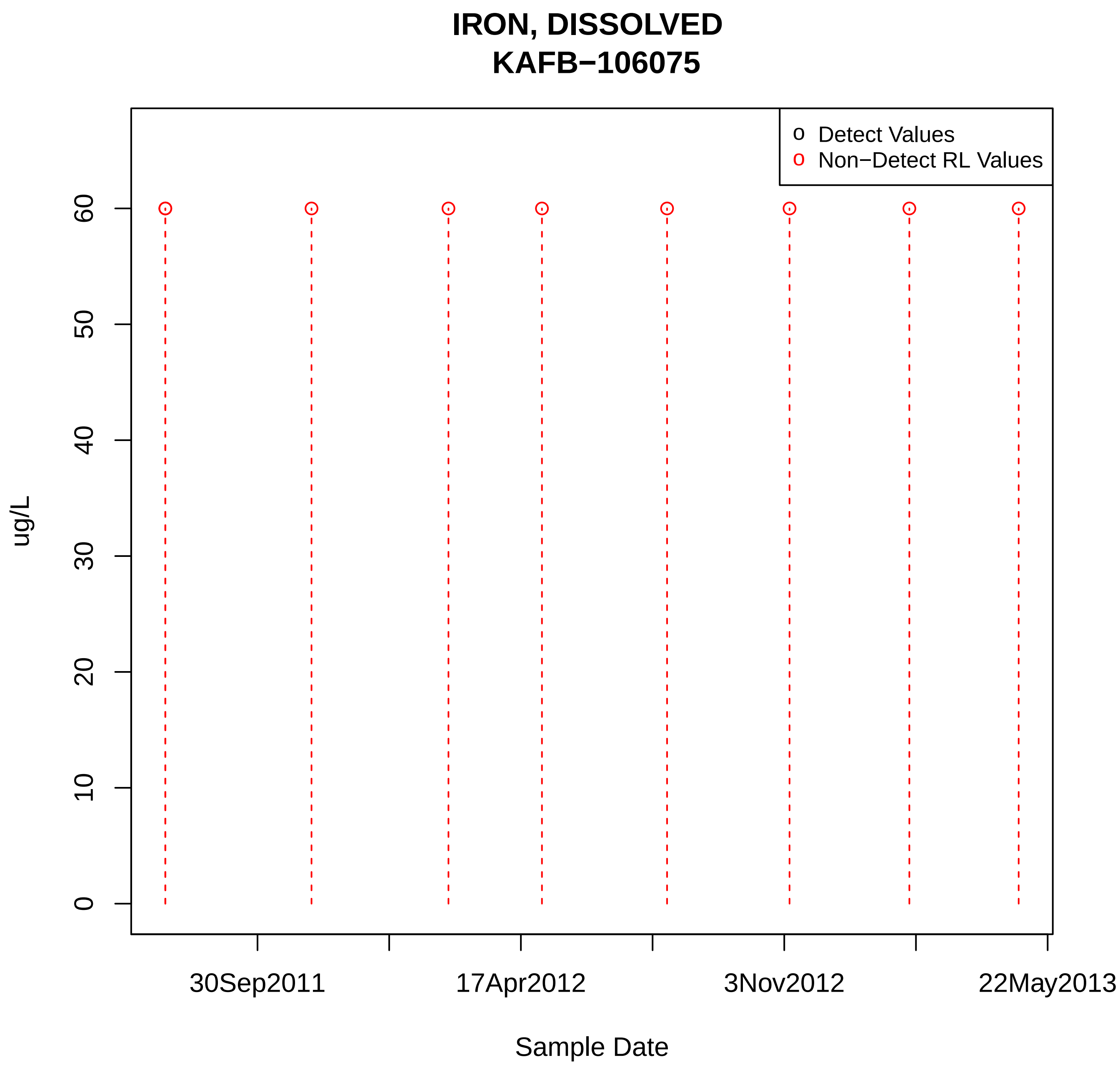


IRON, DISSOLVED
KAFB−106072
Detect Values
Non−Detect RL Values
Slope = 6.426E−02
p−value = 0.663
ug/L
0
20
40
60
80
100
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

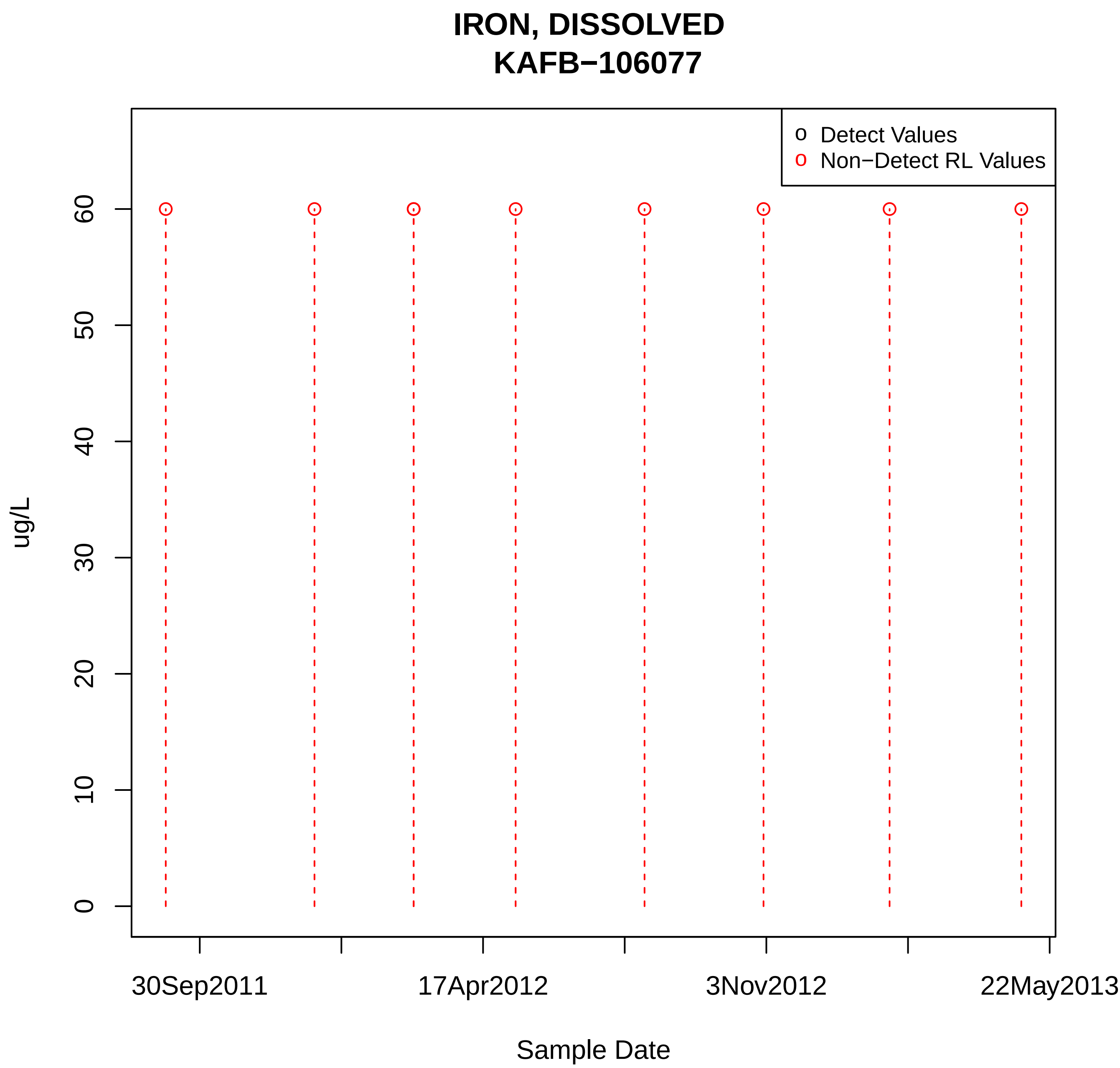

IRON, DISSOLVED
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

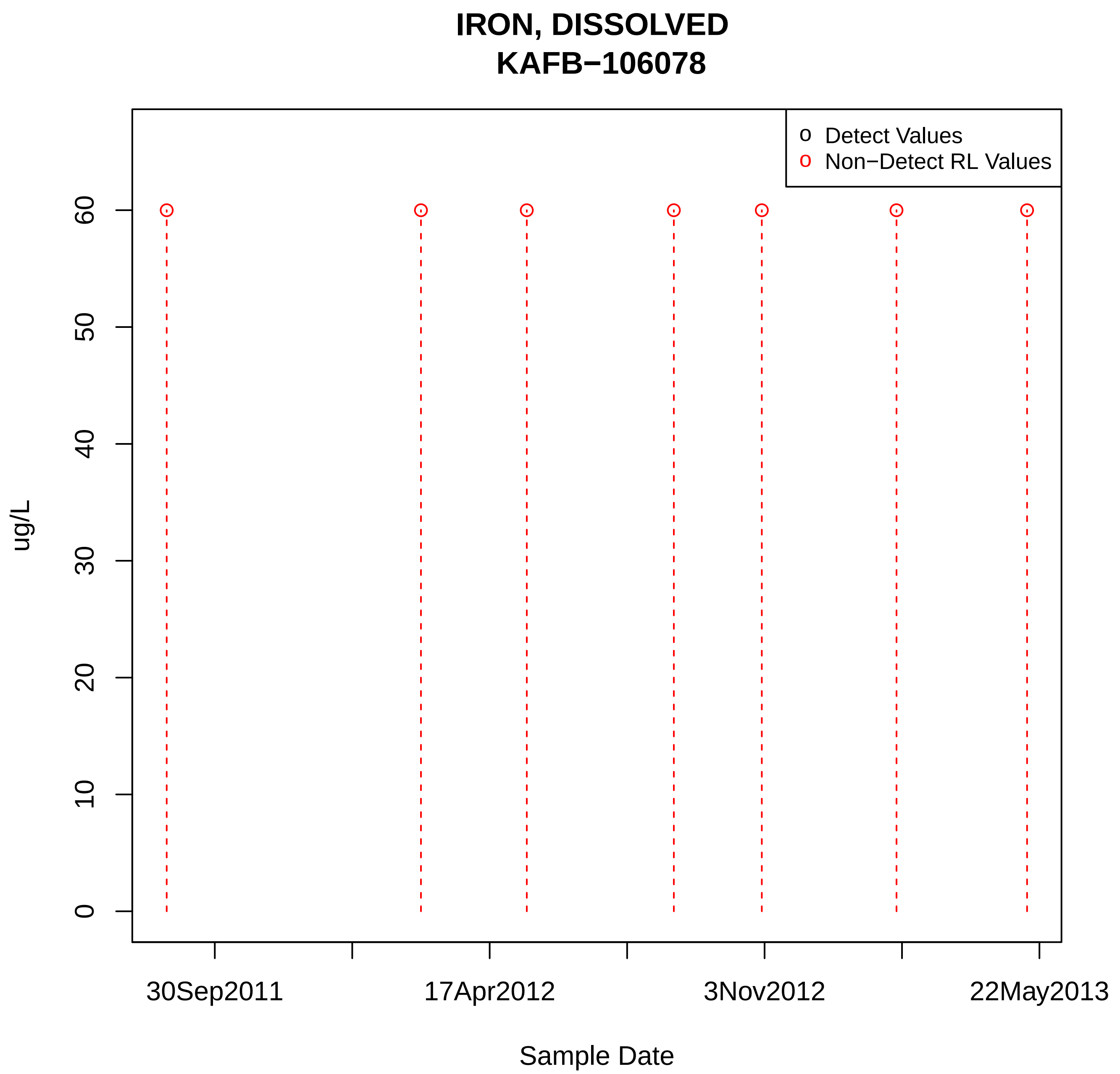


IRON, DISSOLVED
KAFB−106074
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

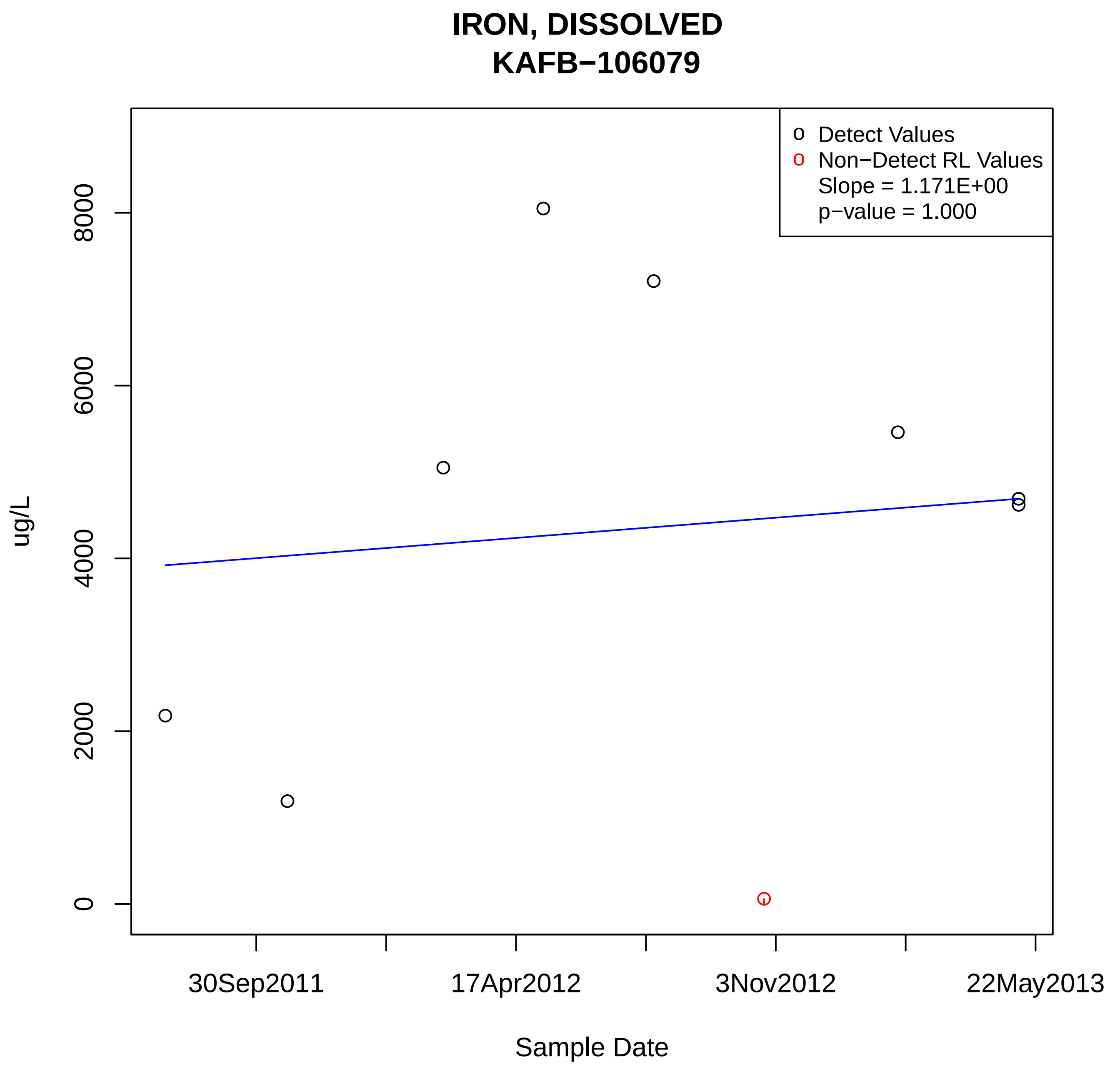


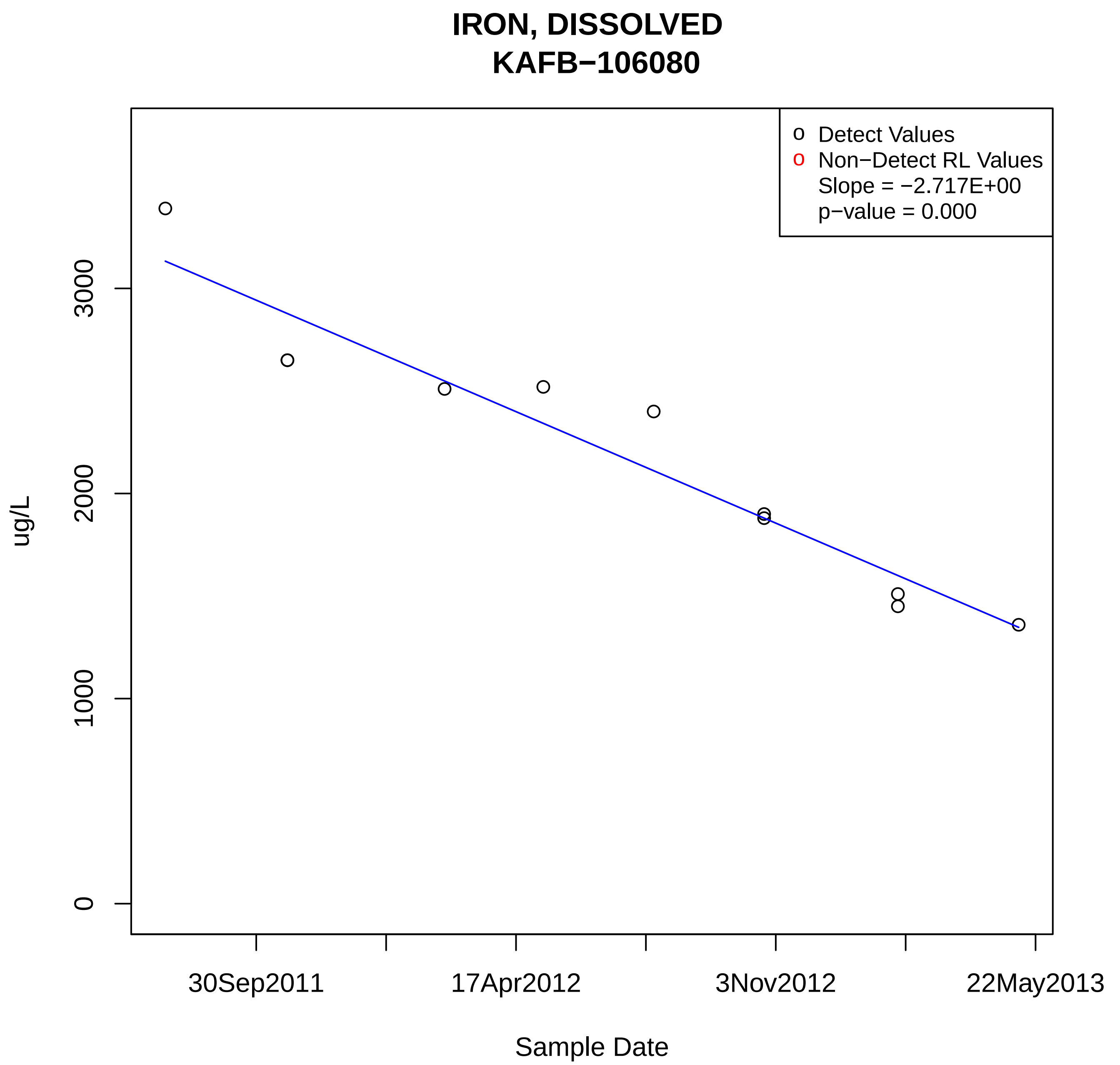
IRON, DISSOLVED
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

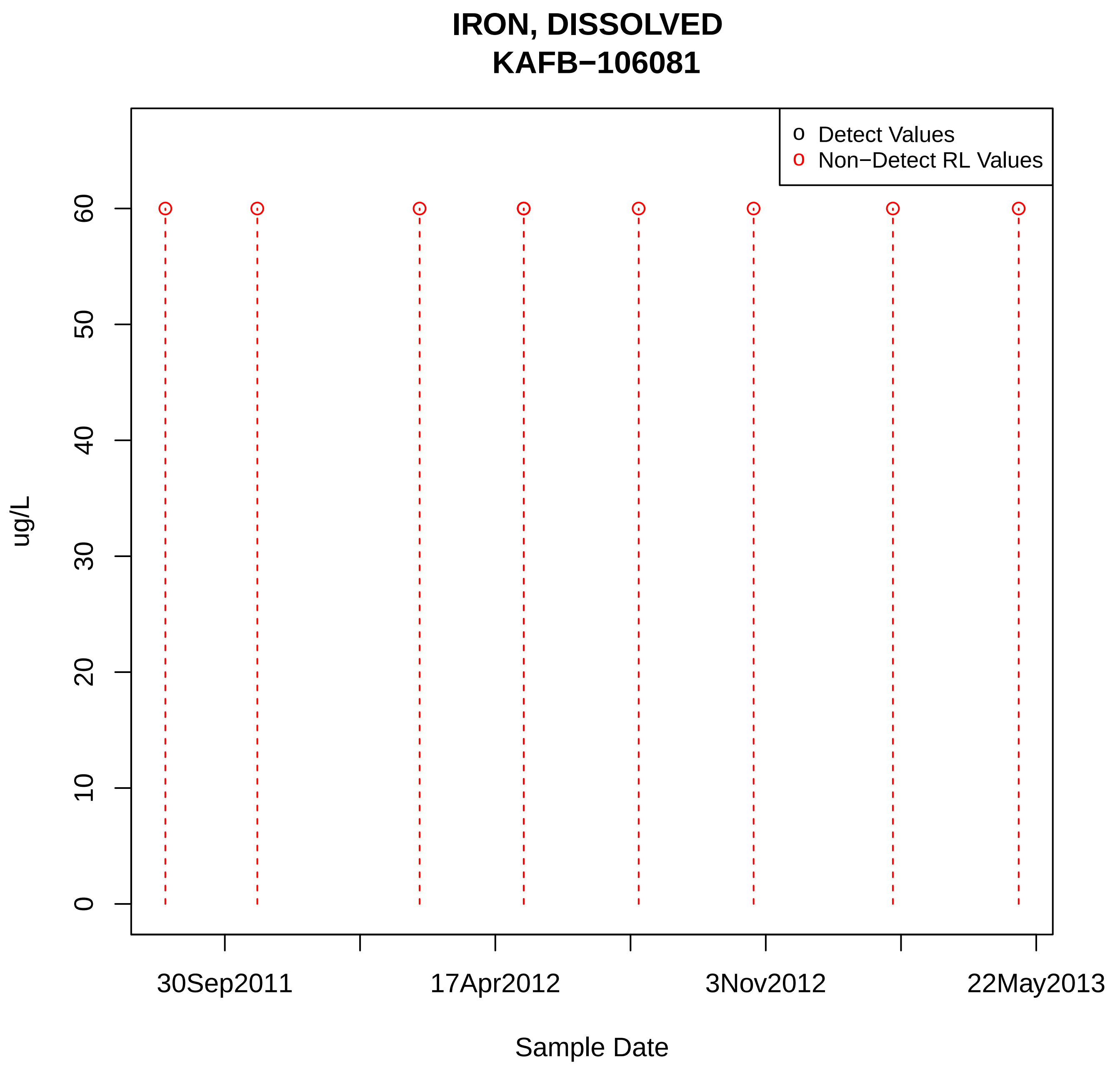

IRON, DISSOLVED
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

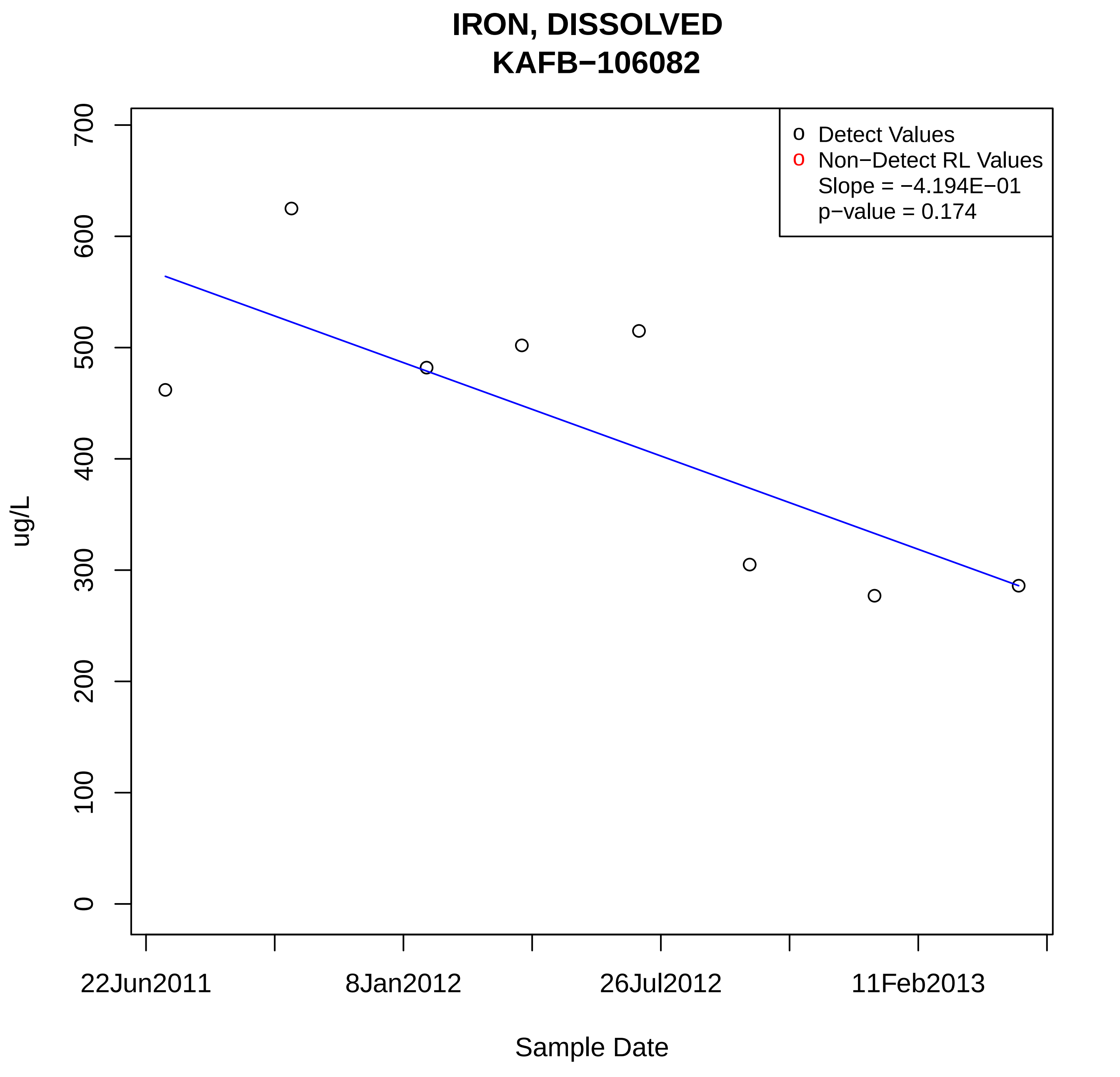


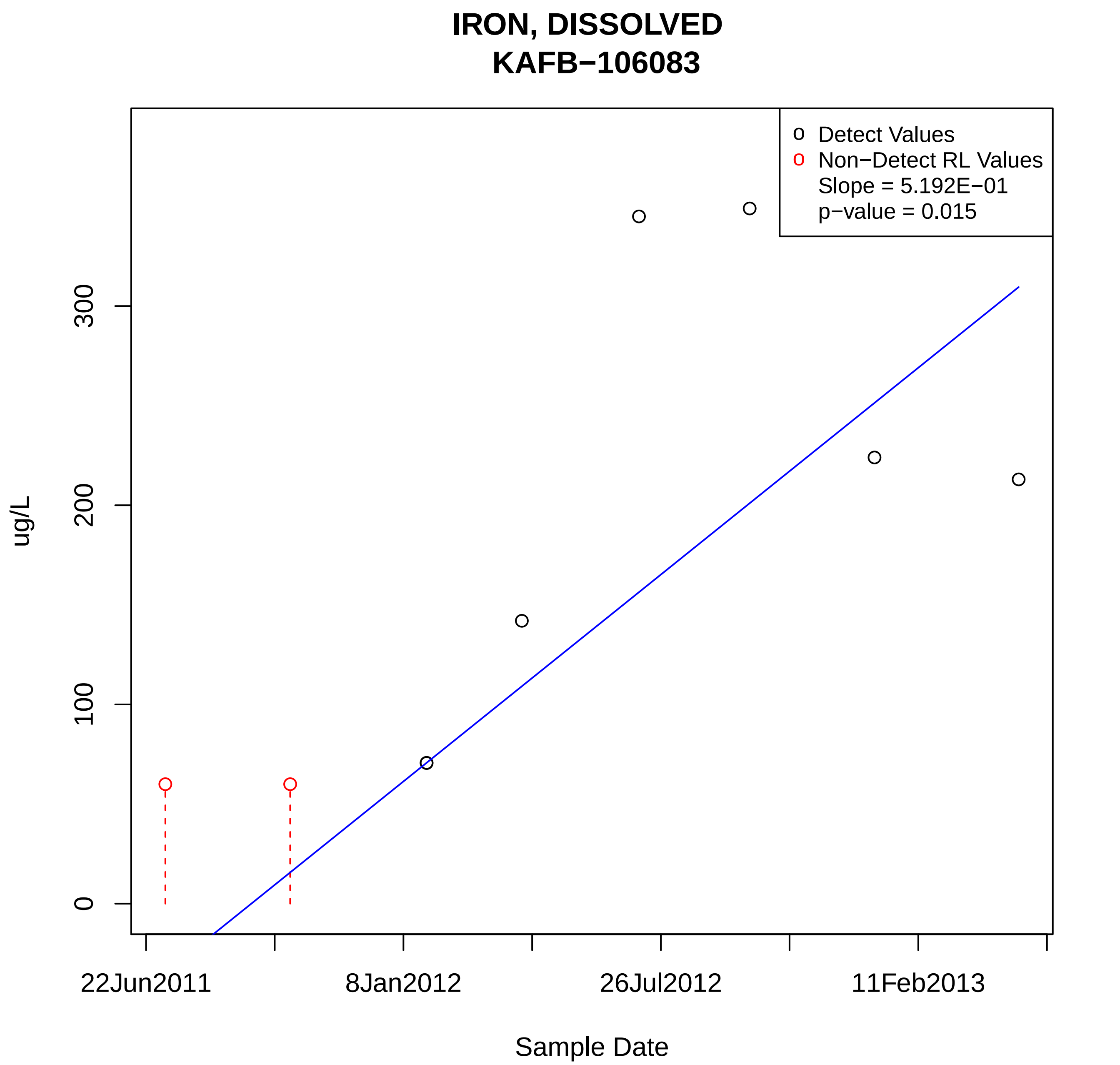
IRON, DISSOLVED
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

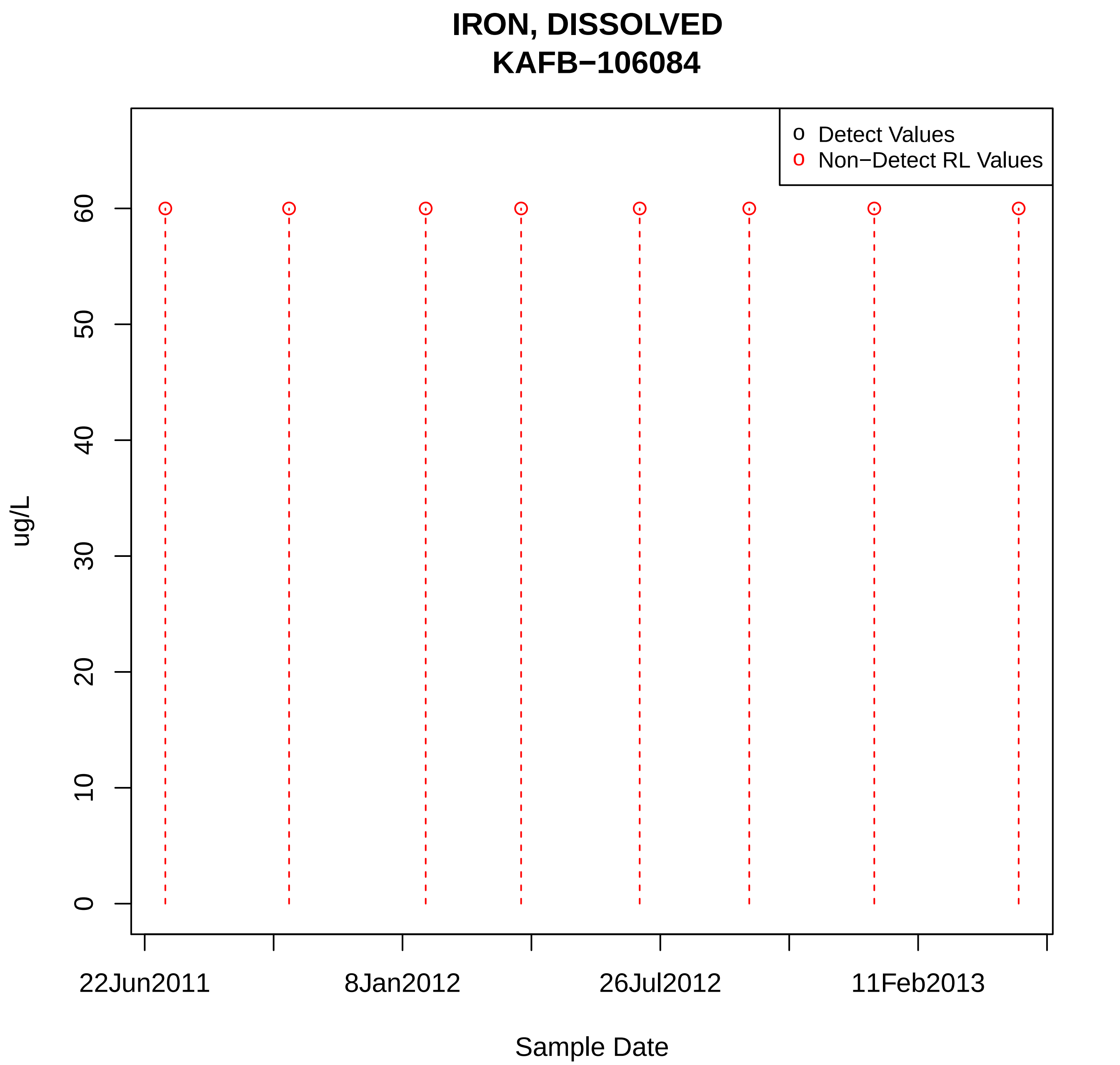

IRON, DISSOLVED
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = 1.171E+00
p−value = 1.000
0
2000
4000
6000
8000
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

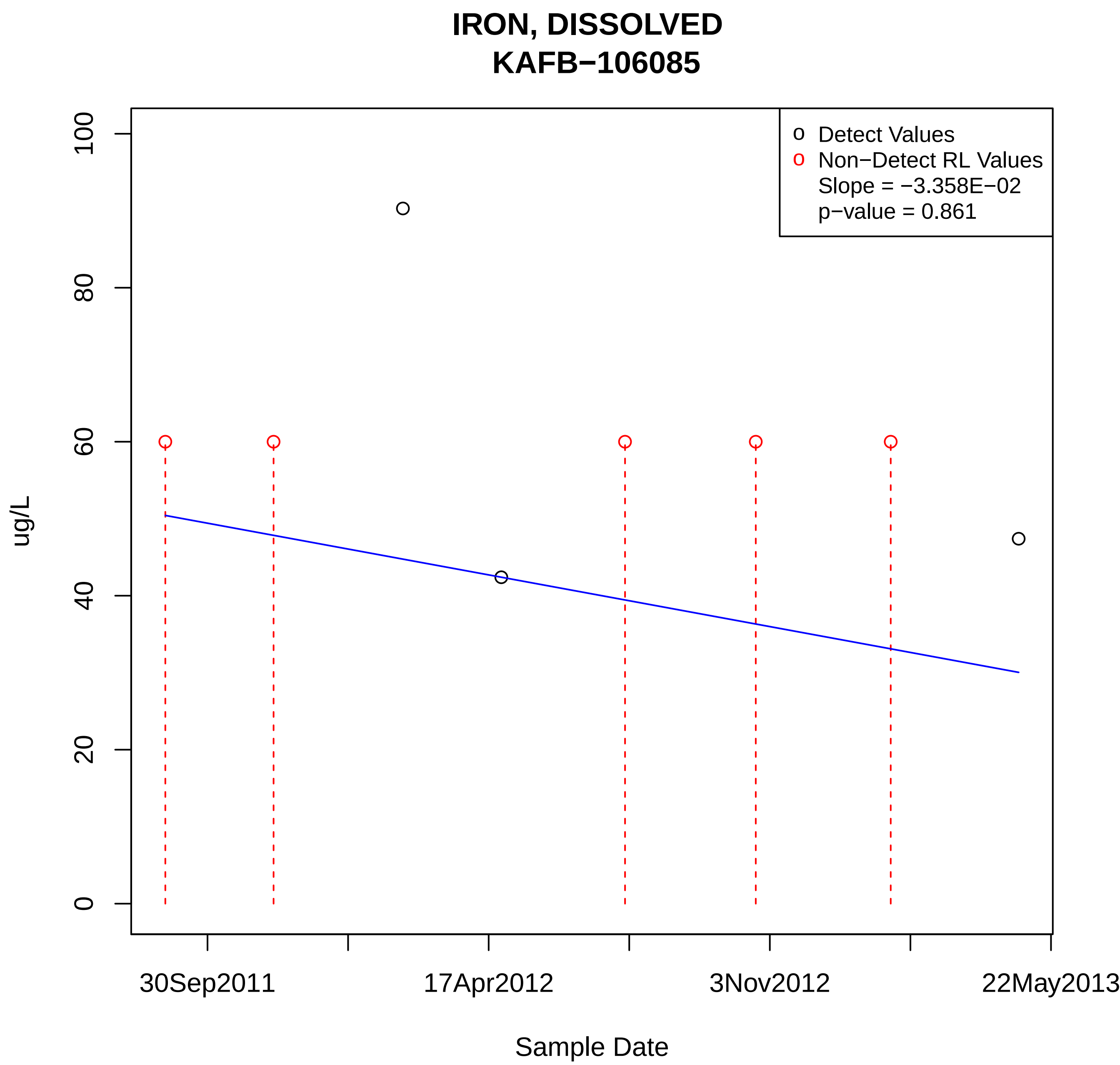

IRON, DISSOLVED
KAFB−106080
o Detect Values
o Non−Detect RL Values
Slope = −2.717E+00
p−value = 0.000
ug/L
0
1000
2000
3000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


IRON, DISSOLVED
KAFB−106081
o Detect Values
o Non−Detect RL Values
0
10
20
30
40
50
60
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

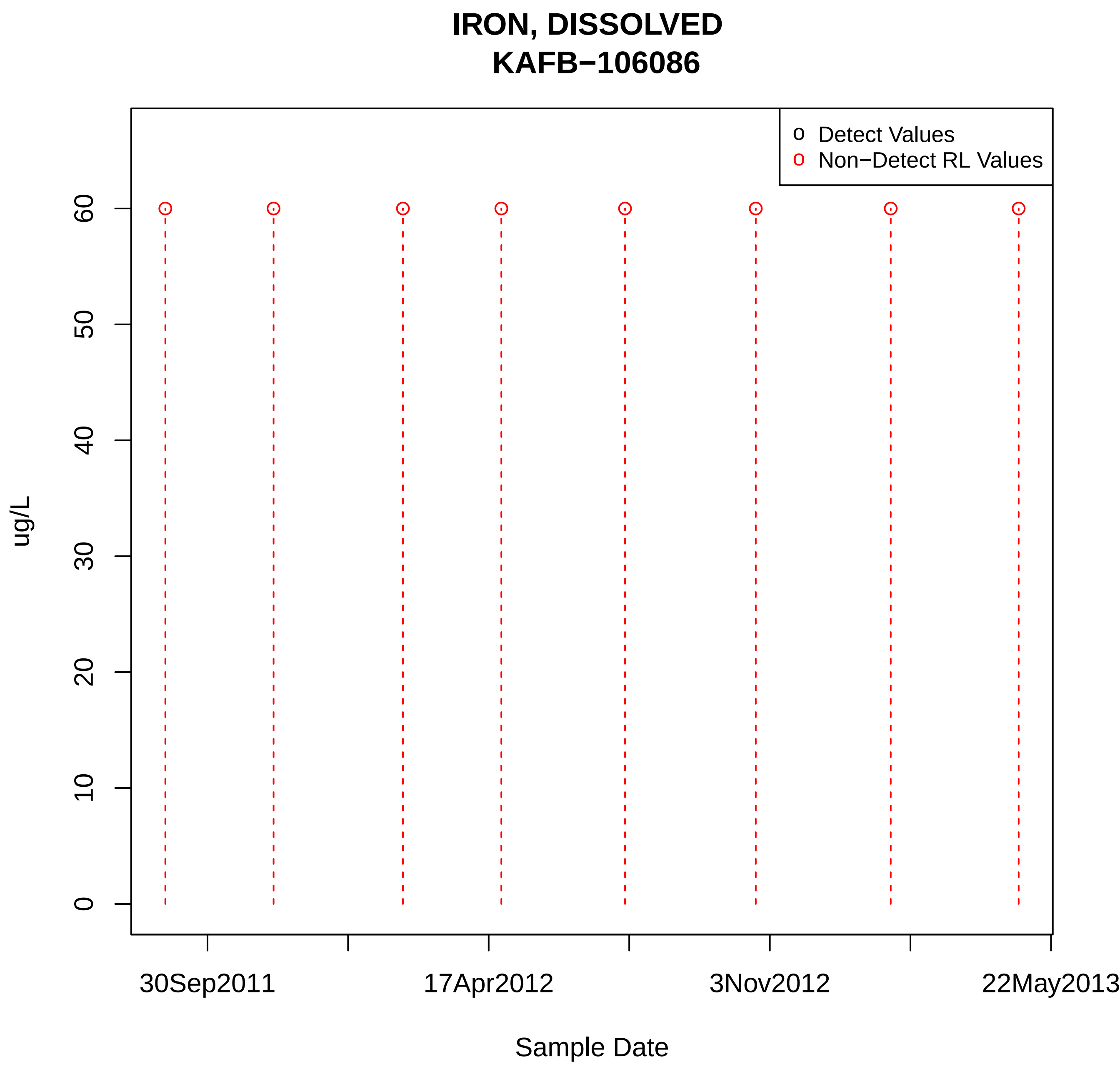

IRON, DISSOLVED
KAFB−106082
o Detect Values
o Non−Detect RL Values
Slope = −4.194E−01
p−value = 0.174
ug/L
0
100
200
300
400
500
600
700
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


IRON, DISSOLVED
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 5.192E−01
p−value = 0.015
ug/L
0
100
200
300
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

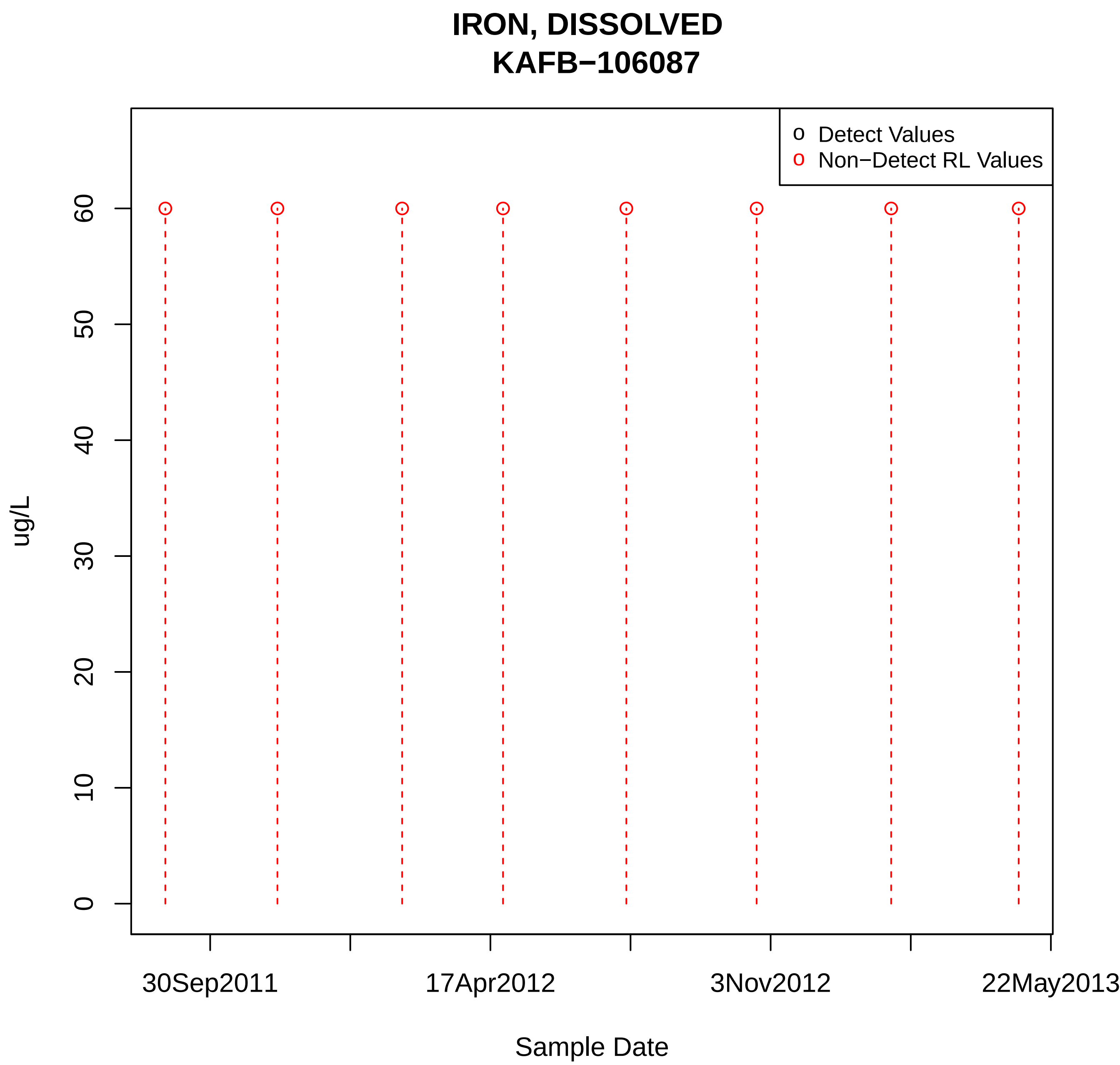

IRON, DISSOLVED
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

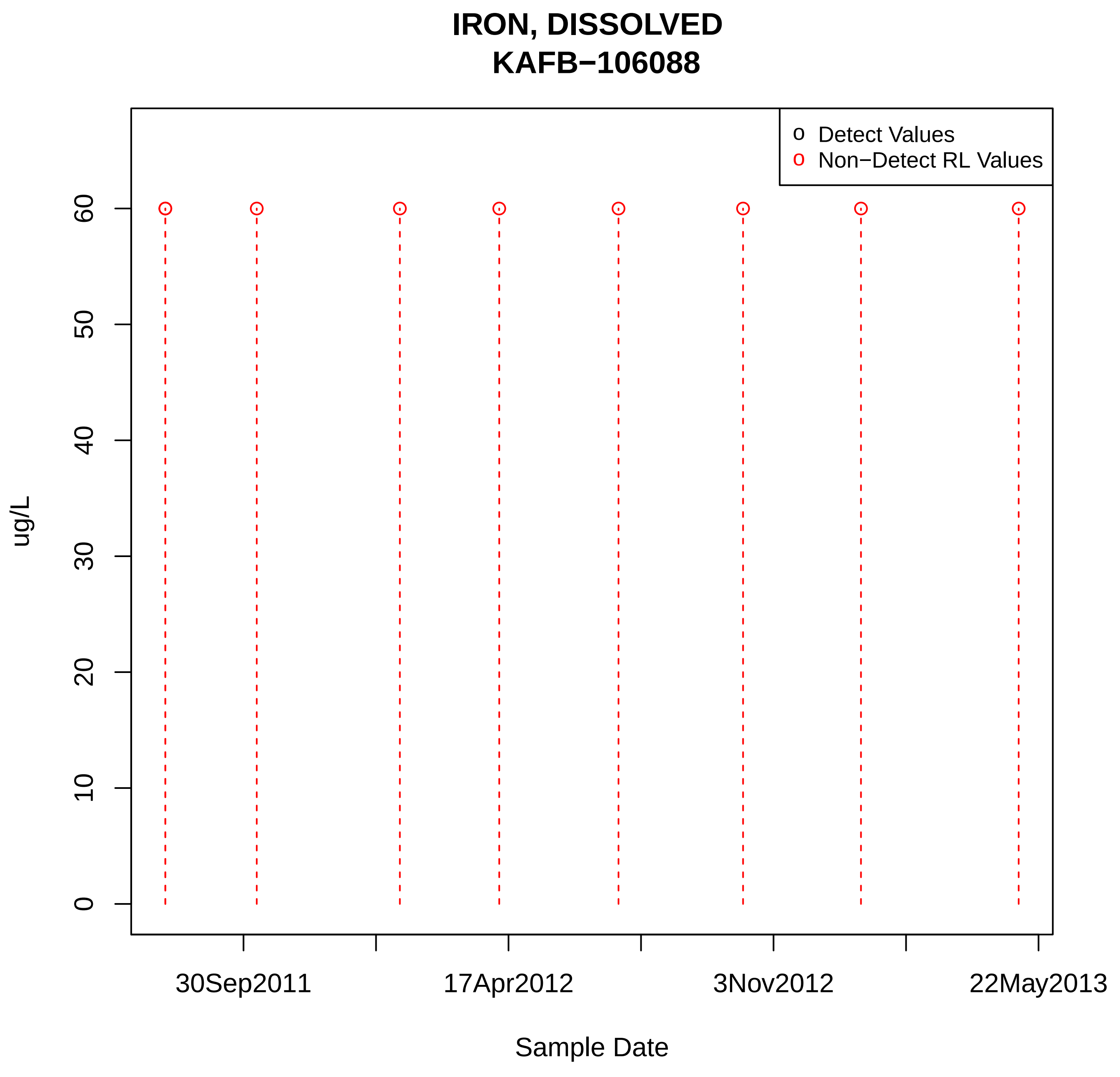


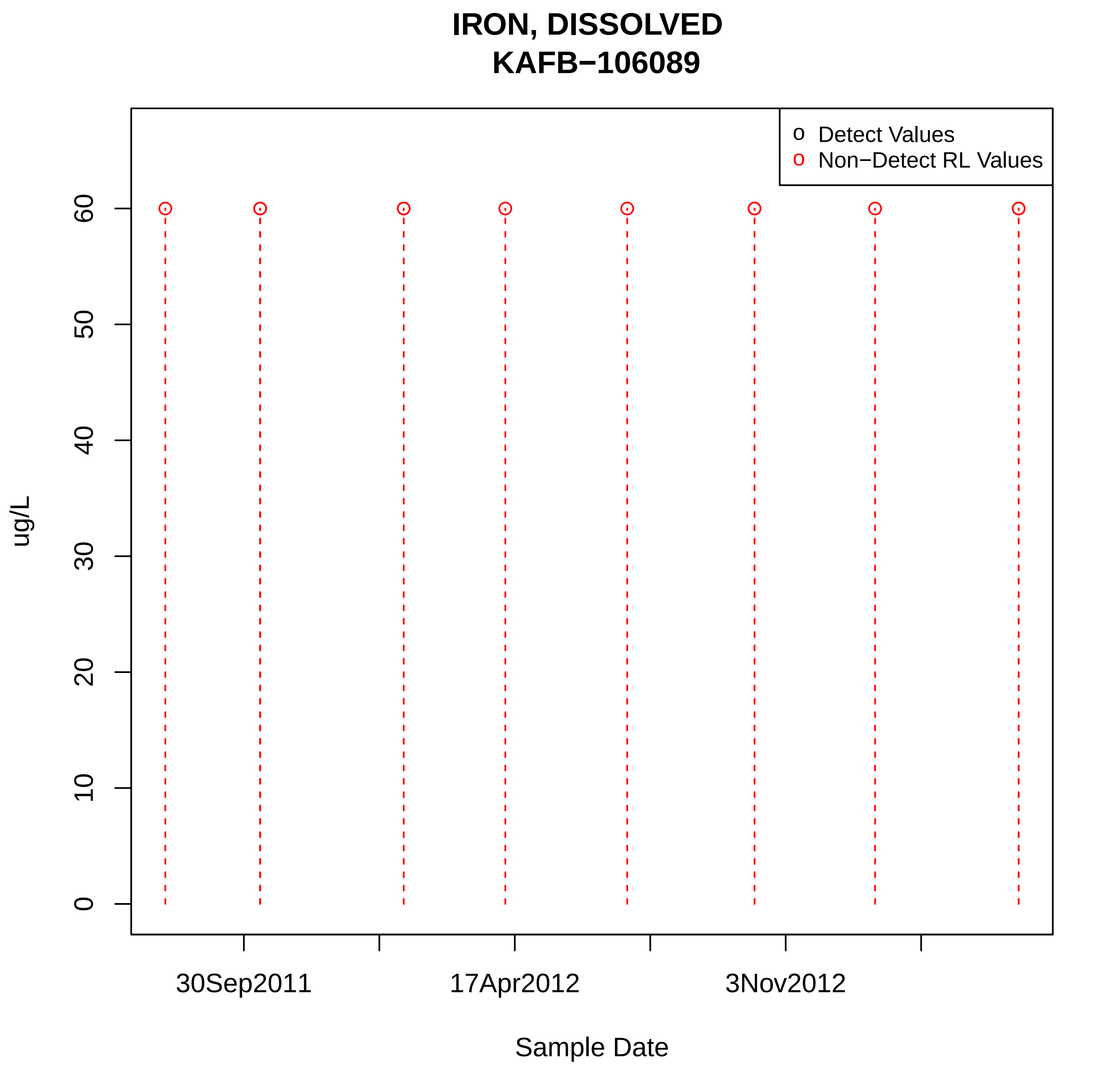
IRON, DISSOLVED
KAFB−106085
Detect Values
Non−Detect RL Values
Slope = −3.358E−02
p−value = 0.861
ug/L
0
20
40
60
80
100
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



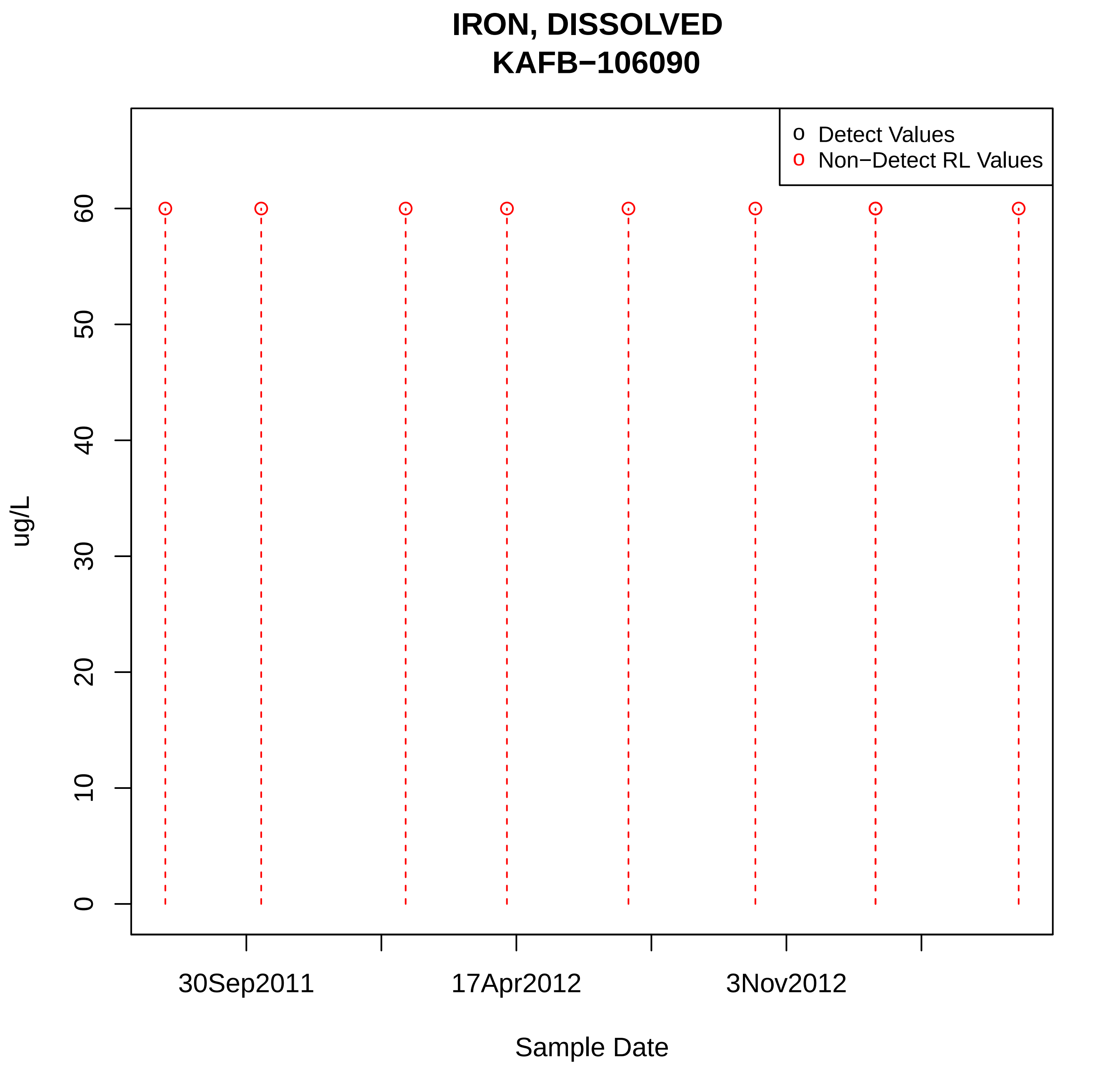
IRON, DISSOLVED
KAFB−106086
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


IRON, DISSOLVED
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

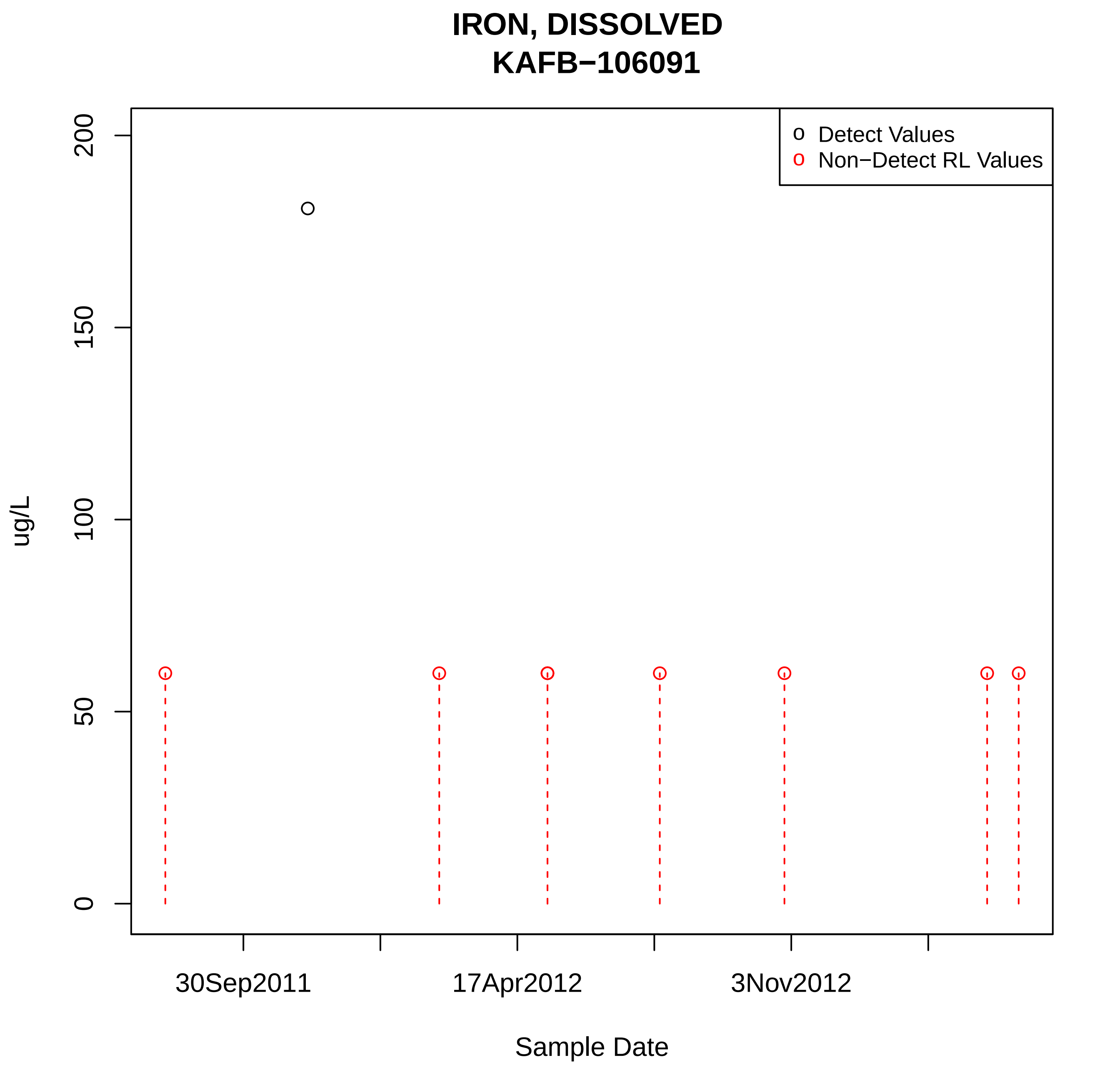

IRON, DISSOLVED
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

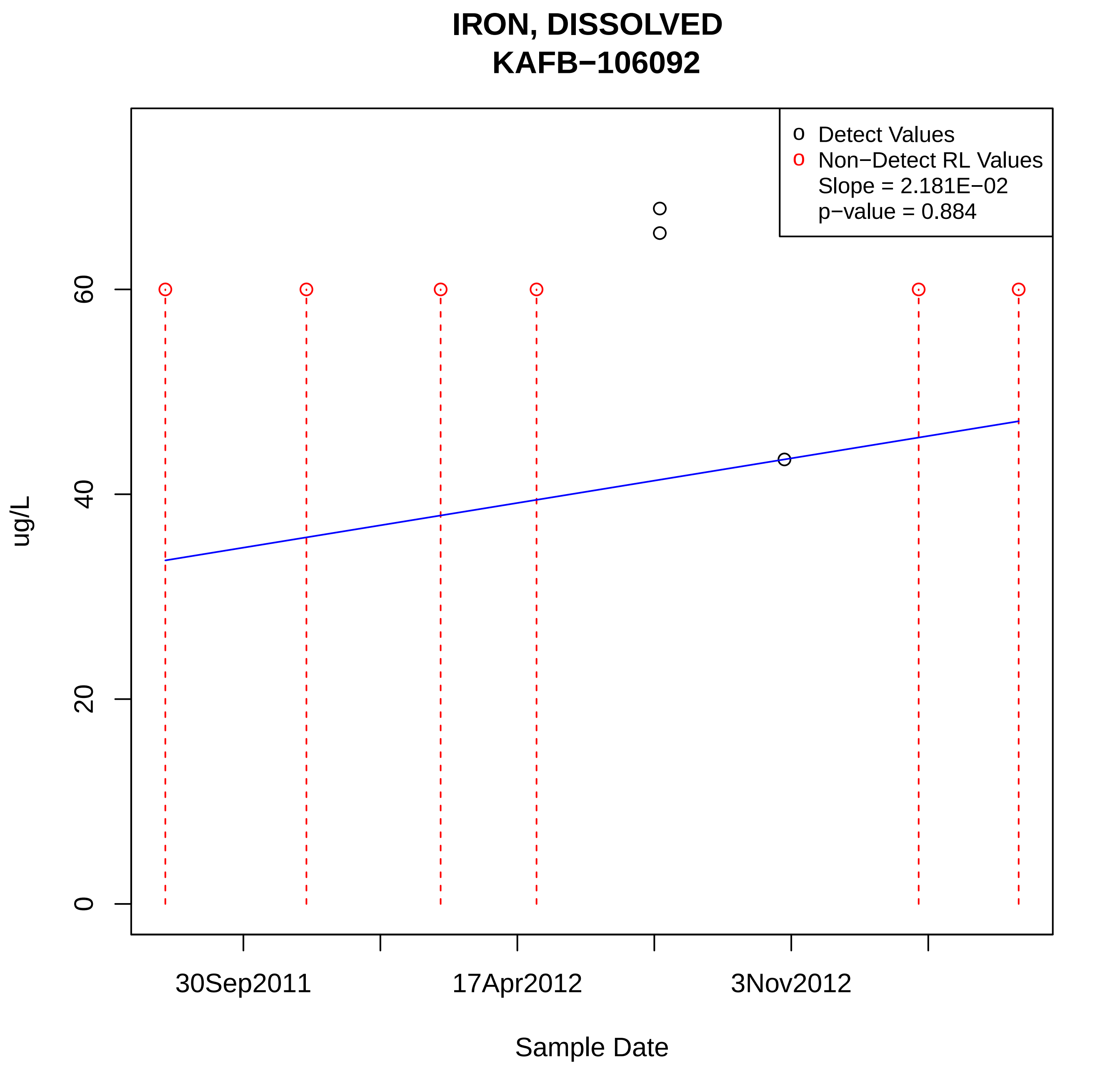


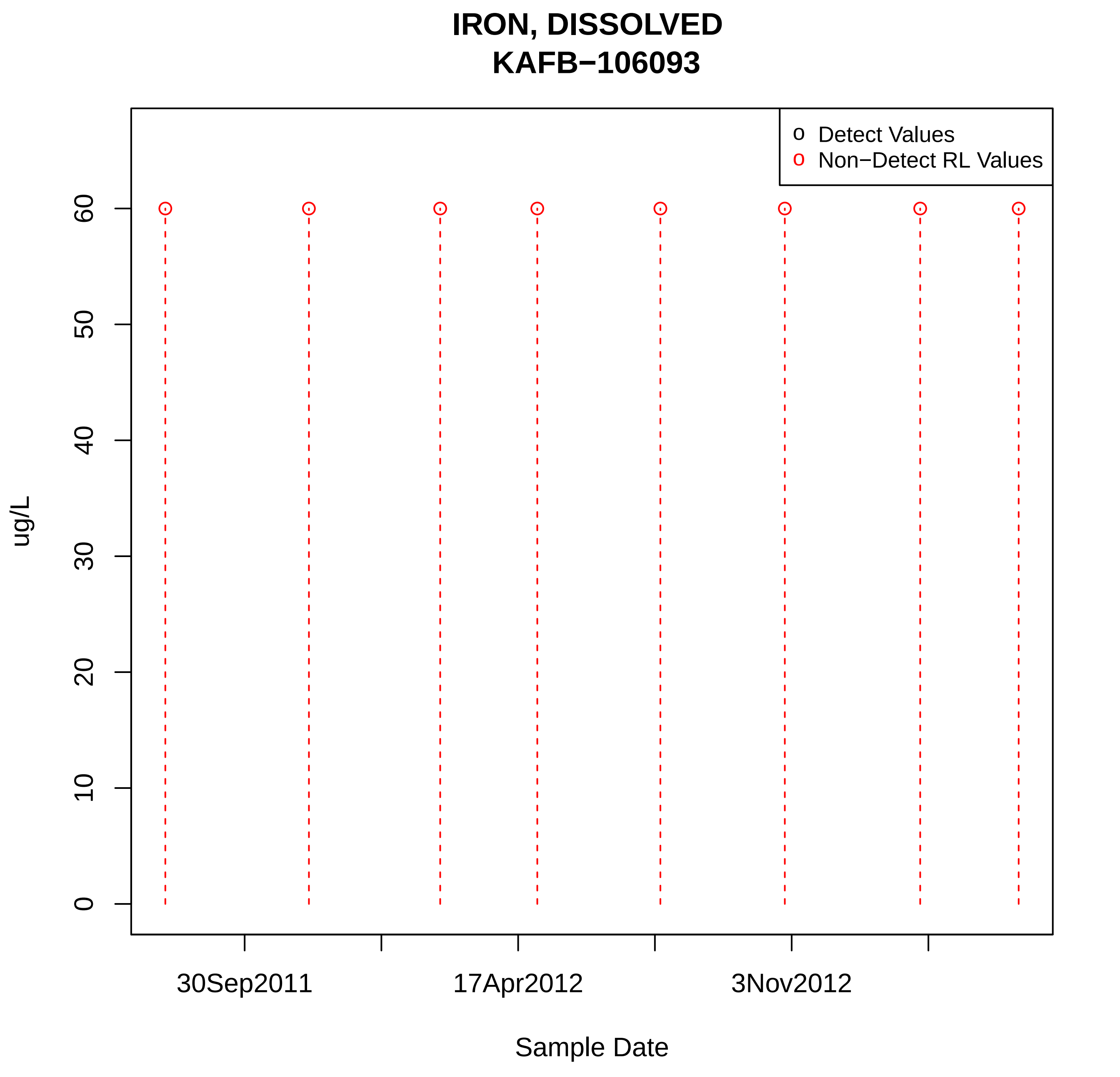
IRON, DISSOLVED
KAFB−106089
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

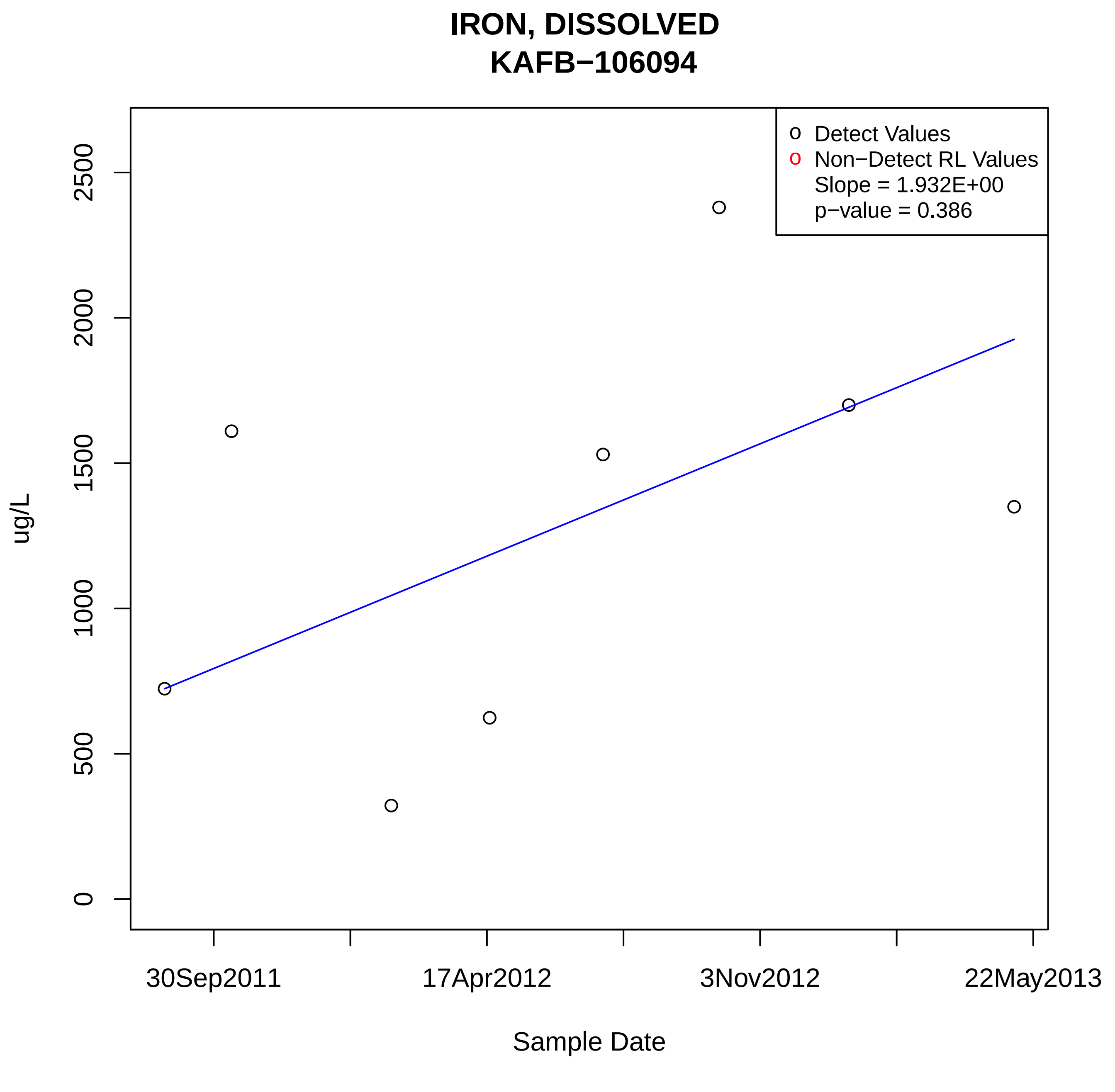


IRON, DISSOLVED
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

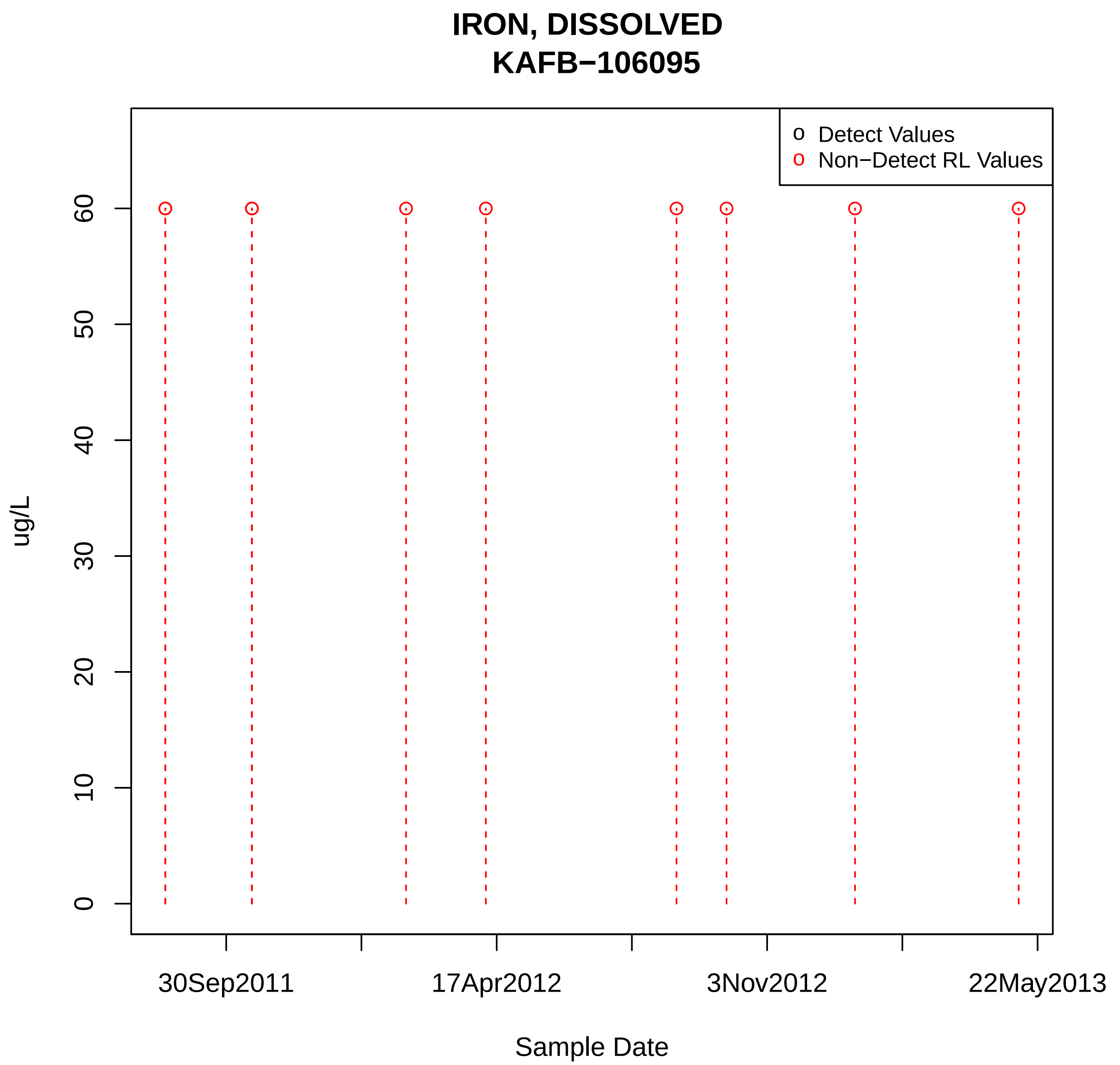

IRON, DISSOLVED
KAFB−106091
Detect Values
Non−Detect RL Values
ug/L
0
50
100
150
200
30Sep2011
17Apr2012
3Nov2012
Sample Date


IRON, DISSOLVED
KAFB−106092
Detect Values
Non−Detect RL Values
Slope = 2.181E−02
p−value = 0.884
ug/L
0
20
40
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

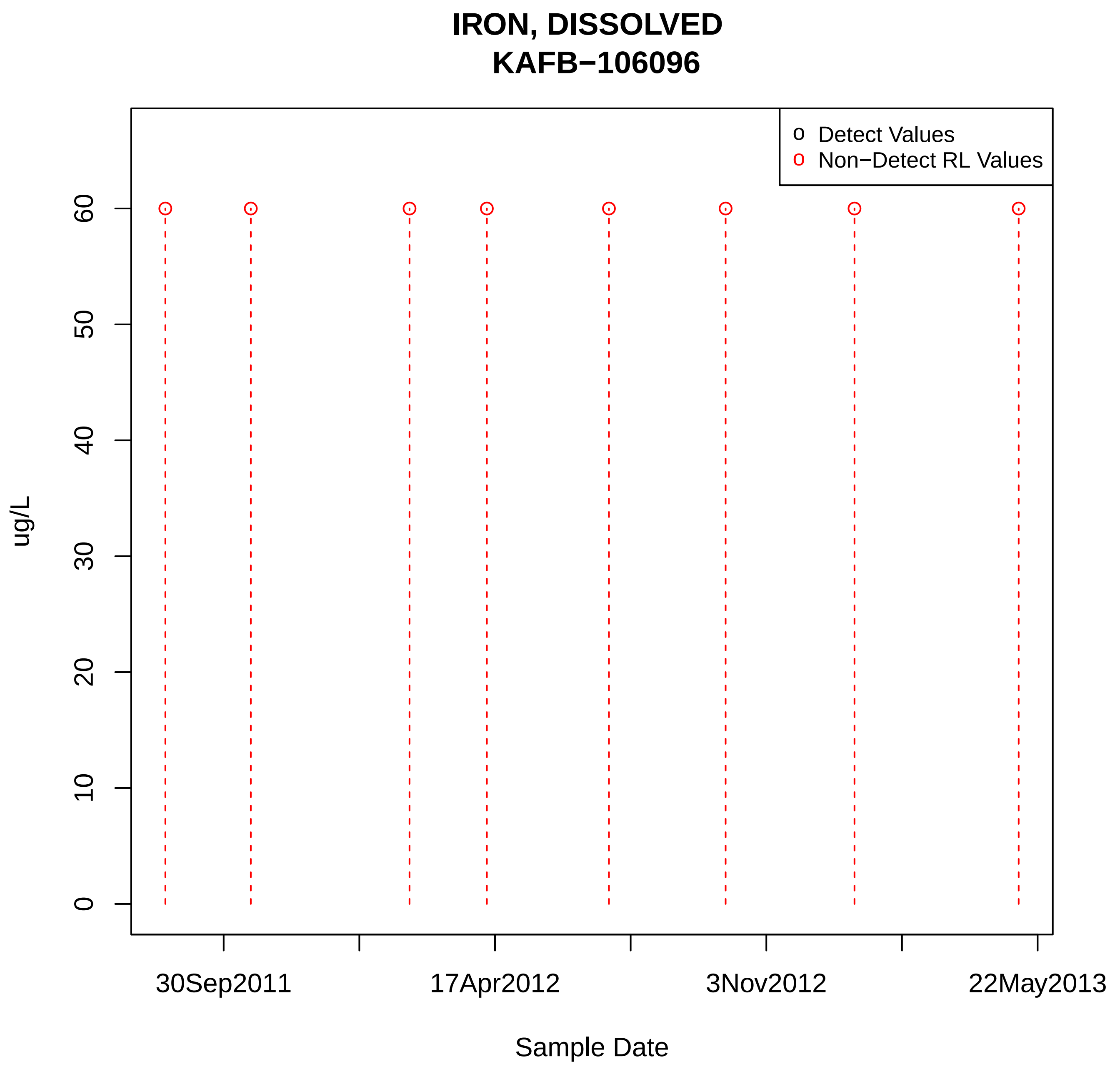

IRON, DISSOLVED
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

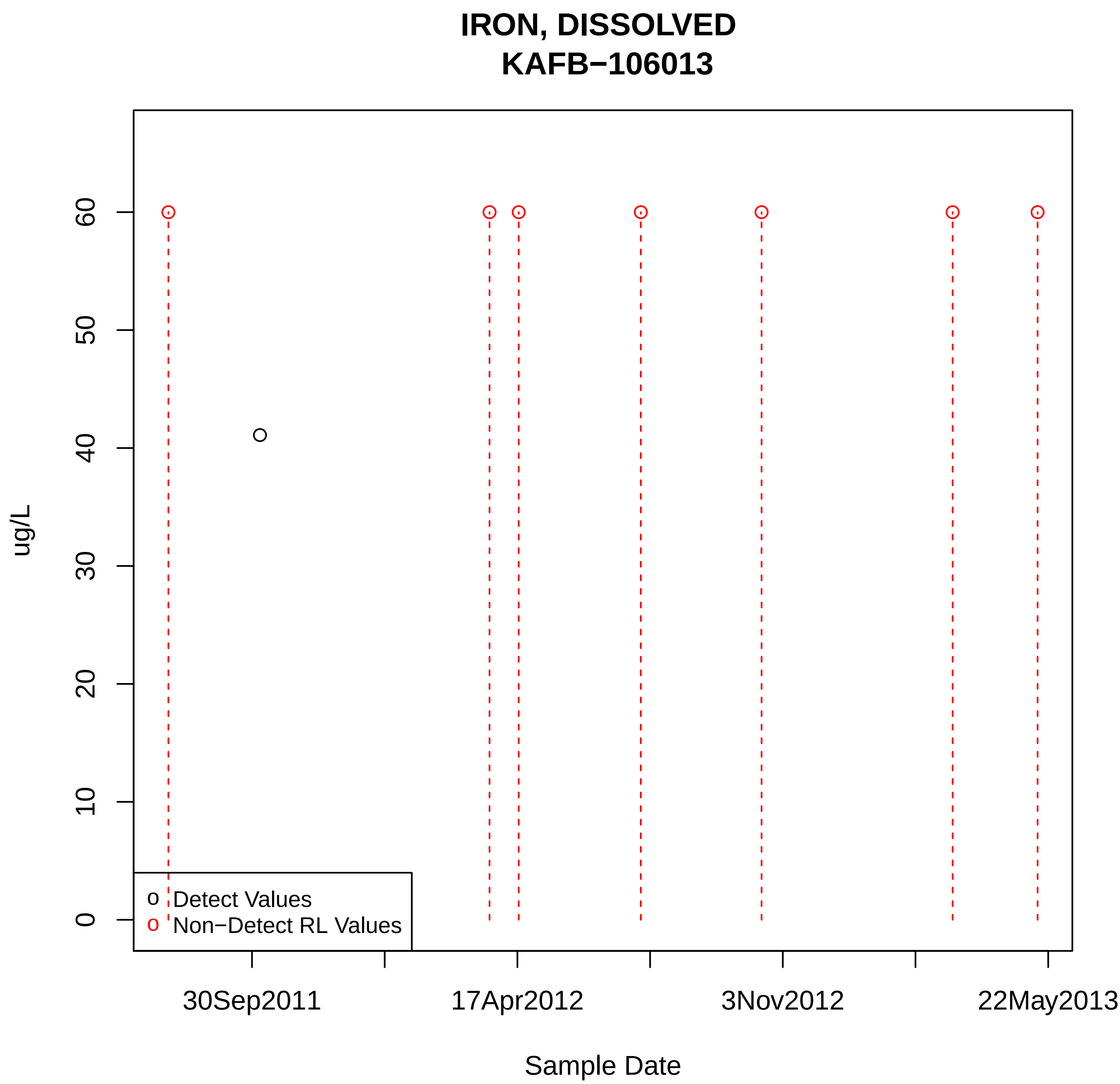


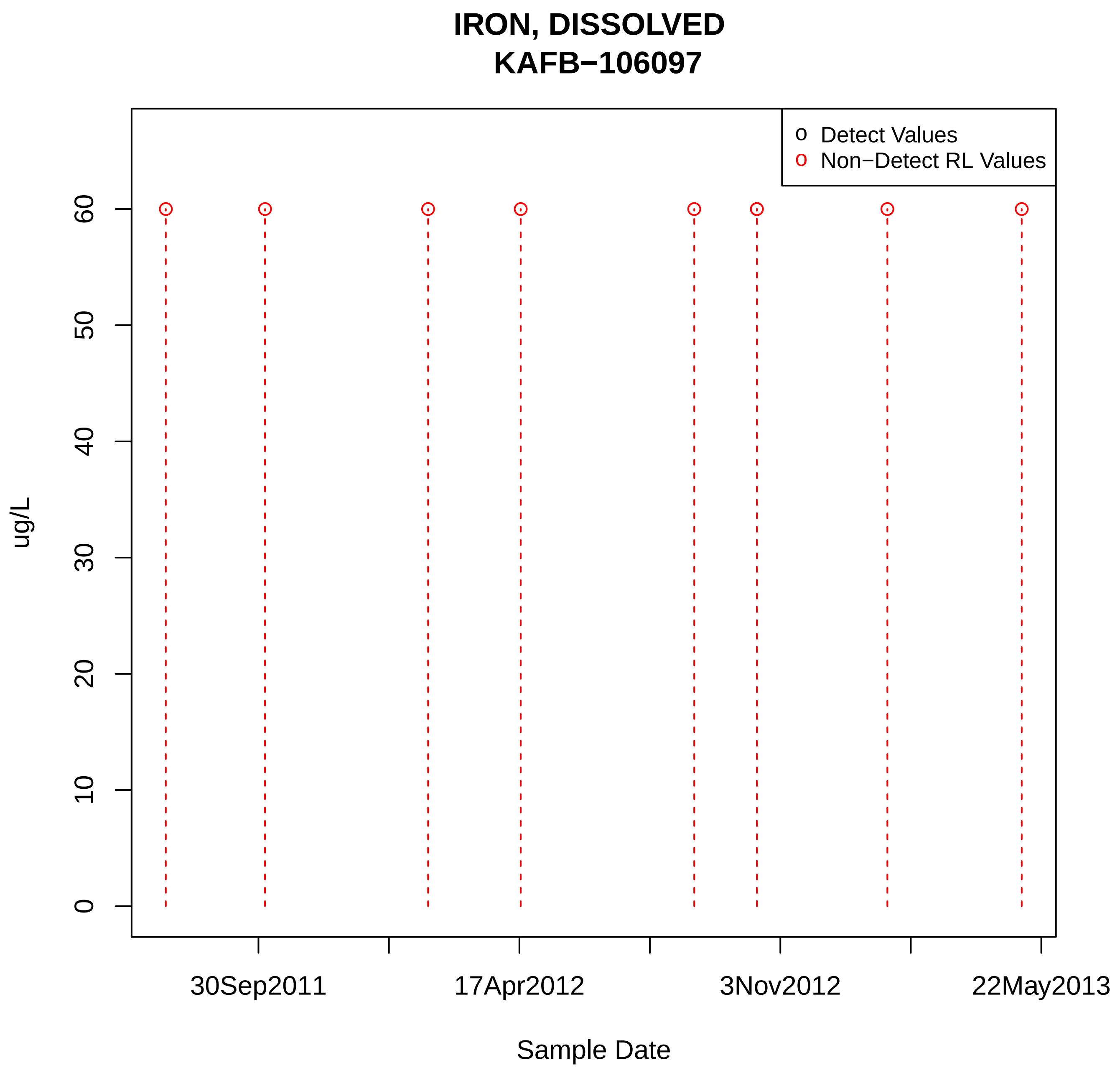
IRON, DISSOLVED
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = 1.932E+00
p−value = 0.386
ug/L
0
500
1000
1500
2000
2500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



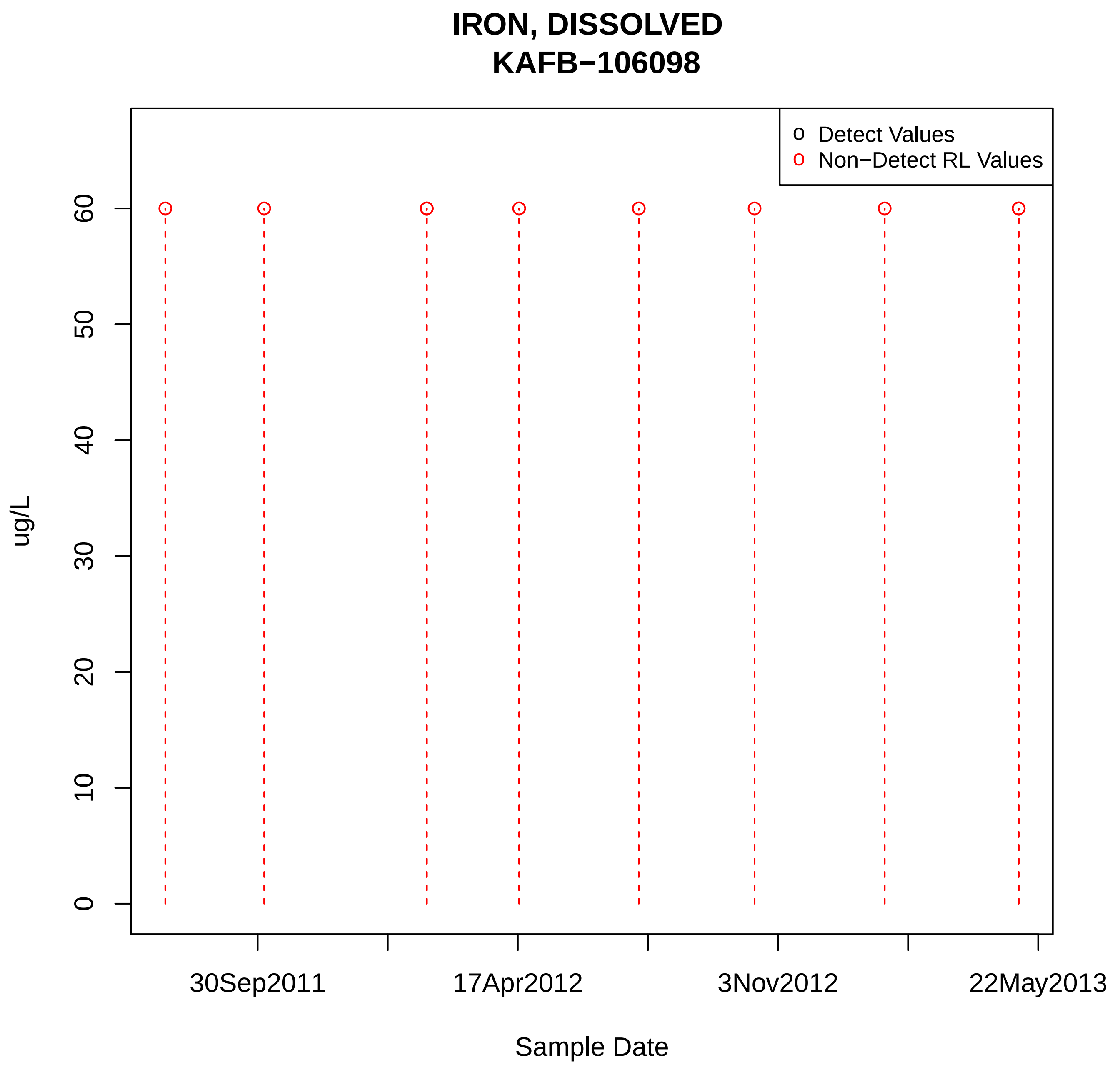
IRON, DISSOLVED
KAFB−106095
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


IRON, DISSOLVED
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

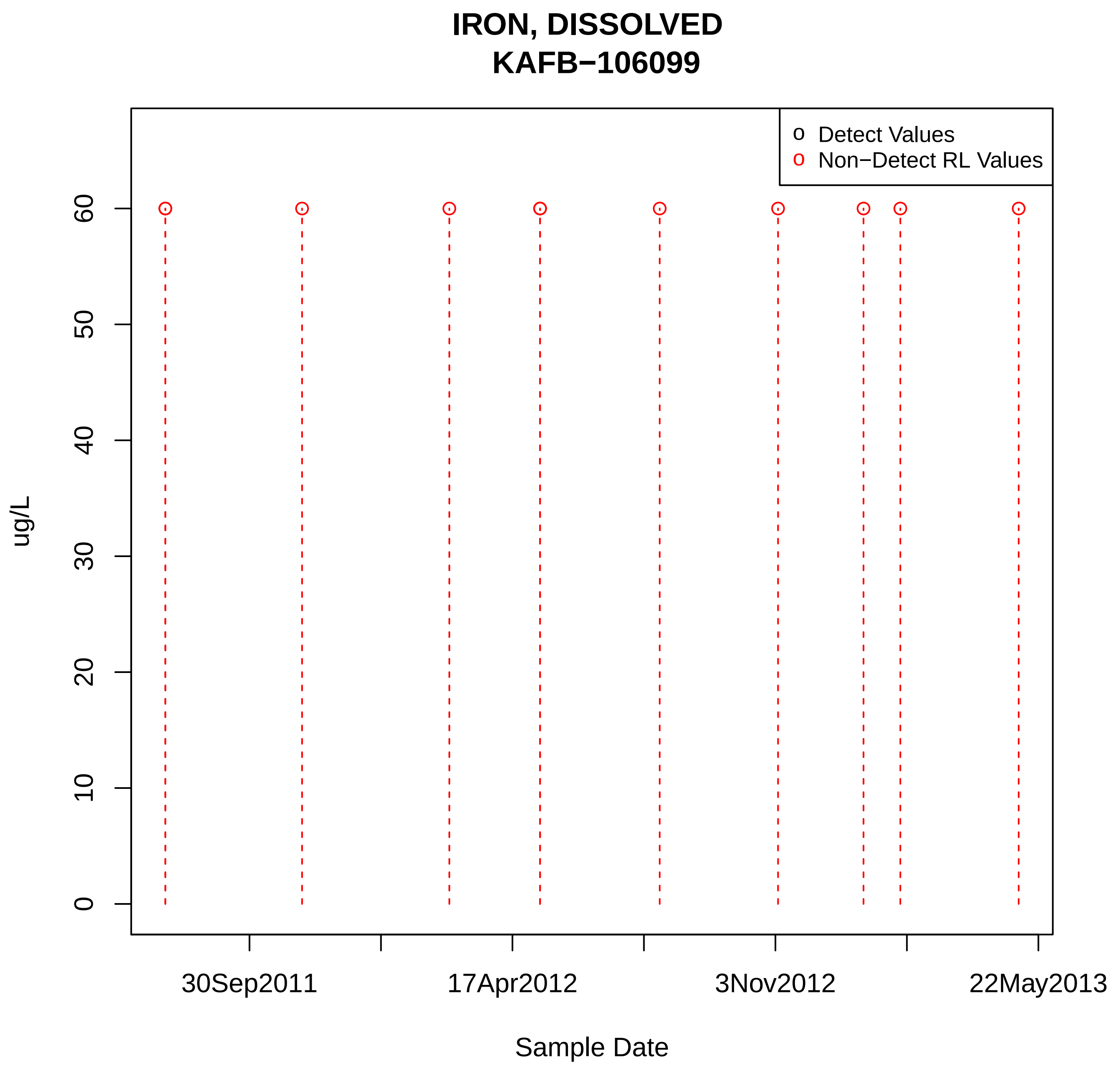

IRON, DISSOLVED
KAFB−106013
ug/L
0
10
20
30
40
50
60
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

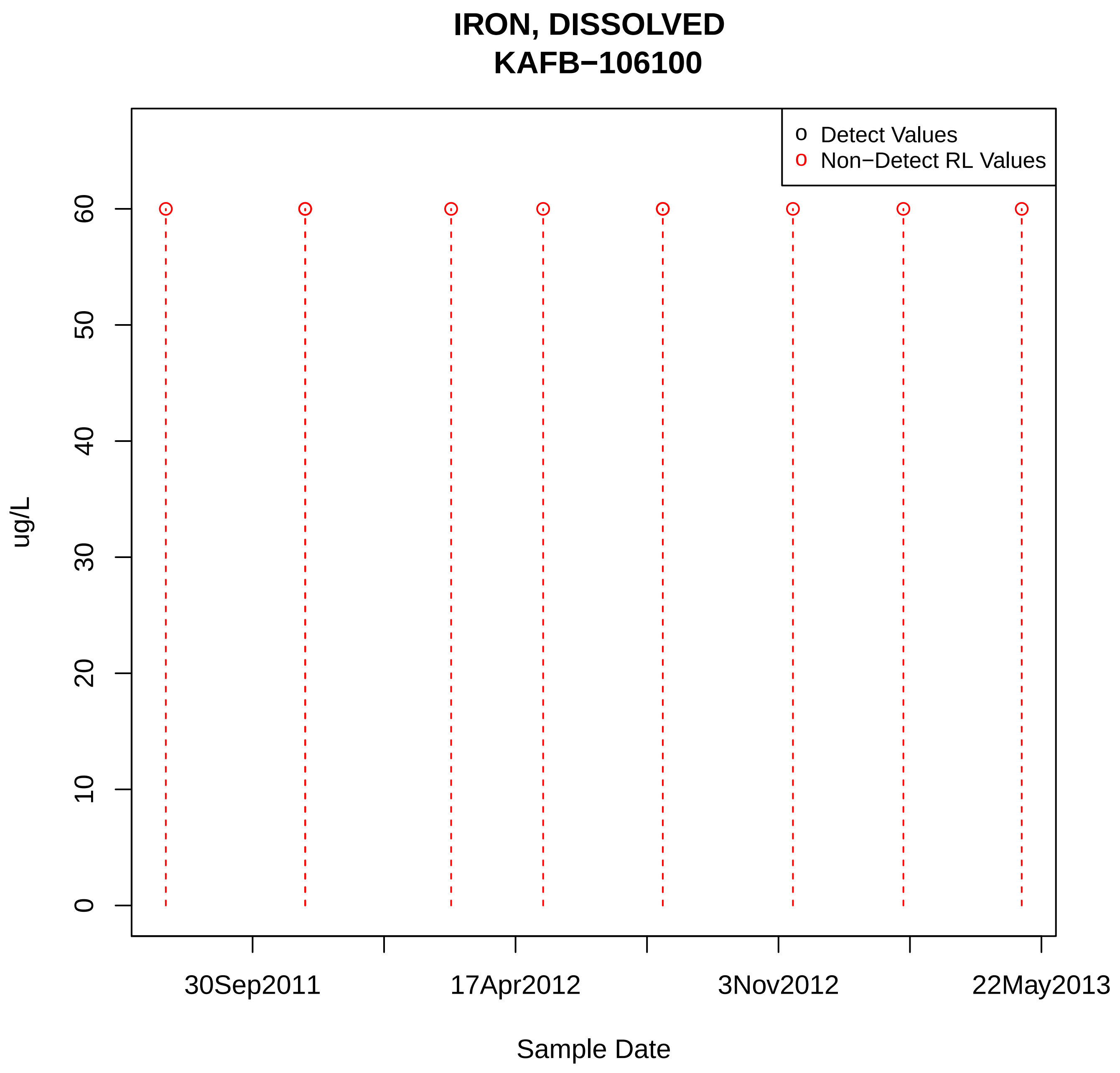


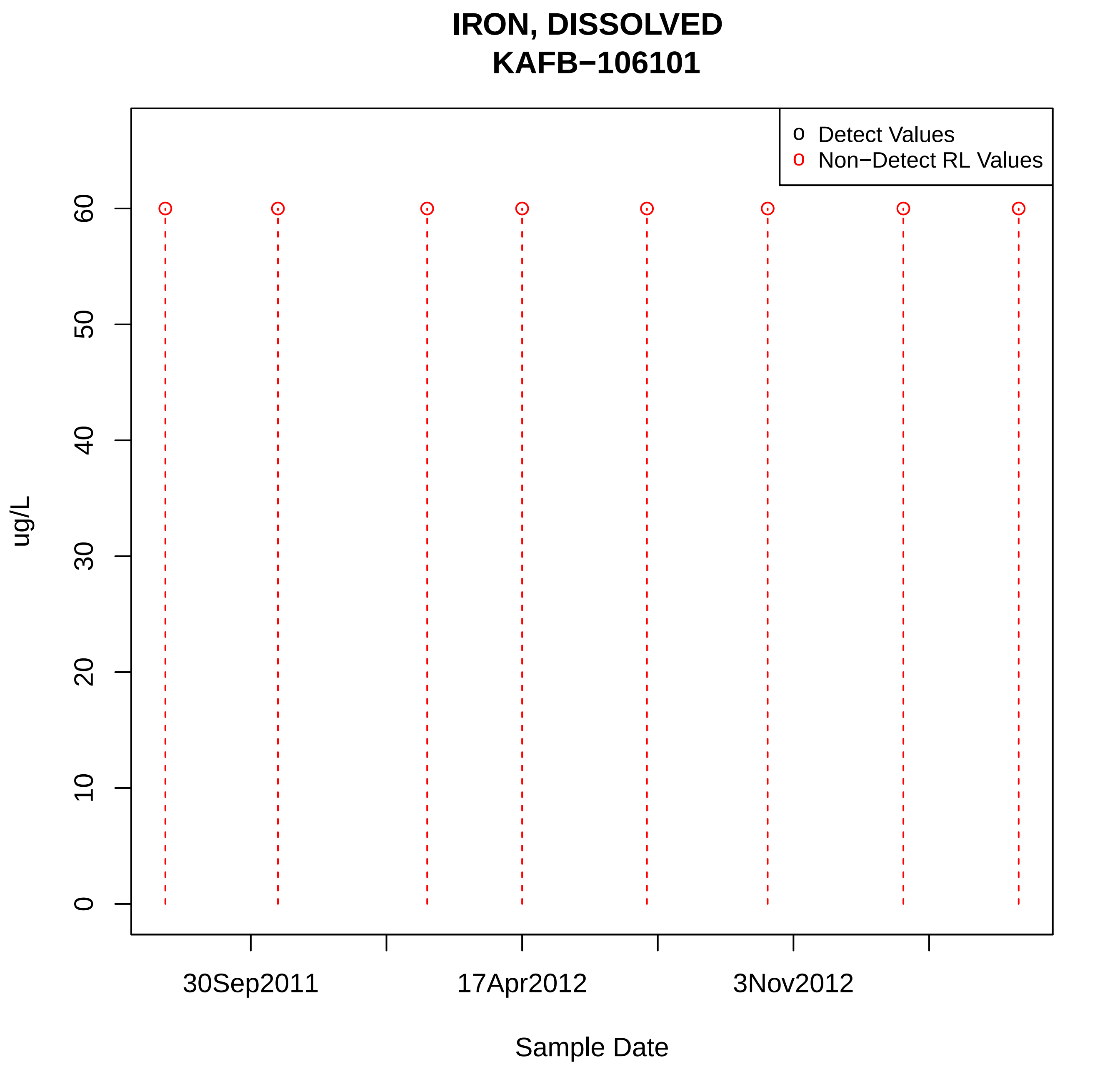
IRON, DISSOLVED
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

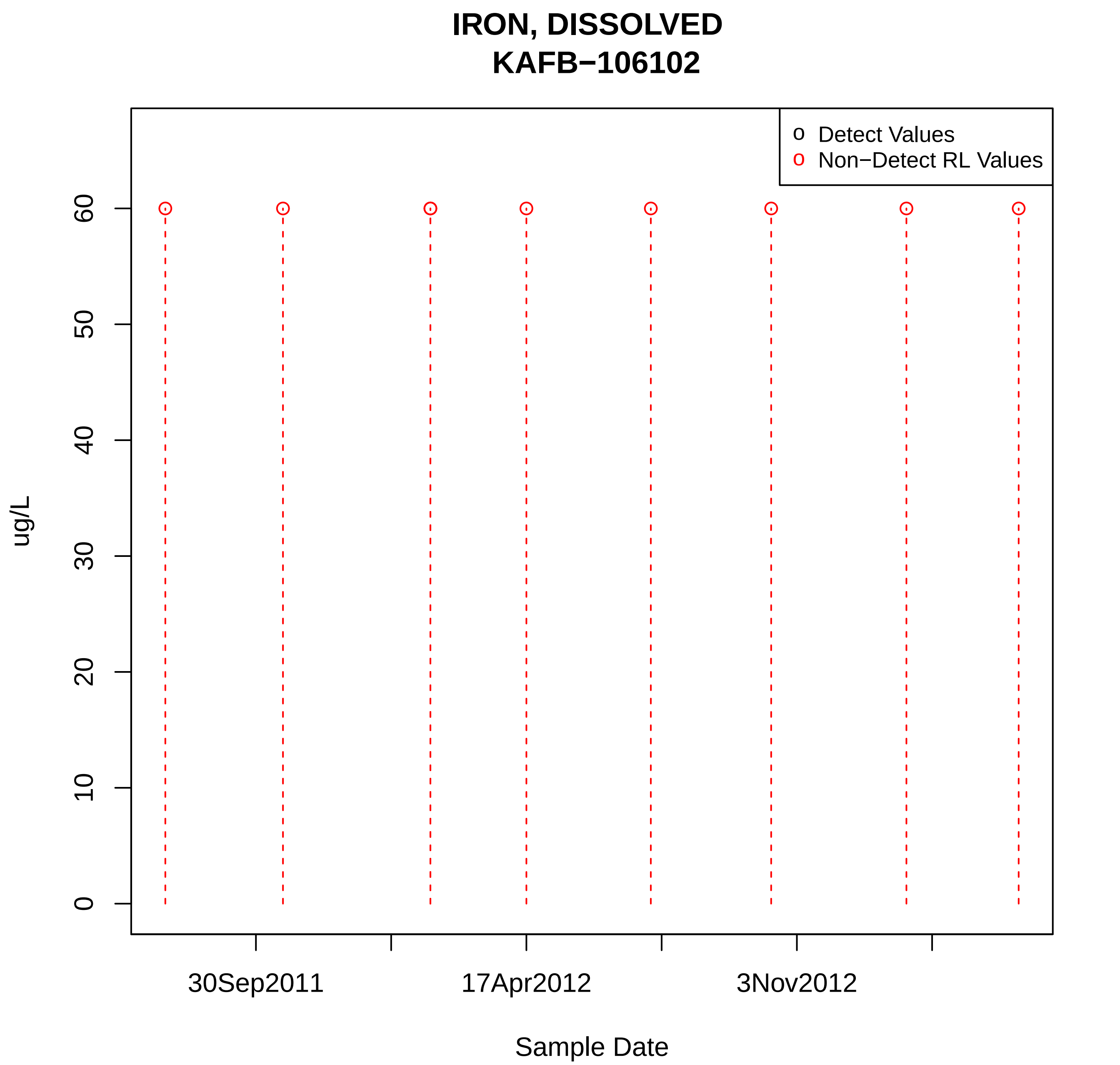


IRON, DISSOLVED
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

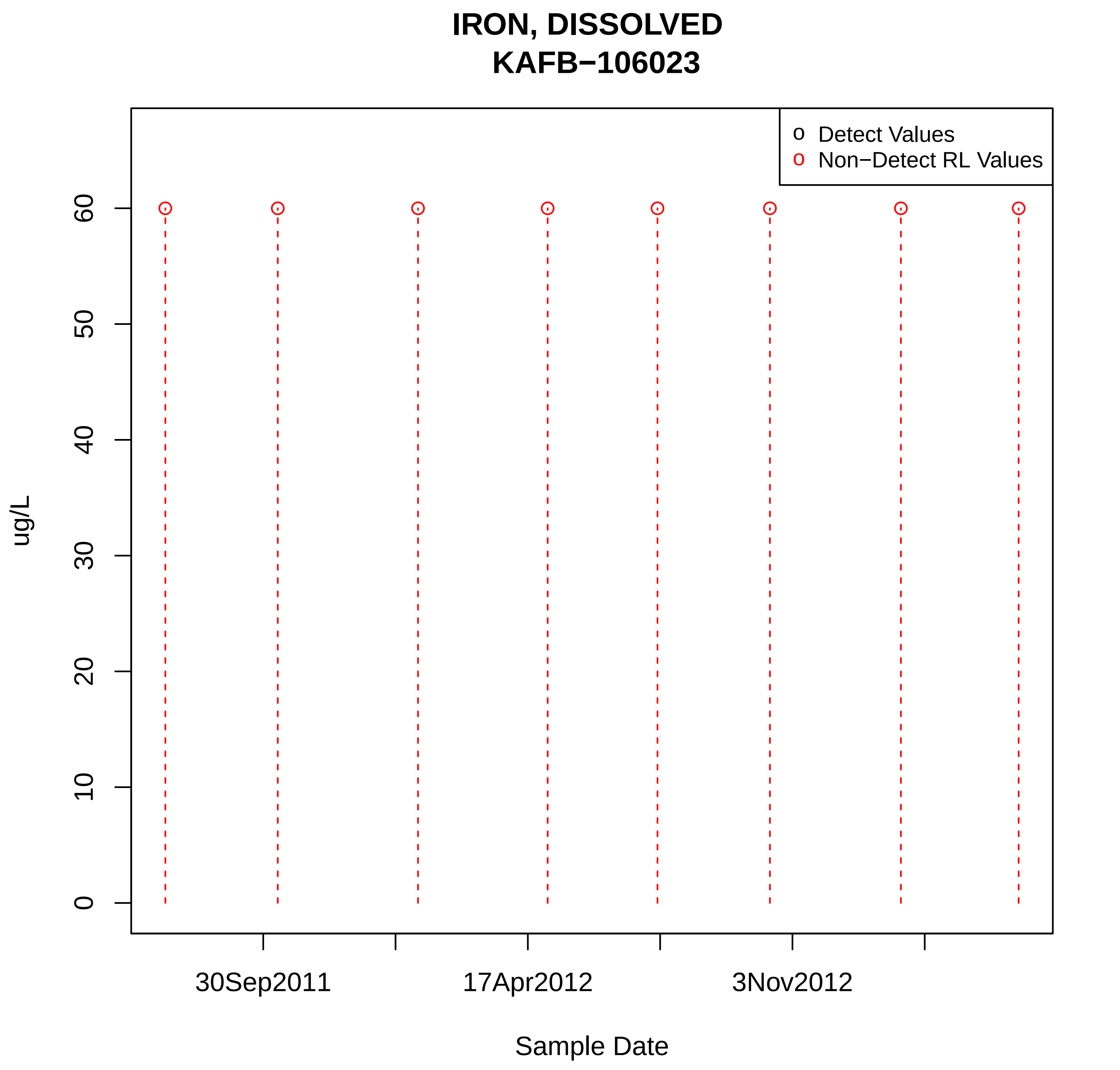

IRON, DISSOLVED
KAFB−106099
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


IRON, DISSOLVED
KAFB−106100
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

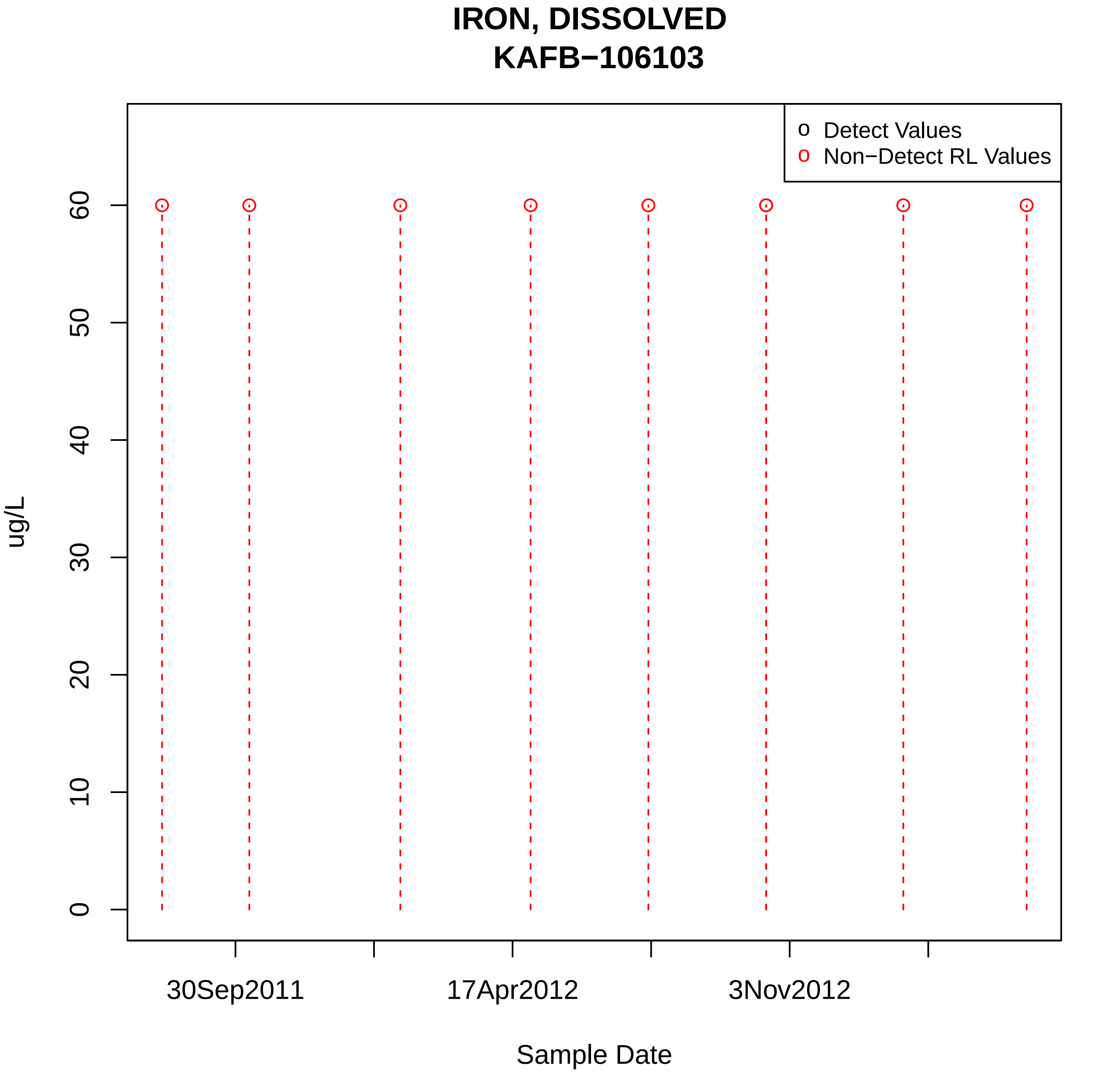

IRON, DISSOLVED
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date



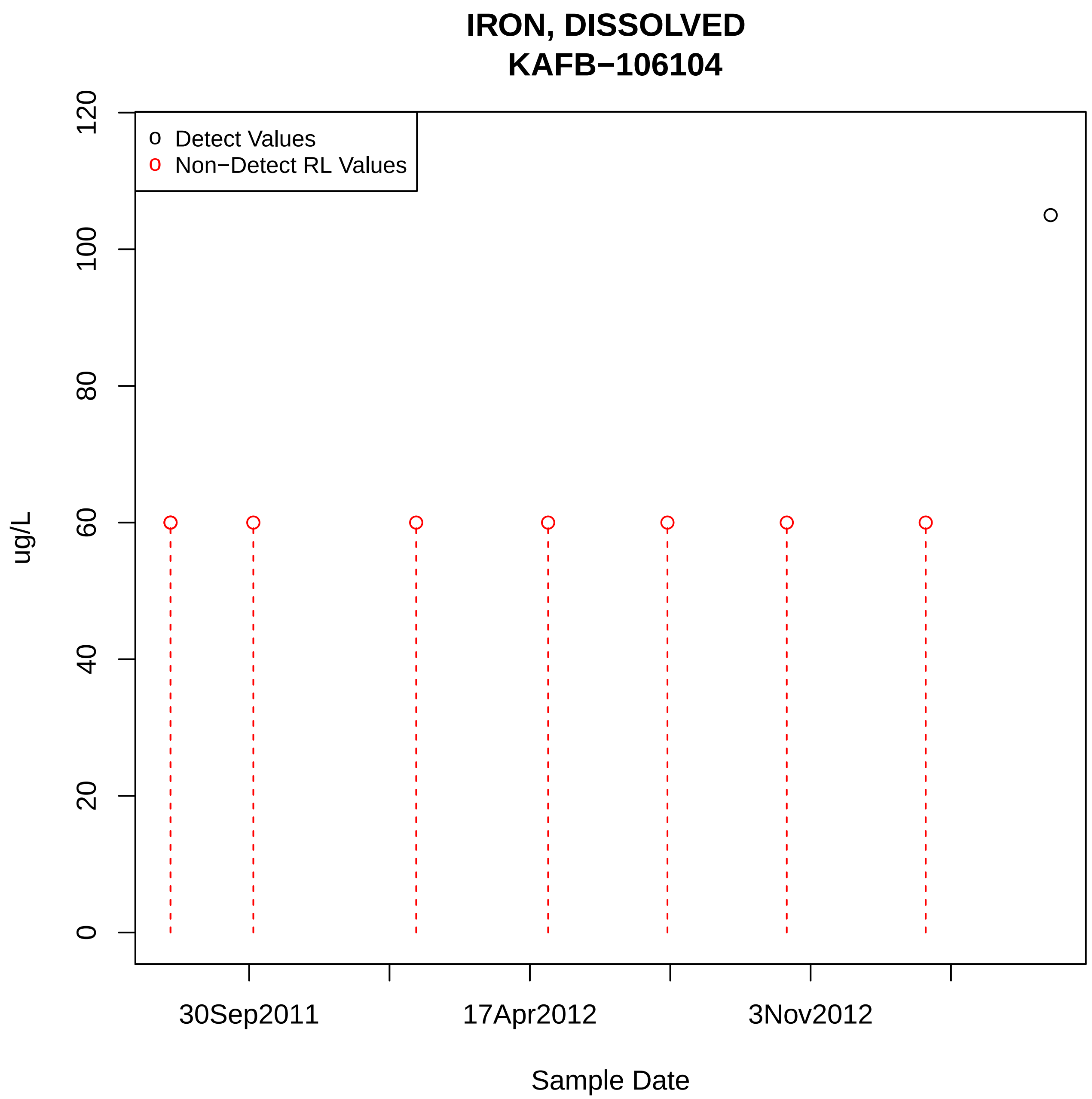
IRON, DISSOLVED
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

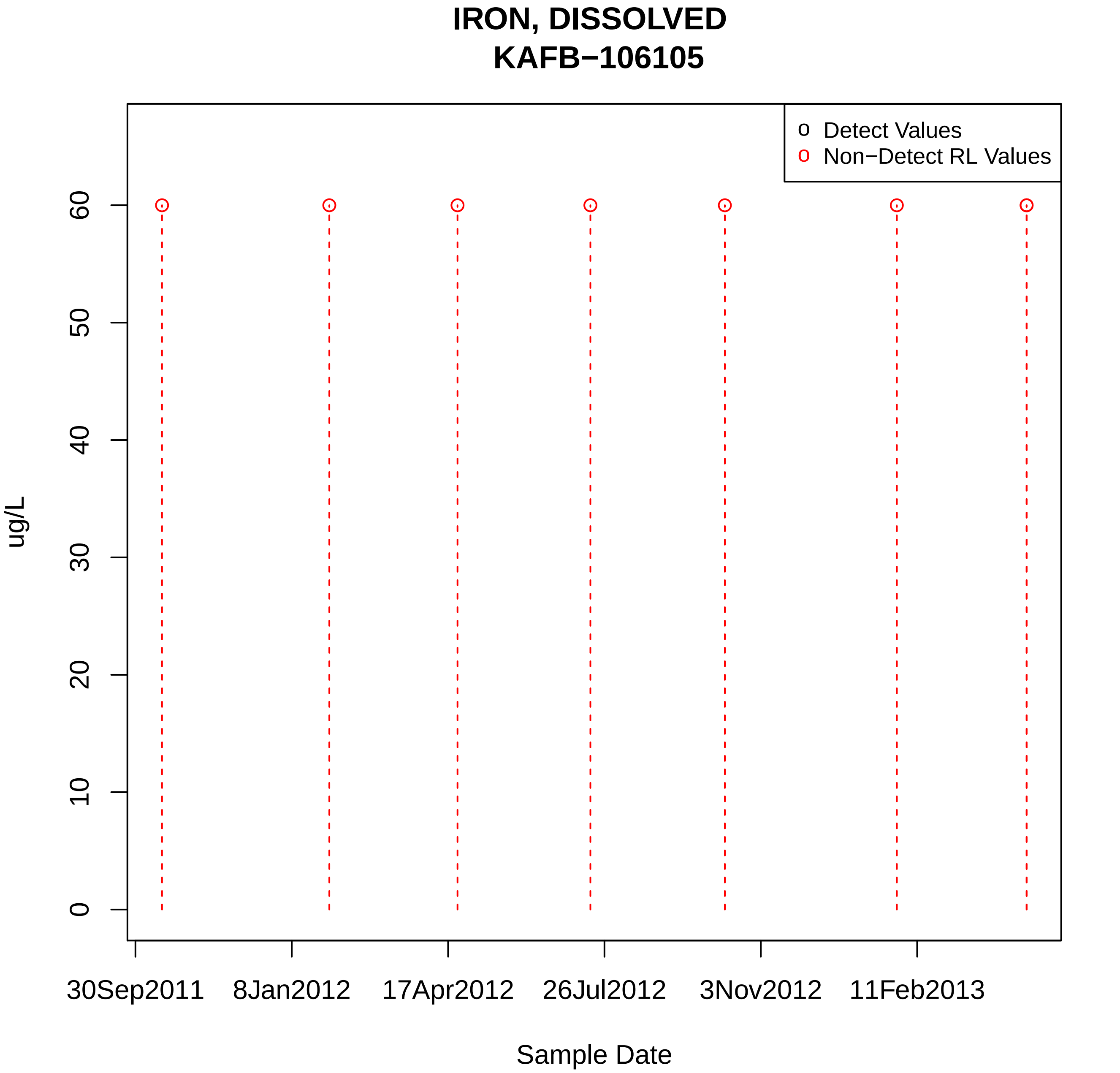


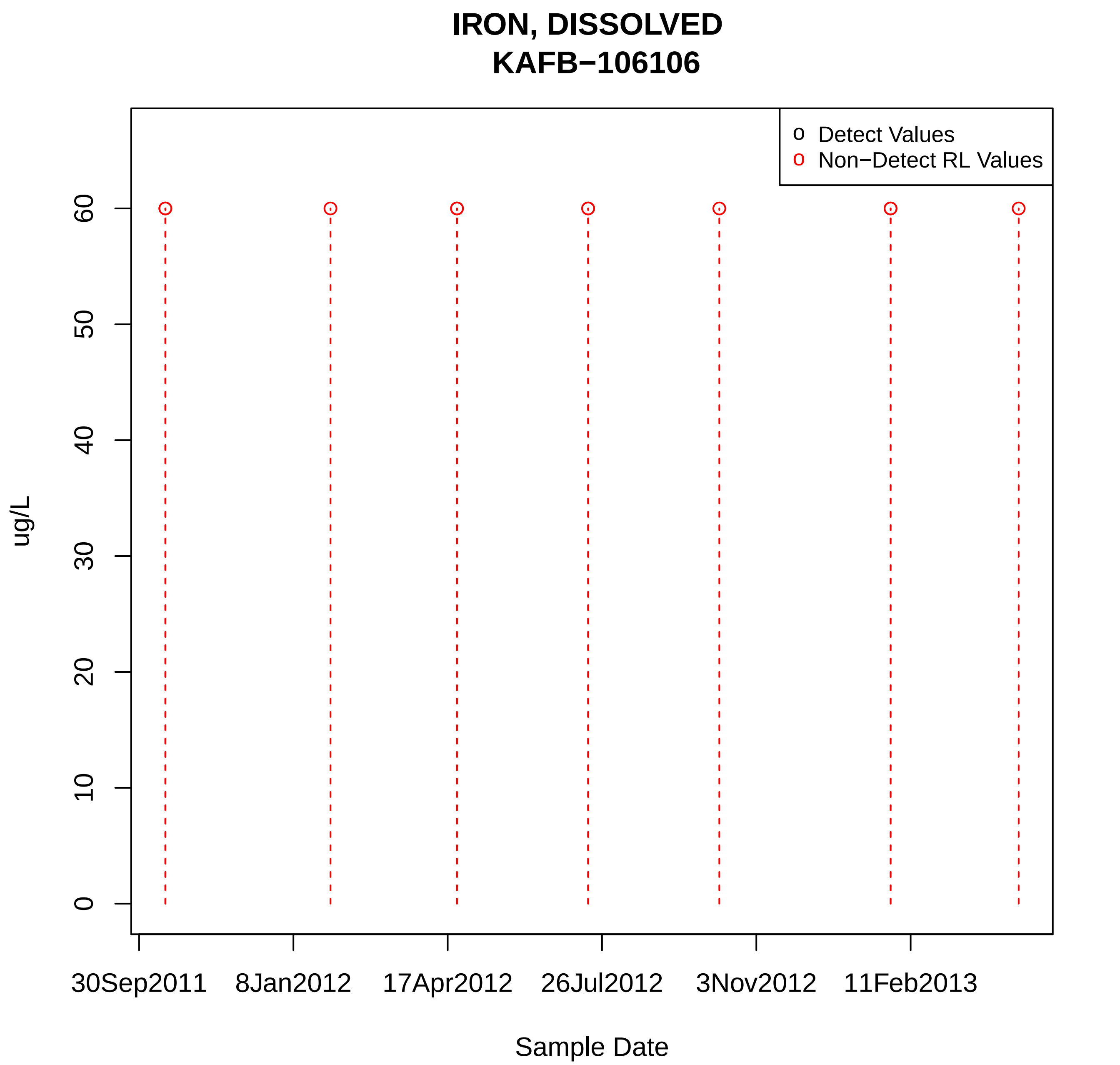
IRON, DISSOLVED
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

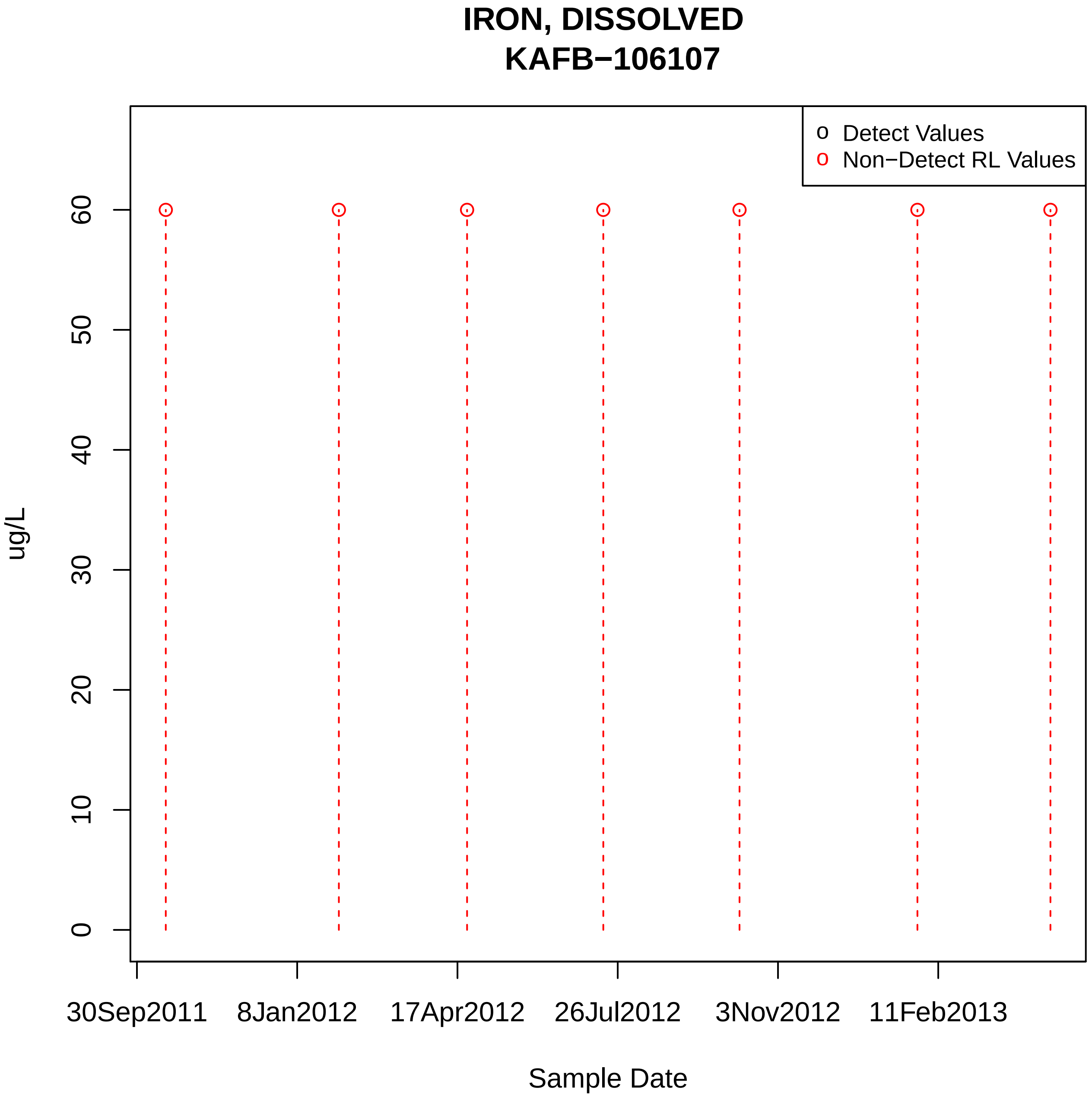


IRON, DISSOLVED
KAFB−106103
o Detect Values
o Non−Detect RL Values
0
10
20
30
40
50
60
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

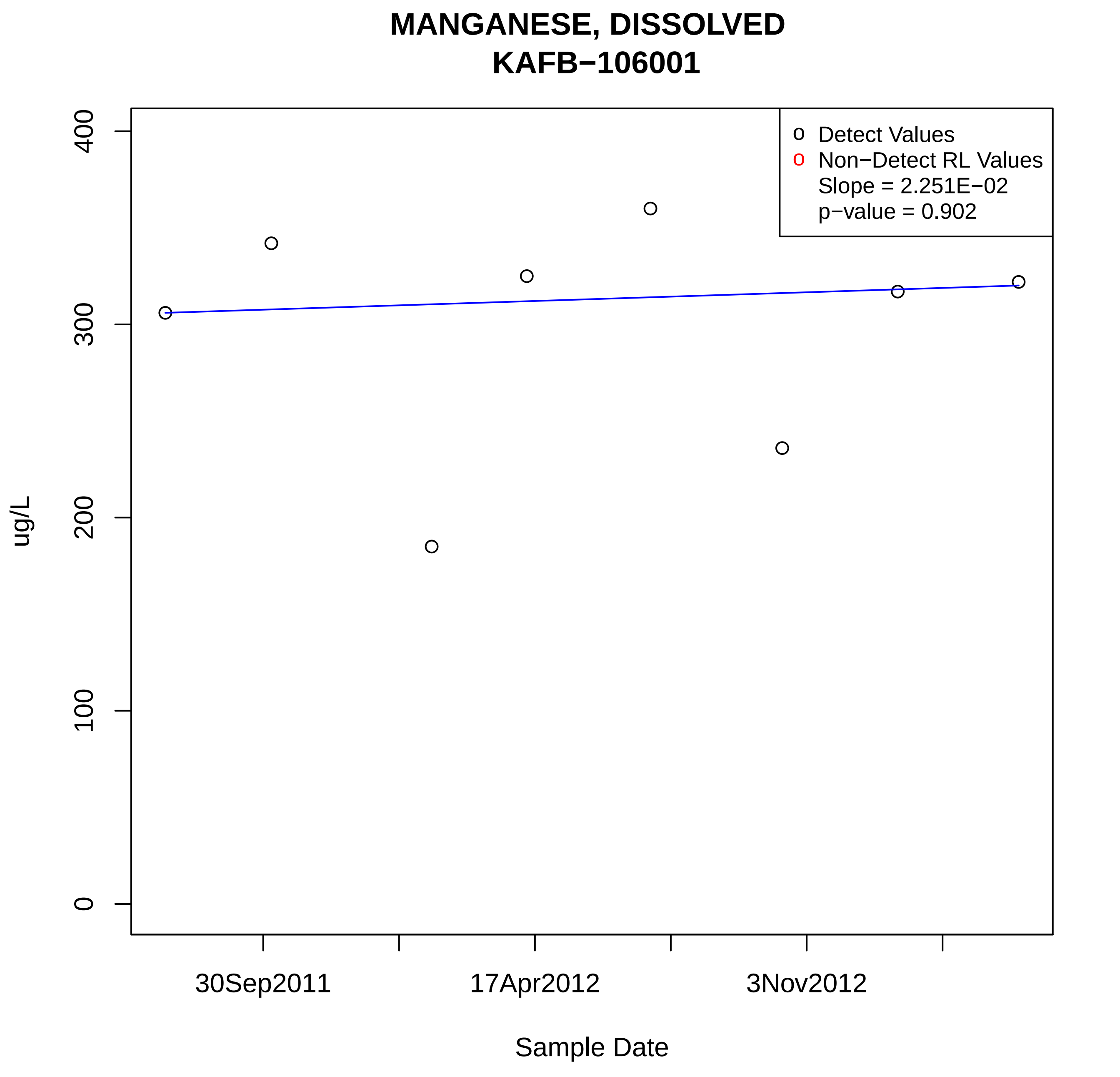

IRON, DISSOLVED
KAFB−106104
Detect Values
Non−Detect RL Values
ug/L
0
20
40
60
80
100
120
30Sep2011
17Apr2012
3Nov2012
Sample Date

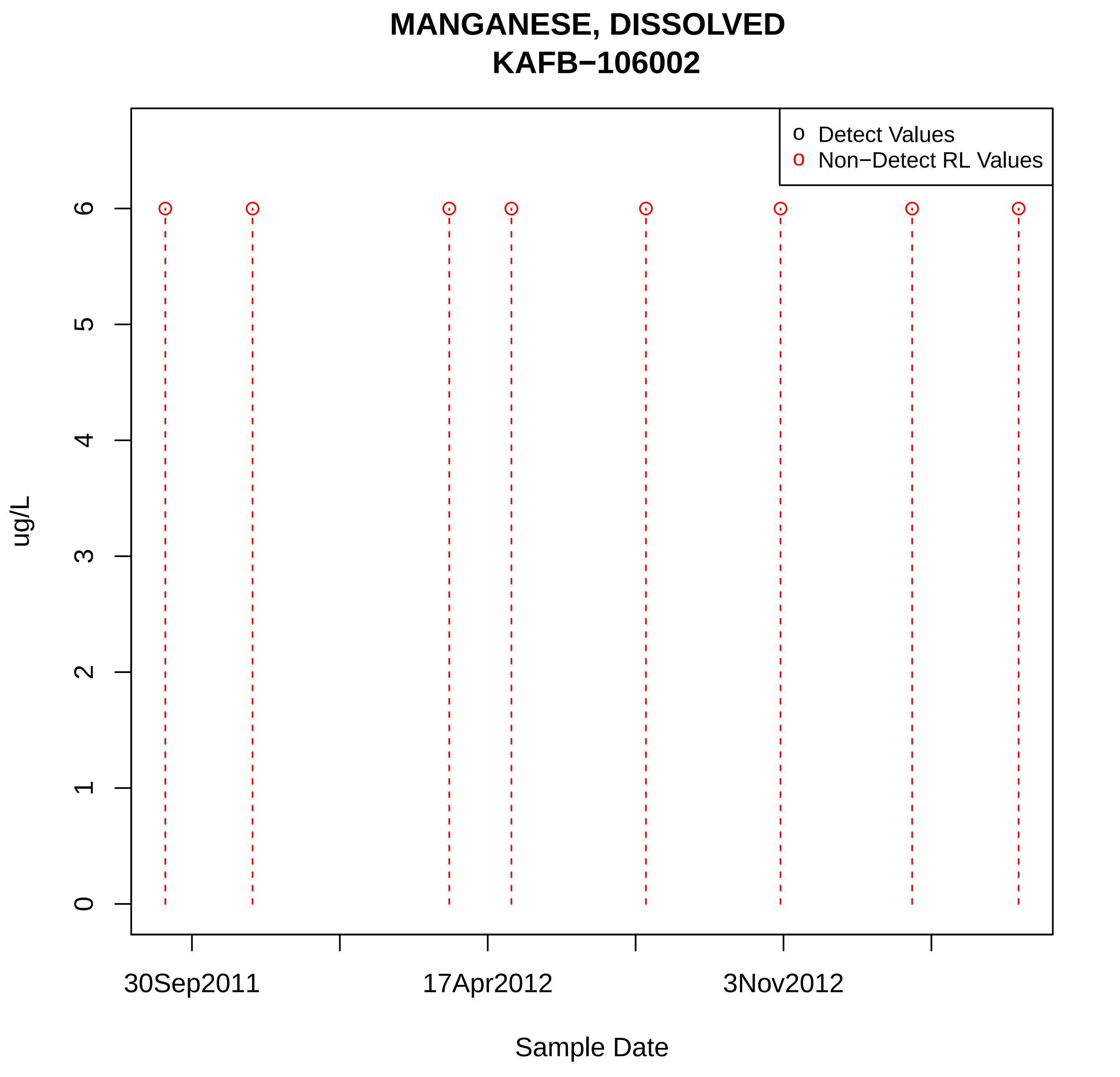

IRON, DISSOLVED
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


IRON, DISSOLVED
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

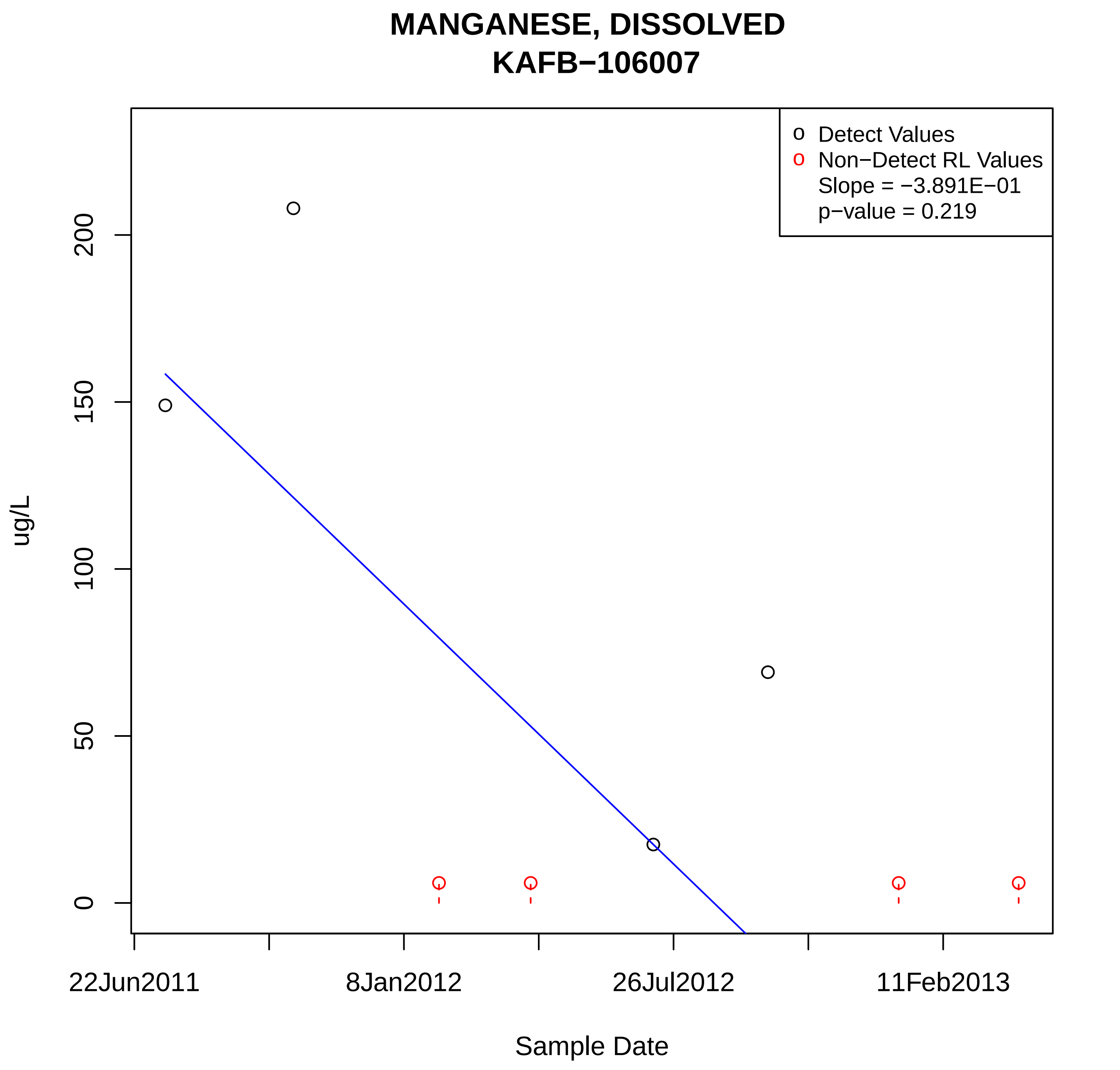


IRON, DISSOLVED
KAFB−106107
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

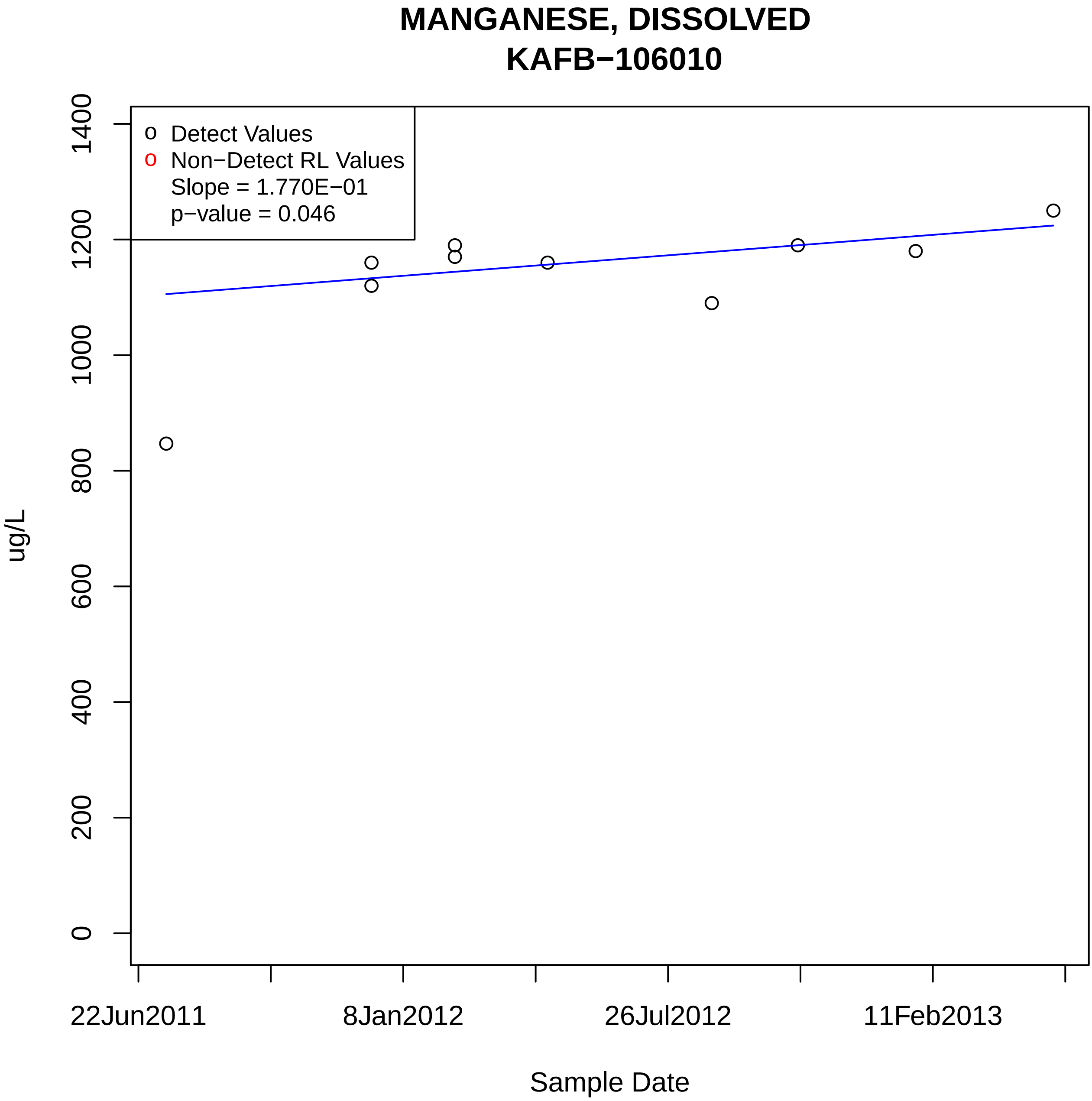

MANGANESE, DISSOLVED
KAFB−106001
Detect Values
Non−Detect RL Values
Slope = 2.251E−02
p−value = 0.902
ug/L
0
100
200
300
400
30Sep2011
17Apr2012
3Nov2012
Sample Date



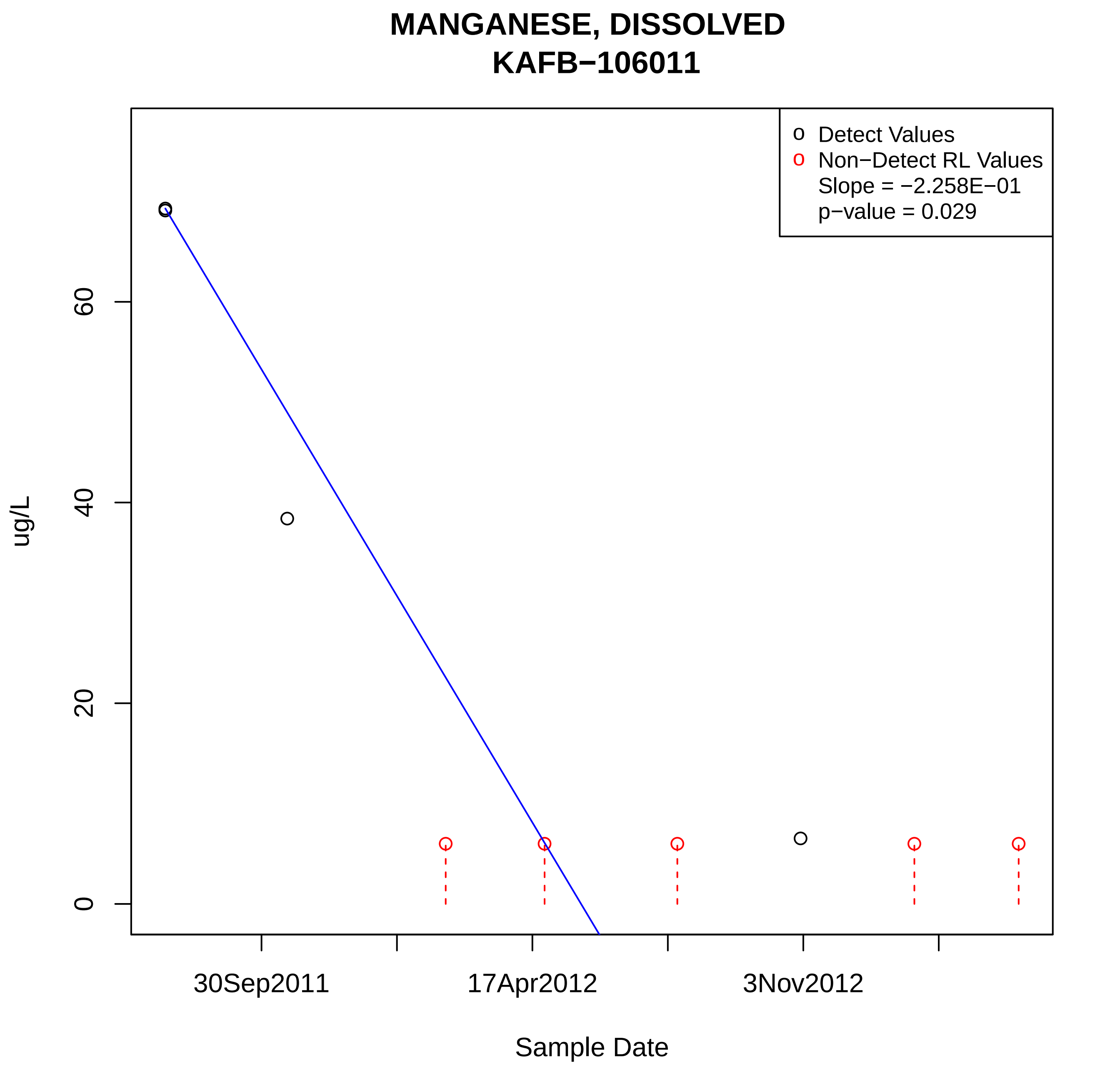
MANGANESE, DISSOLVED
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date

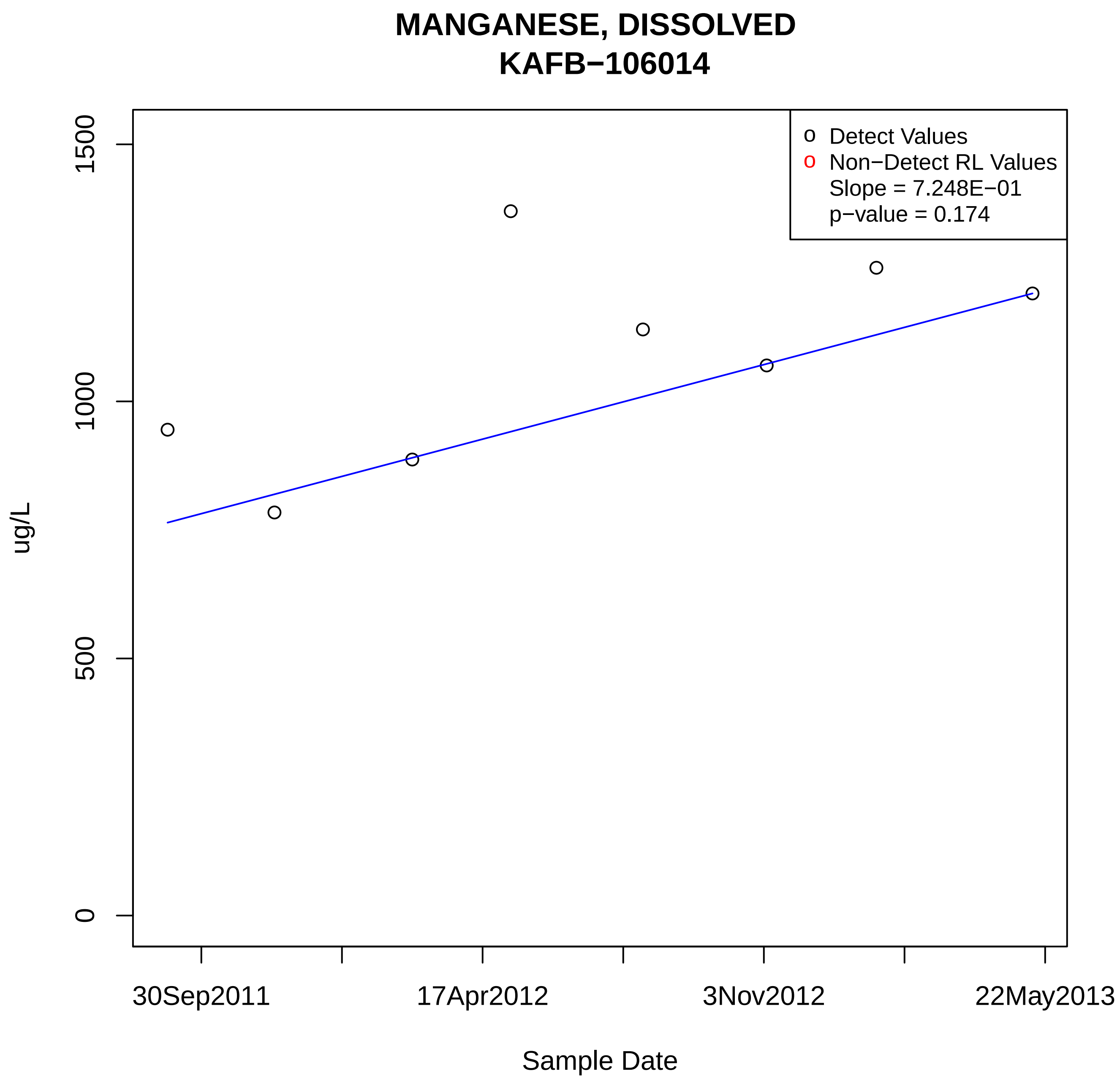


MANGANESE, DISSOLVED
KAFB−106007
o Detect Values
o Non−Detect RL Values
Slope = −3.891E−01
p−value = 0.219
ug/L
0
50
100
150
200
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

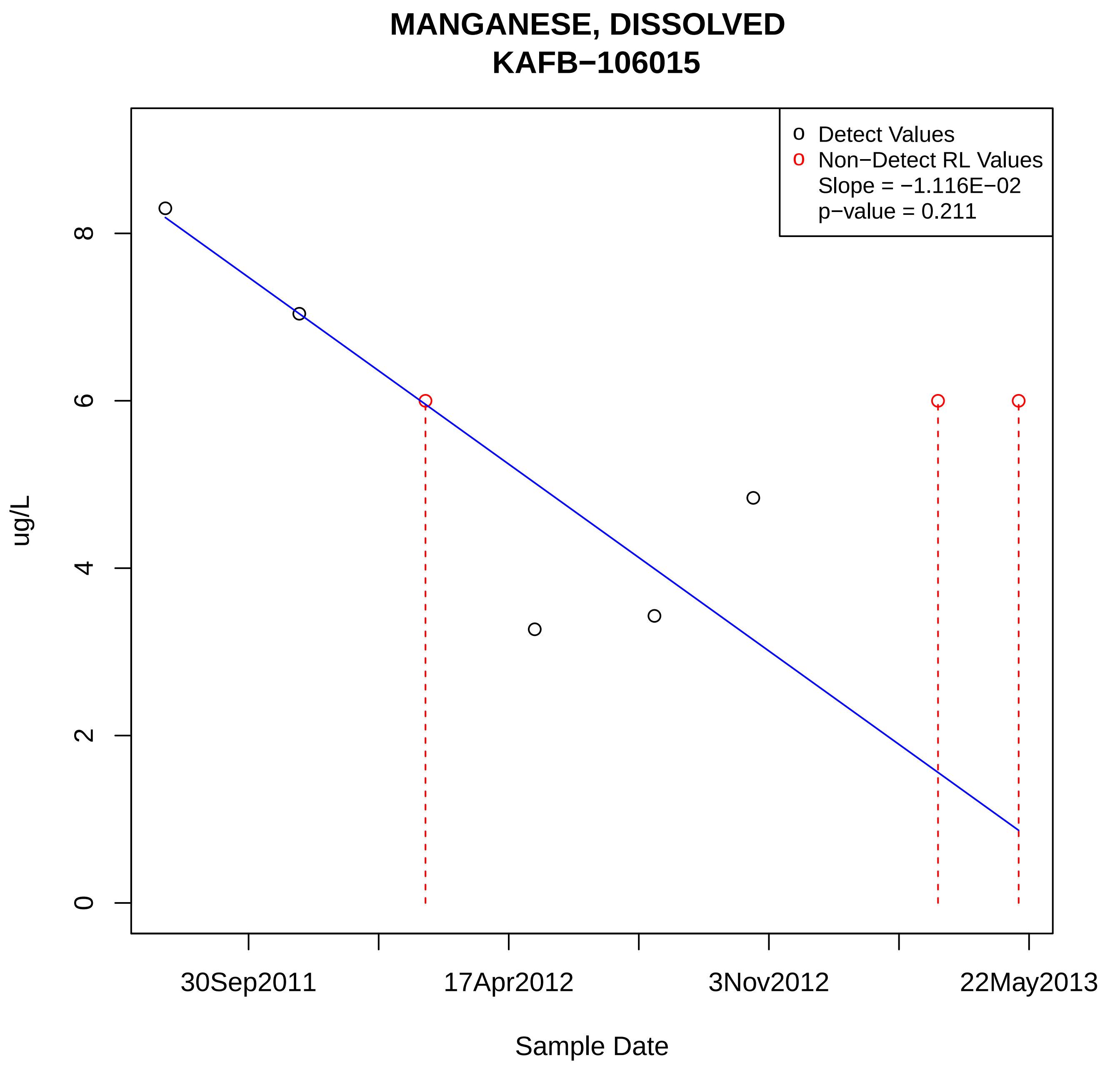


MANGANESE, DISSOLVED
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = 1.770E−01
p−value = 0.046
ug/L
0
200
400
600
800
1000
1200
1400
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

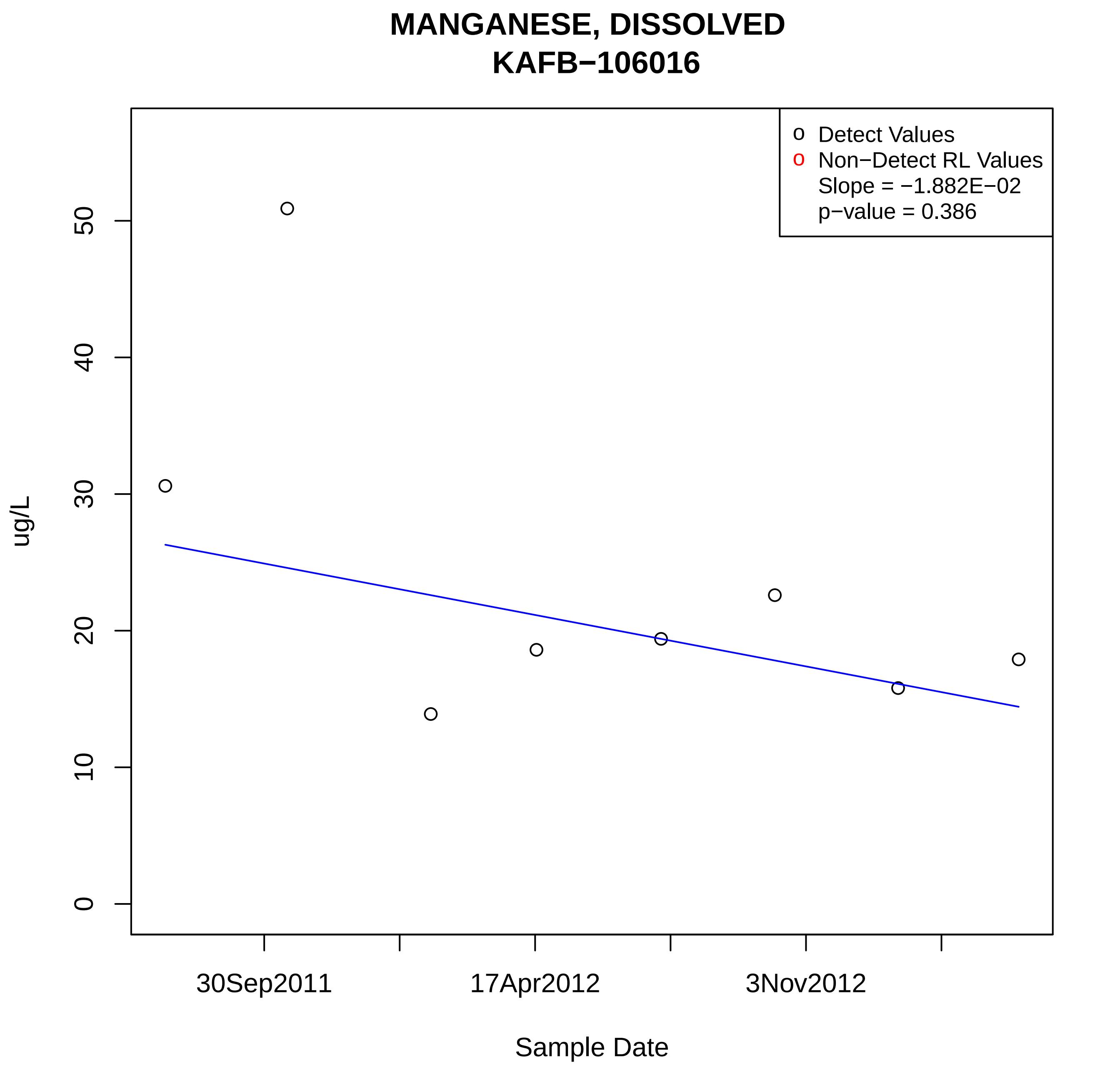

MANGANESE, DISSOLVED
KAFB−106011
Detect Values
Non−Detect RL Values
Slope = −2.258E−01
p−value = 0.029
ug/L
0
20
40
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

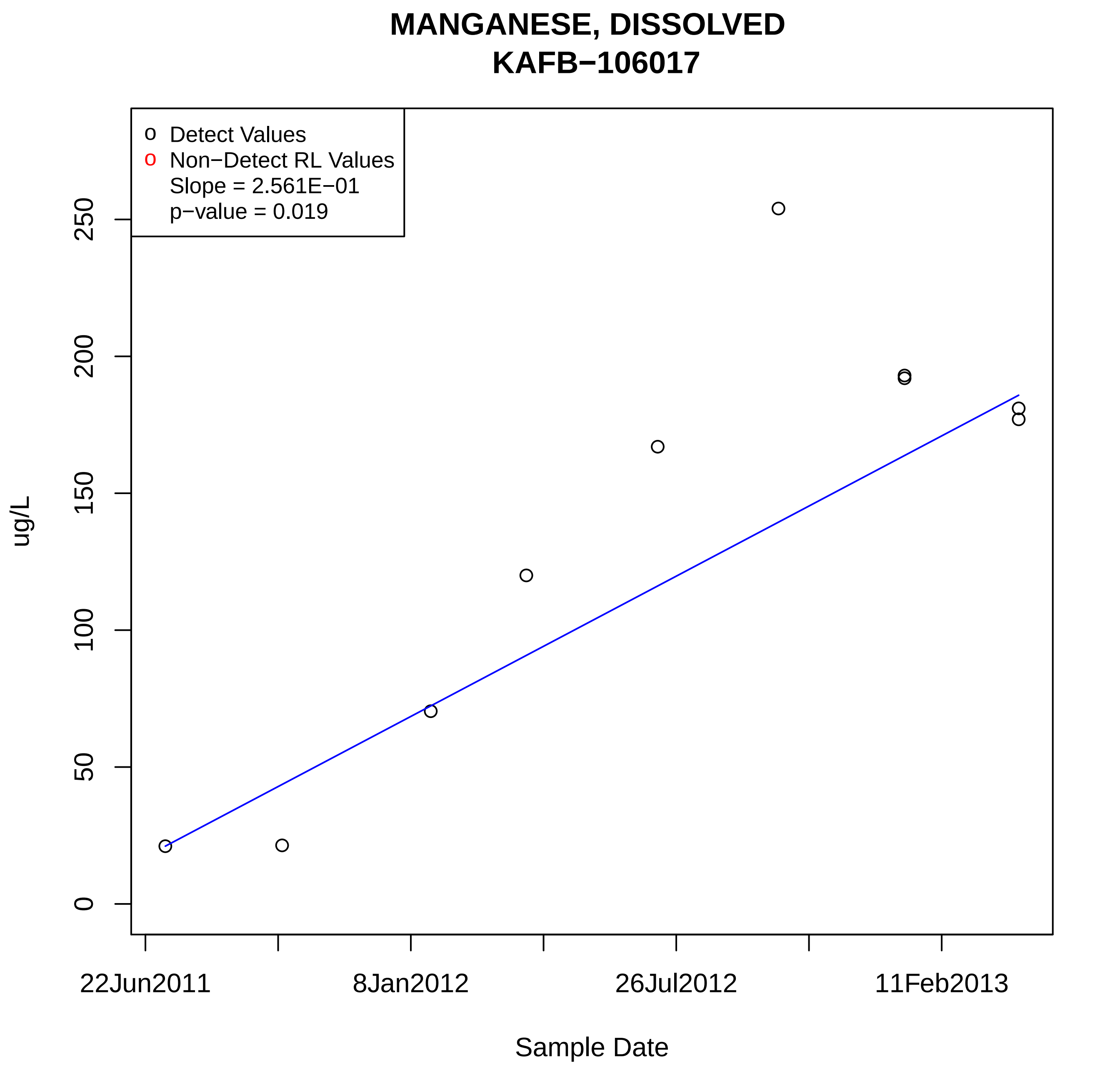


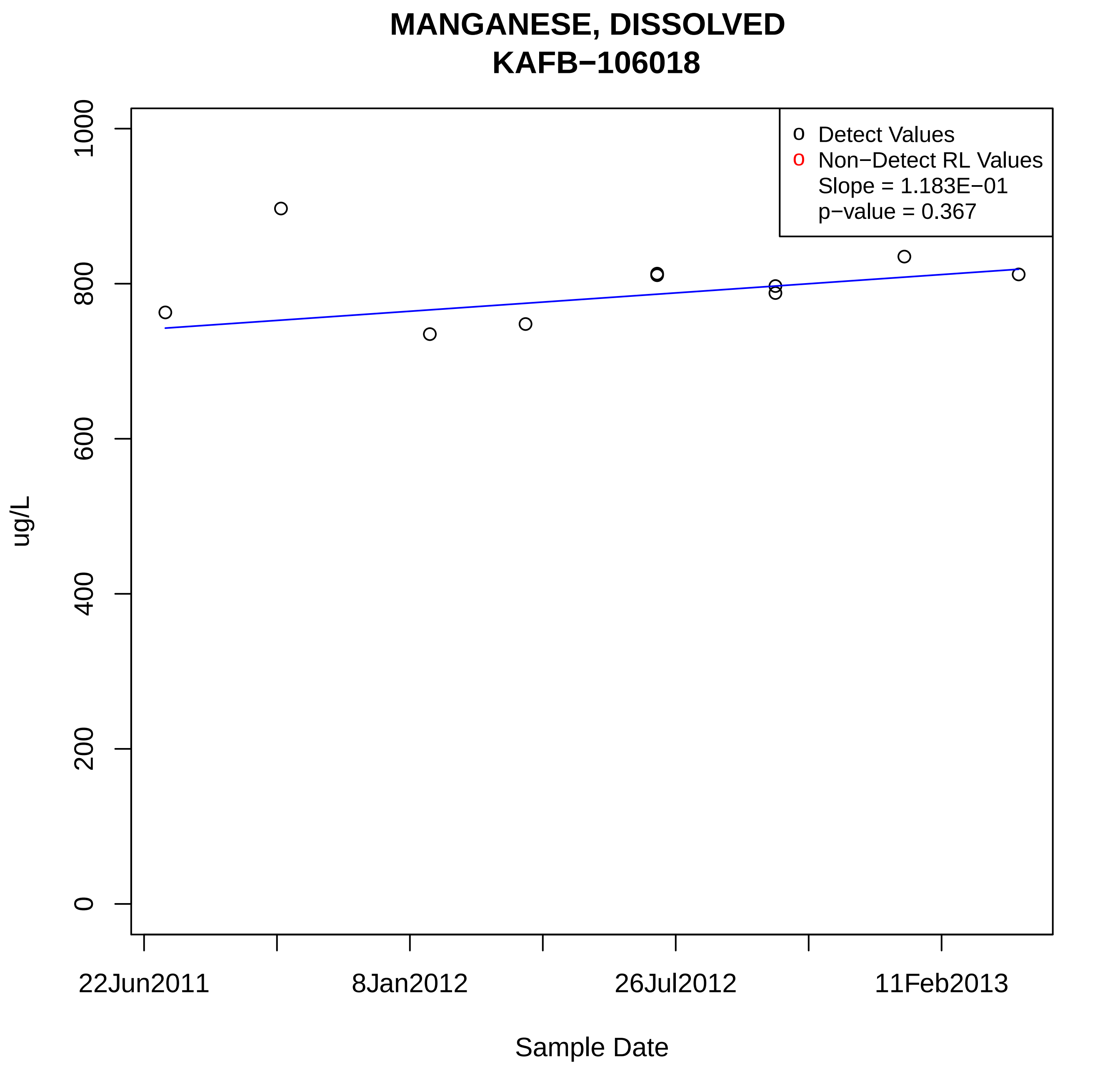
MANGANESE, DISSOLVED
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = 7.248E−01
p−value = 0.174
ug/L
0
500
1000
1500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

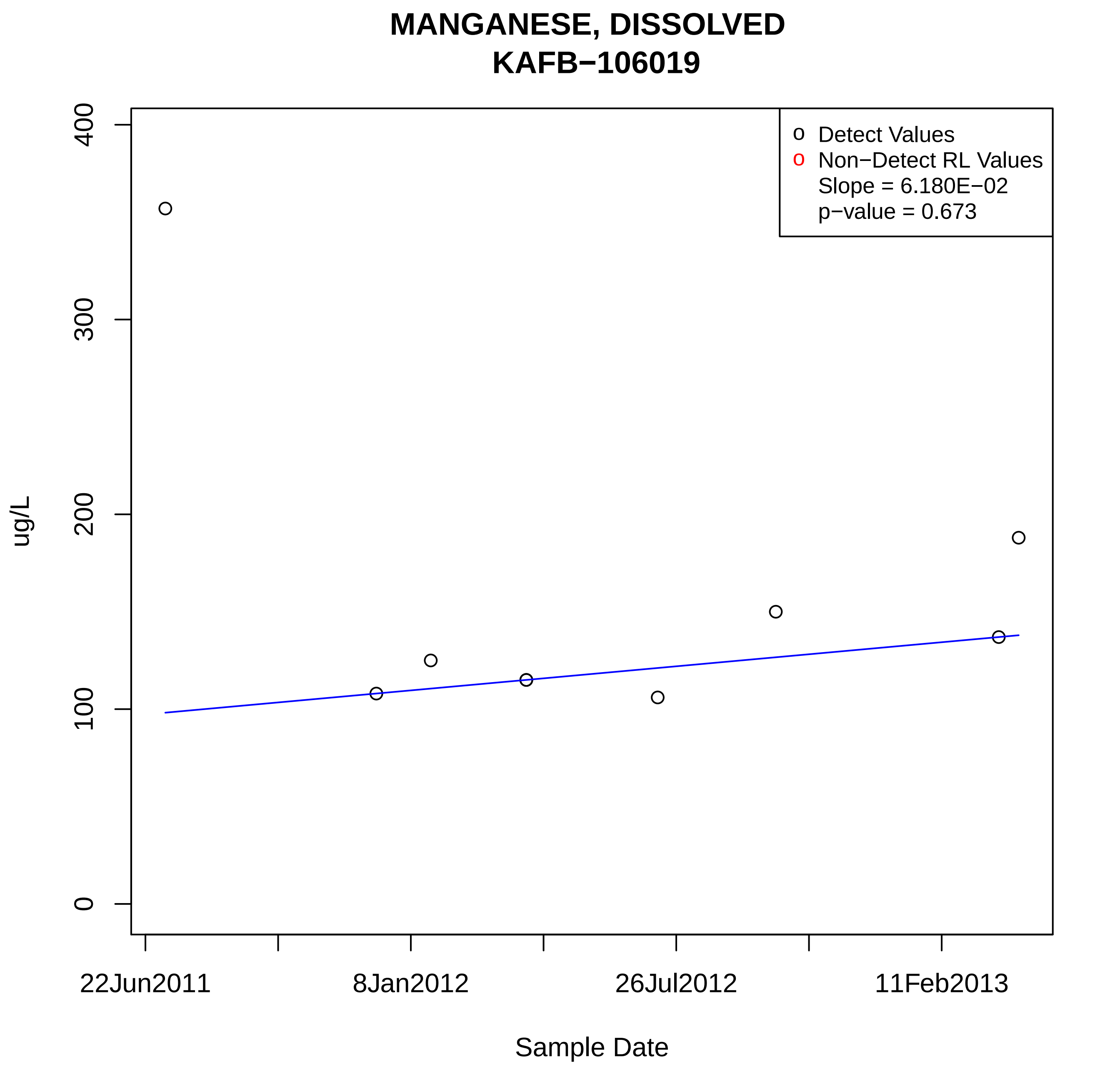


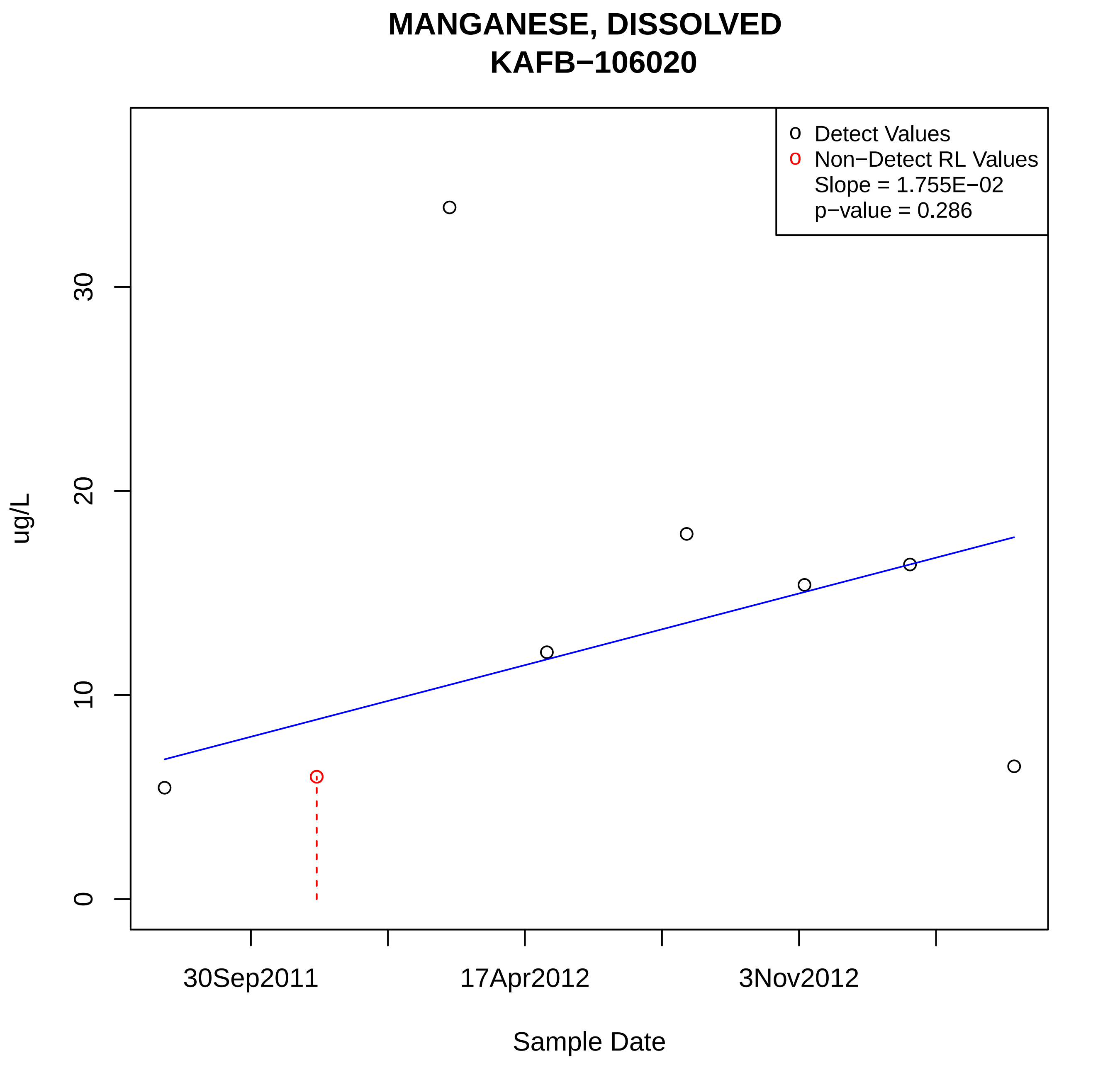
MANGANESE, DISSOLVED
KAFB−106015
o Detect Values
o Non−Detect RL Values
Slope = −1.116E−02
p−value = 0.211
ug/L
0
2
4
6
8
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106016
o Detect Values
o Non−Detect RL Values
Slope = −1.882E−02
p−value = 0.386
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
Sample Date

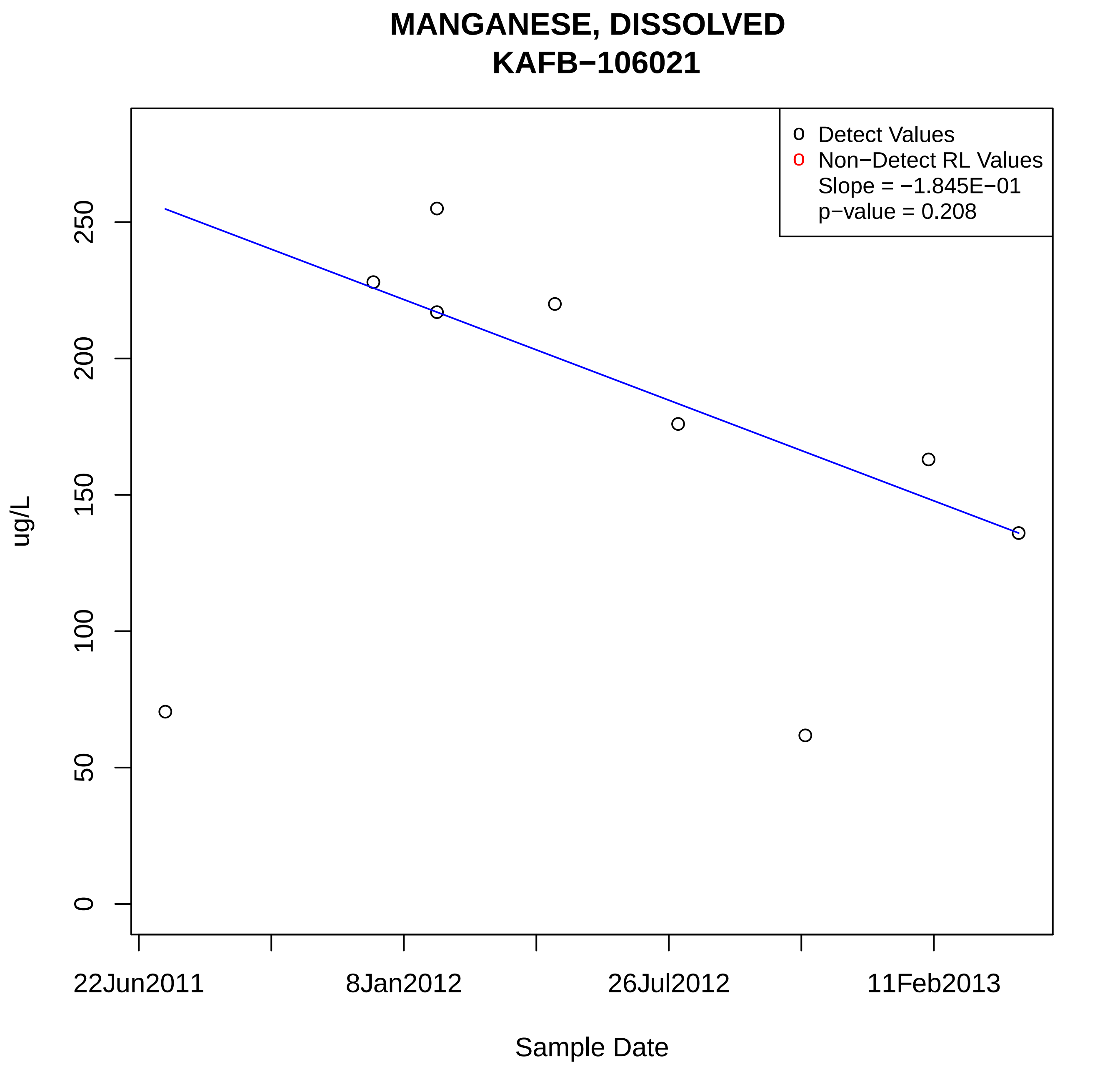

MANGANESE, DISSOLVED
KAFB−106017
Detect Values
Non−Detect RL Values
Slope = 2.561E−01
p−value = 0.019
ug/L
0
50
100
150
200
250
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = 1.183E−01
p−value = 0.367
ug/L
0
200
400
600
800
1000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

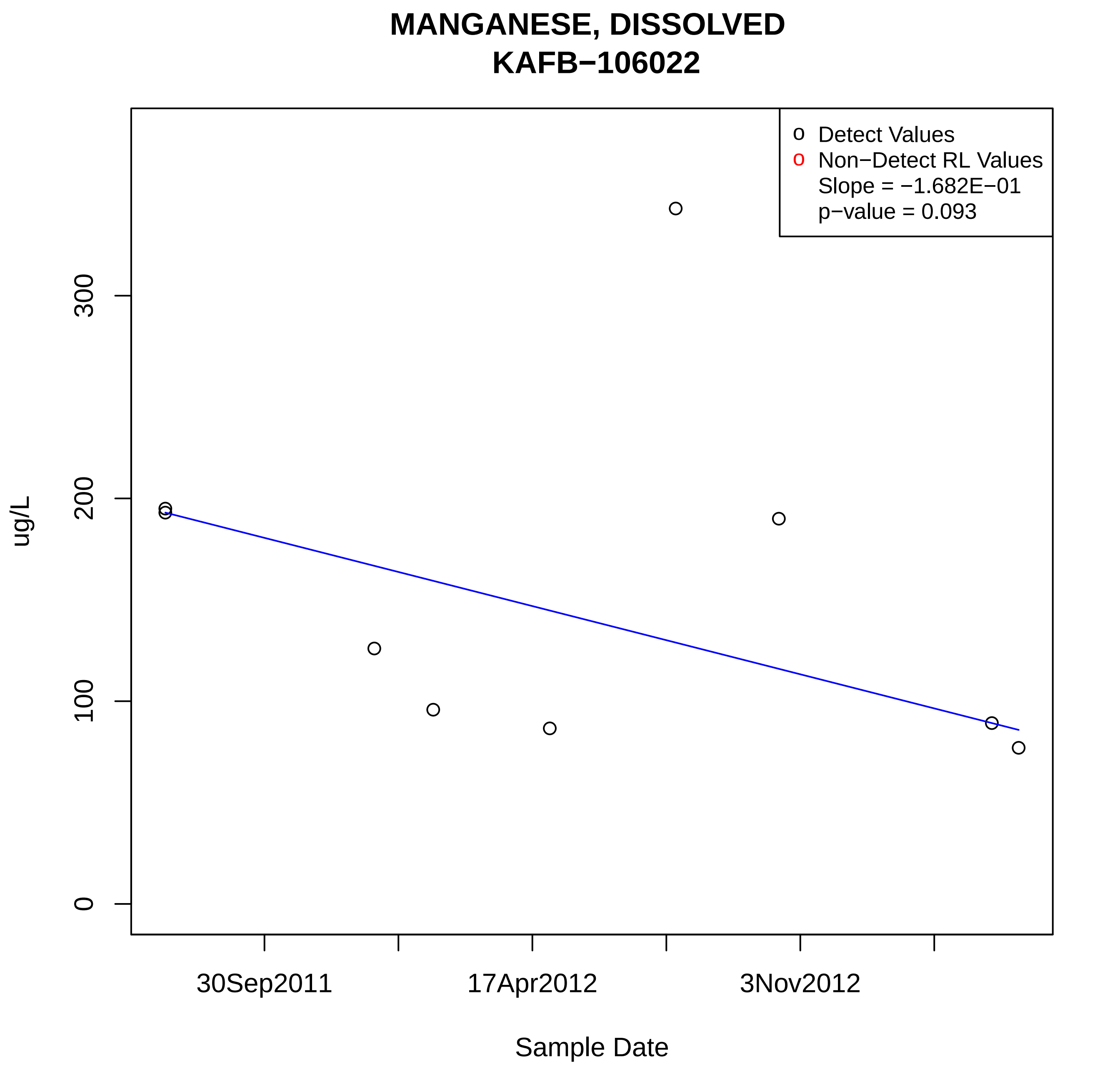

MANGANESE, DISSOLVED
KAFB−106019
o Detect Values
o Non−Detect RL Values
Slope = 6.180E−02
p−value = 0.673
ug/L
0
100
200
300
400
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

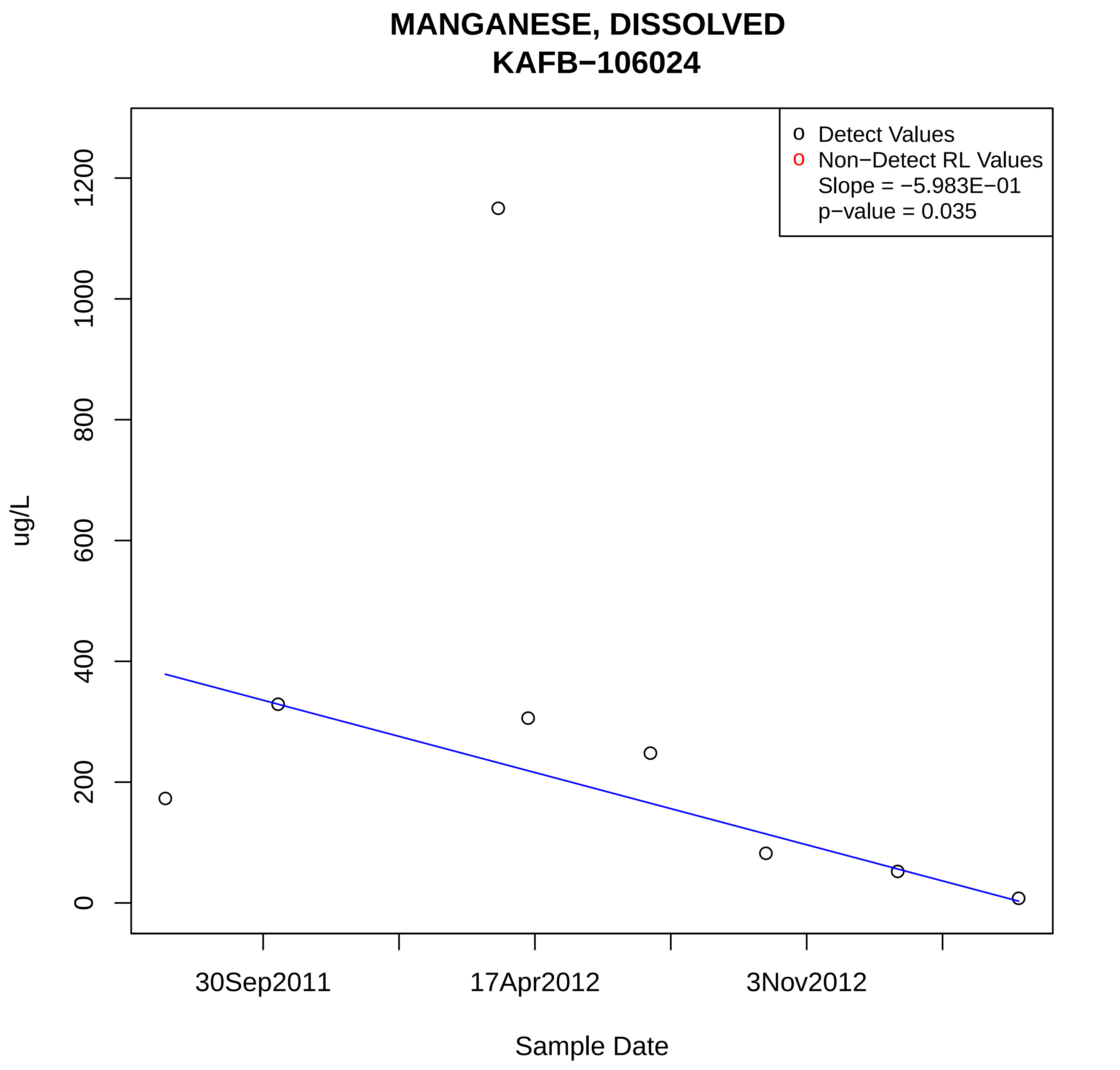


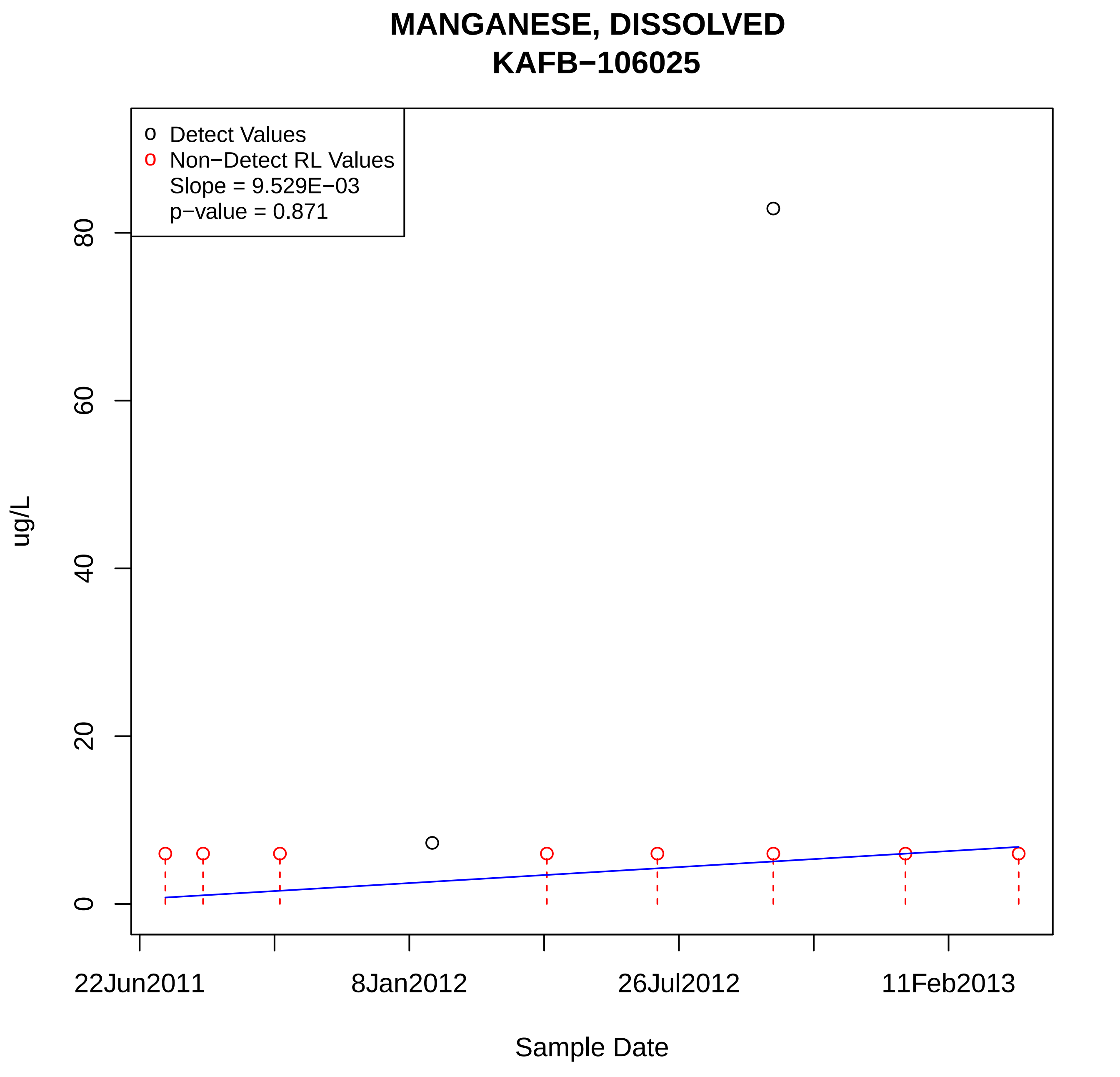
MANGANESE, DISSOLVED
KAFB−106020
Detect Values
Non−Detect RL Values
Slope = 1.755E−02
p−value = 0.286
ug/L
0
10
20
30
30Sep2011
17Apr2012
3Nov2012
Sample Date

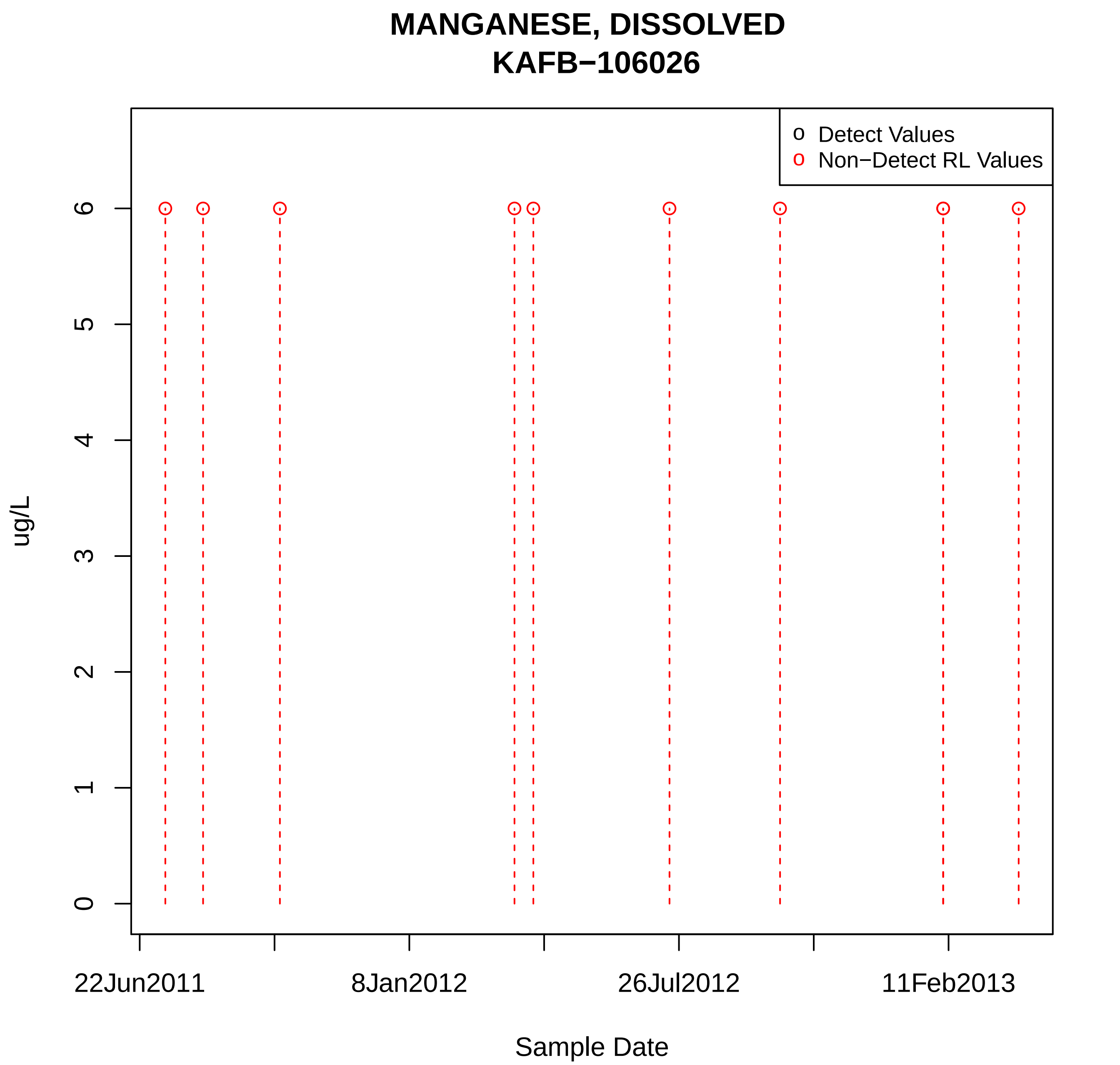


MANGANESE, DISSOLVED
KAFB−106021
o Detect Values
o Non−Detect RL Values
Slope = −1.845E−01
p−value = 0.208
ug/L
0
50
100
150
200
250
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

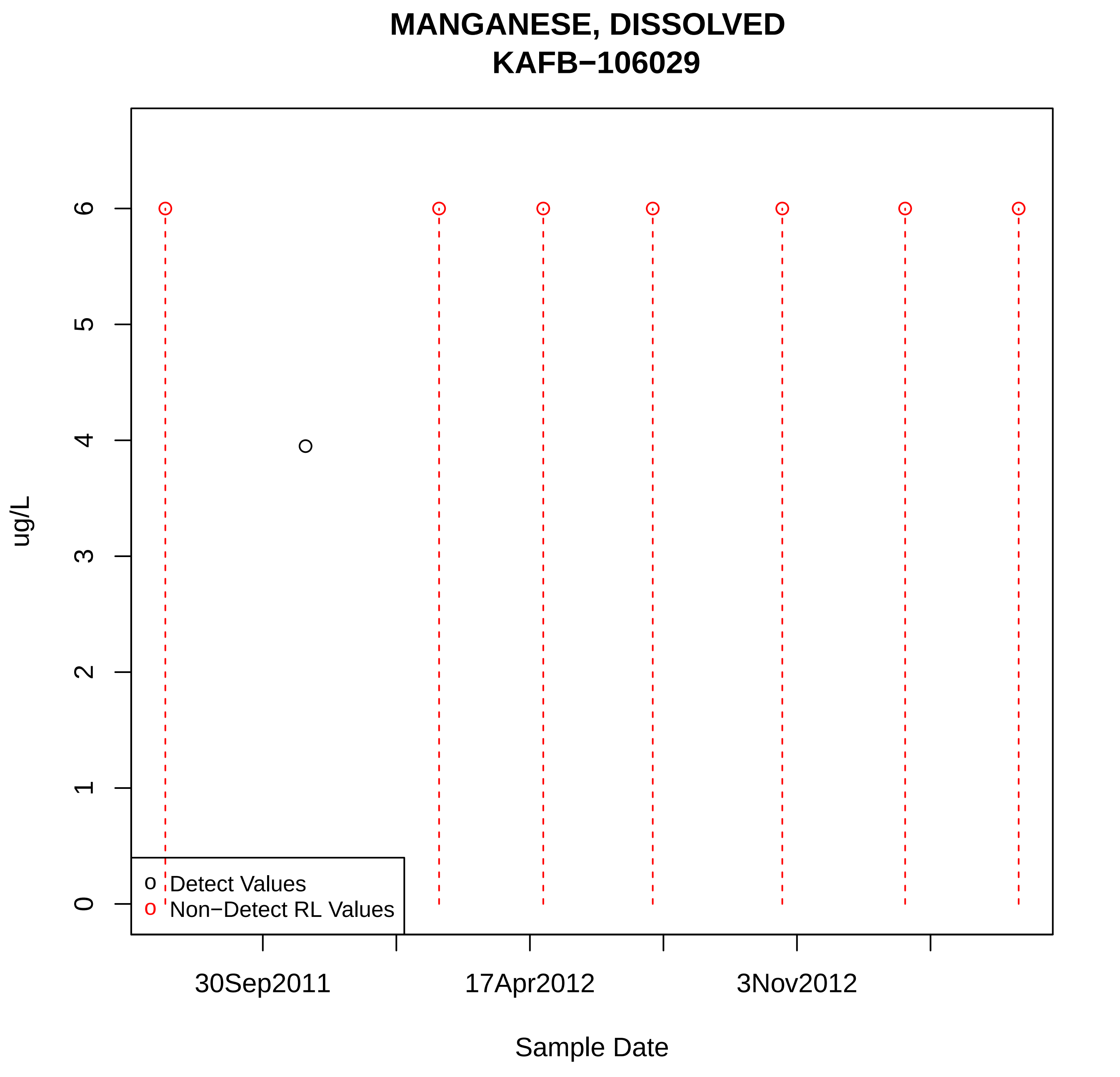

MANGANESE, DISSOLVED
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −1.682E−01
p−value = 0.093
ug/L
0
100
200
300
30Sep2011
17Apr2012
3Nov2012
Sample Date

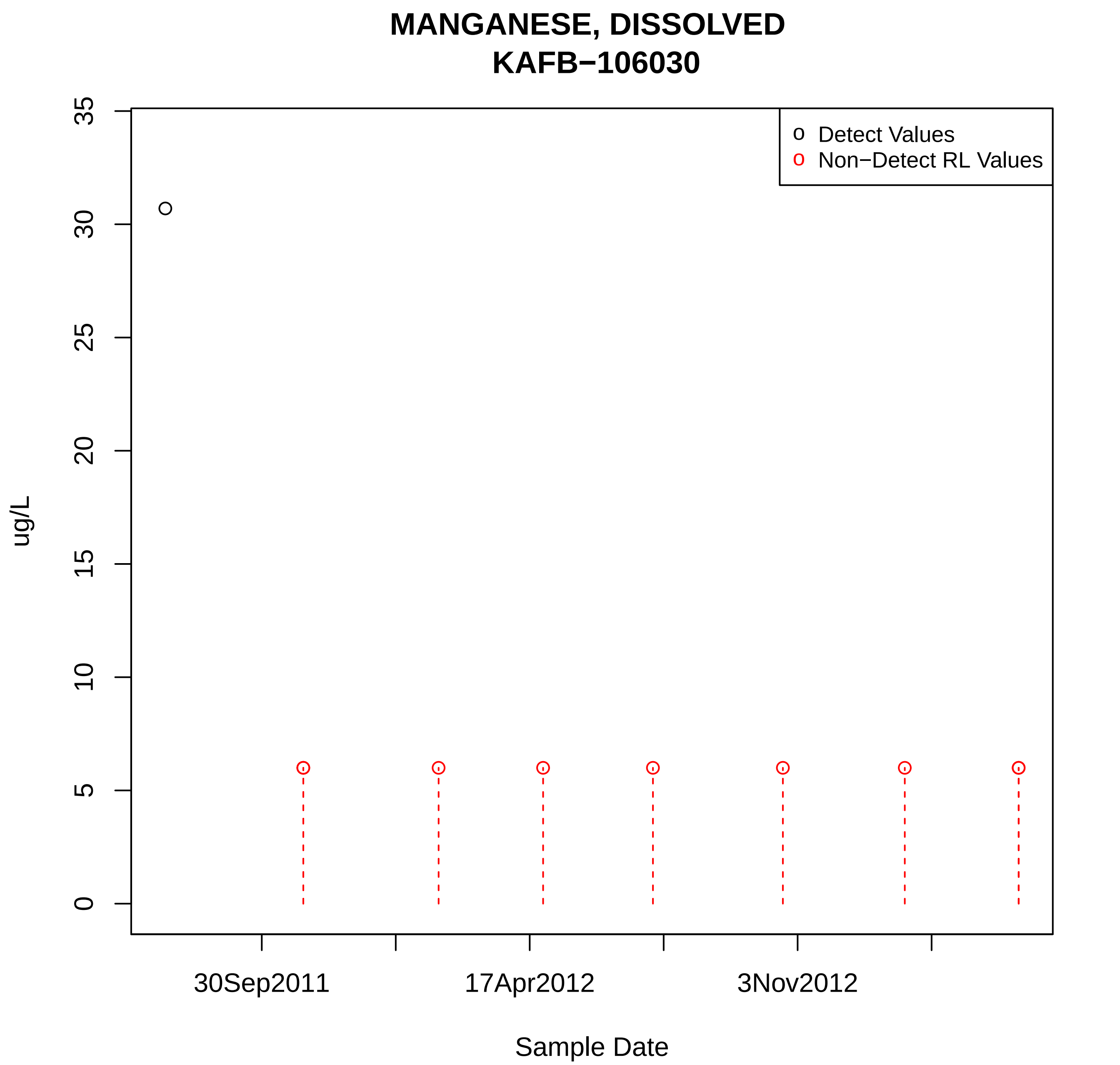

MANGANESE, DISSOLVED
KAFB−106024
Detect Values
Non−Detect RL Values
Slope = −5.983E−01
p−value = 0.035
ug/L
0
200
400
600
800
1000
1200
30Sep2011
17Apr2012
3Nov2012
Sample Date


MANGANESE, DISSOLVED
KAFB−106025
Detect Values
Non−Detect RL Values
Slope = 9.529E−03
p−value = 0.871
ug/L
0
20
40
60
80
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

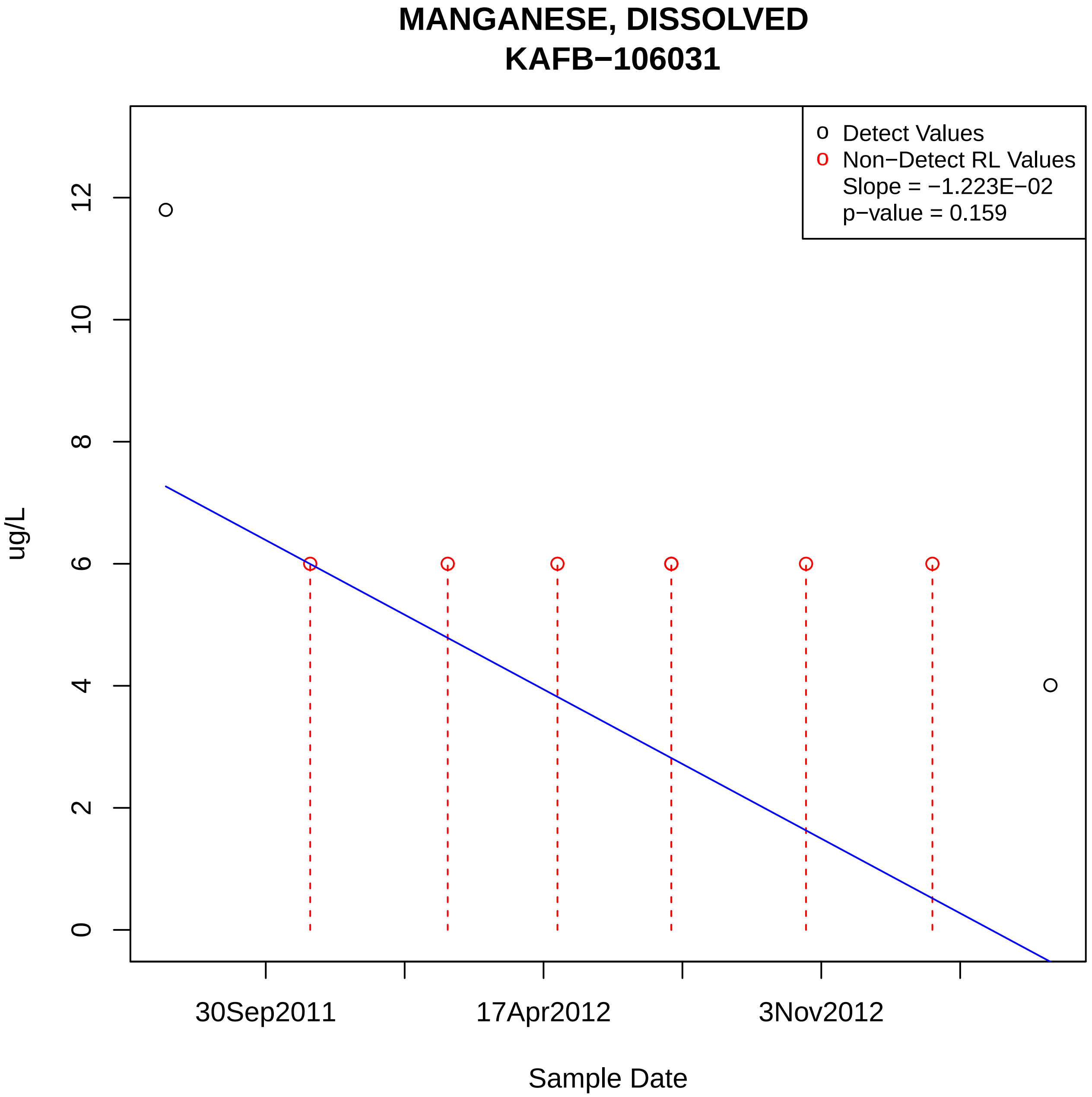


MANGANESE, DISSOLVED
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106029
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

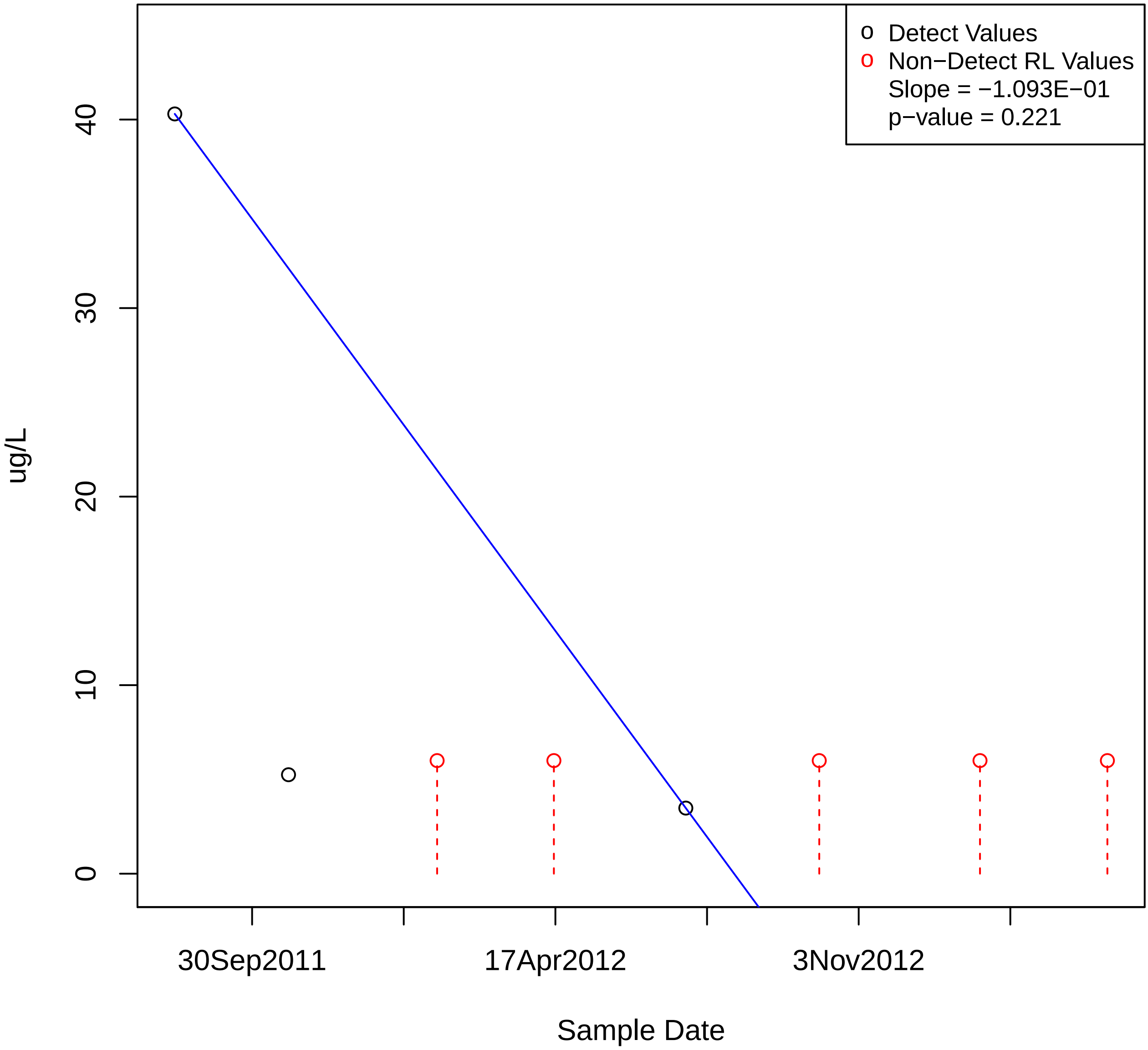


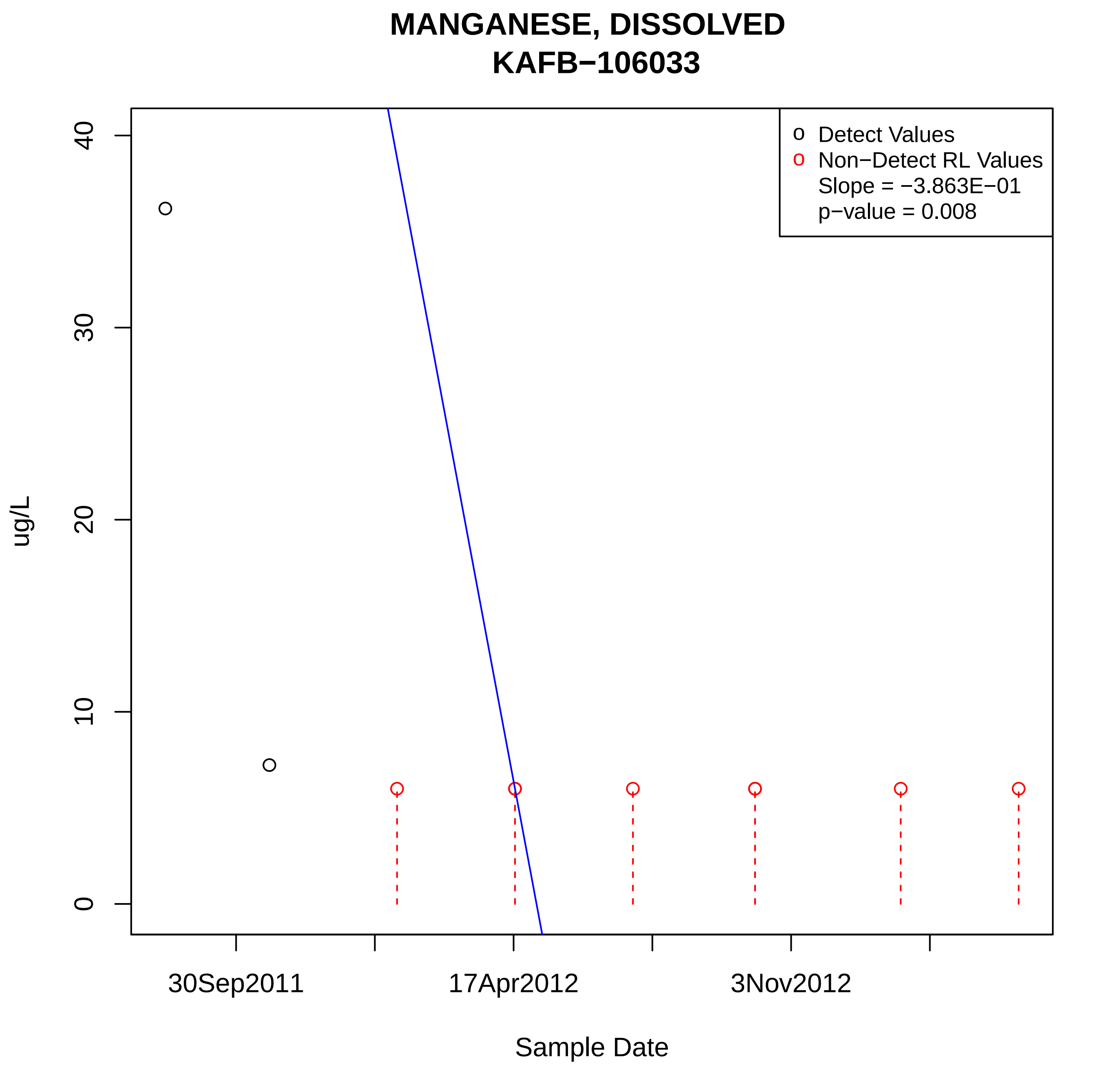
MANGANESE, DISSOLVED
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
30
35
30Sep2011
17Apr2012
3Nov2012
Sample Date

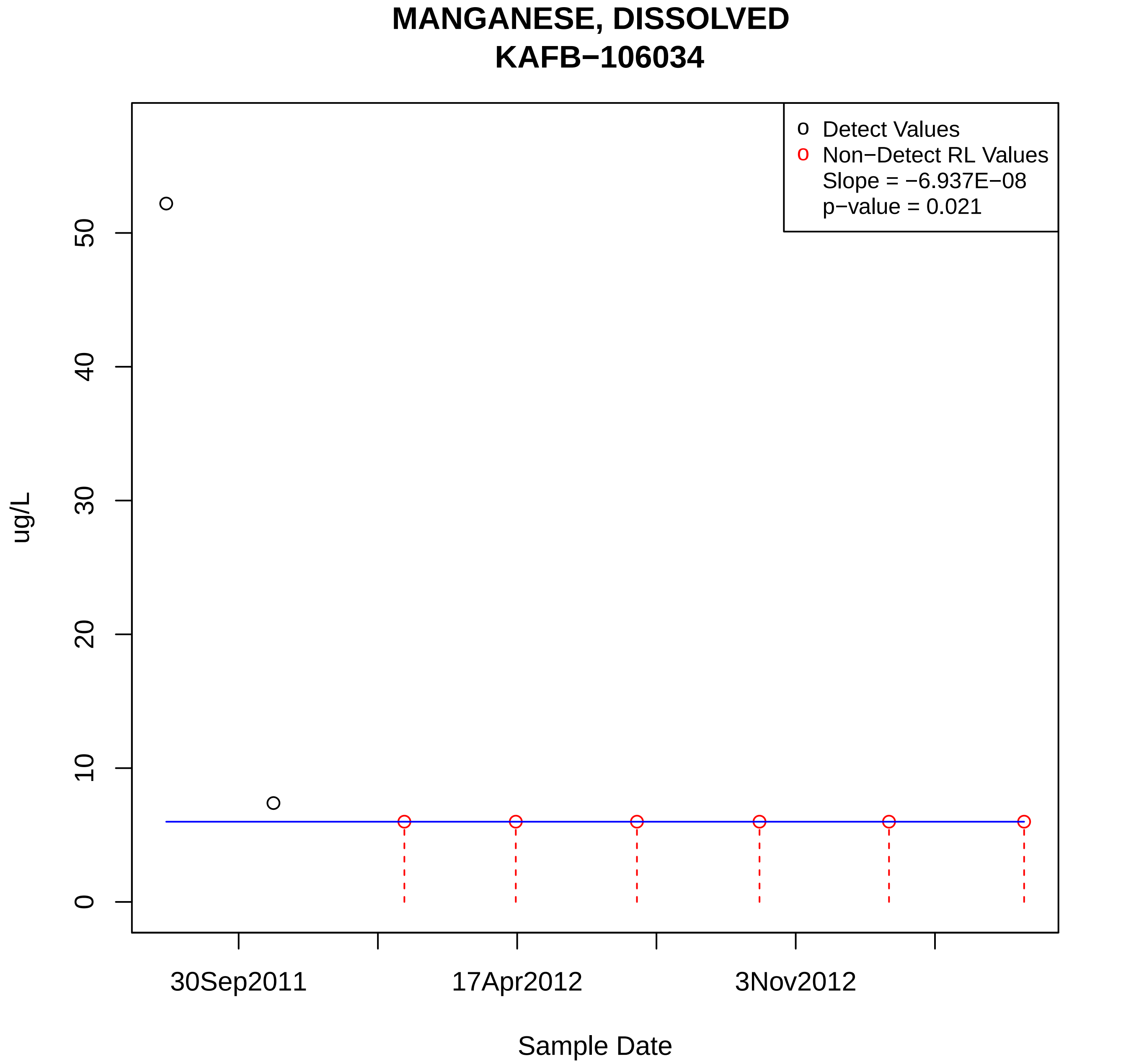


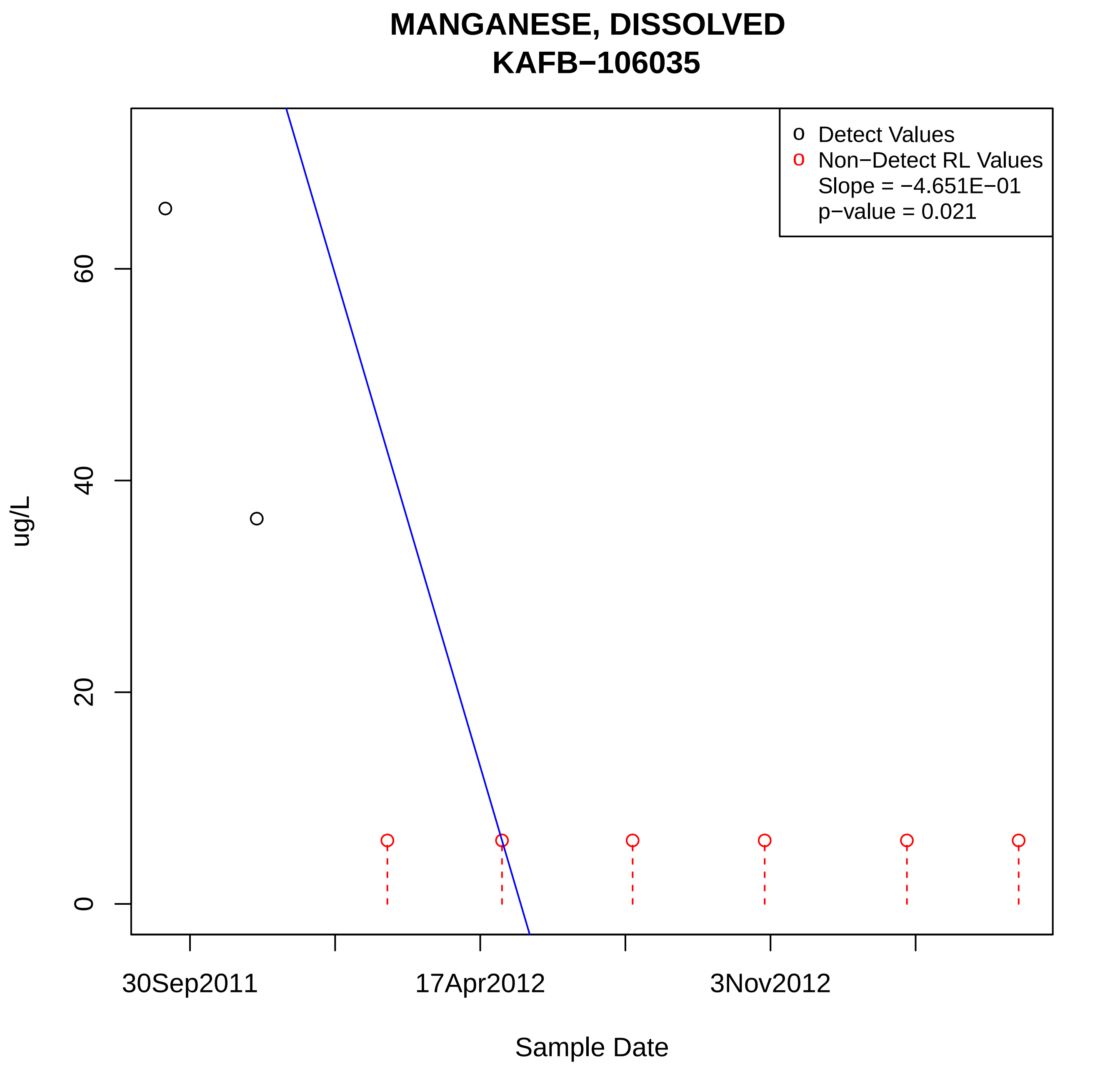
MANGANESE, DISSOLVED
KAFB−106031
o Detect Values
o Non−Detect RL Values
Slope = −1.223E−02
p−value = 0.159
ug/L
0
2
4
6
8
10
12
30Sep2011
17Apr2012
3Nov2012
Sample Date

MANGANESE, DISSOLVED
KAFB−106032

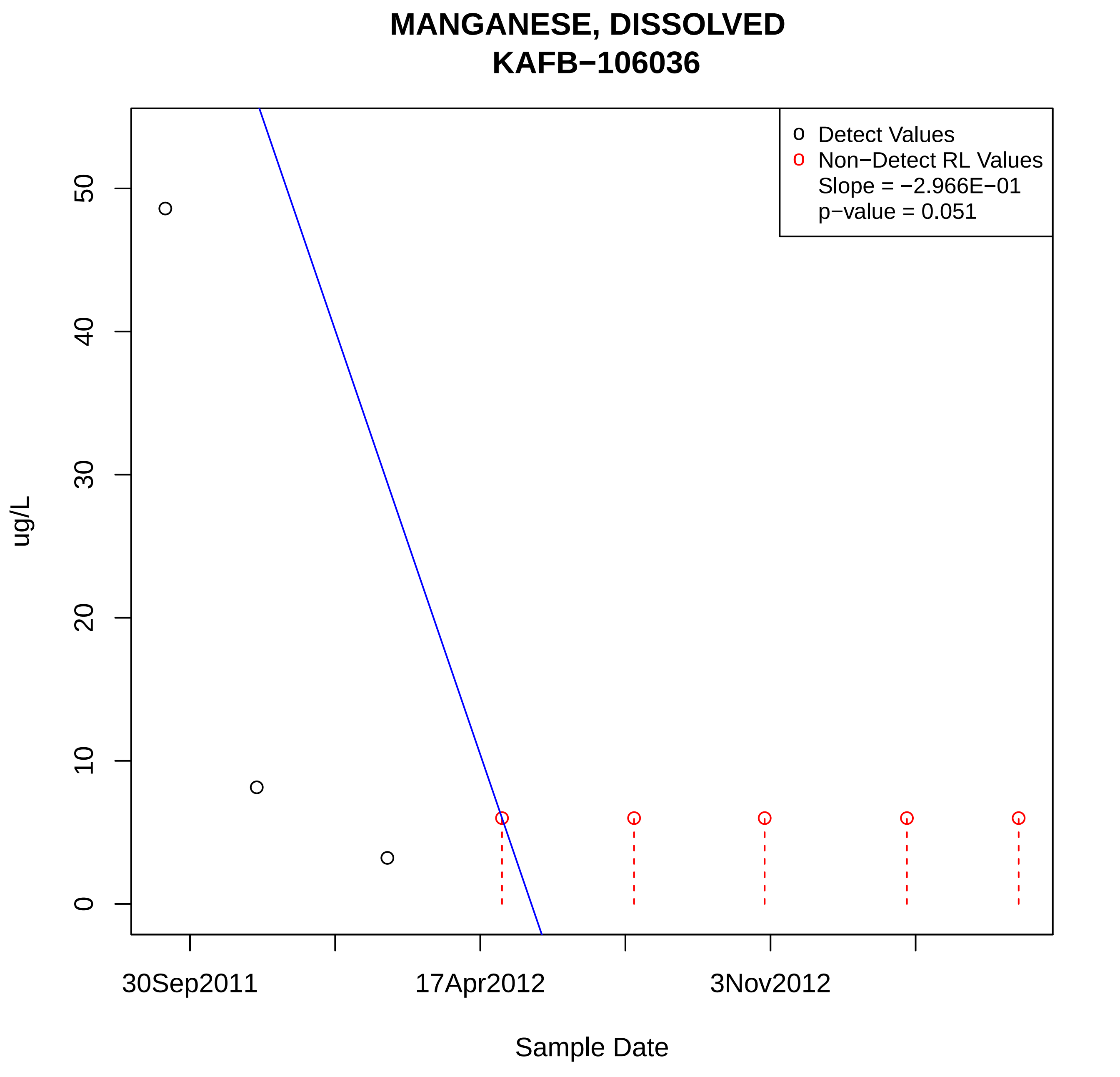


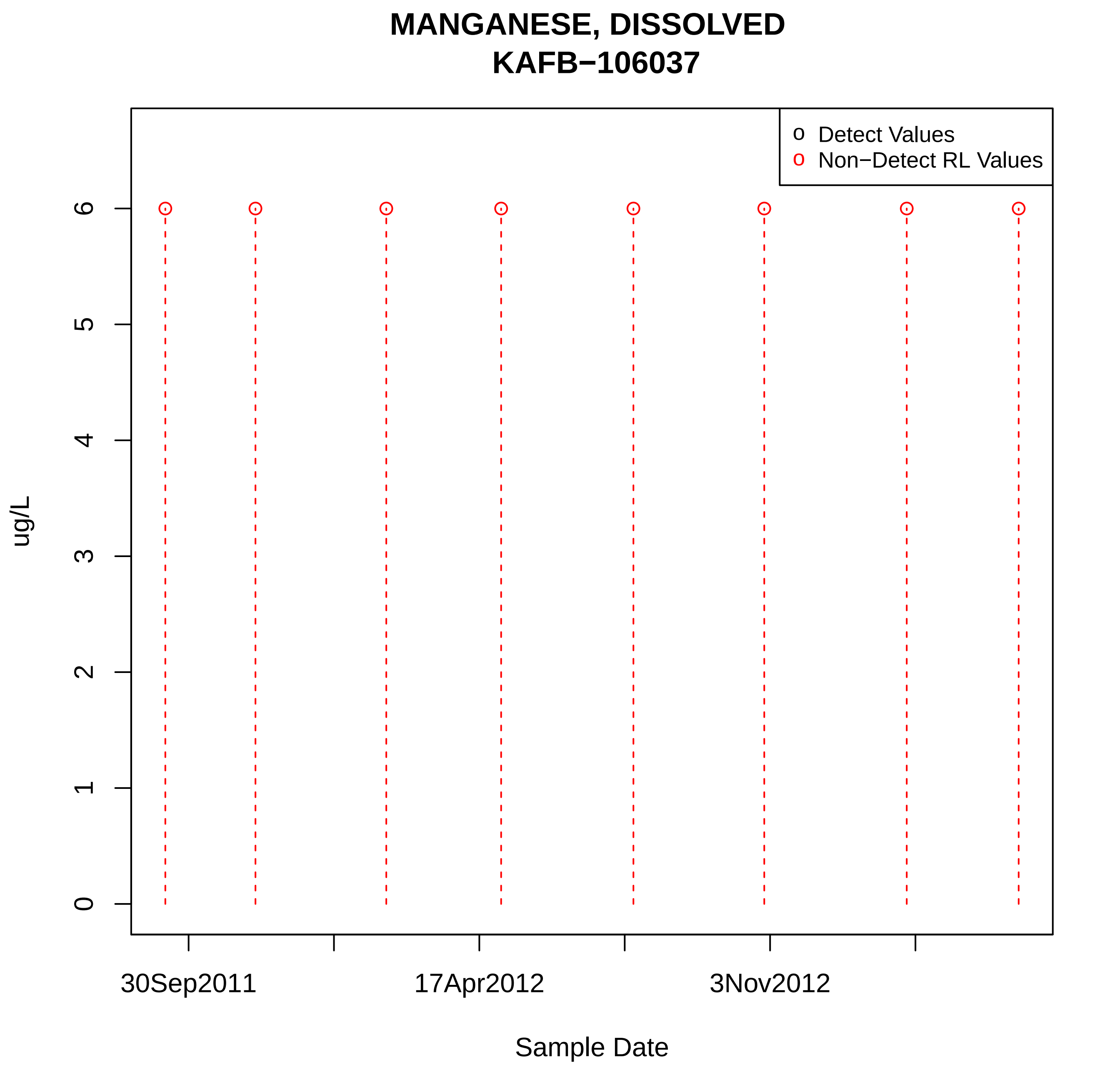

MANGANESE, DISSOLVED
KAFB−106033
Detect Values
Non−Detect RL Values
Slope = −3.863E−01
p−value = 0.008
ug/L
0
10
20
30
40
30Sep2011
17Apr2012
3Nov2012
Sample Date


MANGANESE, DISSOLVED
KAFB−106034
Detect Values
Non−Detect RL Values
Slope = −6.937E−08
p−value = 0.021
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
Sample Date

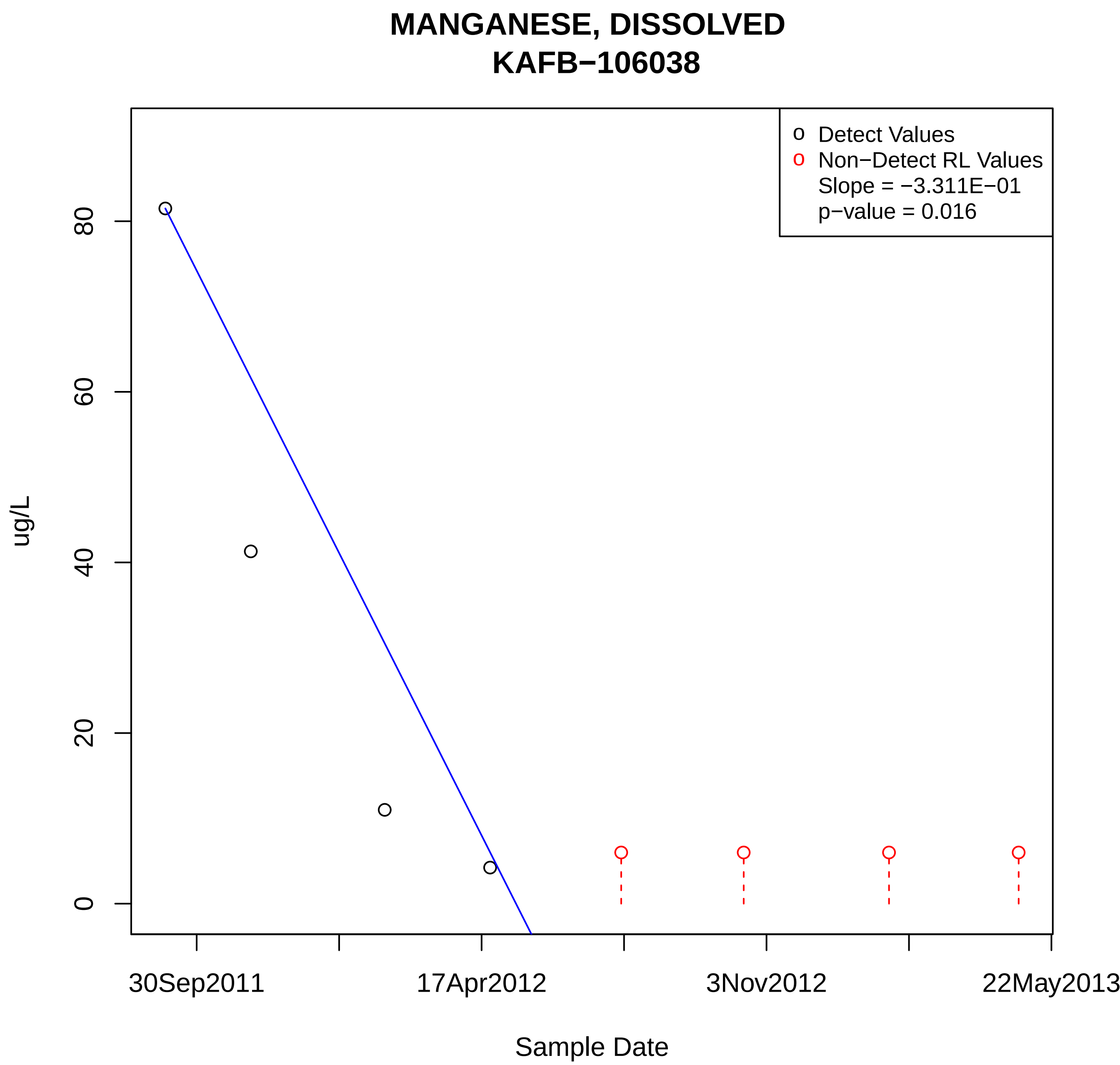


MANGANESE, DISSOLVED
KAFB−106035
o Detect Values
o Non−Detect RL Values
Slope = −4.651E−01
p−value = 0.021
ug/L
0
20
40
60
30Sep2011
17Apr2012
3Nov2012
Sample Date

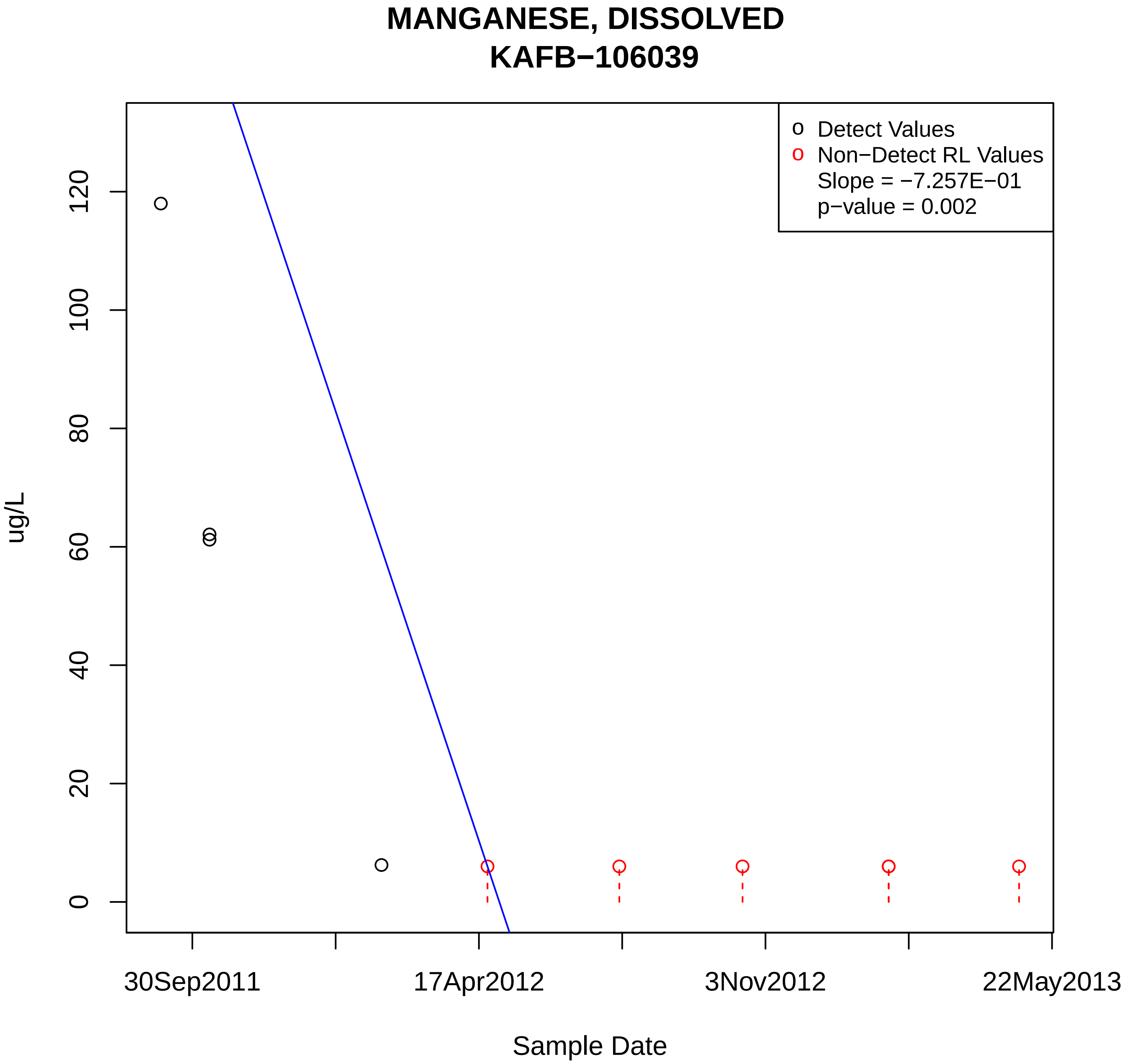

MANGANESE, DISSOLVED
KAFB−106036
o Detect Values
o Non−Detect RL Values
Slope = −2.966E−01
p−value = 0.051
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
Sample Date

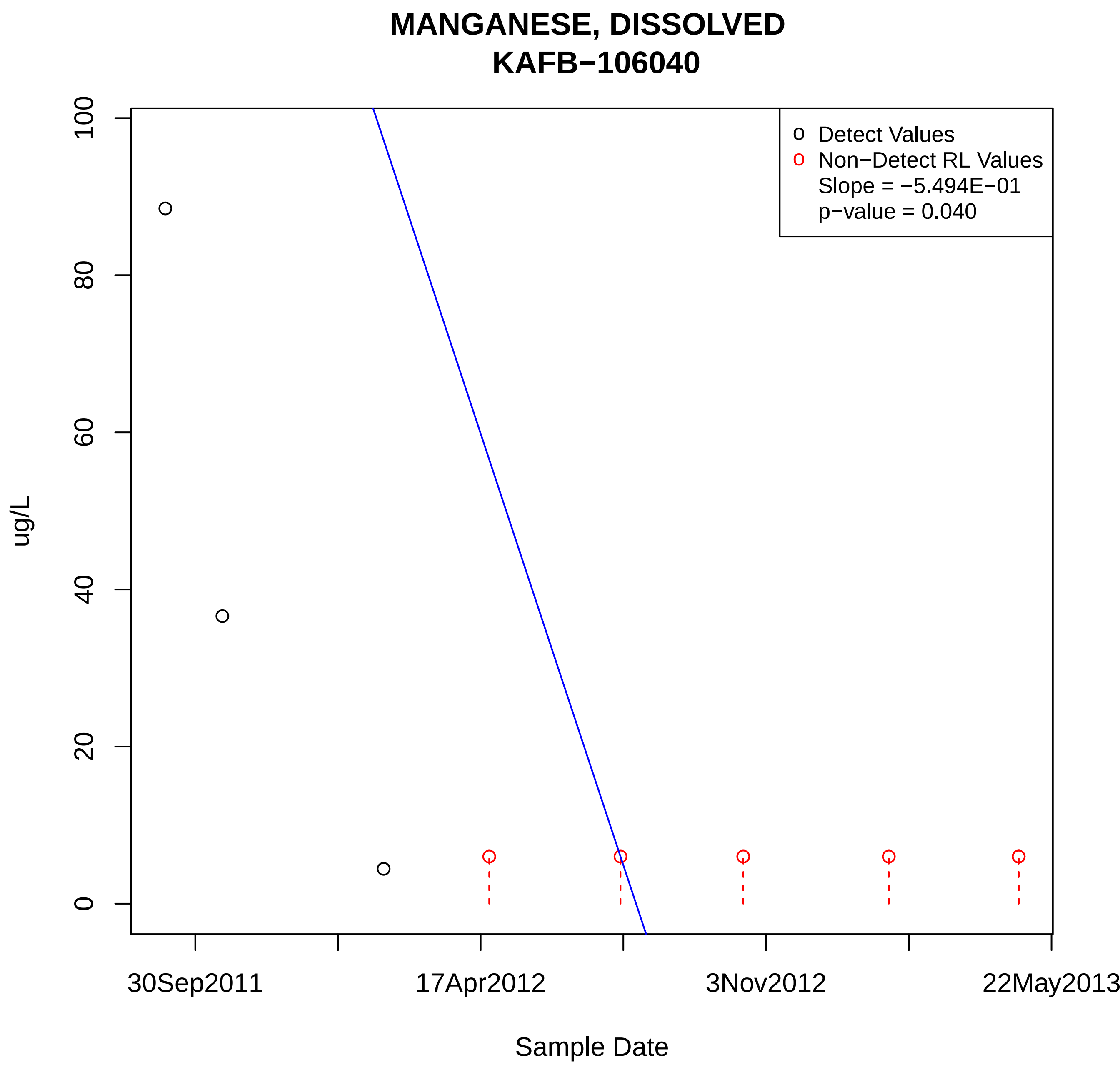


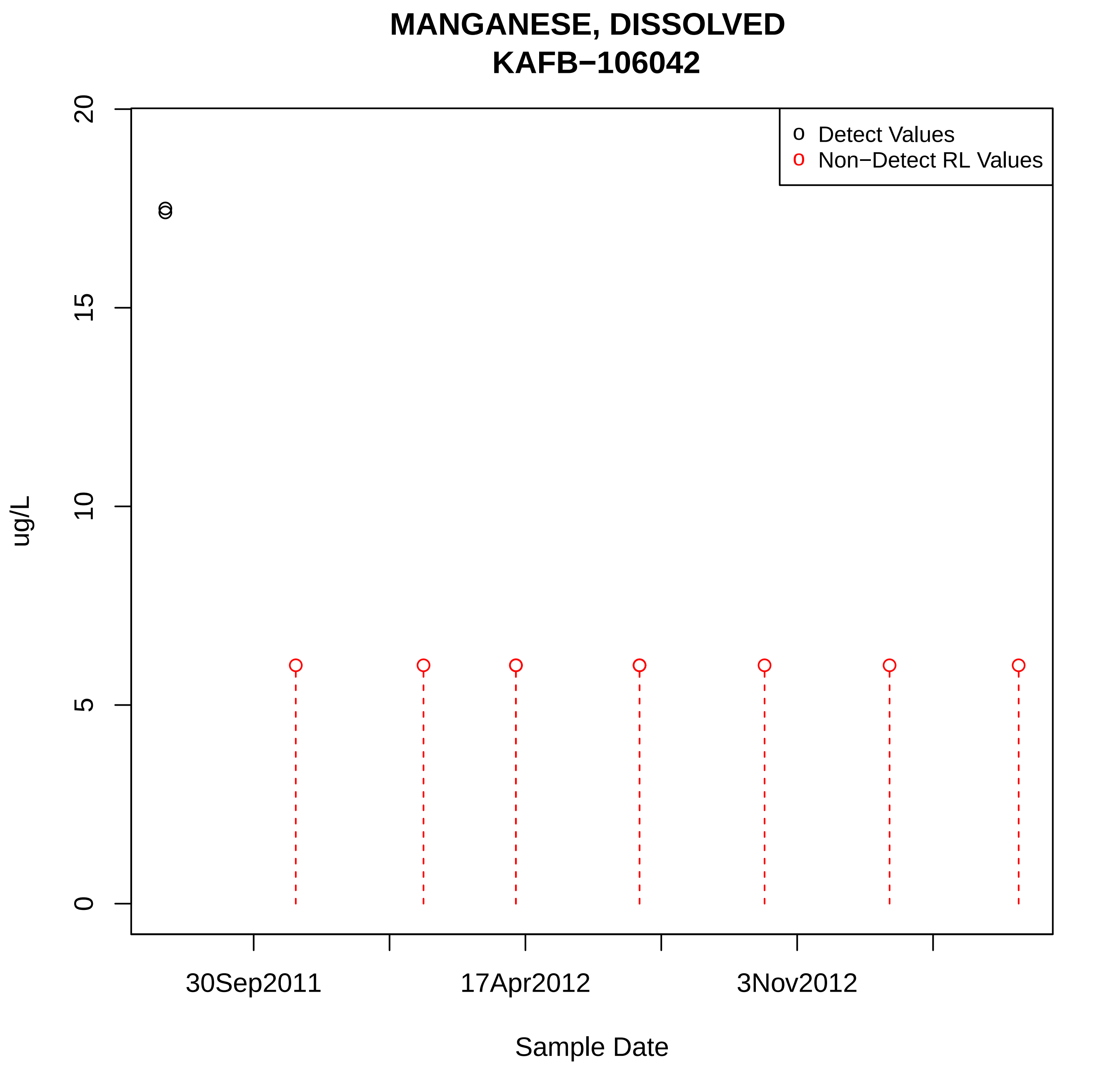
MANGANESE, DISSOLVED
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date



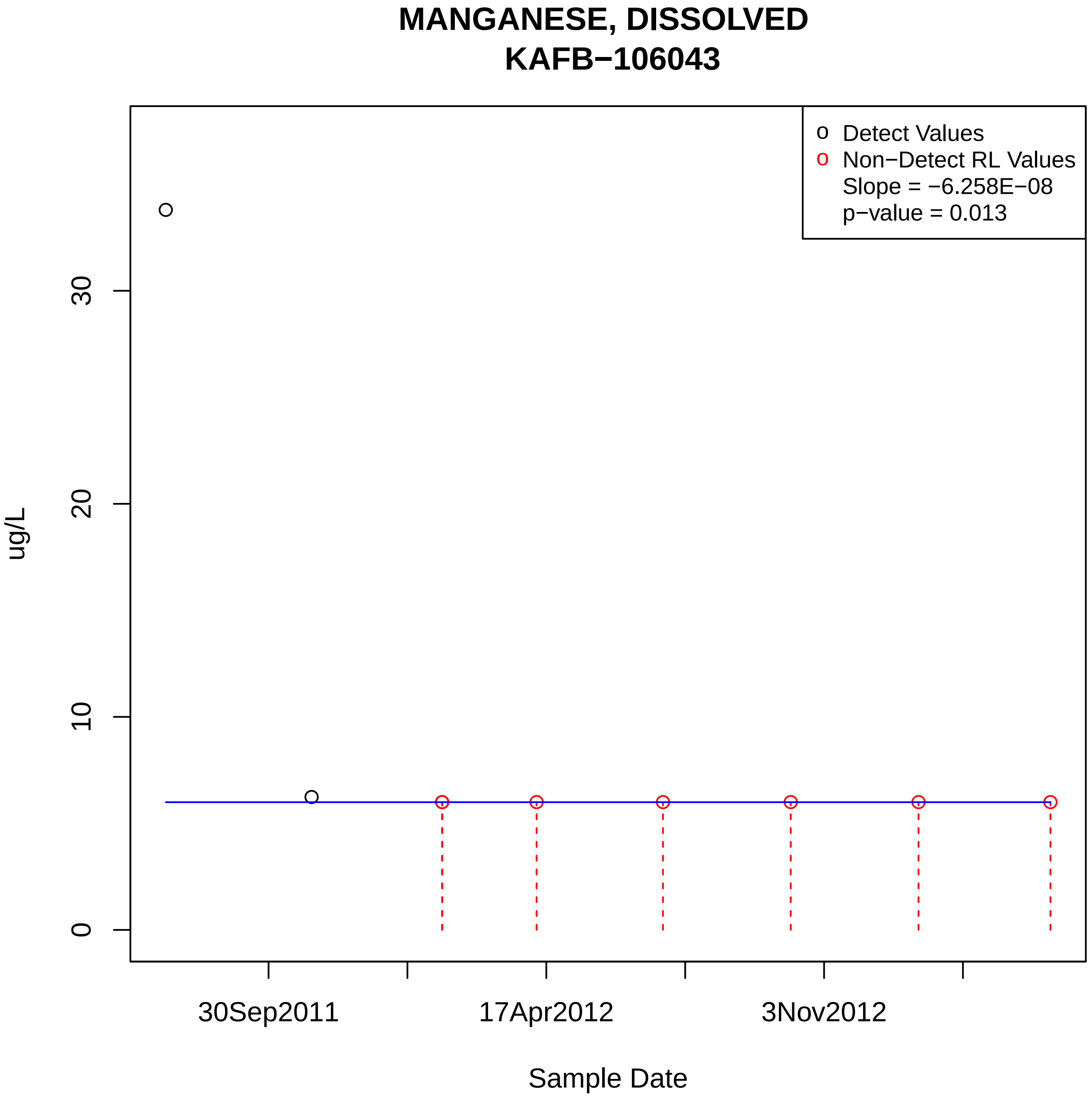
MANGANESE, DISSOLVED
KAFB−106038
o Detect Values
o Non−Detect RL Values
Slope = −3.311E−01
p−value = 0.016
ug/L
0
20
40
60
80
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

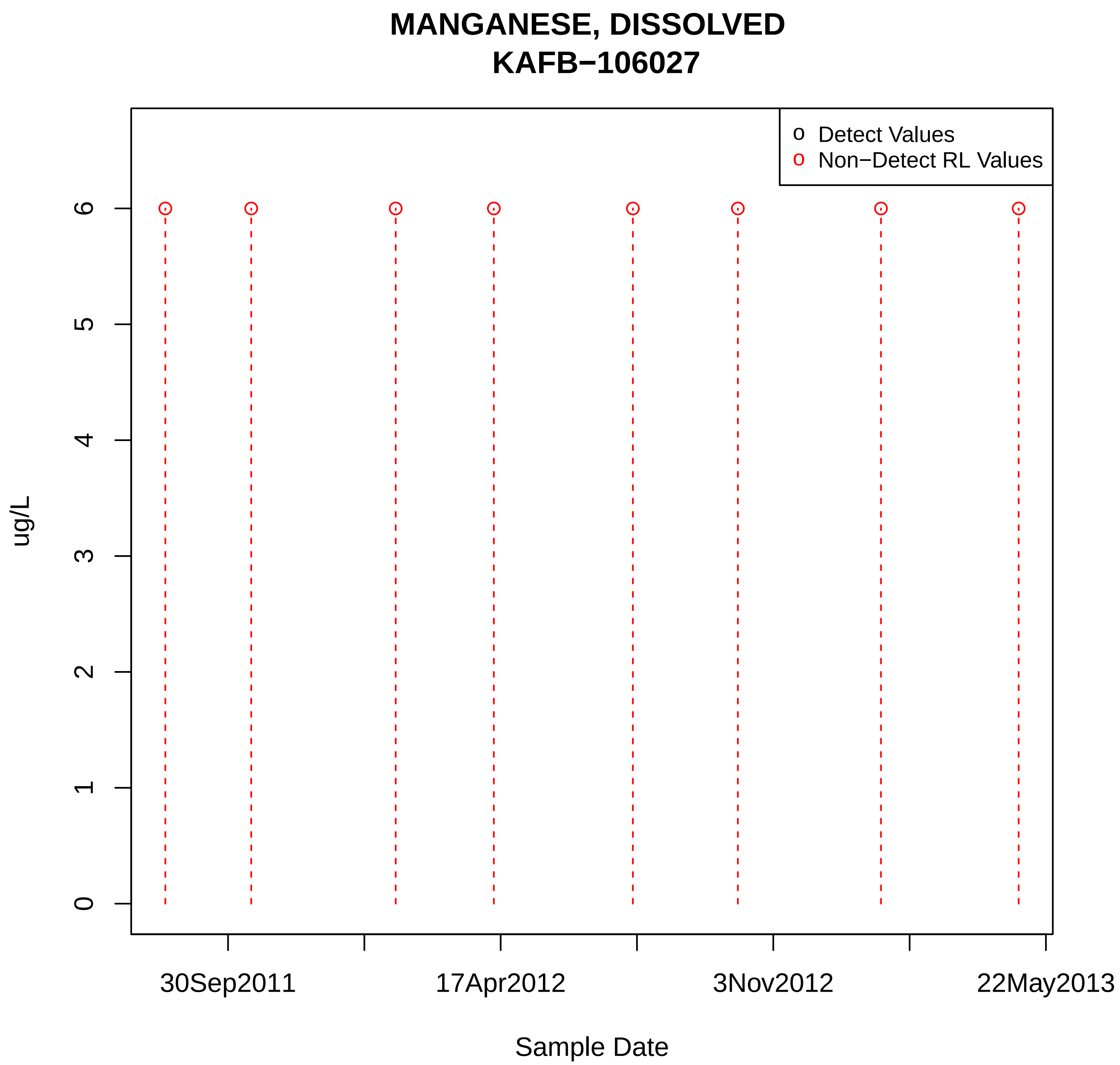

MANGANESE, DISSOLVED
KAFB−106039
Detect Values
Non−Detect RL Values
Slope = −7.257E−01
p−value = 0.002
ug/L
0
20
40
60
80
100
120
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

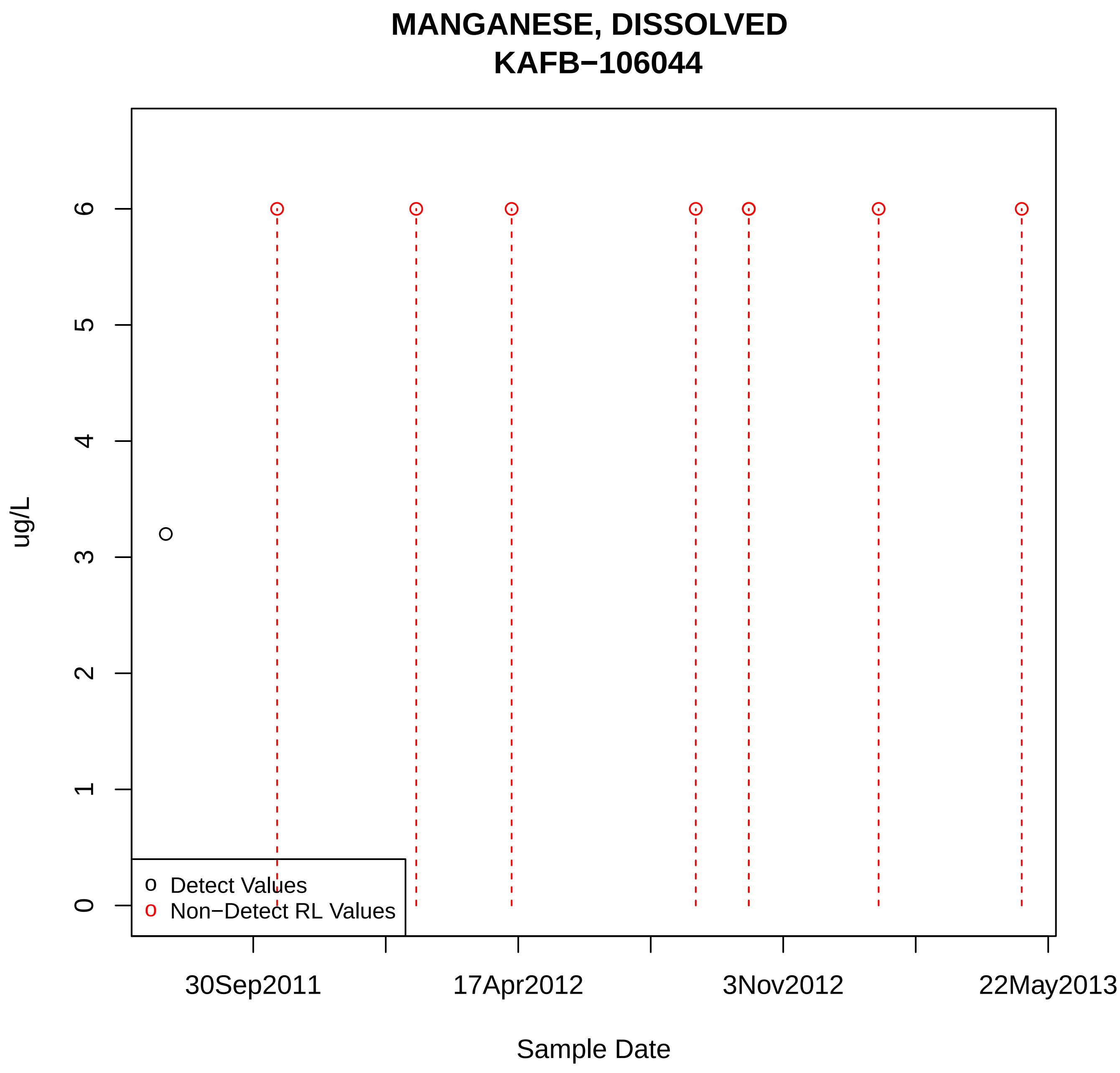

MANGANESE, DISSOLVED
KAFB−106040
Detect Values
Non−Detect RL Values
Slope = −5.494E−01
p−value = 0.040
ug/L
0
20
40
60
80
100
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



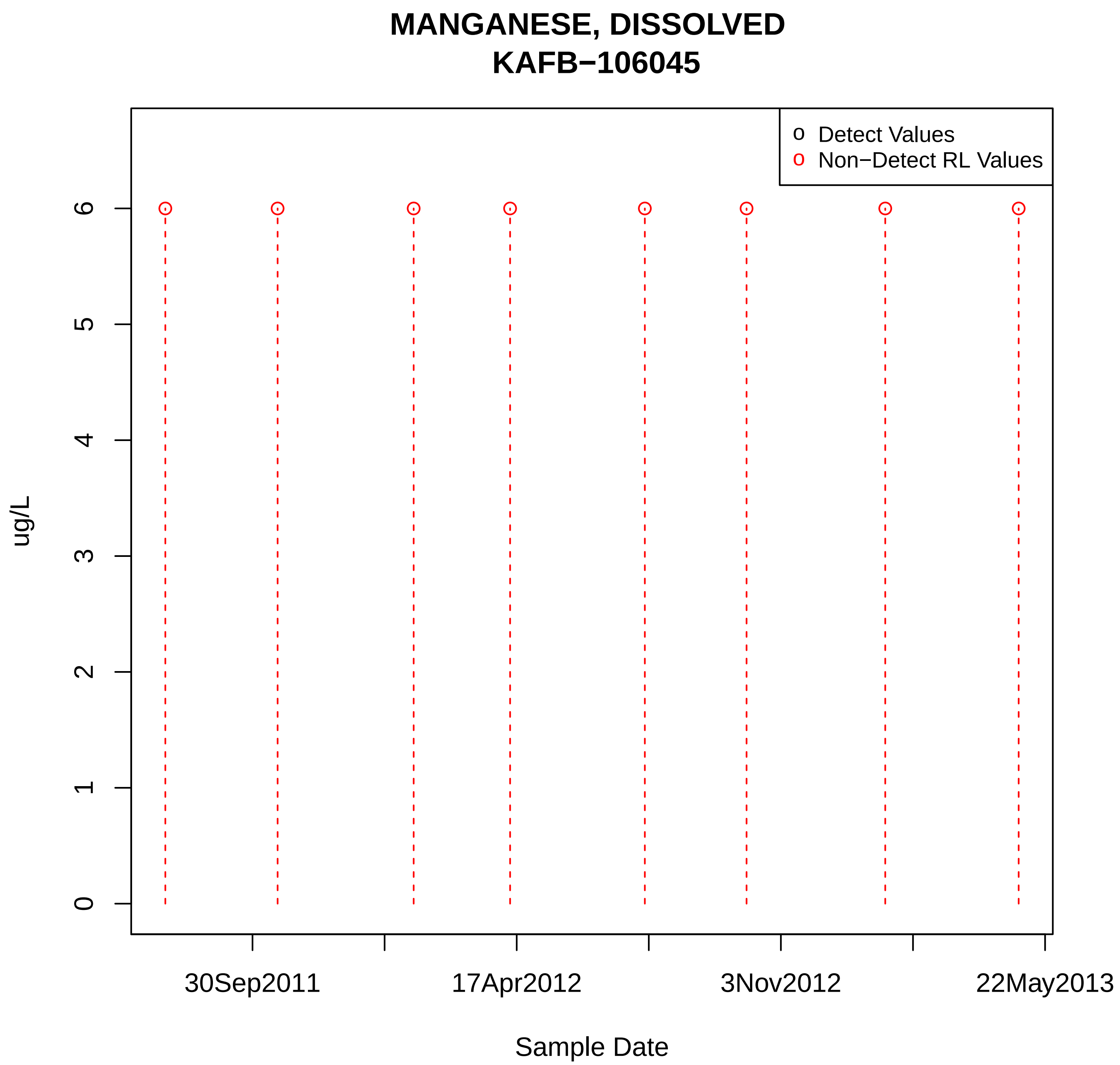
MANGANESE, DISSOLVED
KAFB−106042
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
30Sep2011
17Apr2012
3Nov2012
Sample Date


MANGANESE, DISSOLVED
KAFB−106043
Detect Values
Non−Detect RL Values
Slope = −6.258E−08
p−value = 0.013
ug/L
0
10
20
30
30Sep2011
17Apr2012
3Nov2012
Sample Date

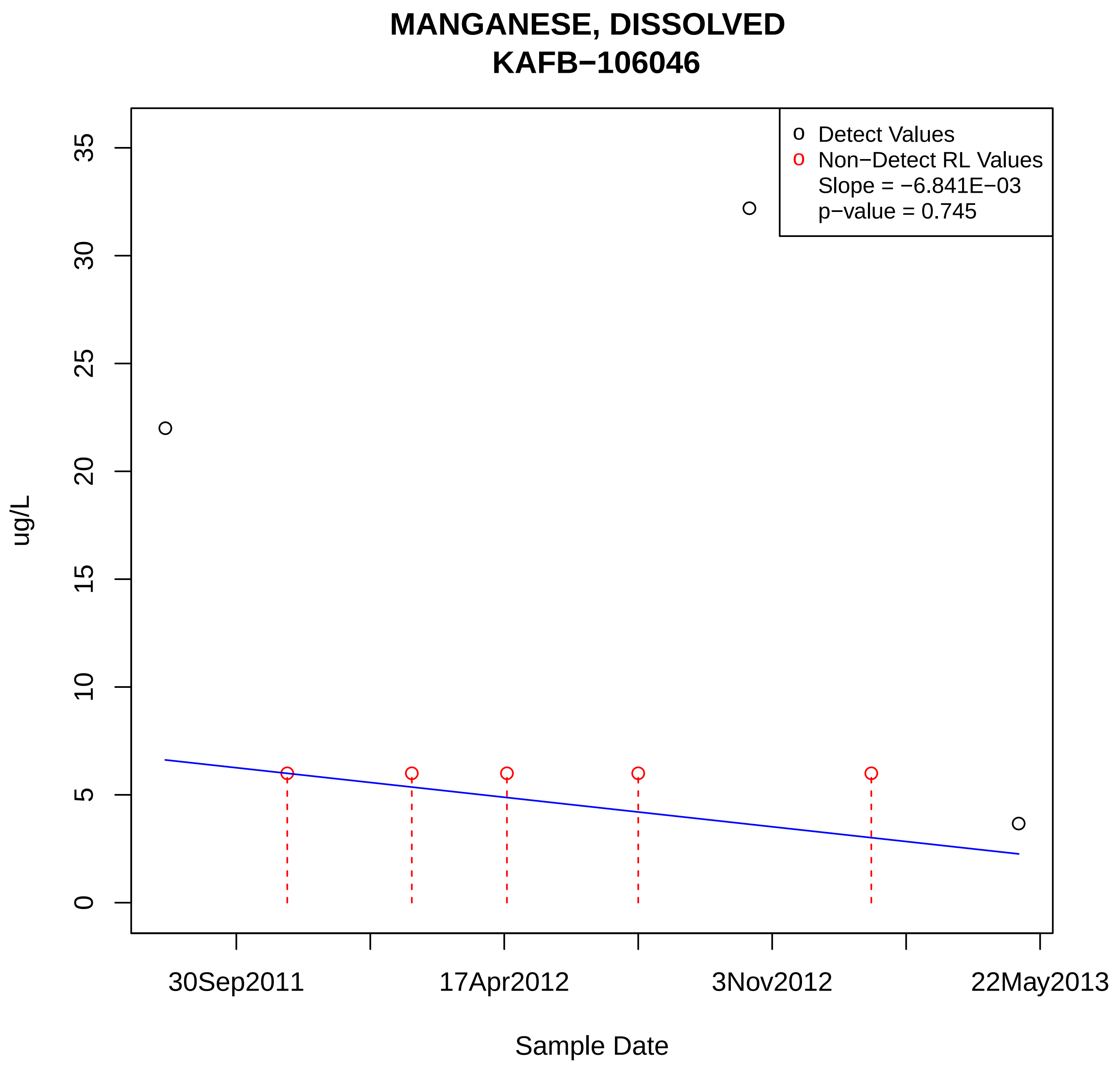

MANGANESE, DISSOLVED
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



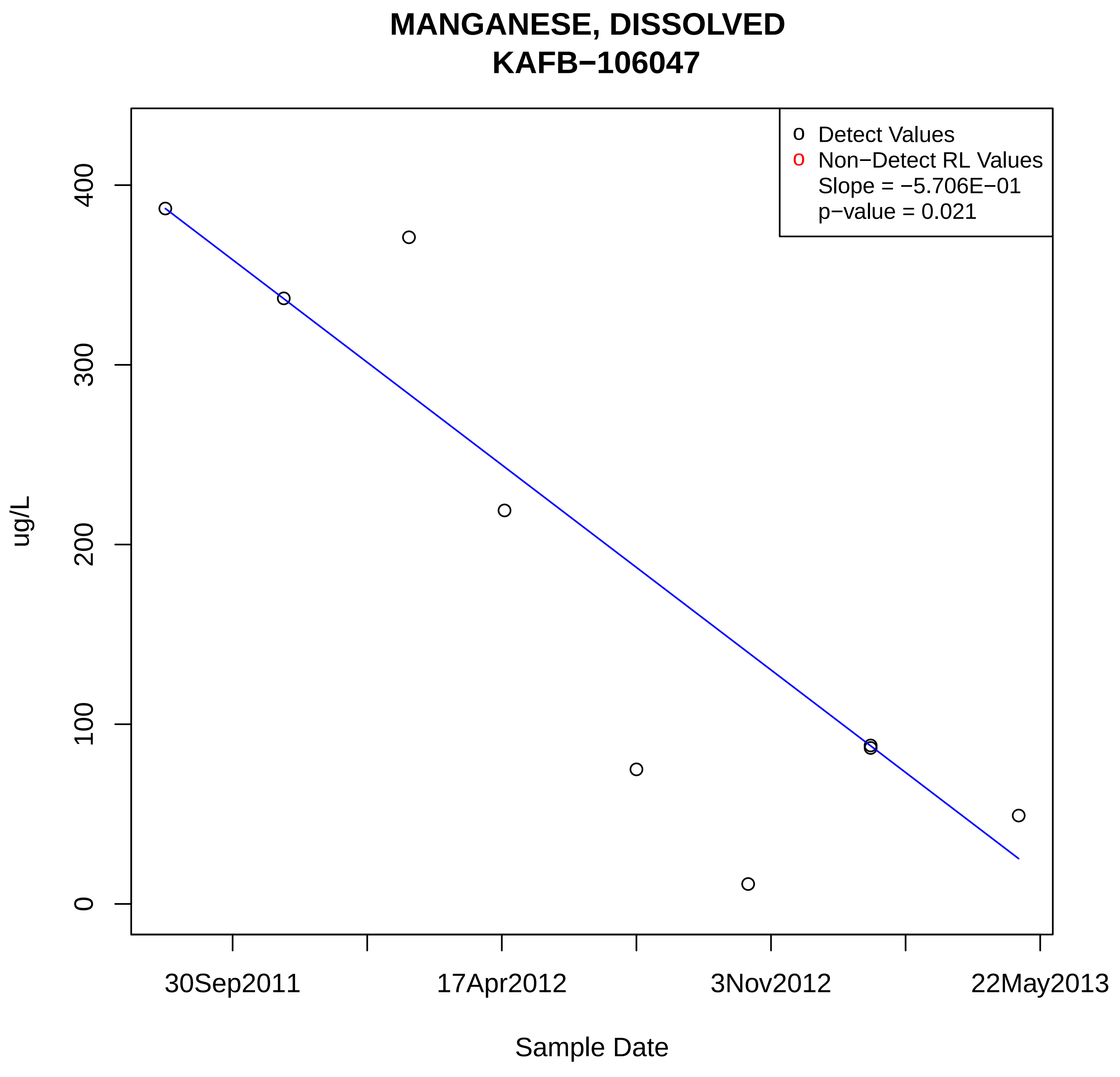
MANGANESE, DISSOLVED
KAFB−106044
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values



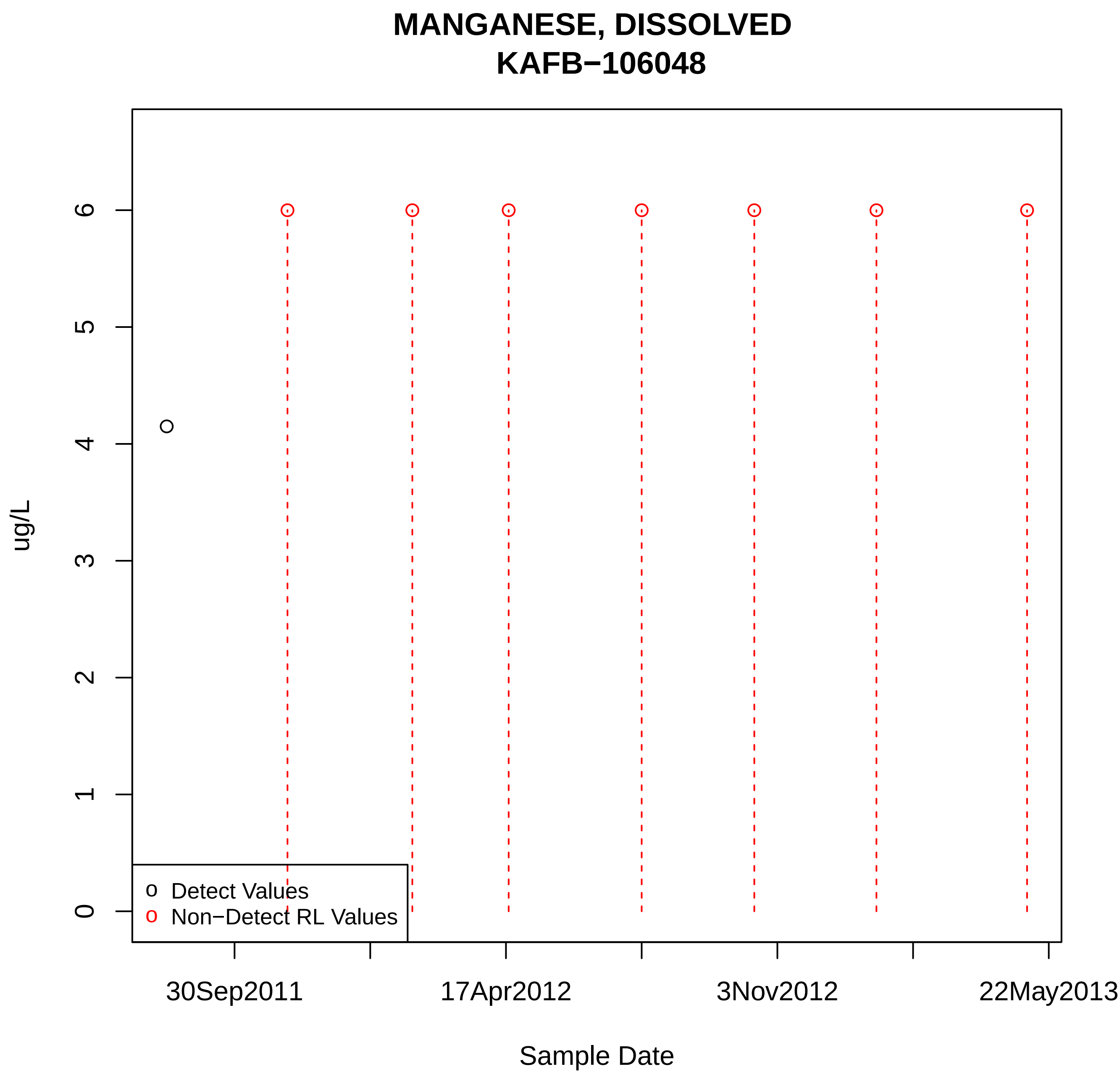
MANGANESE, DISSOLVED
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



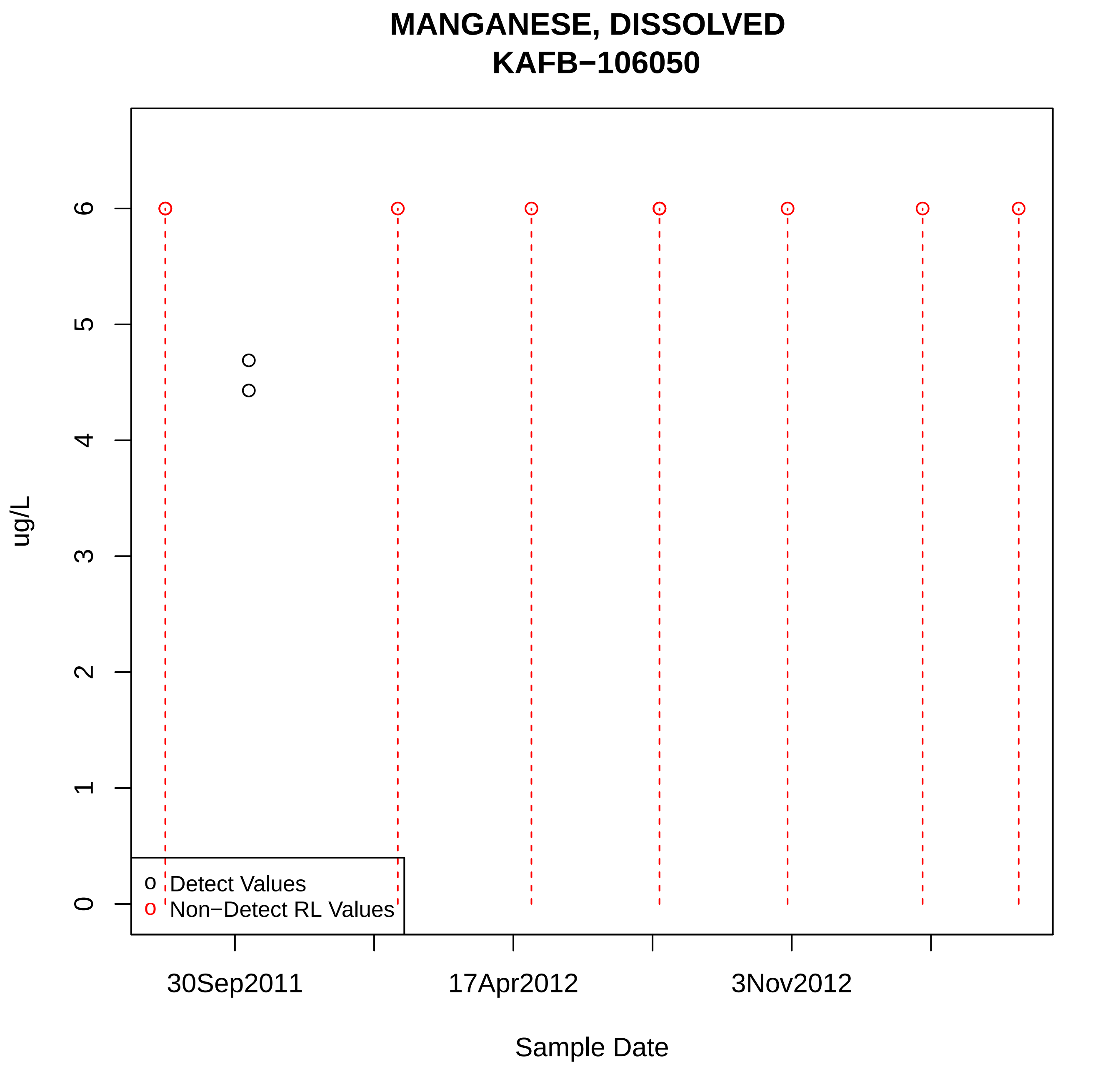
MANGANESE, DISSOLVED
KAFB−106046
ug/L
0
5
10
15
20
25
30
35
Detect Values
Non−Detect RL Values
Slope = −6.841E−03
p−value = 0.745
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



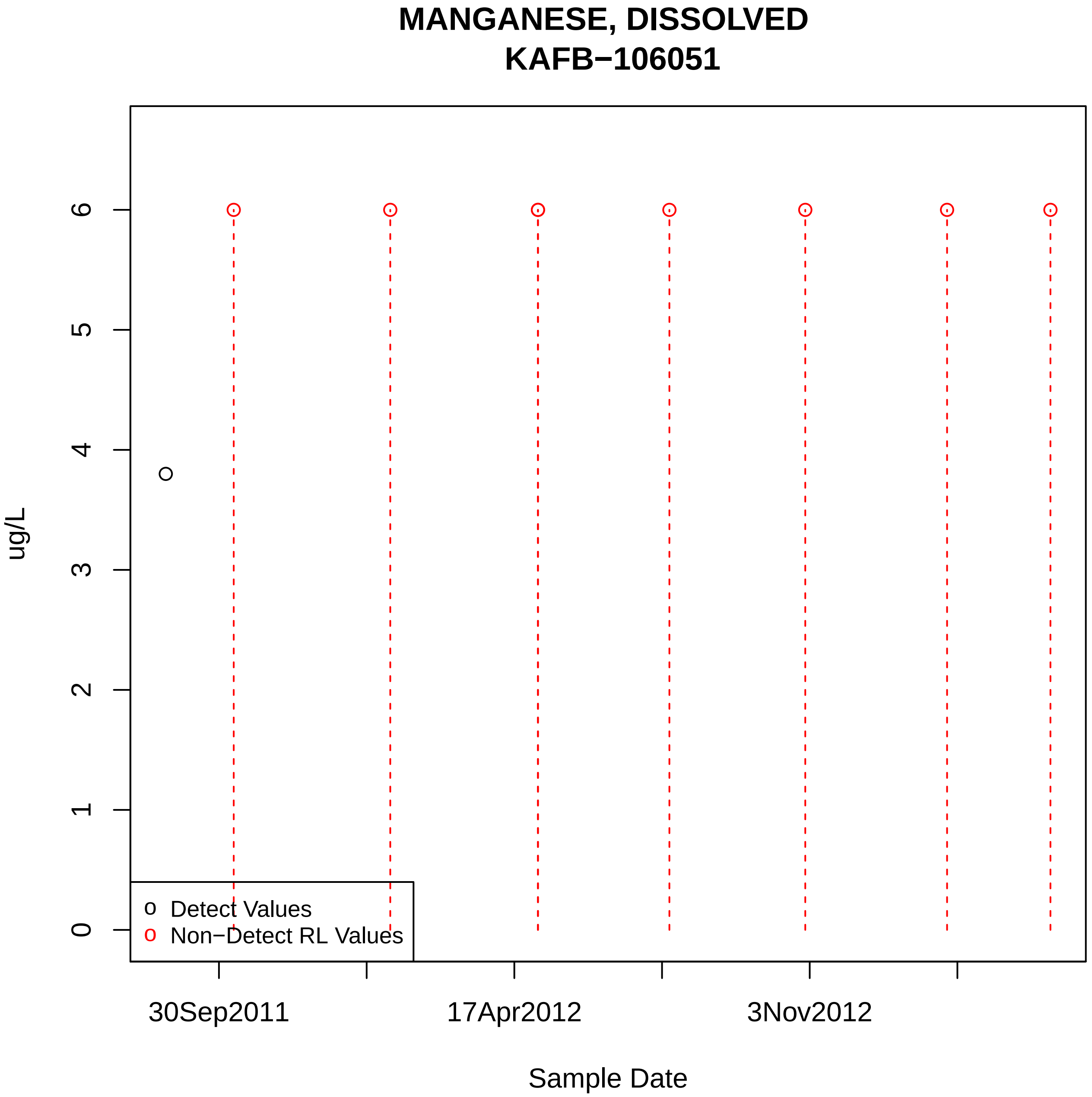
MANGANESE, DISSOLVED
KAFB−106047
o Detect Values
o Non−Detect RL Values
Slope = −5.706E−01
p−value = 0.021
ug/L
0
100
200
300
400
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

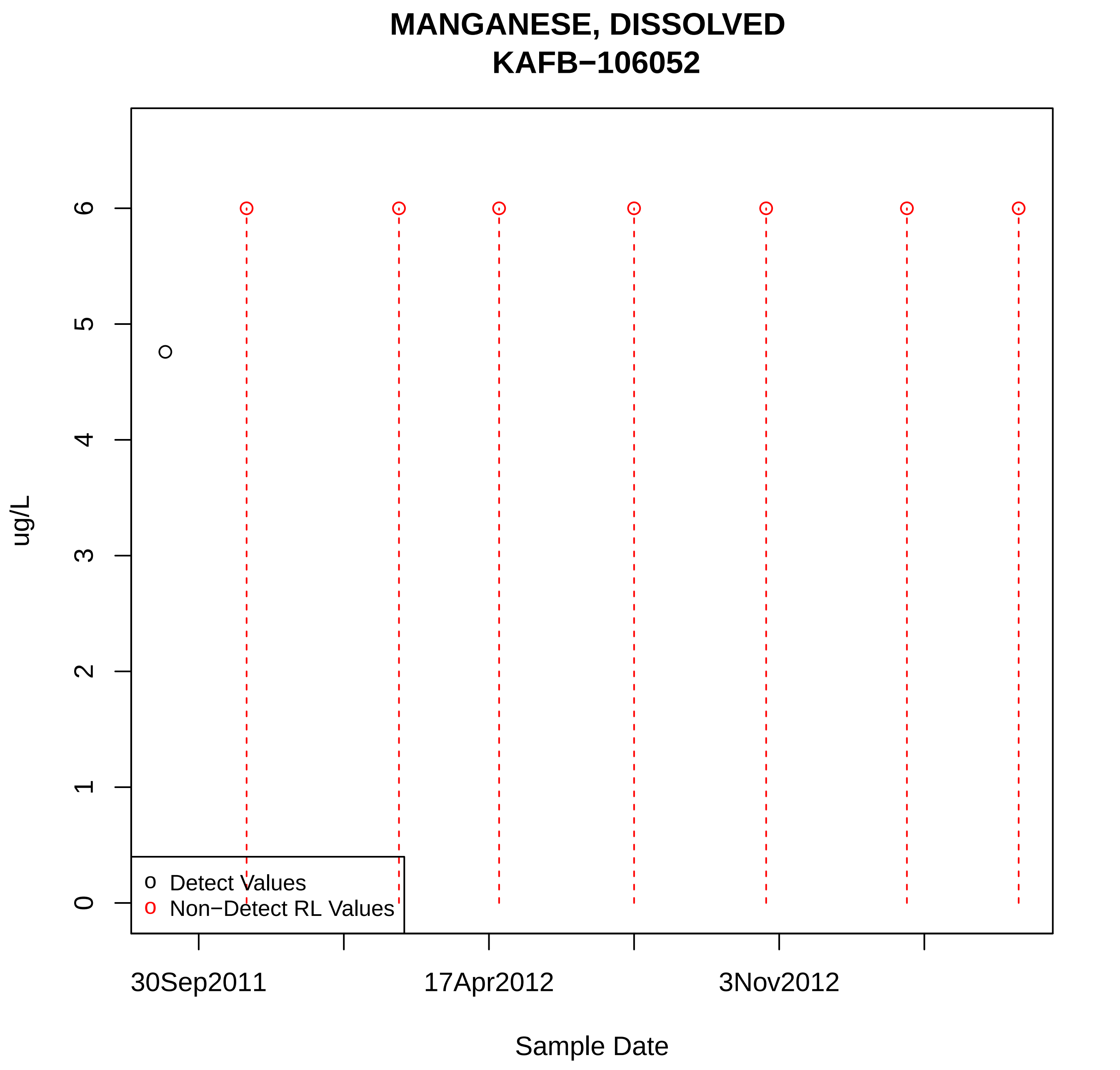


MANGANESE, DISSOLVED
KAFB−106048
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

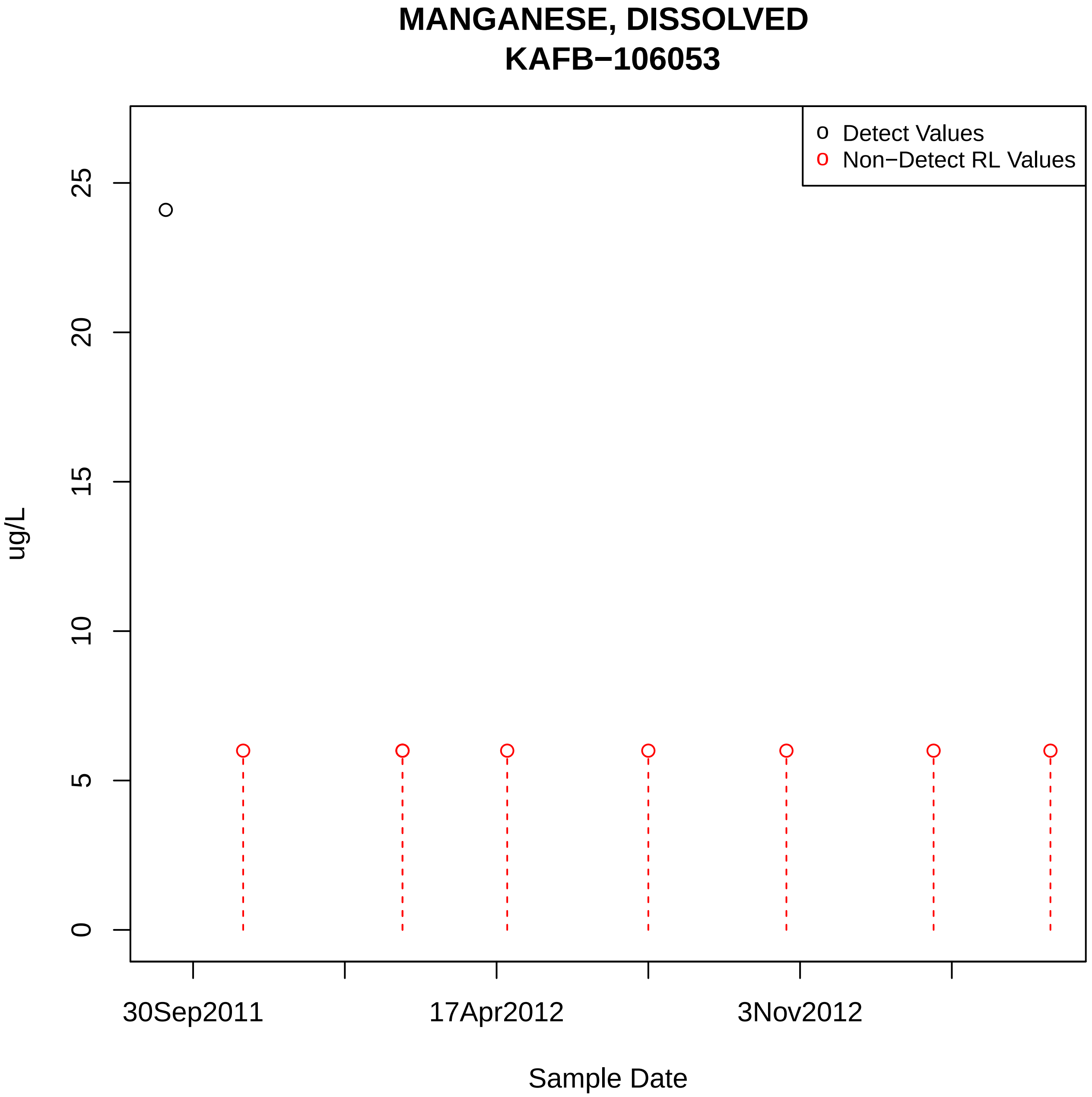


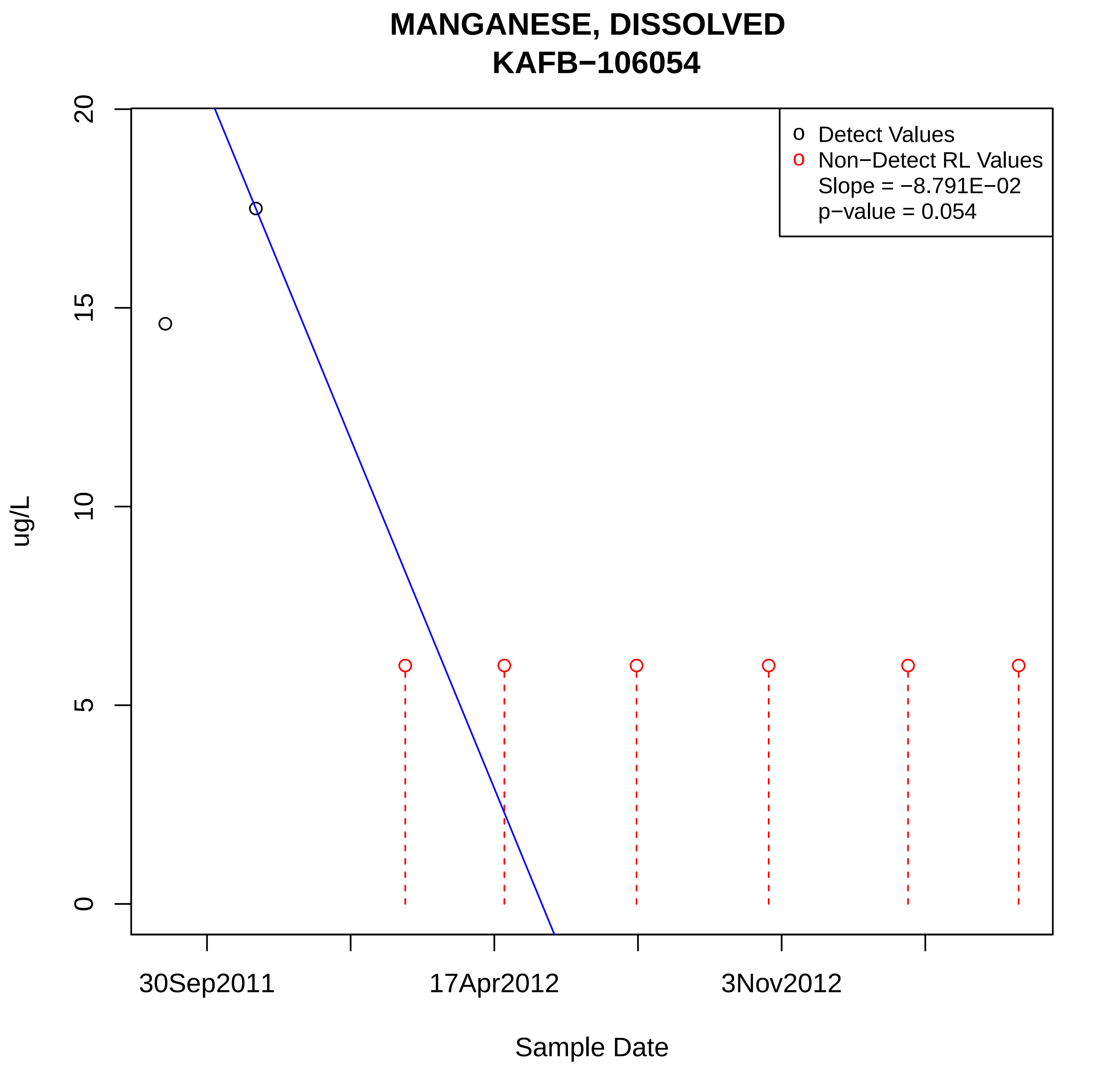
MANGANESE, DISSOLVED
KAFB−106050
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

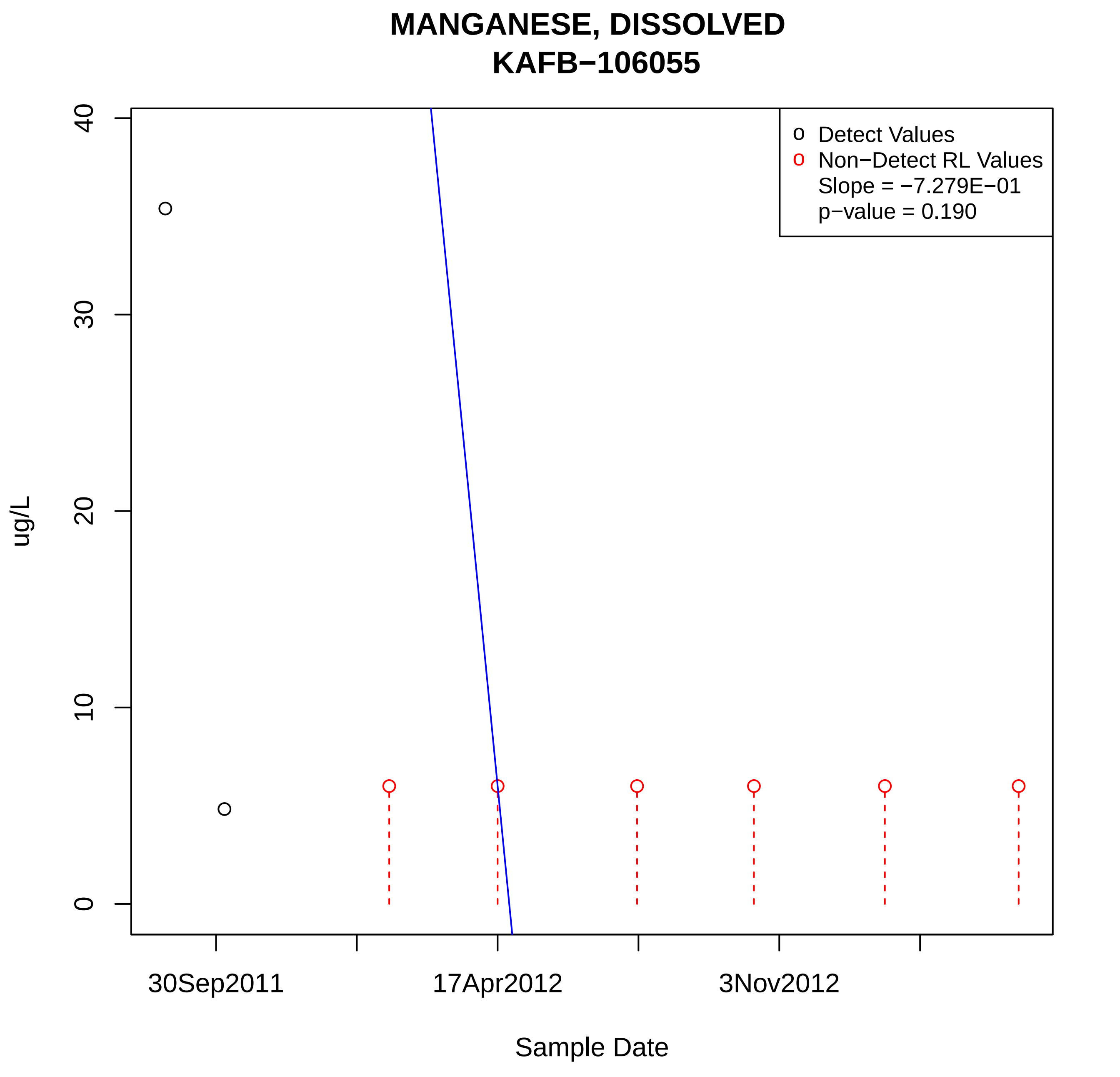

MANGANESE, DISSOLVED
KAFB−106051
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values



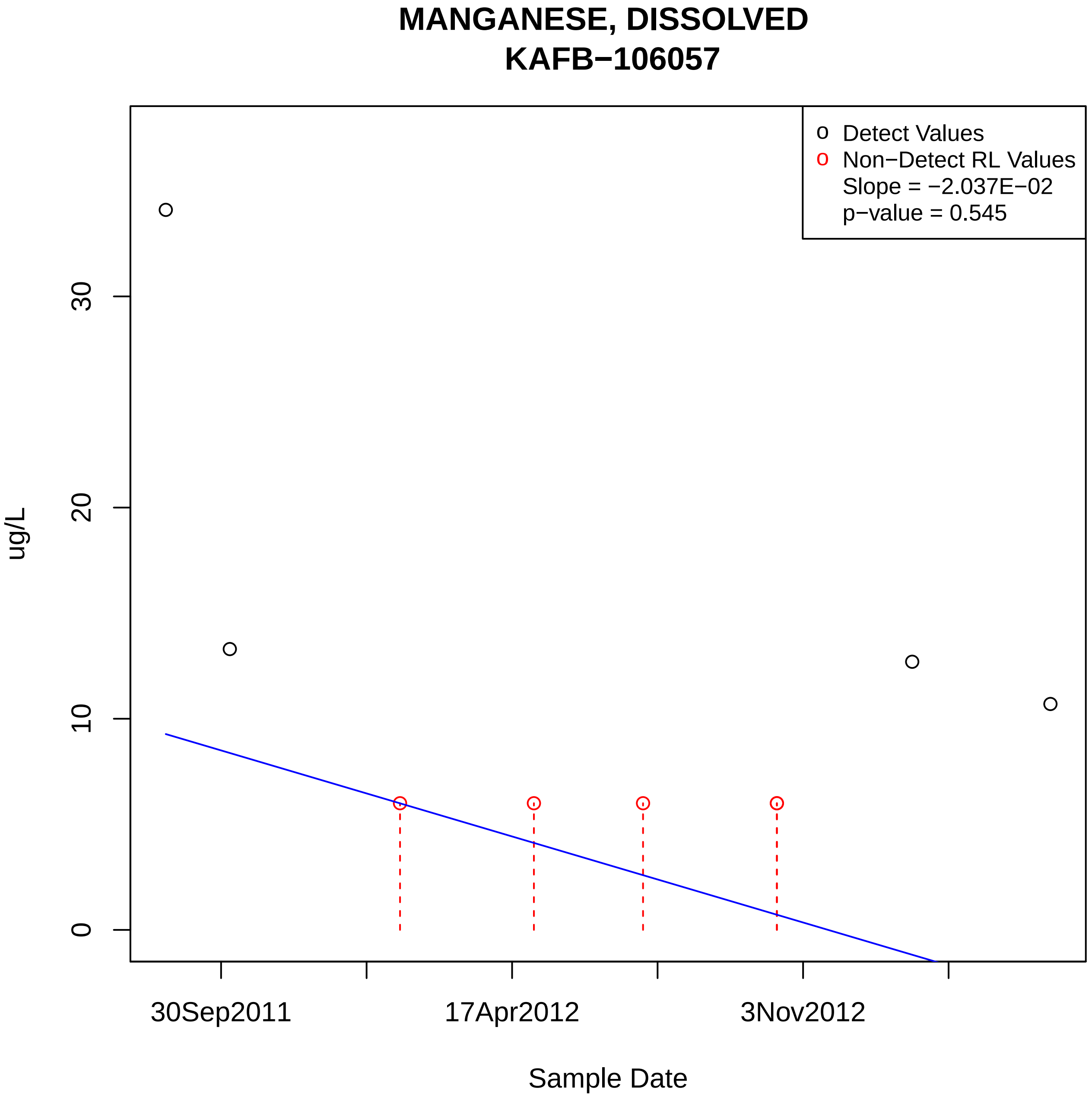
MANGANESE, DISSOLVED
KAFB−106052
ug/L
0
1
2
3
4
5
6
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

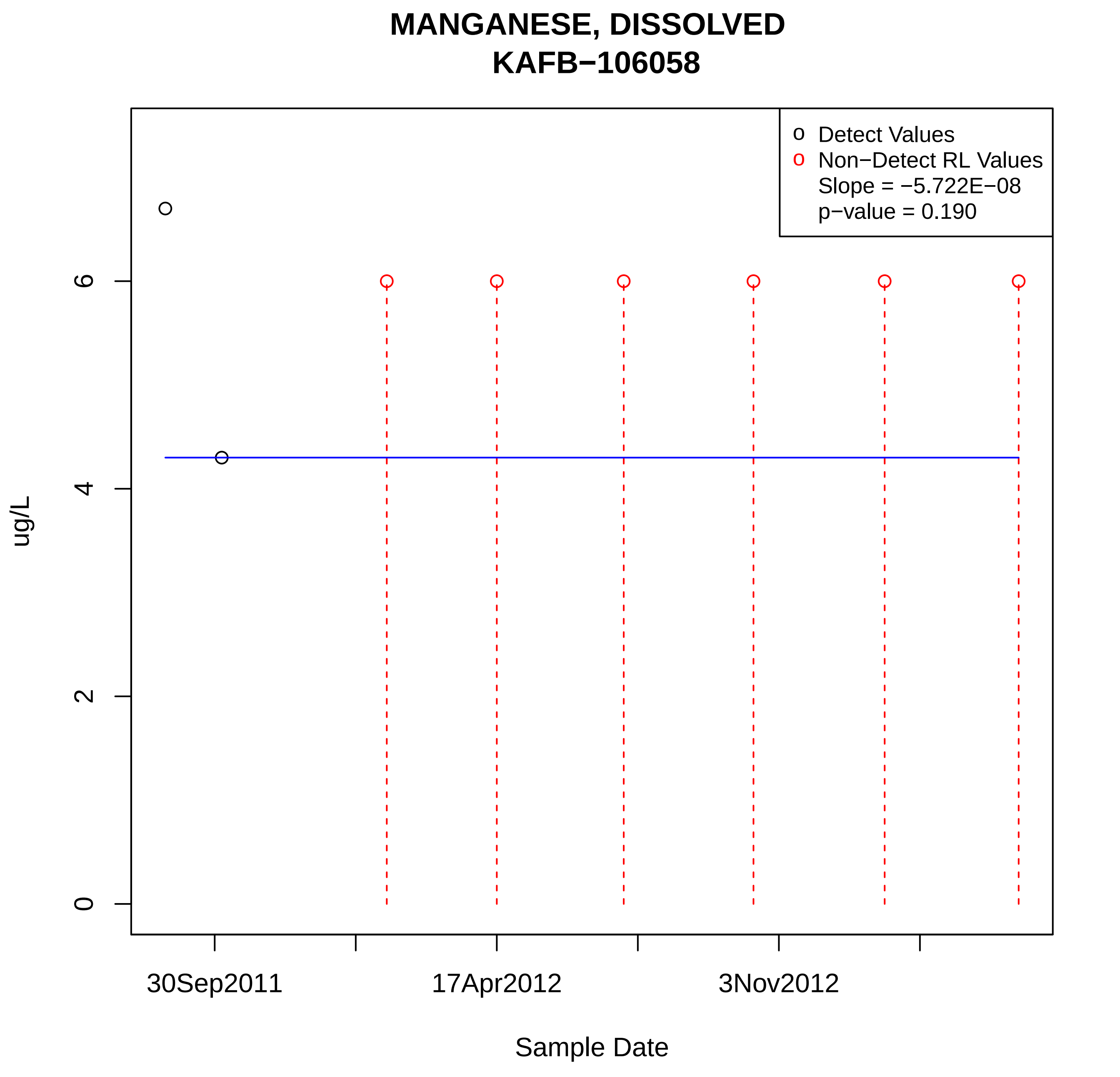

MANGANESE, DISSOLVED
KAFB−106053
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
Sample Date


MANGANESE, DISSOLVED
KAFB−106054
Detect Values
Non−Detect RL Values
Slope = −8.791E−02
p−value = 0.054
ug/L
0
5
10
15
20
30Sep2011
17Apr2012
3Nov2012
Sample Date

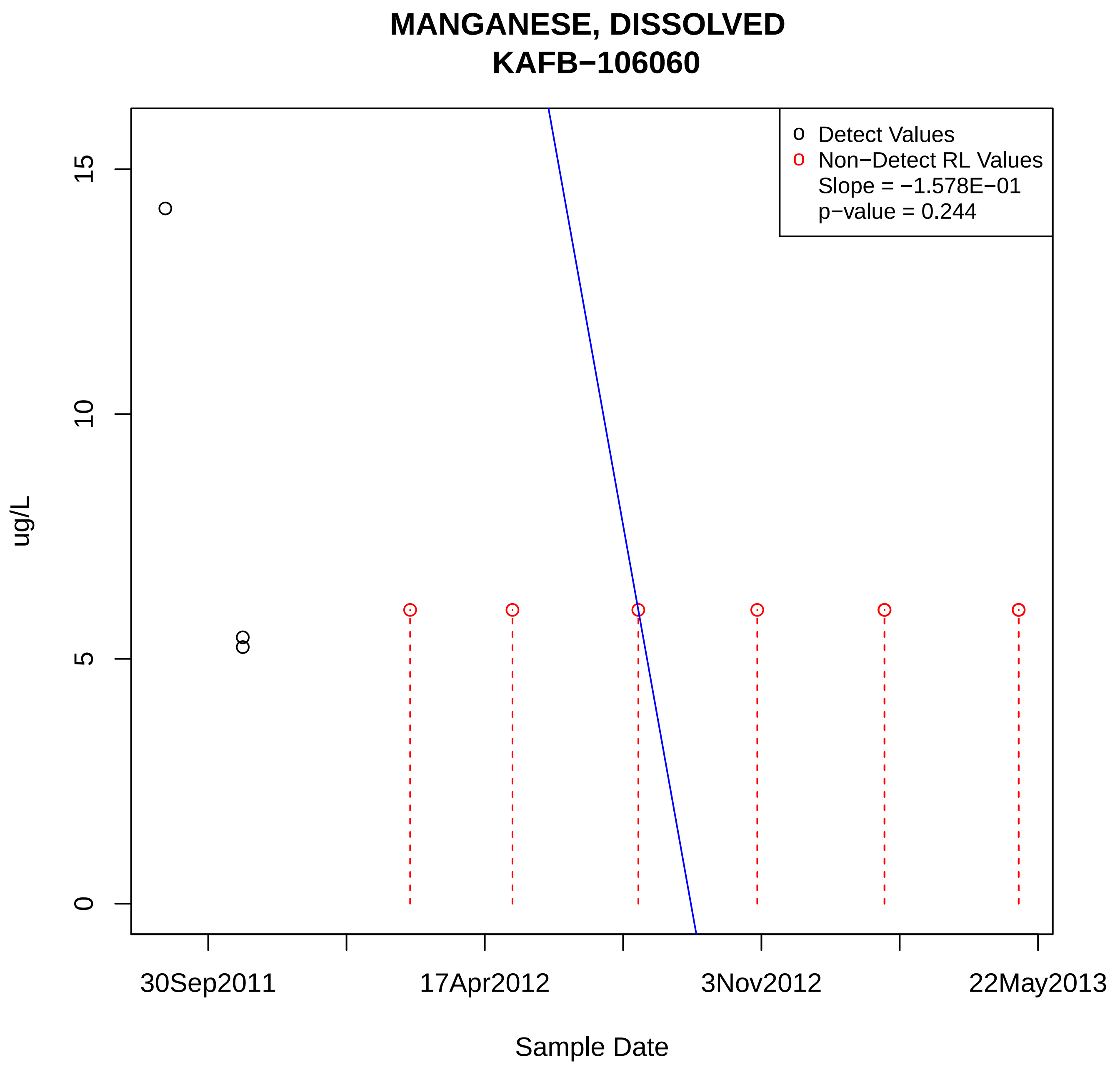


MANGANESE, DISSOLVED
KAFB−106055
Detect Values
Non−Detect RL Values
Slope = −7.279E−01
p−value = 0.190
0
10
20
30
40
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

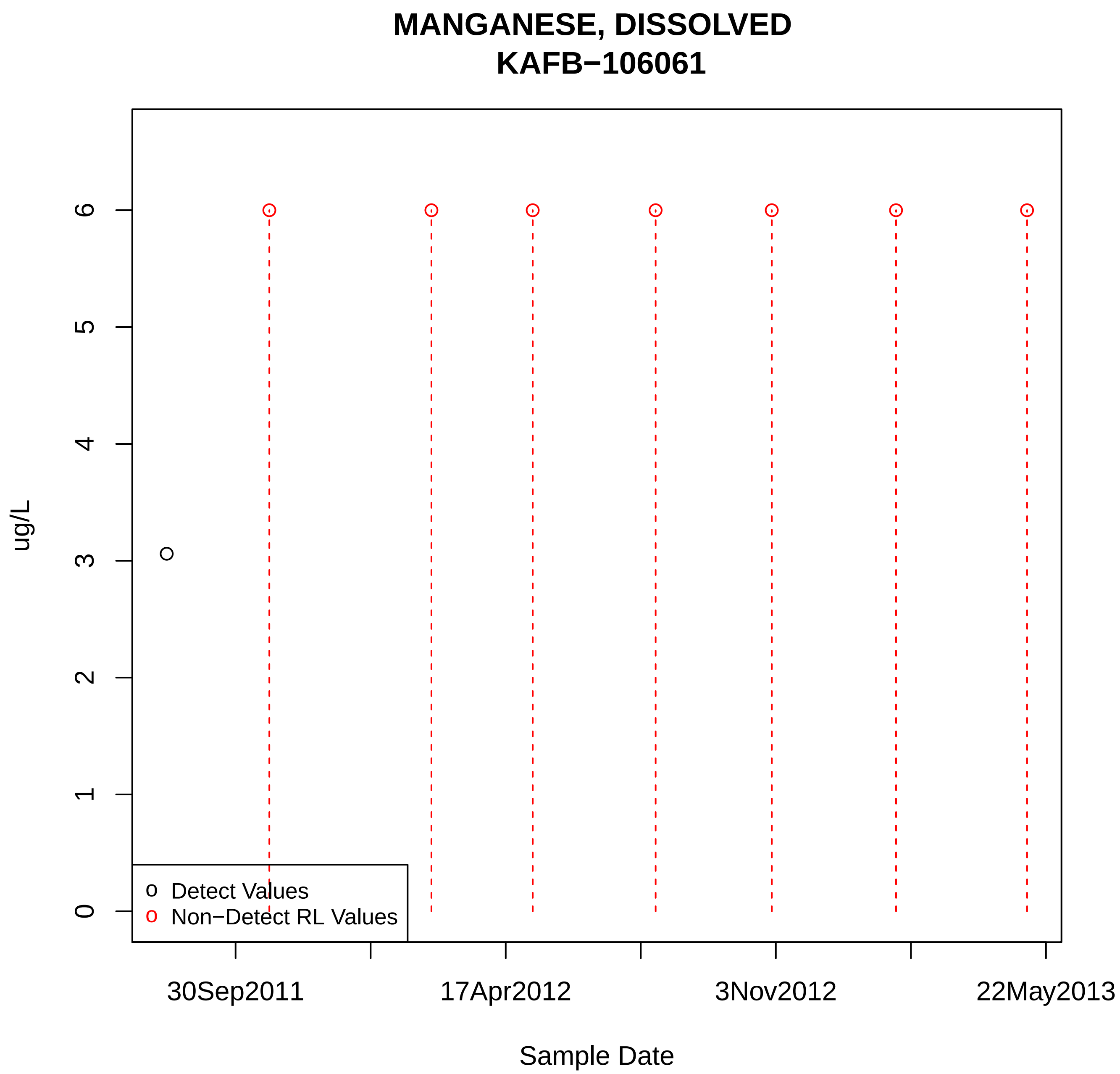

MANGANESE, DISSOLVED
KAFB−106057
Detect Values
Non−Detect RL Values
Slope = −2.037E−02
p−value = 0.545
ug/L
0
10
20
30
30Sep2011
17Apr2012
3Nov2012
Sample Date

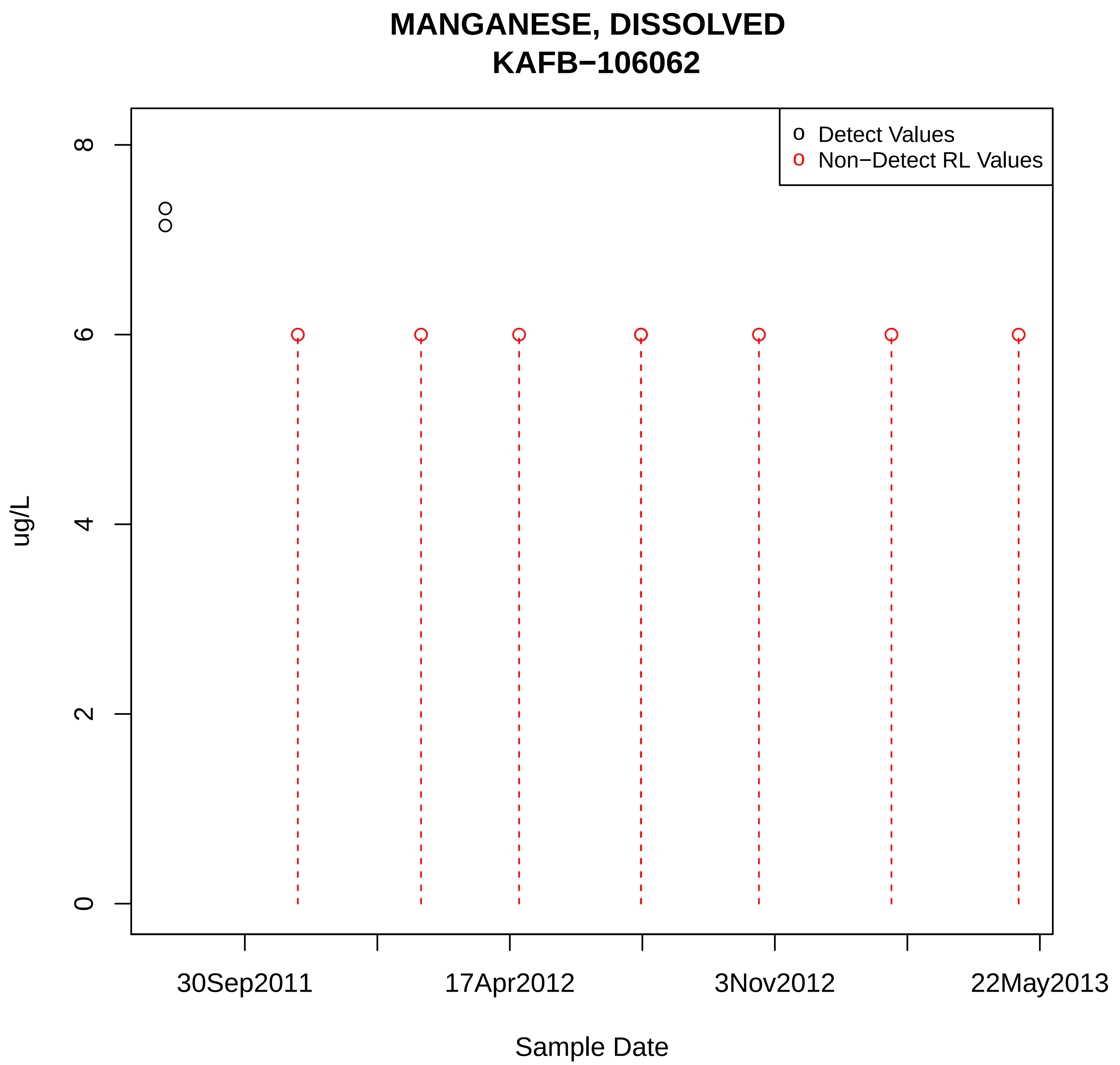


MANGANESE, DISSOLVED
KAFB−106058
Detect Values
Non−Detect RL Values
Slope = −5.722E−08
p−value = 0.190
ug/L
0
2
4
6
30Sep2011
17Apr2012
3Nov2012
Sample Date

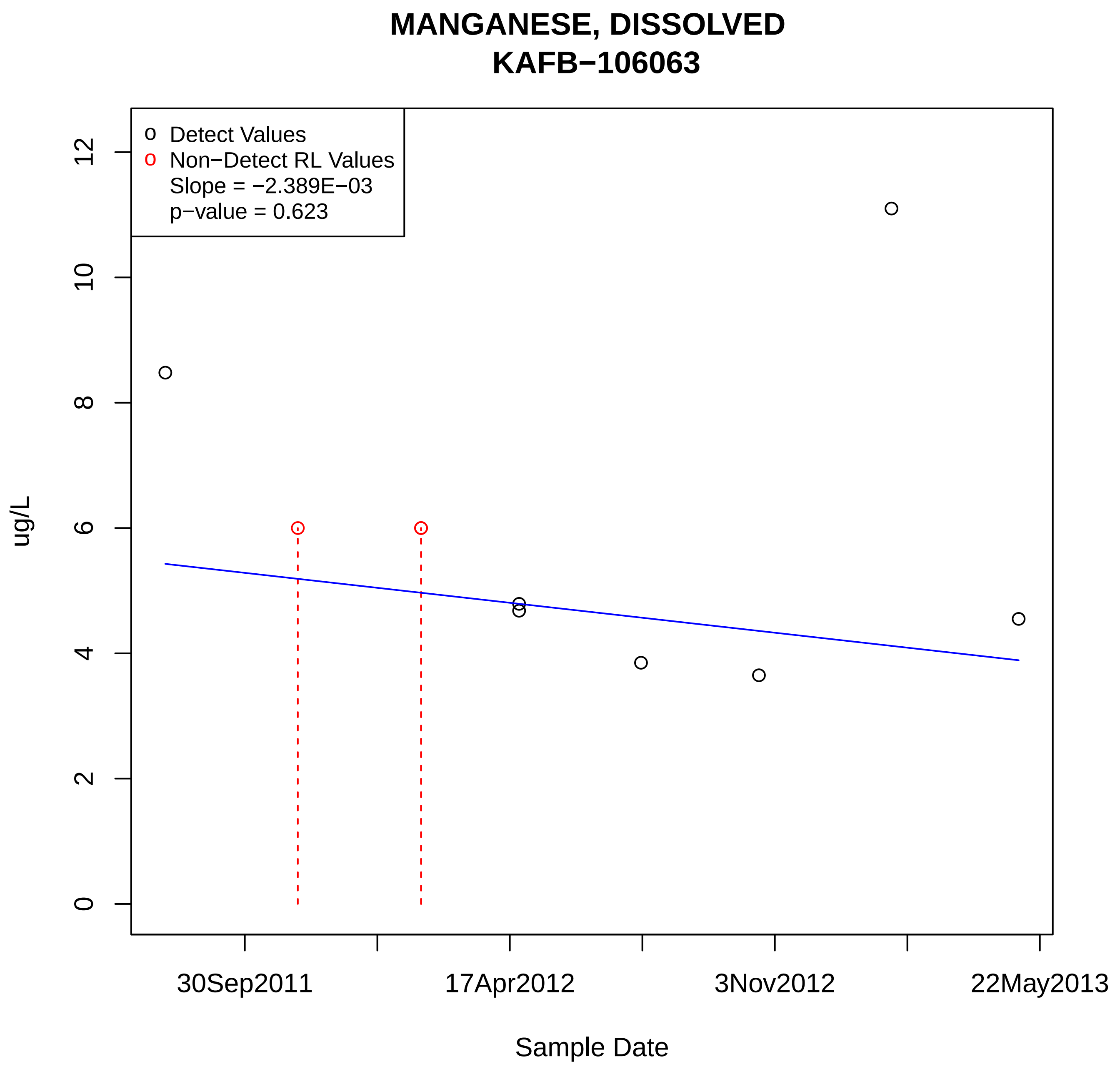


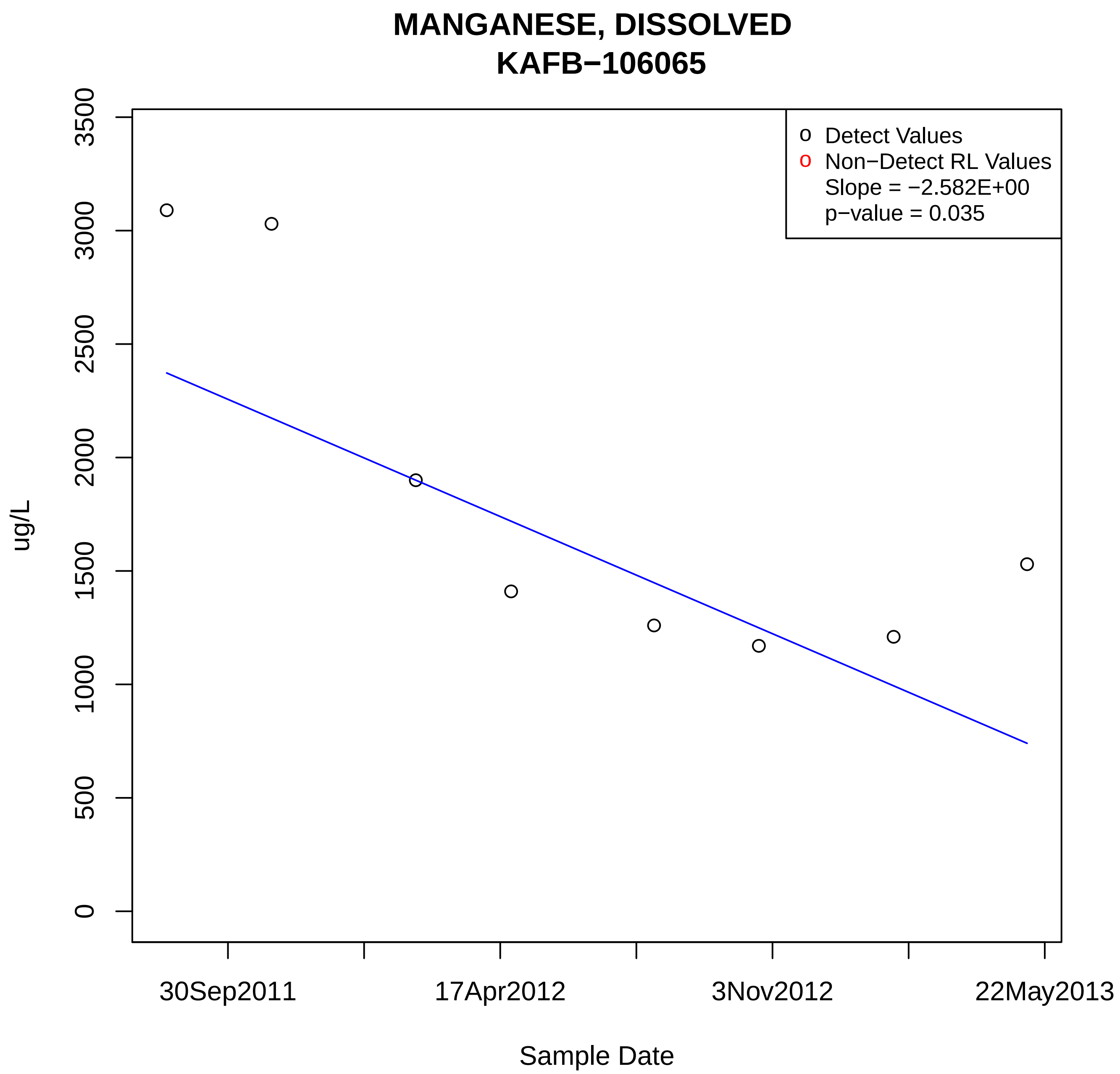
MANGANESE, DISSOLVED
KAFB−106060
Detect Values
Non−Detect RL Values
Slope = −1.578E−01
p−value = 0.244
ug/L
0
5
10
15
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106061
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

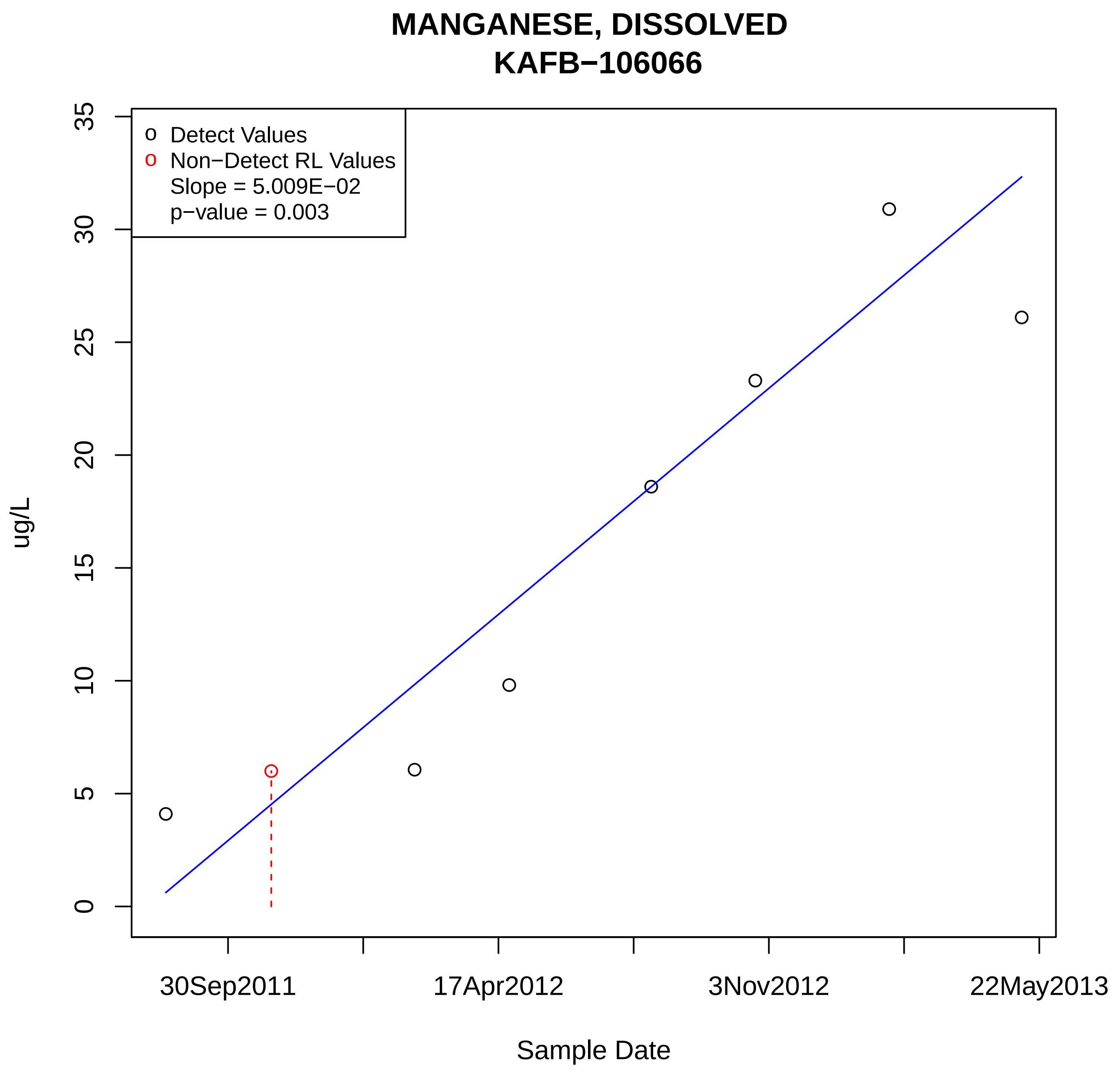


MANGANESE, DISSOLVED
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

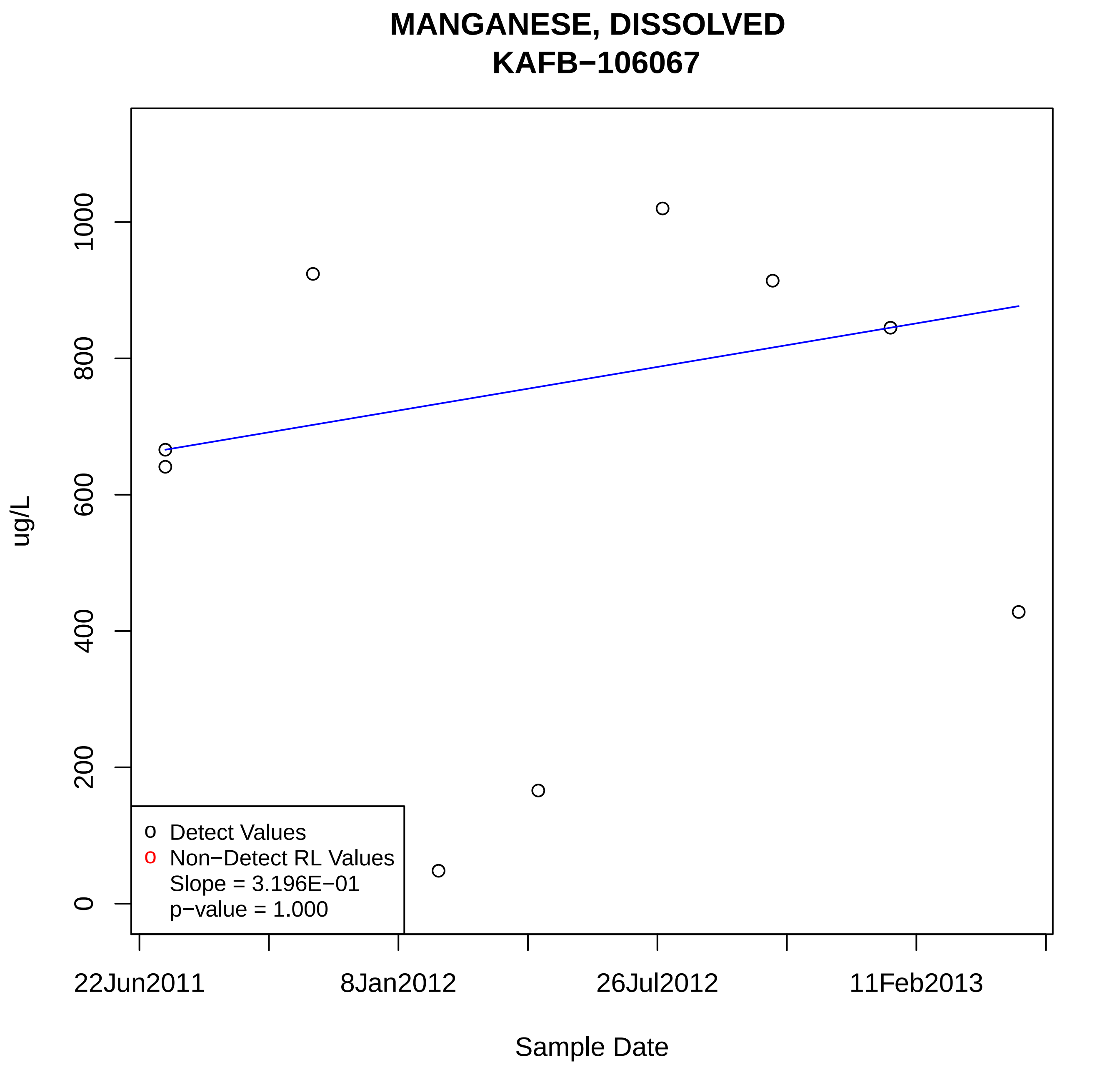

MANGANESE, DISSOLVED
KAFB−106063
o Detect Values
o Non−Detect RL Values
Slope = −2.389E−03
p−value = 0.623
ug/L
0
2
4
6
8
10
12
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

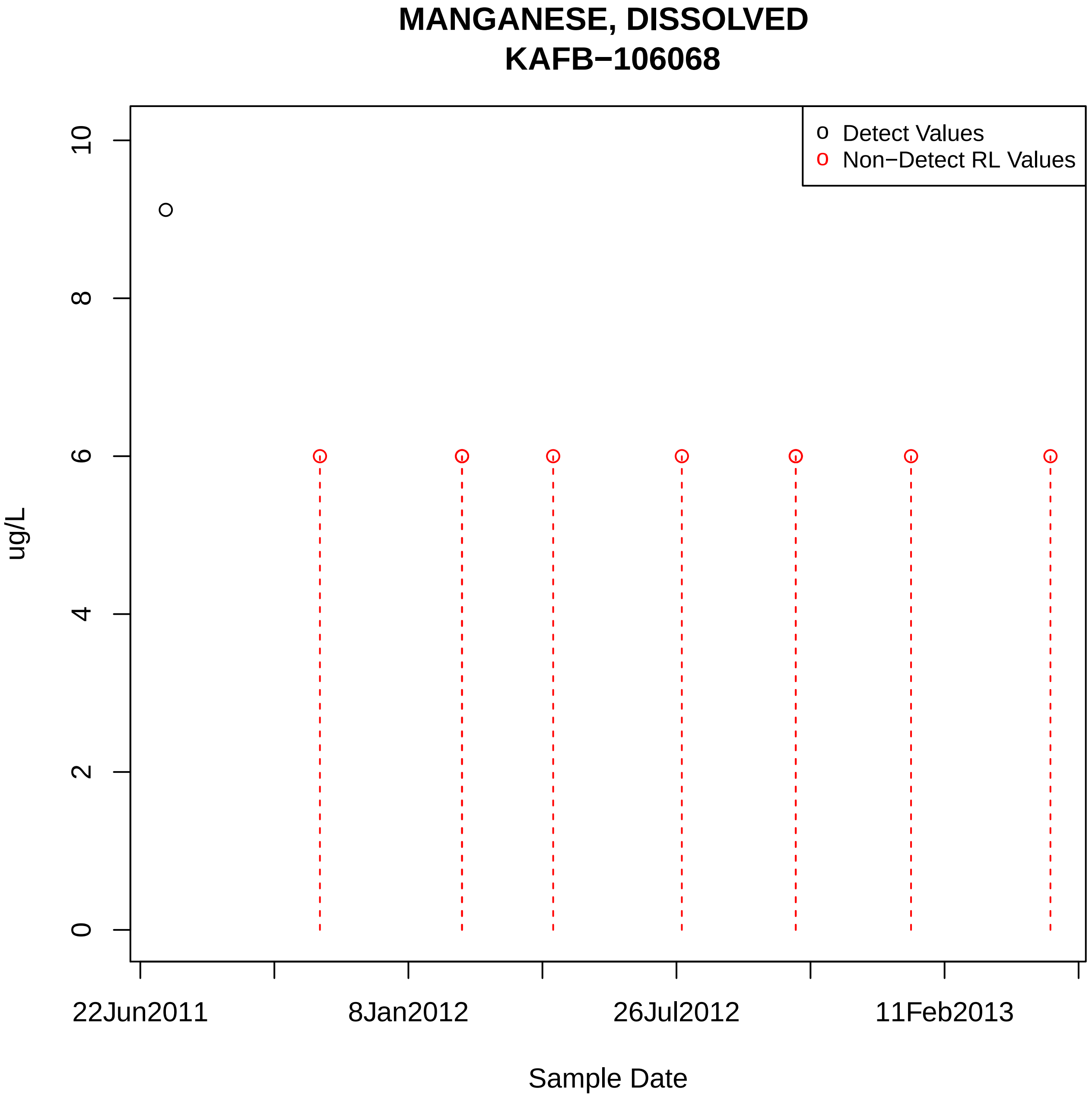


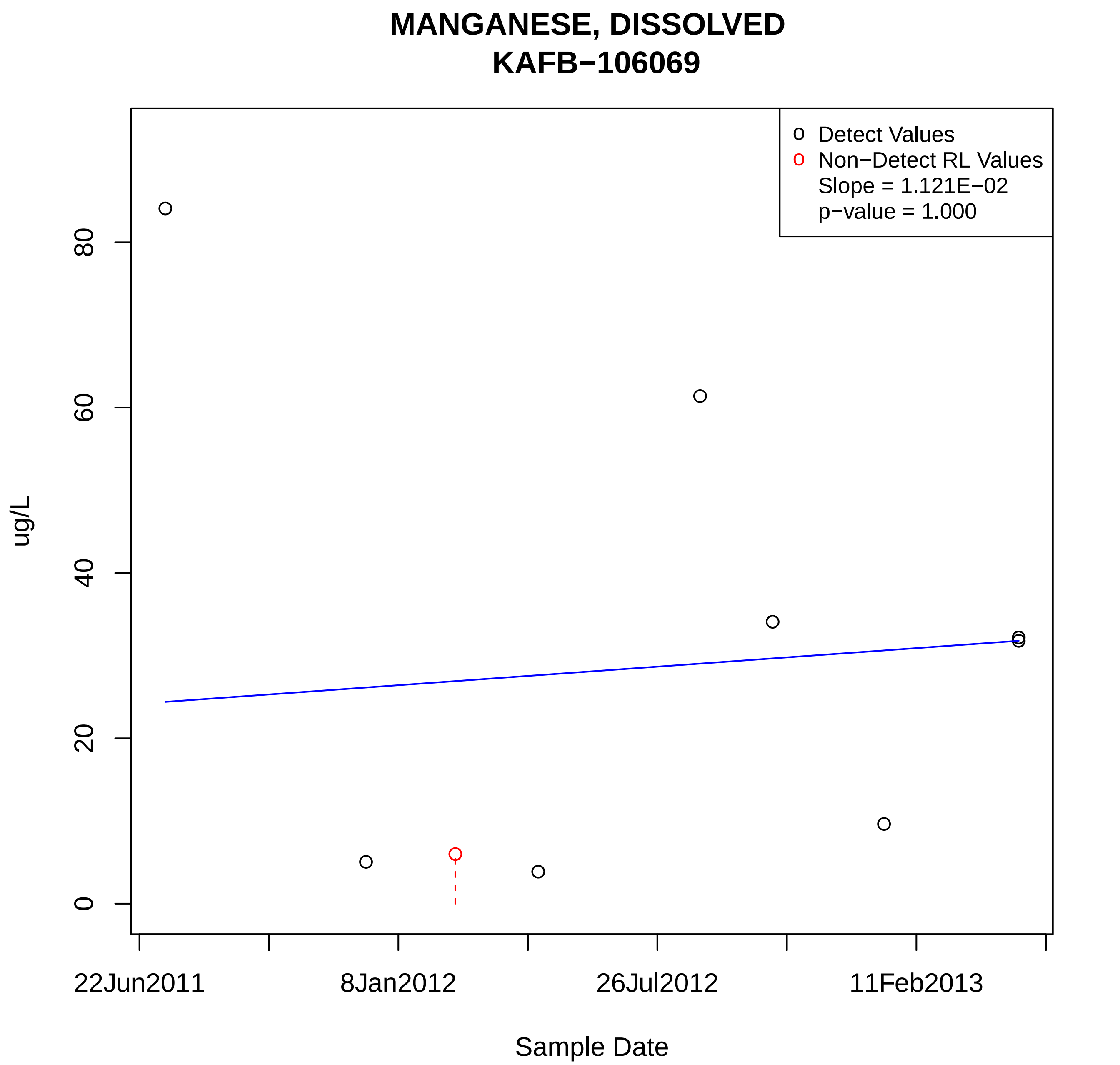
MANGANESE, DISSOLVED
KAFB−106065
o Detect Values
o Non−Detect RL Values
Slope = −2.582E+00
p−value = 0.035
ug/L
0
500
1000
1500
2000
2500
3000
3500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



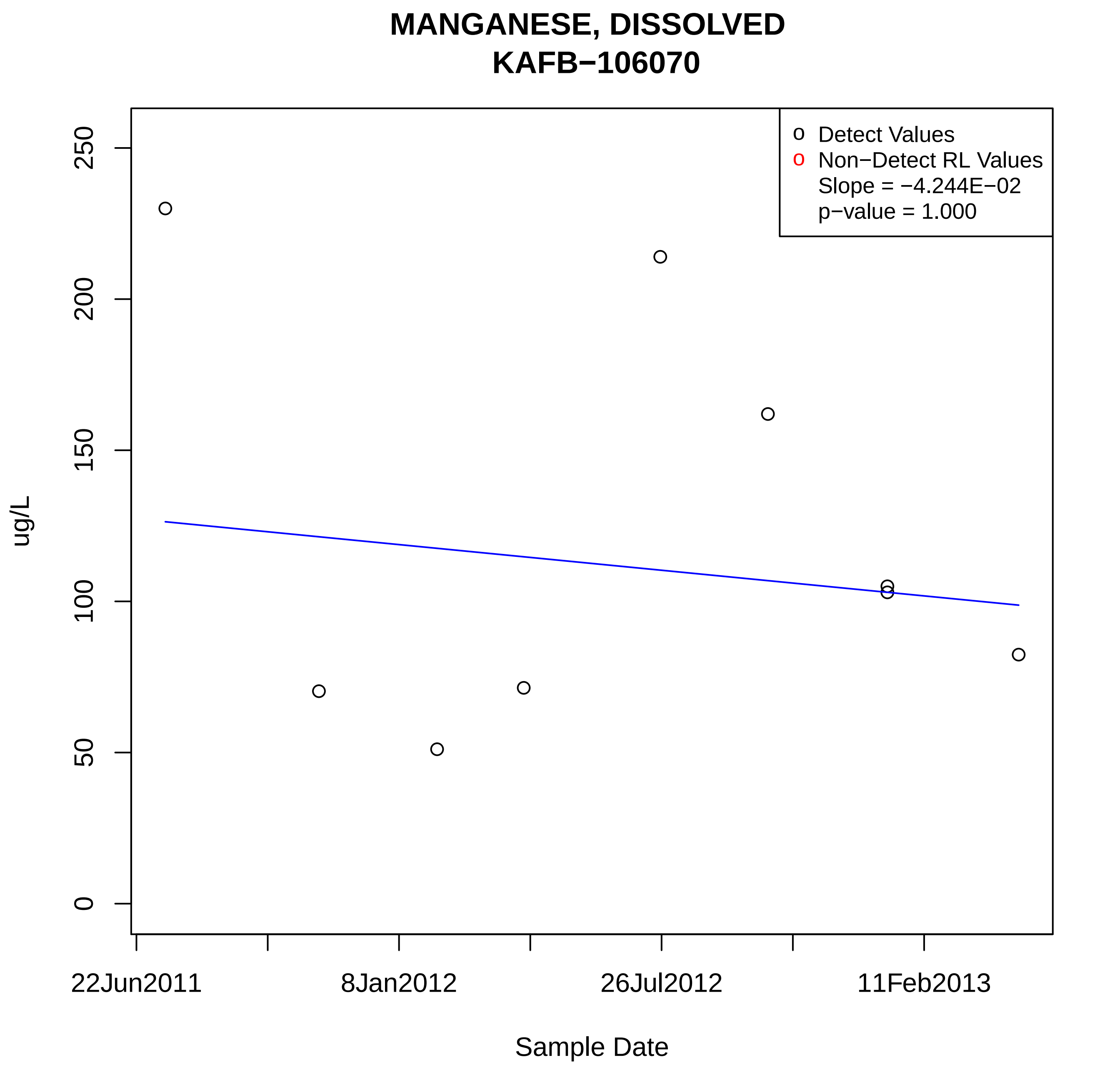
MANGANESE, DISSOLVED
KAFB−106066
o Detect Values
o Non−Detect RL Values
Slope = 5.009E−02
p−value = 0.003
ug/L
0
5
10
15
20
25
30
35
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

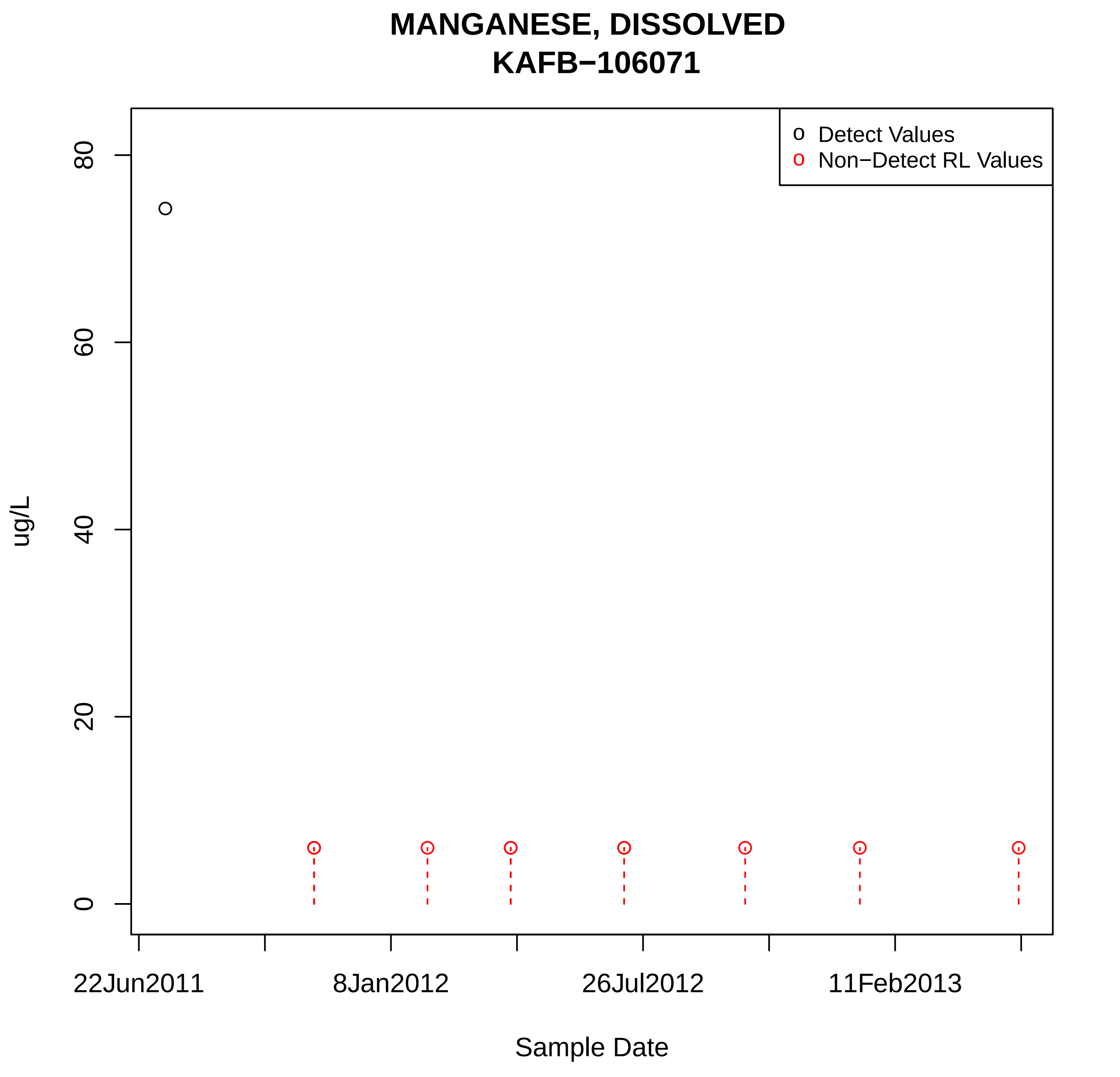

MANGANESE, DISSOLVED
KAFB−106067
ug/L
0
200
400
600
800
1000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = 3.196E−01
p−value = 1.000


MANGANESE, DISSOLVED
KAFB−106068
ug/L
0
2
4
6
8
10
Detect Values
Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

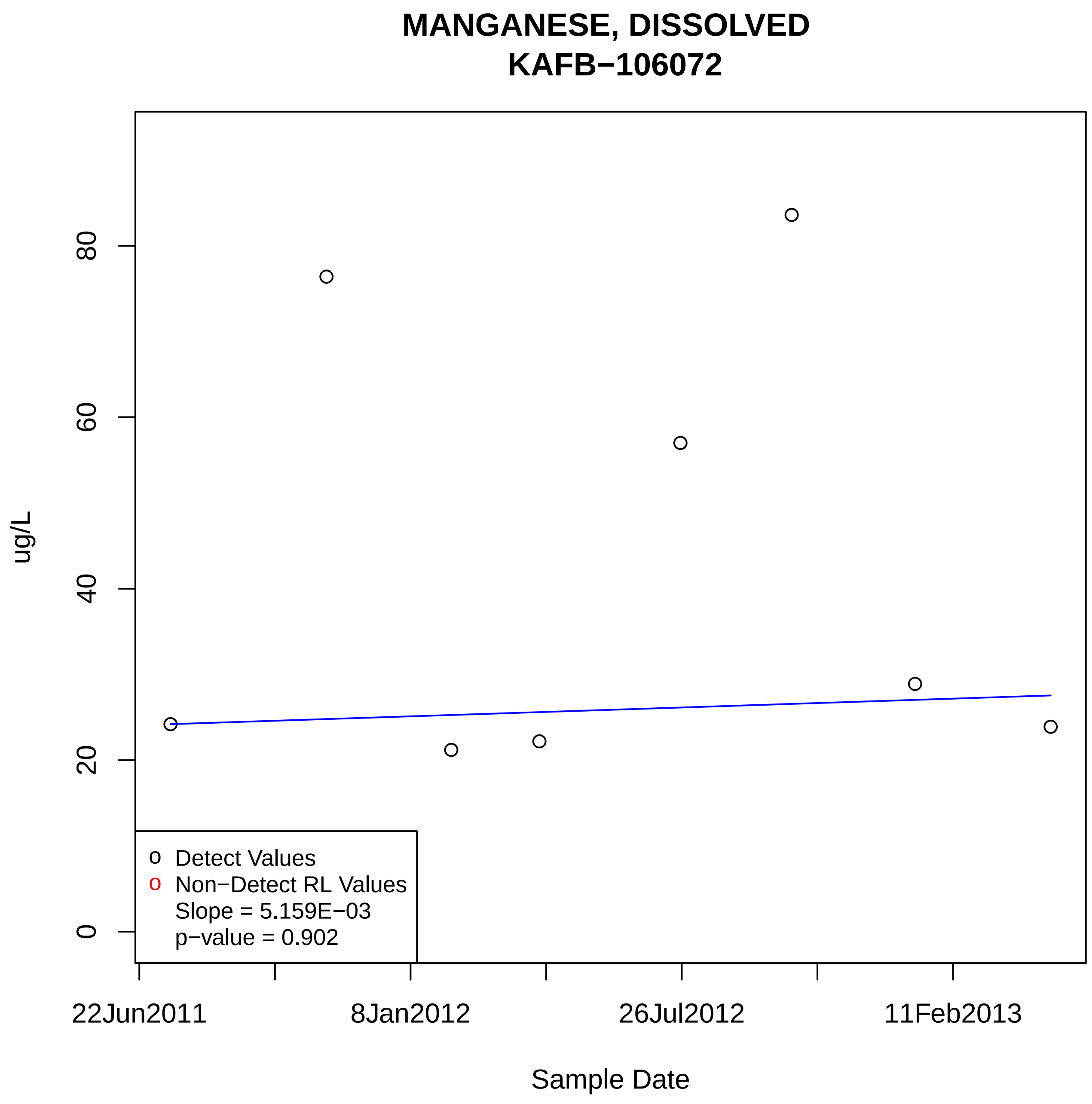


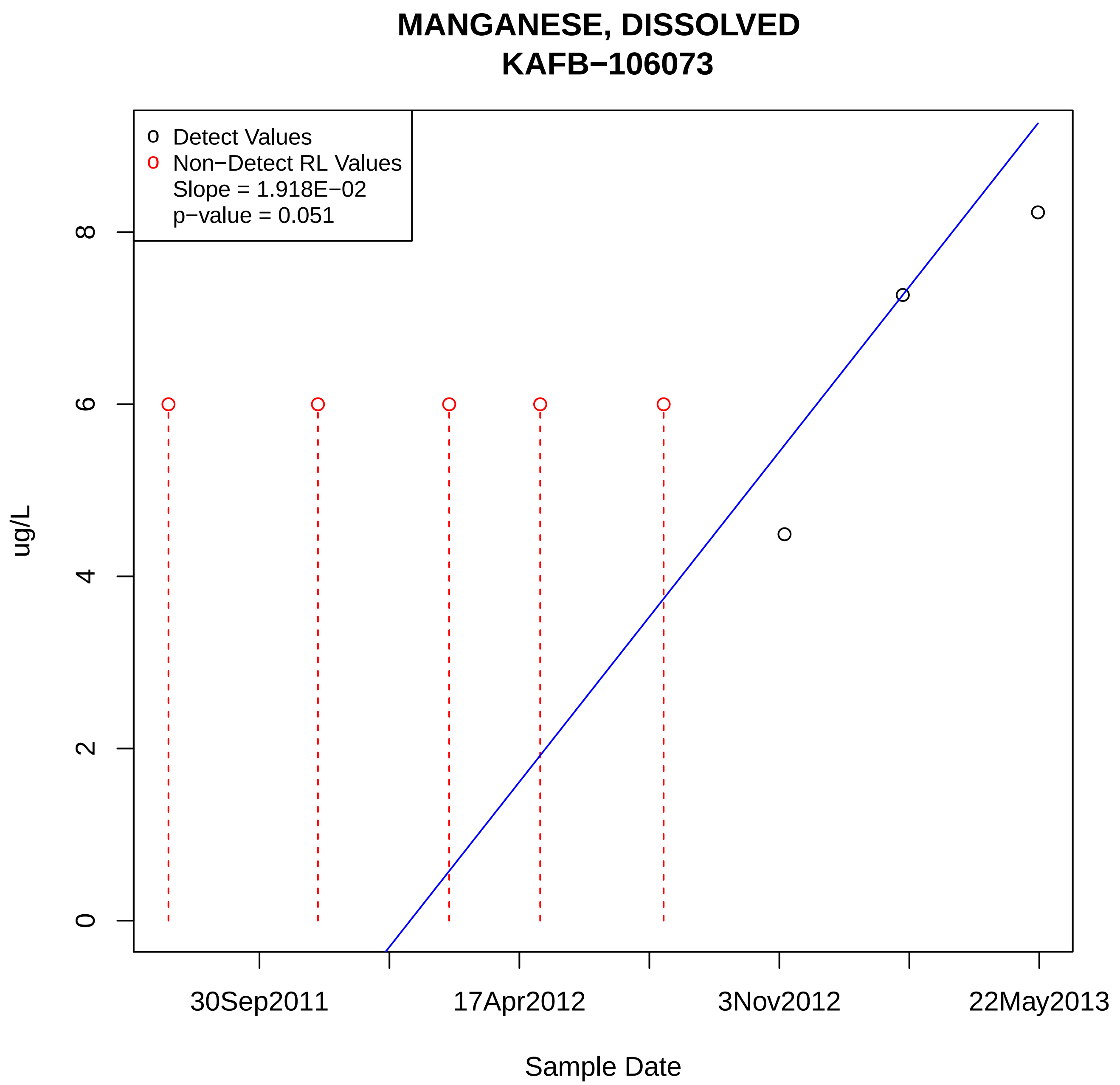
MANGANESE, DISSOLVED
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = 1.121E−02
p−value = 1.000
ug/L
0
20
40
60
80
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = −4.244E−02
p−value = 1.000
0
50
100
150
200
250
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

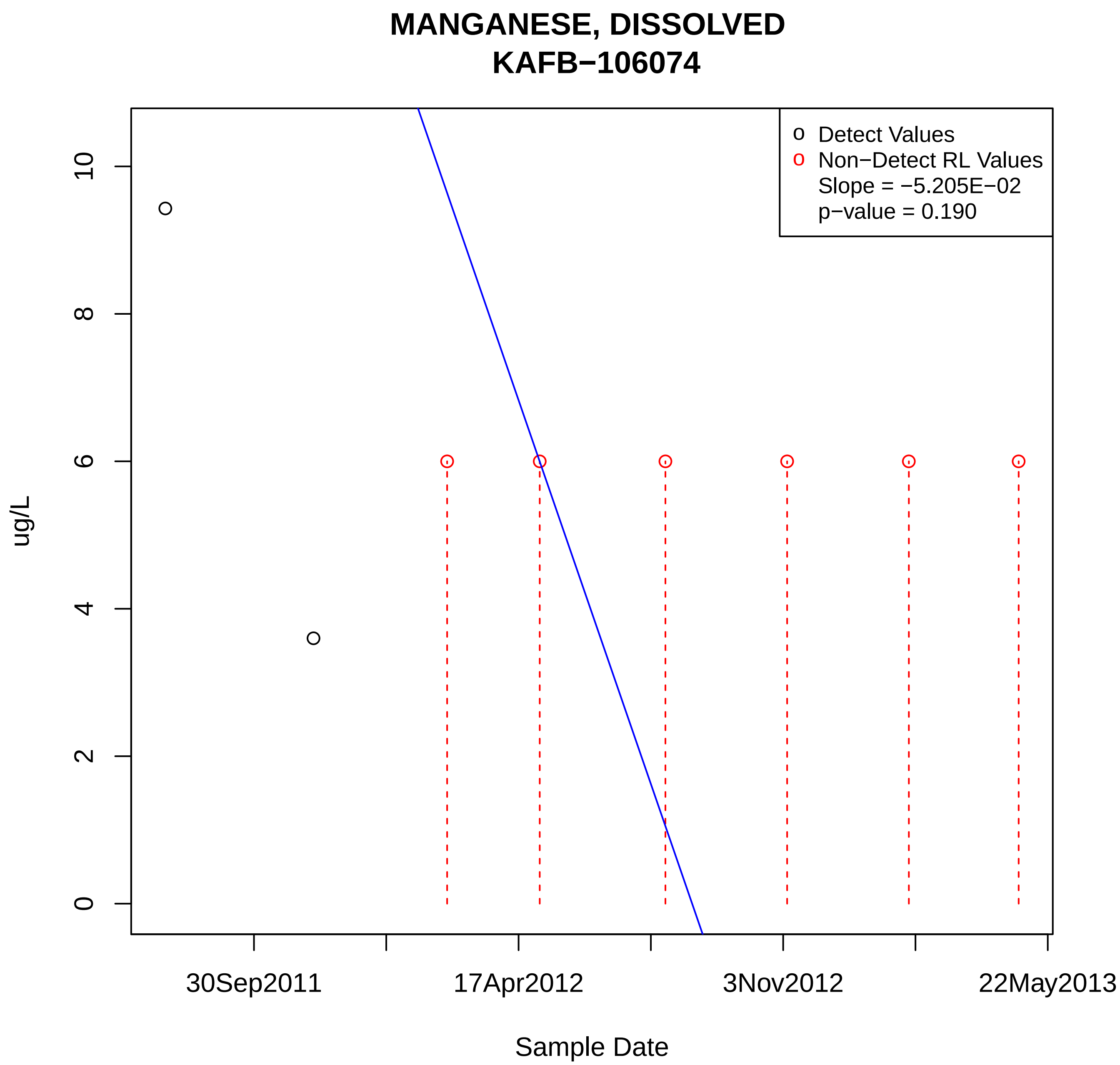


MANGANESE, DISSOLVED
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0
20
40
60
80
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

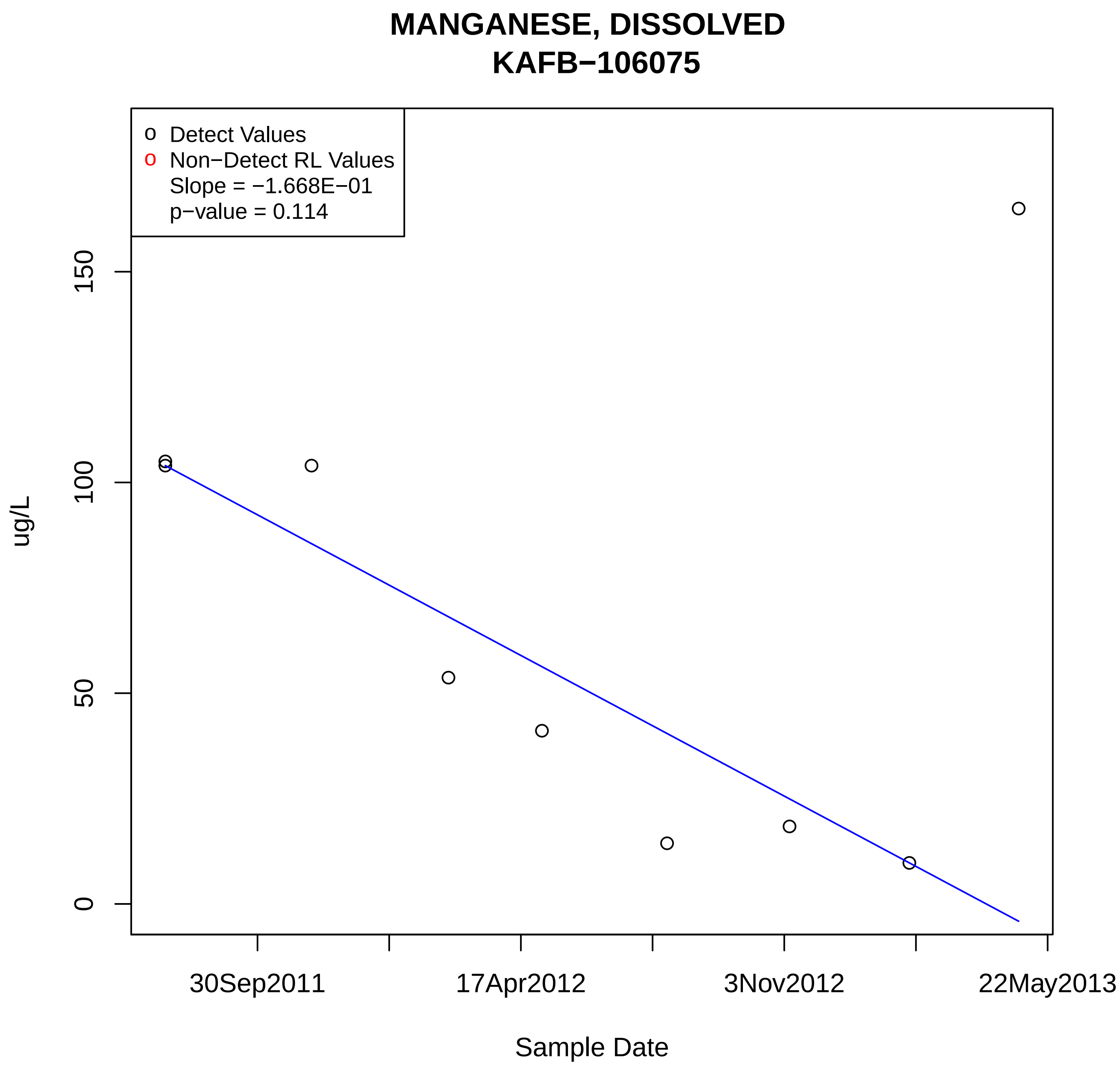

MANGANESE, DISSOLVED
KAFB−106072
ug/L
0
20
40
60
80
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 5.159E−03
p−value = 0.902

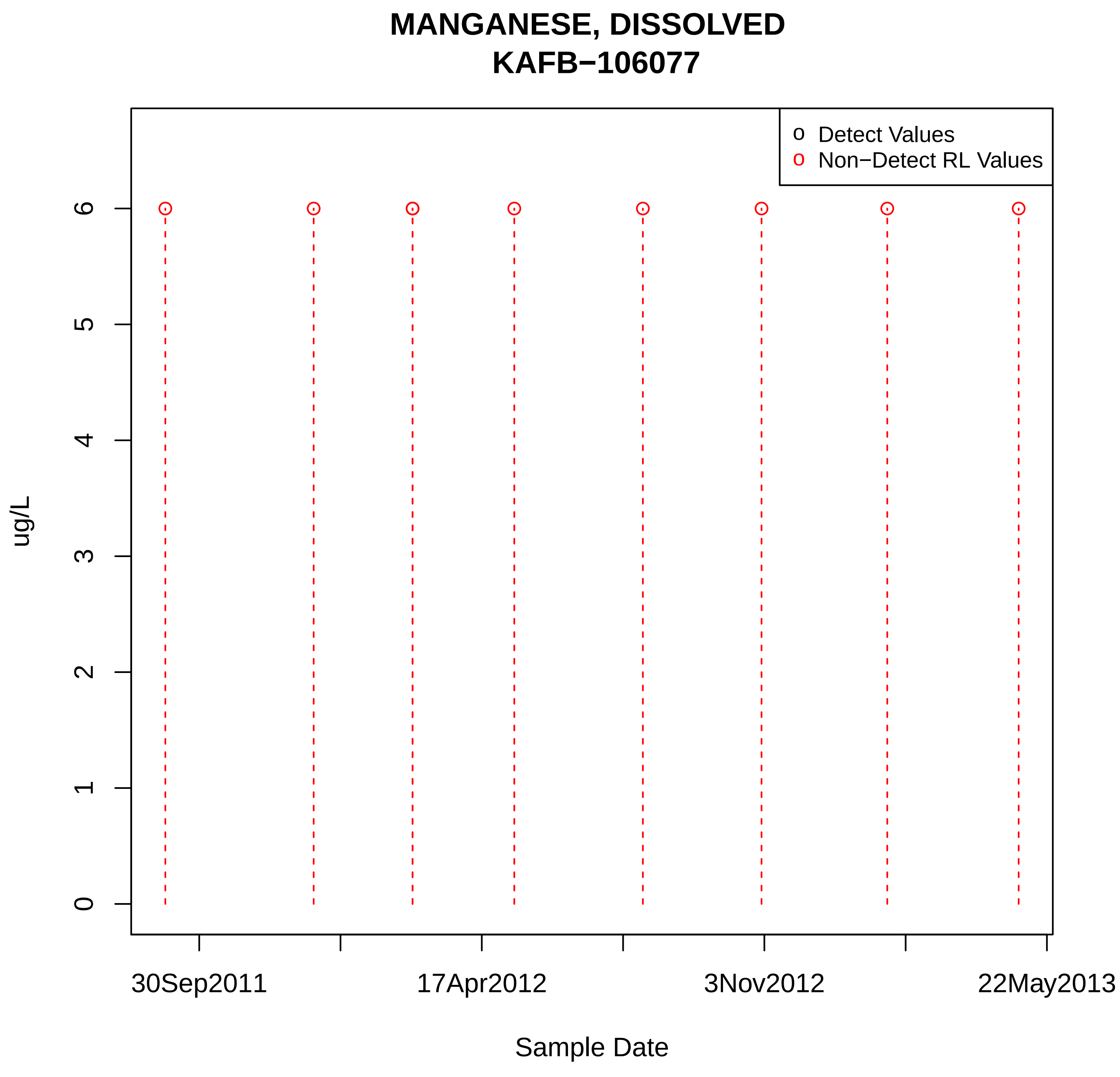


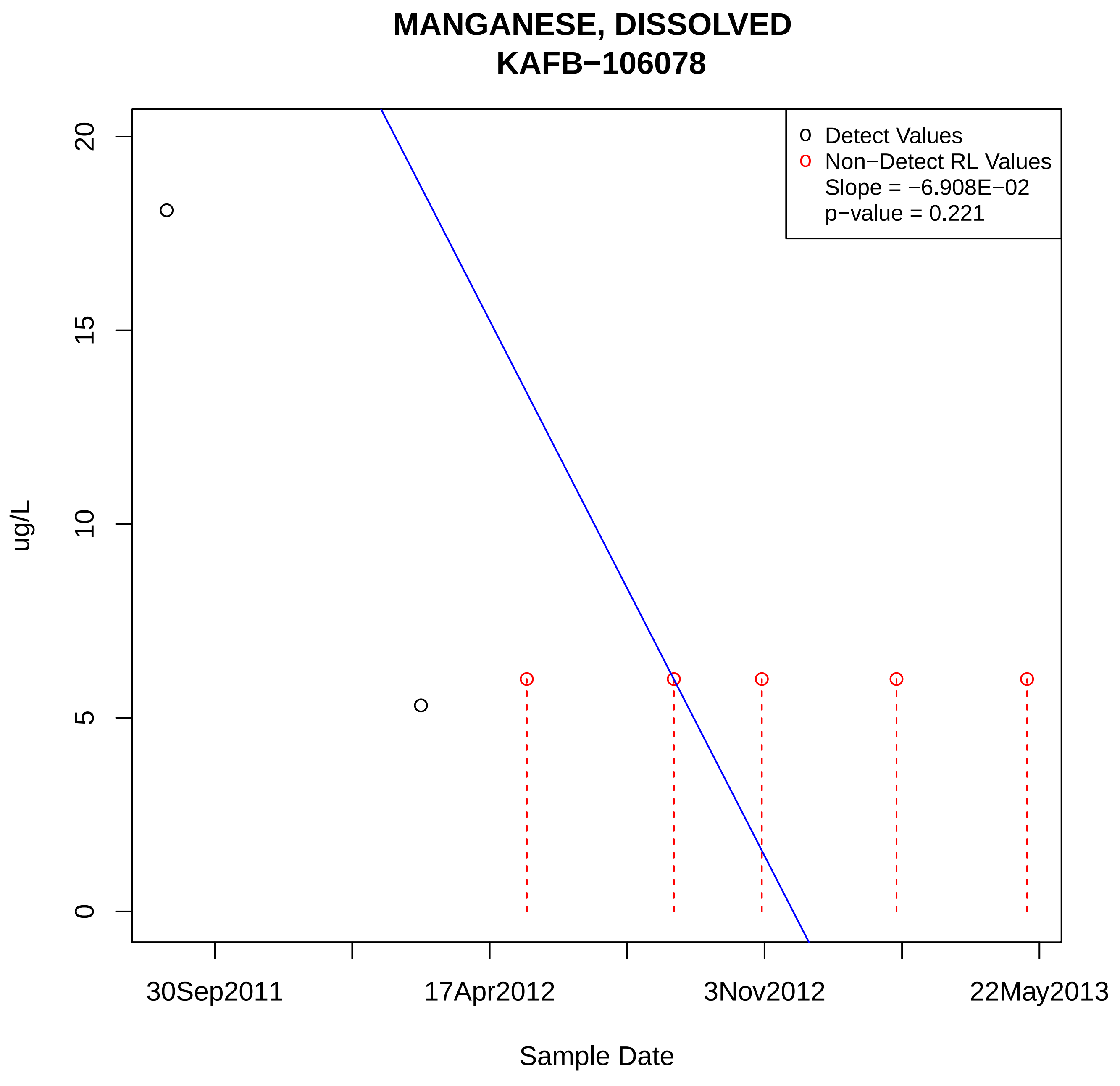
MANGANESE, DISSOLVED
KAFB−106073
o Detect Values
o Non−Detect RL Values
Slope = 1.918E−02
p−value = 0.051
ug/L
0
2
4
6
8
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

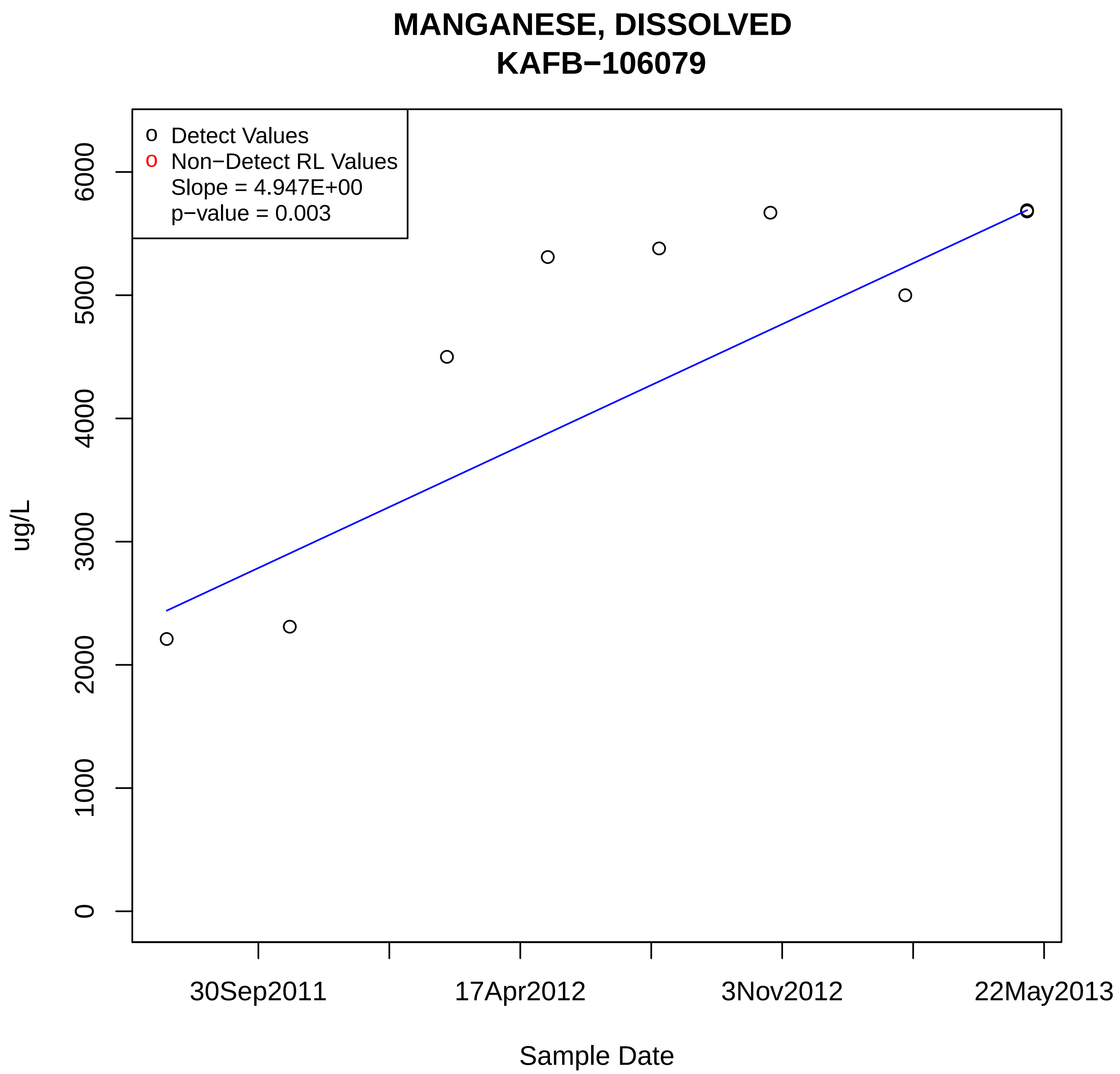


MANGANESE, DISSOLVED
KAFB−106074
Detect Values
Non−Detect RL Values
Slope = −5.205E−02
p−value = 0.190
ug/L
0
2
4
6
8
10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

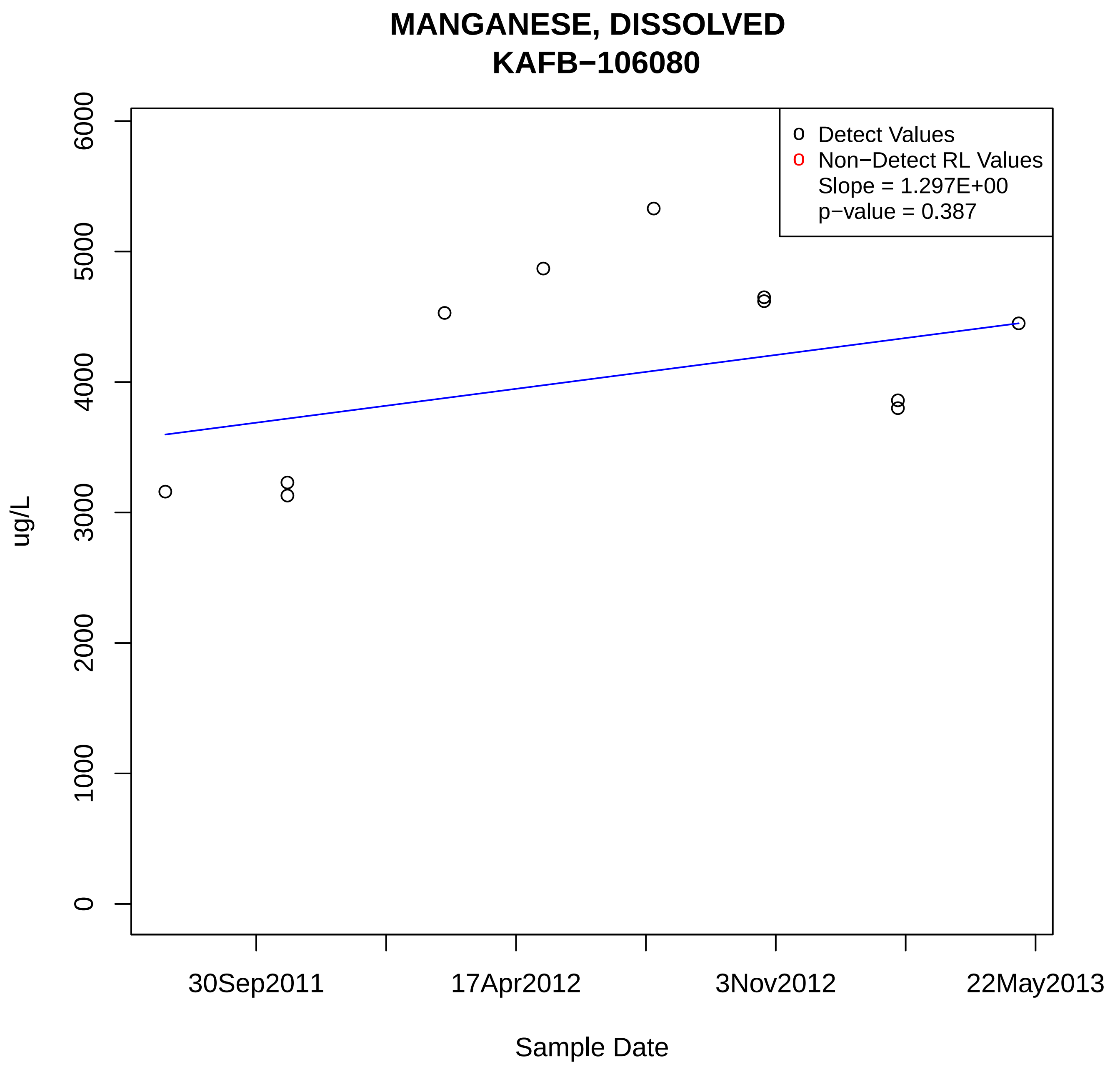

MANGANESE, DISSOLVED
KAFB−106075
o Detect Values
o Non−Detect RL Values
Slope = −1.668E−01
p−value = 0.114
ug/L
0
50
100
150
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

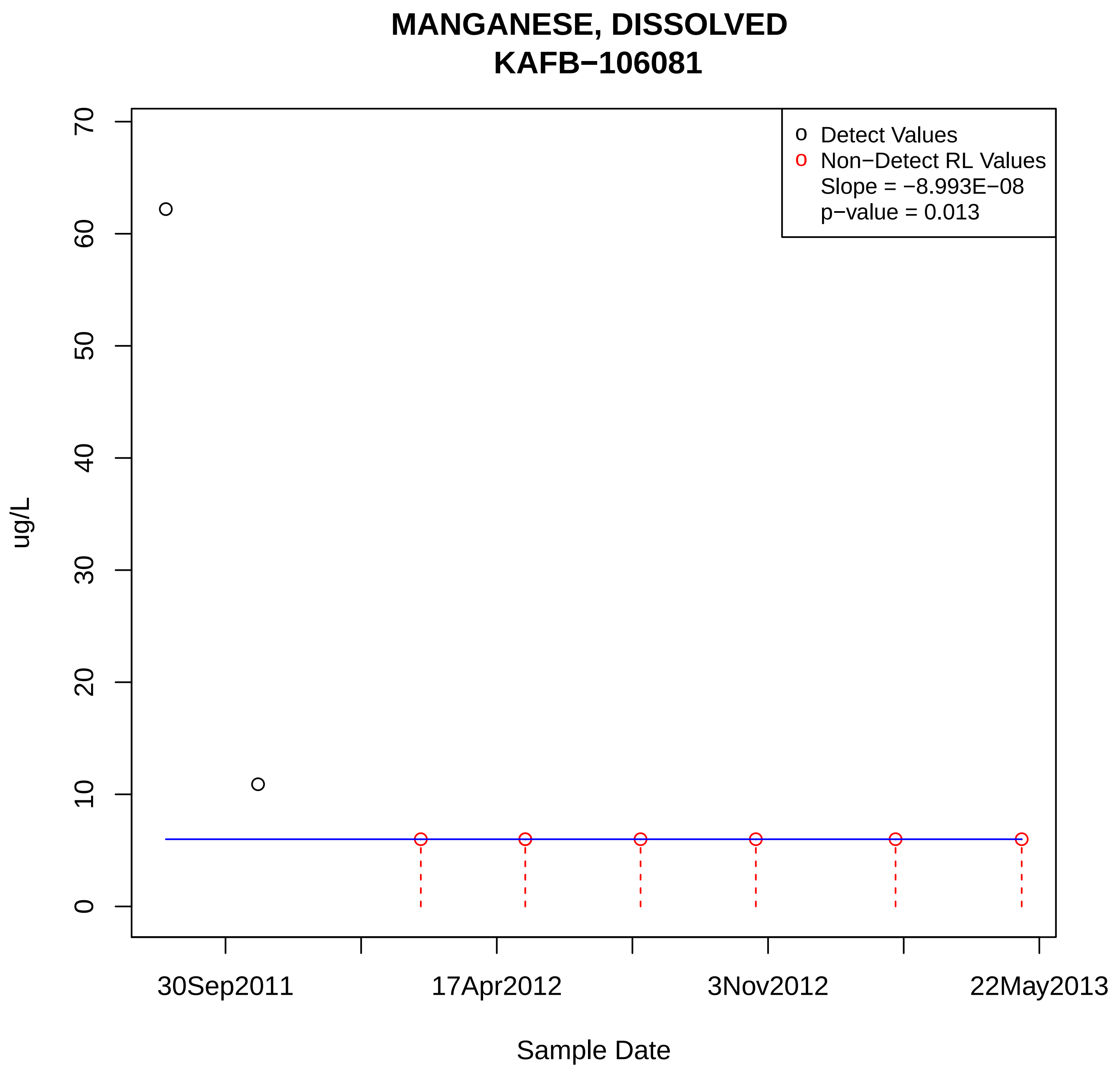

MANGANESE, DISSOLVED
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

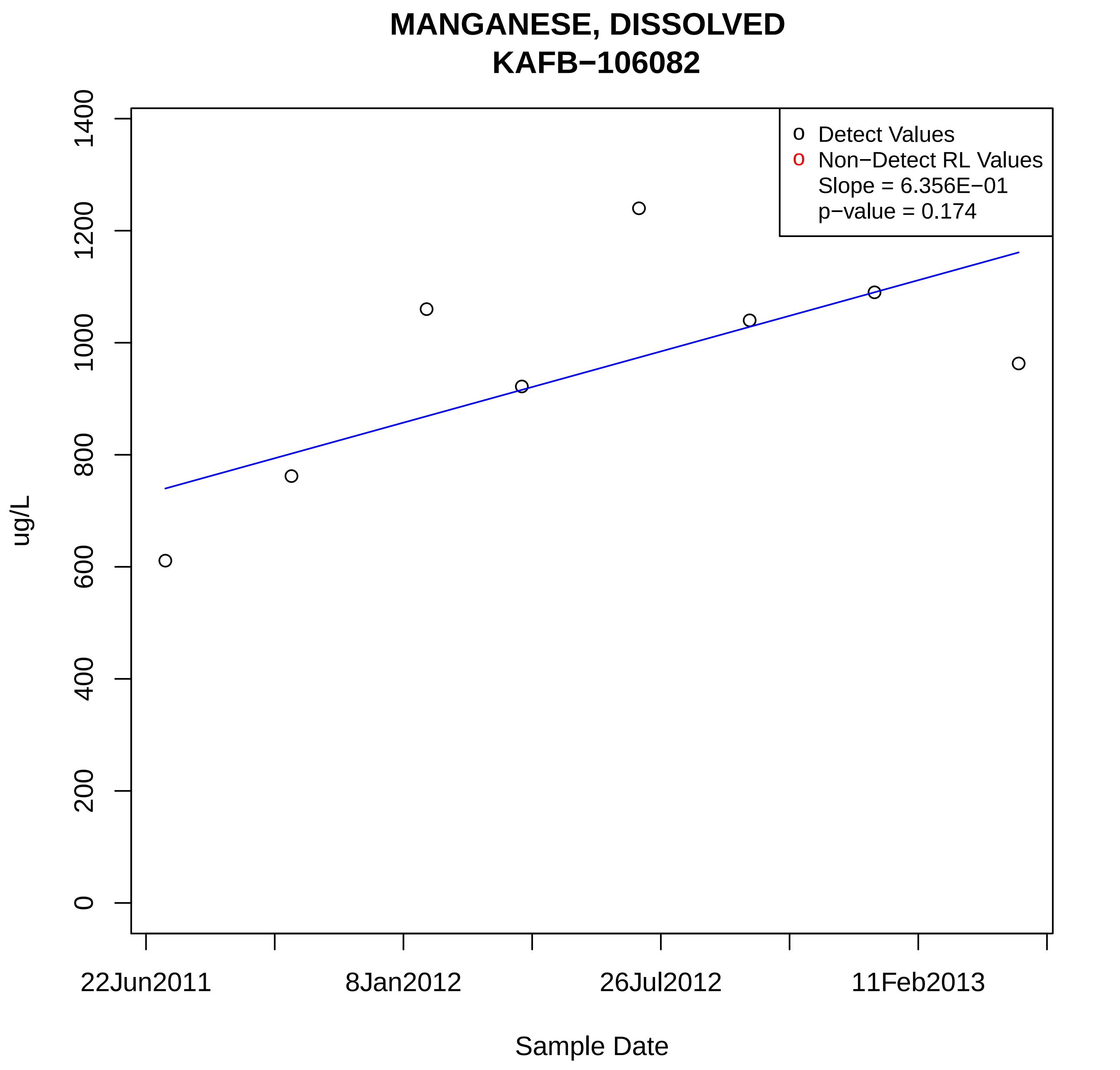

MANGANESE, DISSOLVED
KAFB−106078
Detect Values
Non−Detect RL Values
Slope = −6.908E−02
p−value = 0.221
ug/L
0
5
10
15
20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



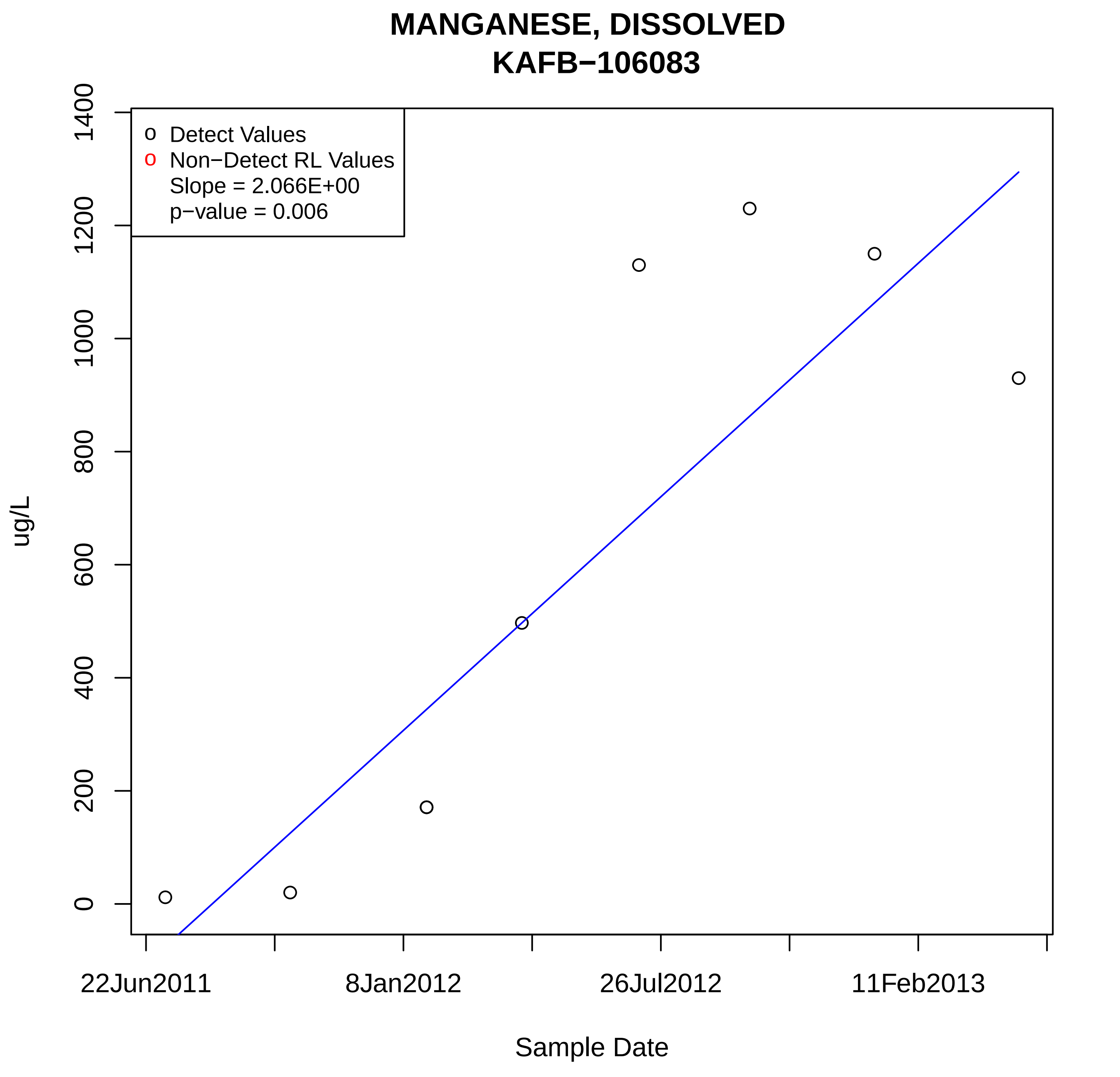
MANGANESE, DISSOLVED
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = 4.947E+00
p−value = 0.003
ug/L
0
1000
2000
3000
4000
5000
6000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

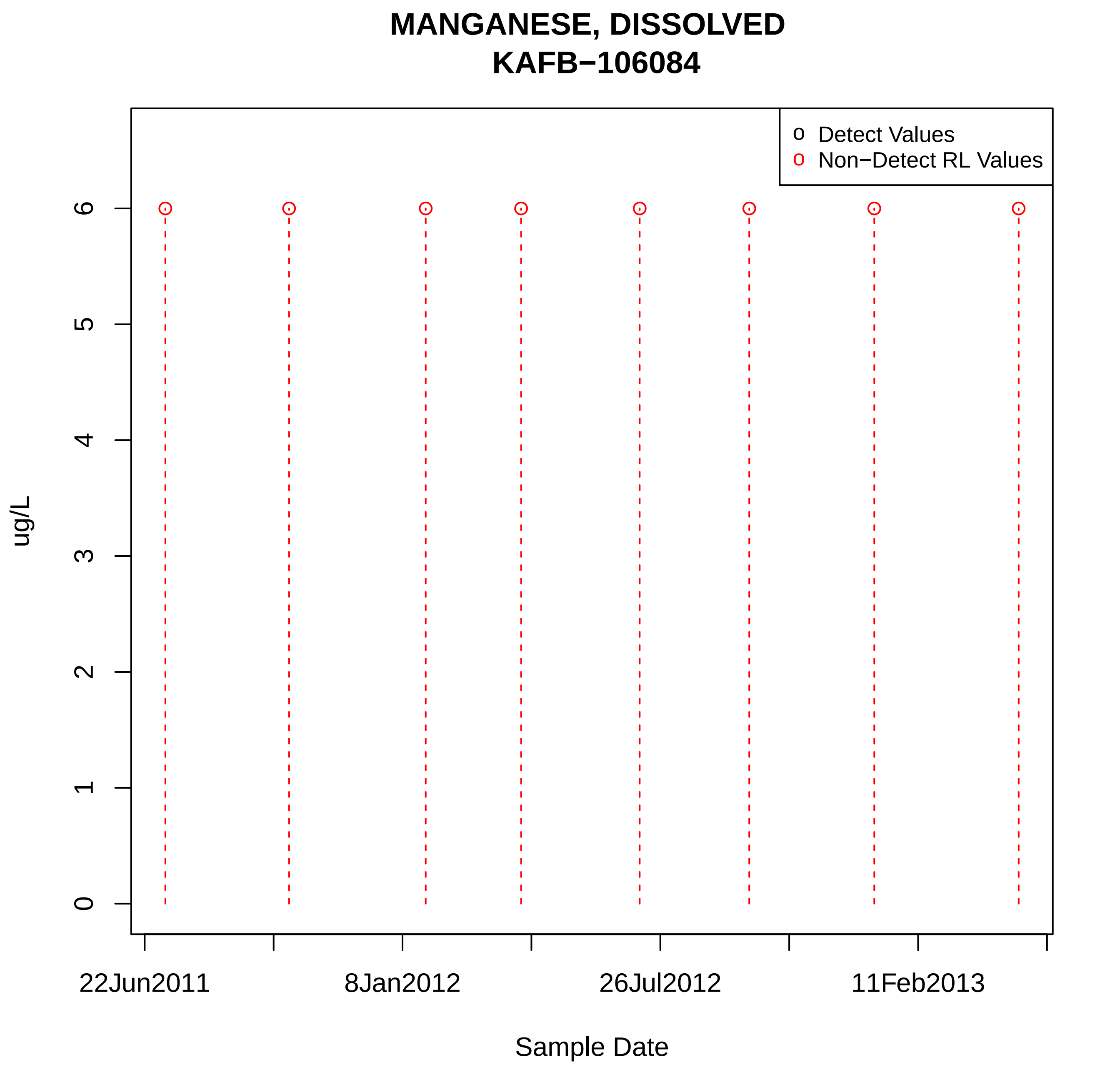

MANGANESE, DISSOLVED
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = 1.297E+00
p−value = 0.387
ug/L
0
1000
2000
3000
4000
5000
6000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

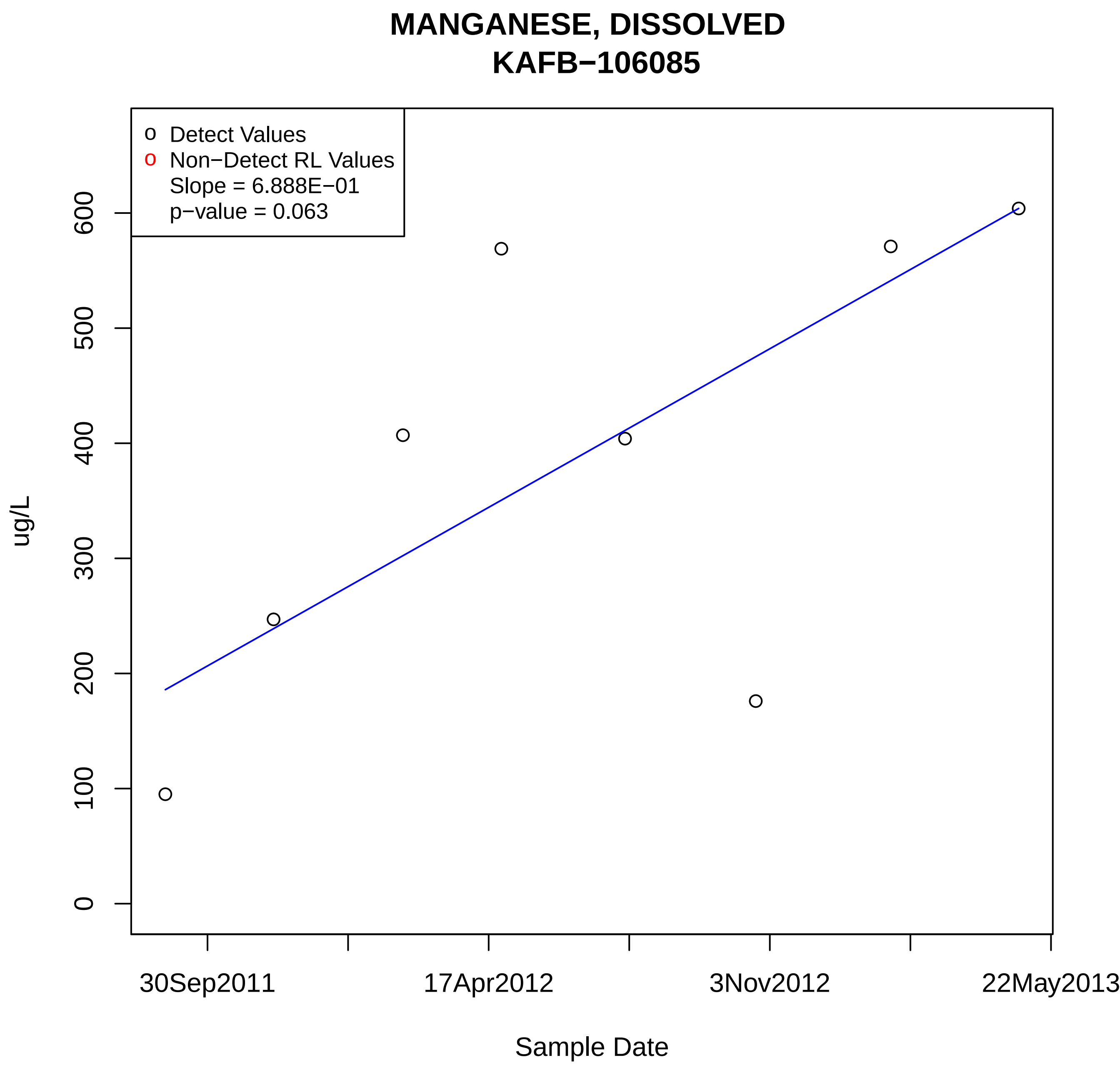

MANGANESE, DISSOLVED
KAFB−106081
Detect Values
Non−Detect RL Values
Slope = −8.993E−08
p−value = 0.013
ug/L
0
10
20
30
40
50
60
70
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

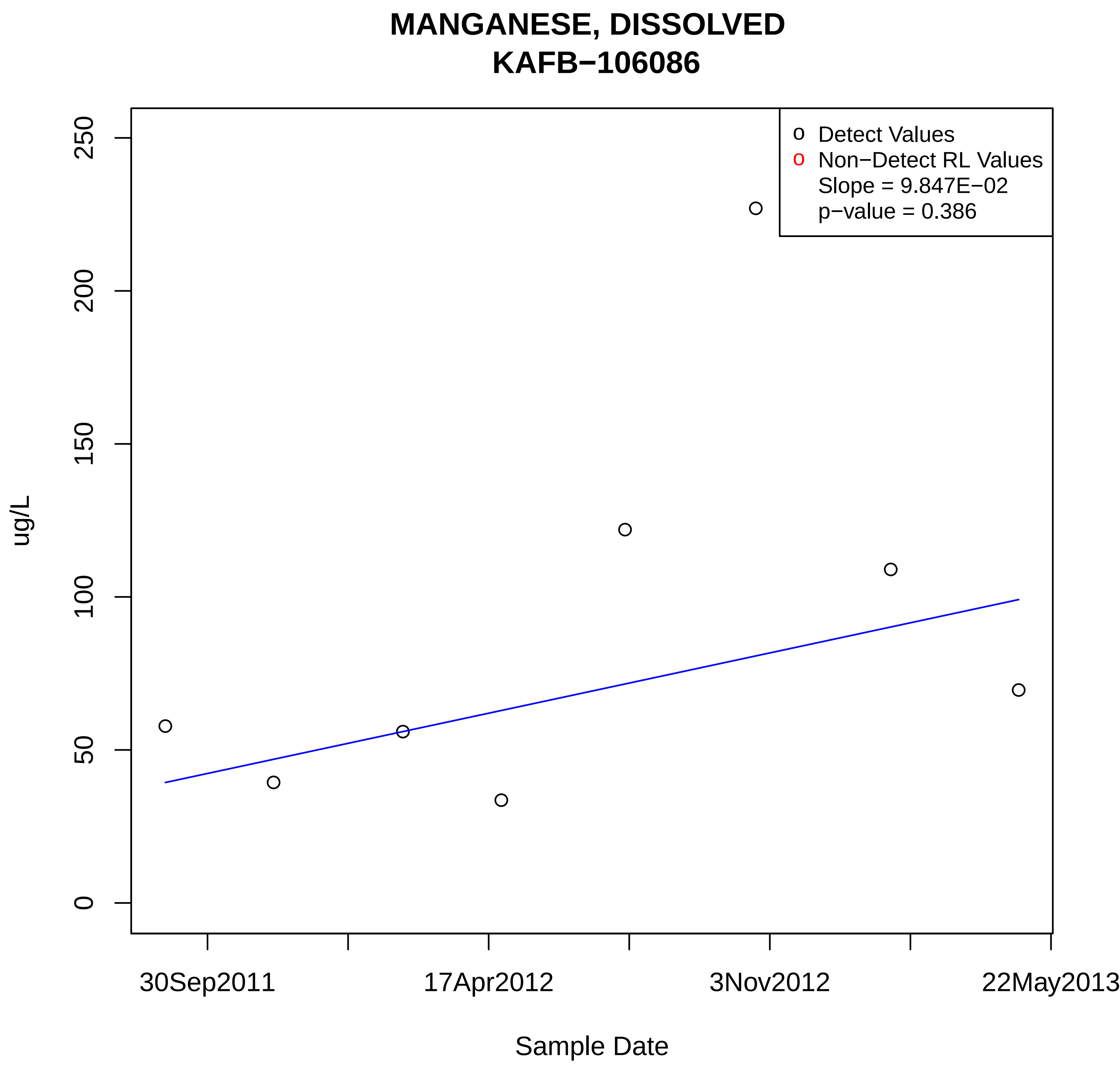


MANGANESE, DISSOLVED
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = 6.356E−01
p−value = 0.174
ug/L
0
200
400
600
800
1000
1200
1400
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

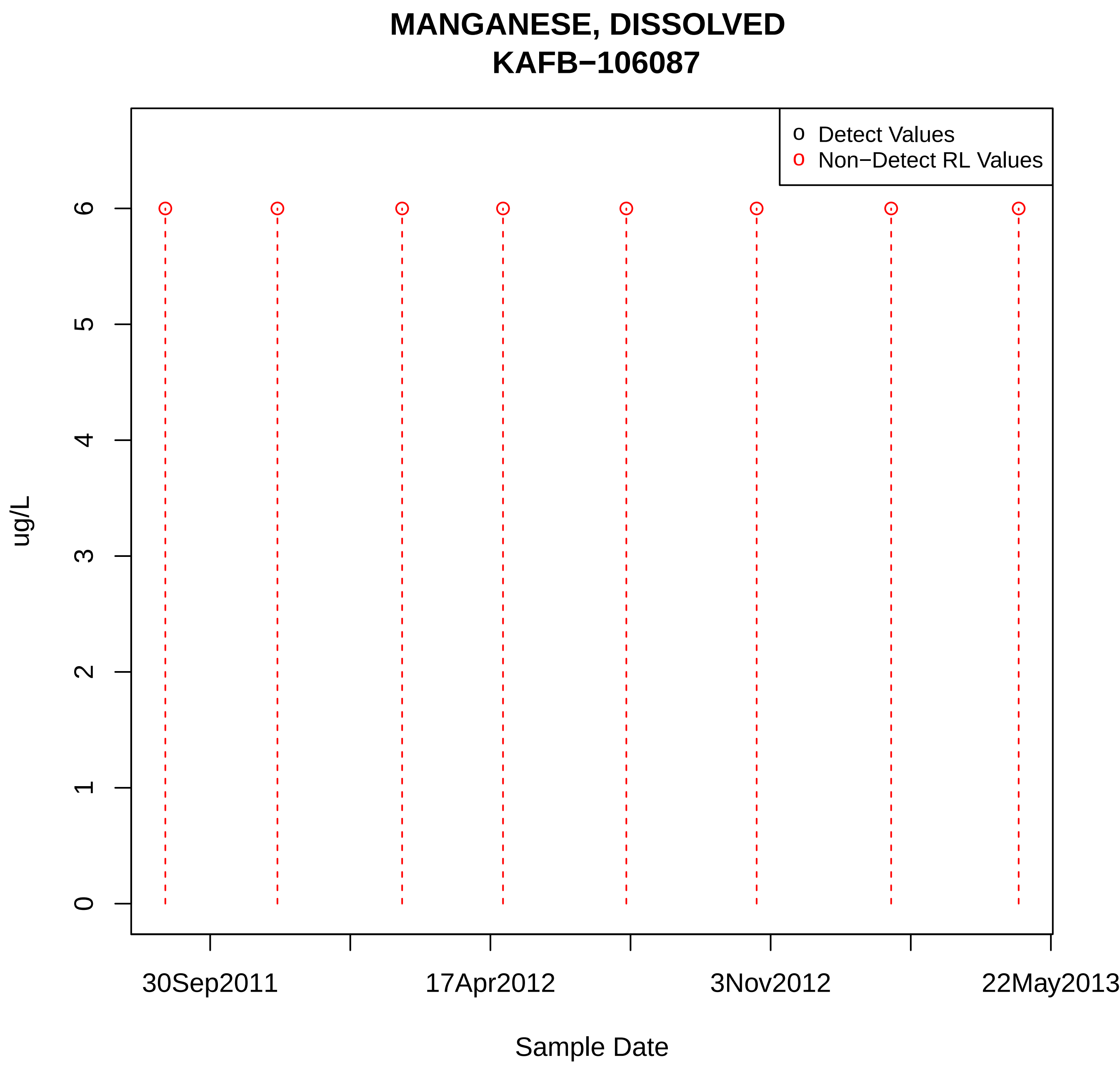

MANGANESE, DISSOLVED
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 2.066E+00
p−value = 0.006
ug/L
0
200
400
600
800
1000
1200
1400
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

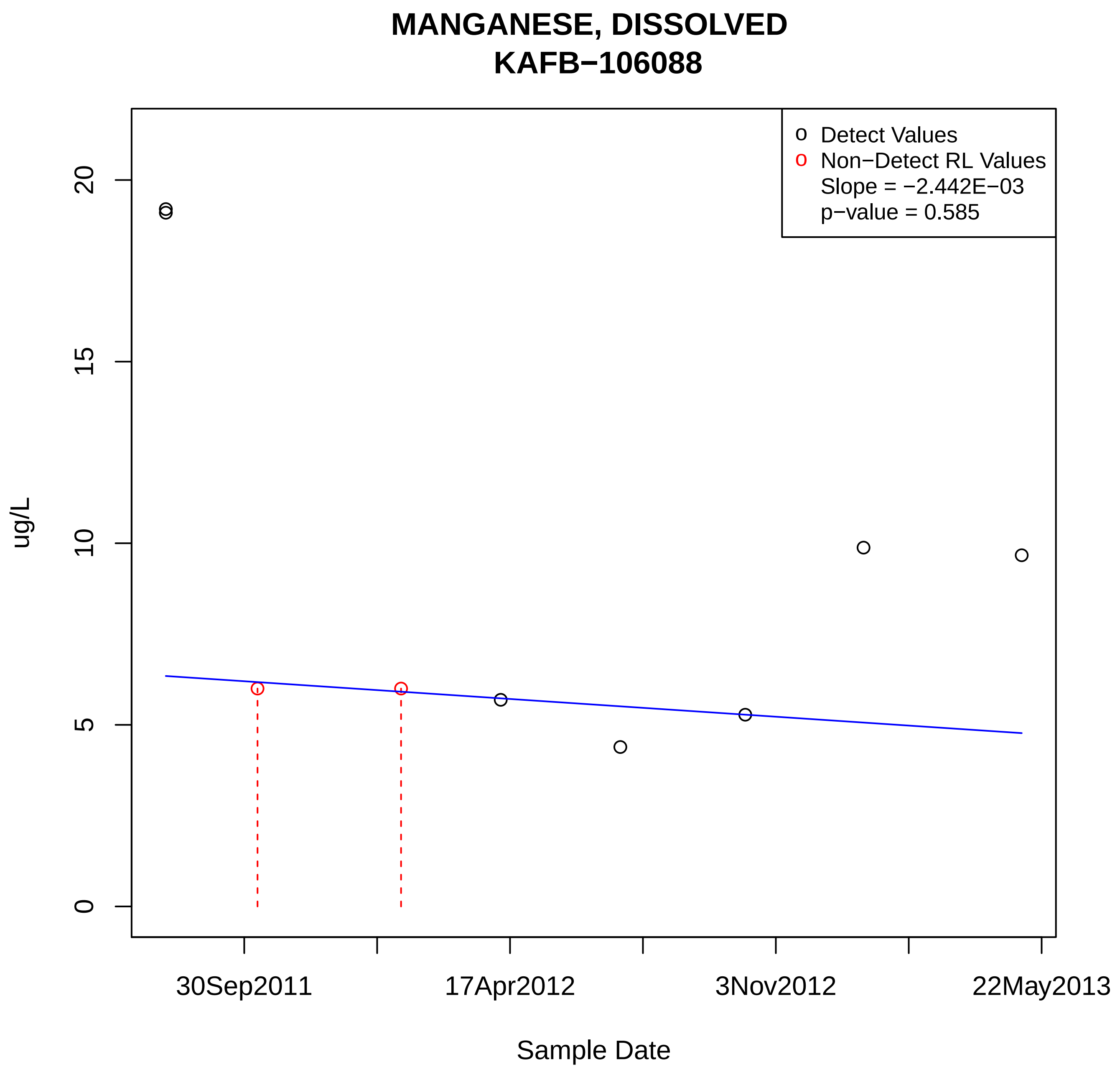

MANGANESE, DISSOLVED
KAFB−106085
Detect Values
Non−Detect RL Values
Slope = 6.888E−01
p−value = 0.063
ug/L
0
100
200
300
400
500
600
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

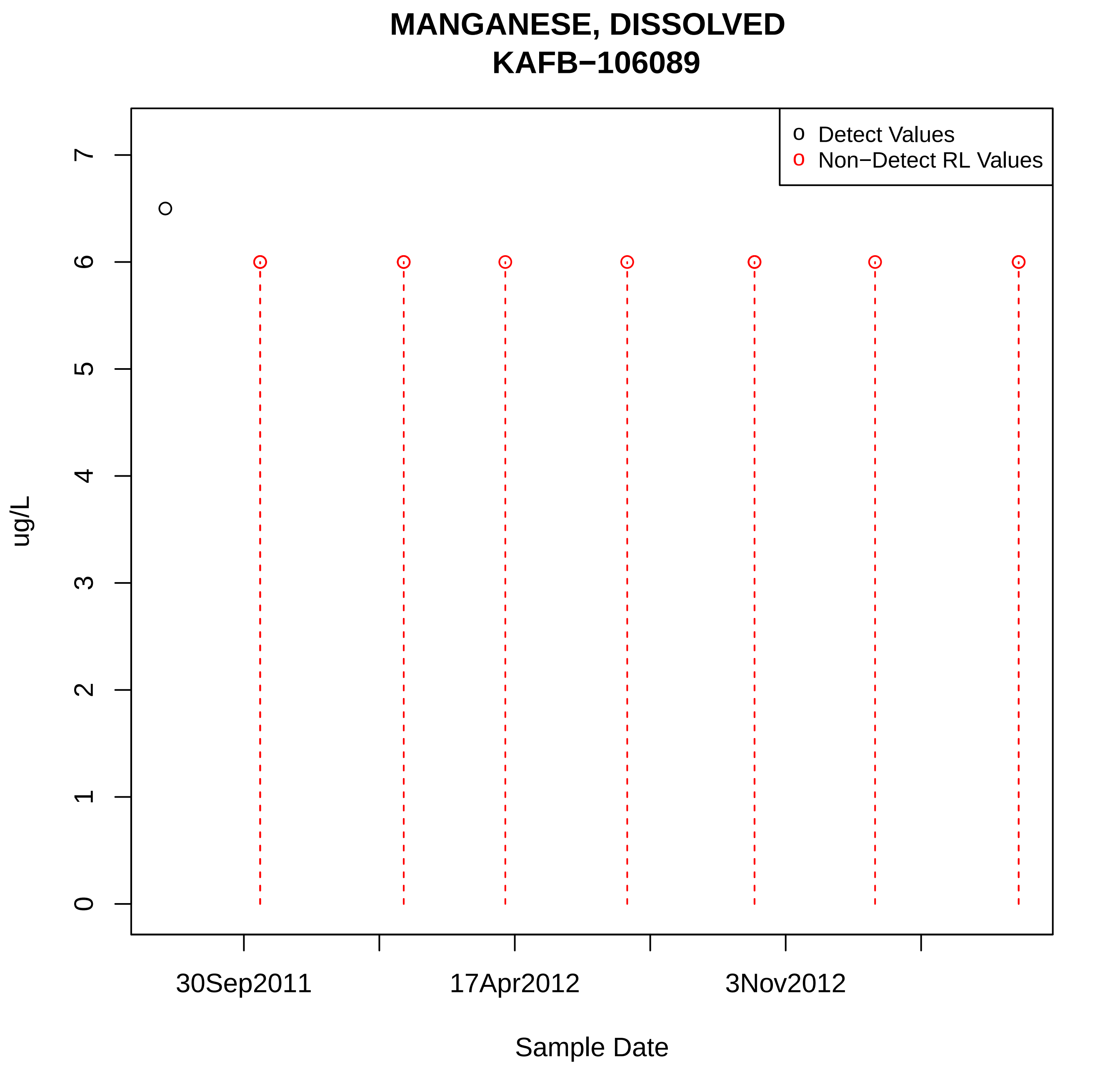


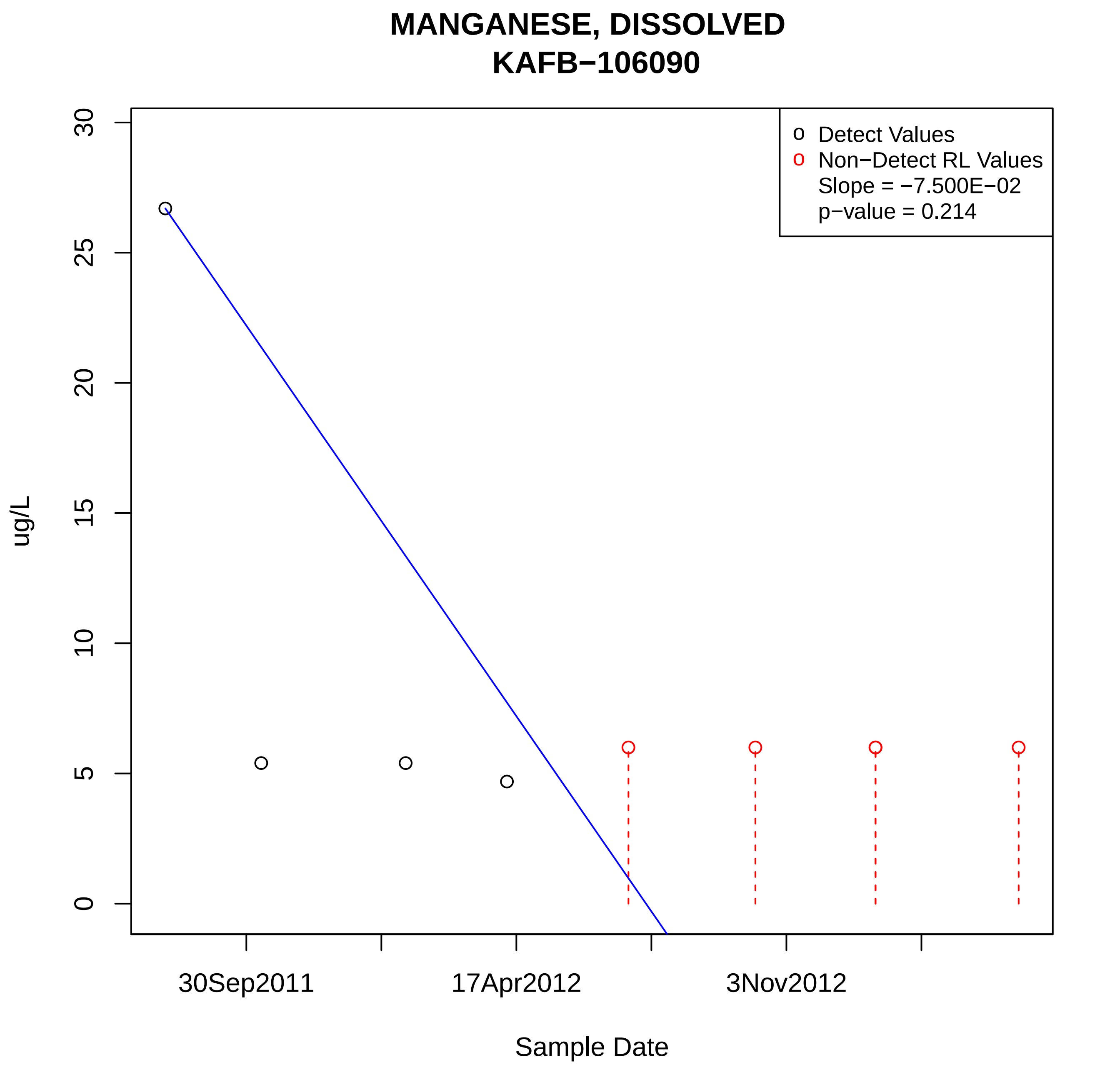
MANGANESE, DISSOLVED
KAFB−106086
o Detect Values
o Non−Detect RL Values
Slope = 9.847E−02
p−value = 0.386
ug/L
0
50
100
150
200
250
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

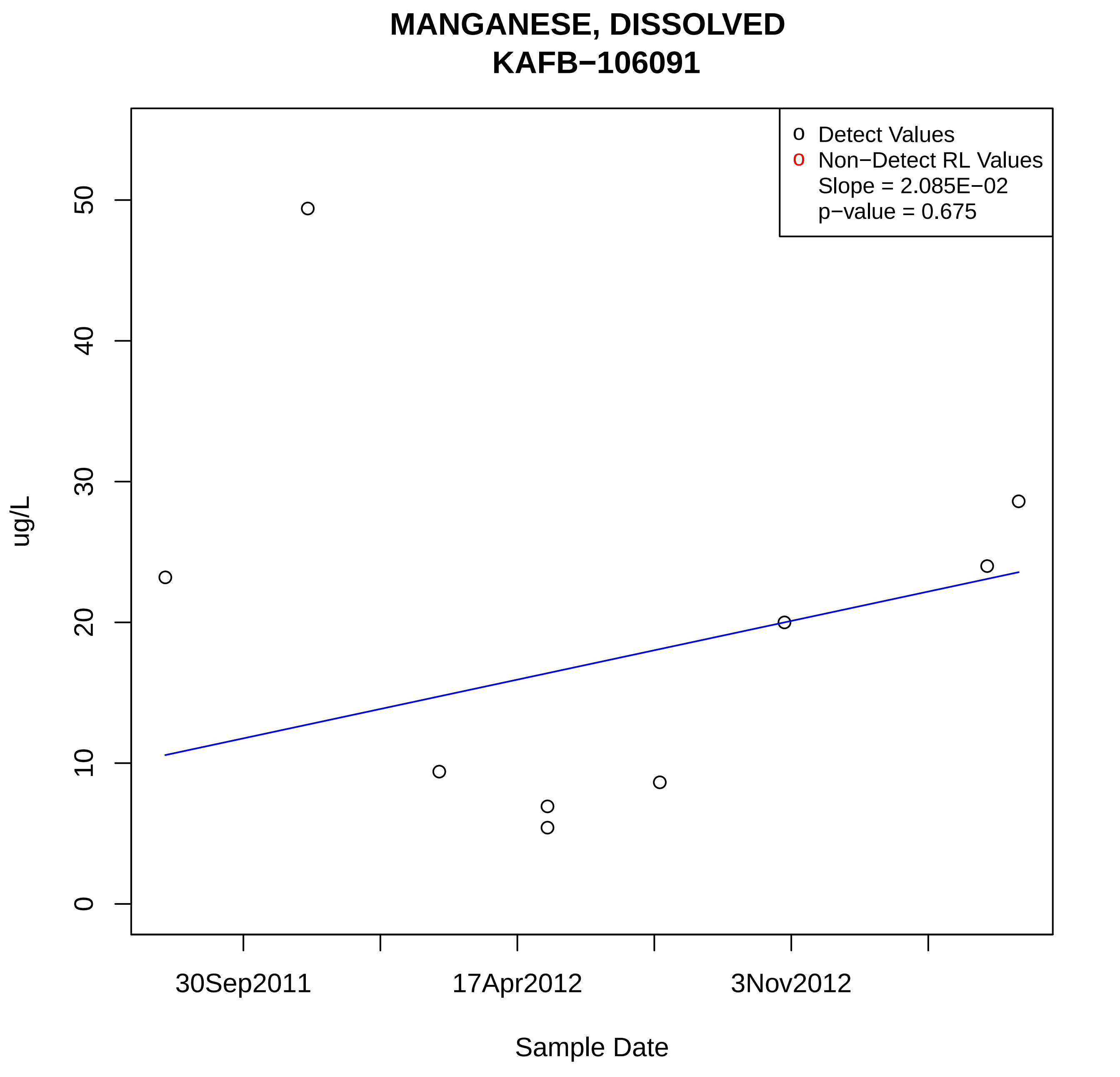


MANGANESE, DISSOLVED
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

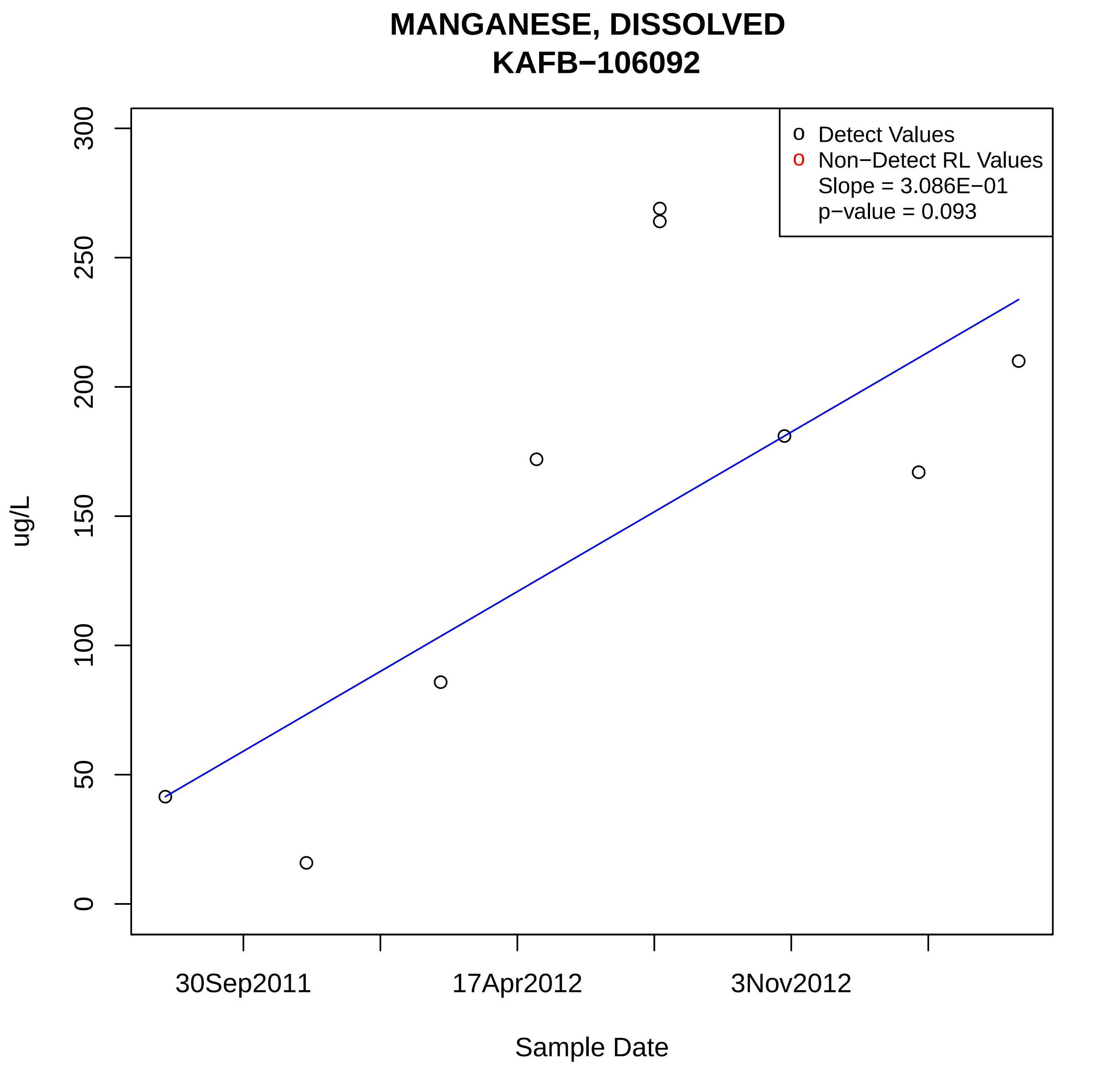

MANGANESE, DISSOLVED
KAFB−106088
Detect Values
Non−Detect RL Values
Slope = −2.442E−03
p−value = 0.585
ug/L
0
5
10
15
20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106089
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
7
30Sep2011
17Apr2012
3Nov2012
Sample Date

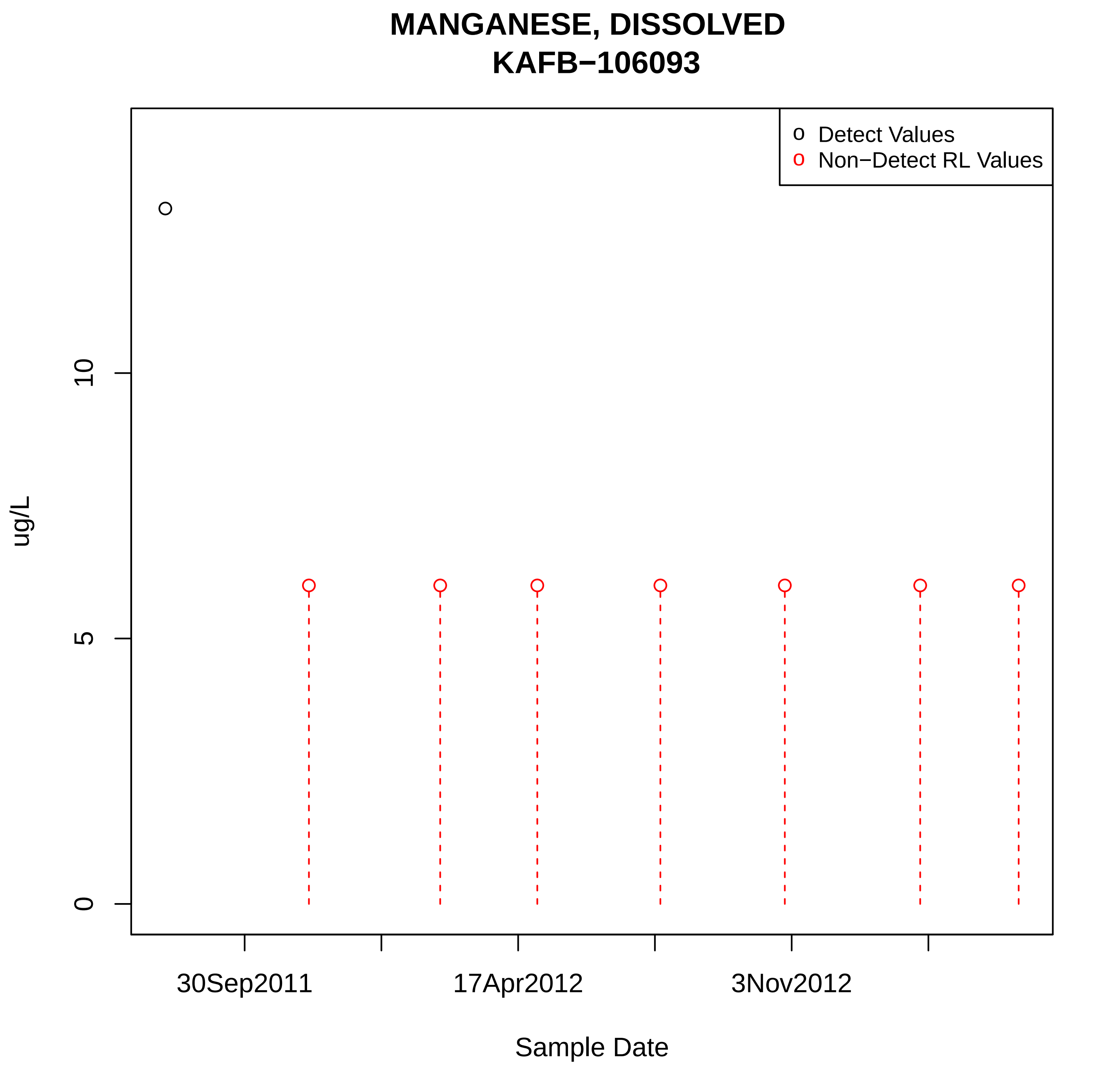

MANGANESE, DISSOLVED
KAFB−106090
o Detect Values
o Non−Detect RL Values
Slope = −7.500E−02
p−value = 0.214
ug/L
0
5
10
15
20
25
30
30Sep2011
17Apr2012
3Nov2012
Sample Date



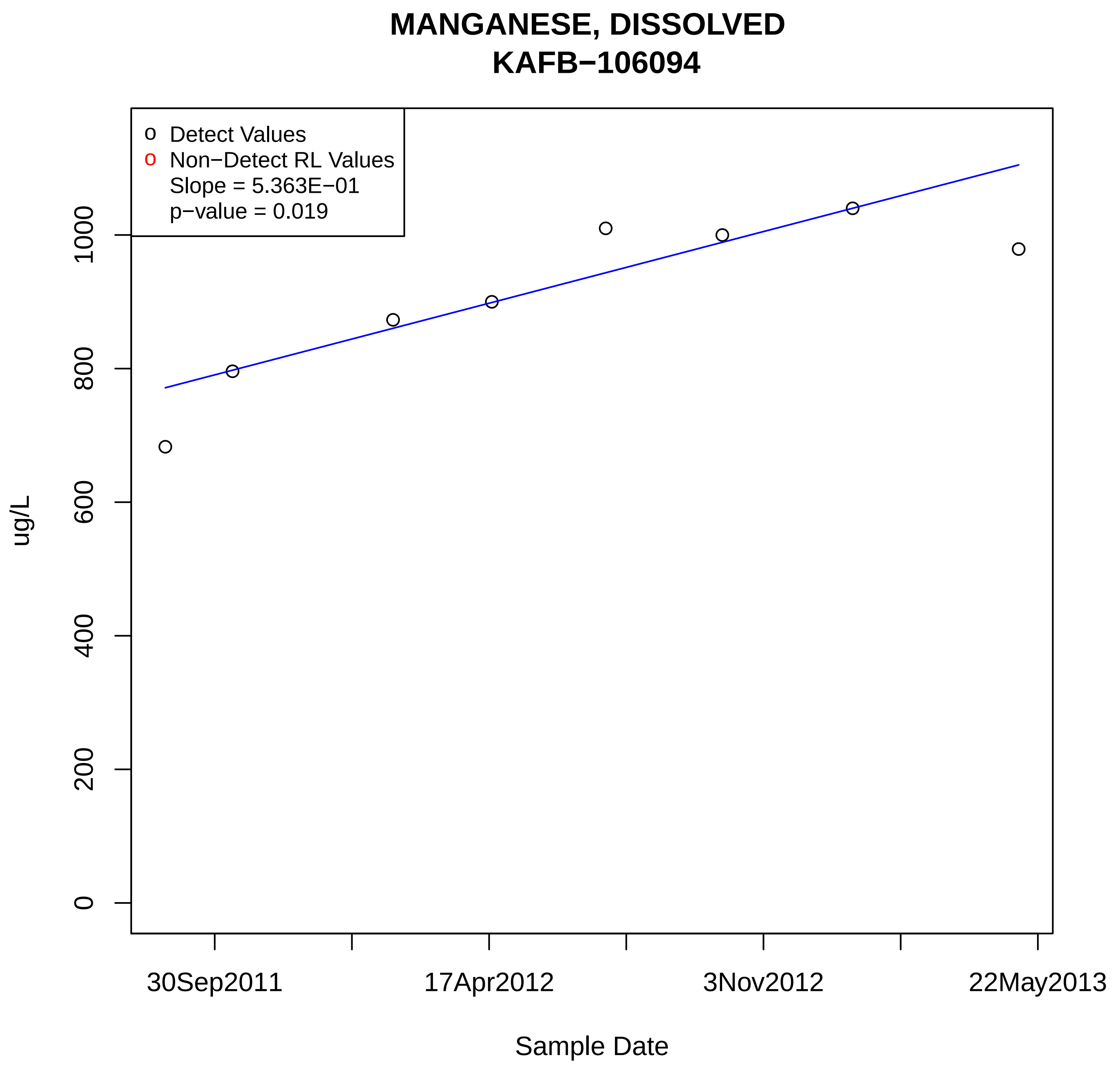
MANGANESE, DISSOLVED
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = 2.085E−02
p−value = 0.675
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
Sample Date



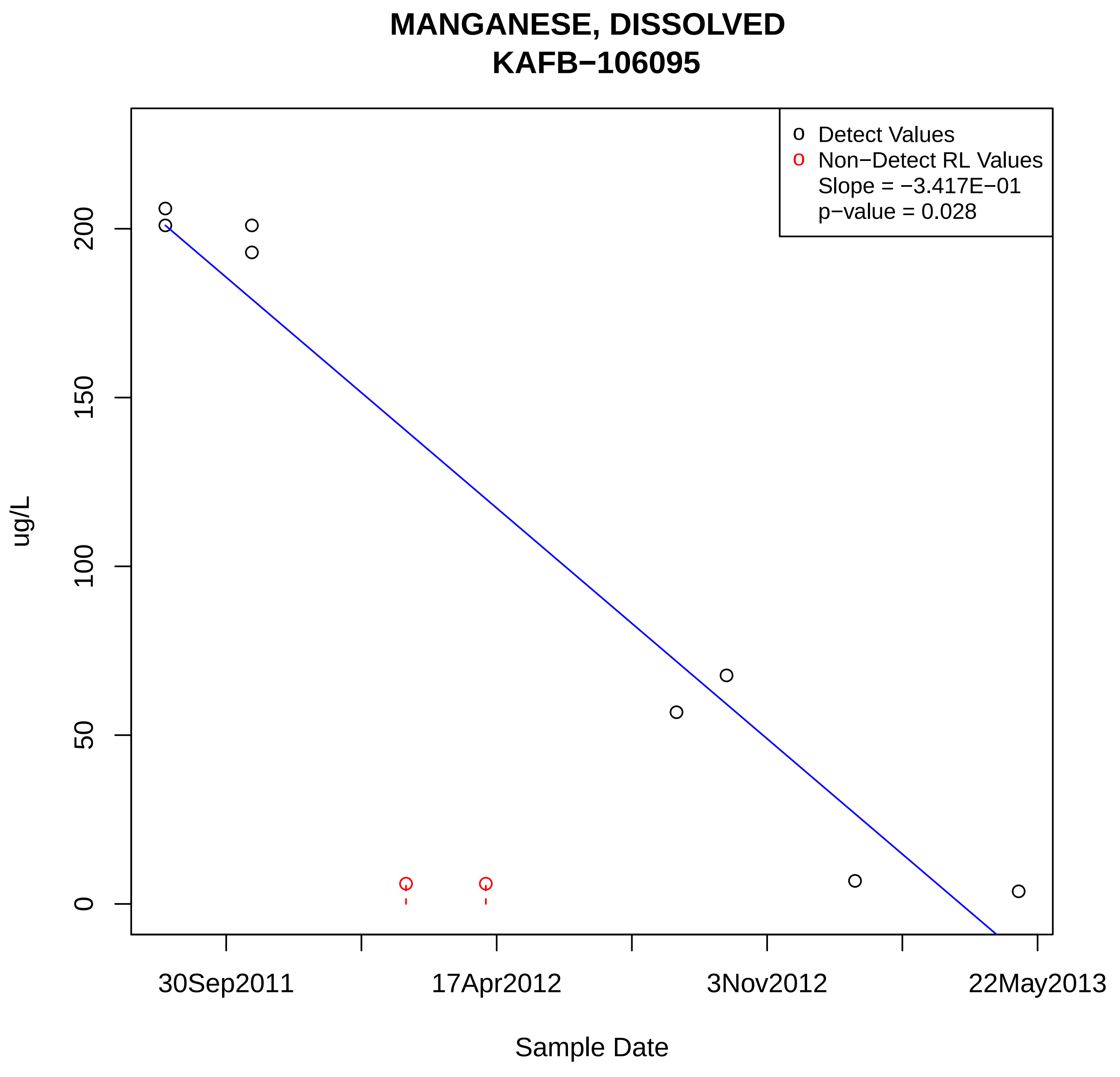
MANGANESE, DISSOLVED
KAFB−106092
Detect Values
Non−Detect RL Values
Slope = 3.086E−01
p−value = 0.093
ug/L
0
50
100
150
200
250
300
30Sep2011
17Apr2012
3Nov2012
Sample Date



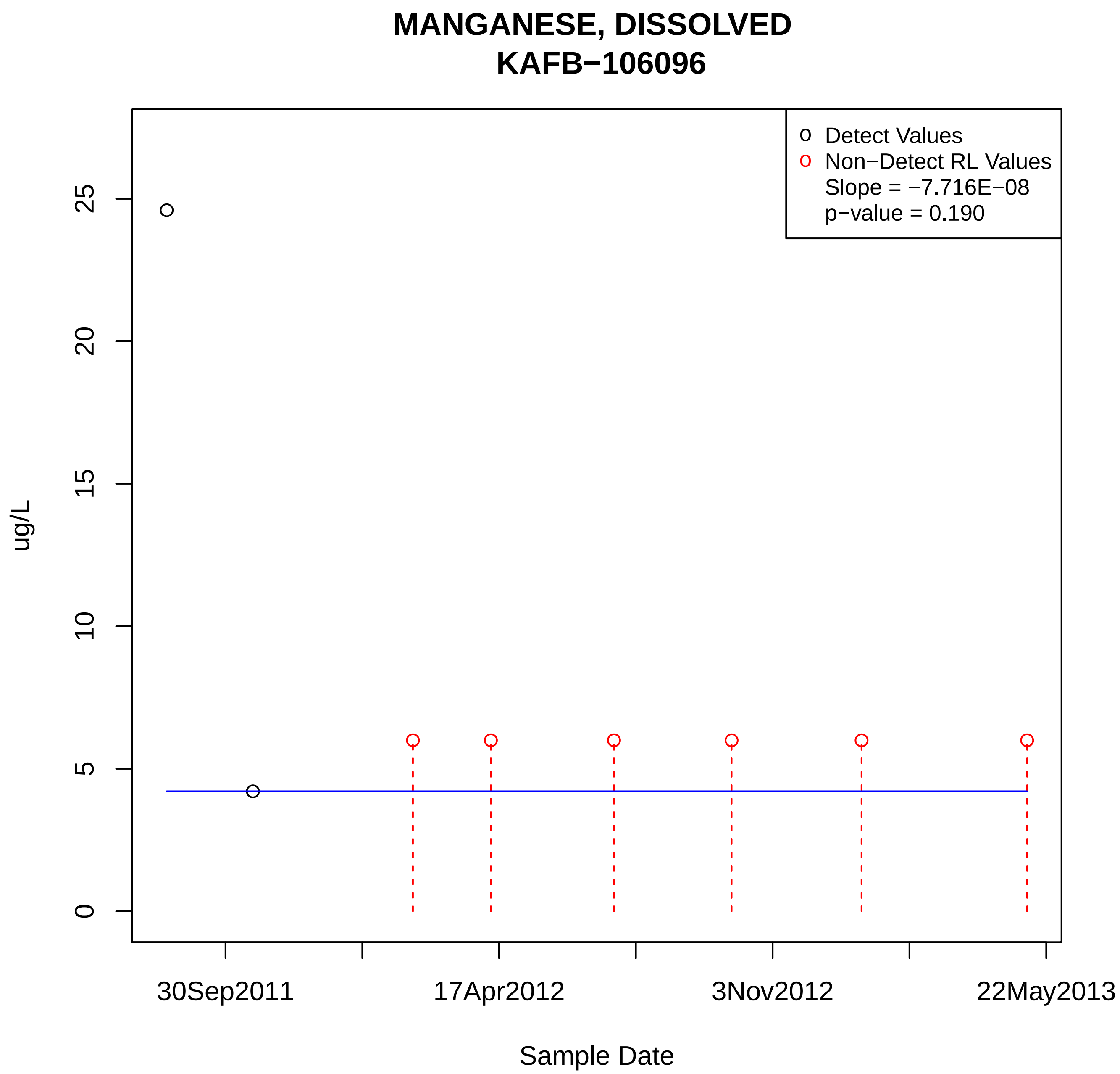
MANGANESE, DISSOLVED
KAFB−106093
Detect Values
Non−Detect RL Values
ug/L
0
5
10
30Sep2011
17Apr2012
3Nov2012
Sample Date

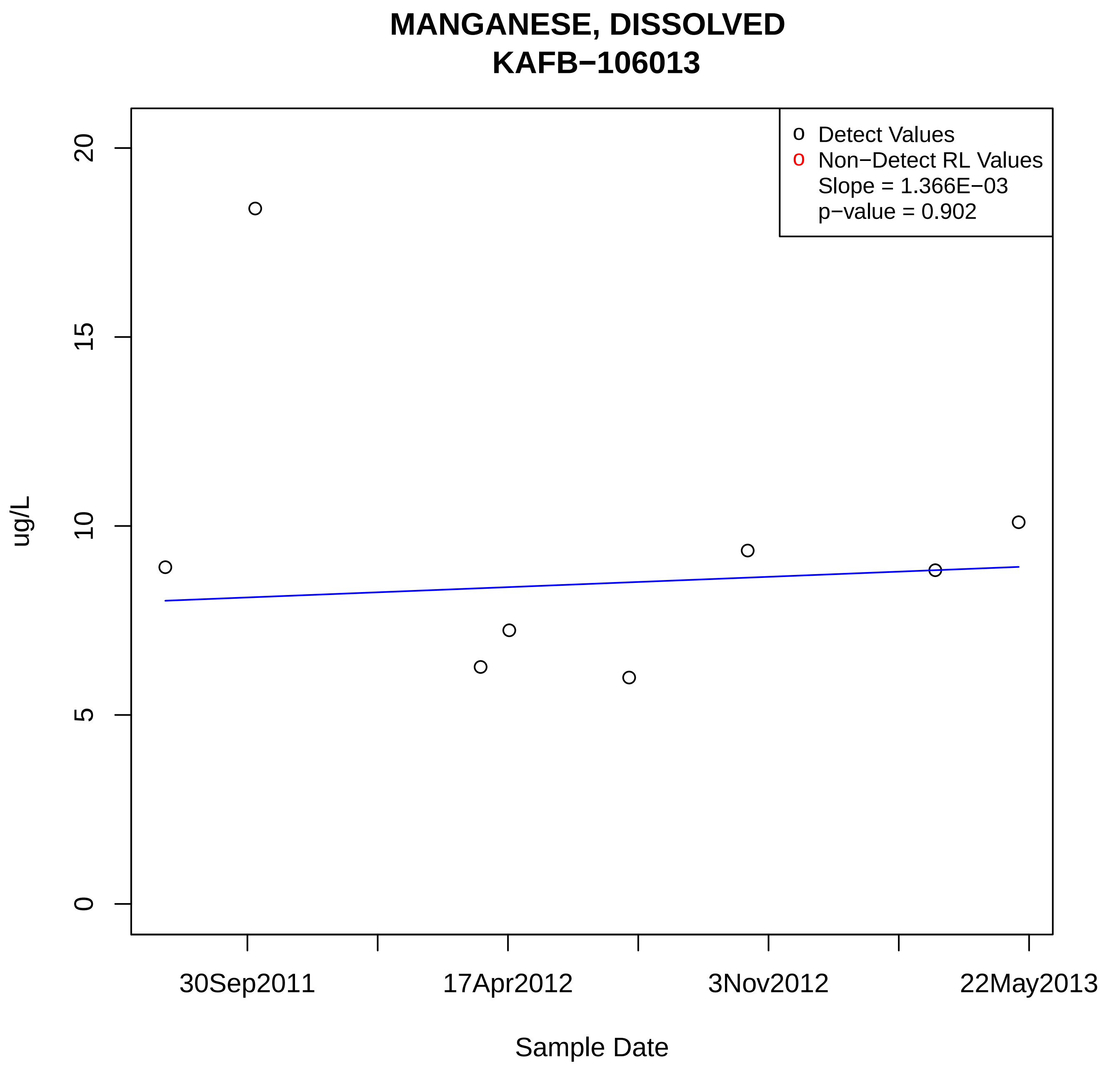


MANGANESE, DISSOLVED
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = 5.363E−01
p−value = 0.019
ug/L
0
200
400
600
800
1000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

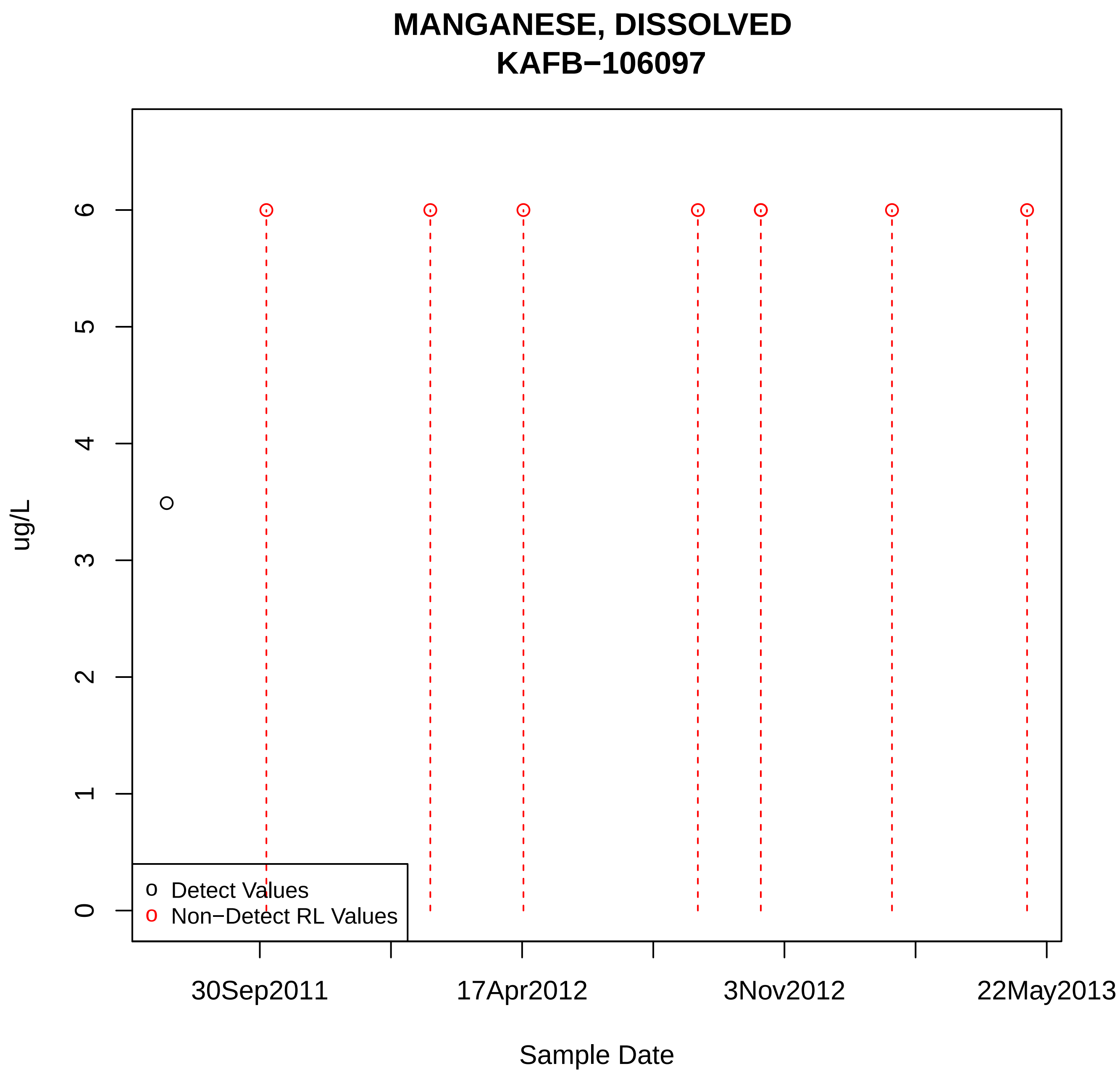


MANGANESE, DISSOLVED
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −3.417E−01
p−value = 0.028
ug/L
0
50
100
150
200
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

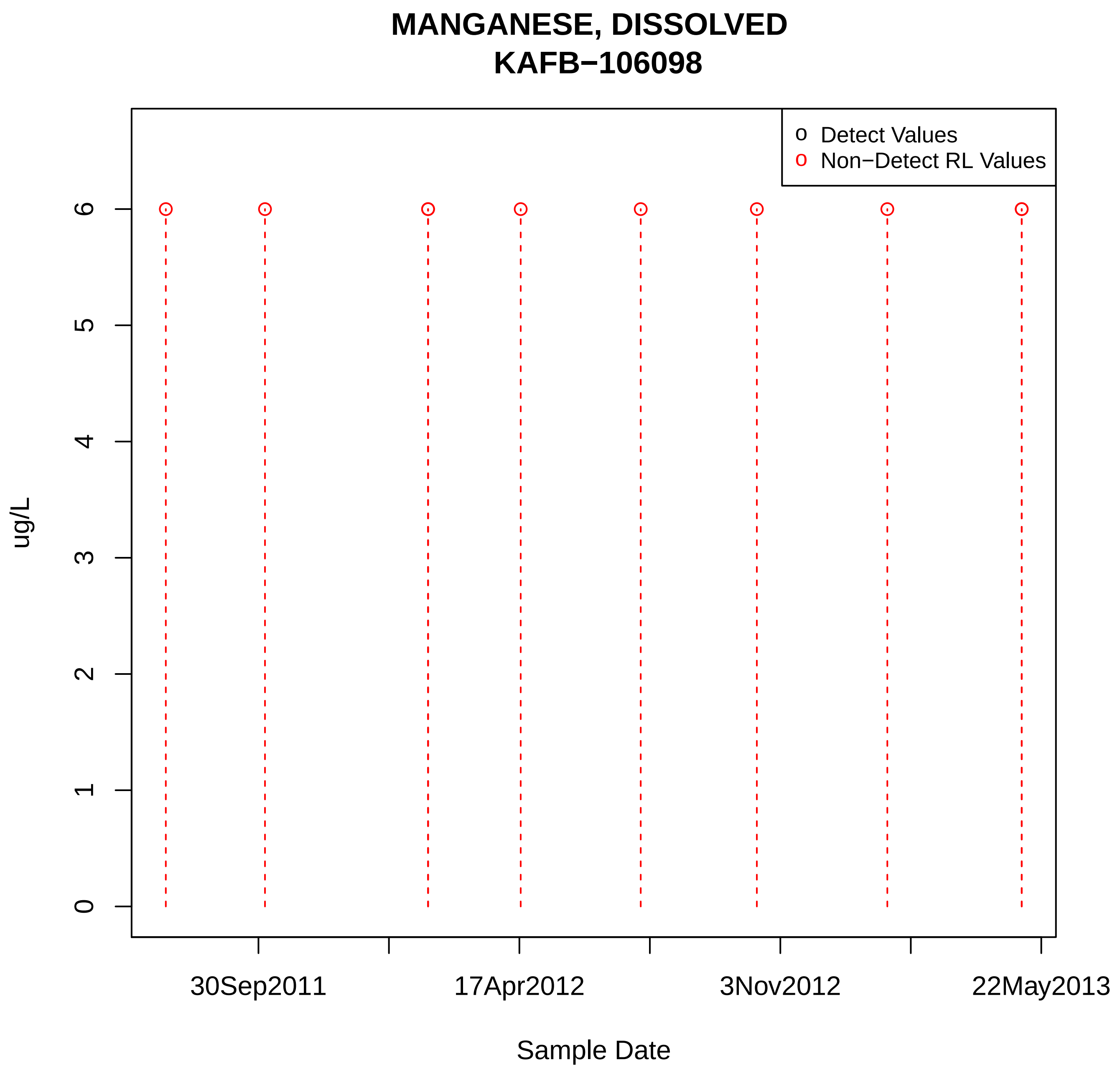

MANGANESE, DISSOLVED
KAFB−106096
Detect Values
Non−Detect RL Values
Slope = −7.716E−08
p−value = 0.190
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



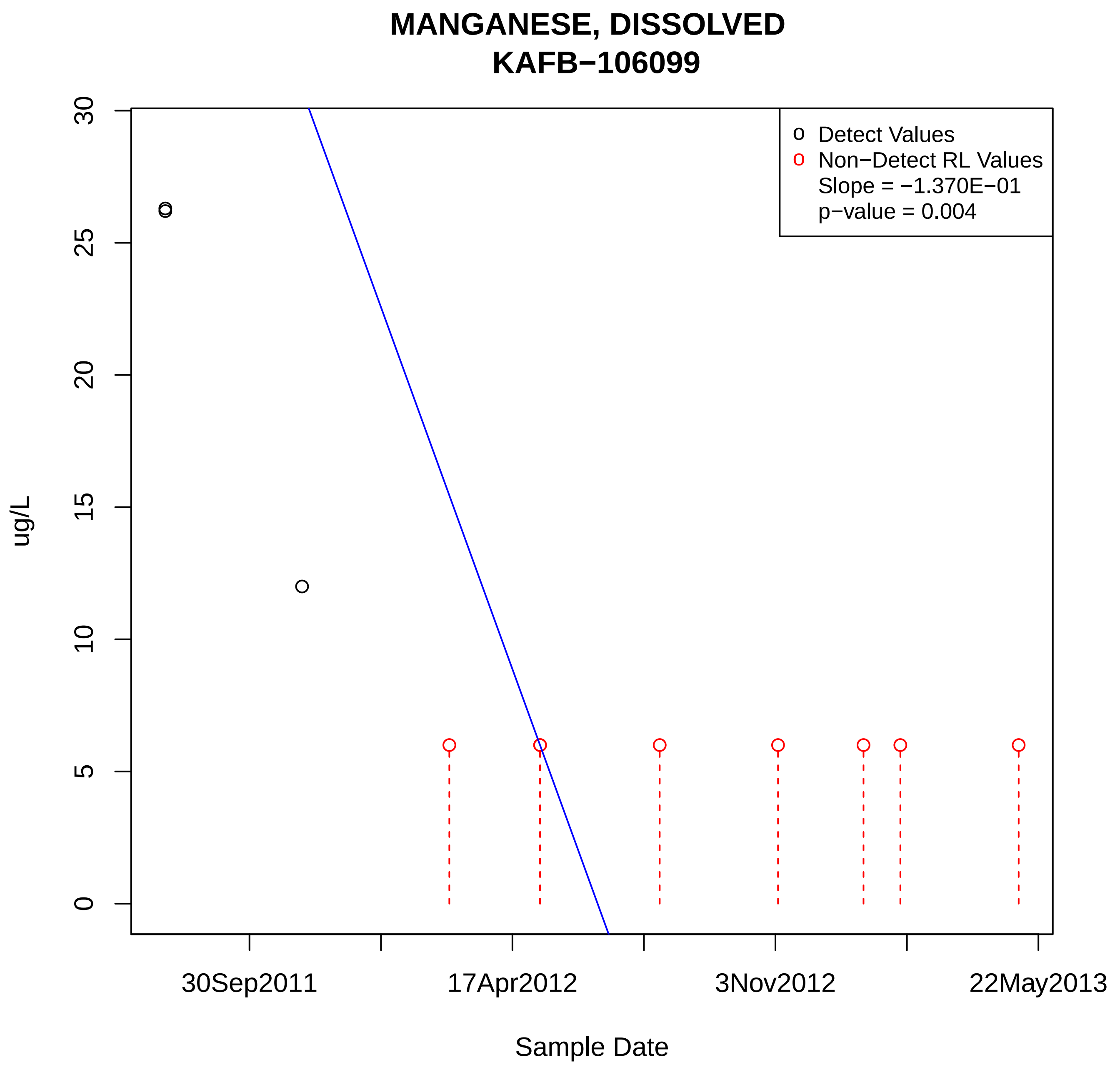
MANGANESE, DISSOLVED
KAFB−106013
Detect Values
Non−Detect RL Values
Slope = 1.366E−03
p−value = 0.902
ug/L
0
5
10
15
20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

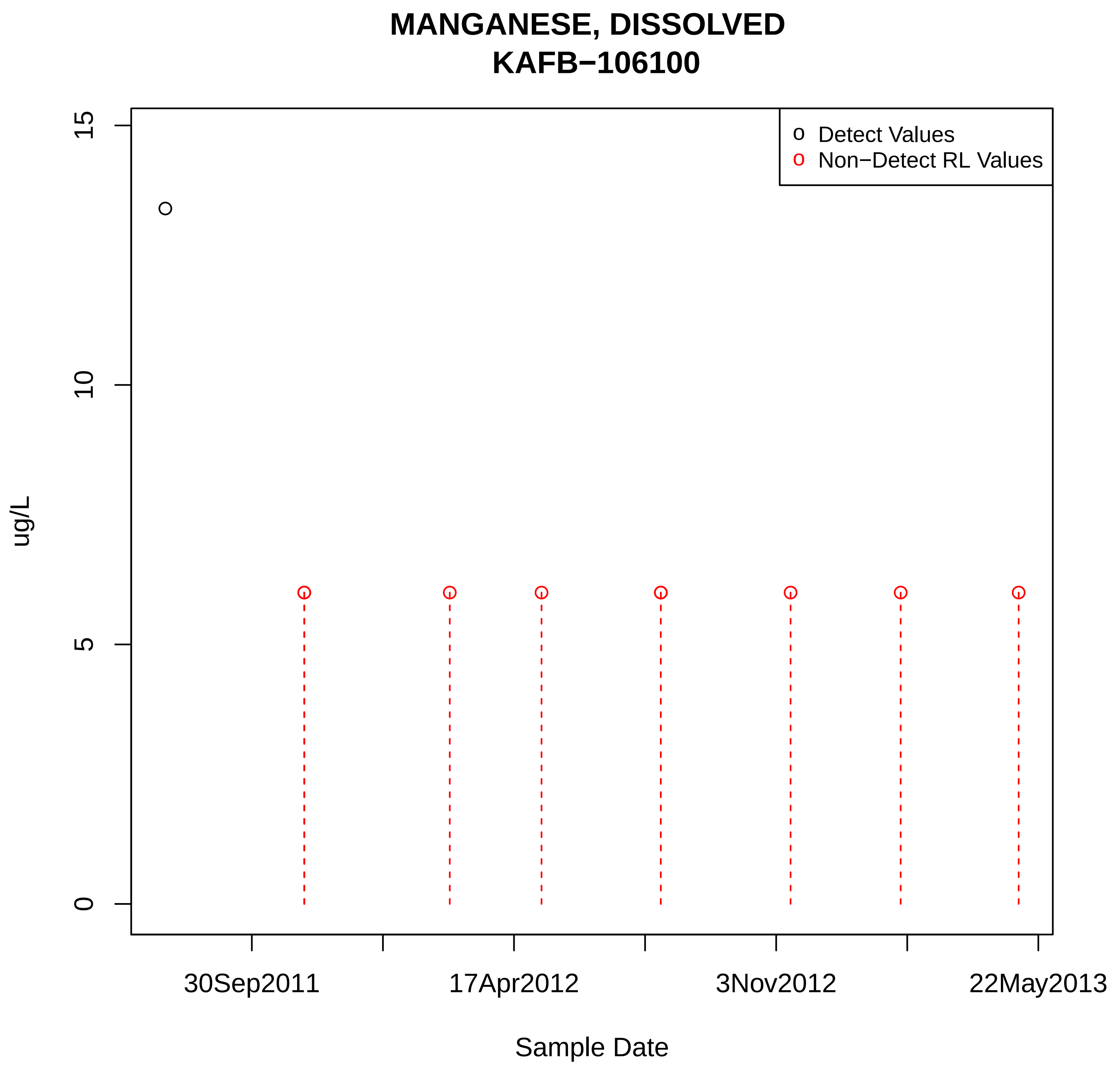


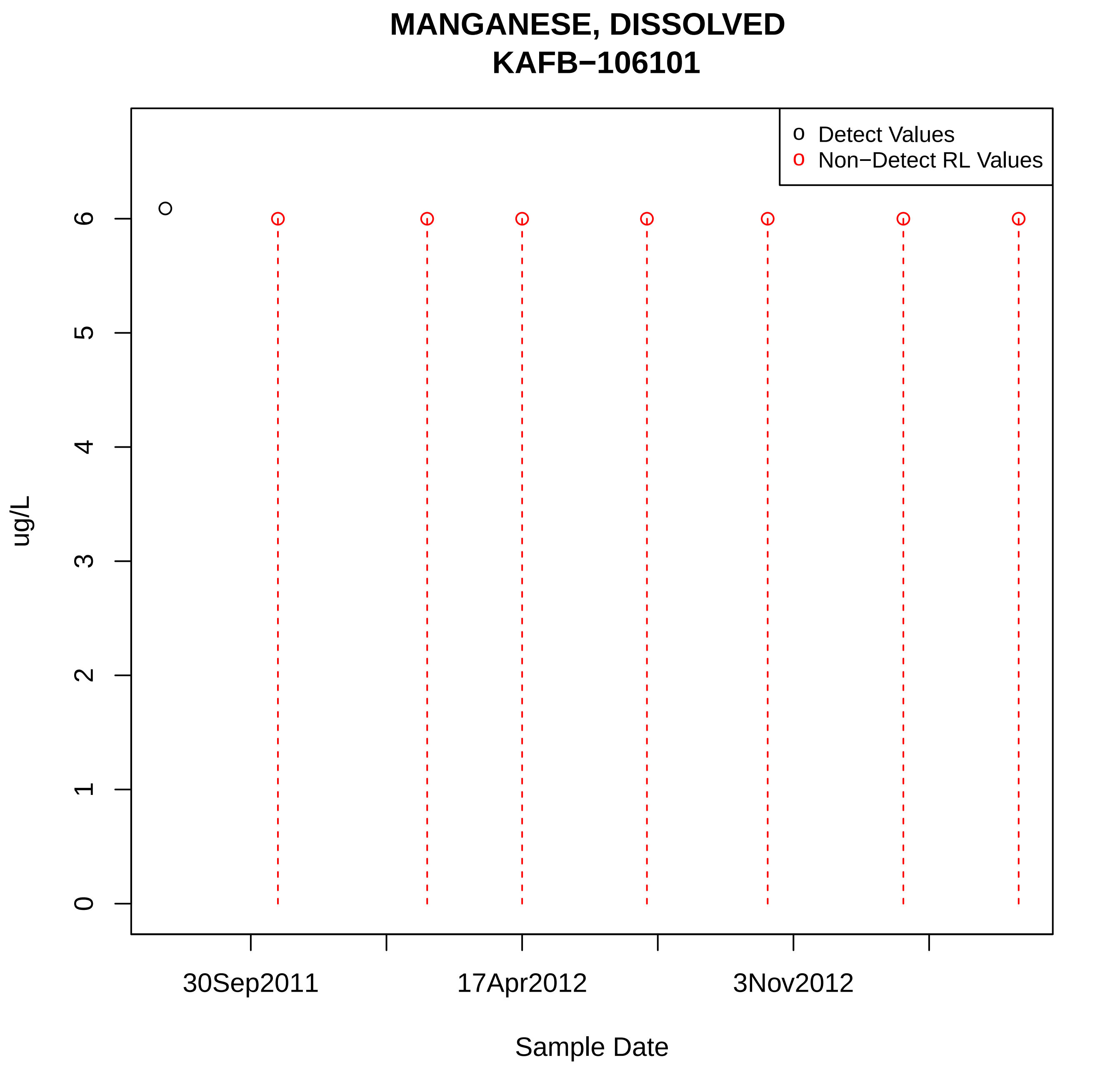
MANGANESE, DISSOLVED
KAFB−106097
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values

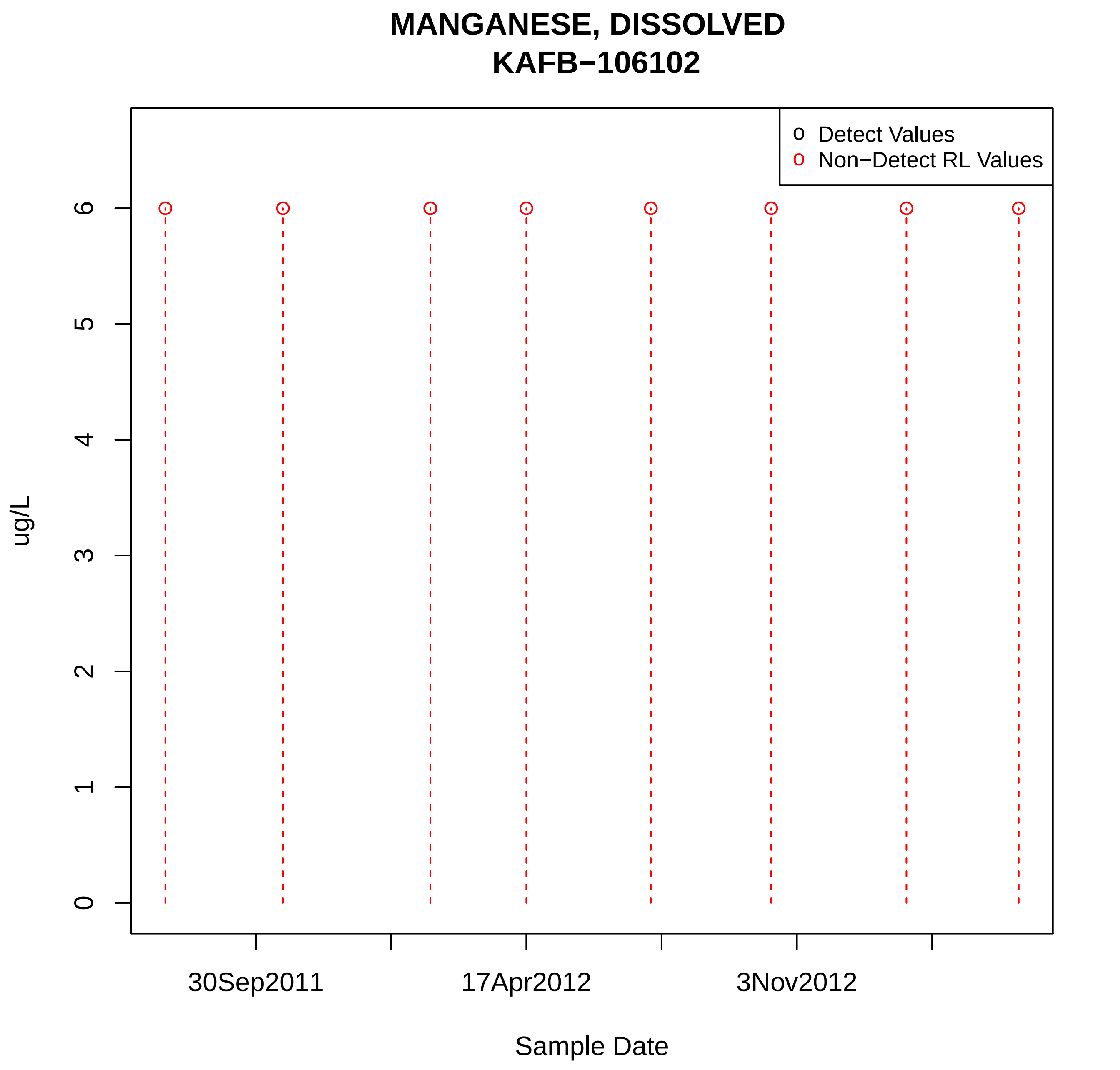


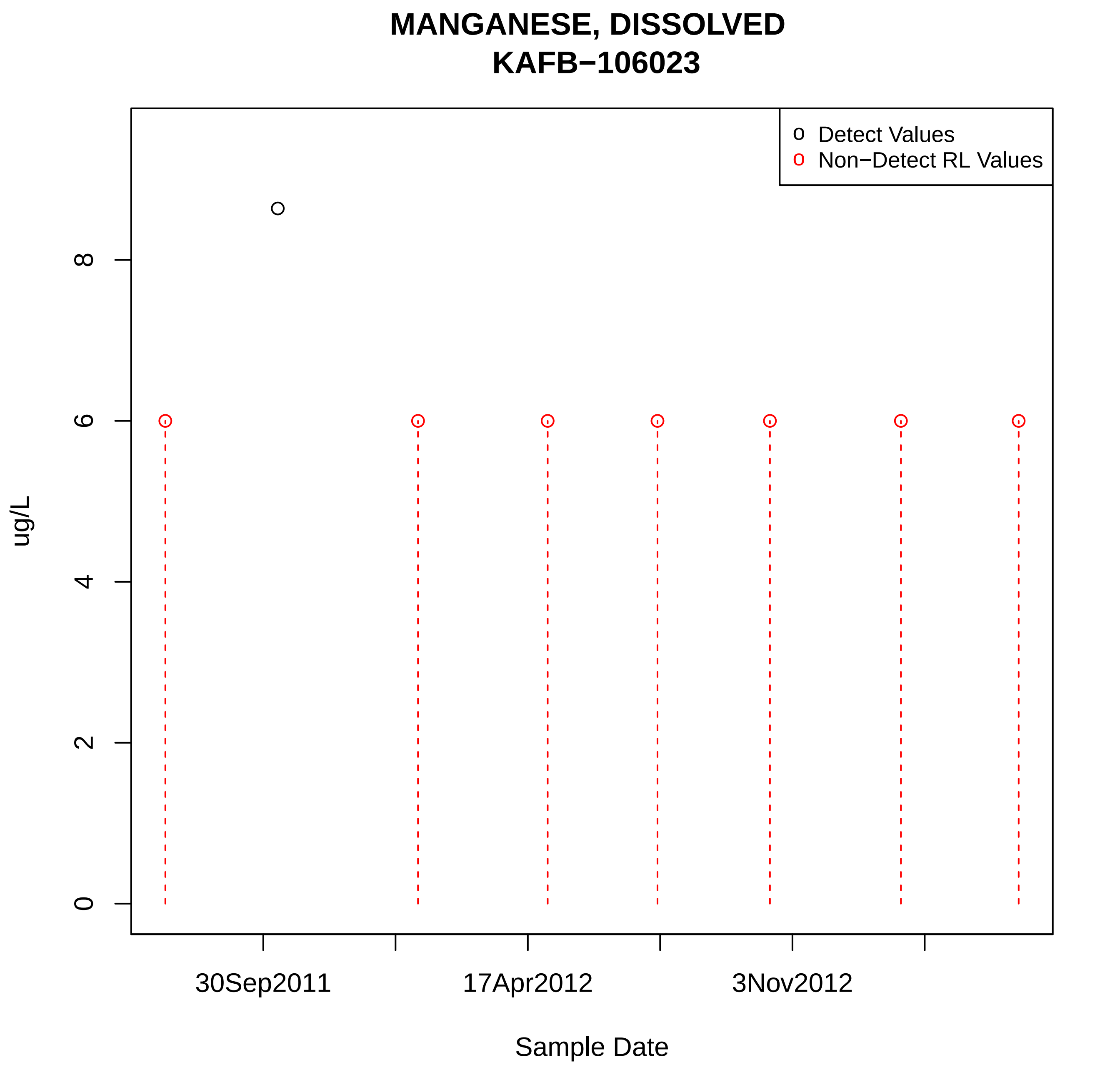
MANGANESE, DISSOLVED
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

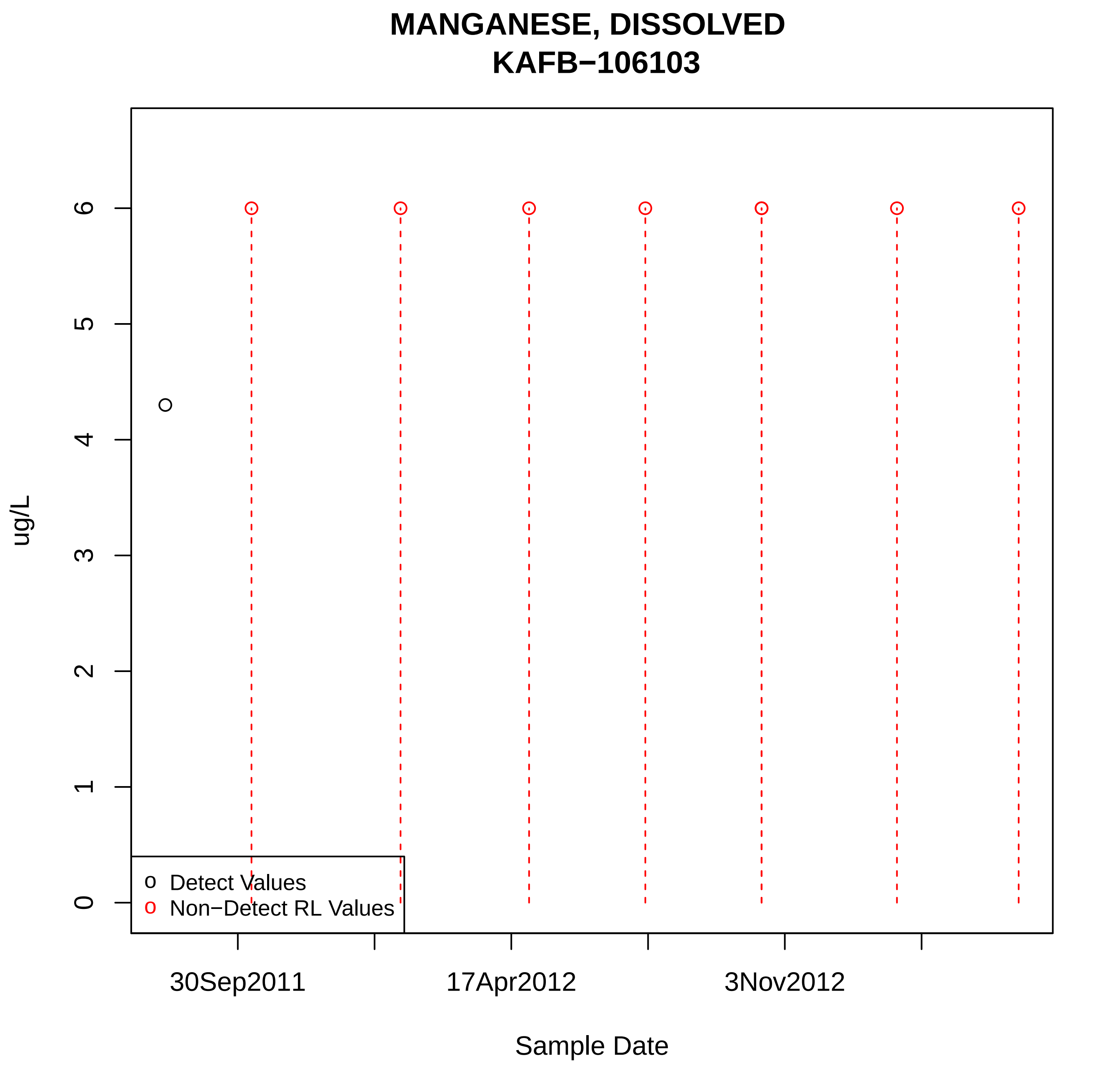

MANGANESE, DISSOLVED
KAFB−106099
Detect Values
Non−Detect RL Values
Slope = −1.370E−01
p−value = 0.004
0
5
10
15
20
25
30
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

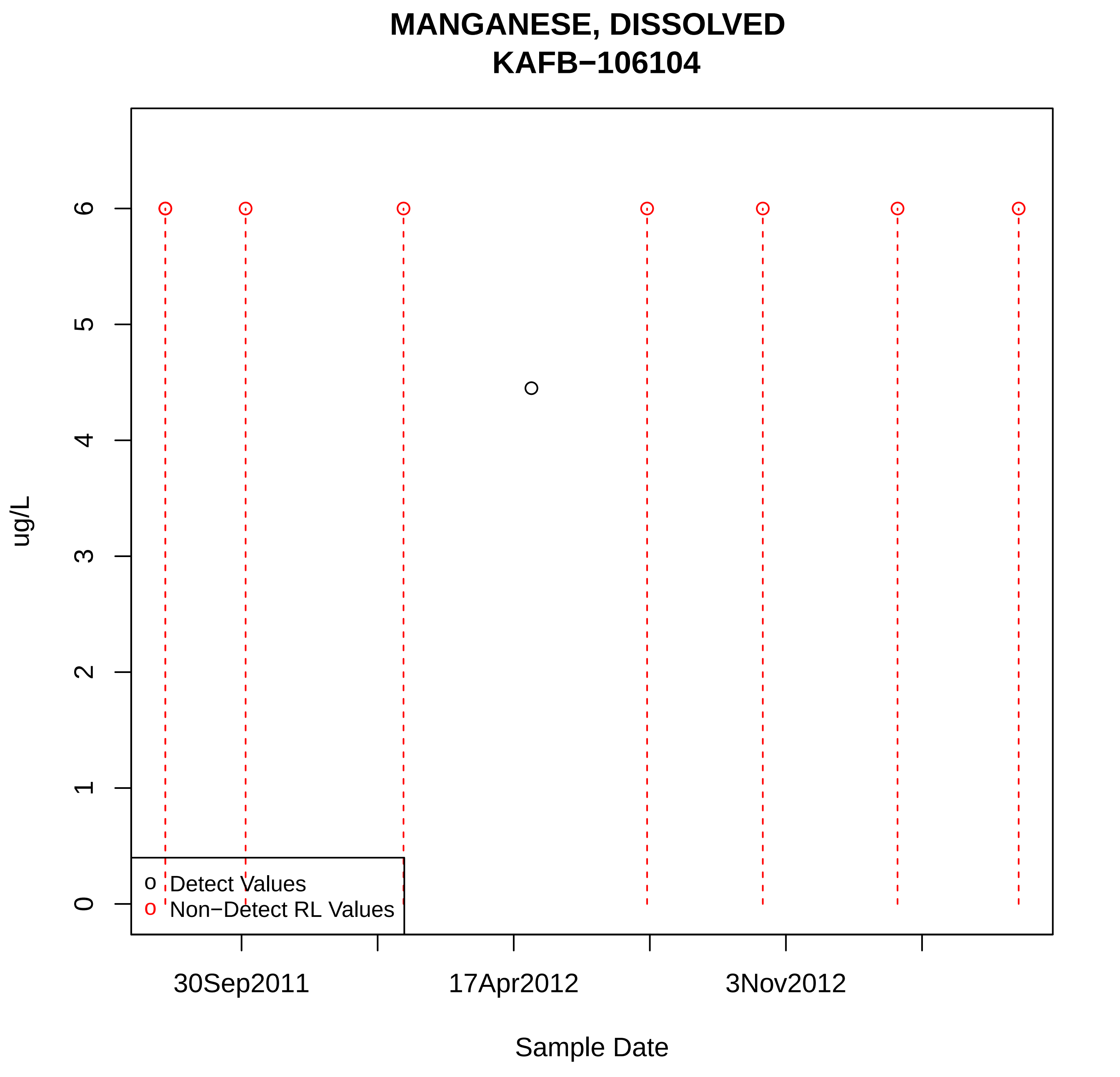

MANGANESE, DISSOLVED
KAFB−106100
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106101
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date

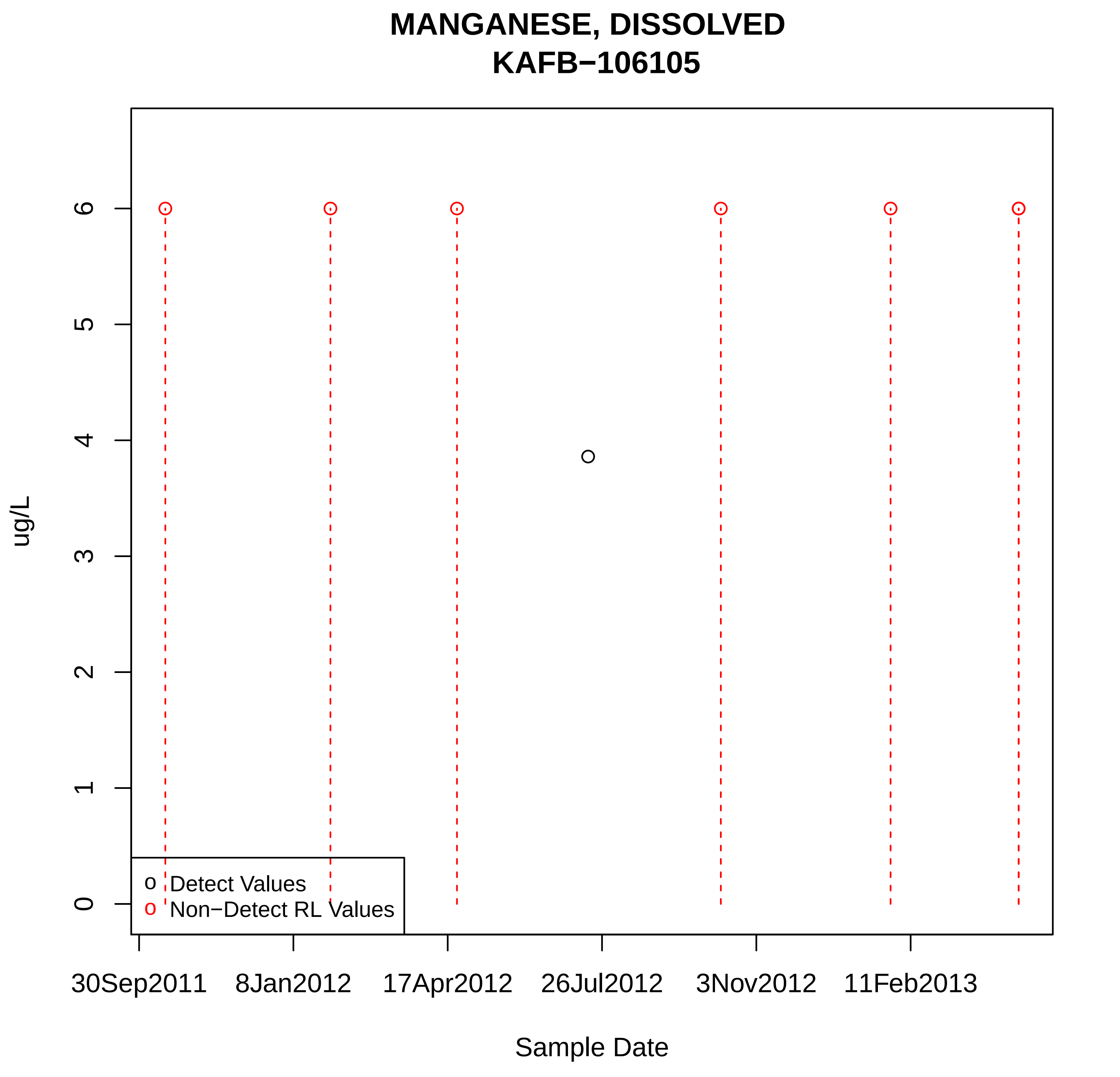

MANGANESE, DISSOLVED
KAFB−106102
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date


MANGANESE, DISSOLVED
KAFB−106023
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
30Sep2011
17Apr2012
3Nov2012
Sample Date

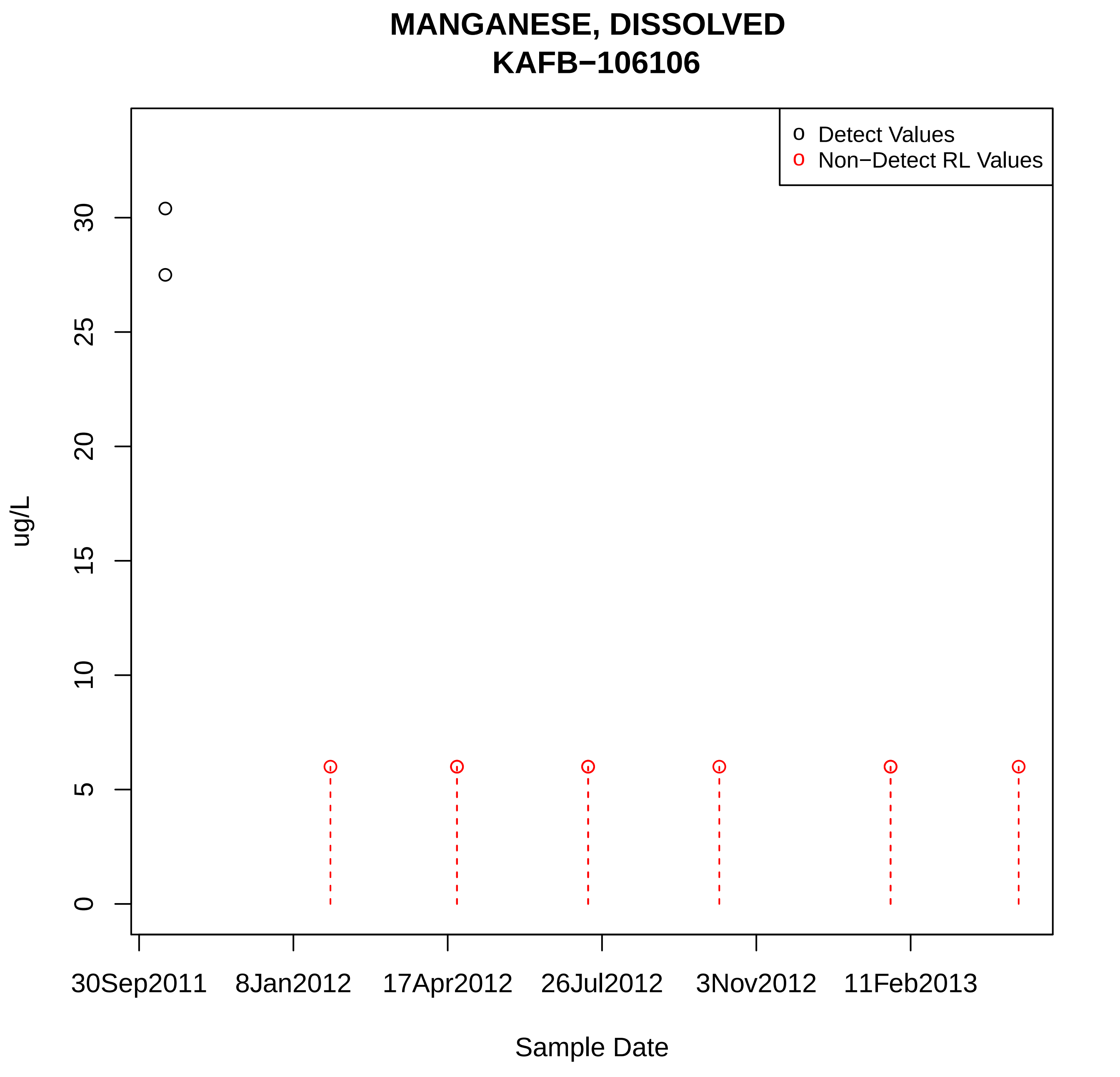

MANGANESE, DISSOLVED
KAFB−106103
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

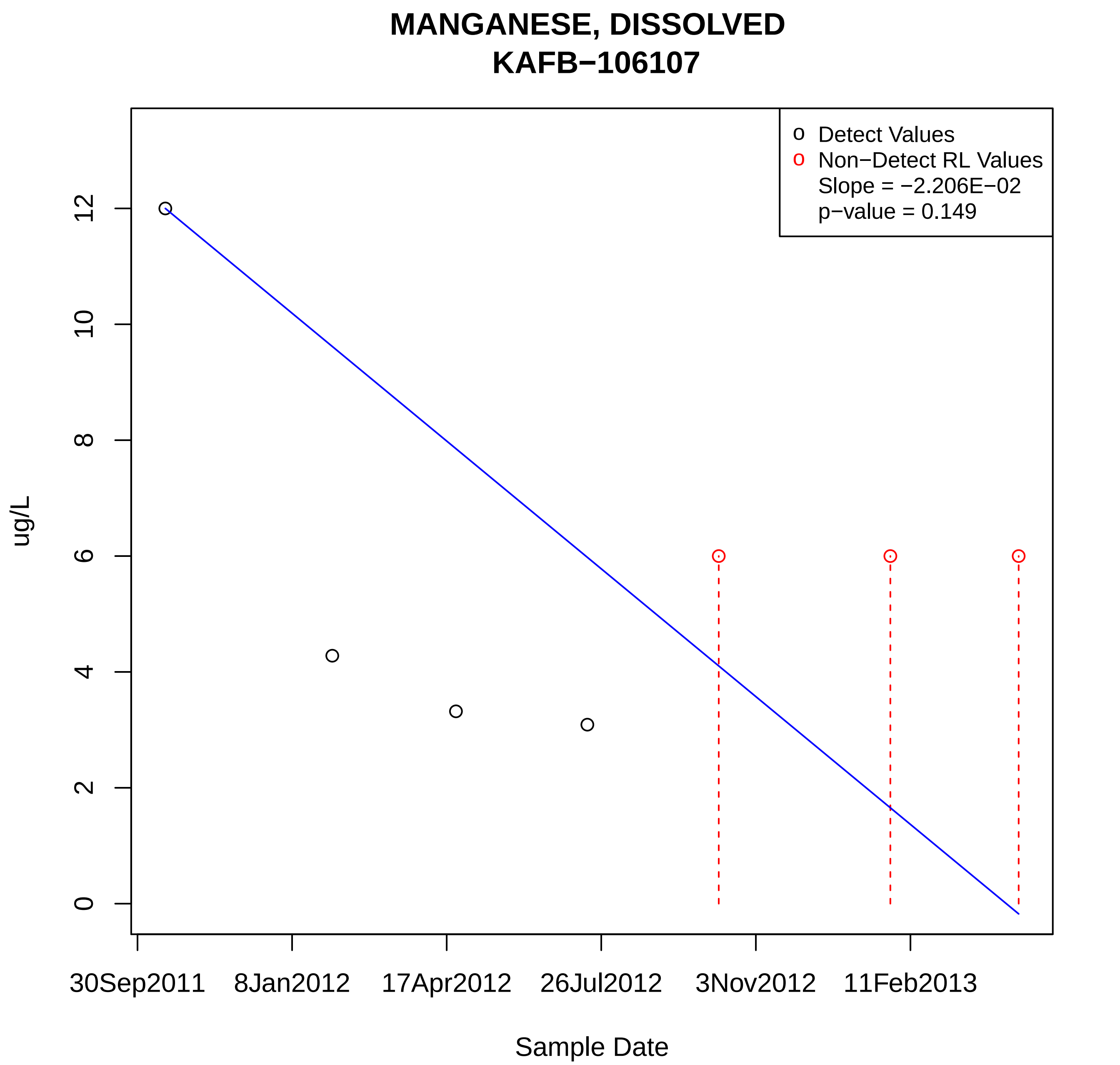


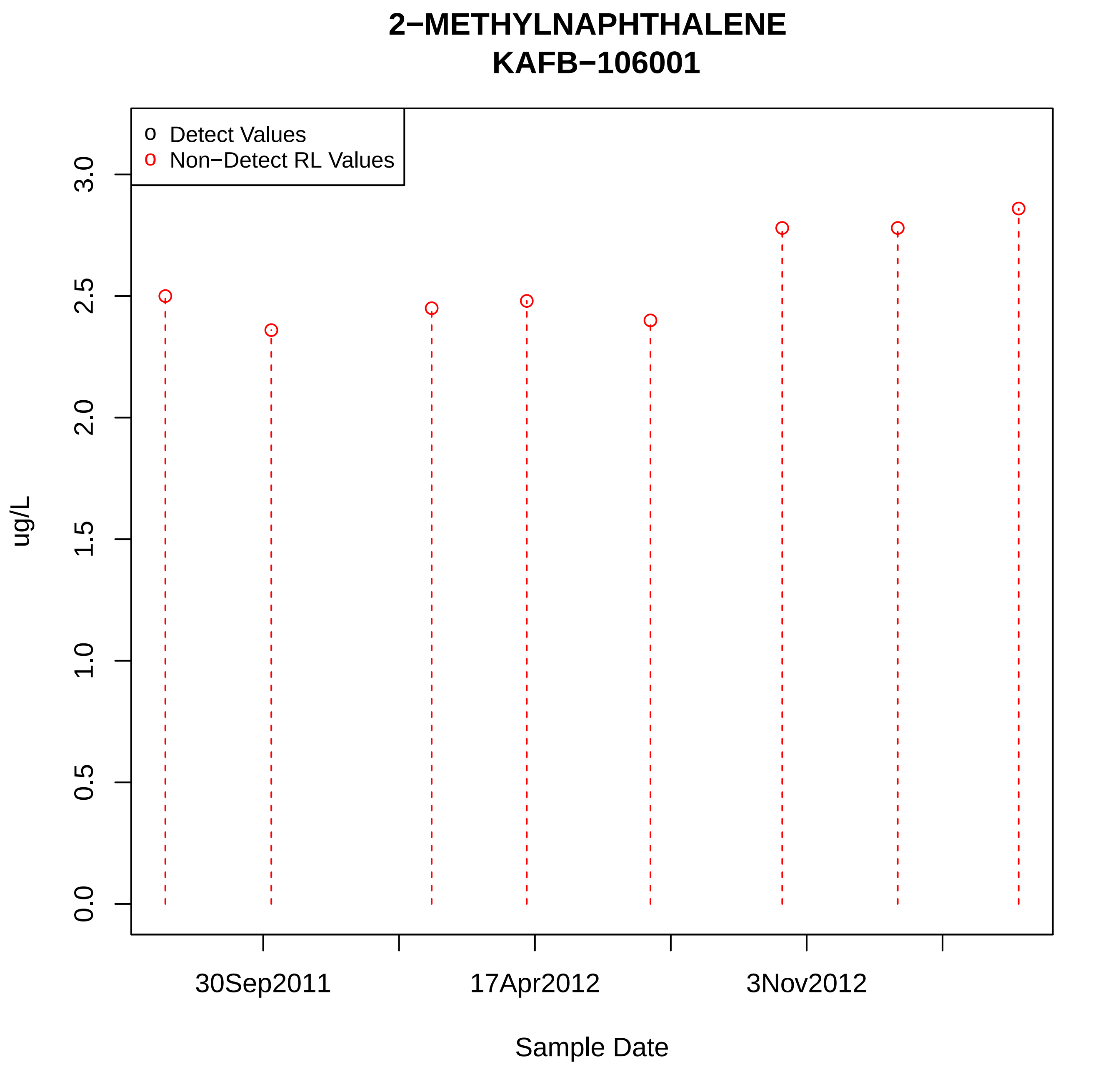
MANGANESE, DISSOLVED
KAFB−106104
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

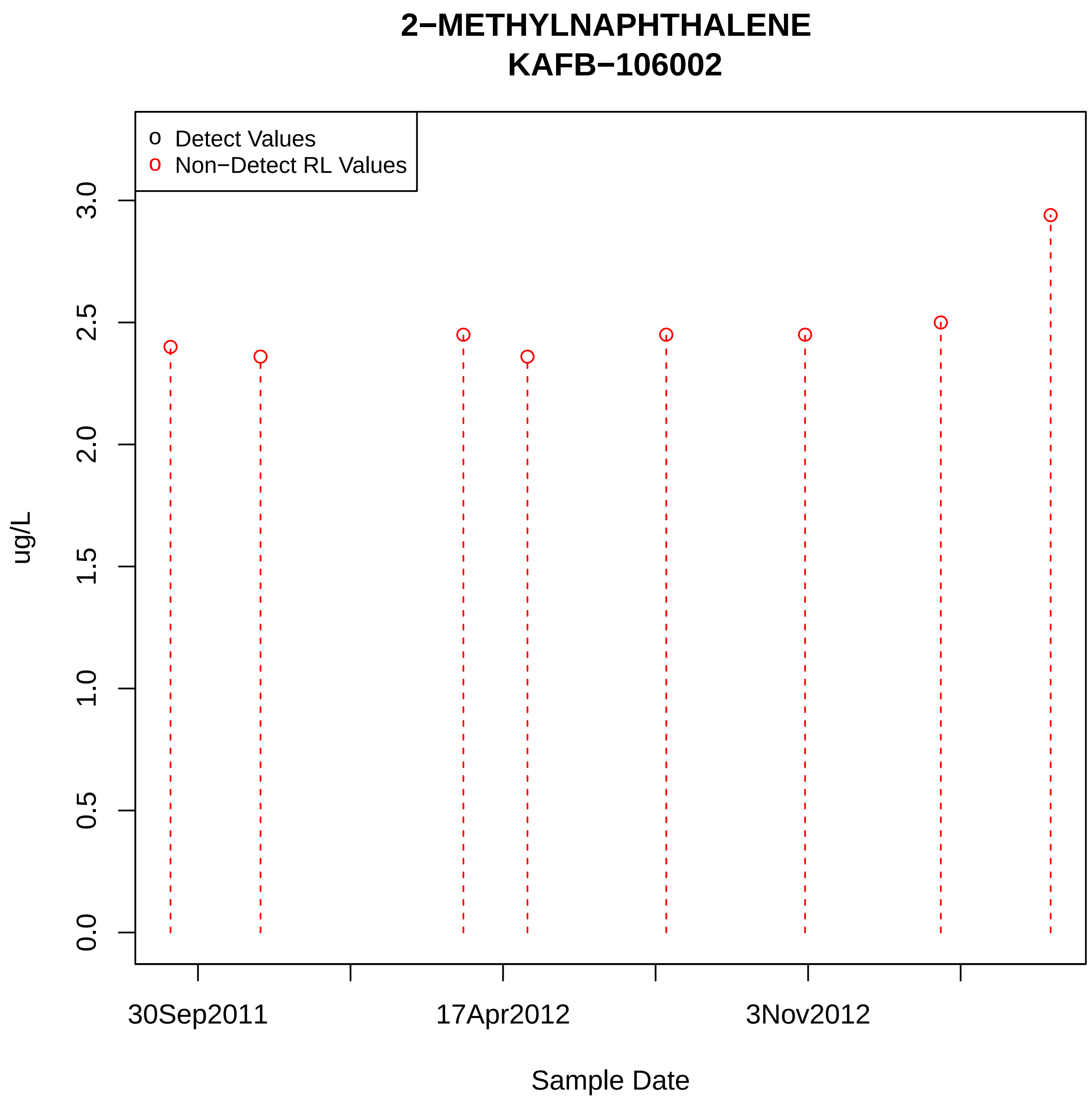


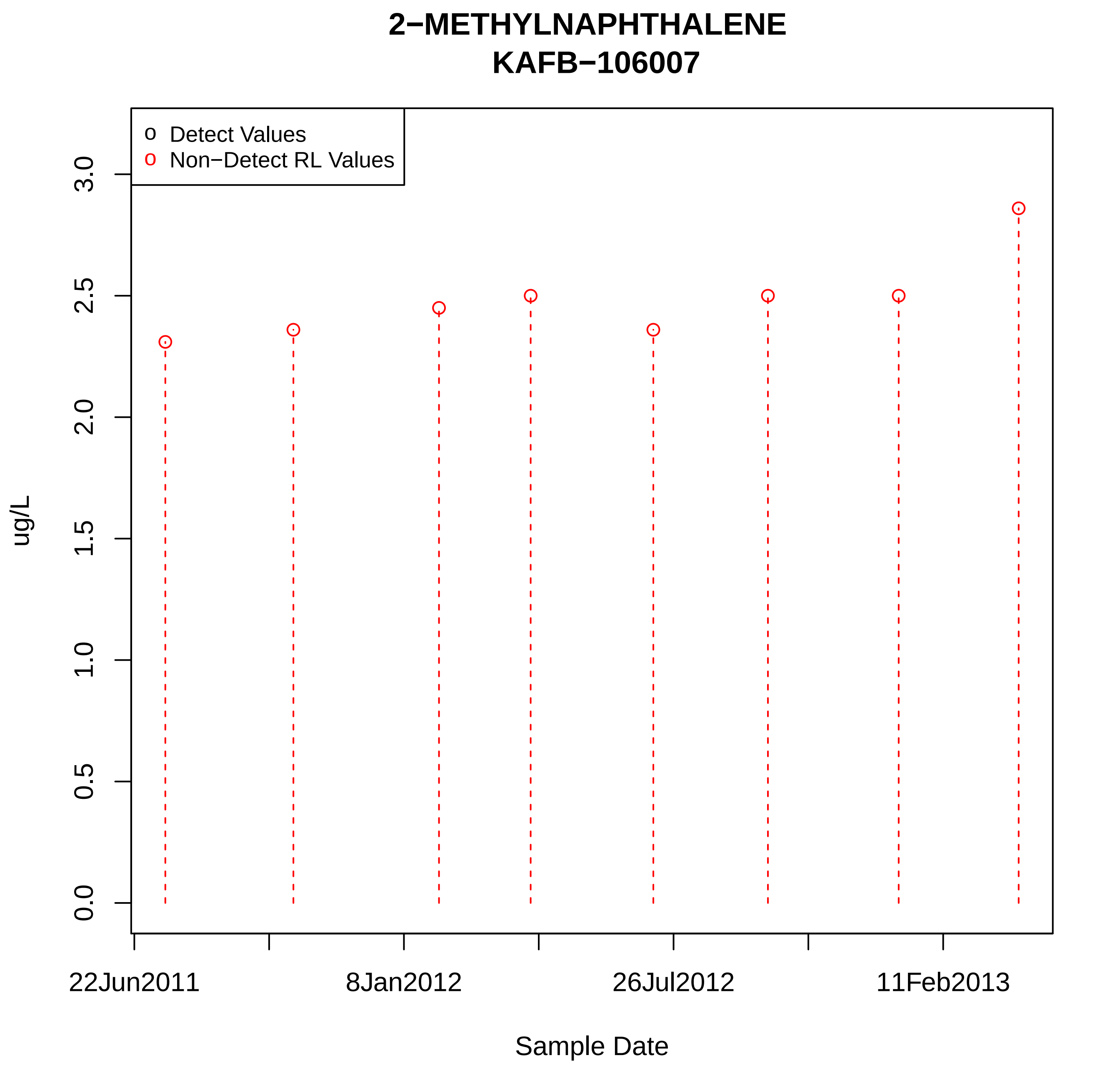
MANGANESE, DISSOLVED
KAFB−106105
ug/L
0
1
2
3
4
5
6
o Detect Values
o Non−Detect RL Values
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


MANGANESE, DISSOLVED
KAFB−106106
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
30
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

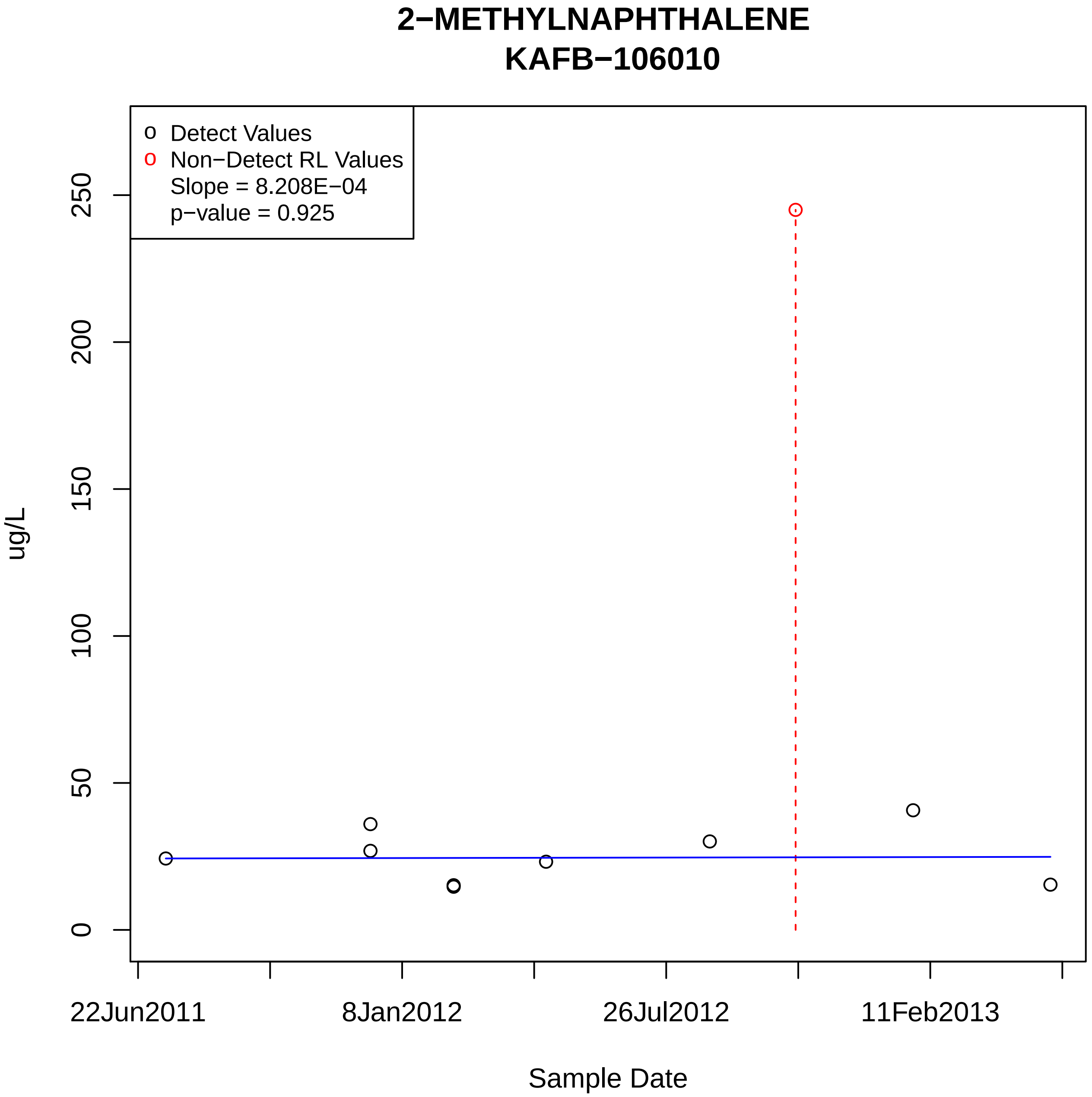

MANGANESE, DISSOLVED
KAFB−106107
Detect Values
Non−Detect RL Values
Slope = −2.206E−02
p−value = 0.149
ug/L
0
2
4
6
8
10
12
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

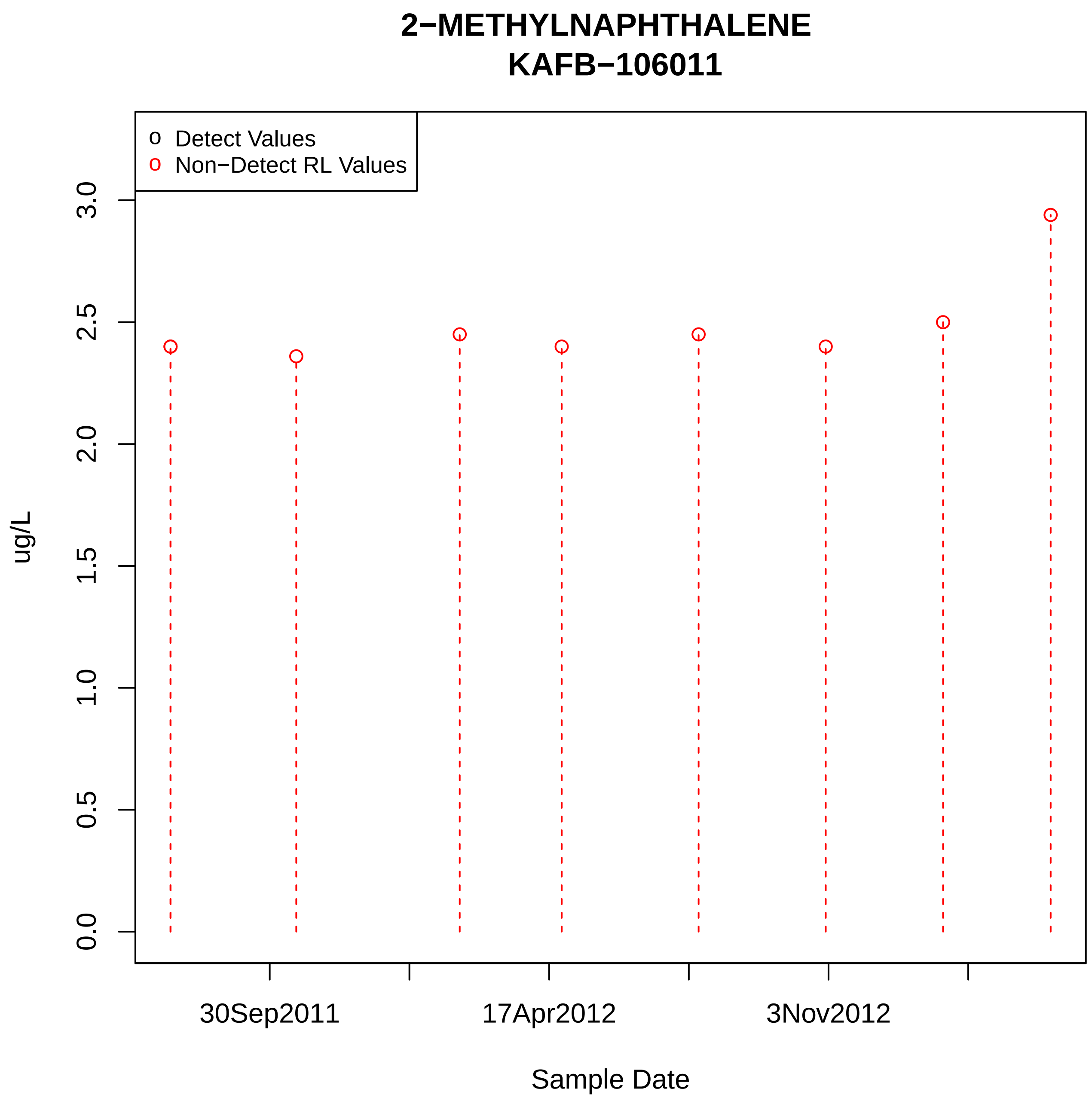

2−METHYLNAPHTHALENE
KAFB−106001
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

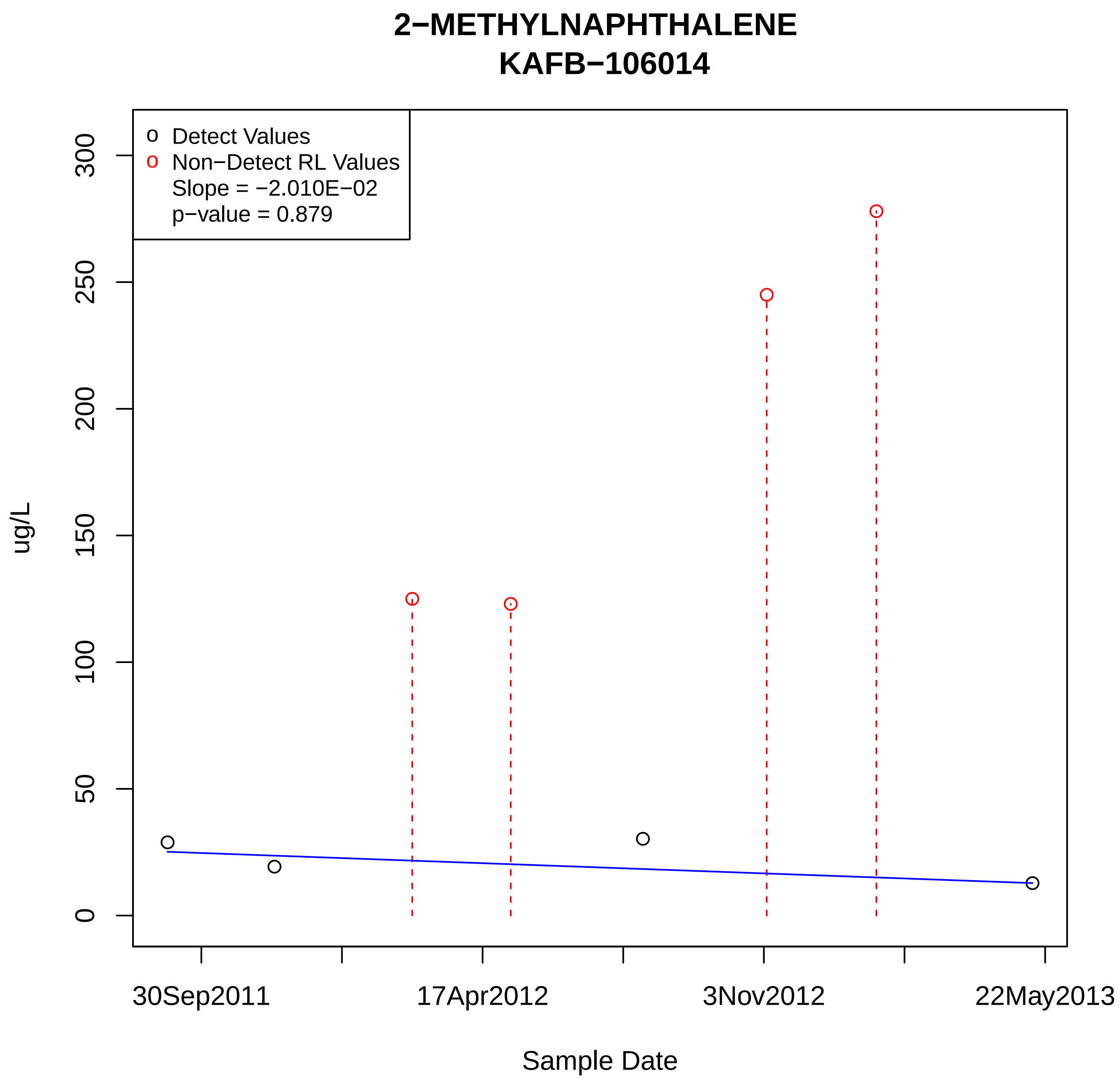

2−METHYLNAPHTHALENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



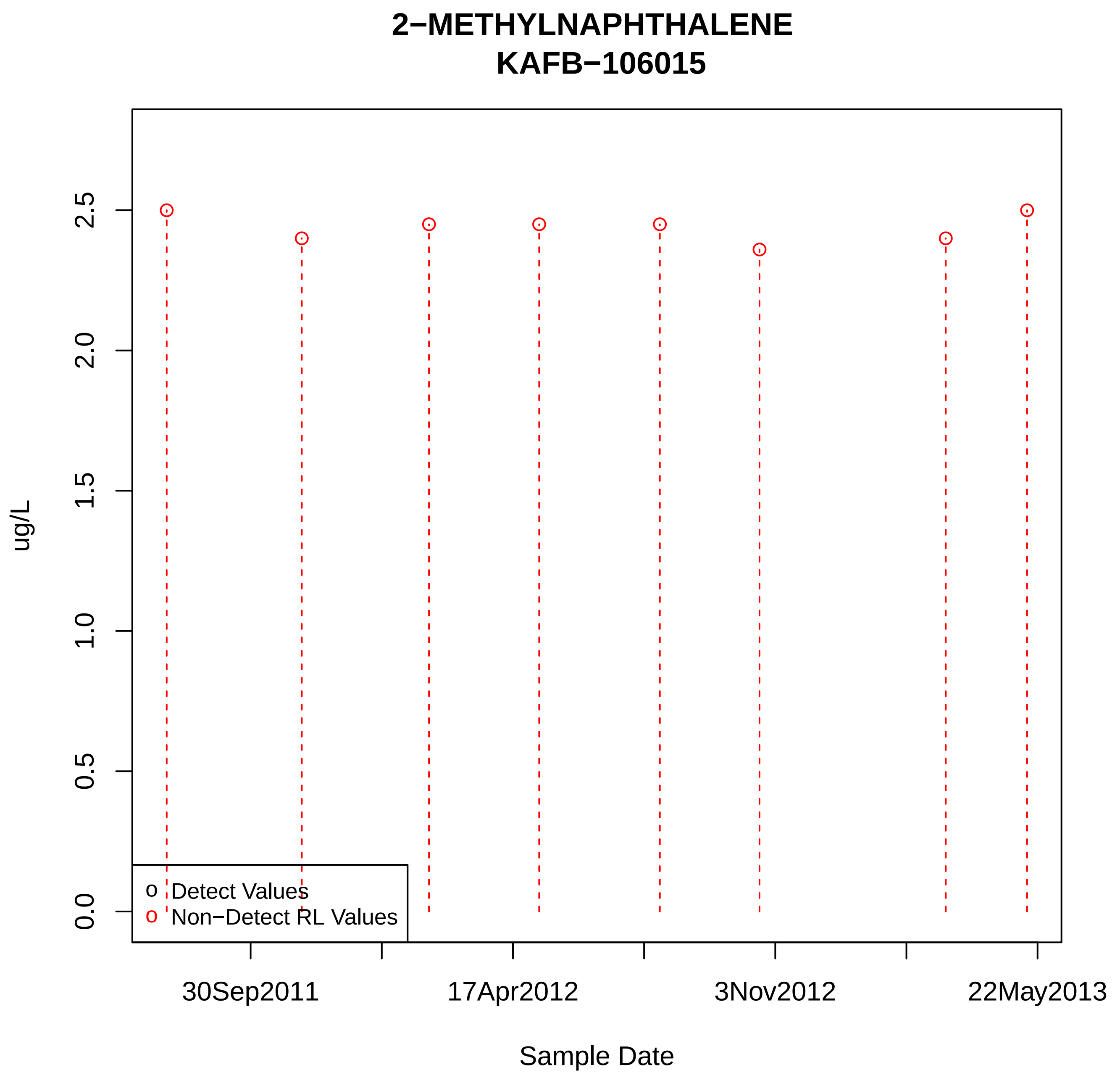
2−METHYLNAPHTHALENE
KAFB−106007
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
3.0
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = 8.208E−04
p−value = 0.925
ug/L
0
50
100
150
200
250
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

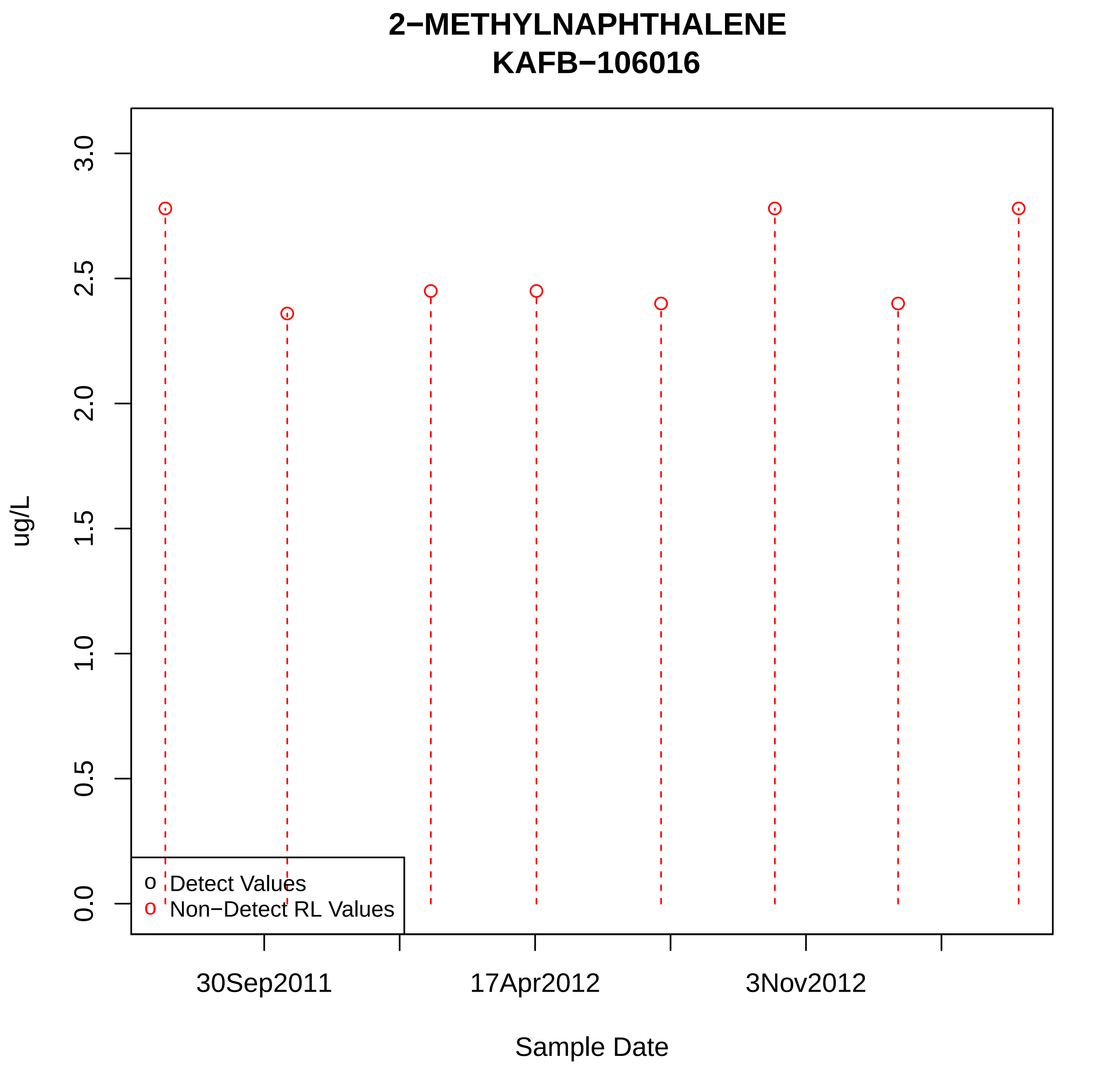

2−METHYLNAPHTHALENE
KAFB−106011
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



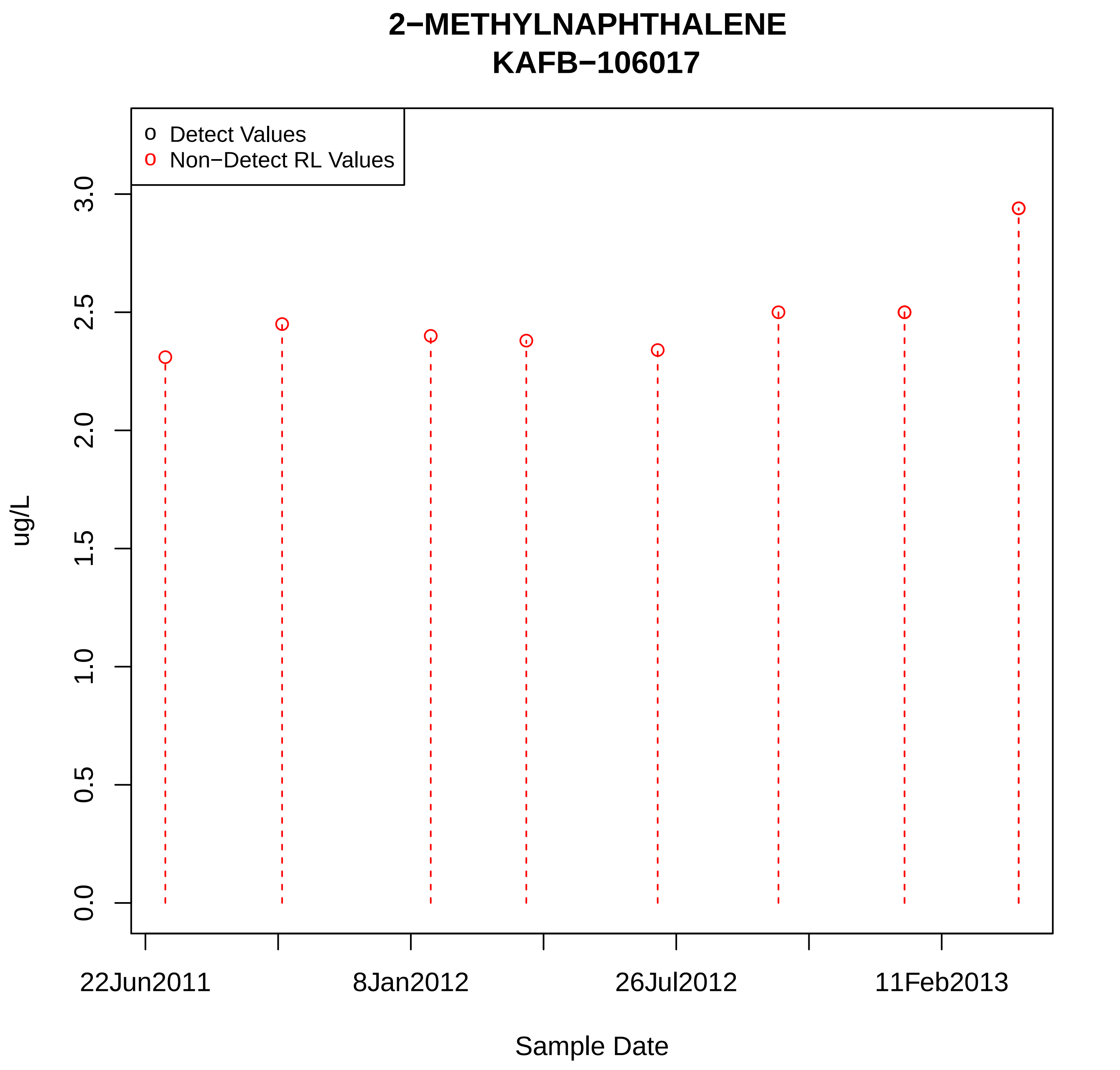
2−METHYLNAPHTHALENE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −2.010E−02
p−value = 0.879
ug/L
0
50
100
150
200
250
300
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

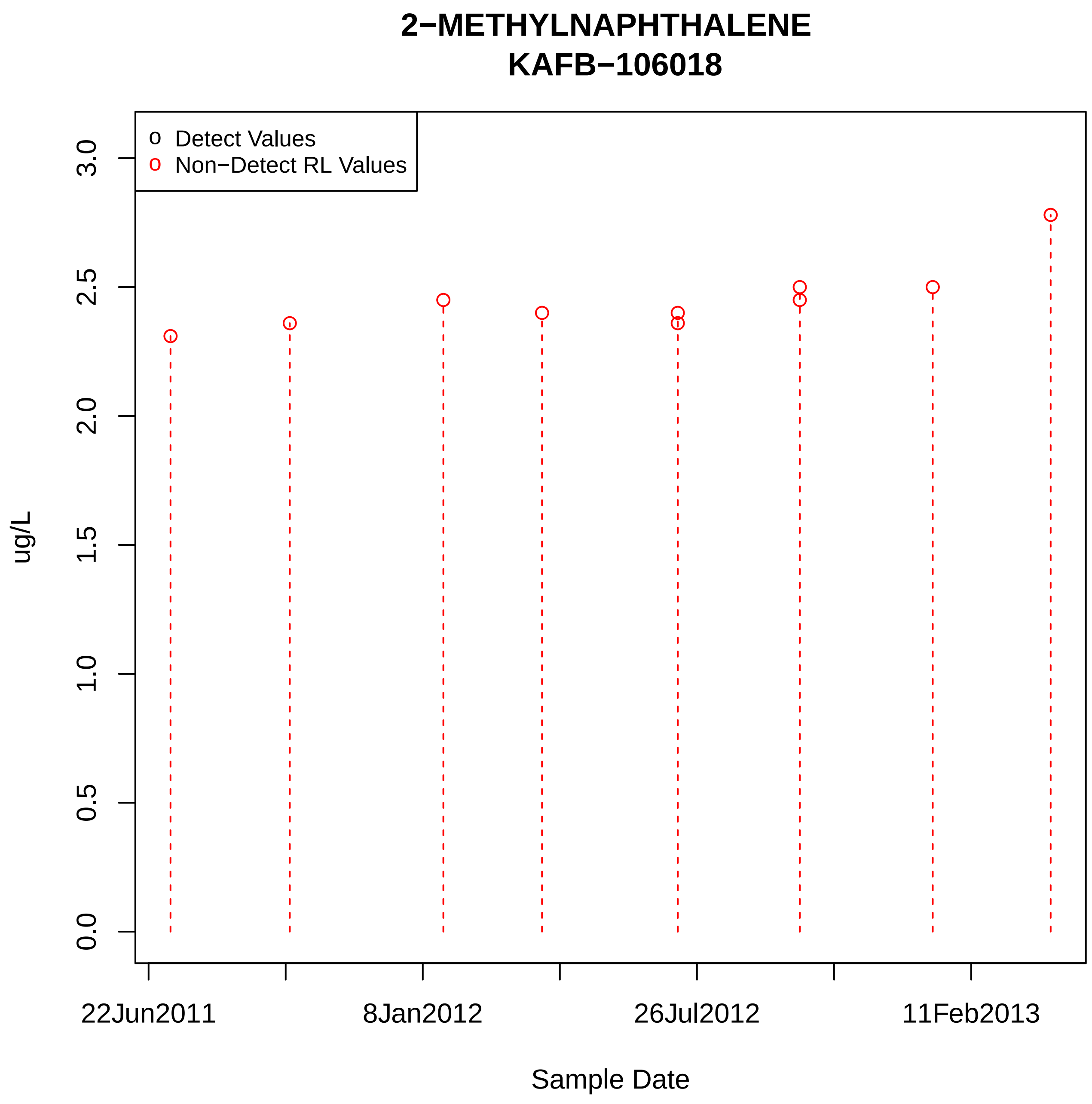


2−METHYLNAPHTHALENE
KAFB−106015
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

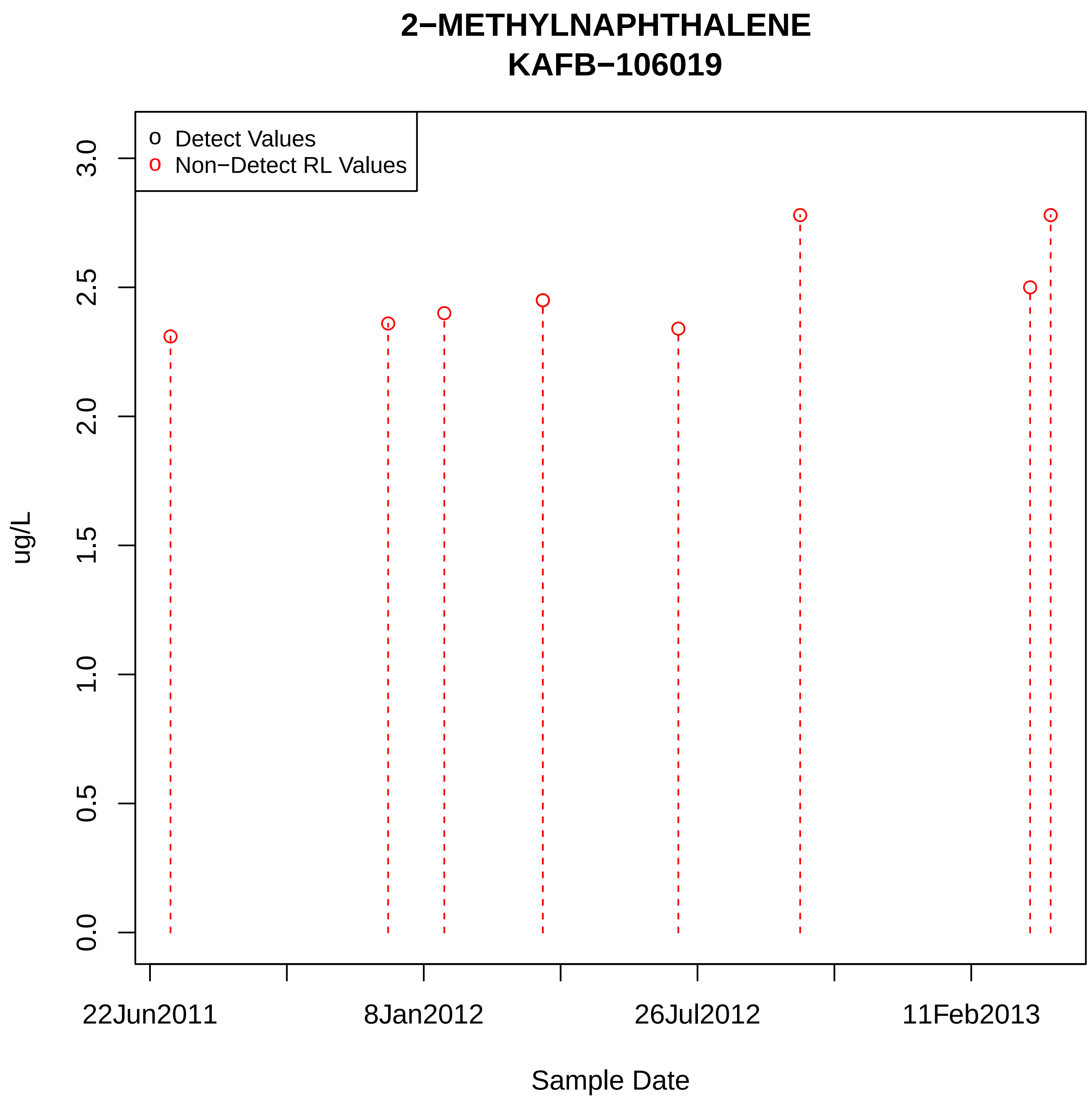


2−METHYLNAPHTHALENE
KAFB−106016
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

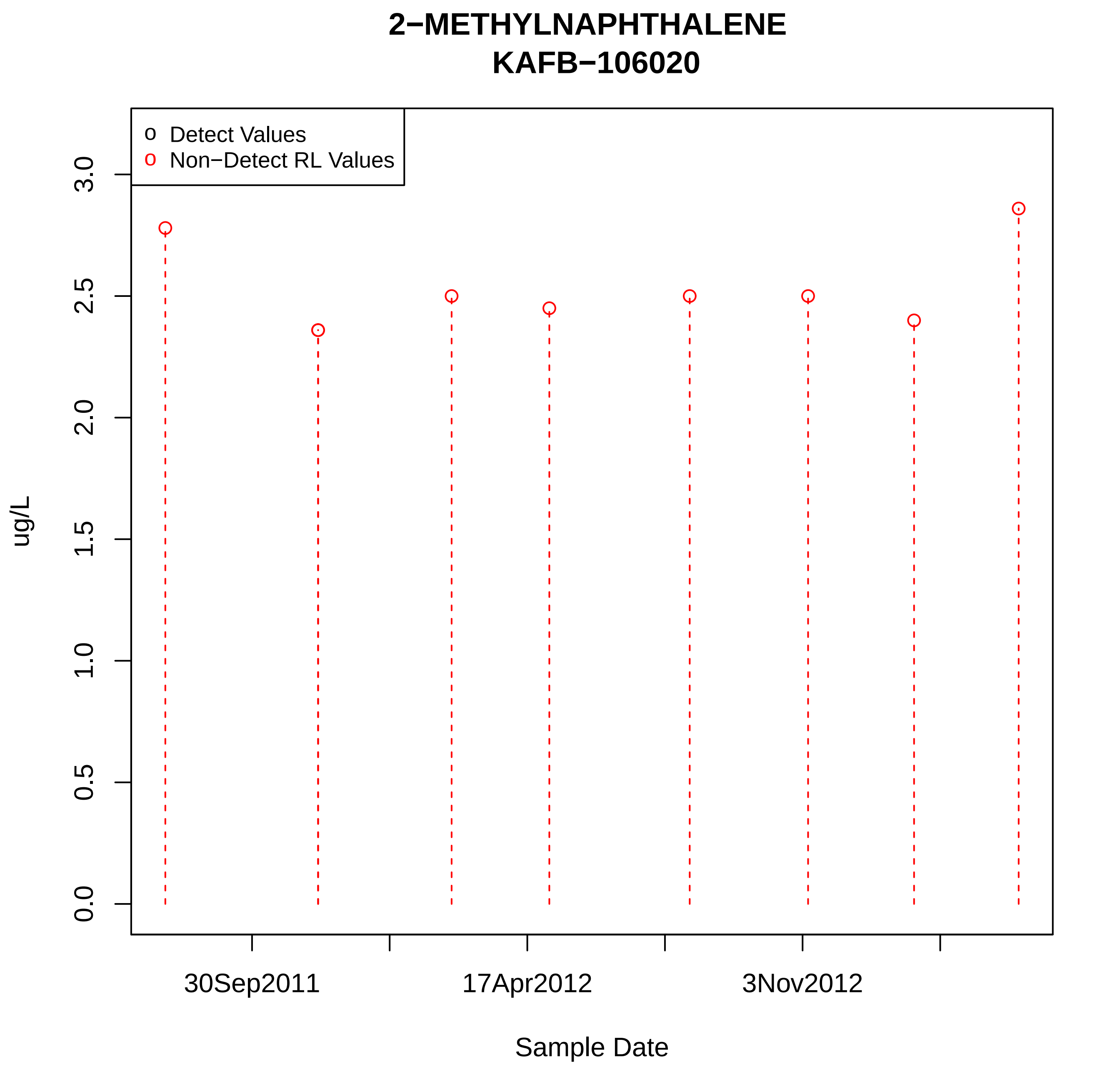

2−METHYLNAPHTHALENE
KAFB−106017
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



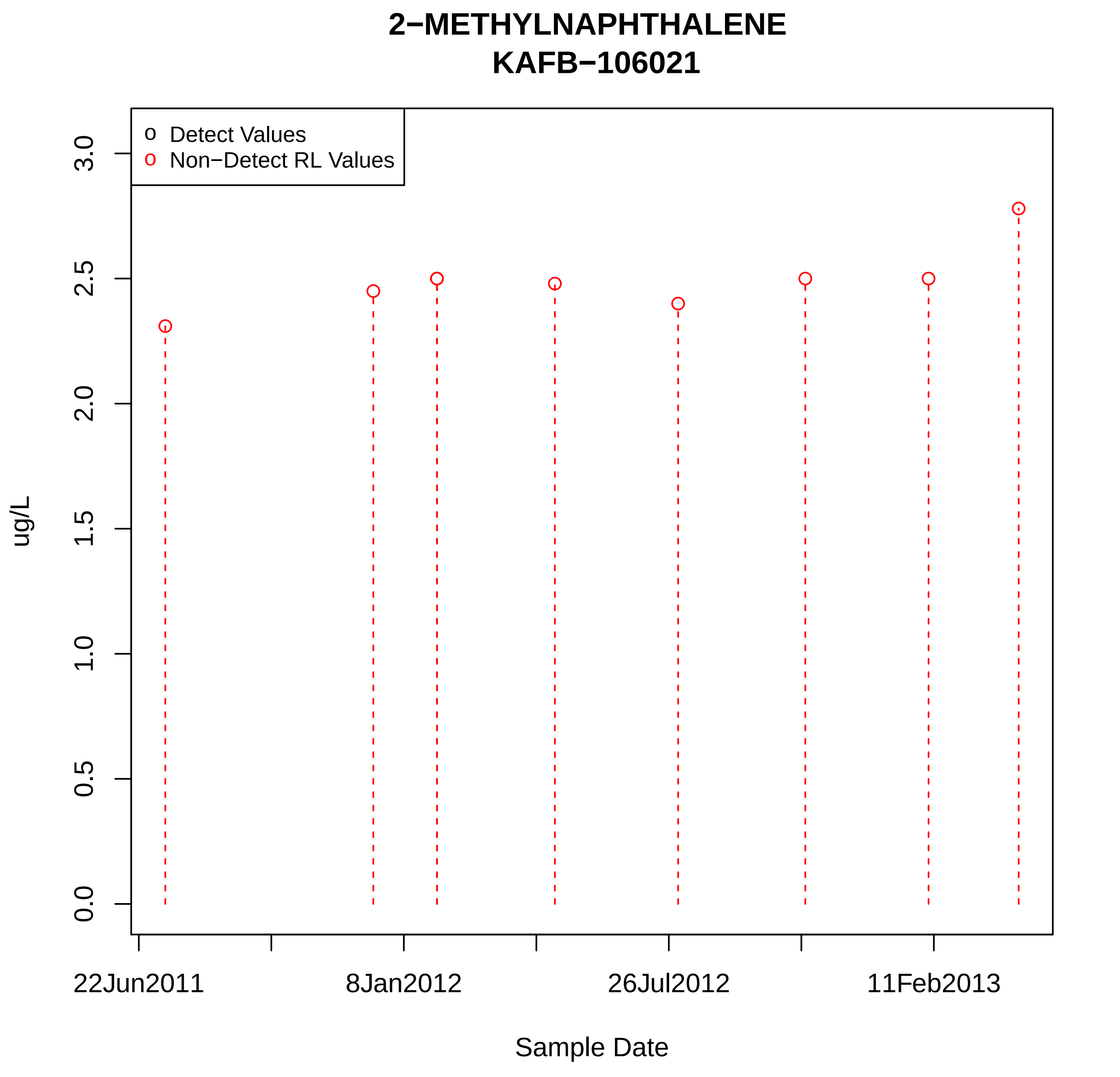
2−METHYLNAPHTHALENE
KAFB−106018
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



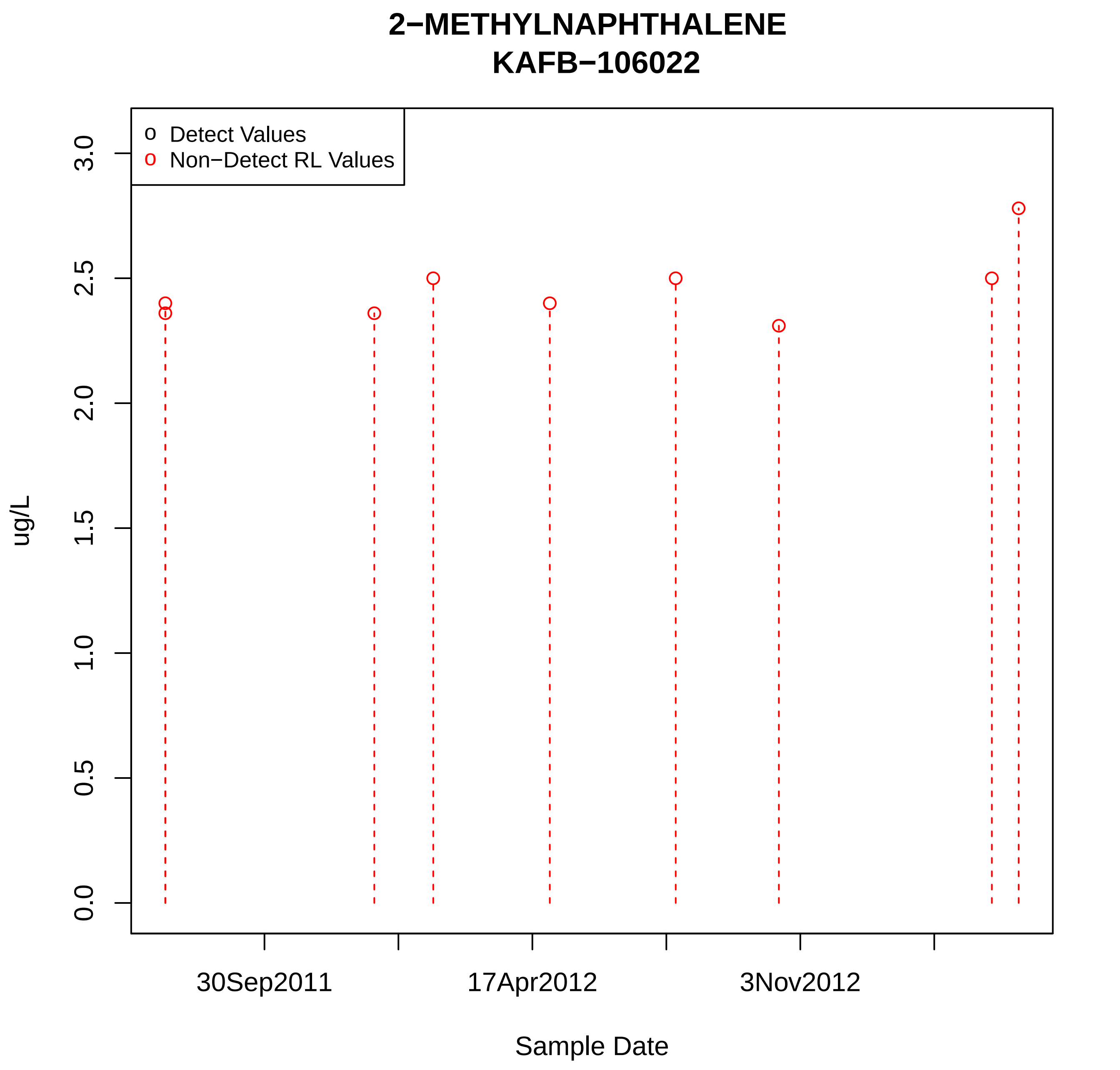
2−METHYLNAPHTHALENE
KAFB−106019
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



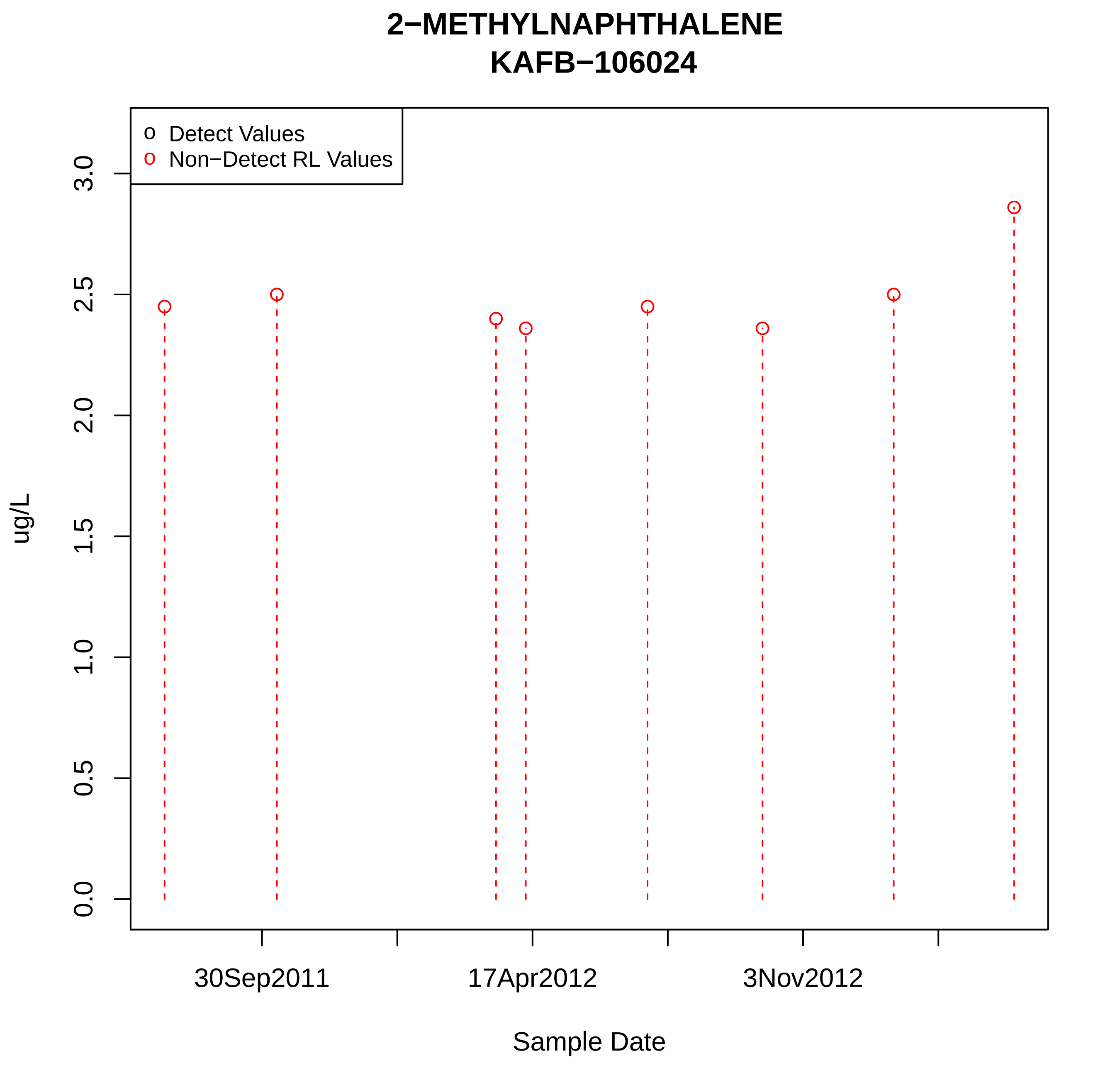
2−METHYLNAPHTHALENE
KAFB−106020
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

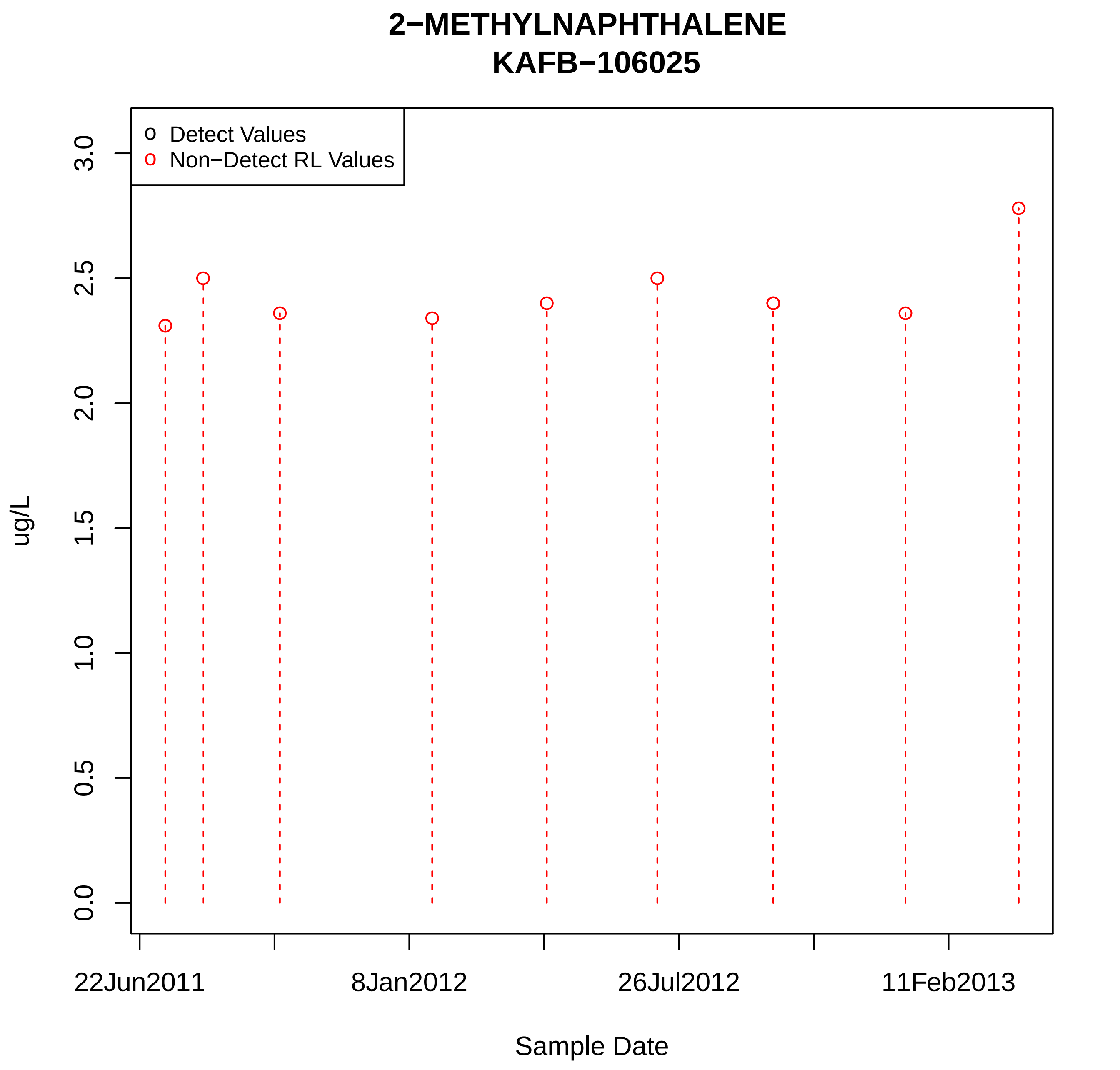


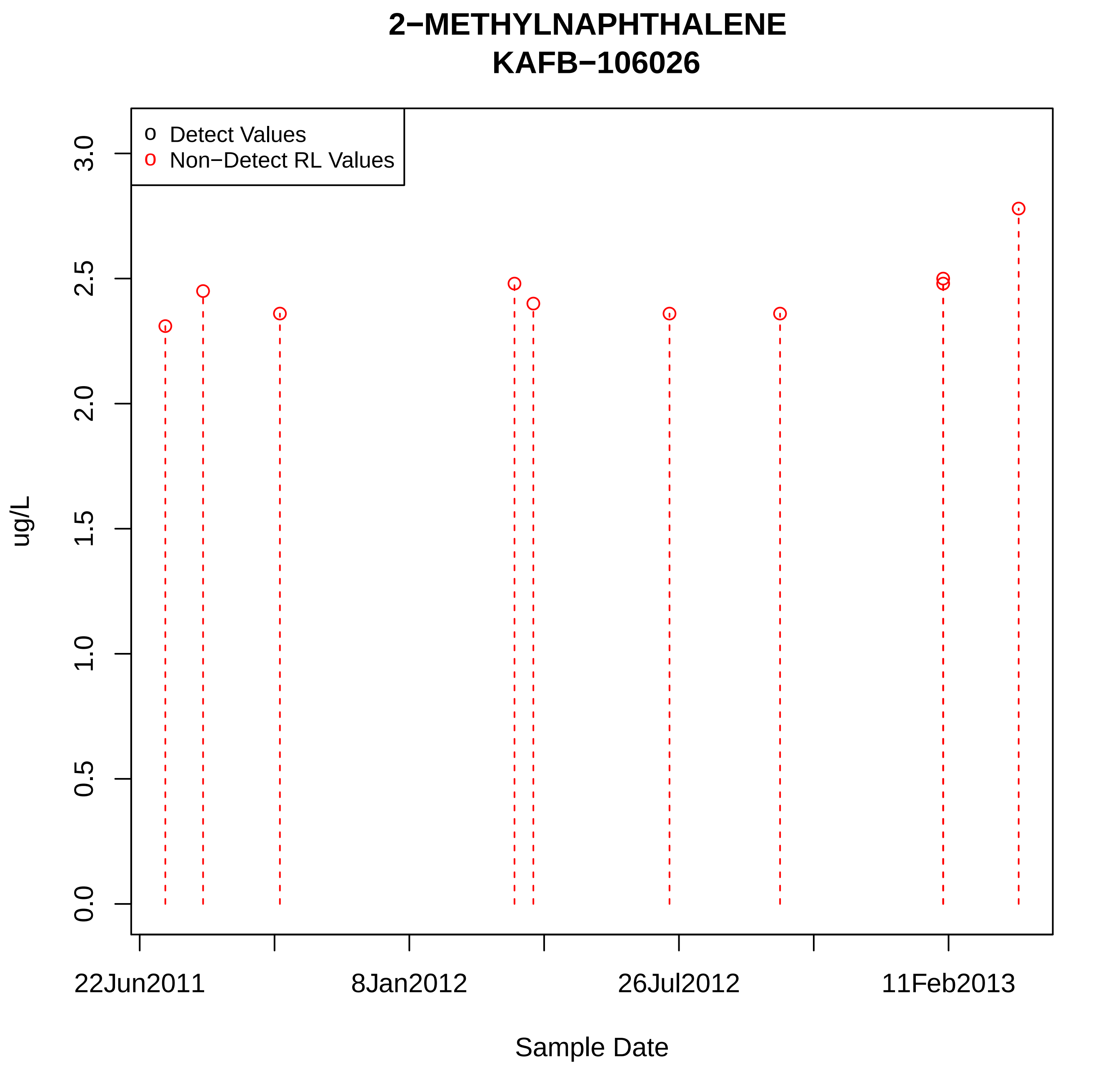
2−METHYLNAPHTHALENE
KAFB−106021
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

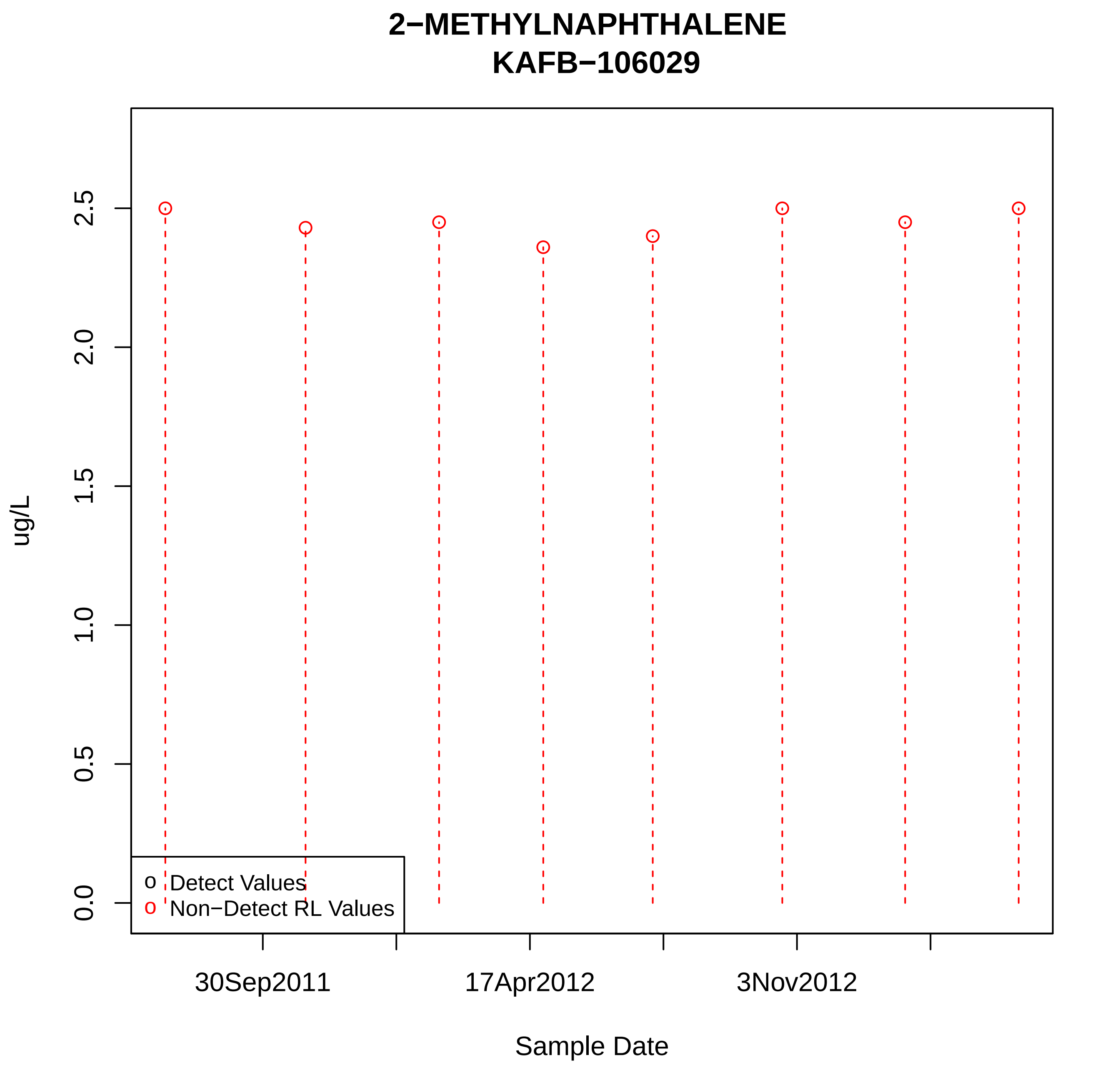


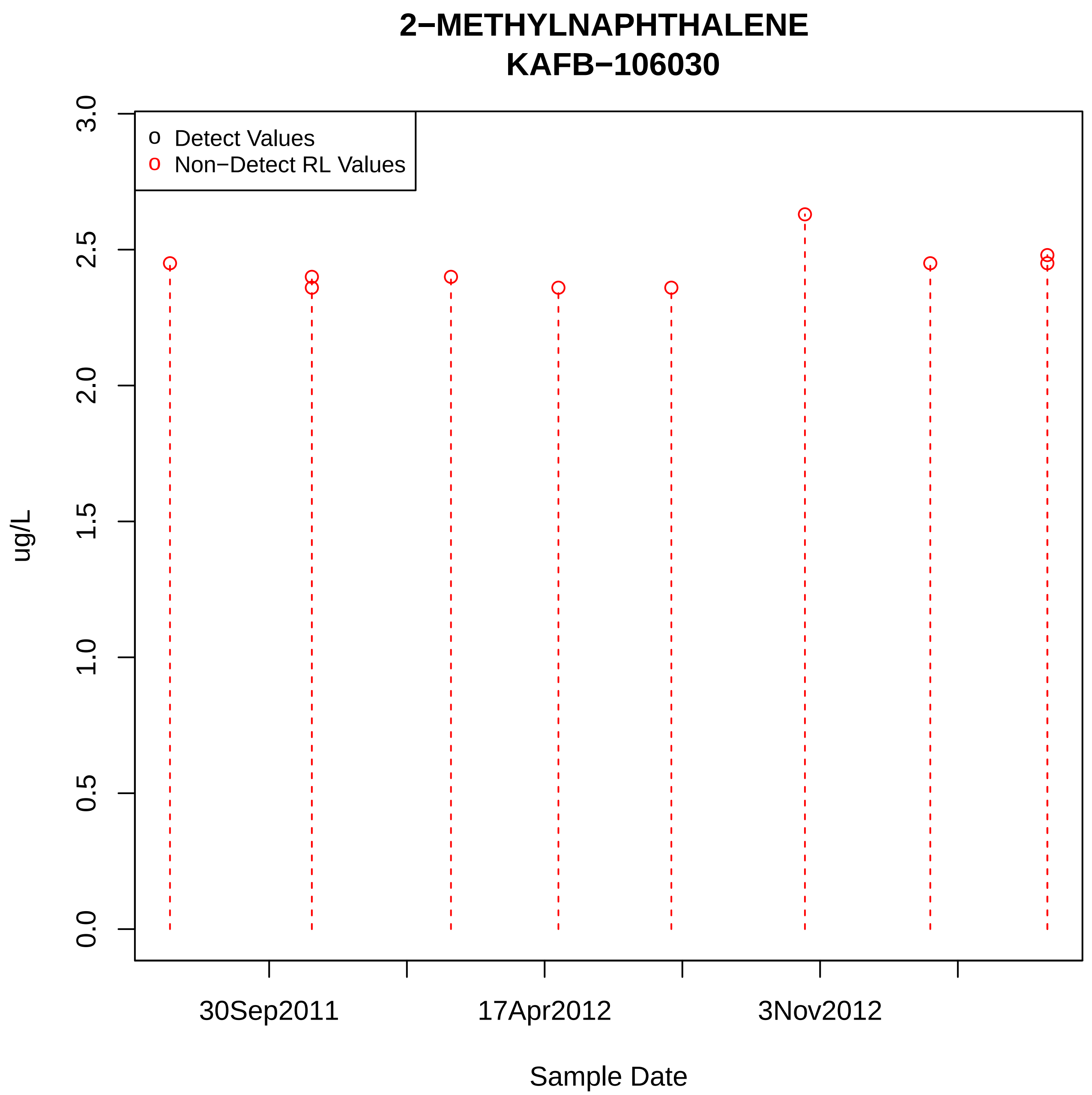
2−METHYLNAPHTHALENE
KAFB−106022
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLNAPHTHALENE
KAFB−106024
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

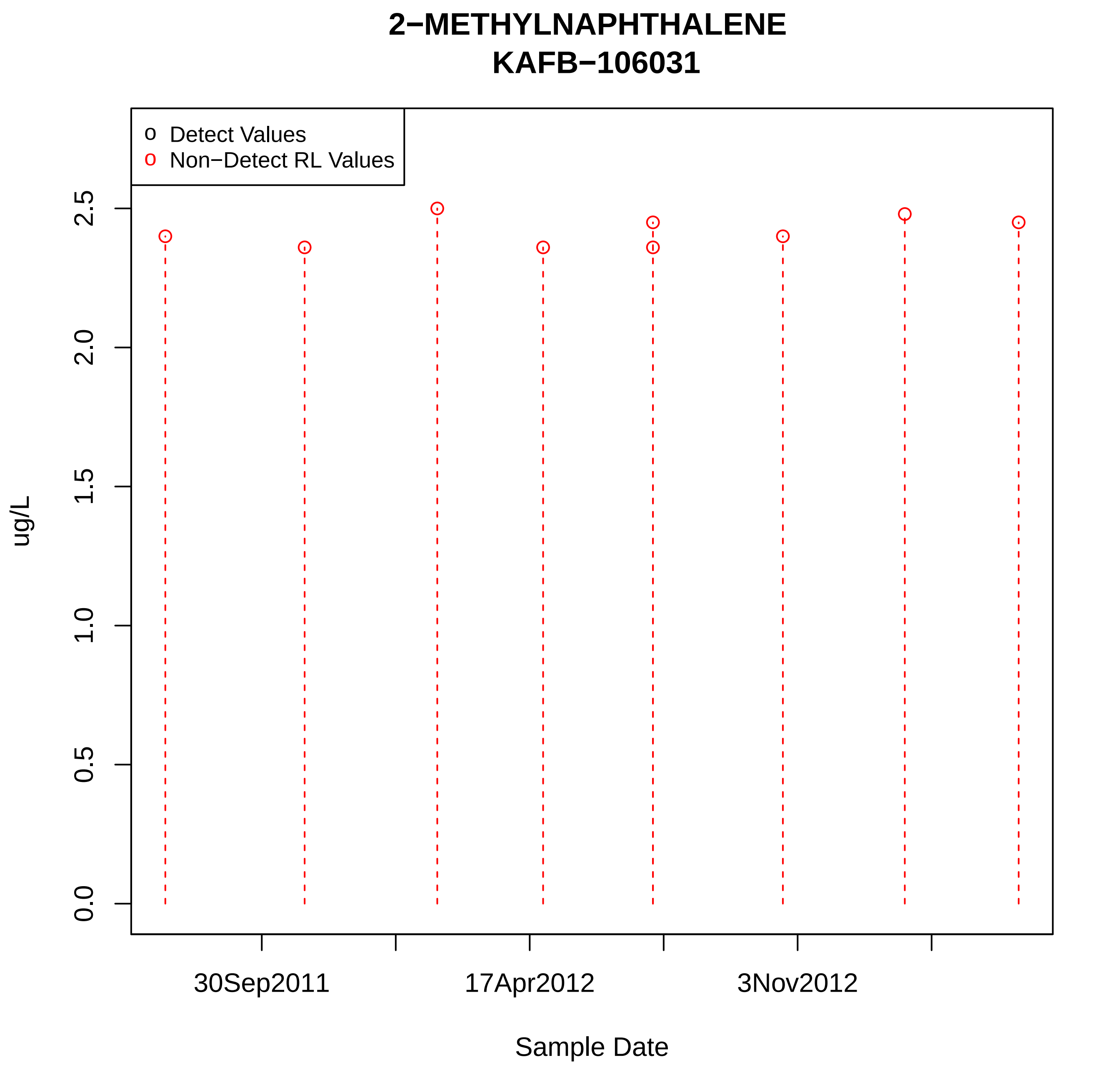

2−METHYLNAPHTHALENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

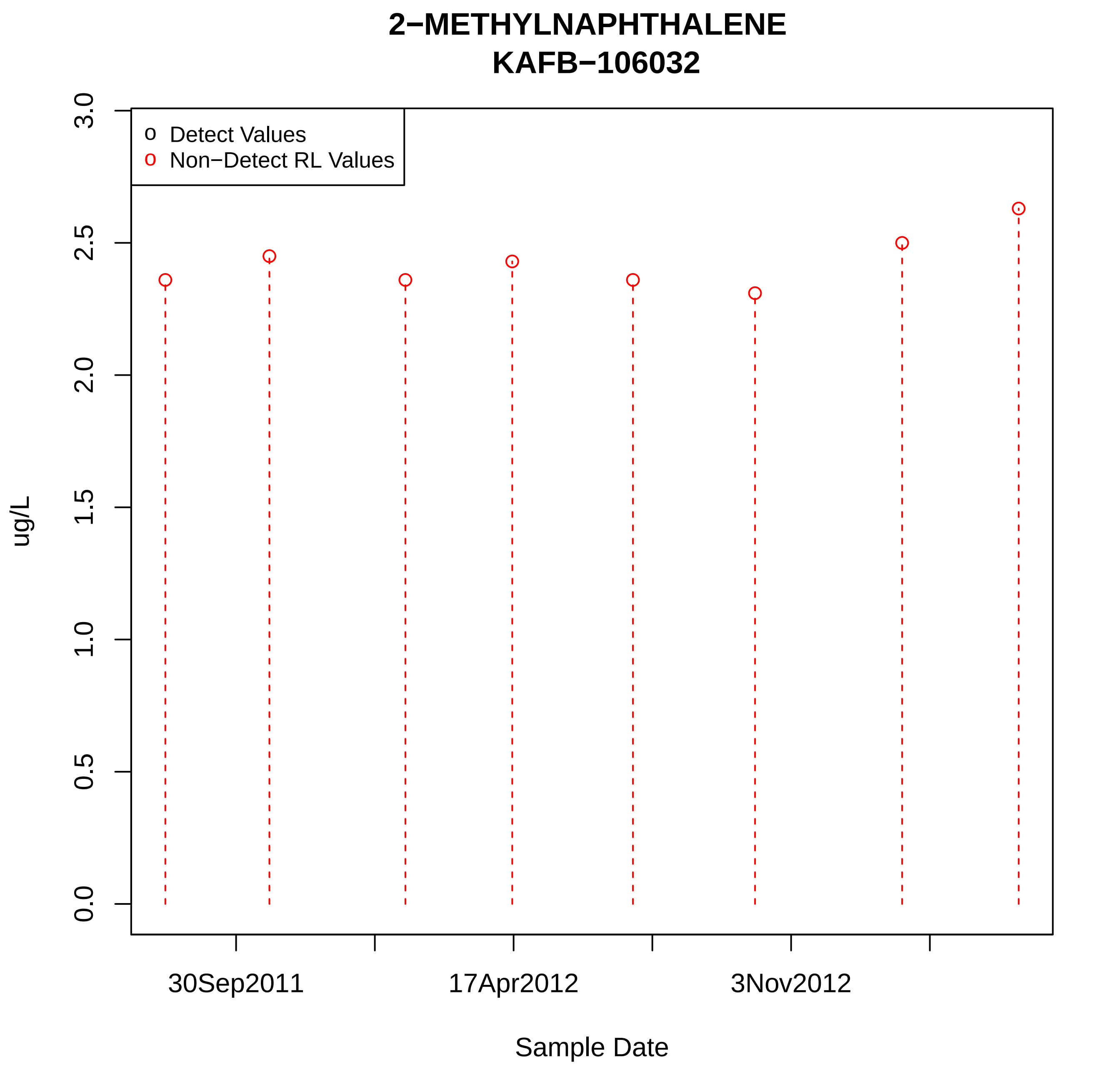

2−METHYLNAPHTHALENE
KAFB−106029
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

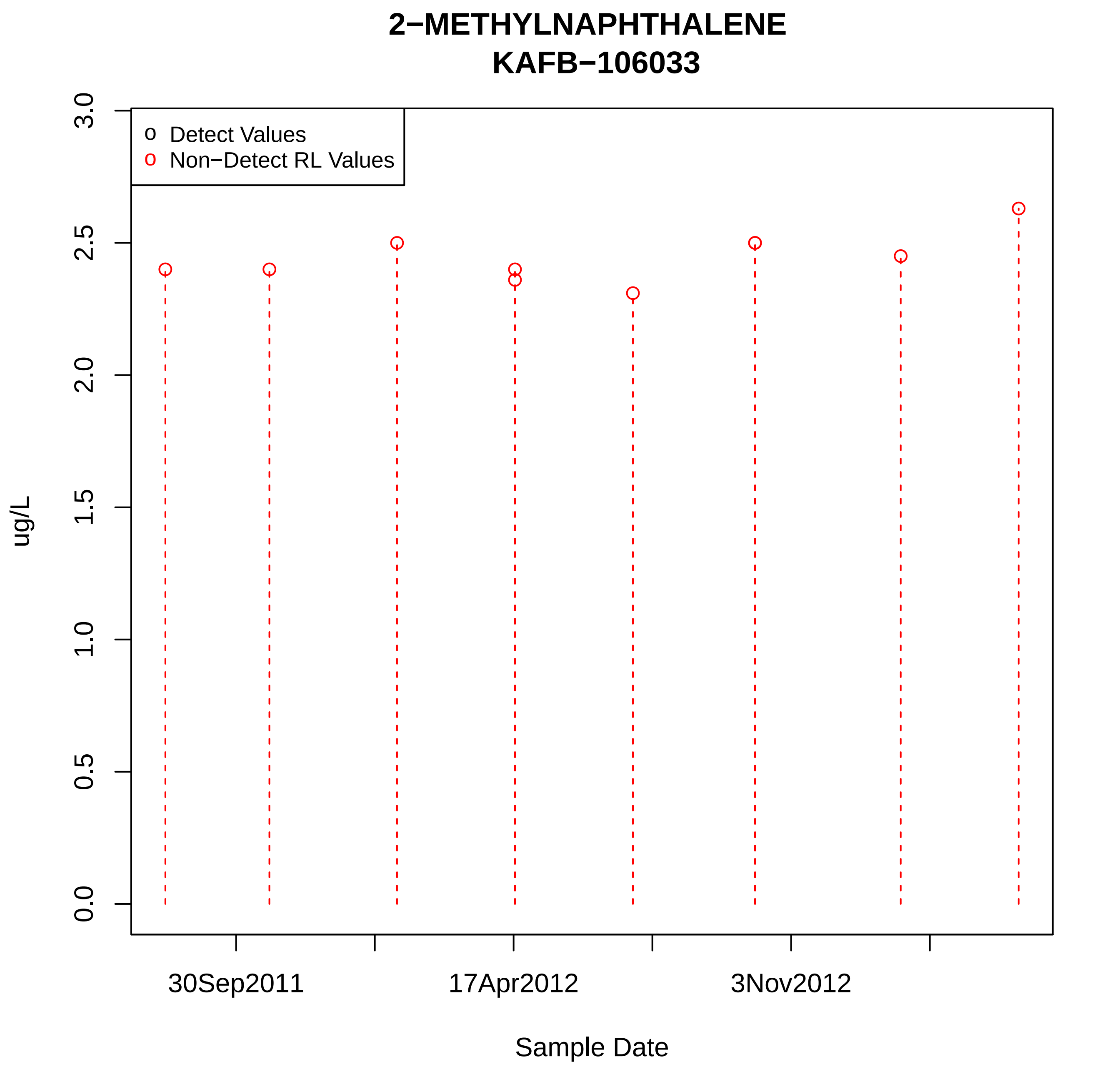


2−METHYLNAPHTHALENE
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

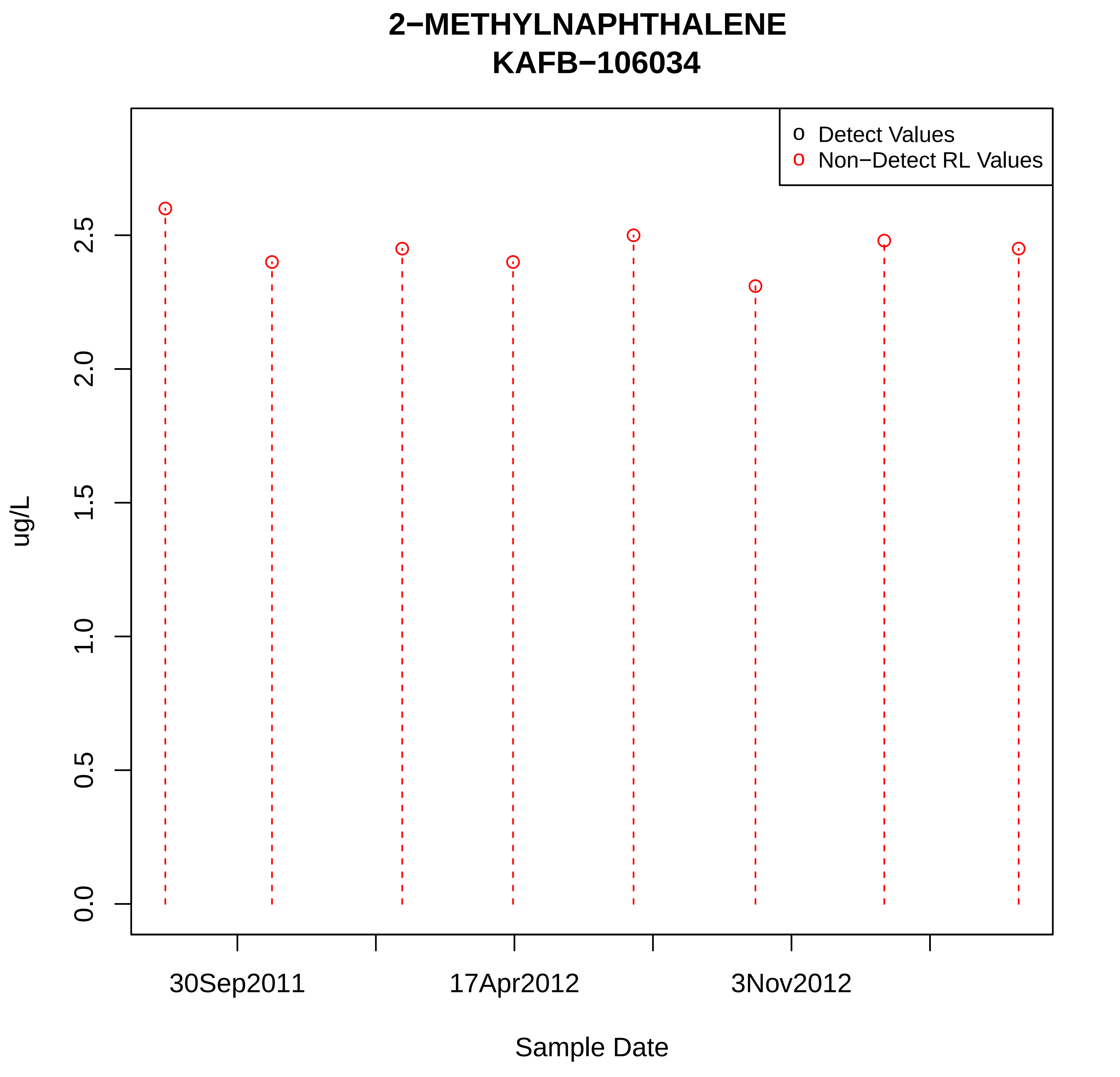


2−METHYLNAPHTHALENE
KAFB−106031
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

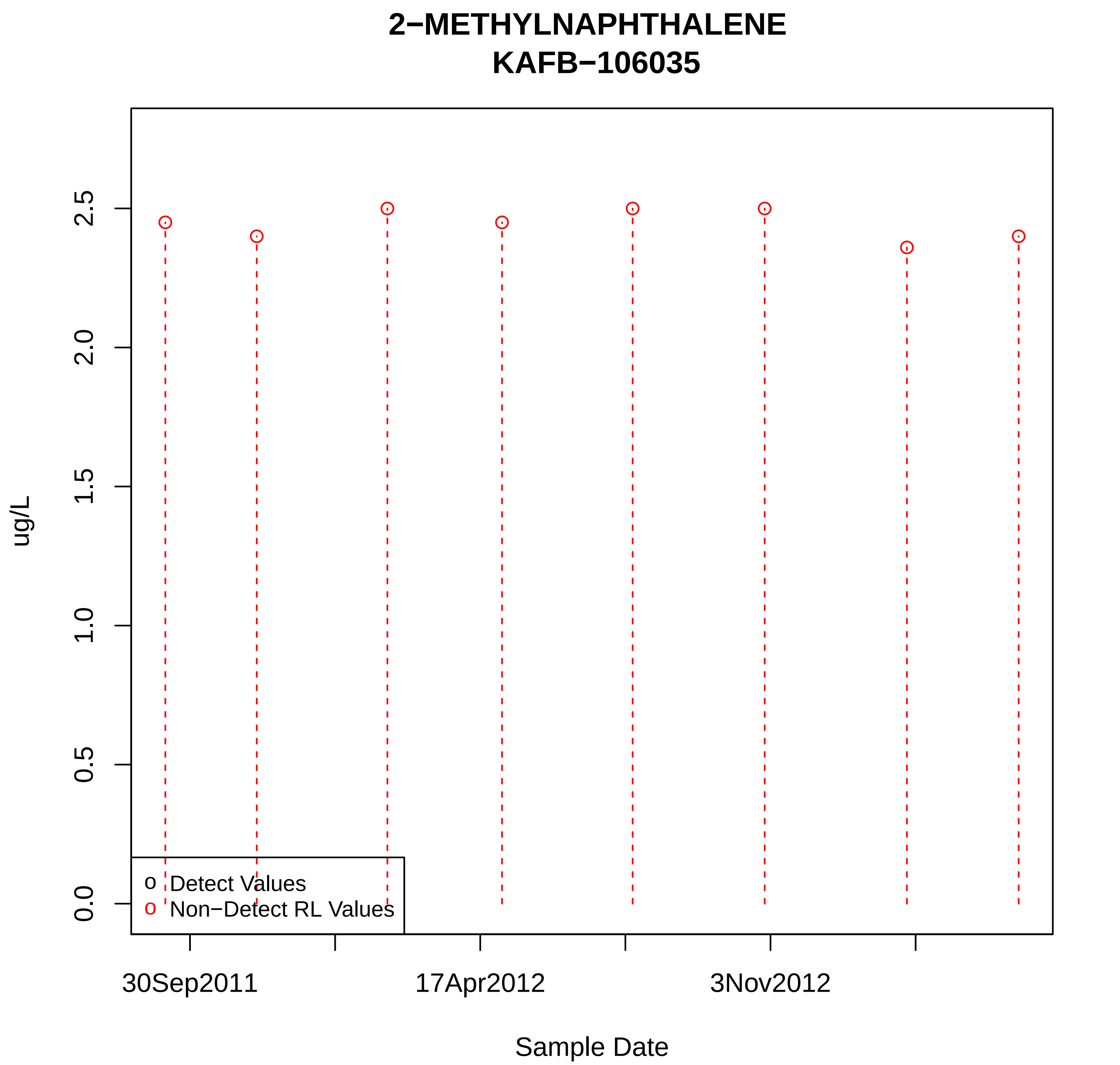

2−METHYLNAPHTHALENE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

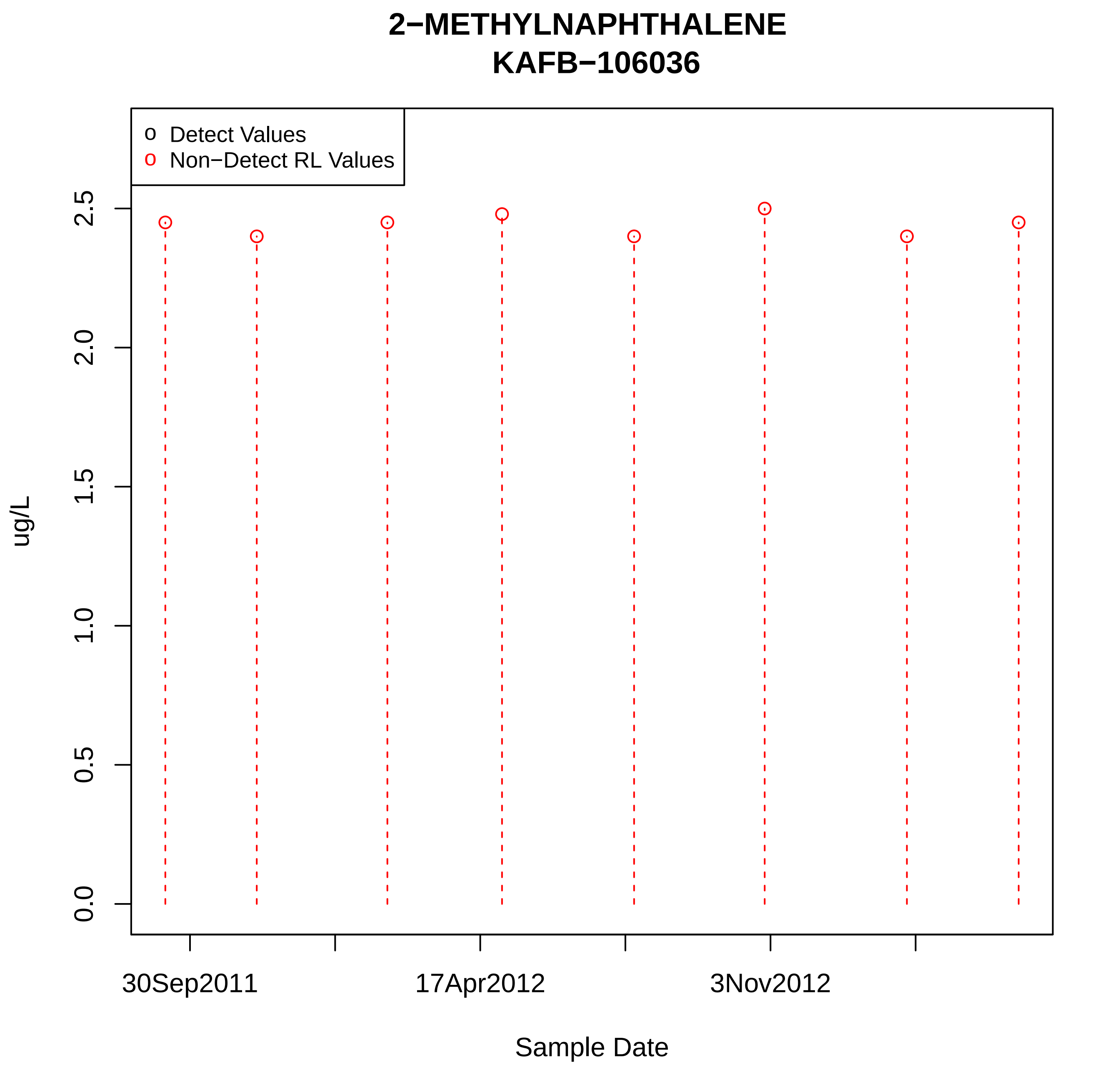


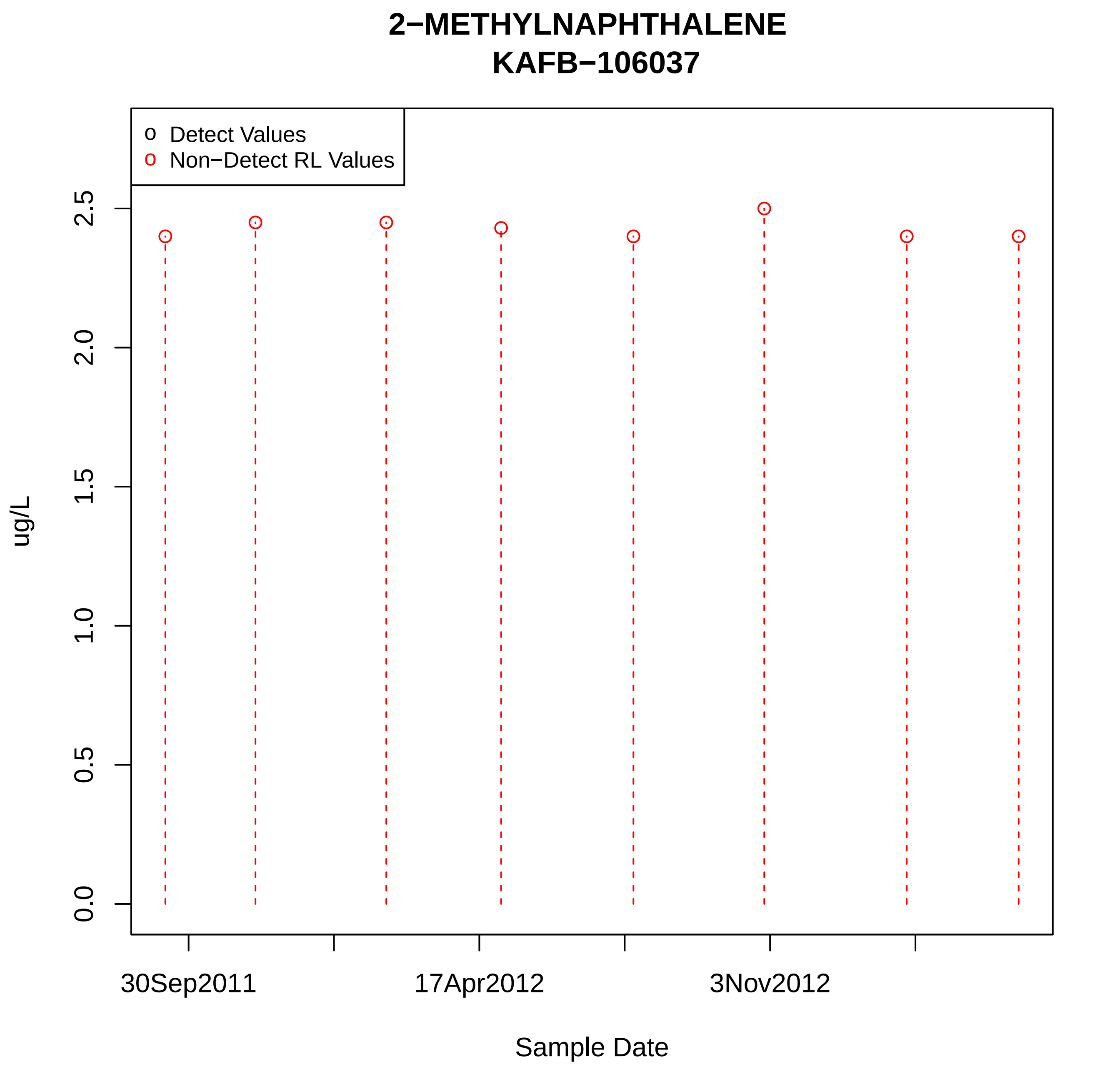
2−METHYLNAPHTHALENE
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



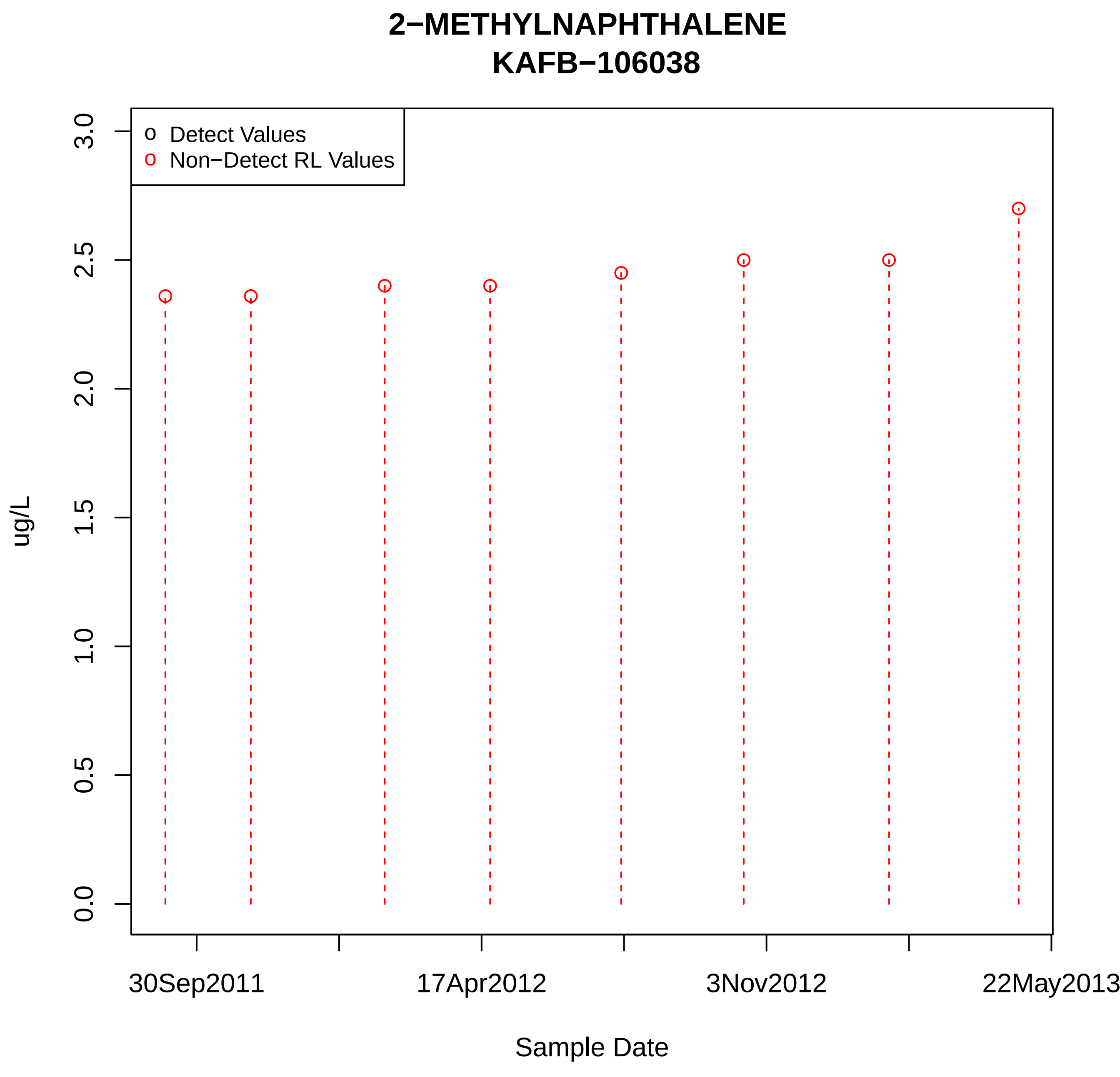
2−METHYLNAPHTHALENE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLNAPHTHALENE
KAFB−106035
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

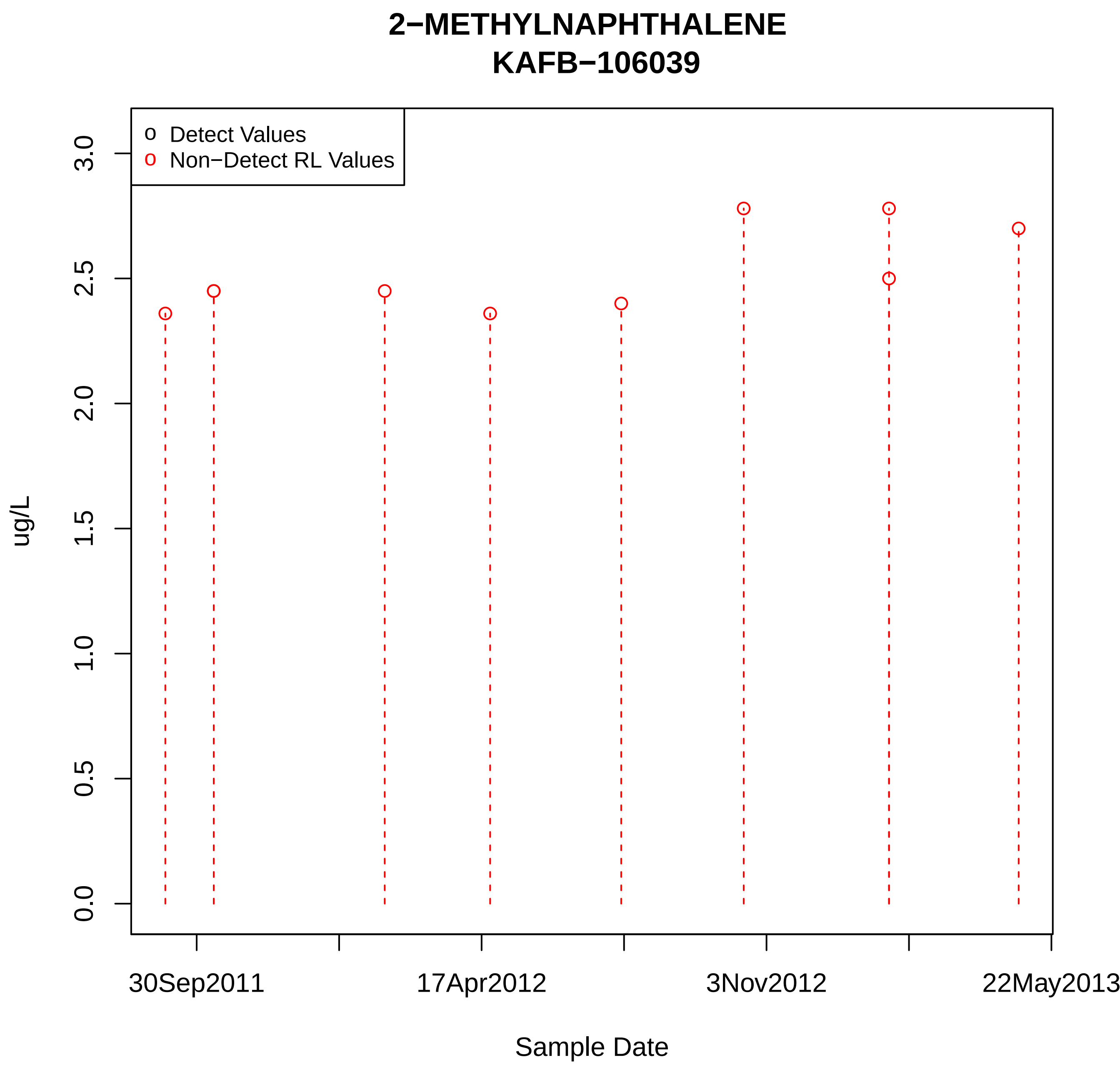

2−METHYLNAPHTHALENE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

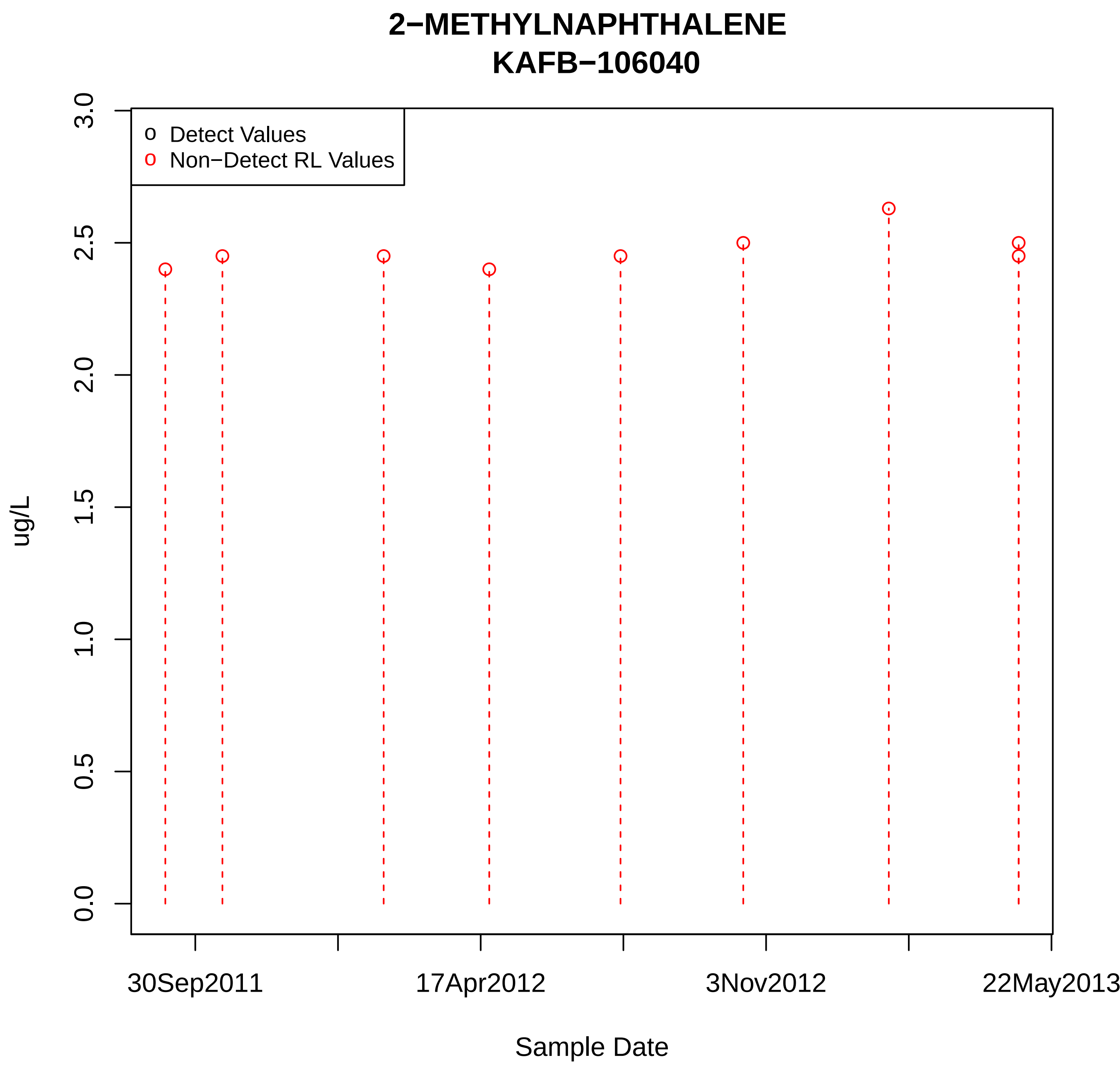


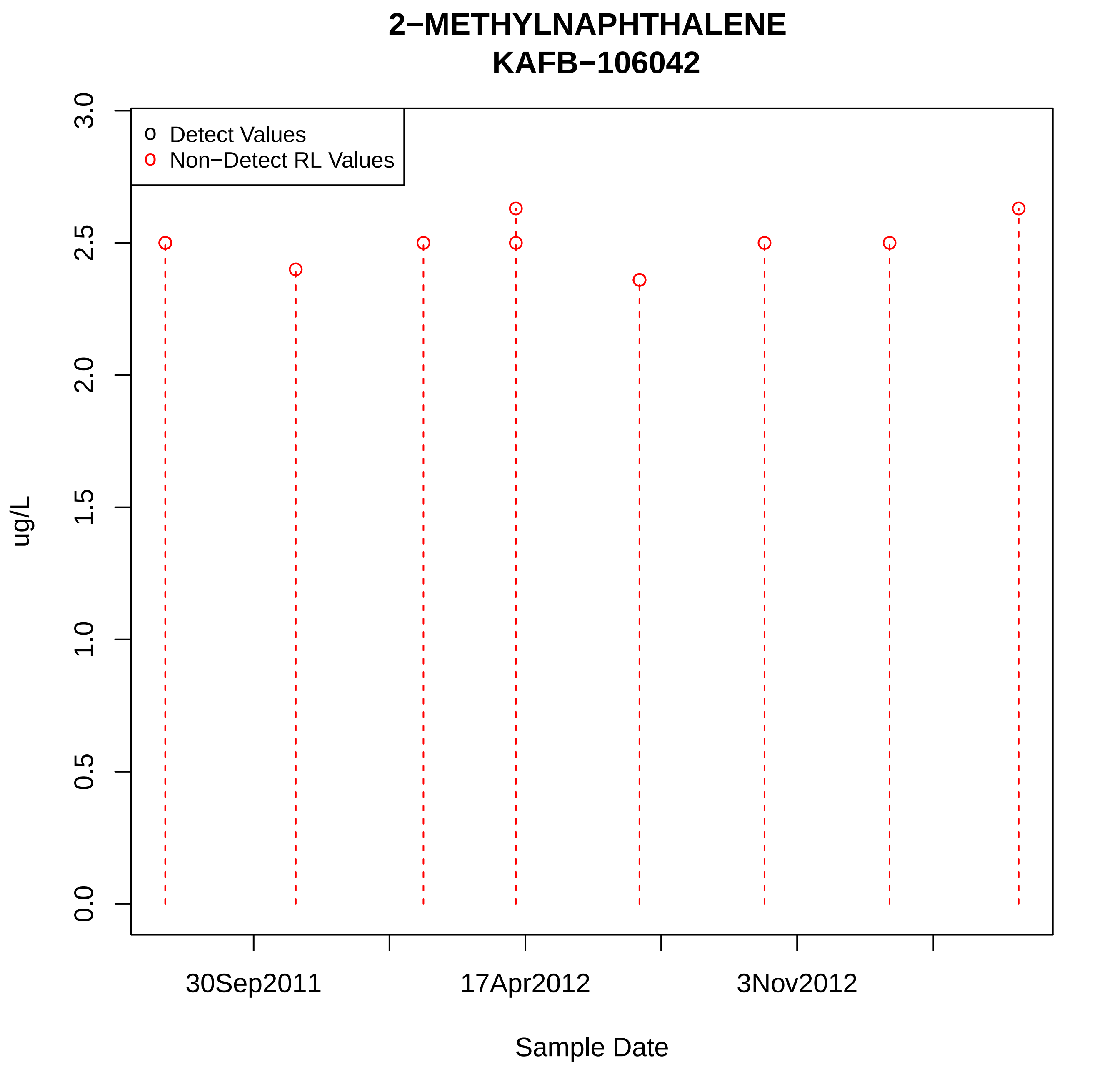
2−METHYLNAPHTHALENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

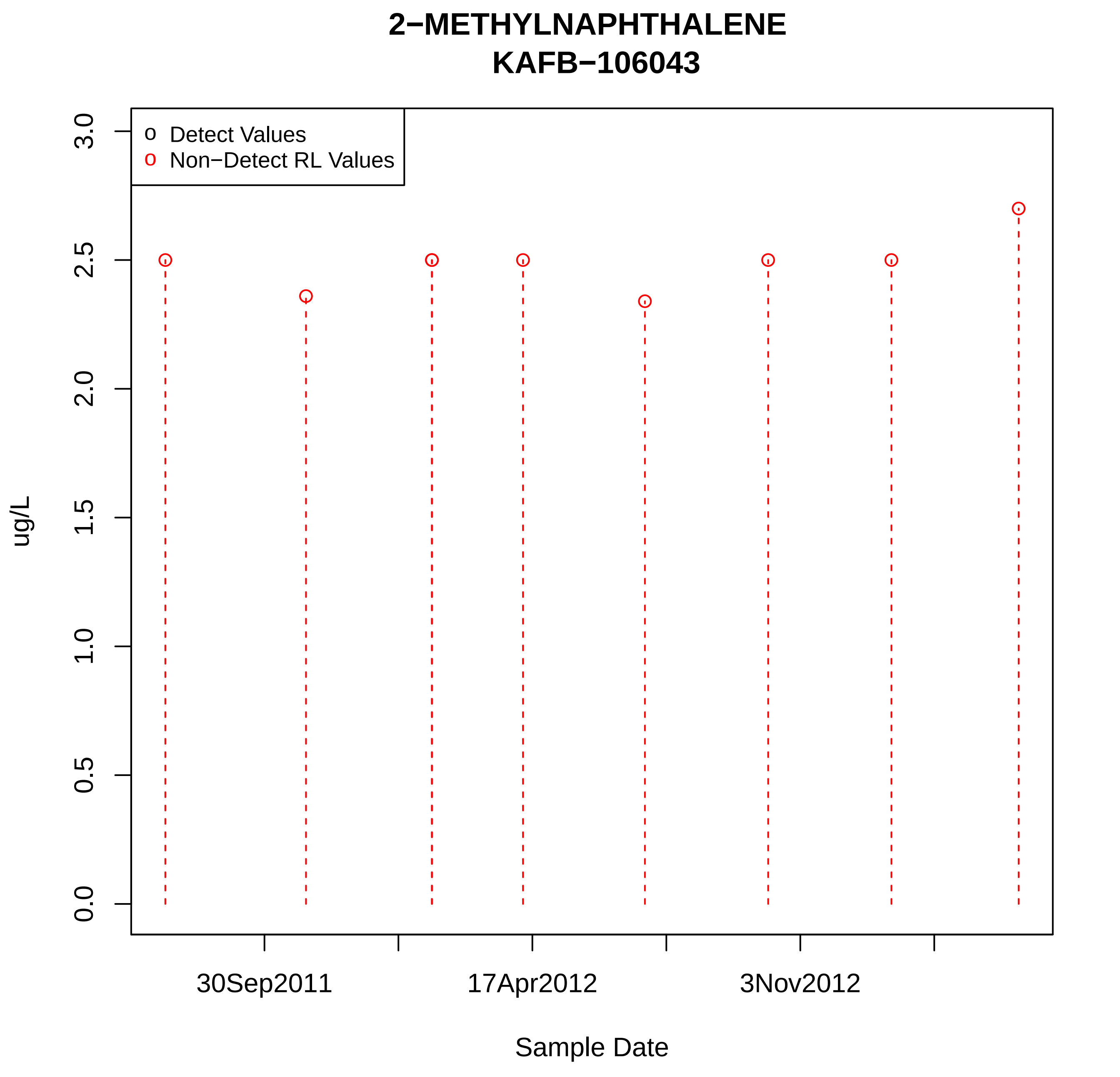


2−METHYLNAPHTHALENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

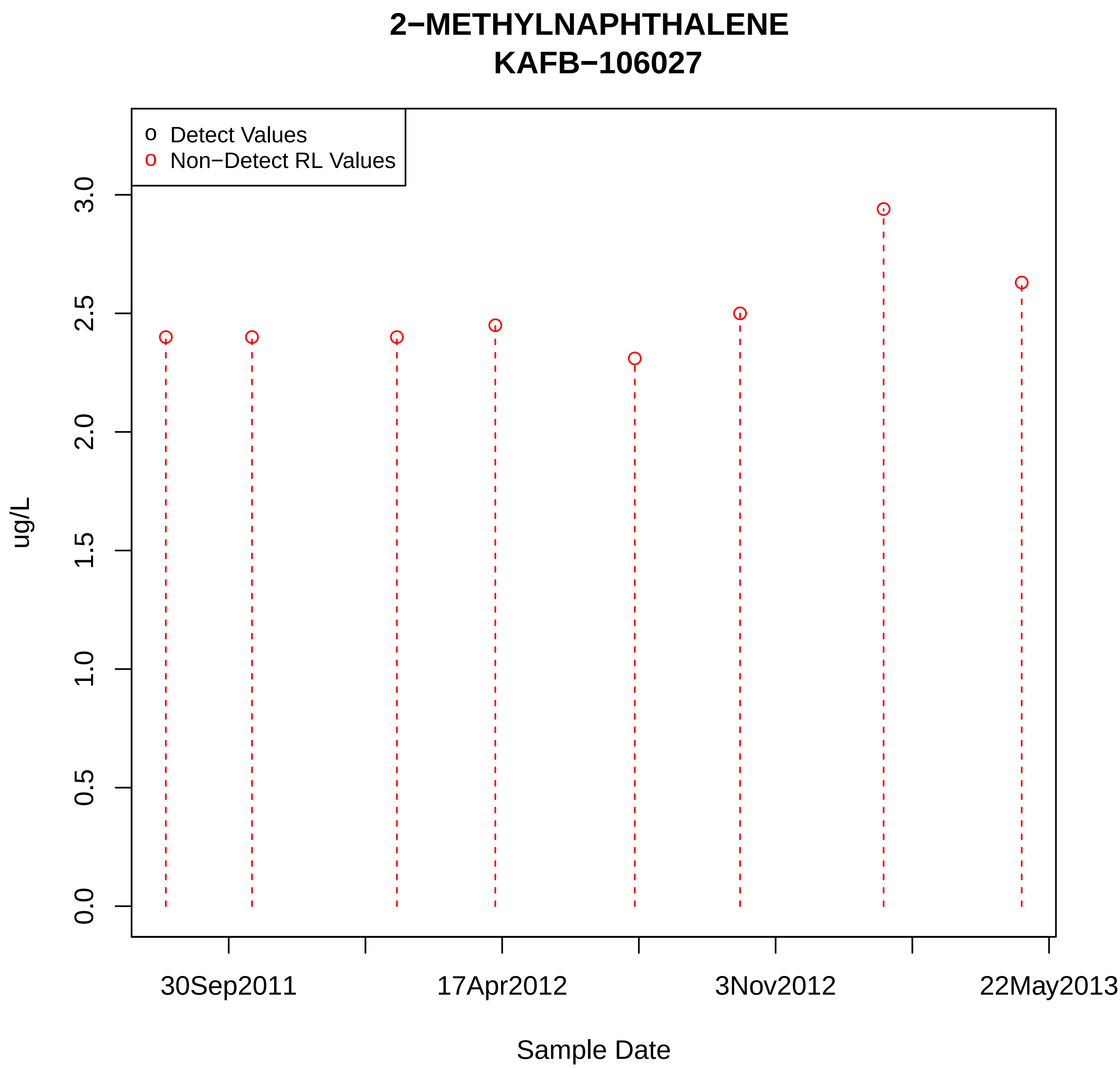

2−METHYLNAPHTHALENE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

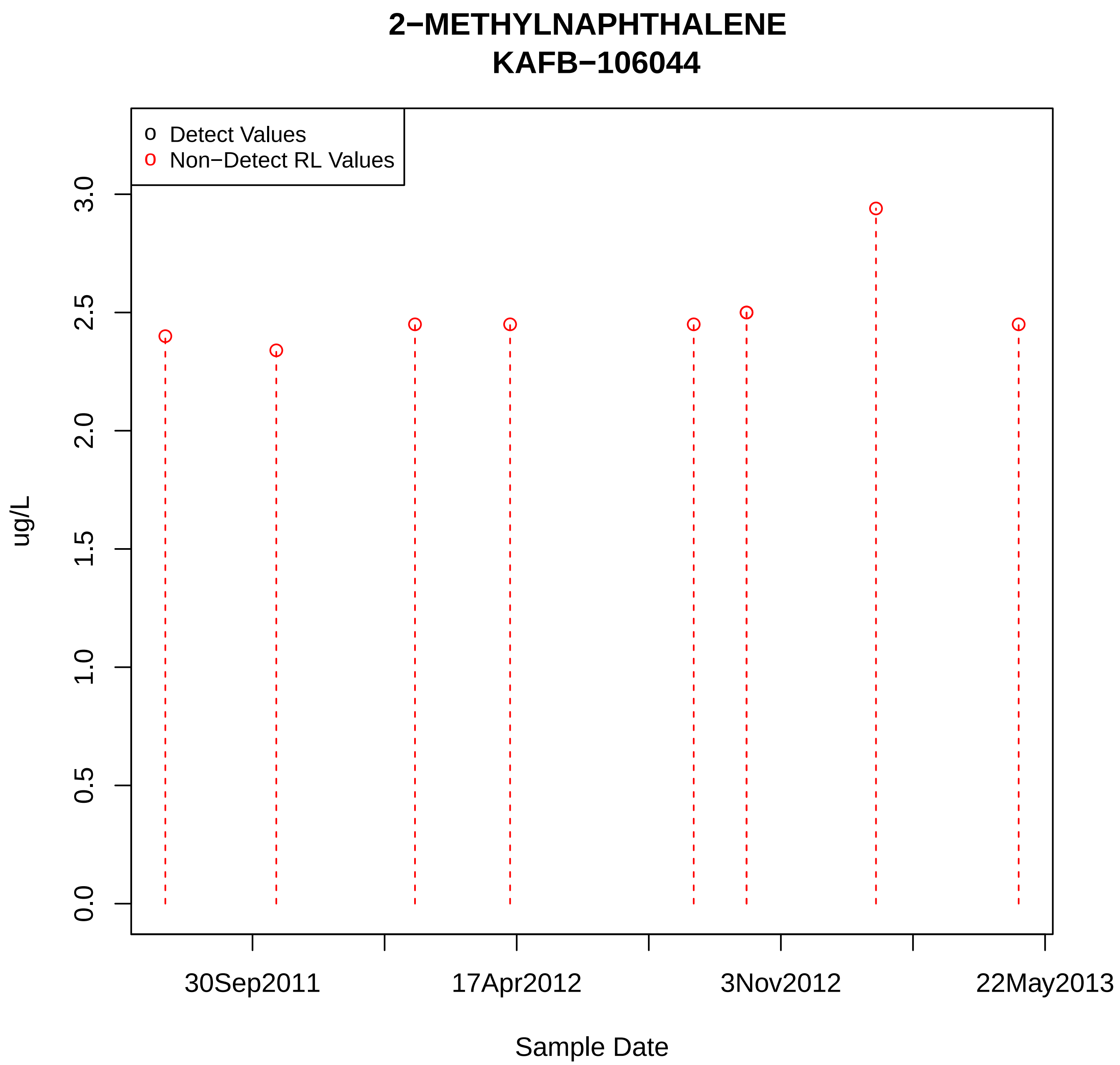

2−METHYLNAPHTHALENE
KAFB−106040
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

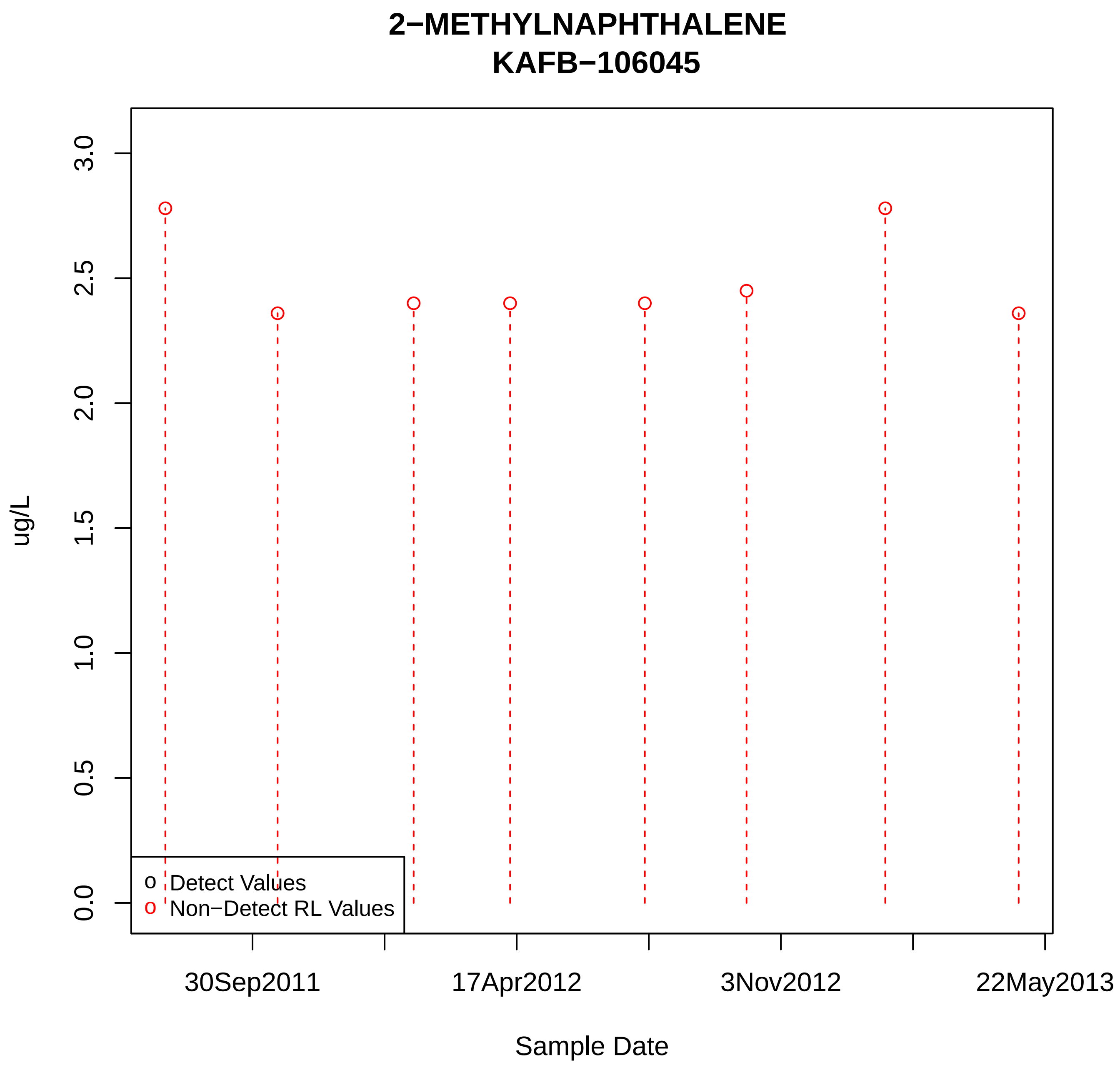


2−METHYLNAPHTHALENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

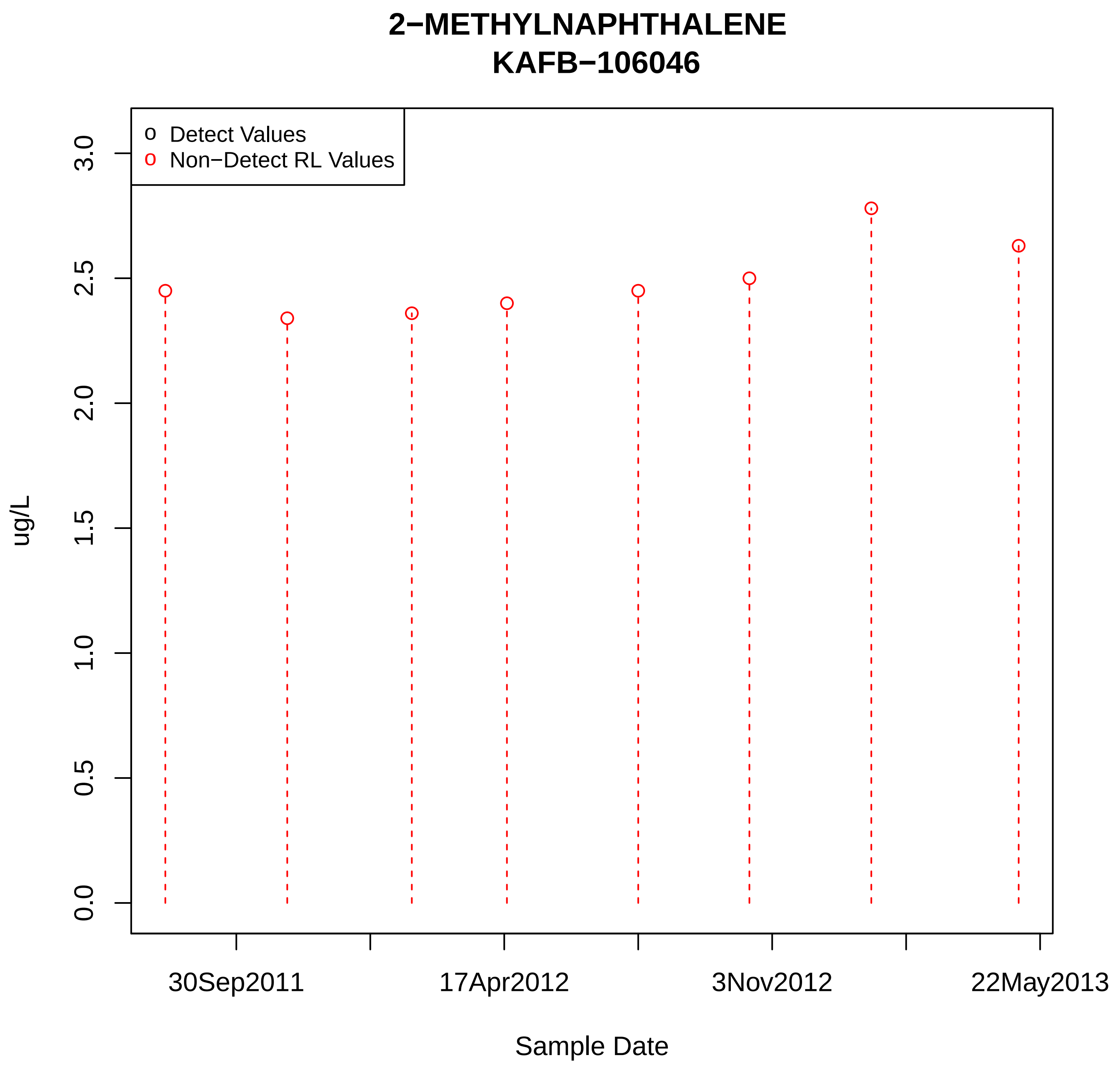

2−METHYLNAPHTHALENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



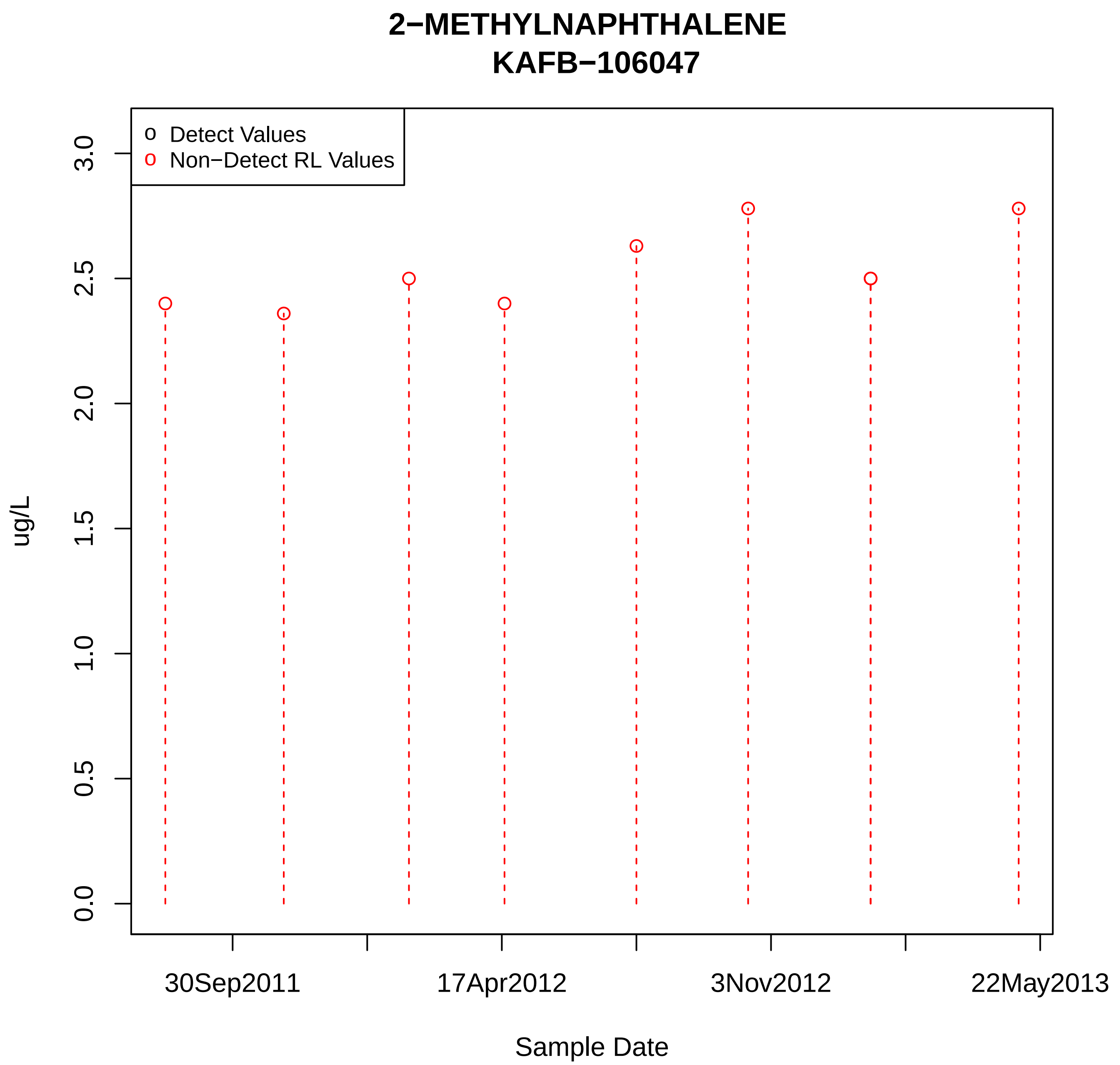
2−METHYLNAPHTHALENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

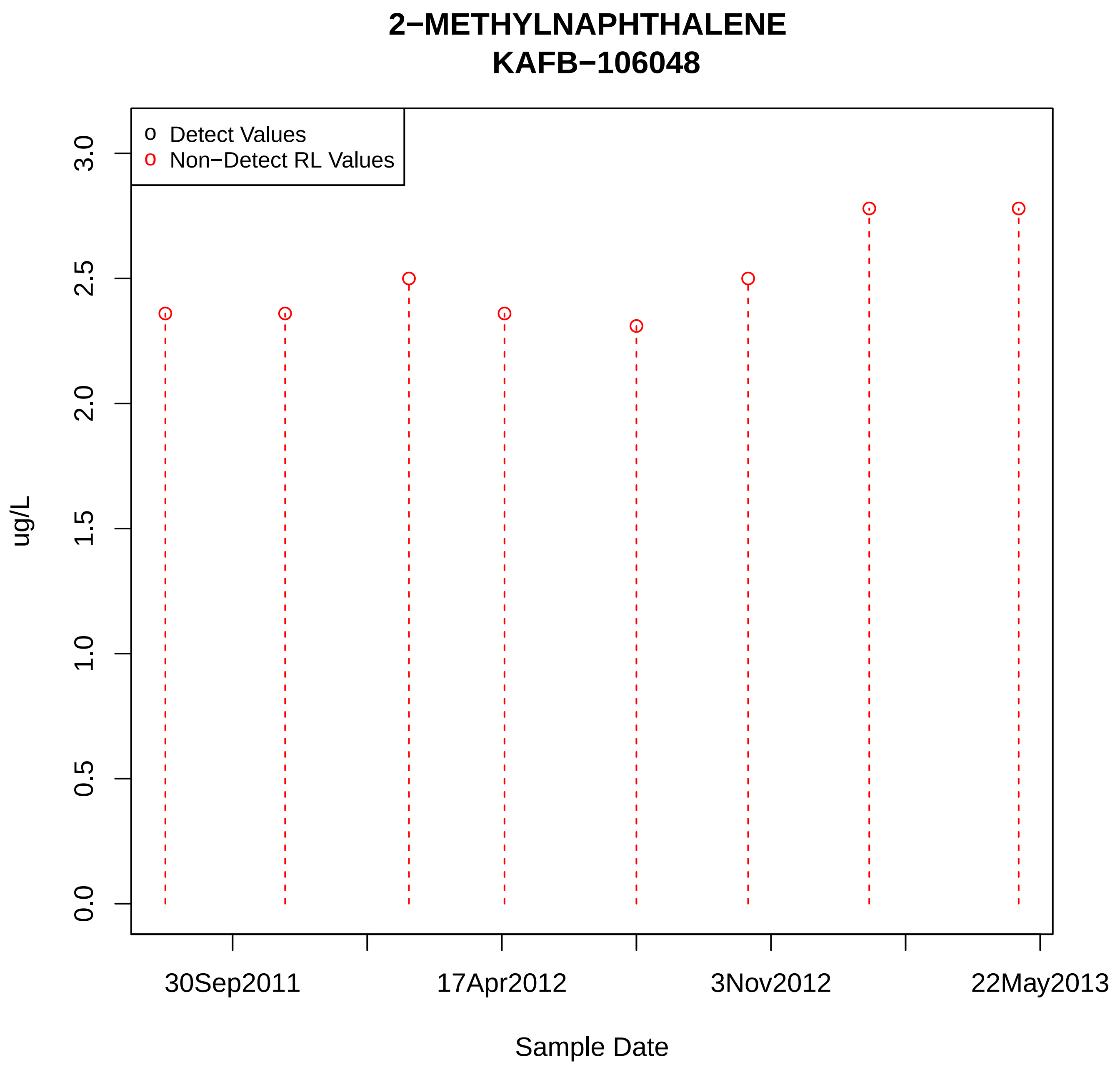


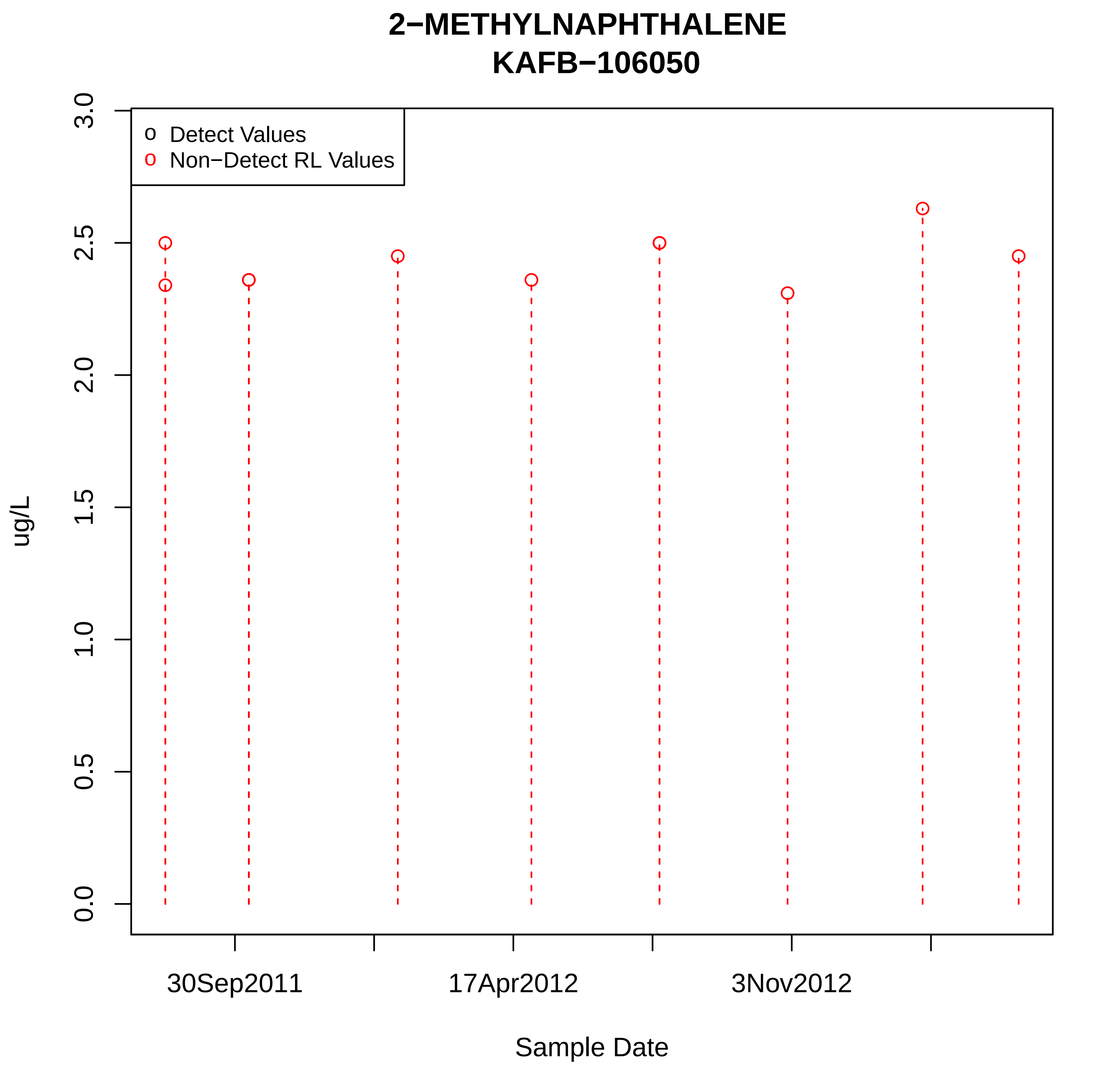
2−METHYLNAPHTHALENE
KAFB−106045
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



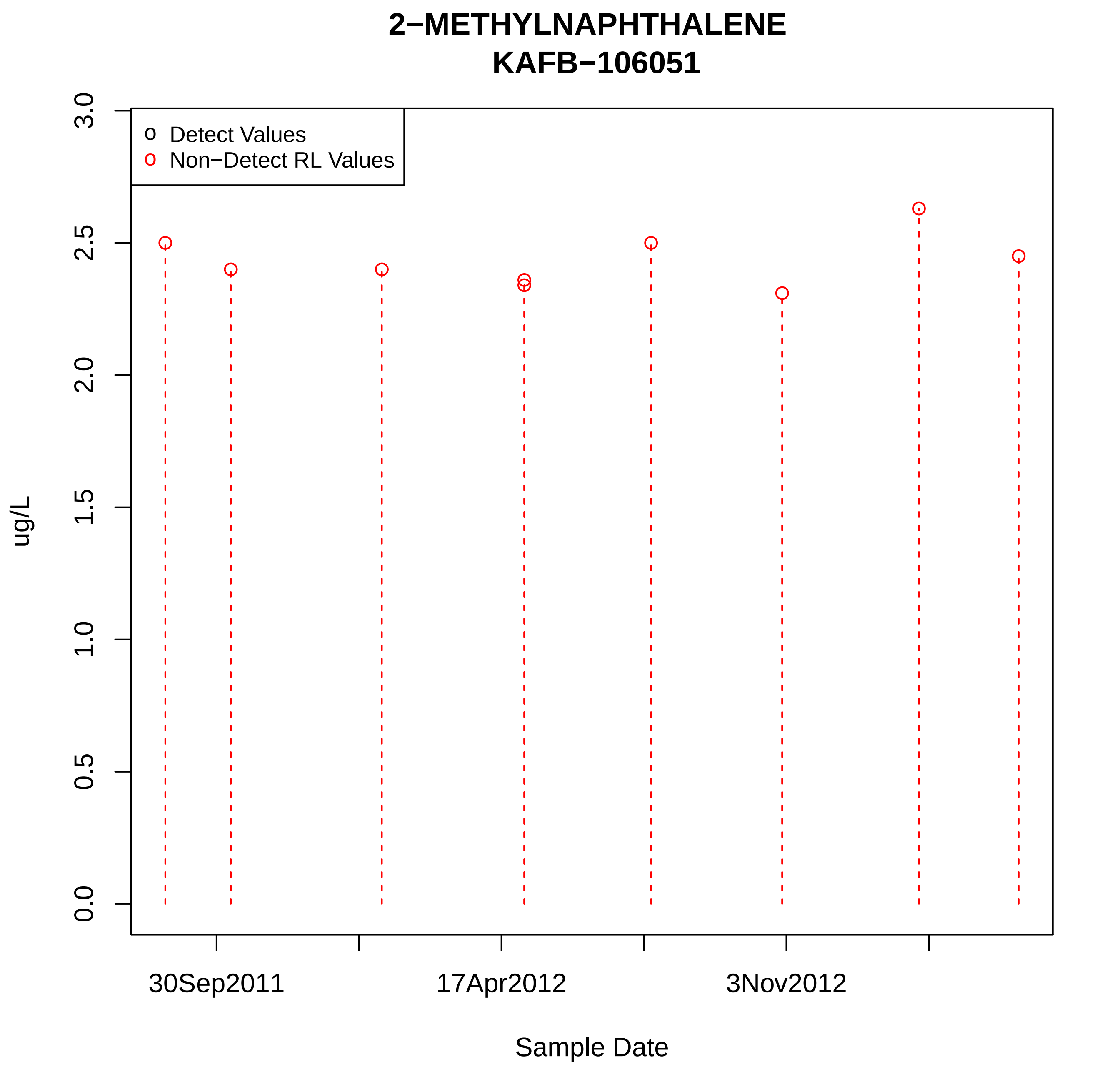
2−METHYLNAPHTHALENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

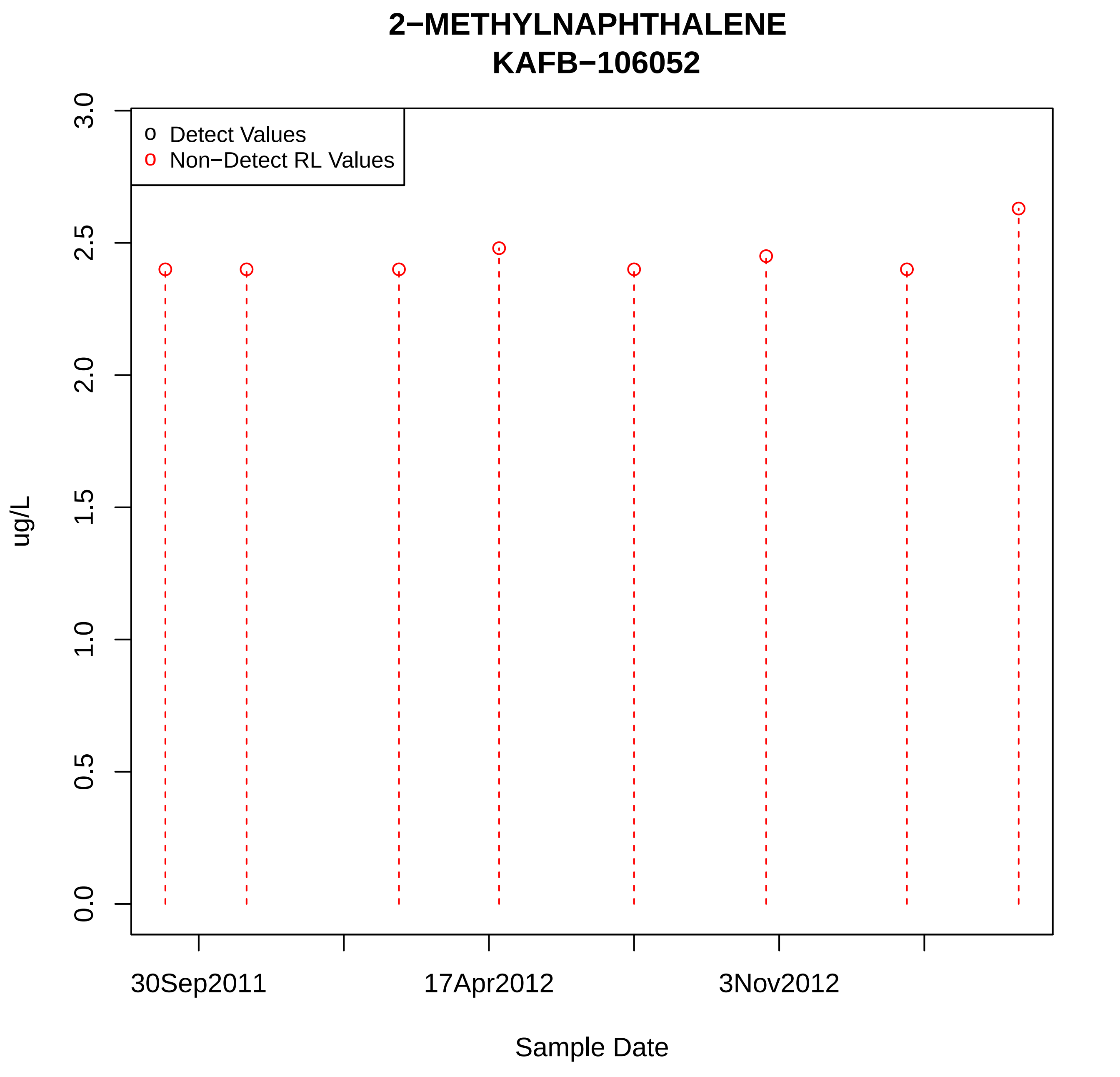

2−METHYLNAPHTHALENE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

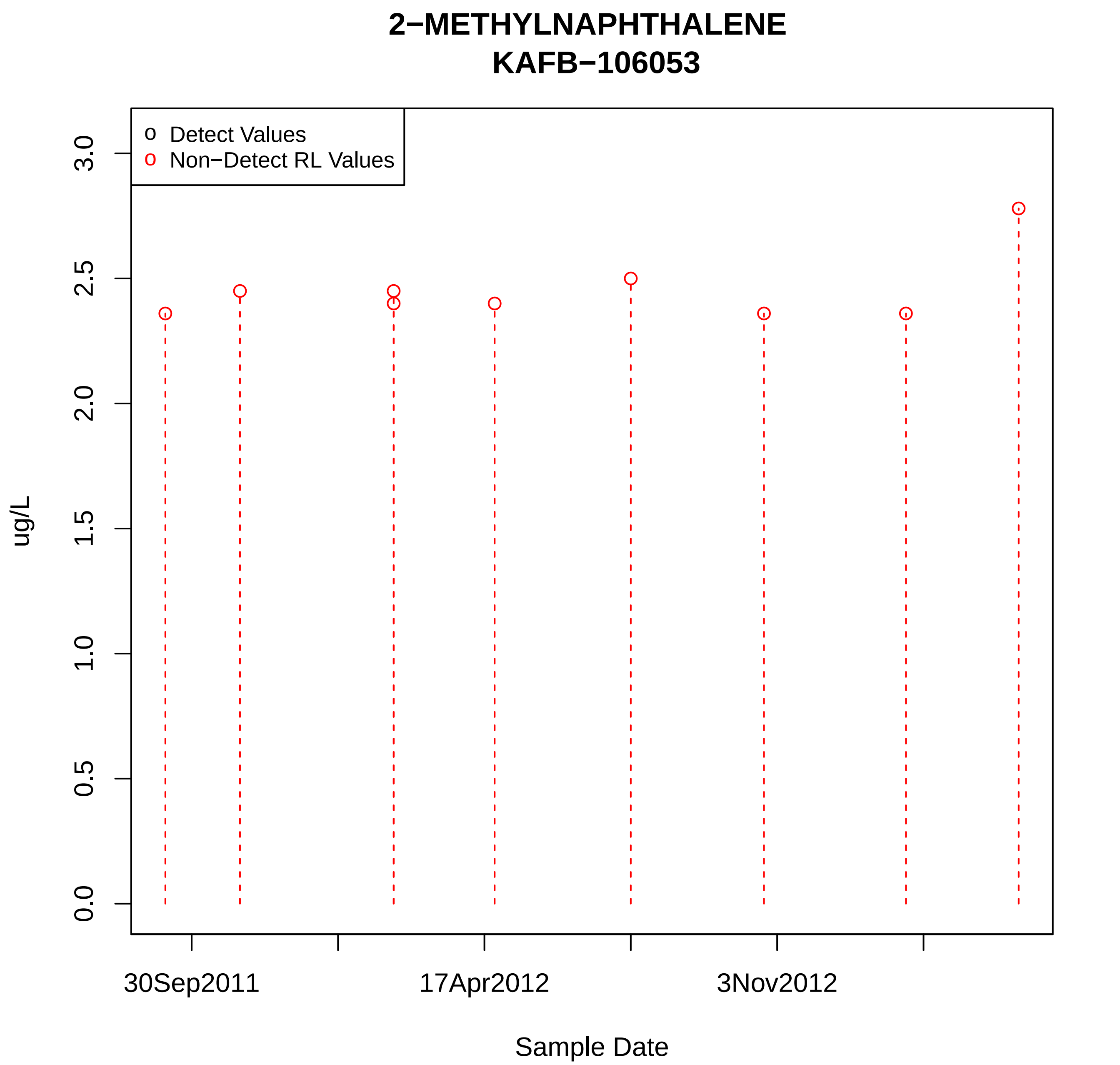

2−METHYLNAPHTHALENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

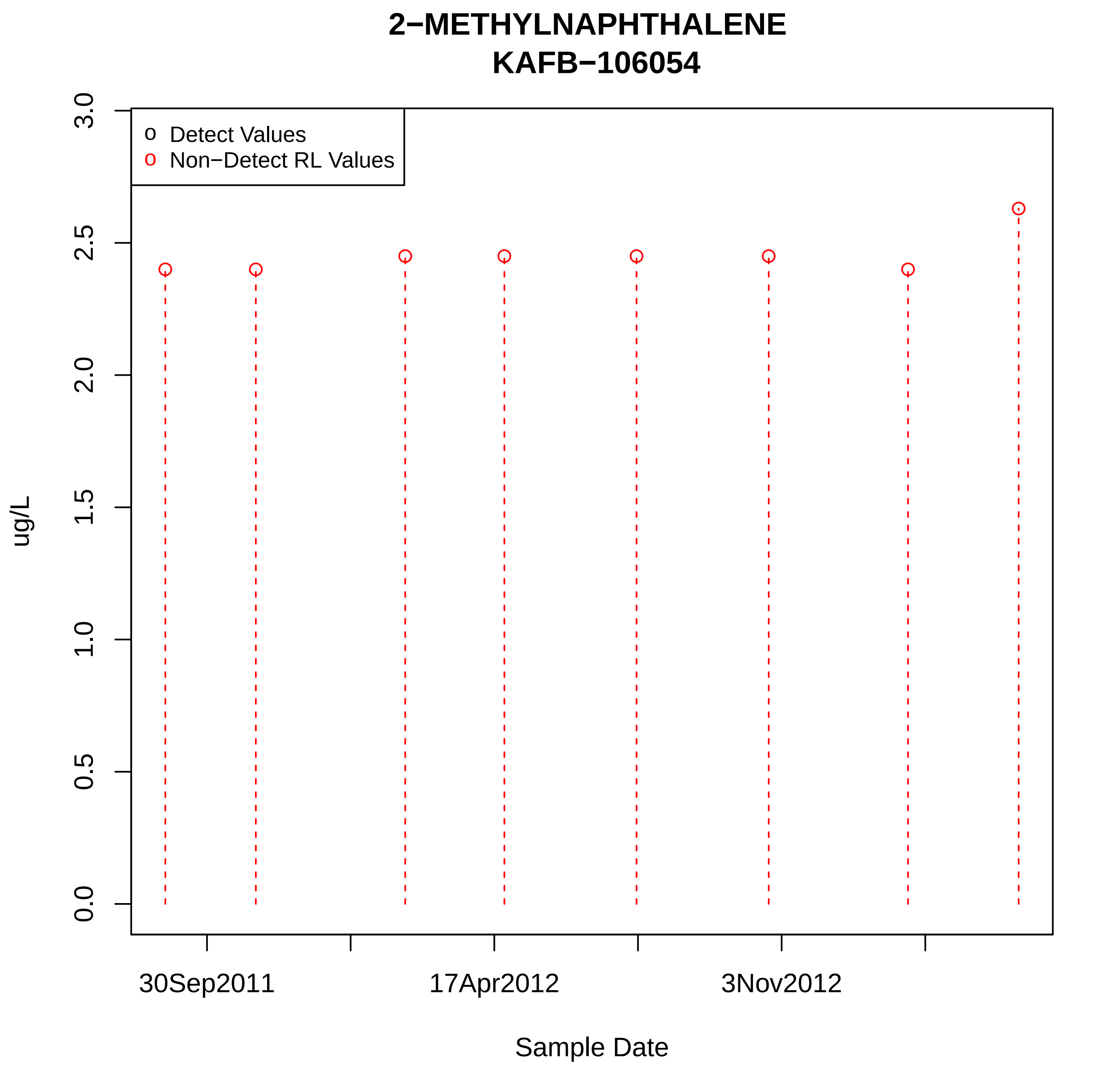


2−METHYLNAPHTHALENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

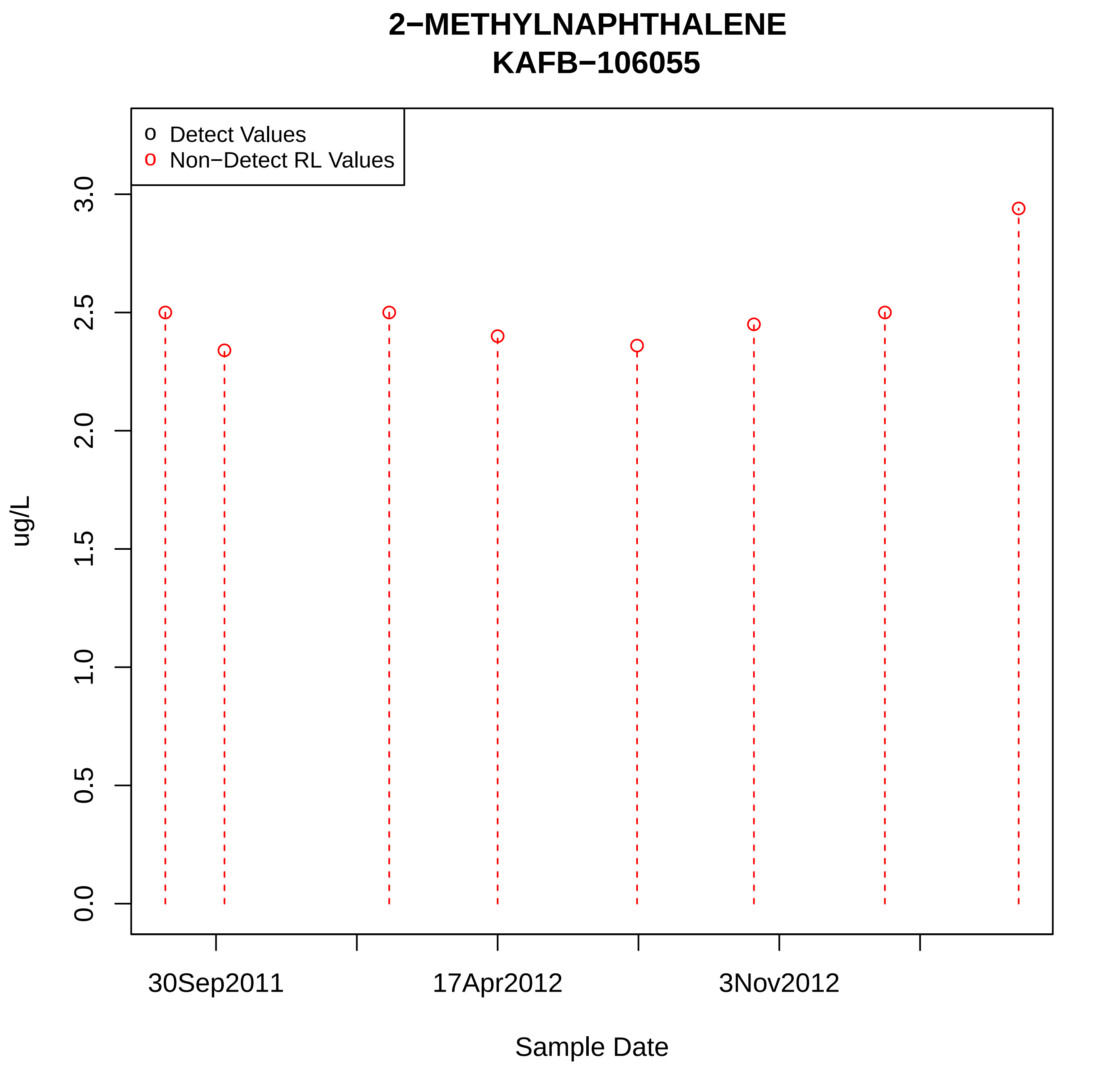

2−METHYLNAPHTHALENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLNAPHTHALENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

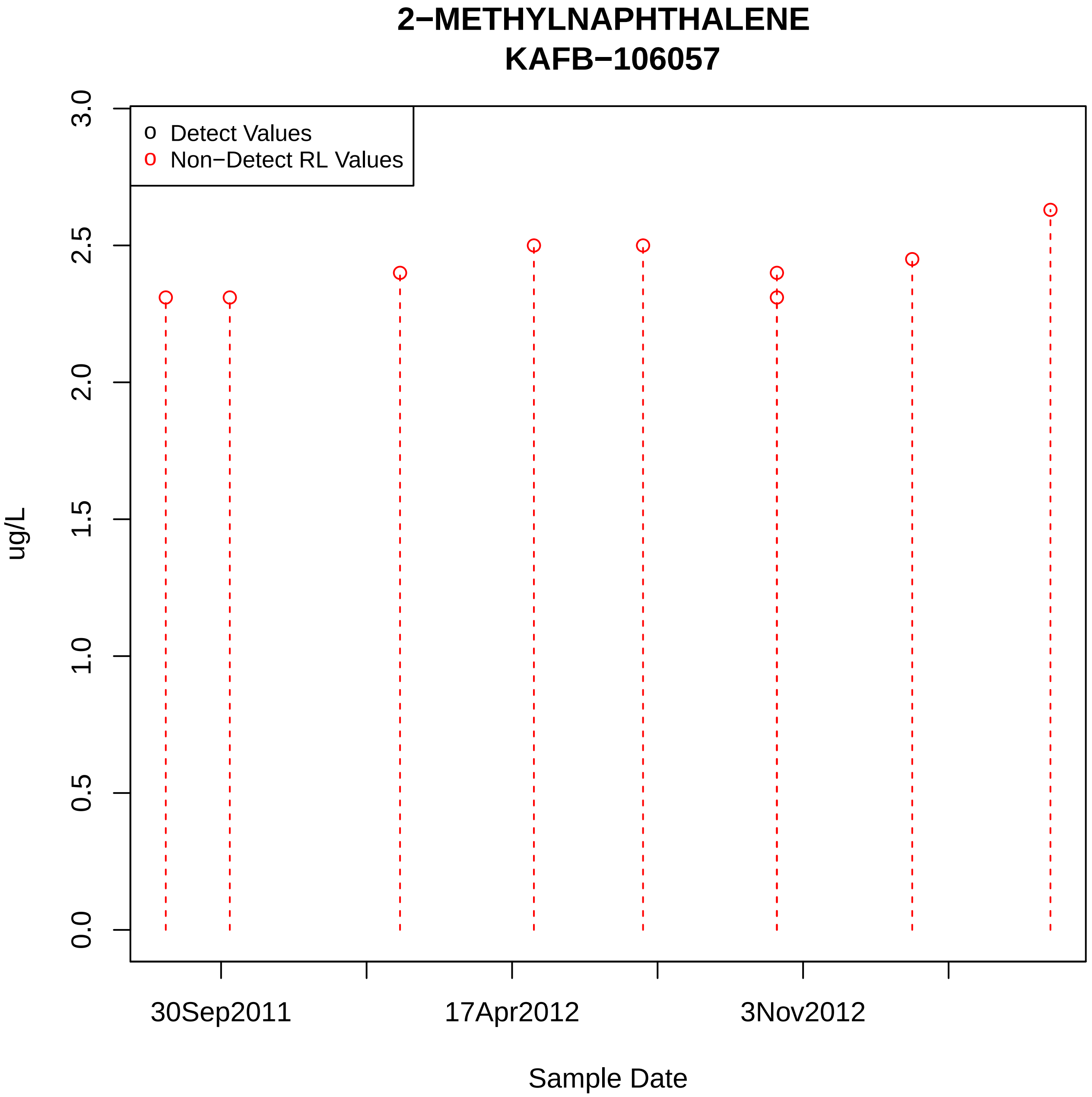

2−METHYLNAPHTHALENE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



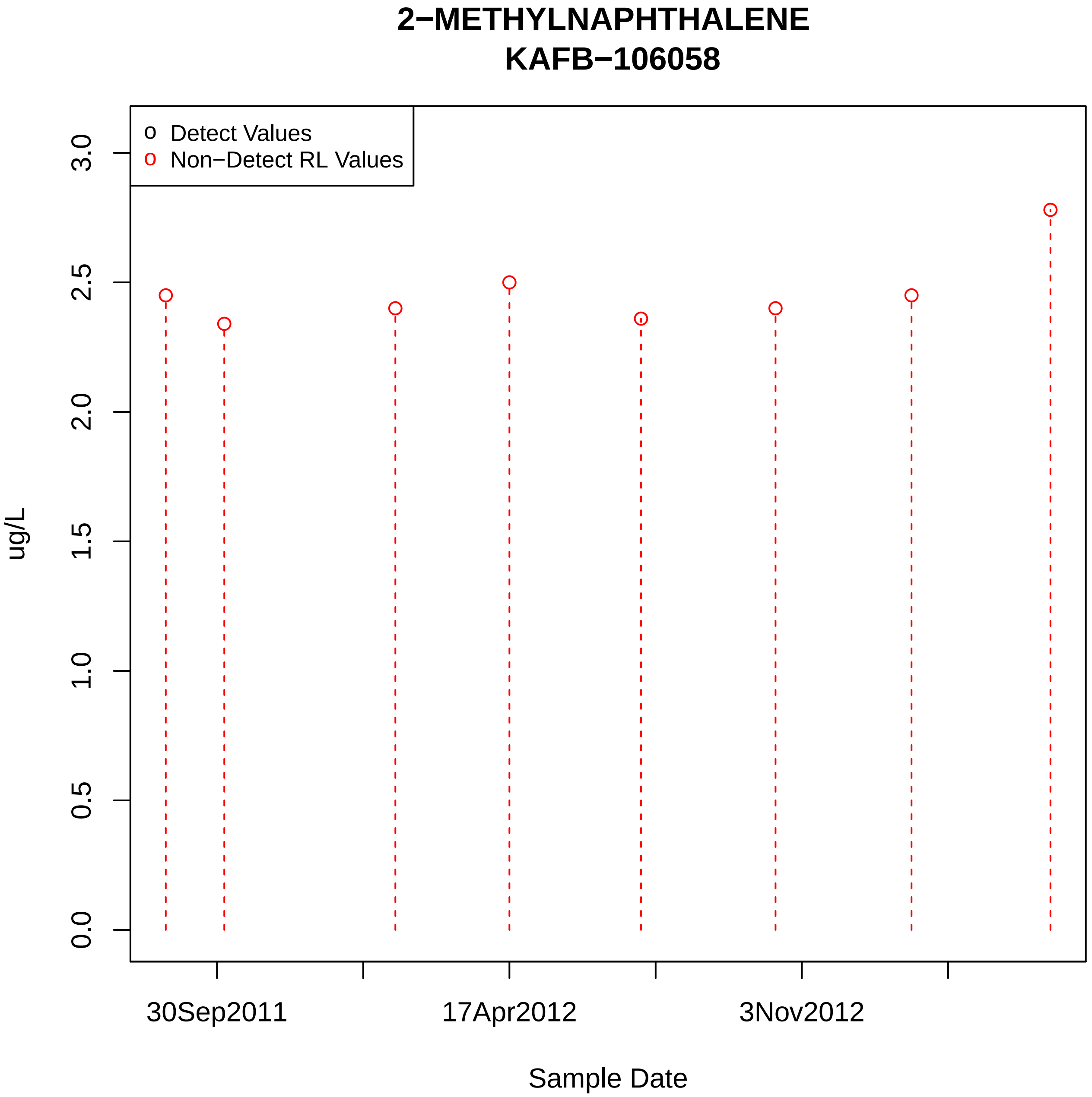
2−METHYLNAPHTHALENE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



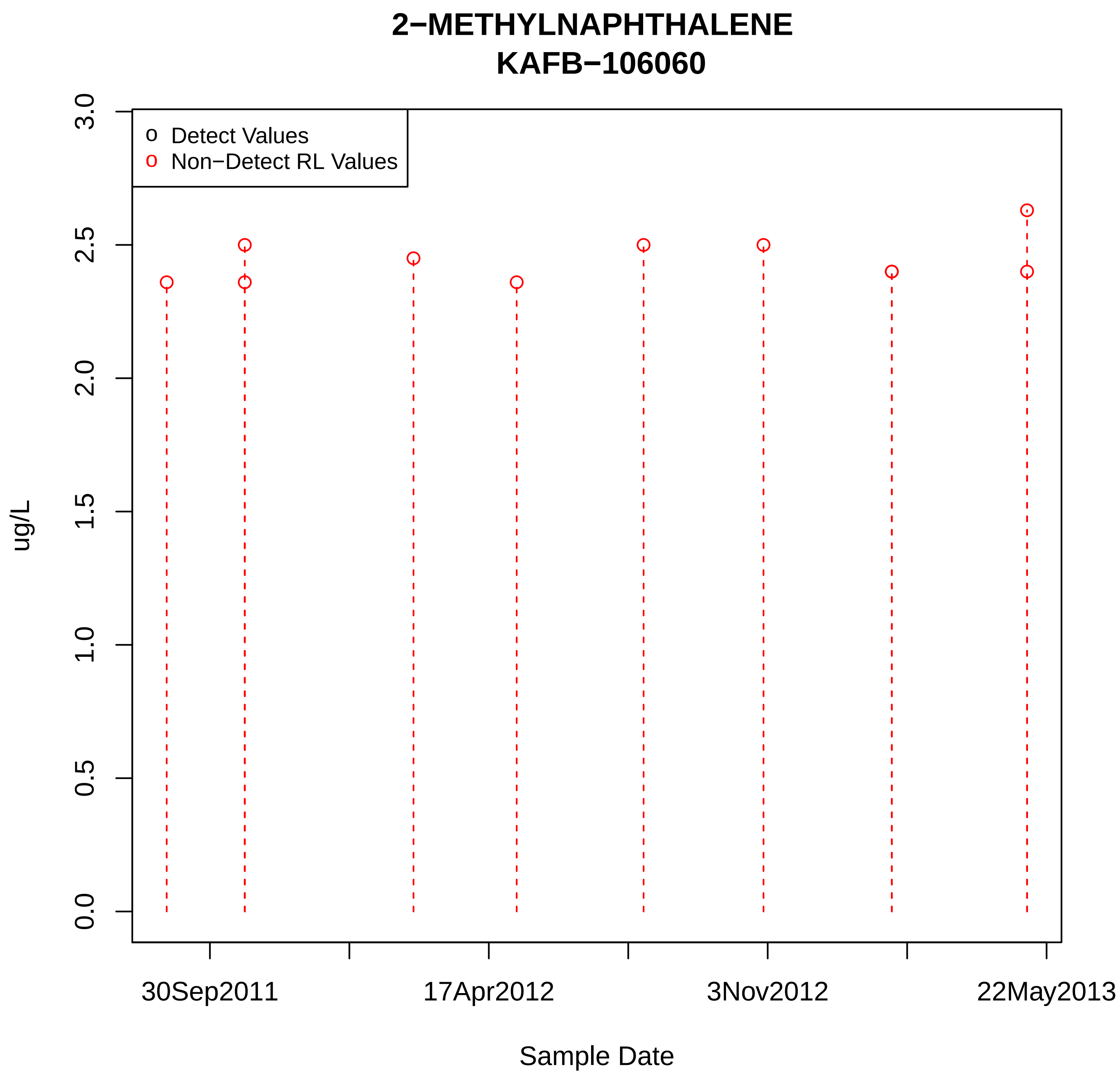
2−METHYLNAPHTHALENE
KAFB−106055
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

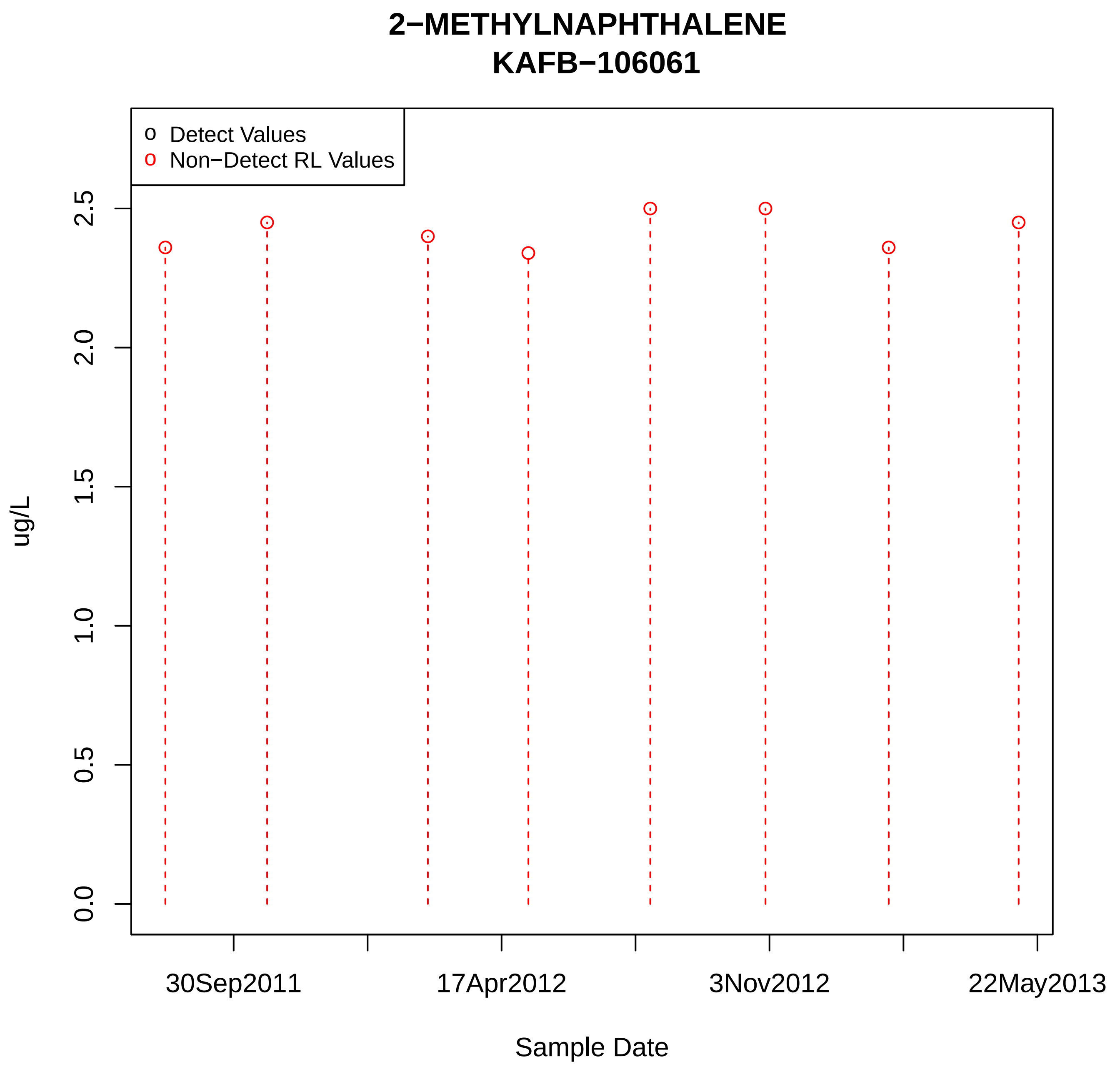


2−METHYLNAPHTHALENE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

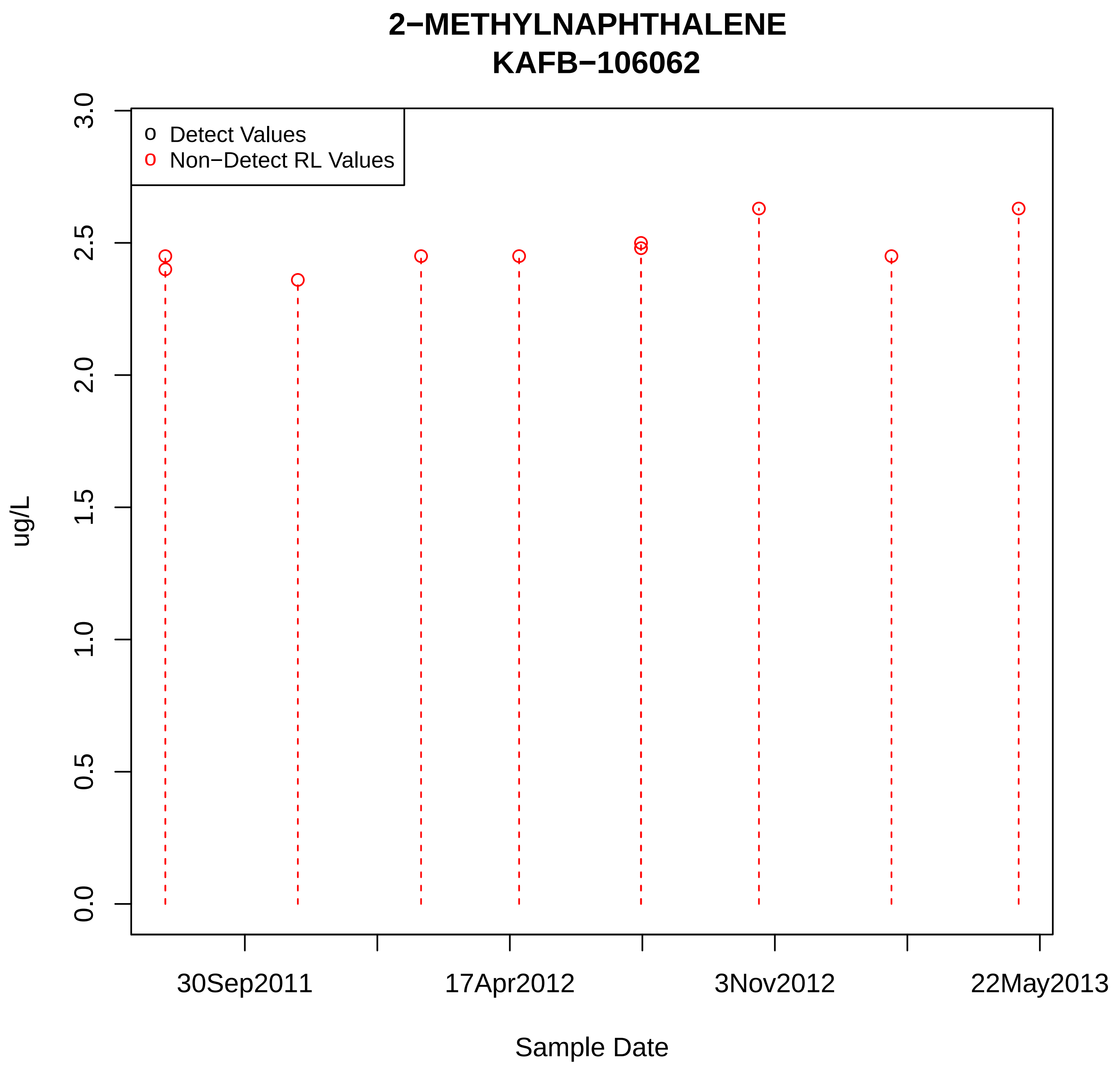


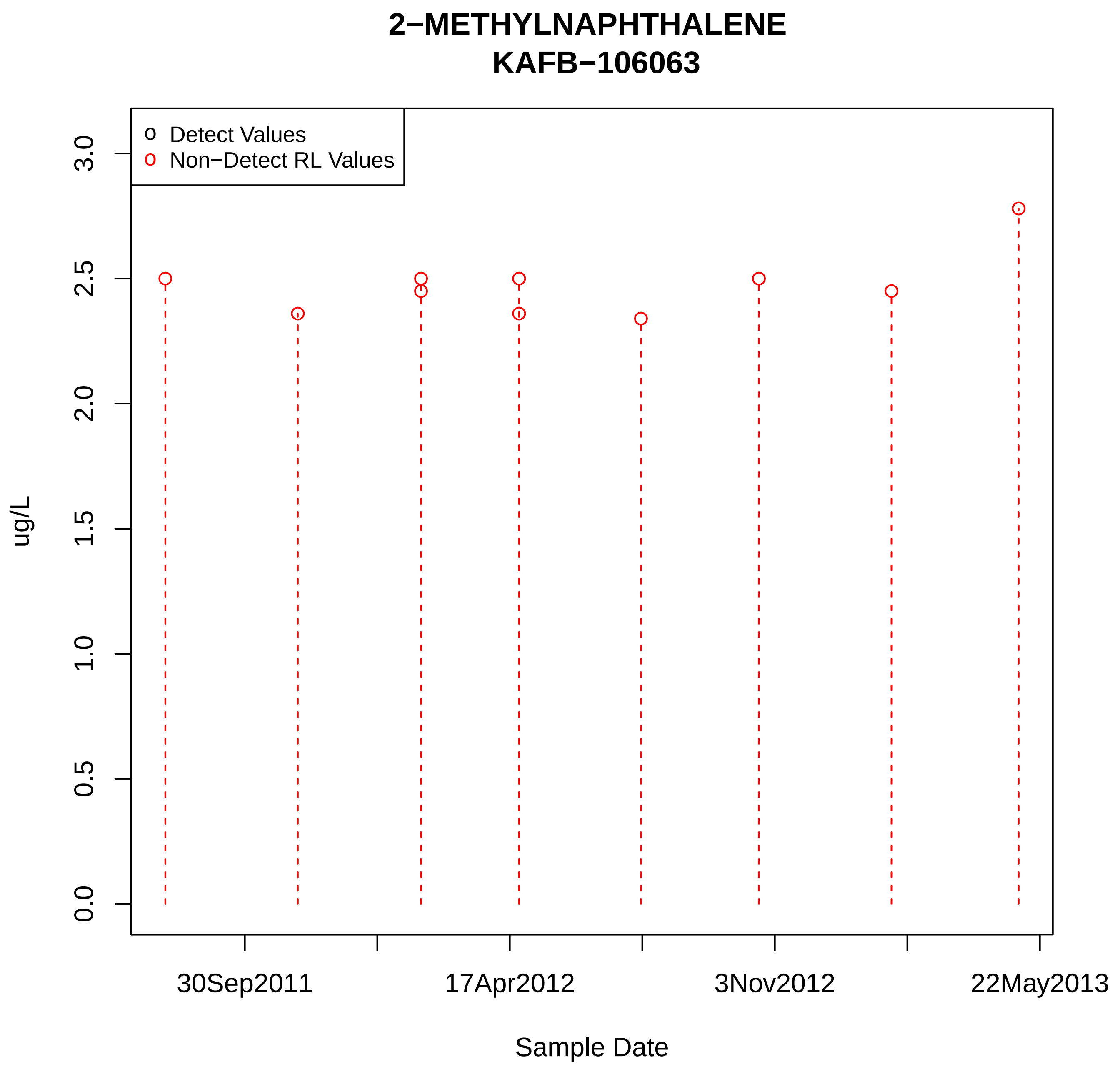
2−METHYLNAPHTHALENE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

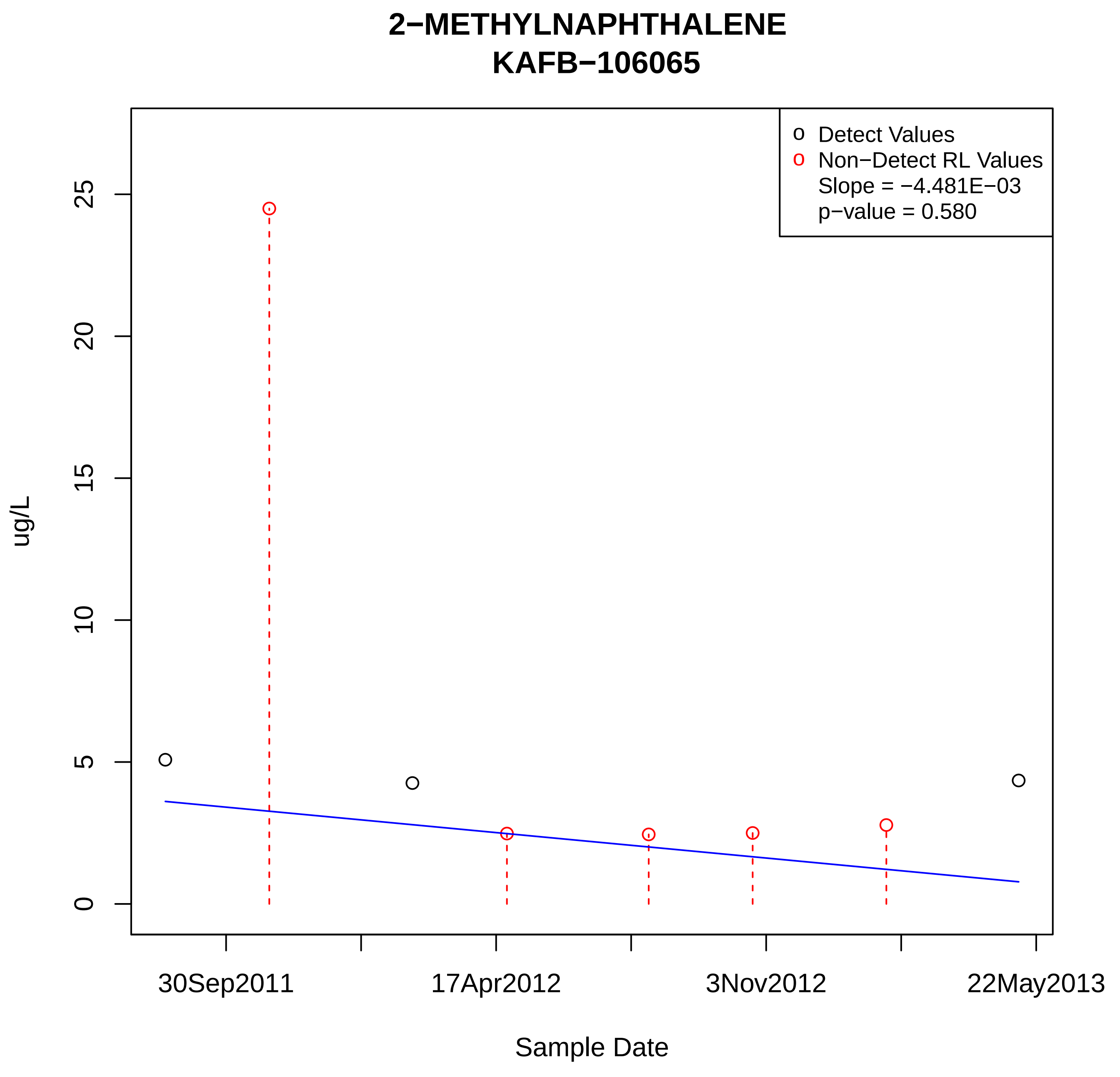

2−METHYLNAPHTHALENE
KAFB−106060
o Detect Values
o Non−Detect RL Values
3.0
2.5
2.0
1.5
1.0
0.5
0.0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



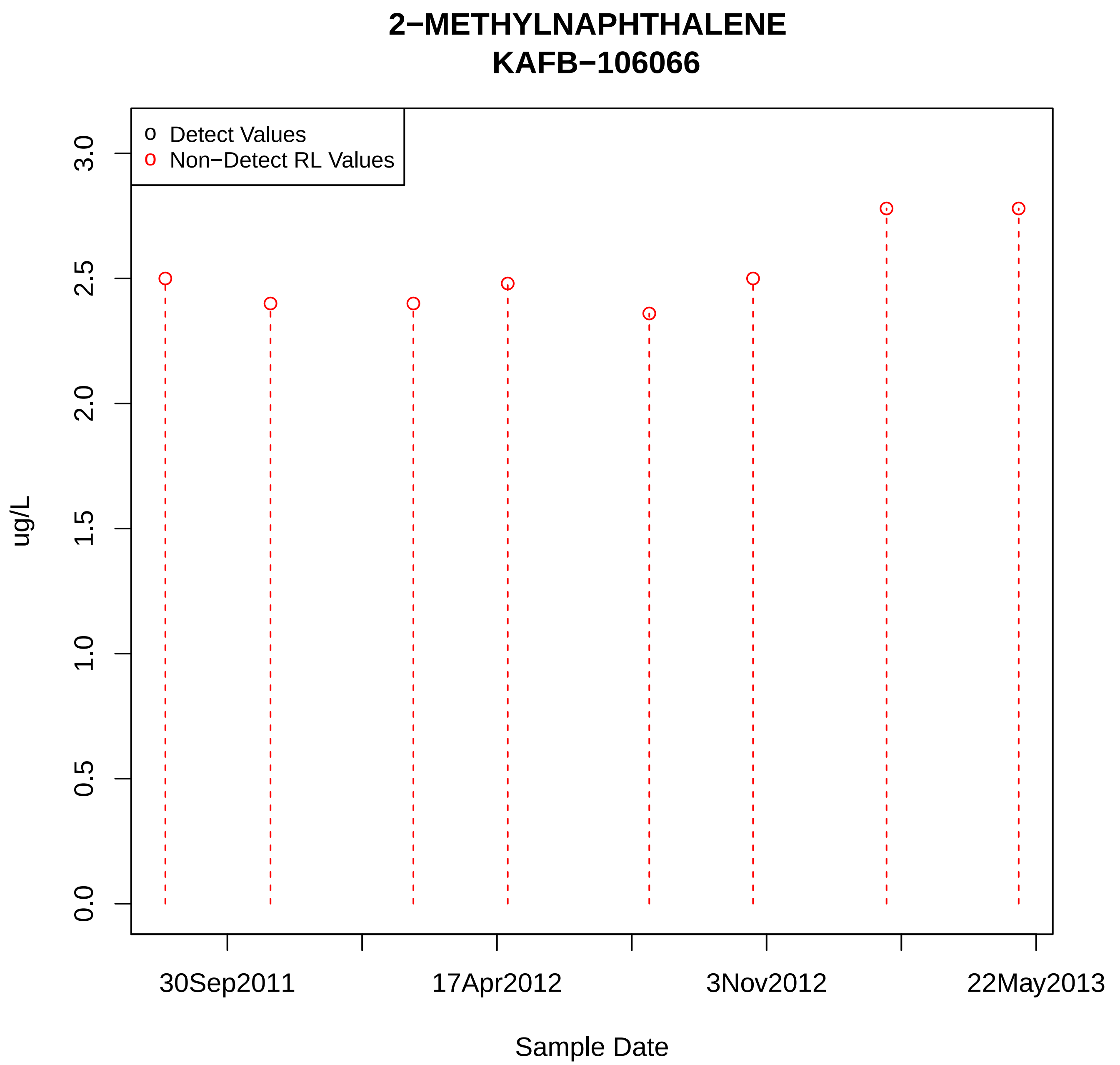
2−METHYLNAPHTHALENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

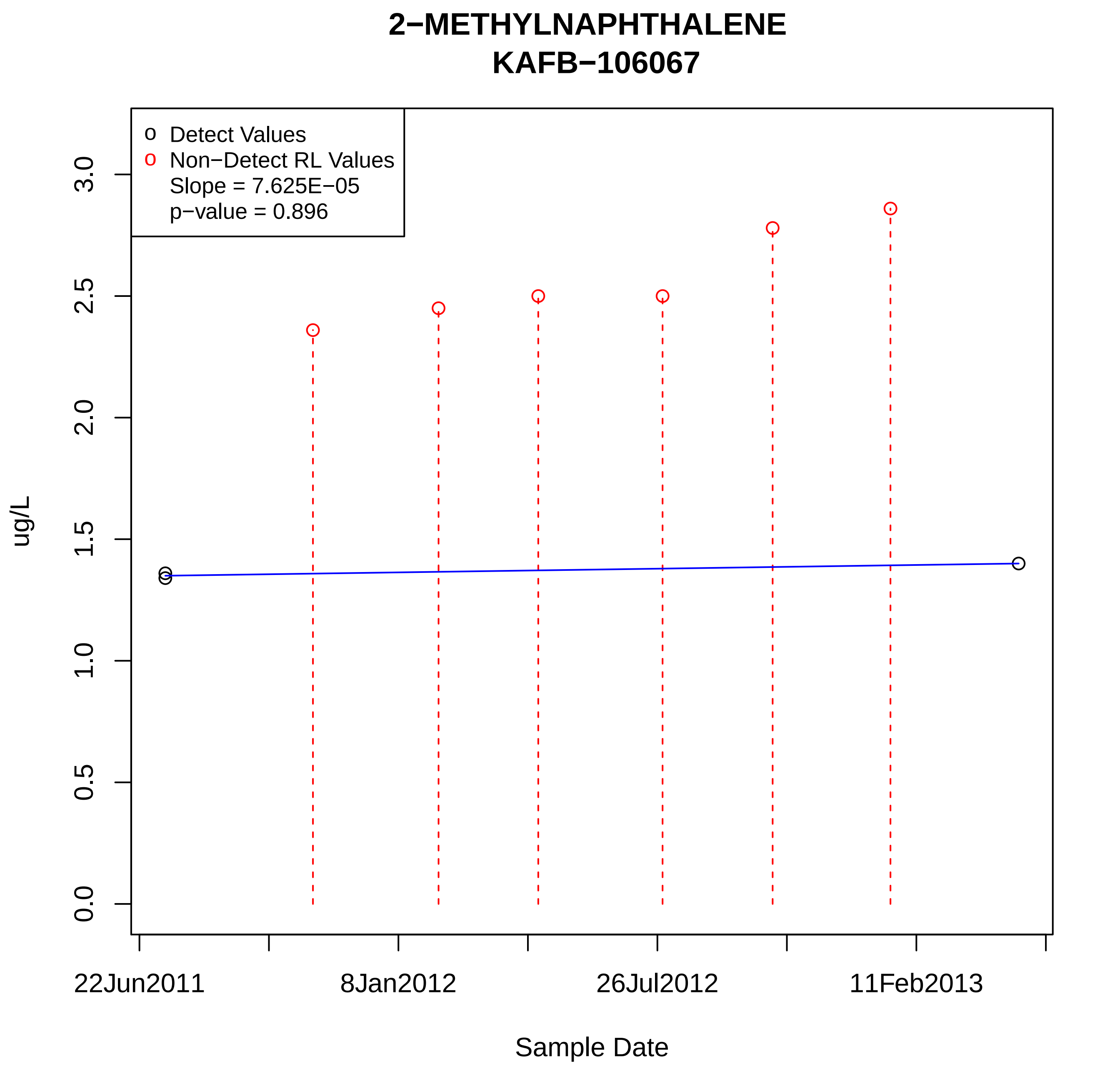

2−METHYLNAPHTHALENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

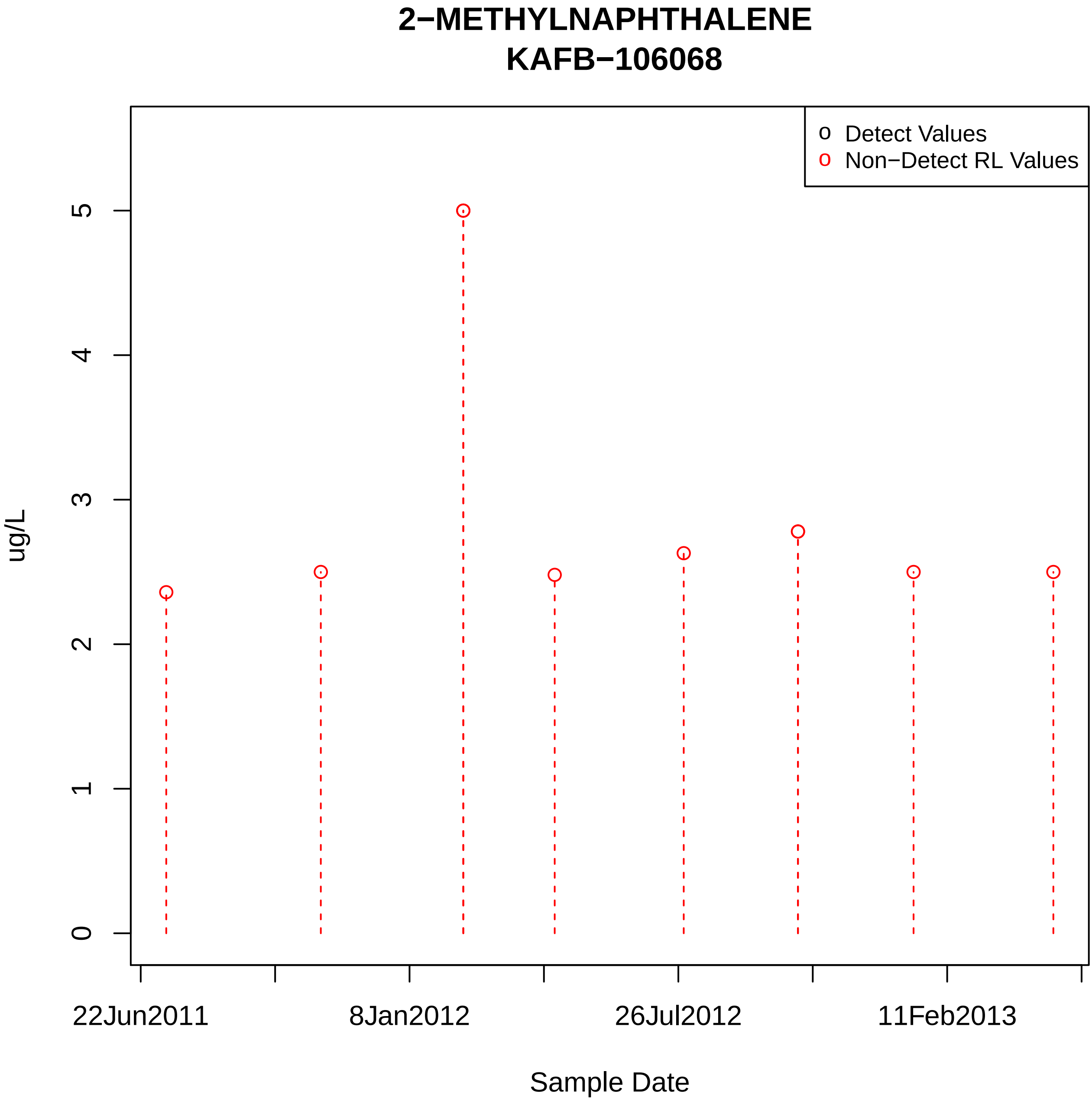

2−METHYLNAPHTHALENE
KAFB−106063
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



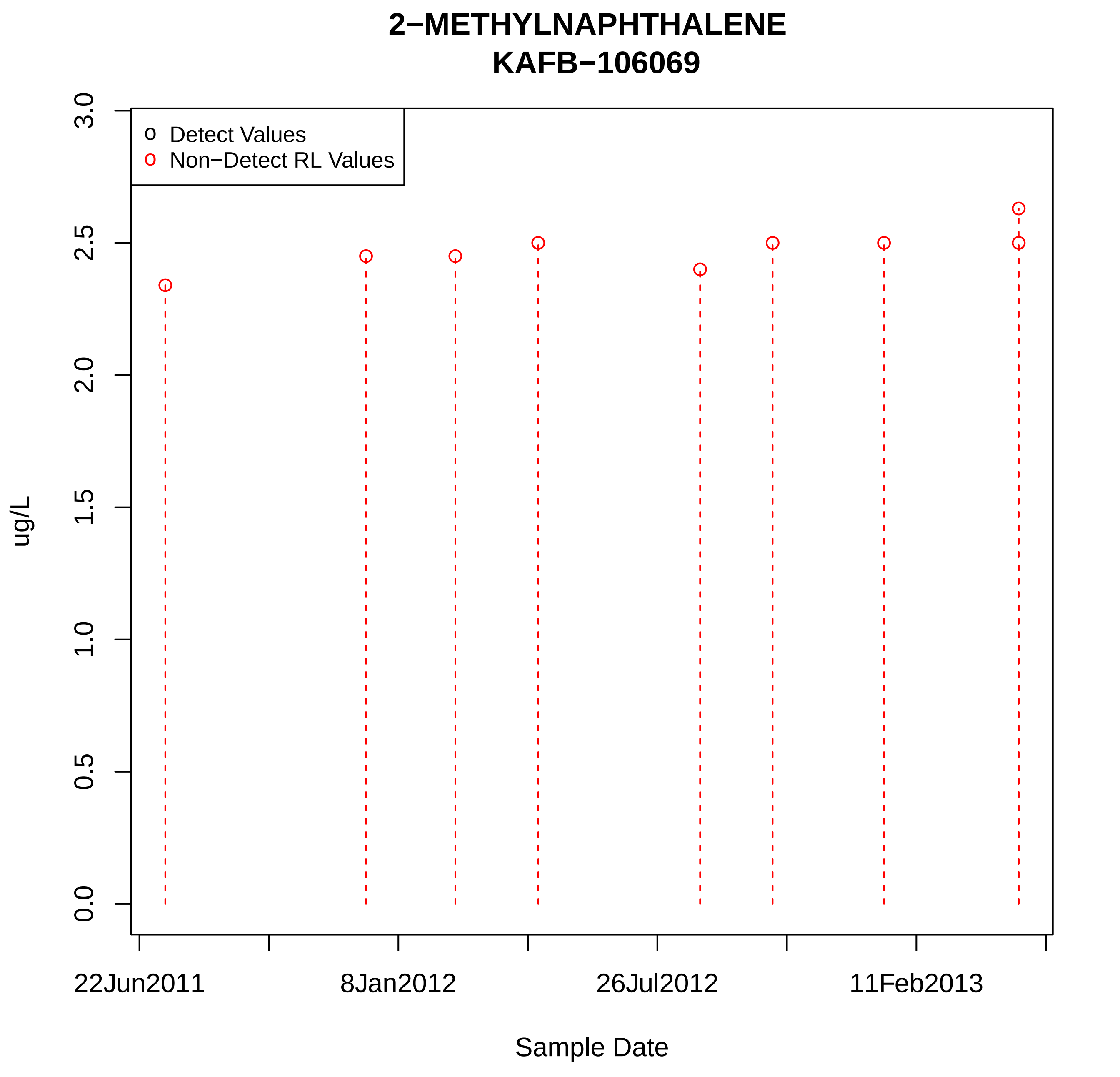
2−METHYLNAPHTHALENE
KAFB−106065
o Detect Values
o Non−Detect RL Values
Slope = −4.481E−03
p−value = 0.580
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106066
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

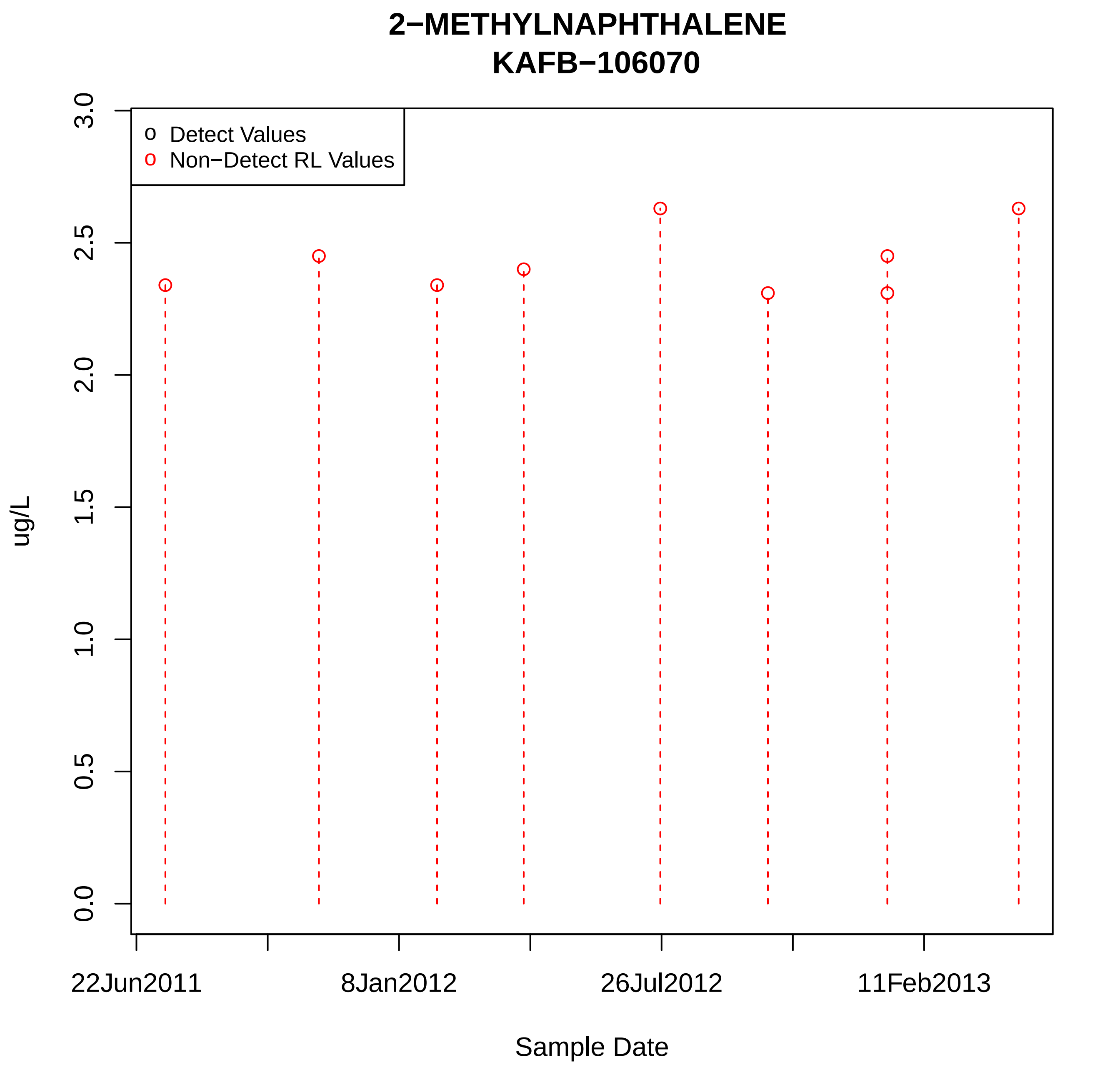

2−METHYLNAPHTHALENE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = 7.625E−05
p−value = 0.896
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



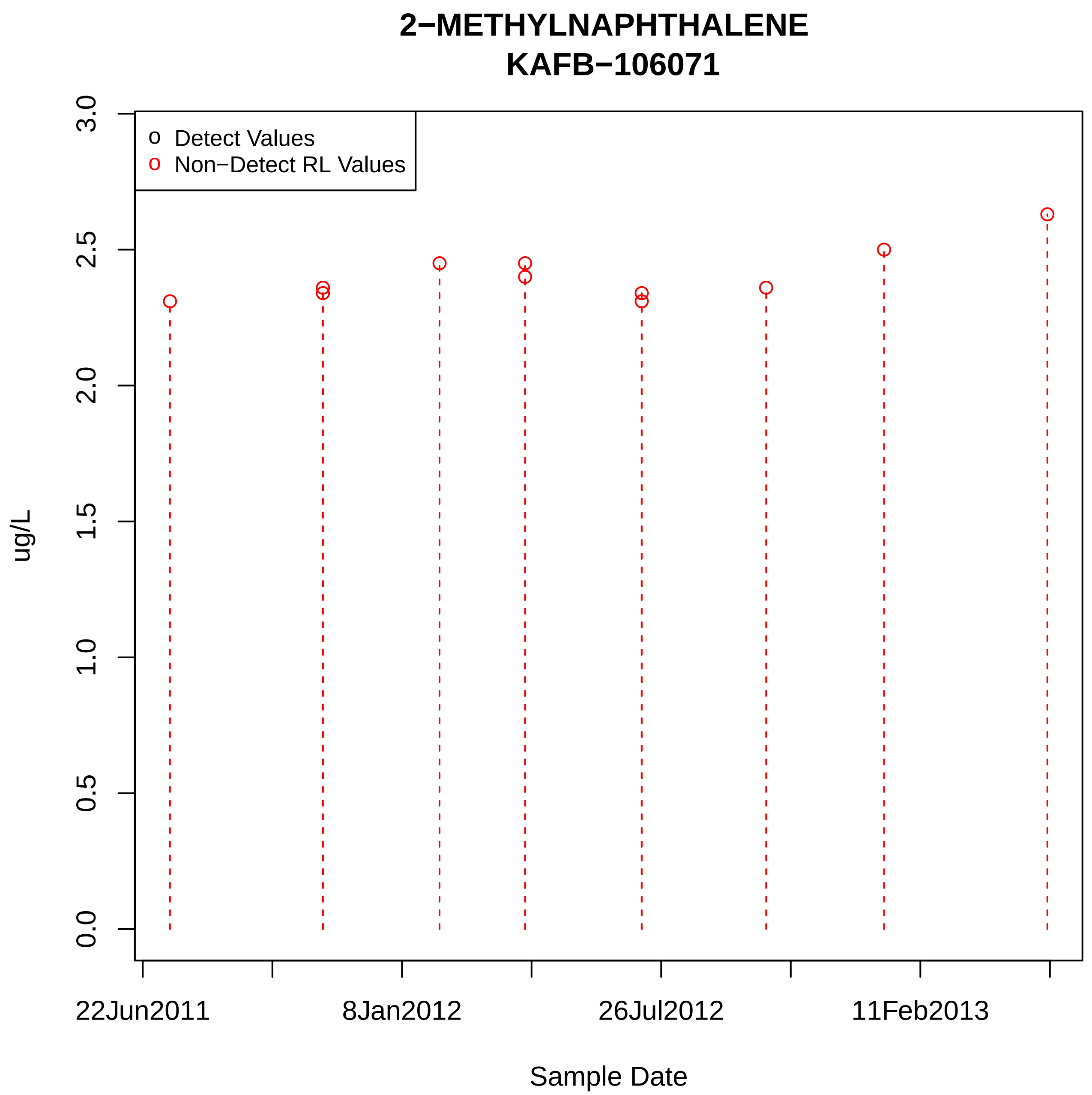
2−METHYLNAPHTHALENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

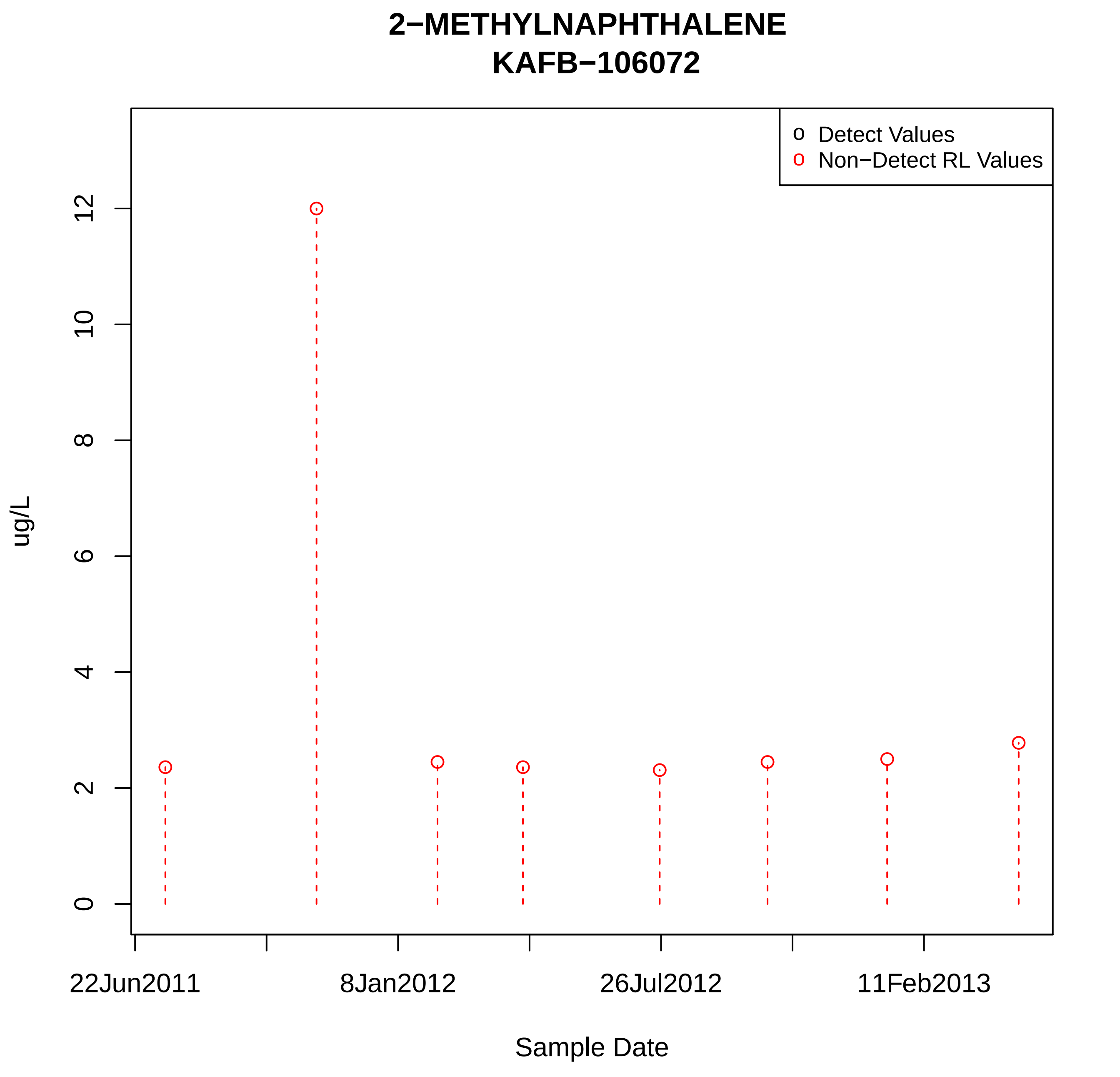


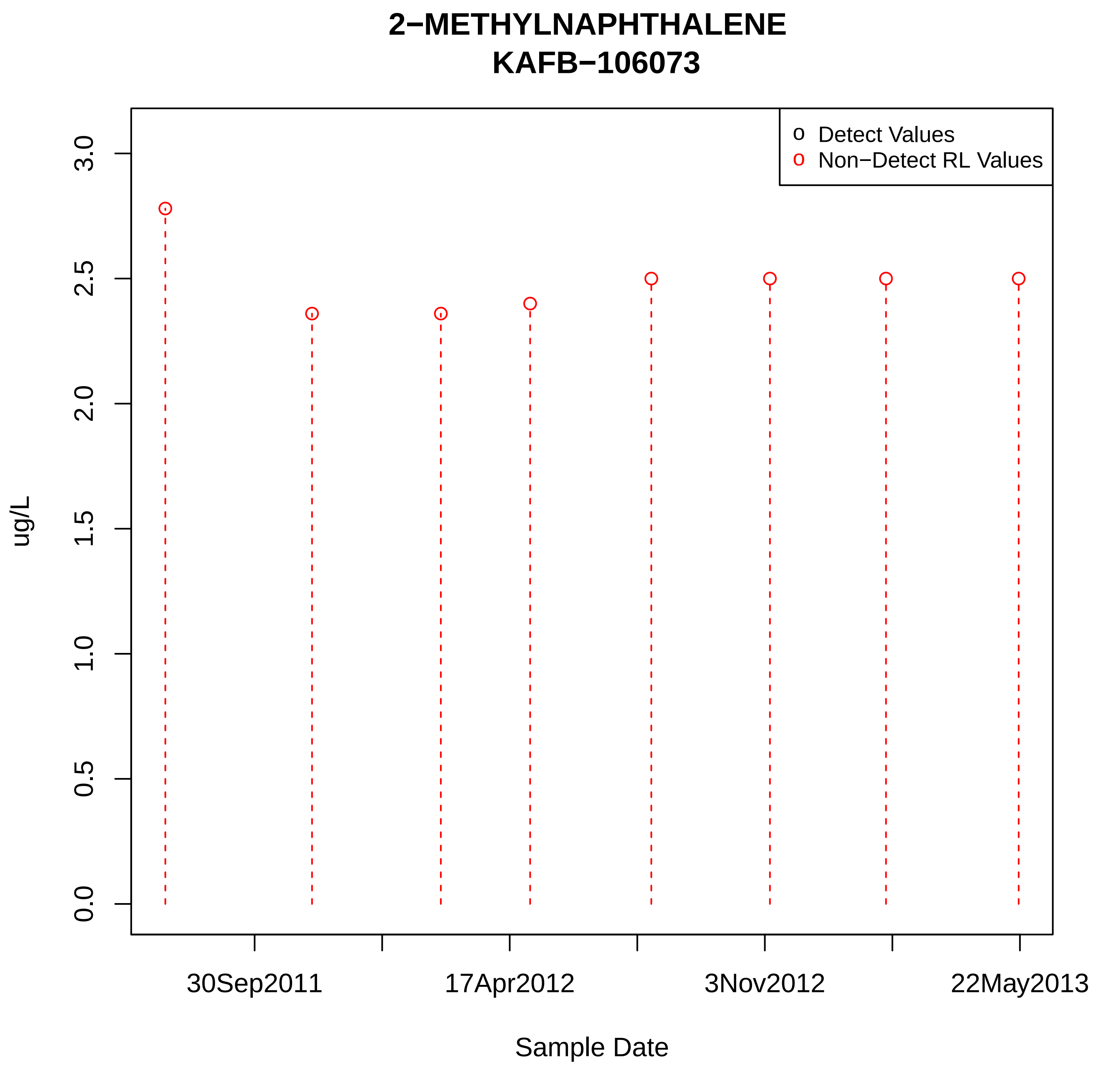
2−METHYLNAPHTHALENE
KAFB−106069
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



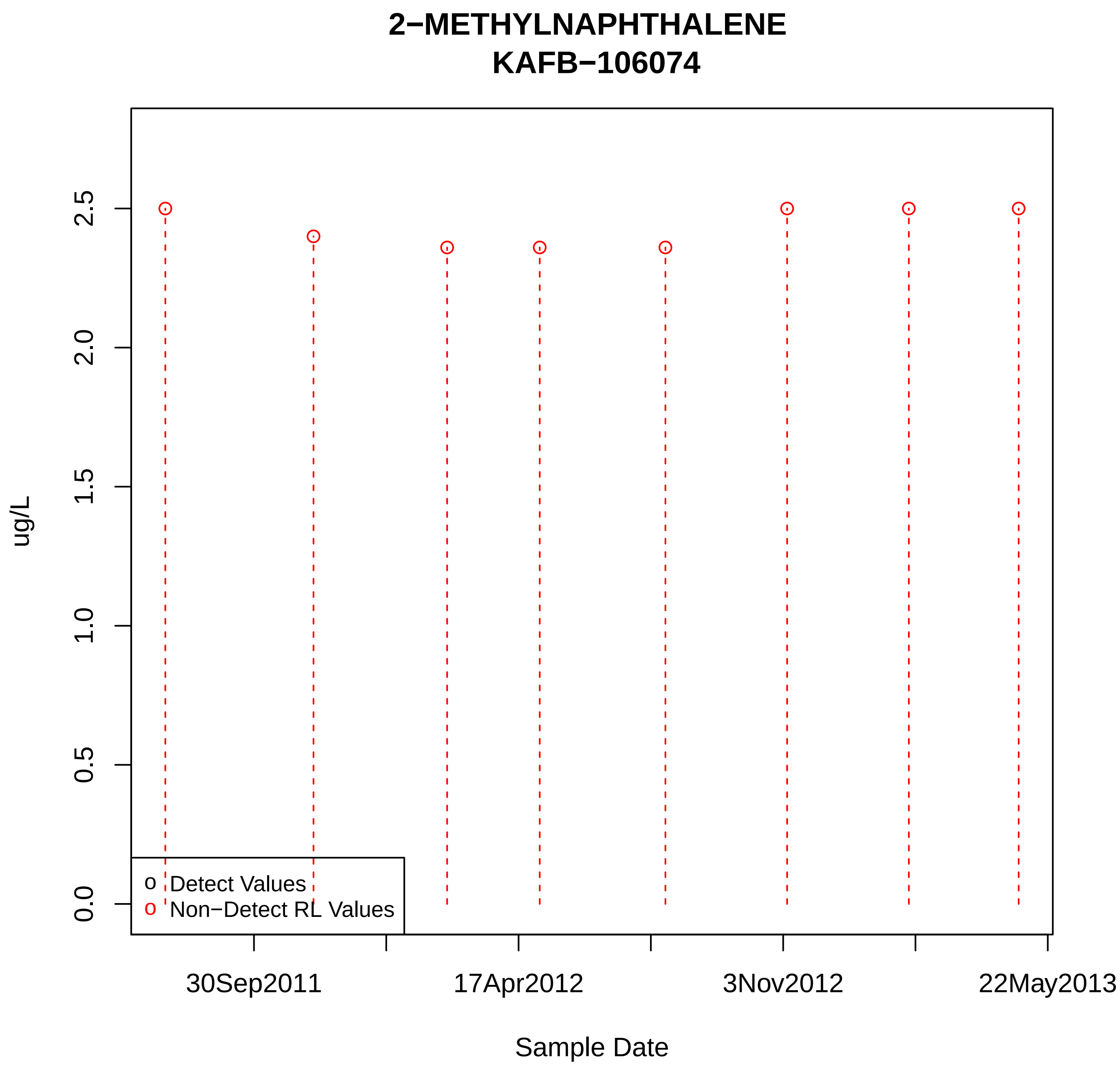
2−METHYLNAPHTHALENE
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
3.0
2.5
2.0
1.5
1.0
0.5
0.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

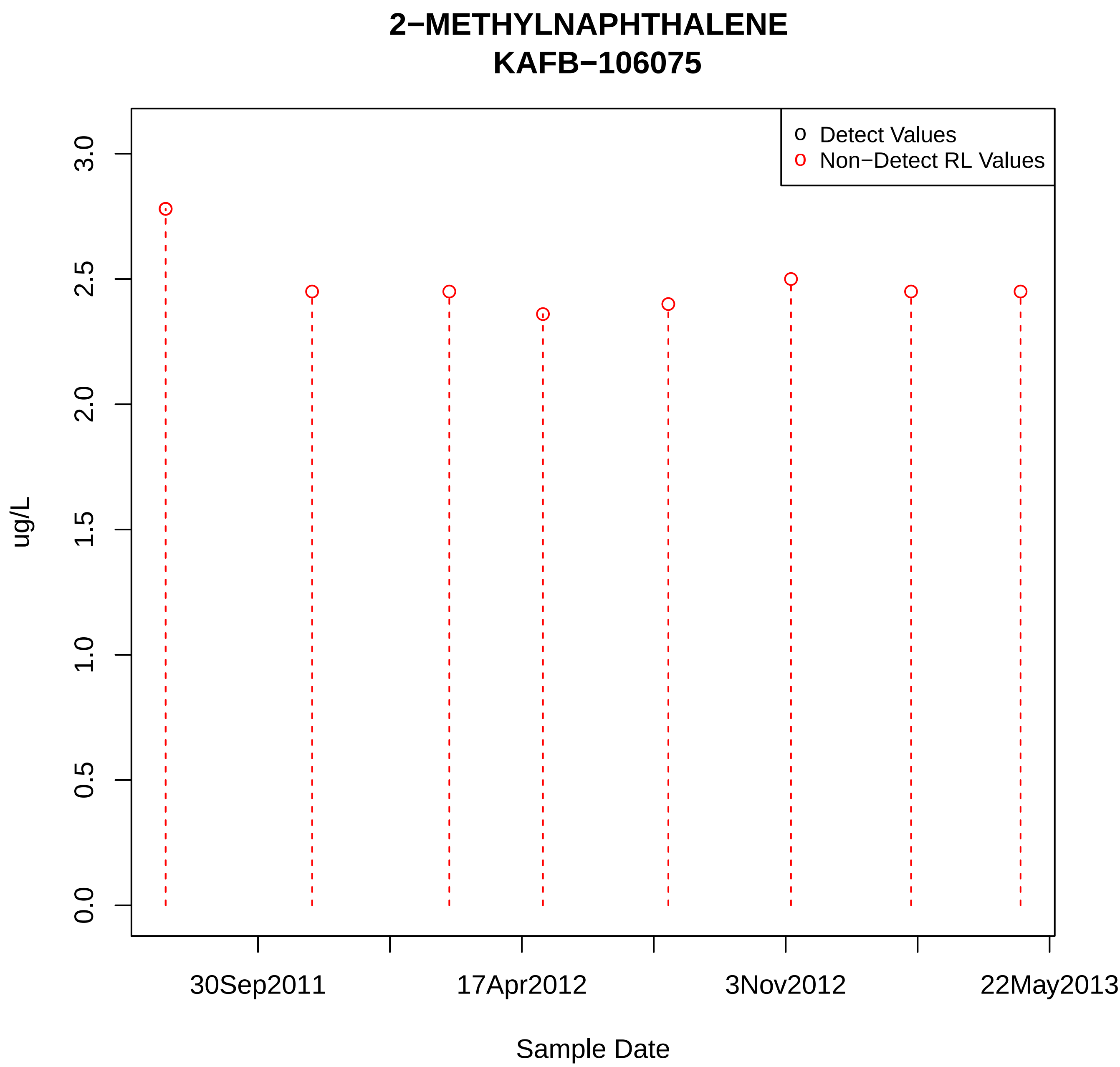

2−METHYLNAPHTHALENE
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

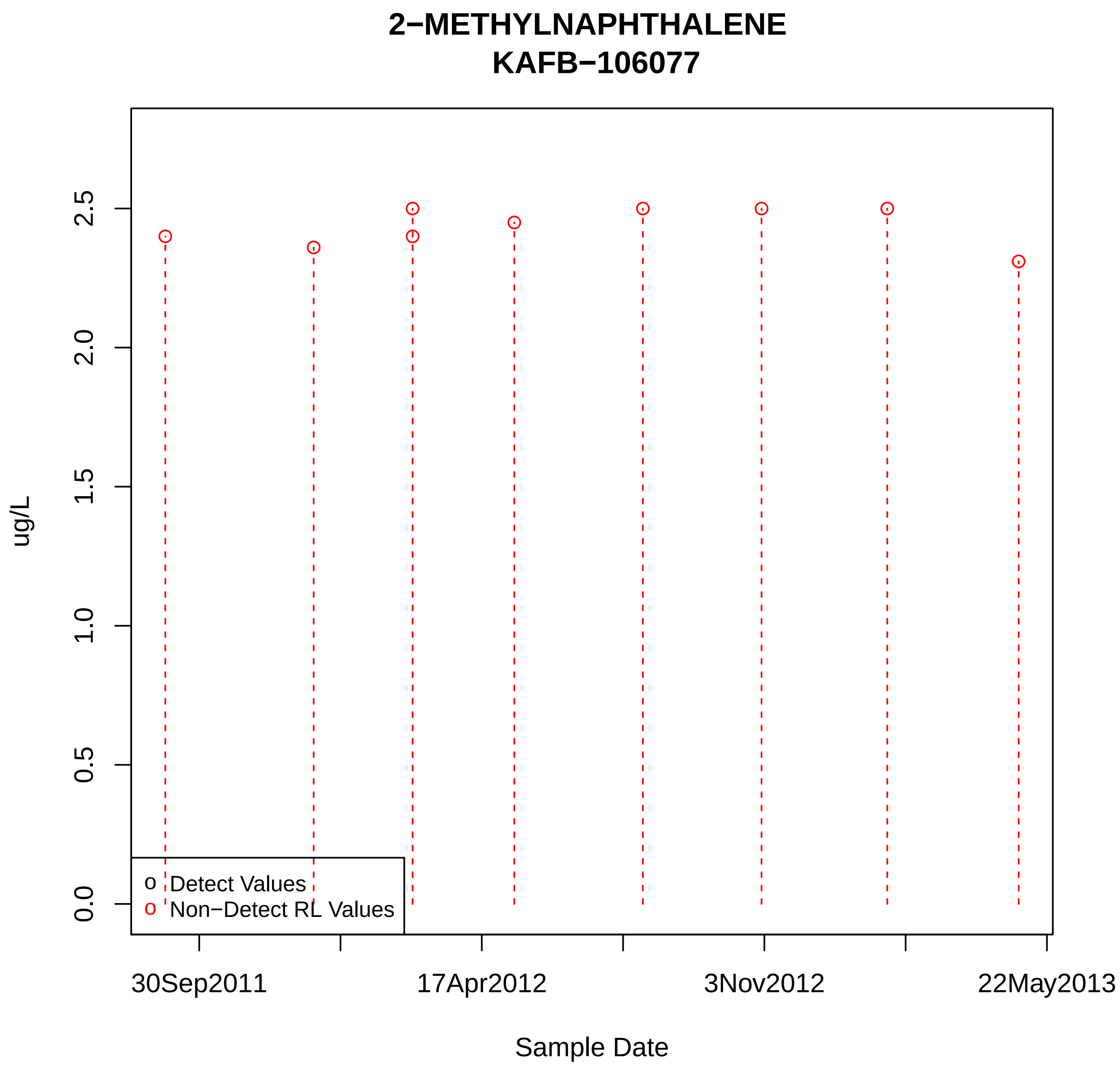


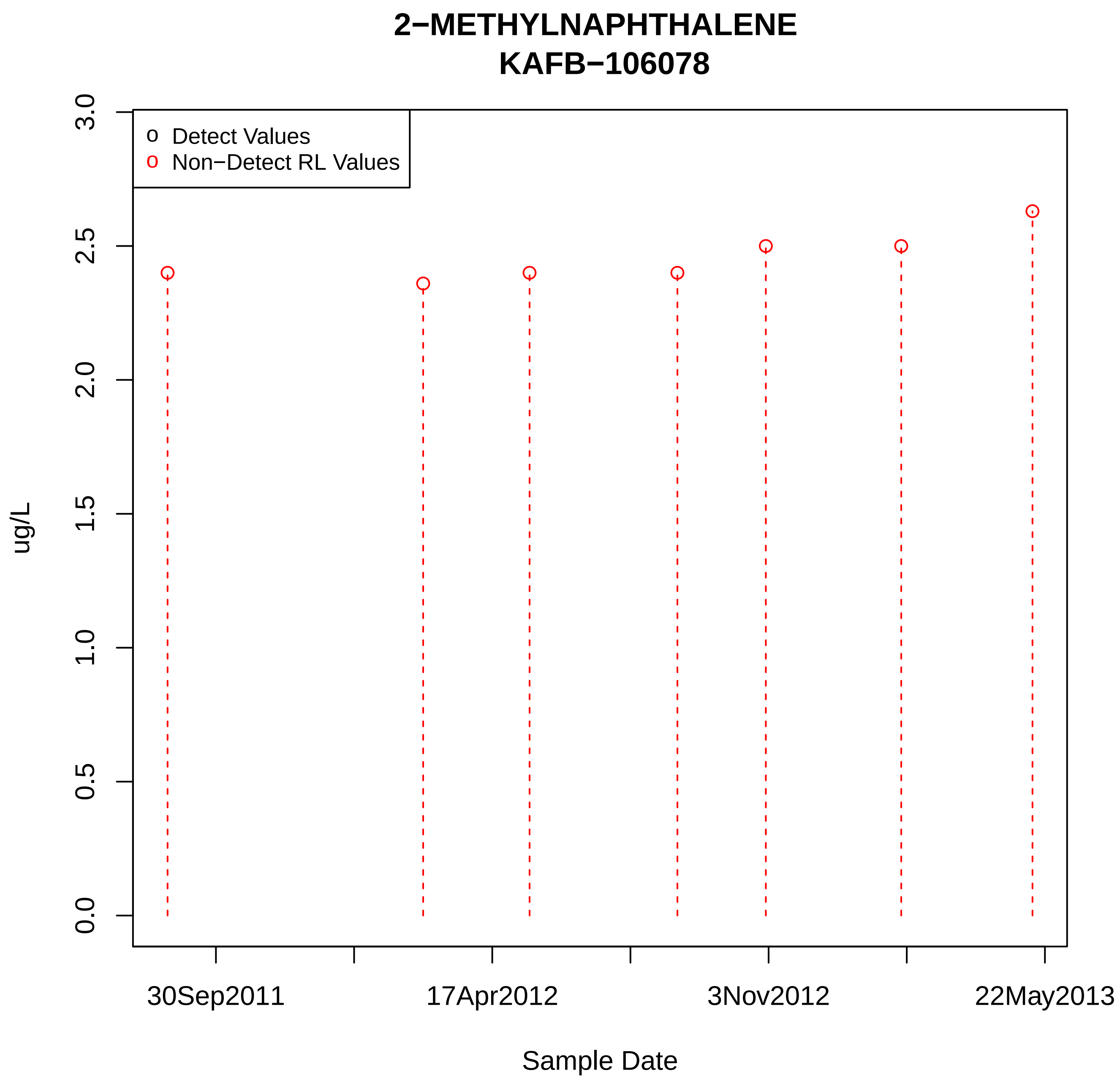
2−METHYLNAPHTHALENE
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

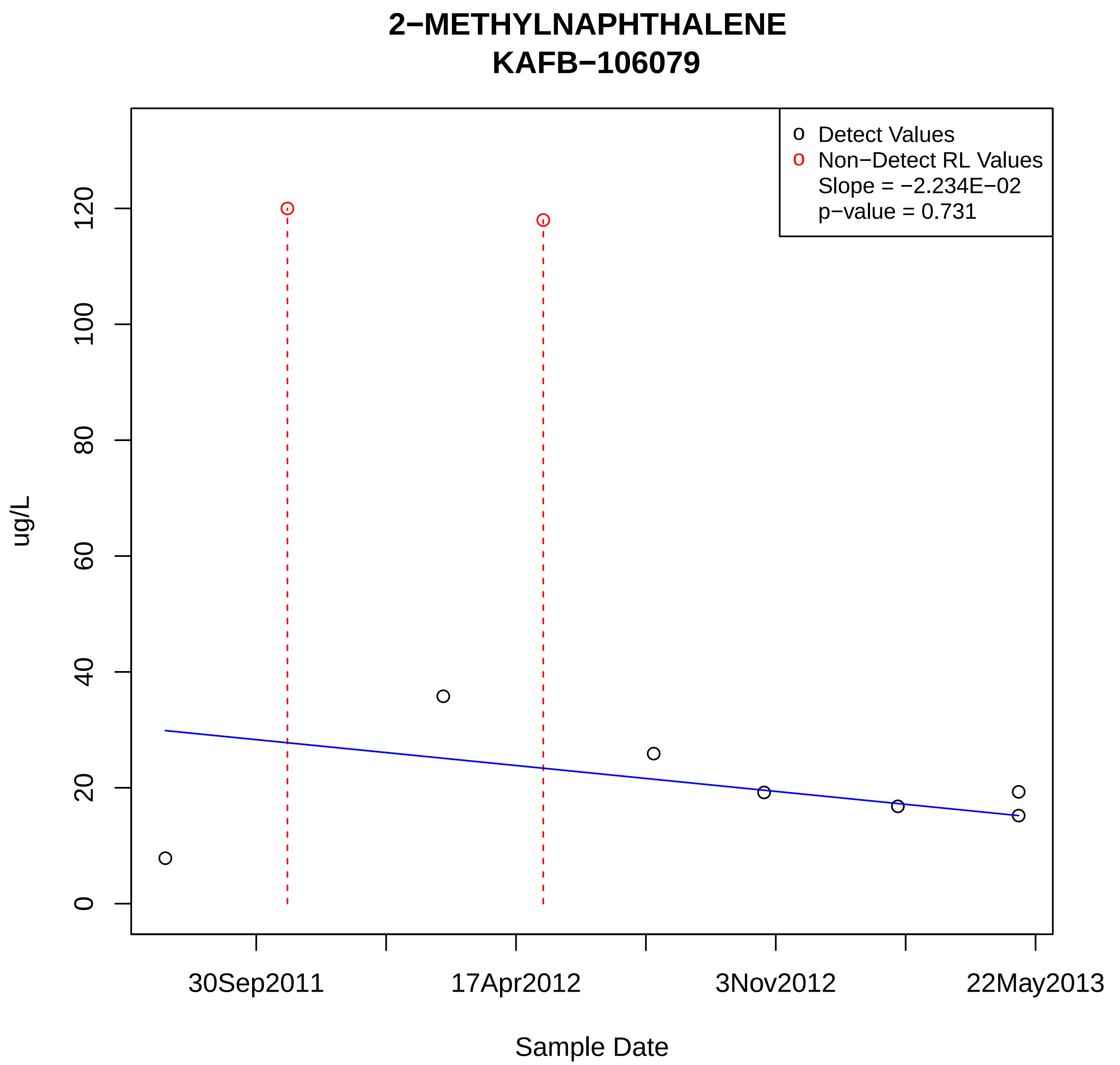


2−METHYLNAPHTHALENE
KAFB−106074
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

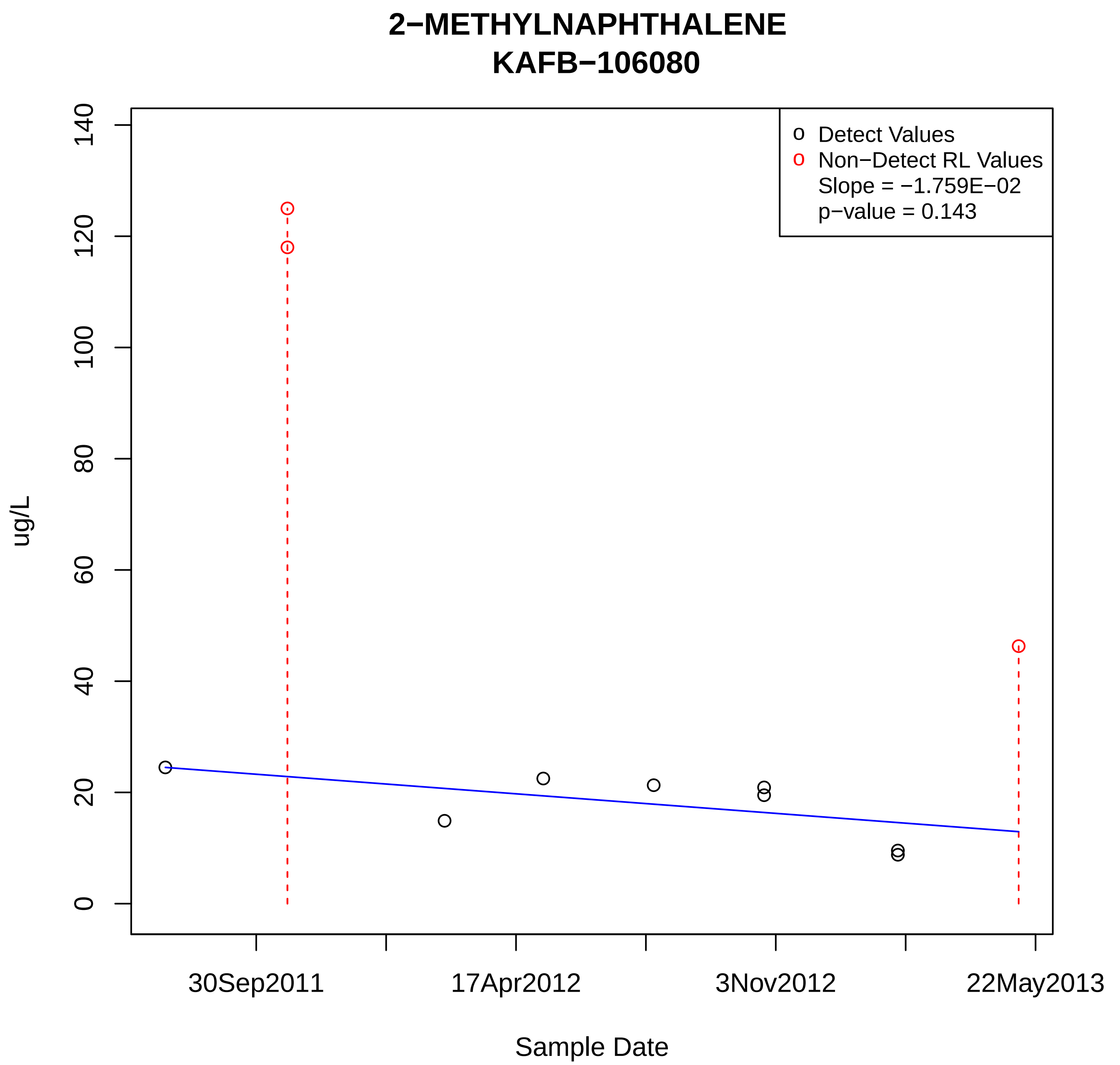

2−METHYLNAPHTHALENE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

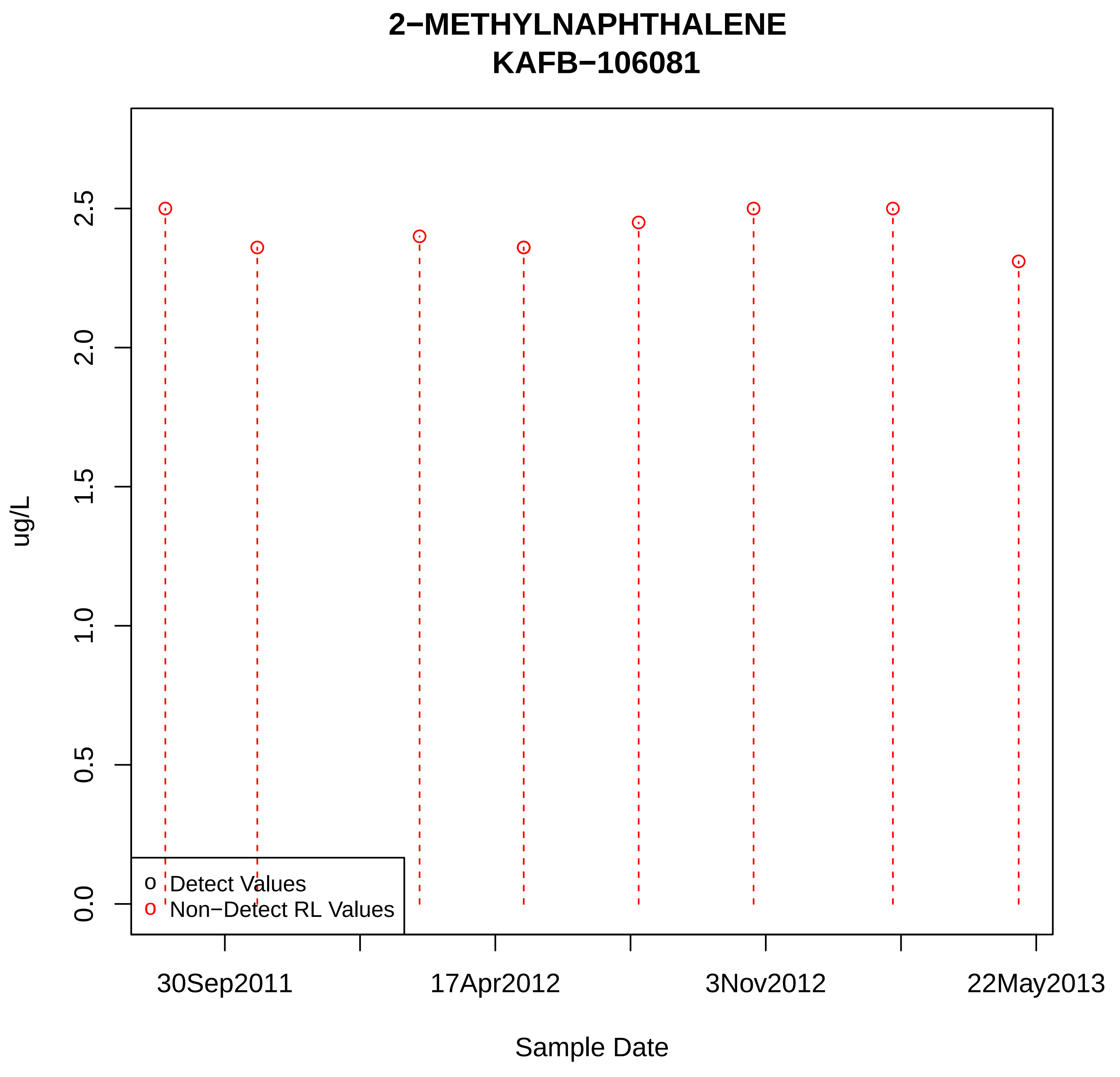

2−METHYLNAPHTHALENE
KAFB−106077
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

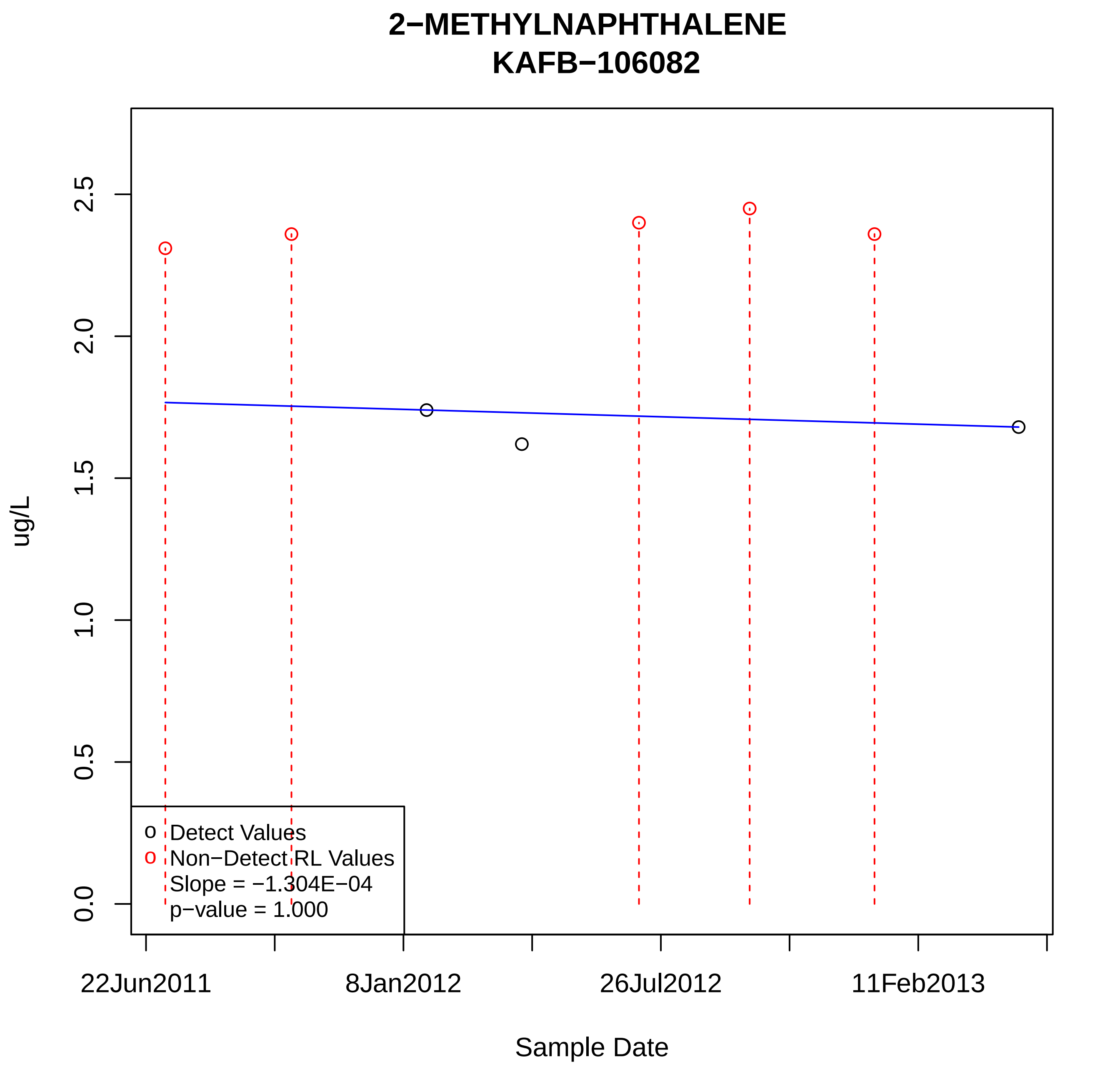

2−METHYLNAPHTHALENE
KAFB−106078
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

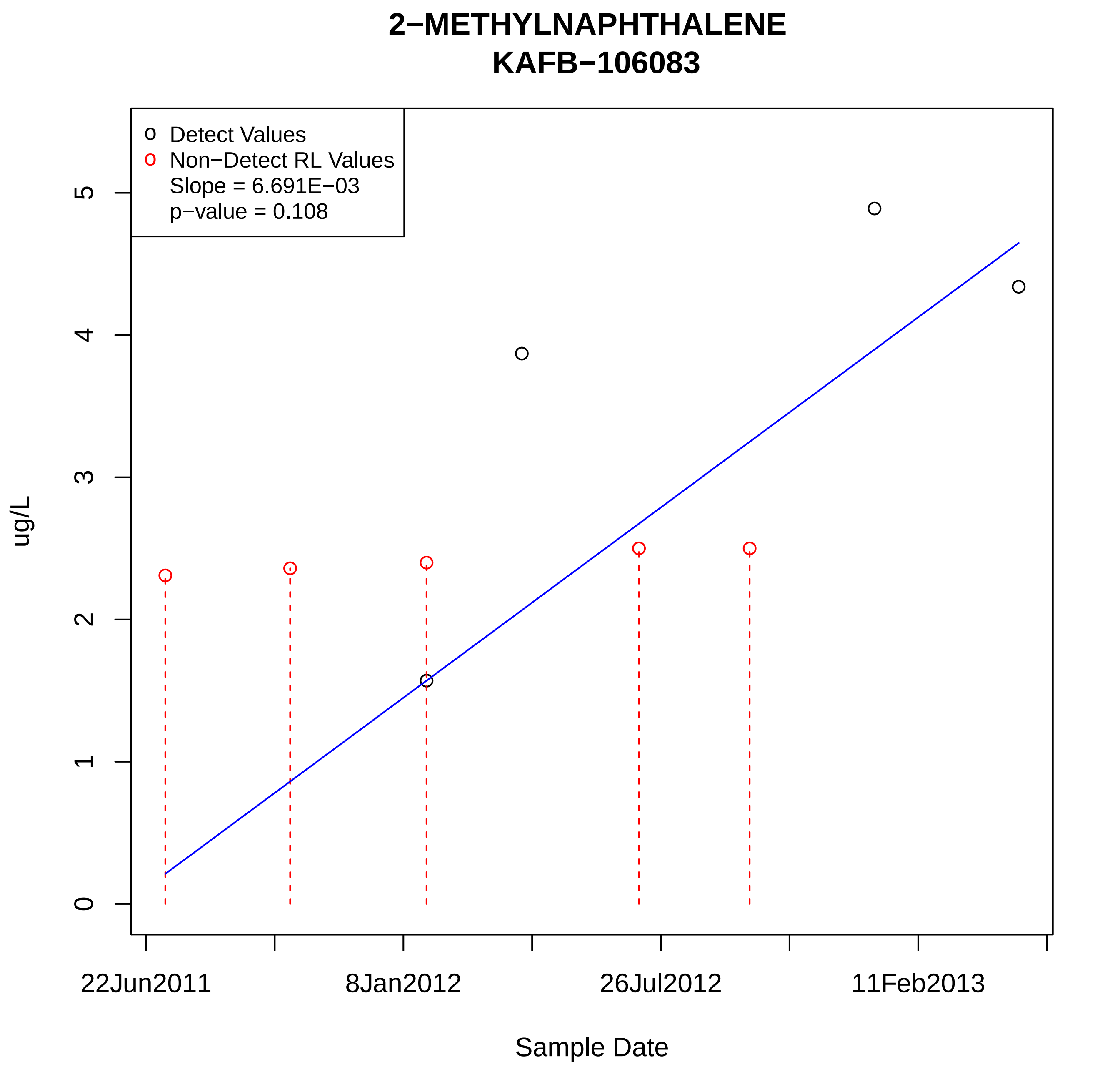


2−METHYLNAPHTHALENE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −2.234E−02
p−value = 0.731
ug/L
0
20
40
60
80
100
120
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

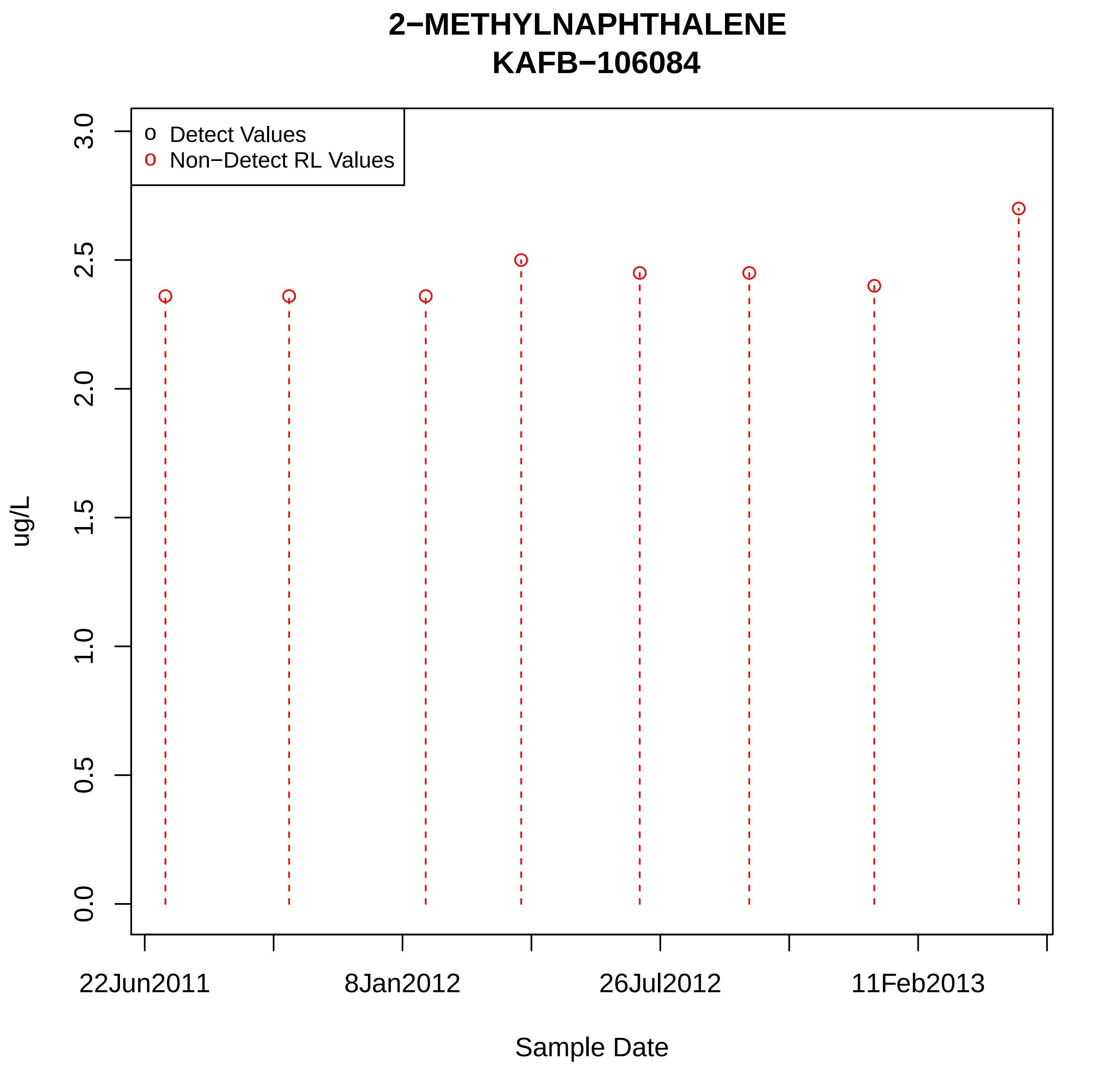

2−METHYLNAPHTHALENE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −1.759E−02
p−value = 0.143
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106081
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

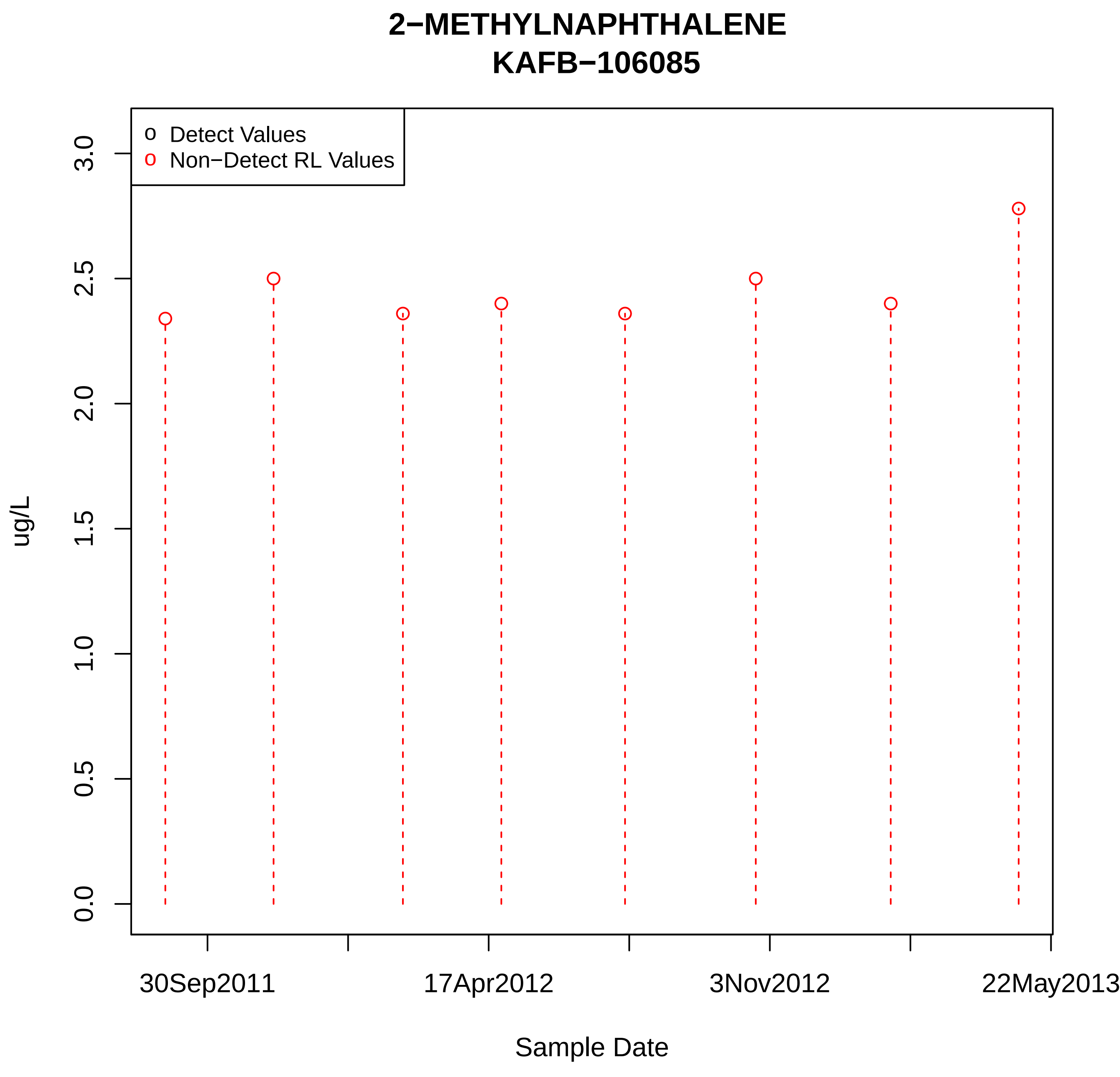

2−METHYLNAPHTHALENE
KAFB−106082
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = −1.304E−04
p−value = 1.000

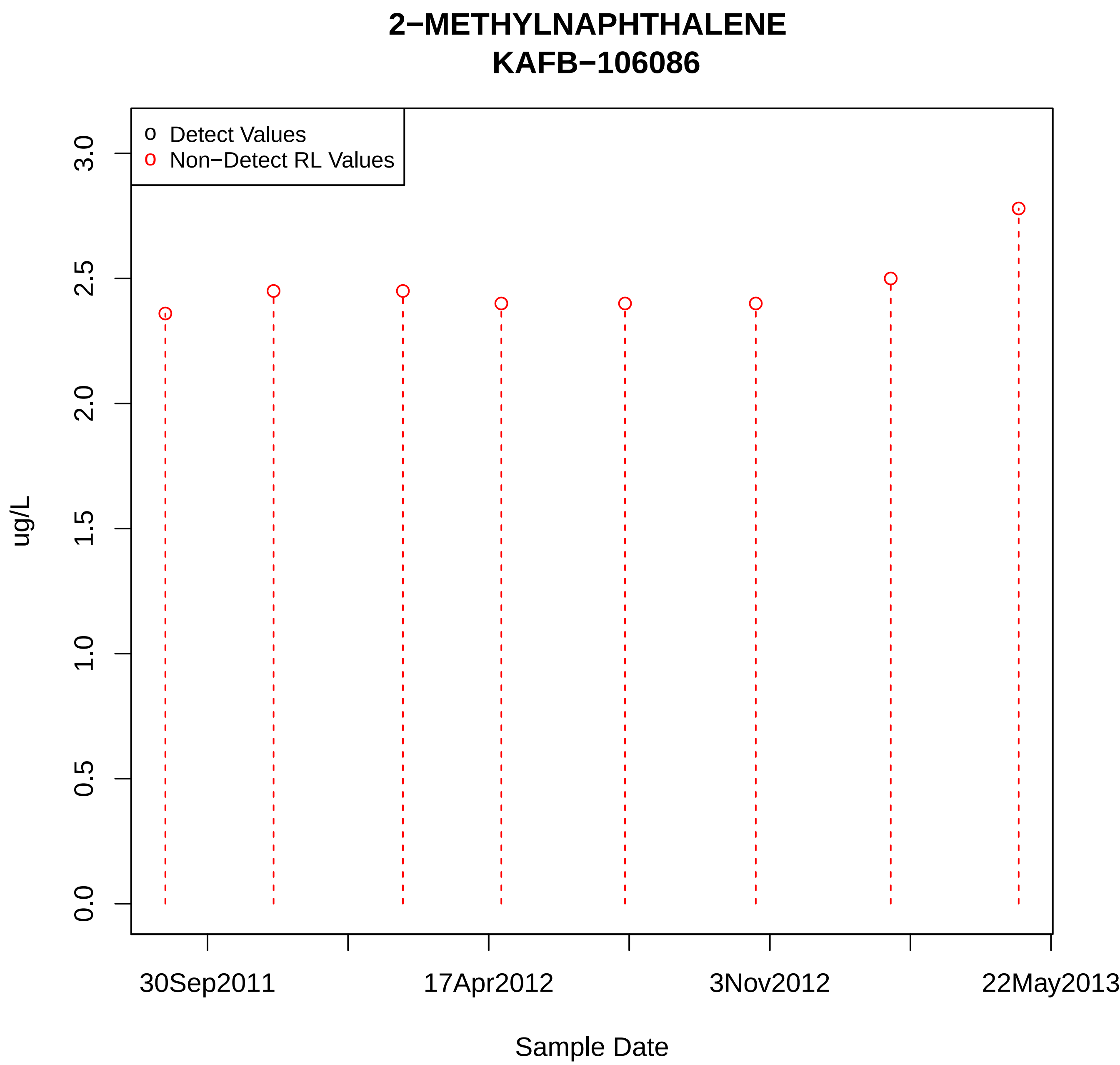


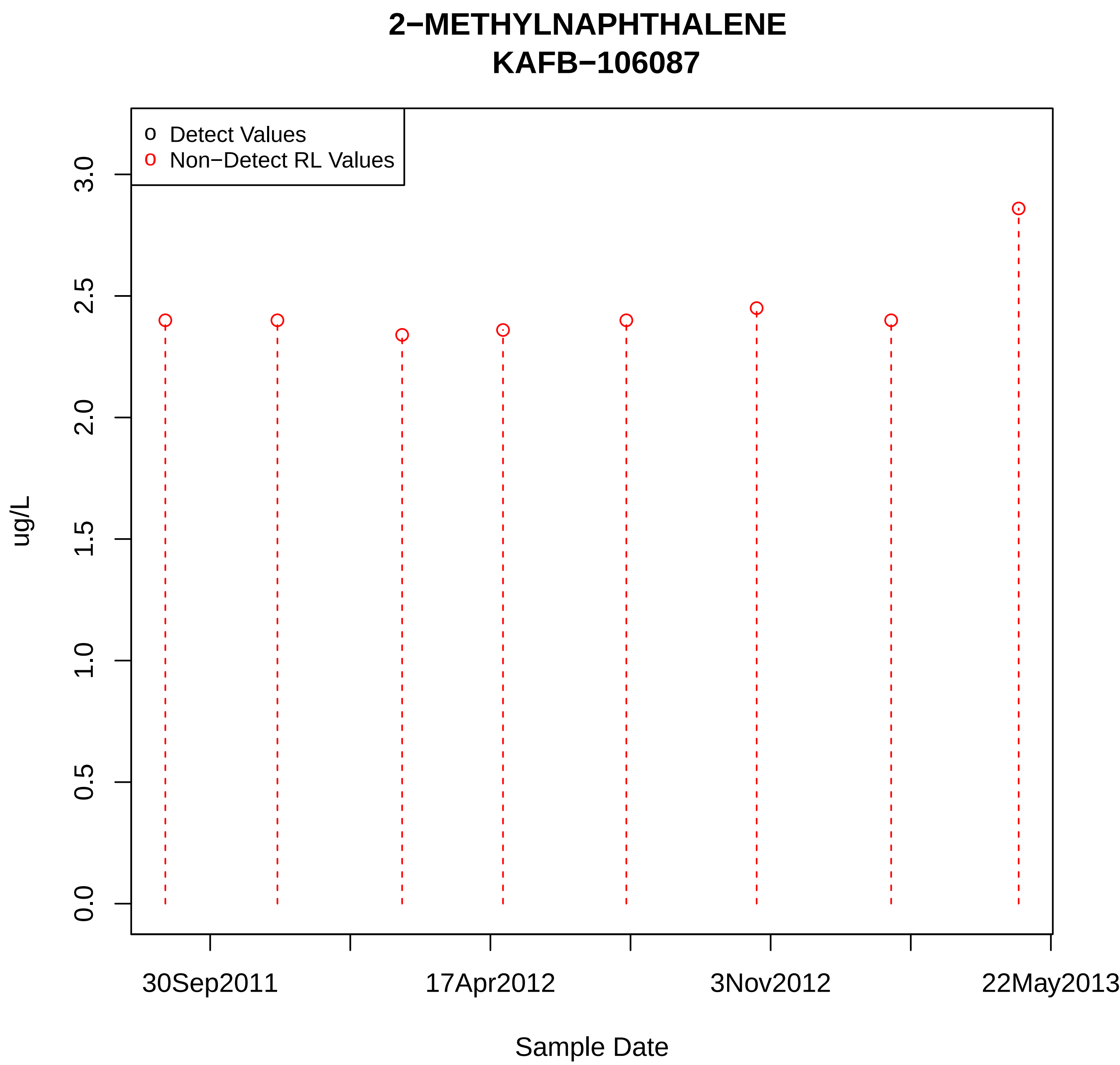
2−METHYLNAPHTHALENE
KAFB−106083
o Detect Values
o Non−Detect RL Values
Slope = 6.691E−03
p−value = 0.108
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

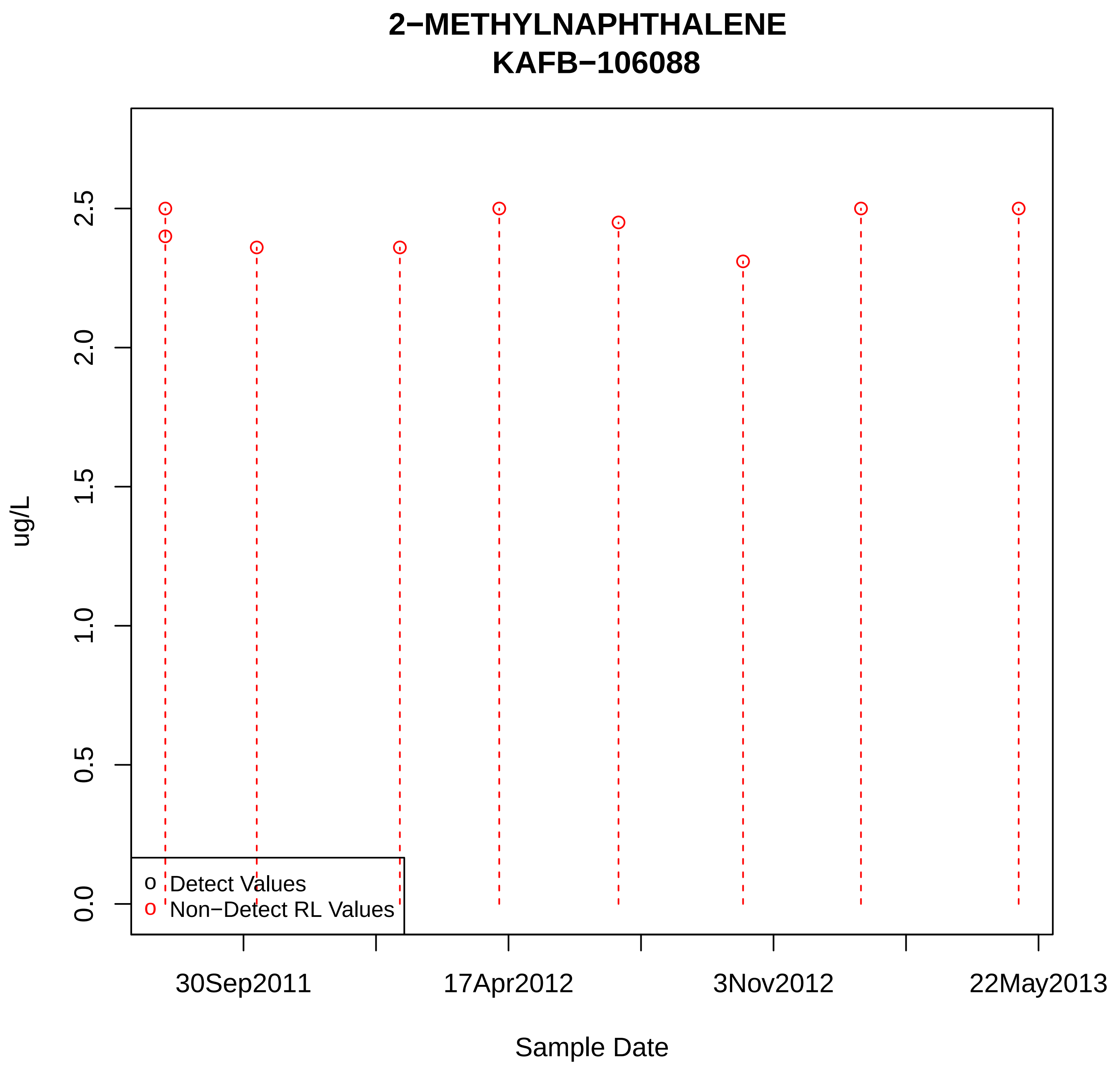


2−METHYLNAPHTHALENE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

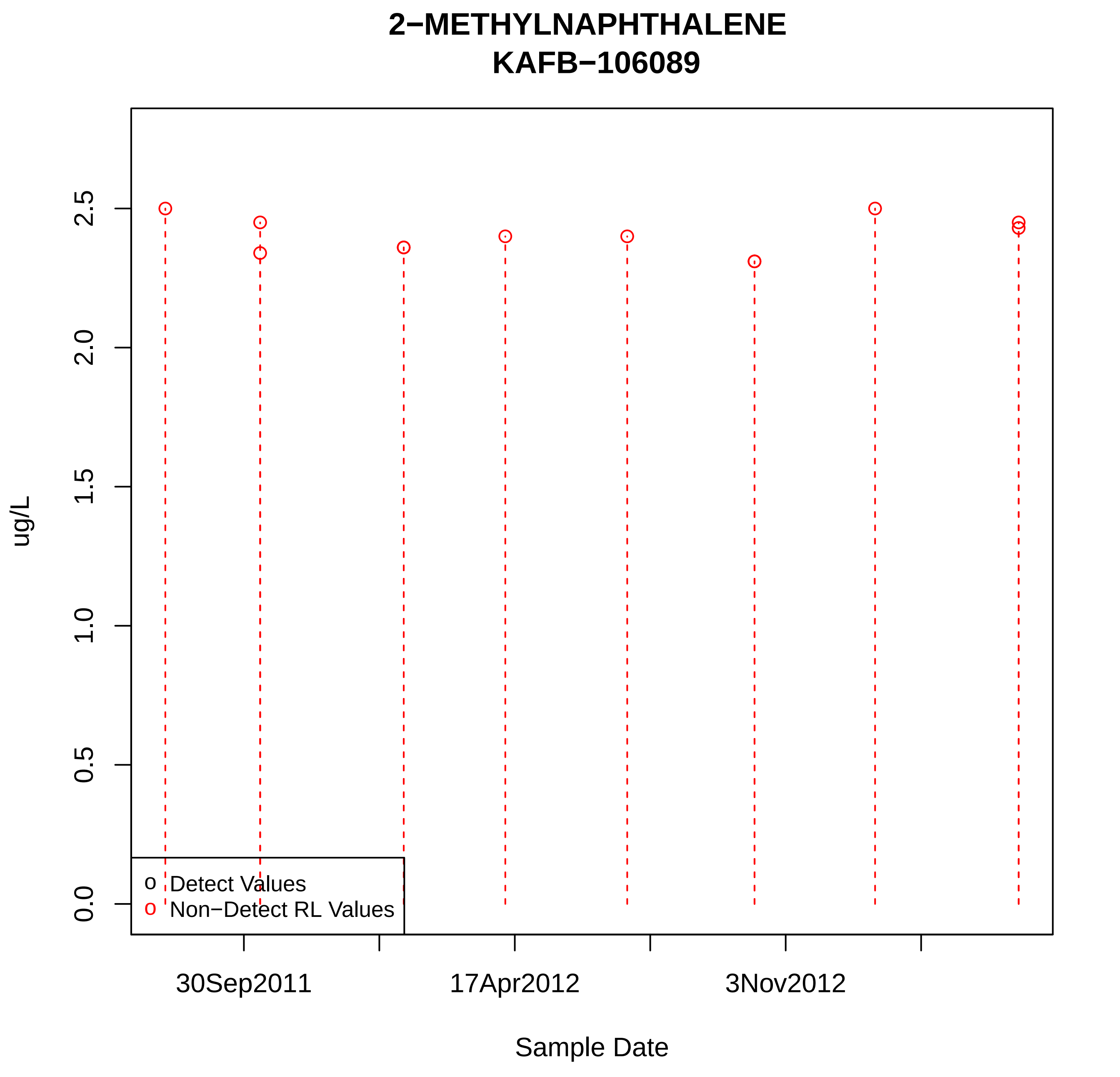

2−METHYLNAPHTHALENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106086
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

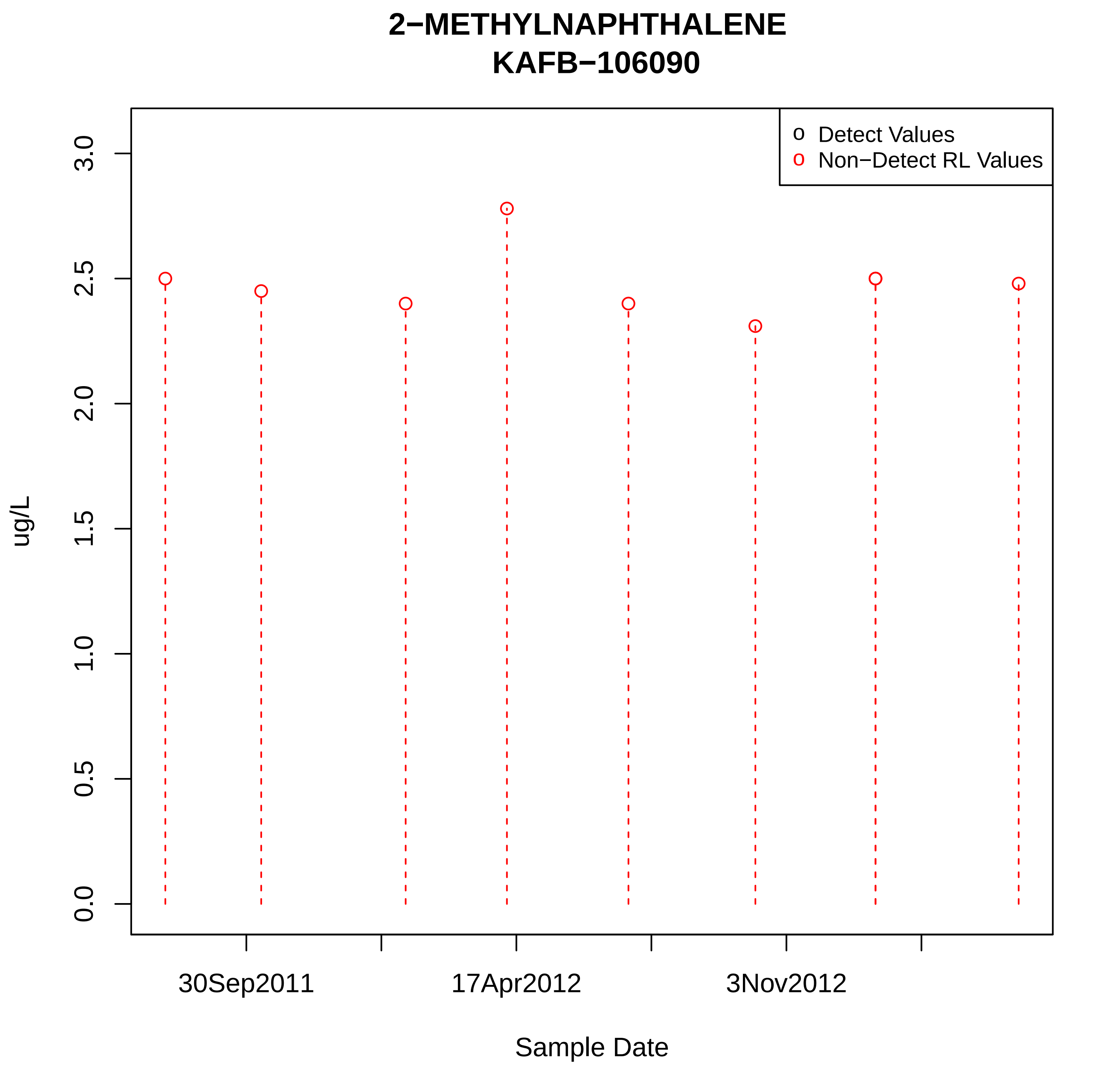

2−METHYLNAPHTHALENE
KAFB−106087
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



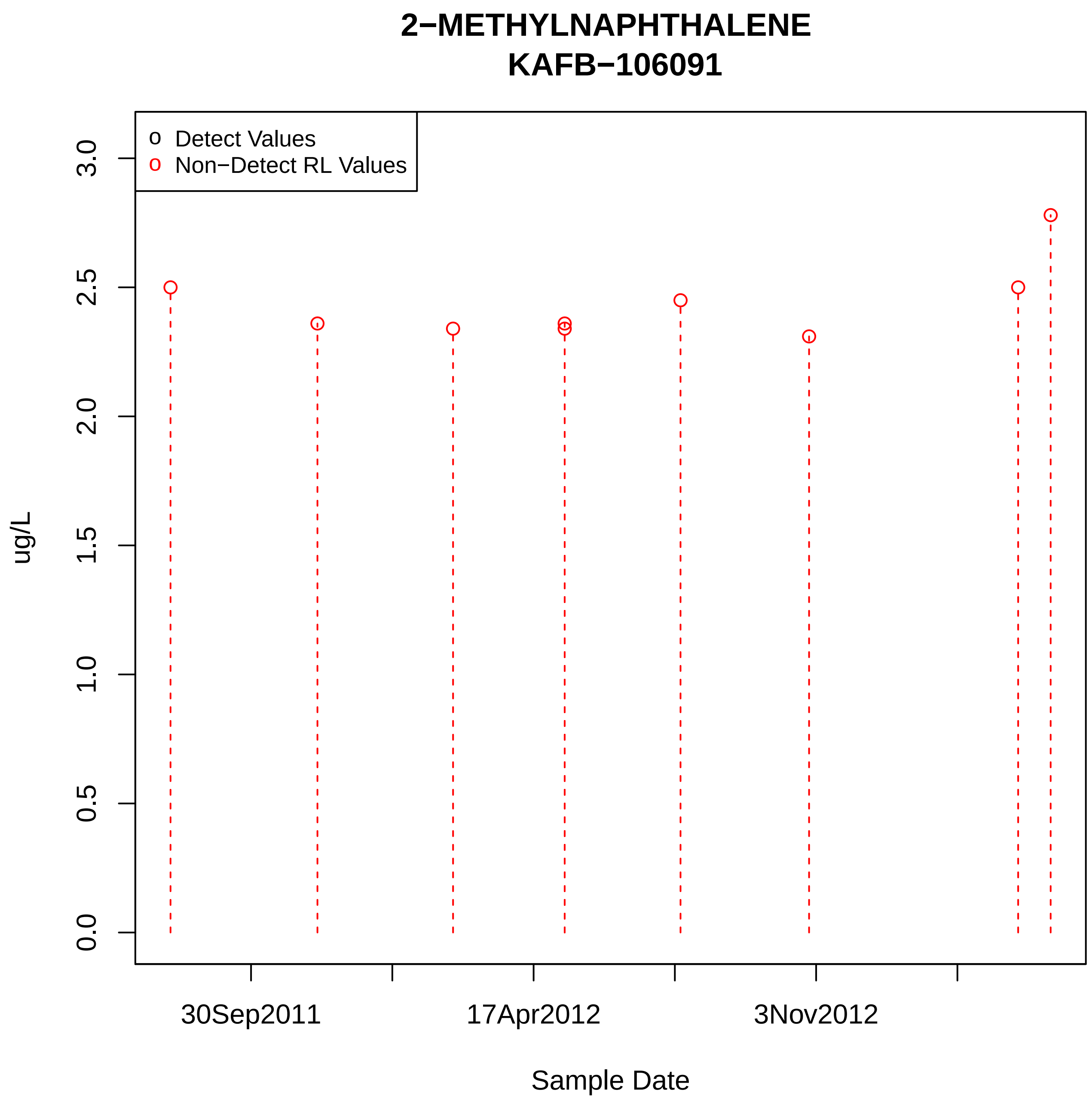
2−METHYLNAPHTHALENE
KAFB−106088
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

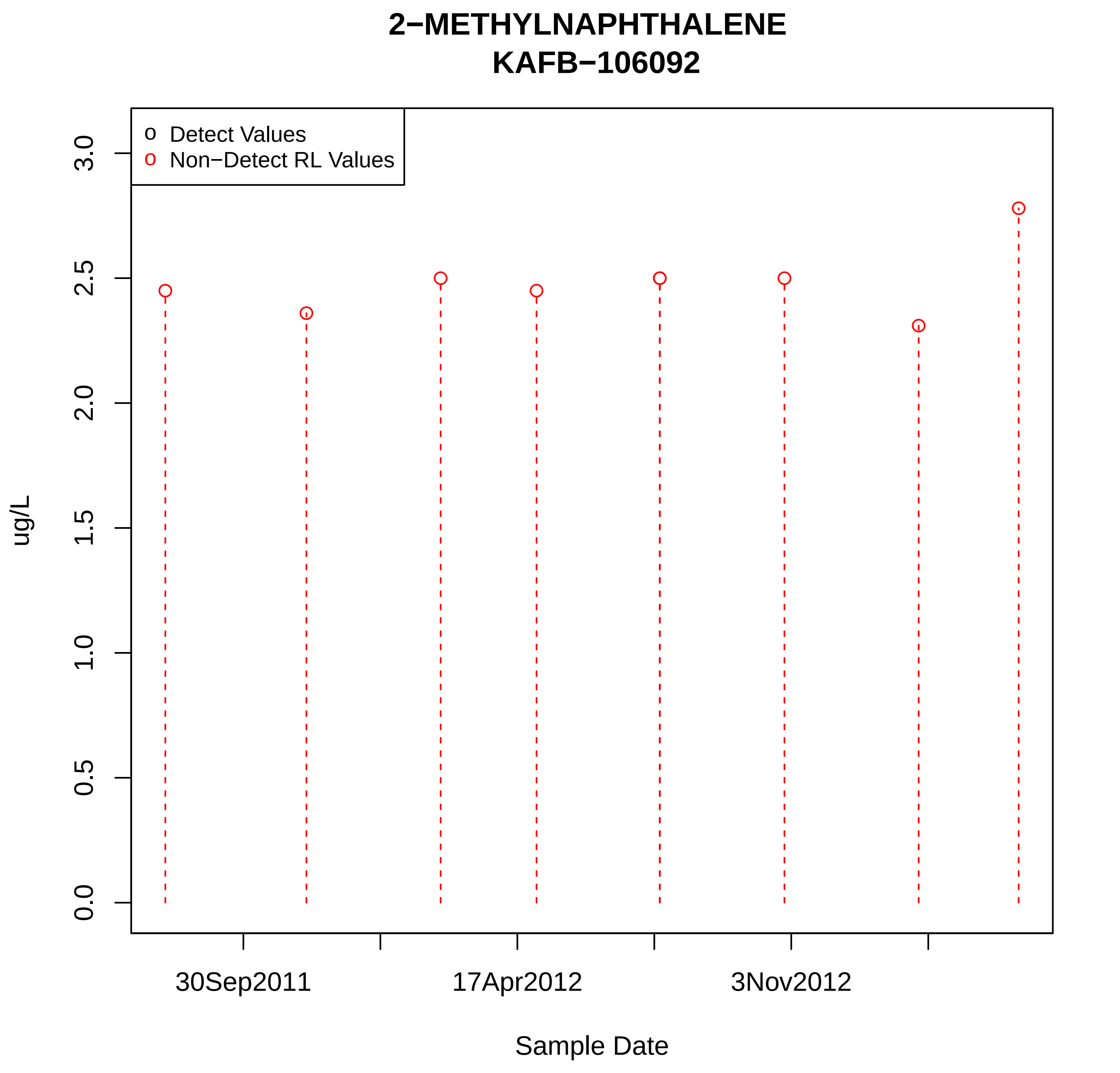


2−METHYLNAPHTHALENE
KAFB−106089
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

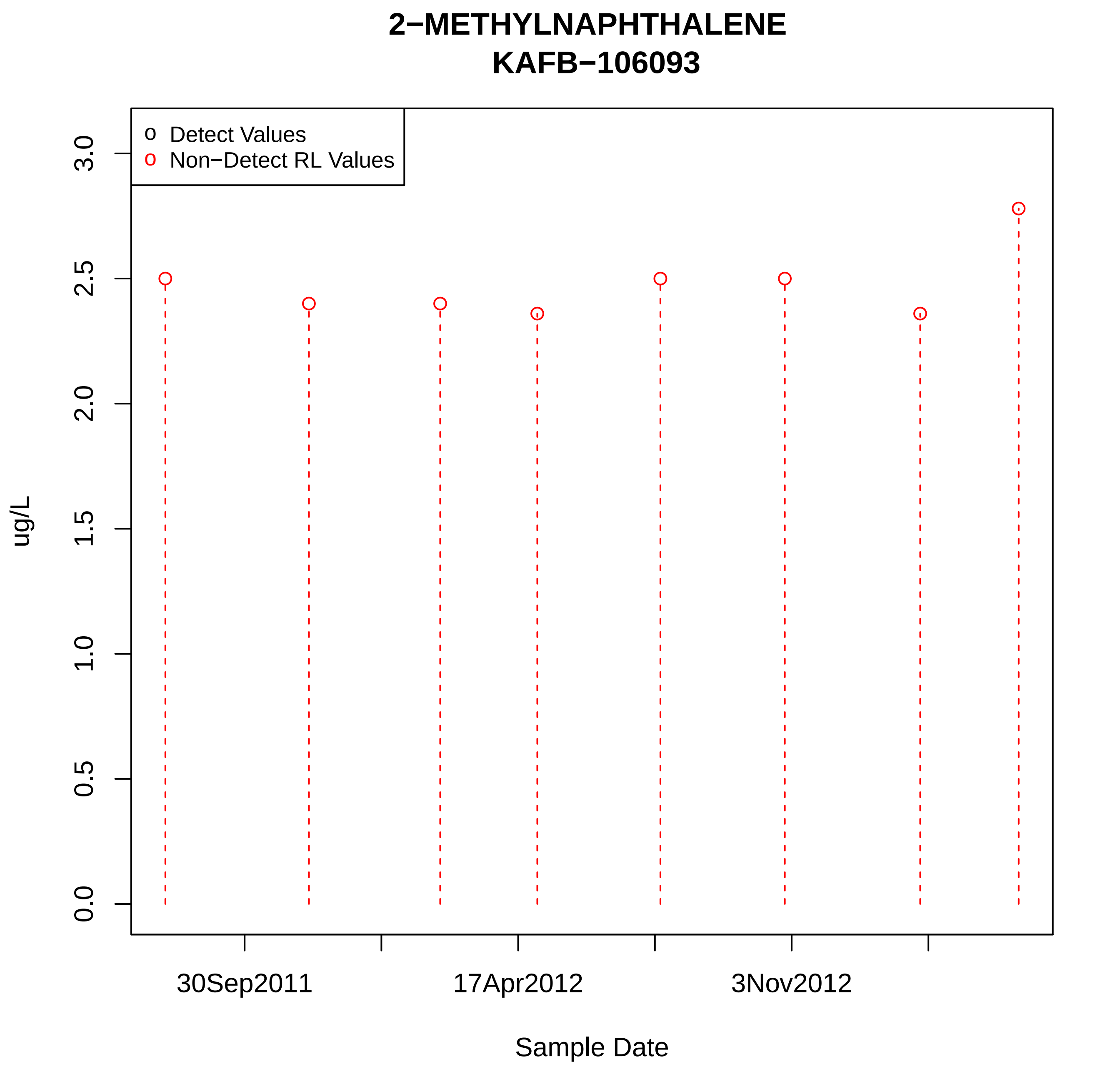


2−METHYLNAPHTHALENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

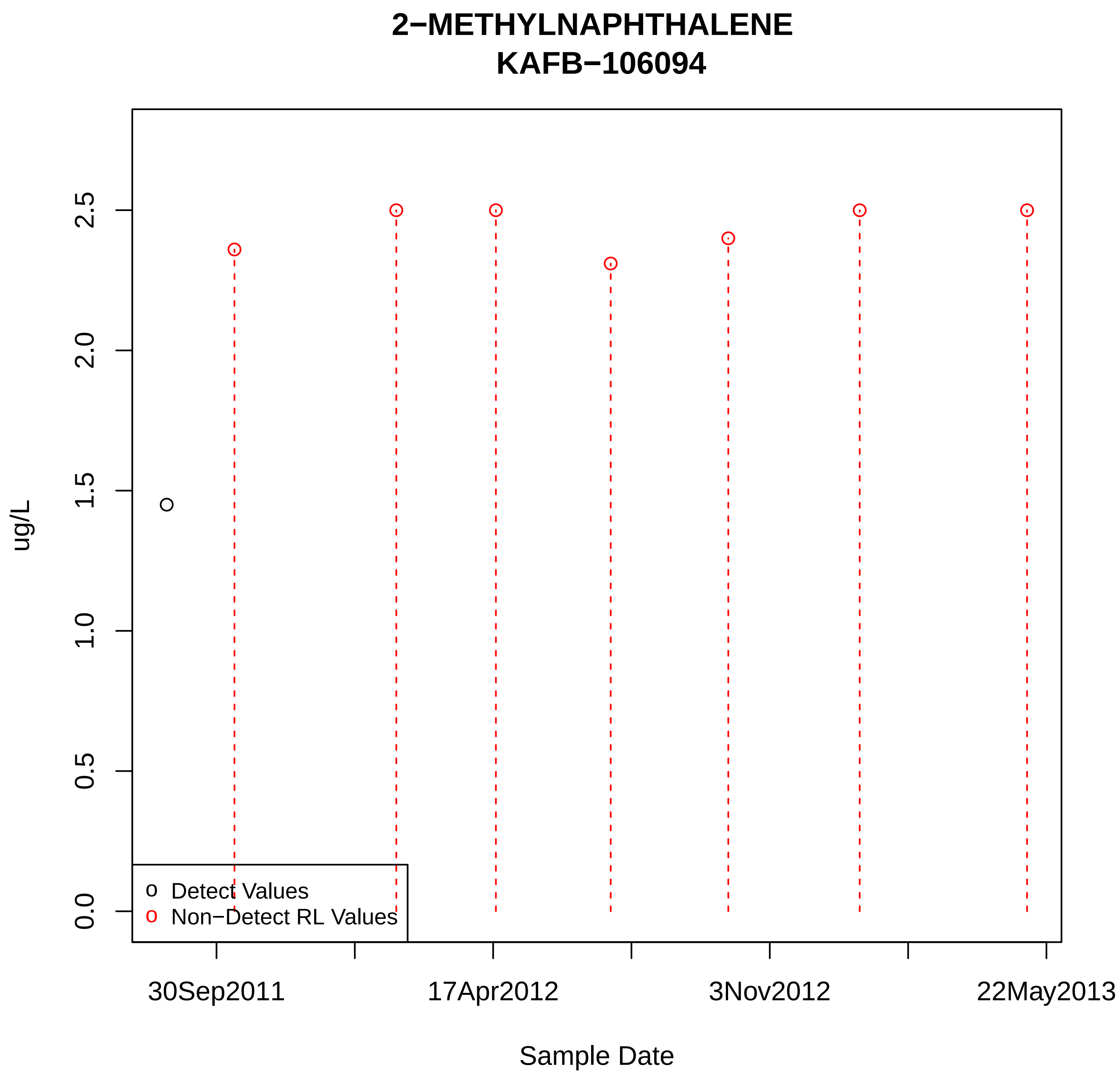

2−METHYLNAPHTHALENE
KAFB−106091
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

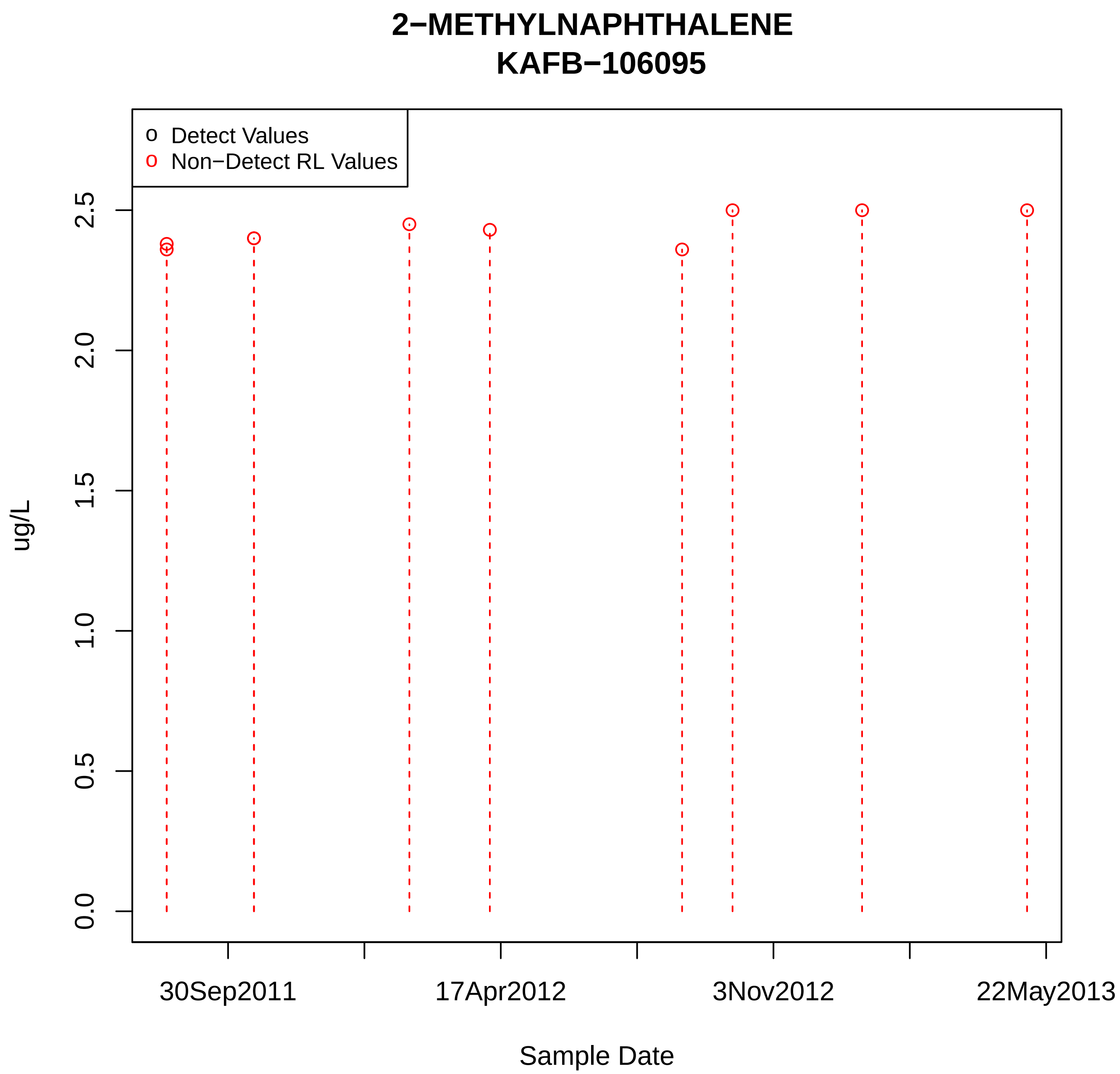


2−METHYLNAPHTHALENE
KAFB−106092
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

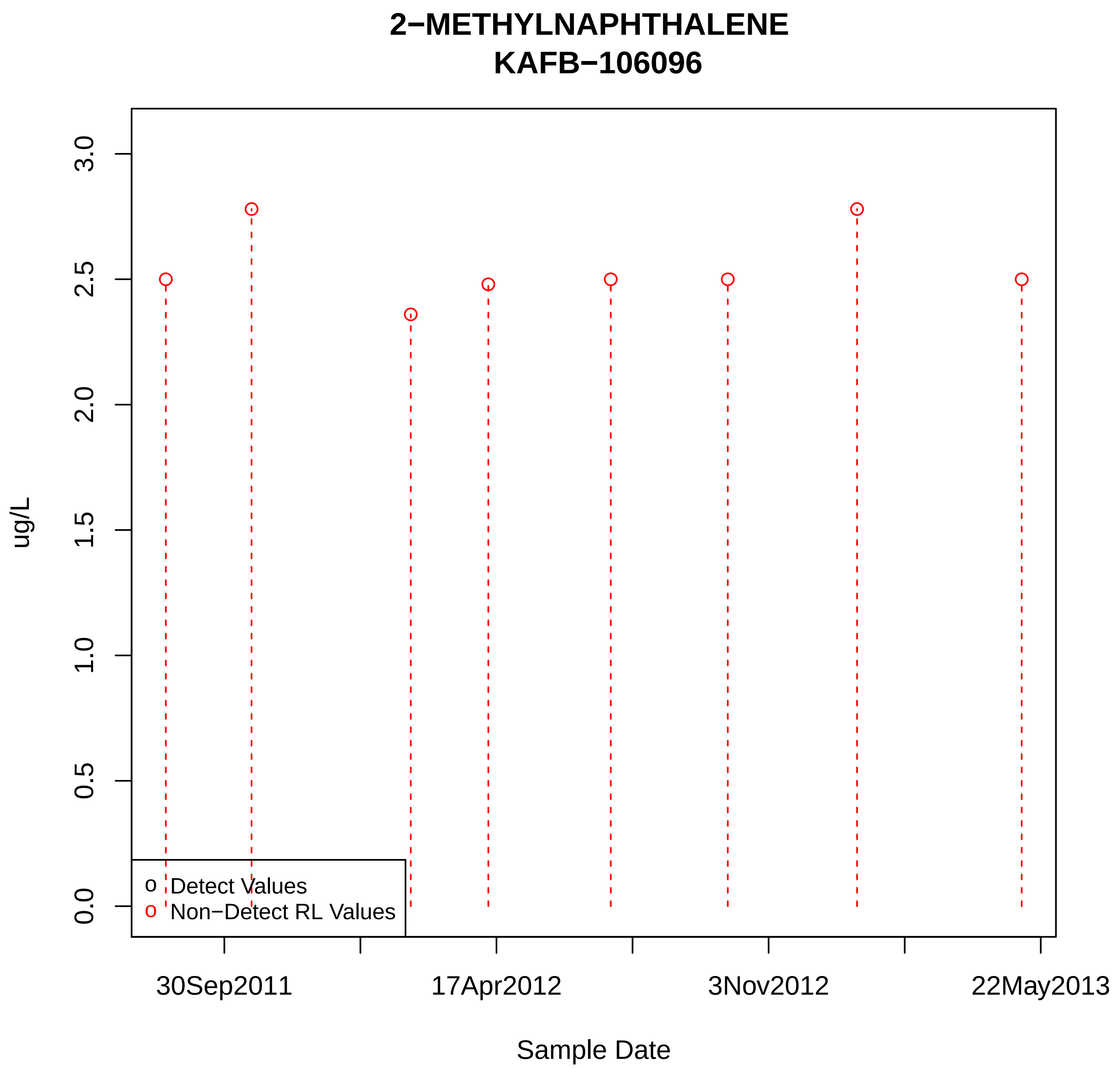


2−METHYLNAPHTHALENE
KAFB−106093
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLNAPHTHALENE
KAFB−106094
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

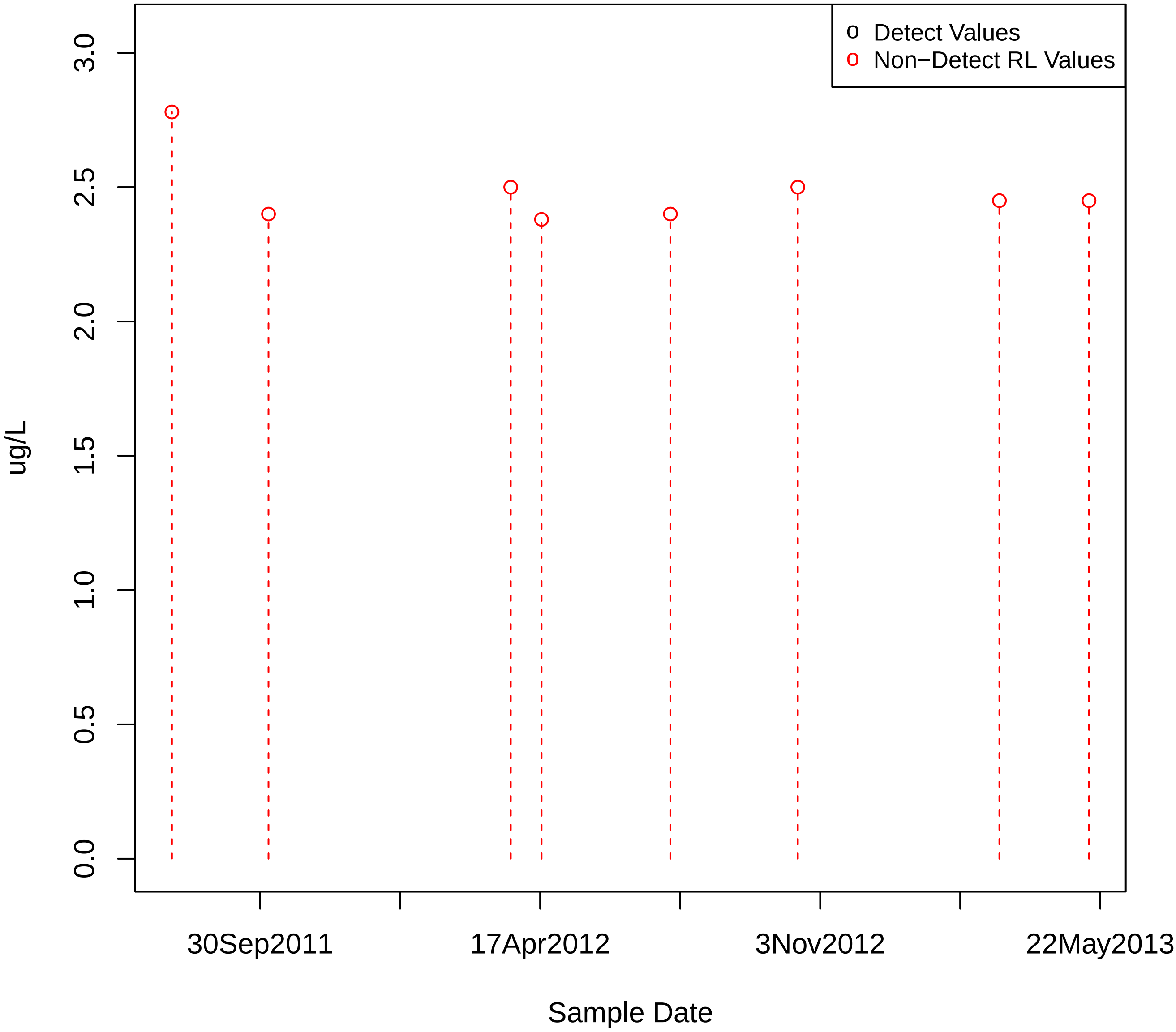


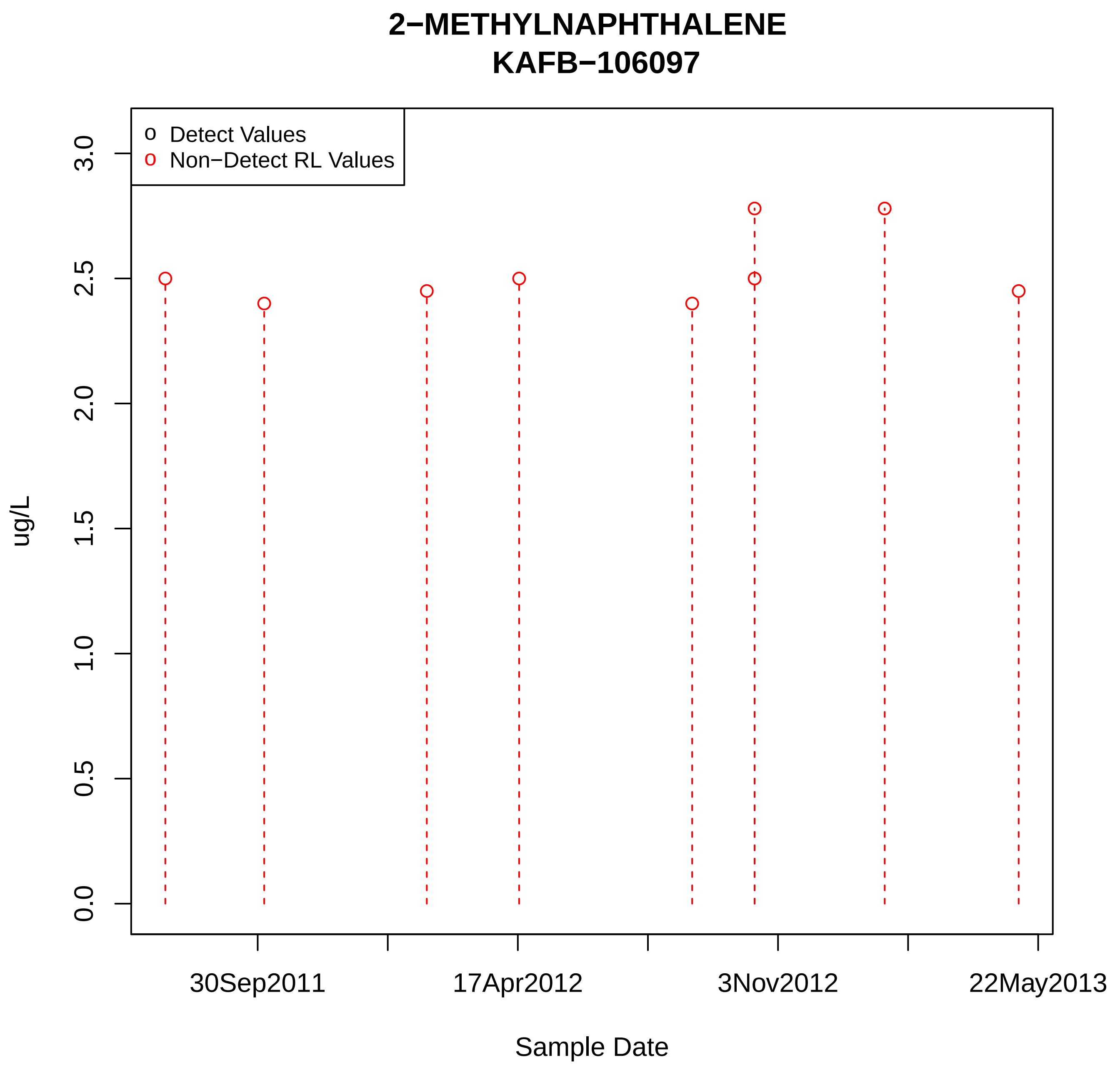
2−METHYLNAPHTHALENE
KAFB−106095
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



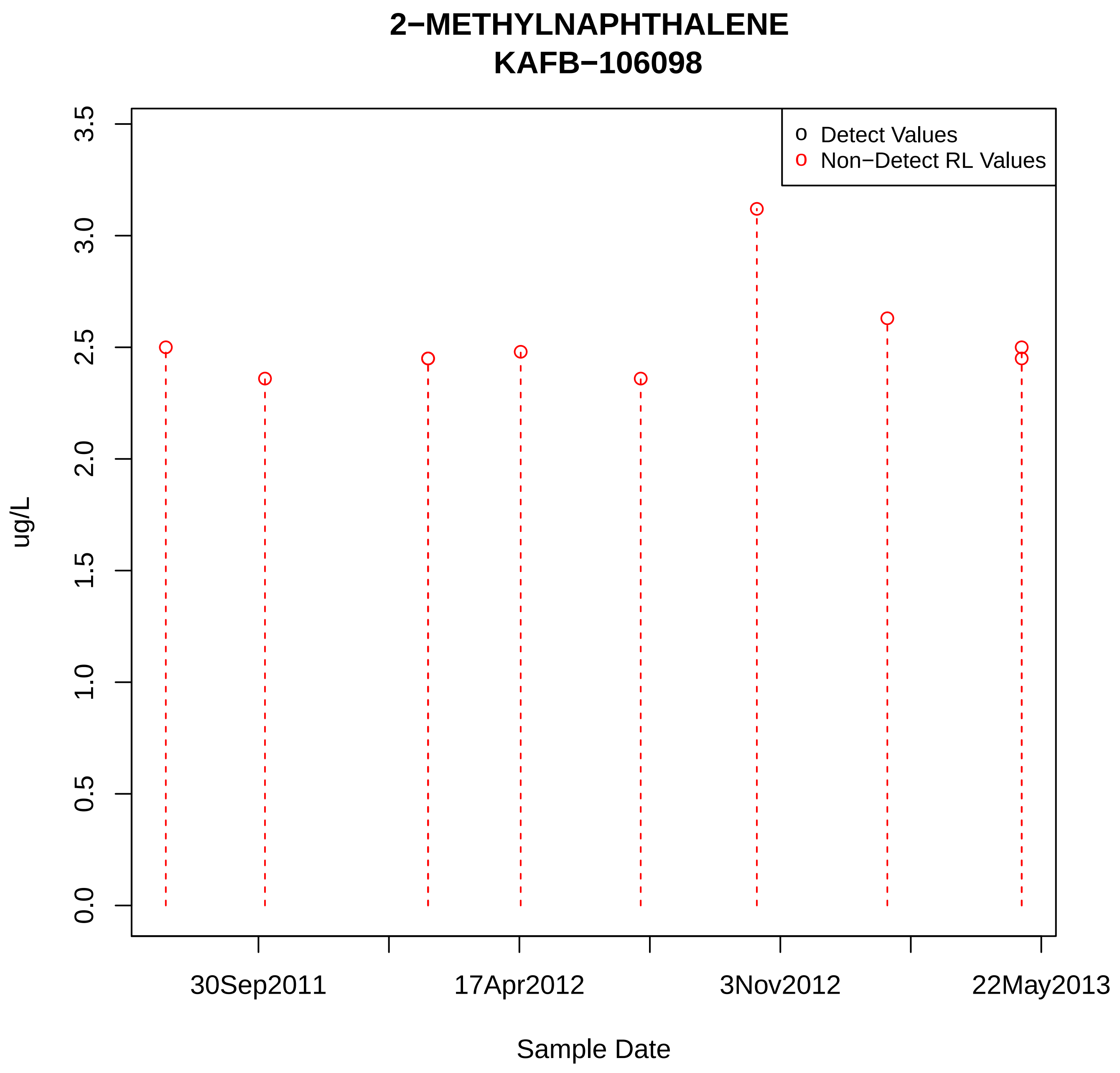
2−METHYLNAPHTHALENE
KAFB−106096
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

2−METHYLNAPHTHALENE
KAFB−106013

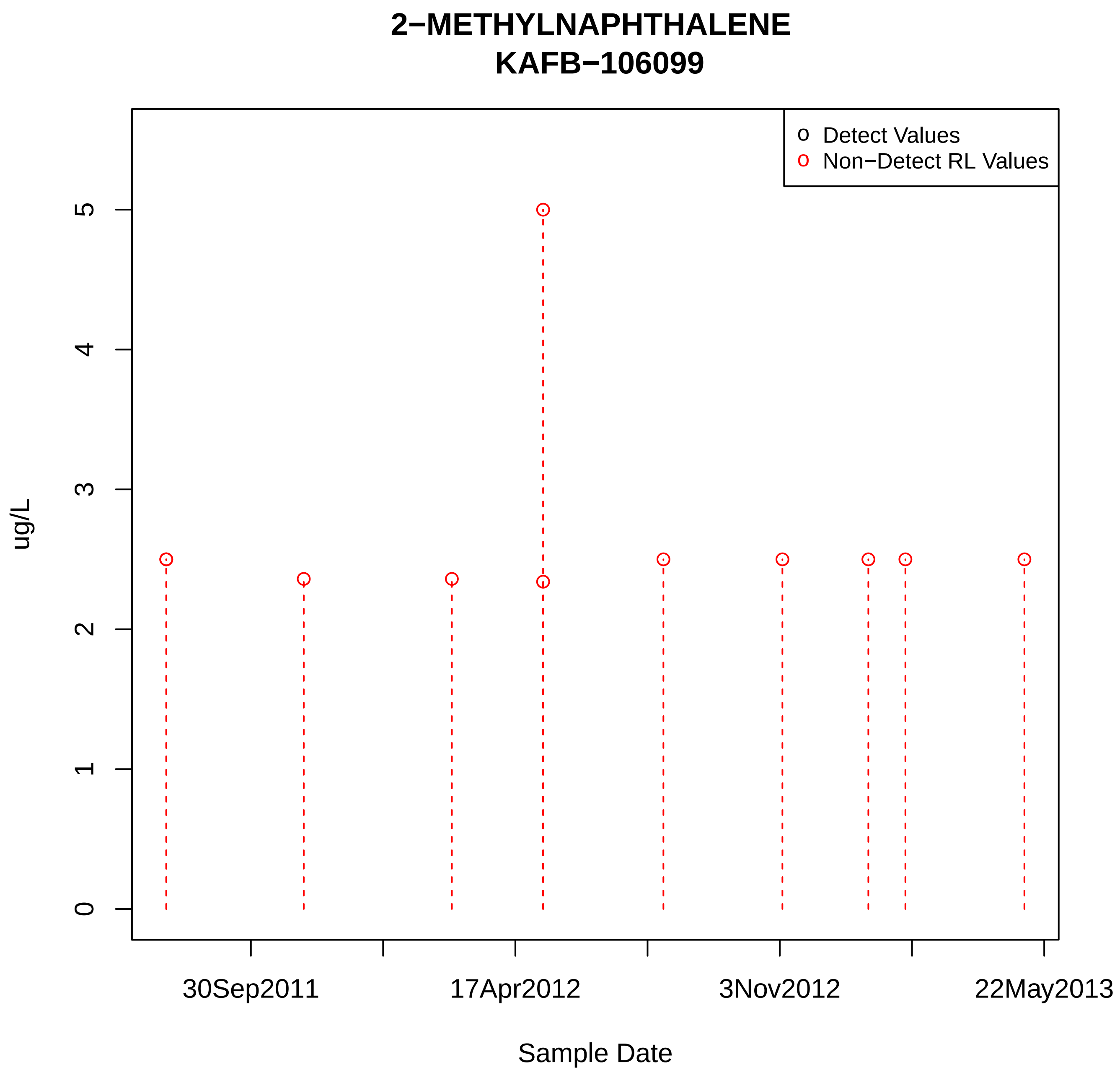




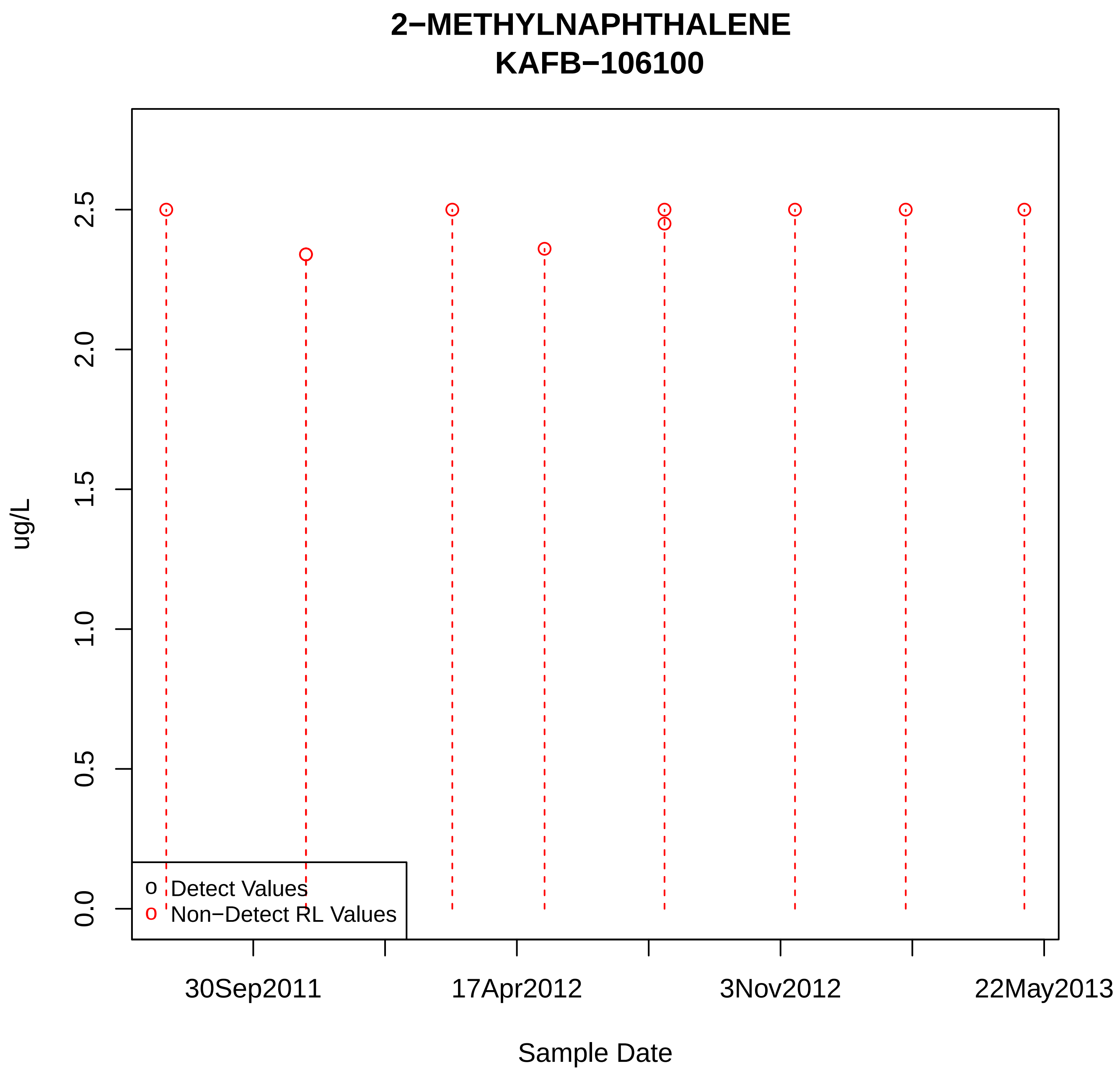
2−METHYLNAPHTHALENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



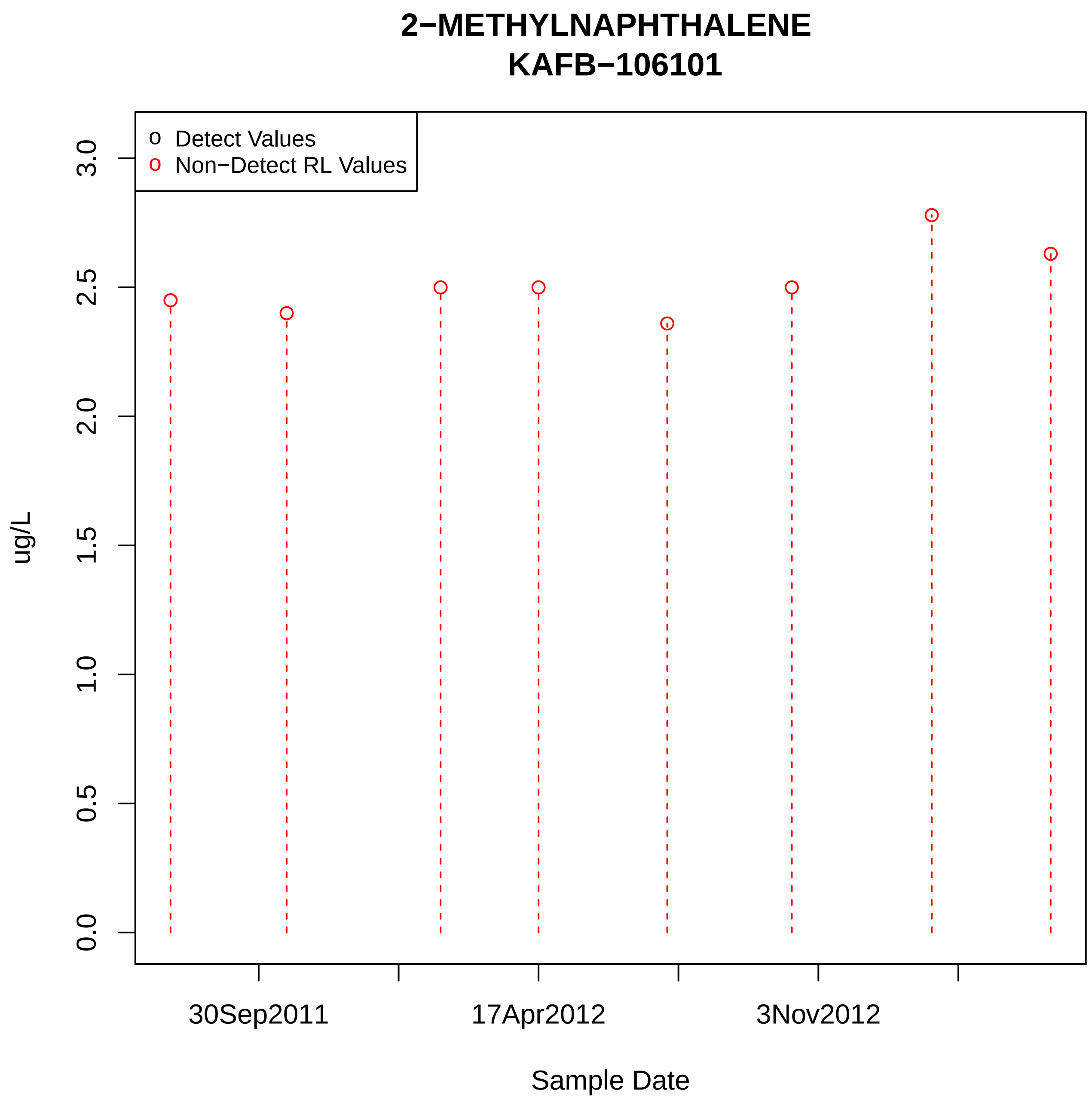
2−METHYLNAPHTHALENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

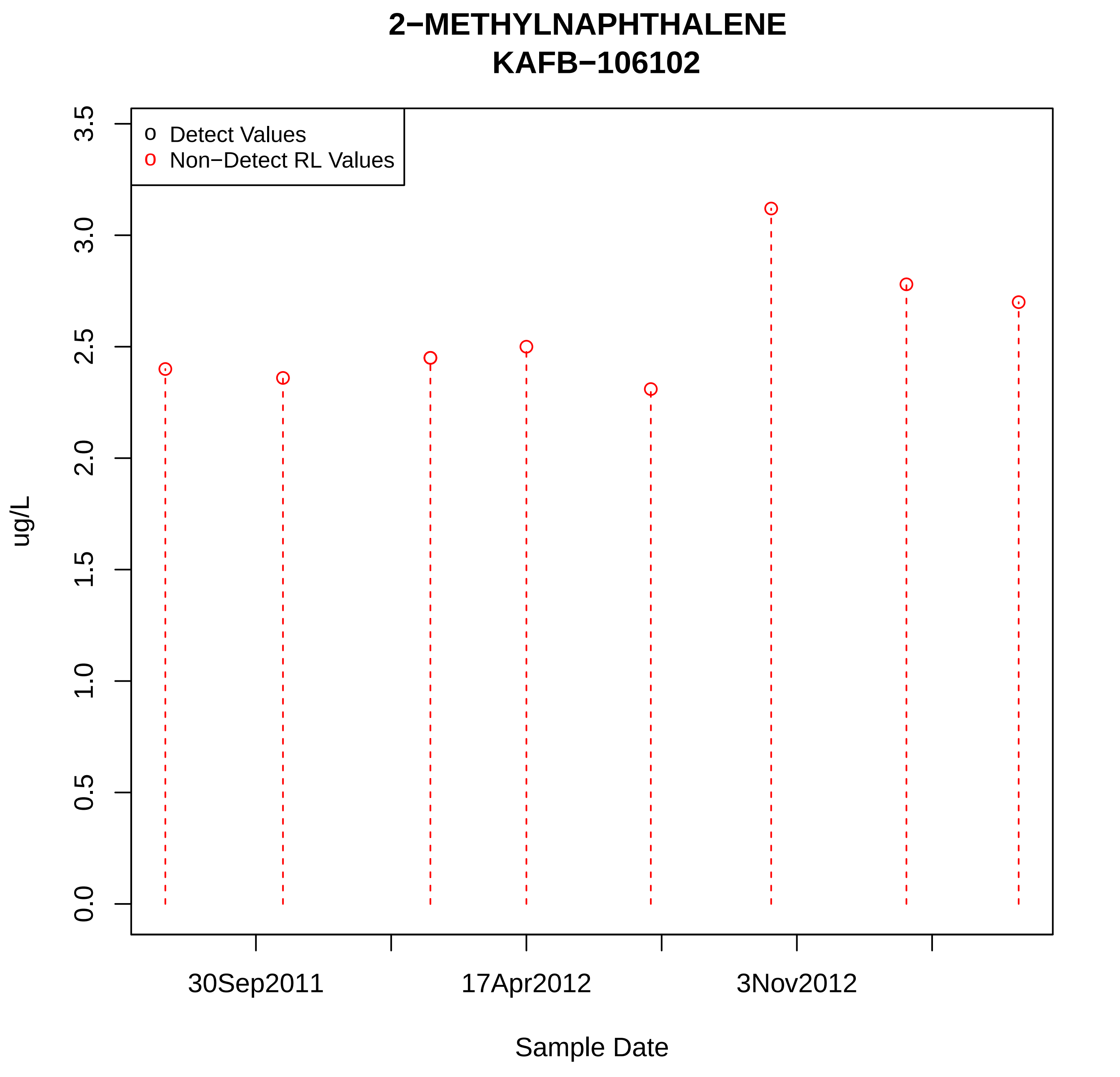


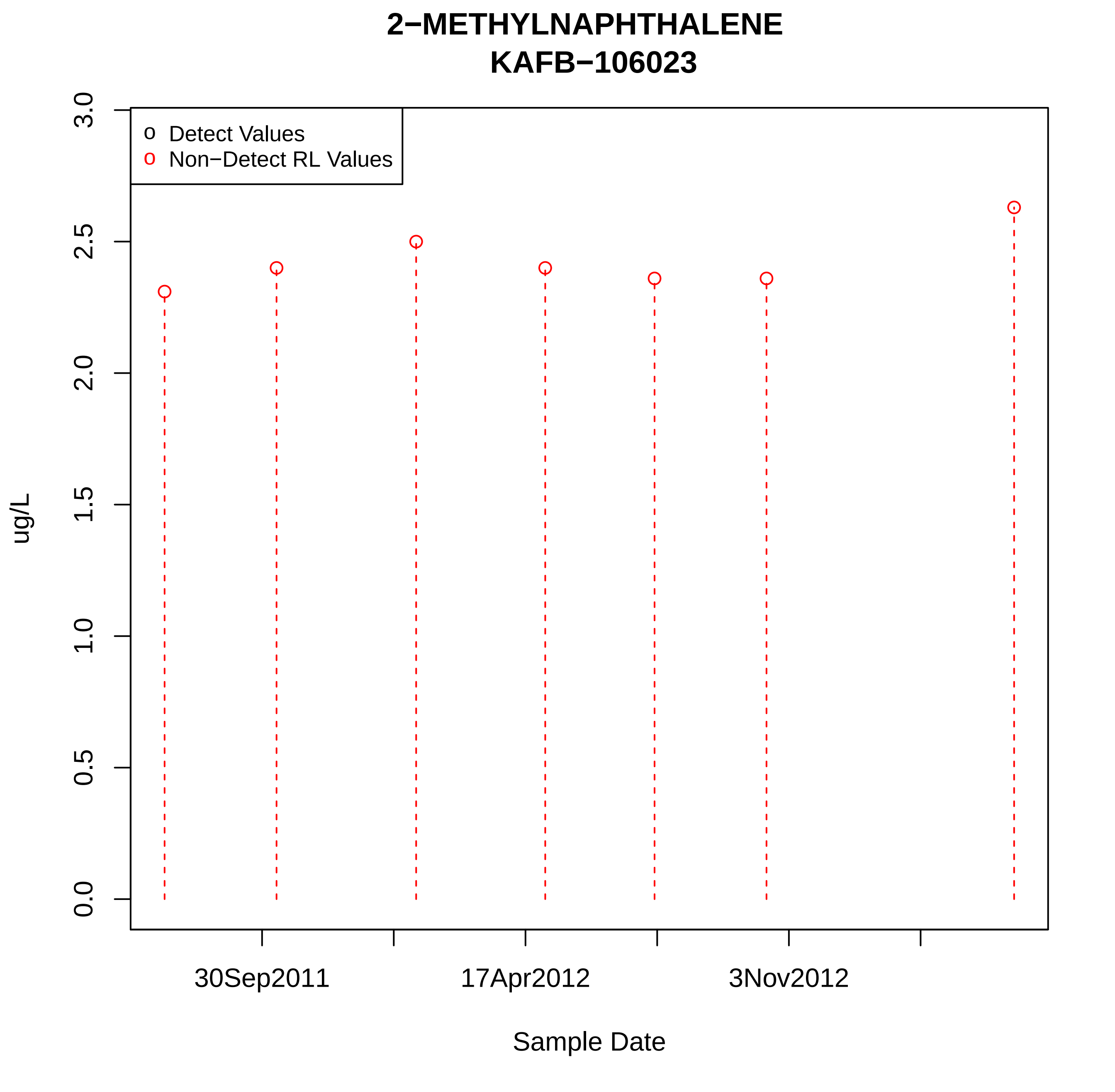
2−METHYLNAPHTHALENE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



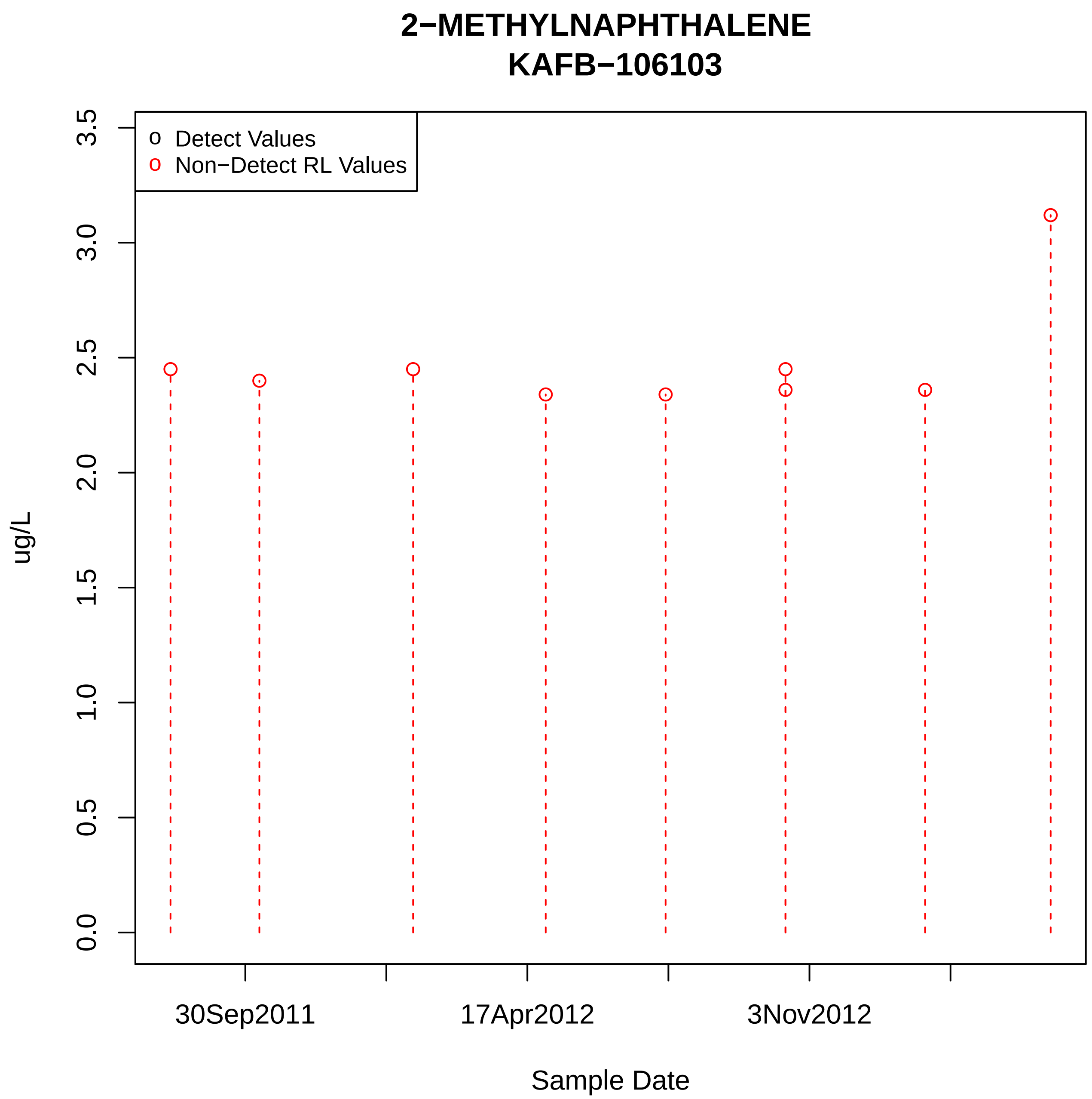
2−METHYLNAPHTHALENE
KAFB−106100
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106101
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

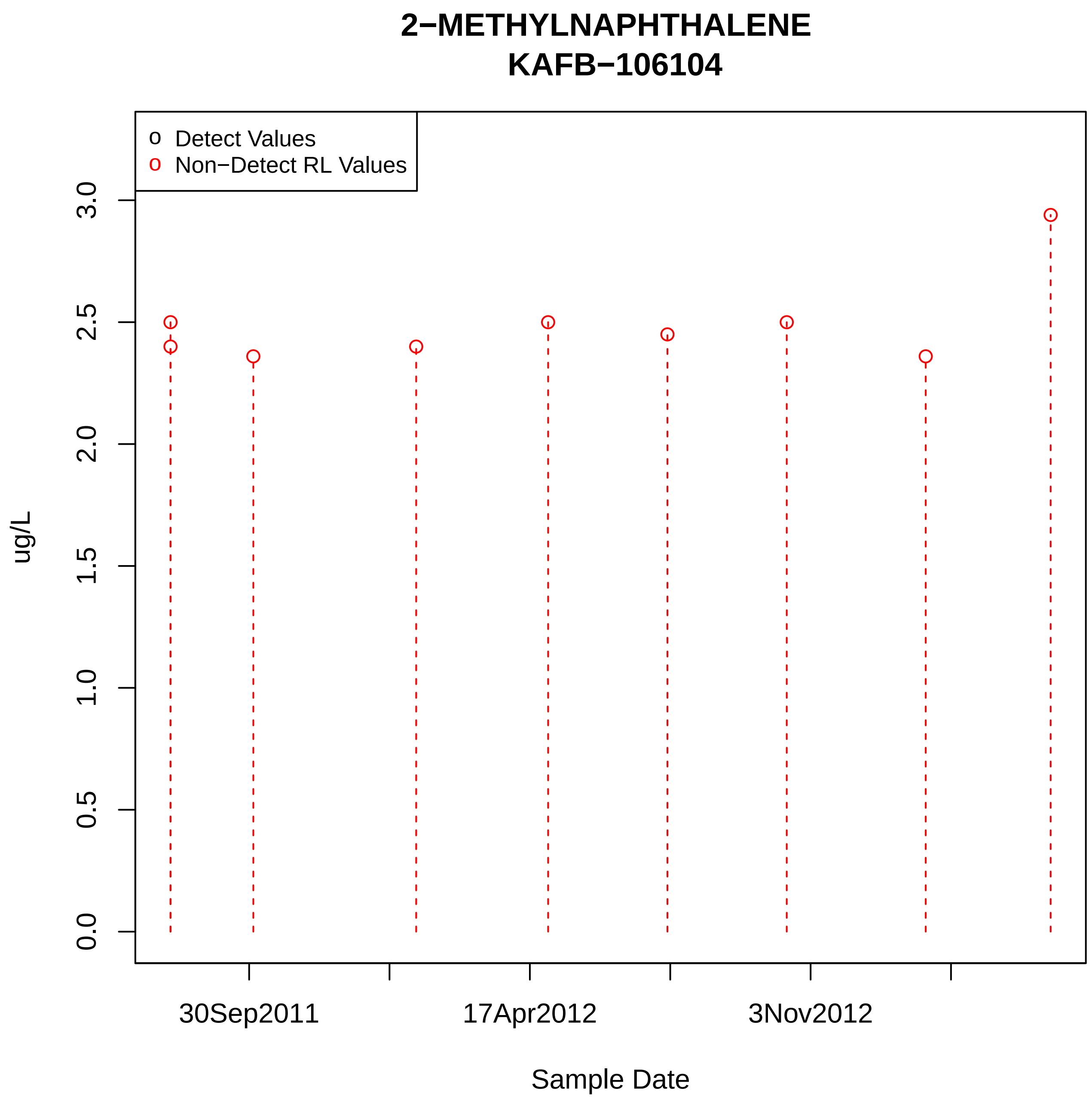

2−METHYLNAPHTHALENE
KAFB−106102
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



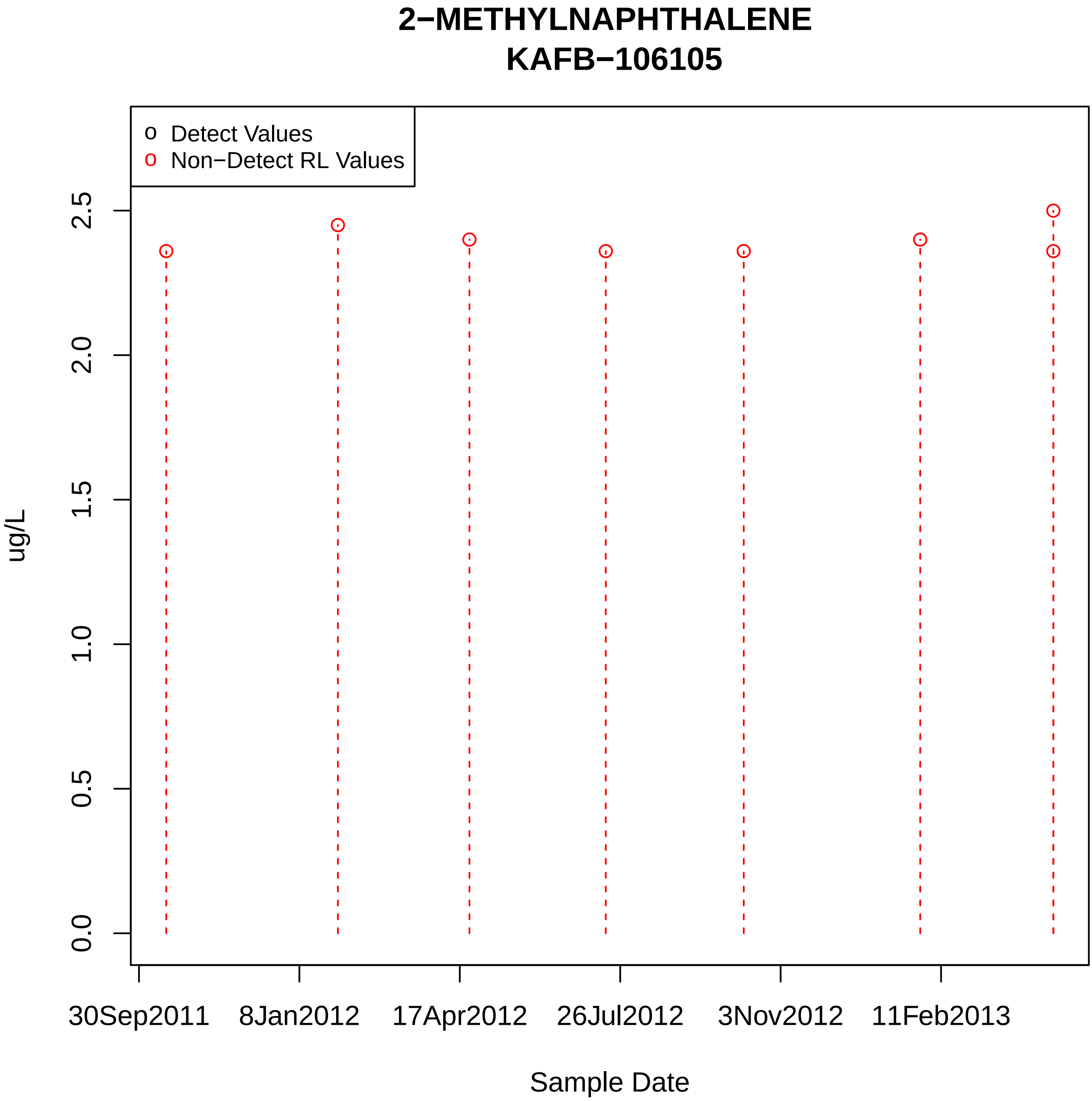
2−METHYLNAPHTHALENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

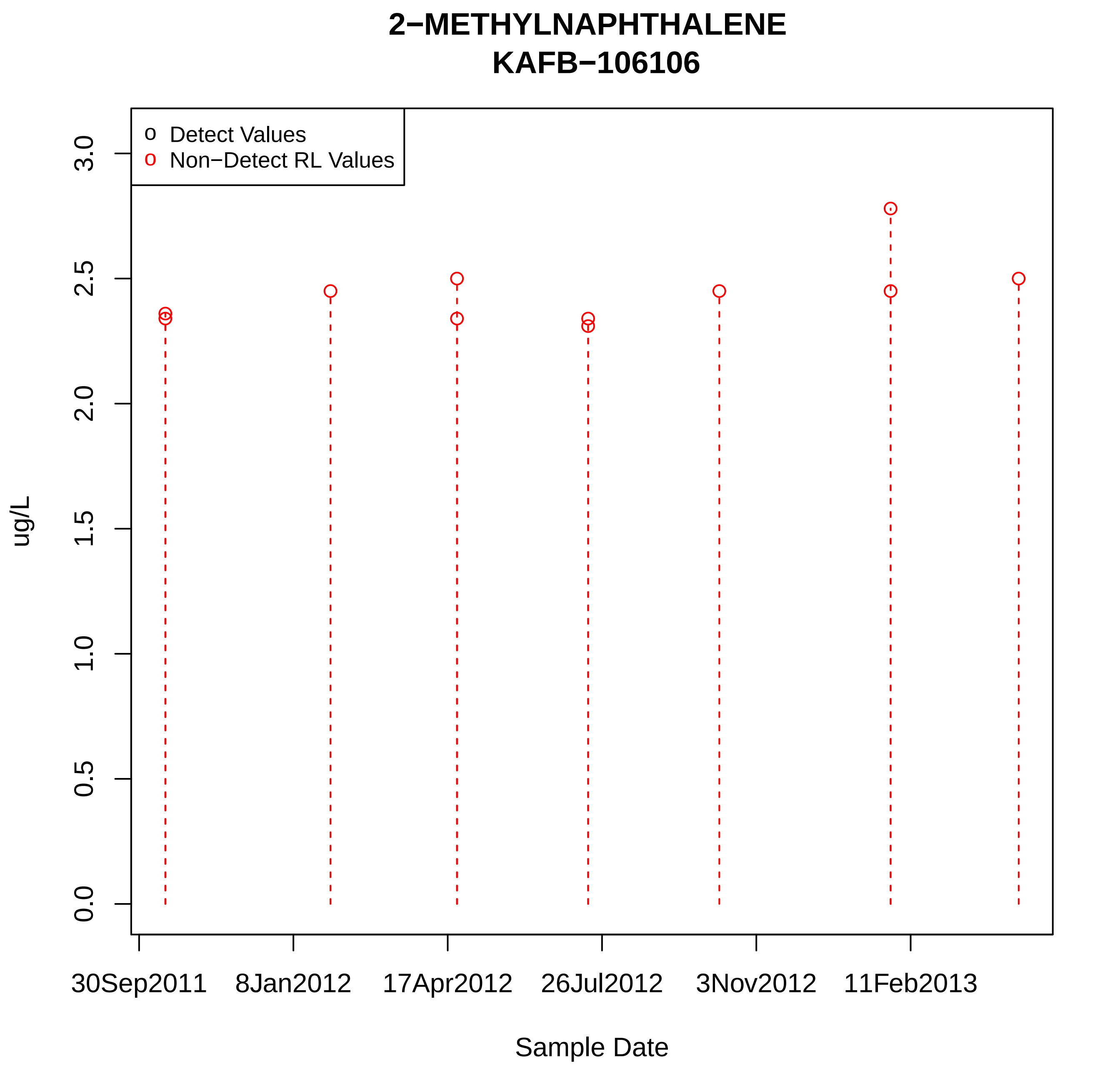


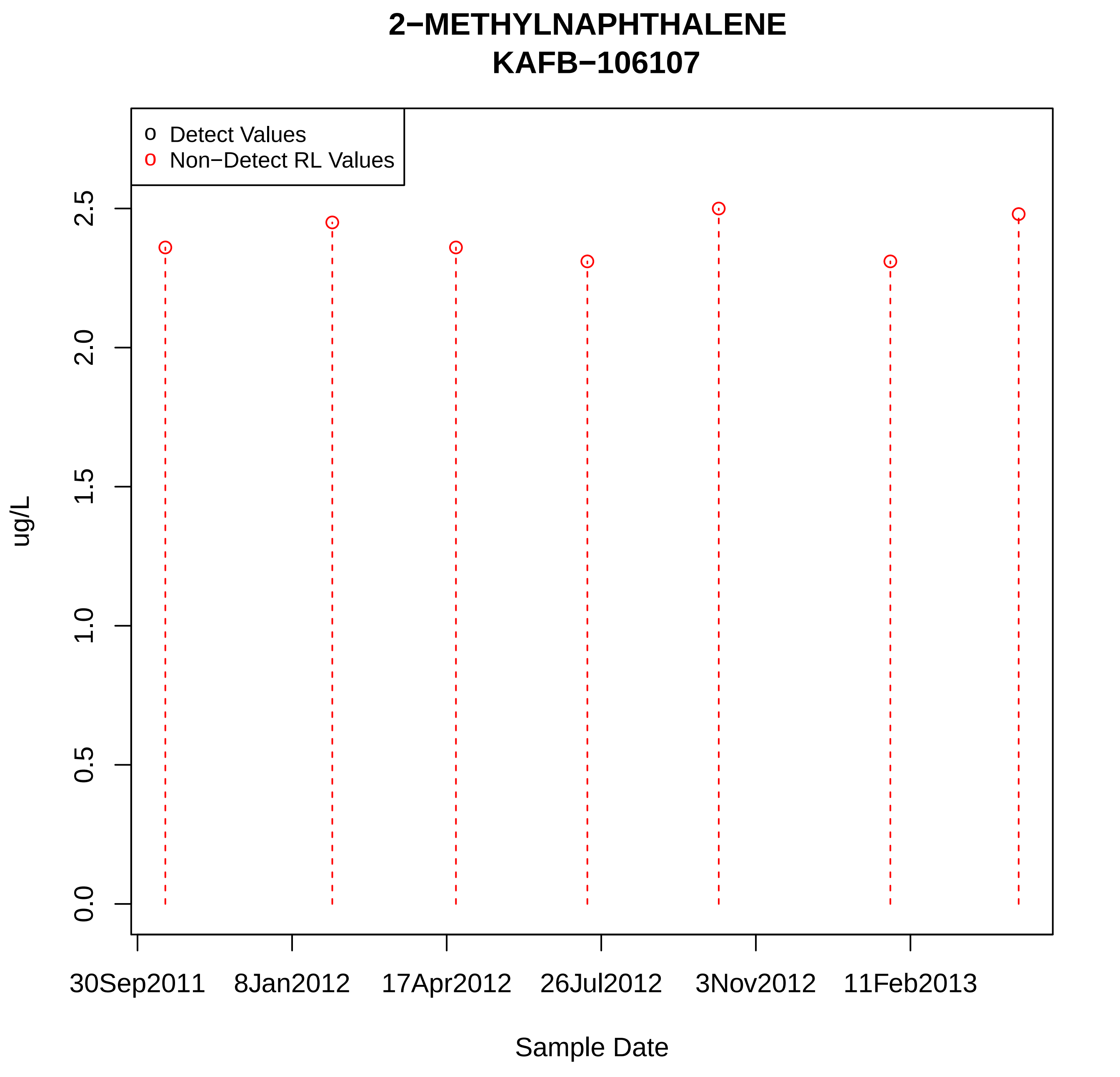
2−METHYLNAPHTHALENE
KAFB−106103
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

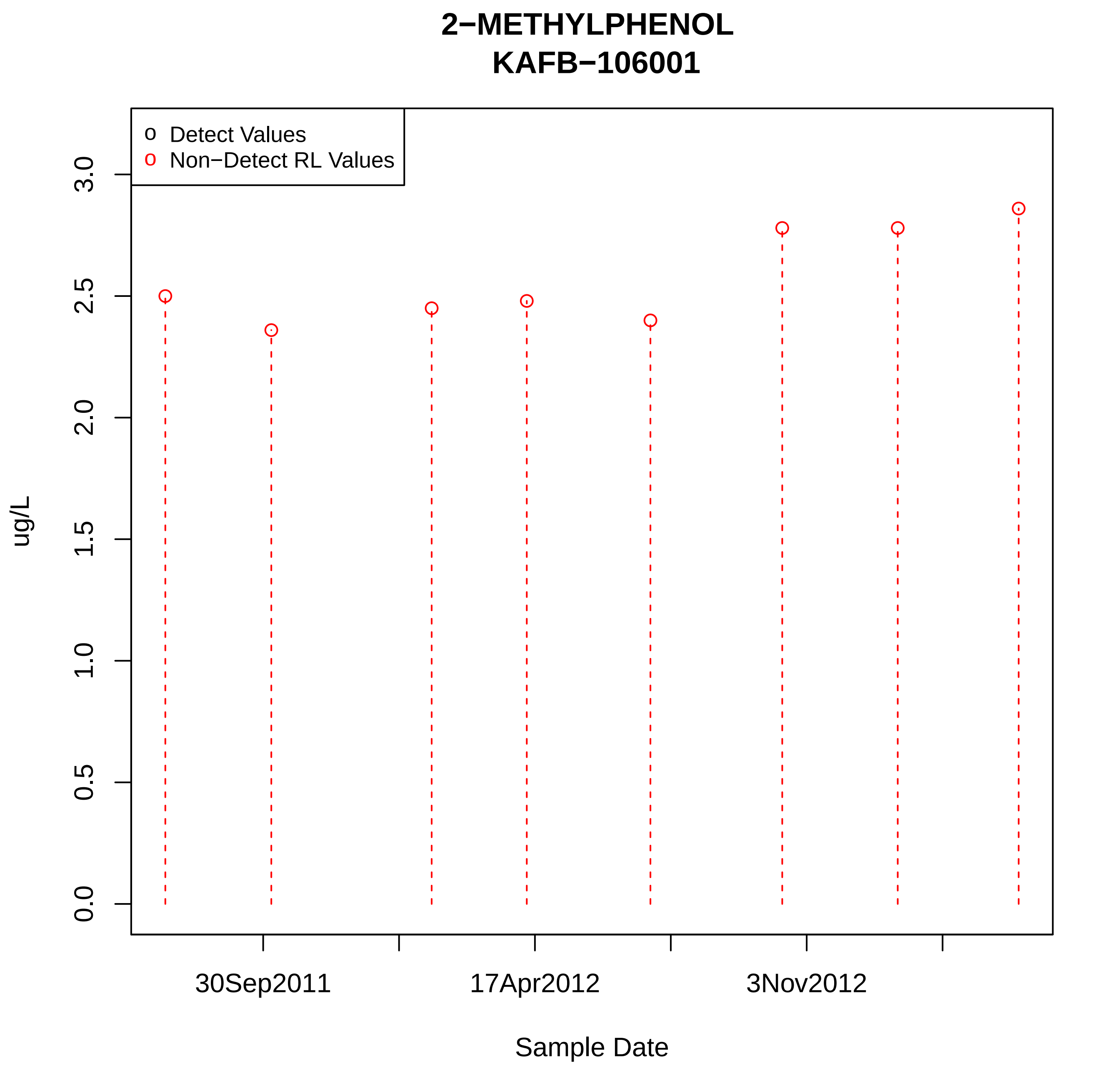


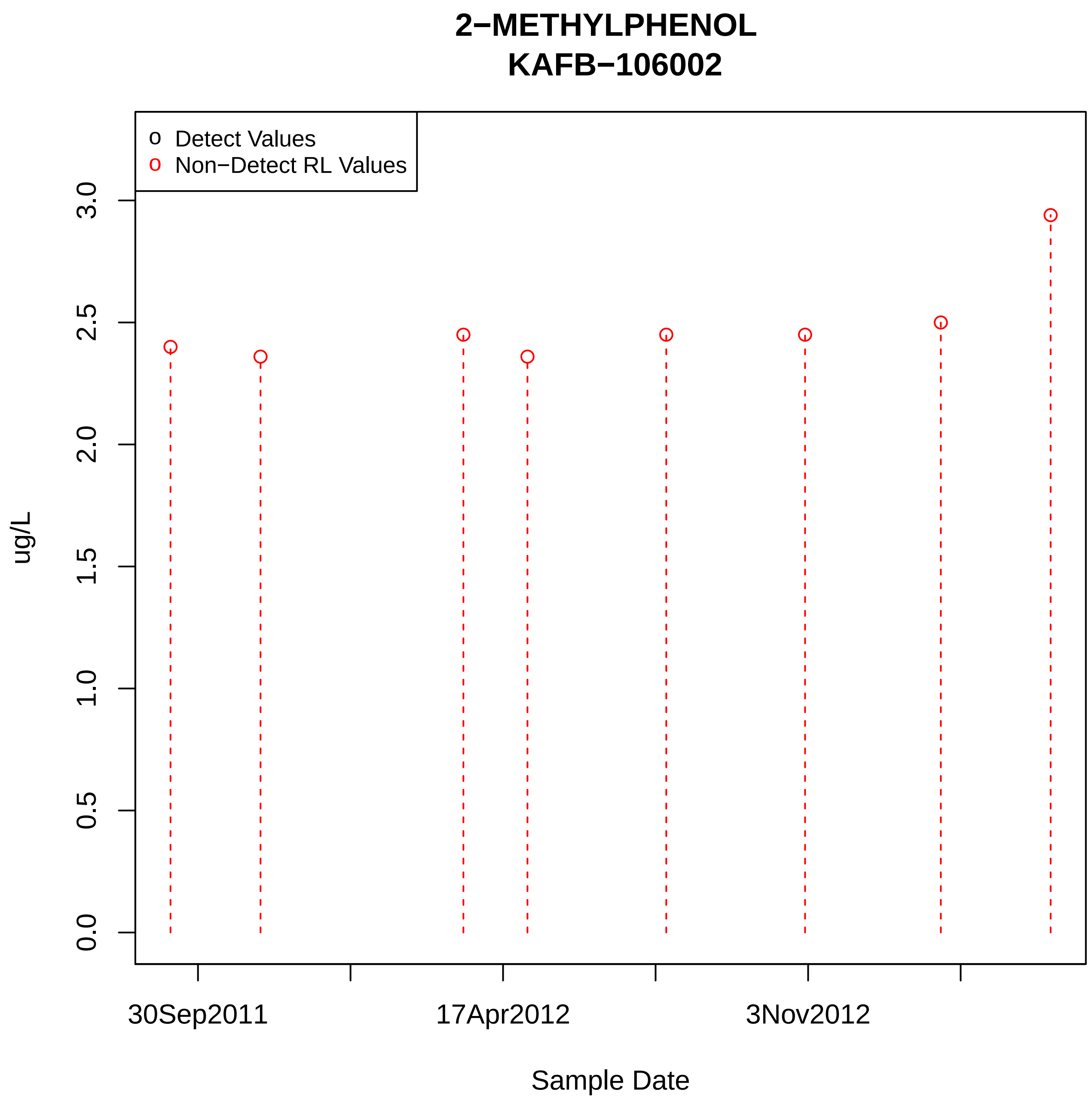
2−METHYLNAPHTHALENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

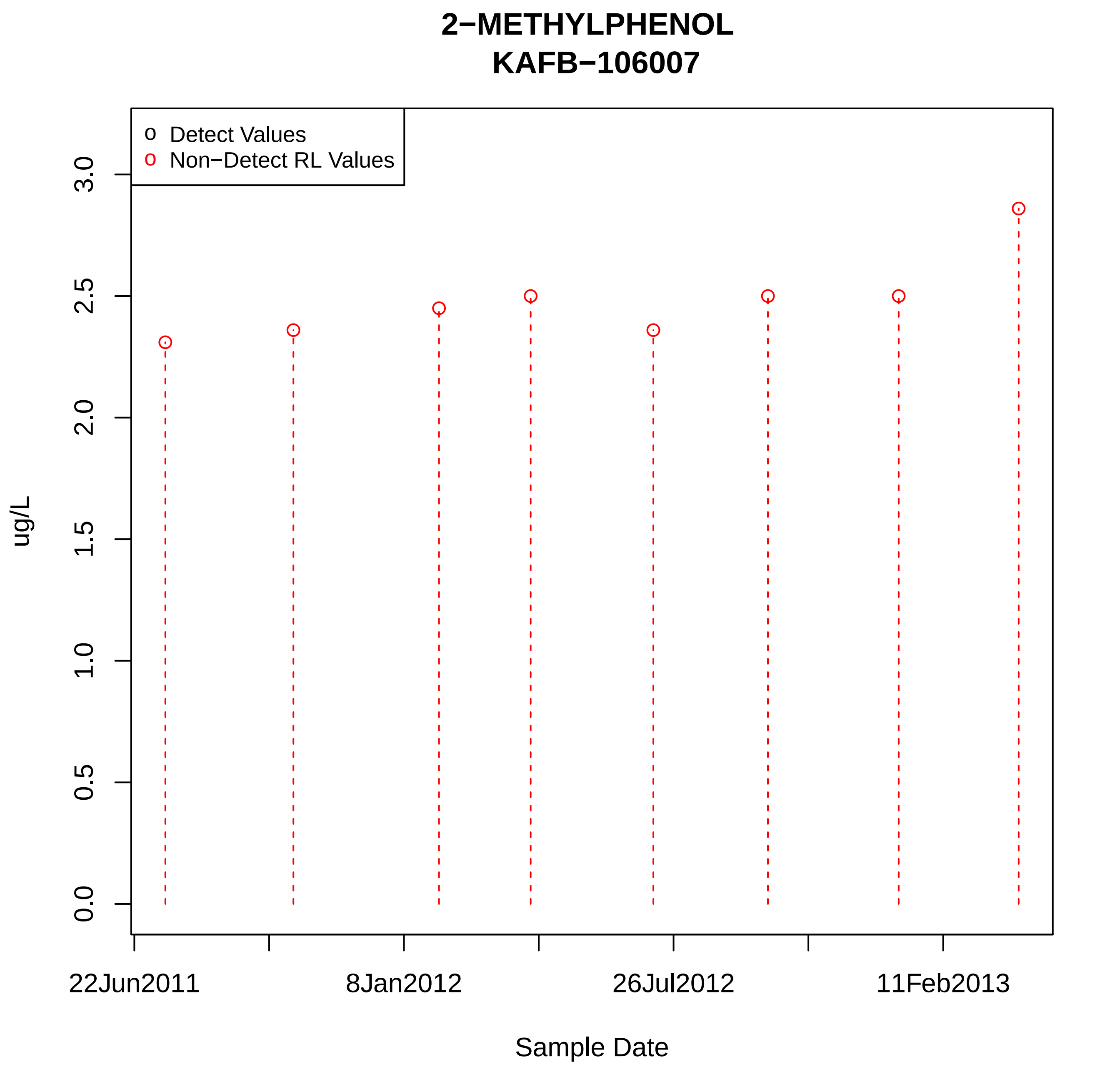

2−METHYLNAPHTHALENE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


2−METHYLNAPHTHALENE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

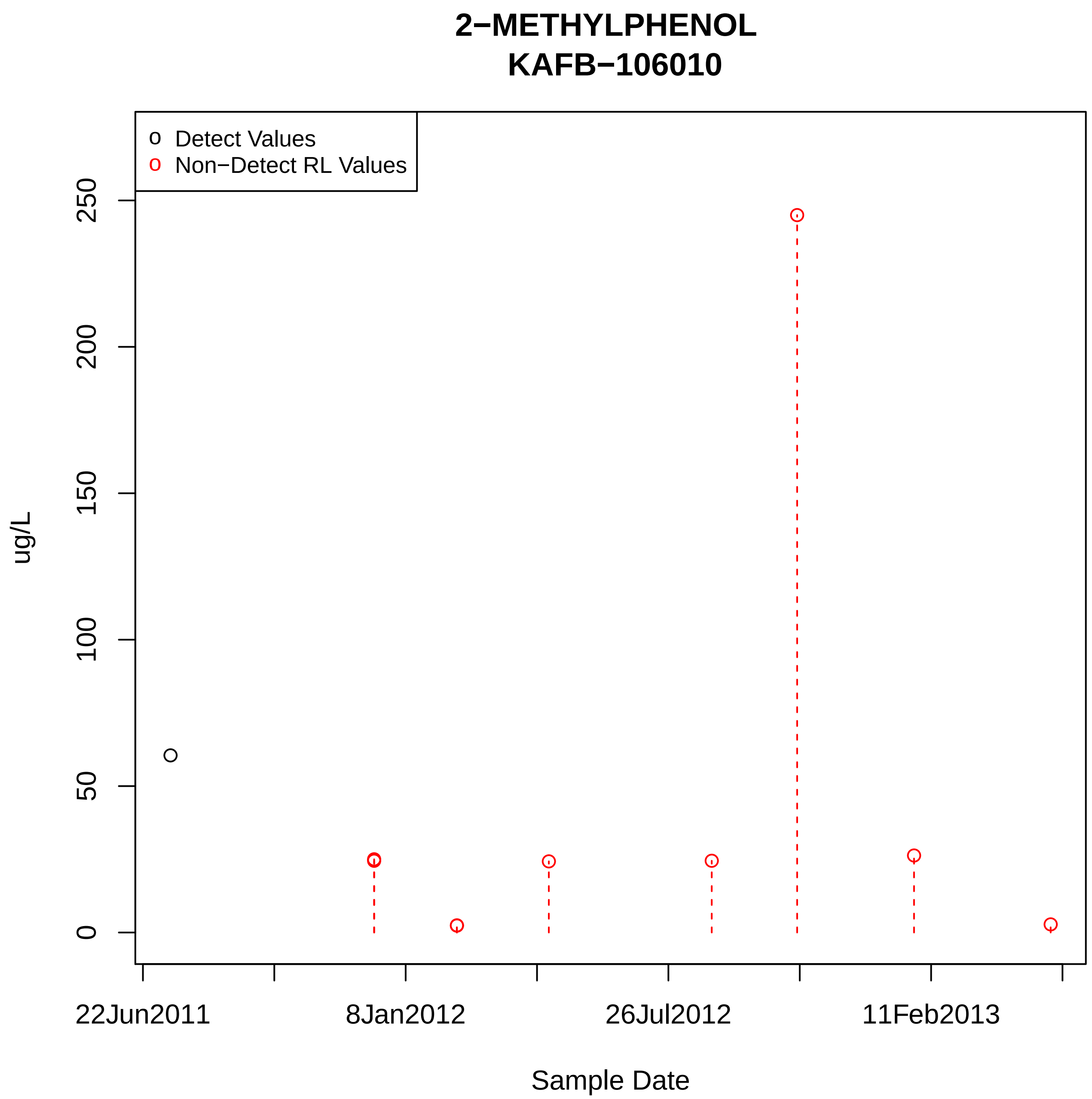

2−METHYLNAPHTHALENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


2−METHYLPHENOL
KAFB−106001
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

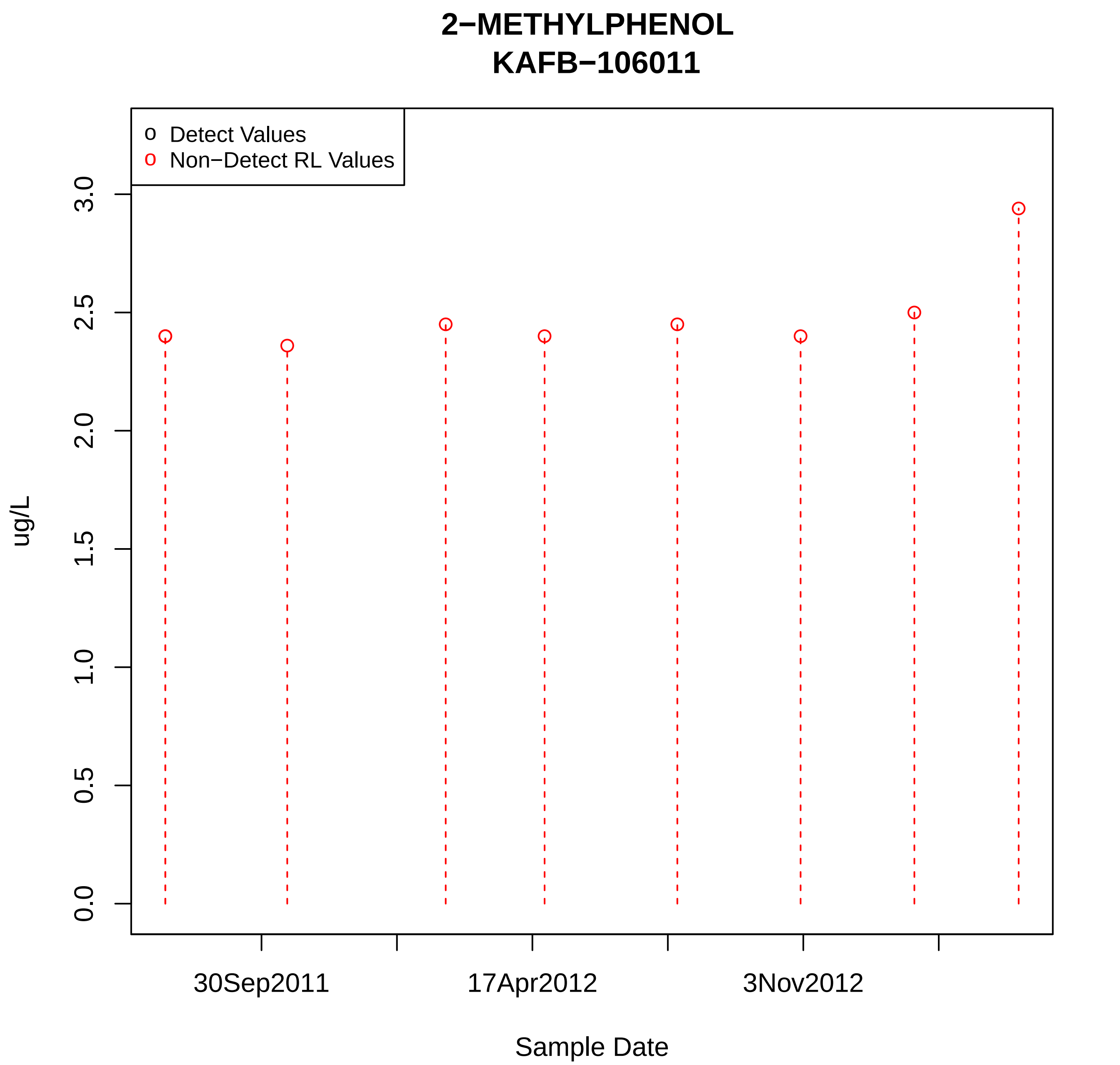

2−METHYLPHENOL
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

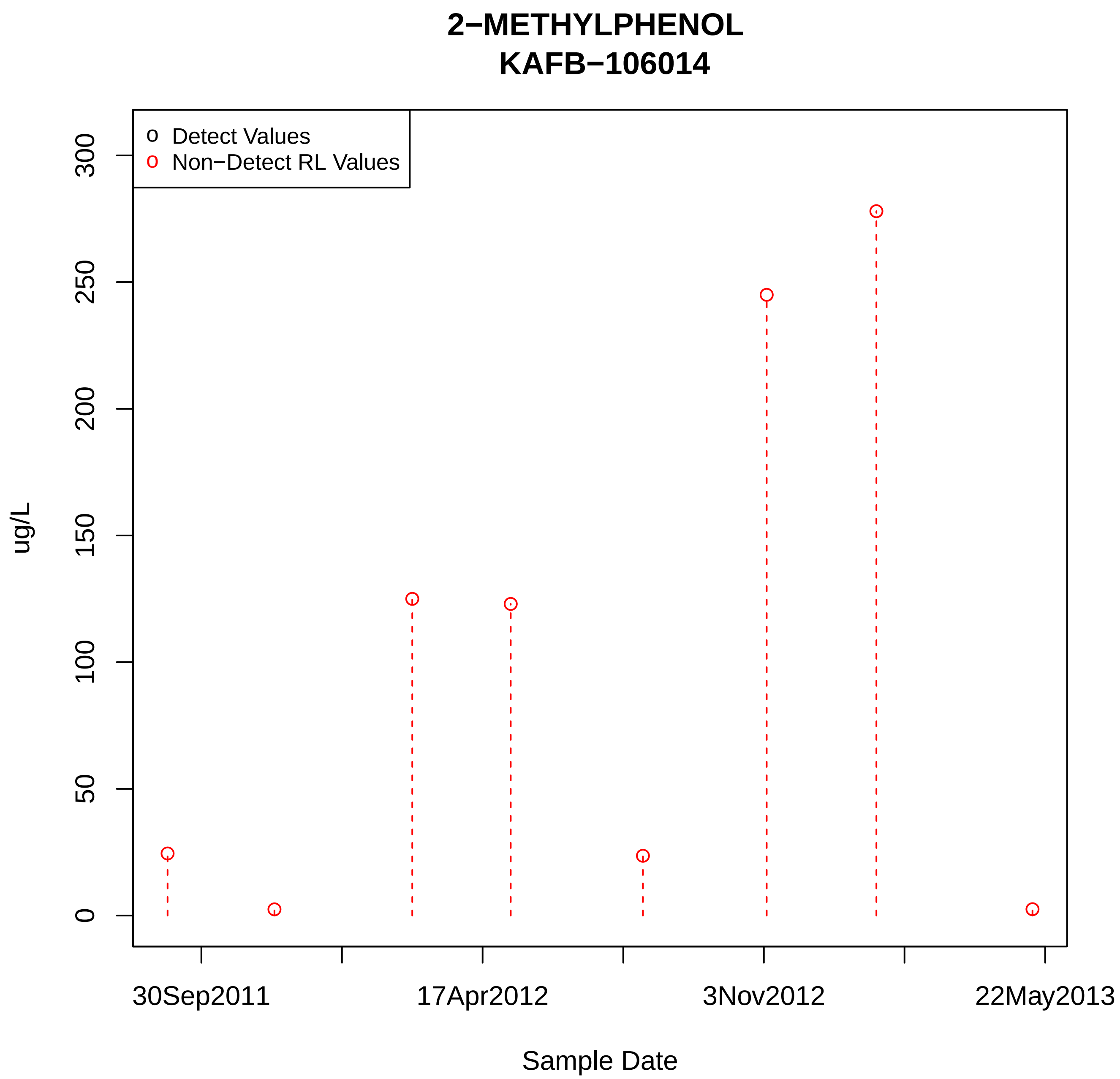


2−METHYLPHENOL
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

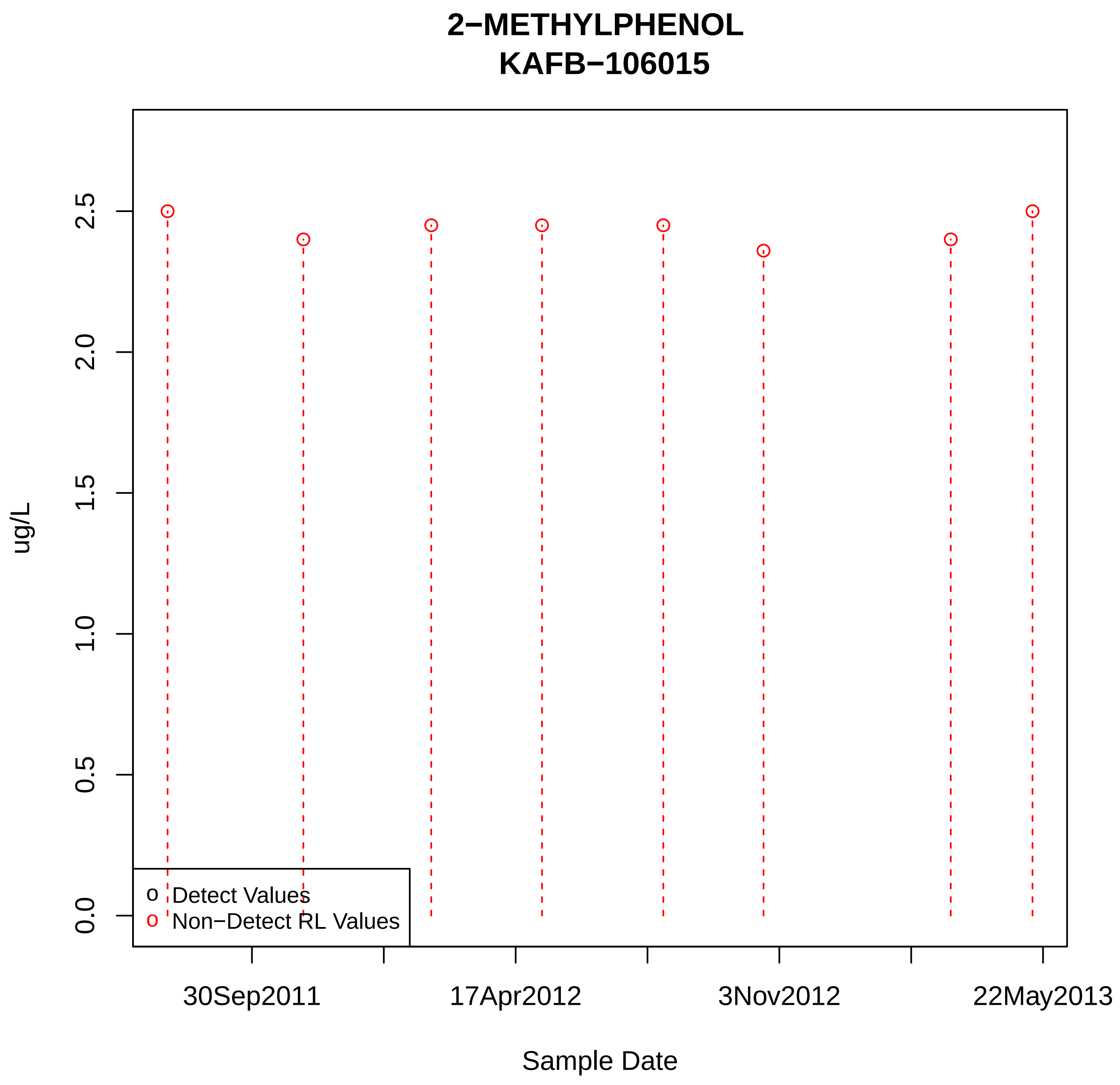


2−METHYLPHENOL
KAFB−106010
Detect Values
Non−Detect RL Values
ug/L
0
50
100
150
200
250
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

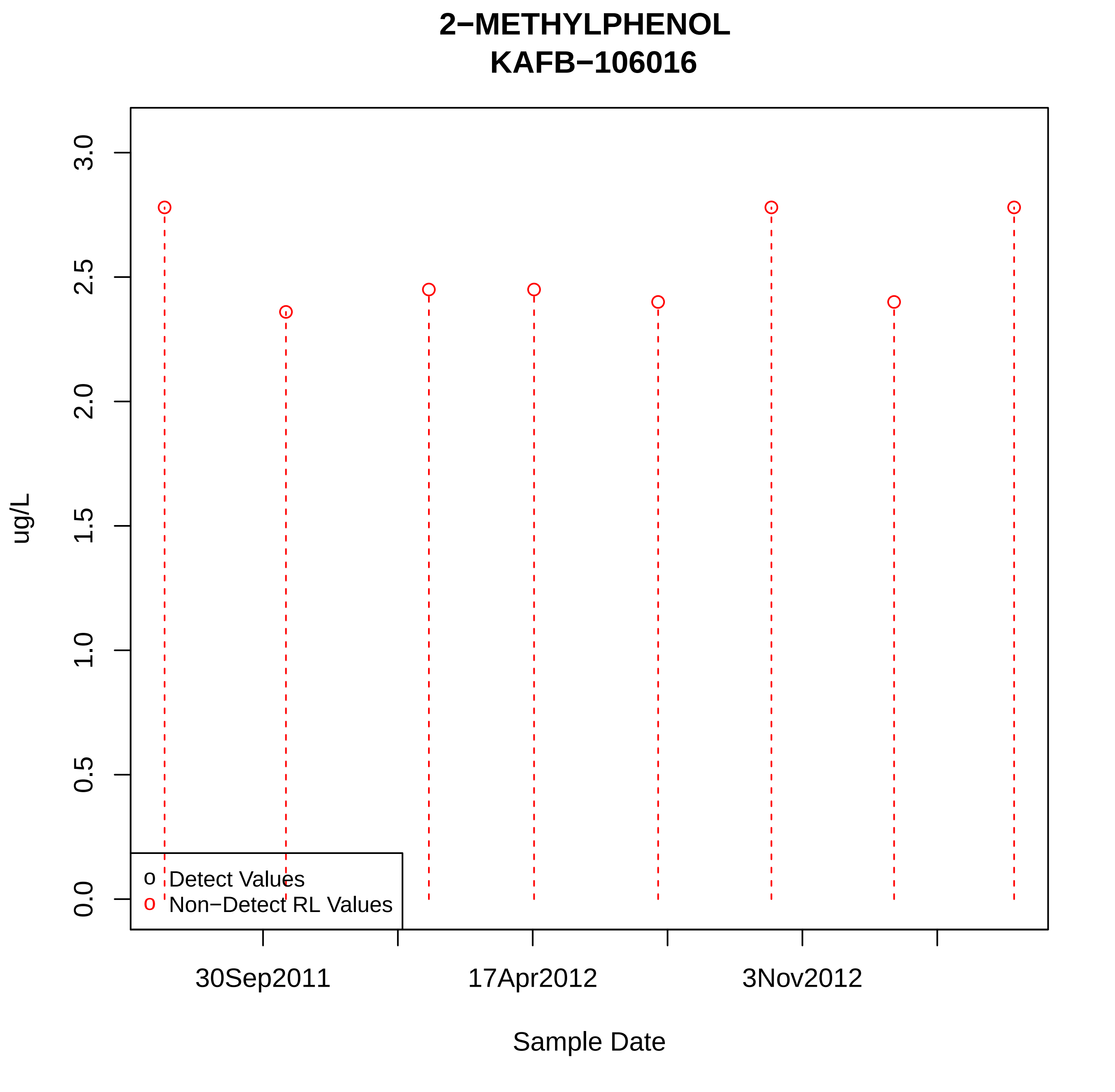

2−METHYLPHENOL
KAFB−106011
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



2−METHYLPHENOL
KAFB−106014
Detect Values
Non−Detect RL Values
ug/L
0
50
100
150
200
250
300
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

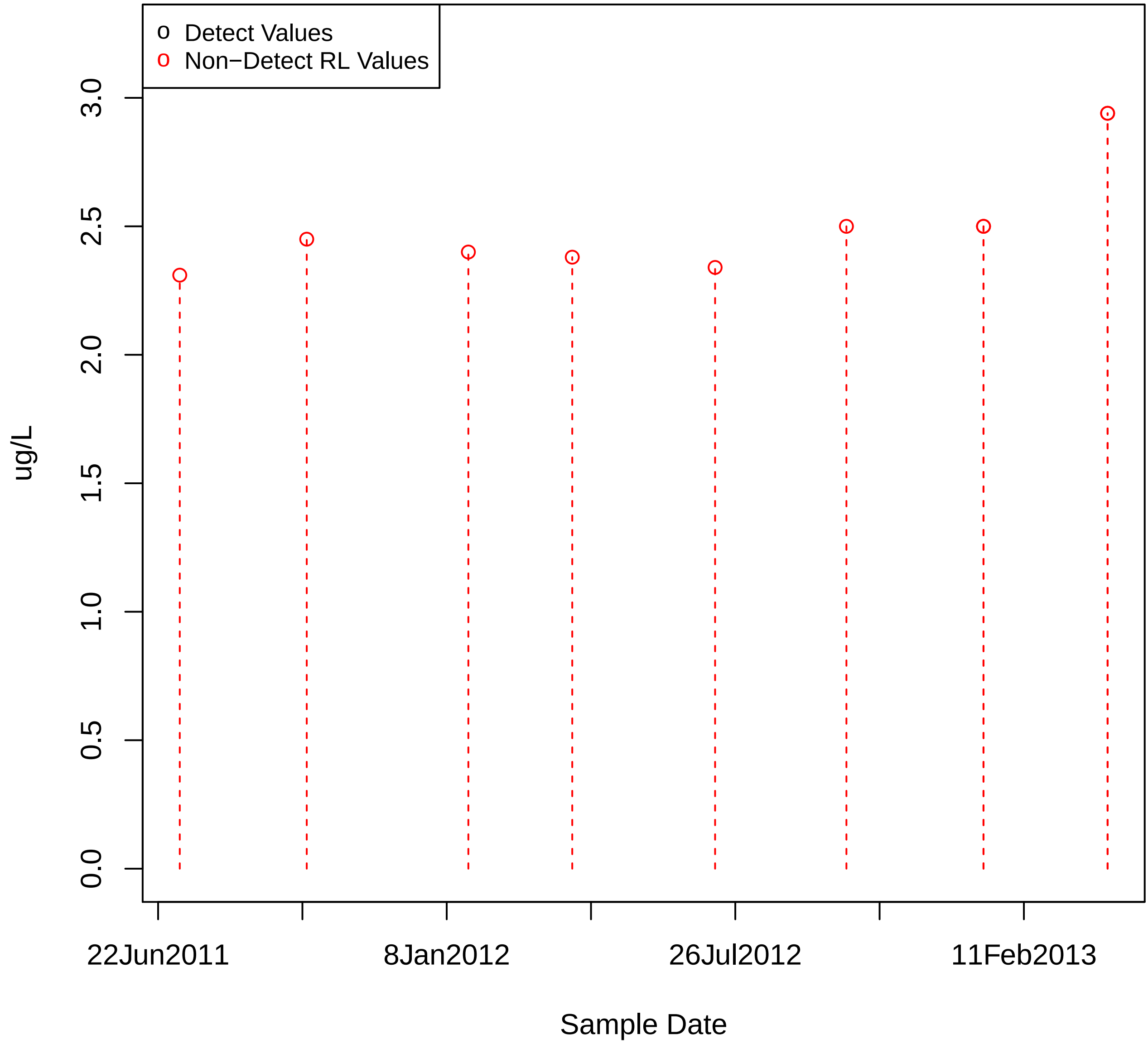


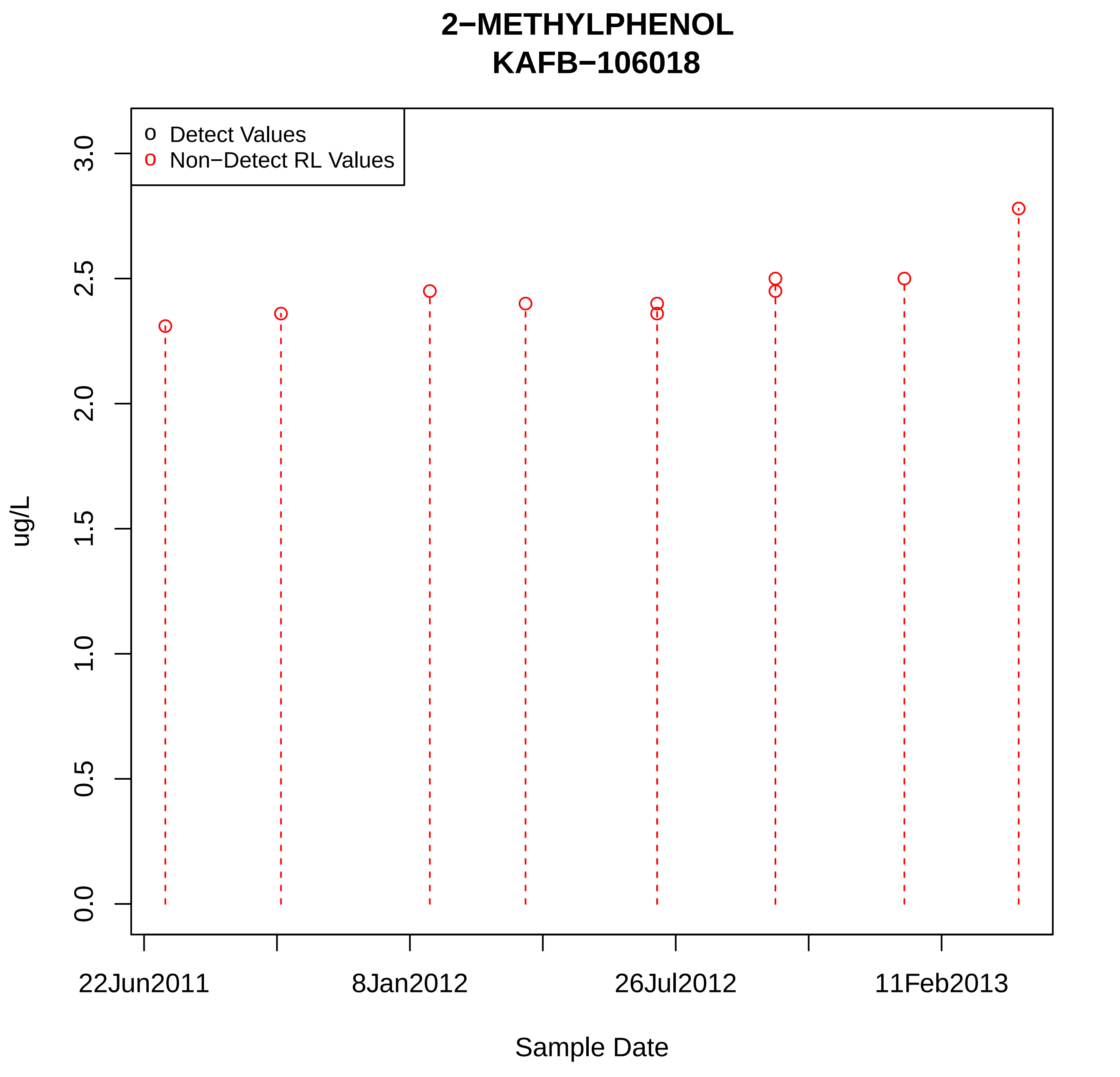
2−METHYLPHENOL
KAFB−106015
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



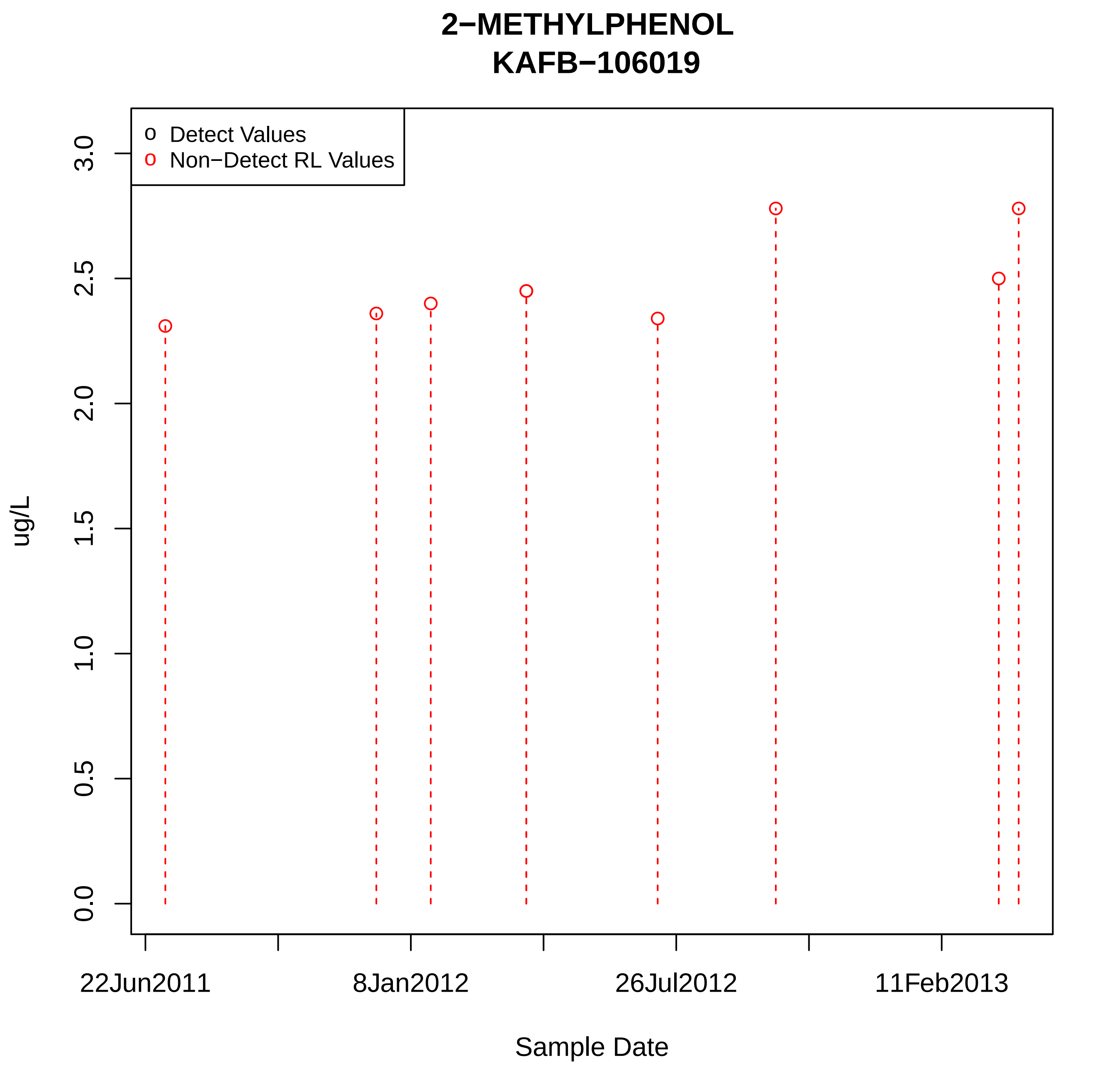
2−METHYLPHENOL
KAFB−106016
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

2−METHYLPHENOL
KAFB−106017

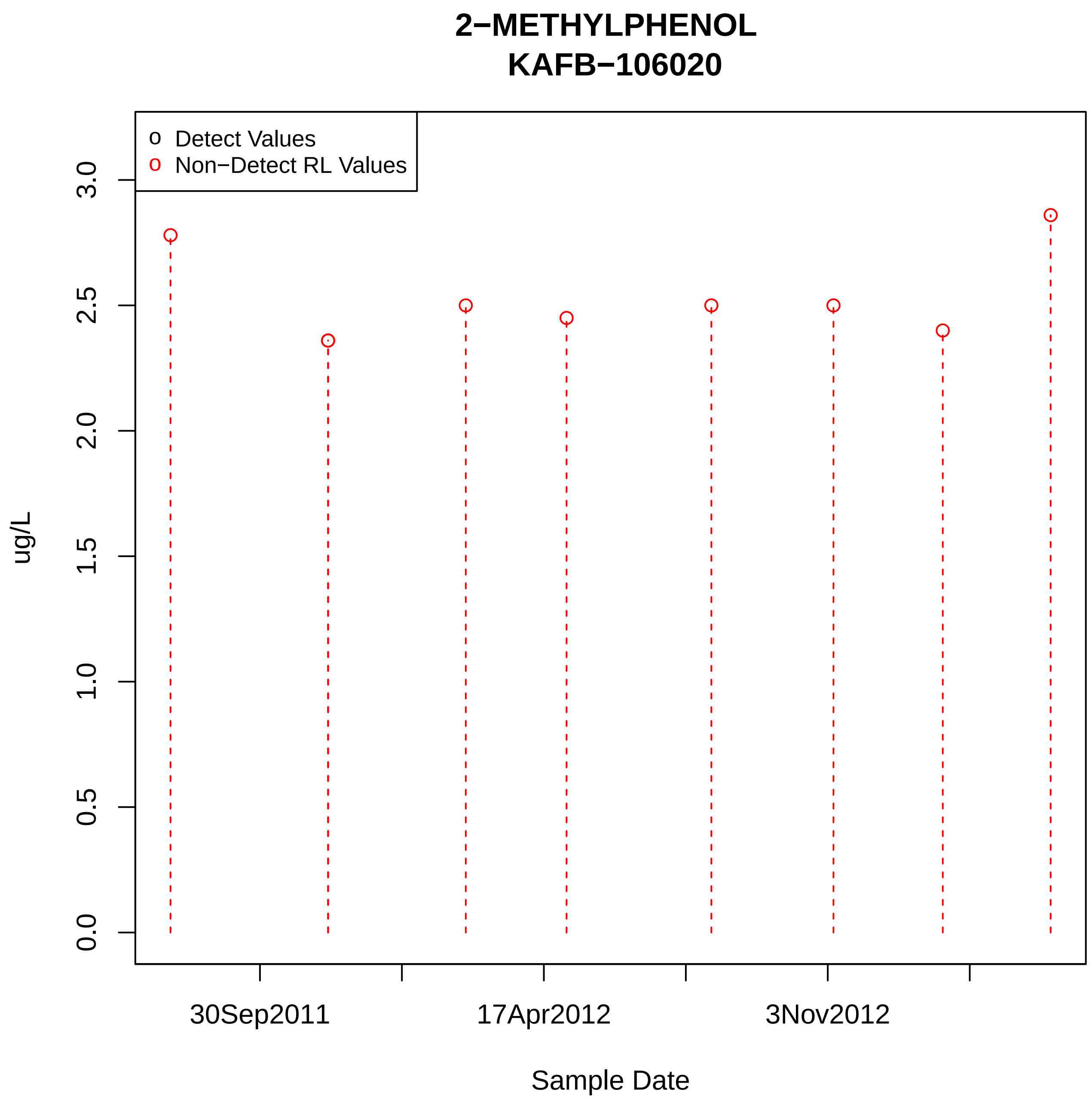


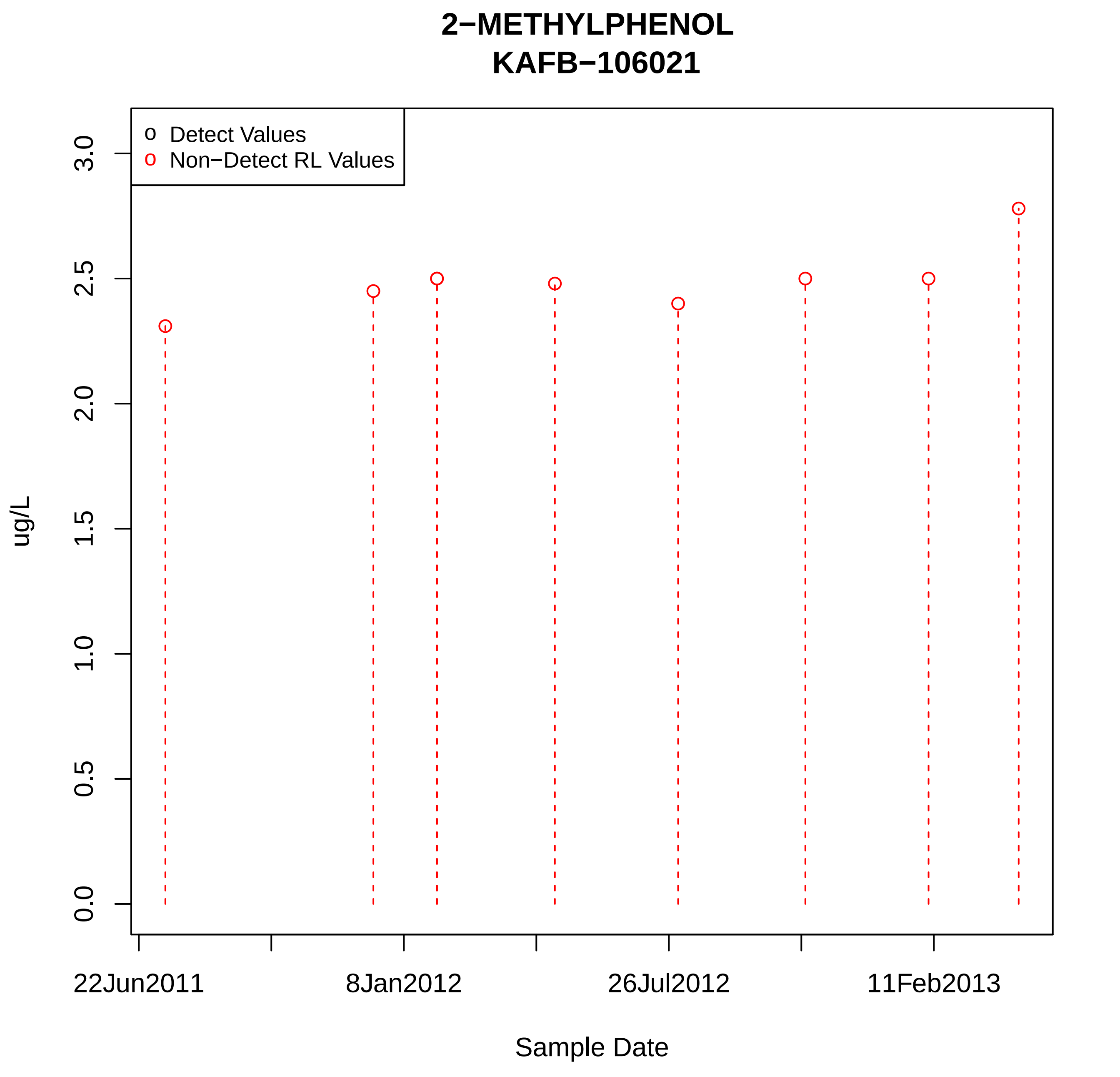


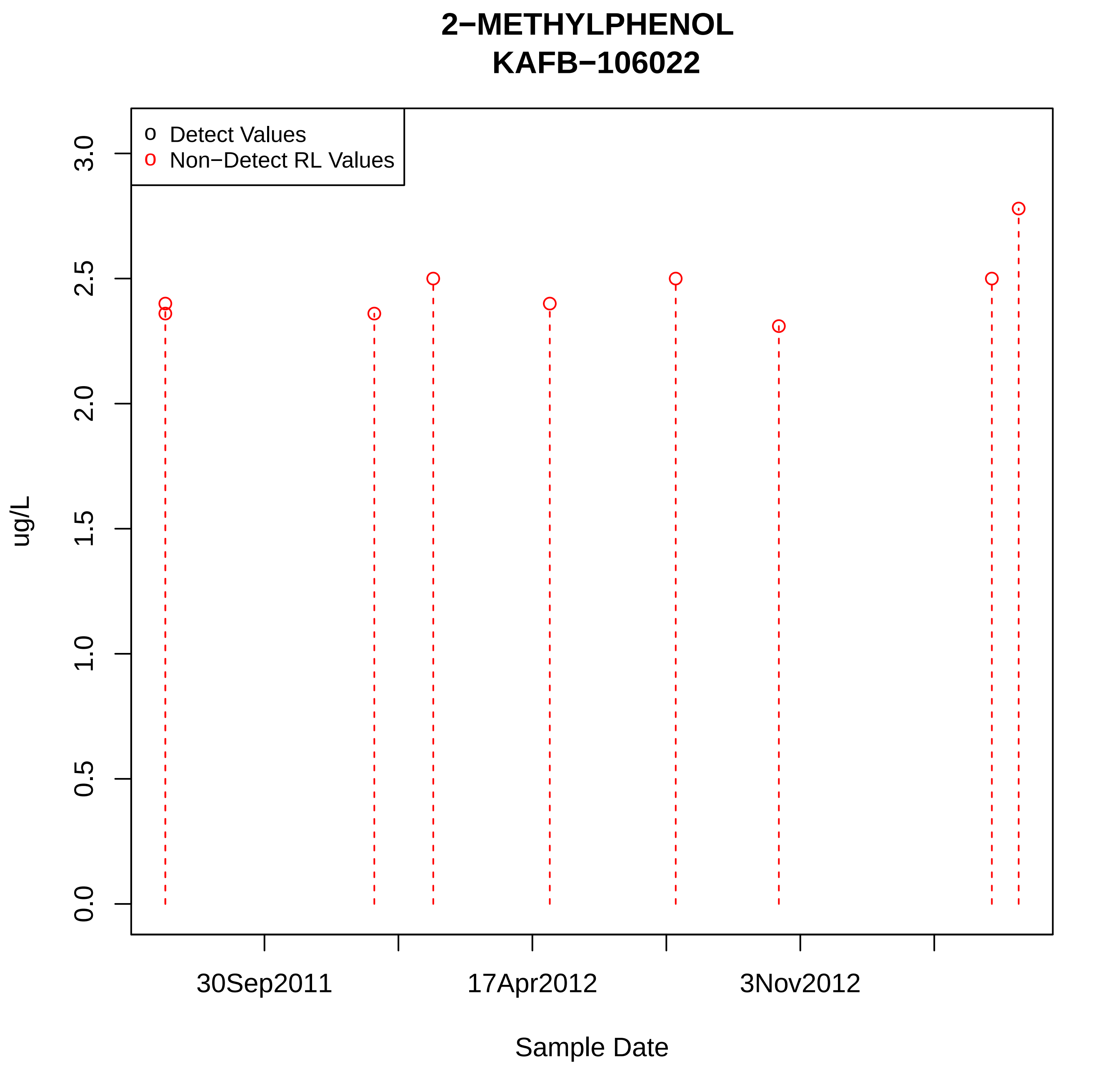
2−METHYLPHENOL
KAFB−106018
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

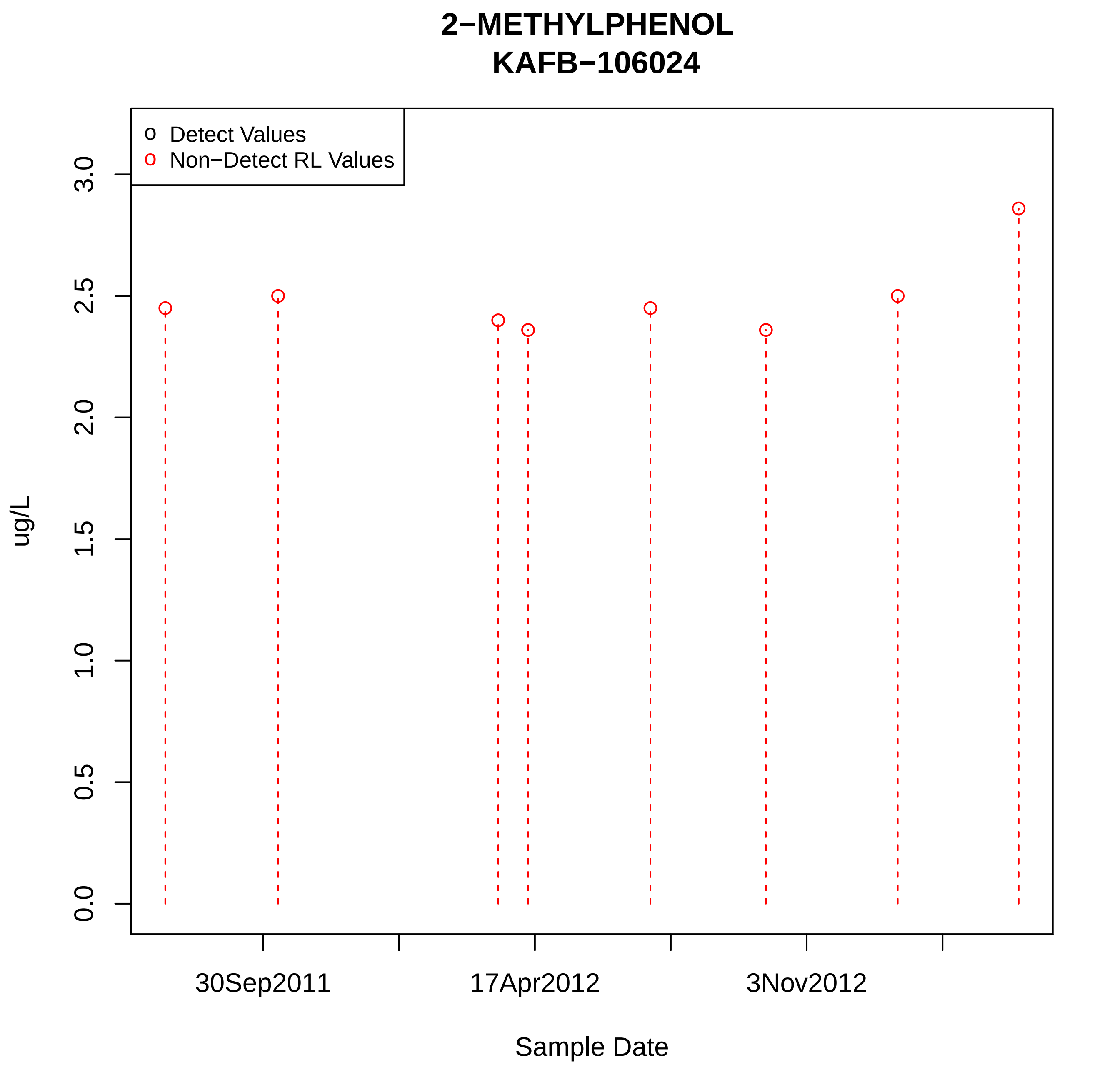


2−METHYLPHENOL
KAFB−106019
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

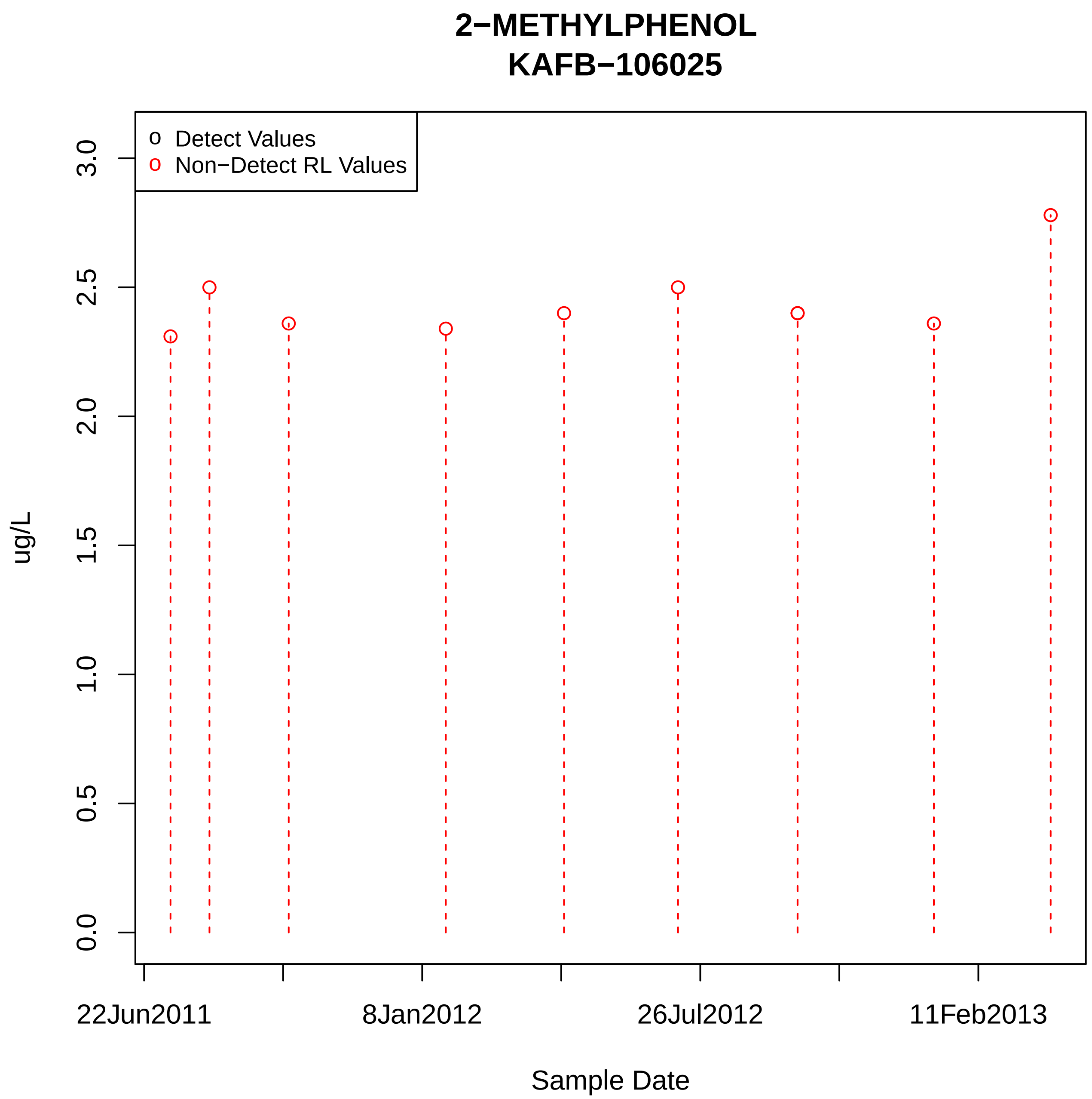

2−METHYLPHENOL
KAFB−106020
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLPHENOL
KAFB−106021
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

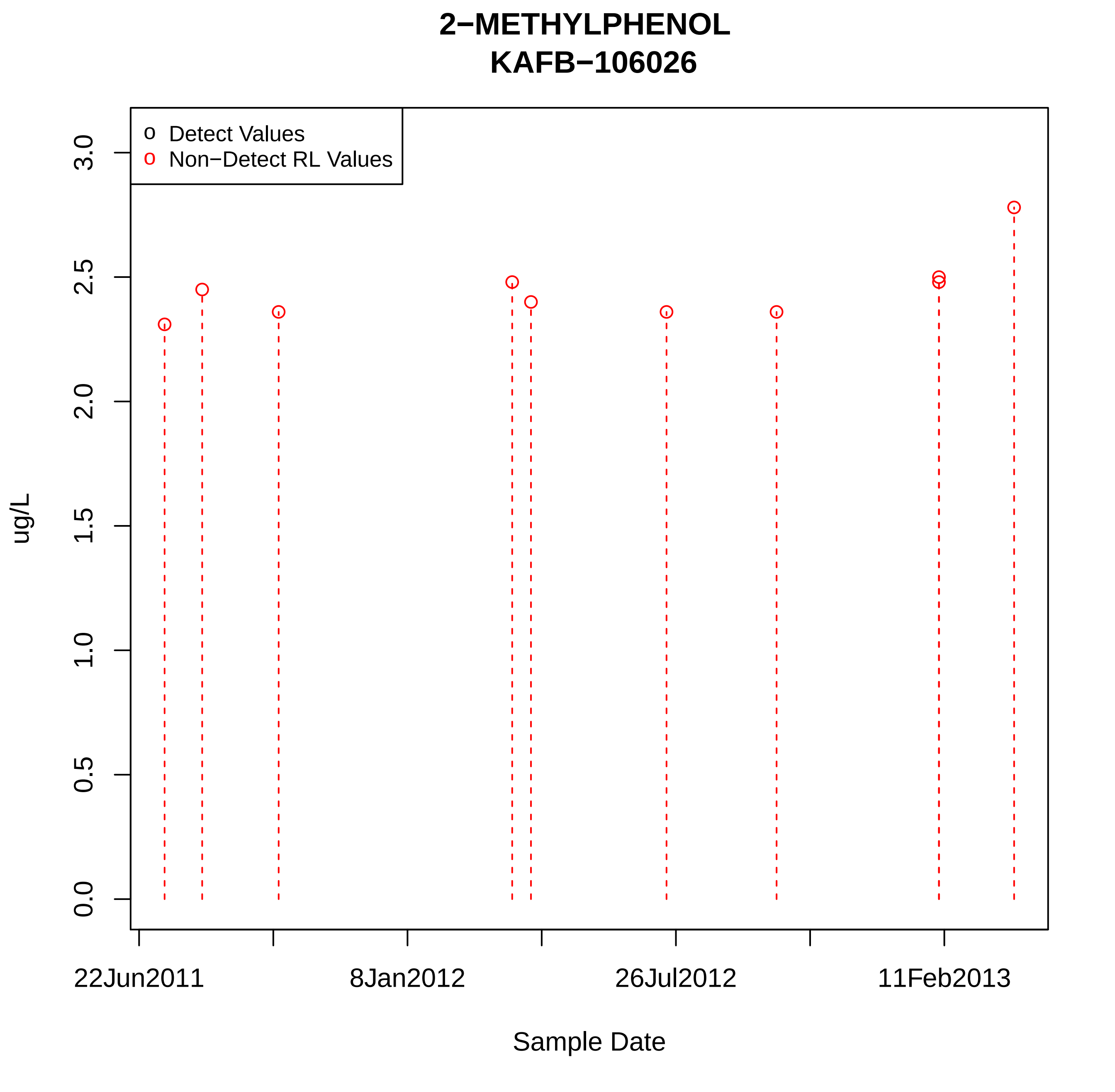

2−METHYLPHENOL
KAFB−106022
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

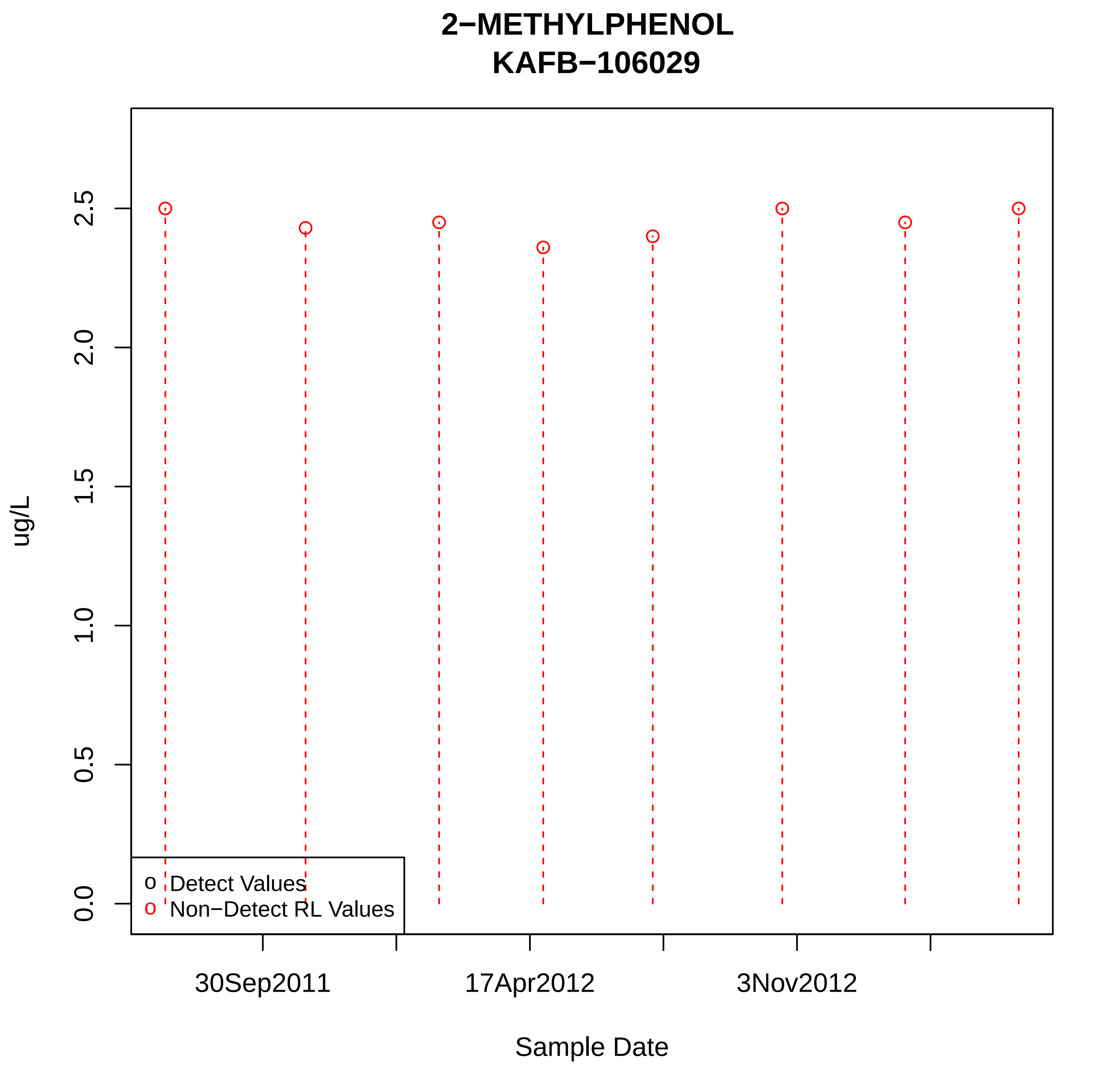


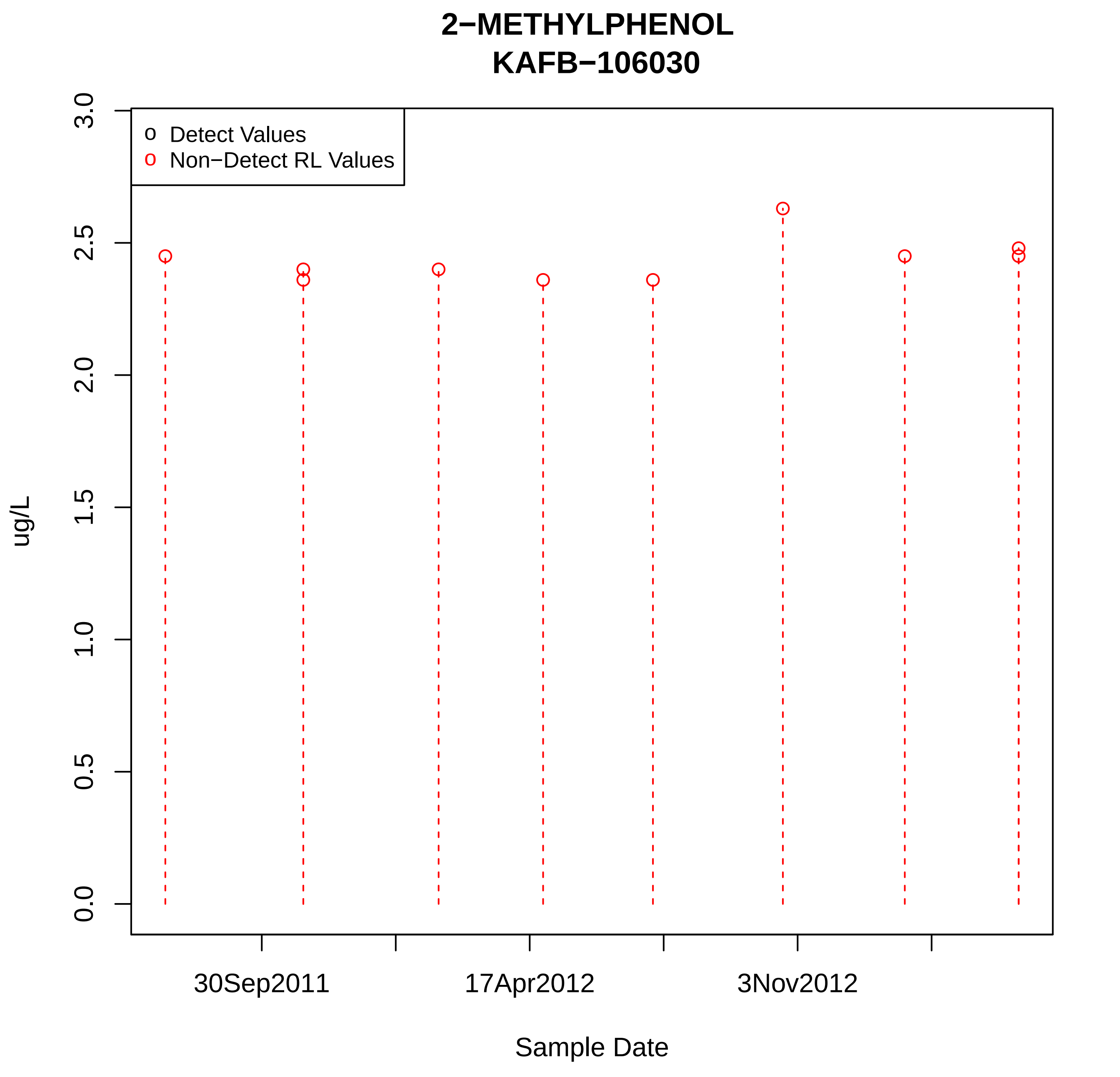
2−METHYLPHENOL
KAFB−106024
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

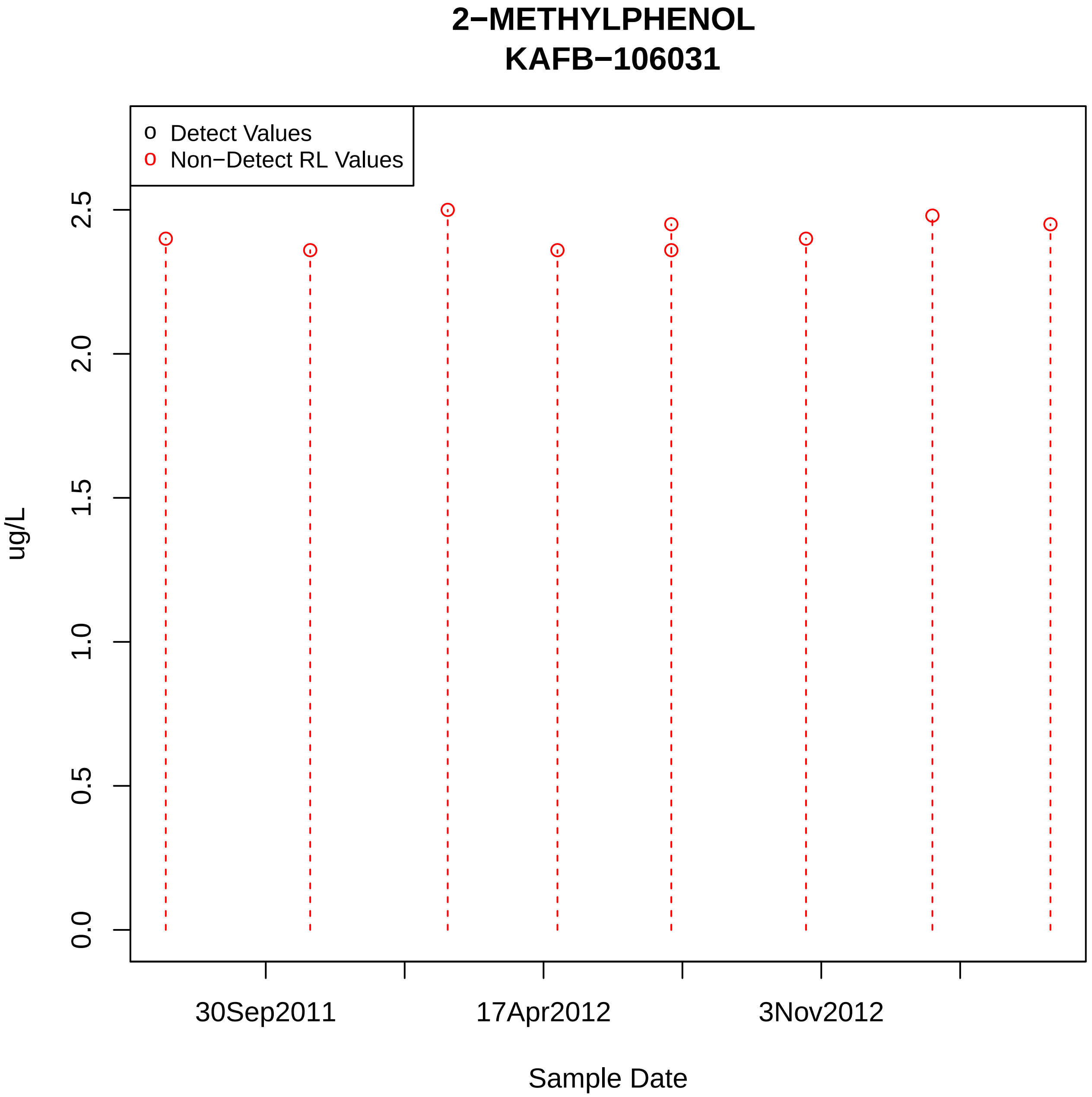


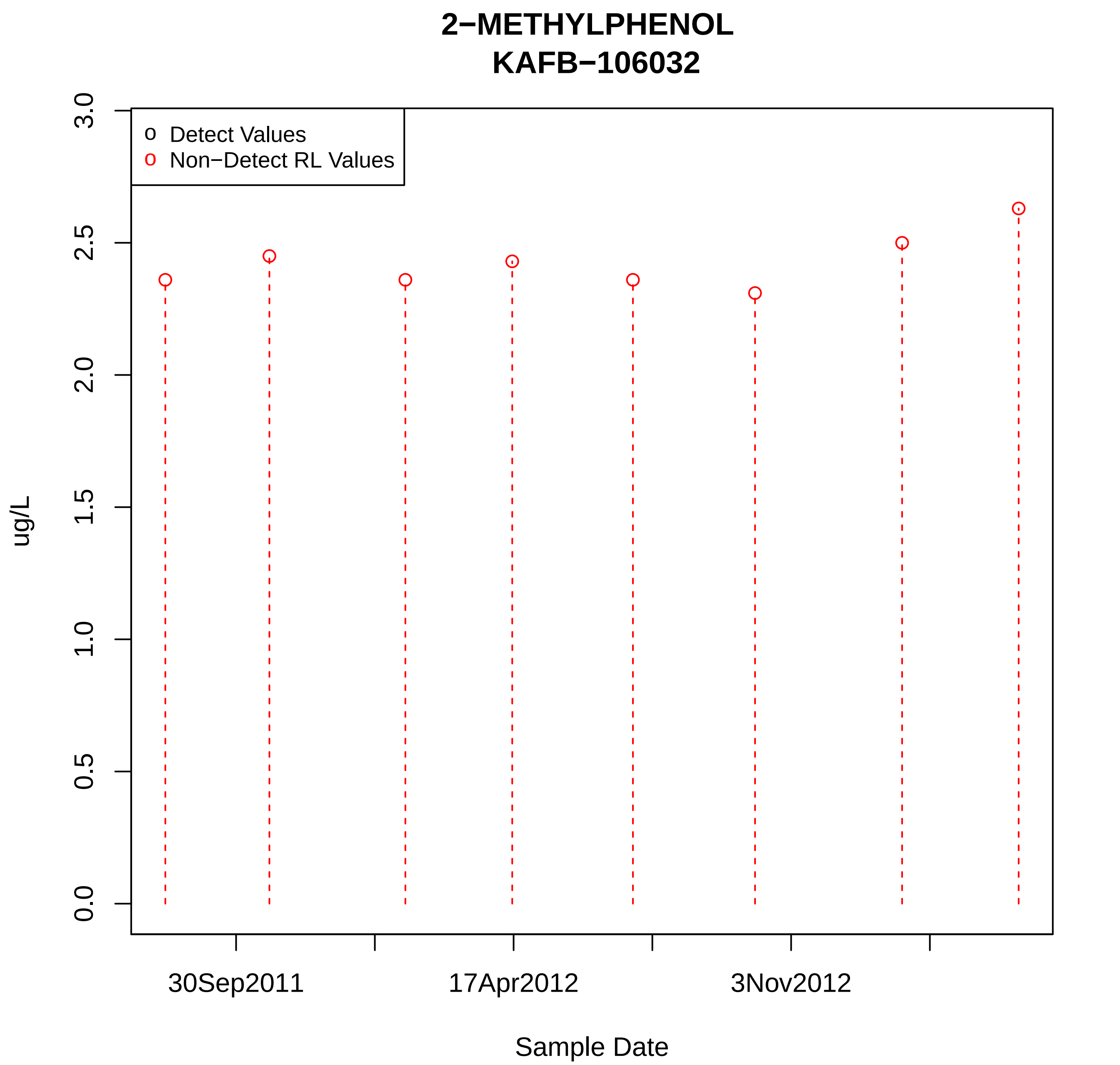
2−METHYLPHENOL
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

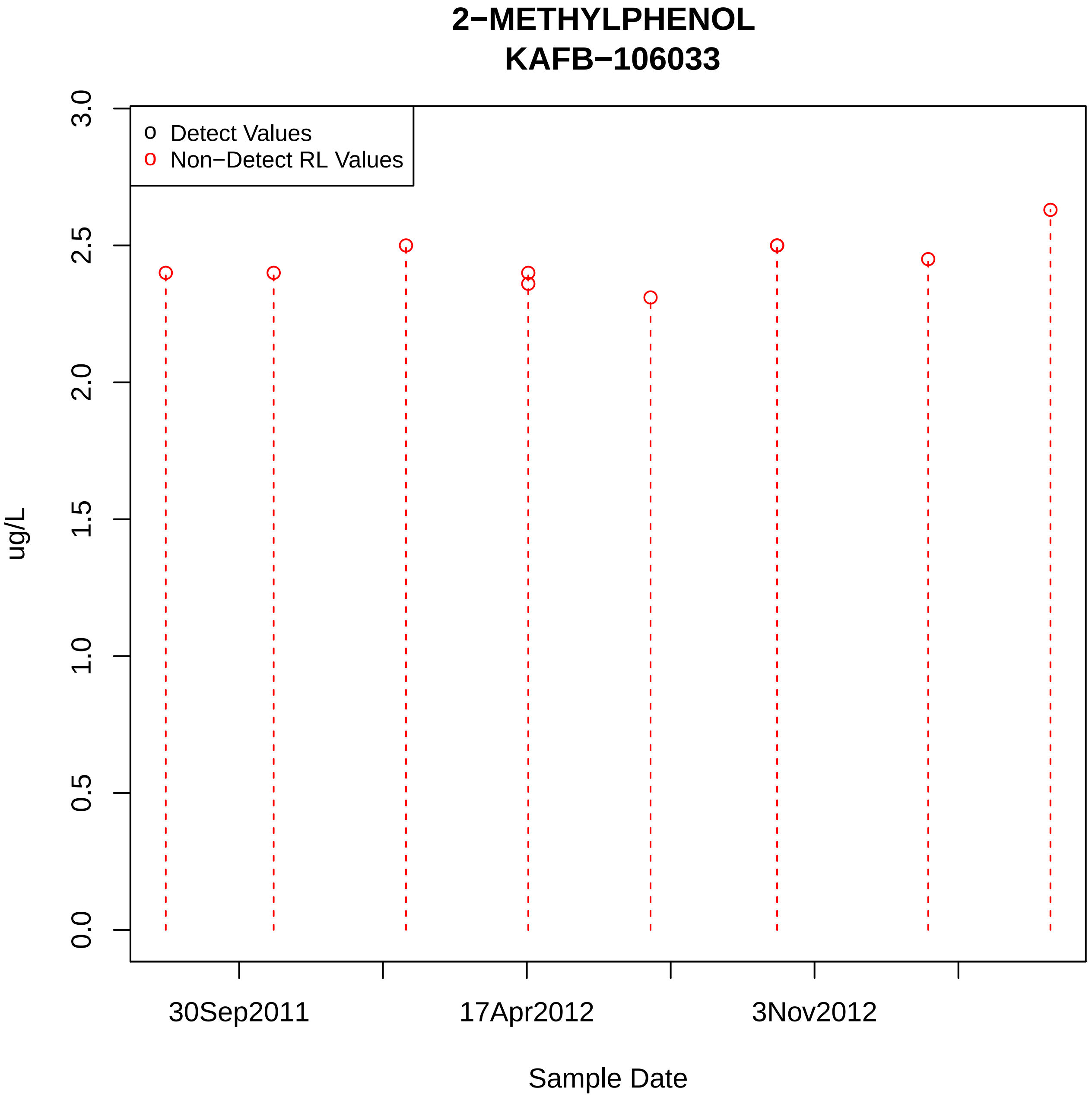

2−METHYLPHENOL
KAFB−106026
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

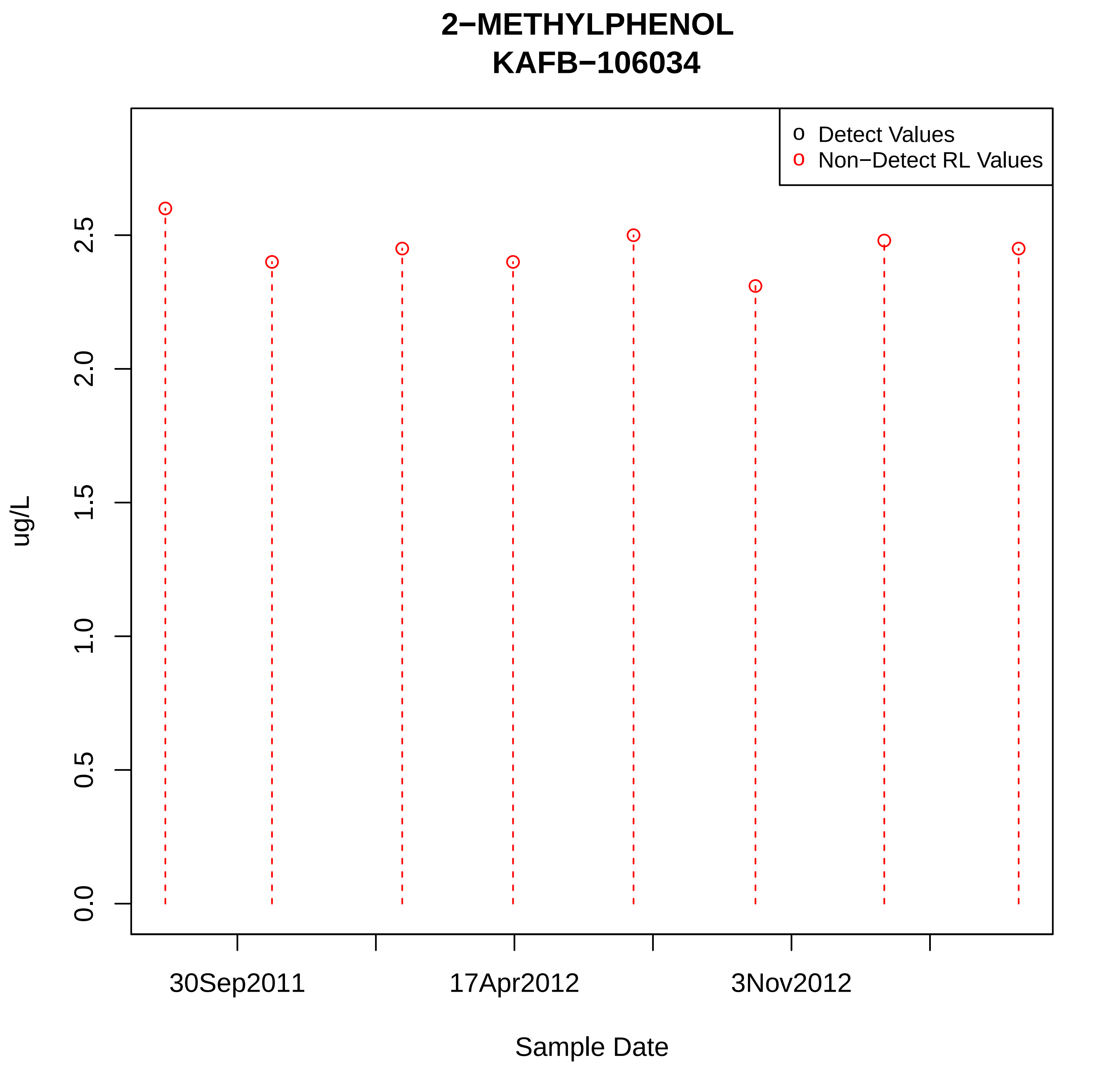

2−METHYLPHENOL
KAFB−106029
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

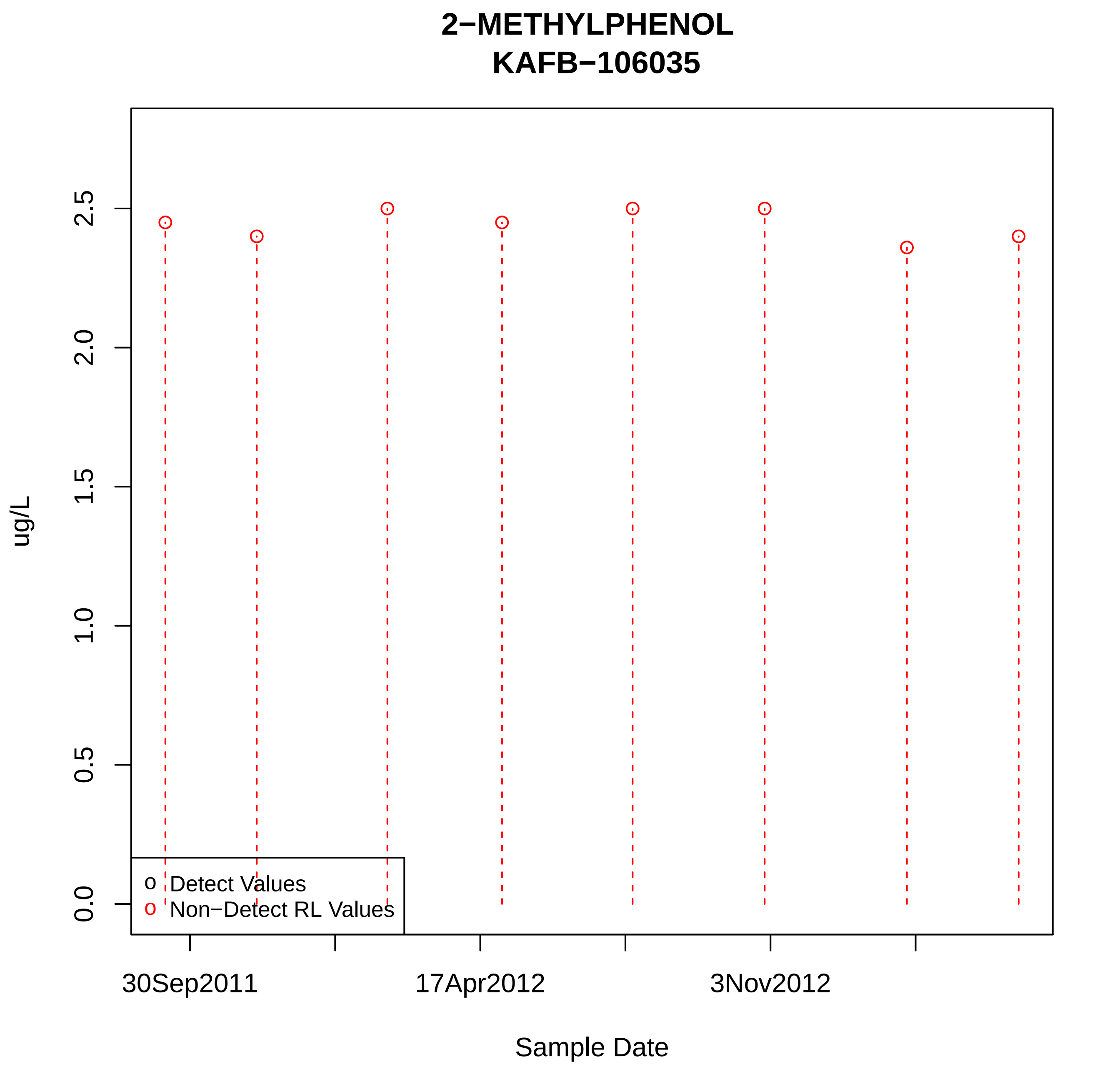

2−METHYLPHENOL
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

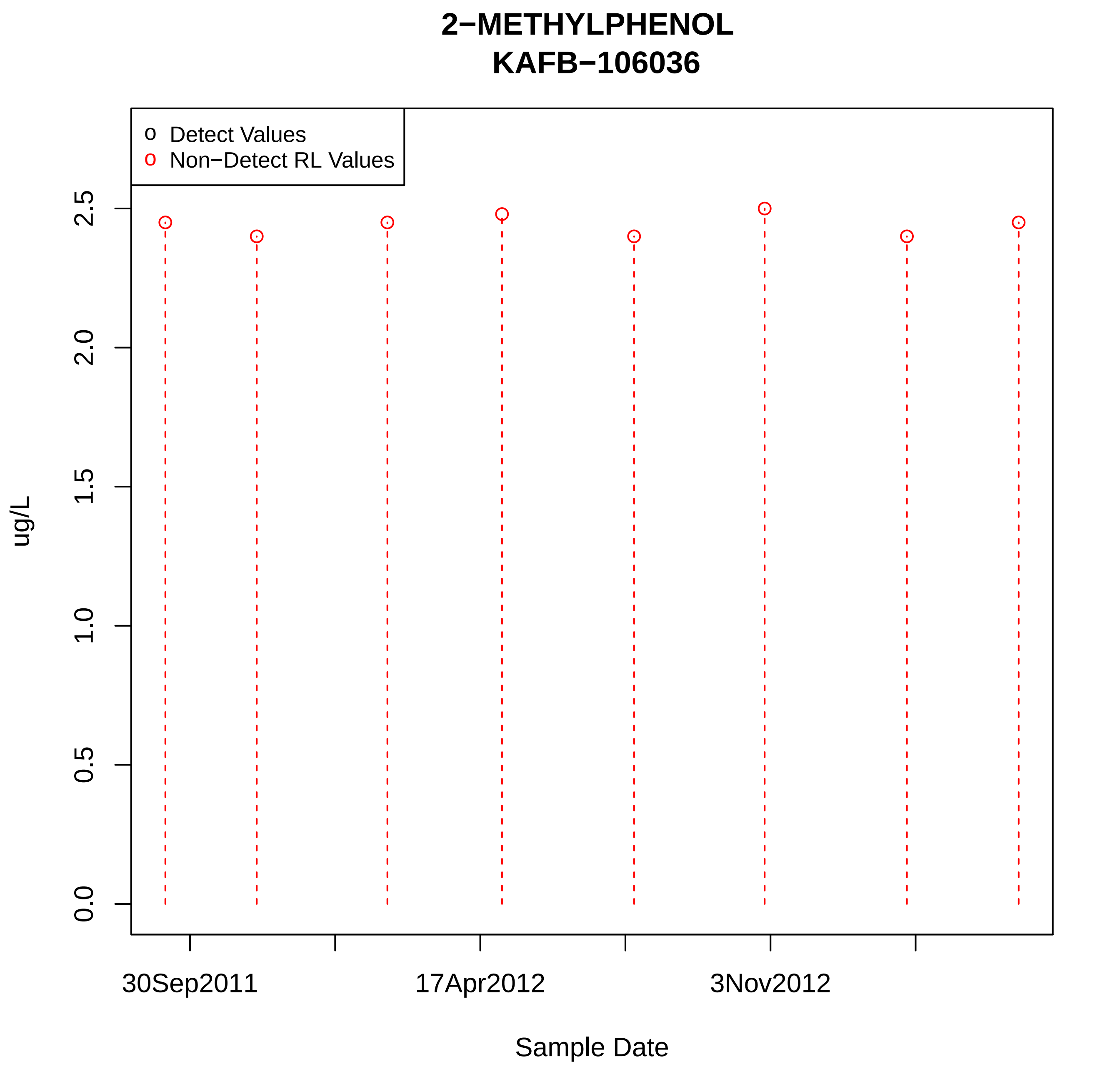

2−METHYLPHENOL
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

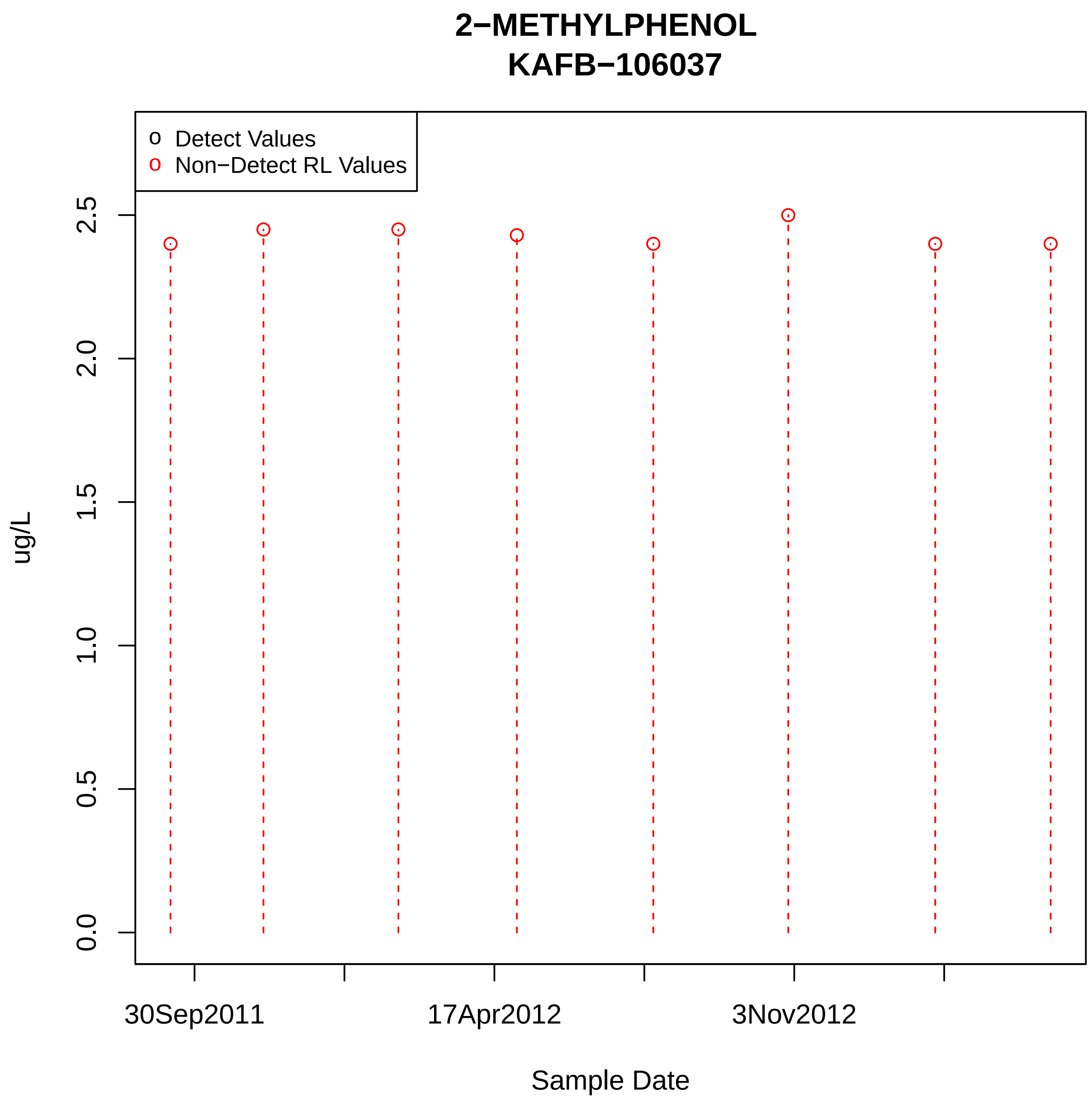

2−METHYLPHENOL
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLPHENOL
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

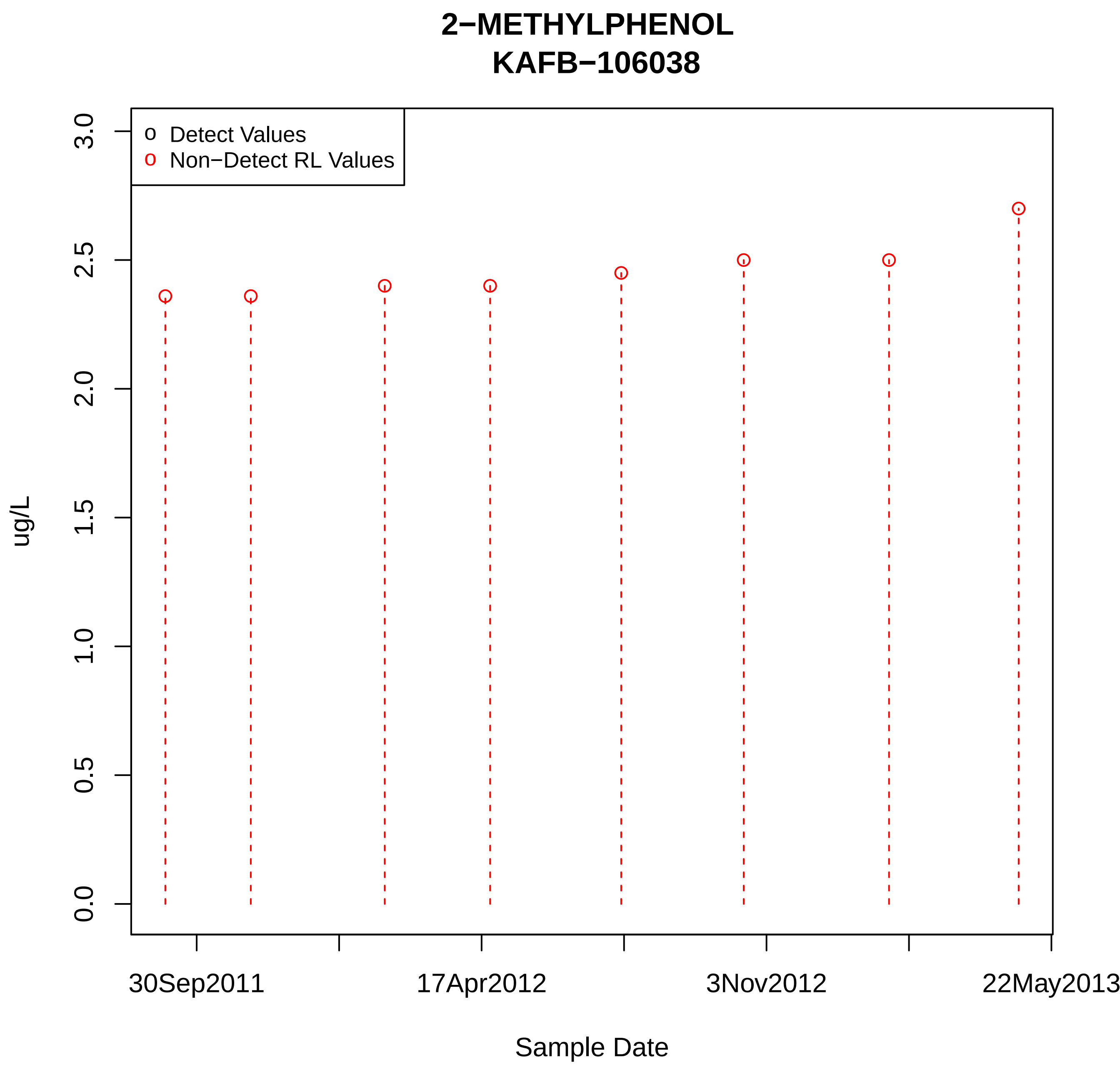

2−METHYLPHENOL
KAFB−106034
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

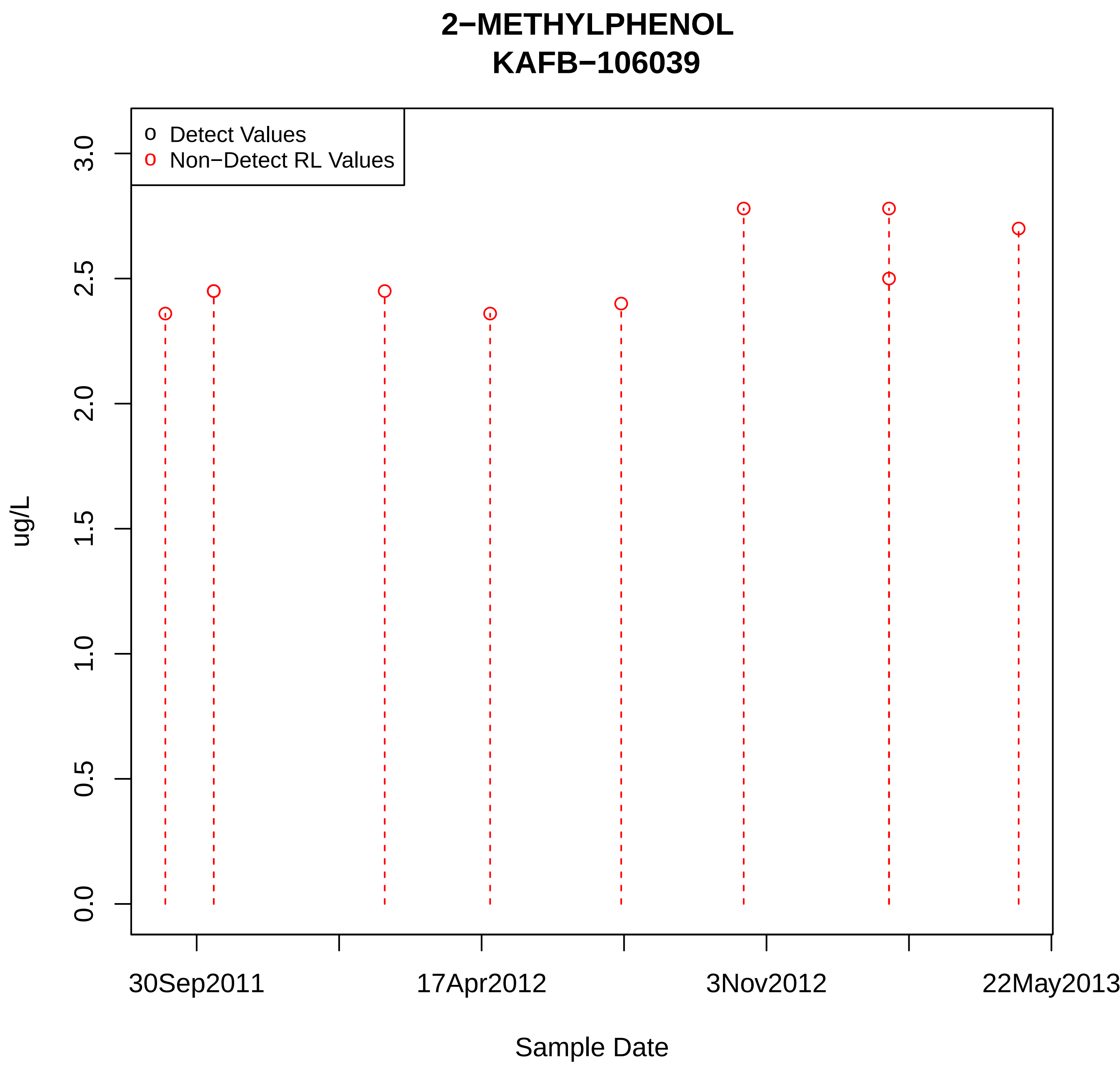

2−METHYLPHENOL
KAFB−106035
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

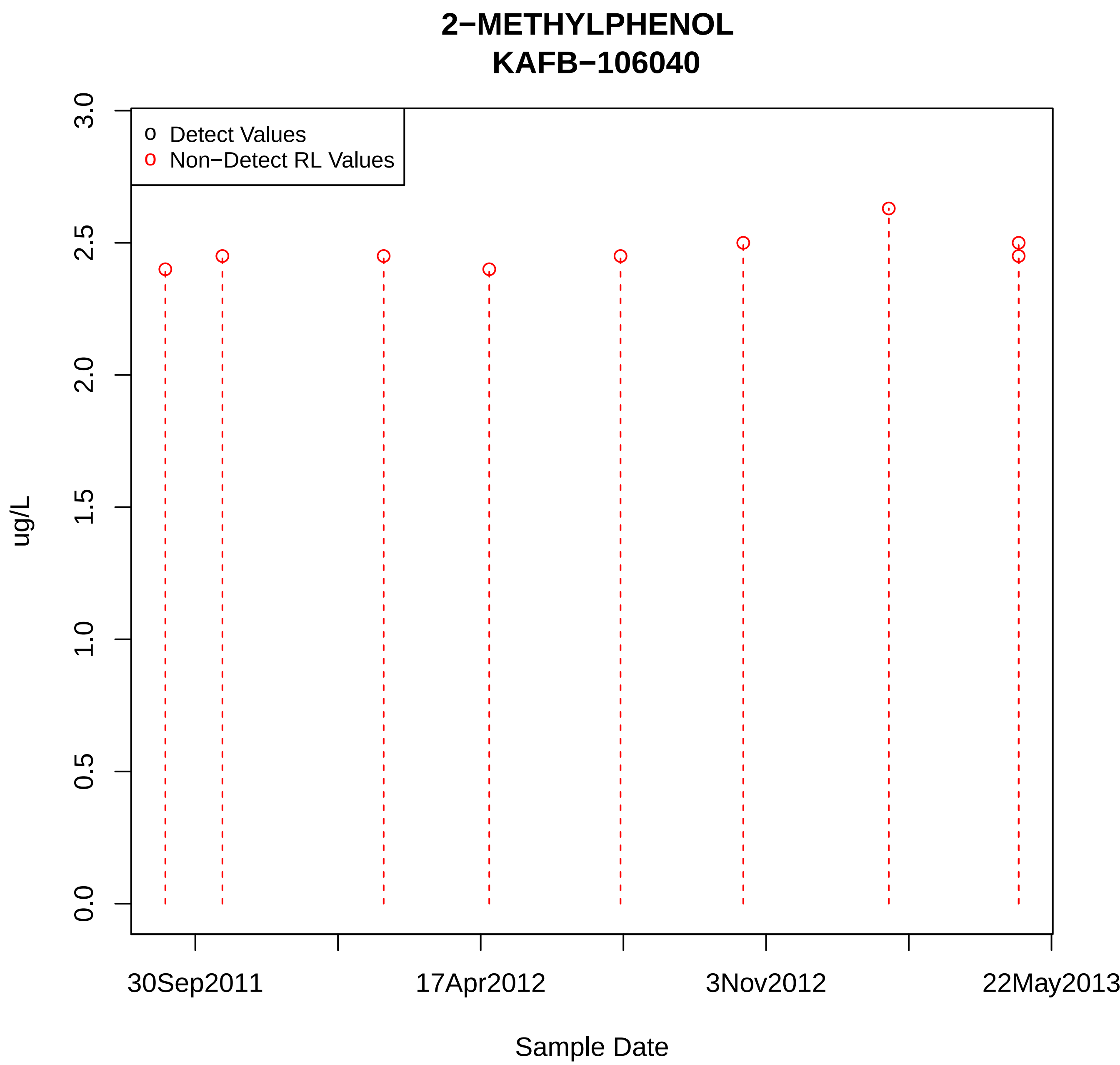

2−METHYLPHENOL
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



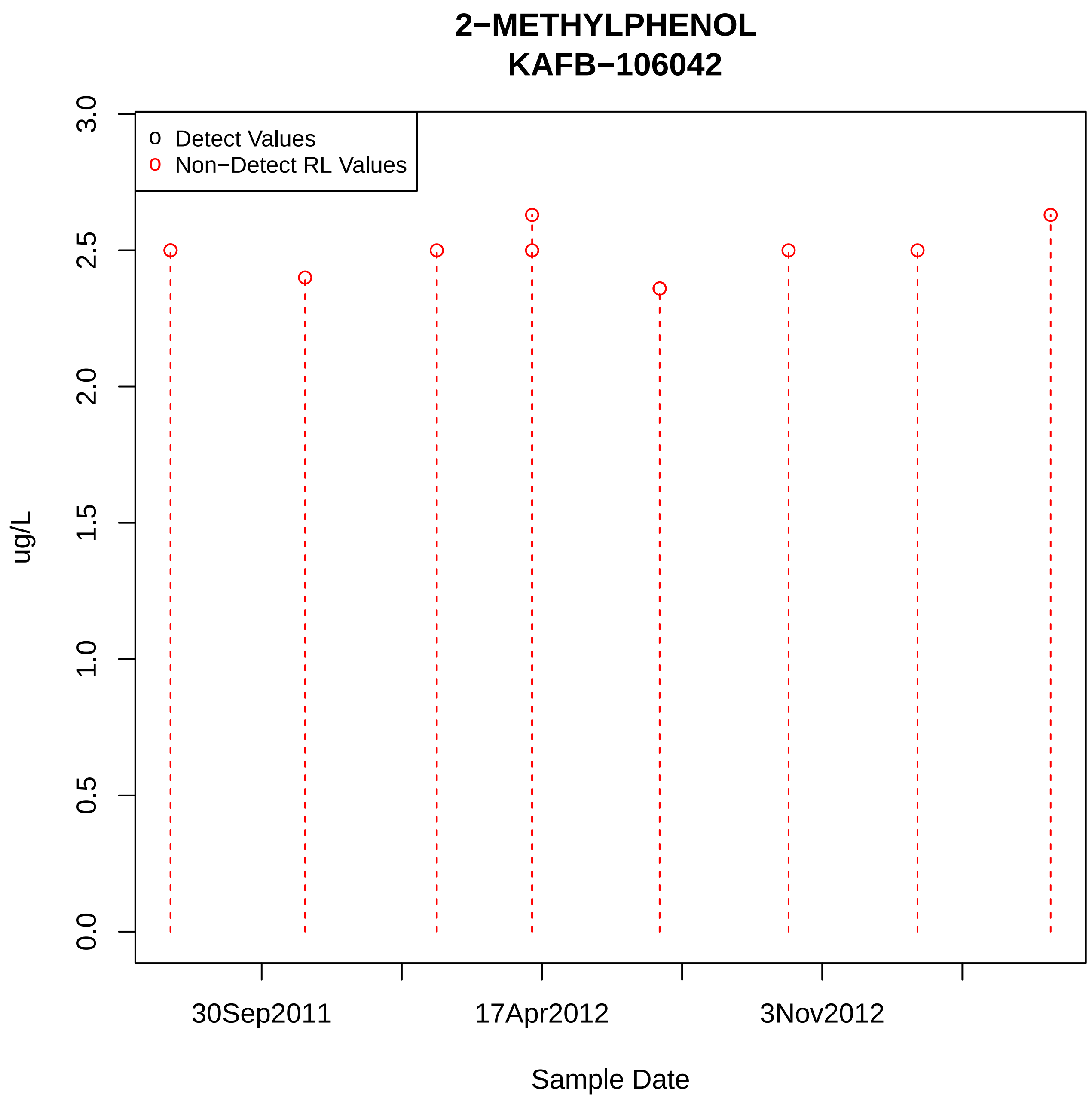
2−METHYLPHENOL
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

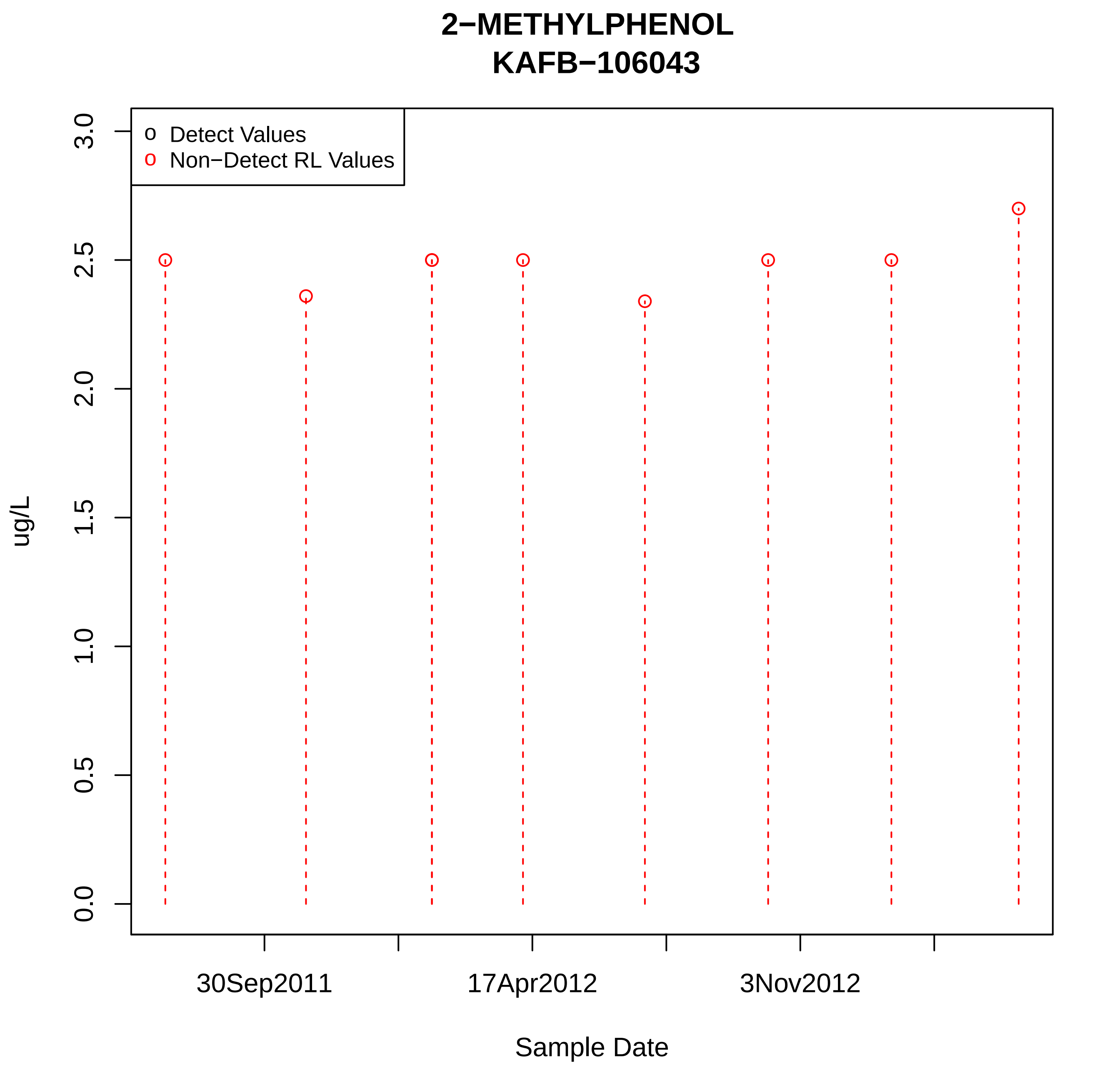

2−METHYLPHENOL
KAFB−106038
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLPHENOL
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

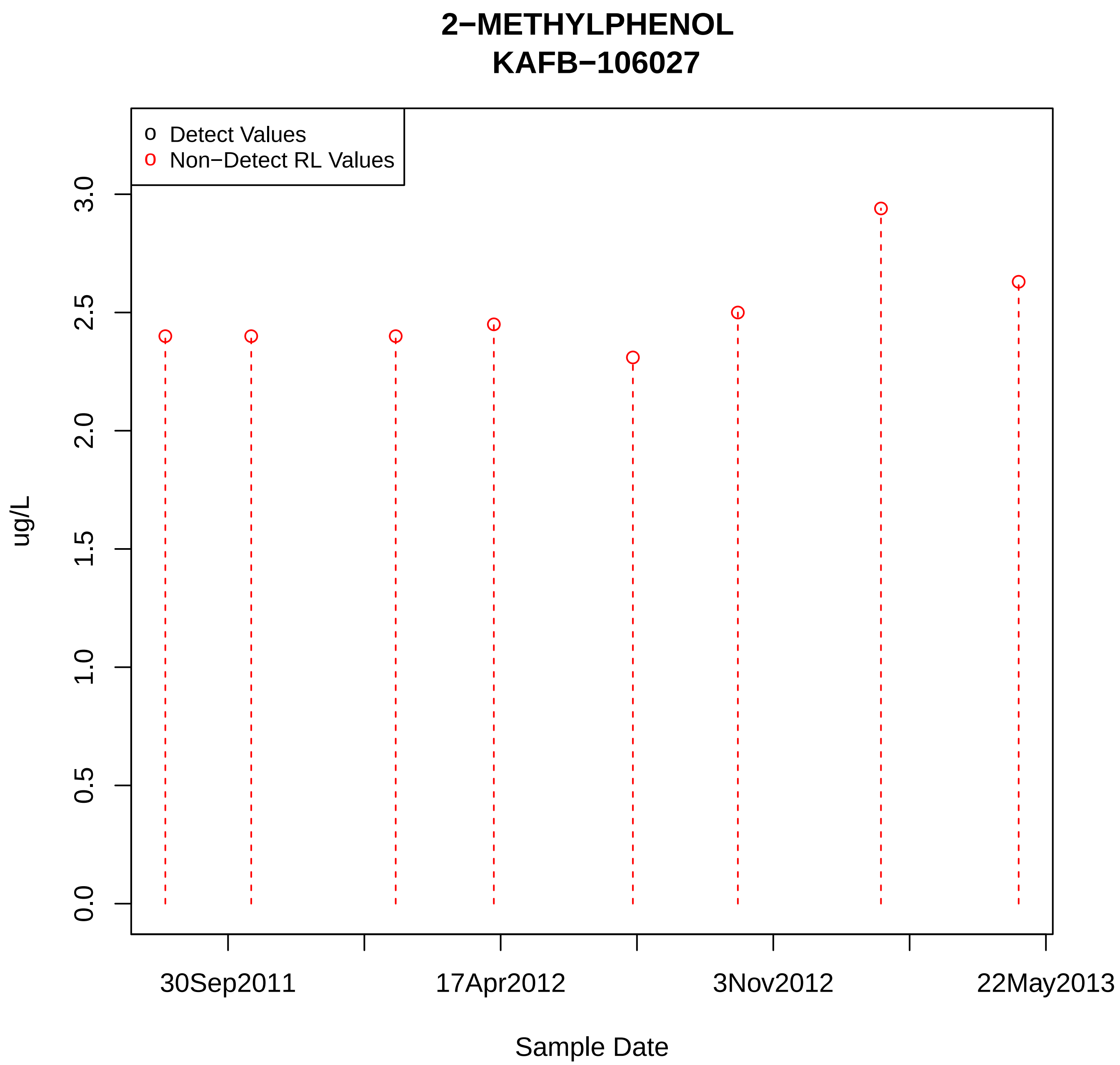


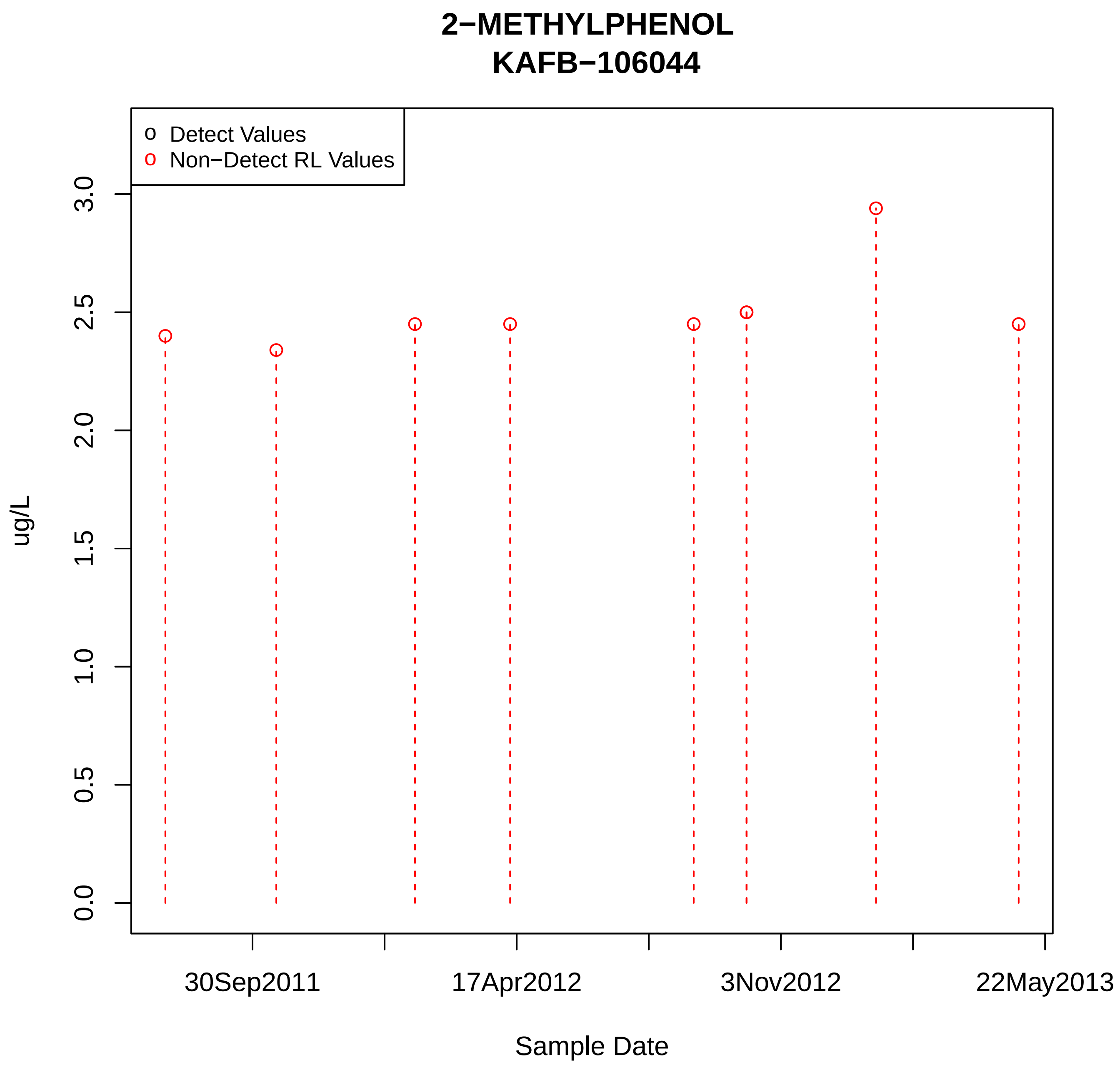
2−METHYLPHENOL
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

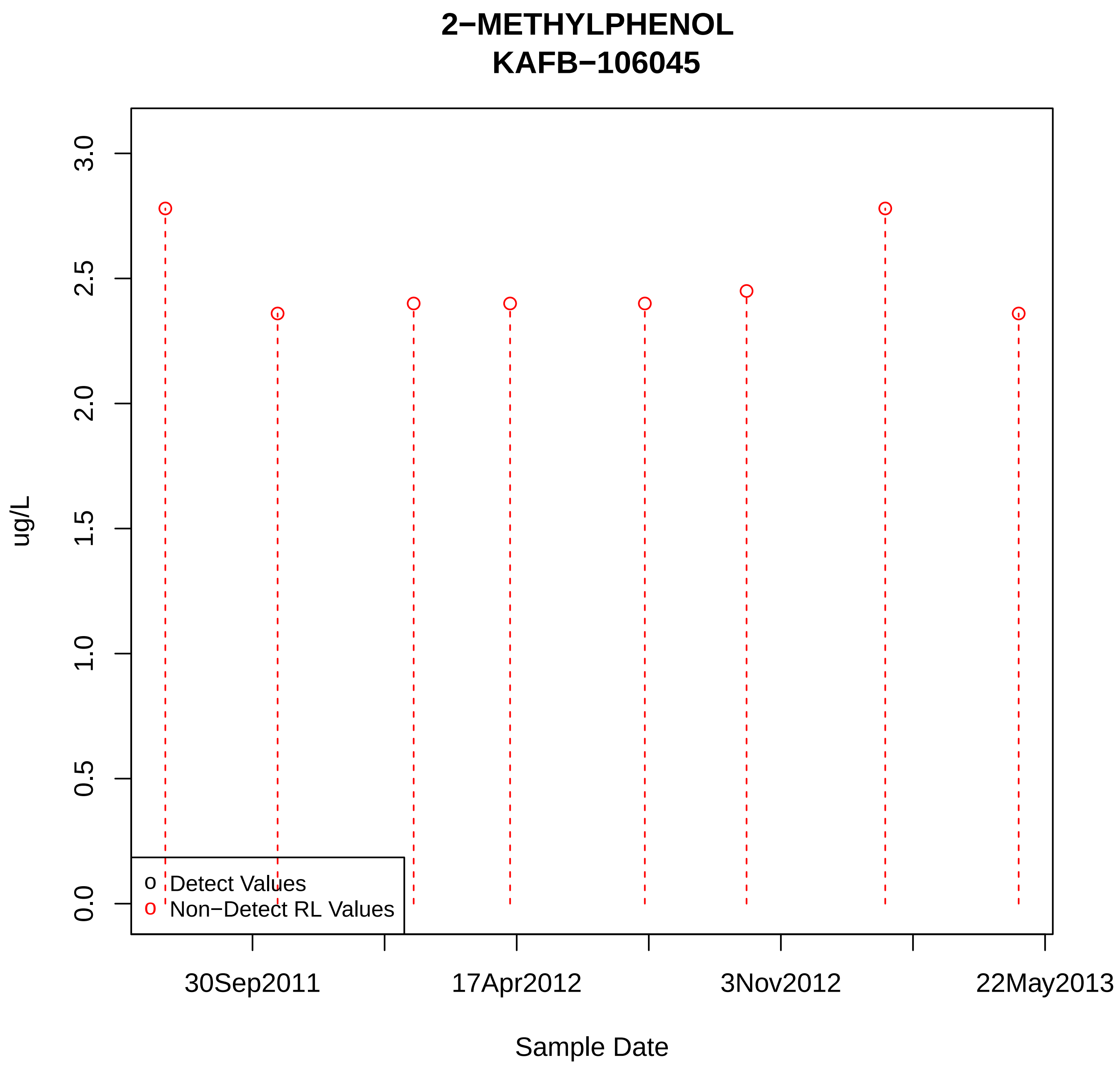

2−METHYLPHENOL
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



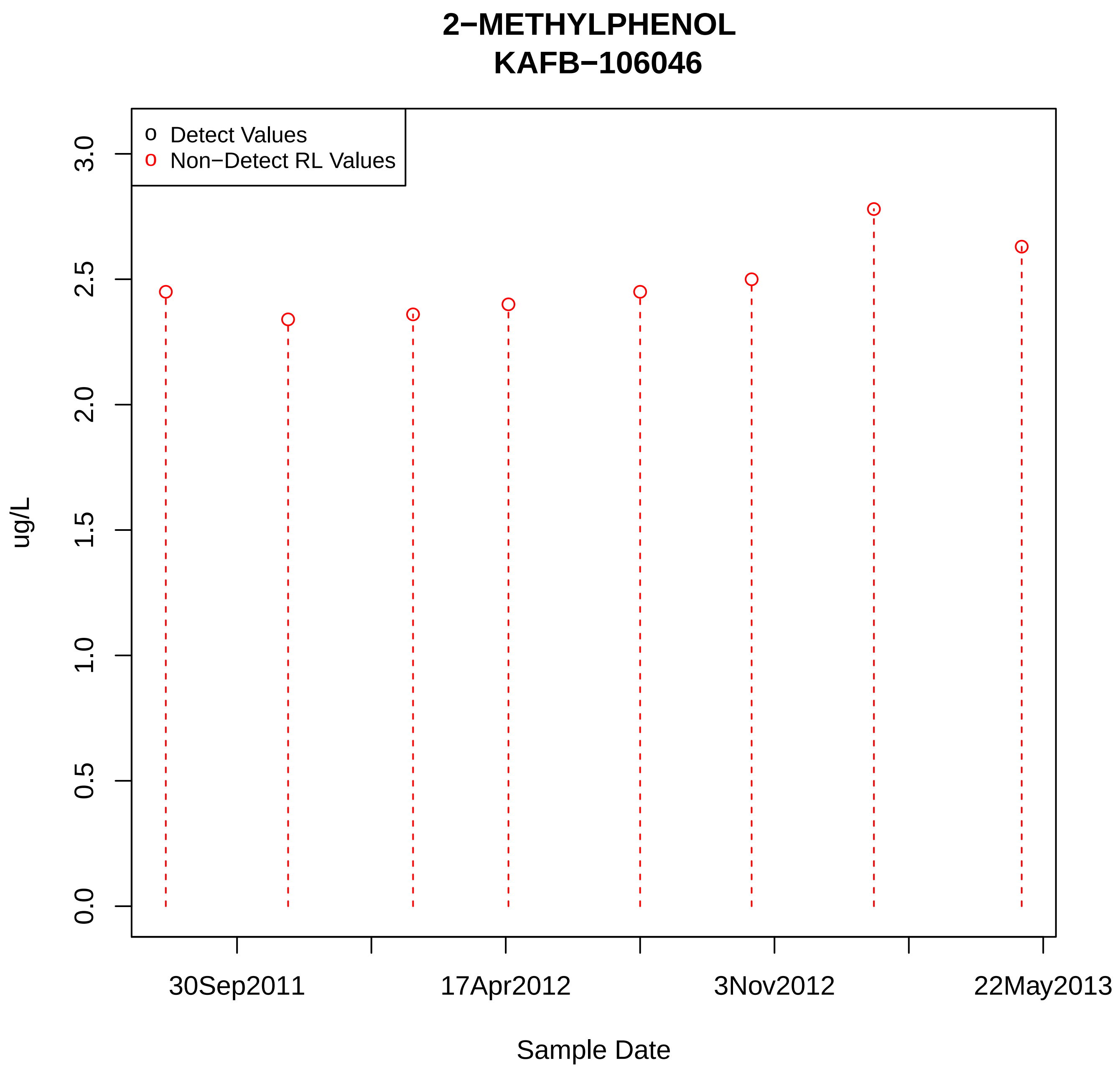
2−METHYLPHENOL
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLPHENOL
KAFB−106027
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

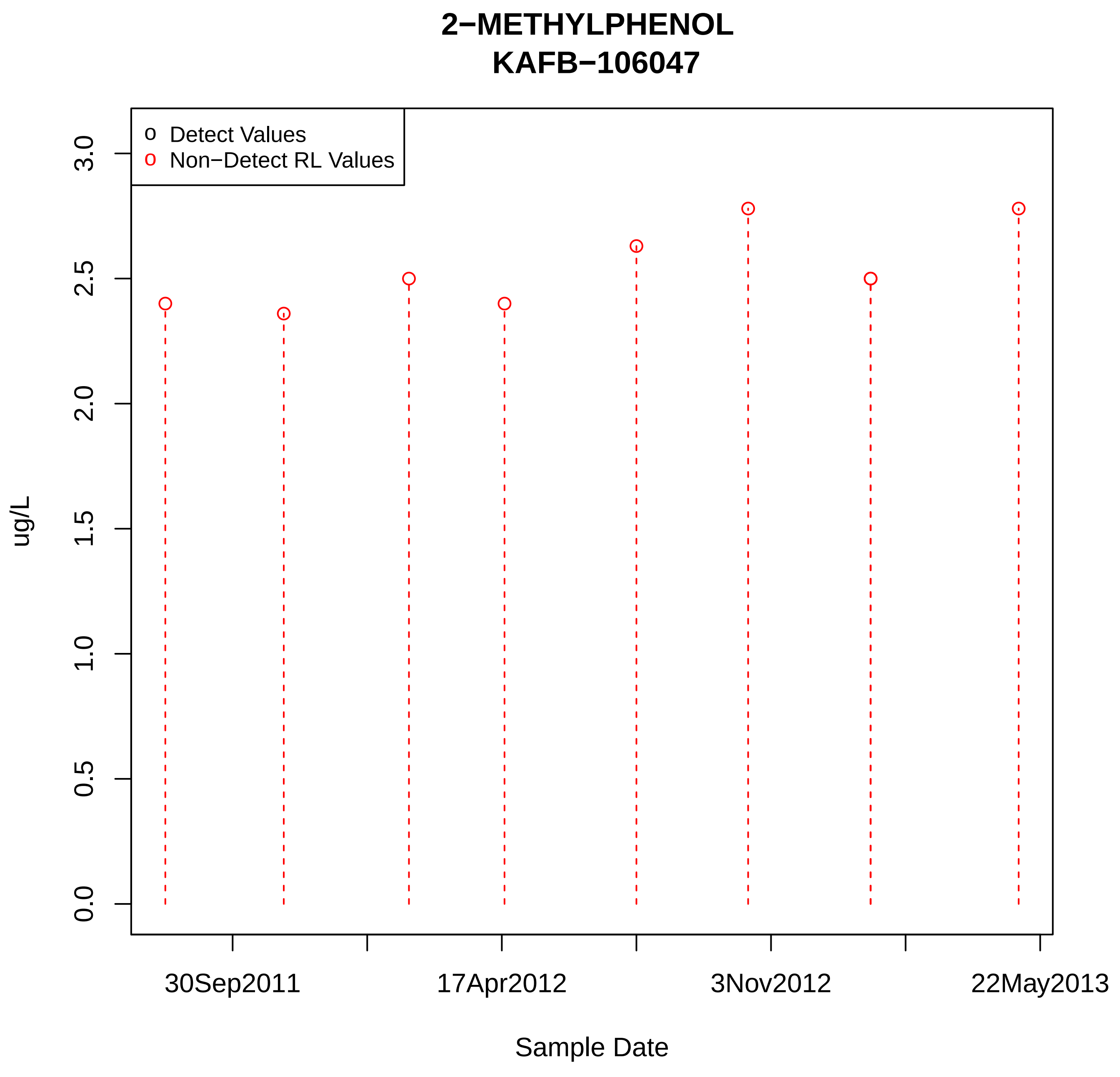

2−METHYLPHENOL
KAFB−106044
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



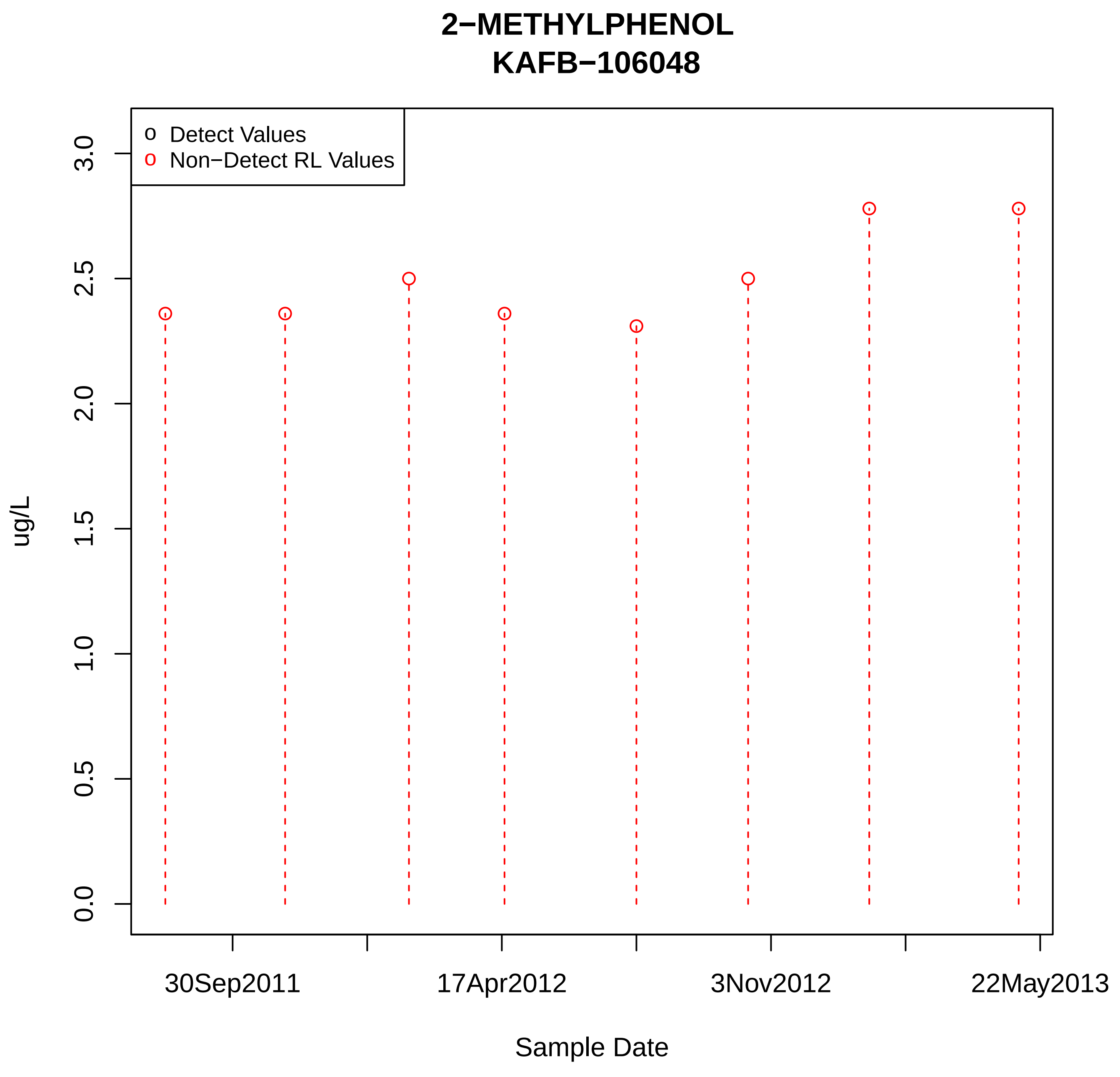
2−METHYLPHENOL
KAFB−106045
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



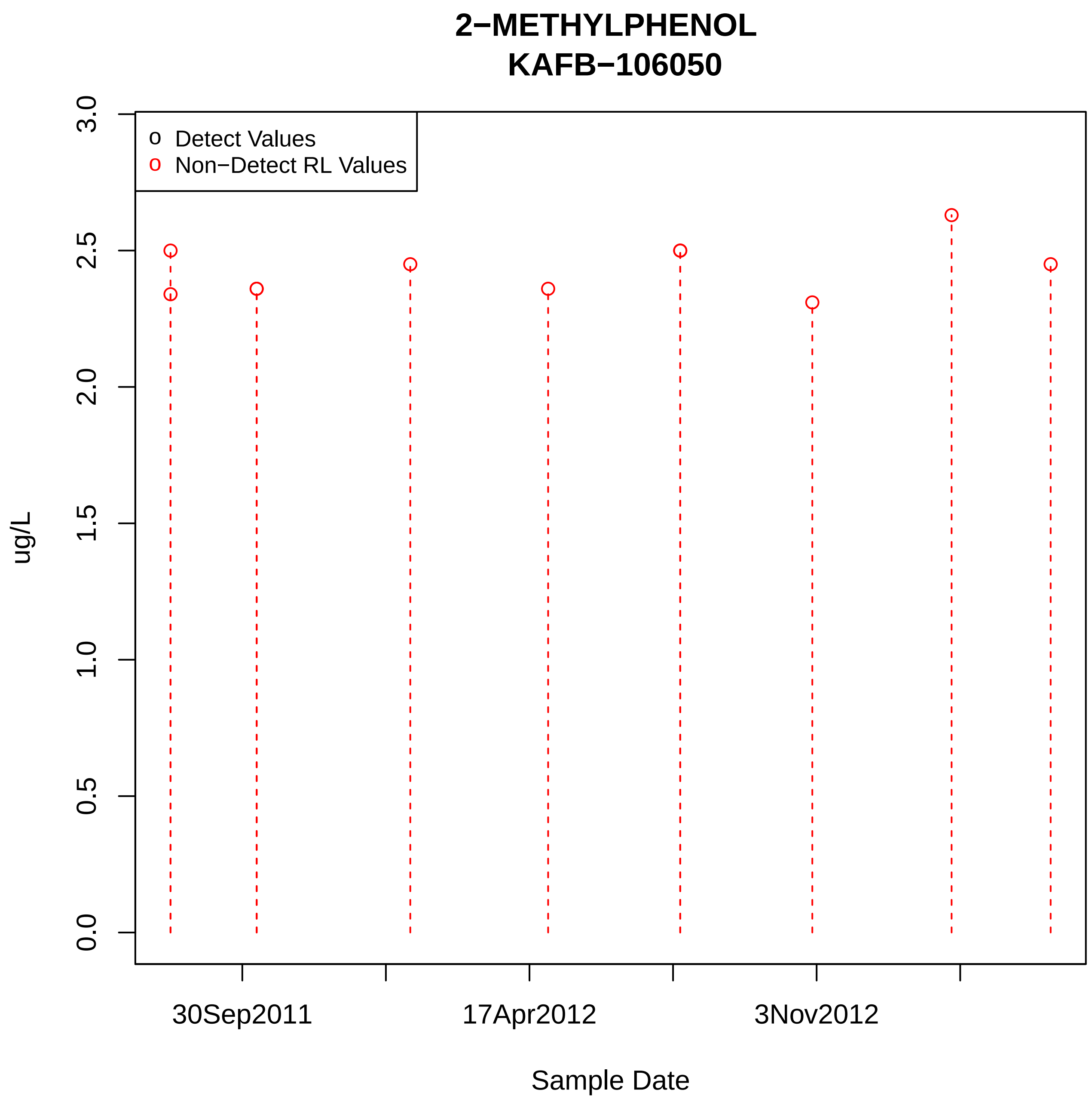
2−METHYLPHENOL
KAFB−106046
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

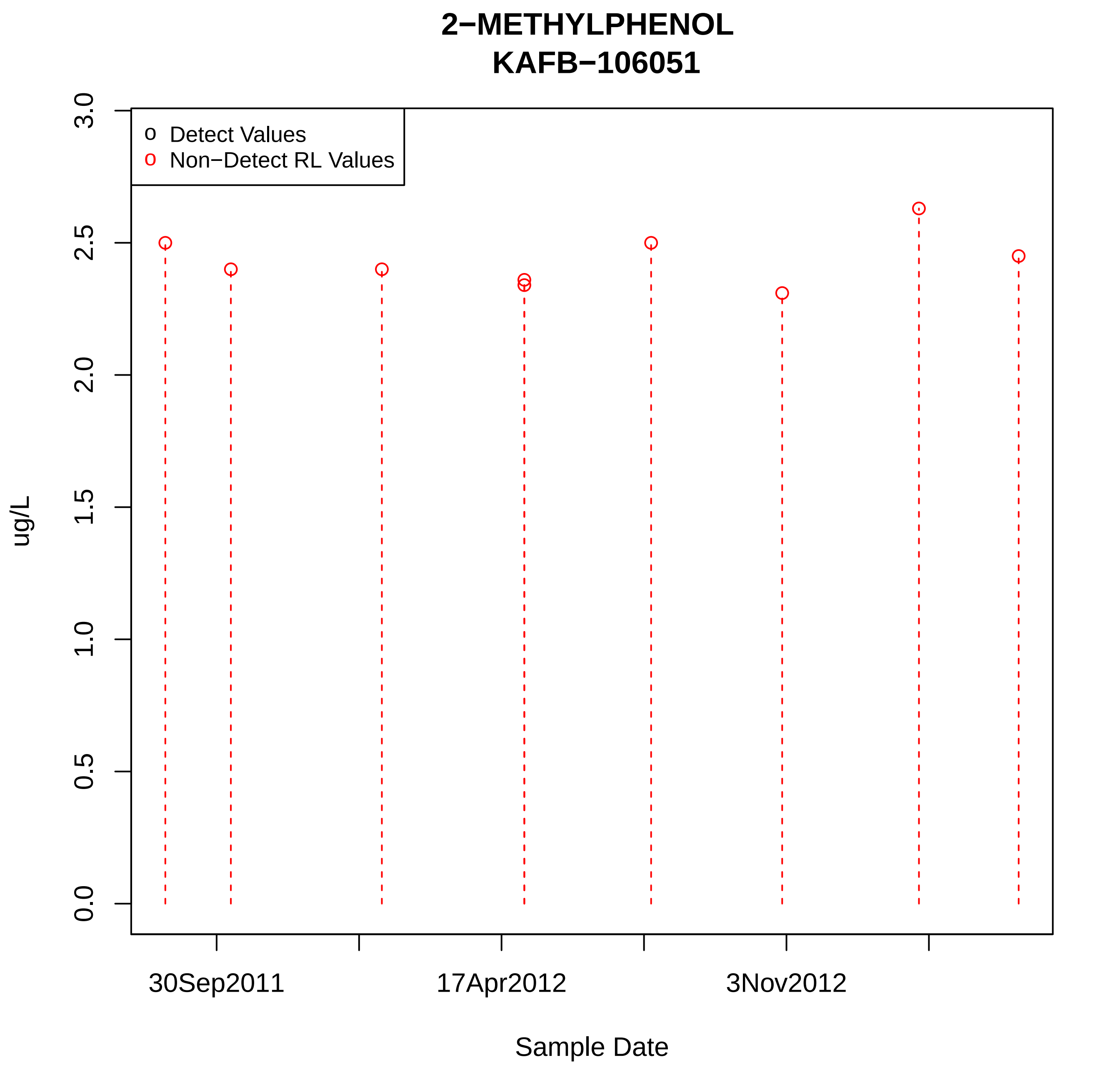


2−METHYLPHENOL
KAFB−106047
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

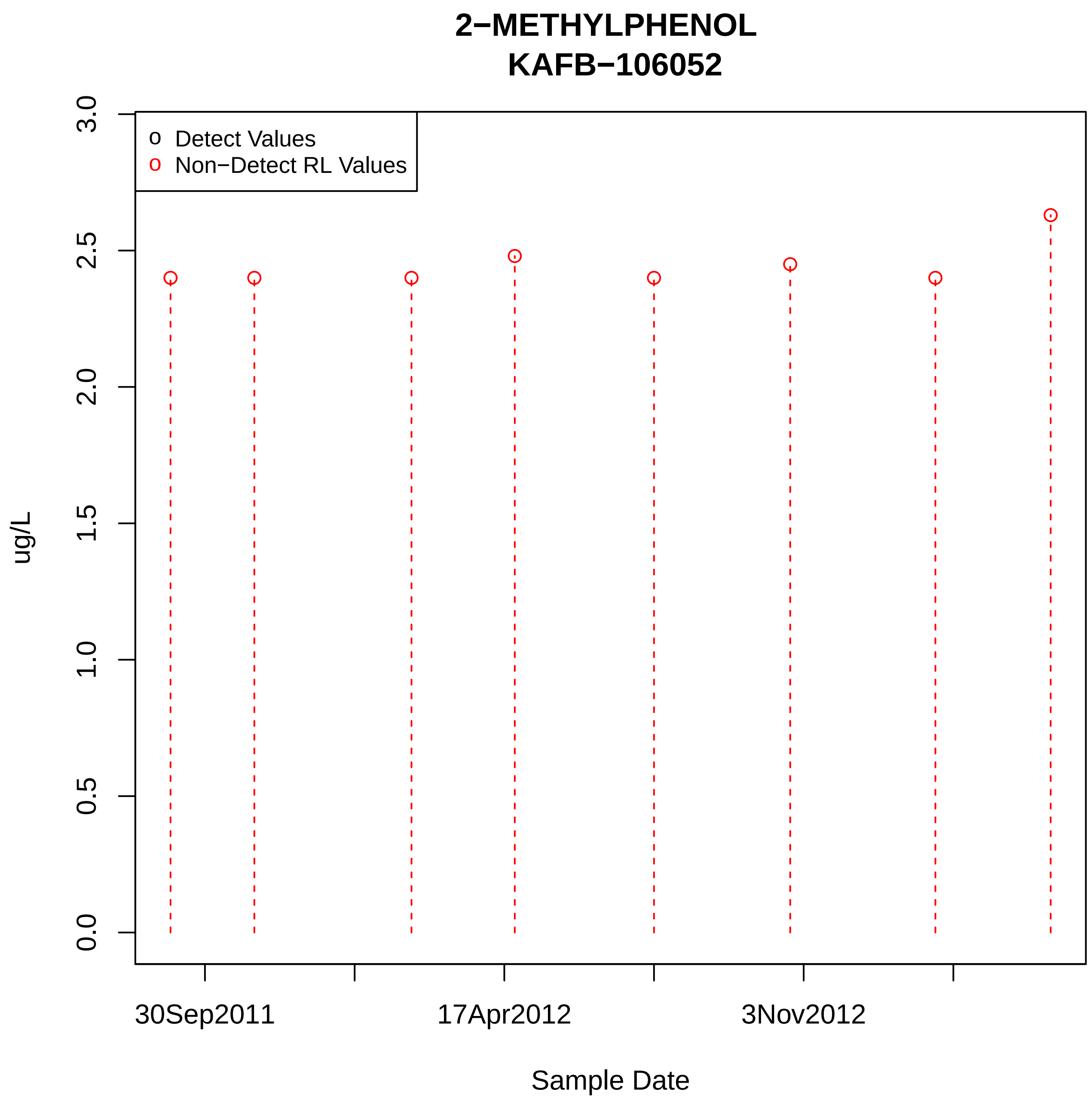


2−METHYLPHENOL
KAFB−106048
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

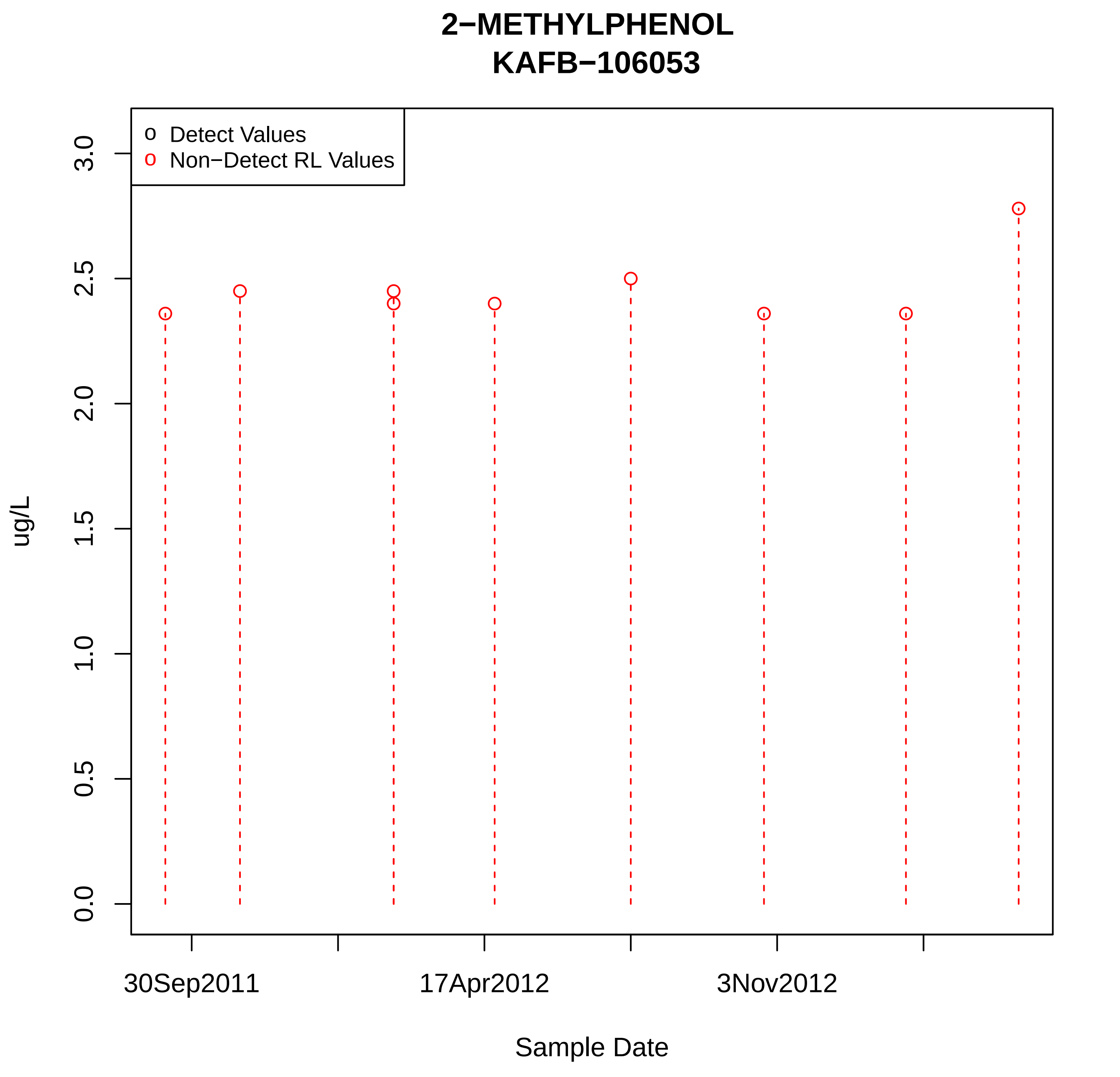

2−METHYLPHENOL
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

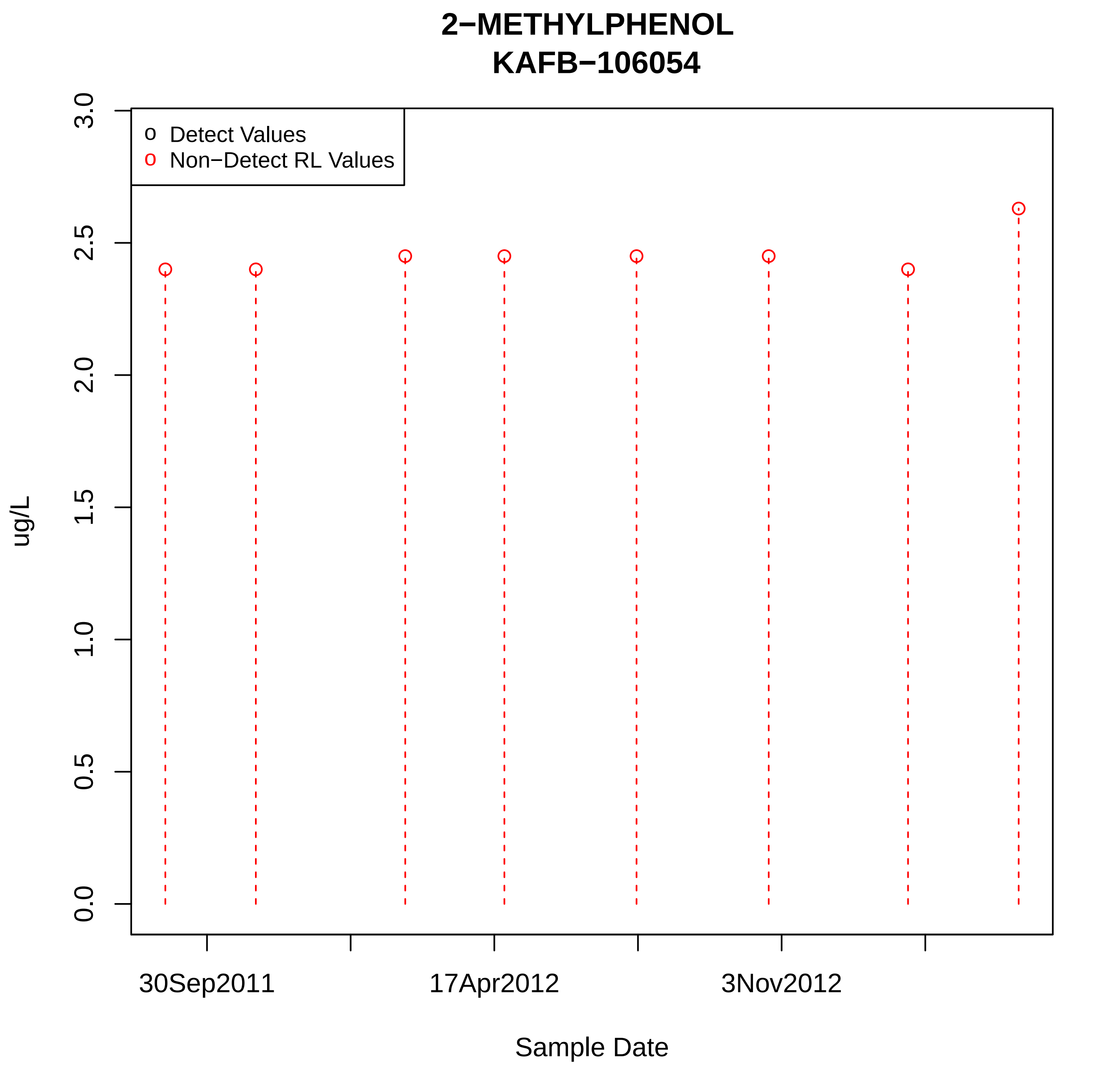


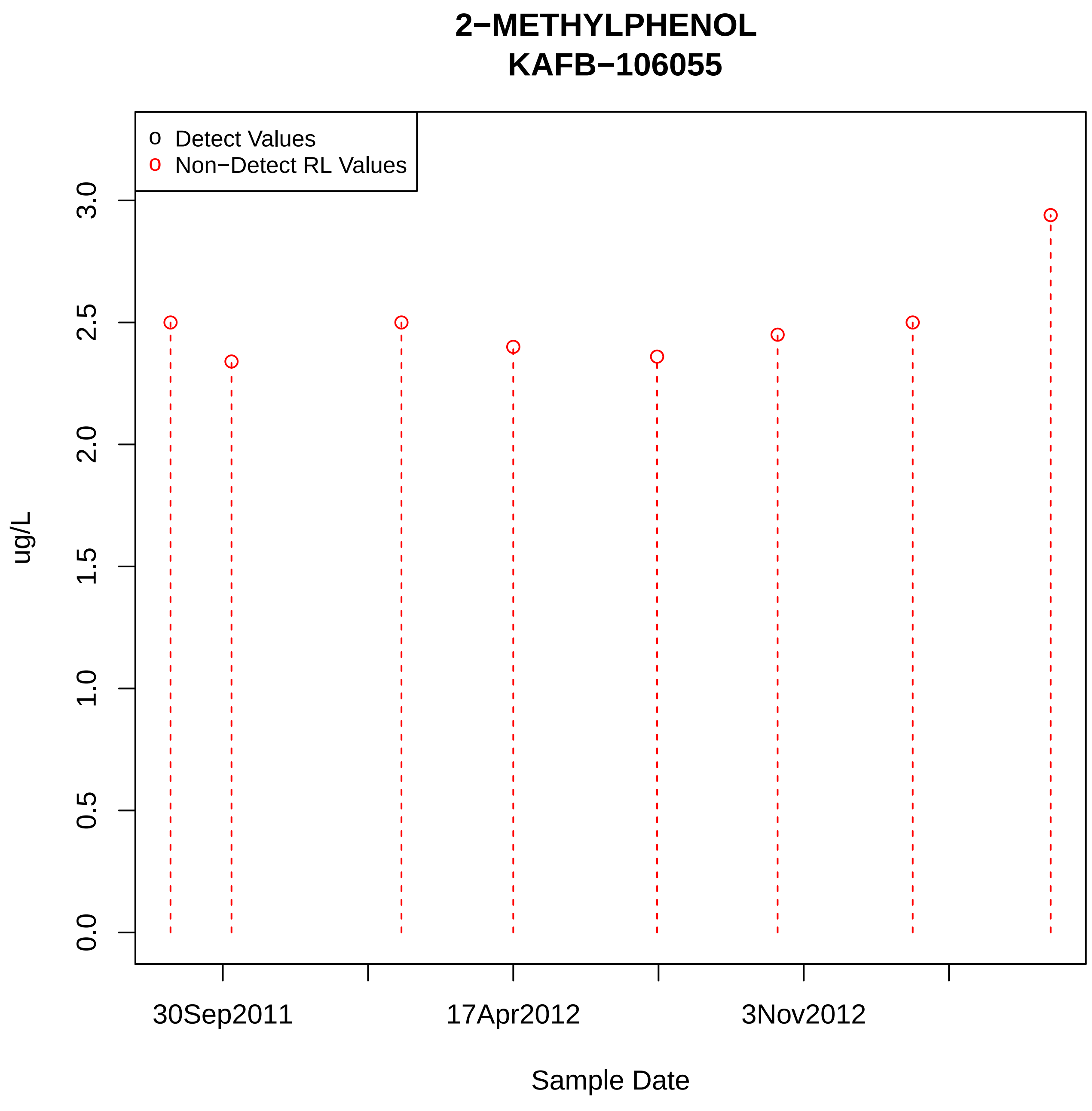
2−METHYLPHENOL
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



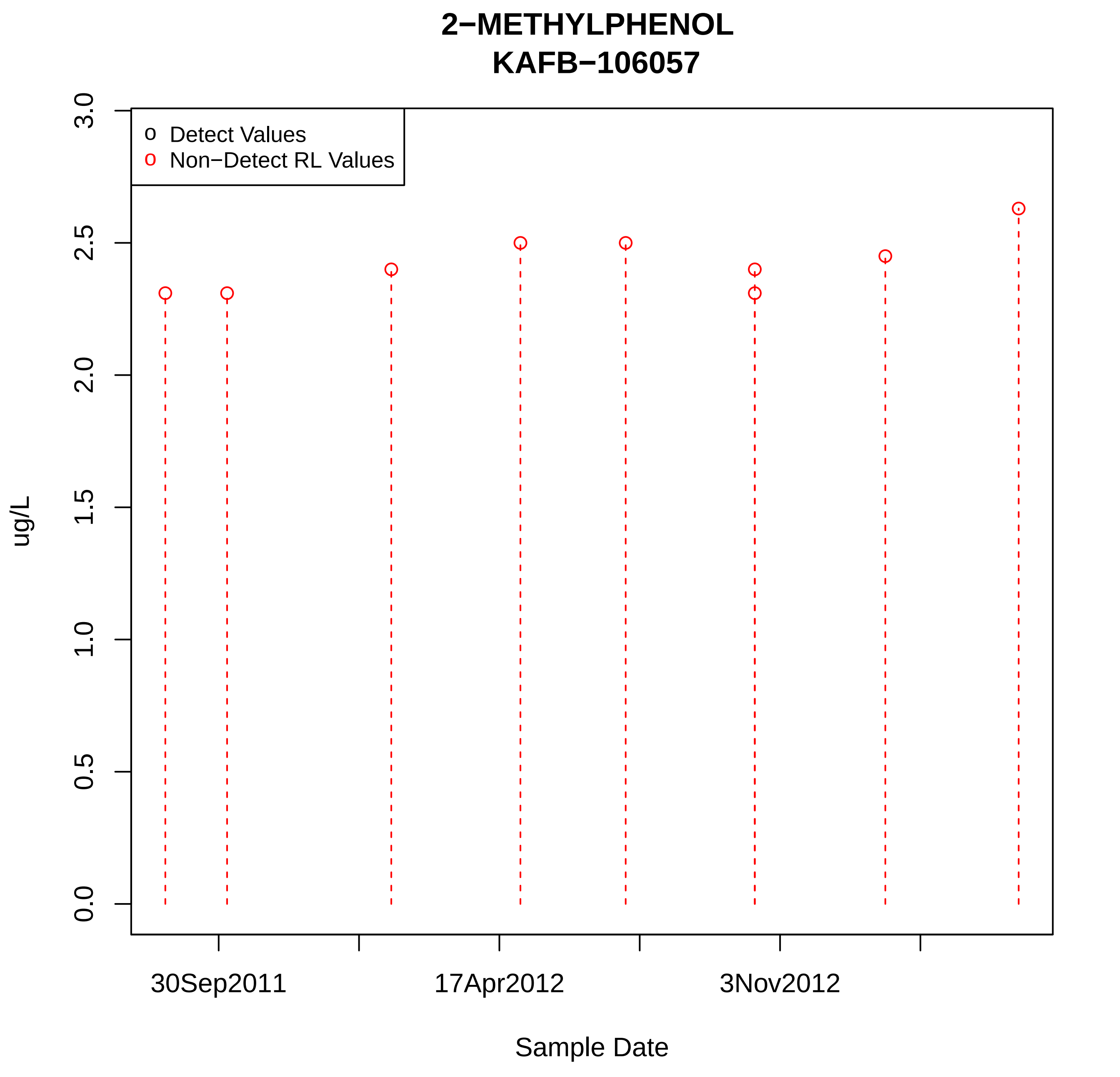
2−METHYLPHENOL
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLPHENOL
KAFB−106053
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

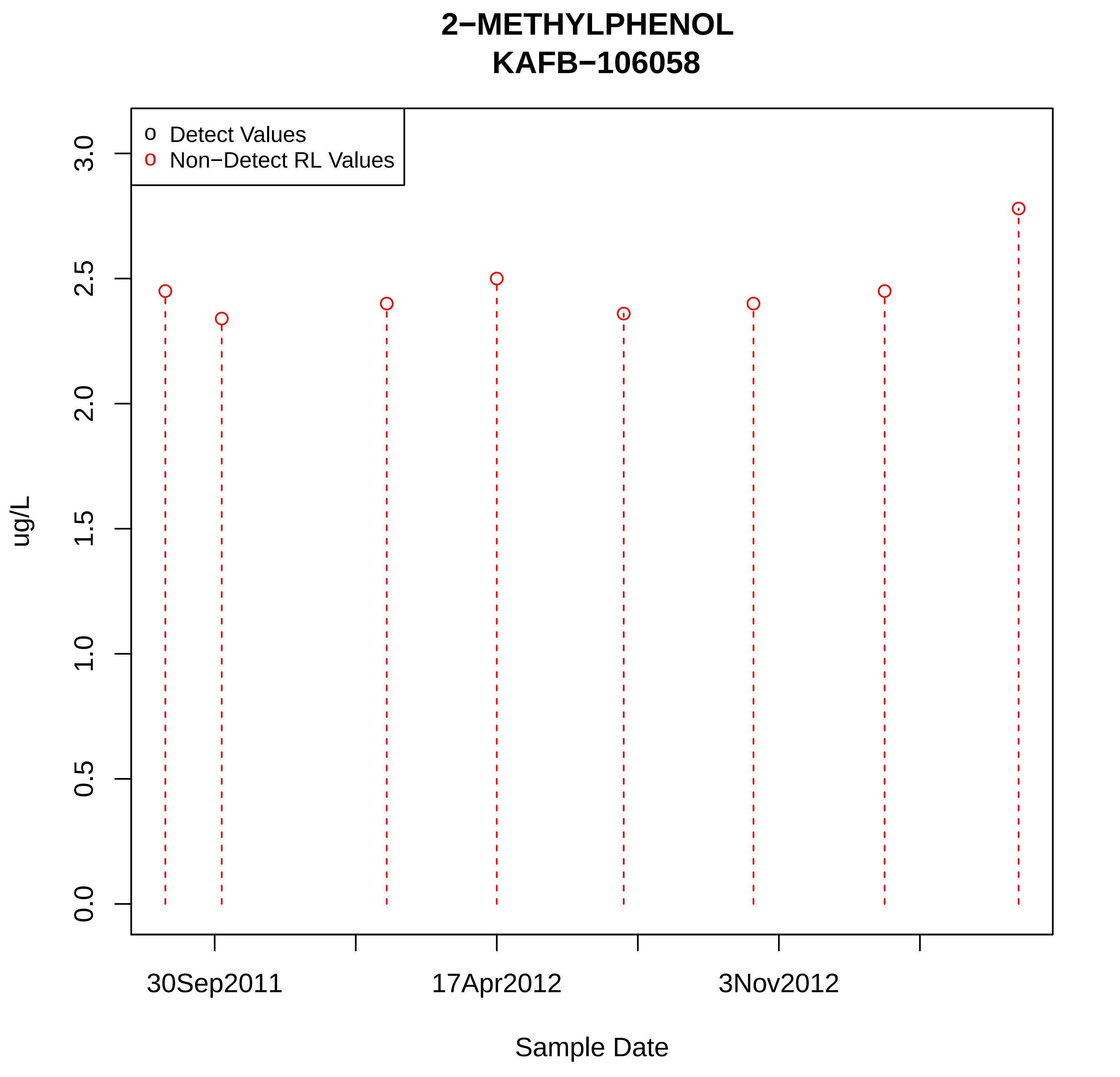

2−METHYLPHENOL
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



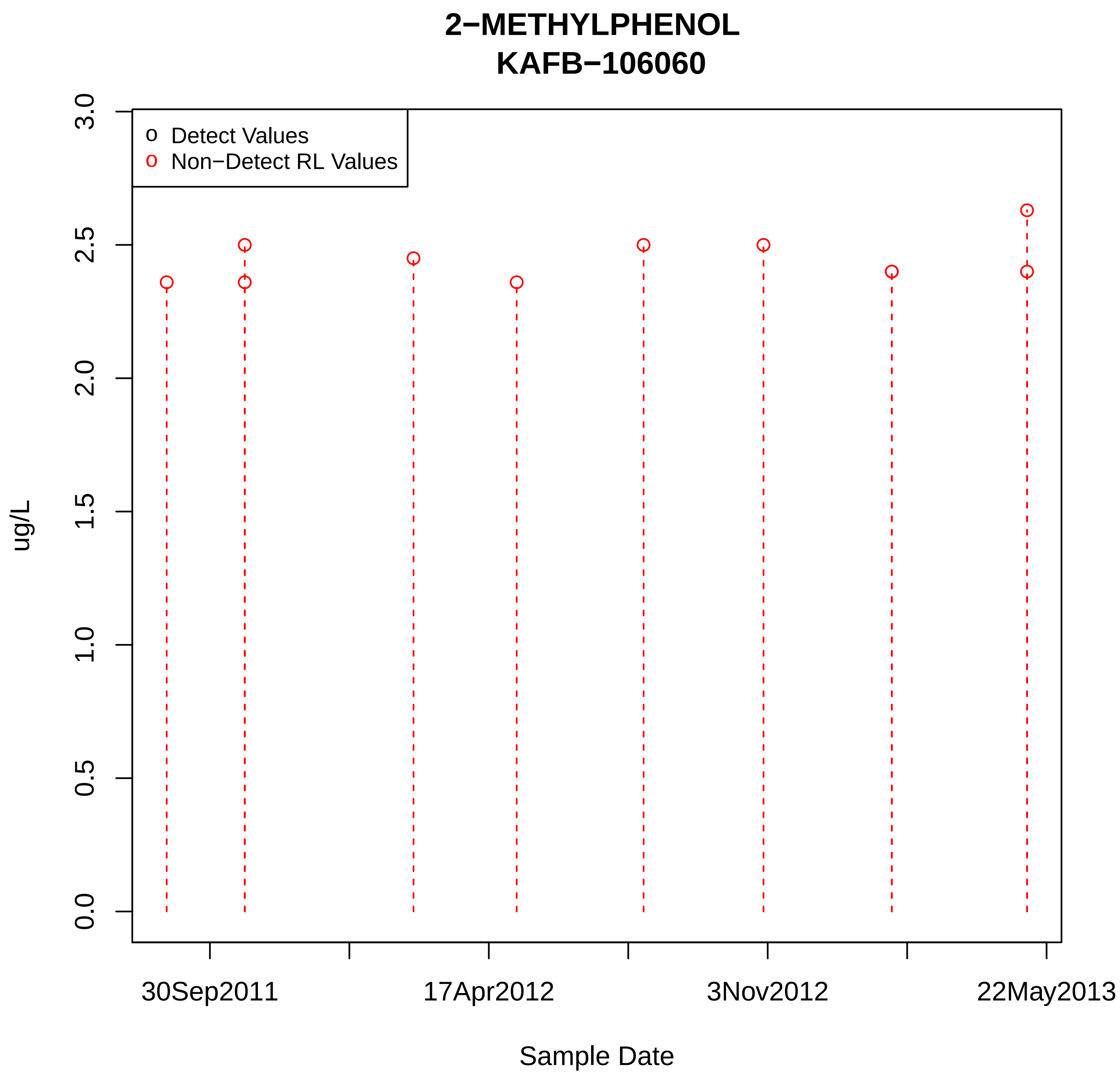
2−METHYLPHENOL
KAFB−106055
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



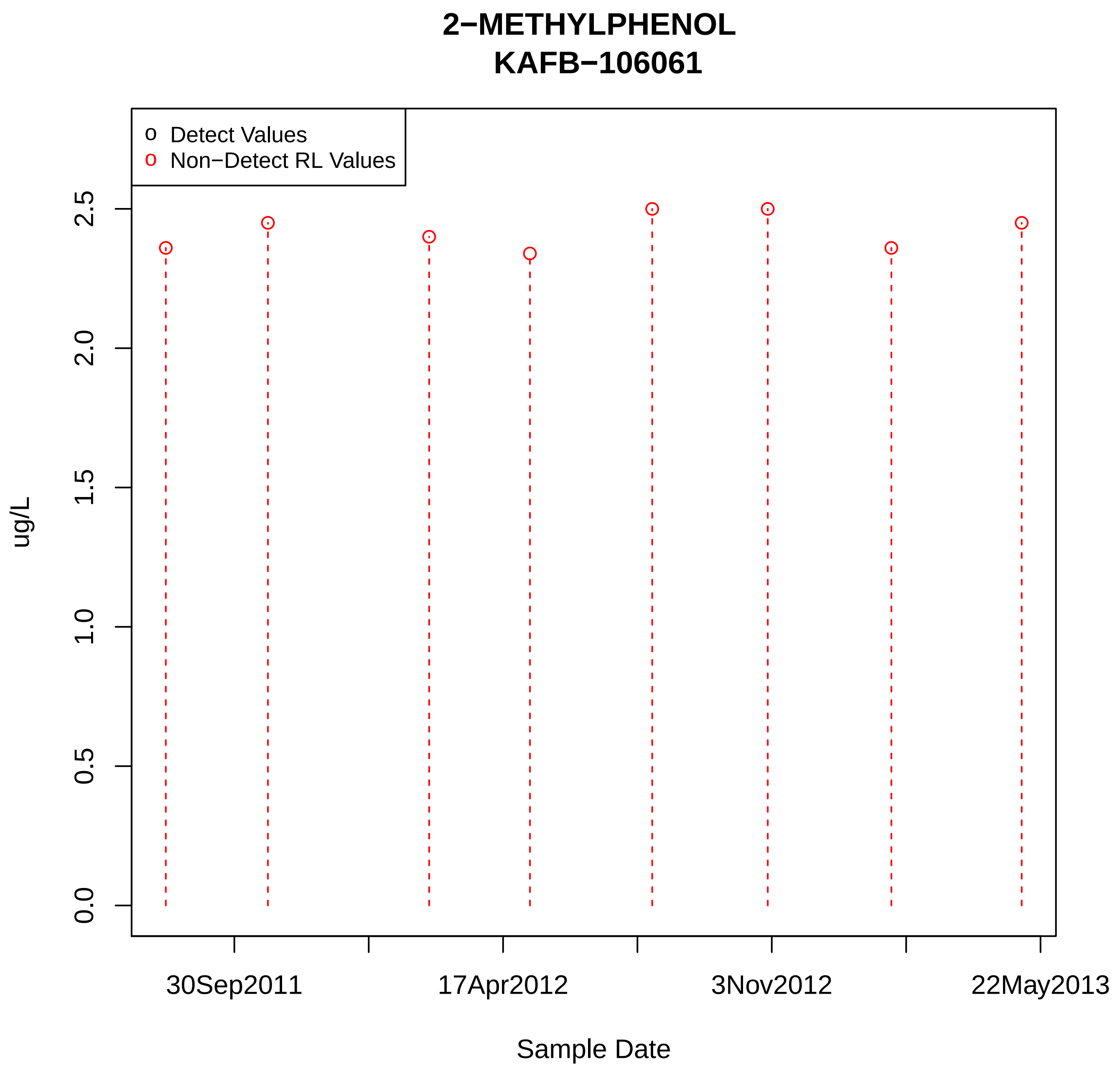
2−METHYLPHENOL
KAFB−106057
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

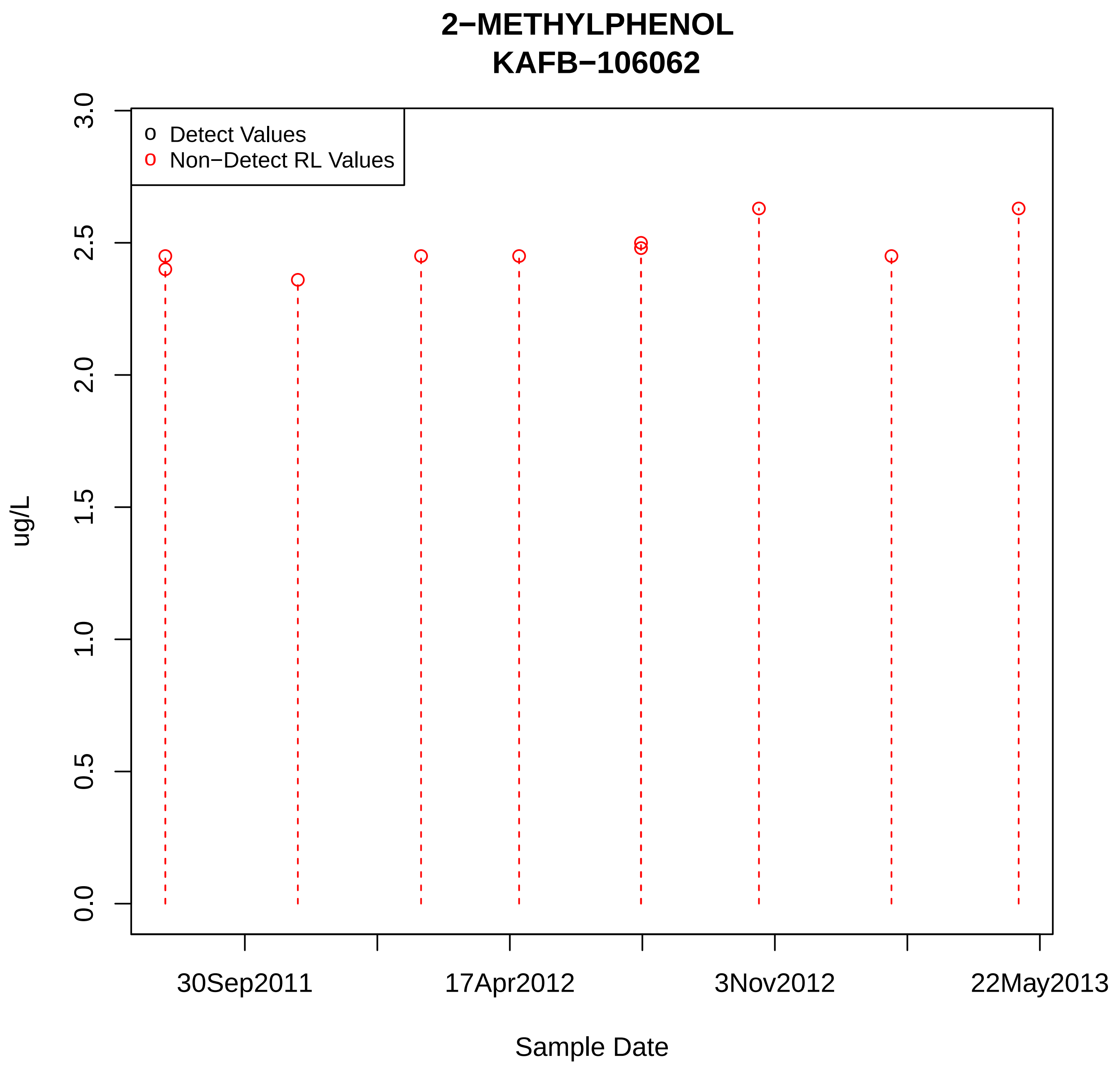


2−METHYLPHENOL
KAFB−106058
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

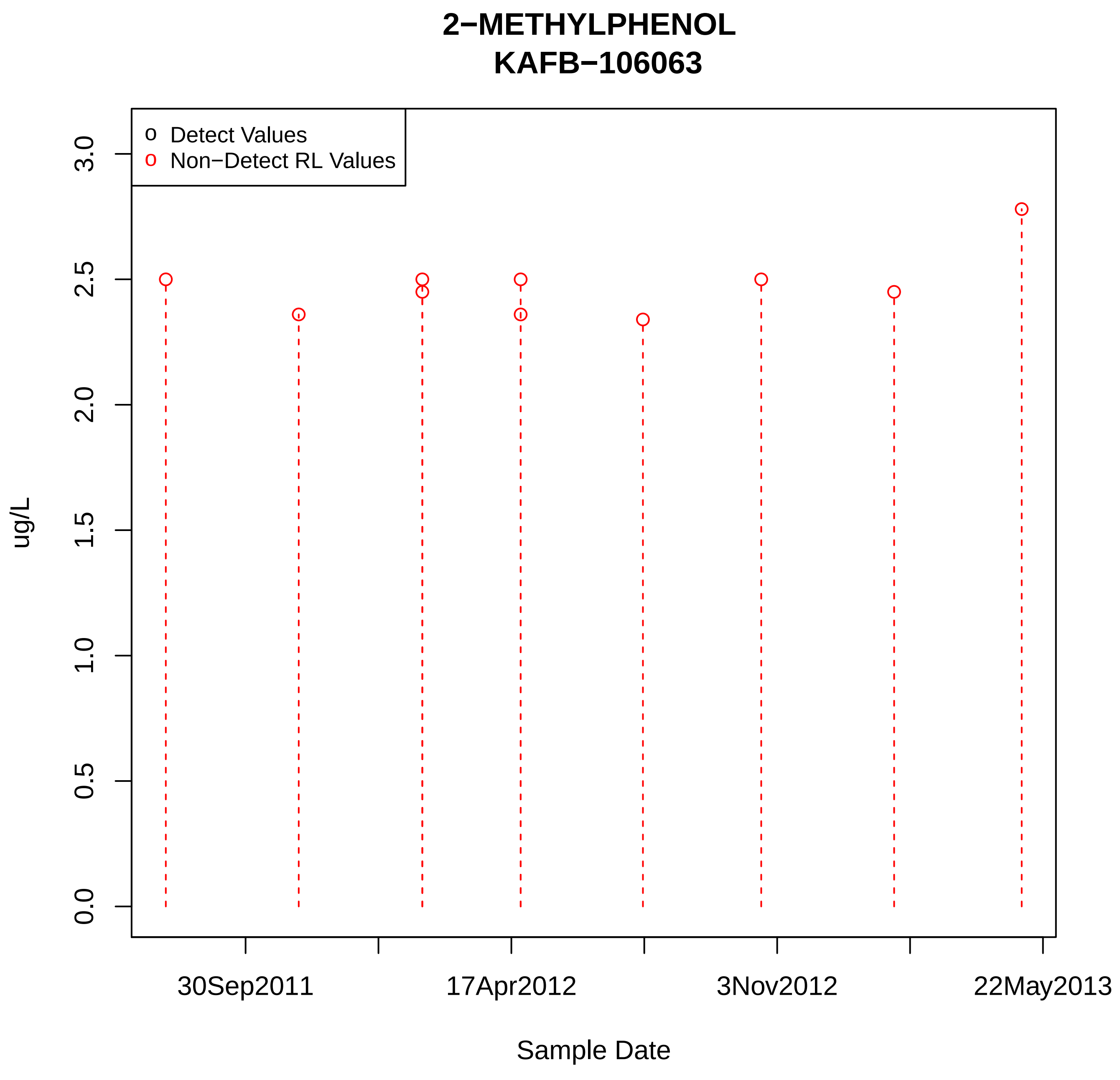


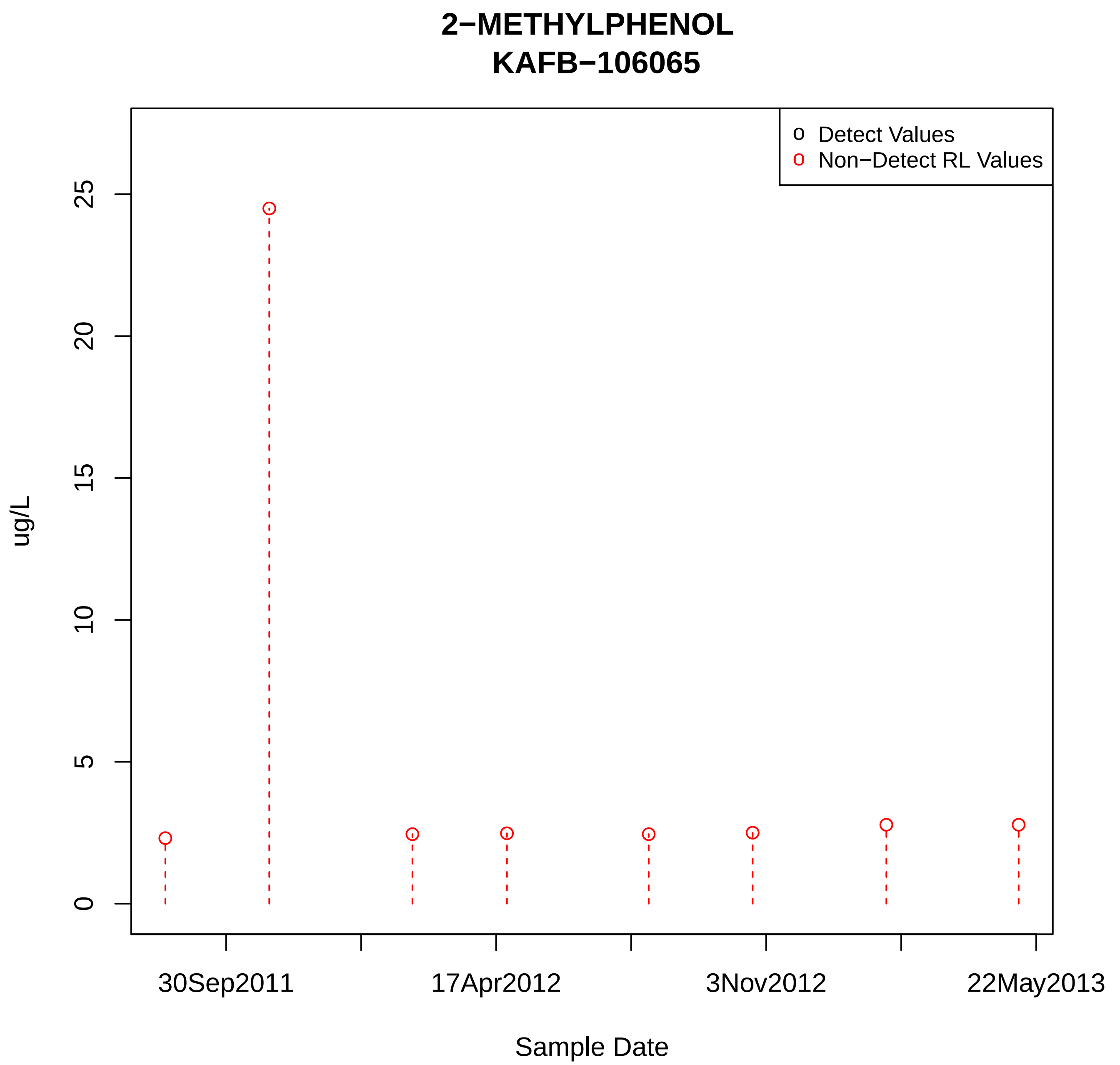
2−METHYLPHENOL
KAFB−106060
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

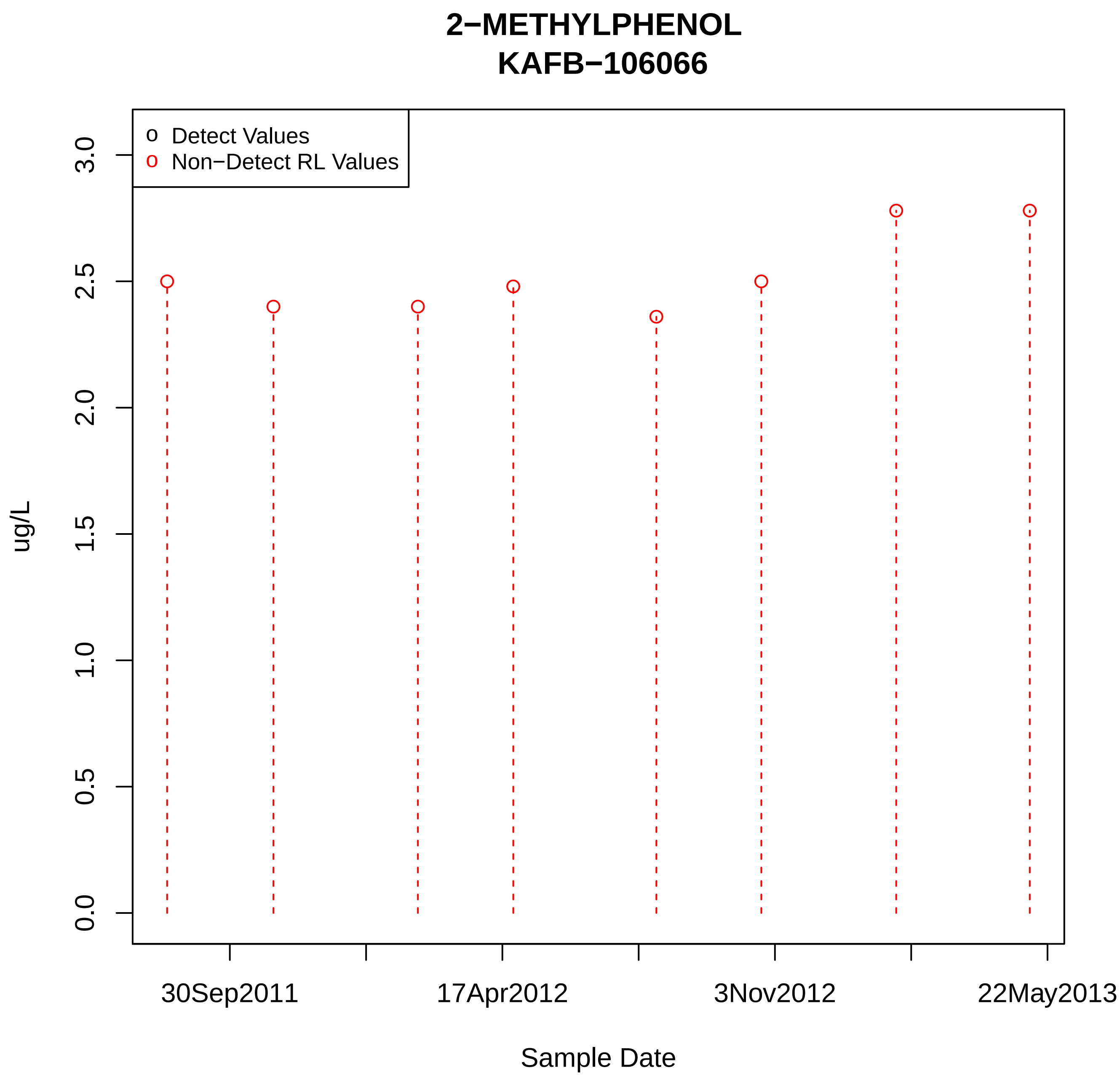

2−METHYLPHENOL
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



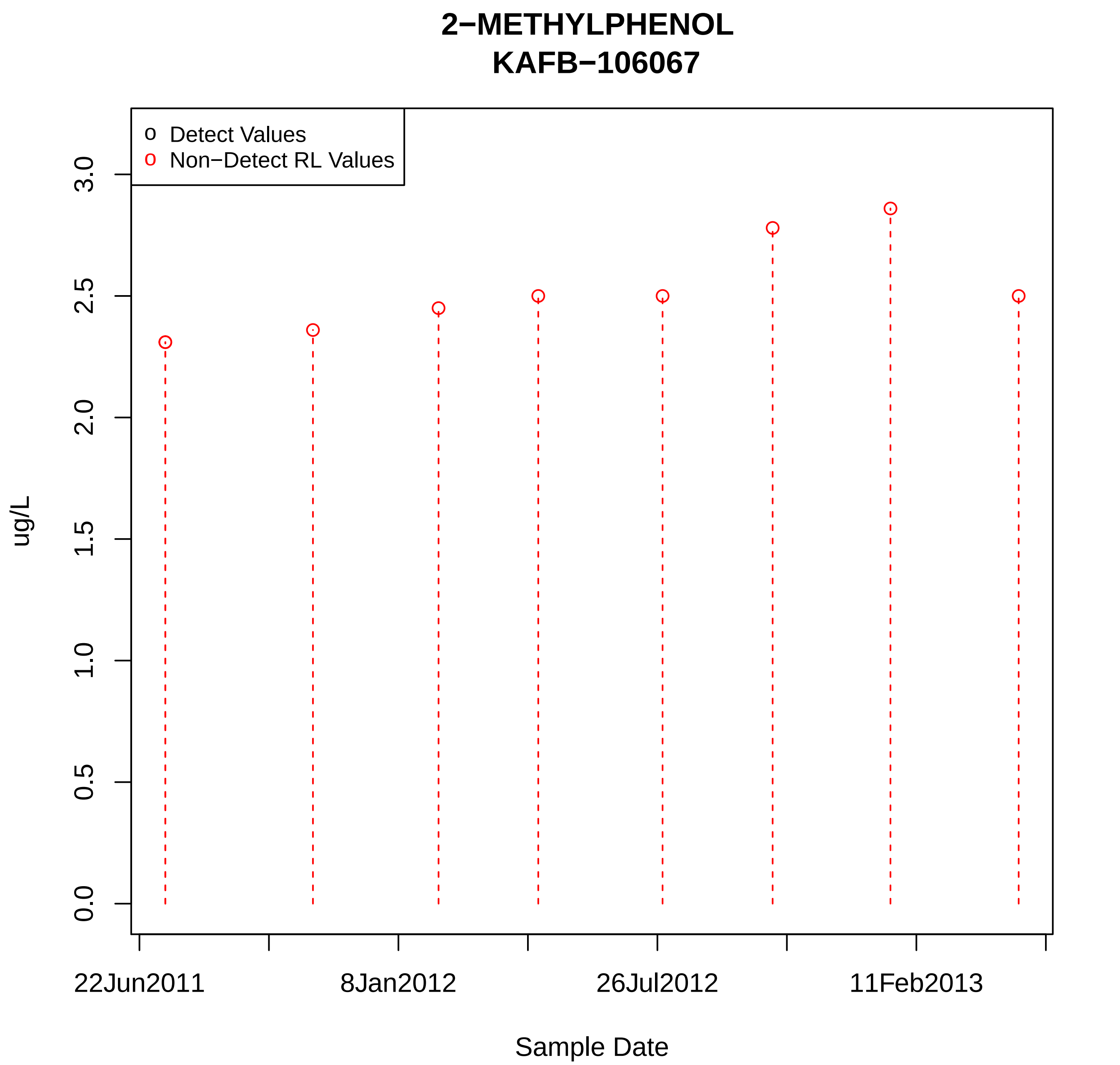
2−METHYLPHENOL
KAFB−106062
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLPHENOL
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

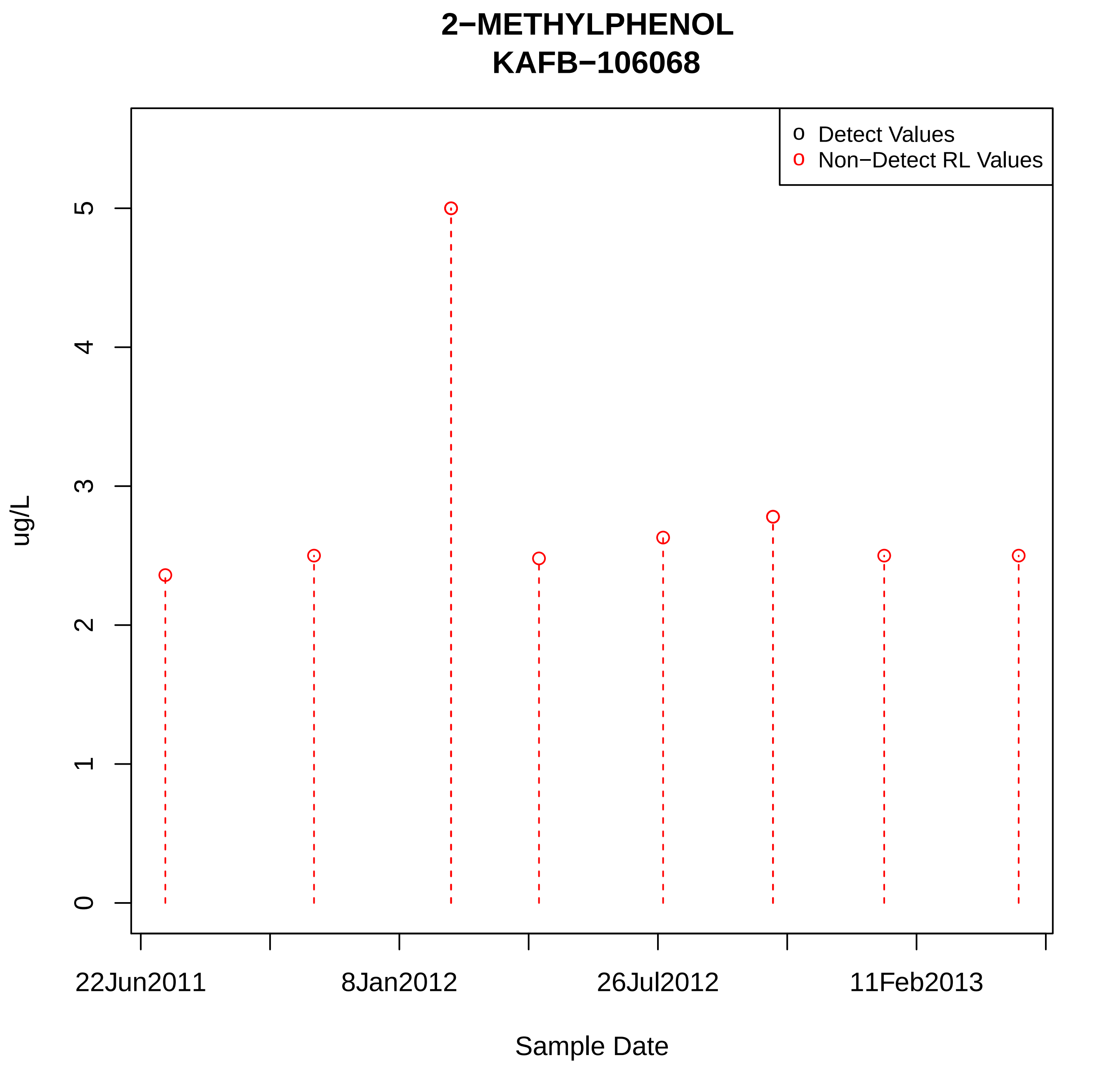

2−METHYLPHENOL
KAFB−106065
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



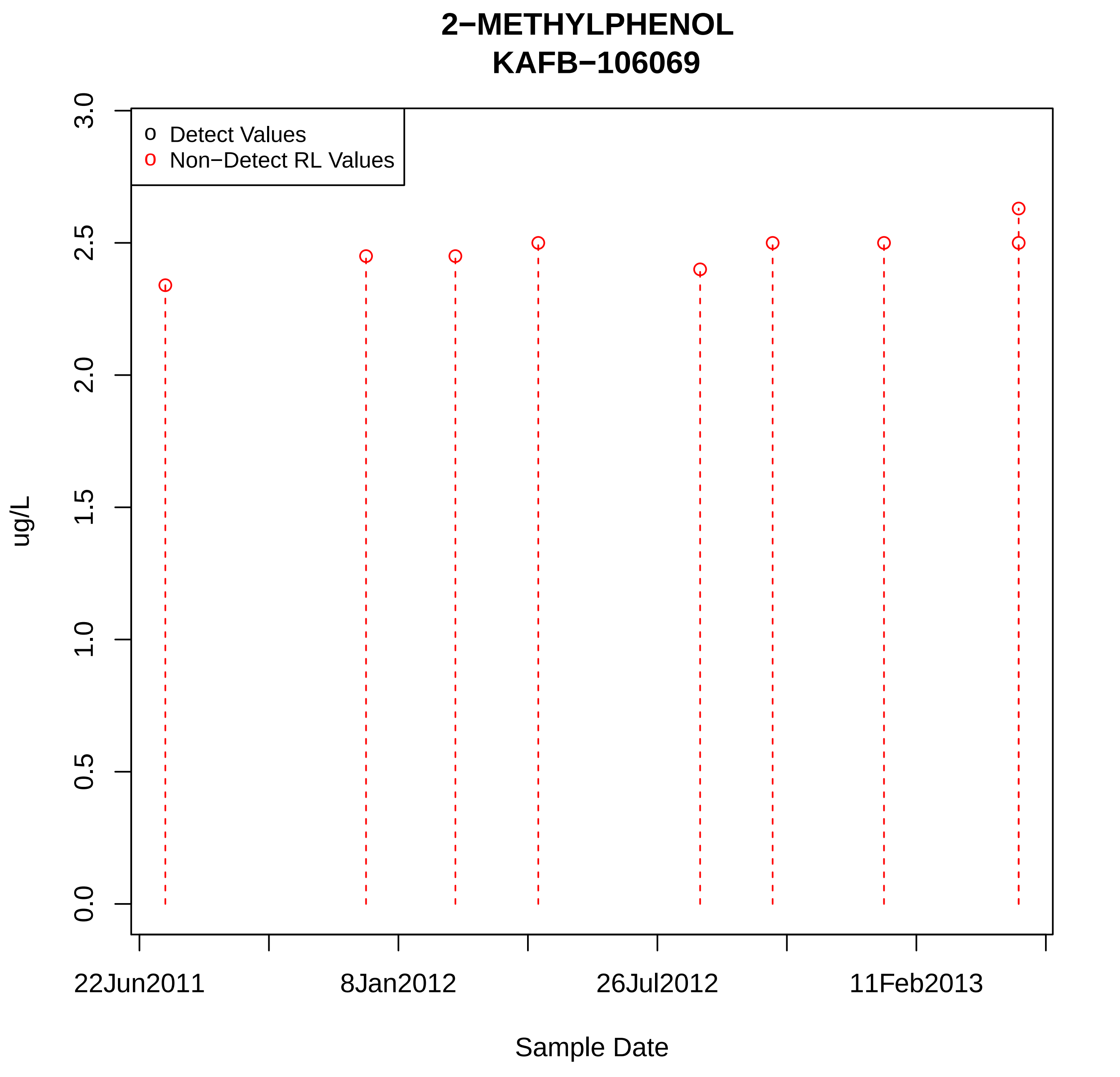
2−METHYLPHENOL
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



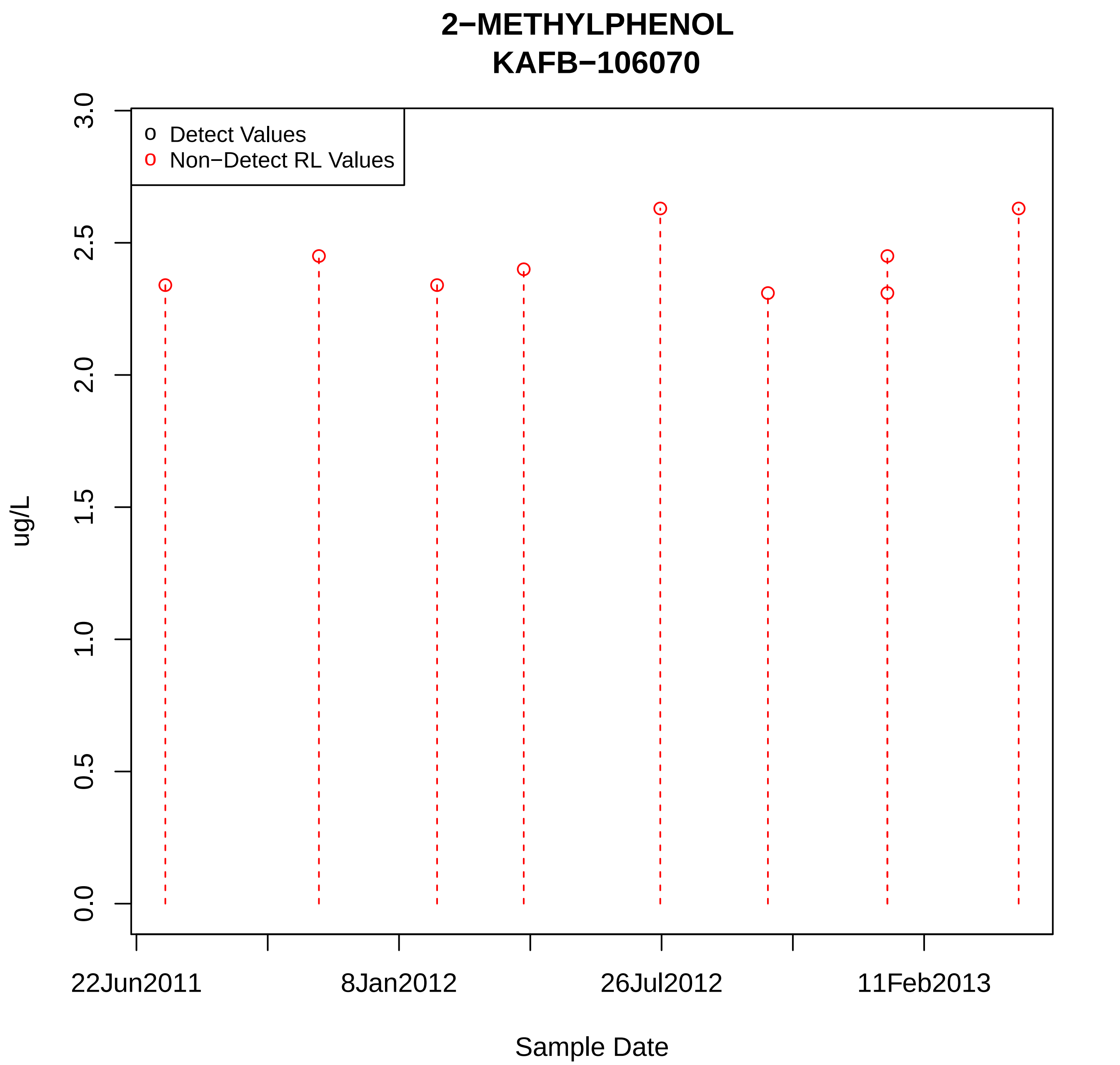
2−METHYLPHENOL
KAFB−106067
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

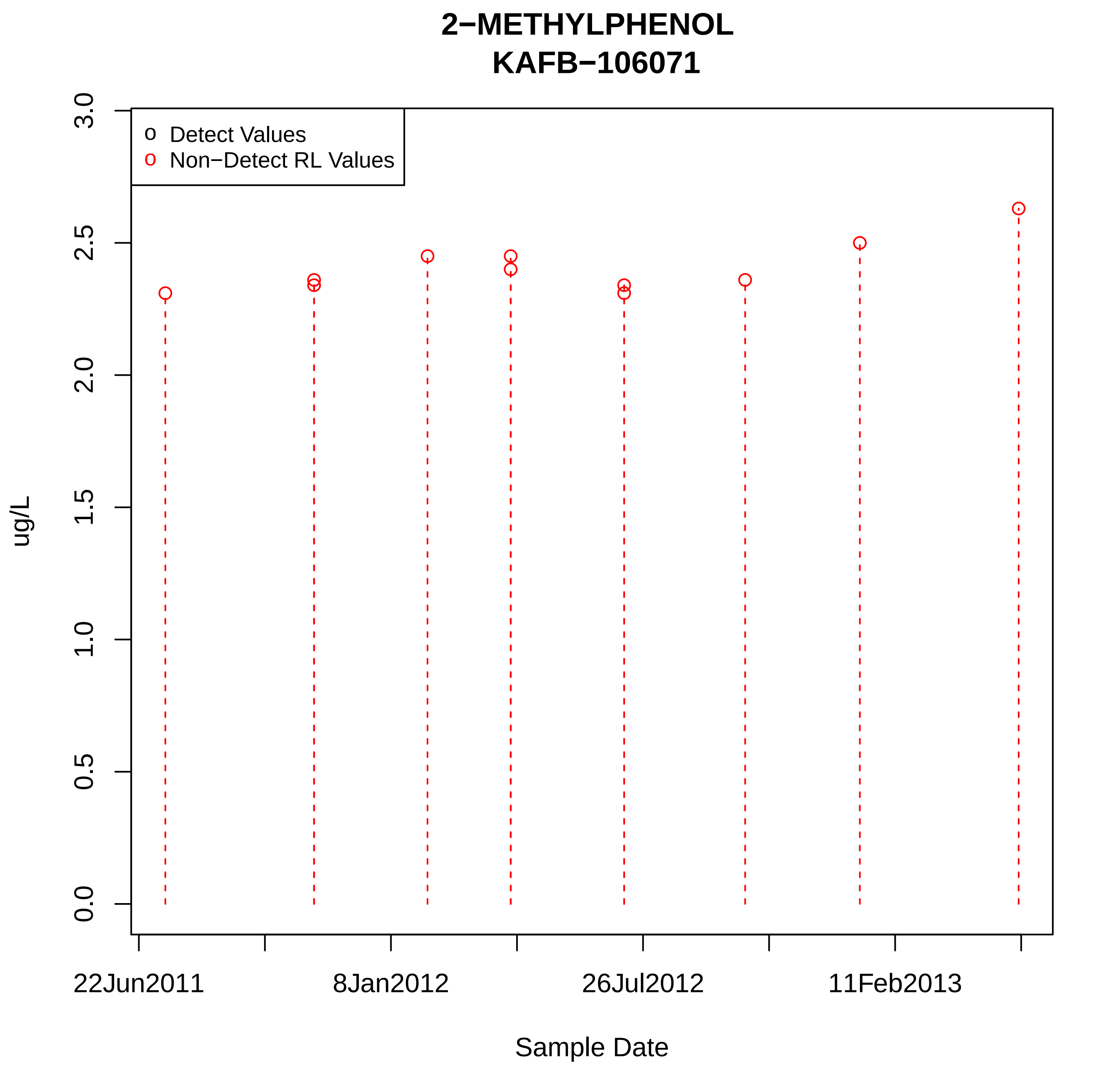


2−METHYLPHENOL
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

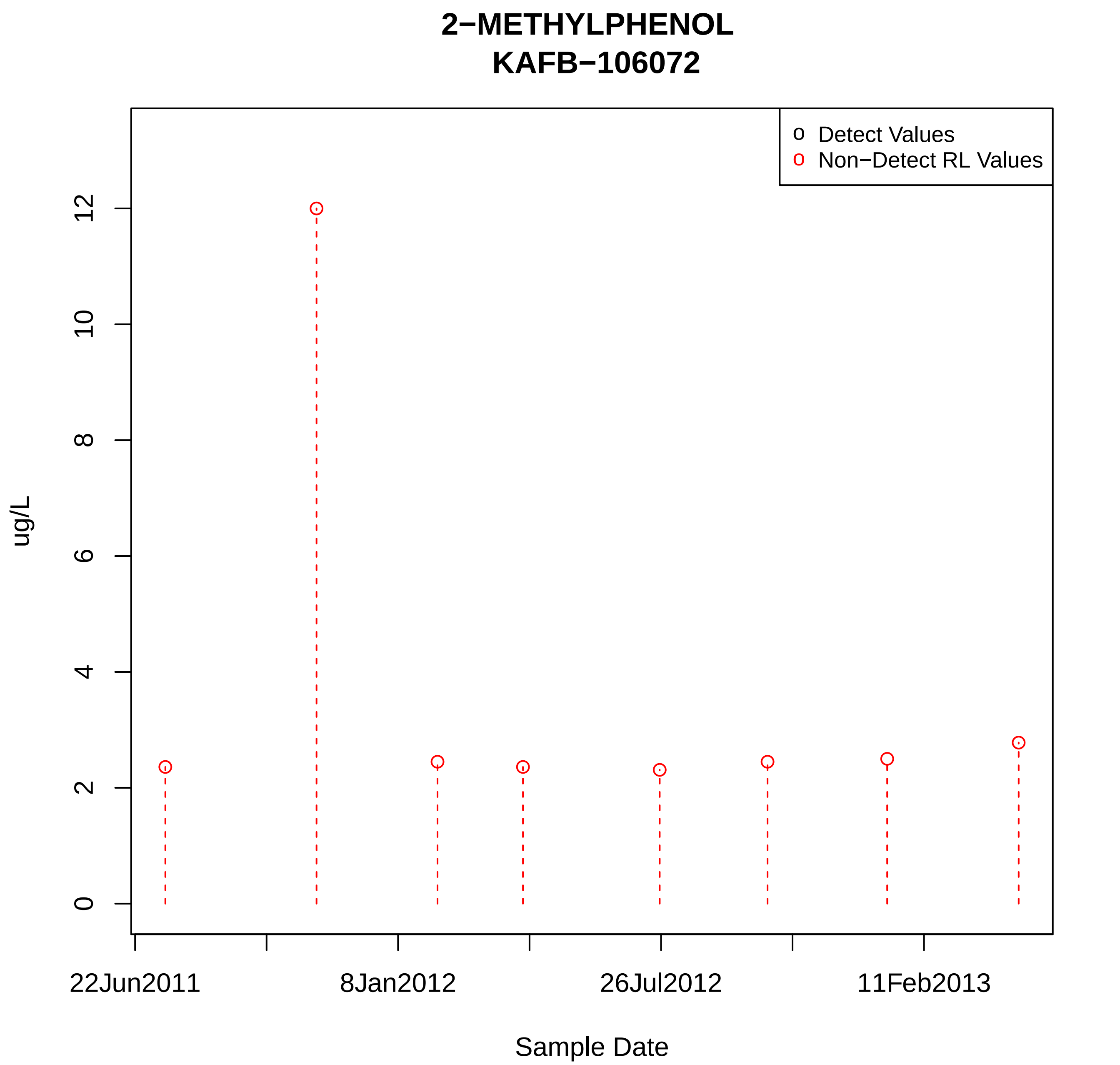


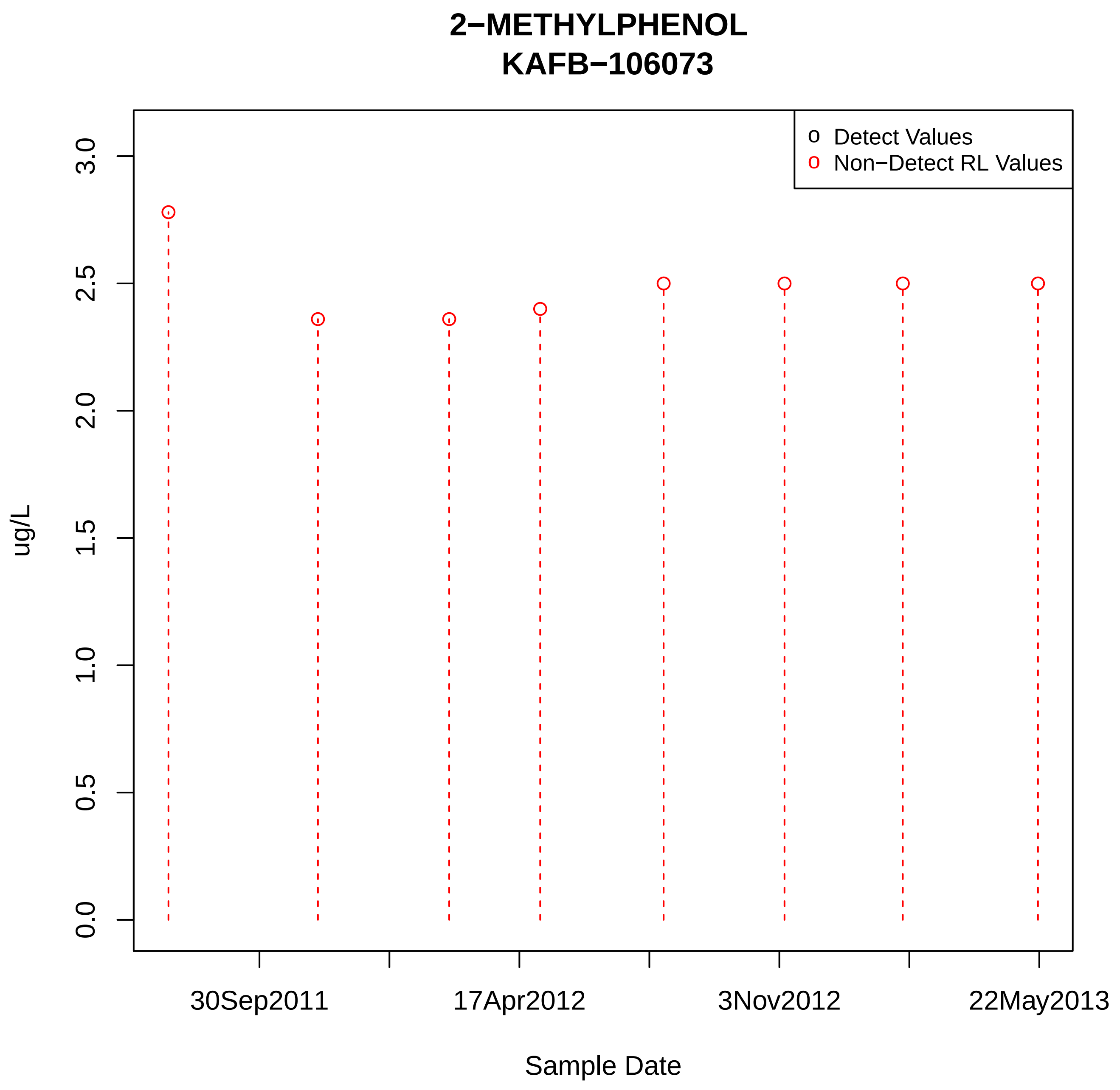
2−METHYLPHENOL
KAFB−106069
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

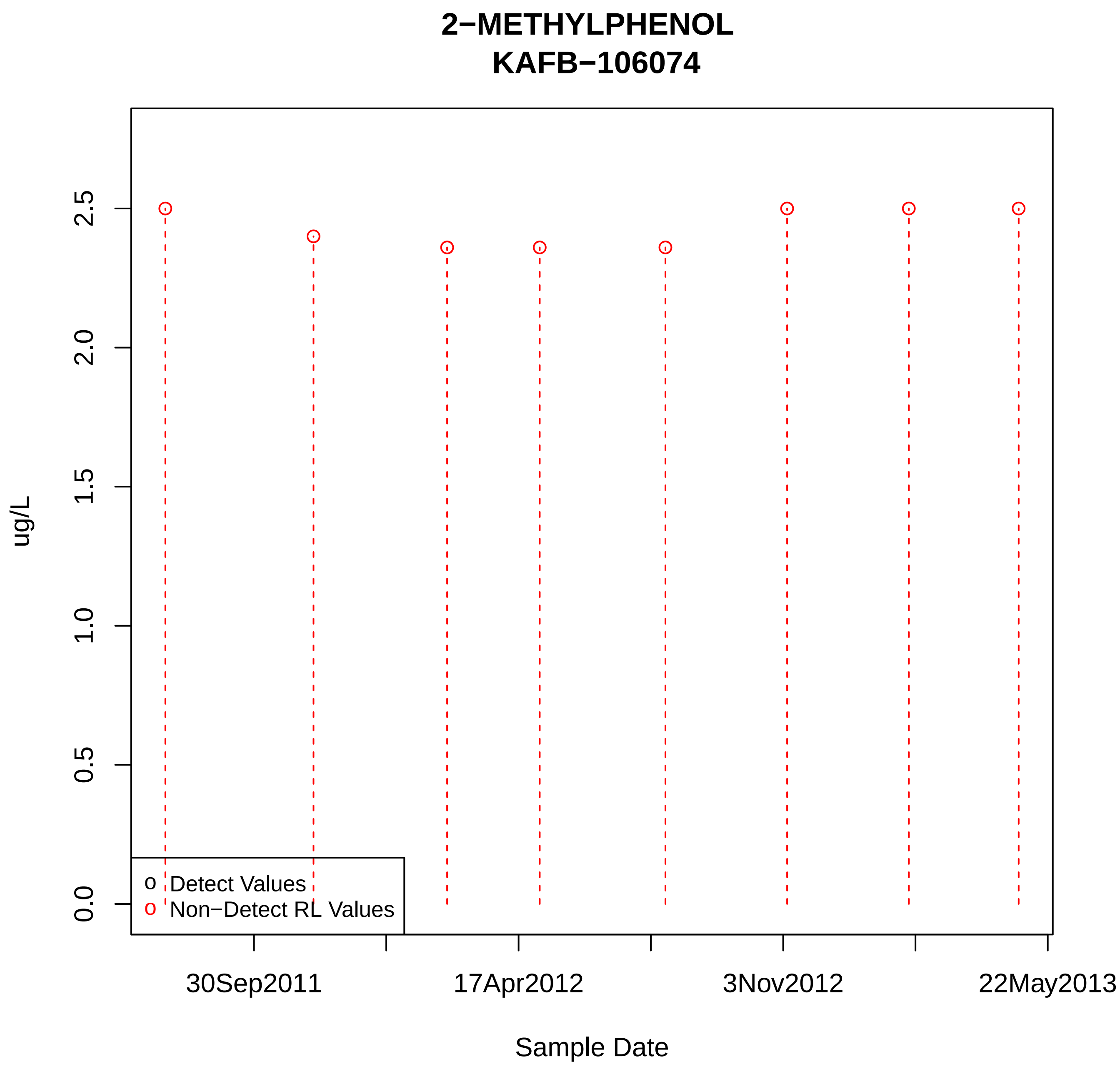

2−METHYLPHENOL
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

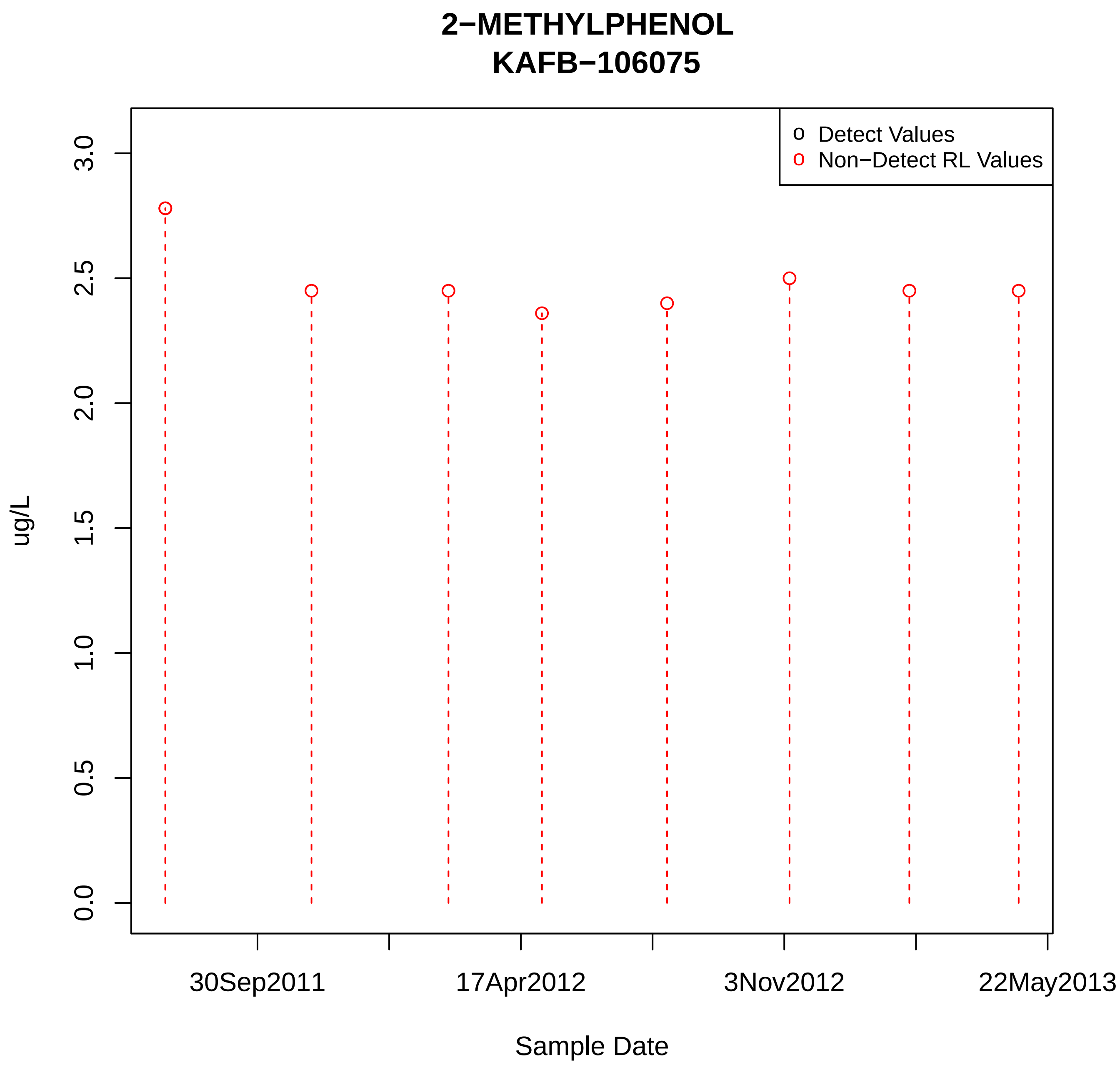


2−METHYLPHENOL
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

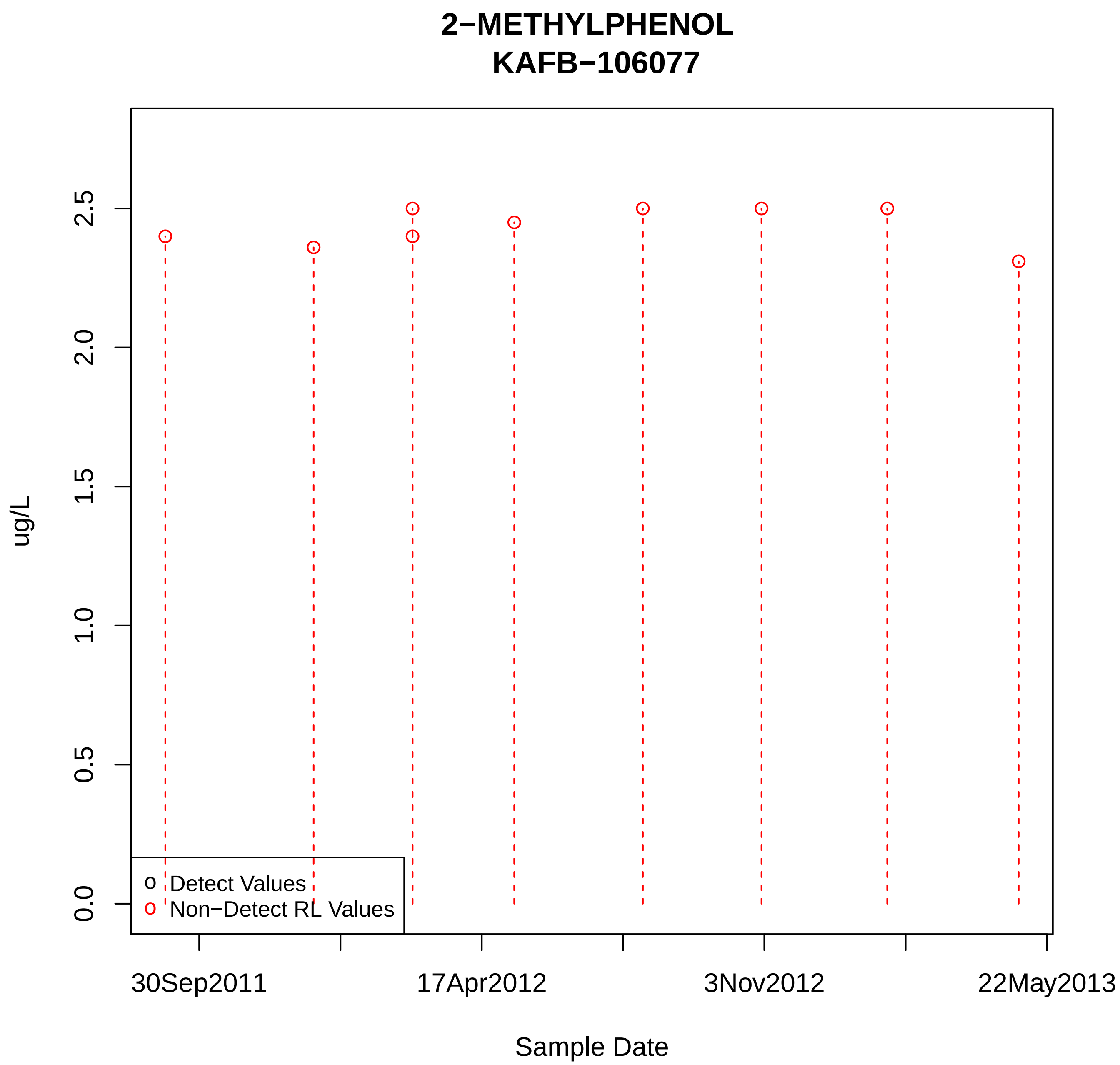

2−METHYLPHENOL
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

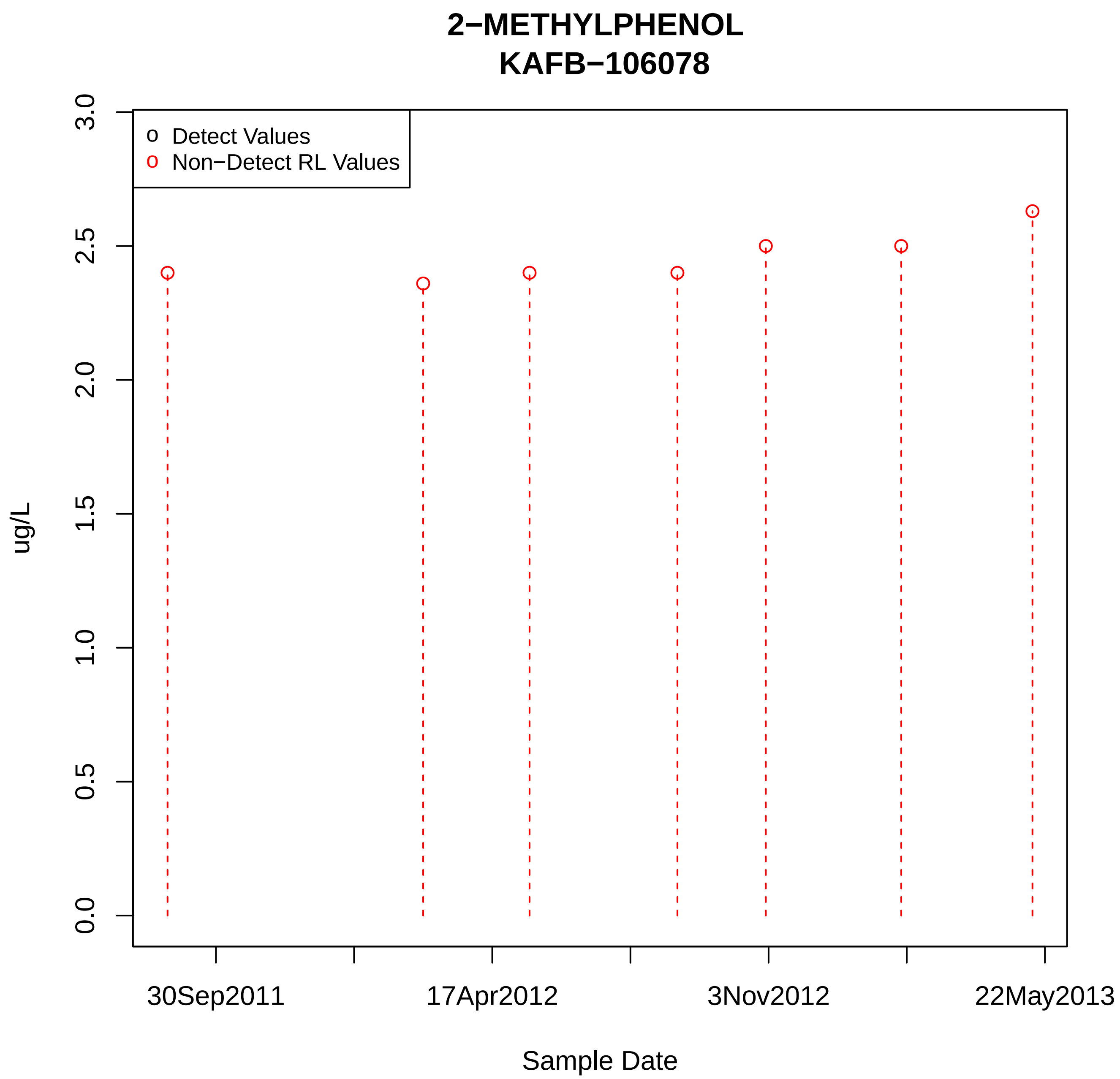

2−METHYLPHENOL
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLPHENOL
KAFB−106074
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

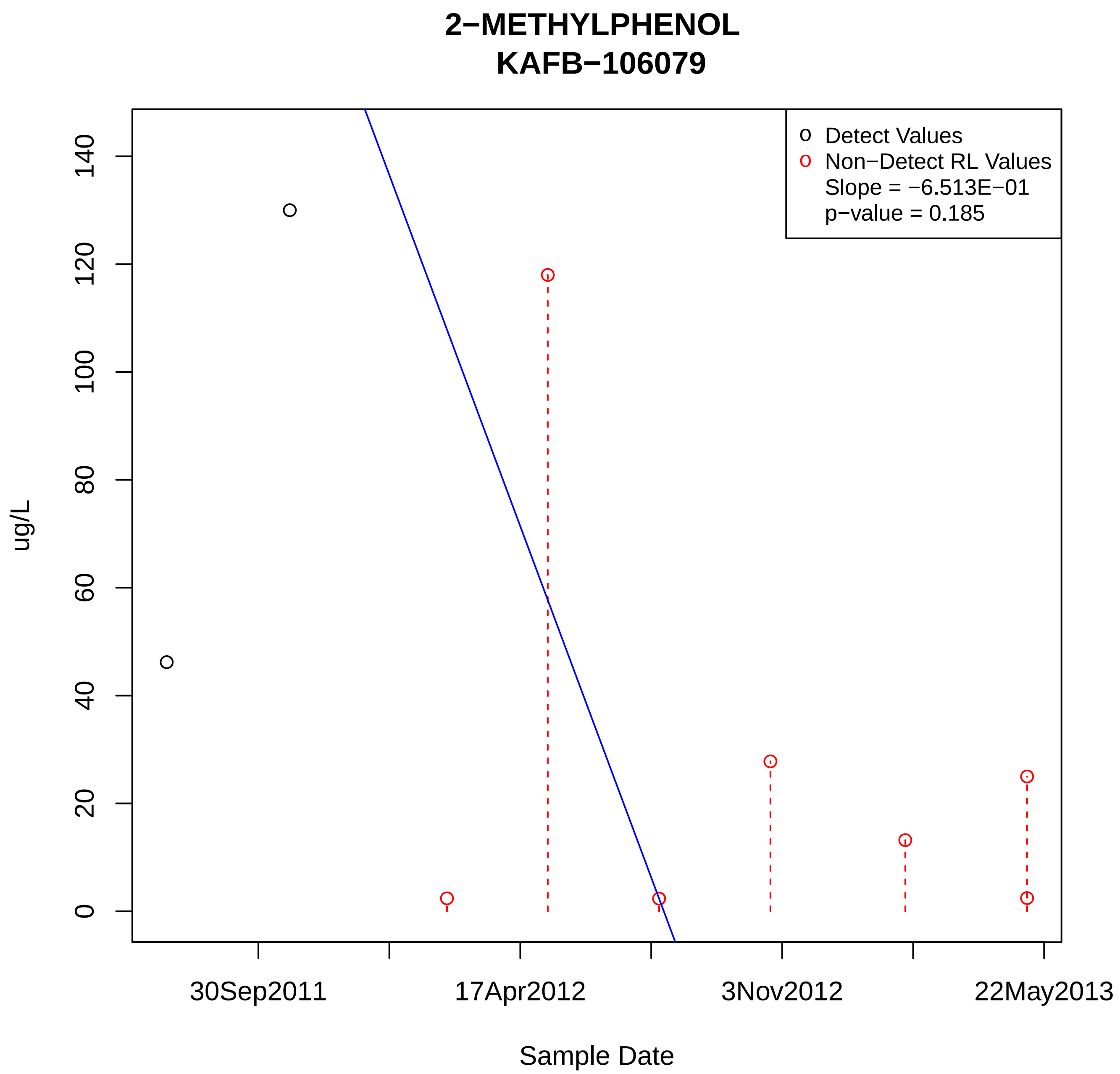


2−METHYLPHENOL
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

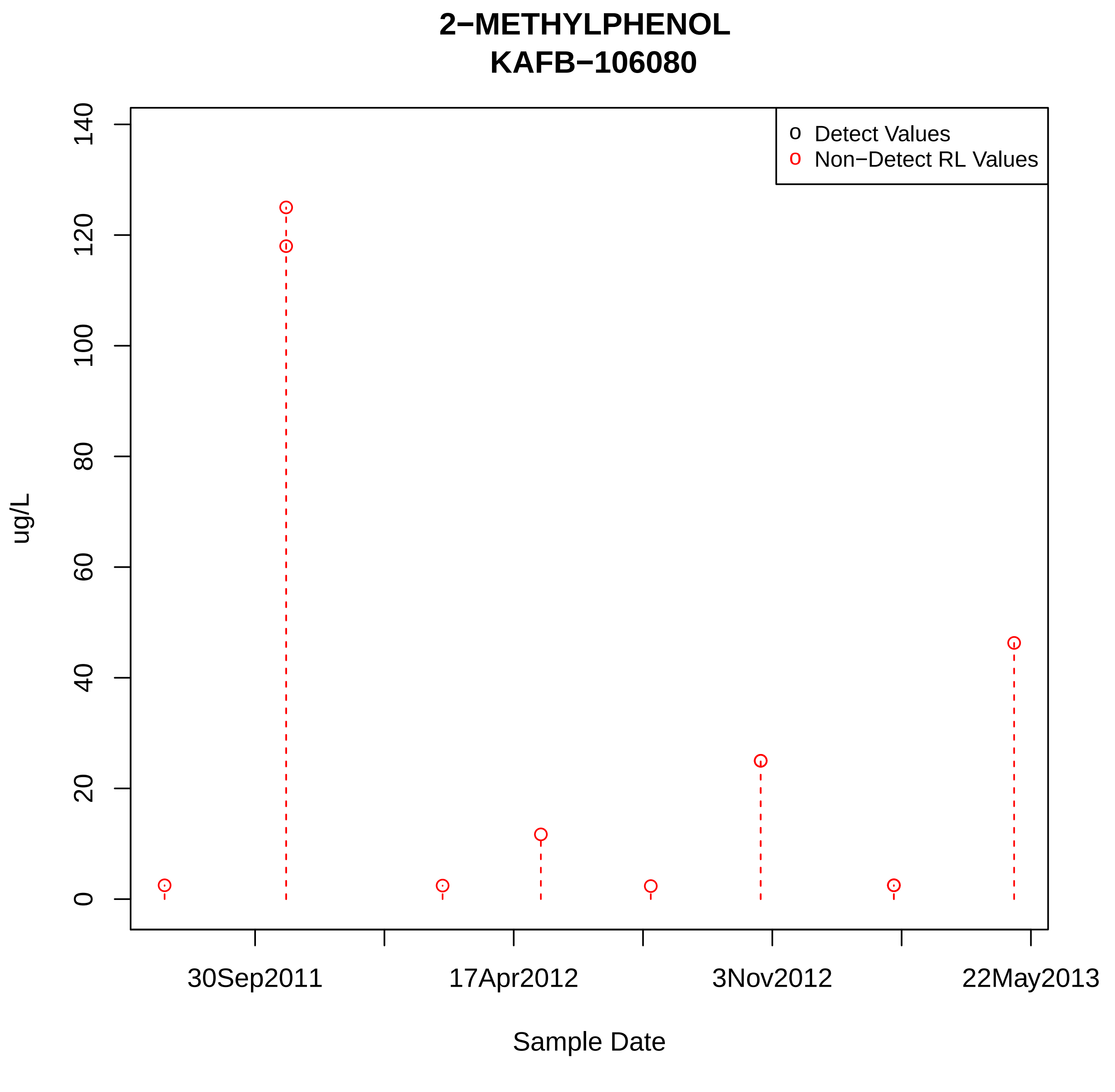

2−METHYLPHENOL
KAFB−106077
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

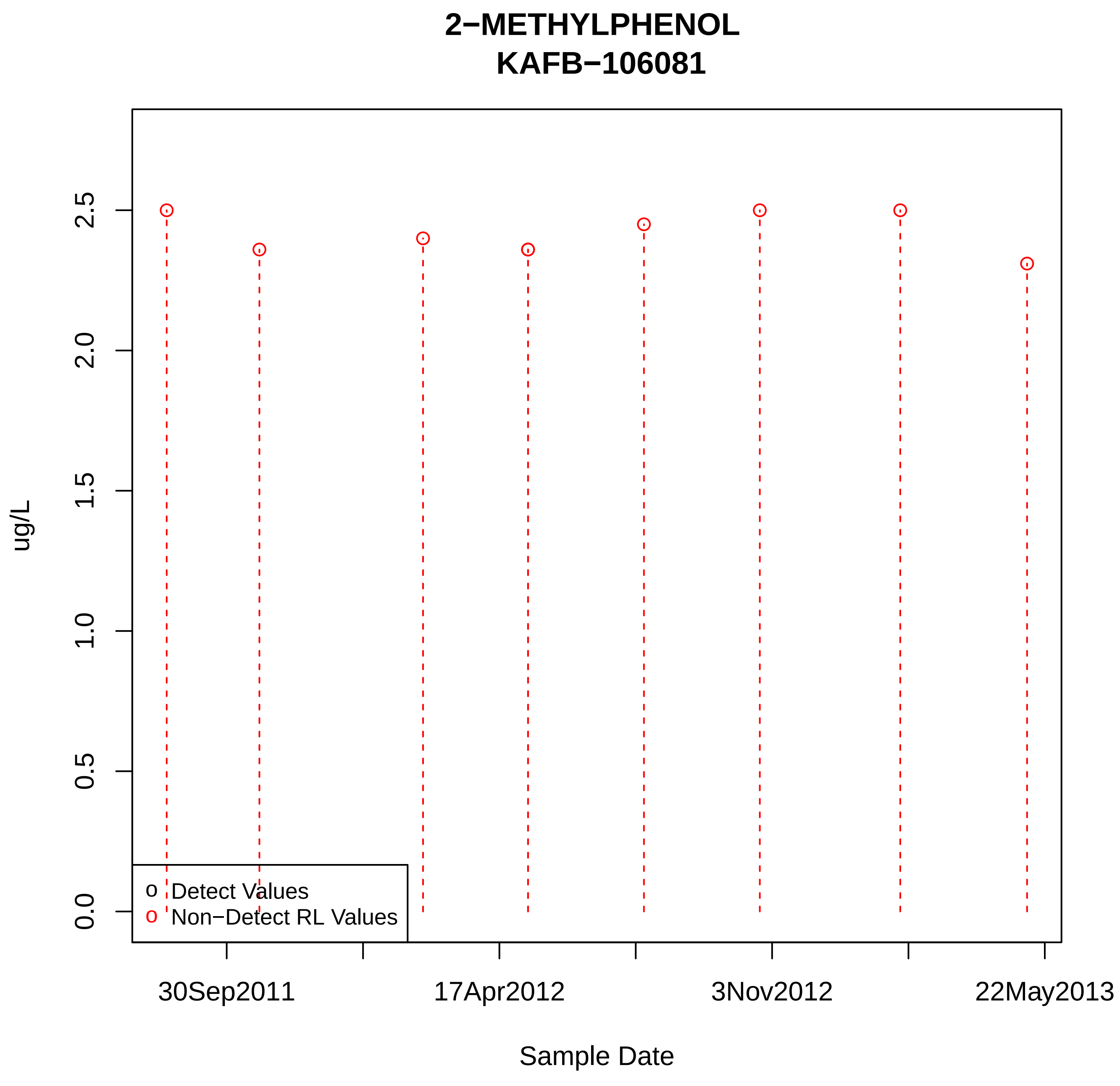


2−METHYLPHENOL
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

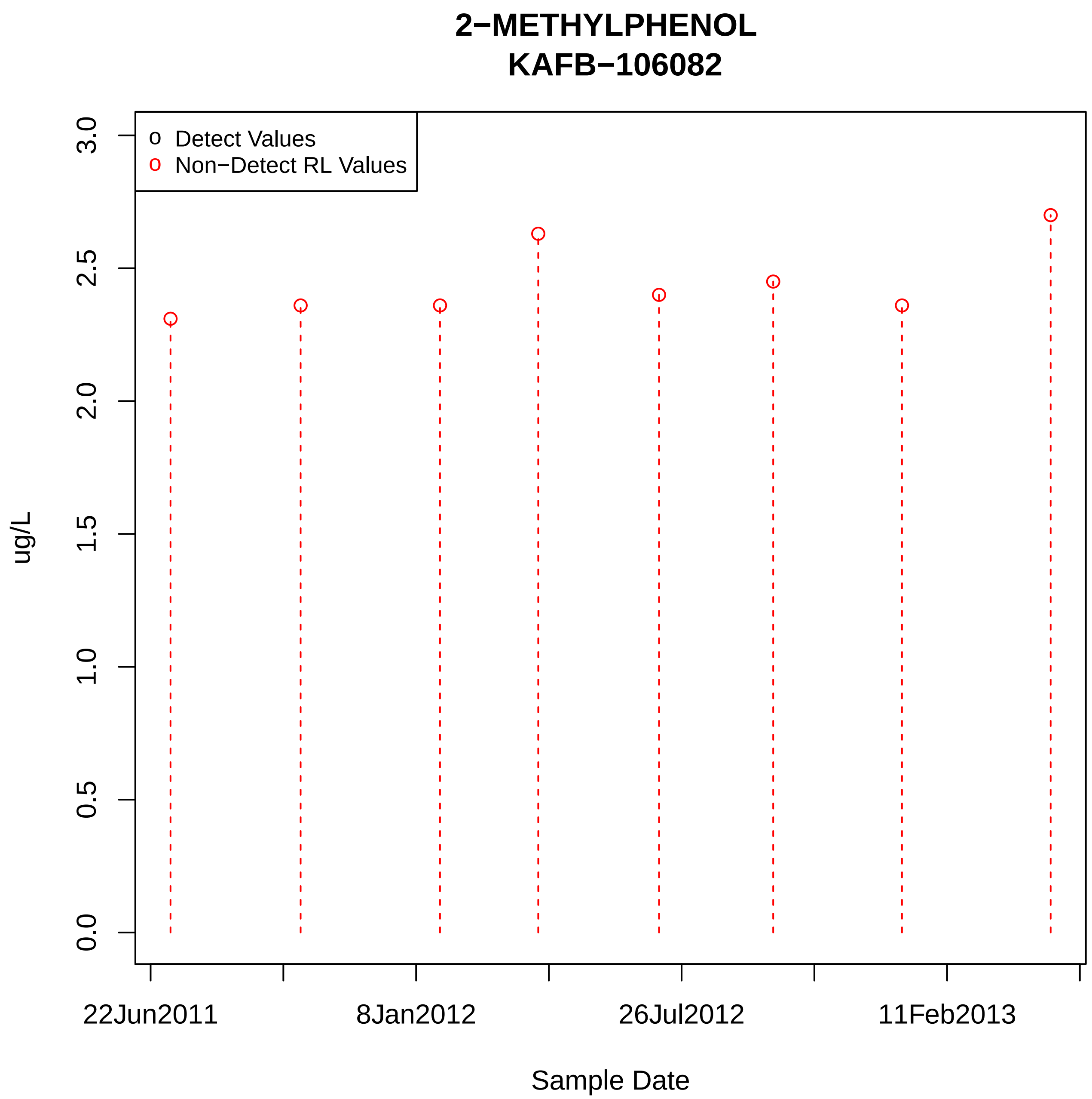


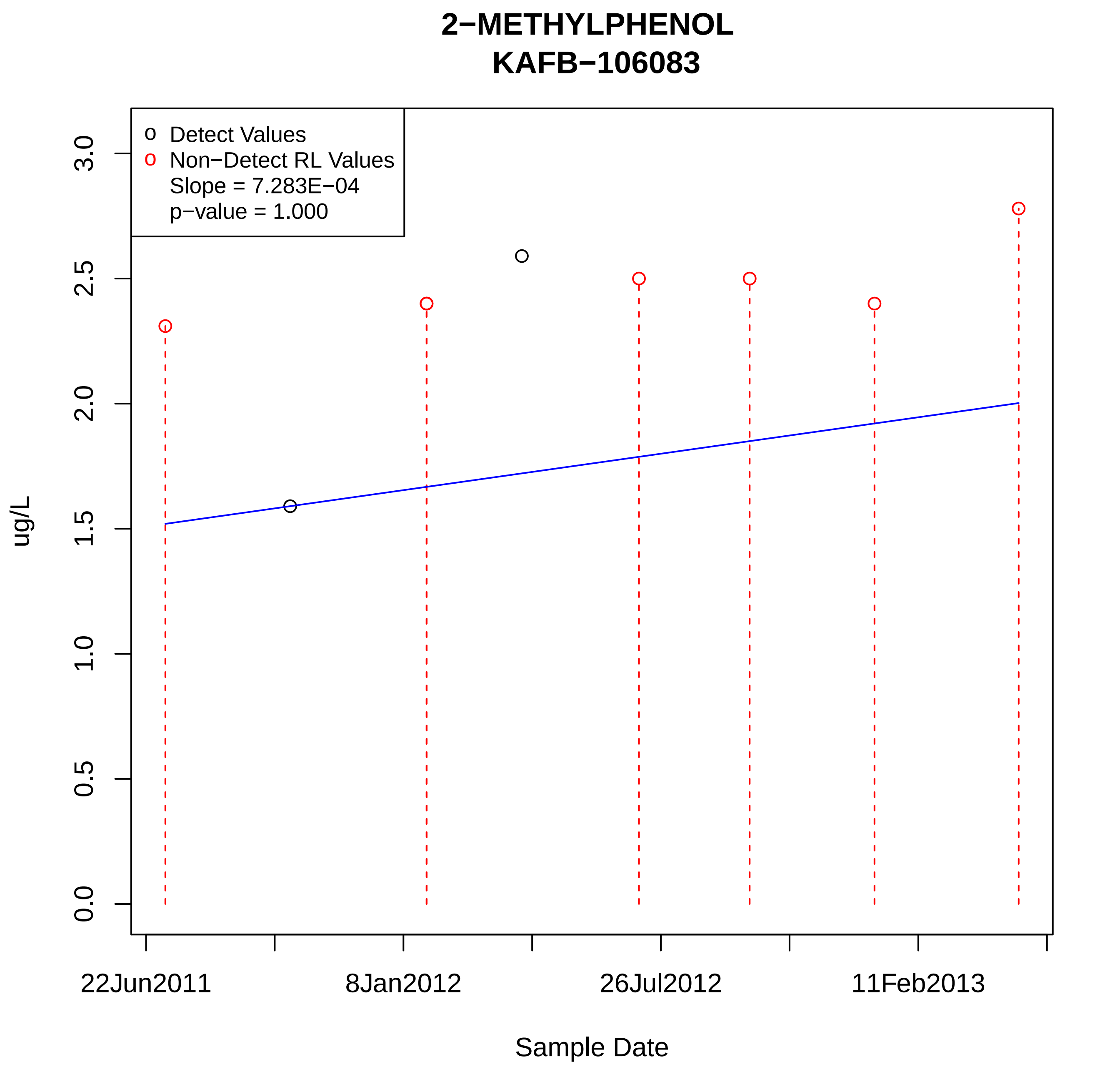
2−METHYLPHENOL
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −6.513E−01
p−value = 0.185
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

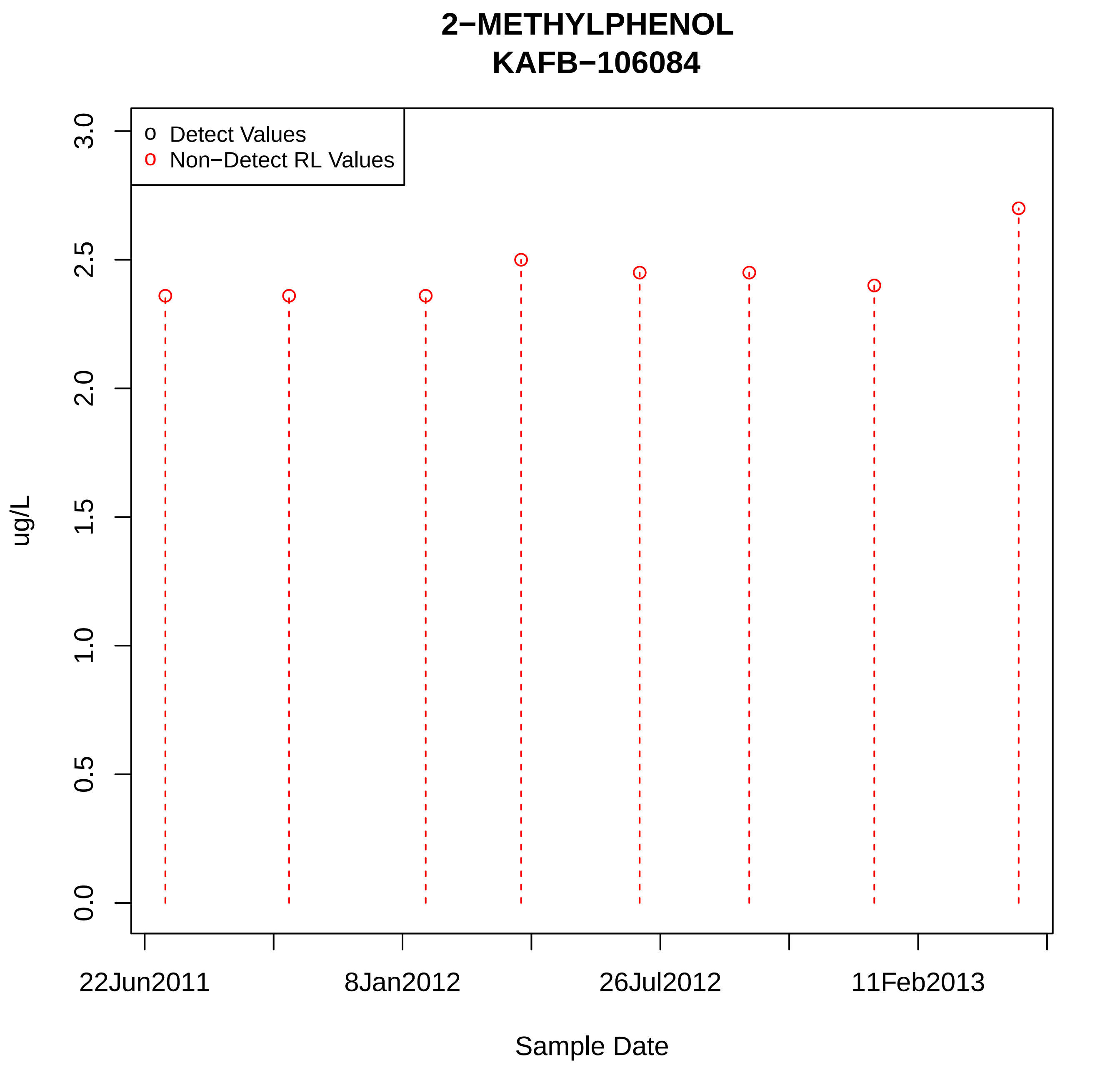

2−METHYLPHENOL
KAFB−106080
Detect Values
Non−Detect RL Values
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



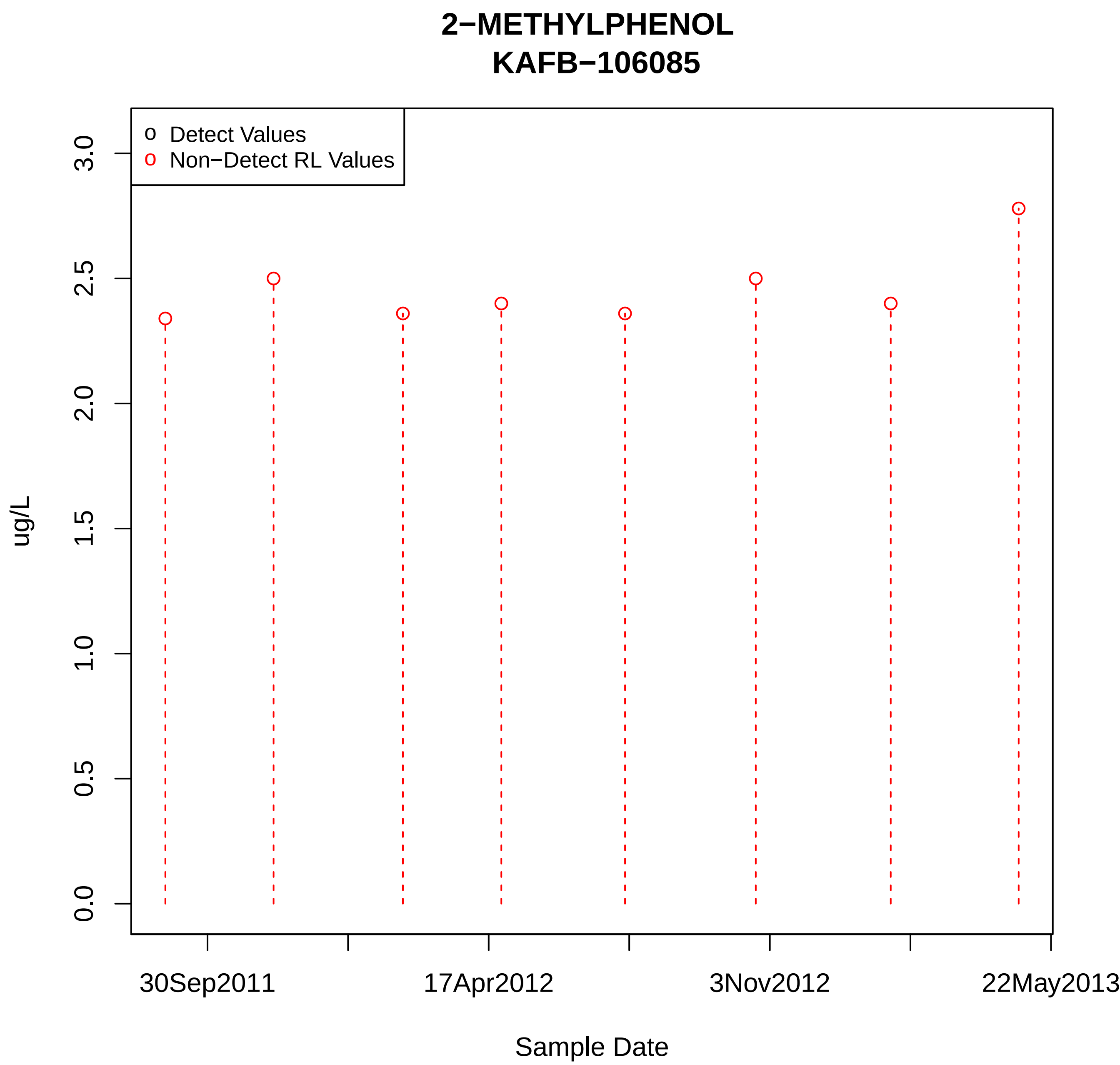
2−METHYLPHENOL
KAFB−106081
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values


2−METHYLPHENOL
KAFB−106082
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

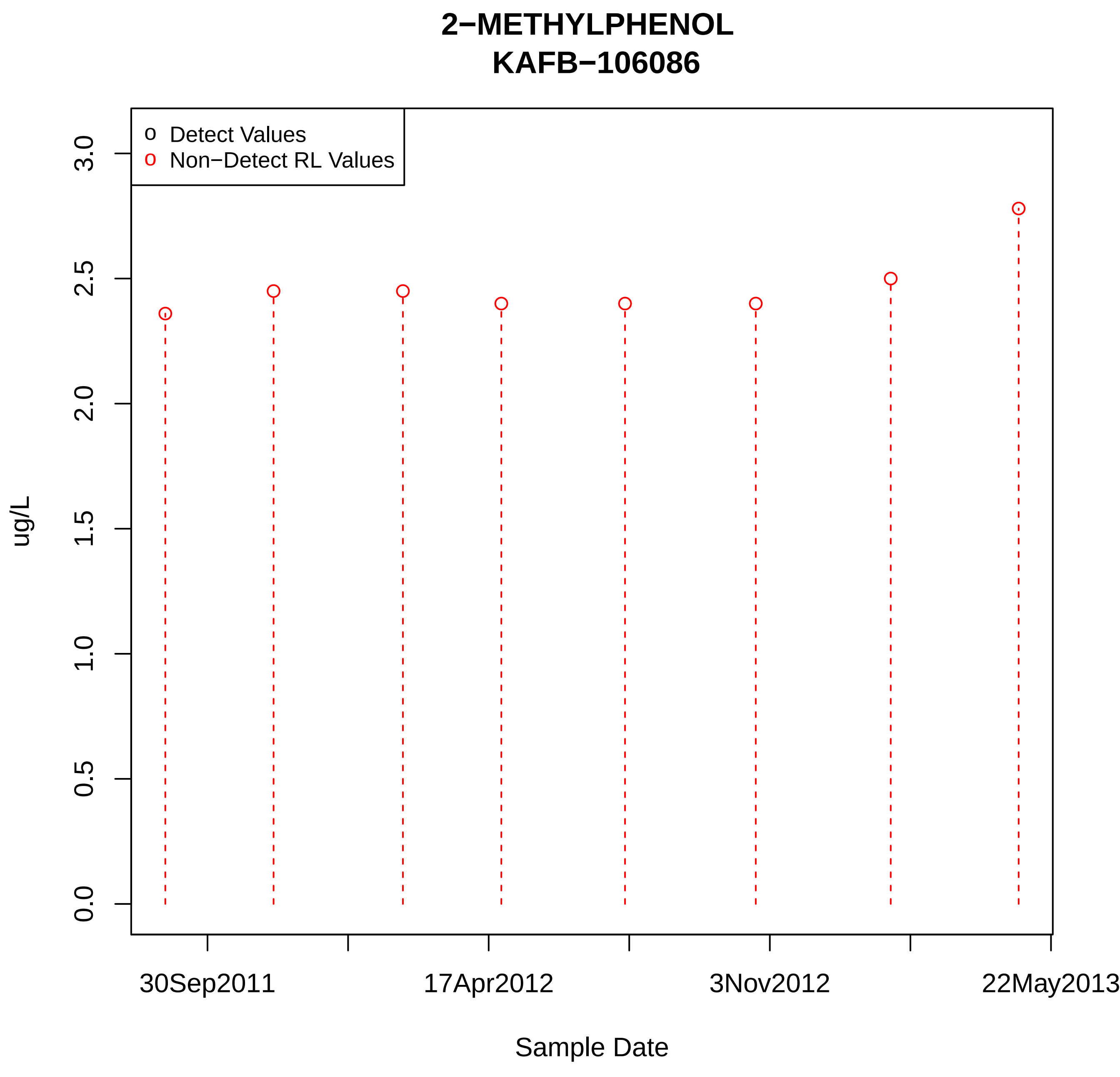

2−METHYLPHENOL
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 7.283E−04
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

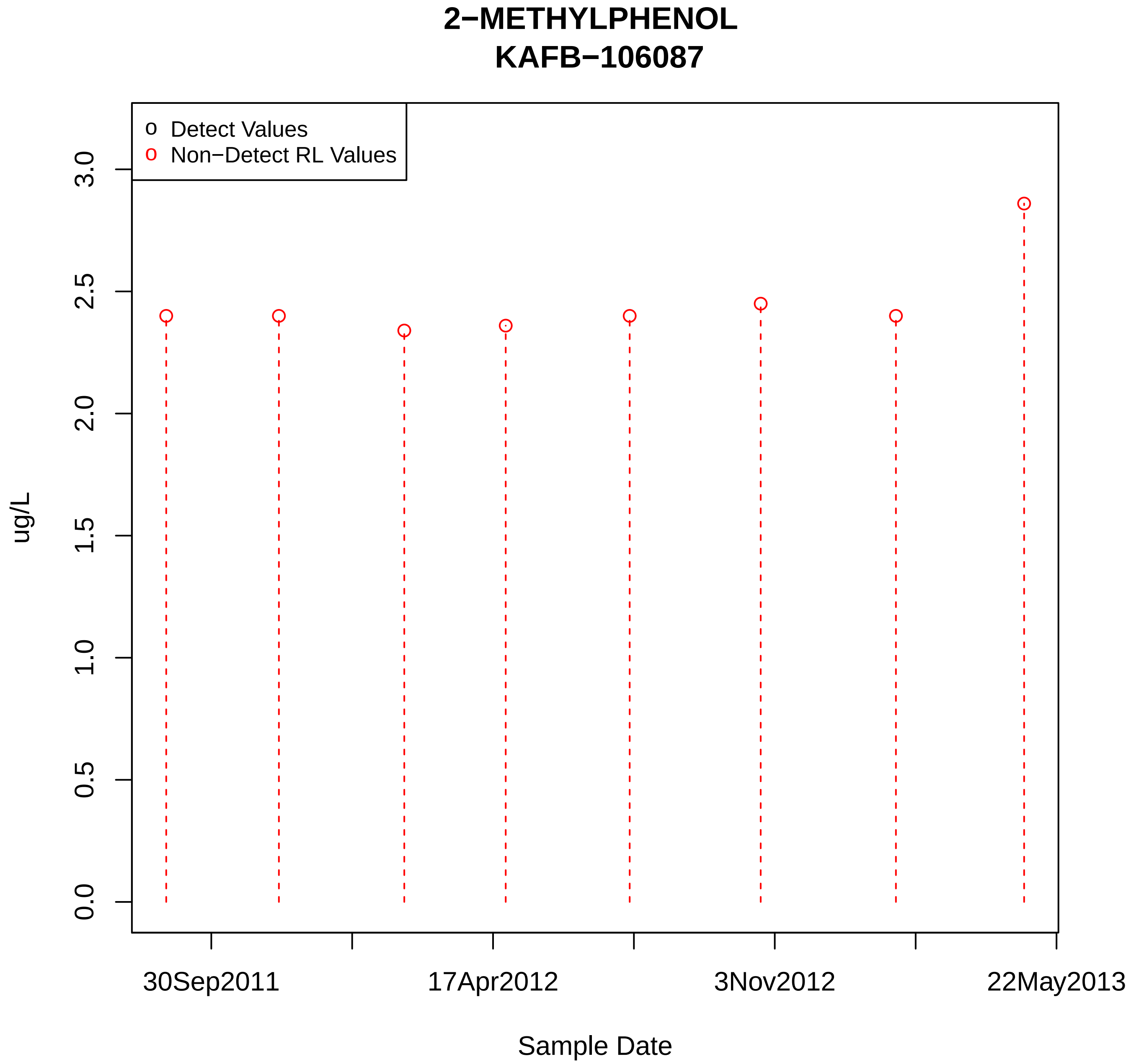


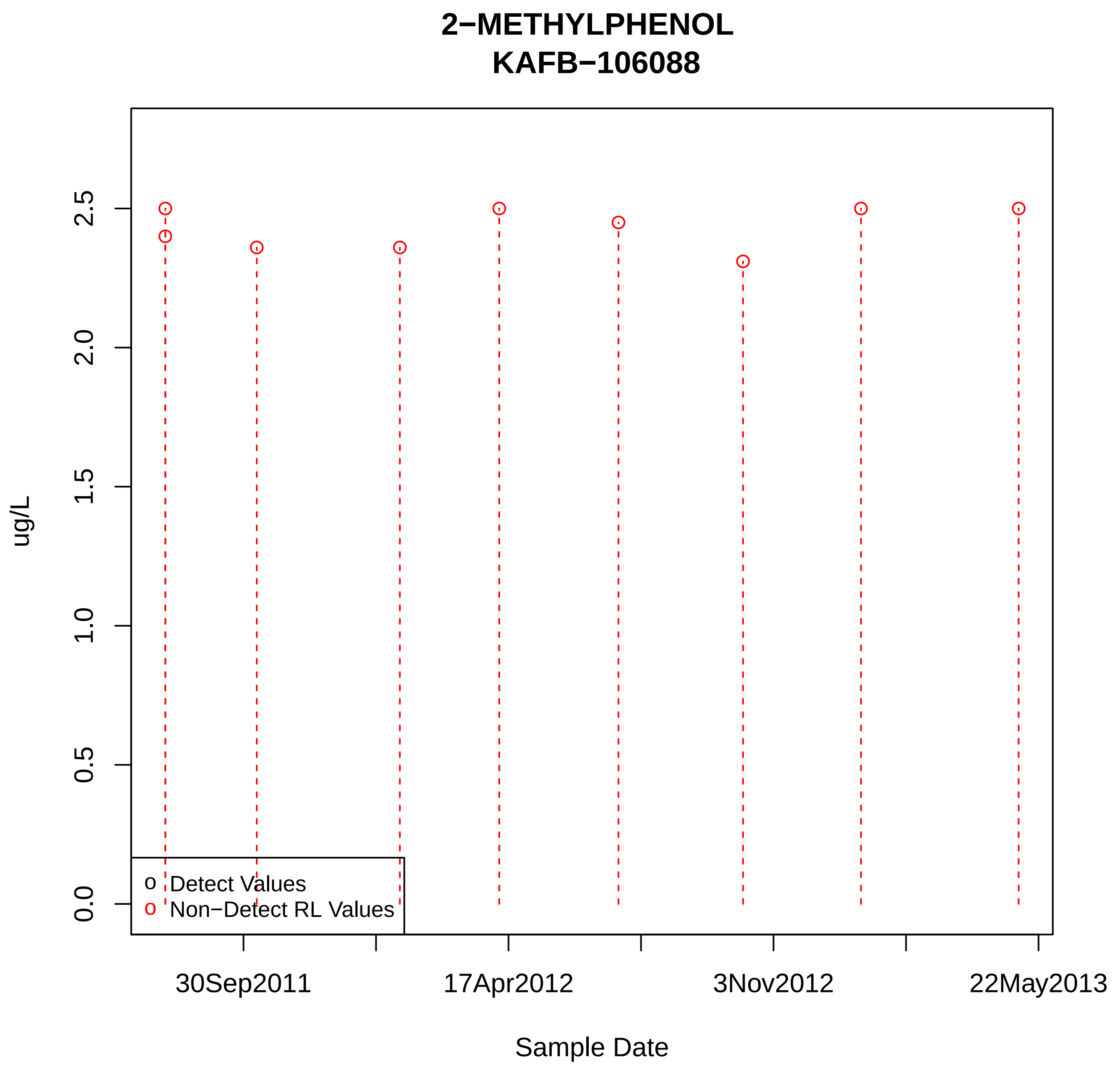
2−METHYLPHENOL
KAFB−106084
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



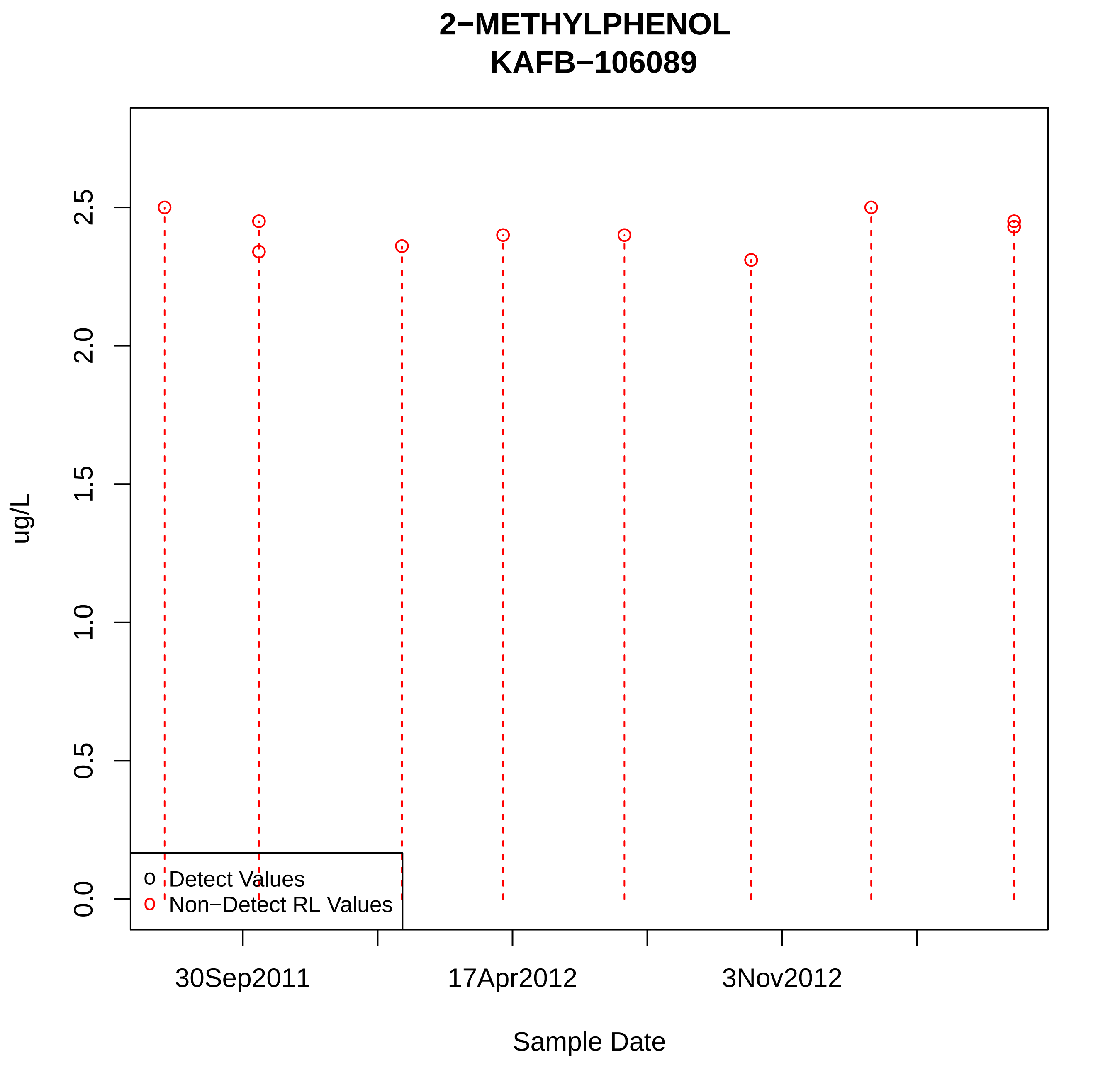
2−METHYLPHENOL
KAFB−106085
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−METHYLPHENOL
KAFB−106086
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

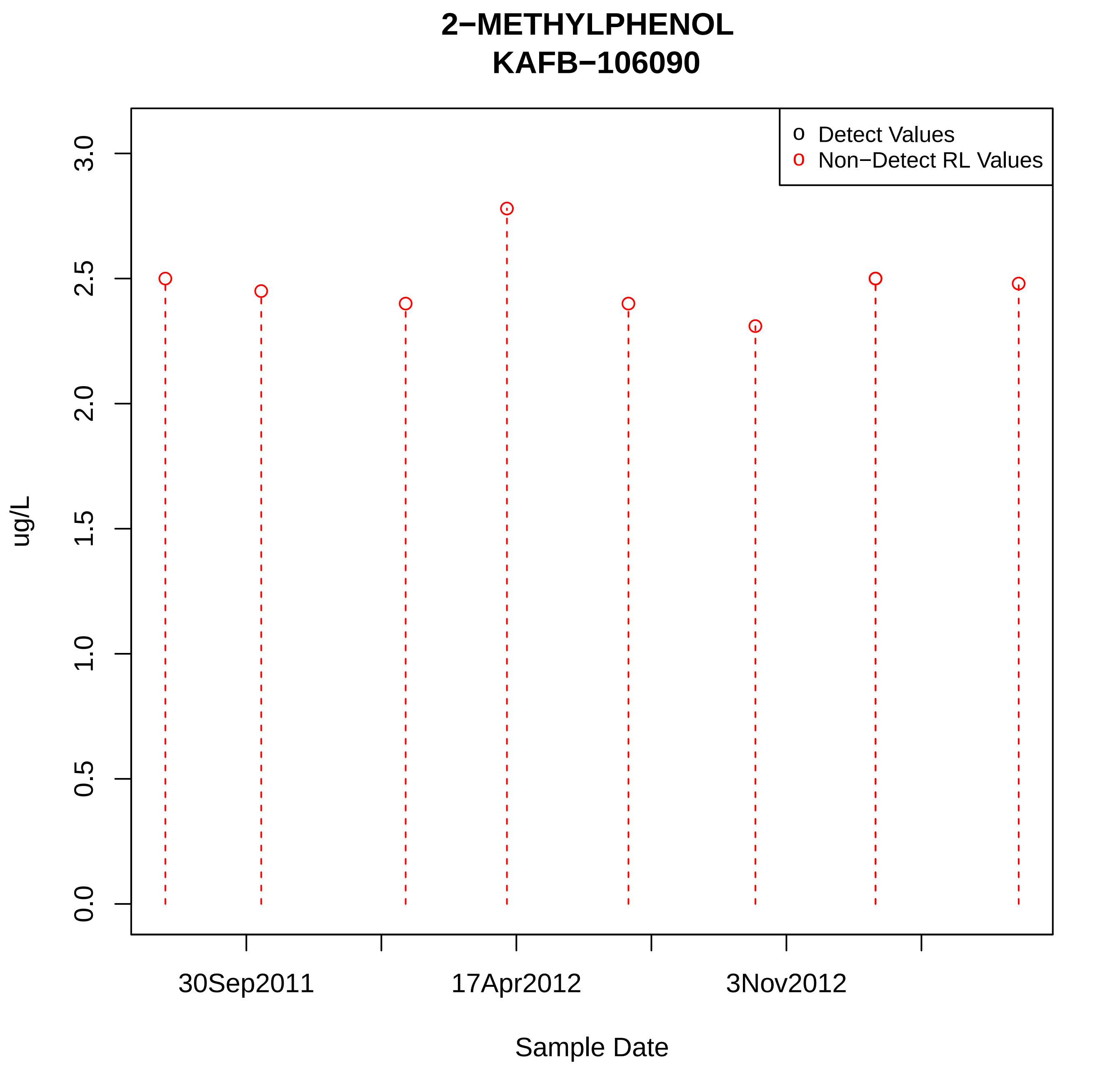

2−METHYLPHENOL
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



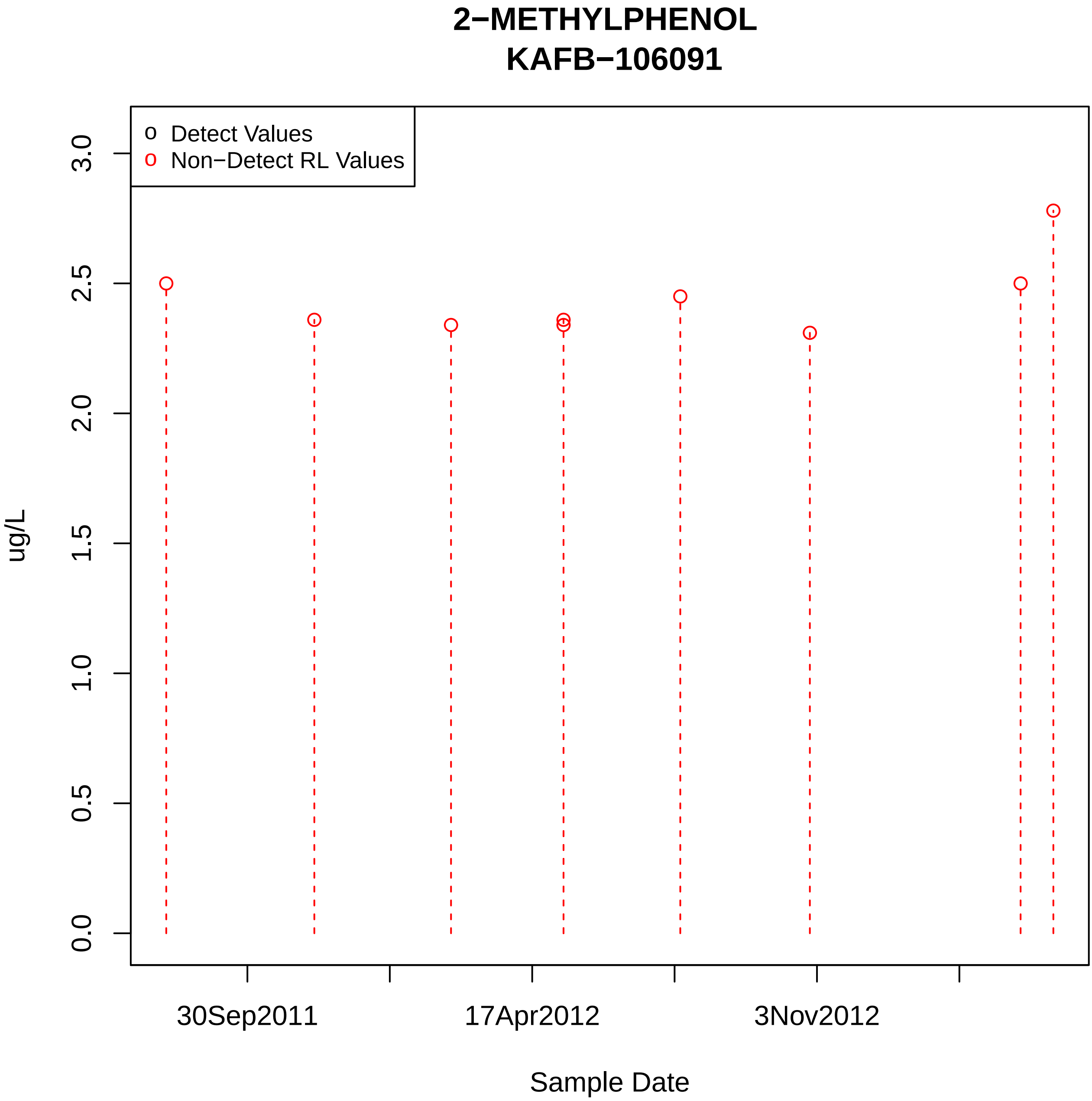
2−METHYLPHENOL
KAFB−106088
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

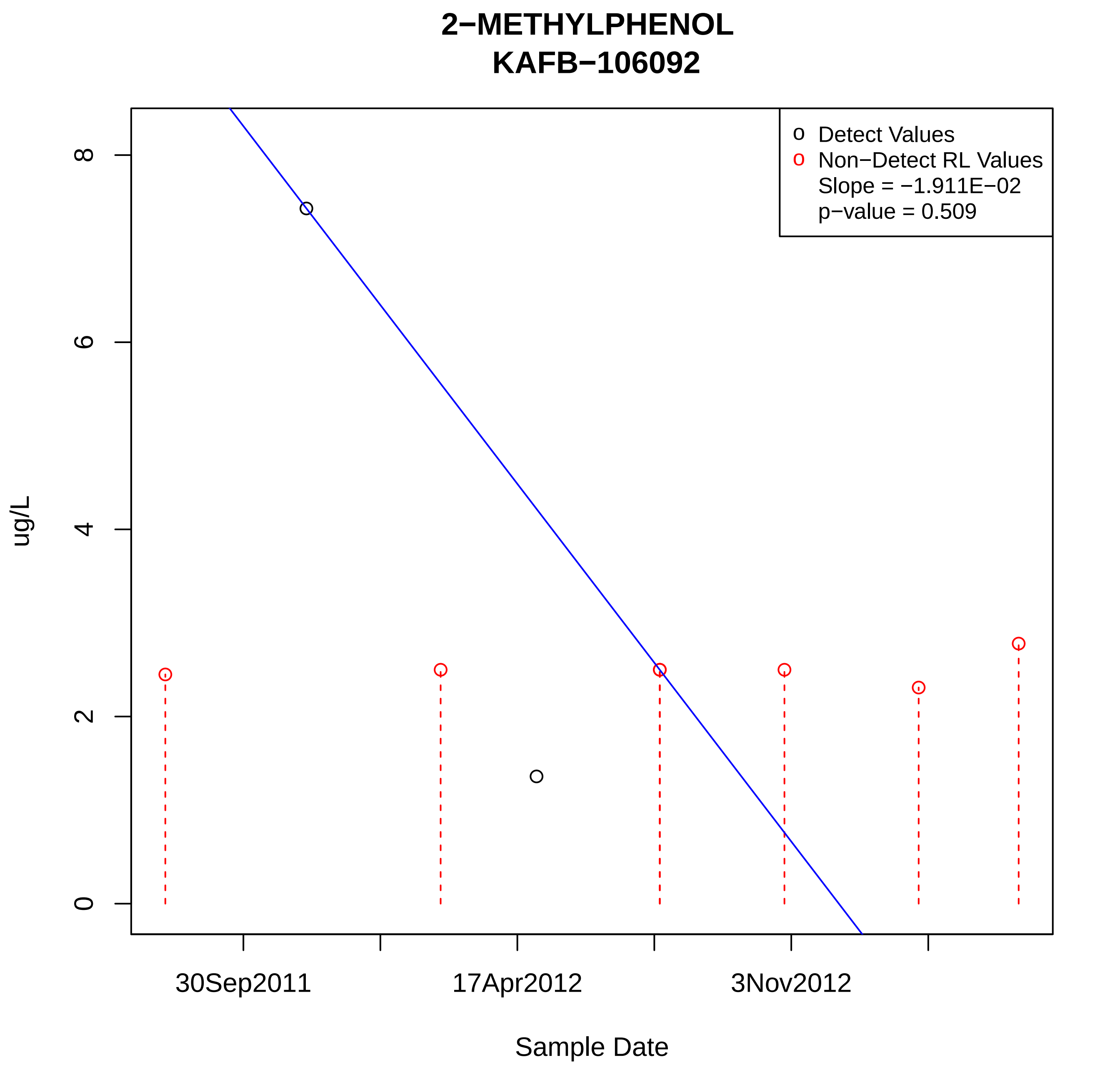


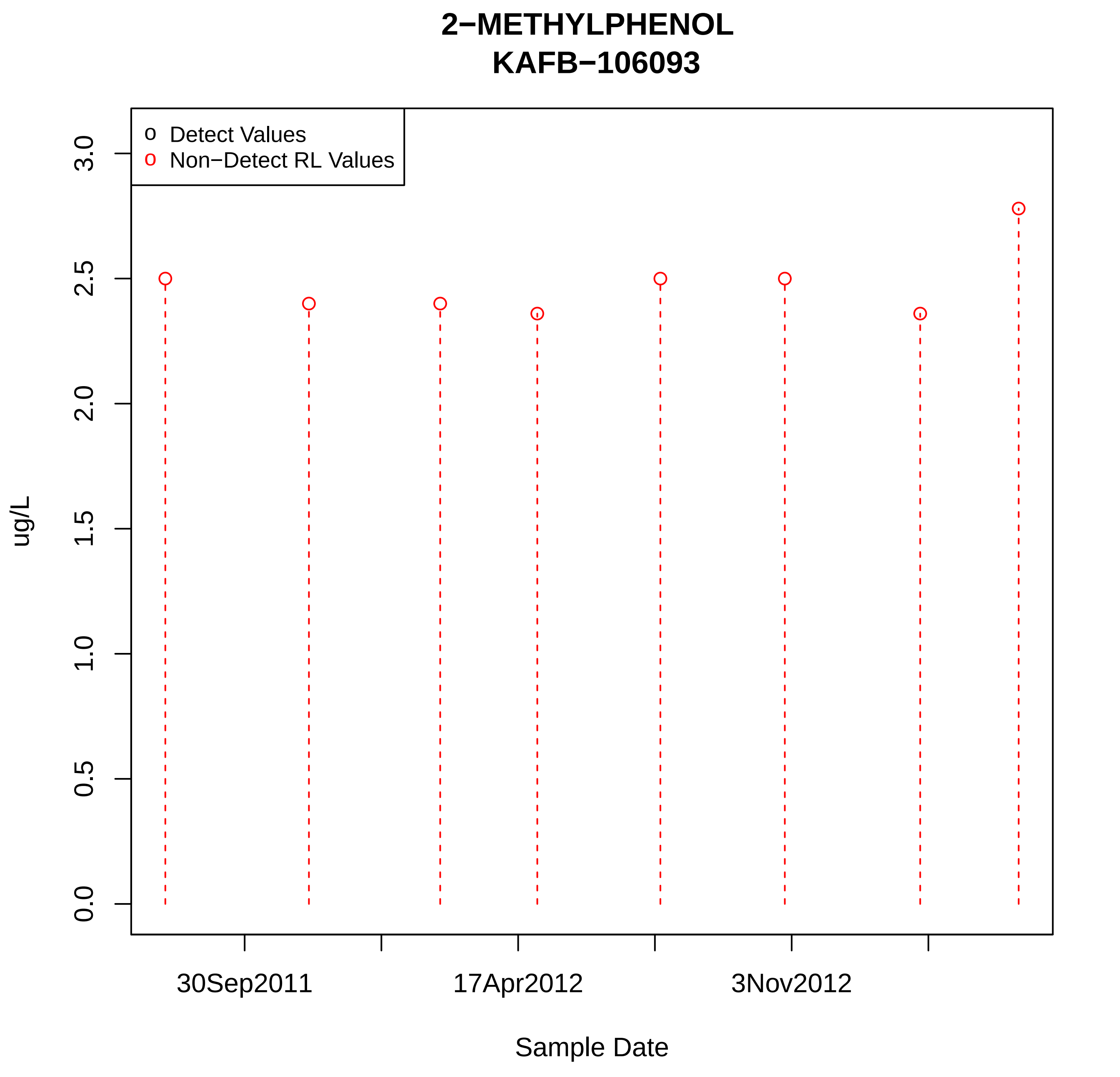
2−METHYLPHENOL
KAFB−106089
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date



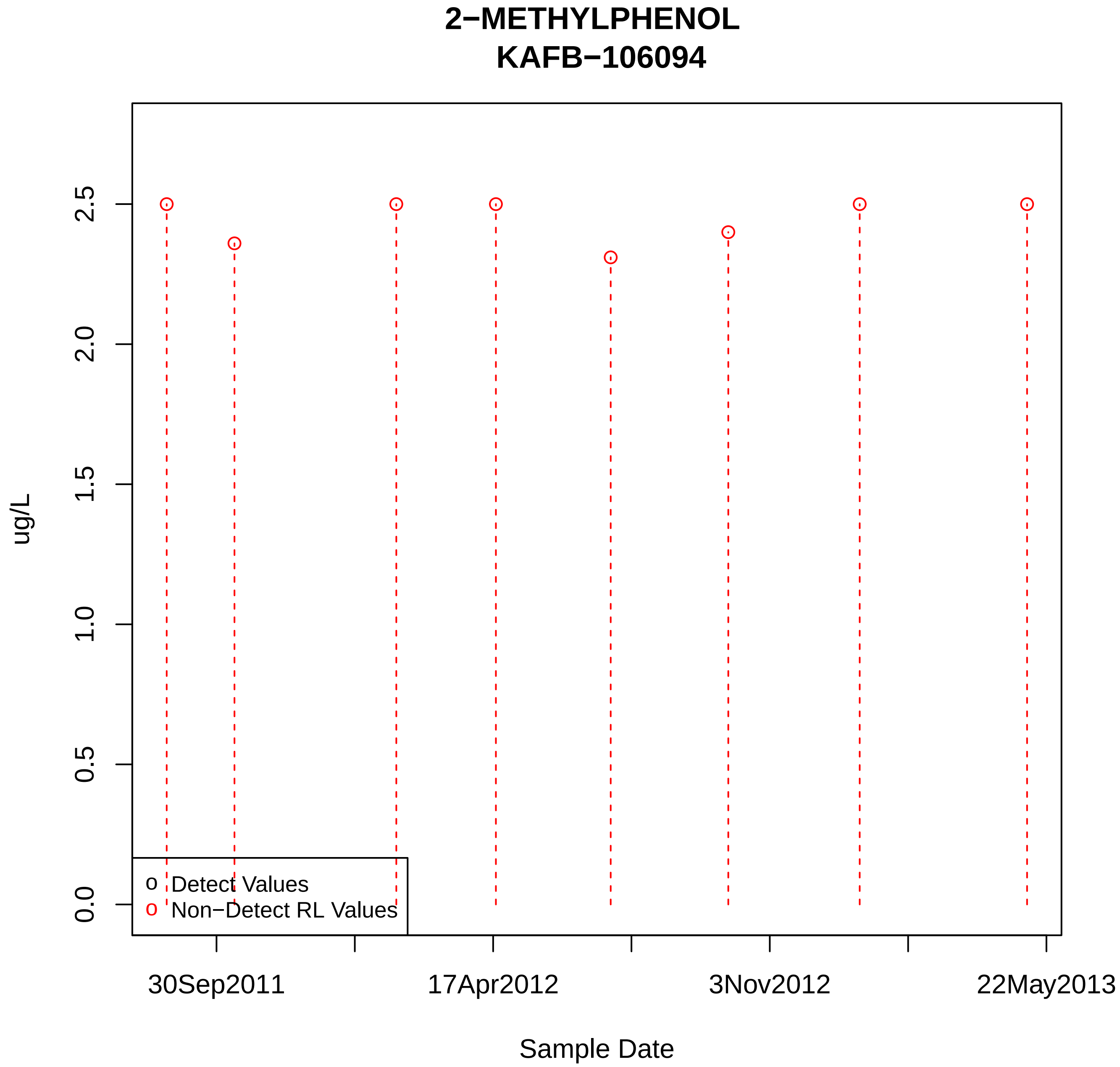
2−METHYLPHENOL
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

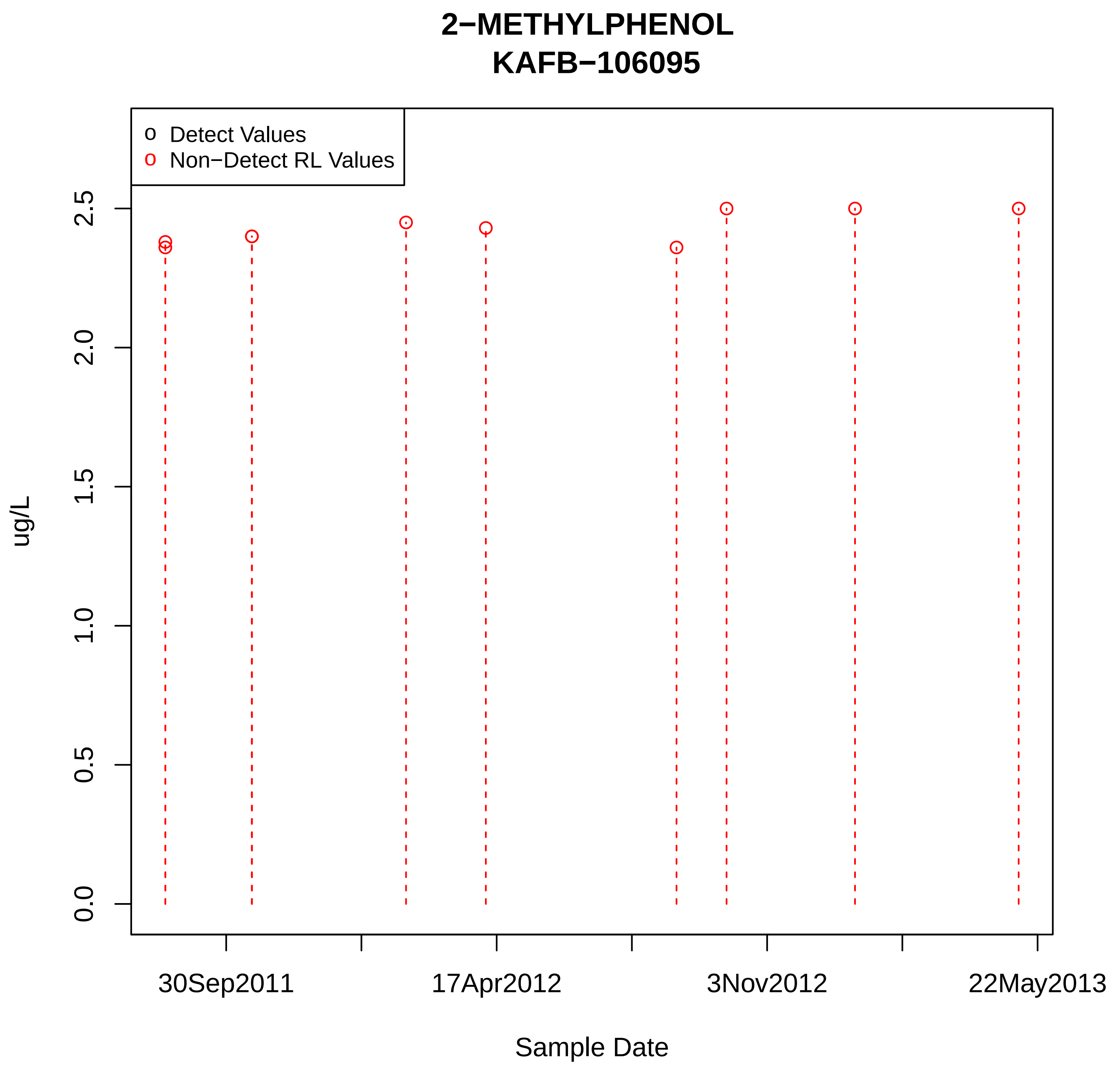

2−METHYLPHENOL
KAFB−106091
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLPHENOL
KAFB−106092
o Detect Values
o Non−Detect RL Values
Slope = −1.911E−02
p−value = 0.509
ug/L
0
2
4
6
8
30Sep2011
17Apr2012
3Nov2012
Sample Date

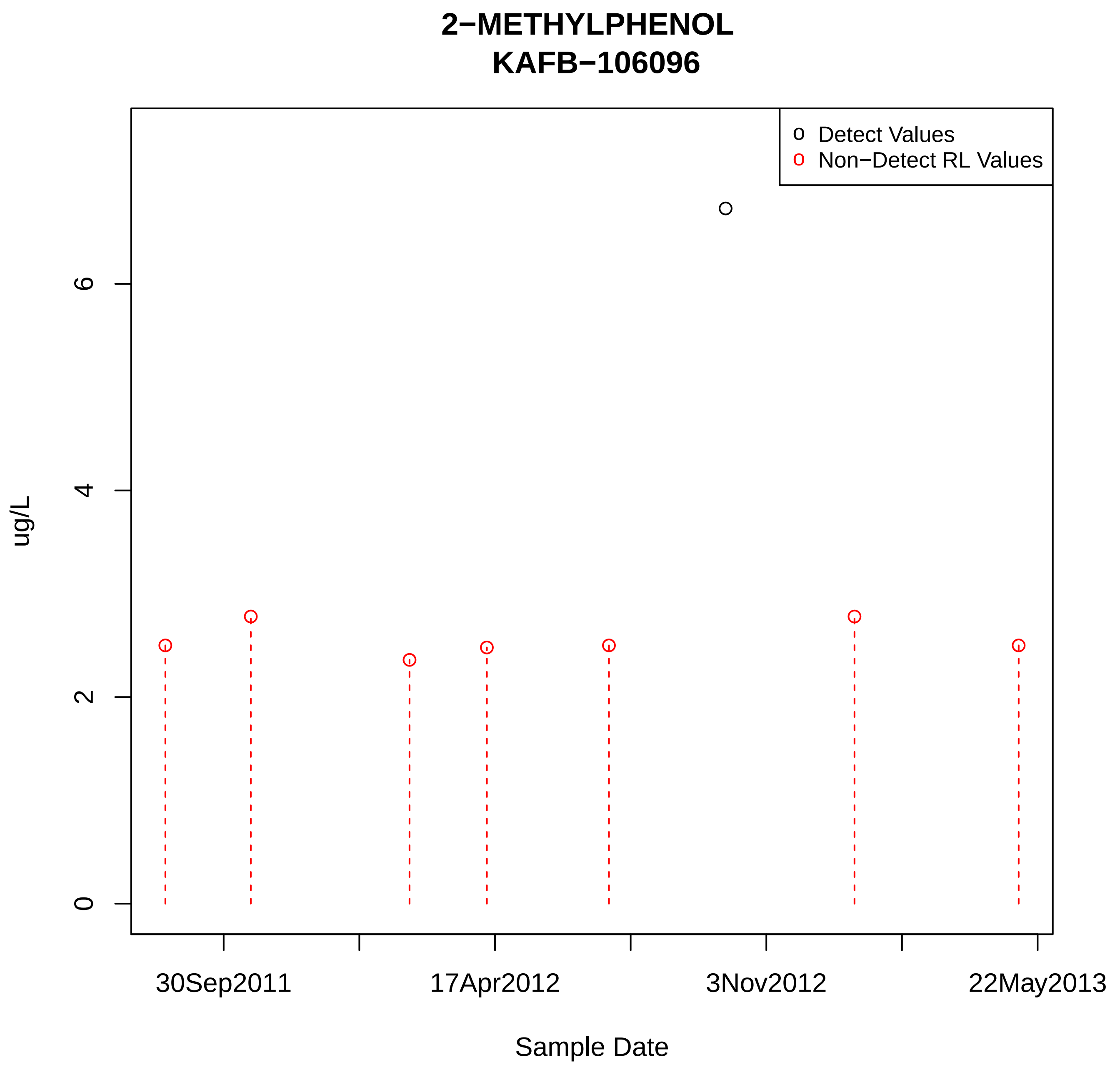


2−METHYLPHENOL
KAFB−106093
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

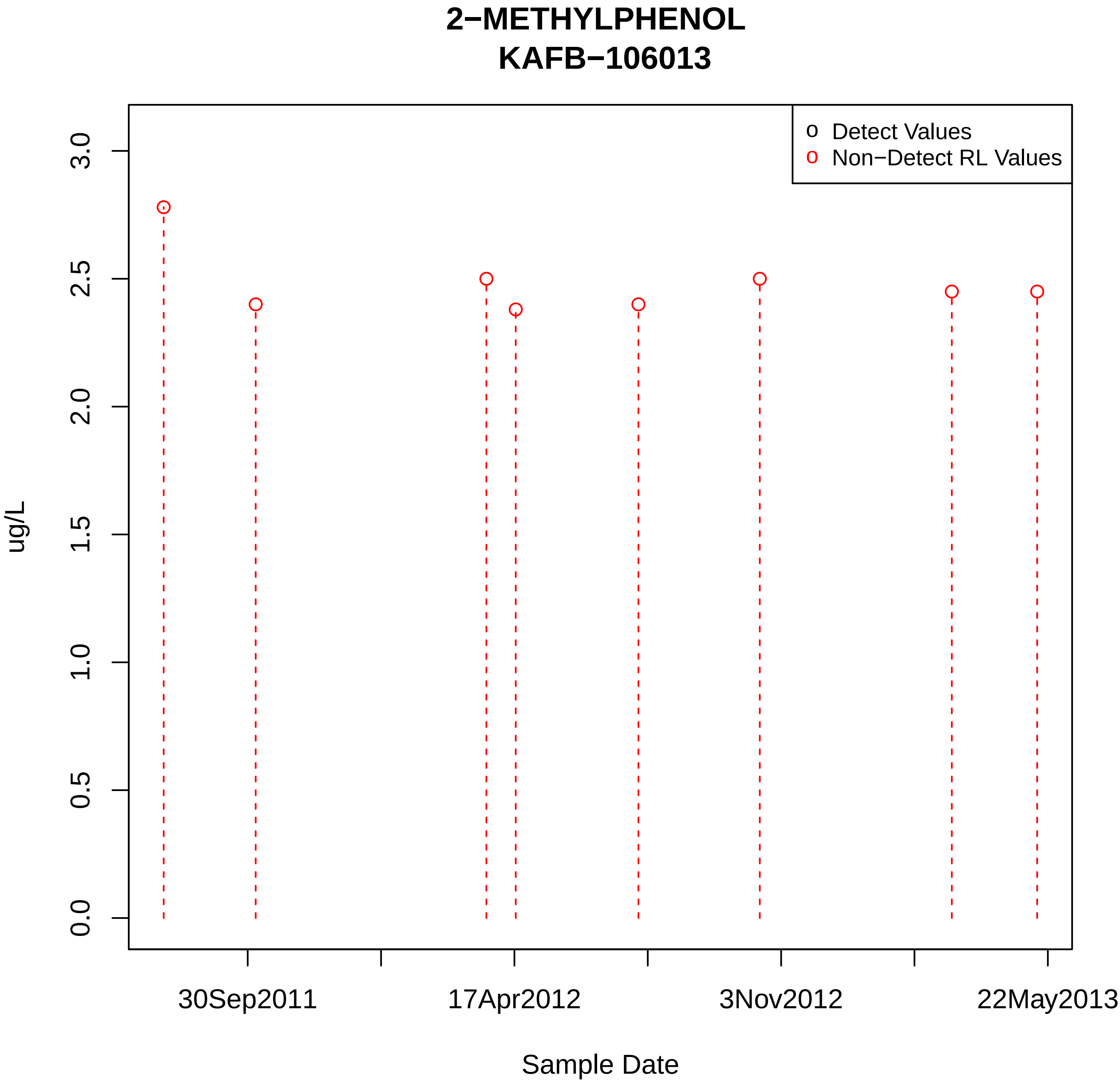

2−METHYLPHENOL
KAFB−106094
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

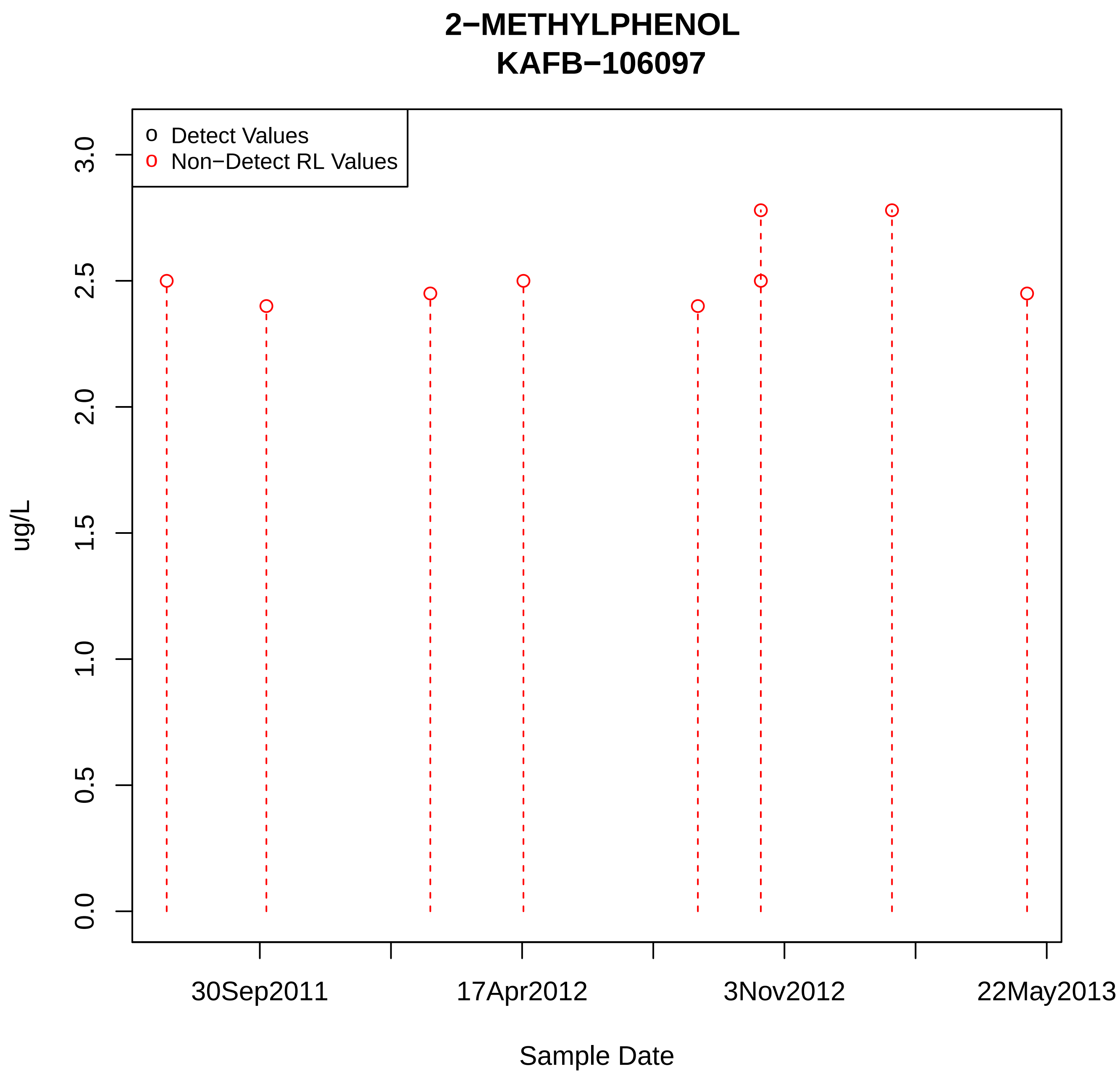


2−METHYLPHENOL
KAFB−106095
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

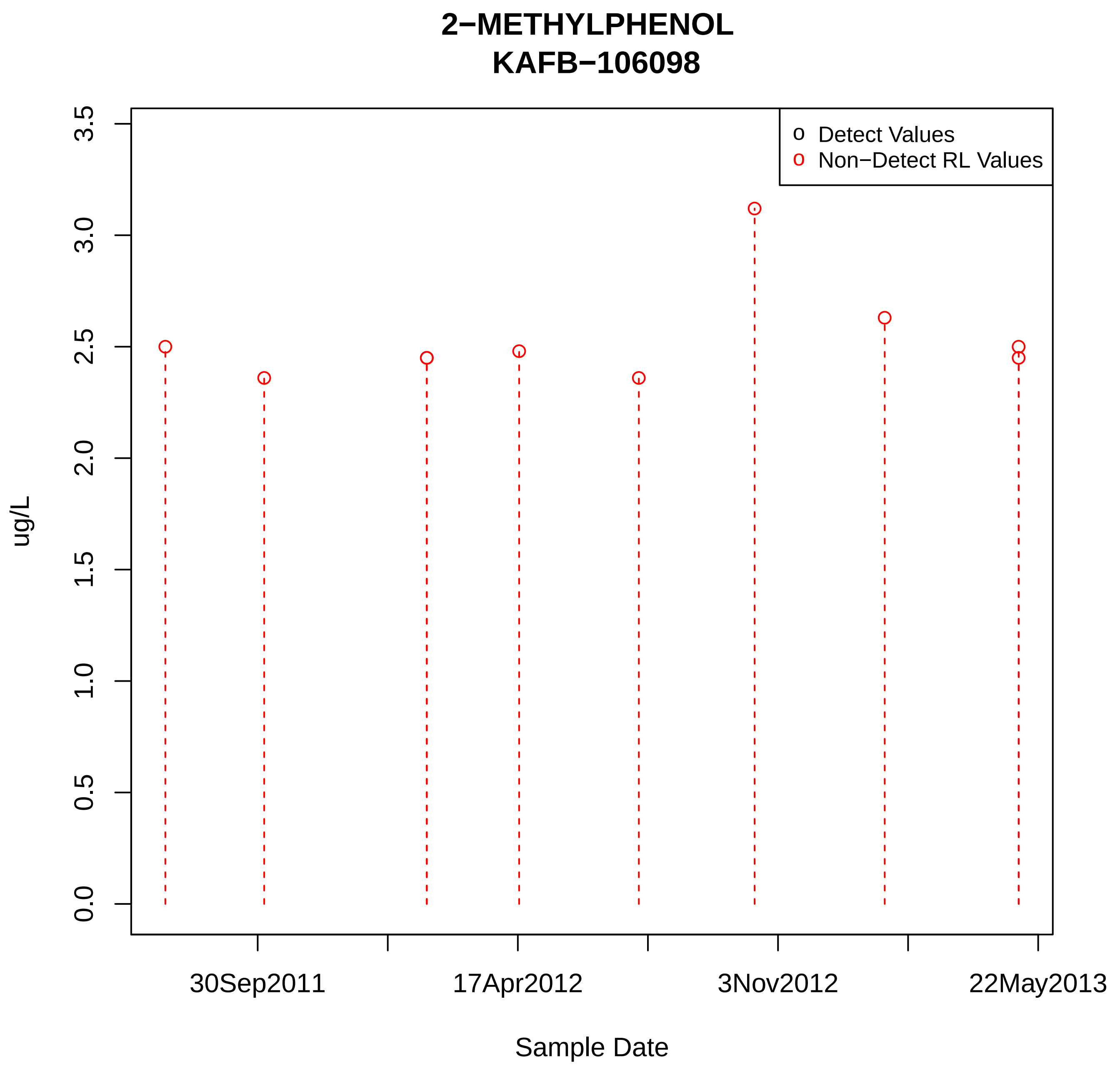


2−METHYLPHENOL
KAFB−106096
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

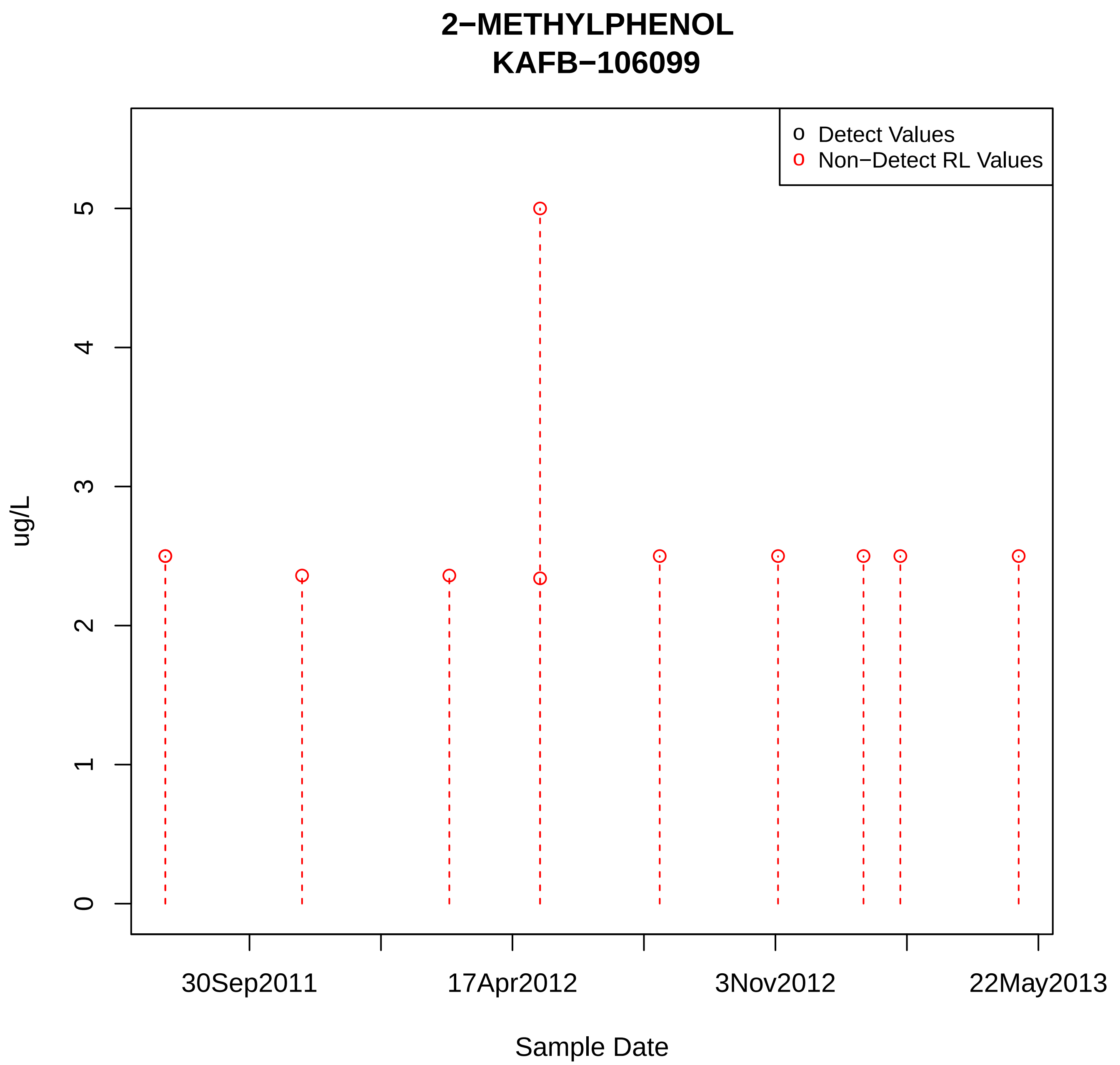

2−METHYLPHENOL
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



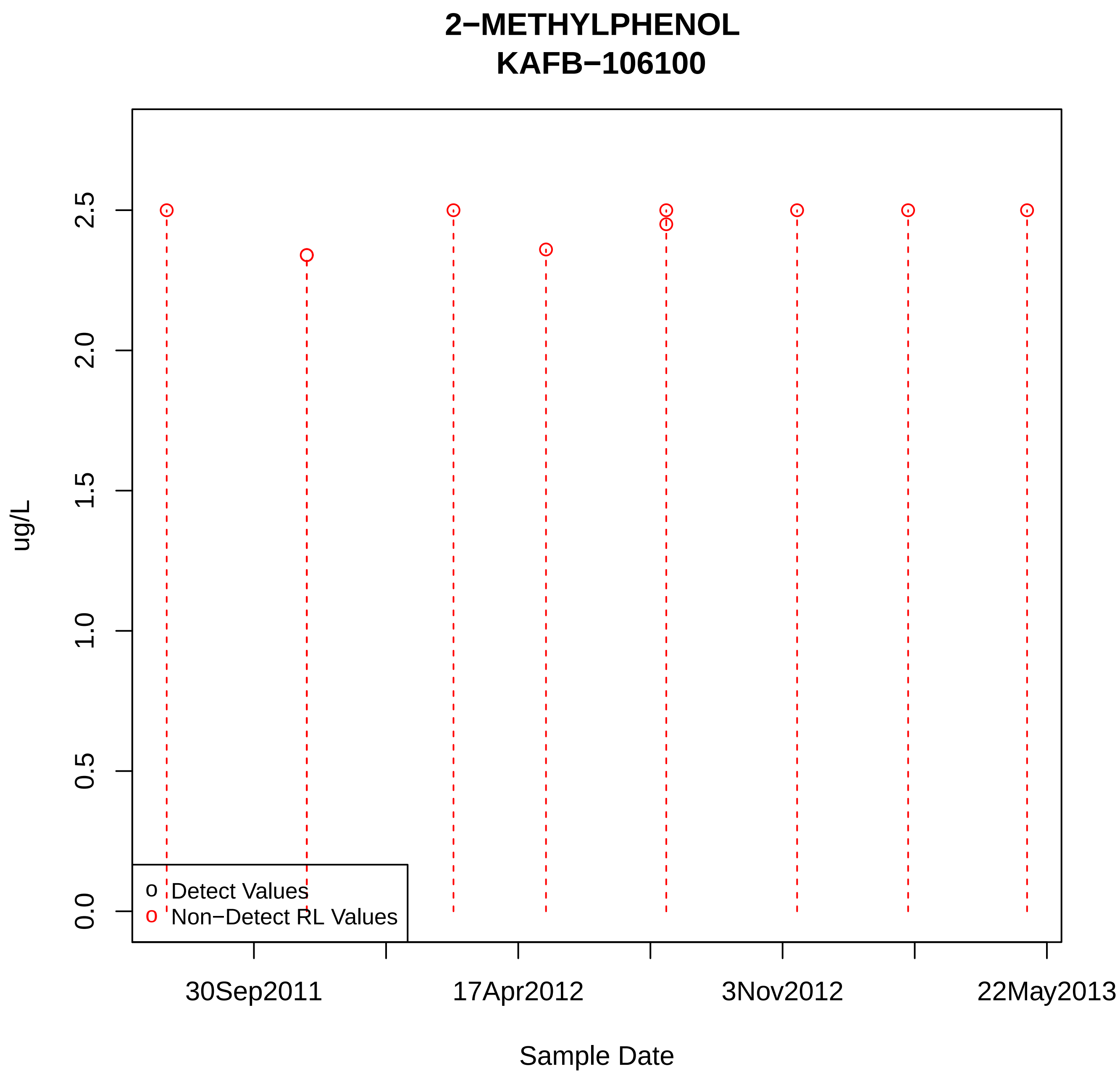
2−METHYLPHENOL
KAFB−106097
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



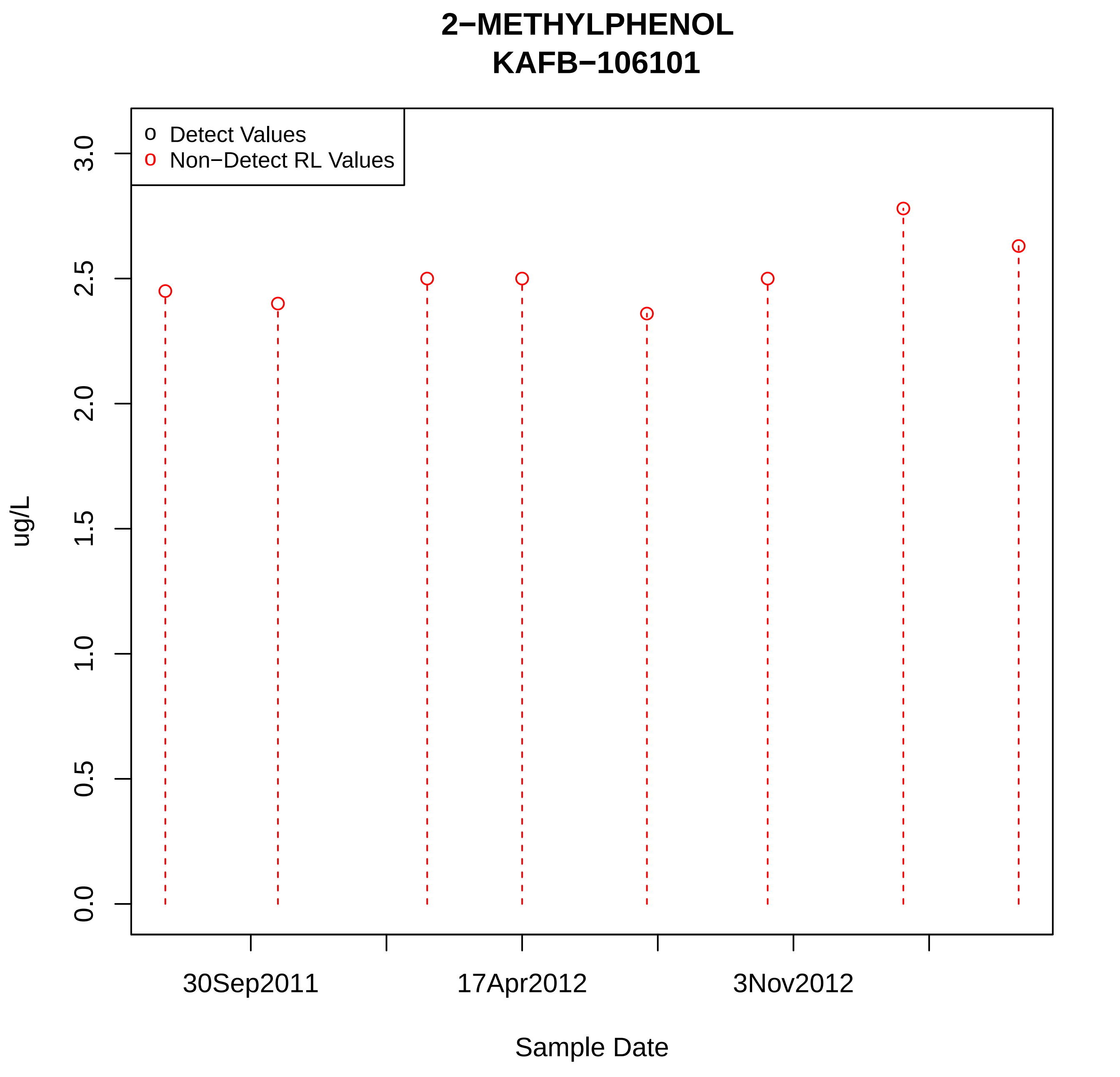
2−METHYLPHENOL
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



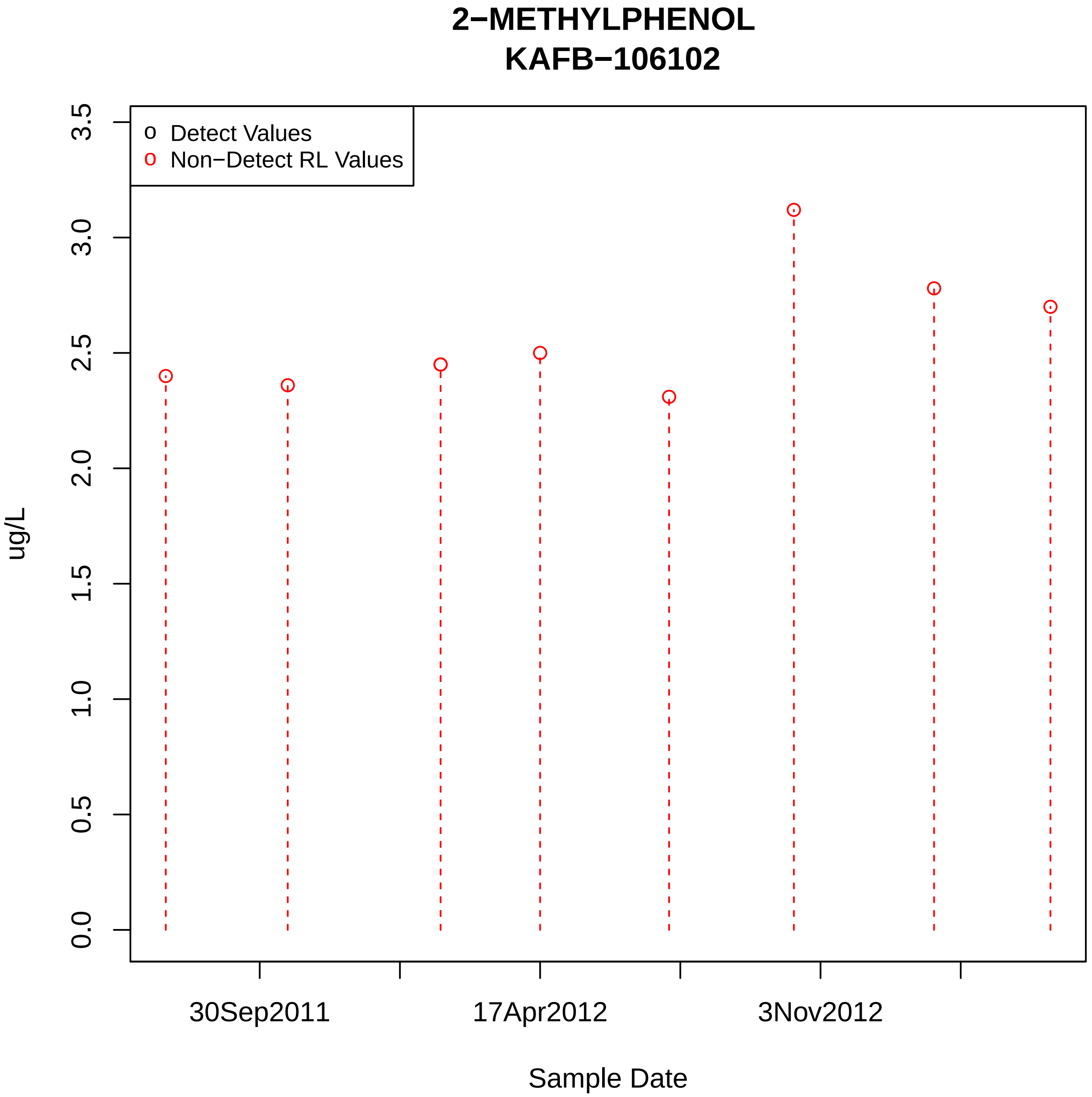
2−METHYLPHENOL
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

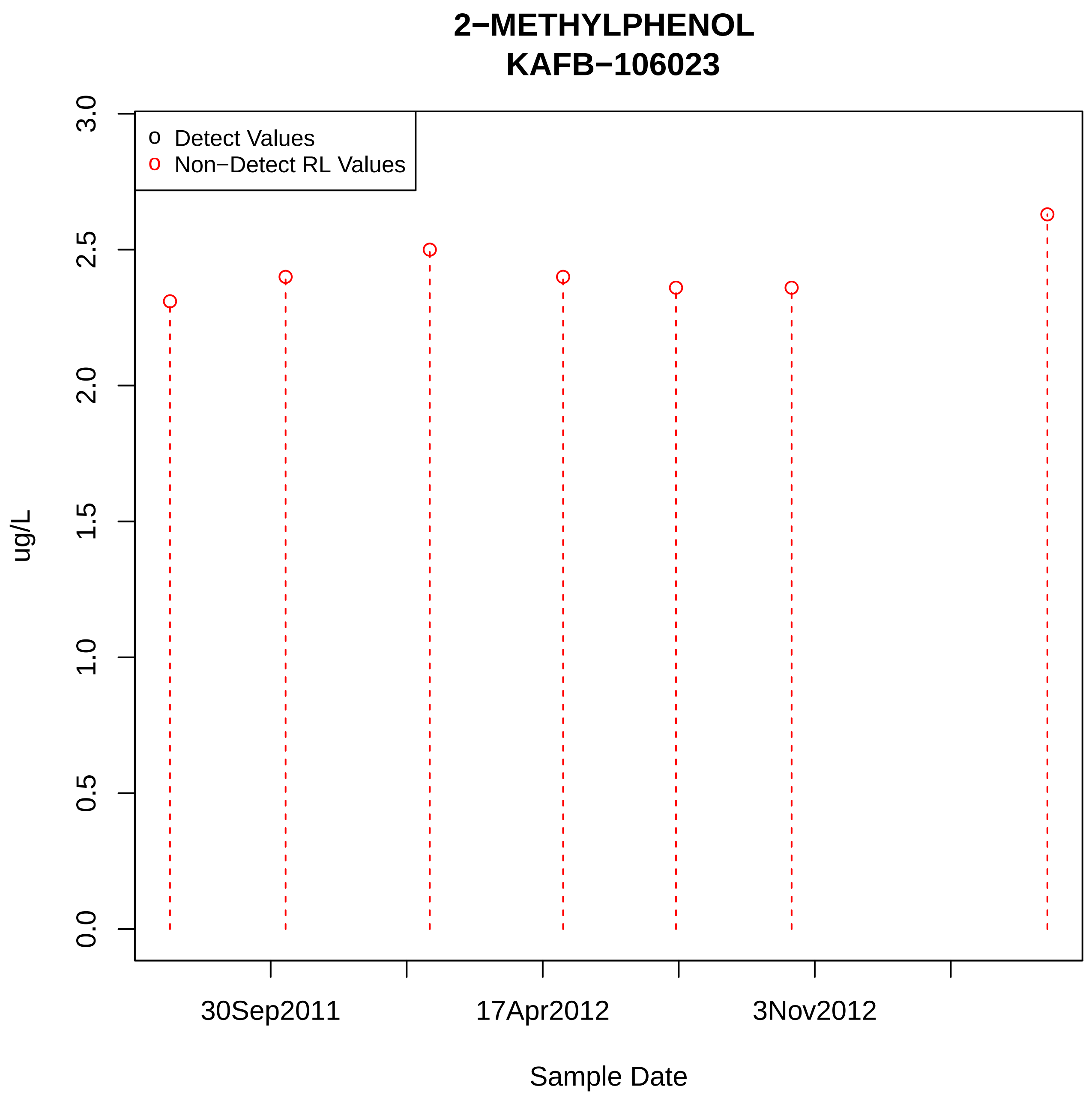


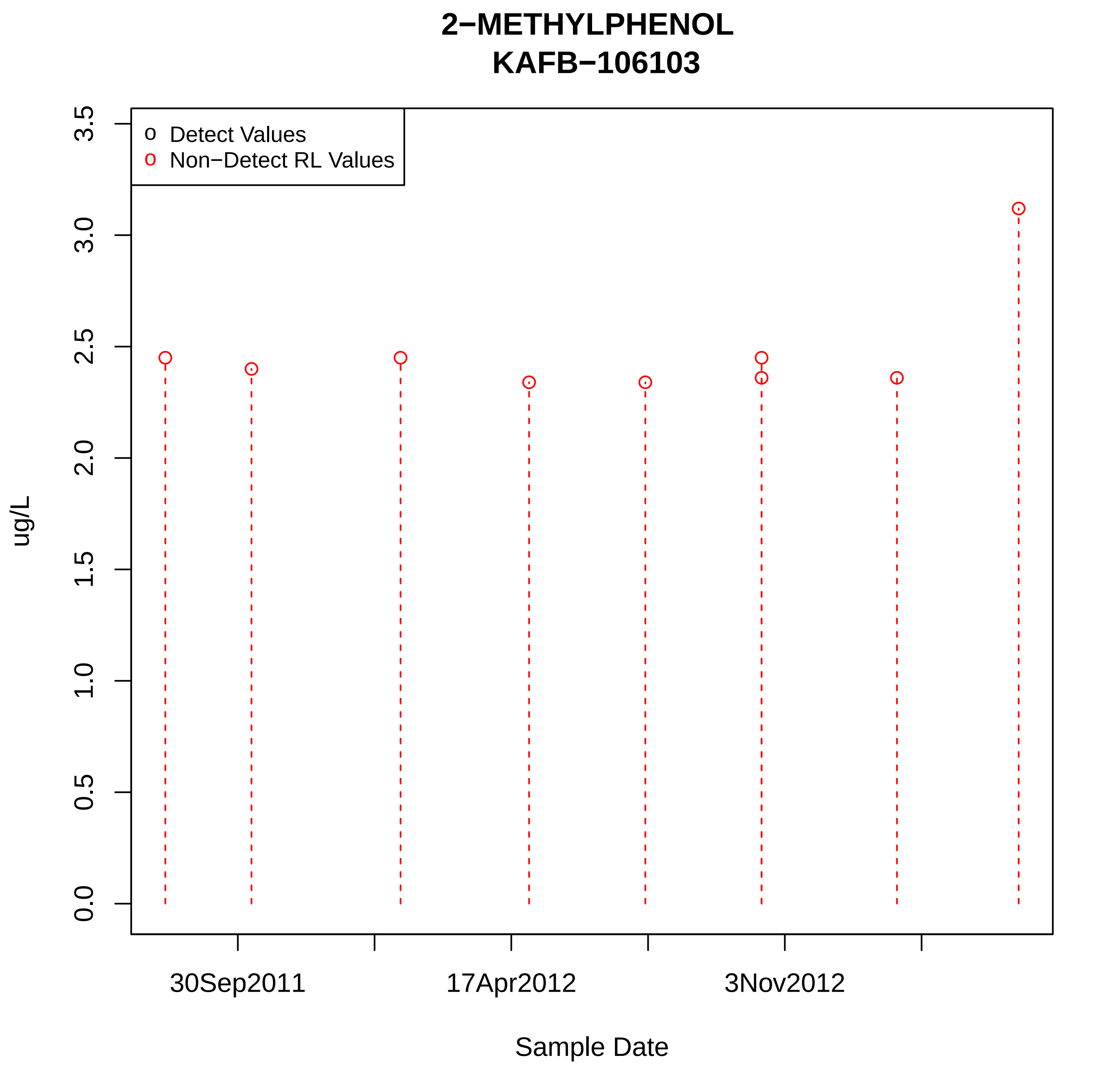
2−METHYLPHENOL
KAFB−106100
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values



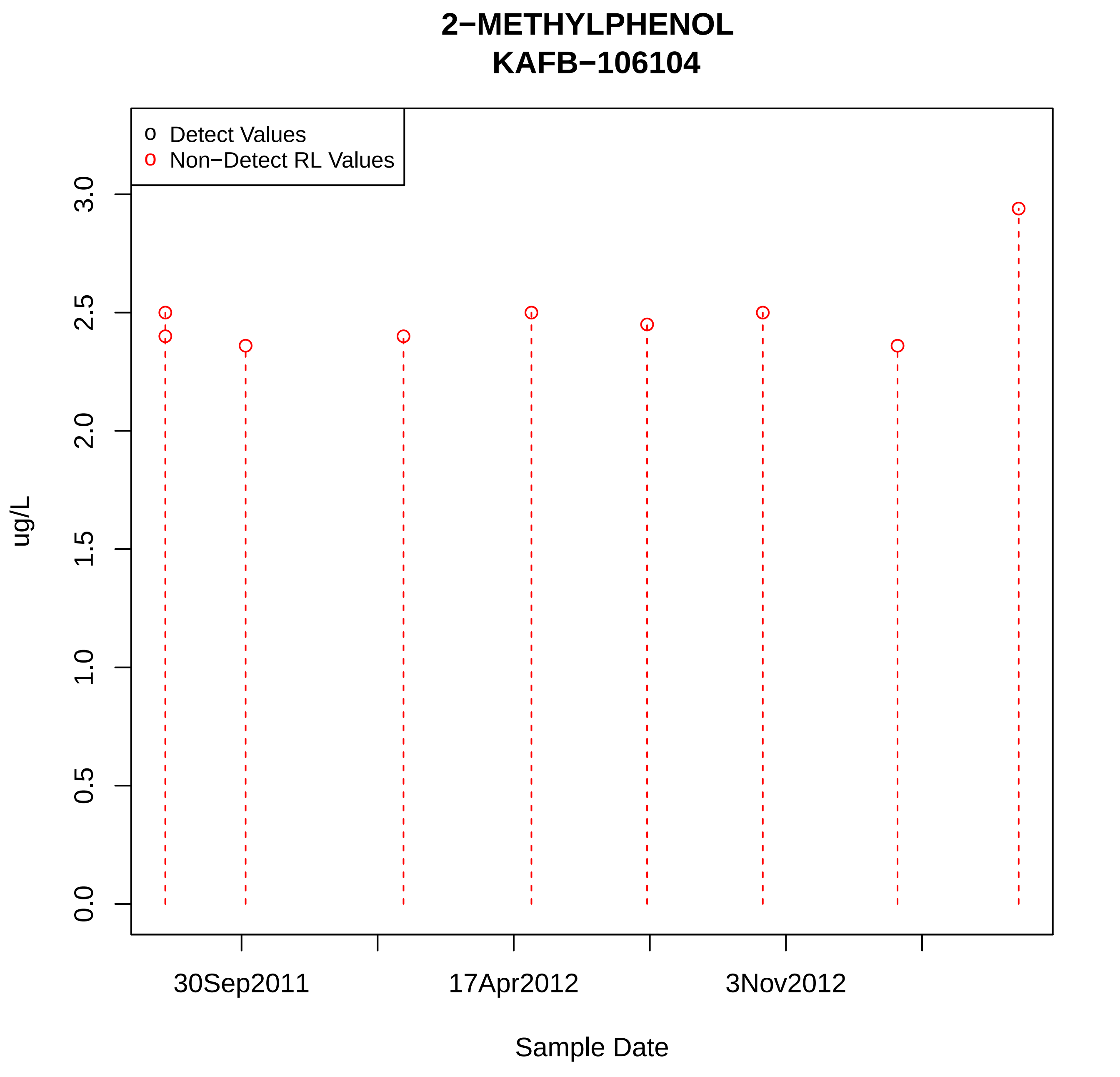
2−METHYLPHENOL
KAFB−106101
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
3.0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

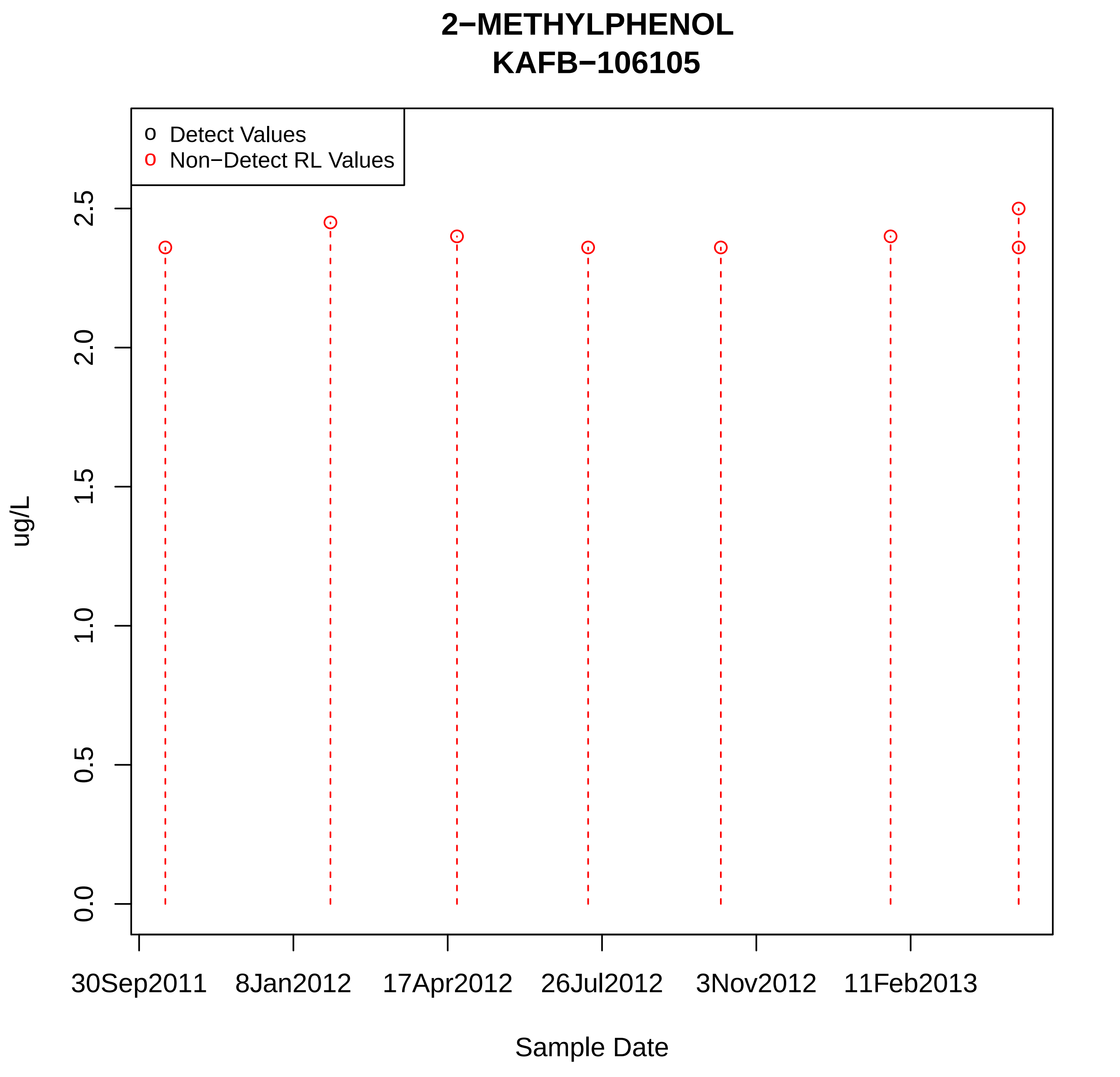

2−METHYLPHENOL
KAFB−106102
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−METHYLPHENOL
KAFB−106023
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

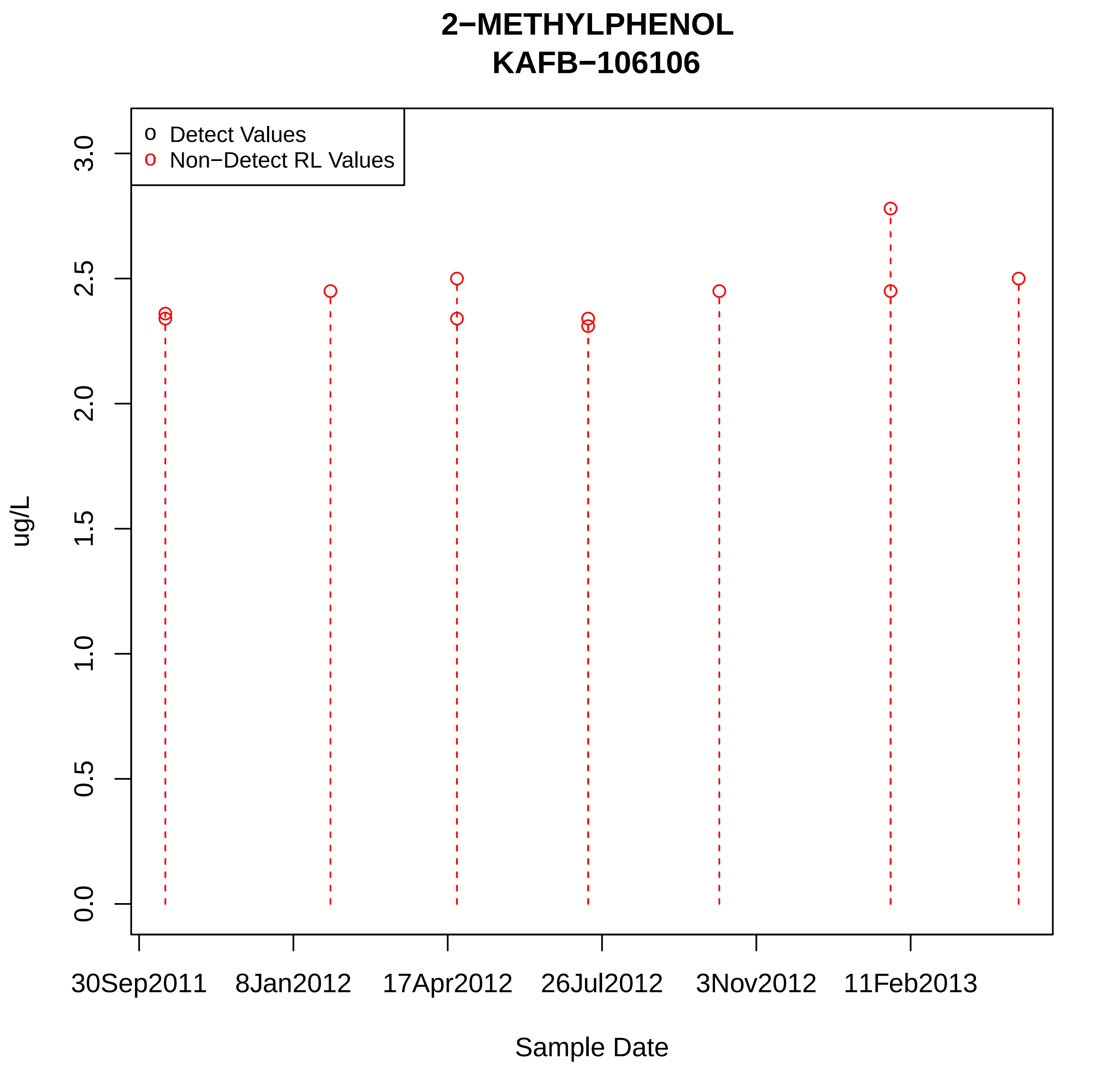


2−METHYLPHENOL
KAFB−106103
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

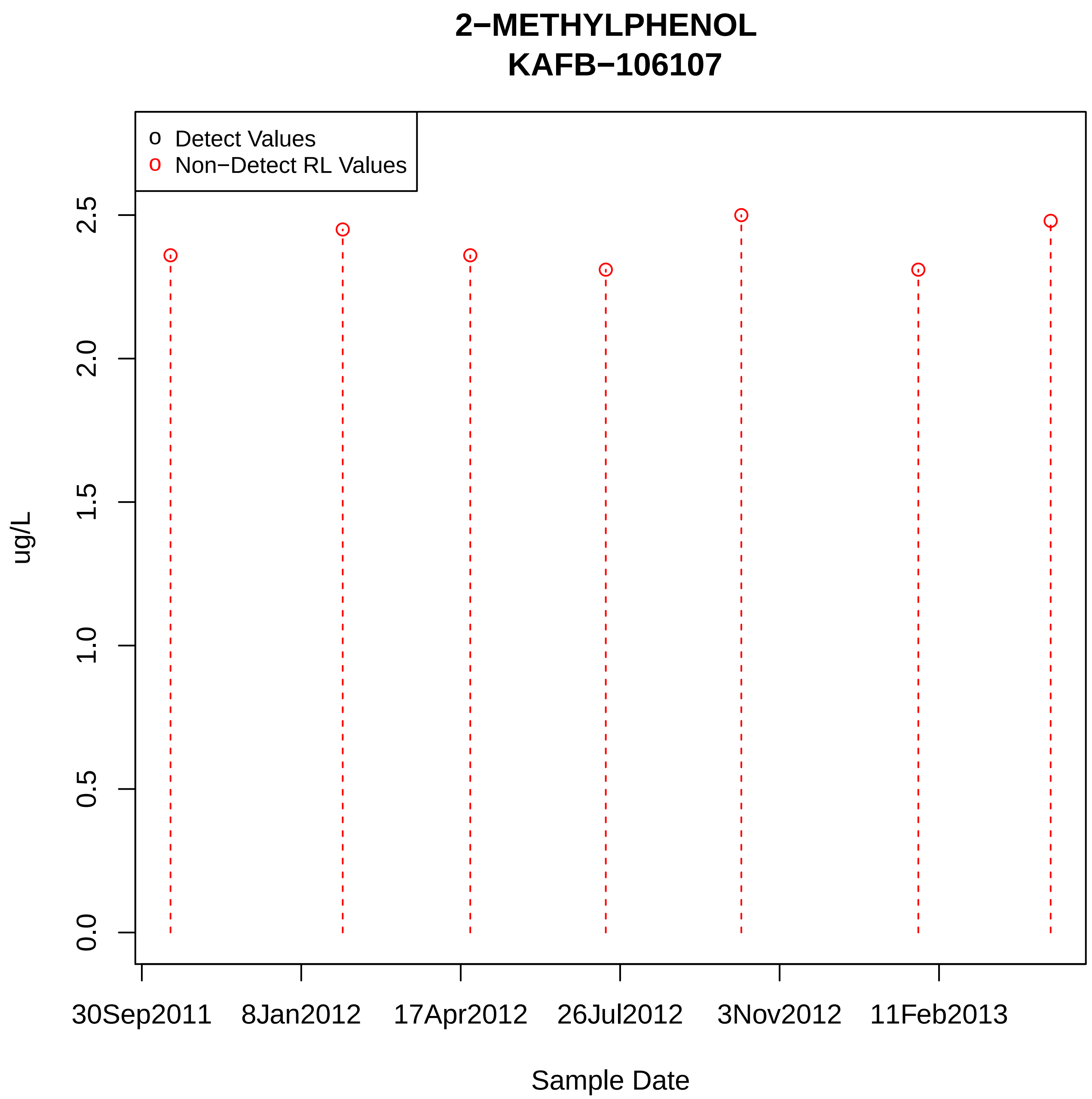

2−METHYLPHENOL
KAFB−106104
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

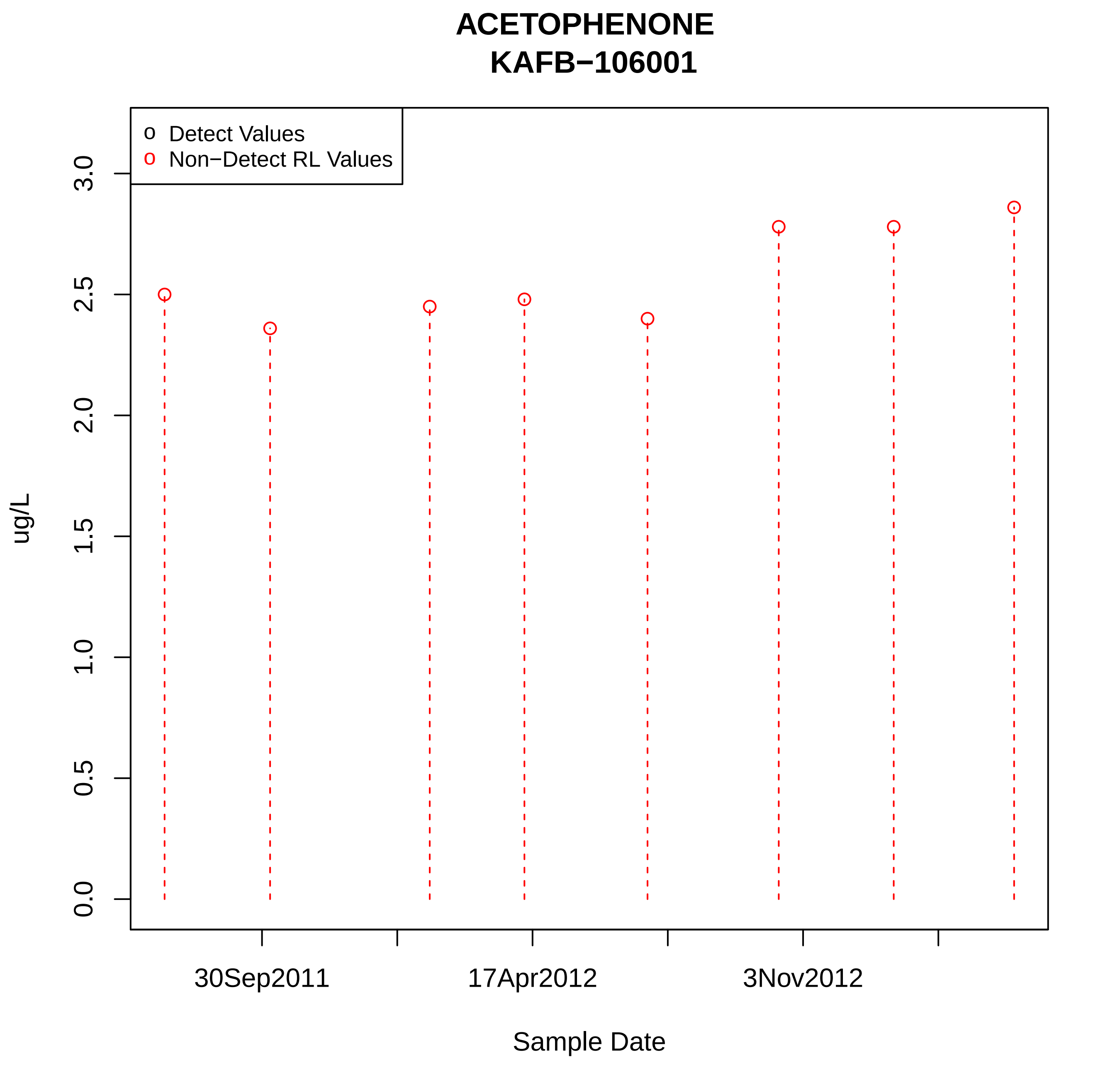


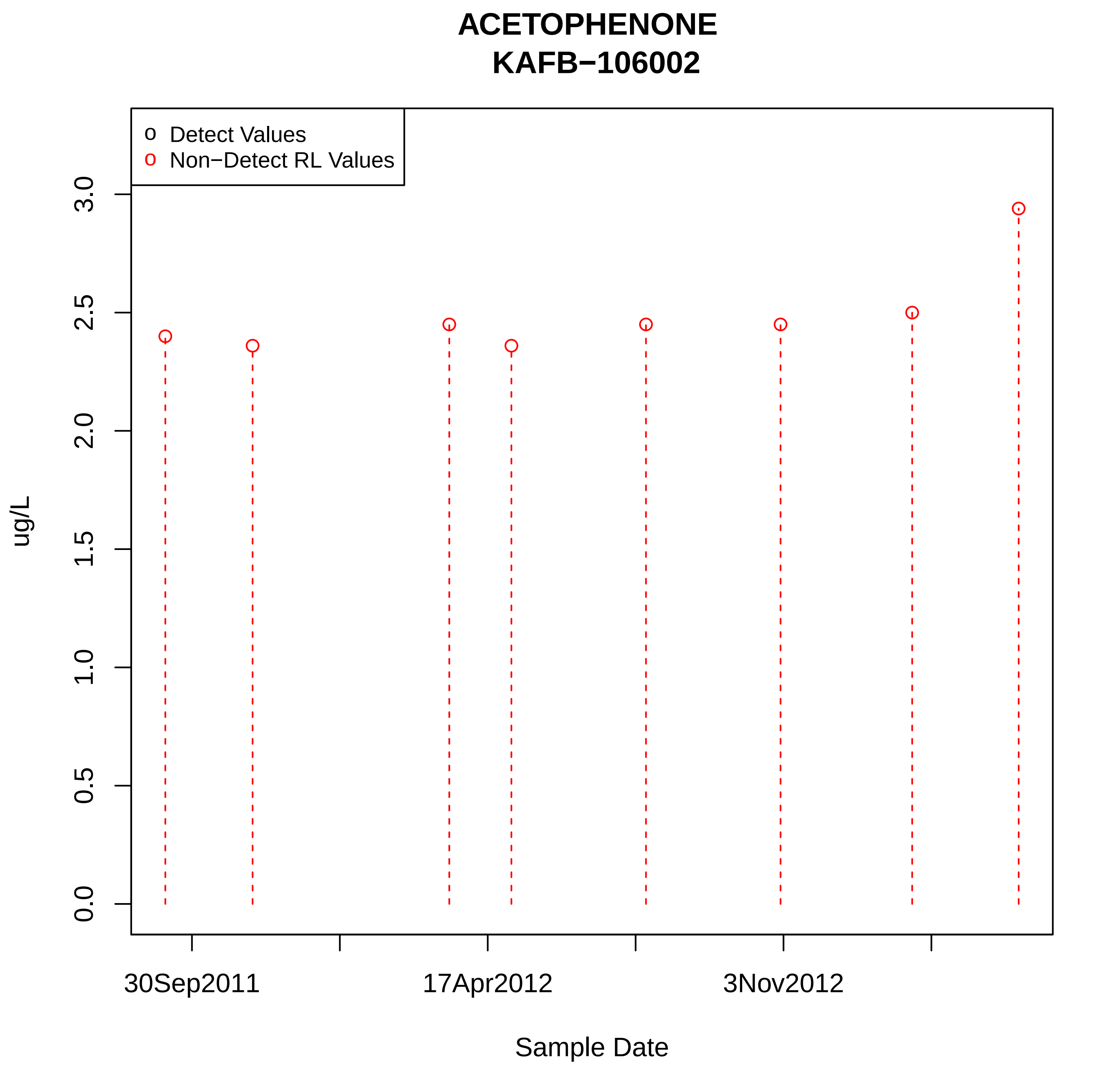
2−METHYLPHENOL
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

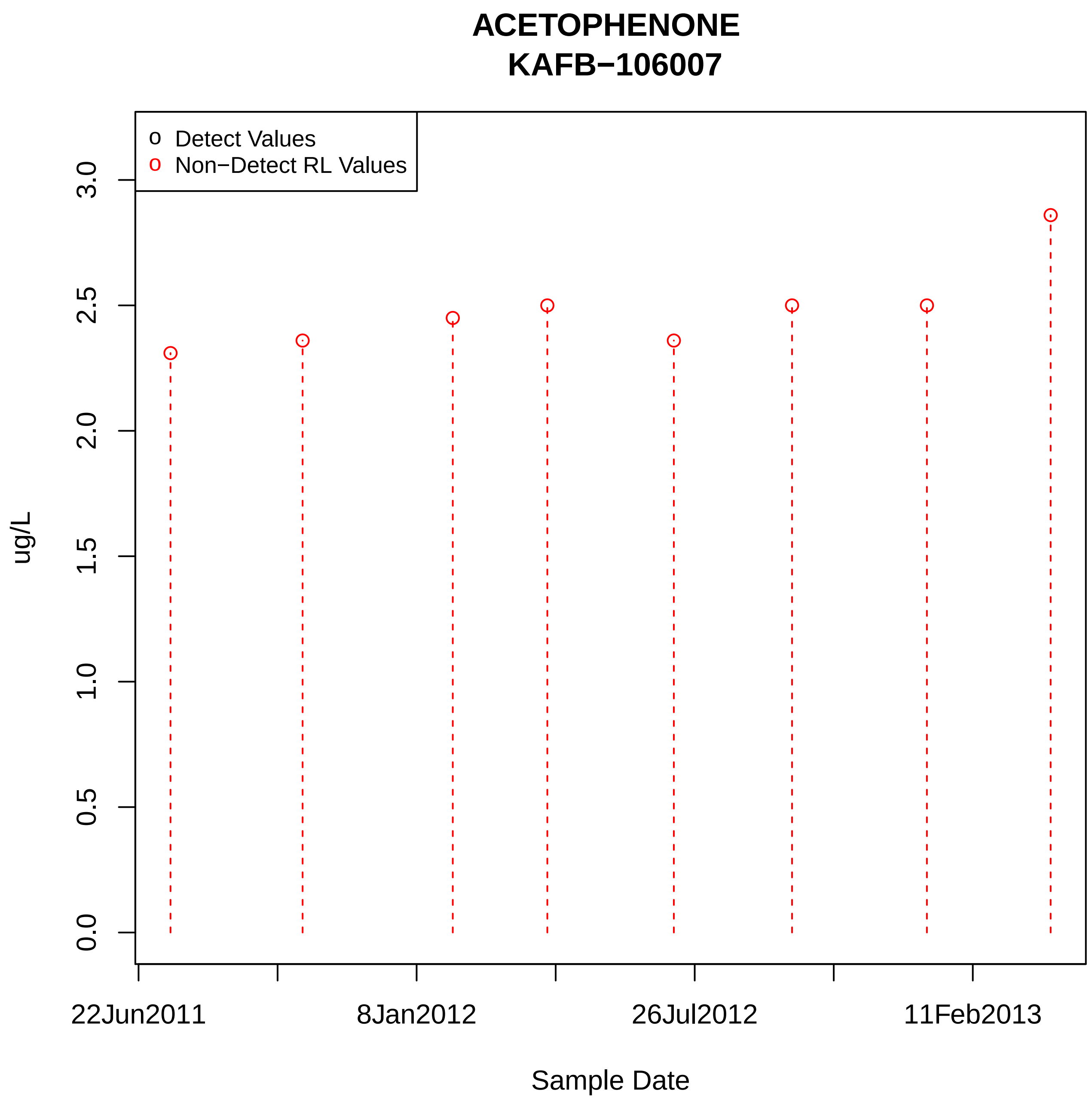


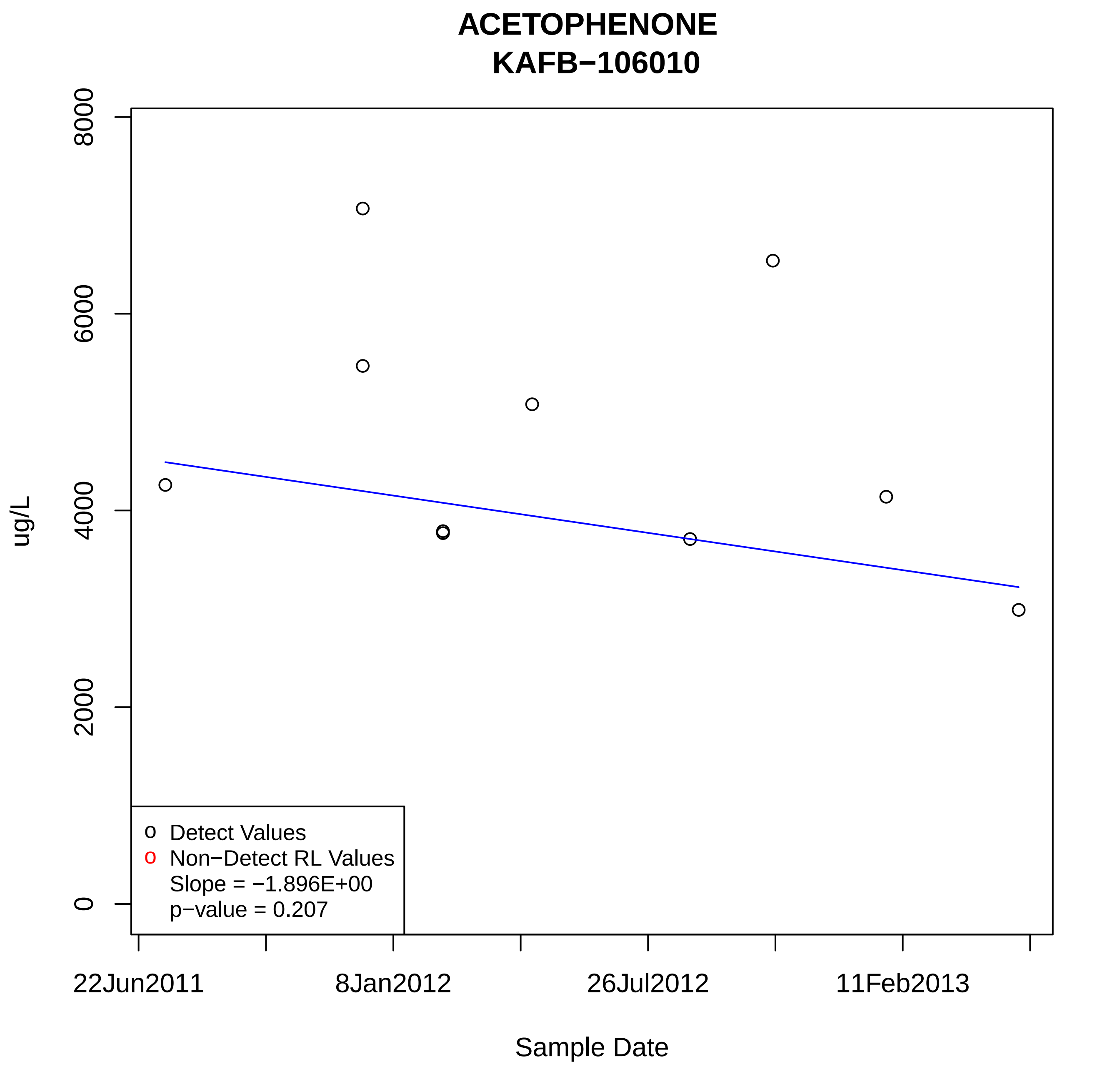
2−METHYLPHENOL
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

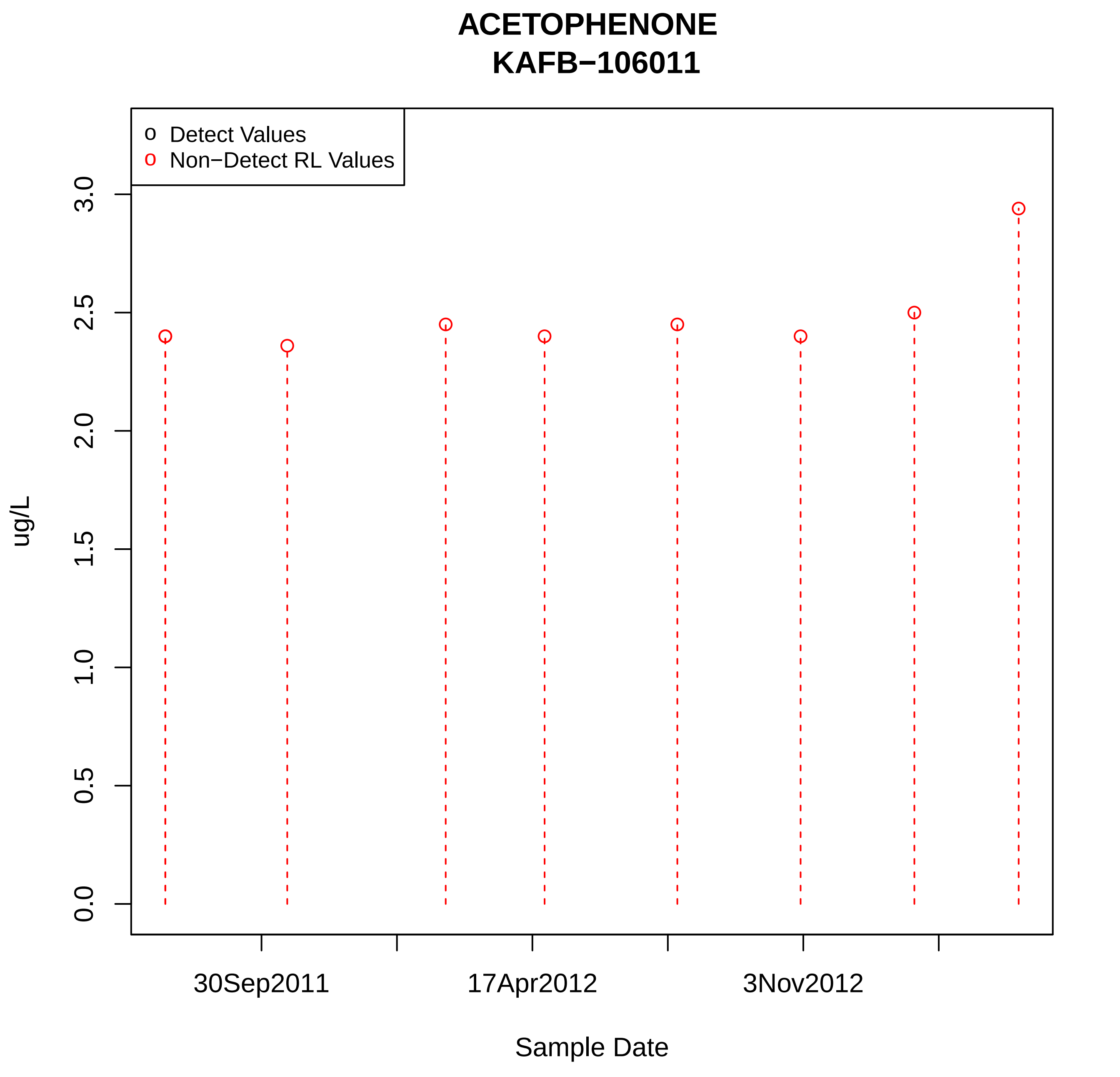

2−METHYLPHENOL
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

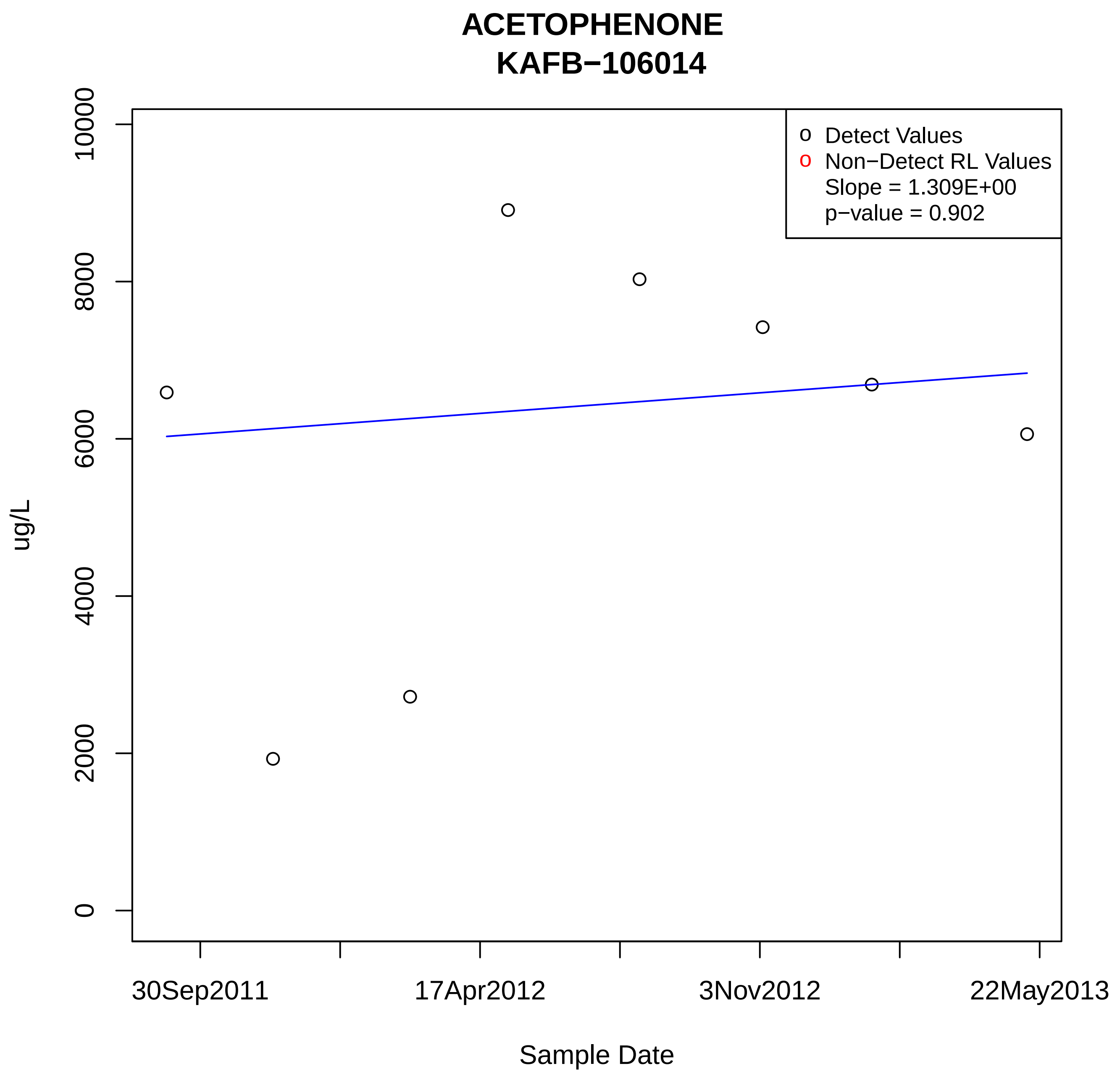

ACETOPHENONE
KAFB−106001
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


ACETOPHENONE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

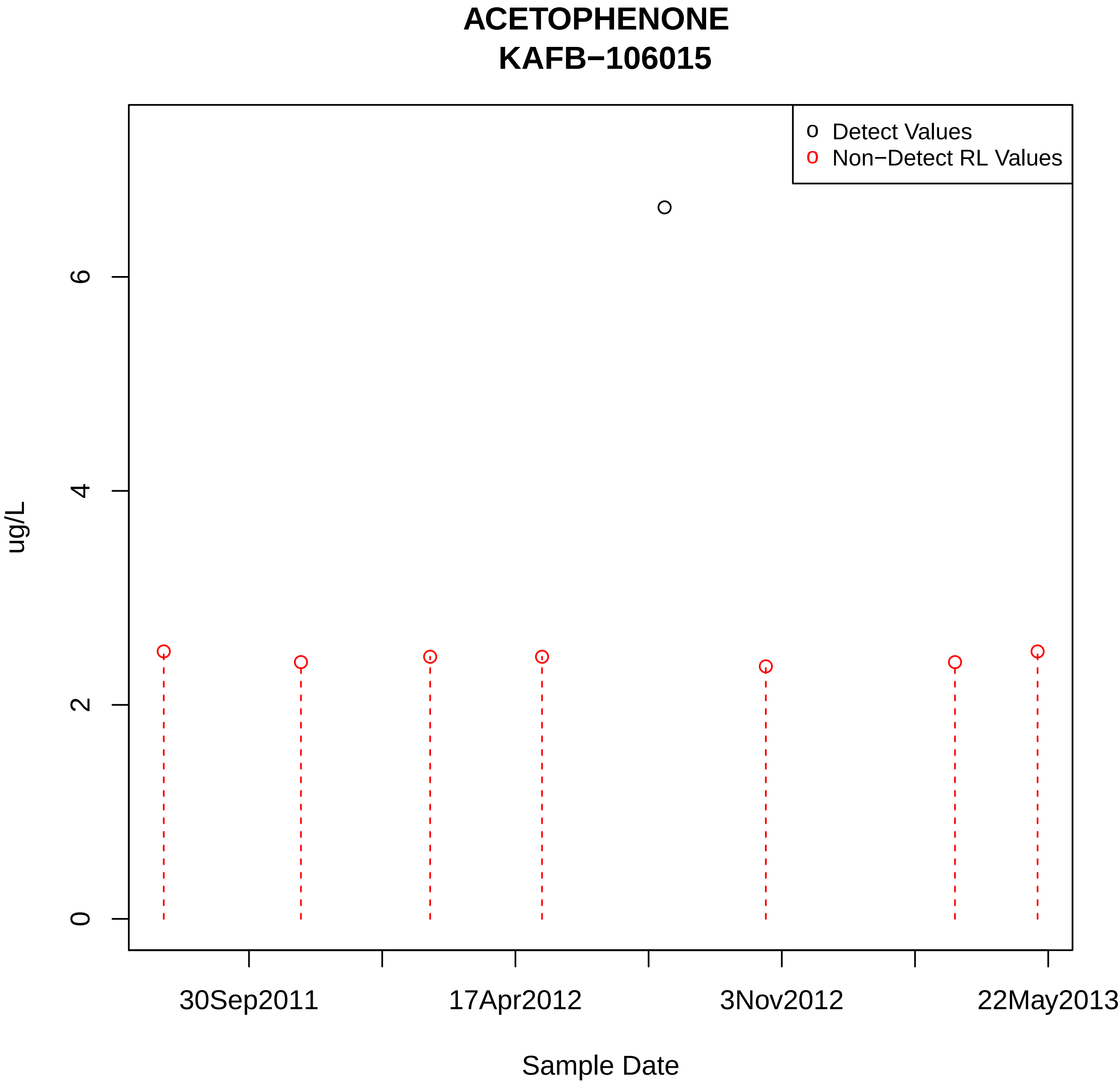

ACETOPHENONE
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ACETOPHENONE
KAFB−106010
8000
6000
4000
2000
0
ug/L
o Detect Values
o Non−Detect RL Values
Slope = −1.896E+00
p−value = 0.207
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

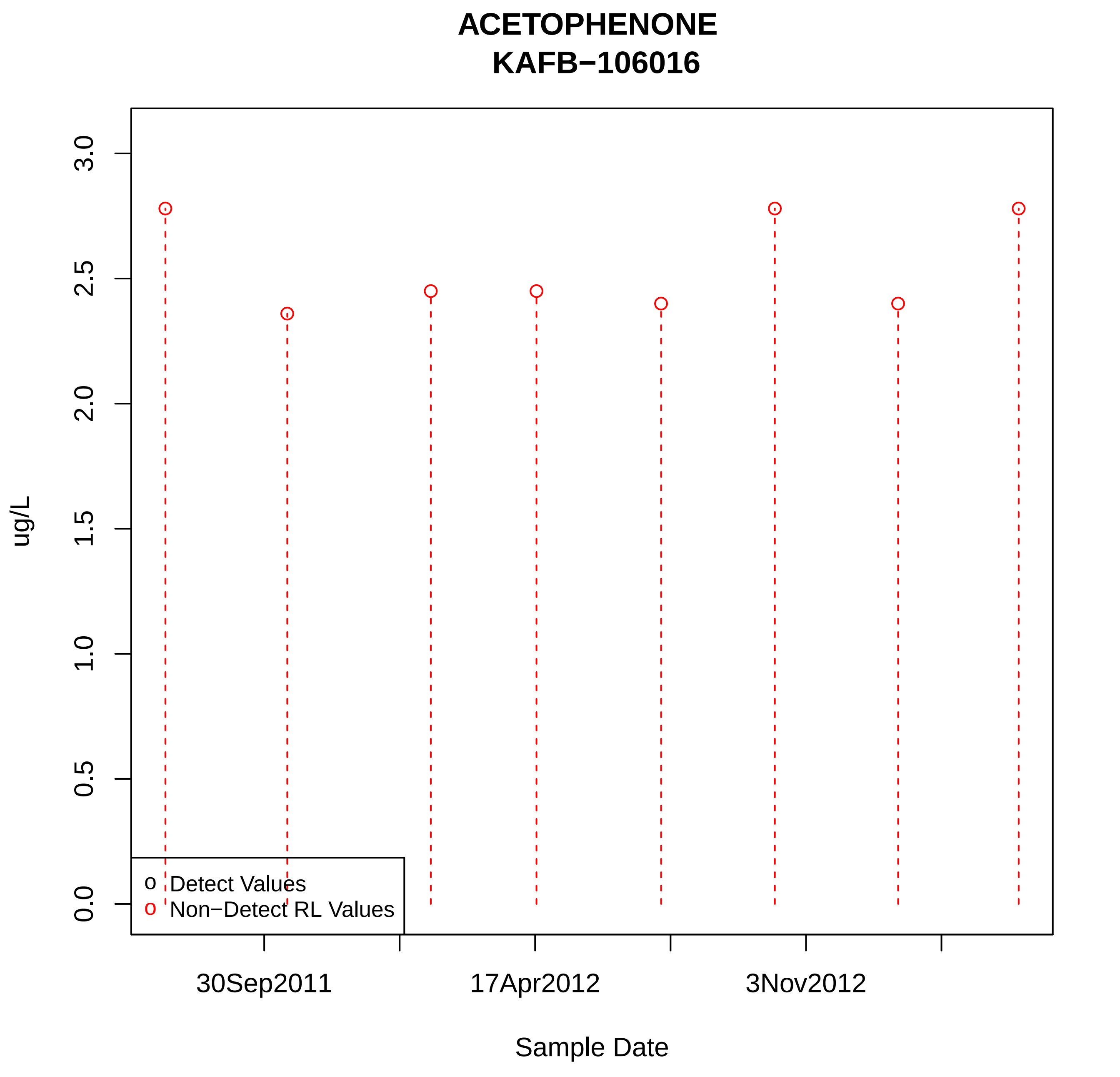

ACETOPHENONE
KAFB−106011
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

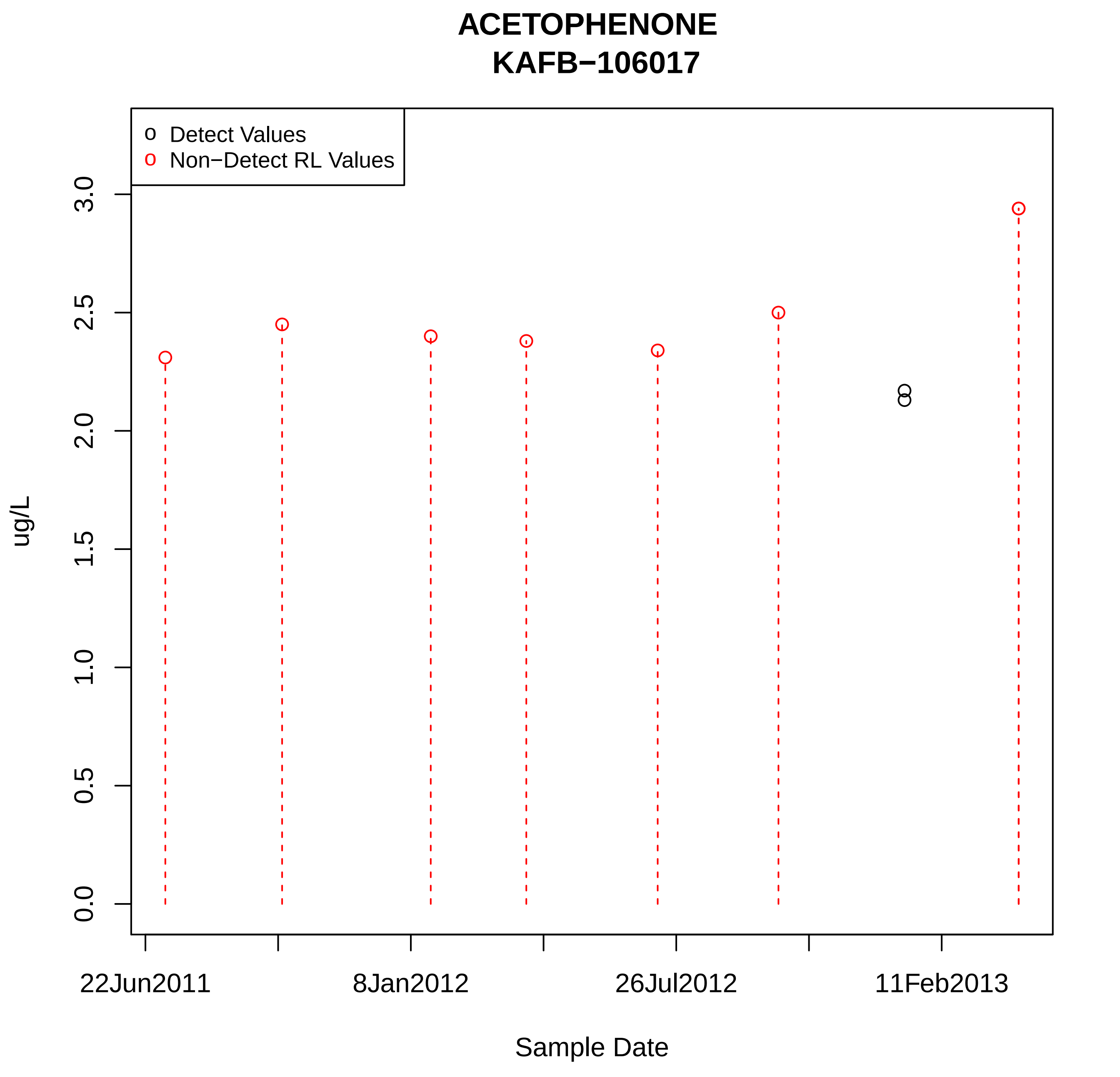


ACETOPHENONE
KAFB−106014
ug/L
0
2000
4000
6000
8000
10000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.309E+00
p−value = 0.902

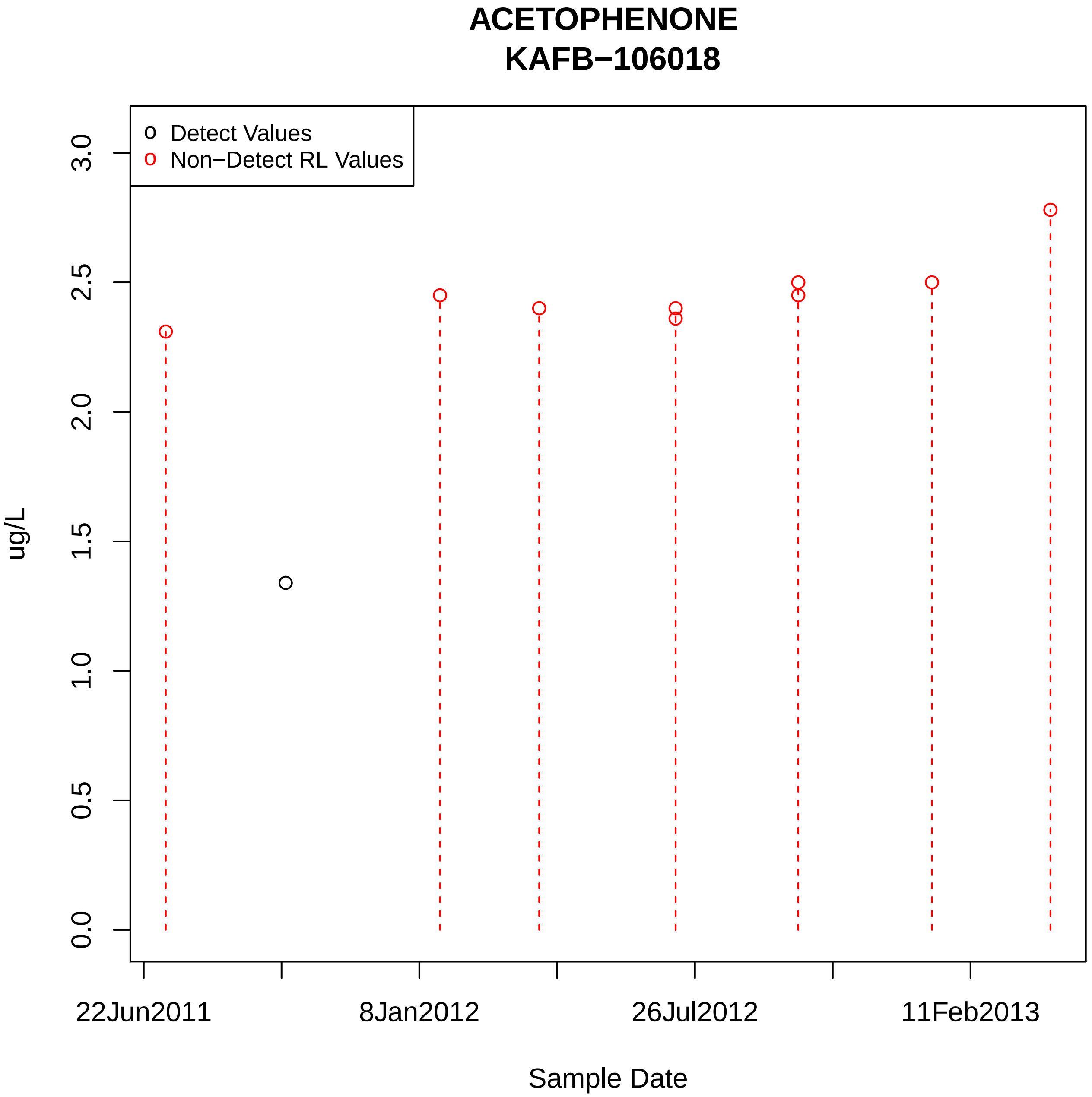


ACETOPHENONE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

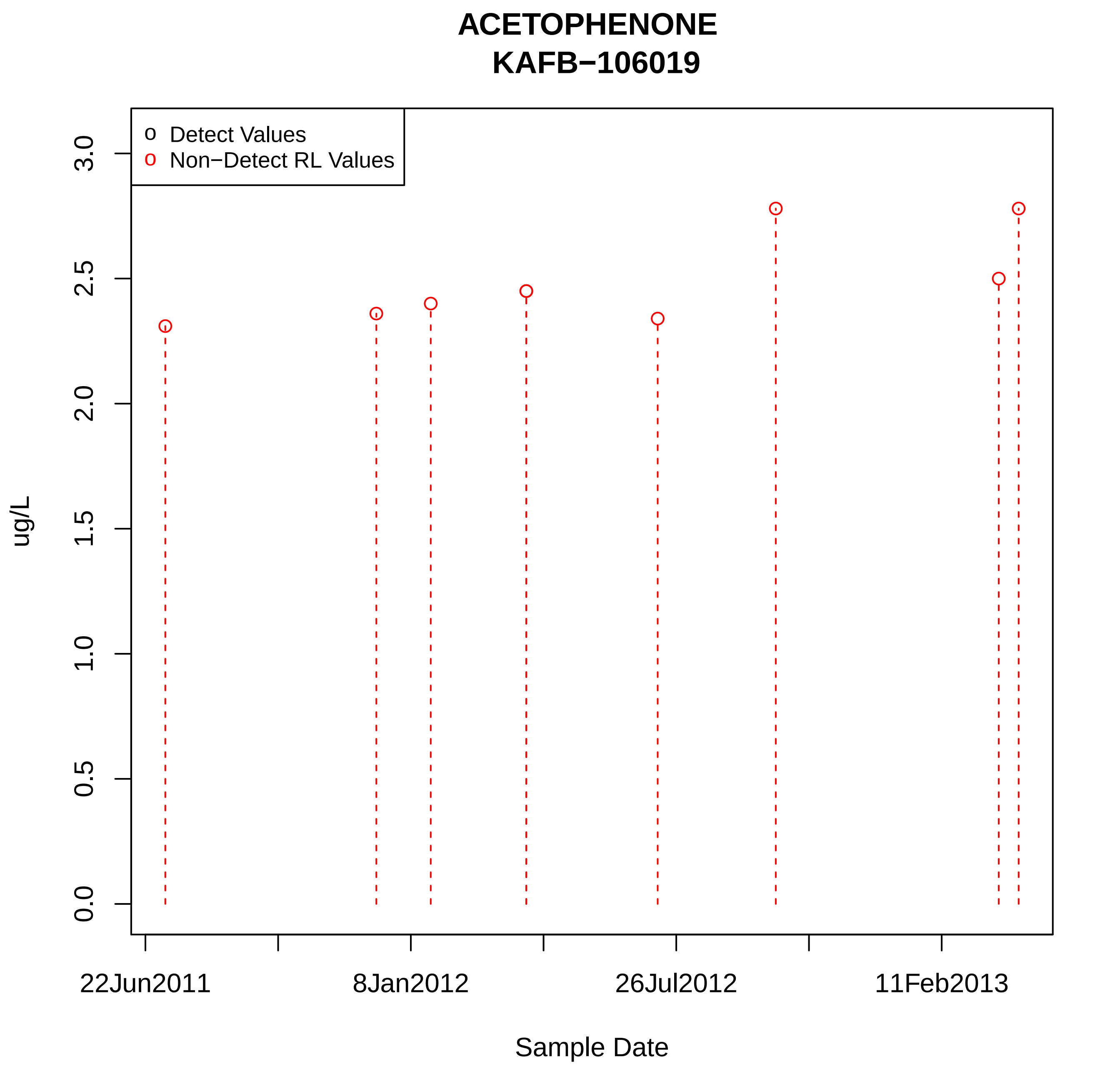

ACETOPHENONE
KAFB−106016
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

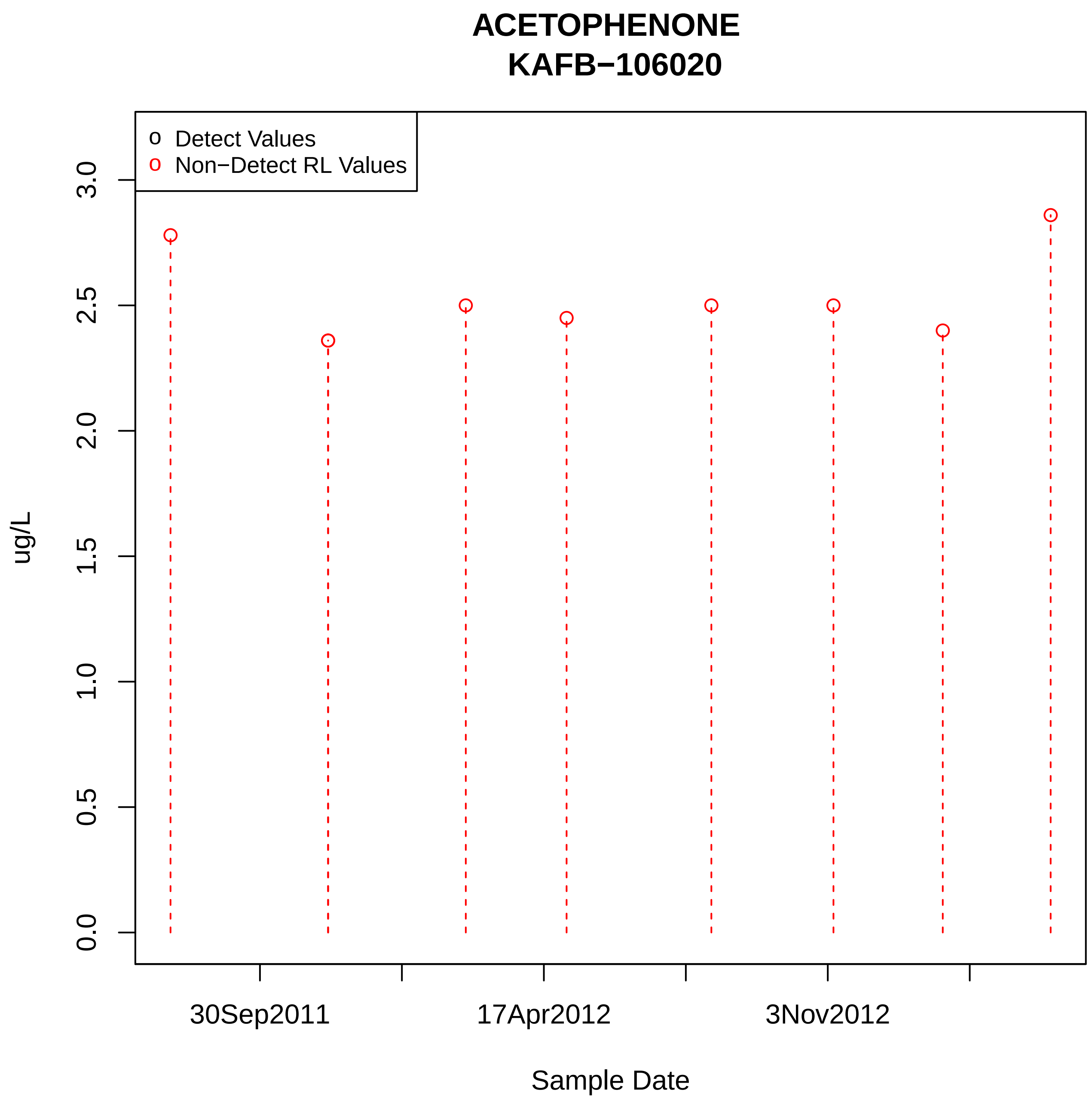


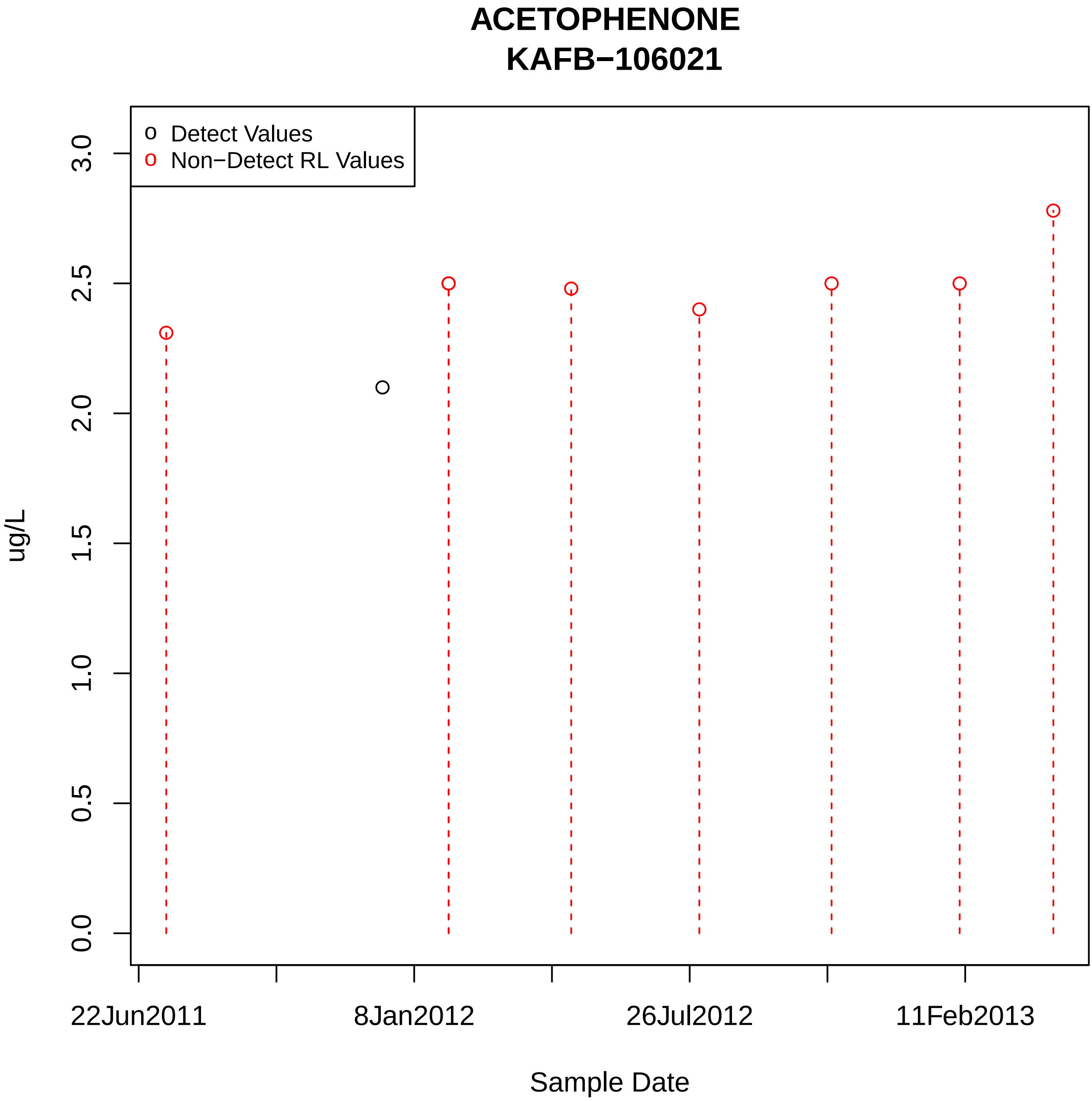
ACETOPHENONE
KAFB−106017
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

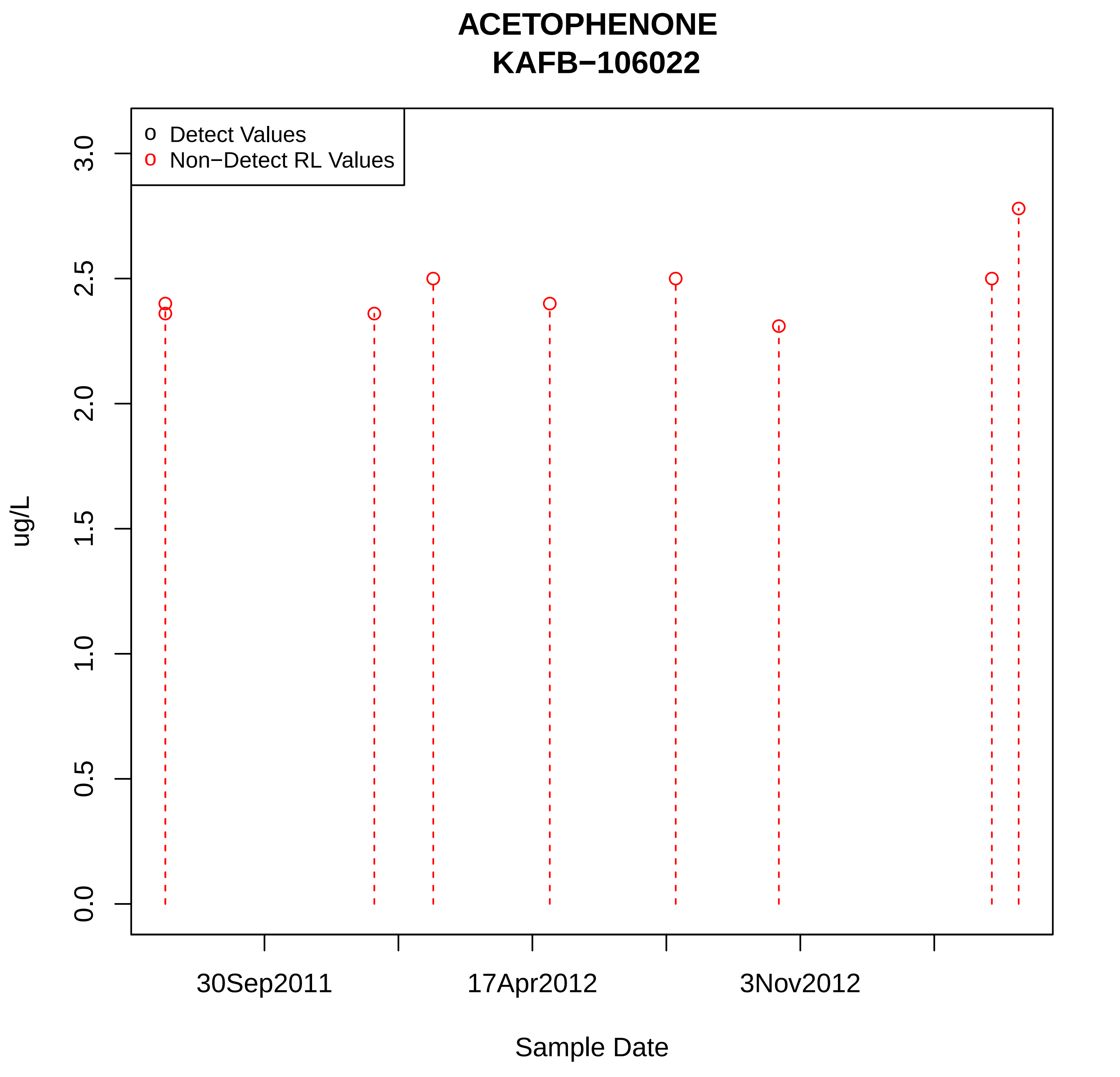


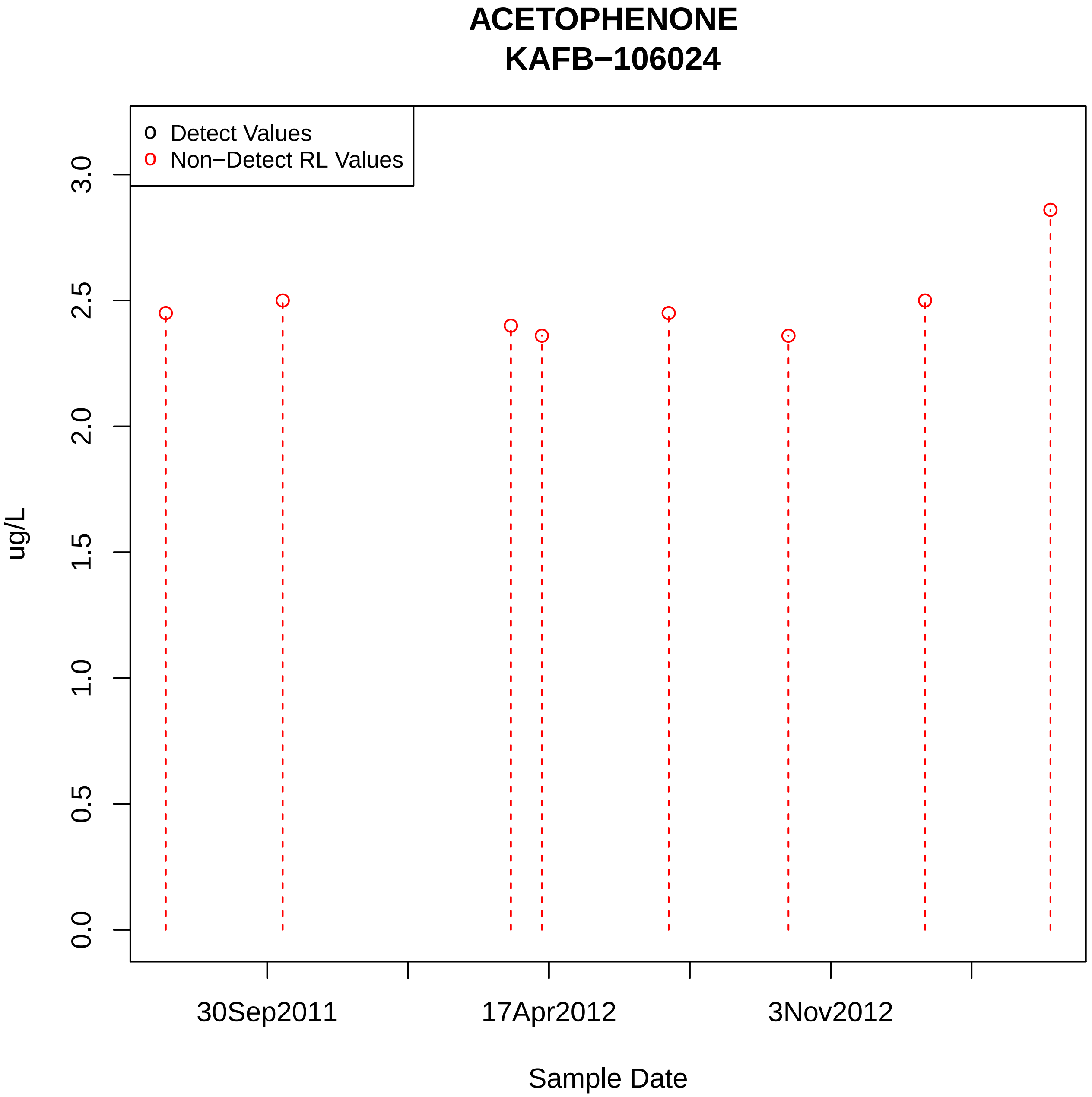
ACETOPHENONE
KAFB−106018
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

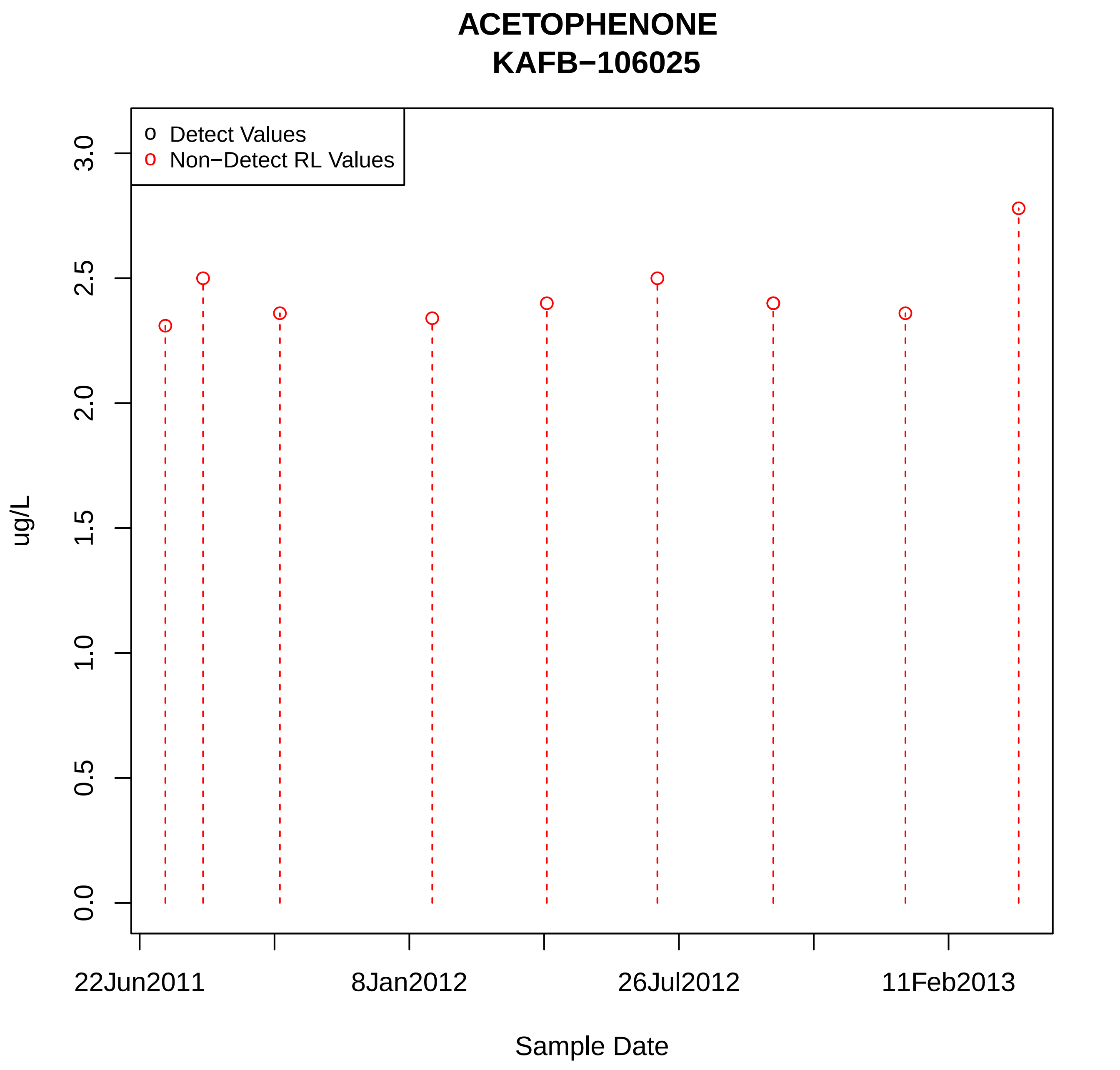

ACETOPHENONE
KAFB−106019
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

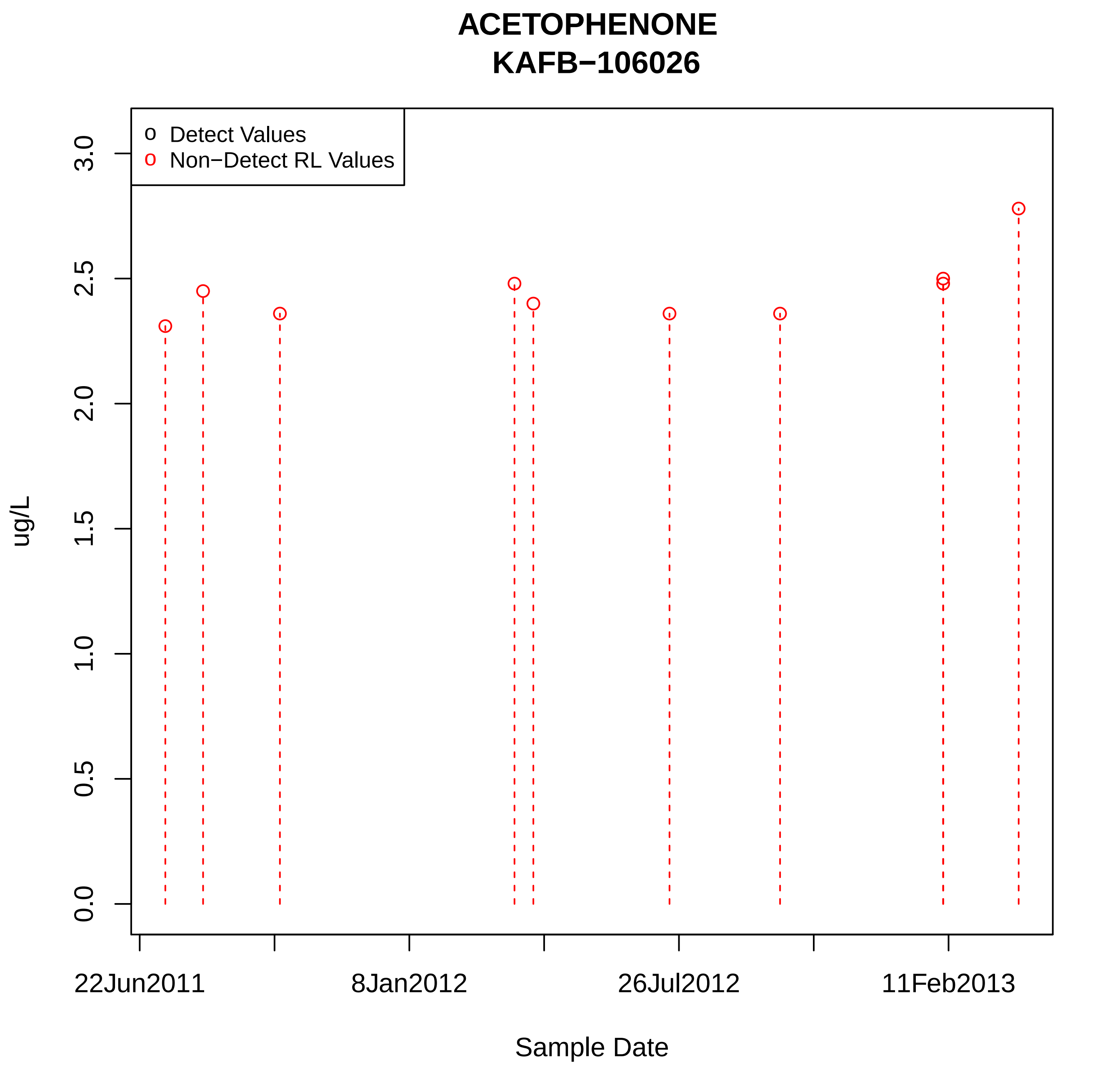

ACETOPHENONE
KAFB−106020
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


ACETOPHENONE
KAFB−106021
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

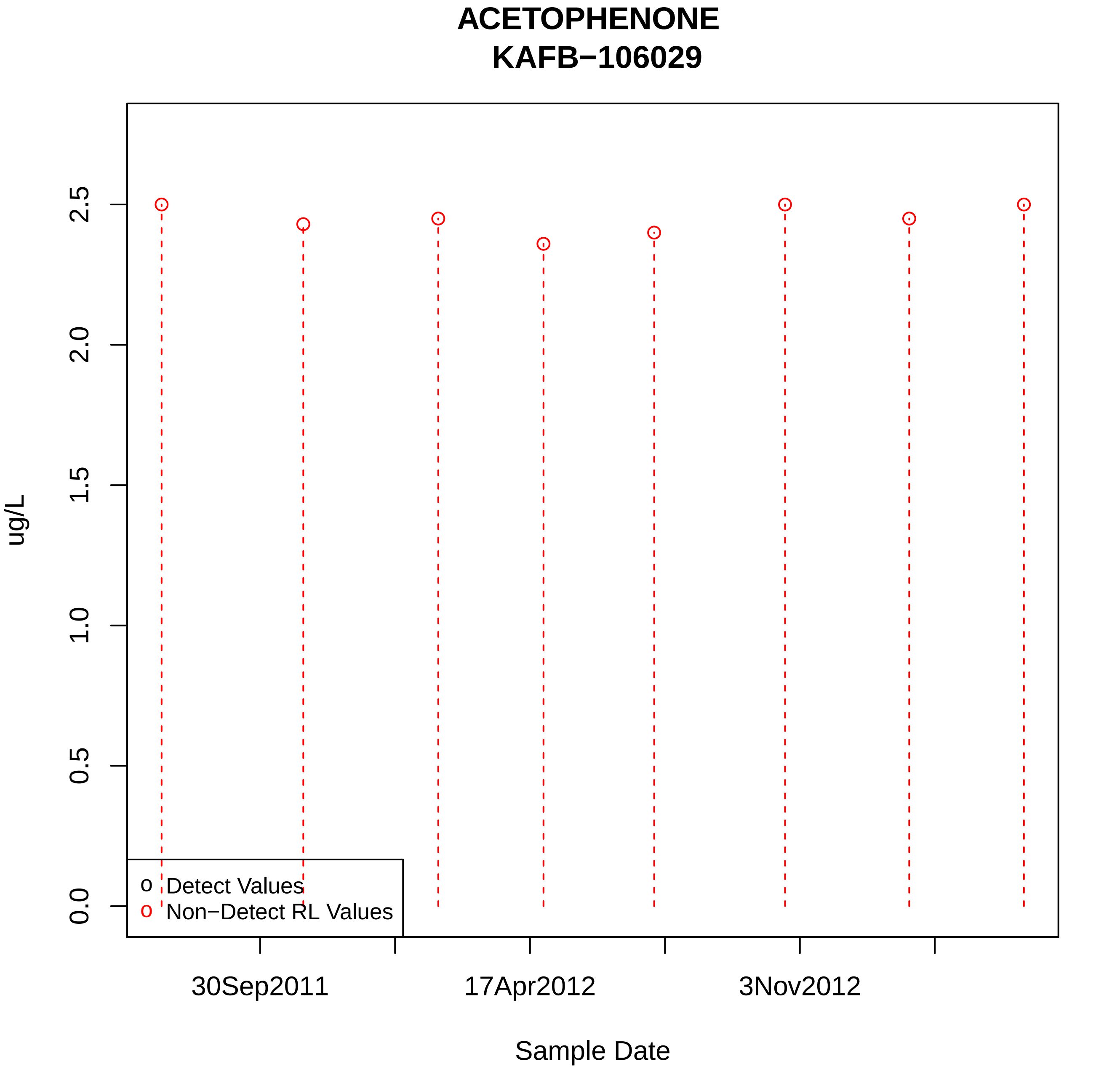

ACETOPHENONE
KAFB−106022
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

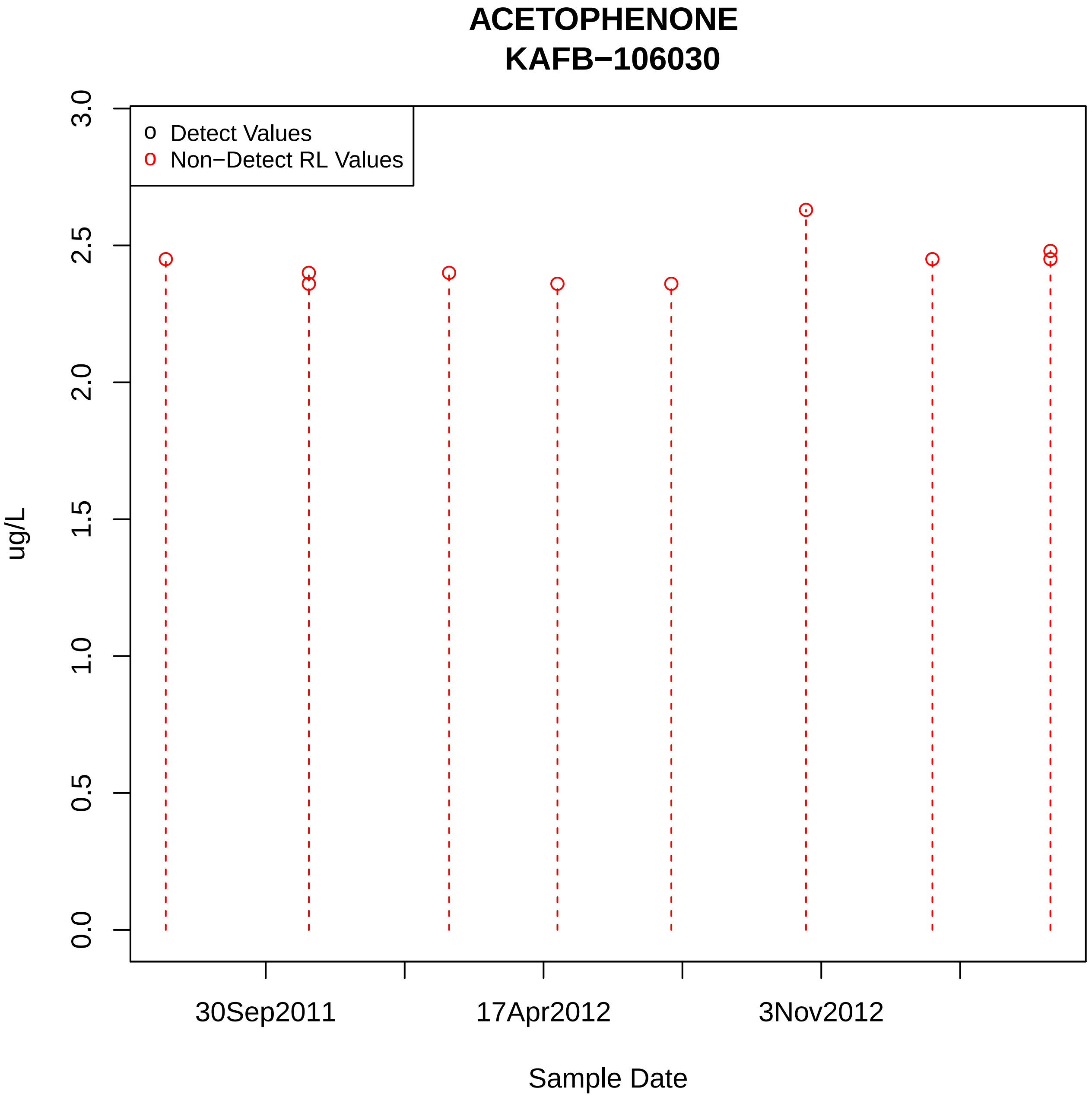

ACETOPHENONE
KAFB−106024
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


ACETOPHENONE
KAFB−106025
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

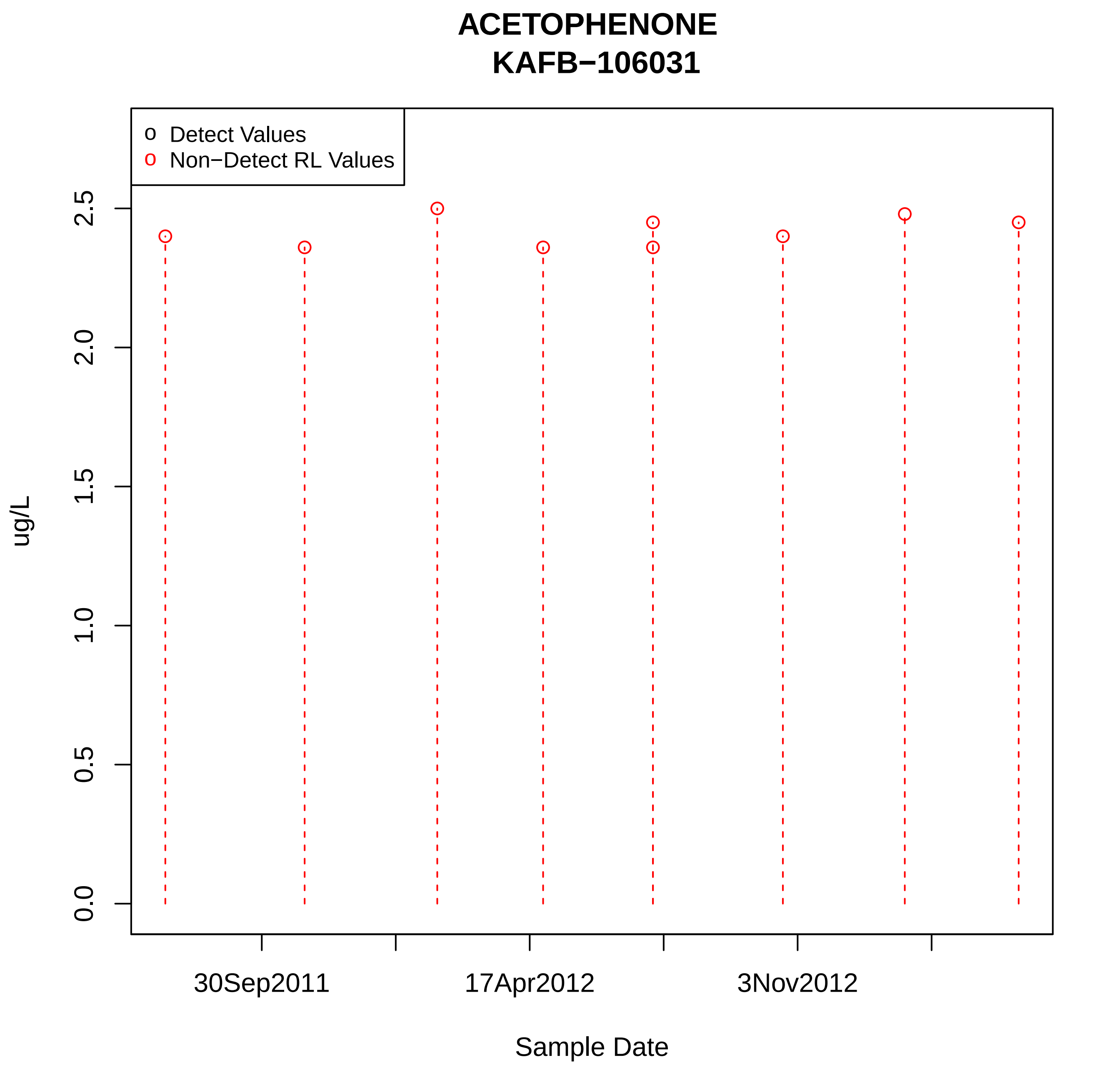


ACETOPHENONE
KAFB−106026
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

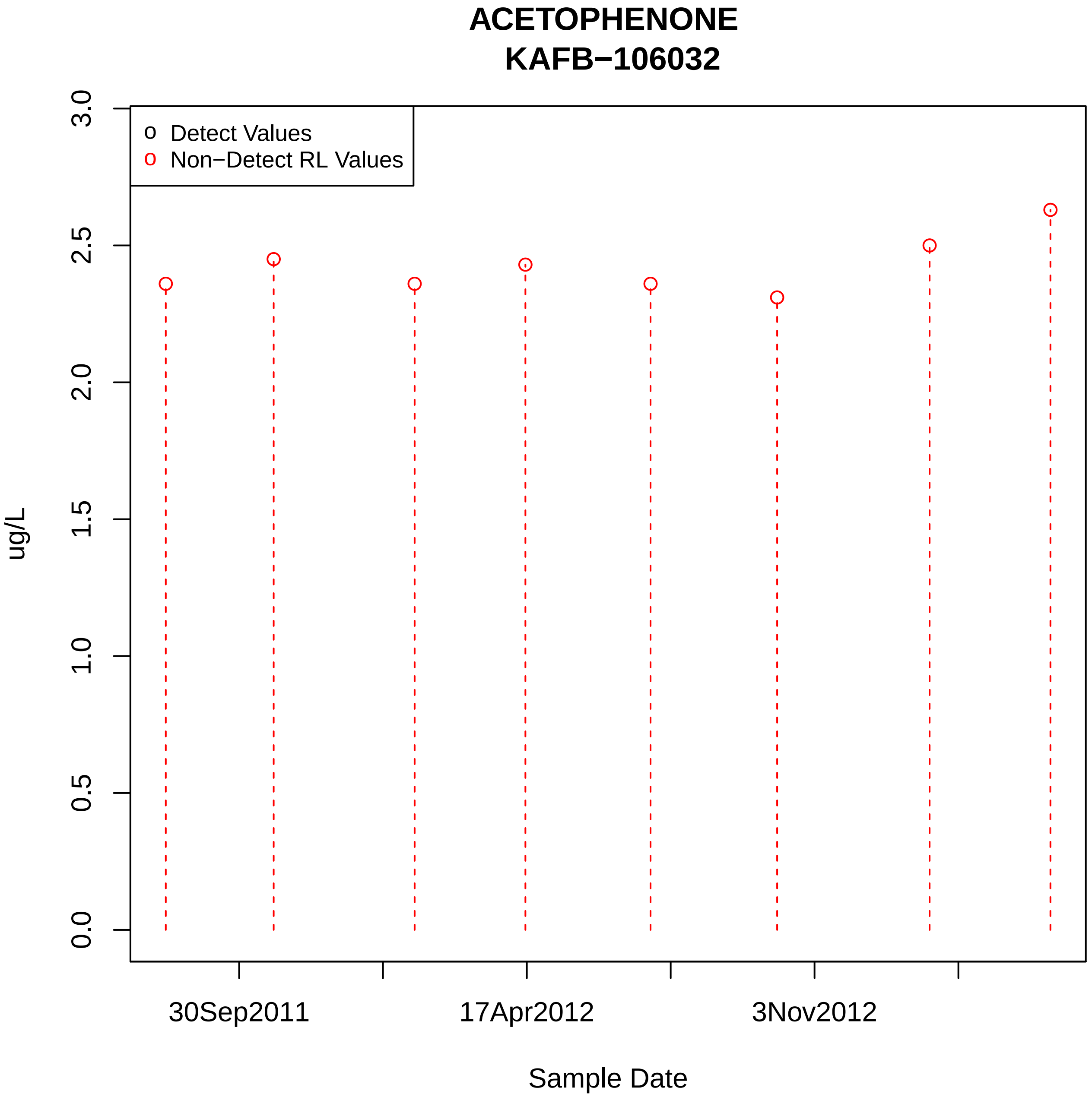

ACETOPHENONE
KAFB−106029
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

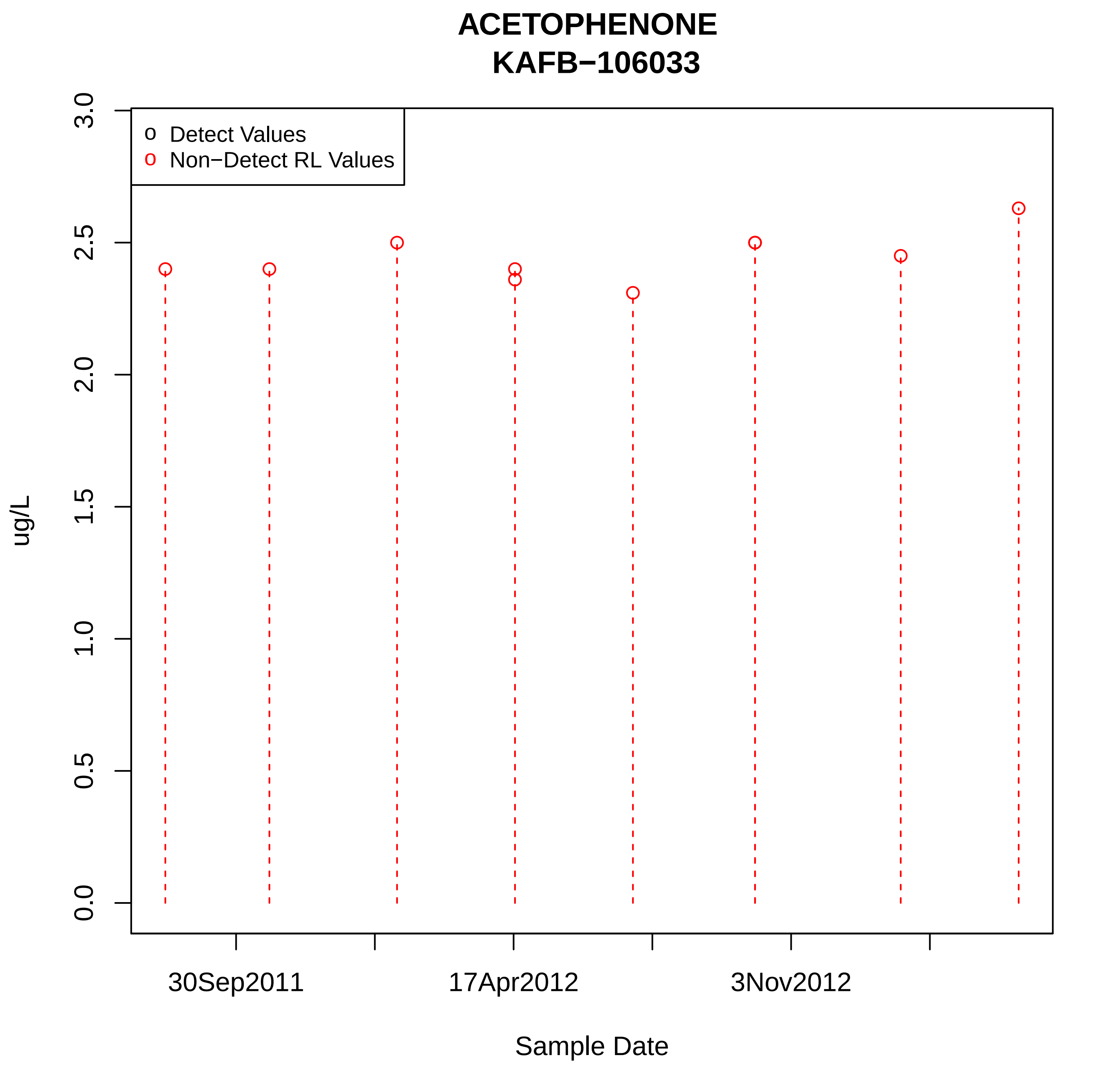


ACETOPHENONE
KAFB−106030
o Detect Values
o Non−Detect RL Values
3.0
2.5
2.0
1.5
1.0
0.5
0.0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

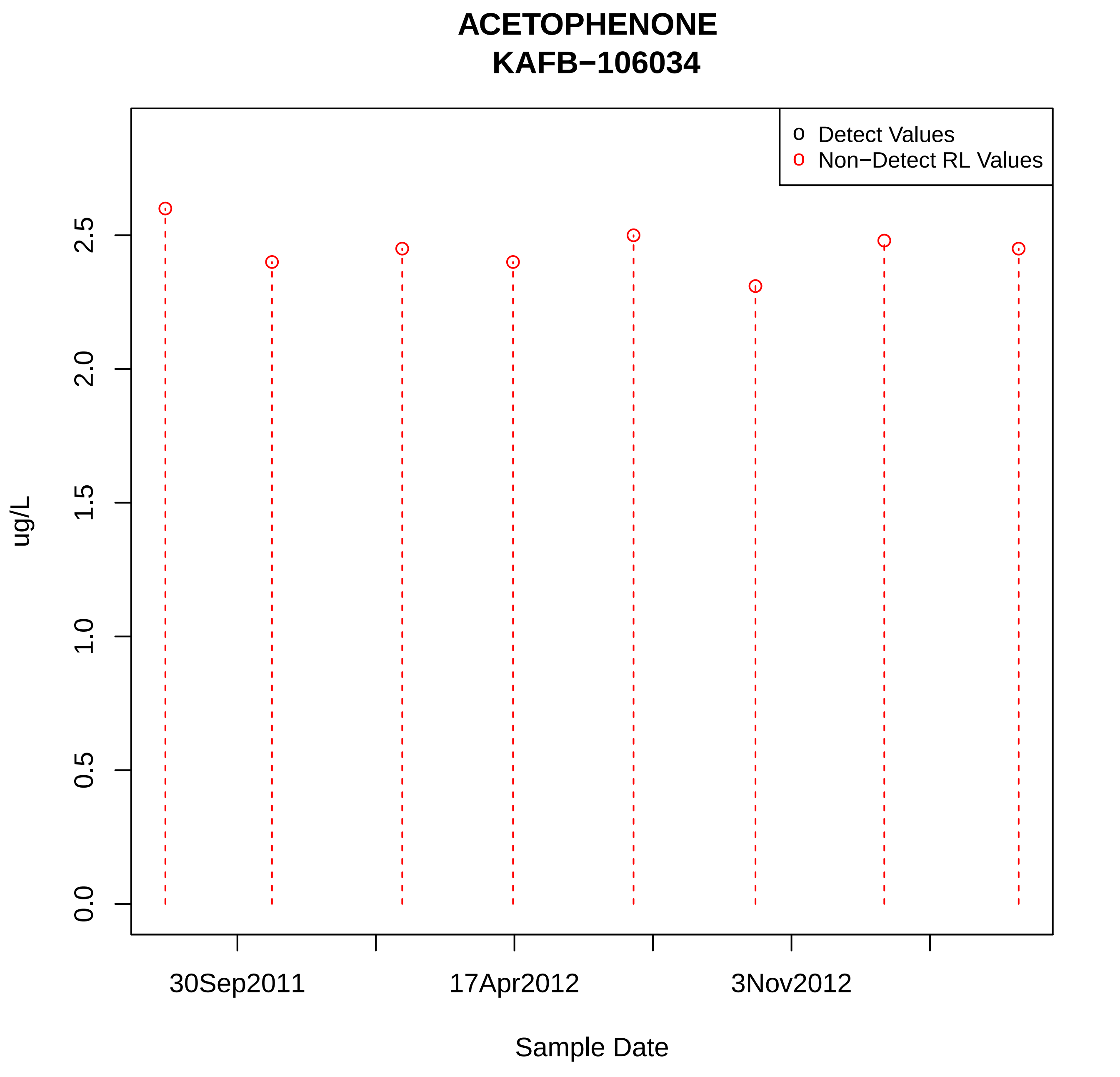


ACETOPHENONE
KAFB−106031
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

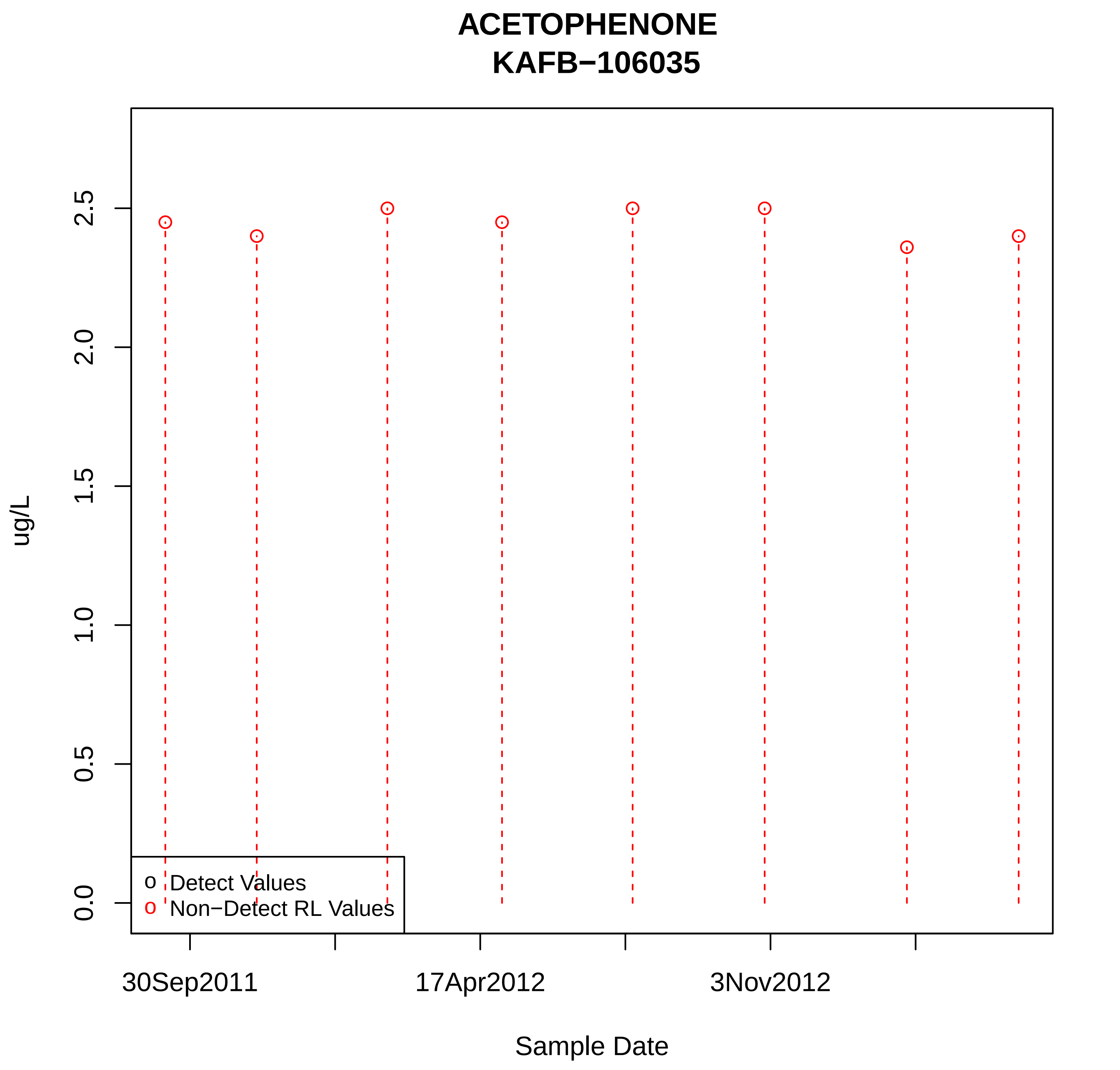

ACETOPHENONE
KAFB−106032
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



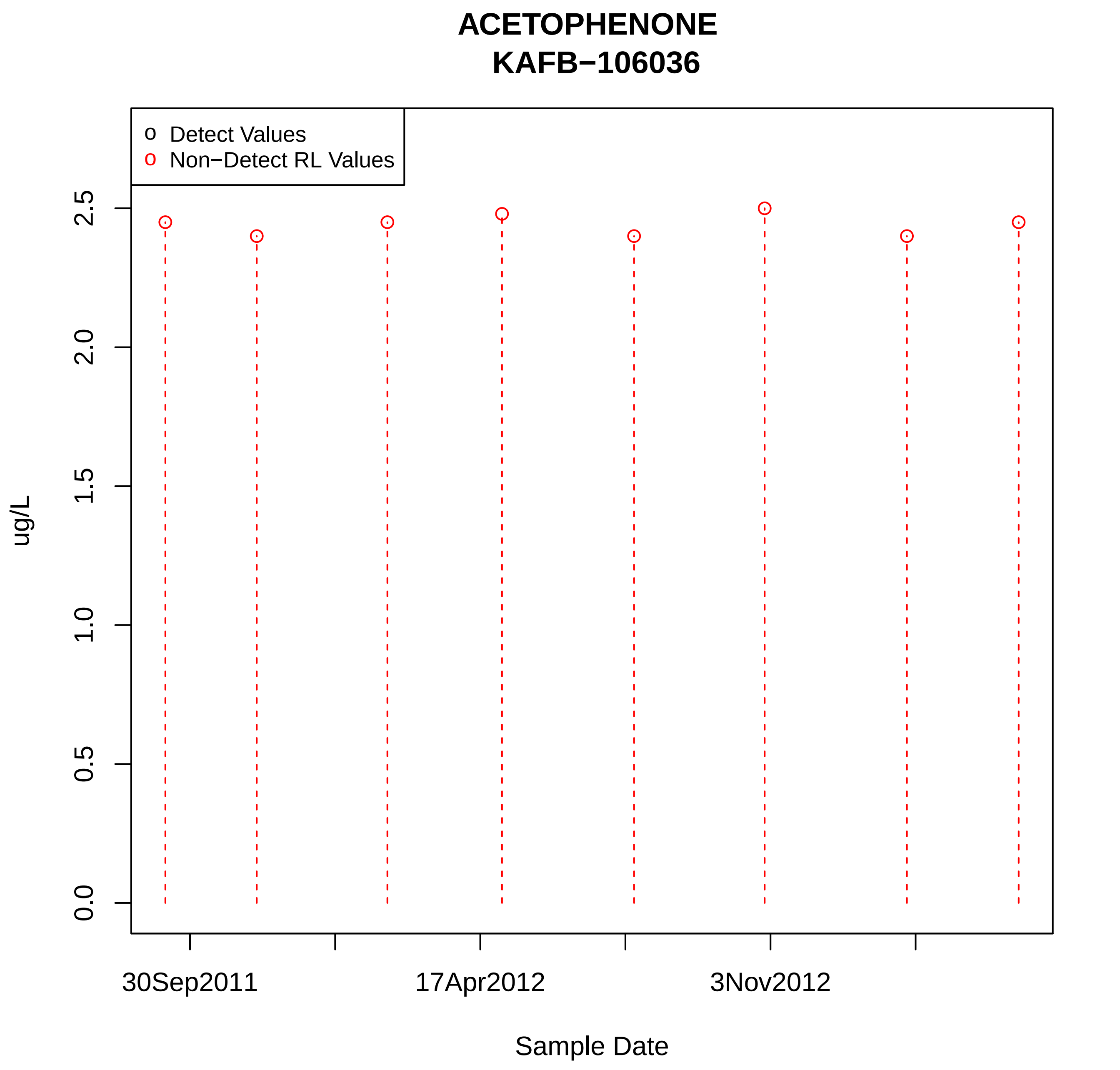
ACETOPHENONE
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



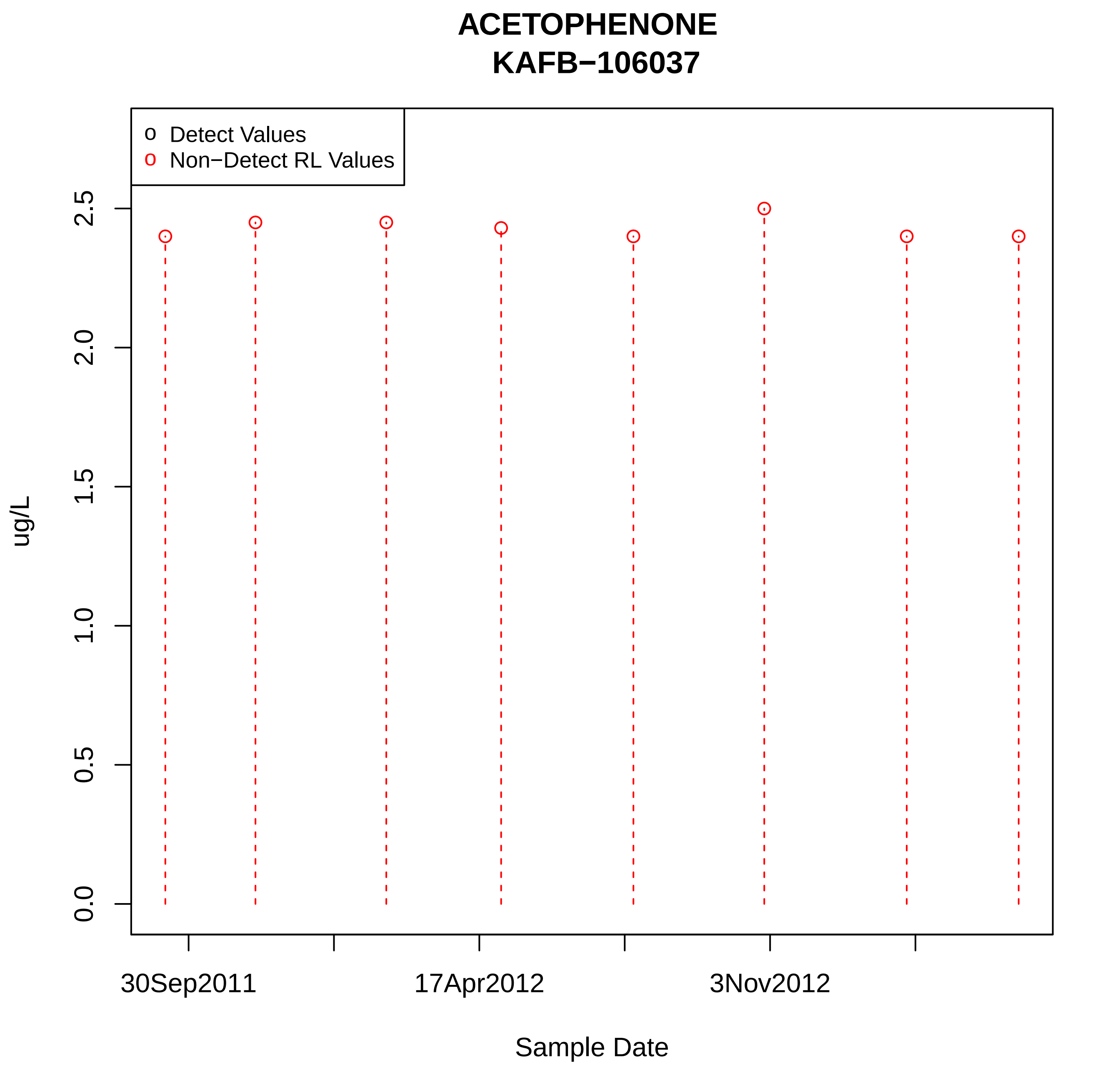
ACETOPHENONE
KAFB−106034
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

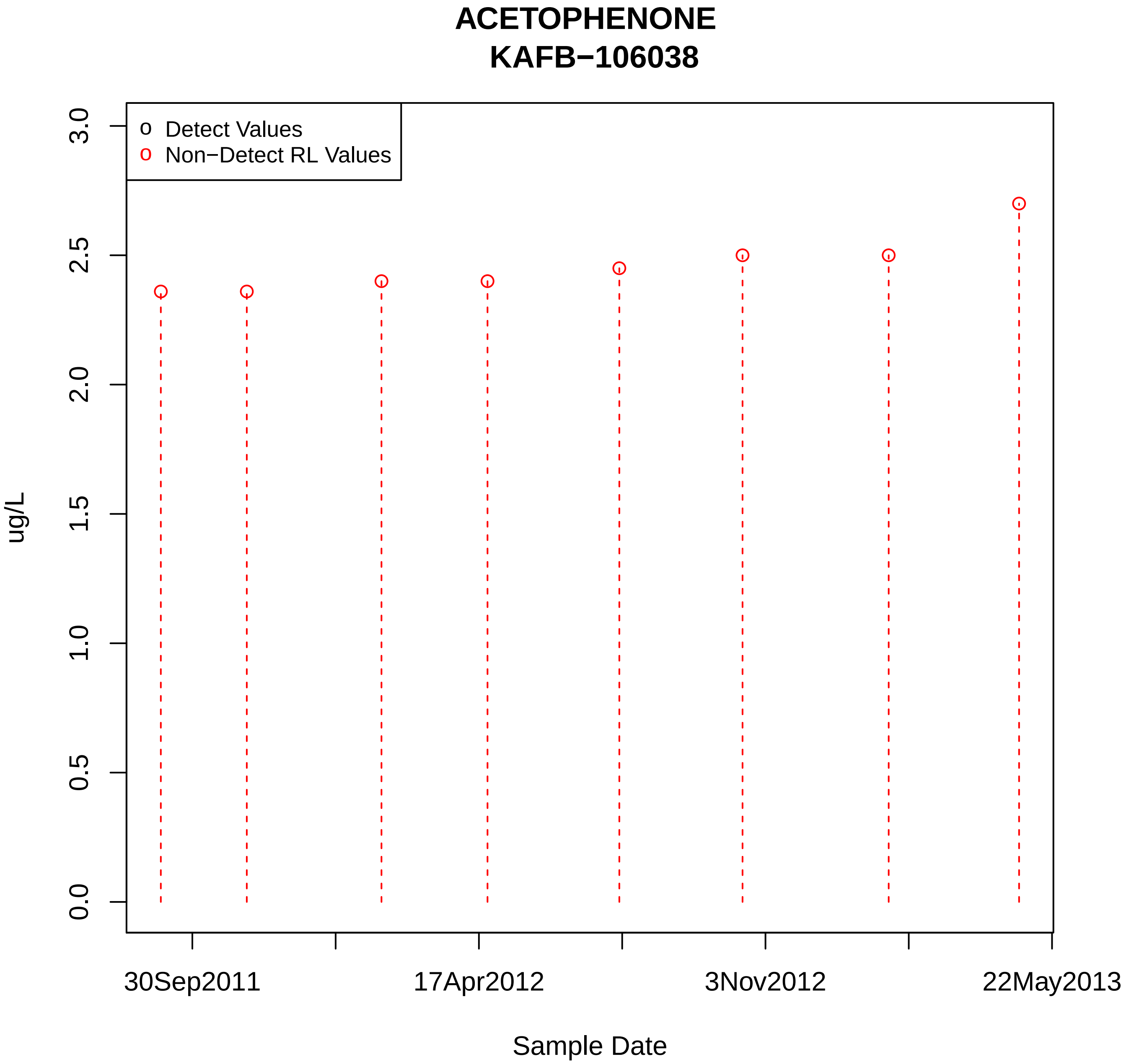


ACETOPHENONE
KAFB−106035
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

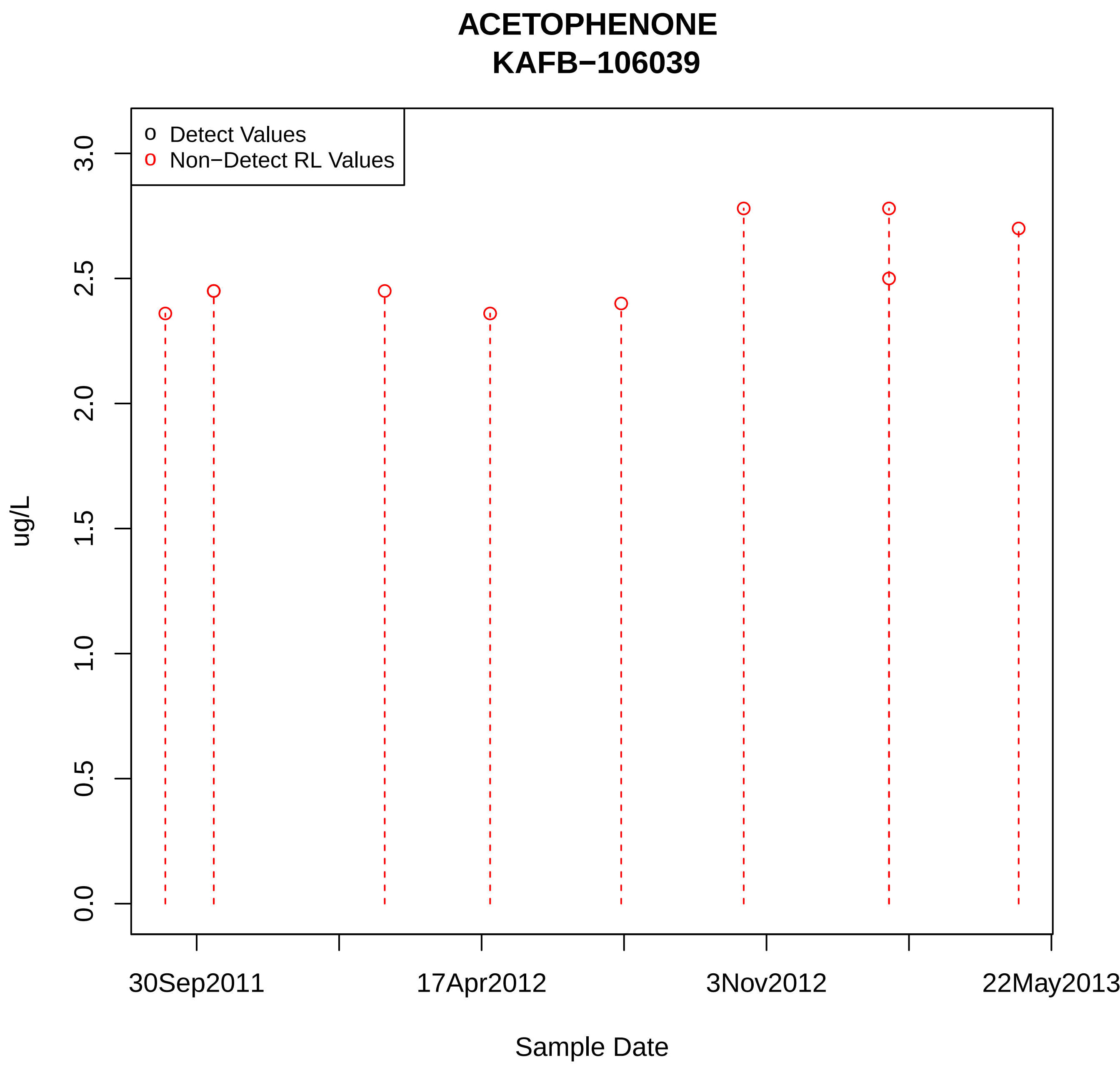


ACETOPHENONE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

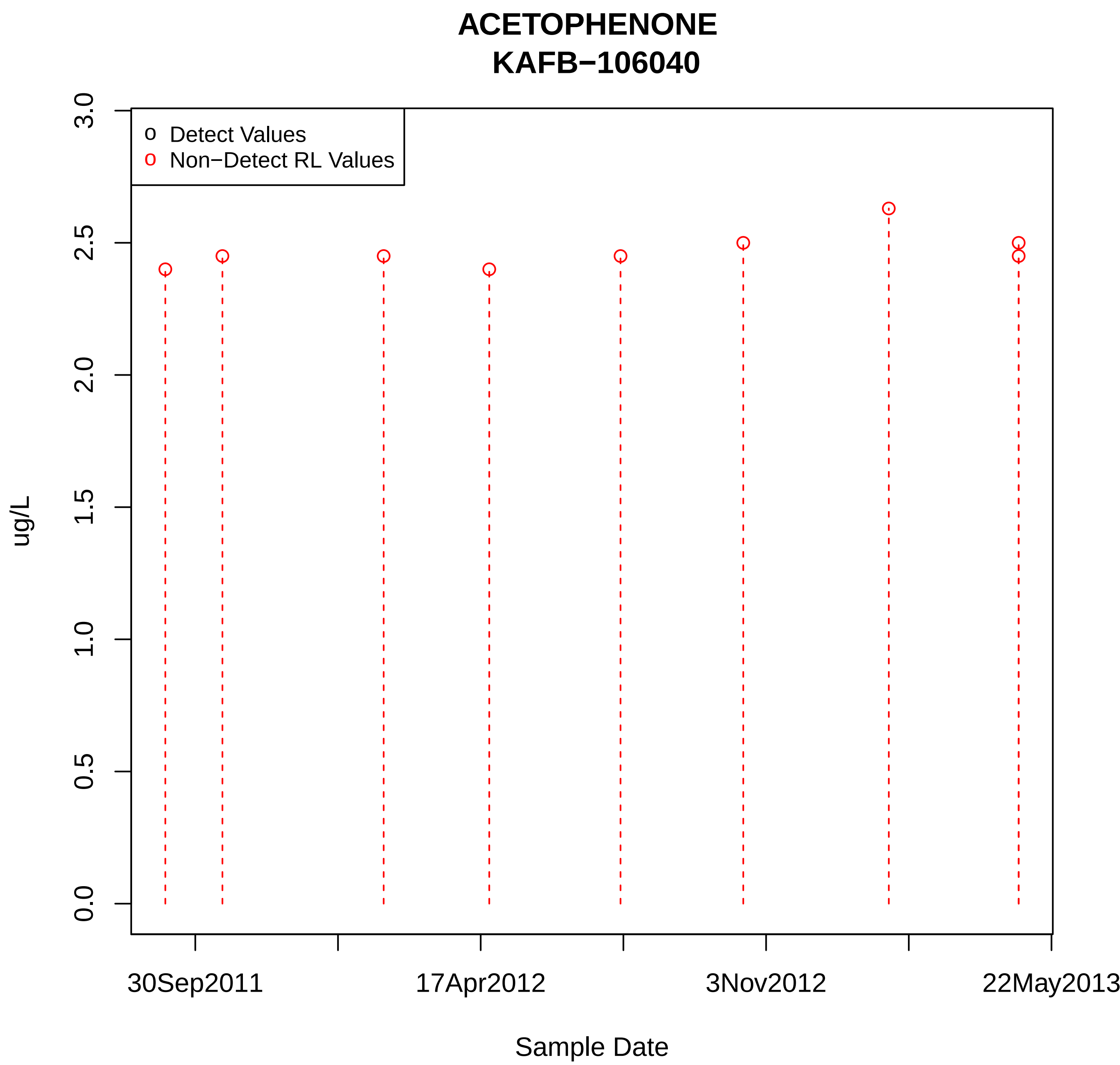

ACETOPHENONE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



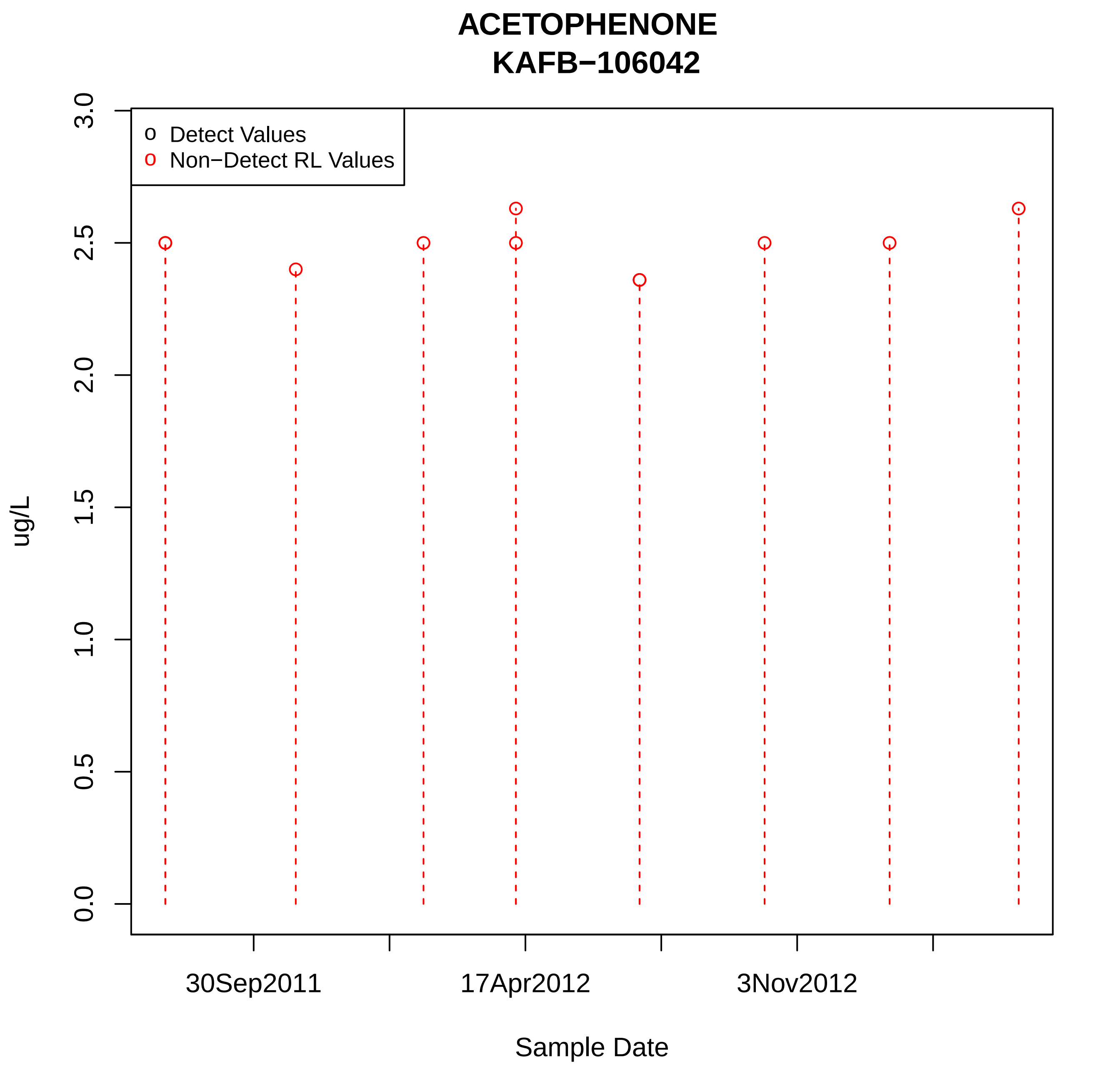
ACETOPHENONE
KAFB−106038
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



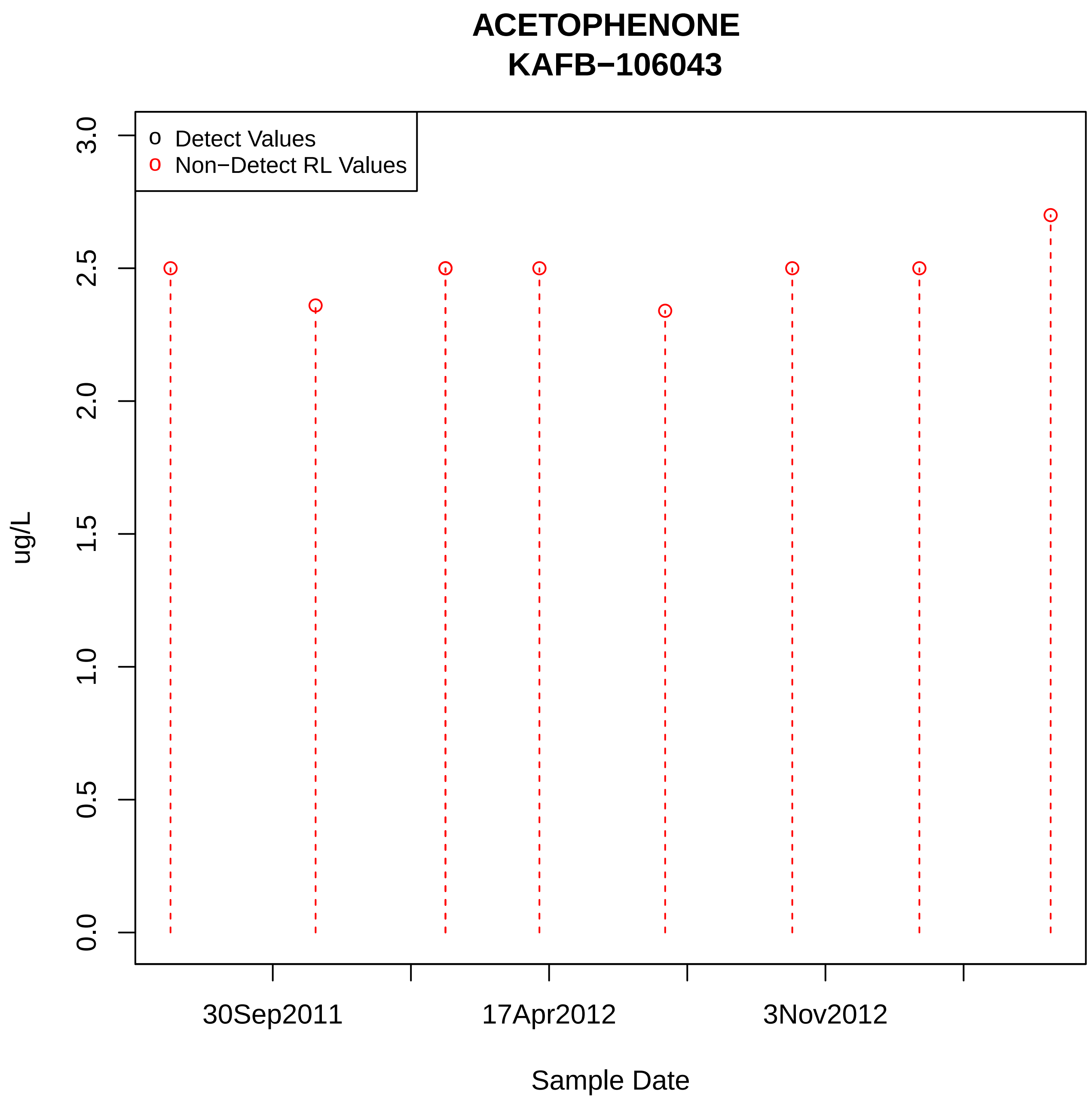
ACETOPHENONE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



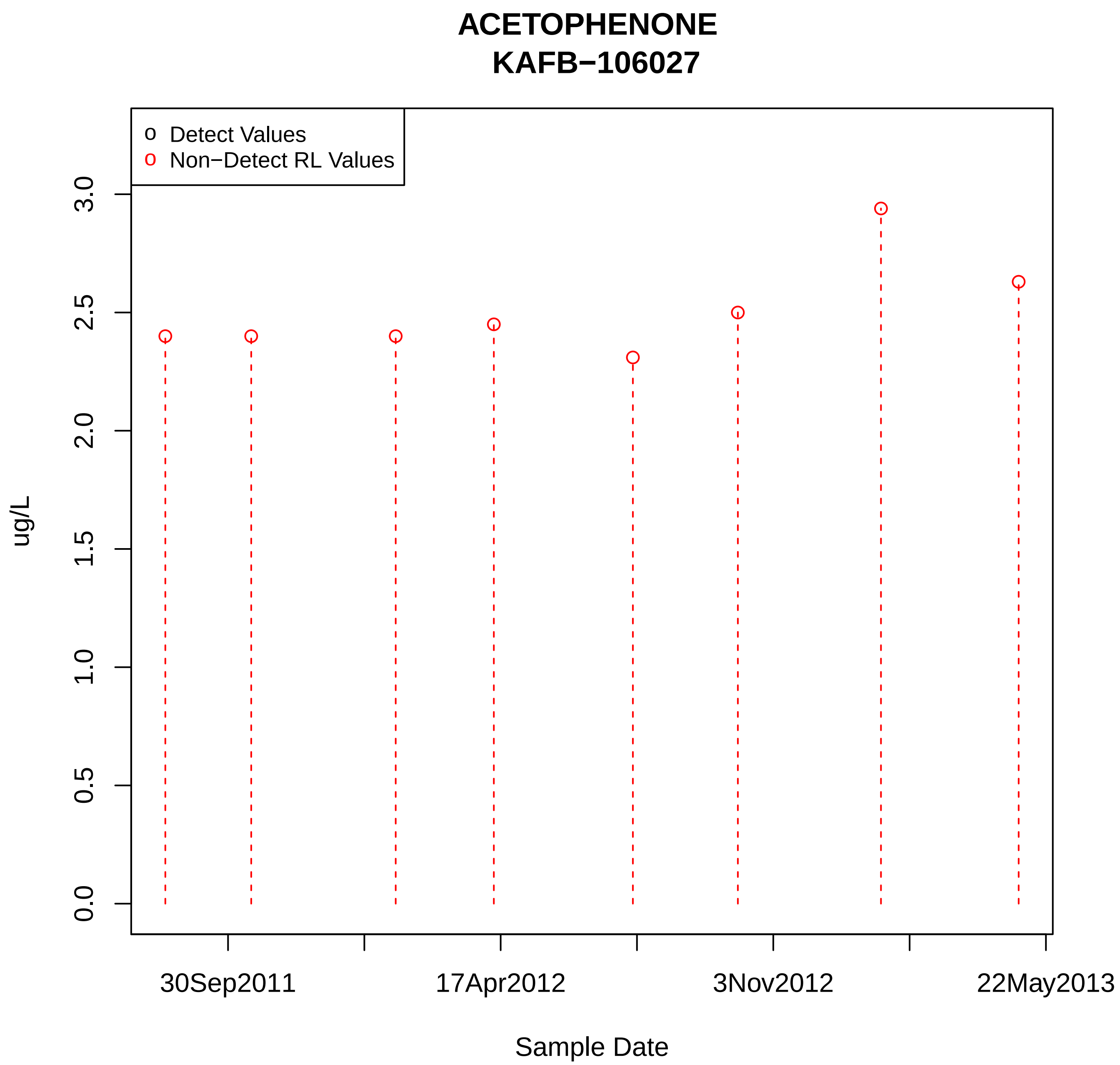
ACETOPHENONE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

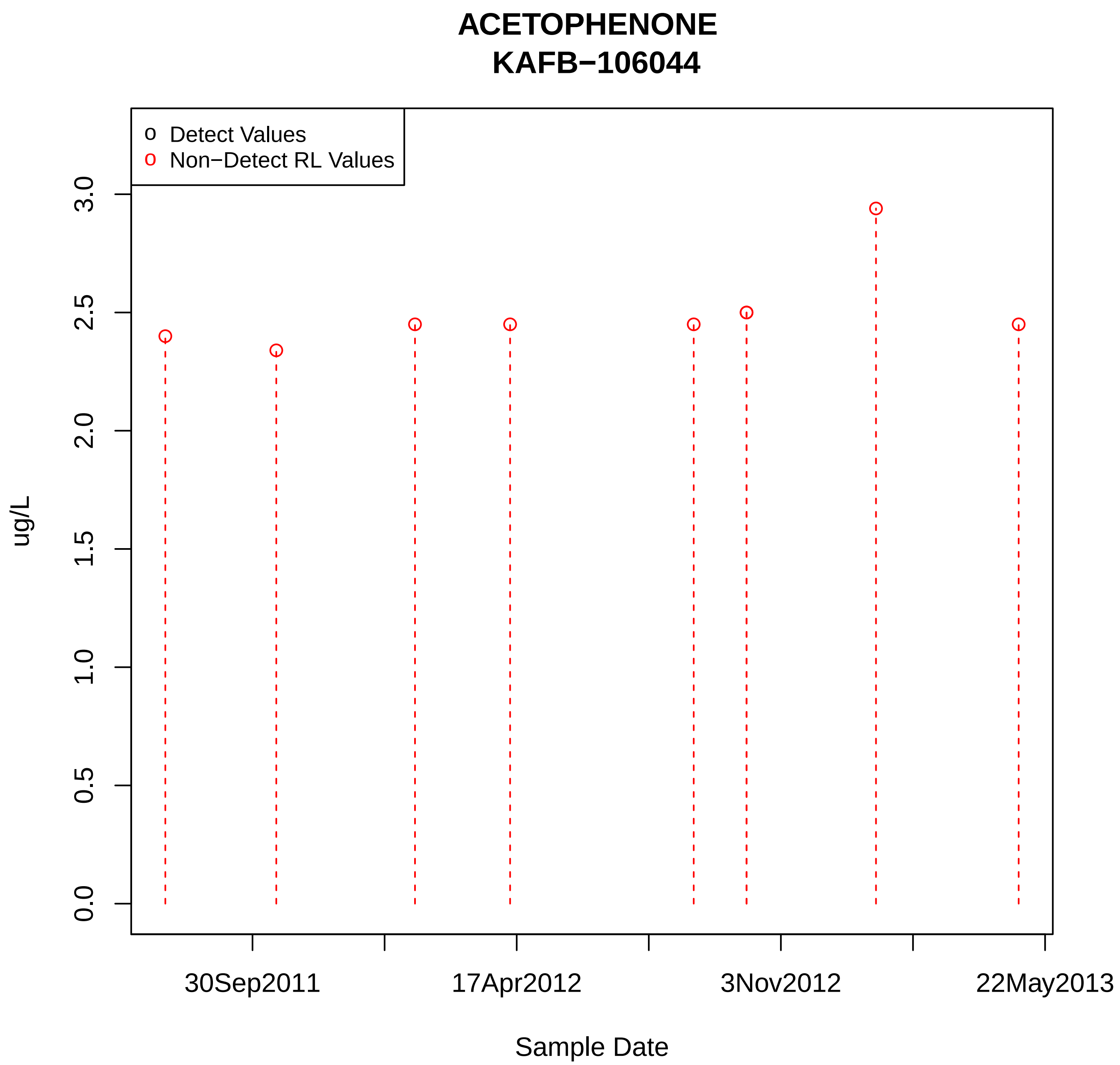


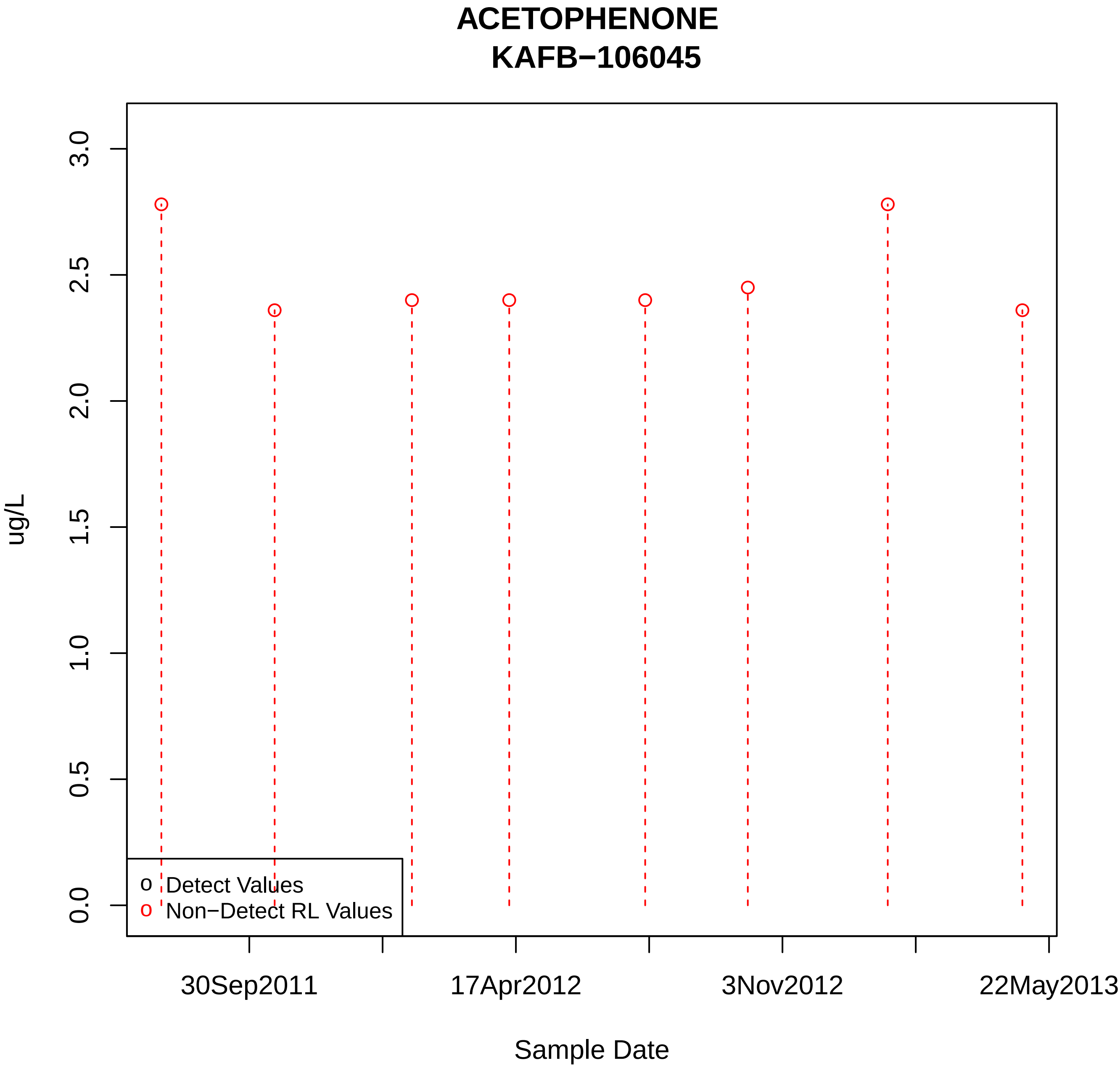
ACETOPHENONE
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



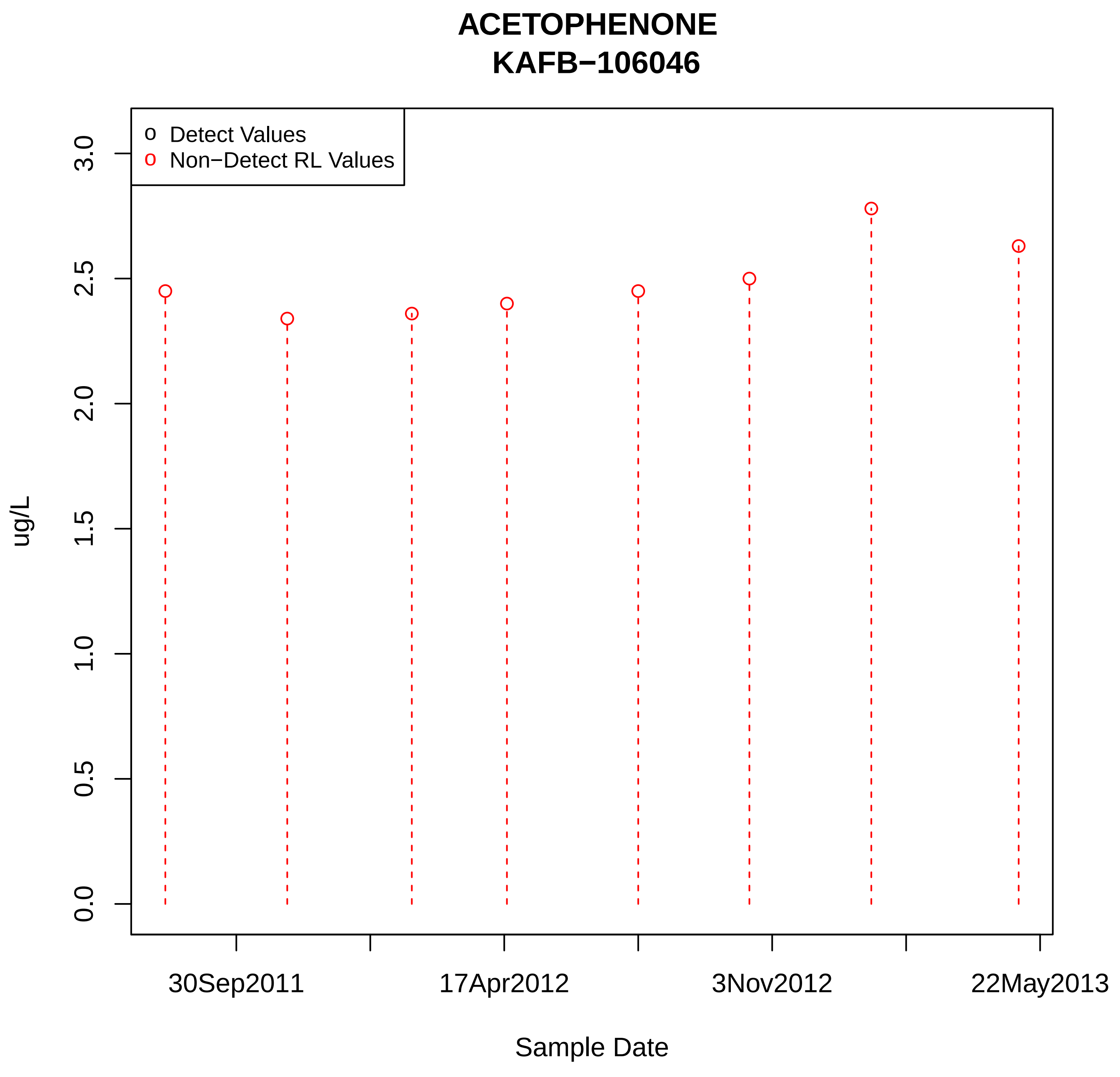
ACETOPHENONE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

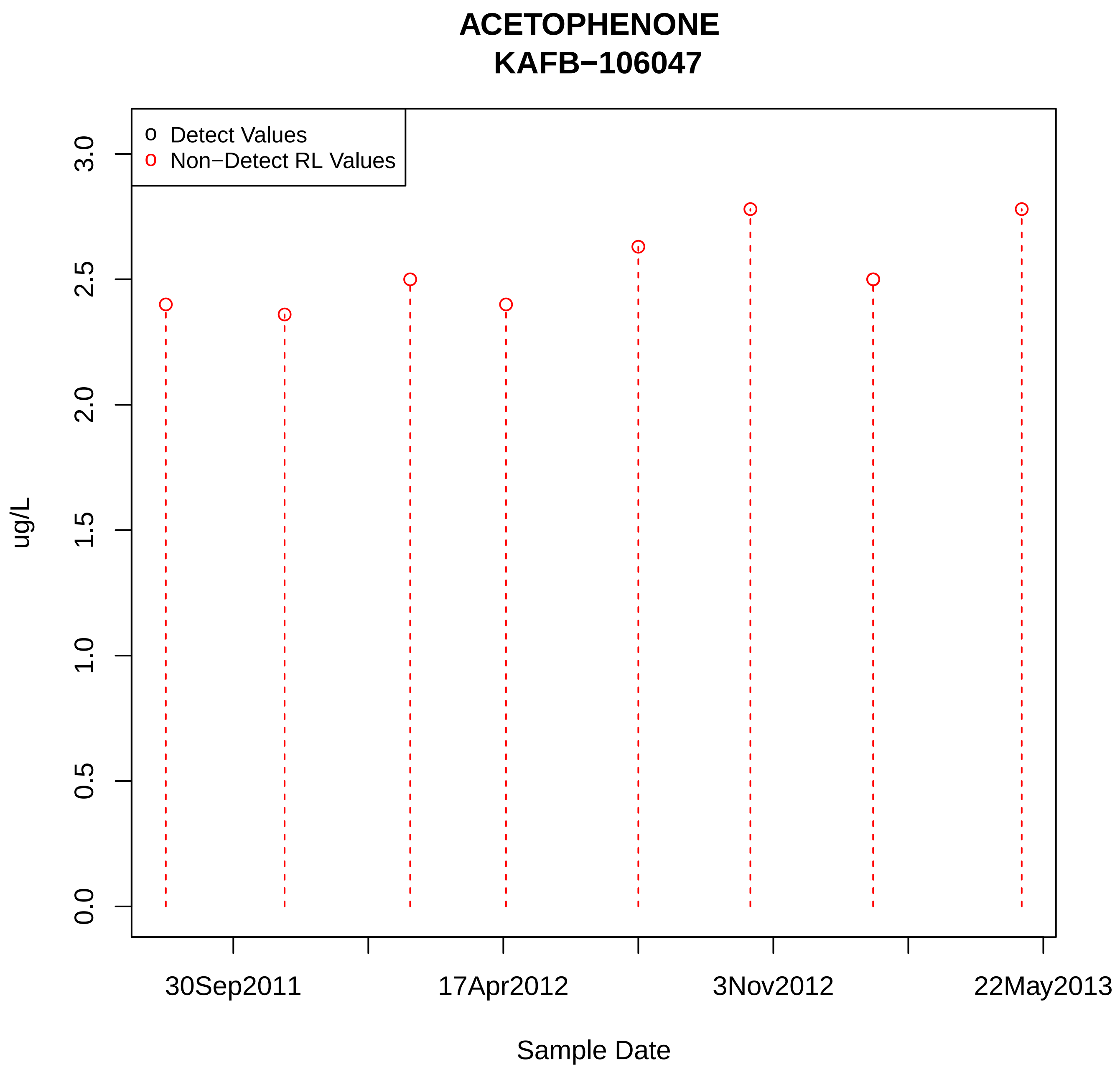

ACETOPHENONE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

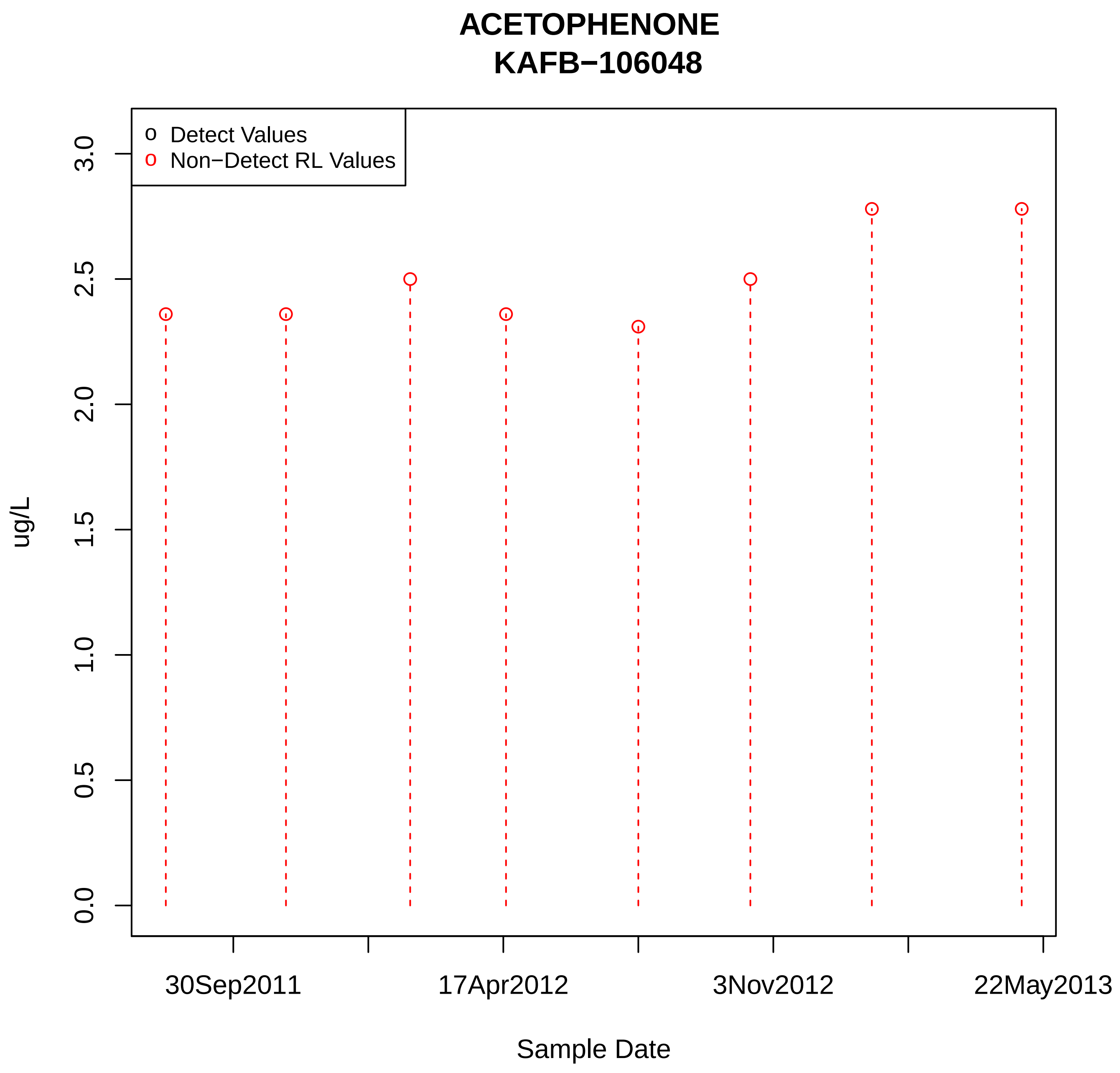

ACETOPHENONE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

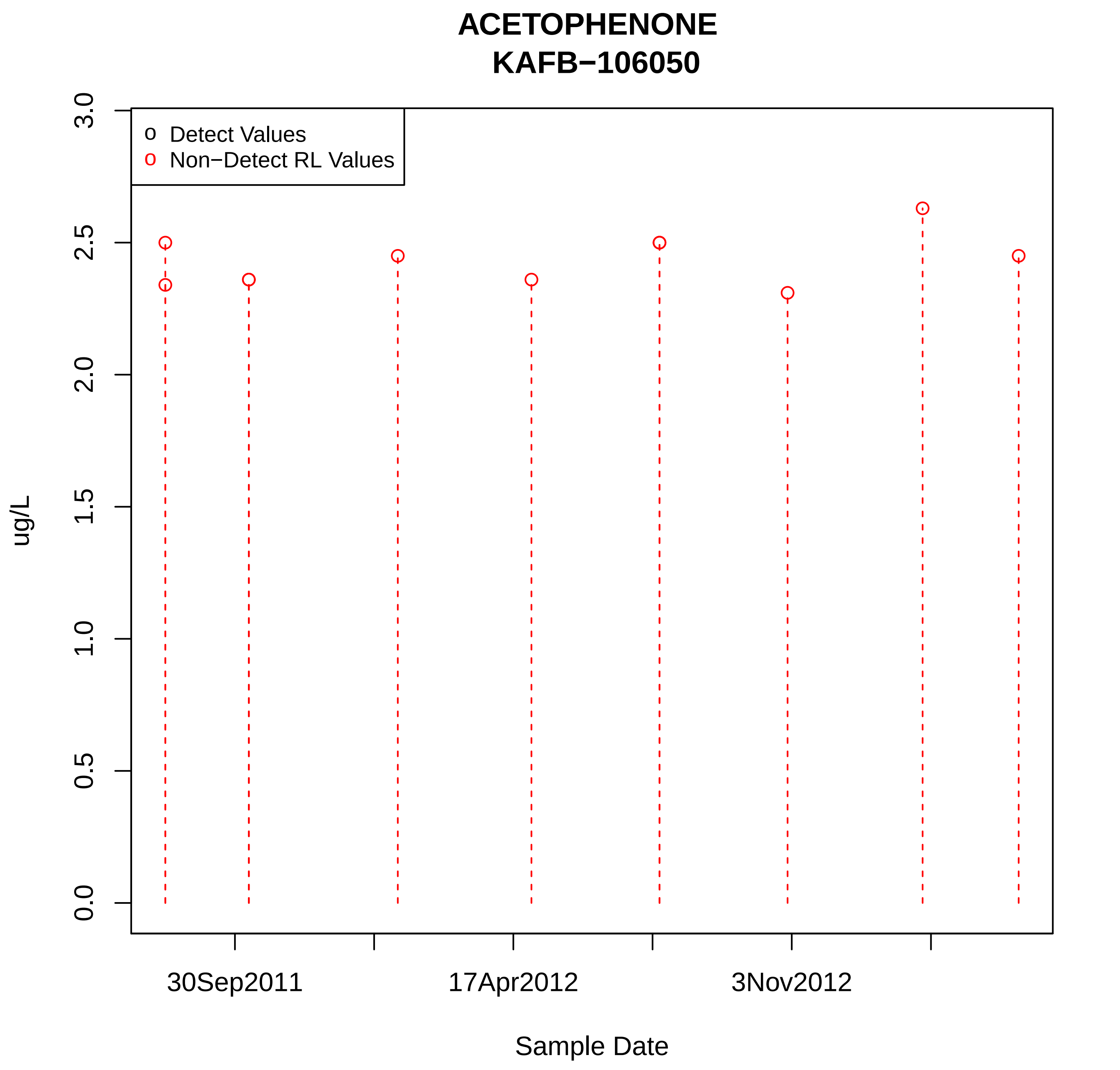


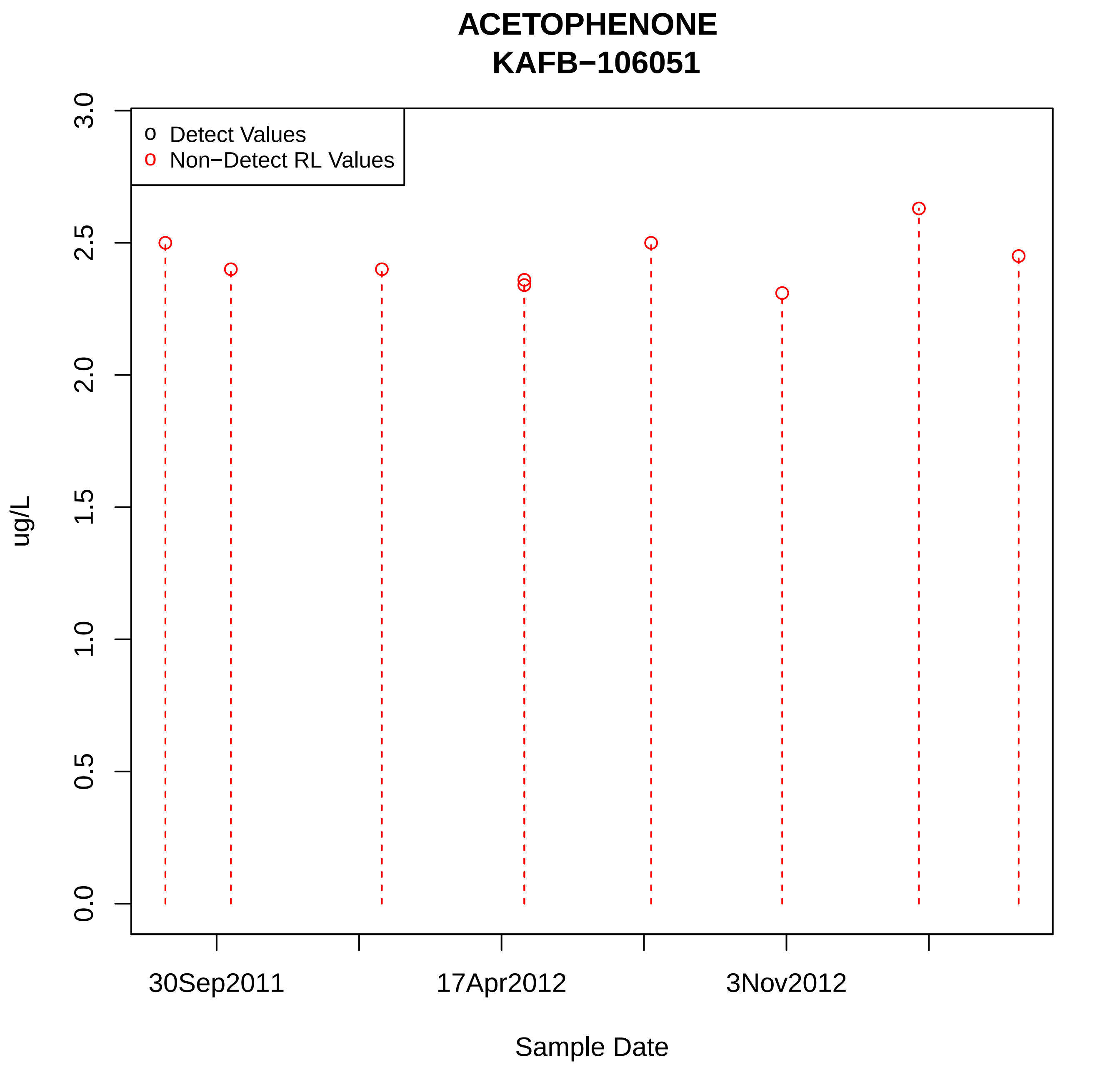
ACETOPHENONE
KAFB−106045
3.0
2.5
2.0
1.5
1.0
0.5
0.0
ug/L
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETOPHENONE
KAFB−106046
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

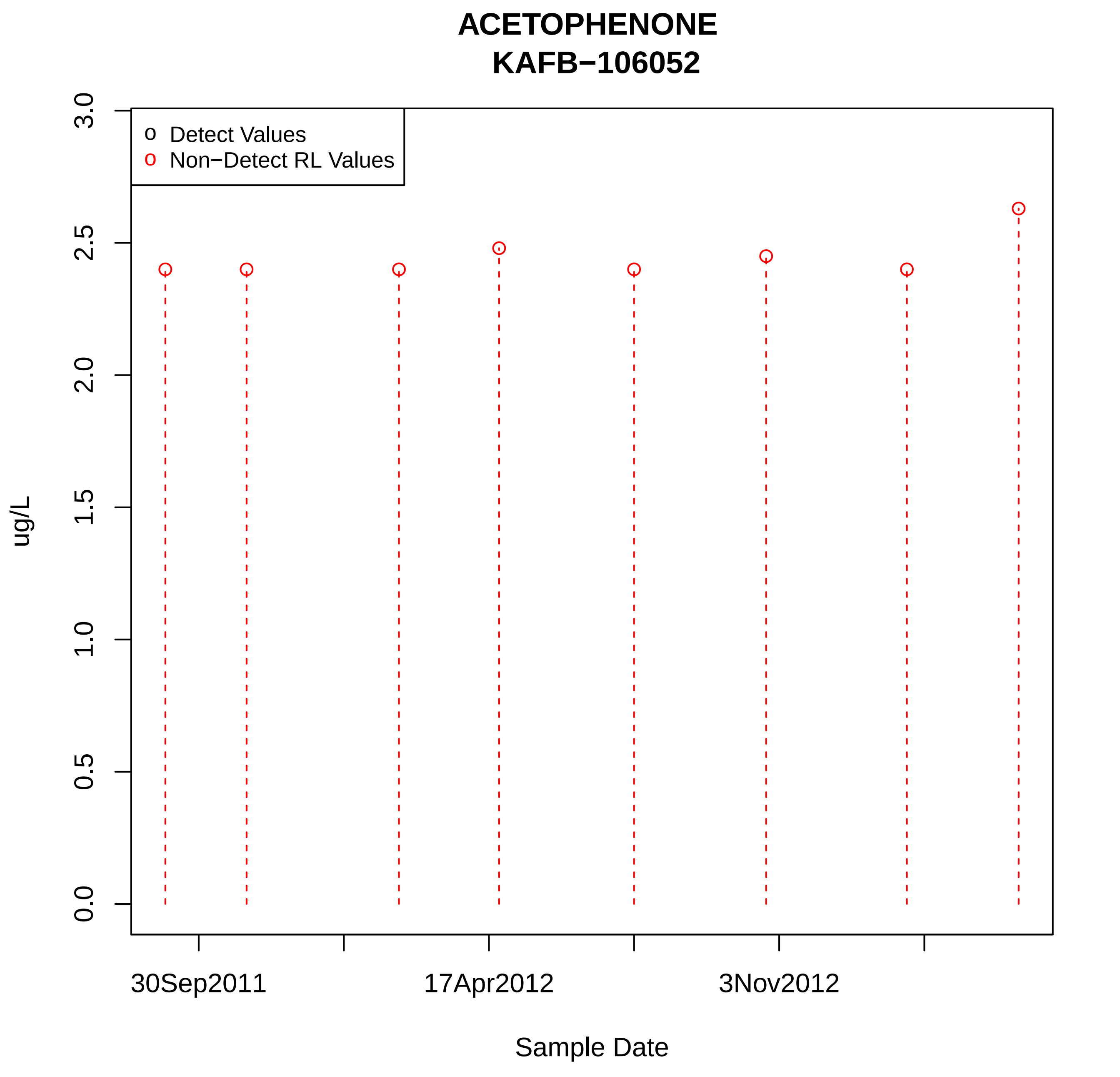

ACETOPHENONE
KAFB−106047
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETOPHENONE
KAFB−106048
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

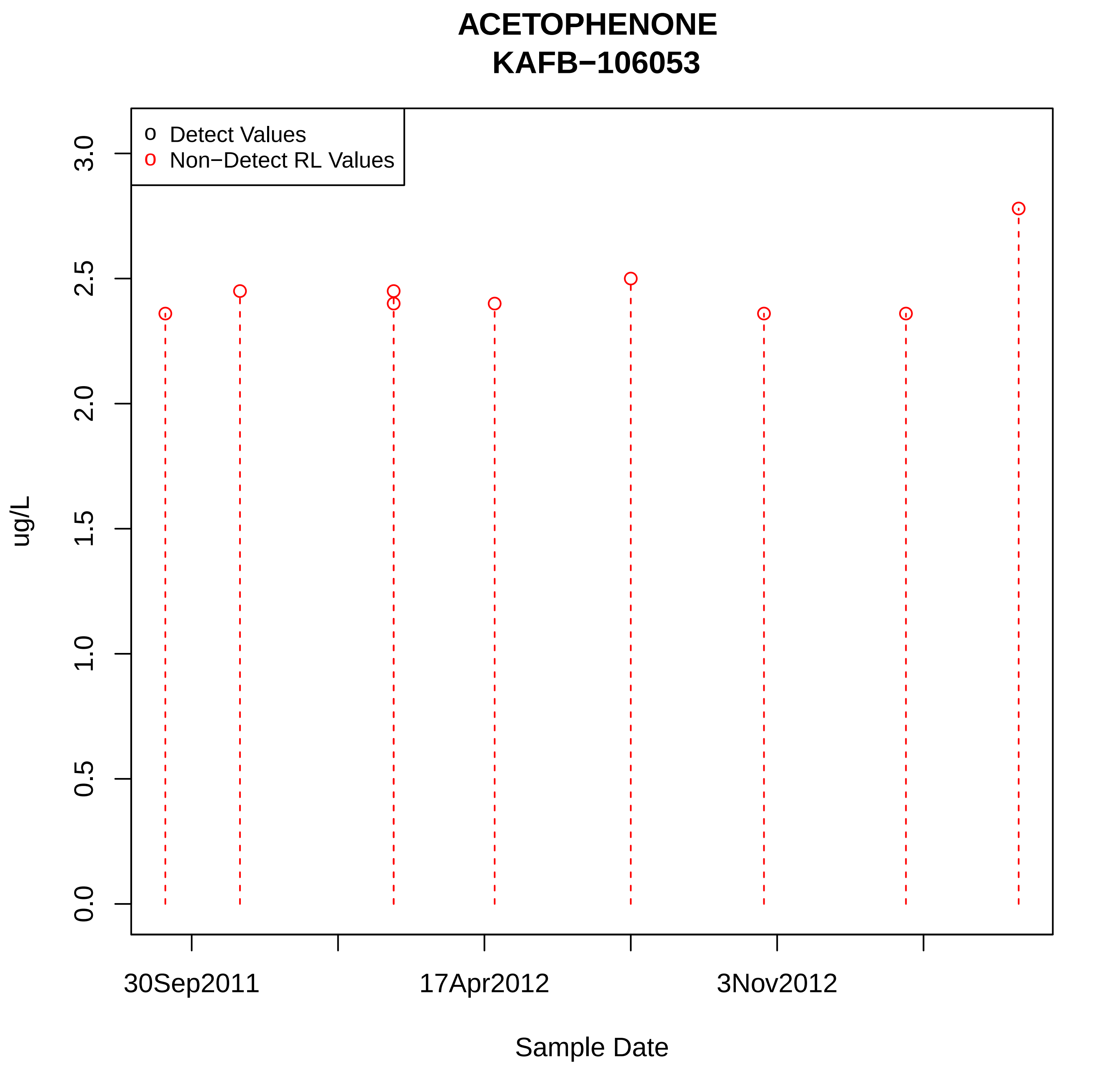

ACETOPHENONE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



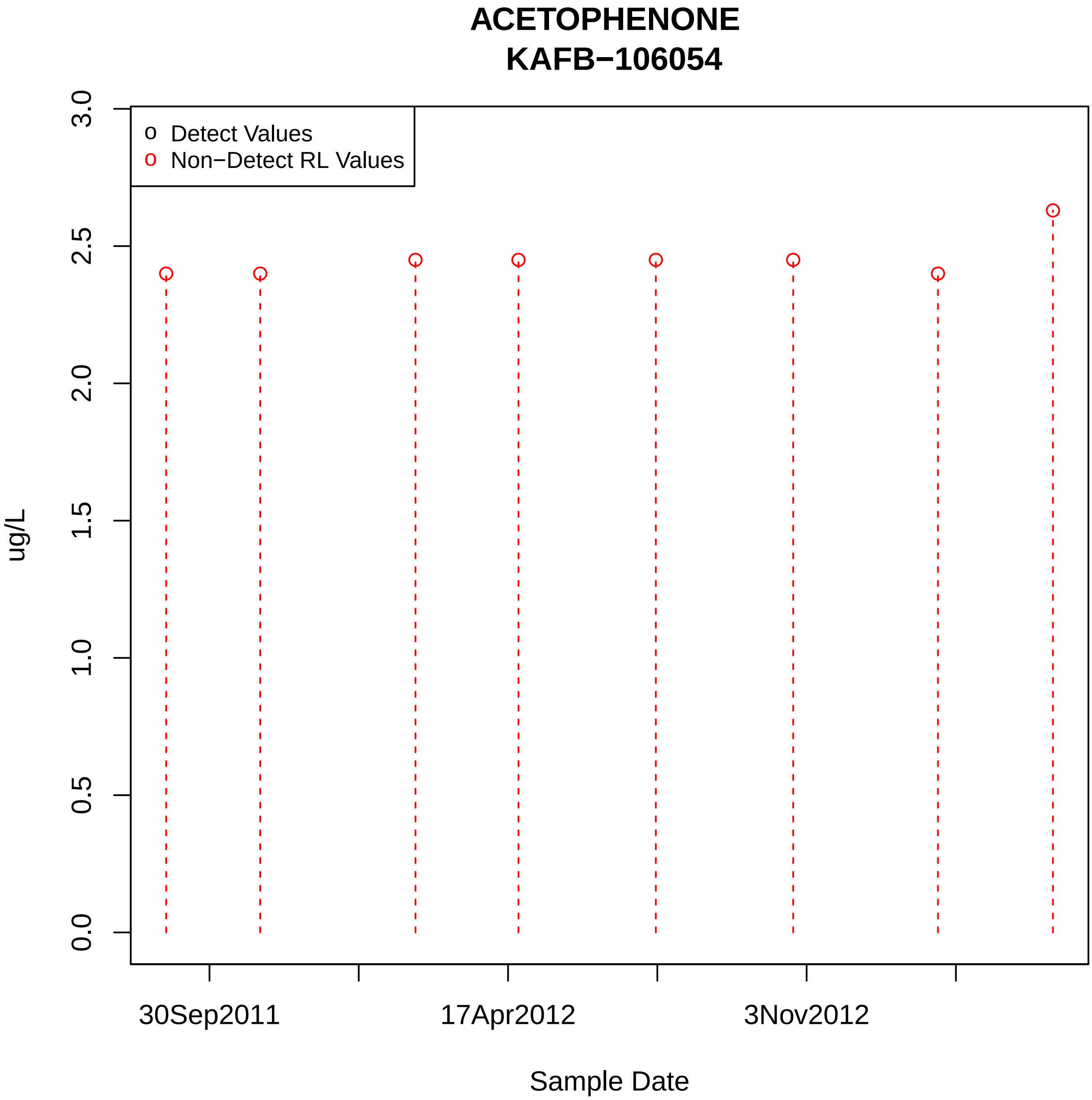
ACETOPHENONE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

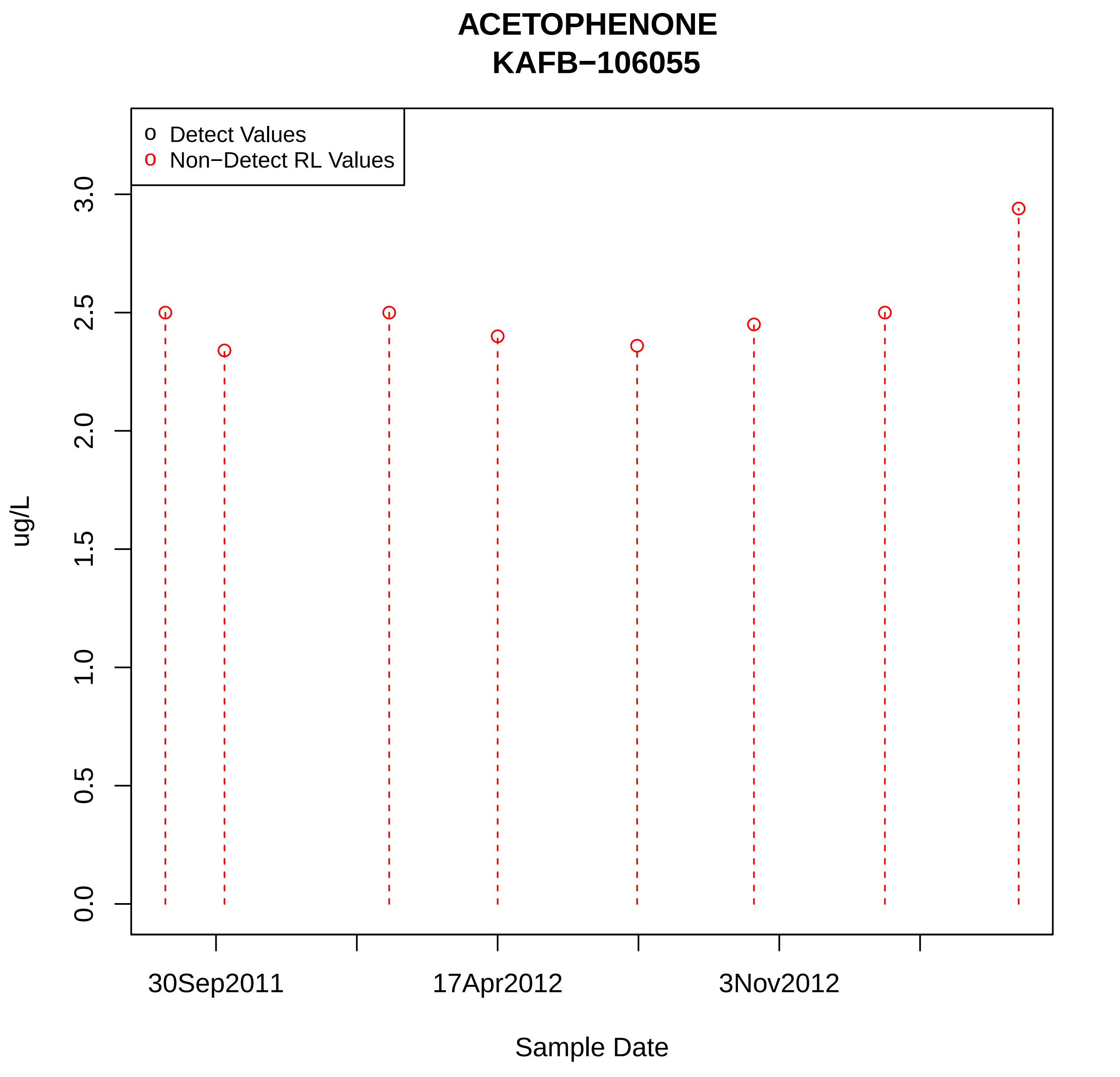


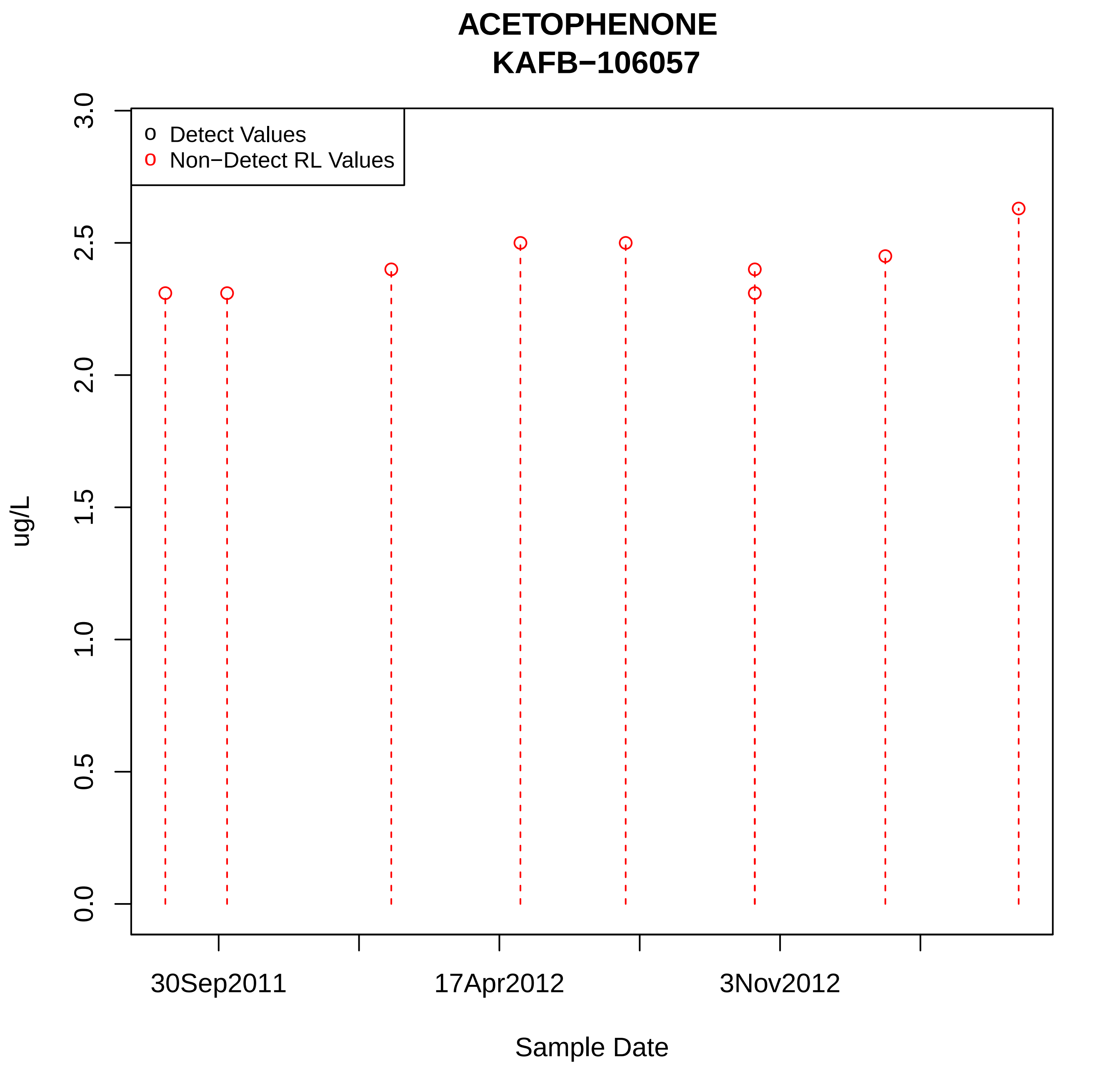
ACETOPHENONE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

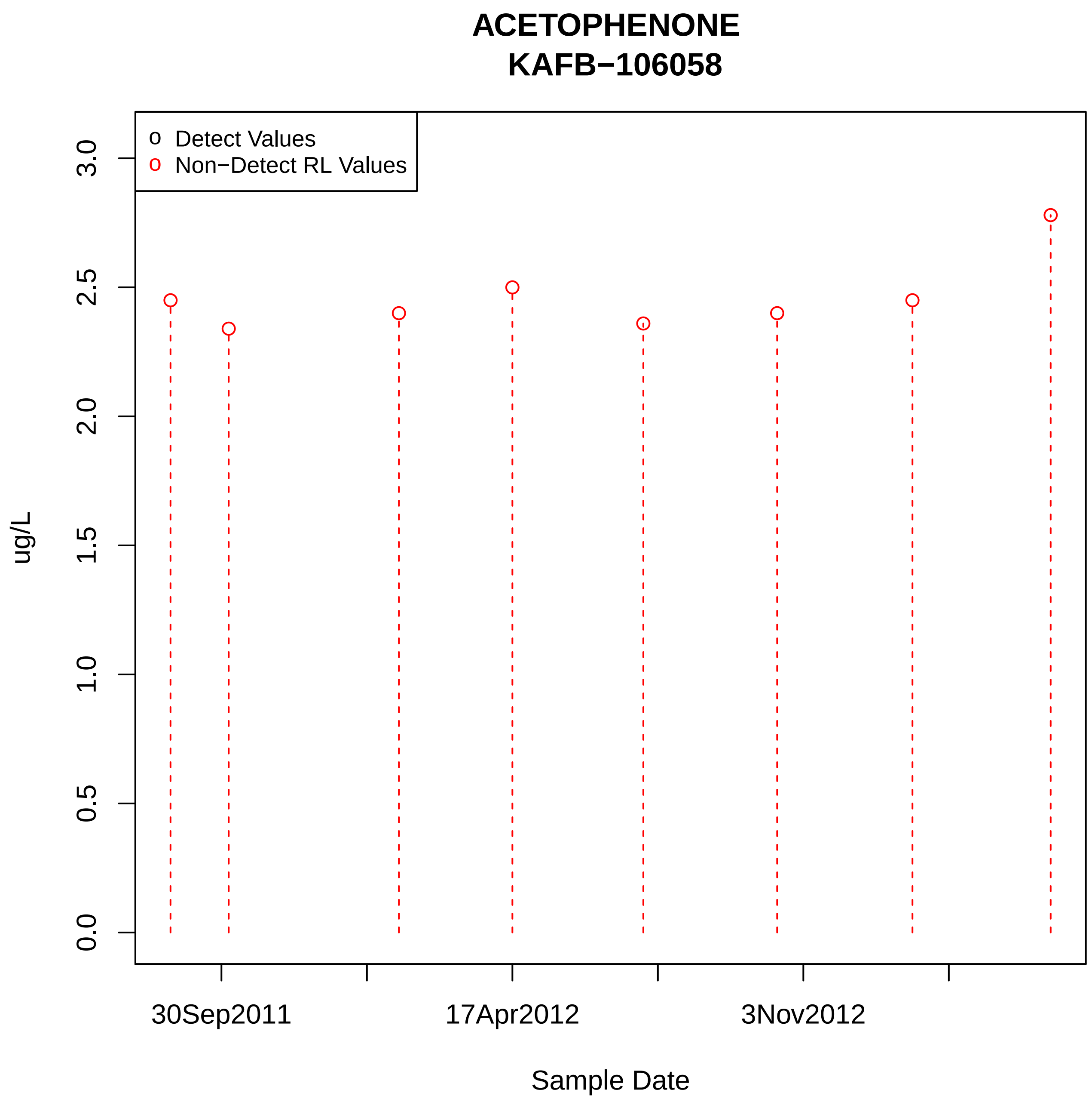


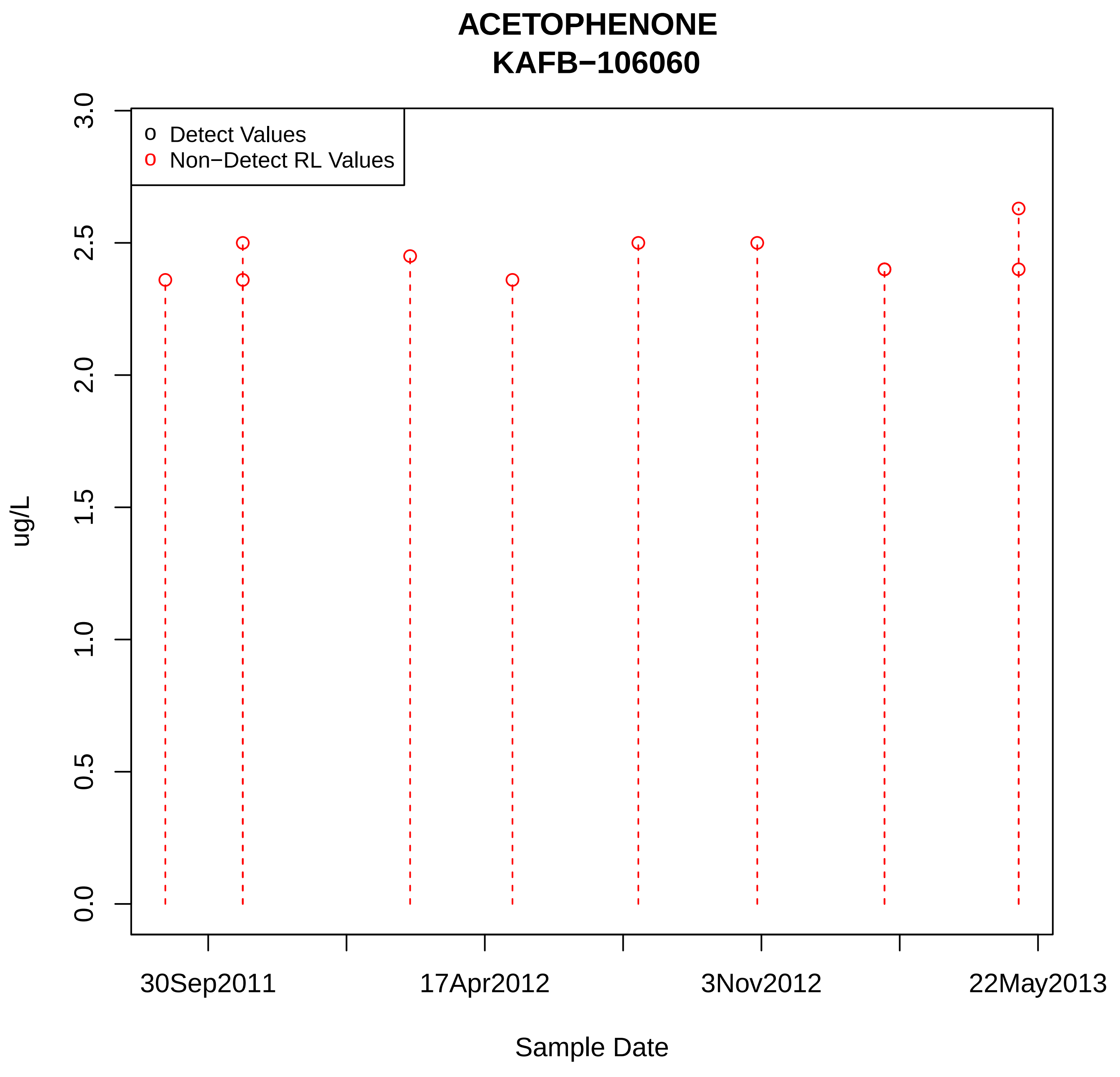
ACETOPHENONE
KAFB−106053
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


ACETOPHENONE
KAFB−106054
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

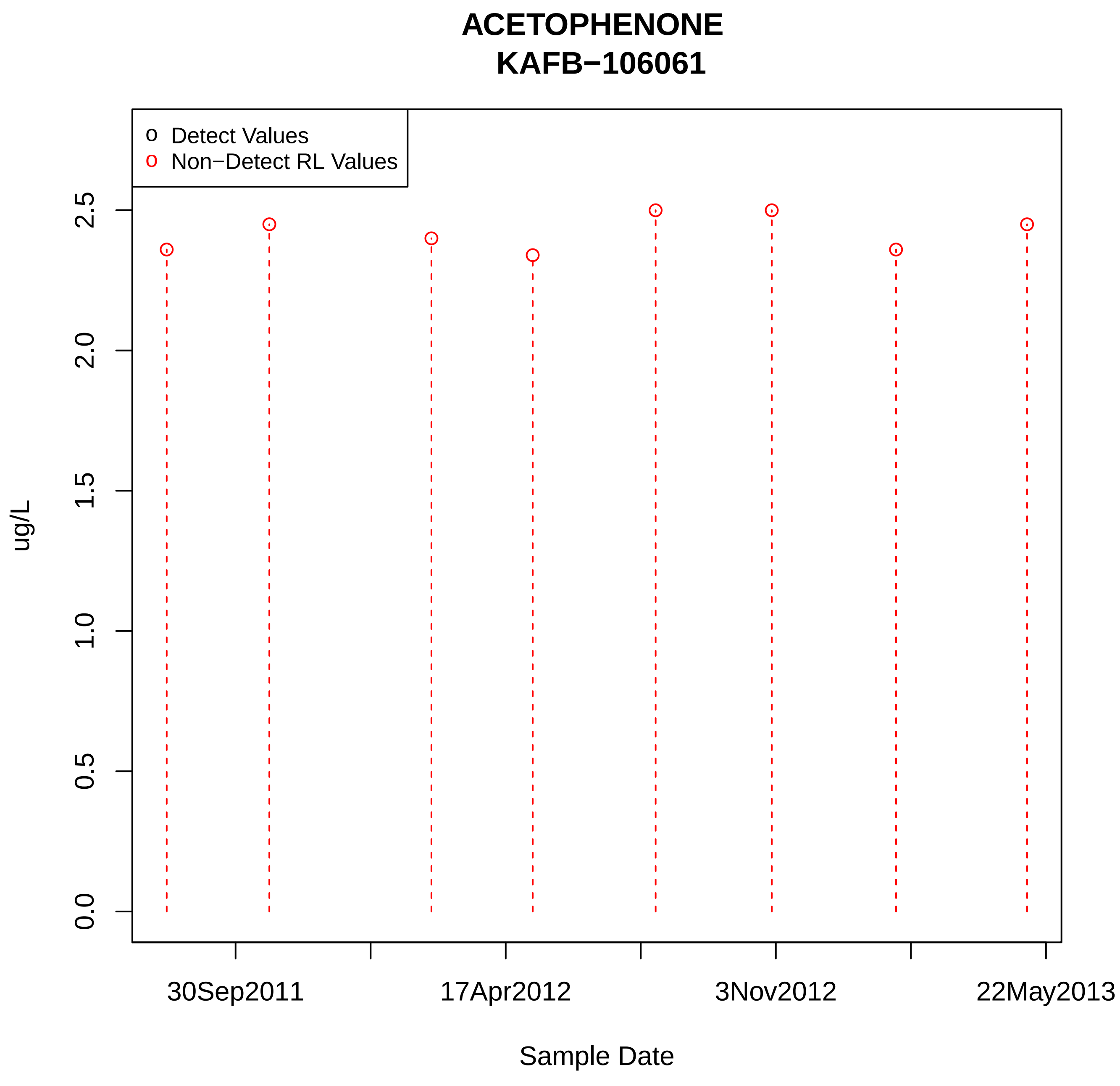

ACETOPHENONE
KAFB−106055
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


ACETOPHENONE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

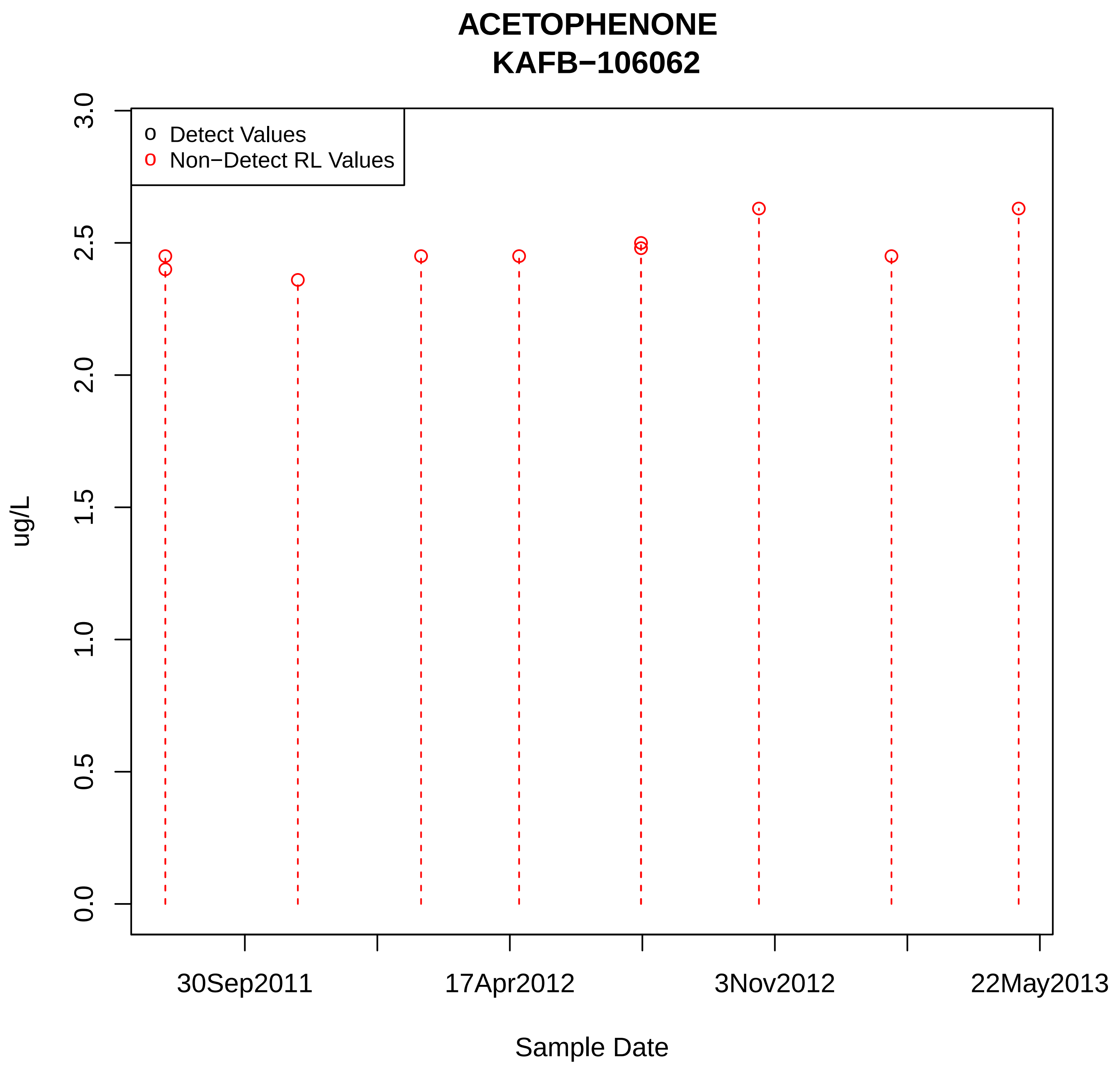

ACETOPHENONE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



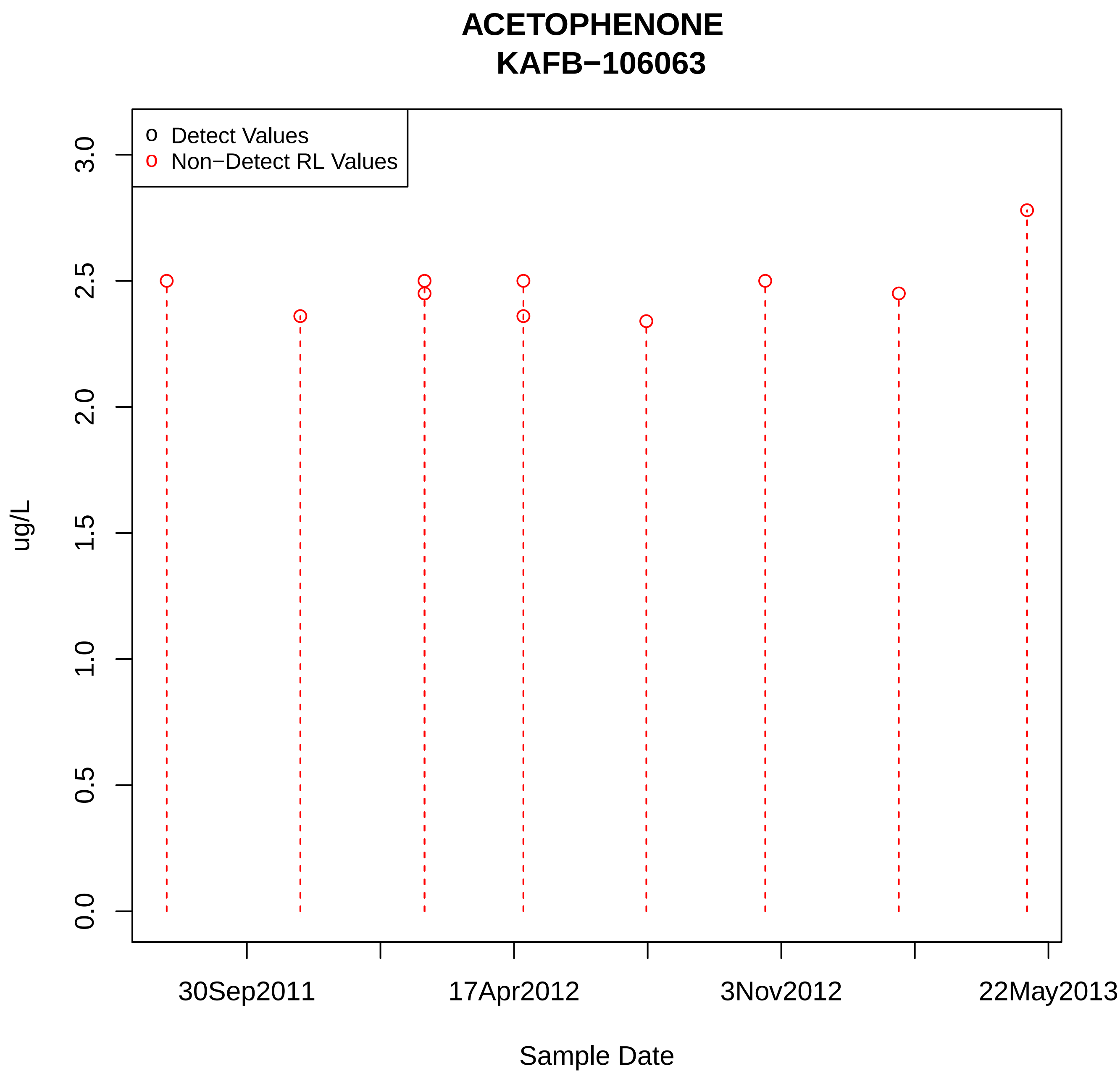
ACETOPHENONE
KAFB−106060
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

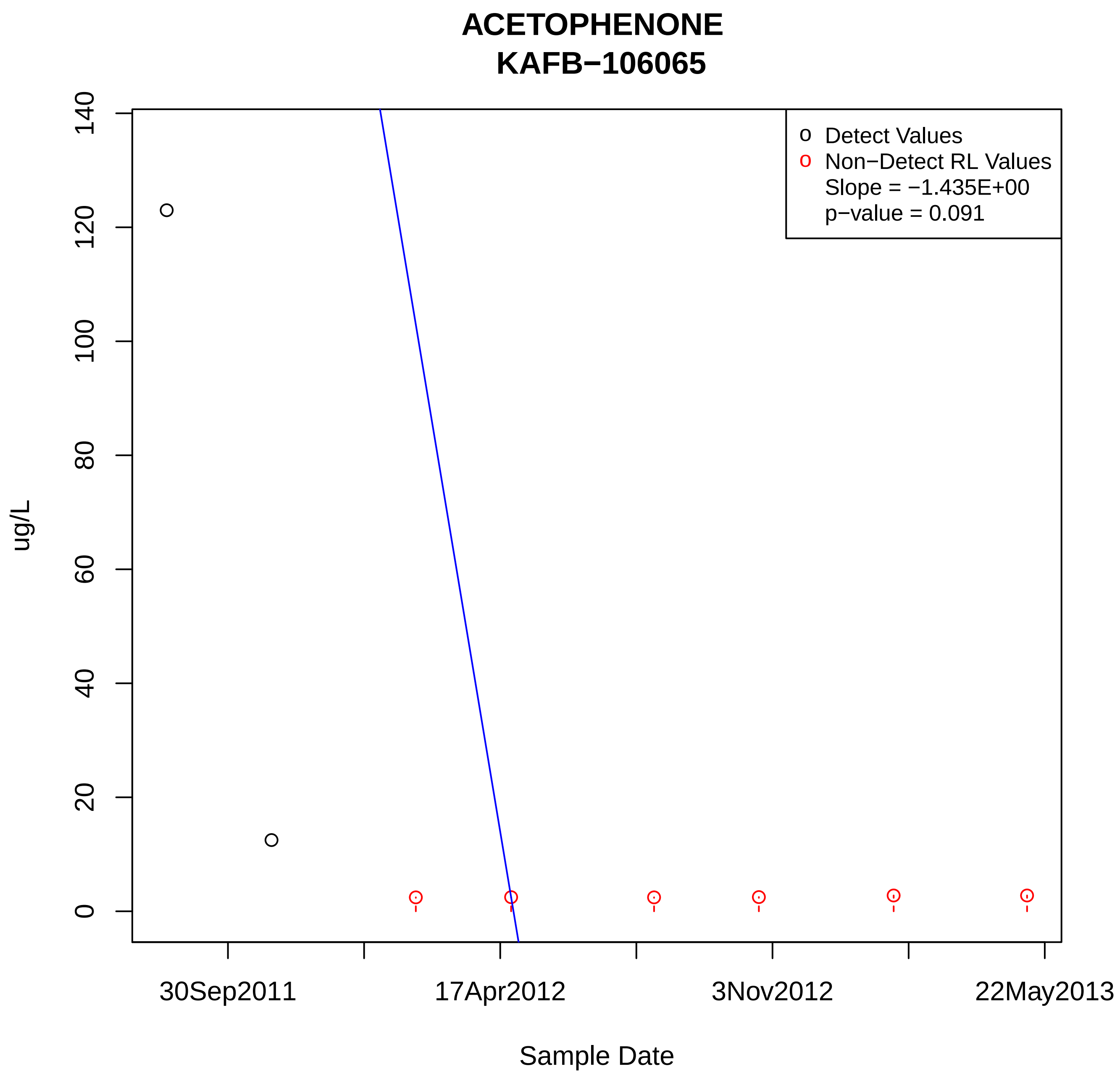


ACETOPHENONE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

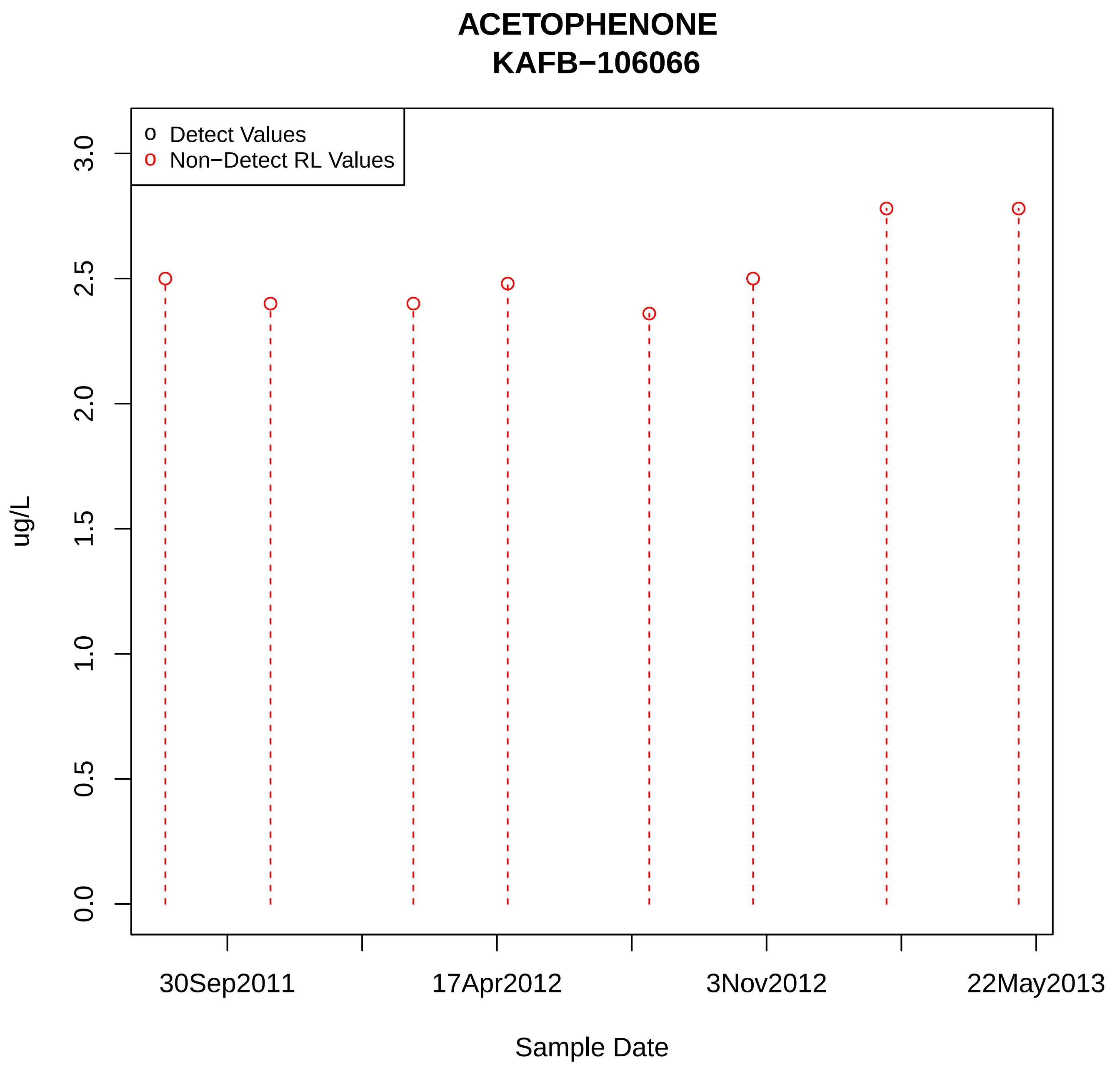


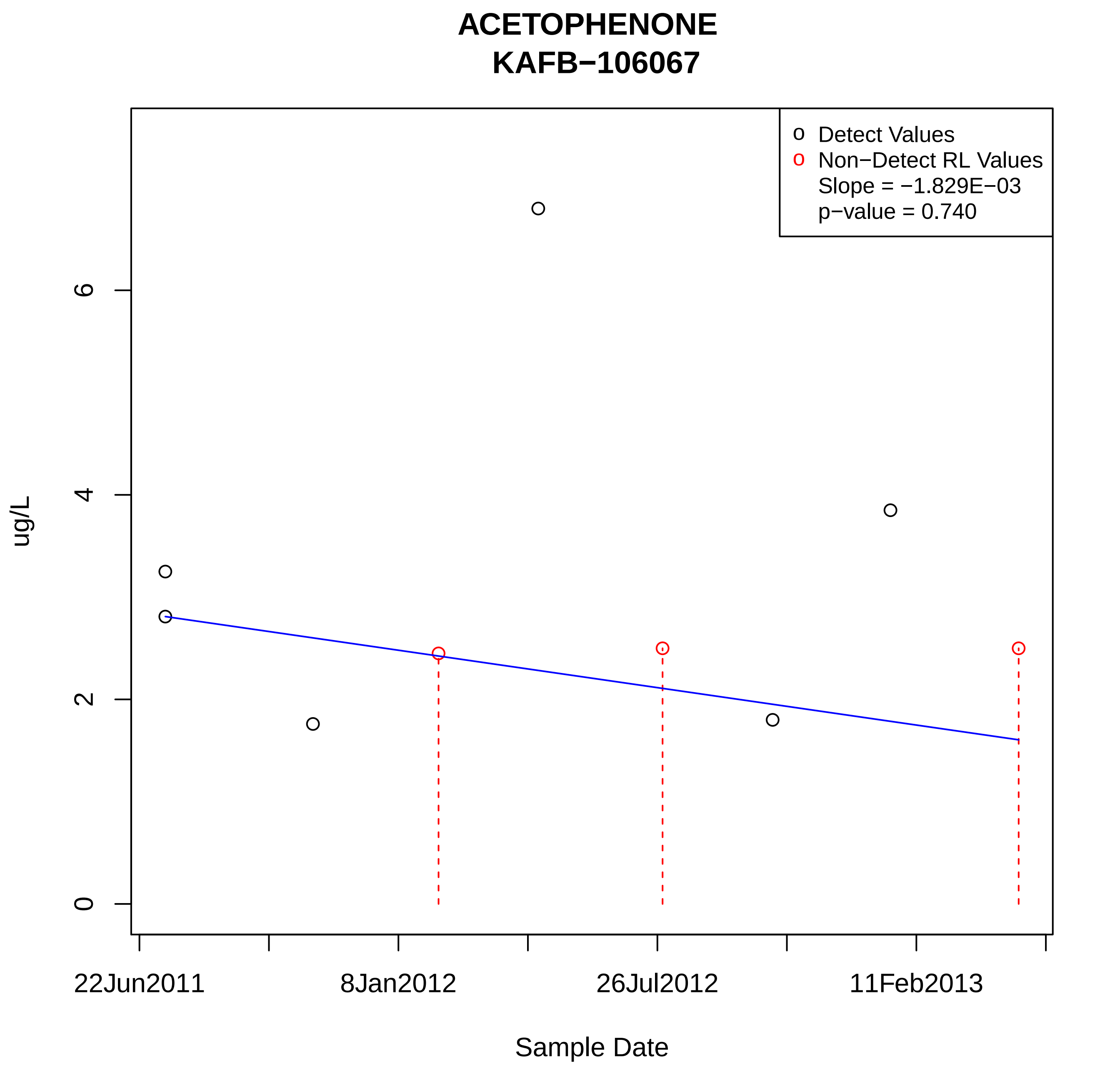
ACETOPHENONE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

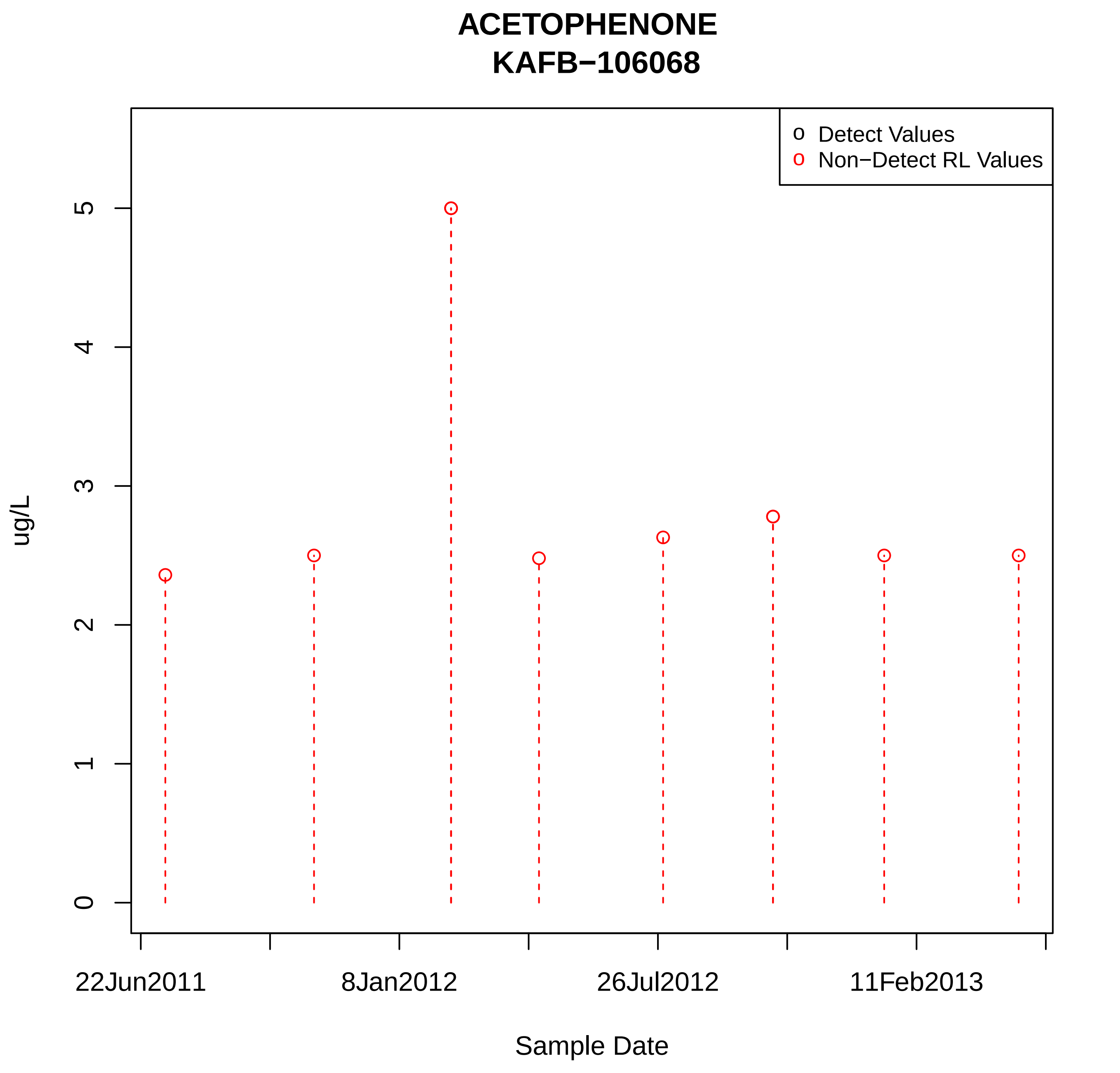

ACETOPHENONE
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

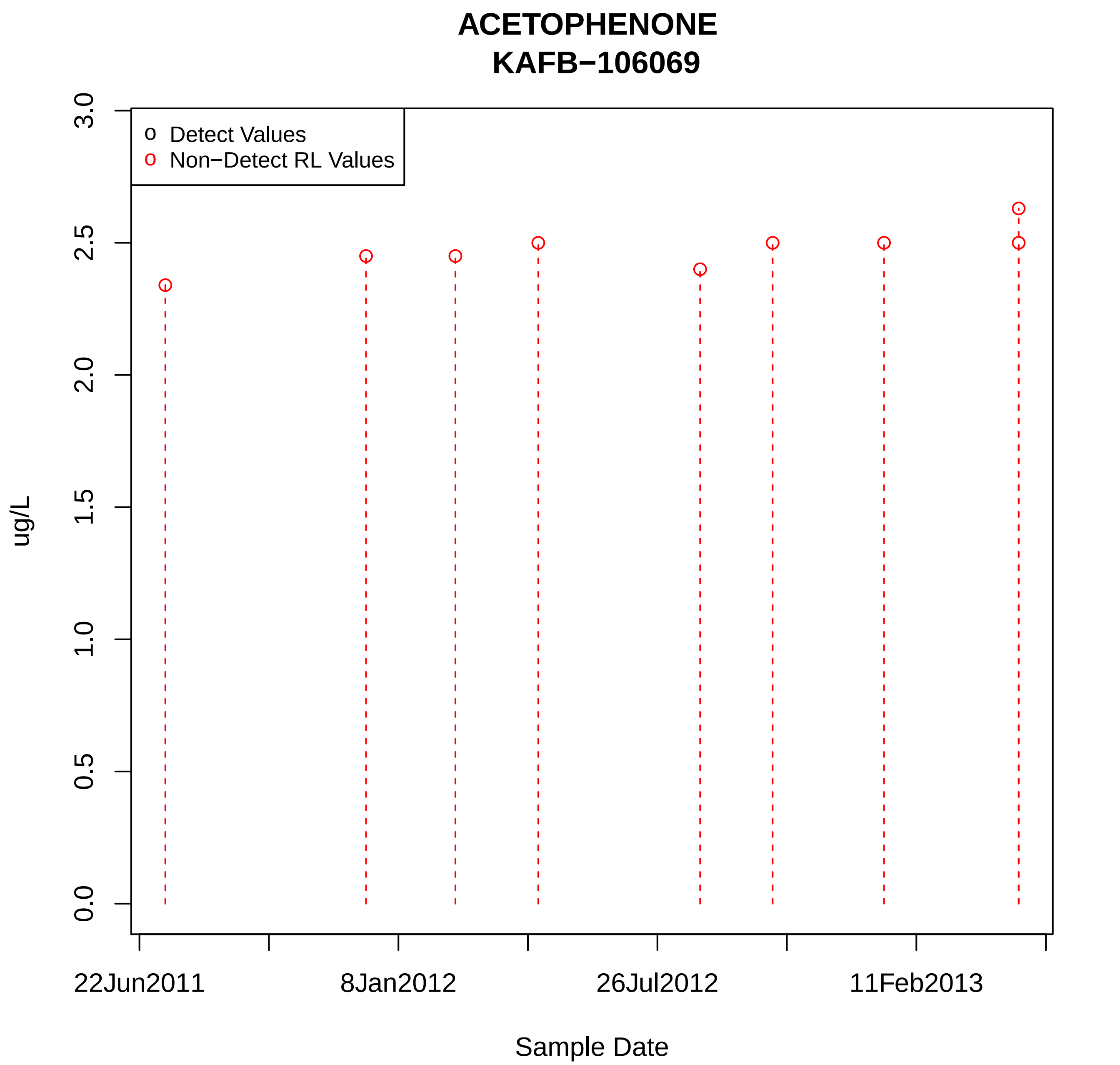


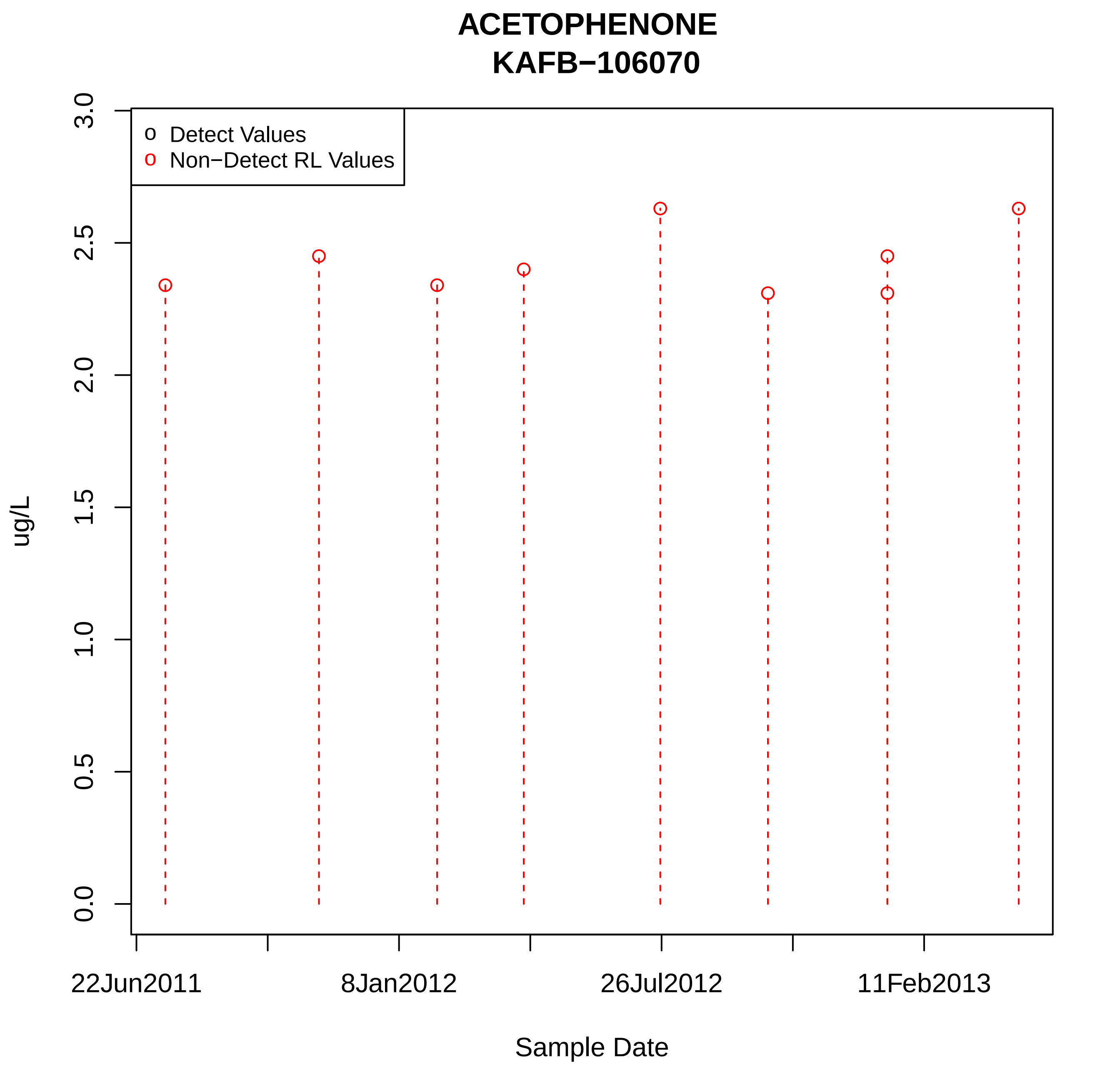
ACETOPHENONE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −1.435E+00
p−value = 0.091
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

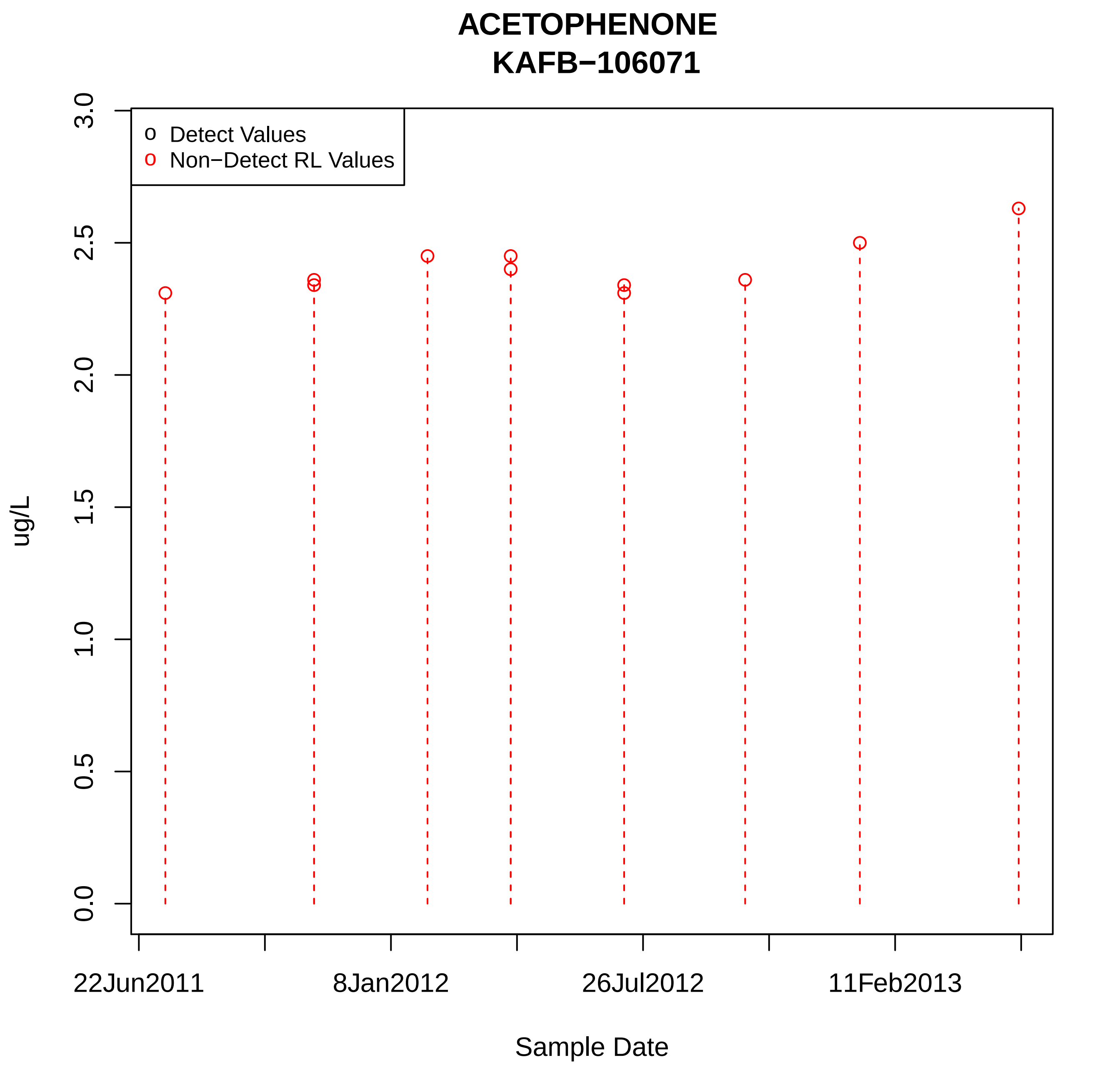

ACETOPHENONE
KAFB−106066
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

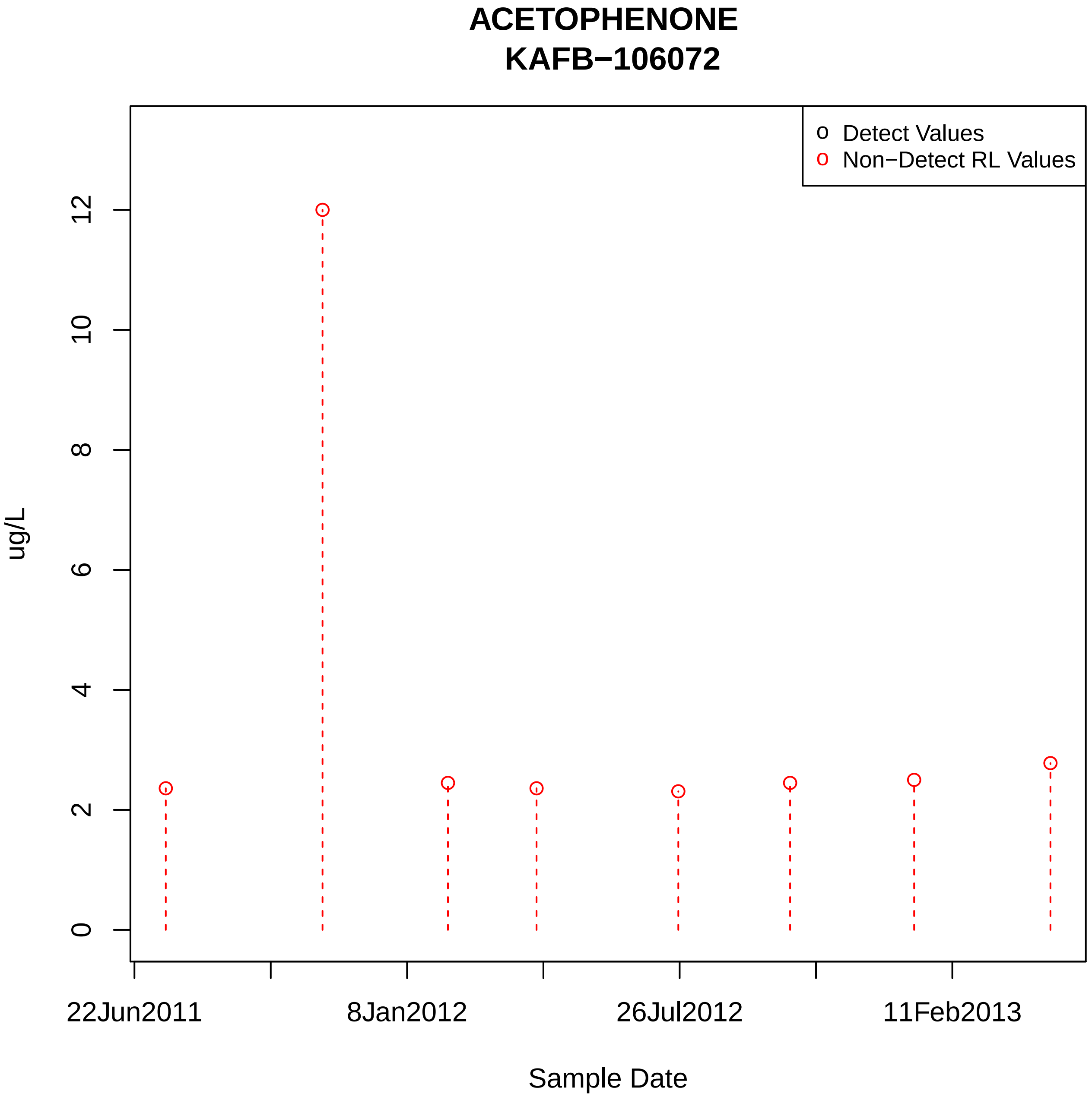

ACETOPHENONE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = −1.829E−03
p−value = 0.740
ug/L
0
2
4
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ACETOPHENONE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

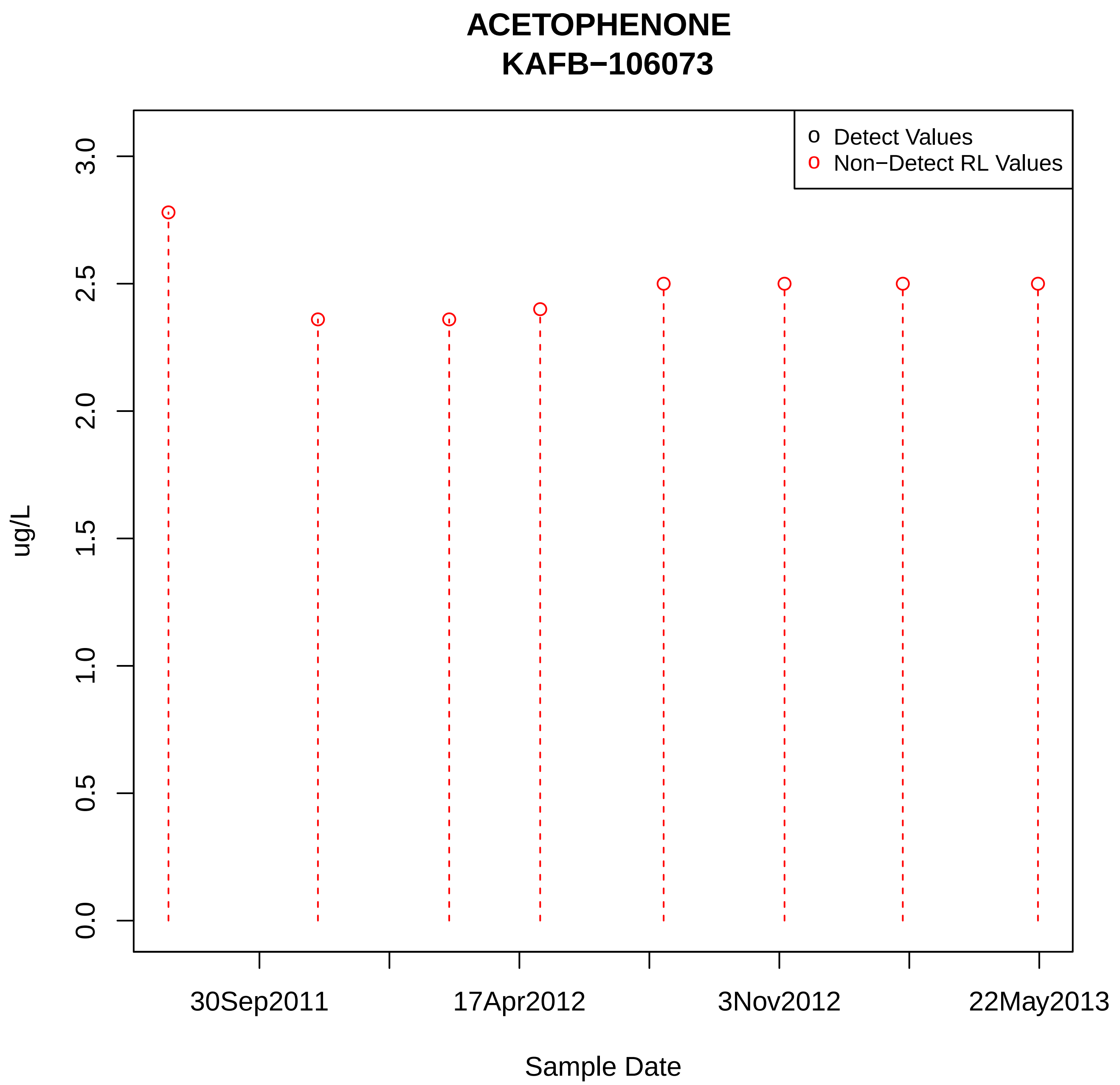

ACETOPHENONE
KAFB−106069
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ACETOPHENONE
KAFB−106070
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

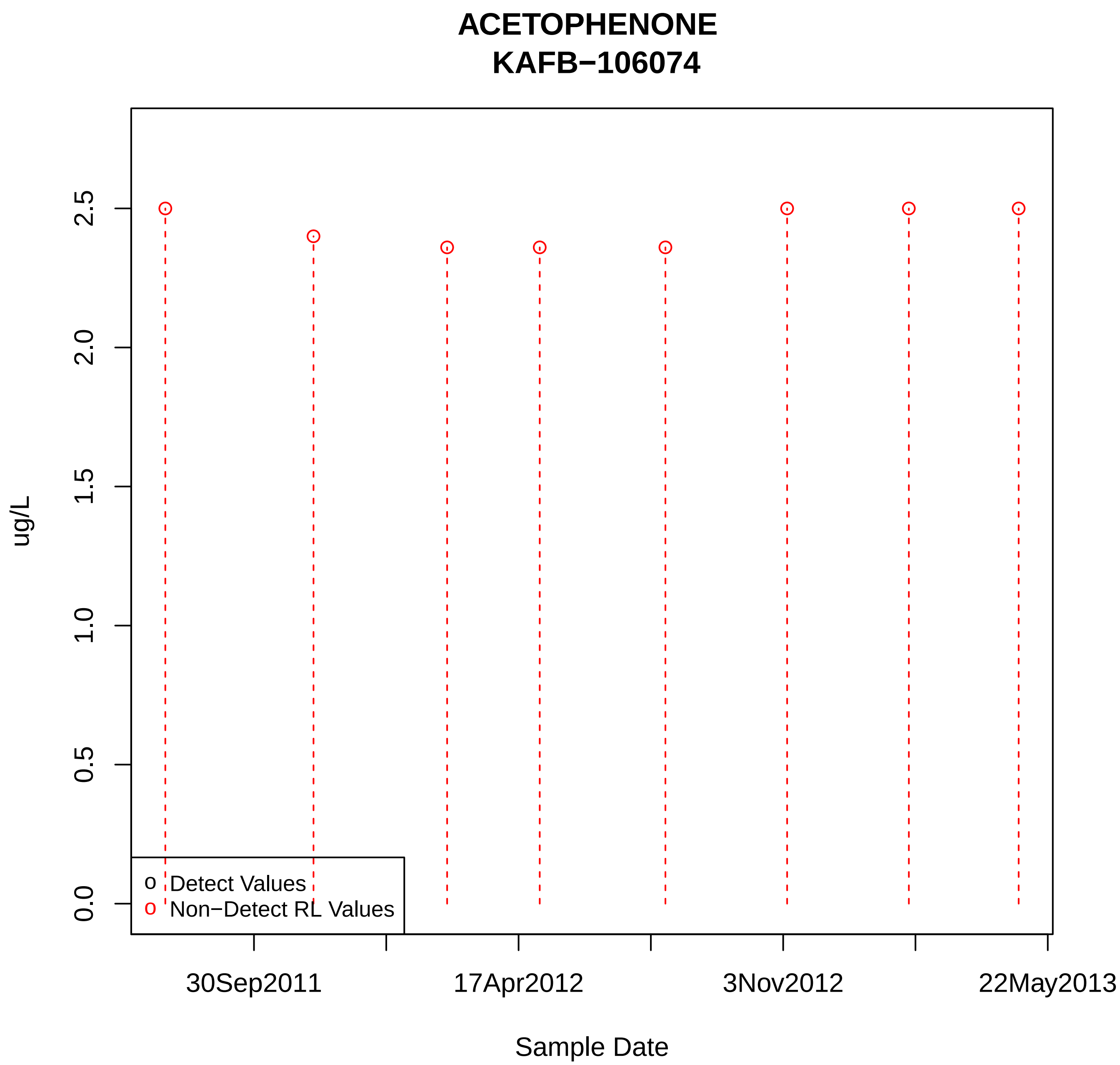

ACETOPHENONE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



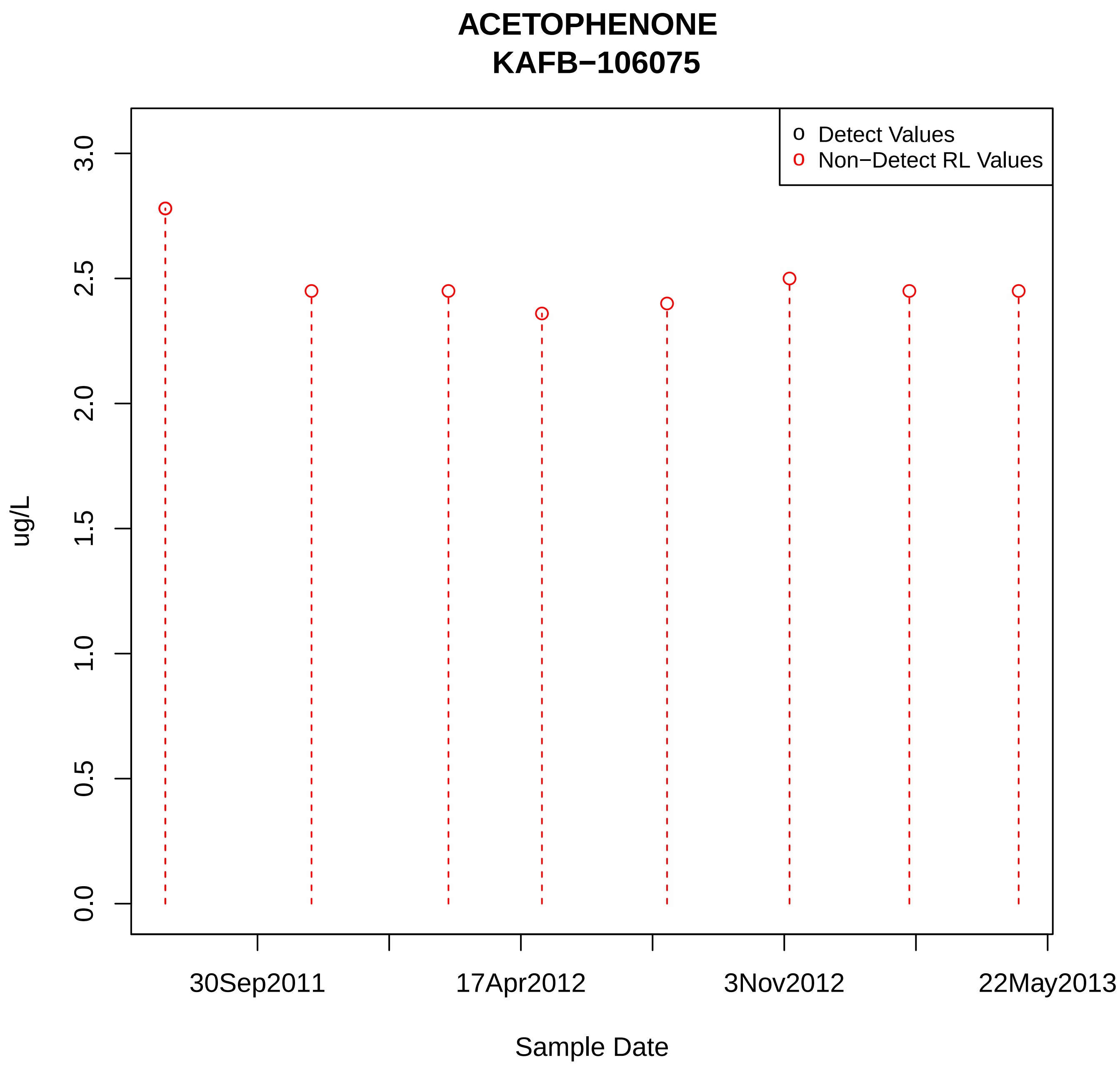
ACETOPHENONE
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

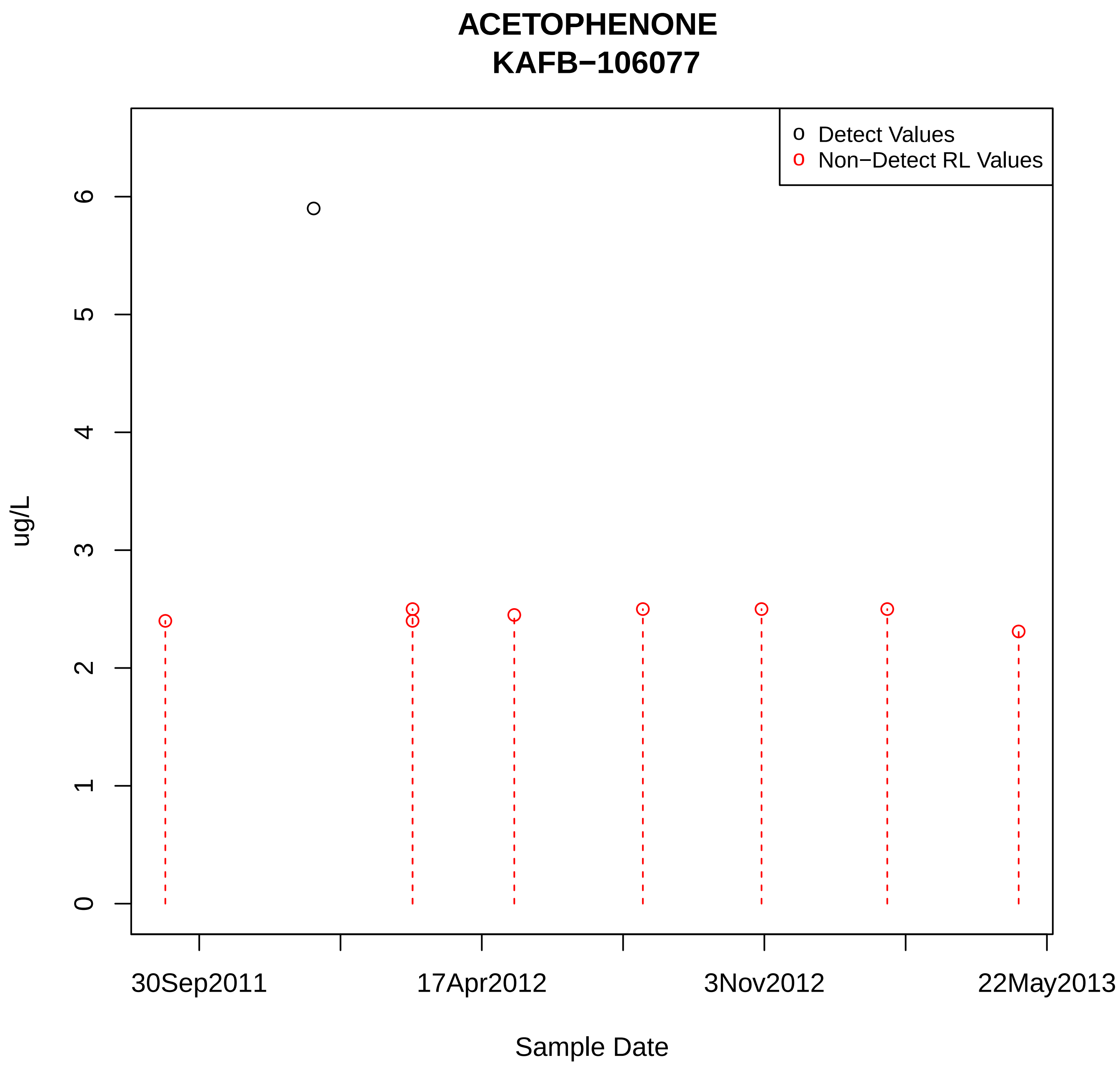


ACETOPHENONE
KAFB−106073
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

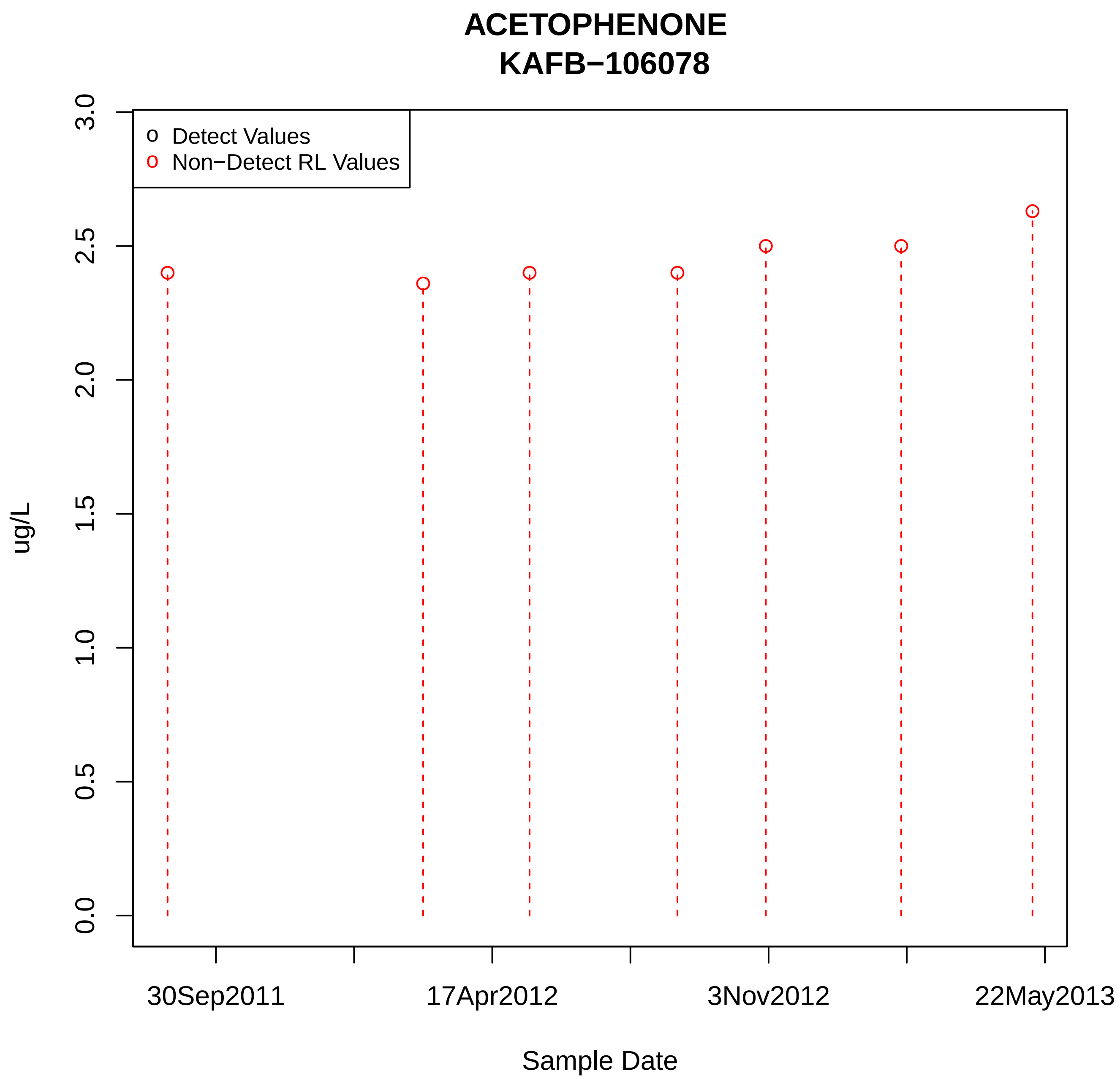


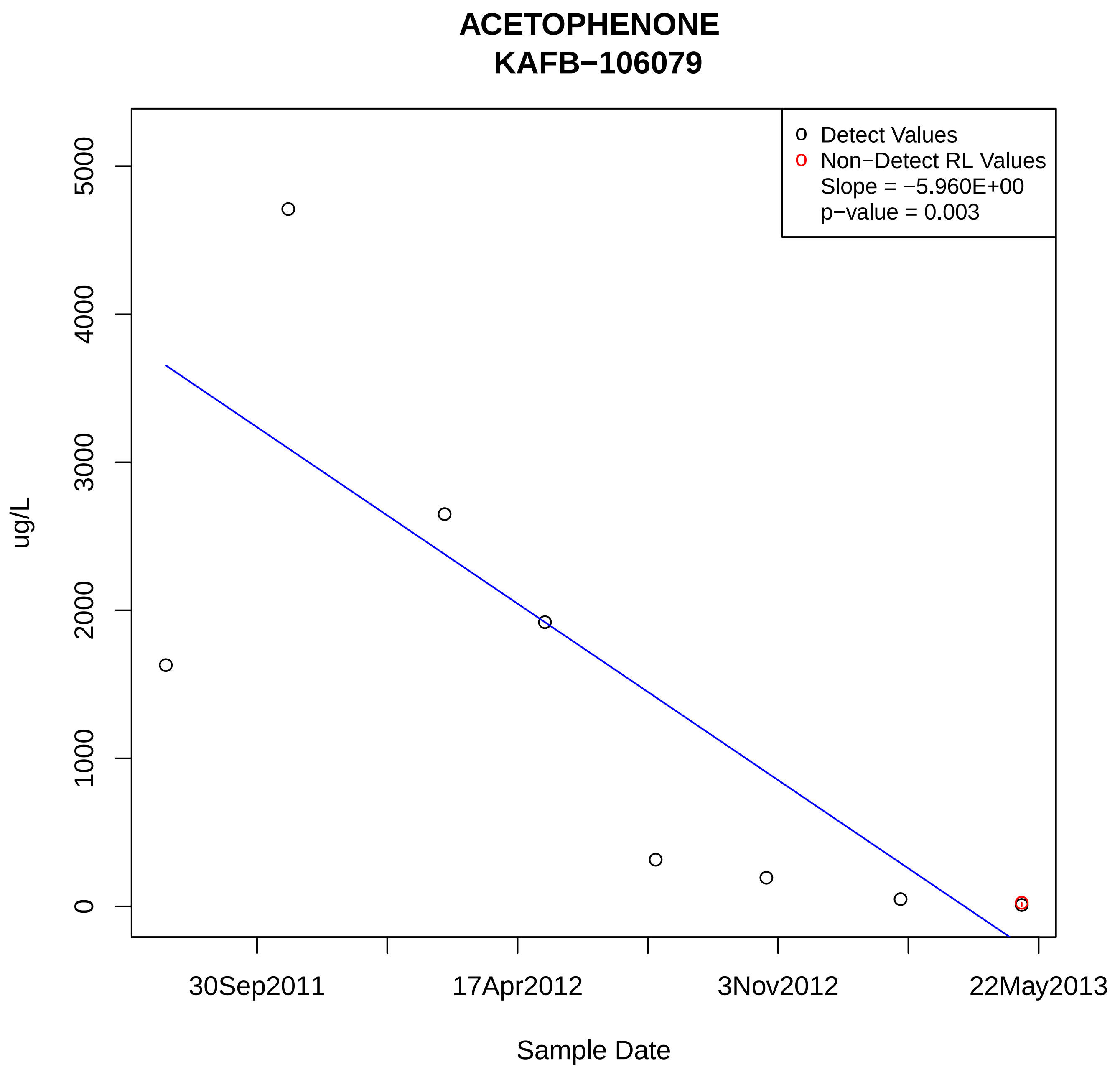
ACETOPHENONE
KAFB−106074
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

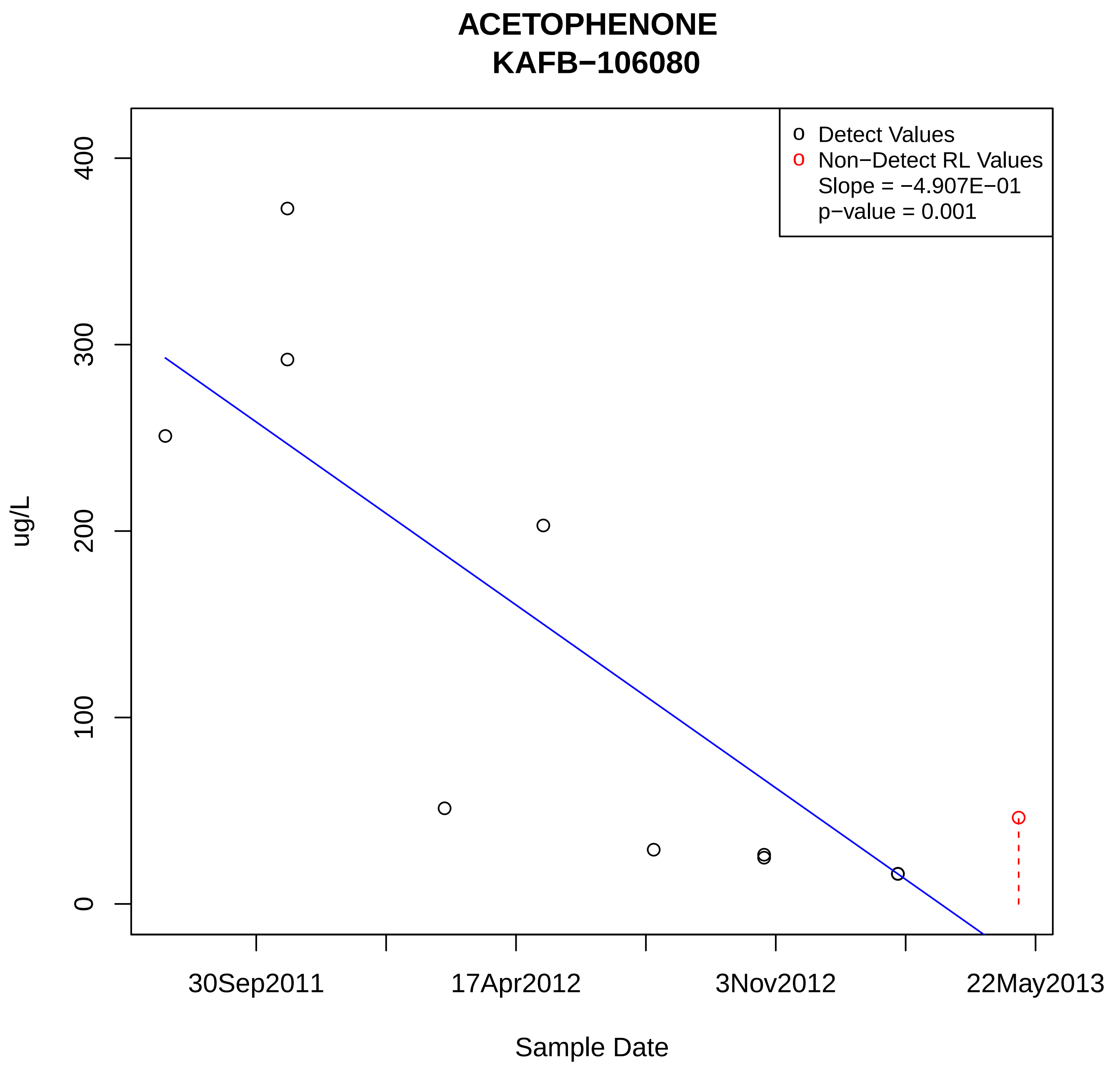

ACETOPHENONE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

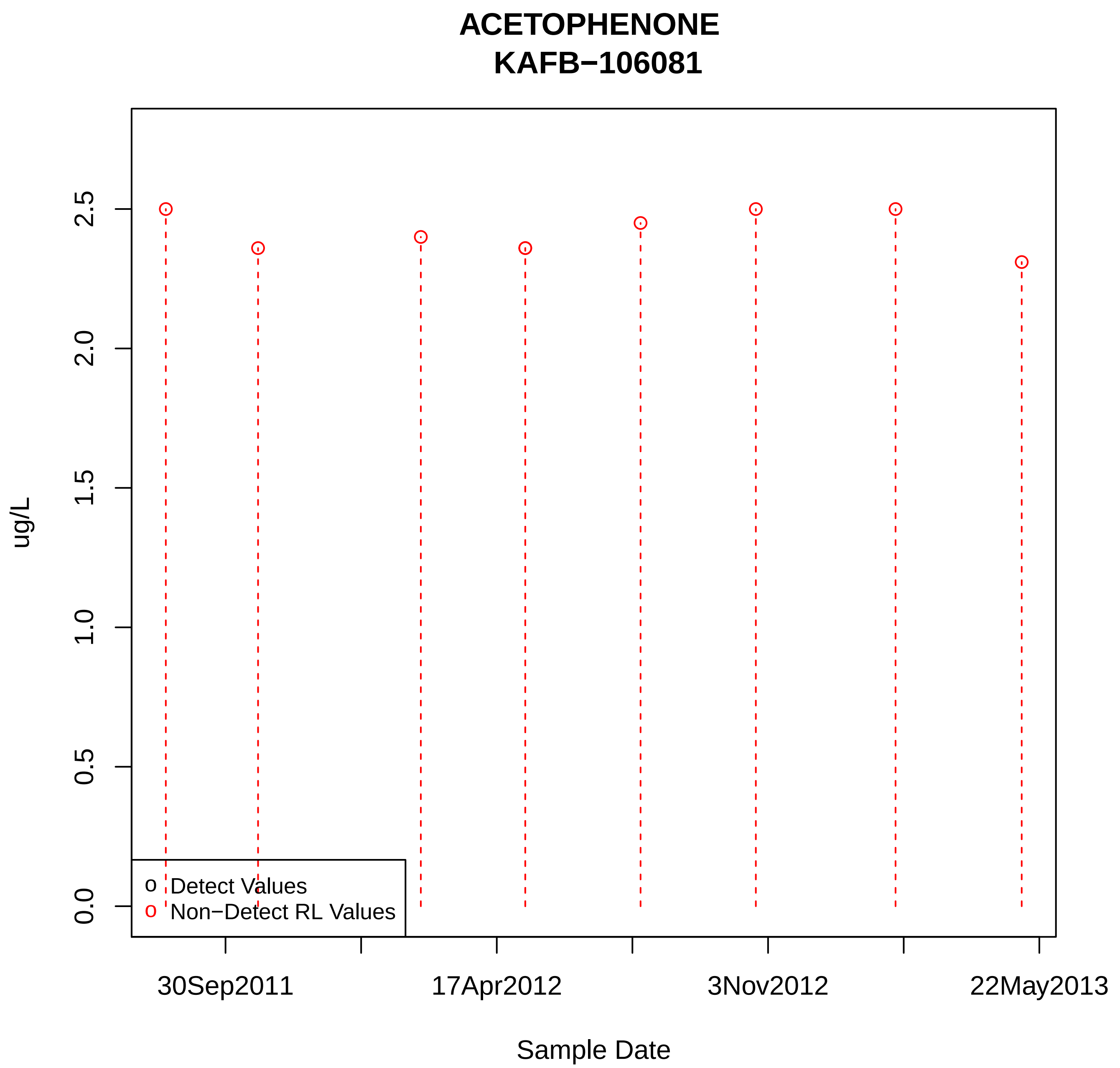


ACETOPHENONE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

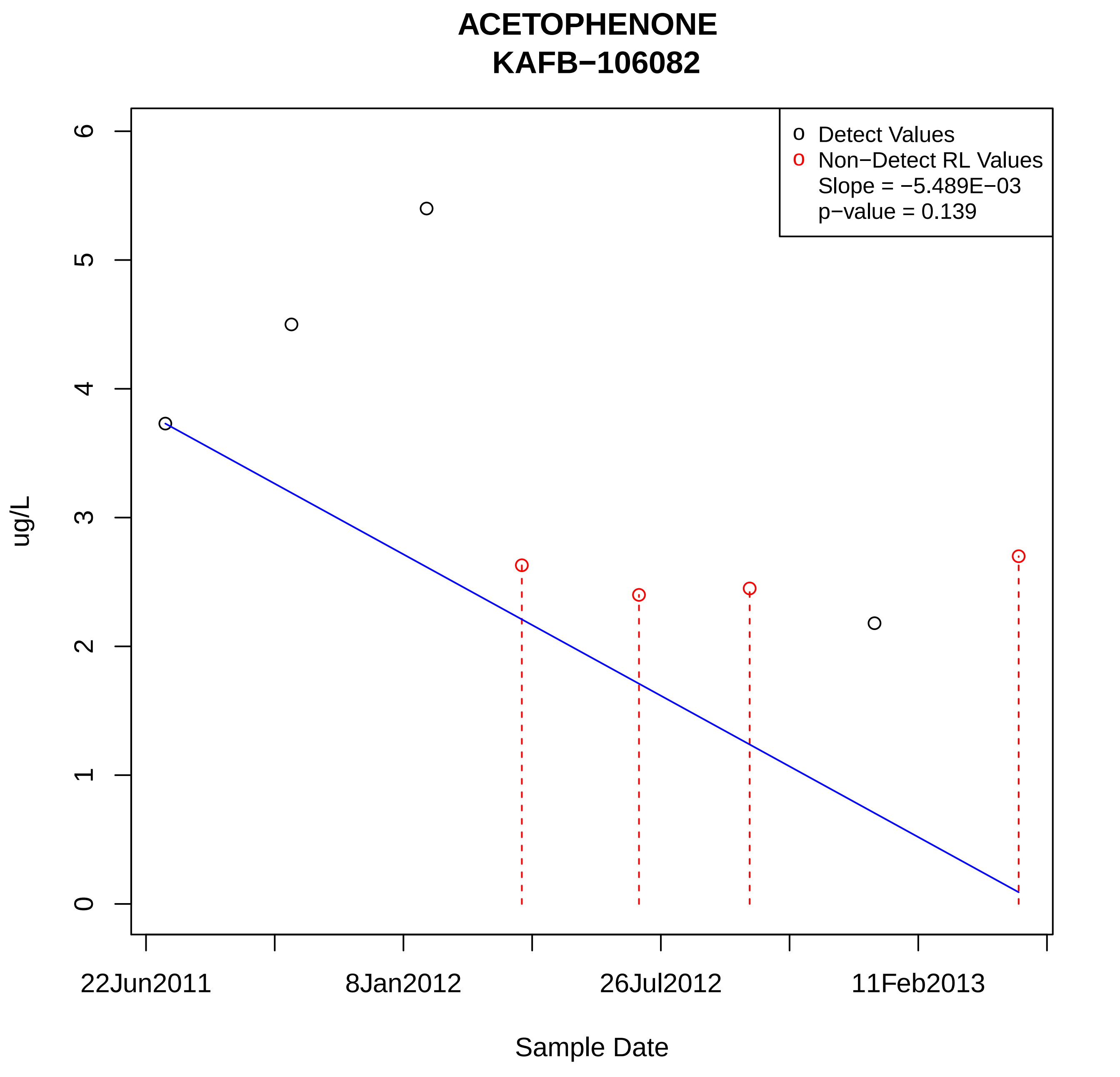

ACETOPHENONE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETOPHENONE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −5.960E+00
p−value = 0.003
ug/L
0
1000
2000
3000
4000
5000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

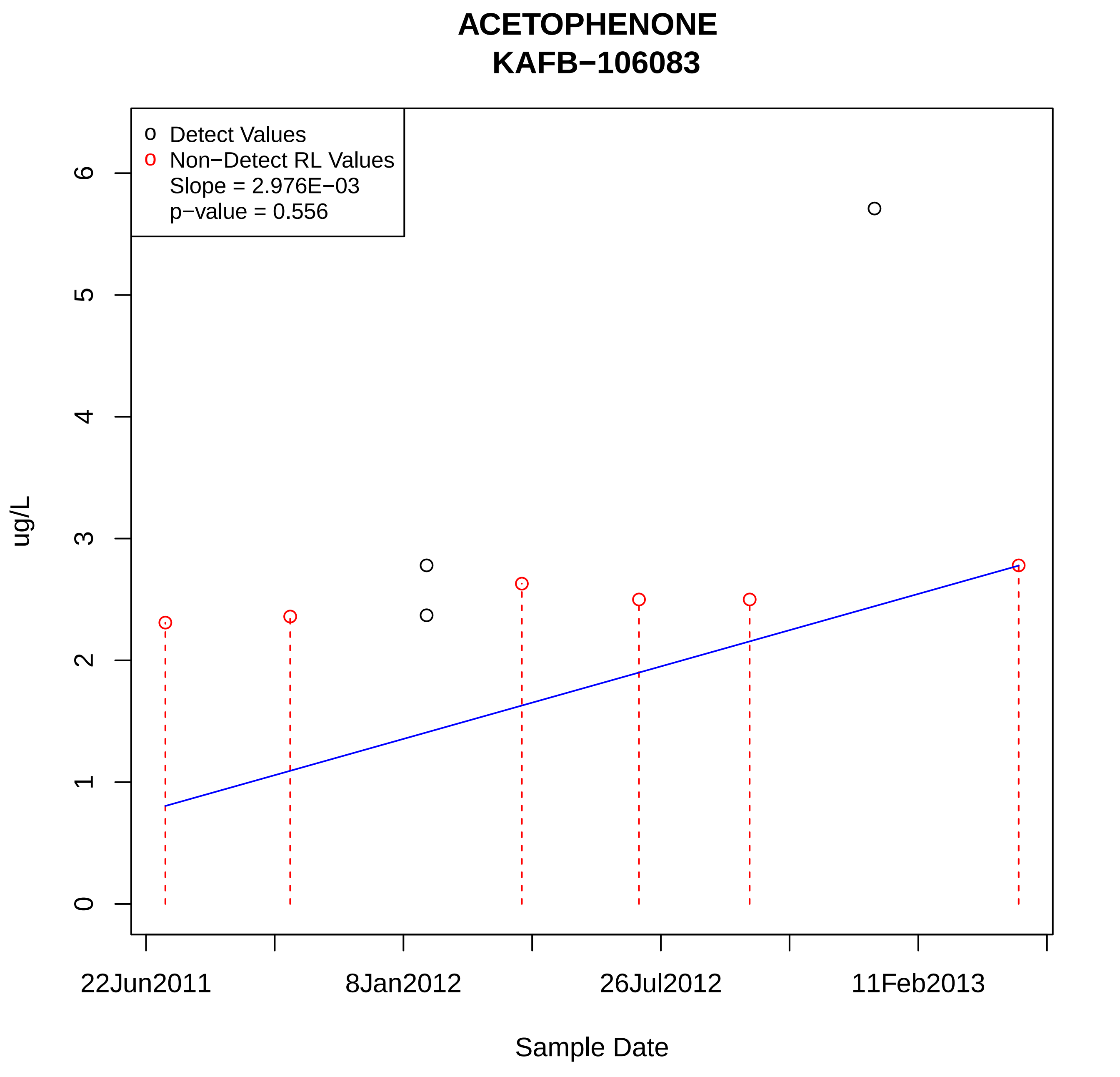

ACETOPHENONE
KAFB−106080
o Detect Values
o Non−Detect RL Values
Slope = −4.907E−01
p−value = 0.001
0
100
200
300
400
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

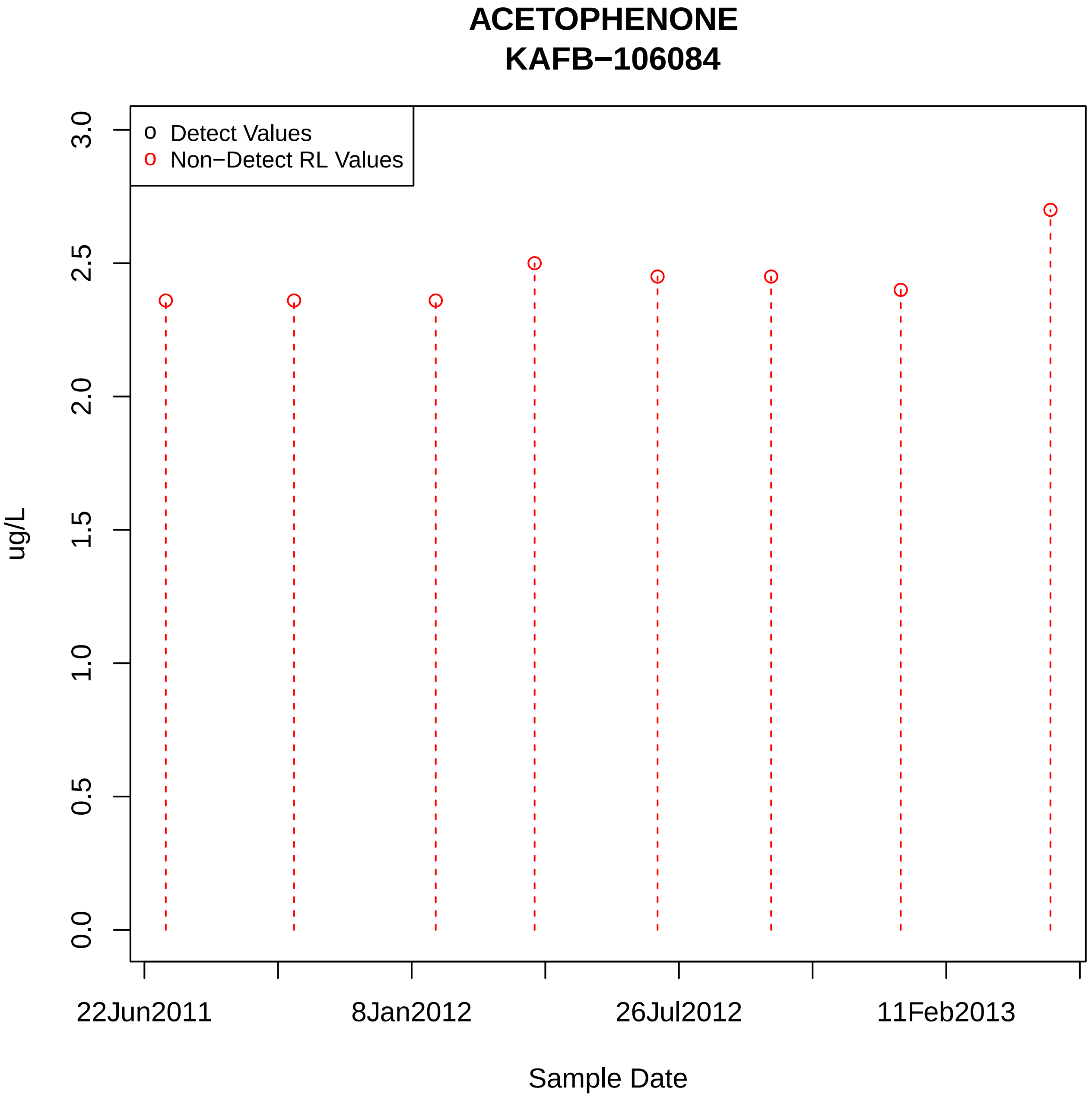


ACETOPHENONE
KAFB−106081
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

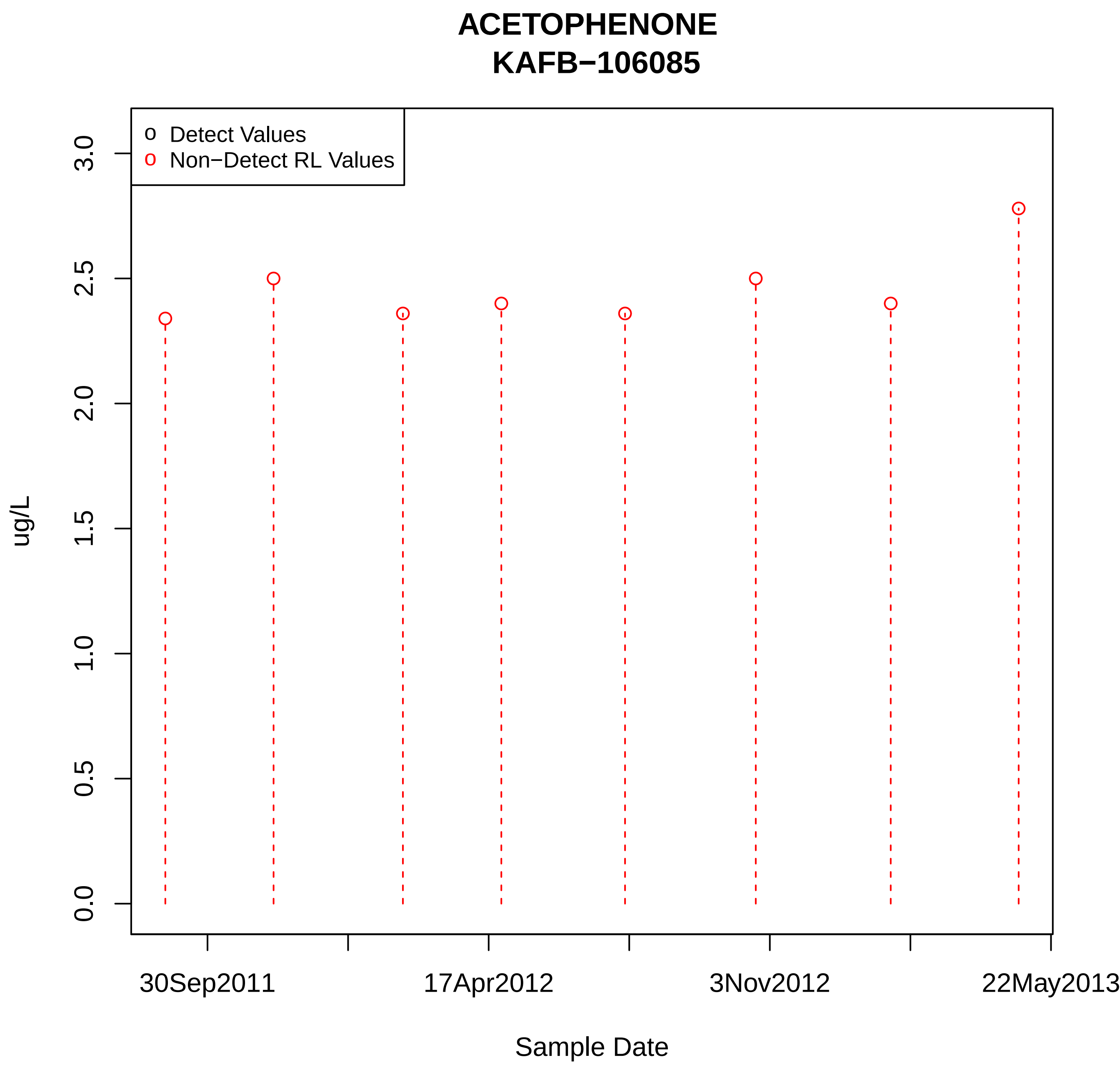


ACETOPHENONE
KAFB−106082
o Detect Values
o Non−Detect RL Values
Slope = −5.489E−03
p−value = 0.139
ug/L
0
1
2
3
4
5
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

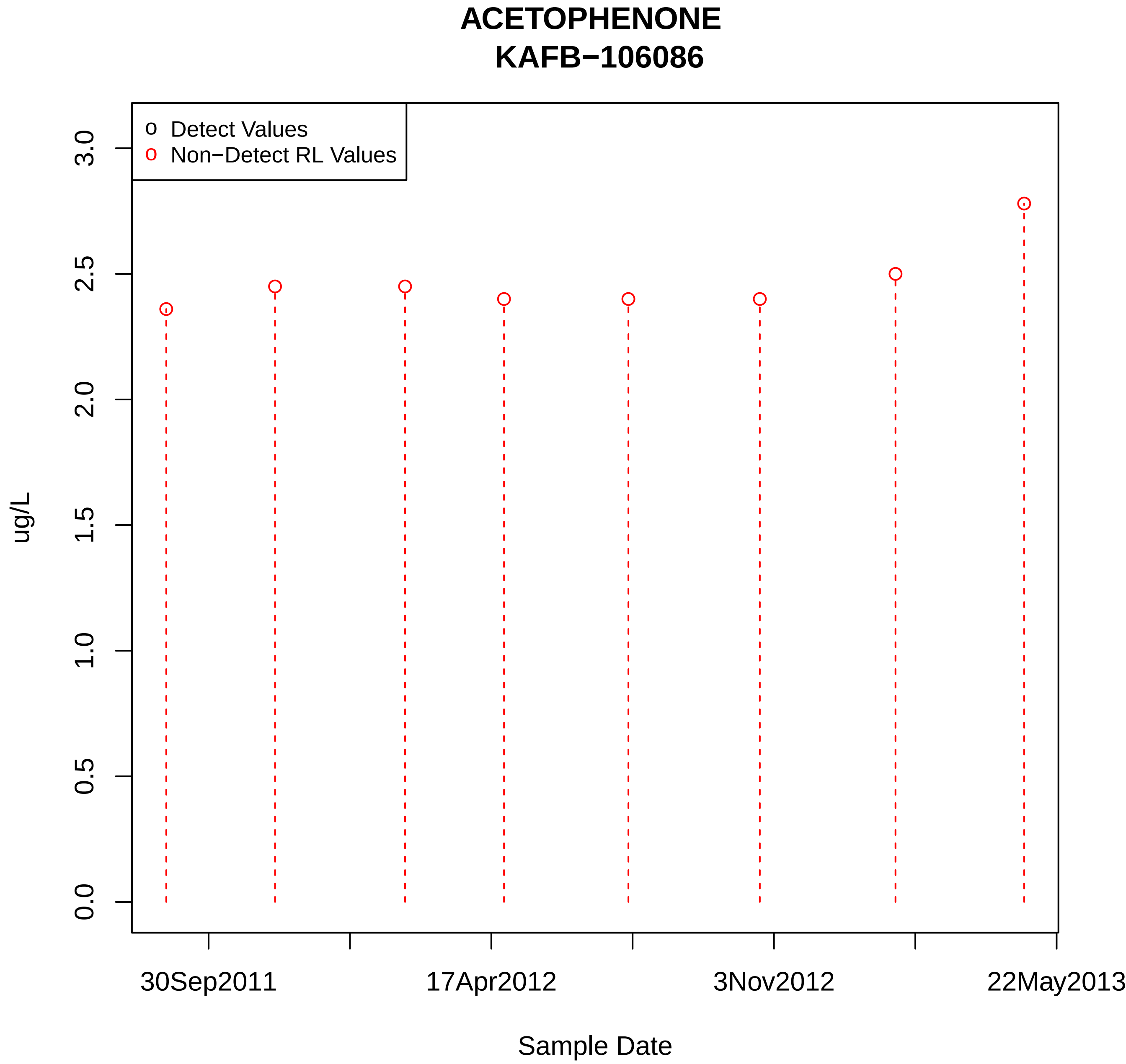

ACETOPHENONE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 2.976E−03
p−value = 0.556
ug/L
0
1
2
3
4
5
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

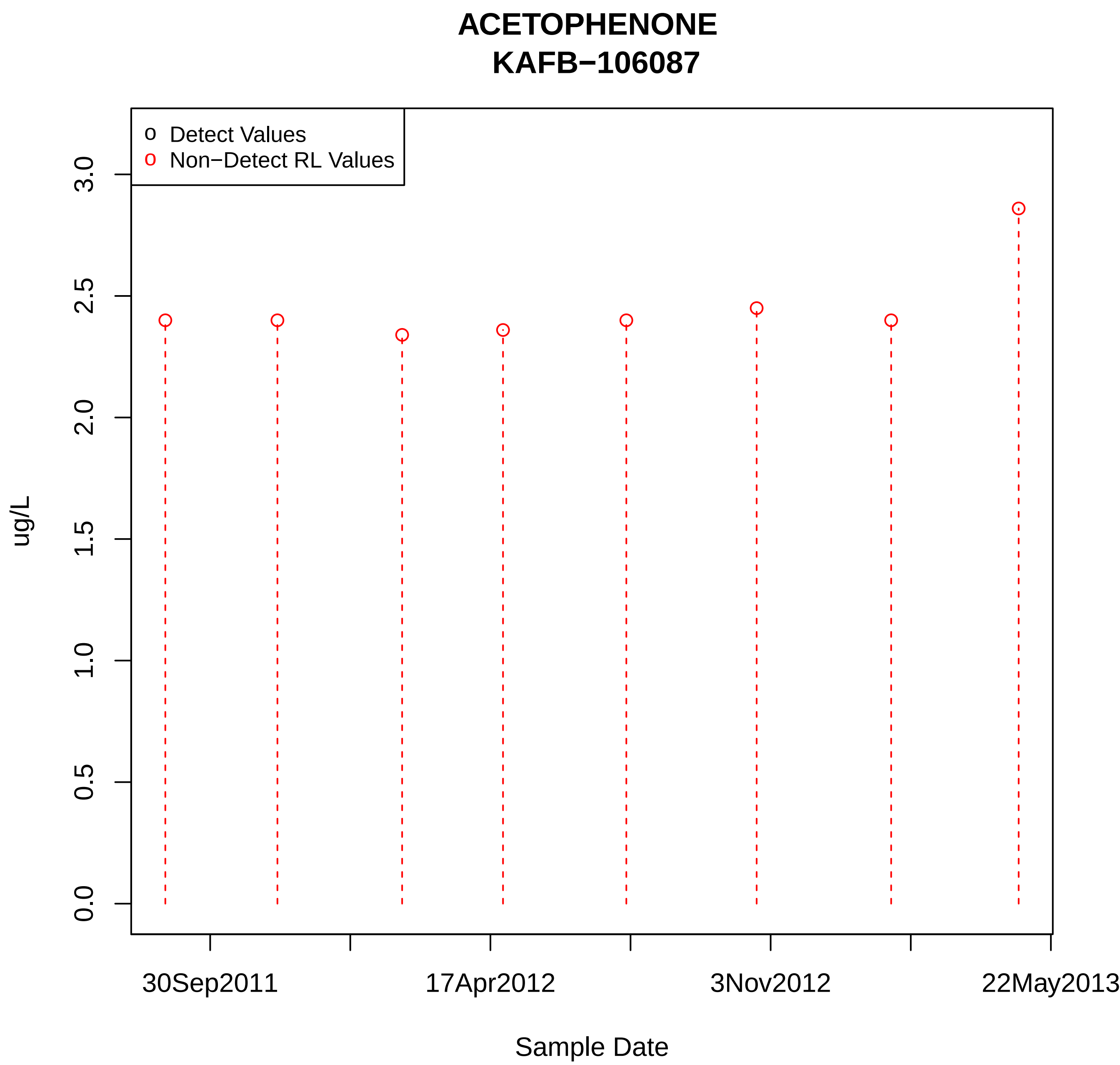


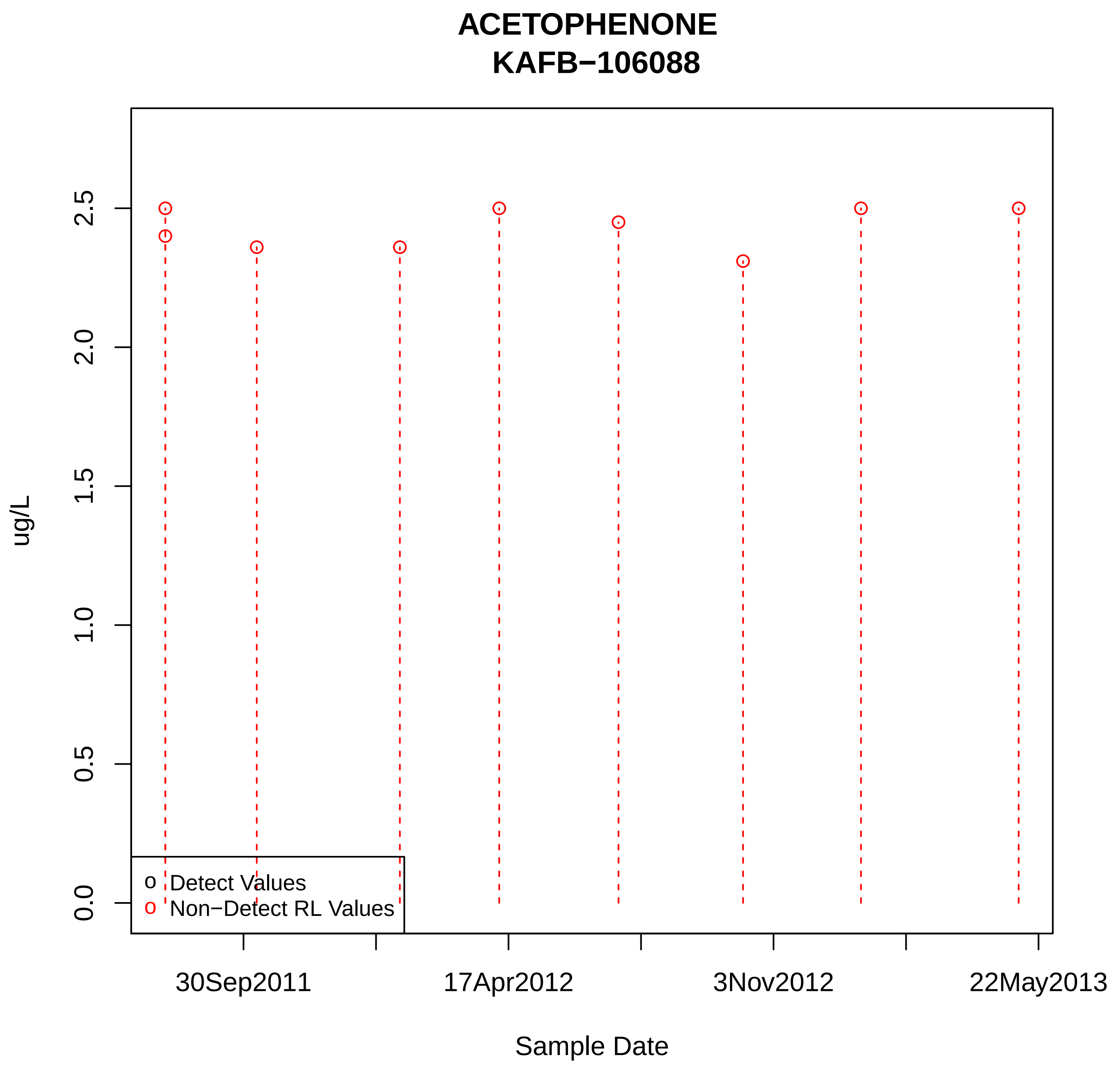
ACETOPHENONE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

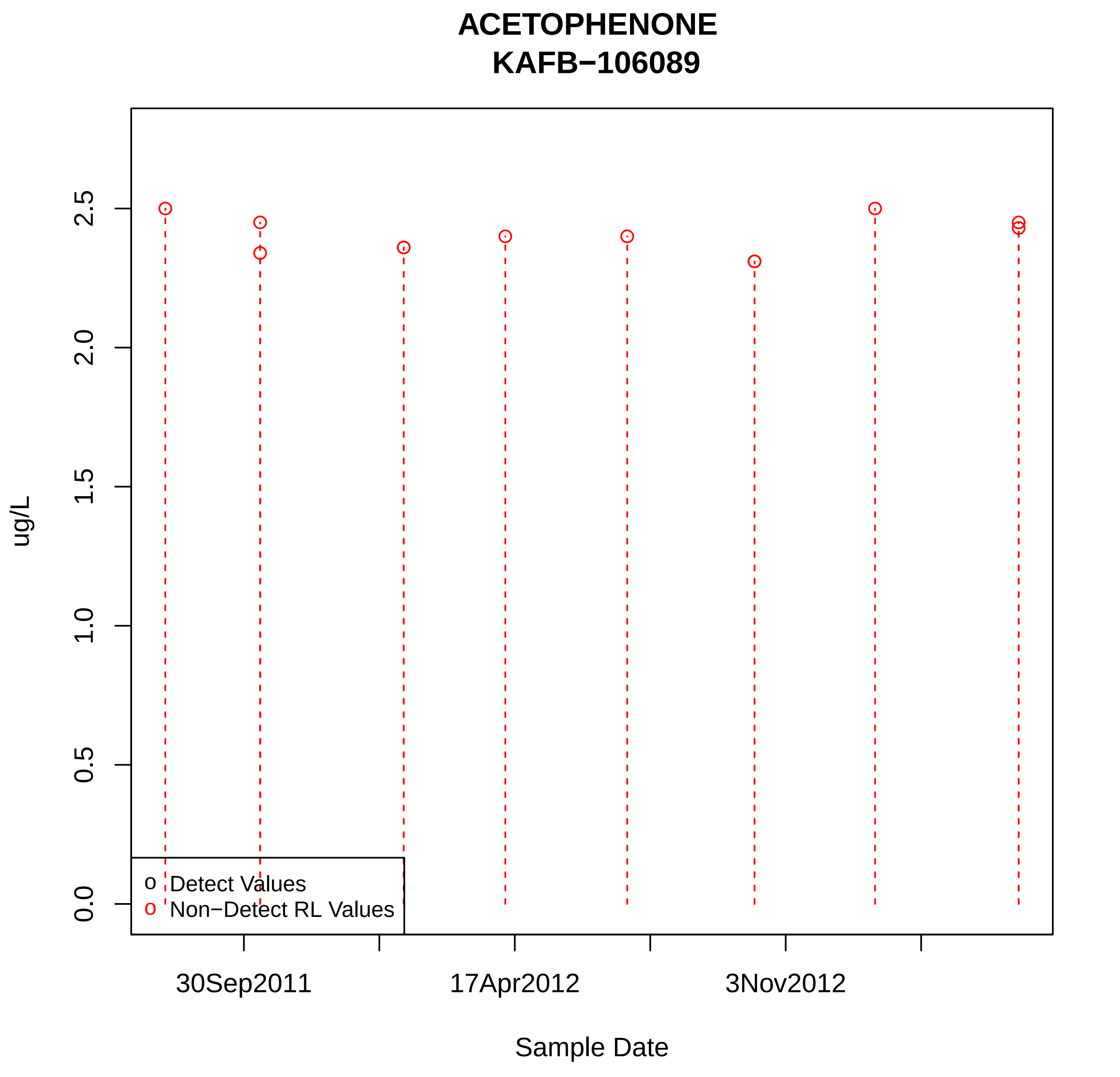


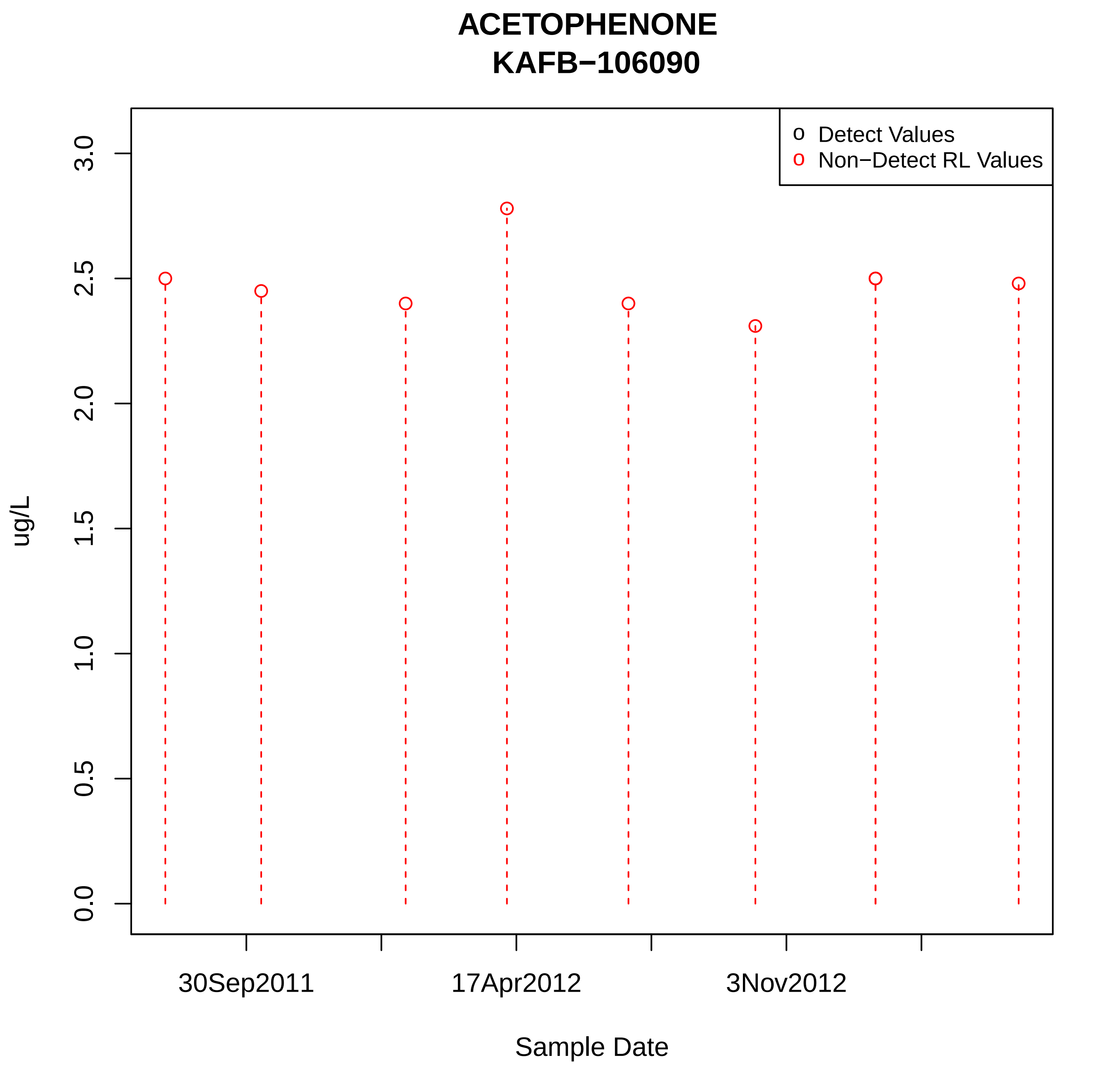
ACETOPHENONE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETOPHENONE
KAFB−106086
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

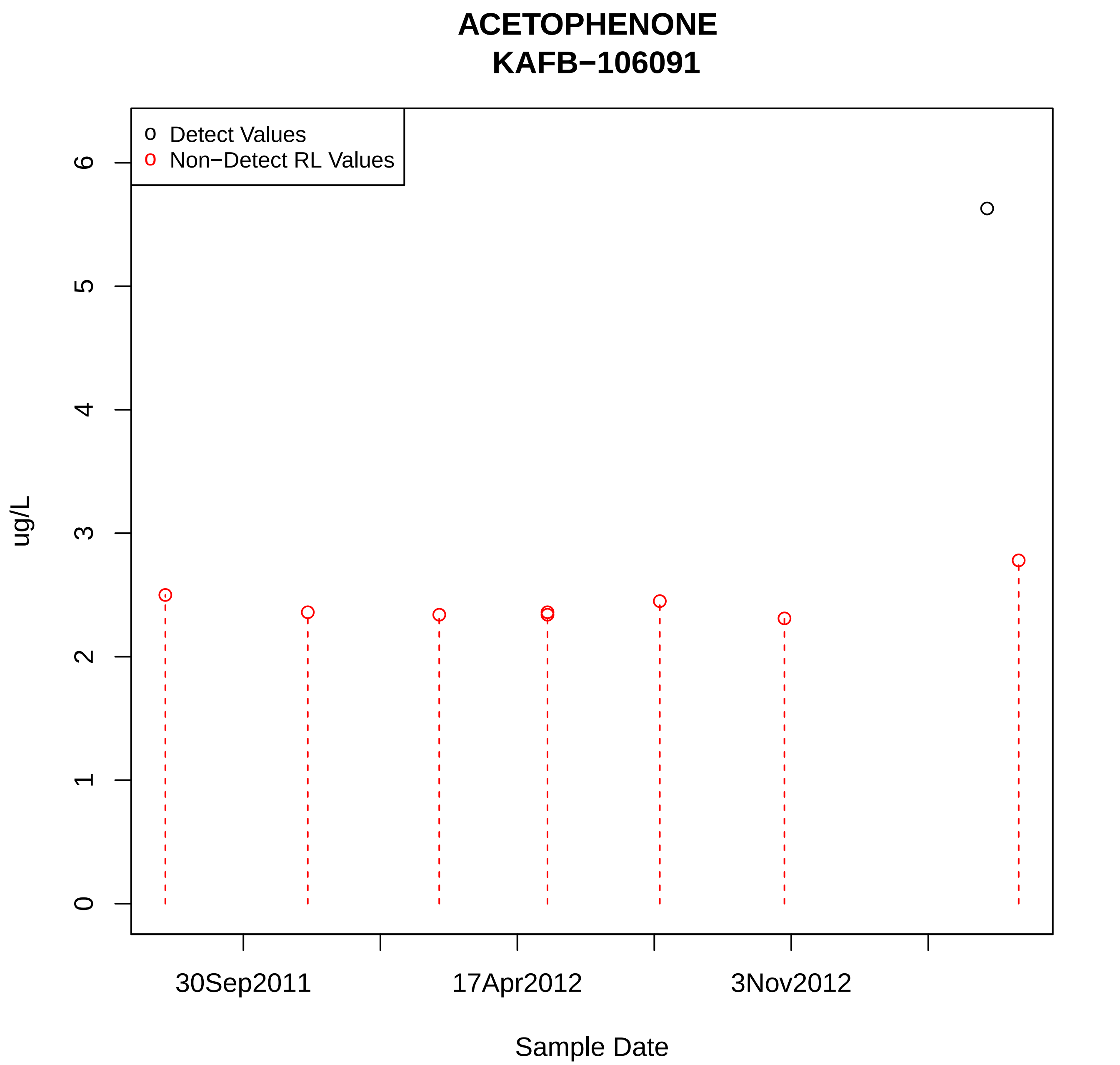

ACETOPHENONE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETOPHENONE
KAFB−106088
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

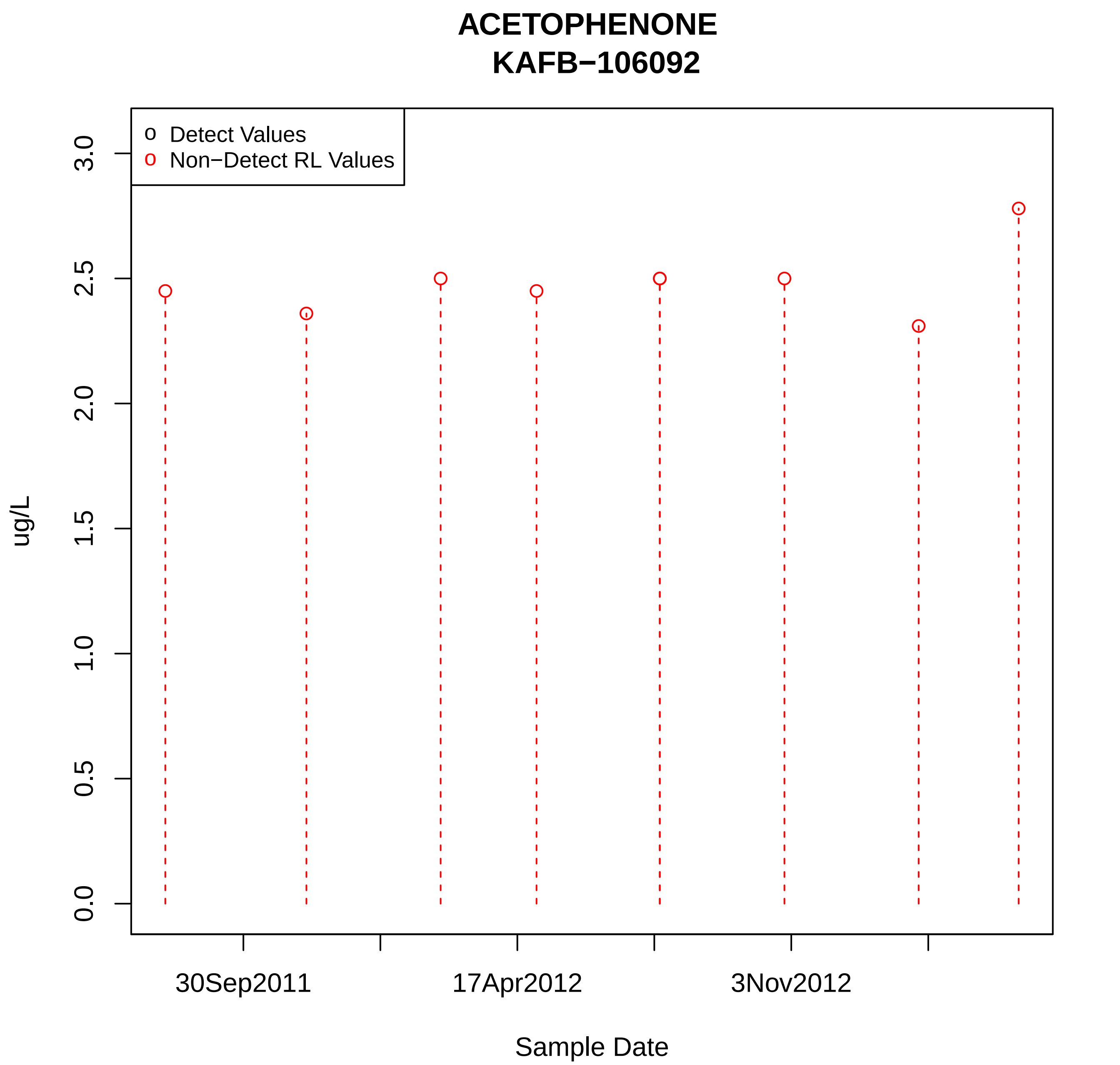

ACETOPHENONE
KAFB−106089
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date



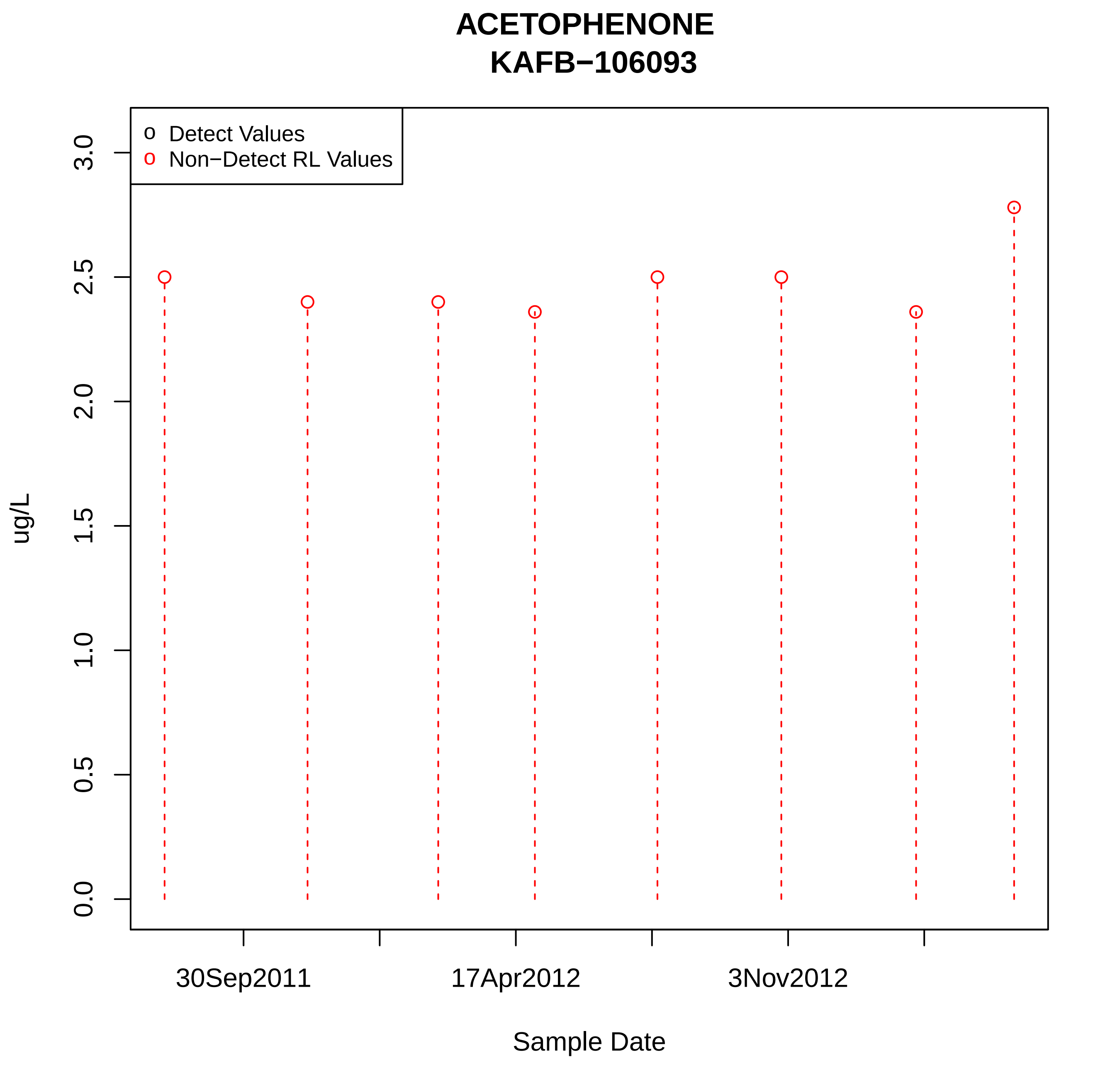
ACETOPHENONE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

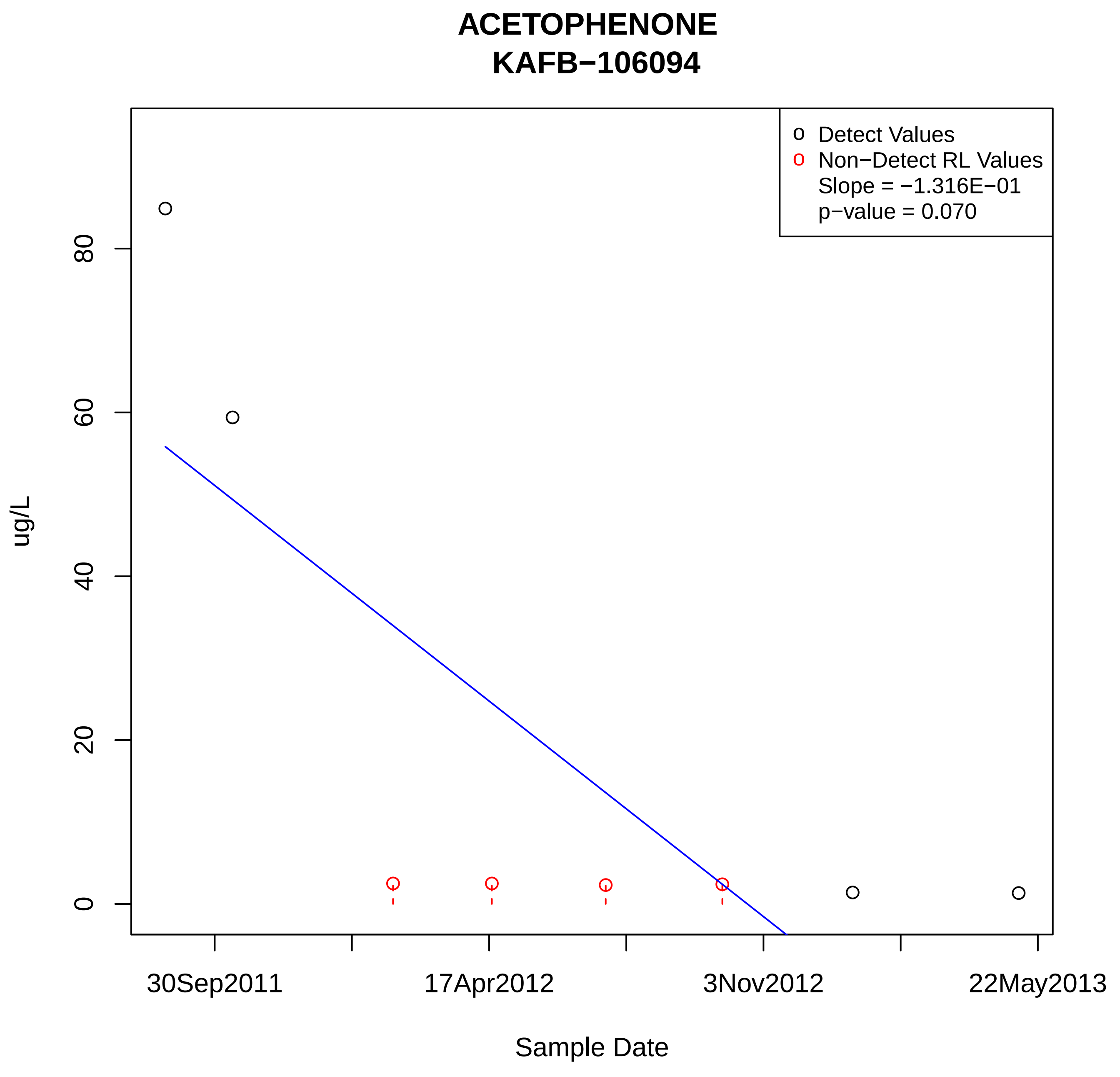


ACETOPHENONE
KAFB−106091
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date

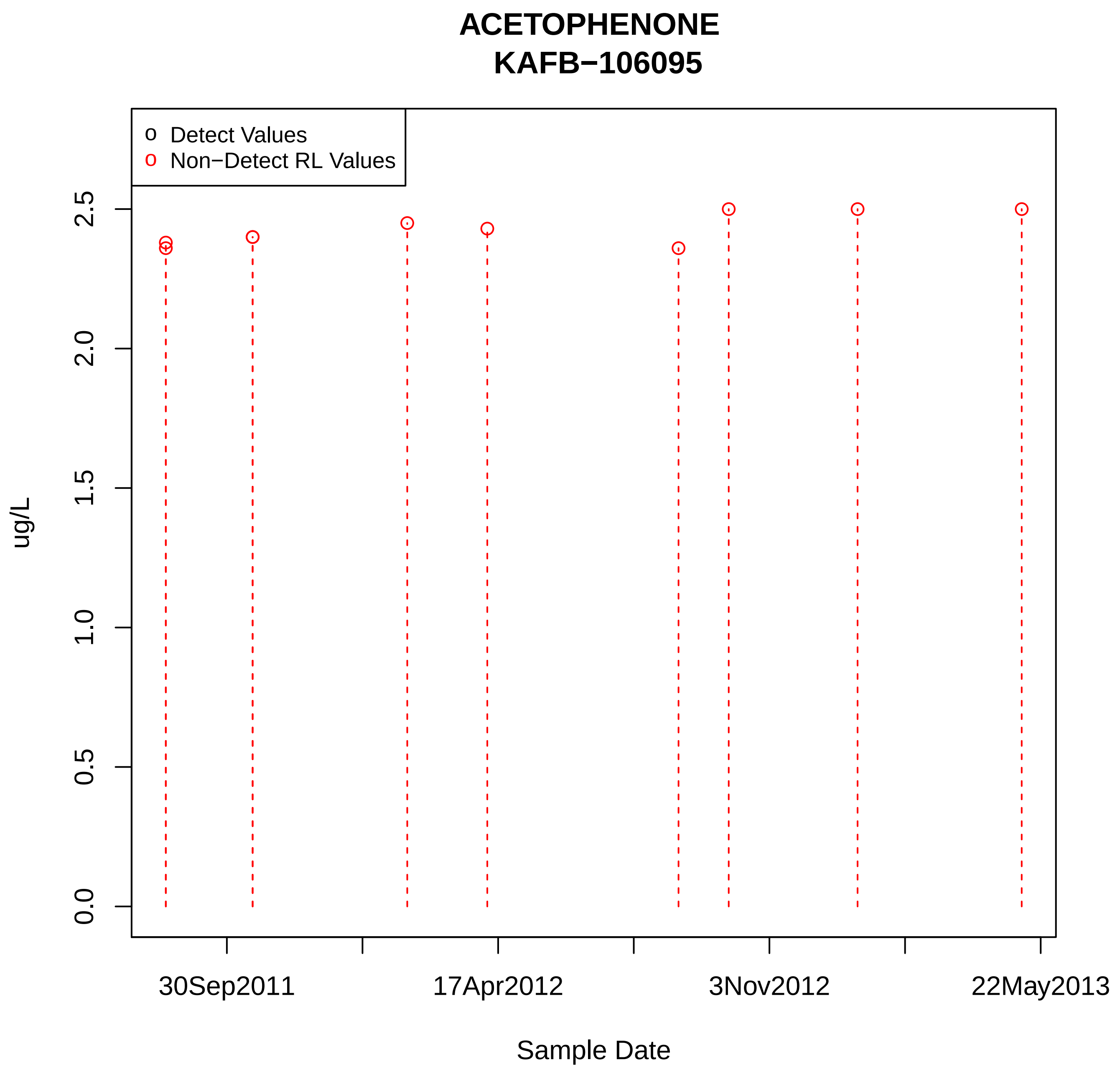


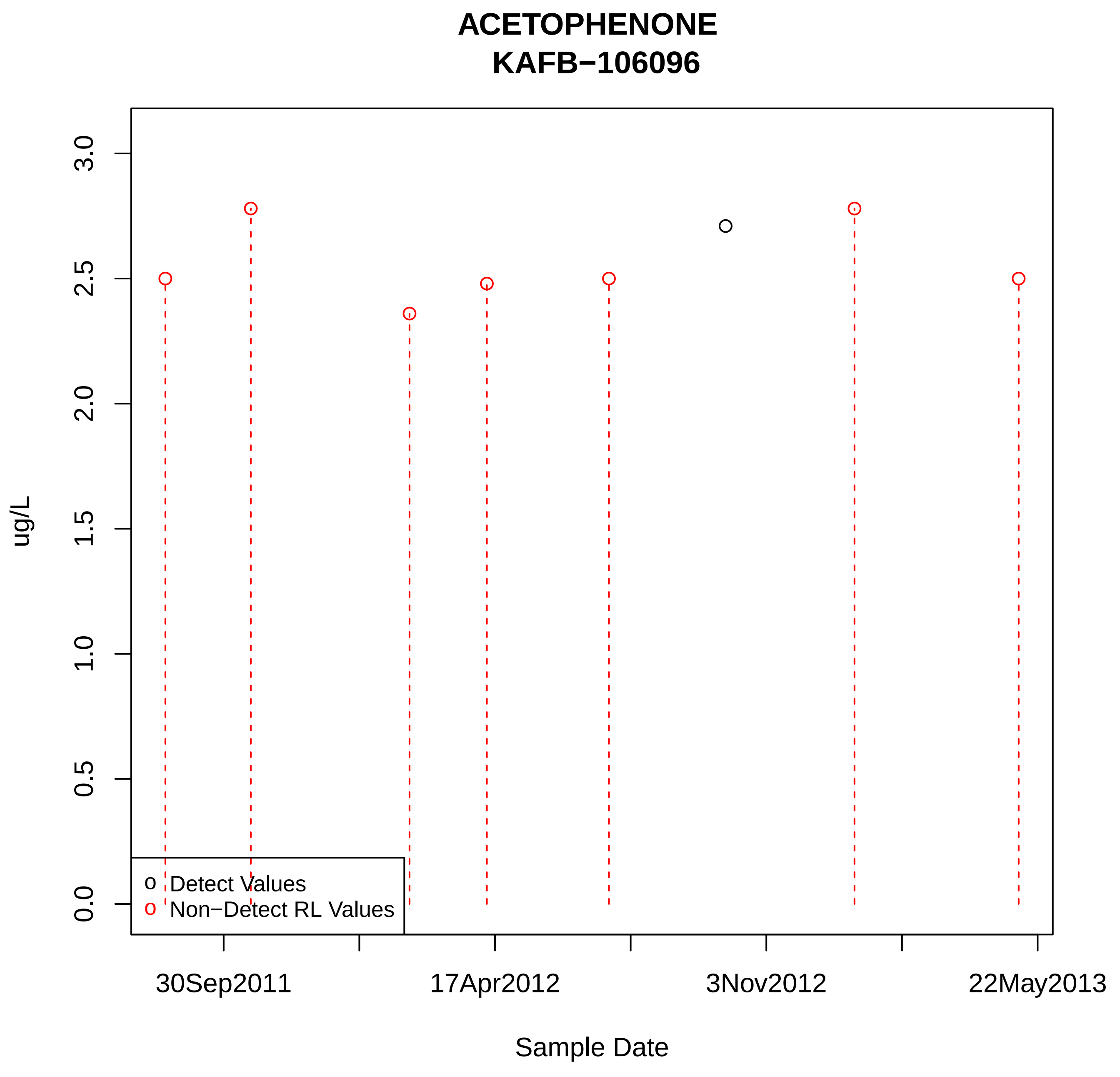
ACETOPHENONE
KAFB−106092
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

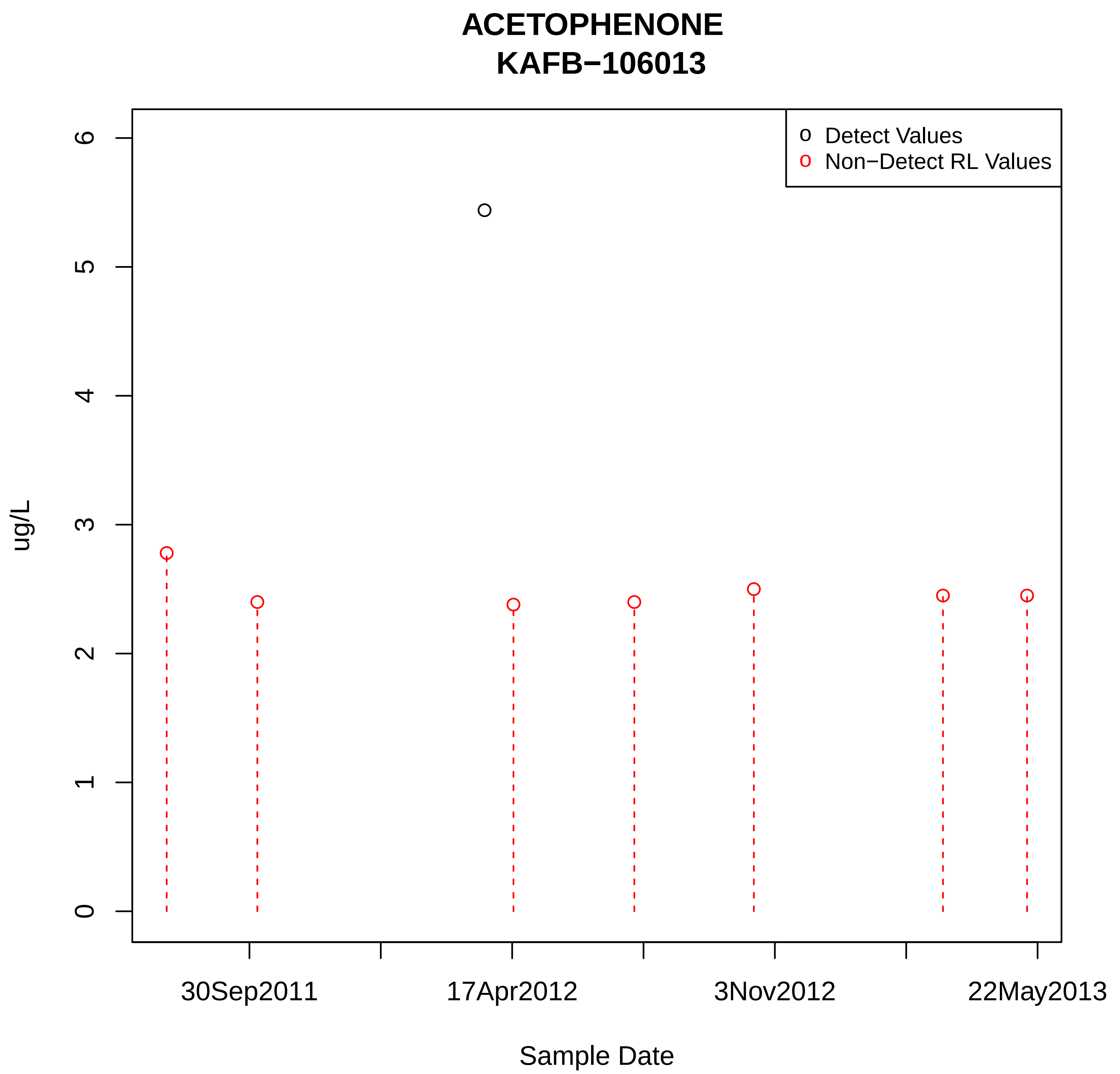

ACETOPHENONE
KAFB−106093
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
3.0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



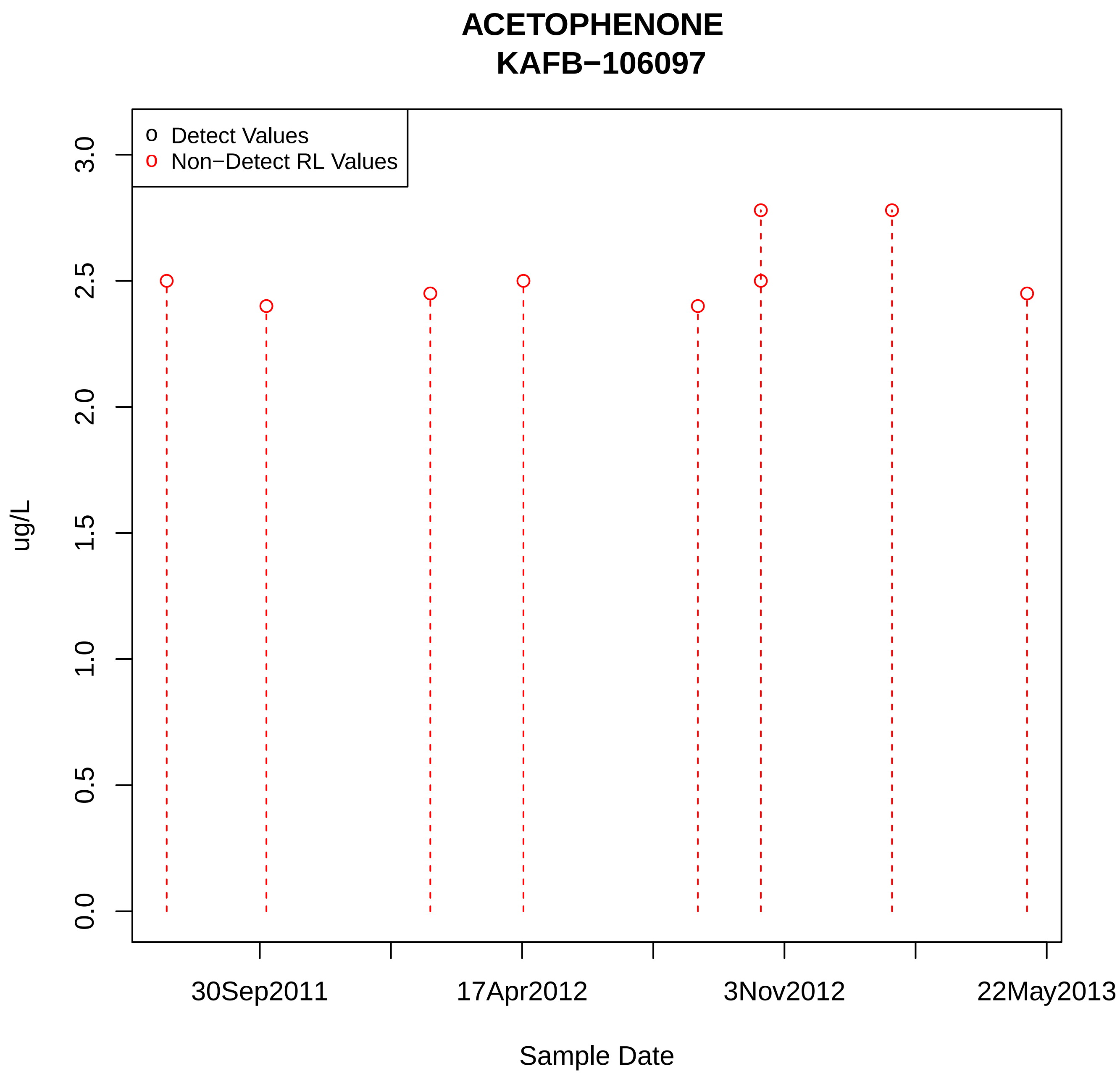
ACETOPHENONE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = −1.316E−01
p−value = 0.070
ug/L
0
20
40
60
80
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

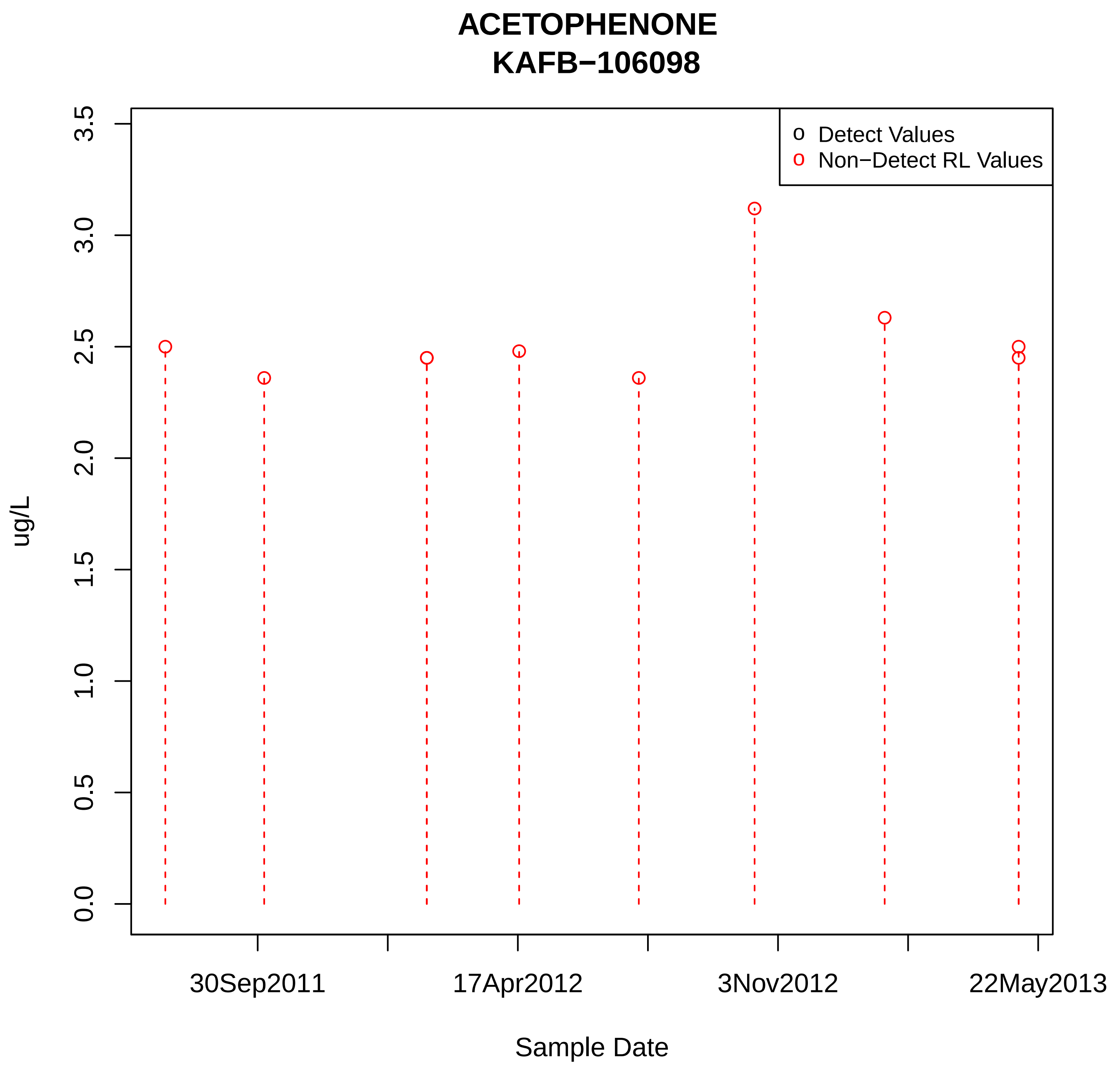

ACETOPHENONE
KAFB−106095
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETOPHENONE
KAFB−106096
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

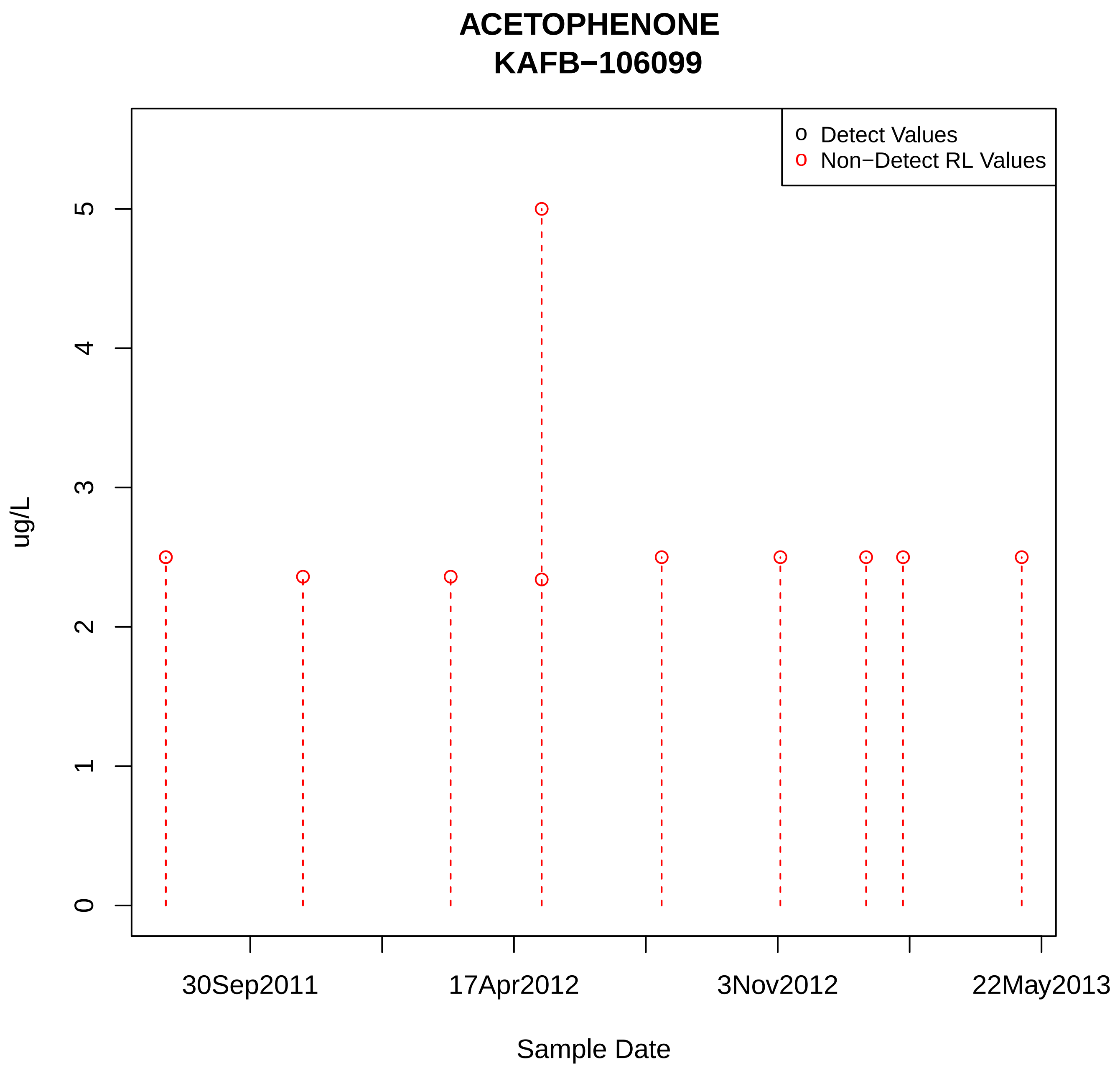


ACETOPHENONE
KAFB−106013
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

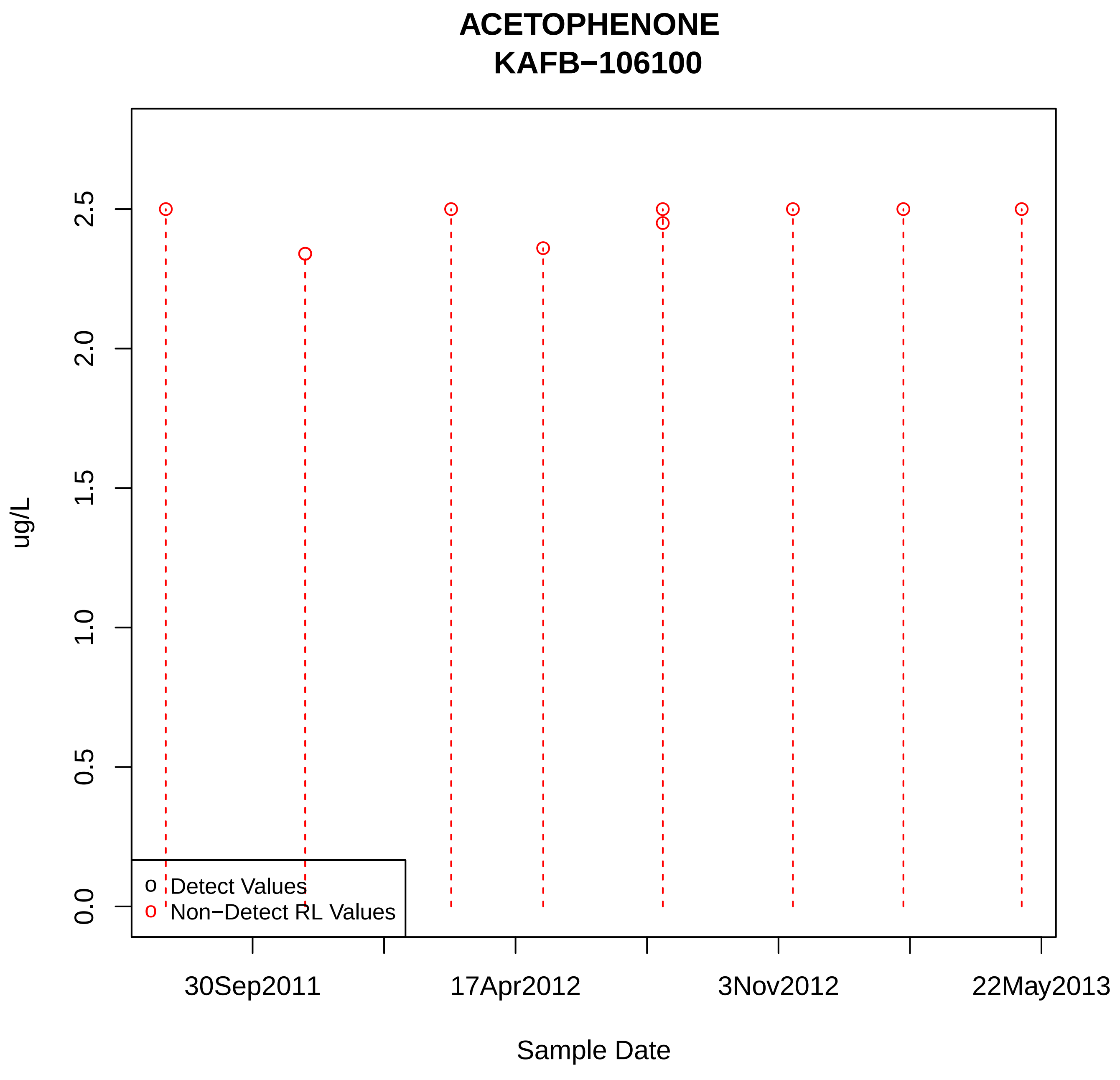

ACETOPHENONE
KAFB−106097
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

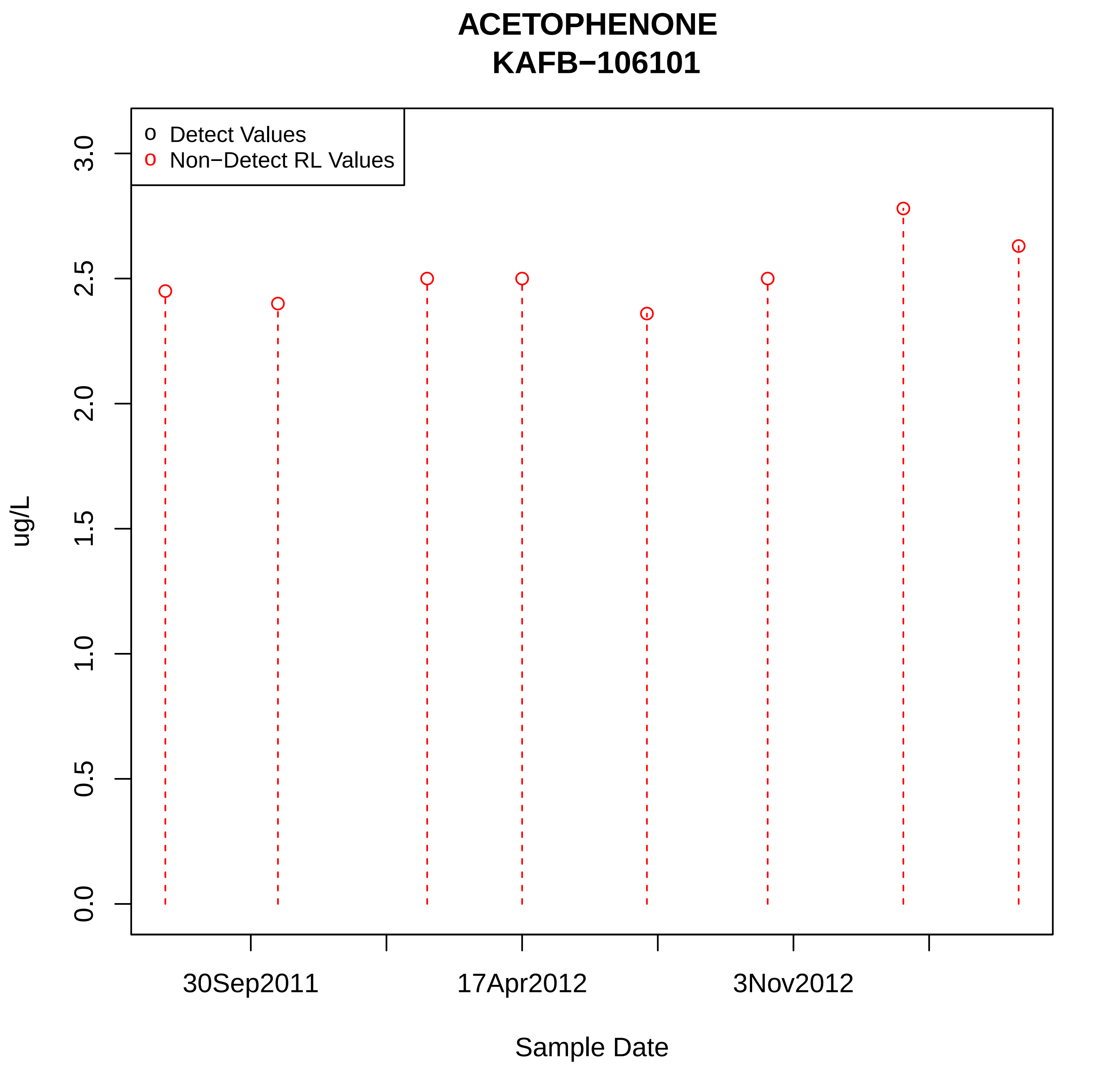


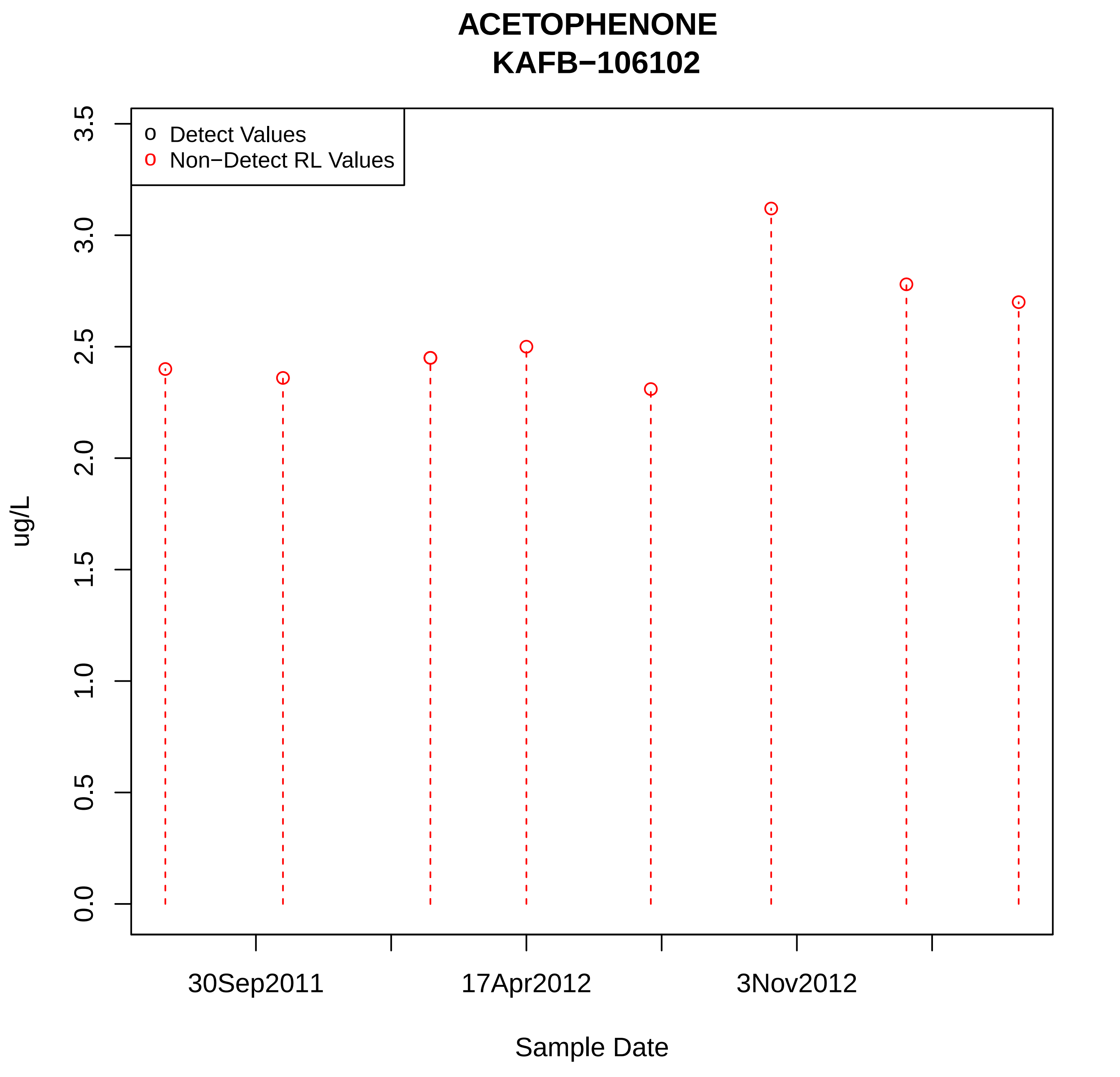
ACETOPHENONE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



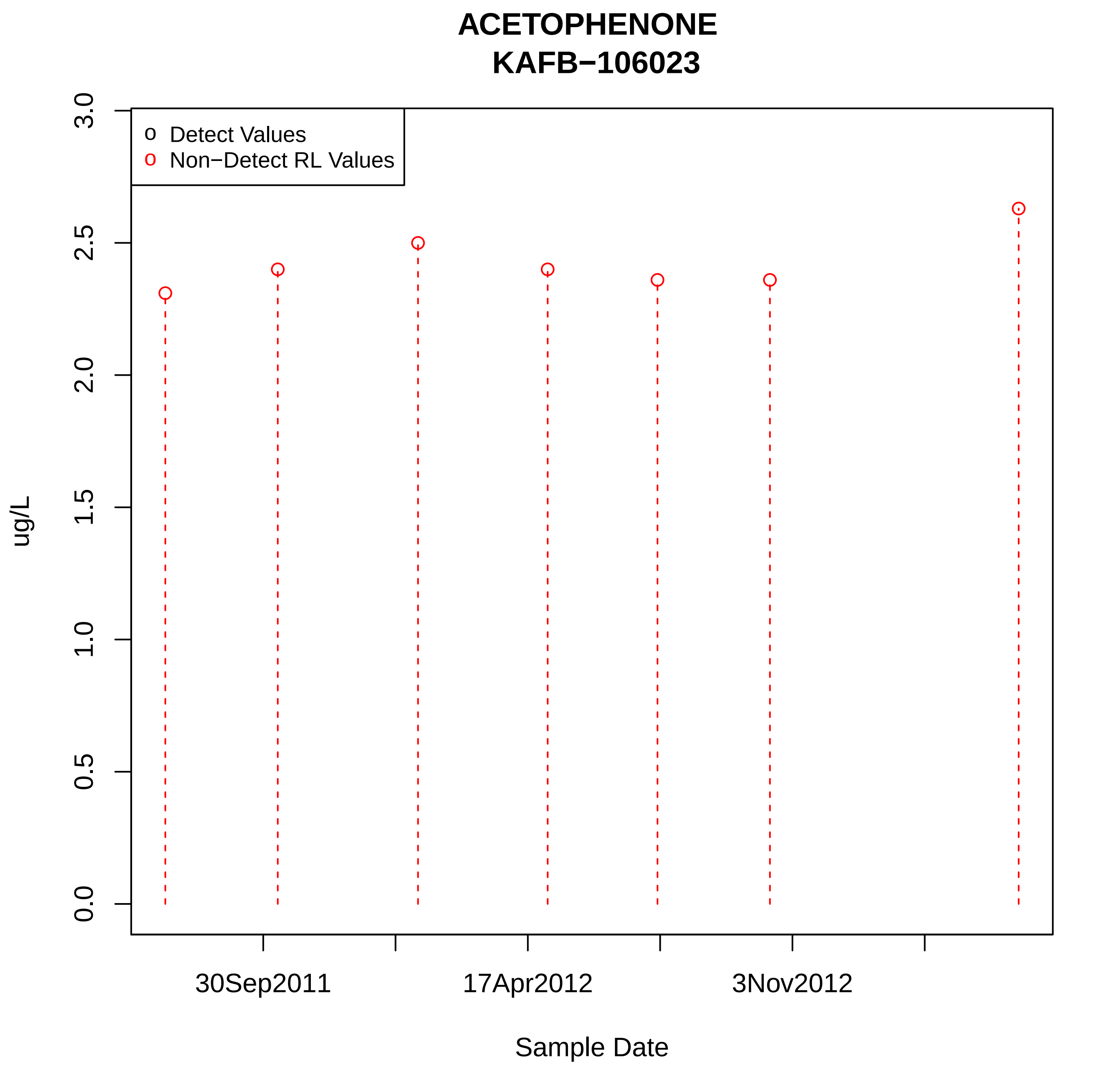
ACETOPHENONE
KAFB−106099
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETOPHENONE
KAFB−106100
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

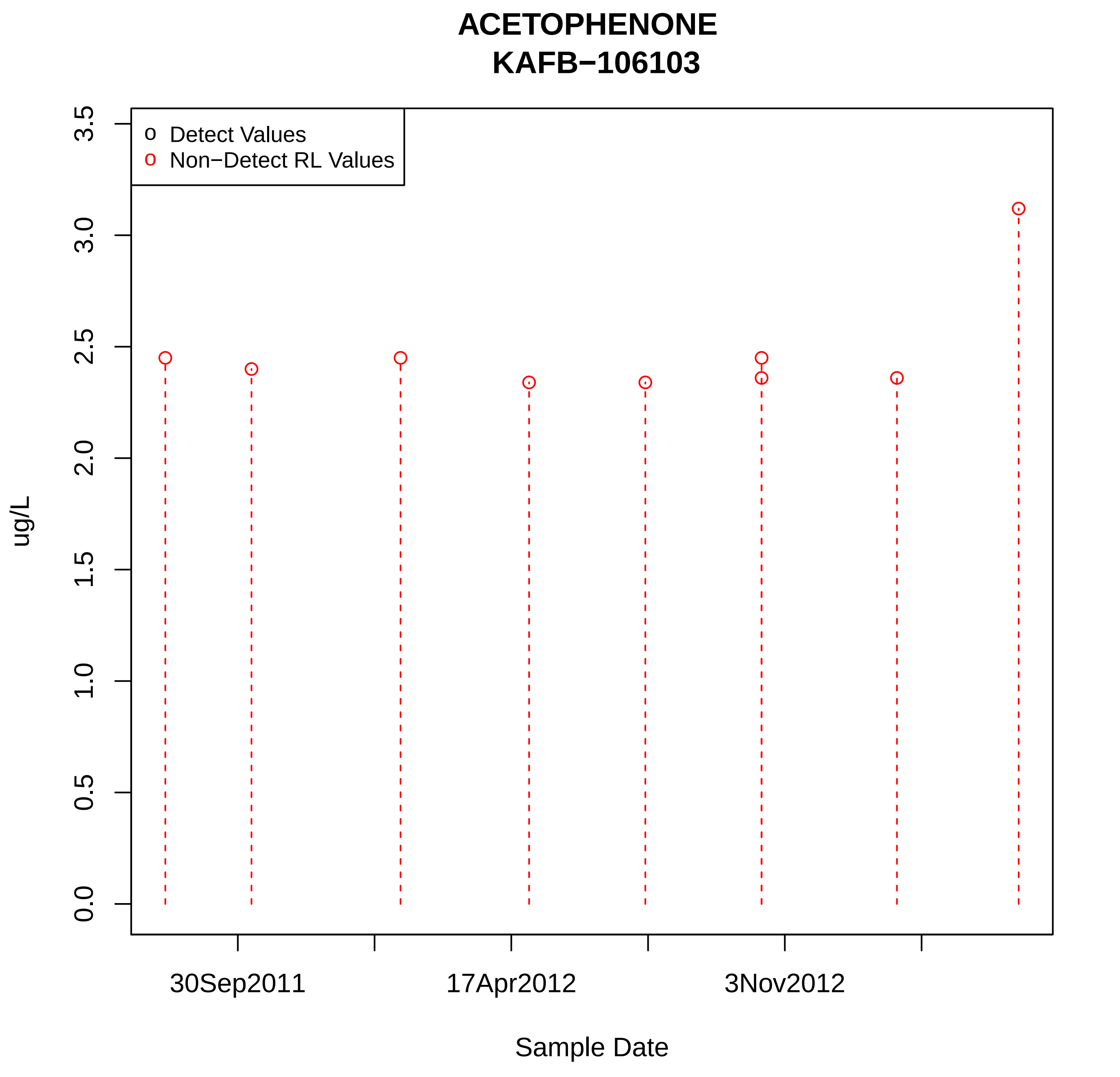

ACETOPHENONE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



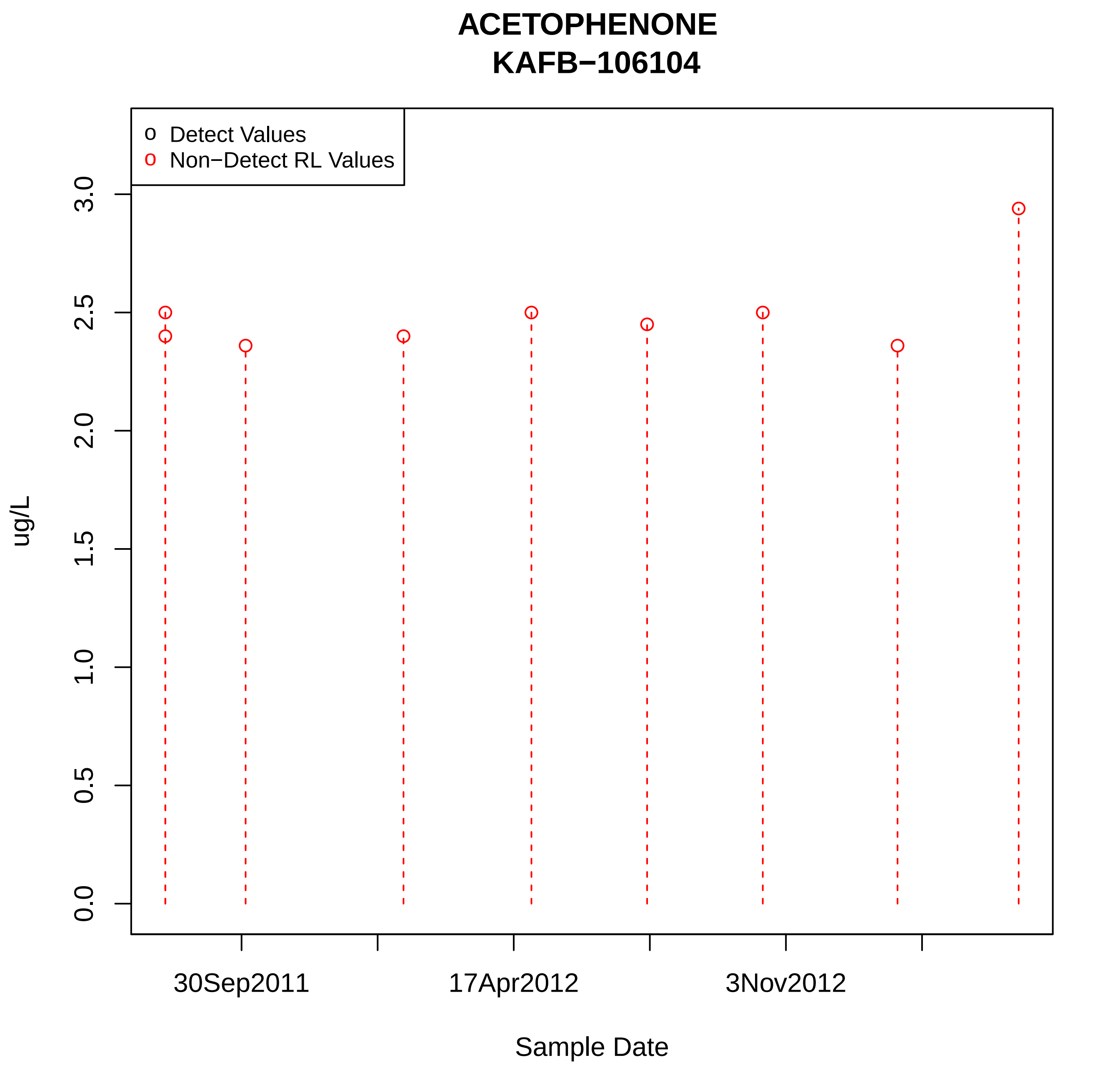
ACETOPHENONE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

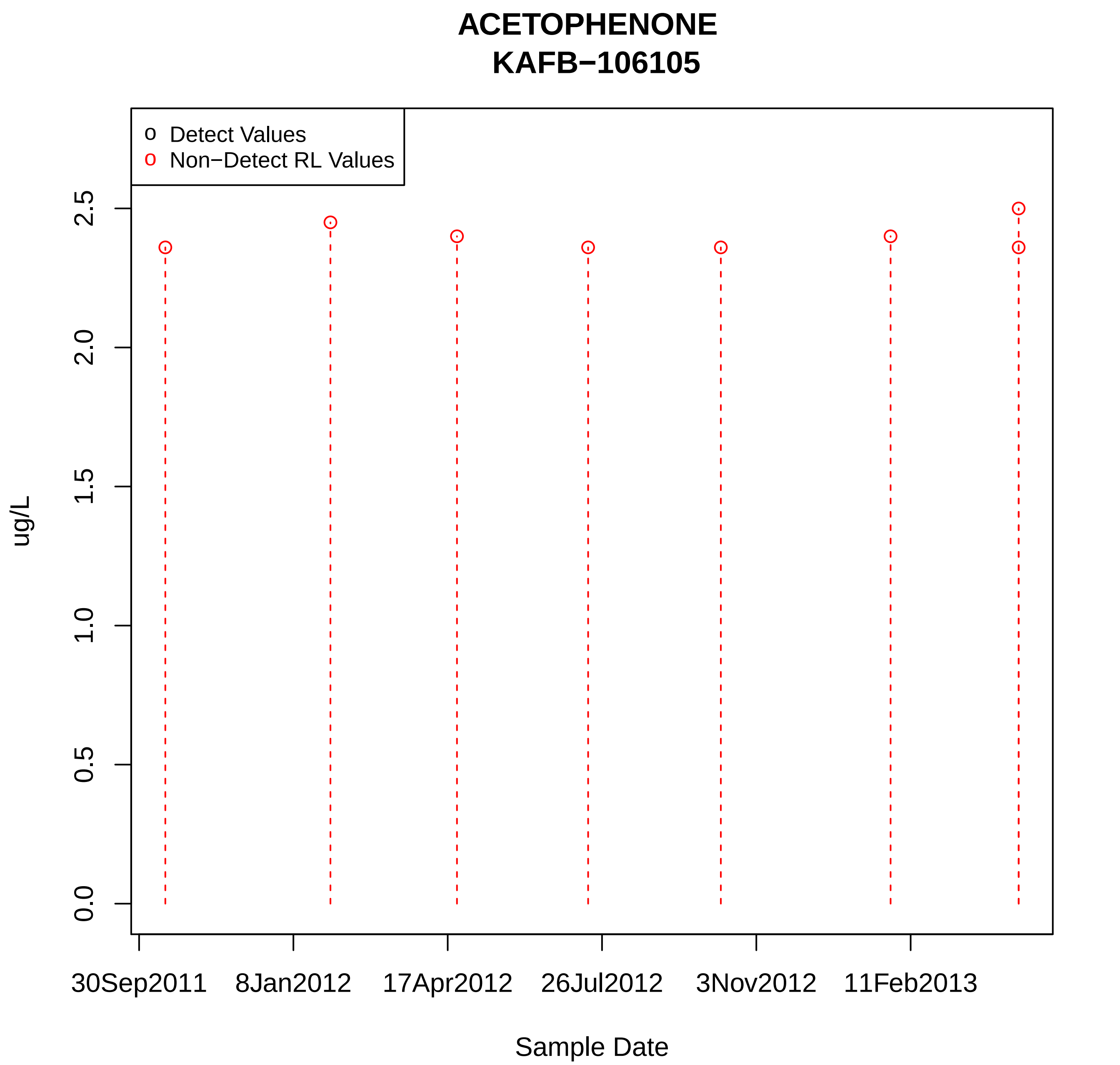


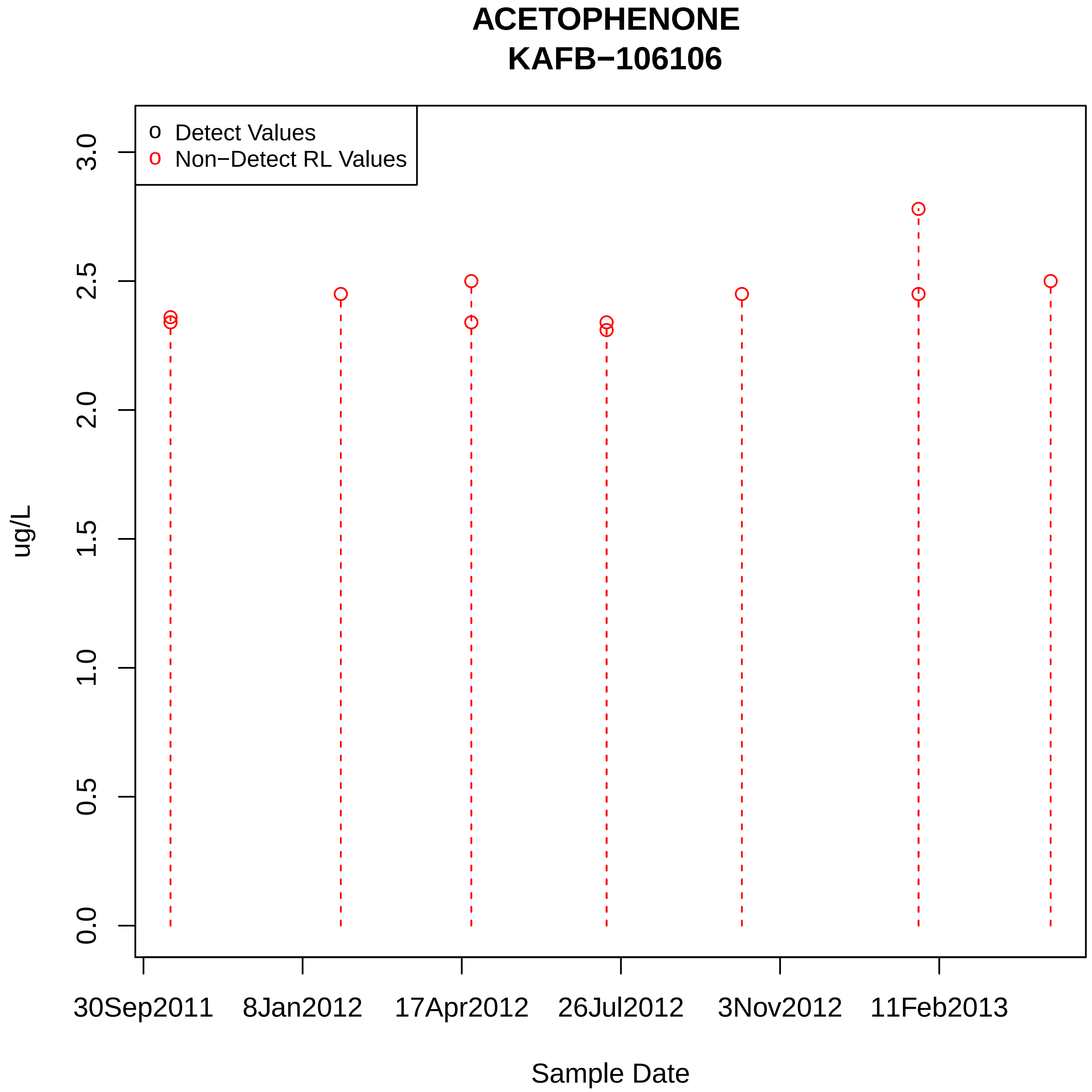
ACETOPHENONE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



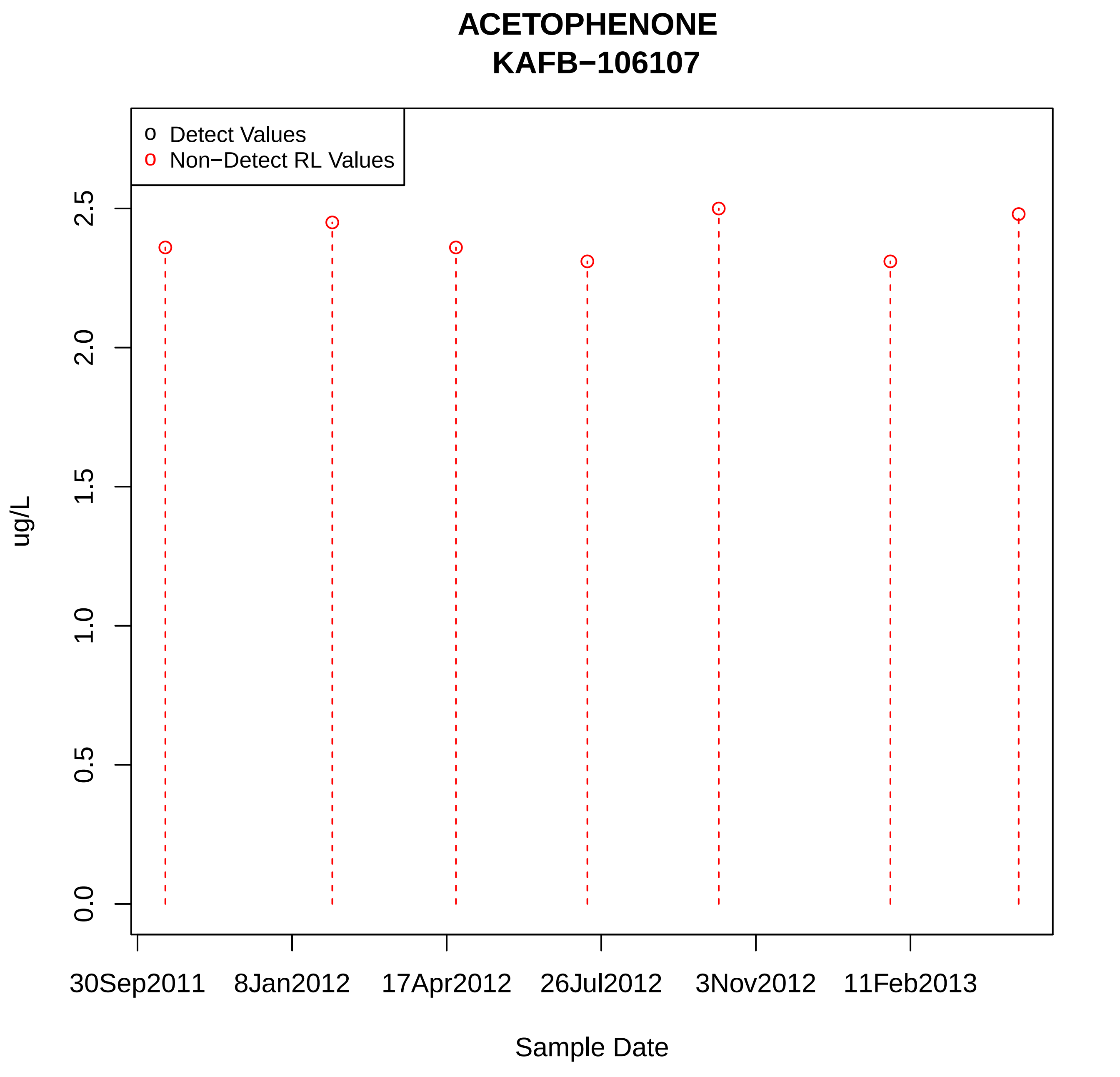
ACETOPHENONE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ACETOPHENONE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

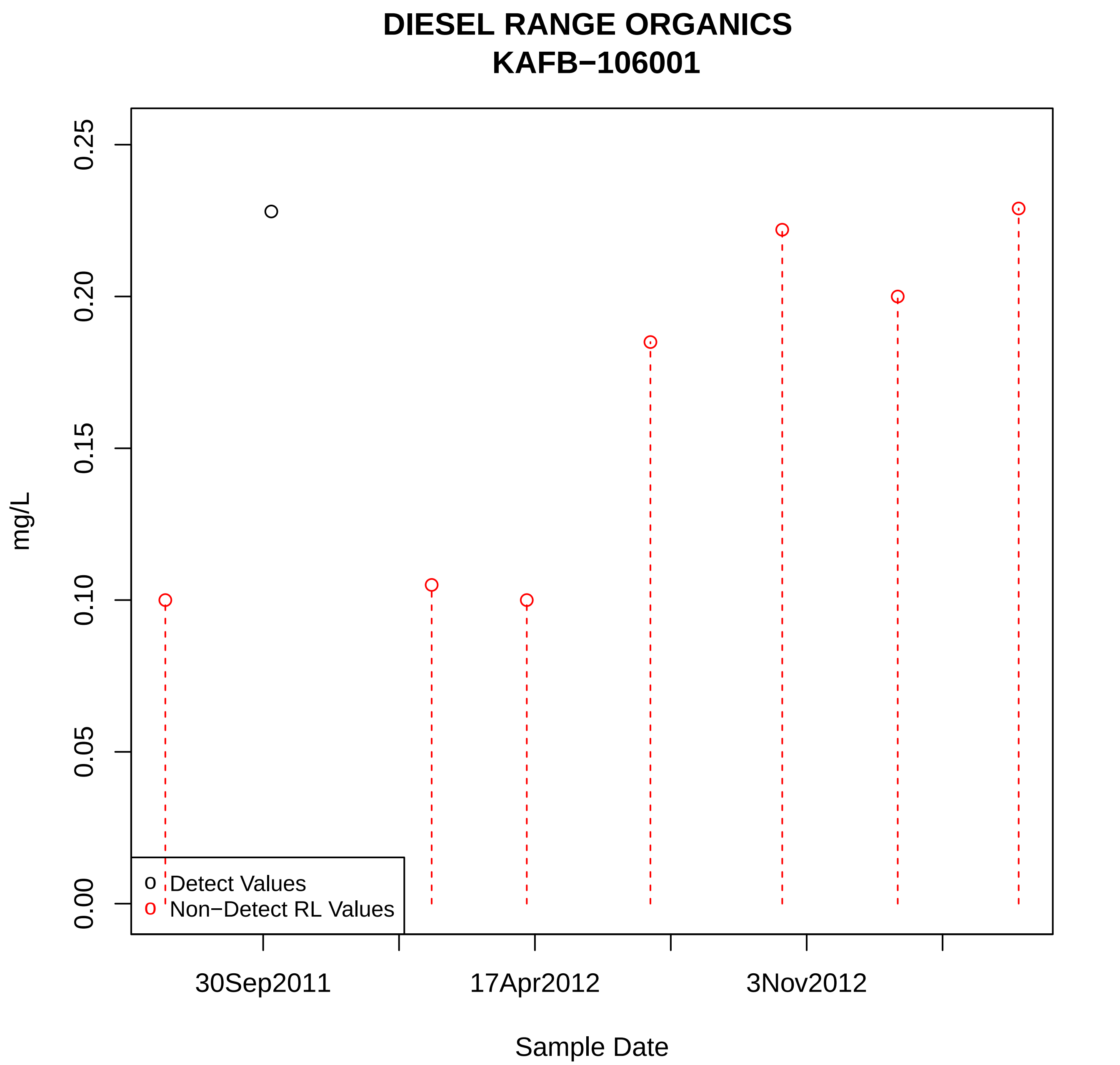

ACETOPHENONE
KAFB−106105
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



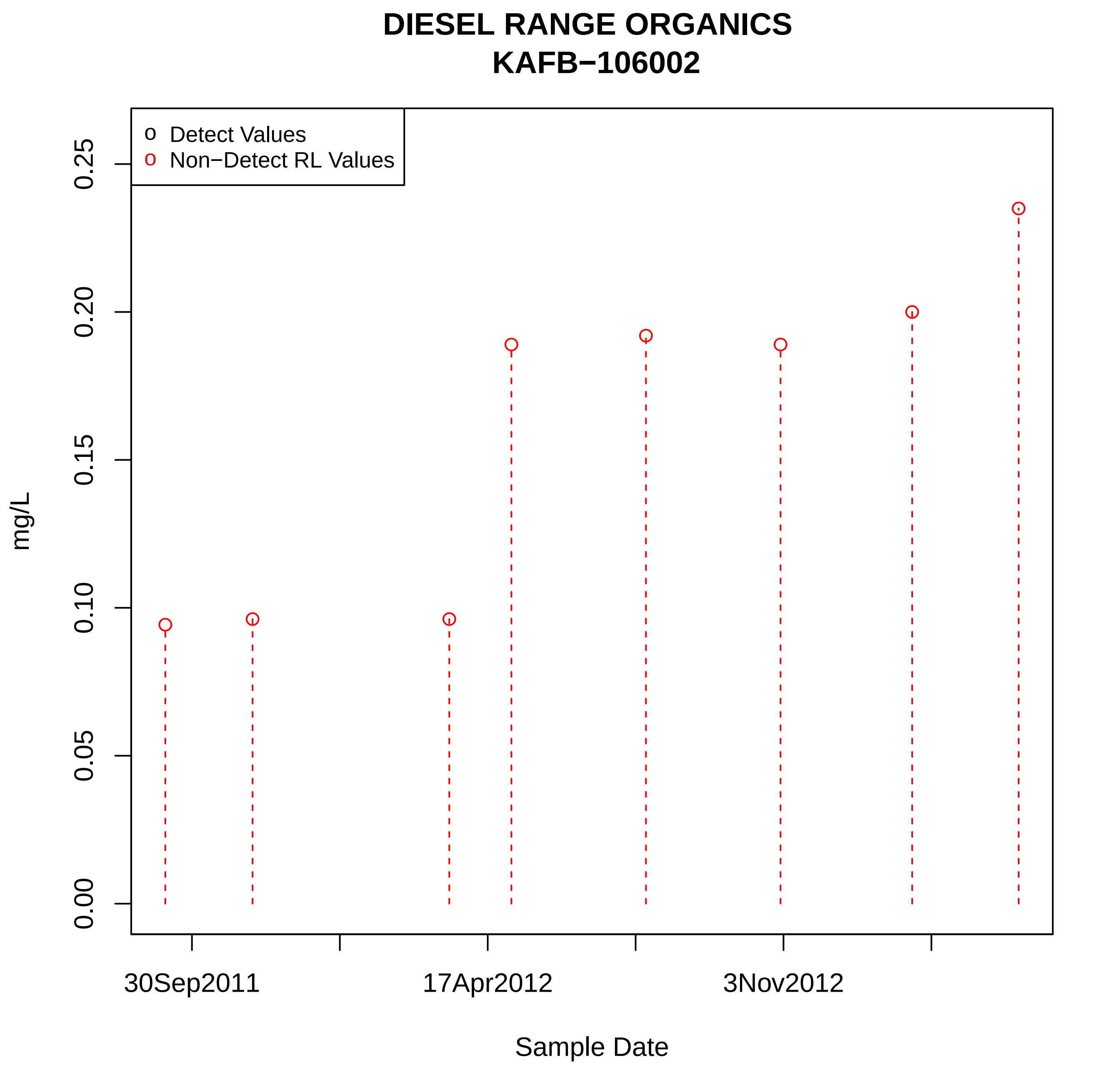
ACETOPHENONE
KAFB−106106
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

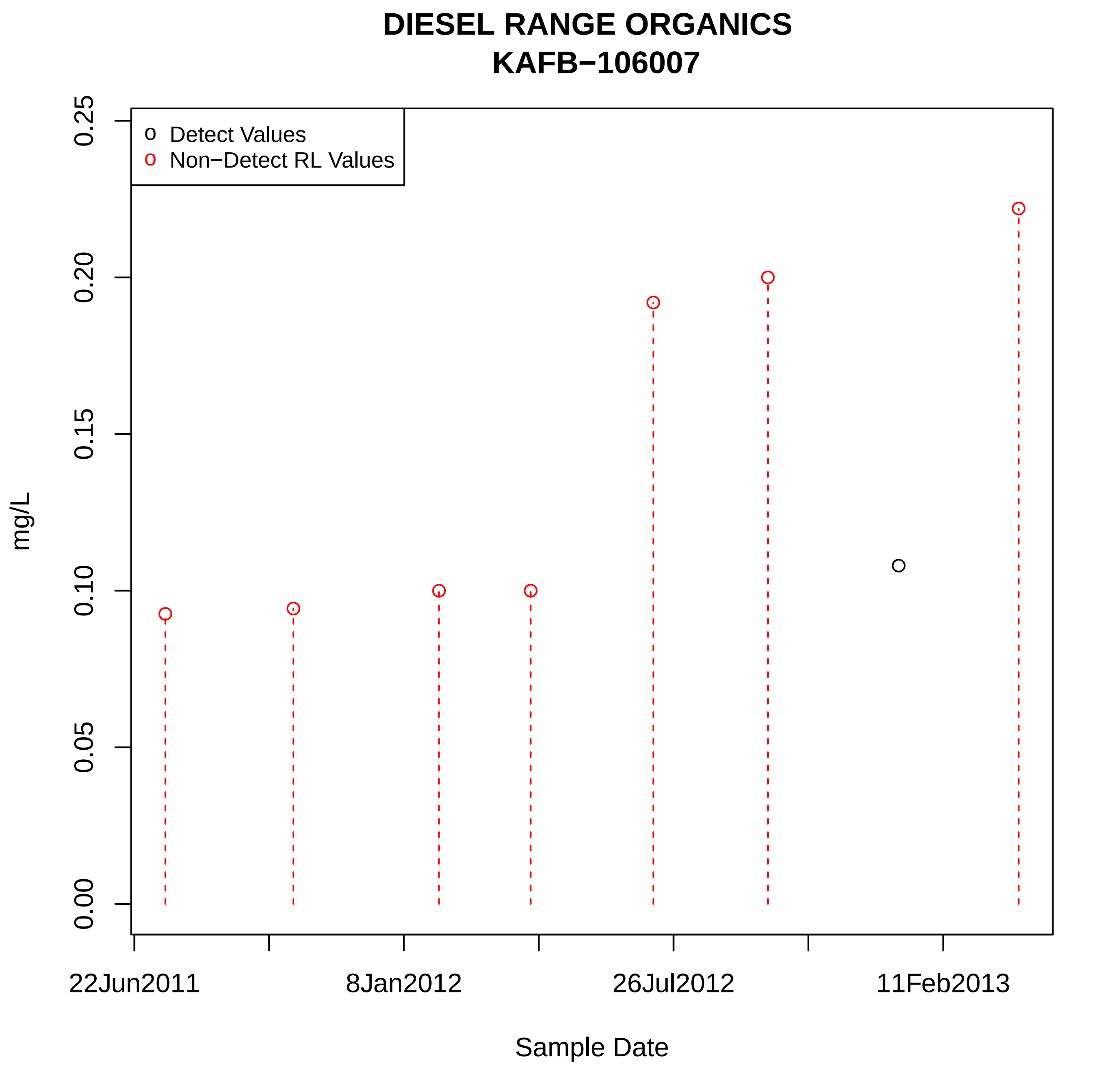


ACETOPHENONE
KAFB−106107
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

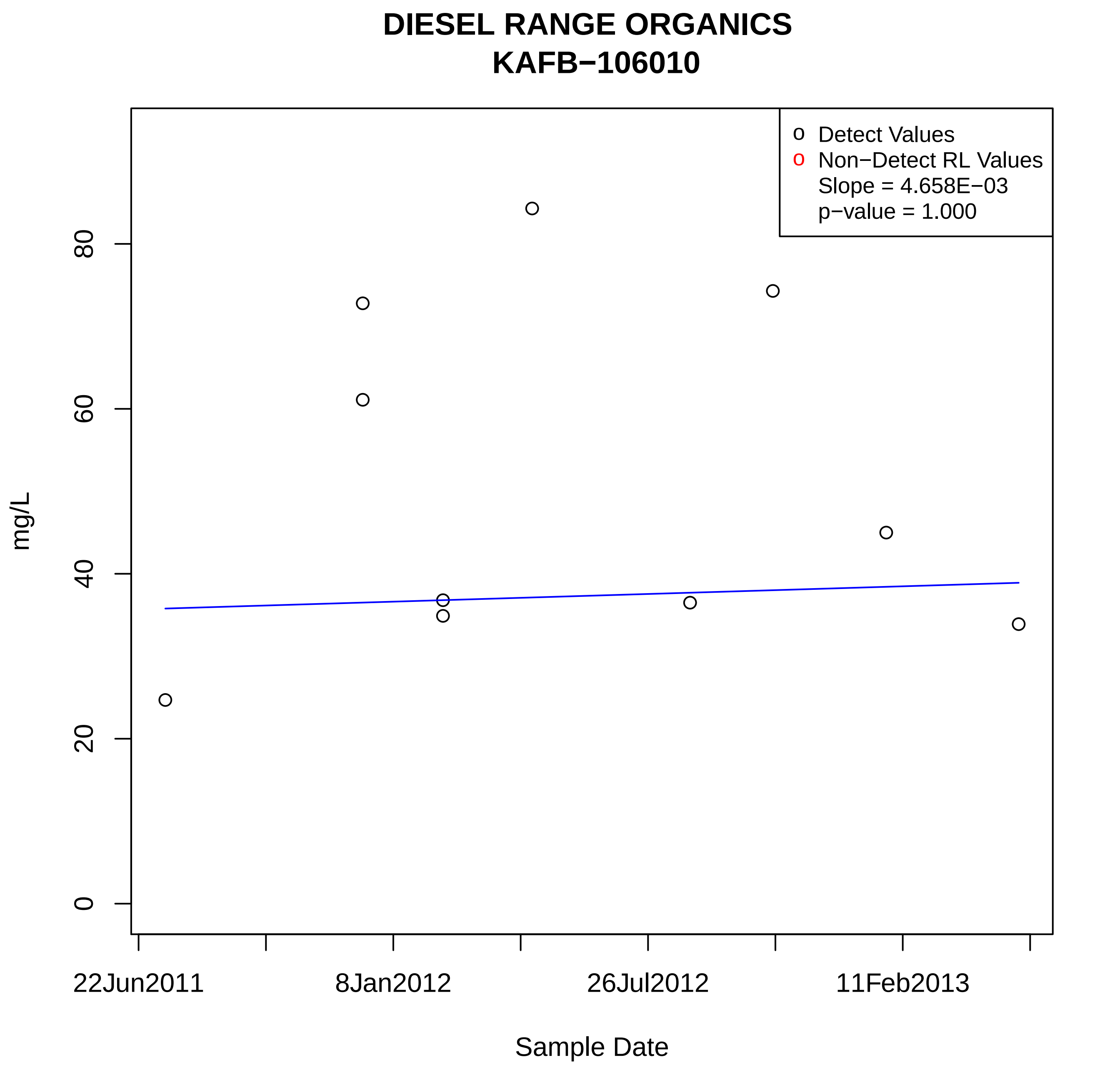


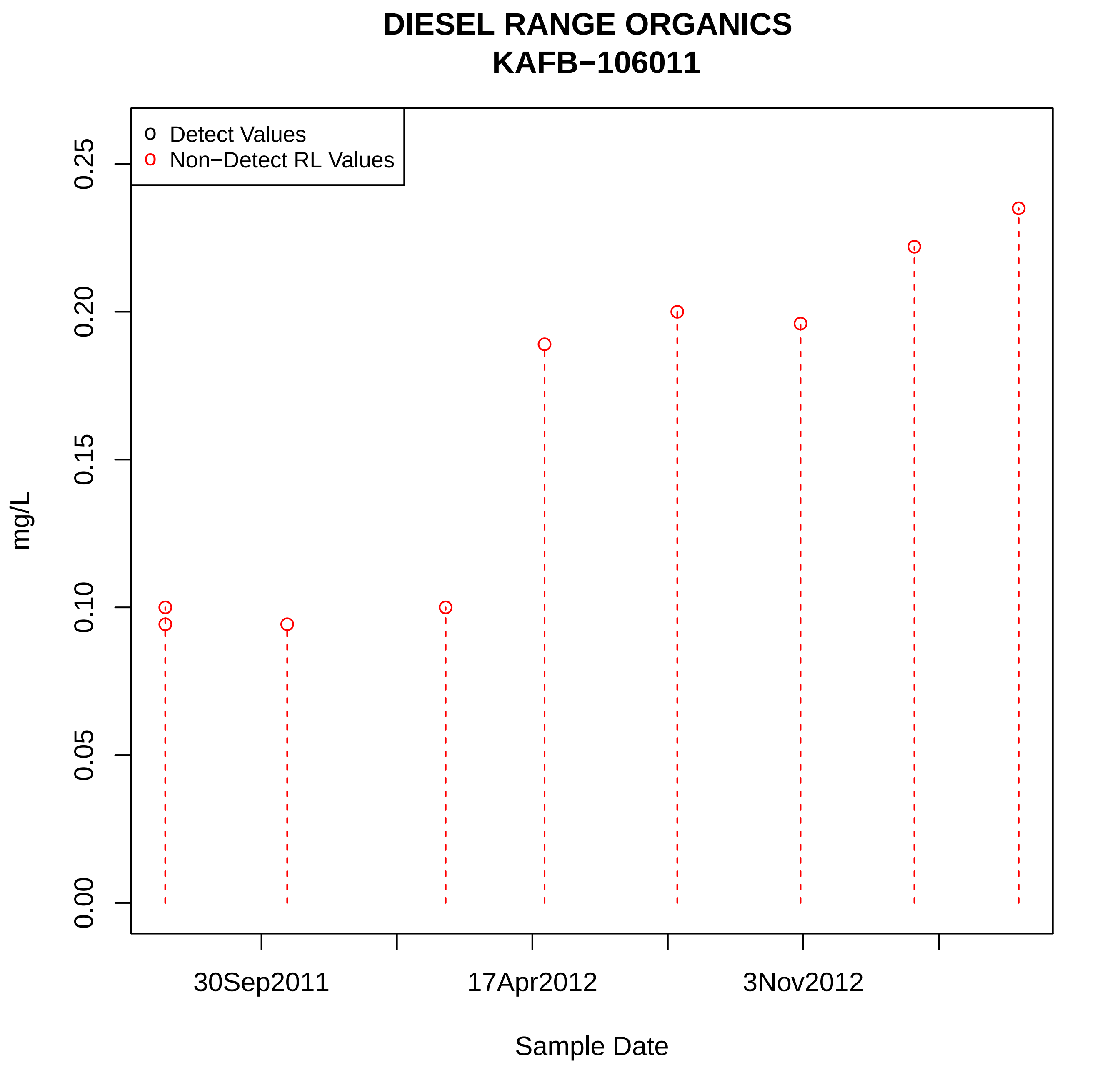
DIESEL RANGE ORGANICS
KAFB−106001
0.00
0.05
0.10
0.15
0.20
0.25
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

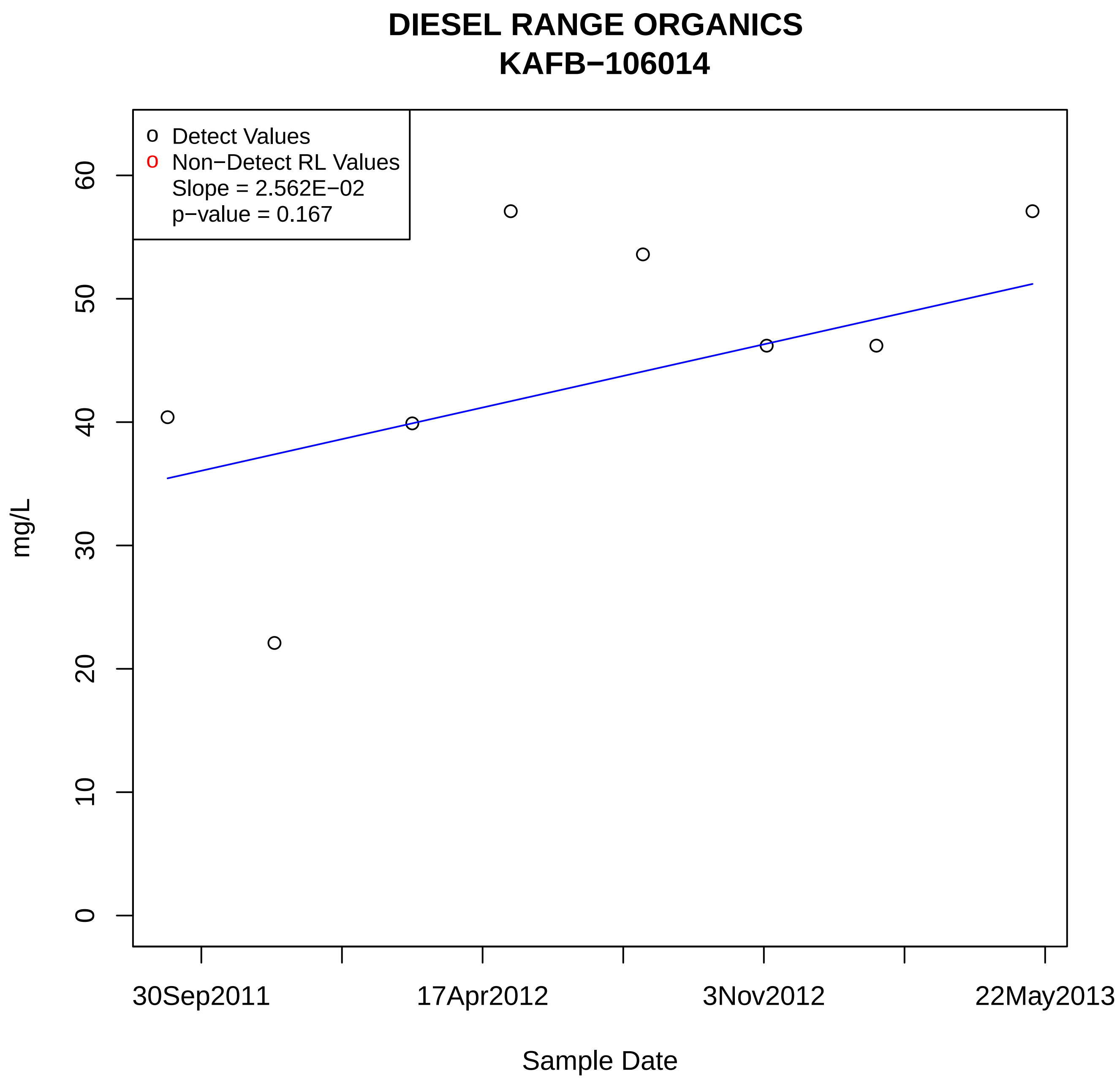

DIESEL RANGE ORGANICS
KAFB−106002
Detect Values
Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
0.25
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

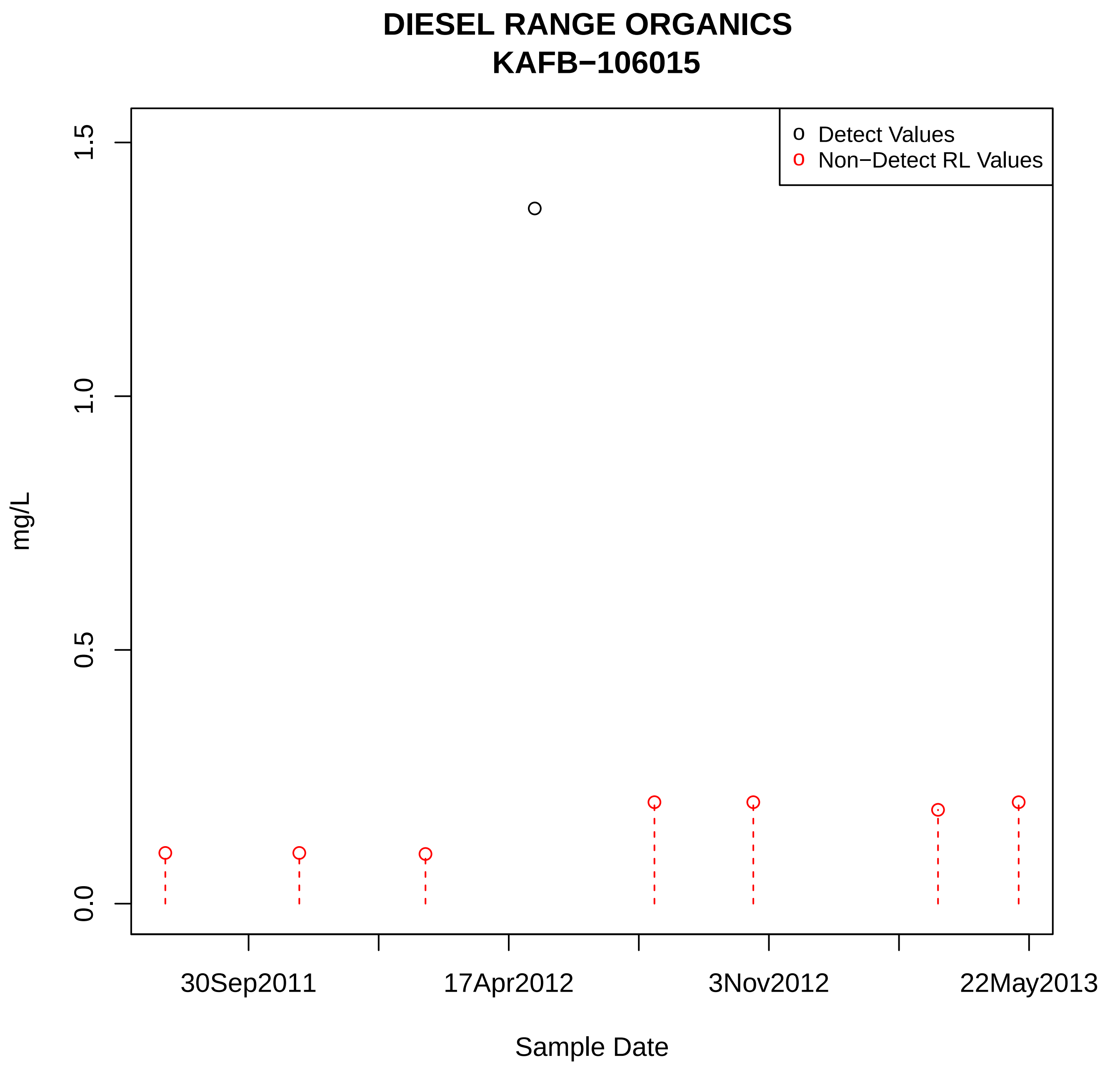


DIESEL RANGE ORGANICS
KAFB−106007
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

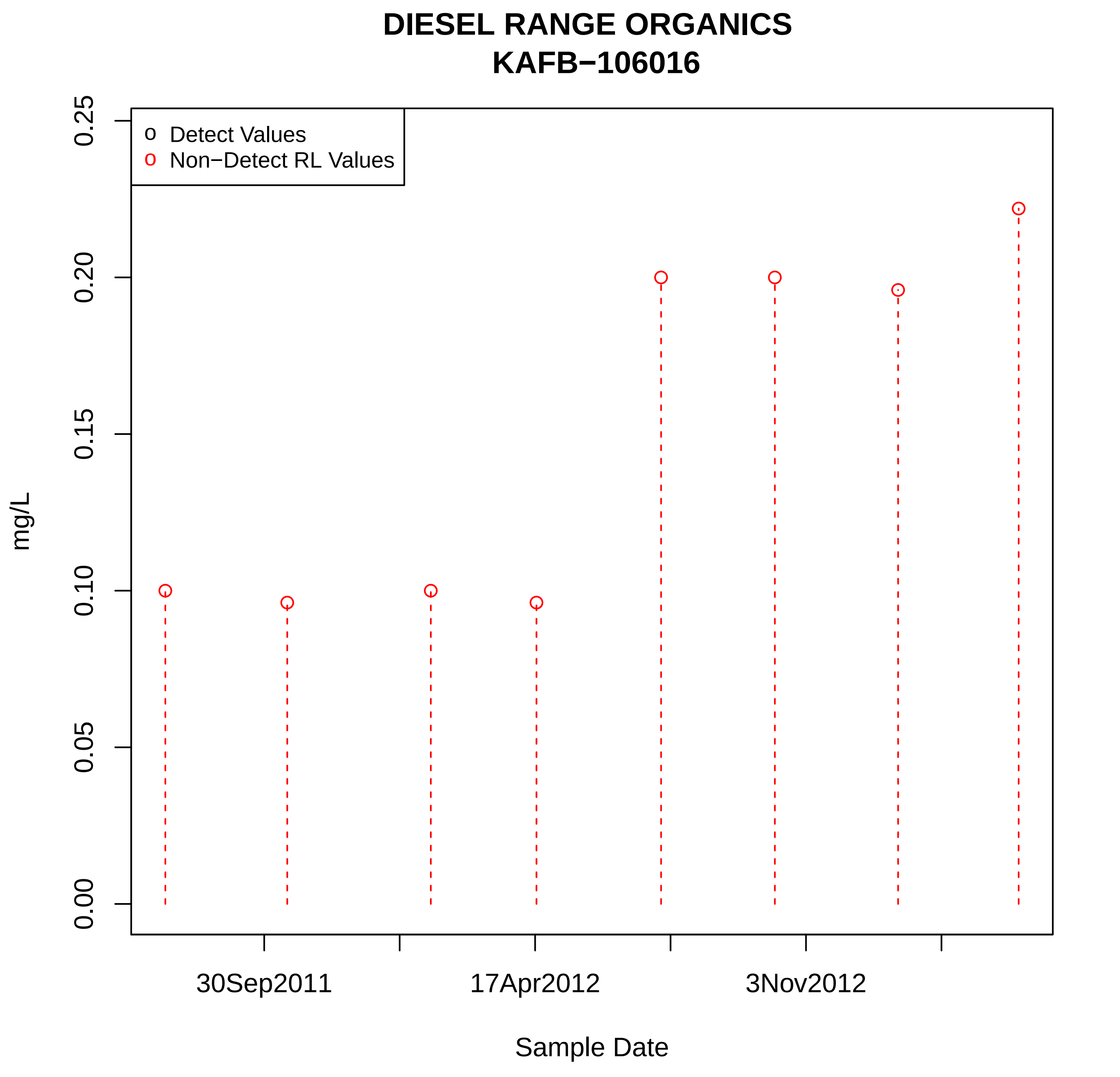

DIESEL RANGE ORGANICS
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = 4.658E−03
p−value = 1.000
mg/L
0
20
40
60
80
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106011
Detect Values
Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
0.25
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

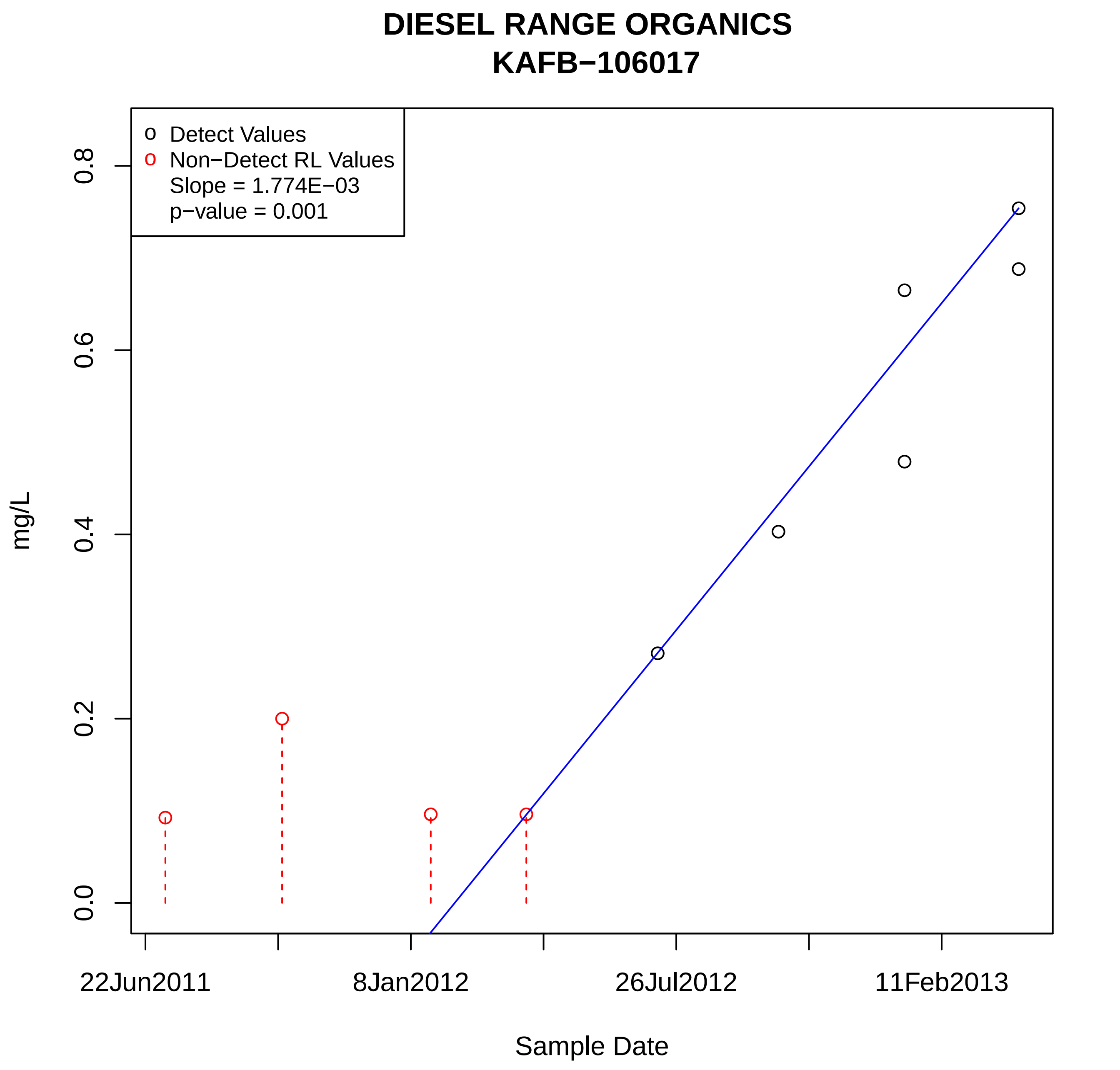

DIESEL RANGE ORGANICS
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = 2.562E−02
p−value = 0.167
mg/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

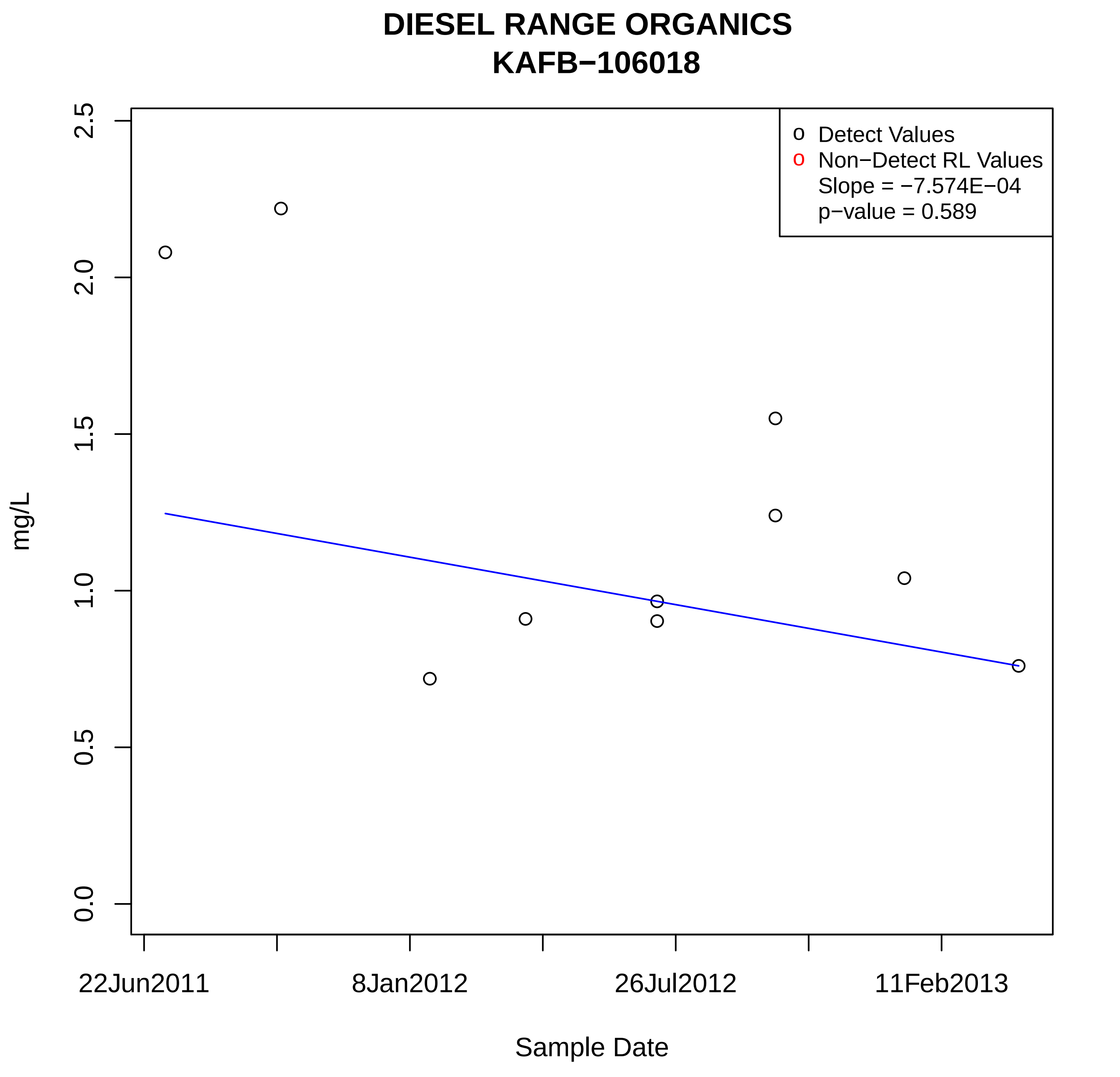


DIESEL RANGE ORGANICS
KAFB−106015
o Detect Values
o Non−Detect RL Values
mg/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

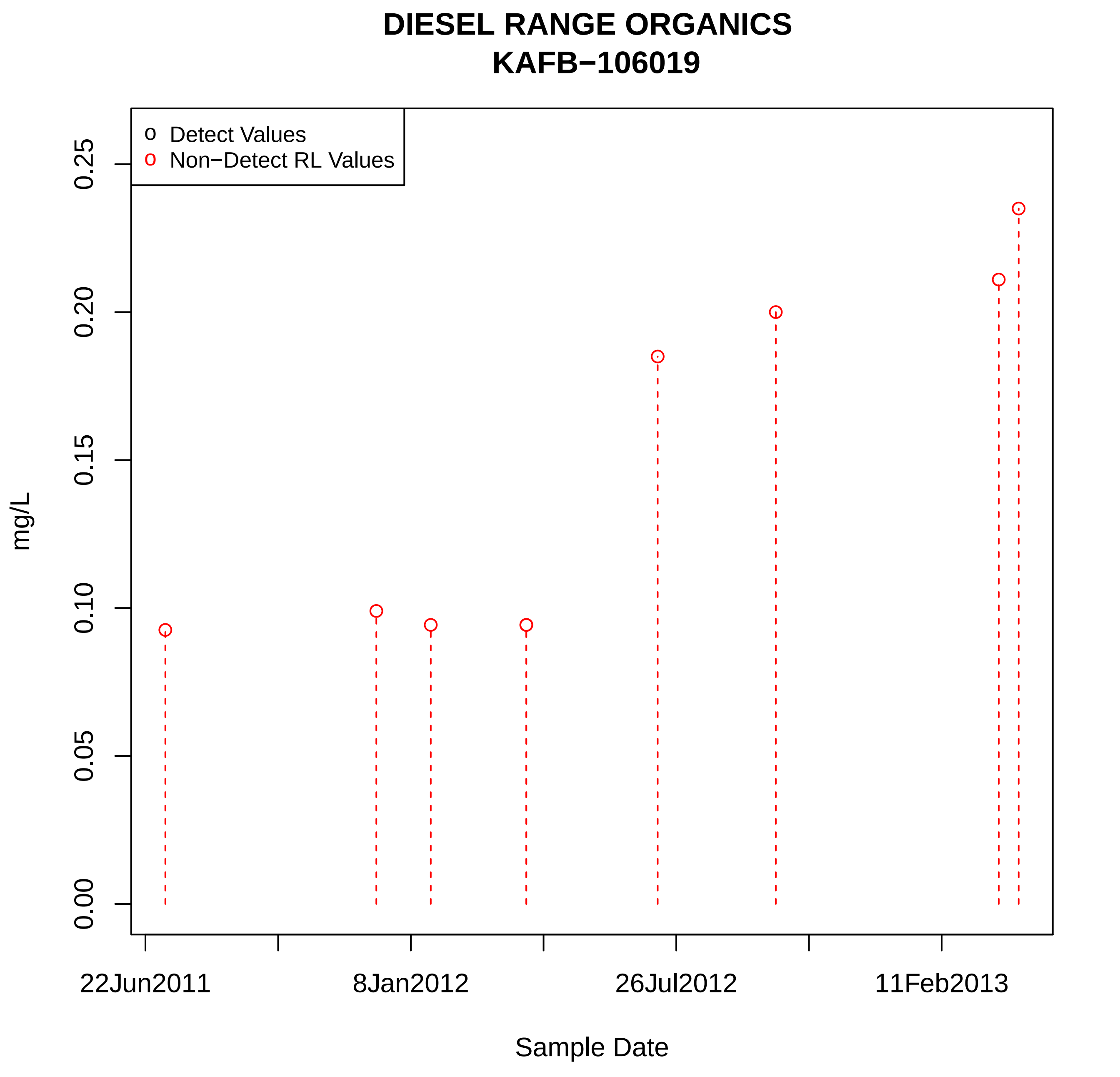


DIESEL RANGE ORGANICS
KAFB−106016
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

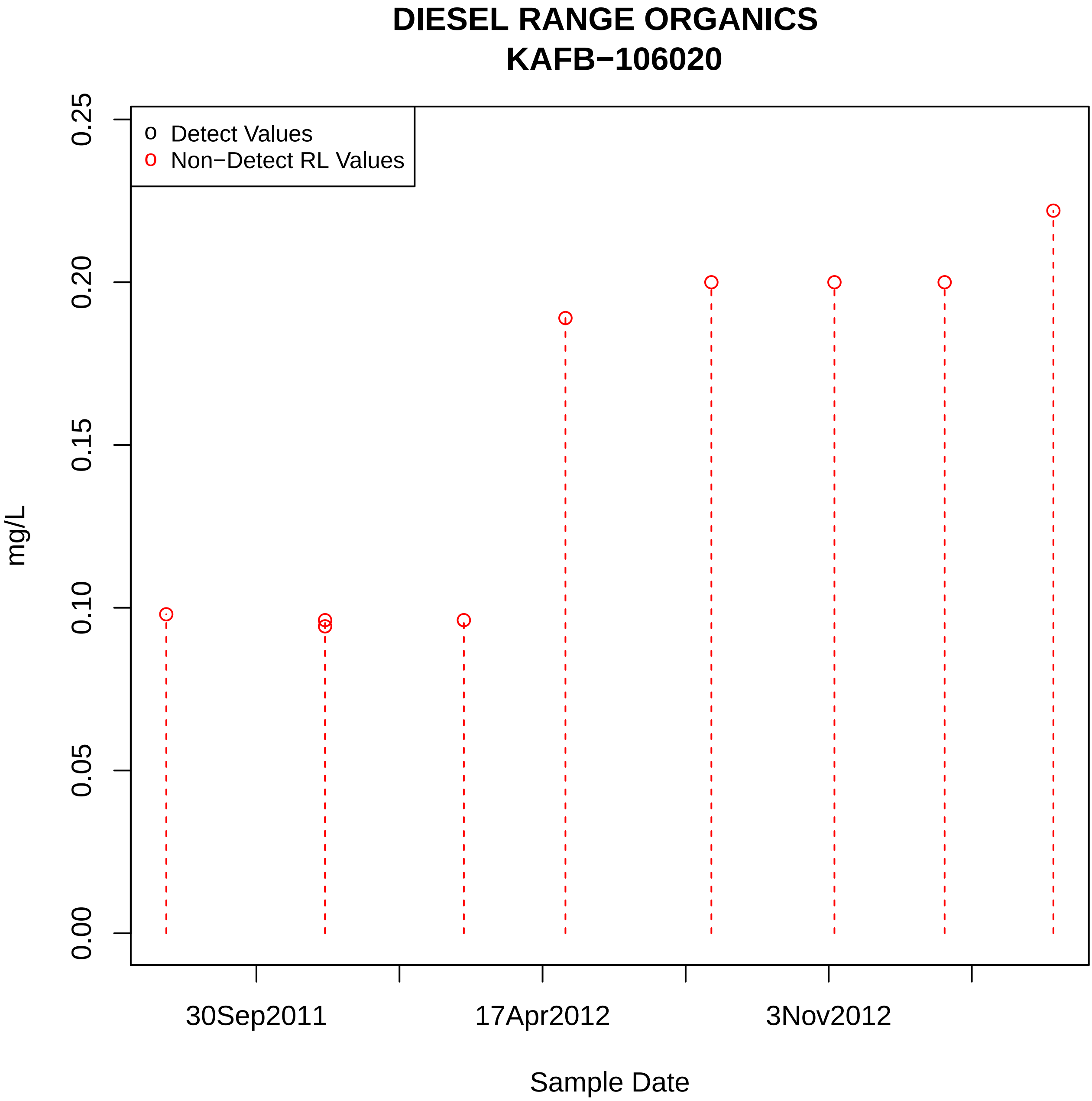

DIESEL RANGE ORGANICS
KAFB−106017
o Detect Values
o Non−Detect RL Values
Slope = 1.774E−03
p−value = 0.001
mg/L
0.0
0.2
0.4
0.6
0.8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

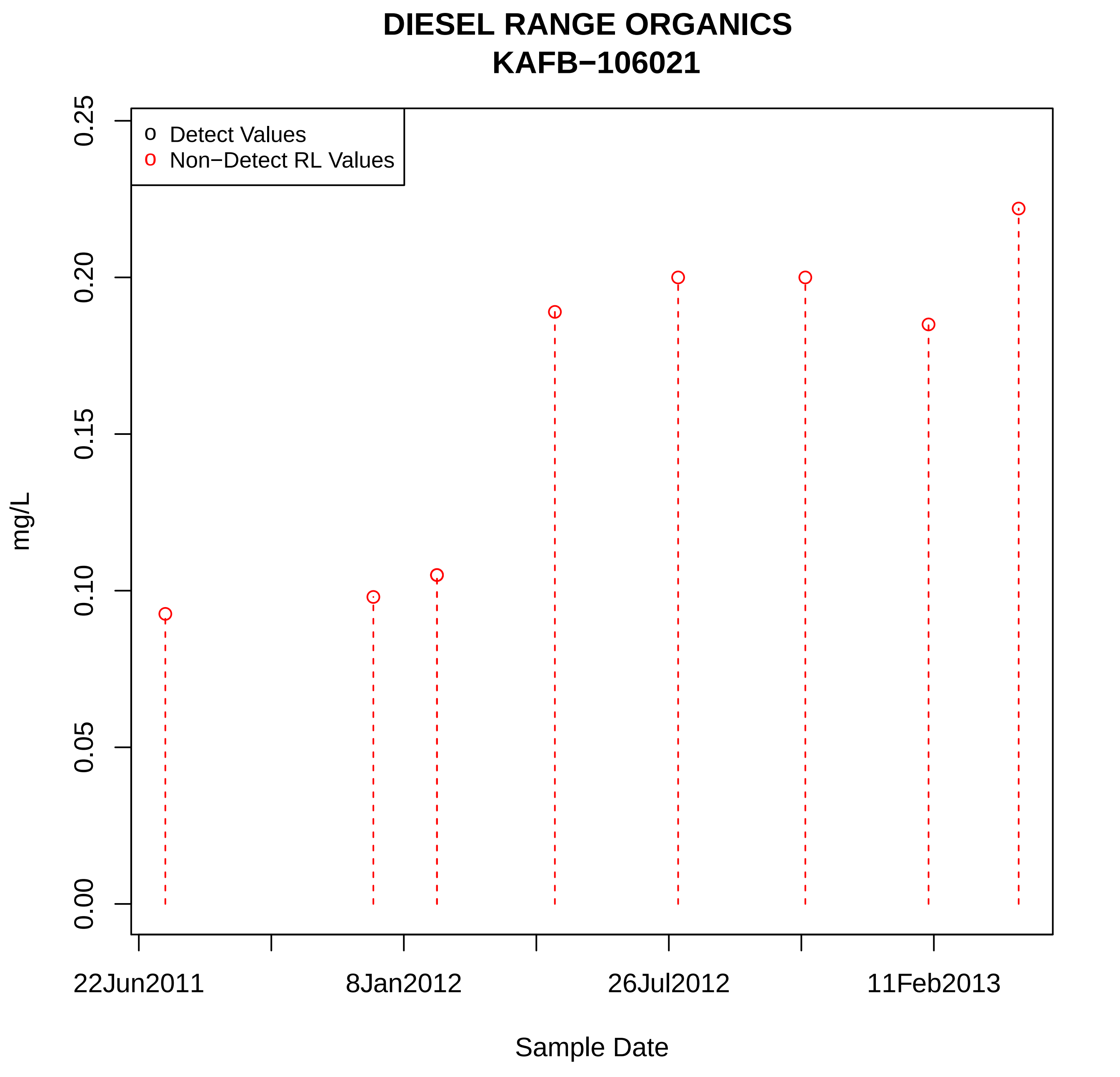


DIESEL RANGE ORGANICS
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −7.574E−04
p−value = 0.589
mg/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

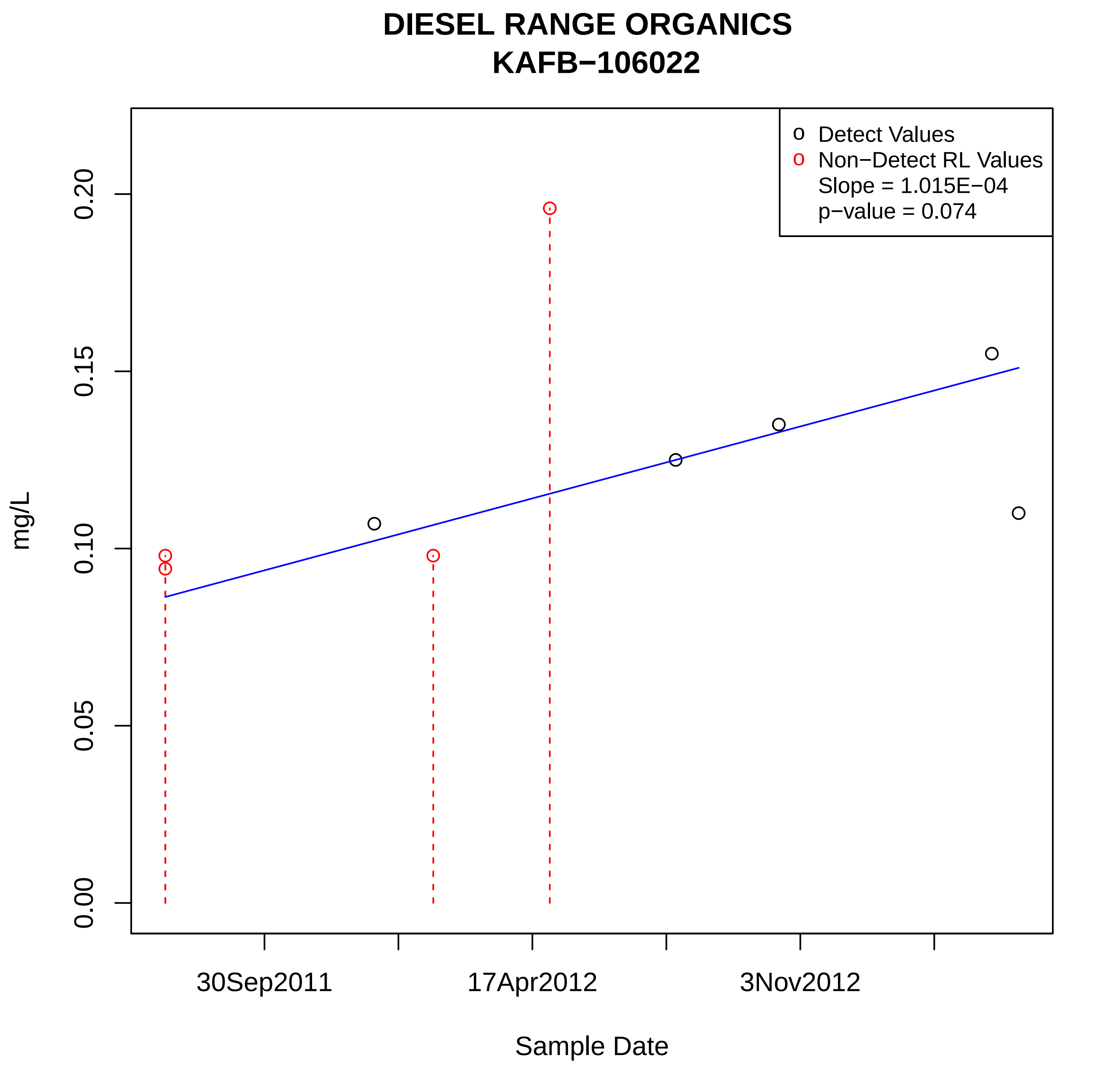


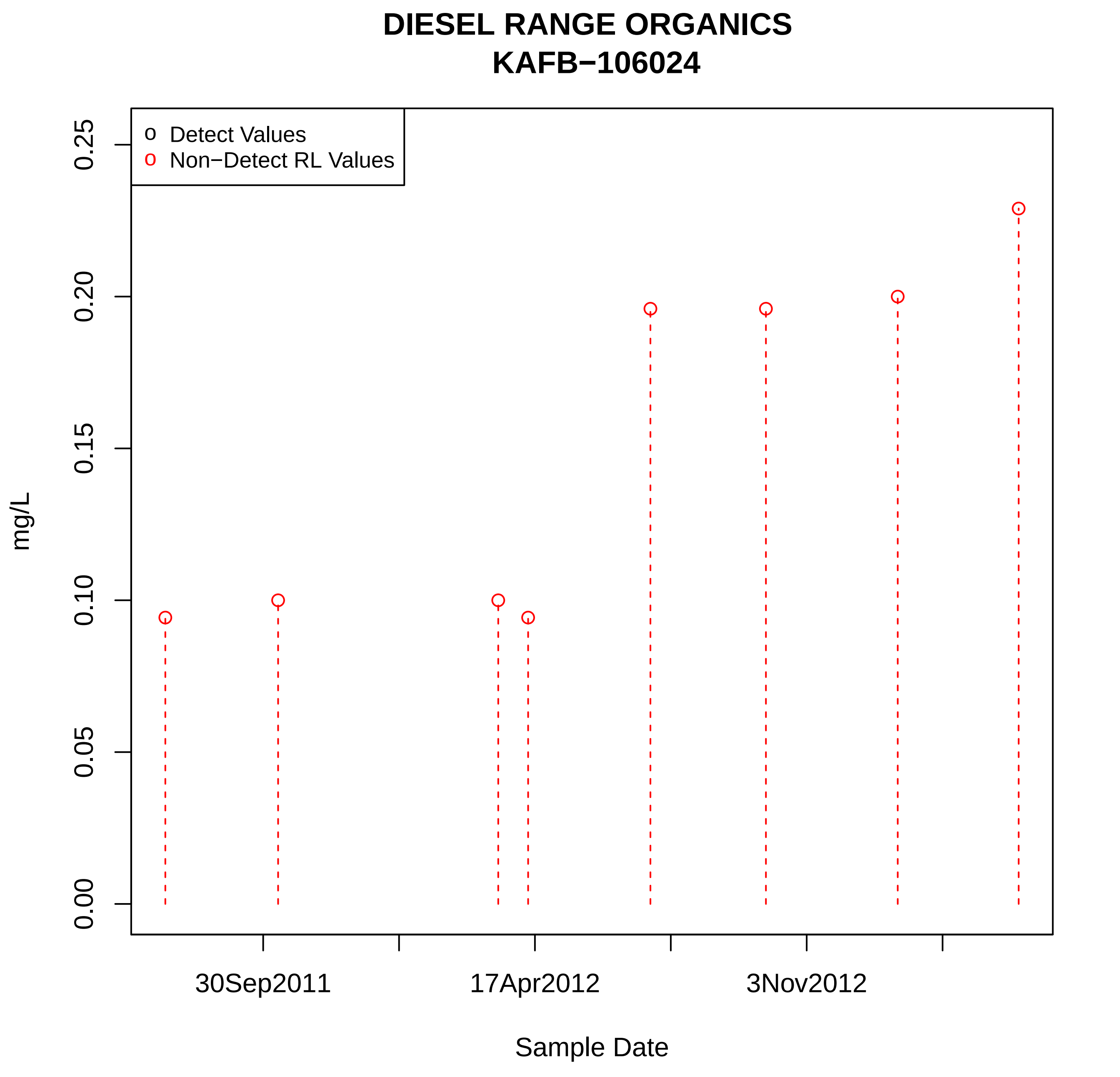
DIESEL RANGE ORGANICS
KAFB−106019
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106020
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

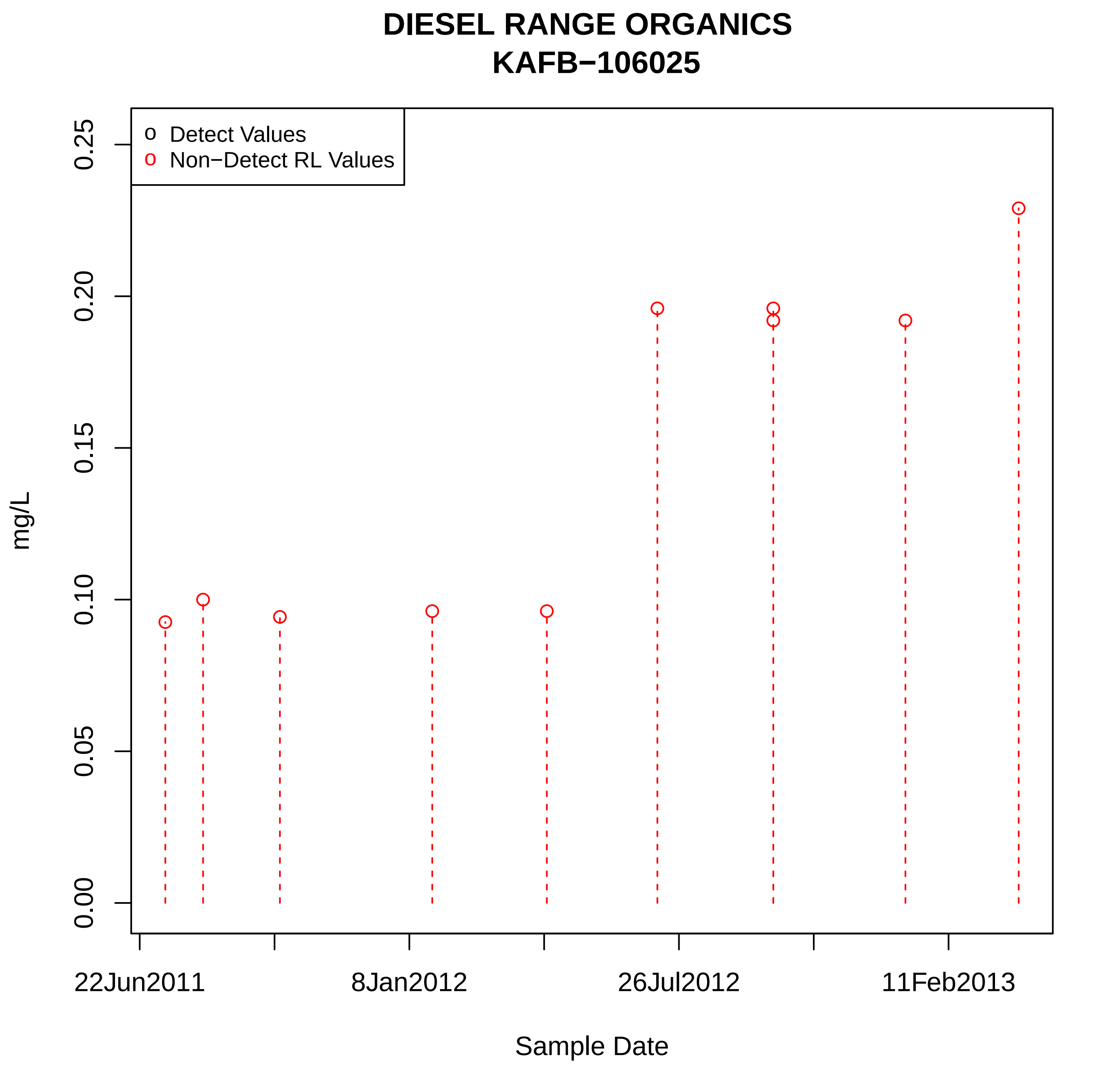


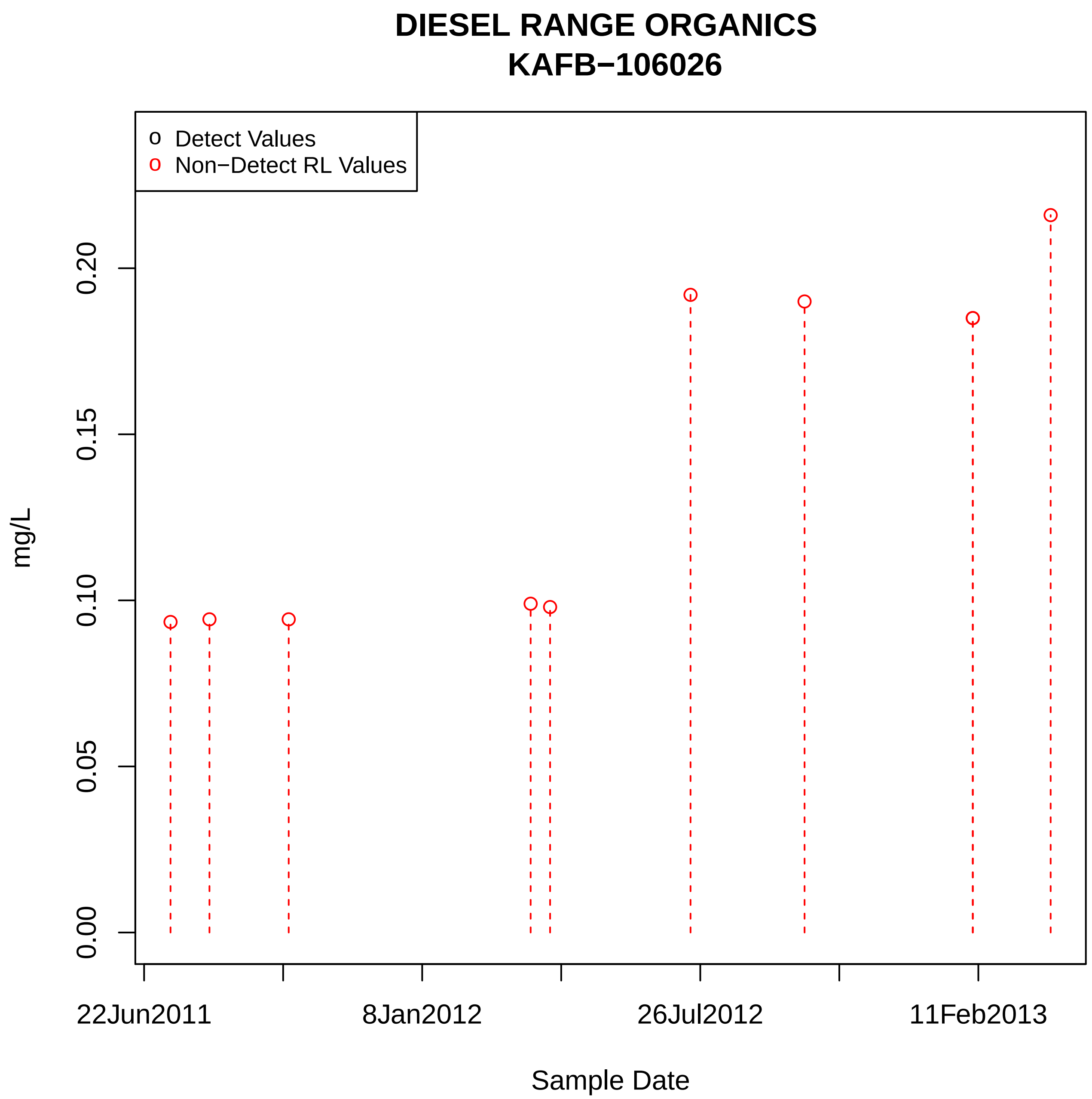
DIESEL RANGE ORGANICS
KAFB−106021
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = 1.015E−04
p−value = 0.074
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date

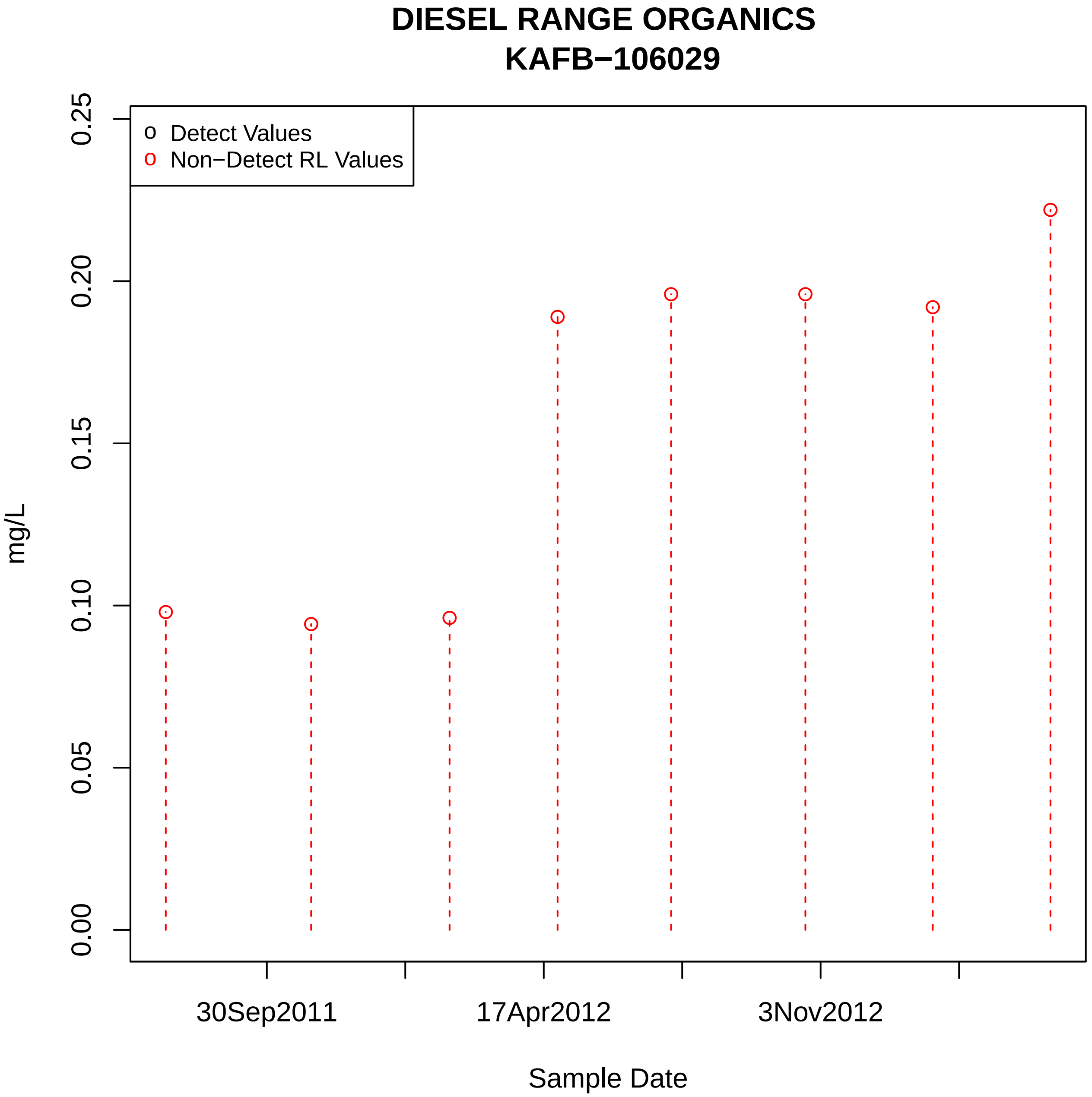


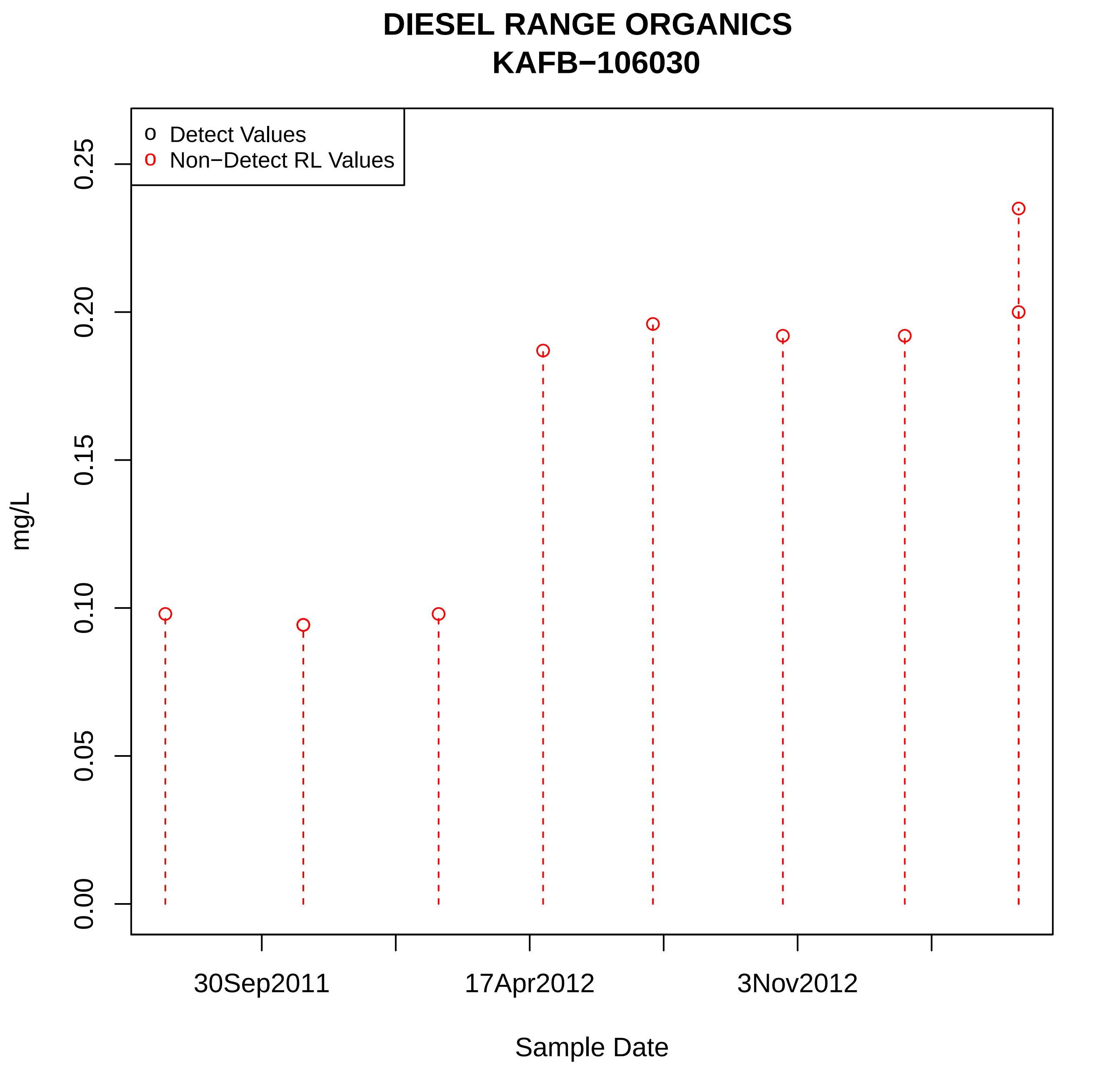
DIESEL RANGE ORGANICS
KAFB−106024
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
0.25
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


DIESEL RANGE ORGANICS
KAFB−106025
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

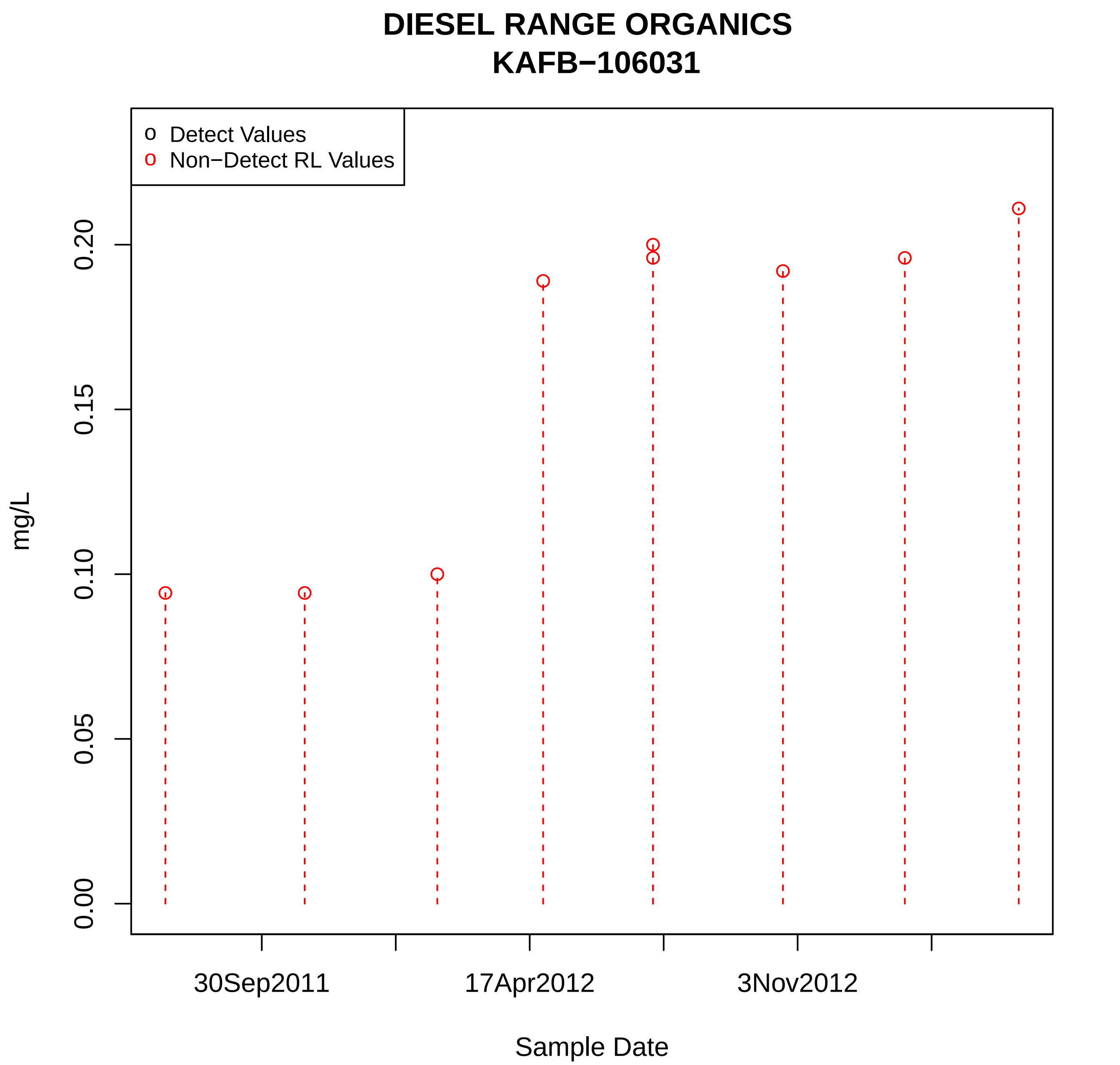


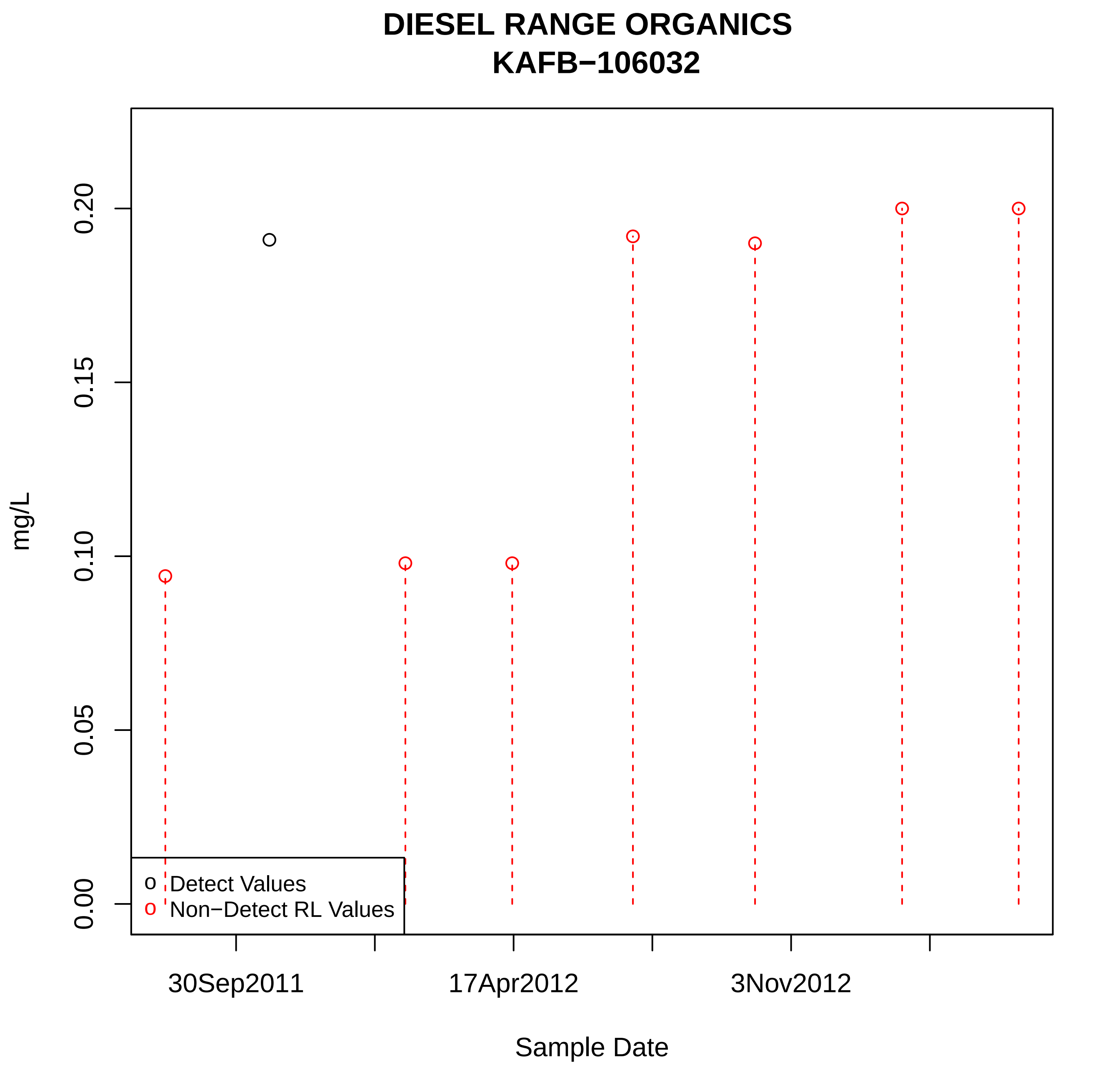
DIESEL RANGE ORGANICS
KAFB−106026
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

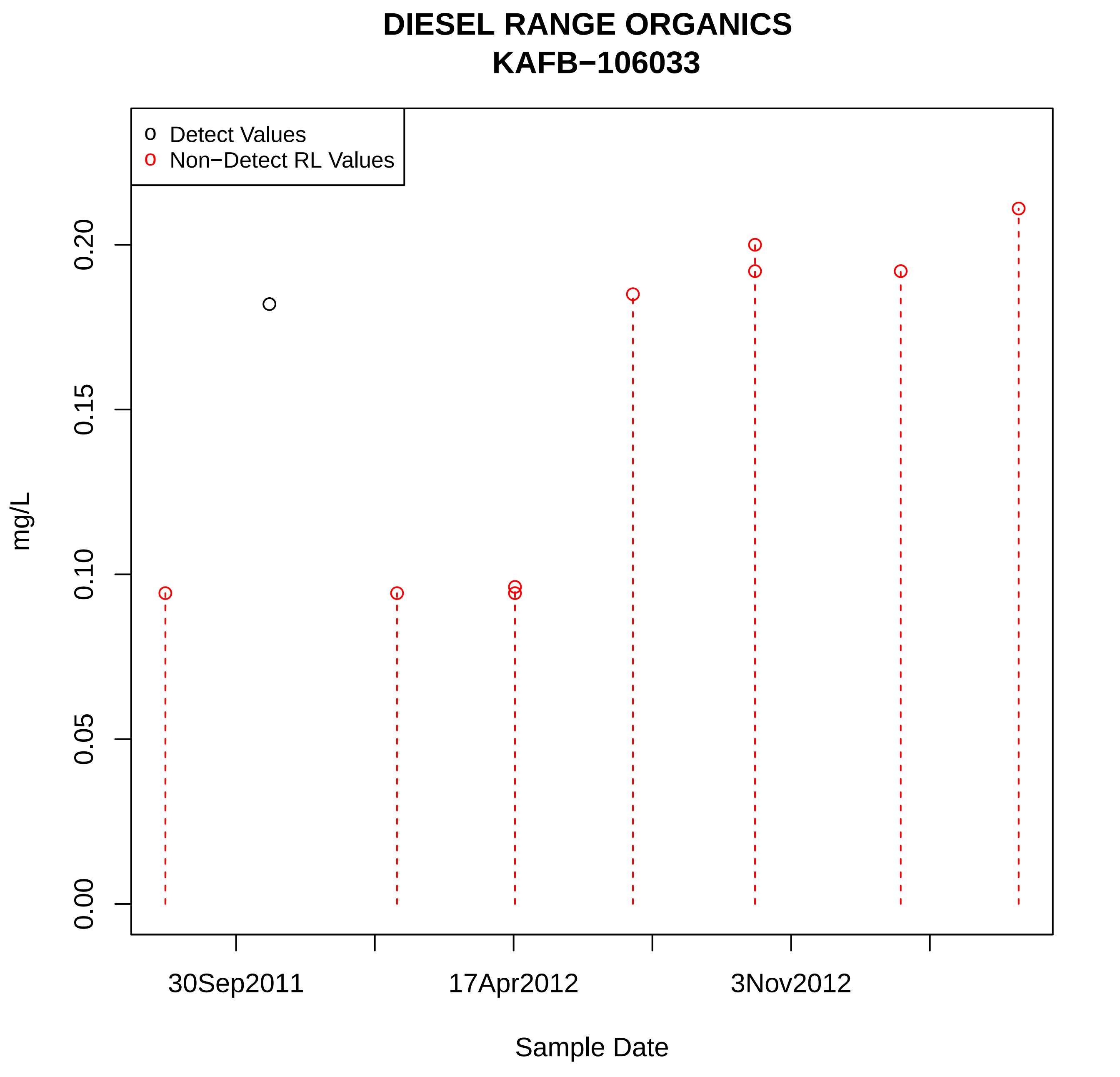

DIESEL RANGE ORGANICS
KAFB−106029
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

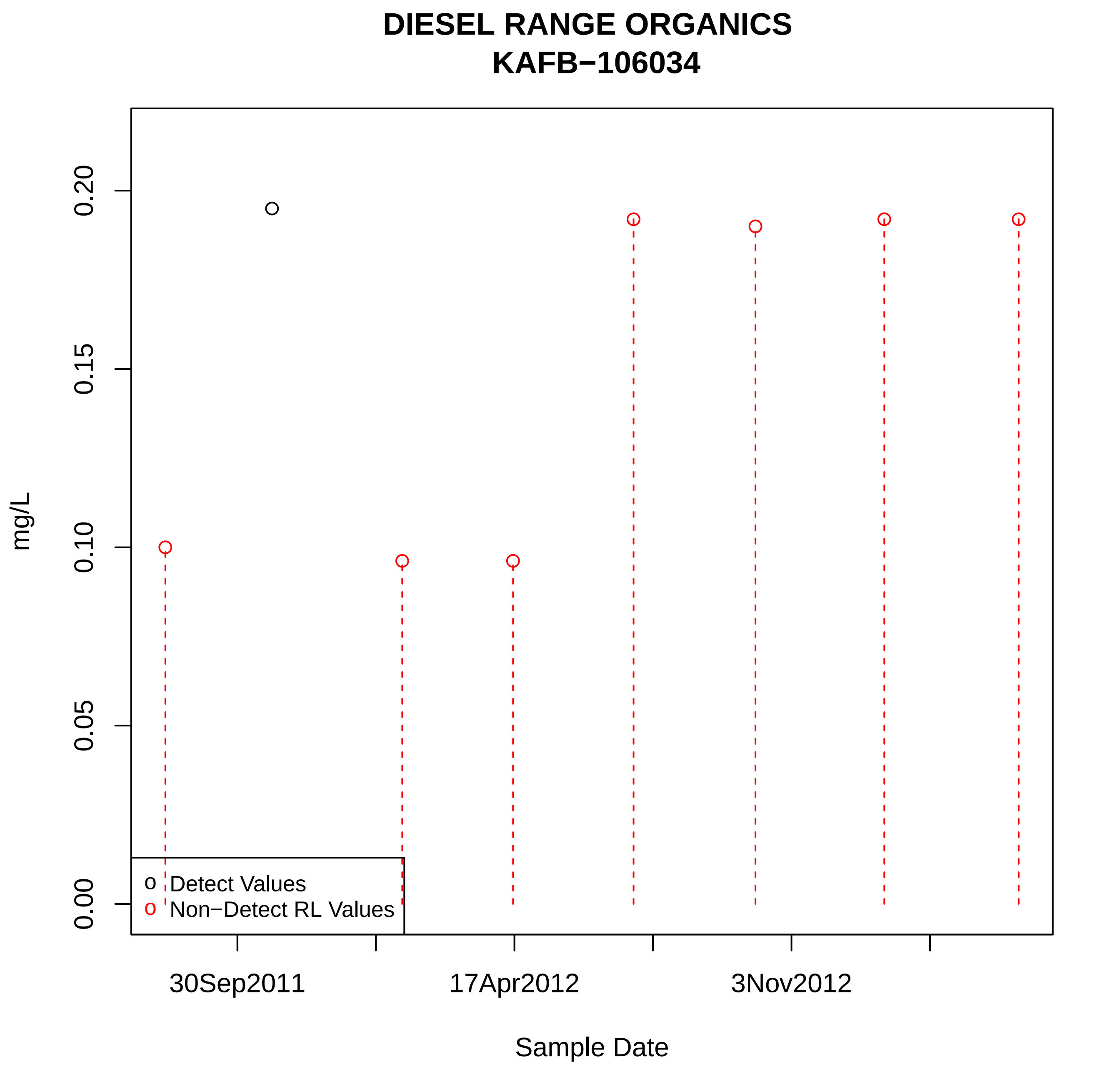


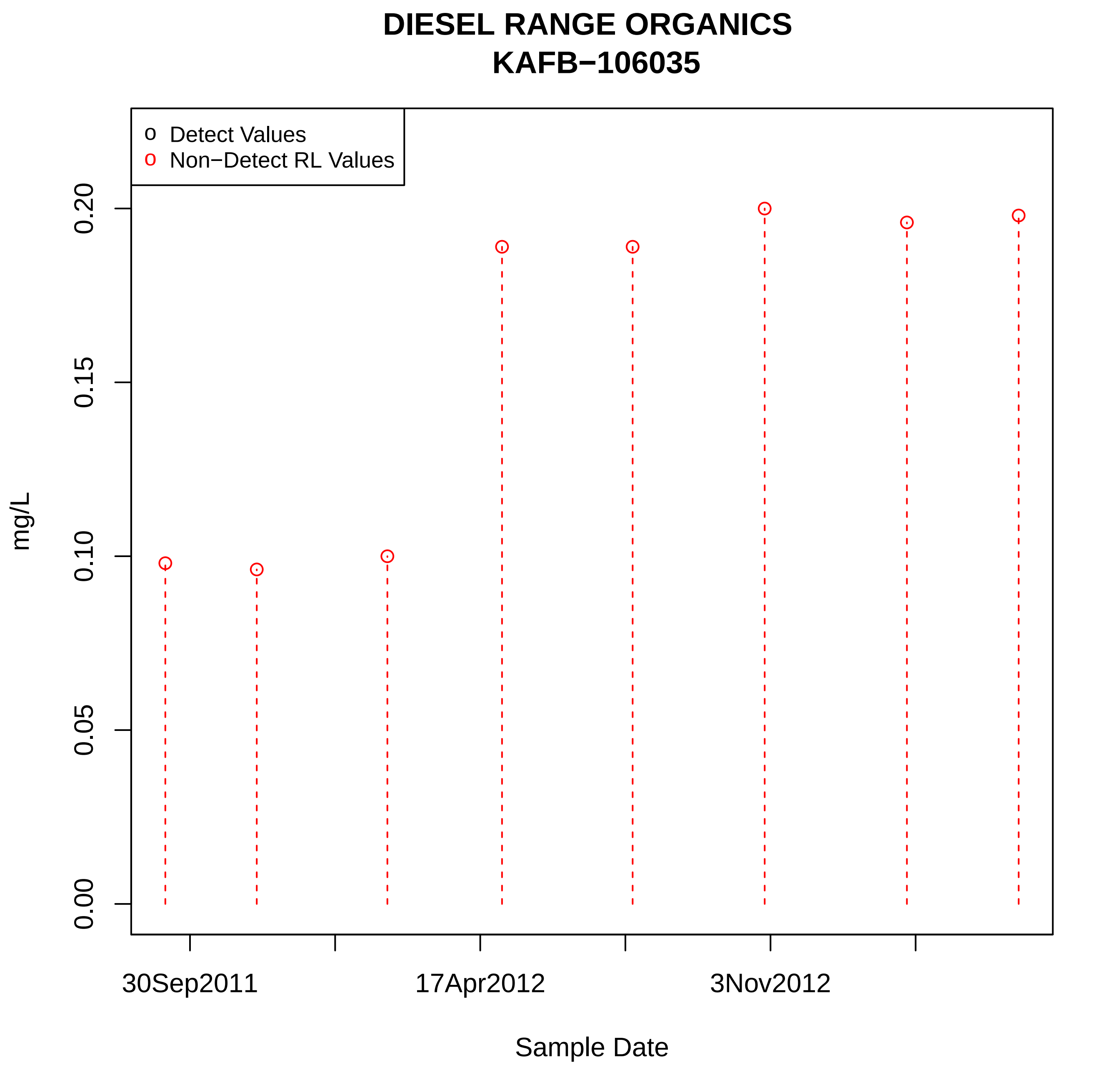
DIESEL RANGE ORGANICS
KAFB−106030
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date


DIESEL RANGE ORGANICS
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

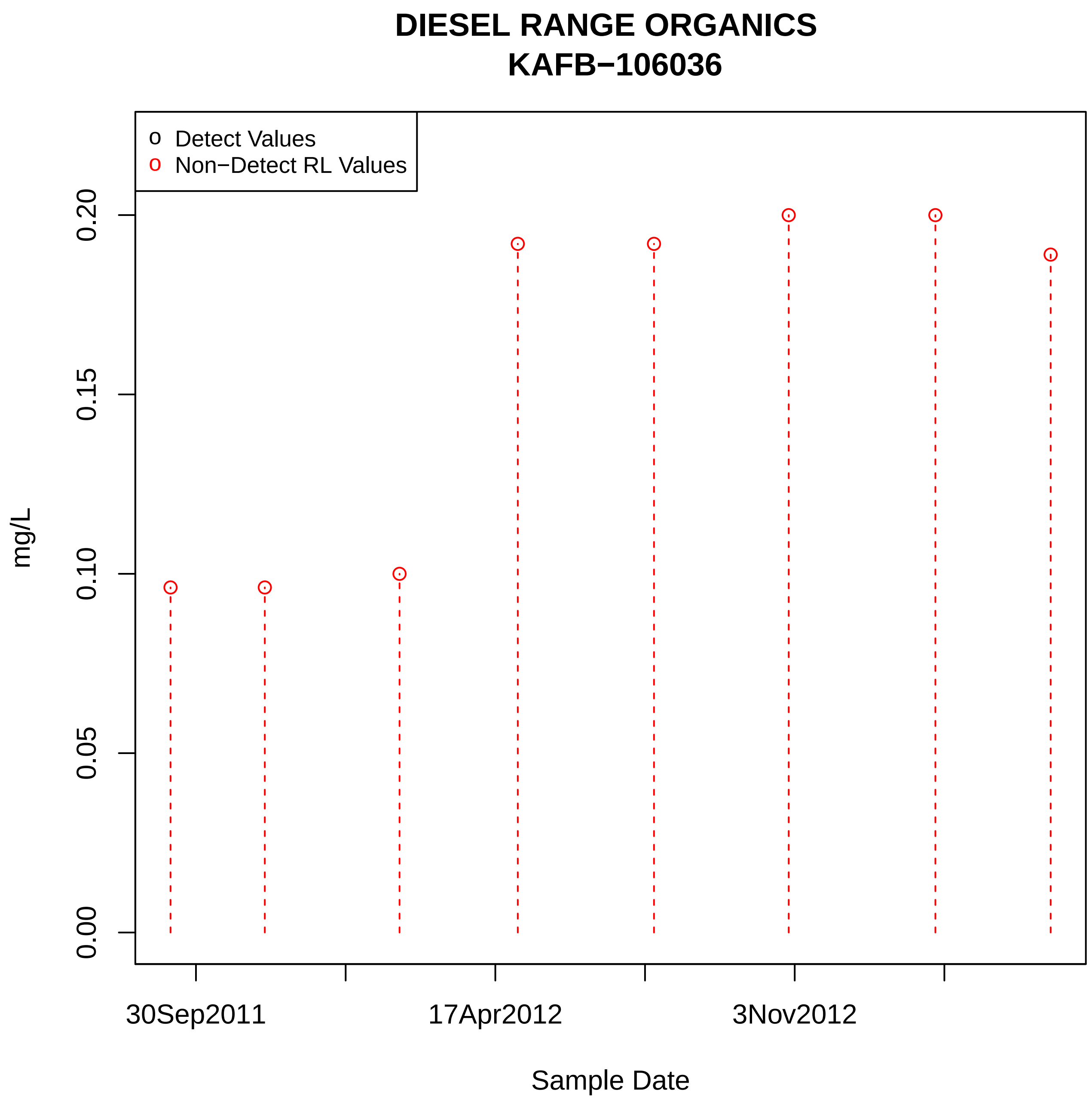

DIESEL RANGE ORGANICS
KAFB−106032
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

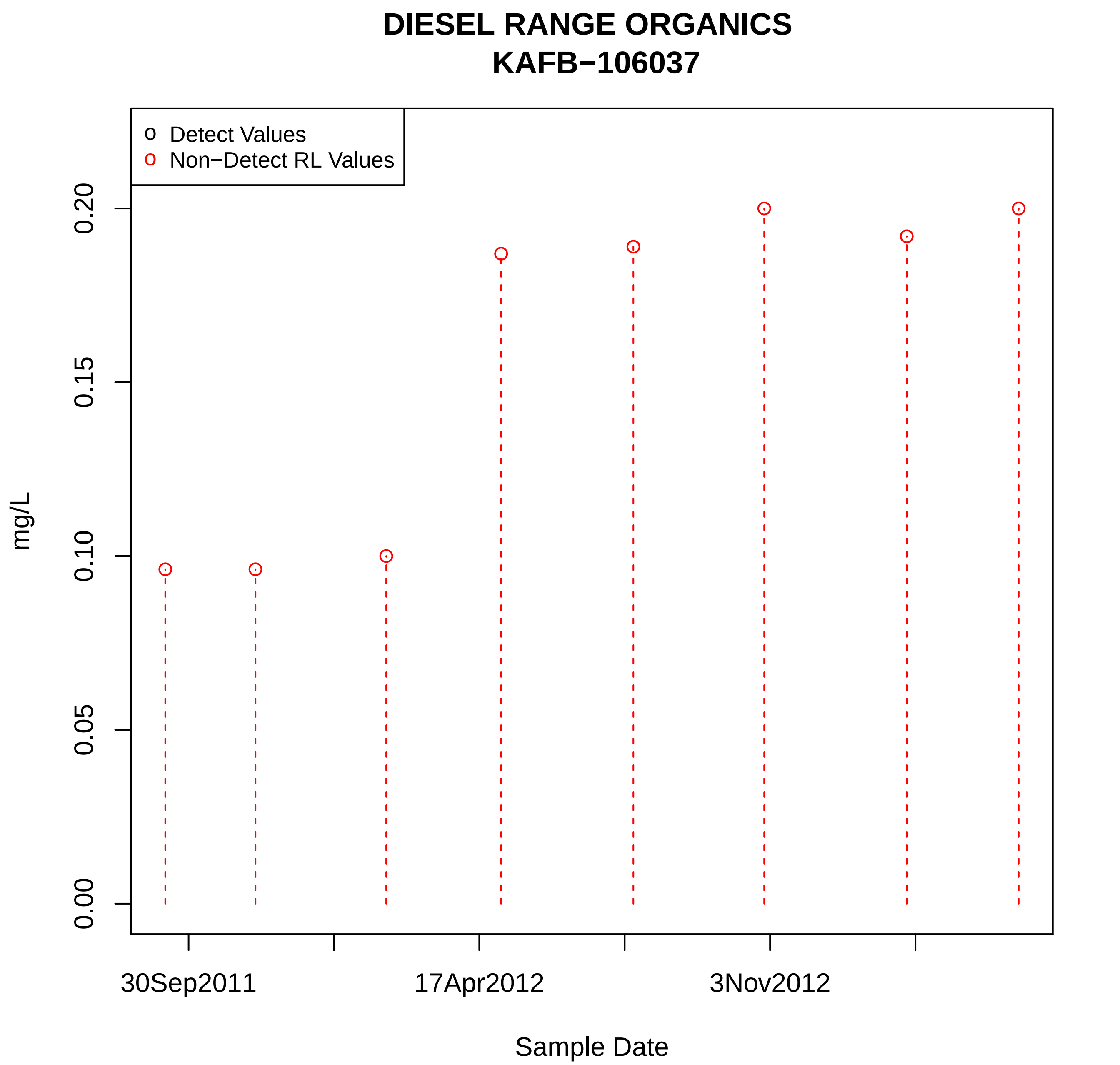

DIESEL RANGE ORGANICS
KAFB−106033
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

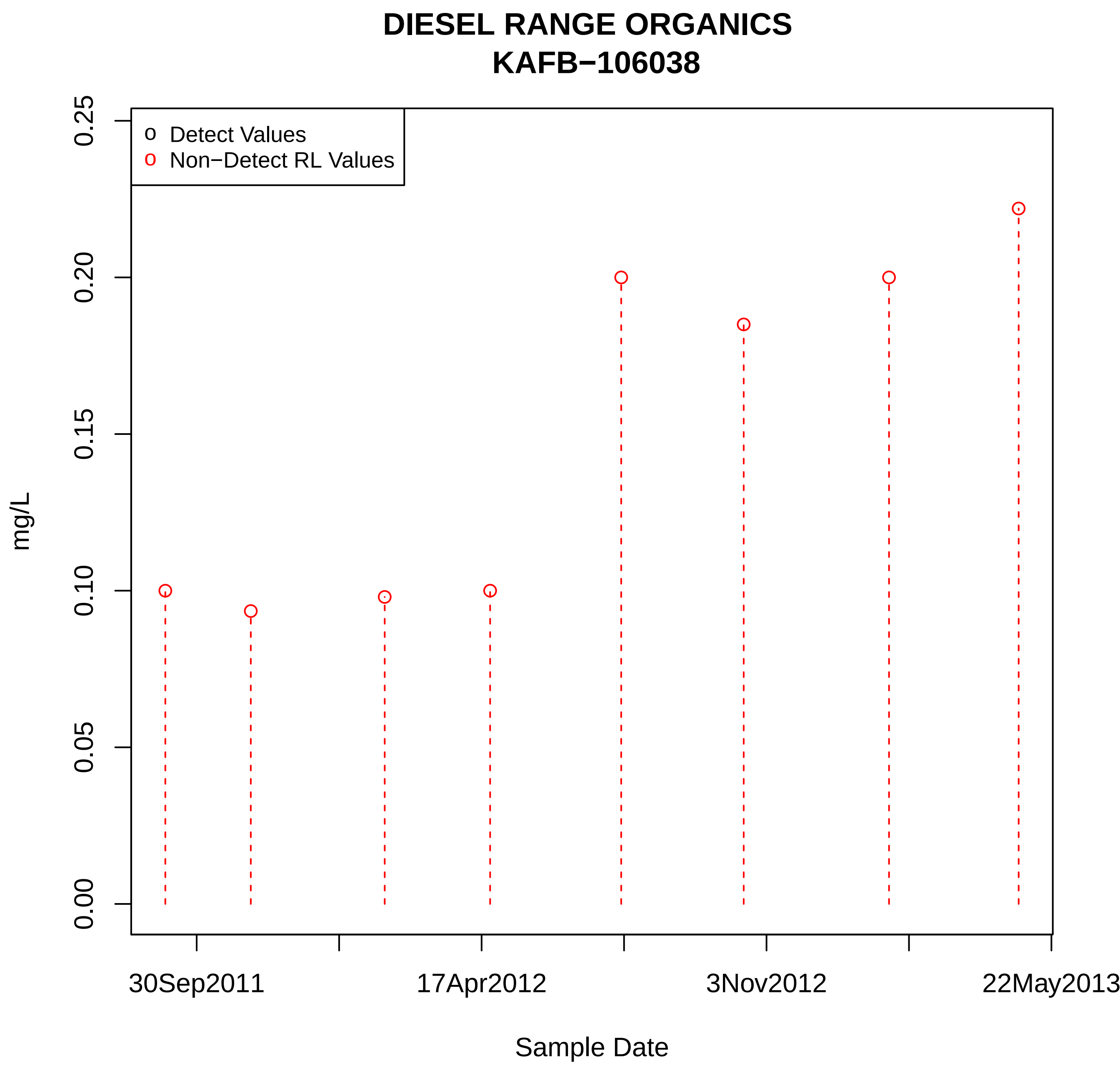

DIESEL RANGE ORGANICS
KAFB−106034
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values



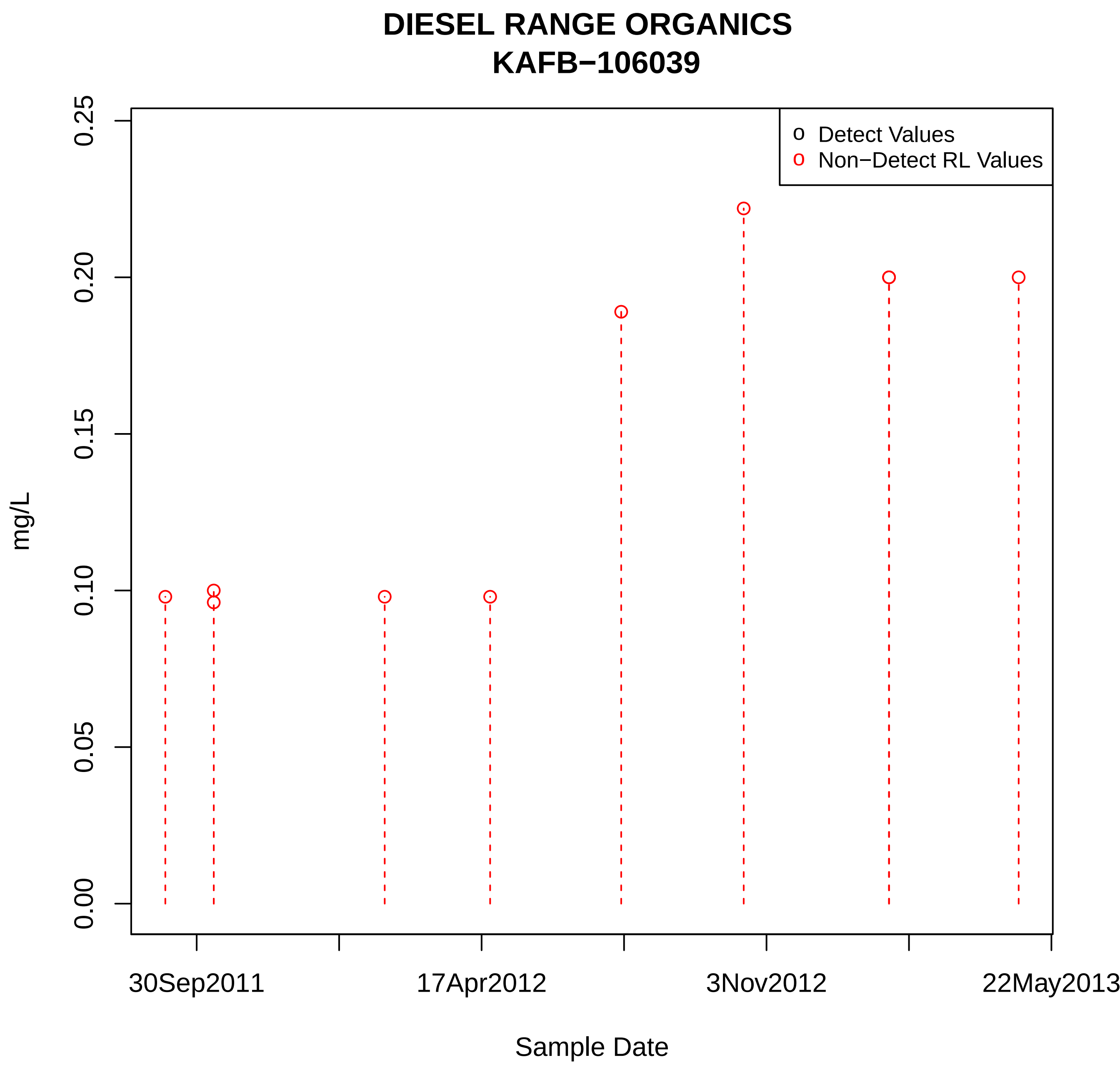
DIESEL RANGE ORGANICS
KAFB−106035
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


DIESEL RANGE ORGANICS
KAFB−106036
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date

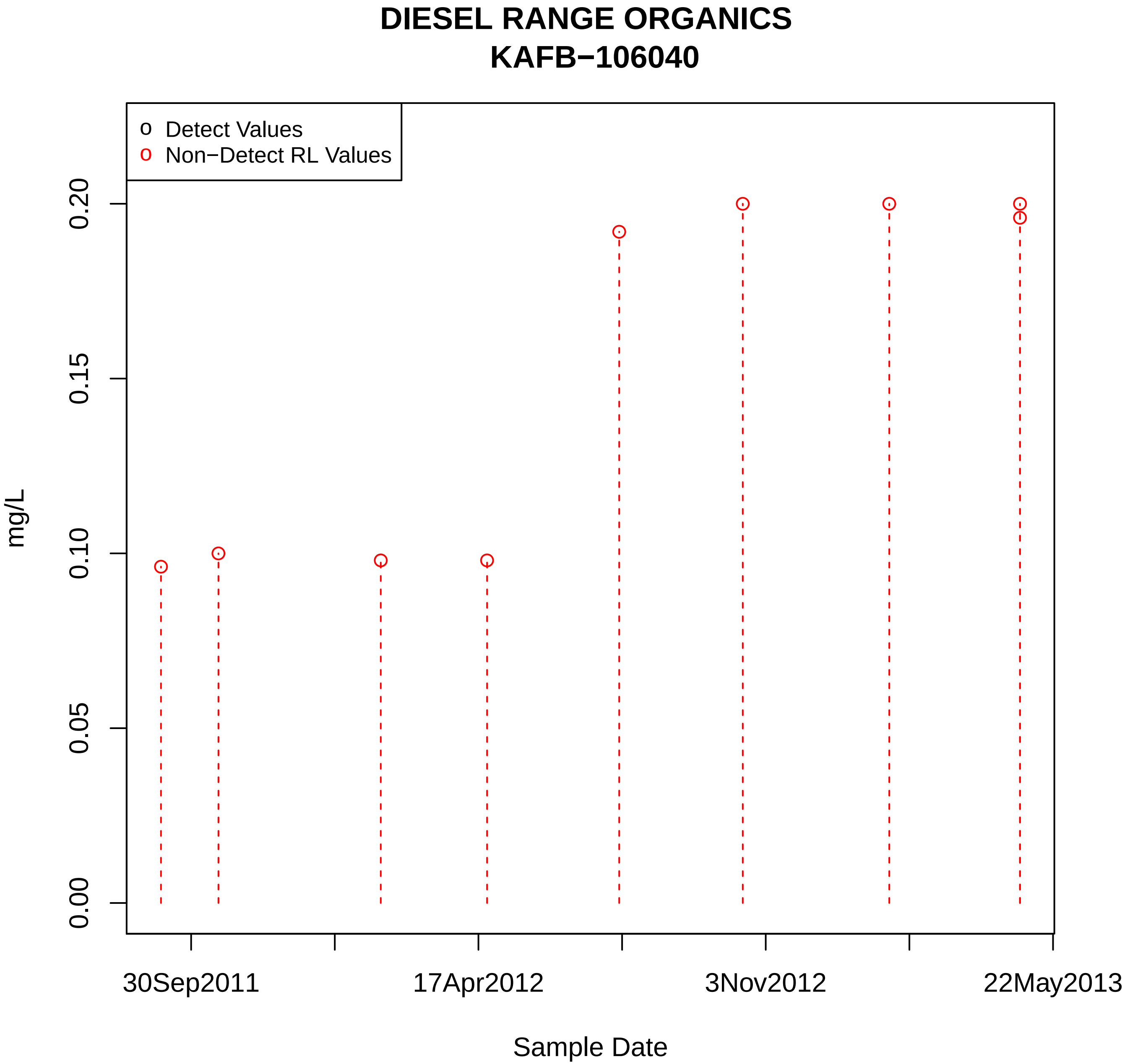

DIESEL RANGE ORGANICS
KAFB−106037
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date

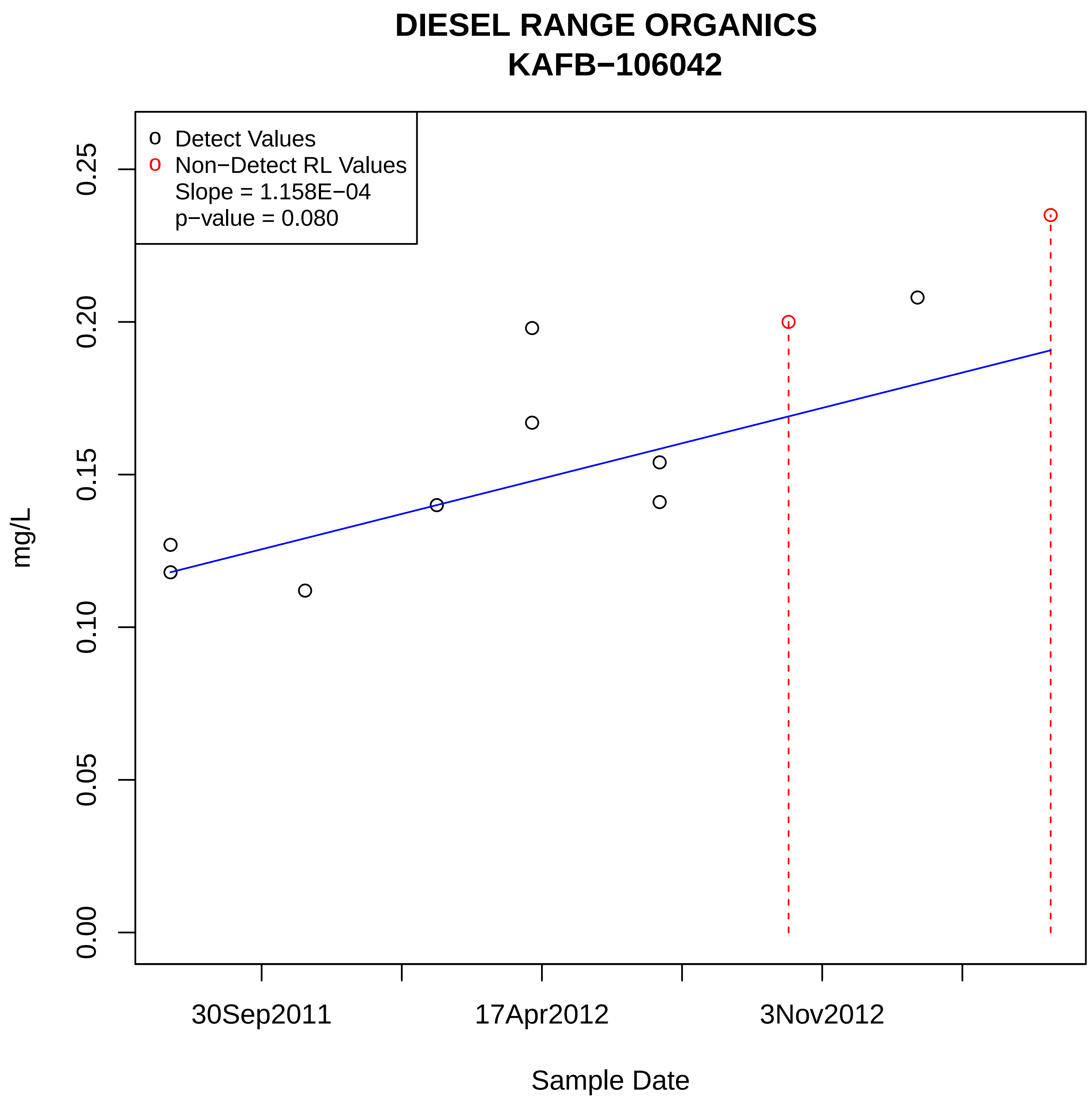


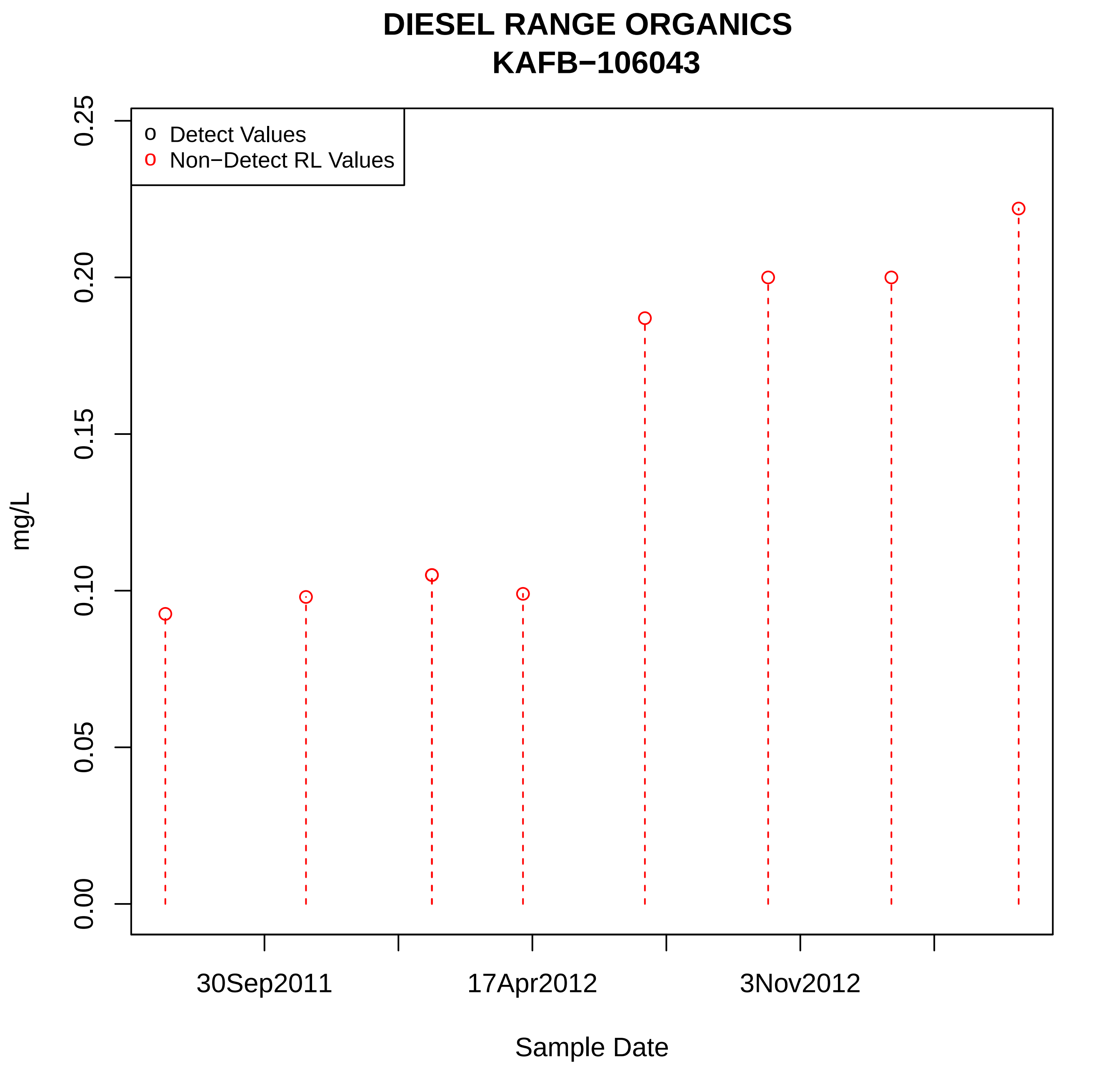
DIESEL RANGE ORGANICS
KAFB−106038
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
0.25
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



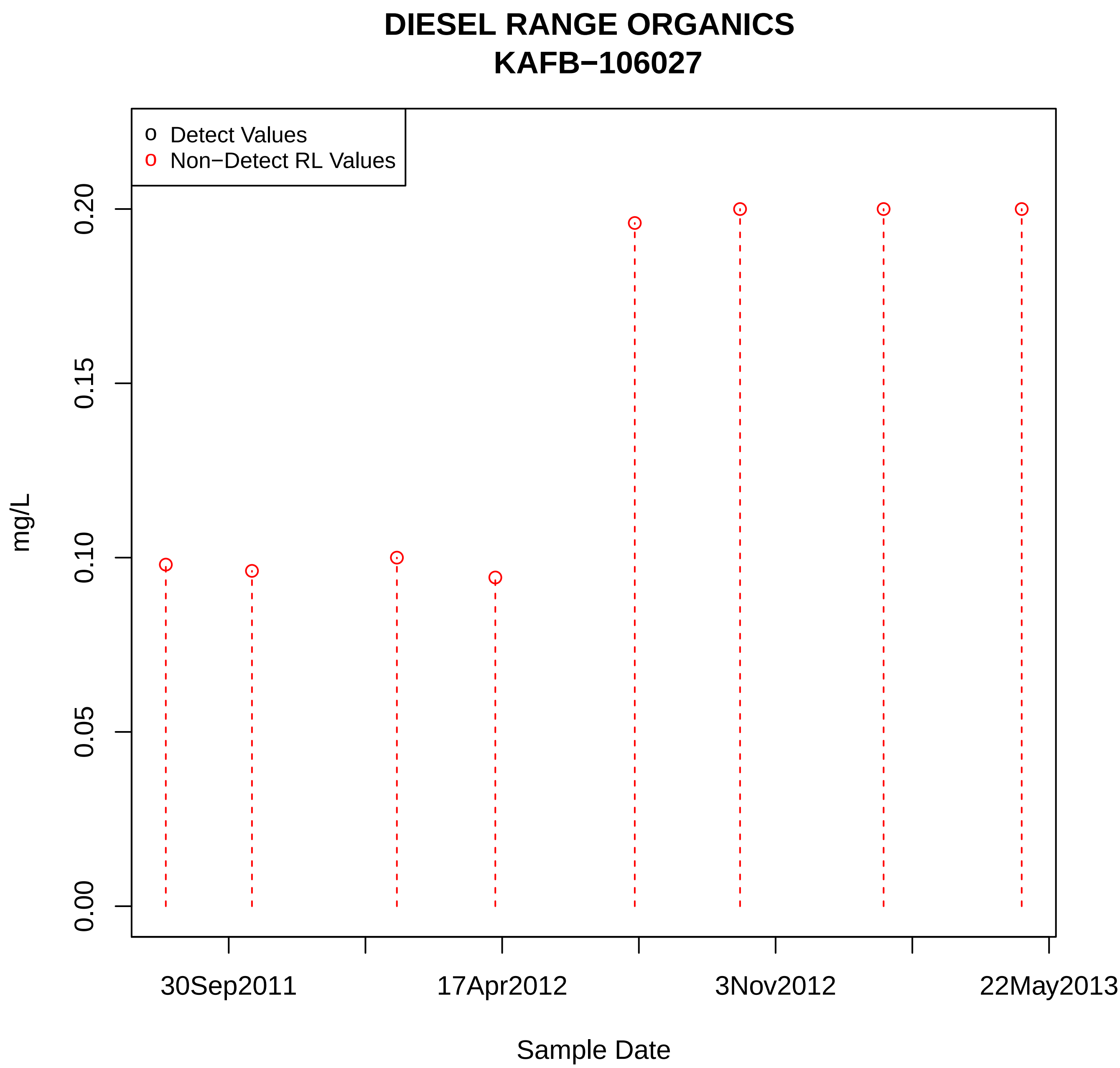
DIESEL RANGE ORGANICS
KAFB−106039
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

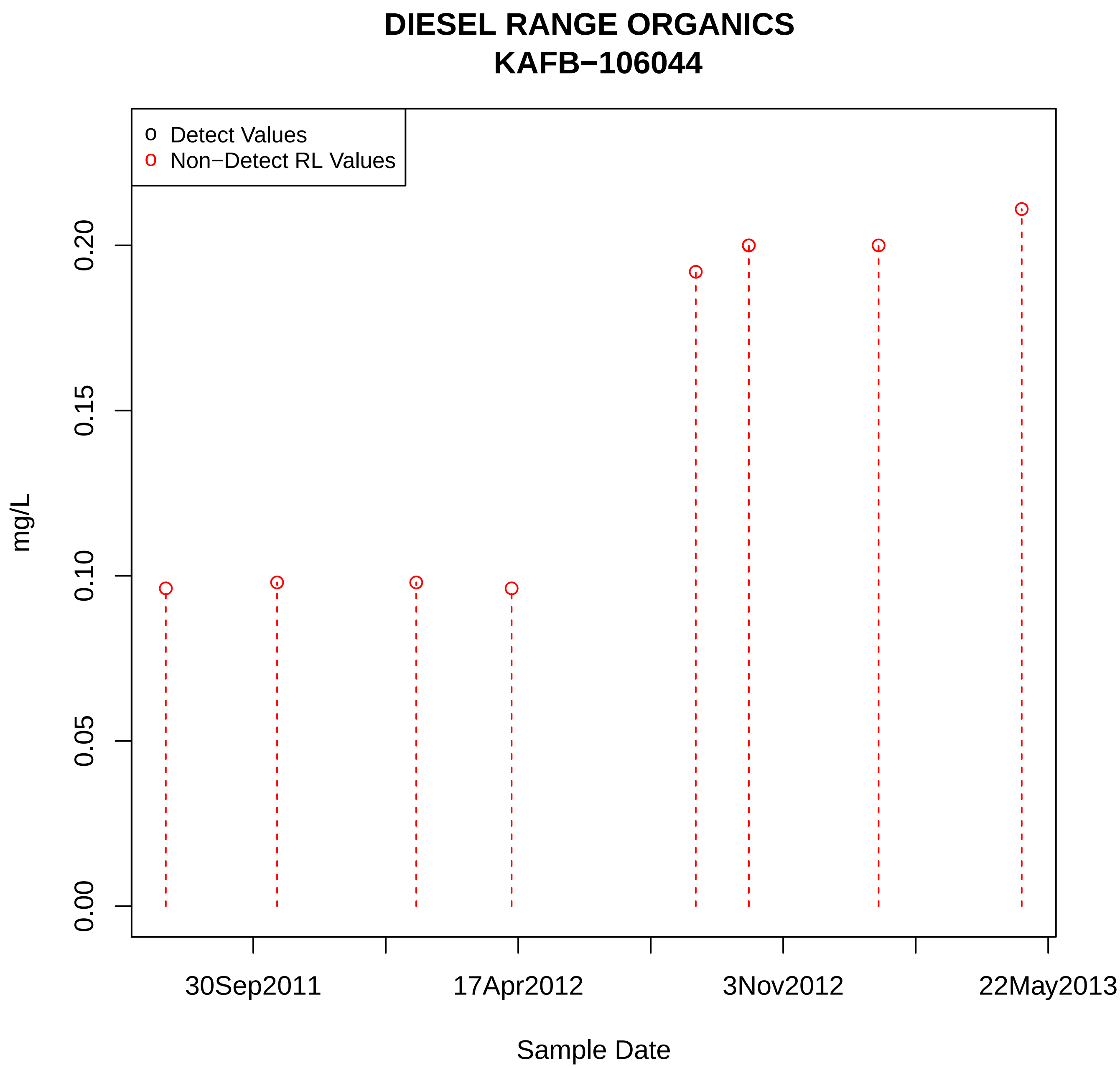

DIESEL RANGE ORGANICS
KAFB−106040
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106042
o Detect Values
o Non−Detect RL Values
Slope = 1.158E−04
p−value = 0.080
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

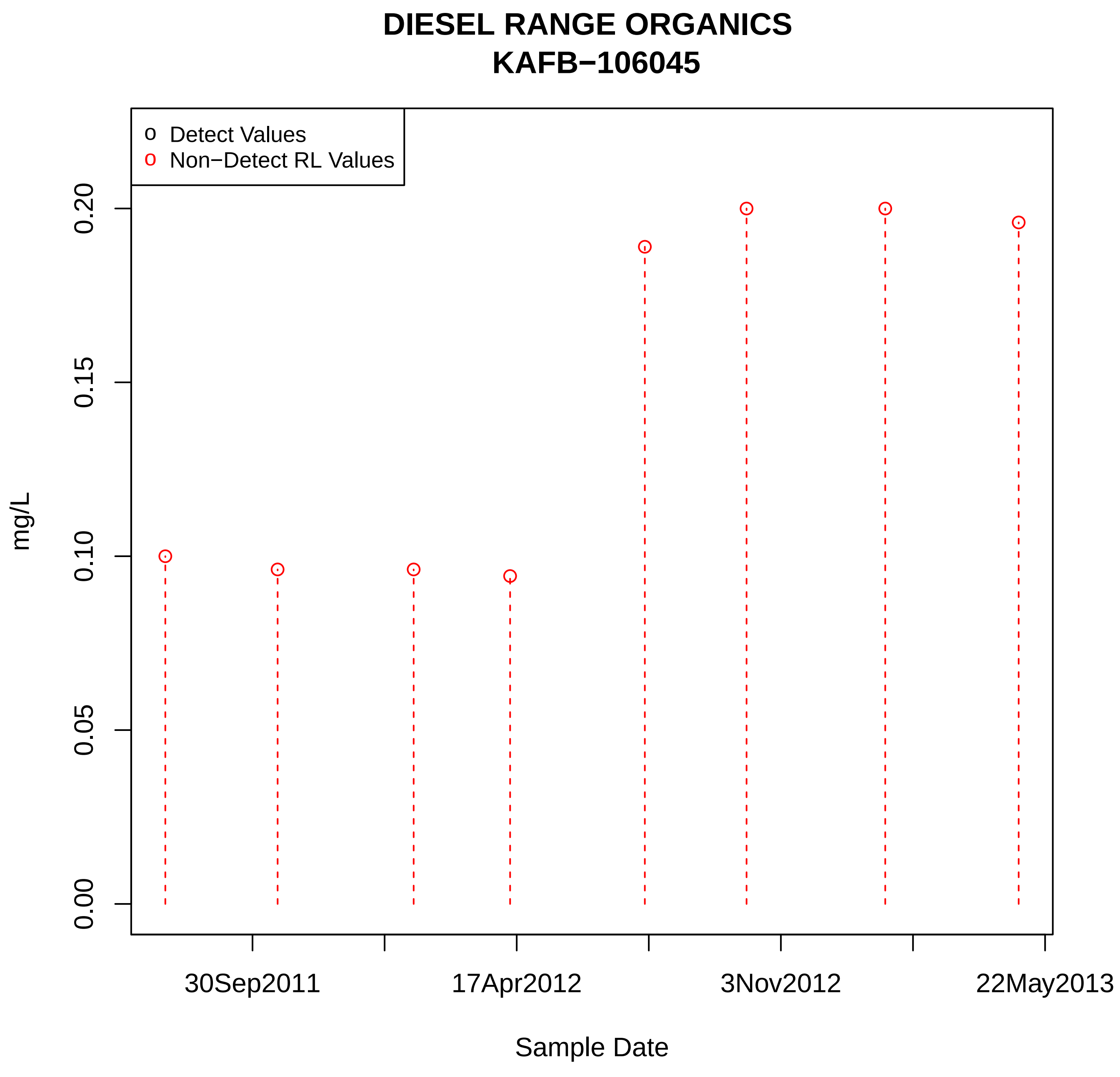


DIESEL RANGE ORGANICS
KAFB−106043
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

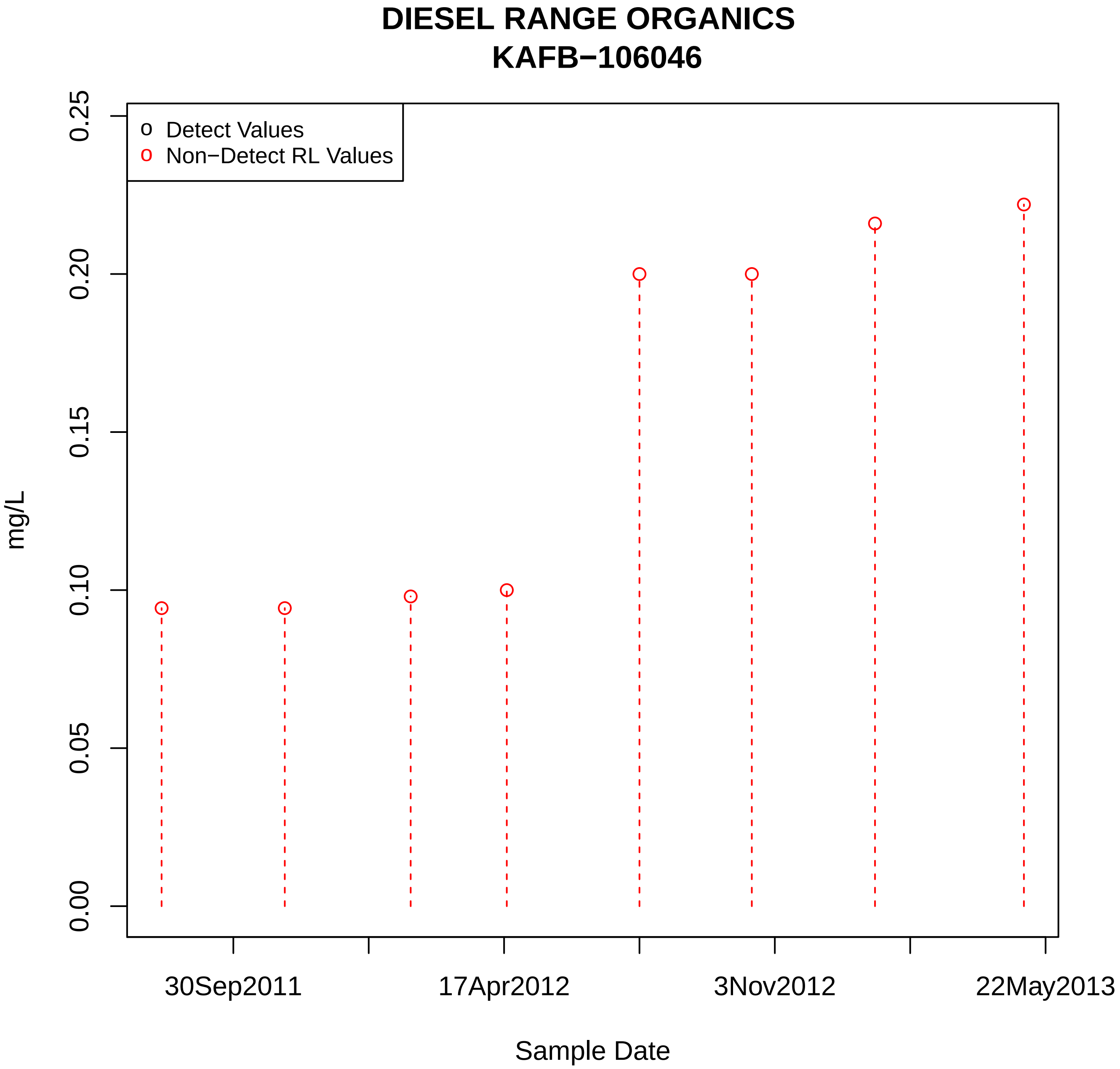

DIESEL RANGE ORGANICS
KAFB−106027
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



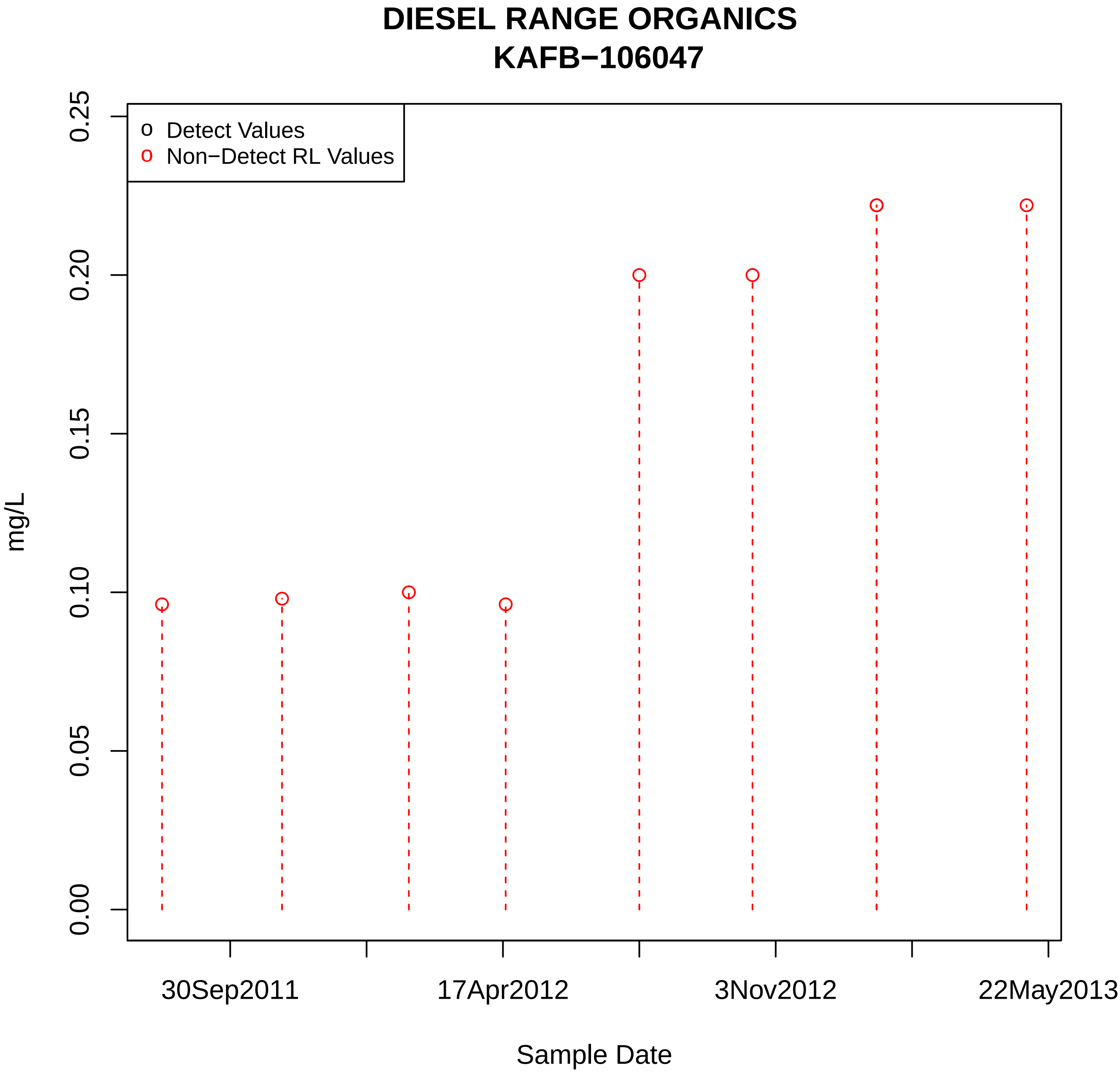
DIESEL RANGE ORGANICS
KAFB−106044
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



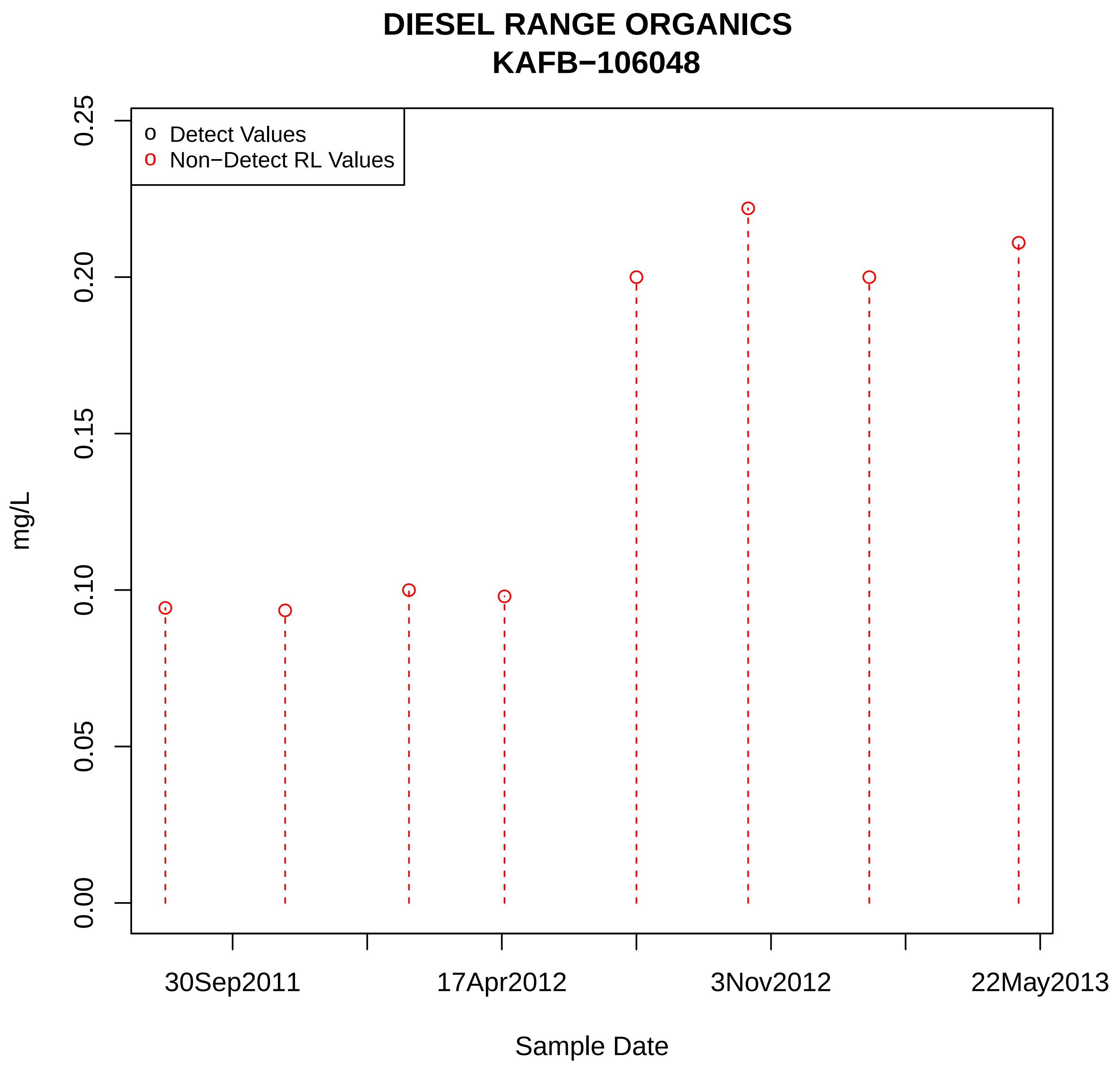
DIESEL RANGE ORGANICS
KAFB−106045
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



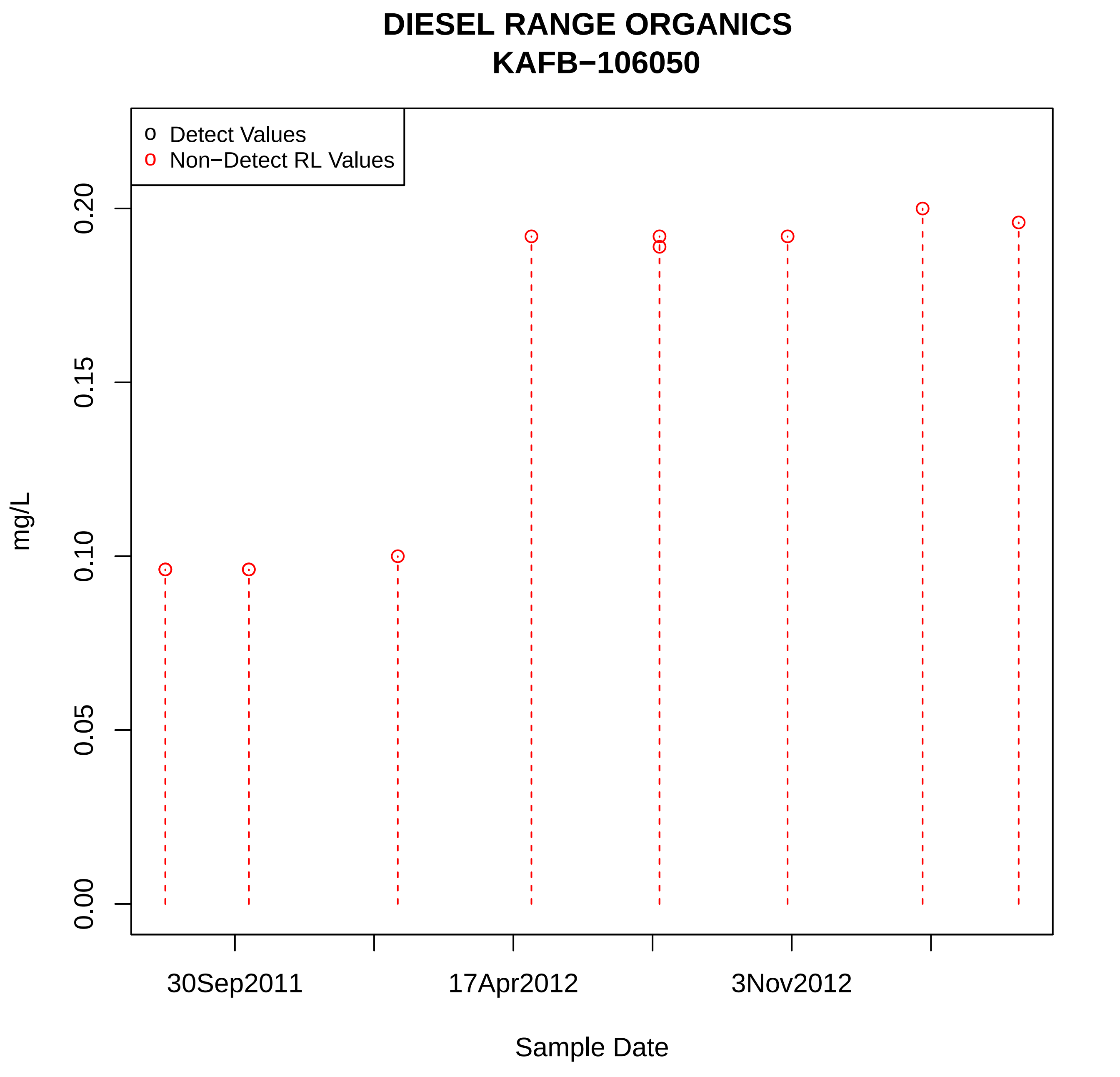
DIESEL RANGE ORGANICS
KAFB−106046
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
0.25
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

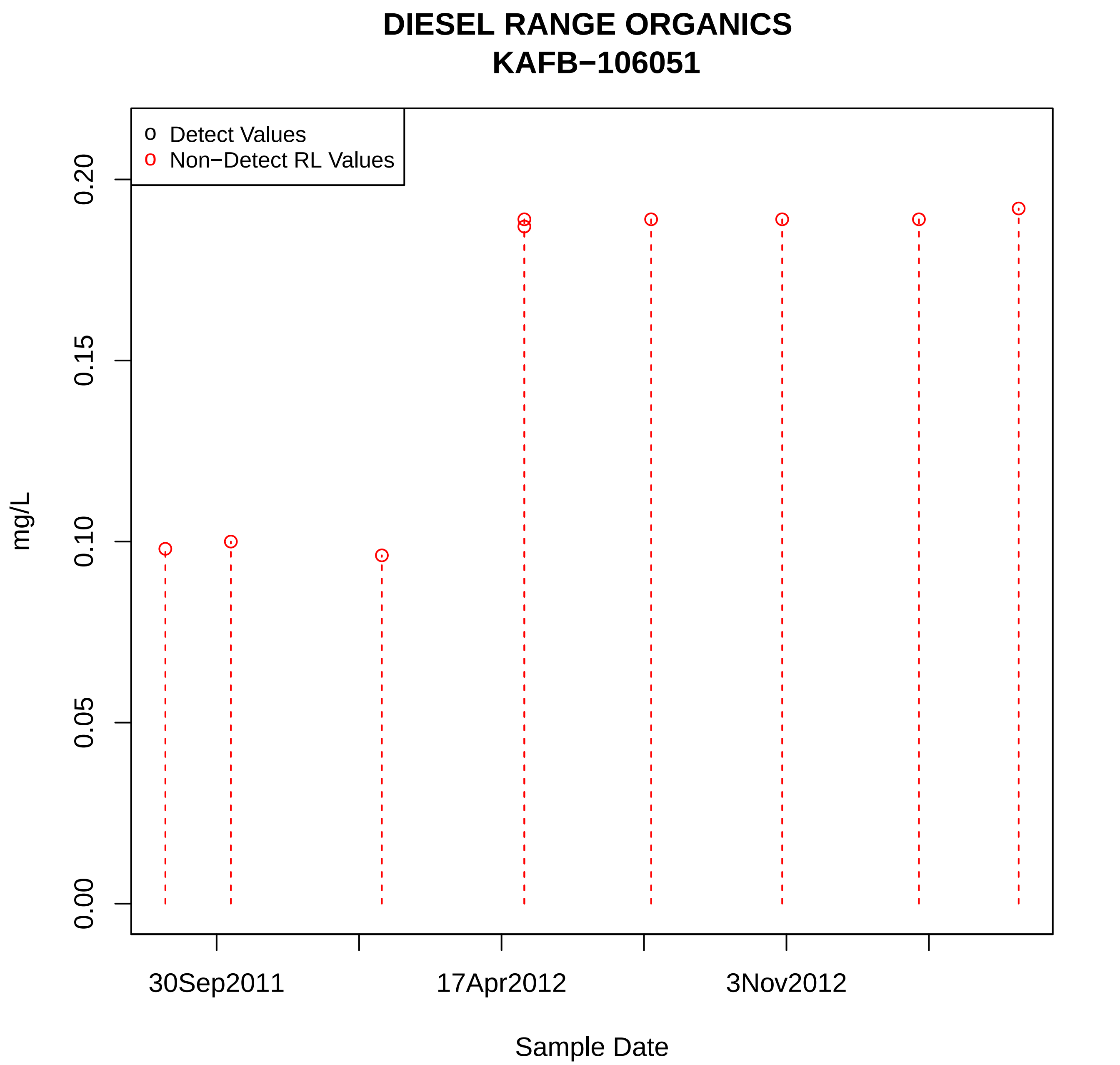


DIESEL RANGE ORGANICS
KAFB−106047
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

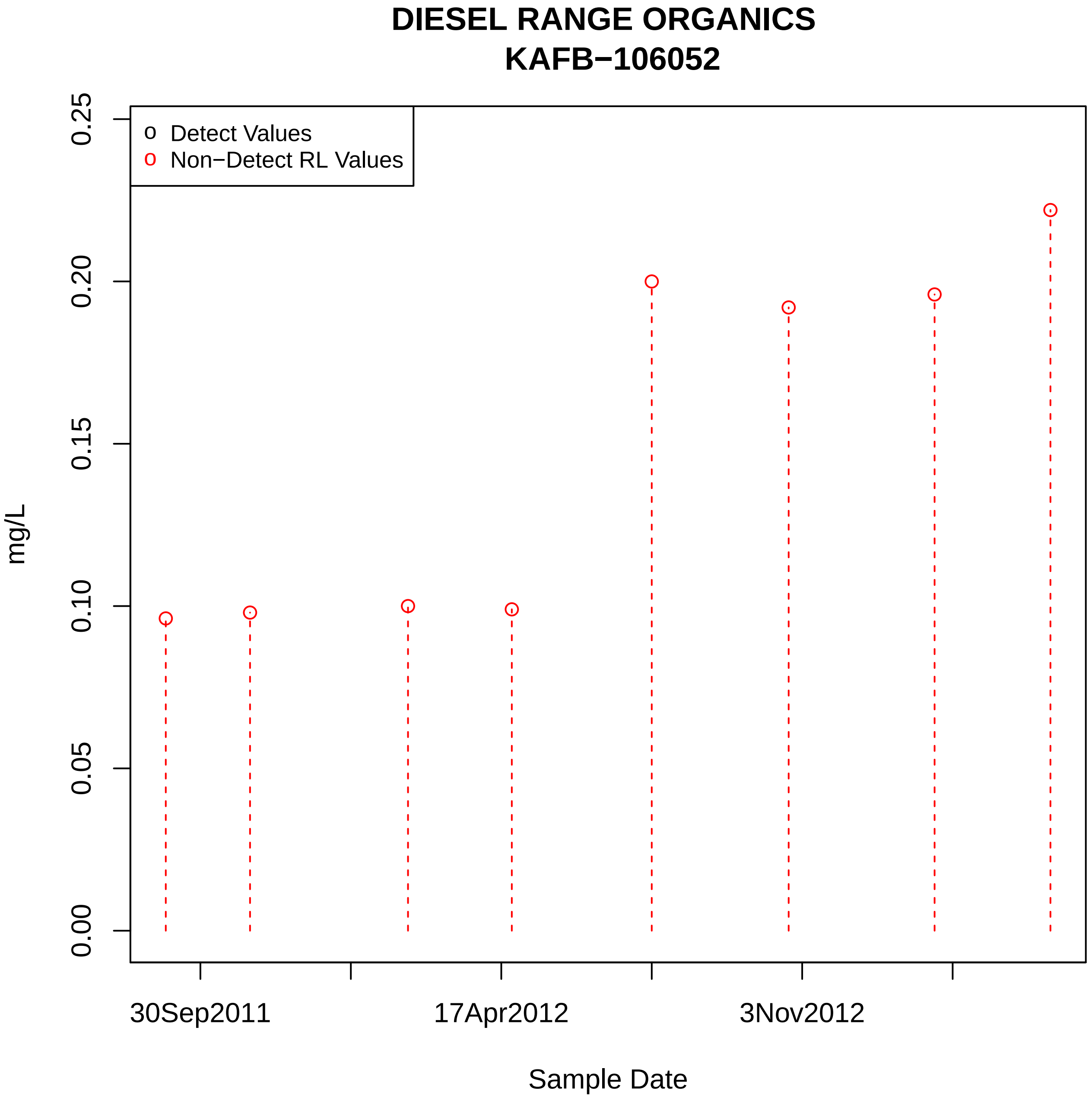


DIESEL RANGE ORGANICS
KAFB−106048
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

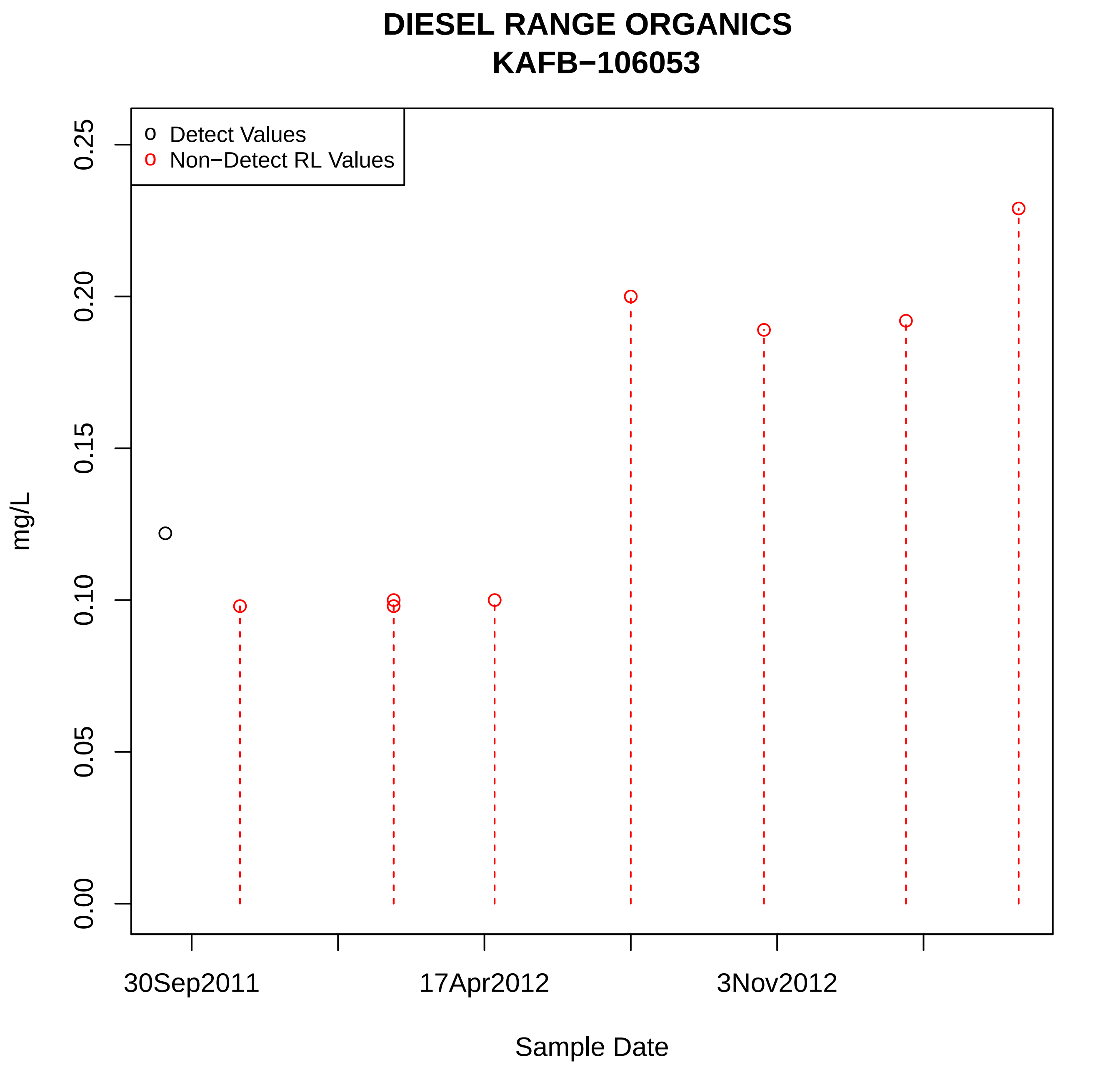

DIESEL RANGE ORGANICS
KAFB−106050
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date



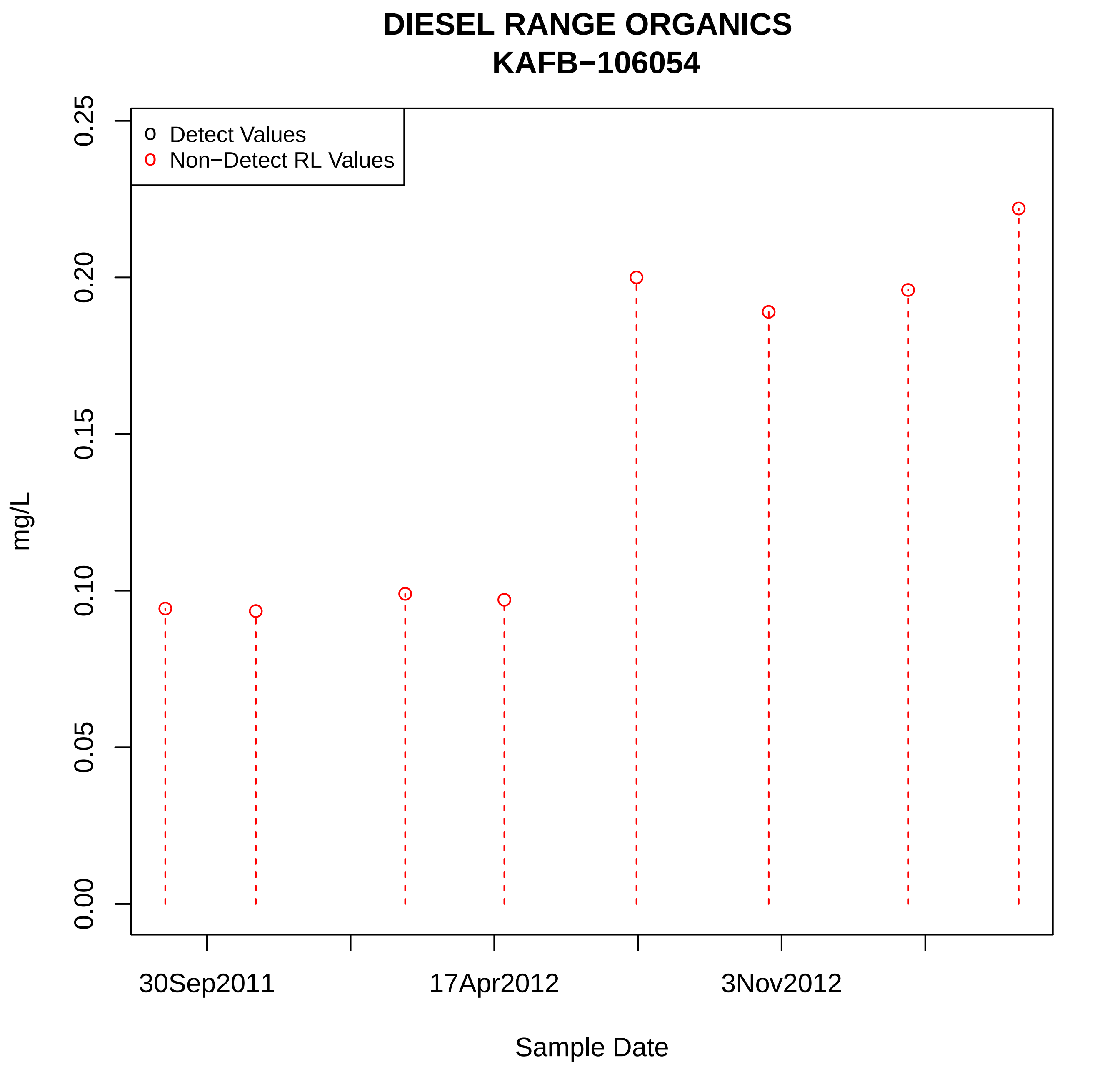
DIESEL RANGE ORGANICS
KAFB−106051
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

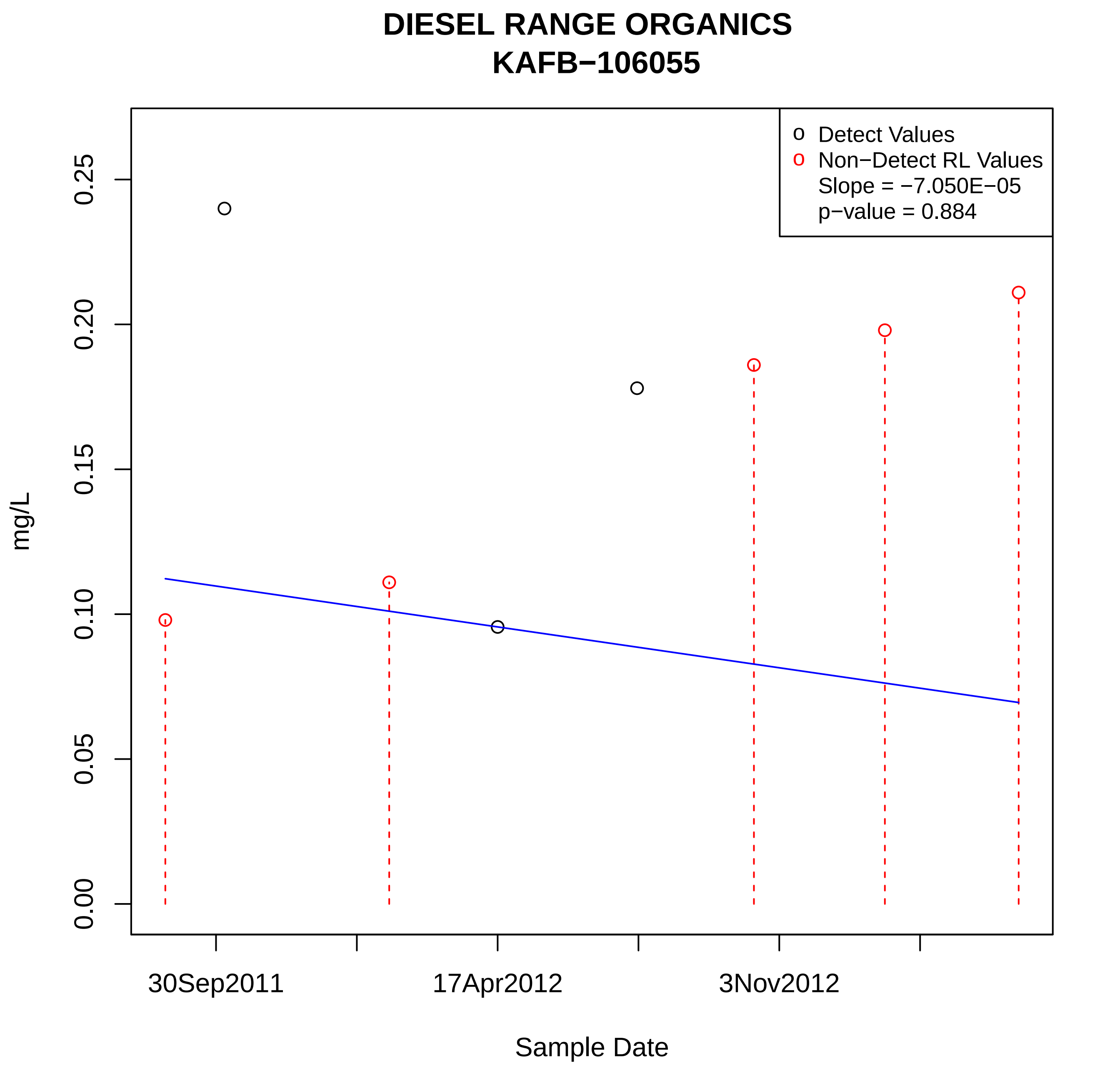


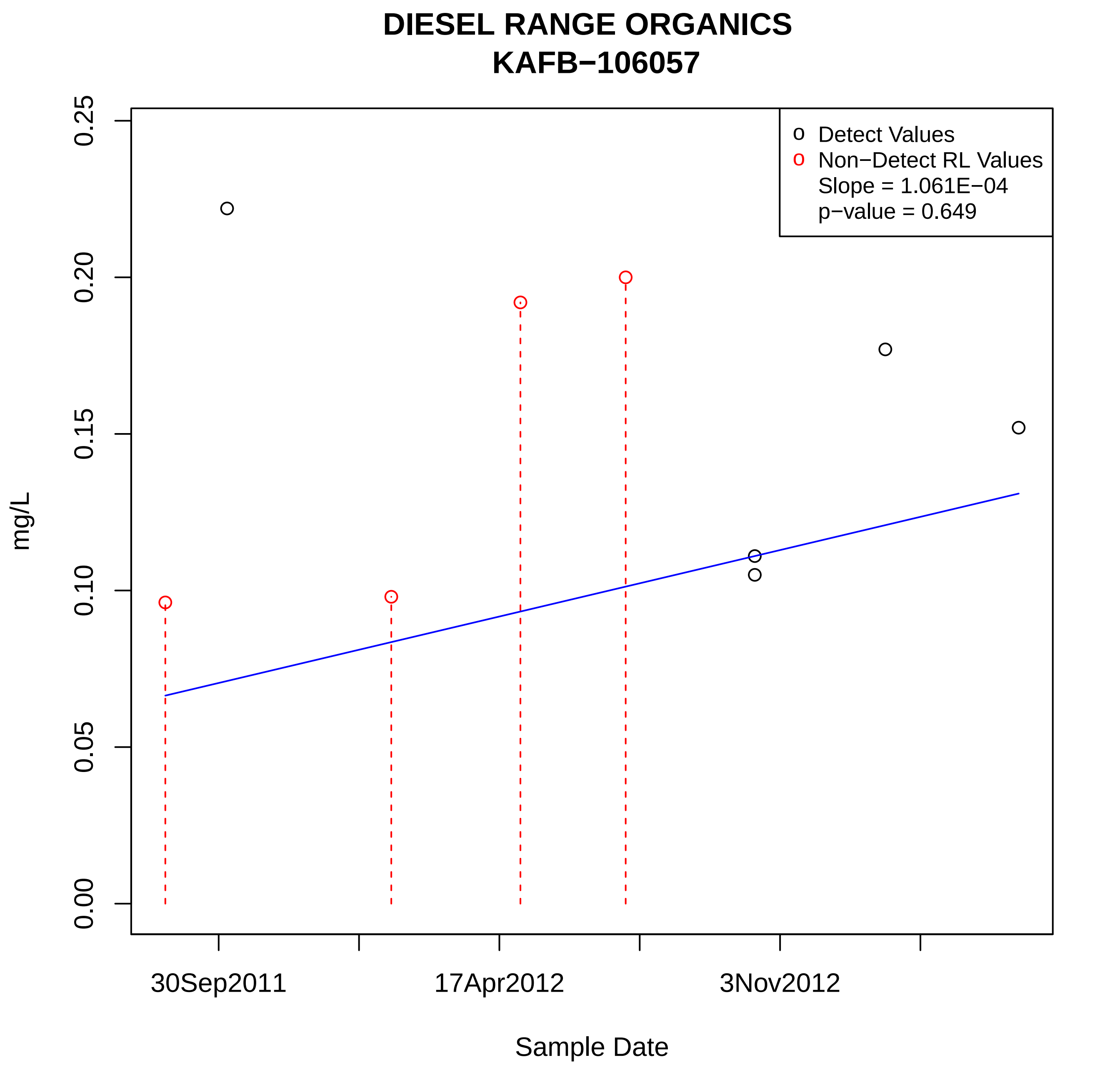
DIESEL RANGE ORGANICS
KAFB−106052
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

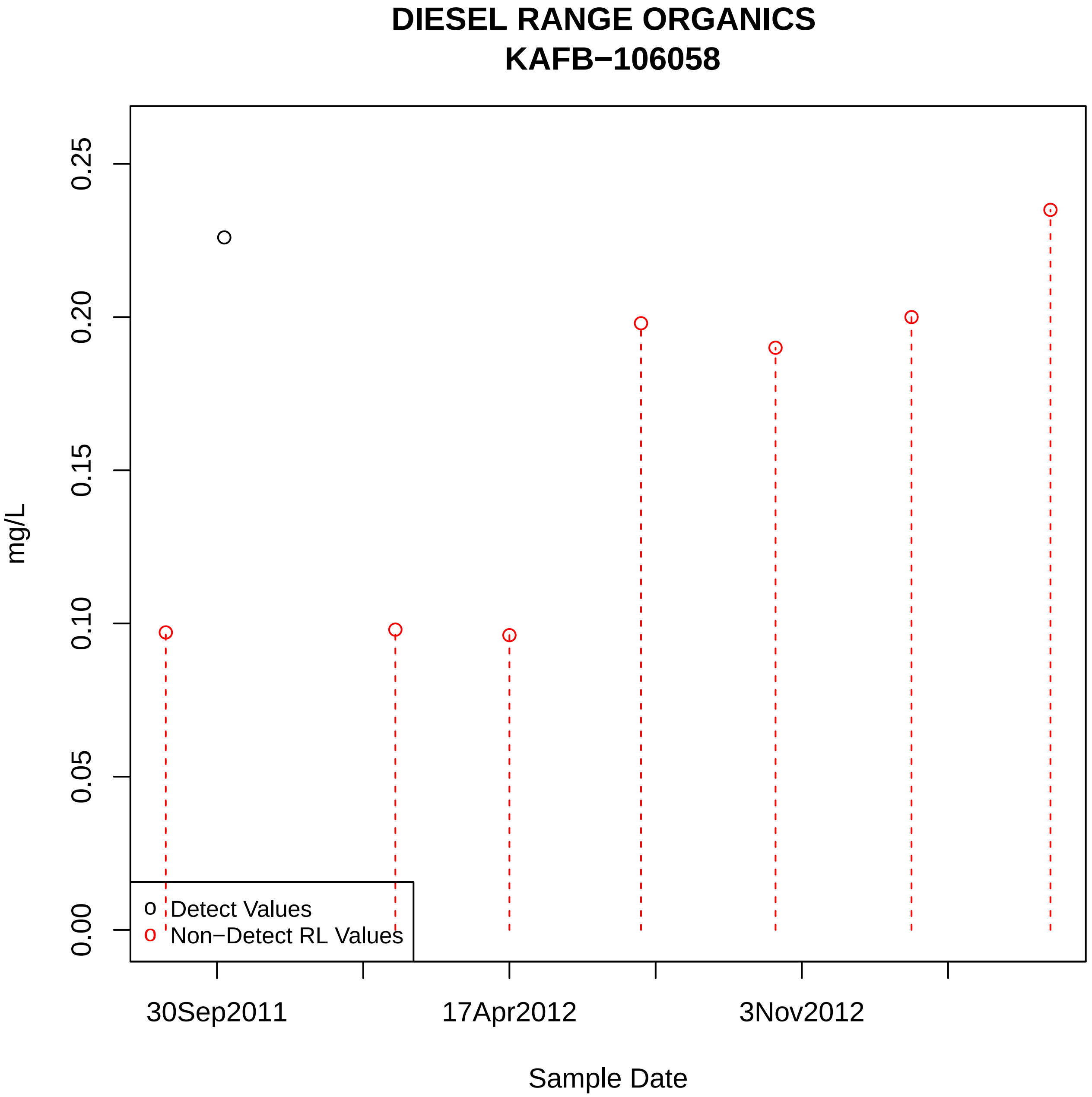


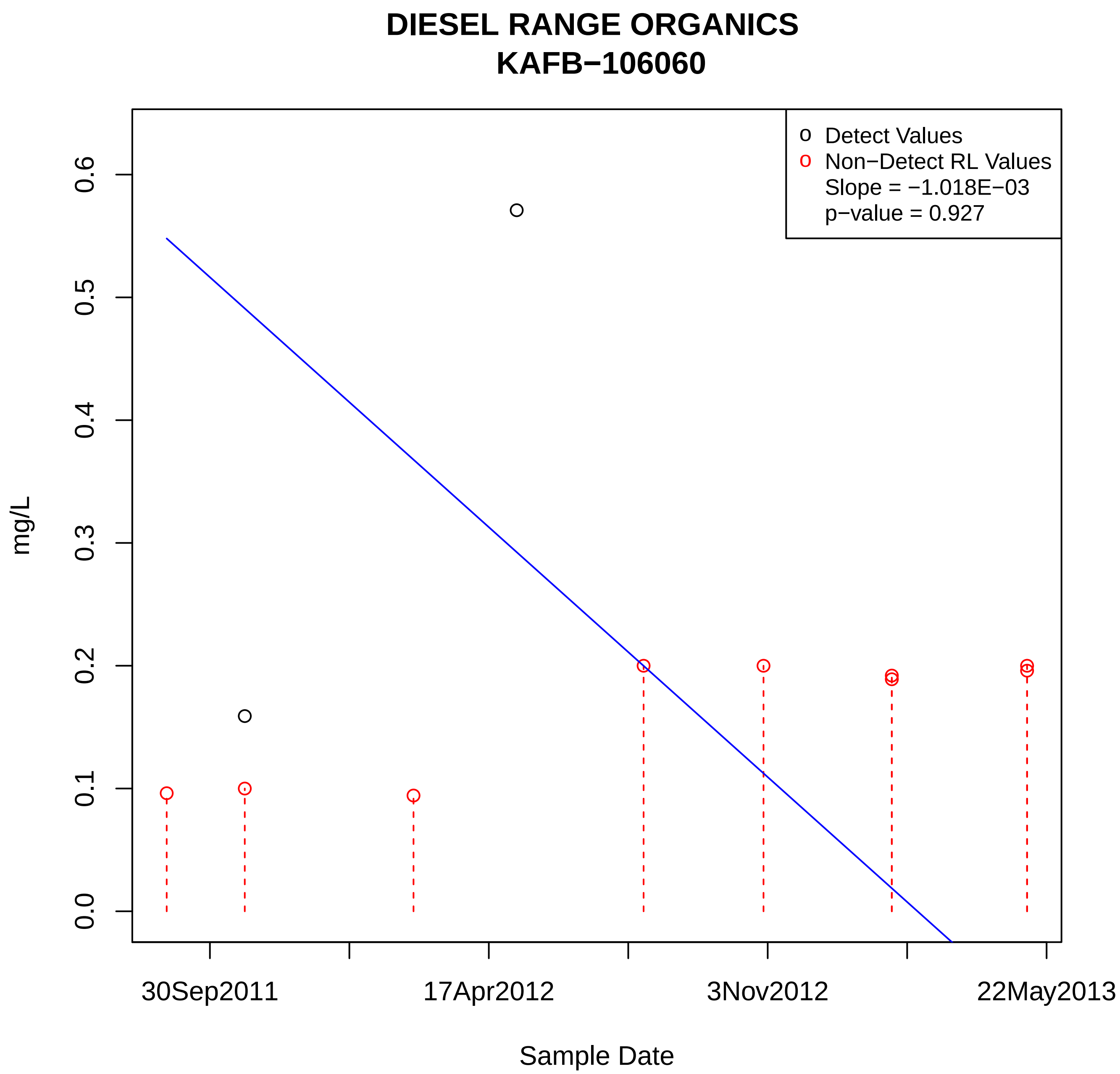
DIESEL RANGE ORGANICS
KAFB−106053
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date


DIESEL RANGE ORGANICS
KAFB−106054
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

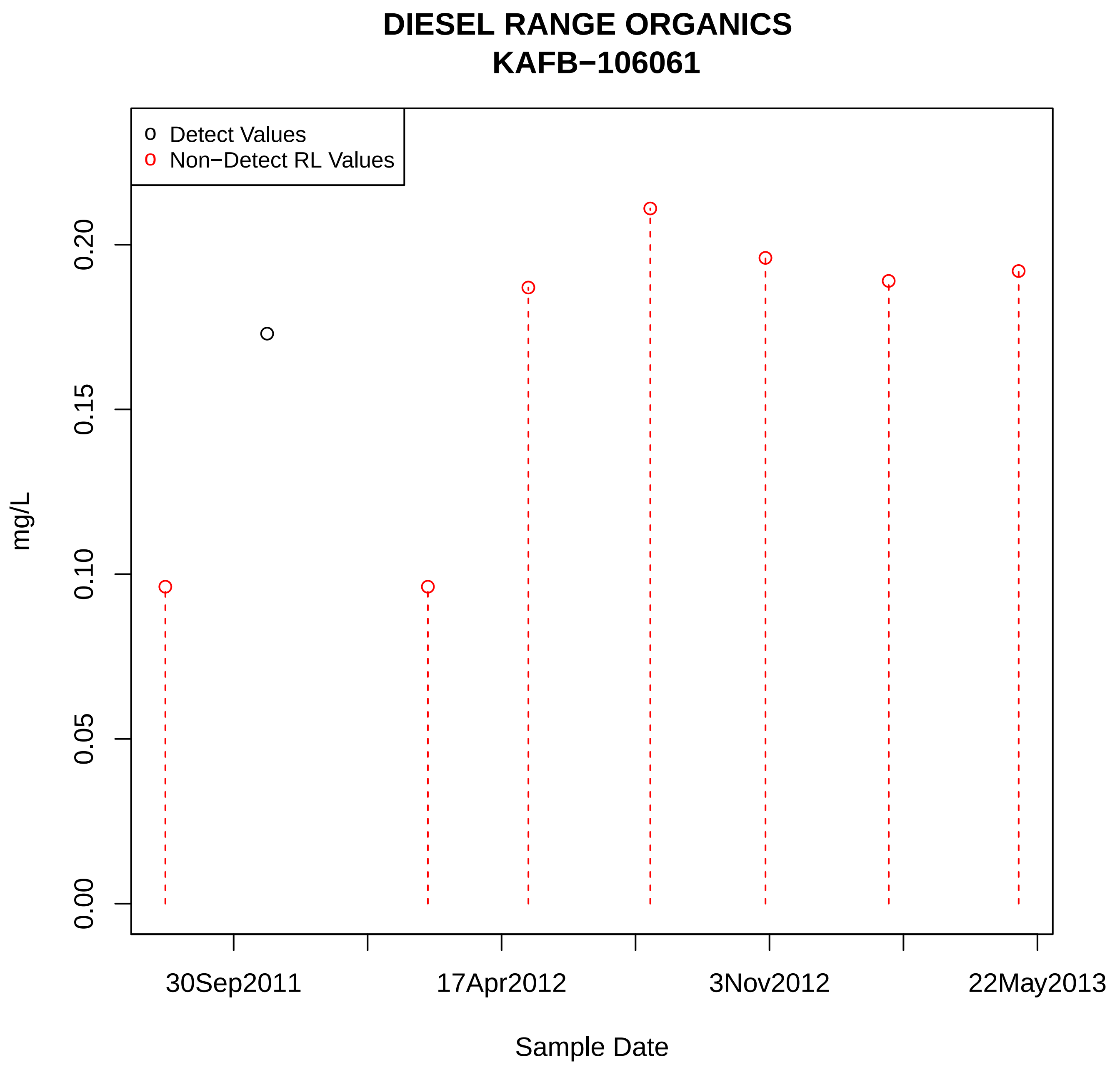

DIESEL RANGE ORGANICS
KAFB−106055
Detect Values
Non−Detect RL Values
Slope = −7.050E−05
p−value = 0.884
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

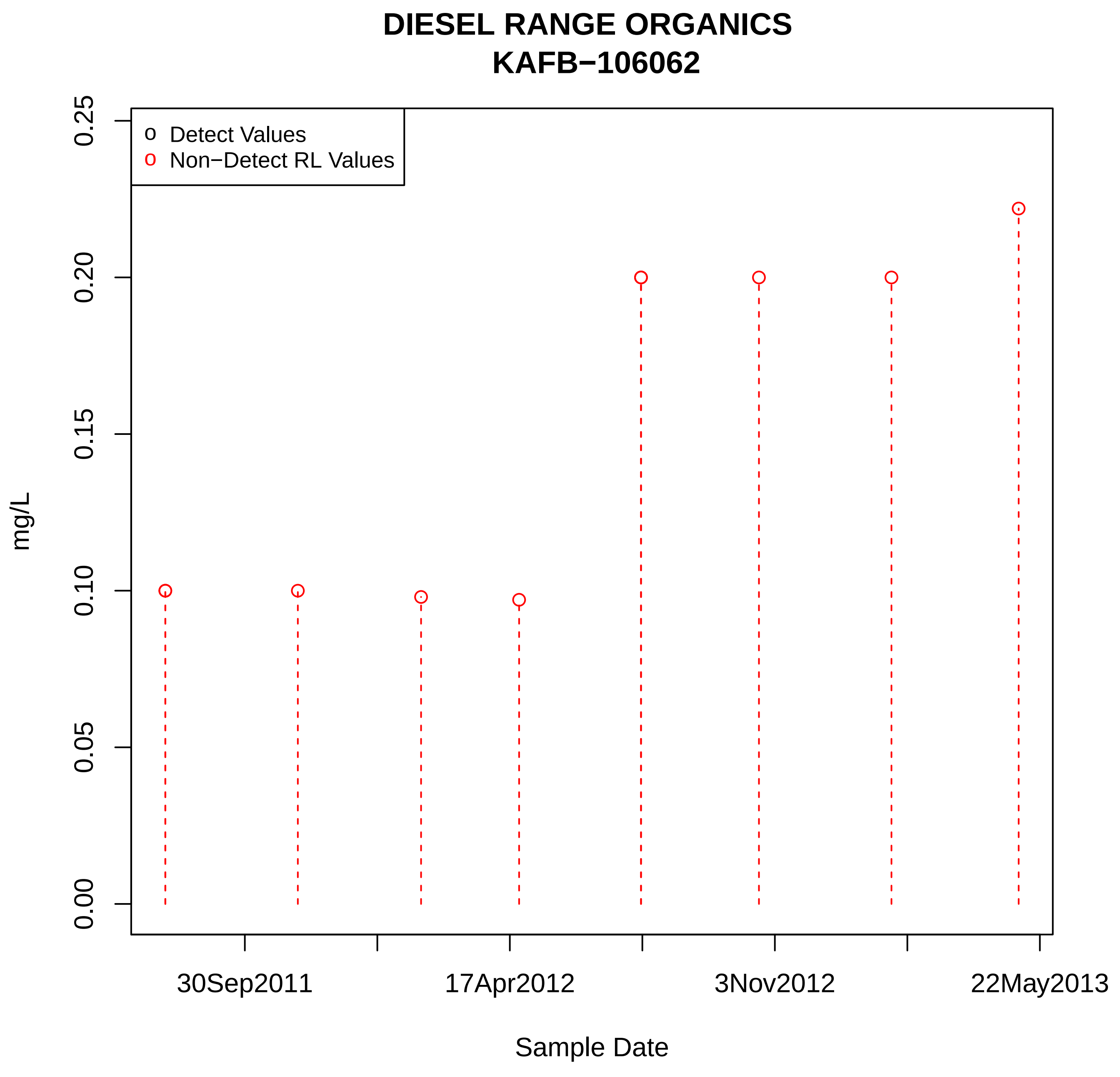

DIESEL RANGE ORGANICS
KAFB−106057
o Detect Values
o Non−Detect RL Values
Slope = 1.061E−04
p−value = 0.649
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

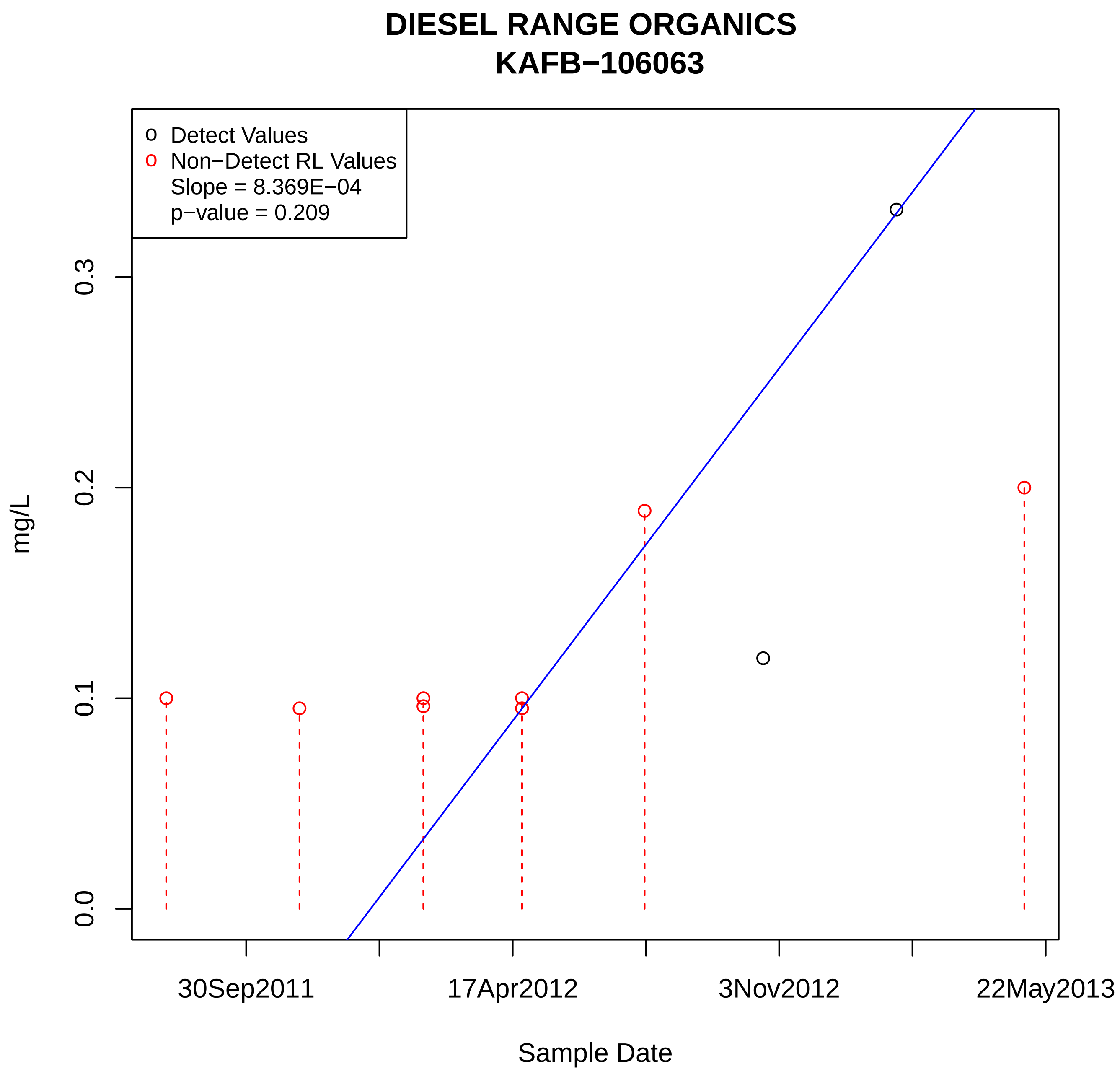

DIESEL RANGE ORGANICS
KAFB−106058
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values



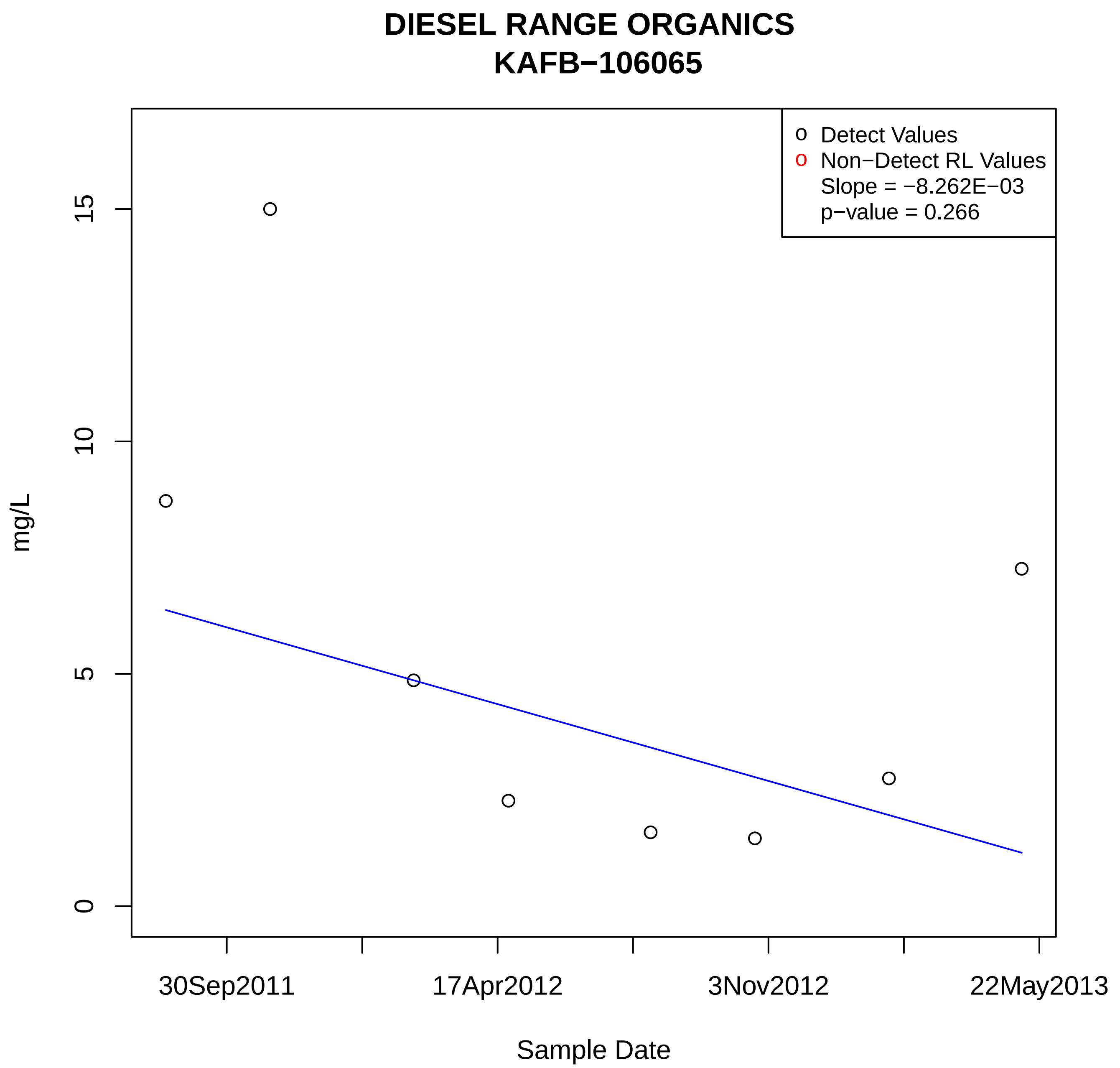
DIESEL RANGE ORGANICS
KAFB−106060
Detect Values
Non−Detect RL Values
Slope = −1.018E−03
p−value = 0.927
mg/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106061
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

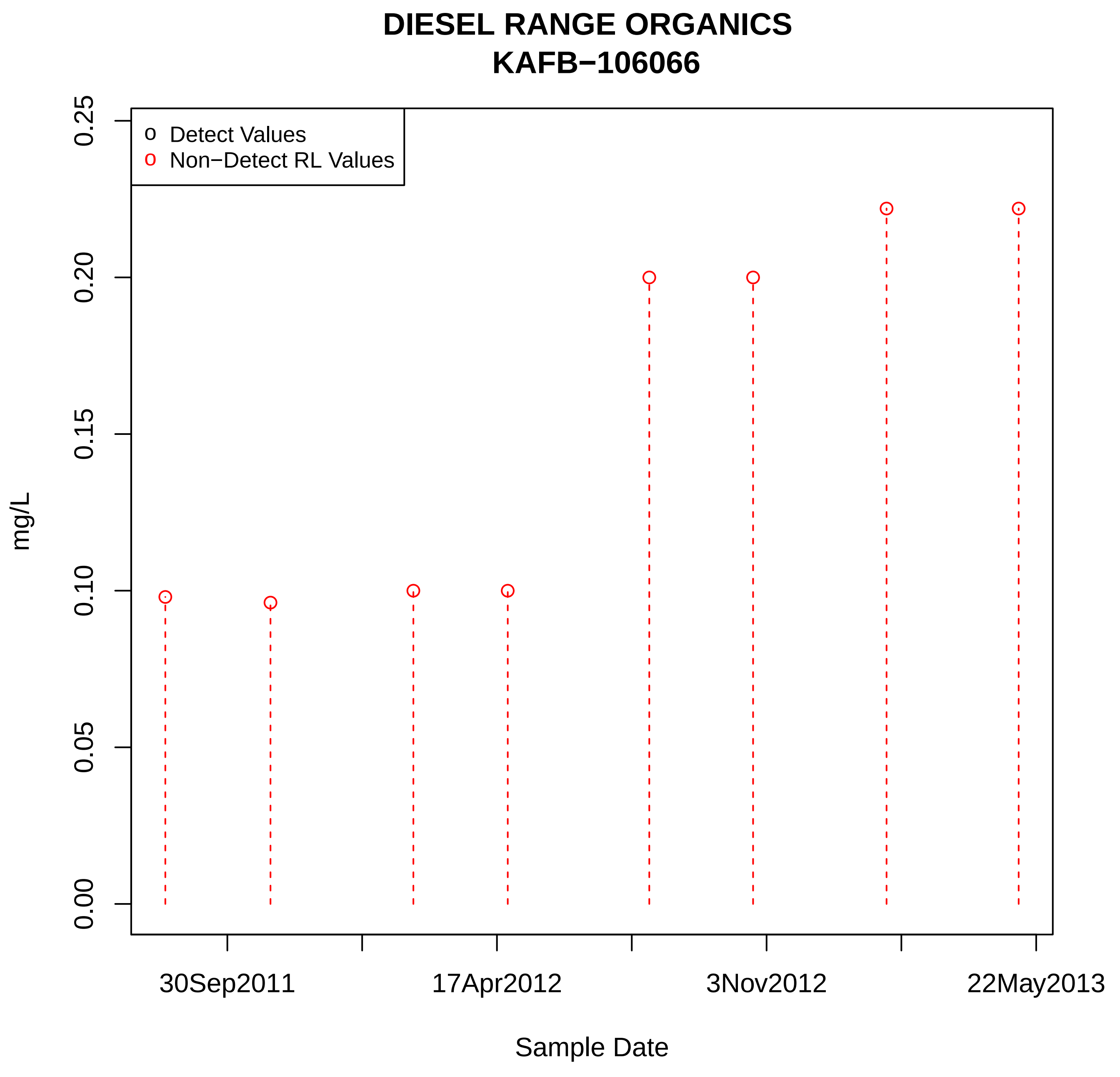

DIESEL RANGE ORGANICS
KAFB−106062
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



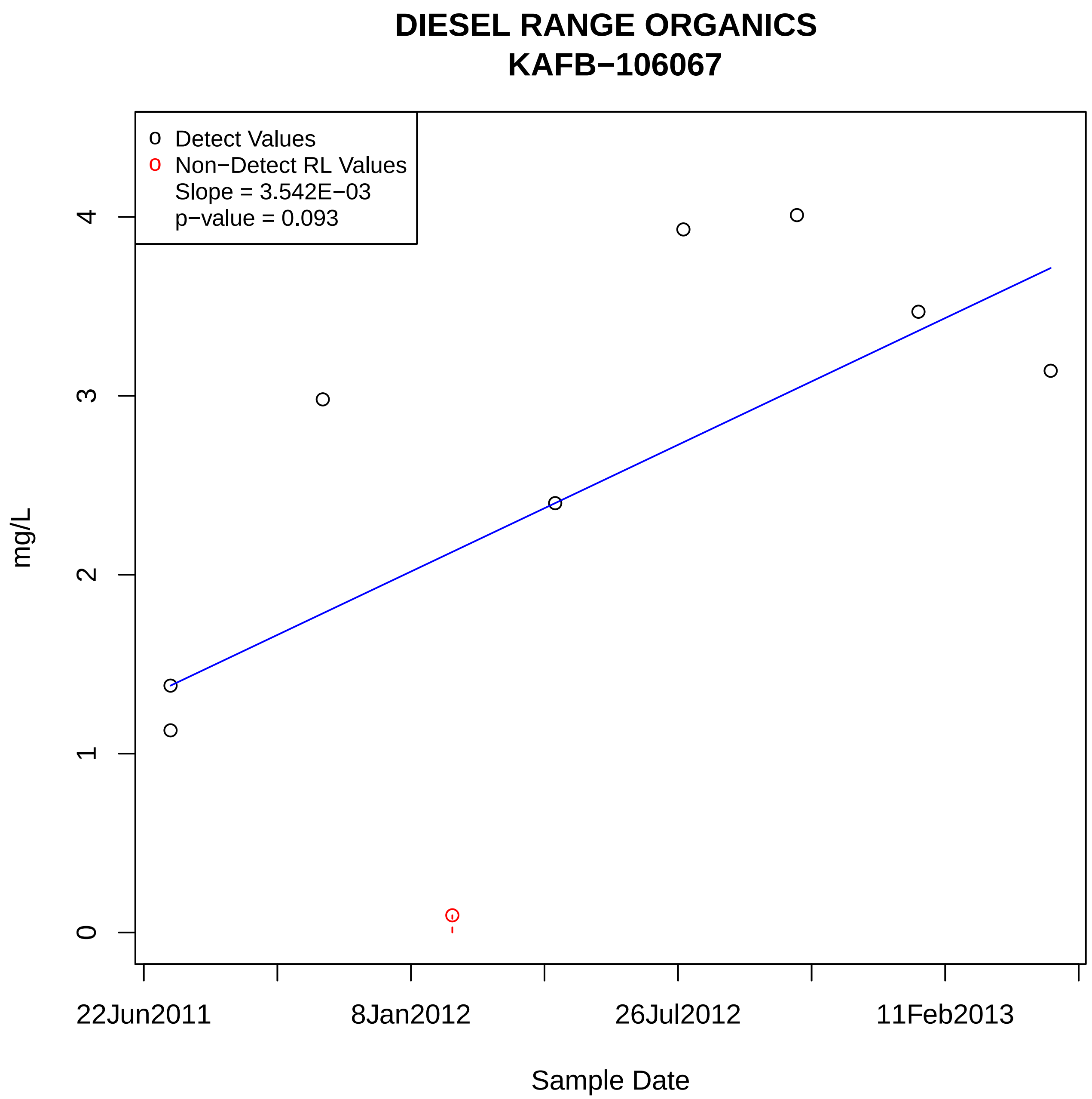
DIESEL RANGE ORGANICS
KAFB−106063
Detect Values
Non−Detect RL Values
Slope = 8.369E−04
p−value = 0.209
0.0
0.1
0.2
0.3
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



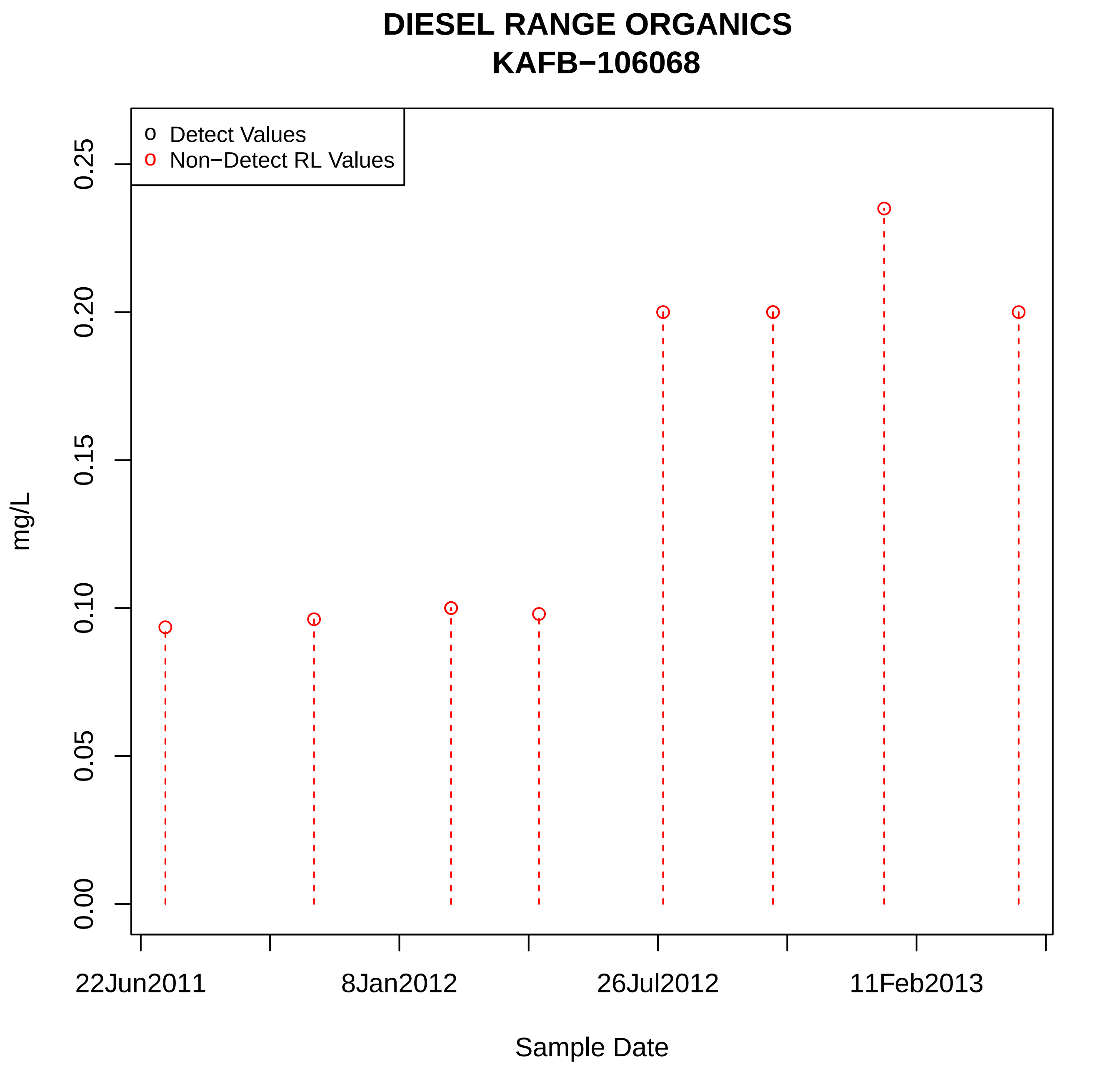
DIESEL RANGE ORGANICS
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −8.262E−03
p−value = 0.266
mg/L
0
5
10
15
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

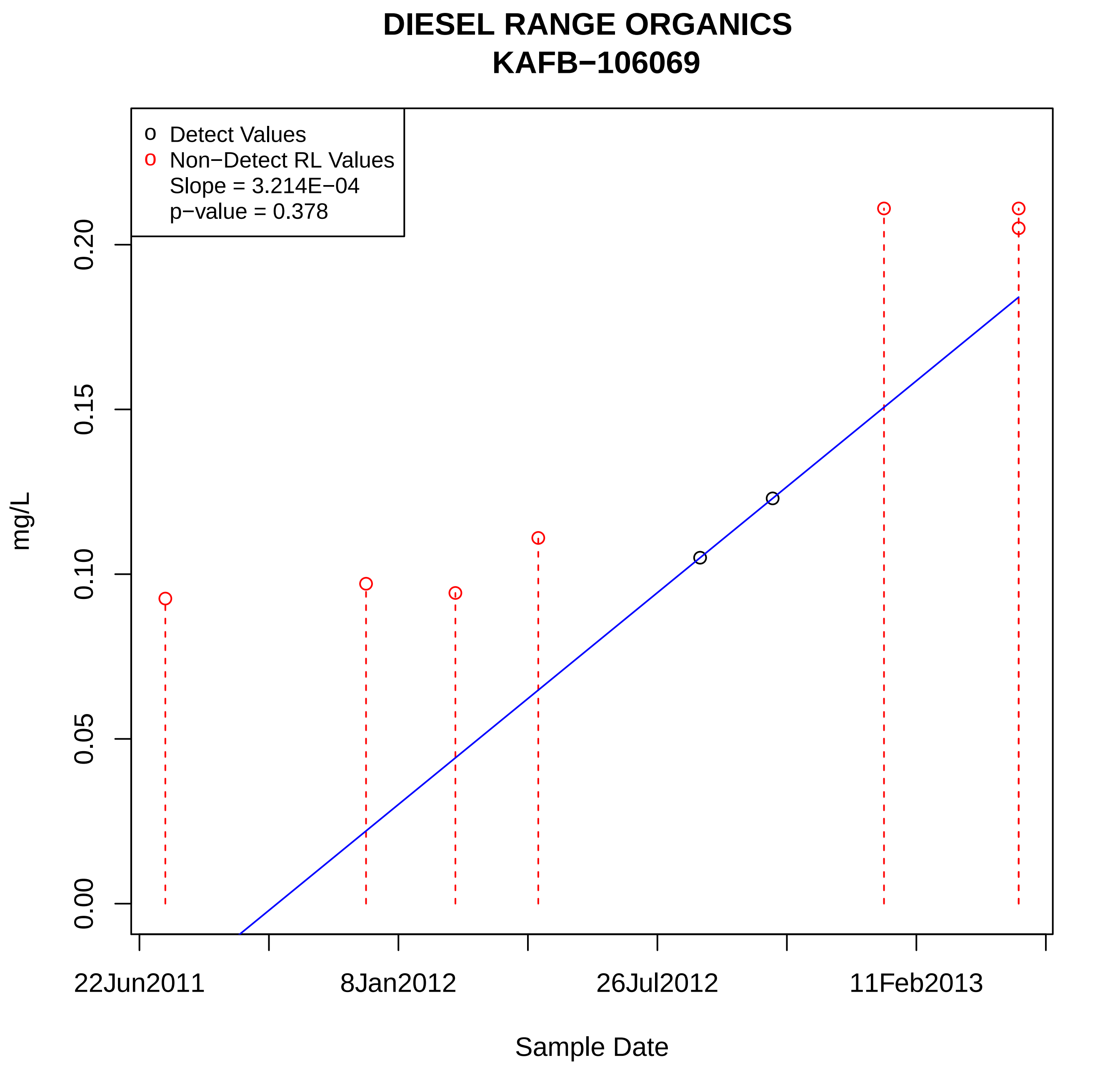


DIESEL RANGE ORGANICS
KAFB−106066
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

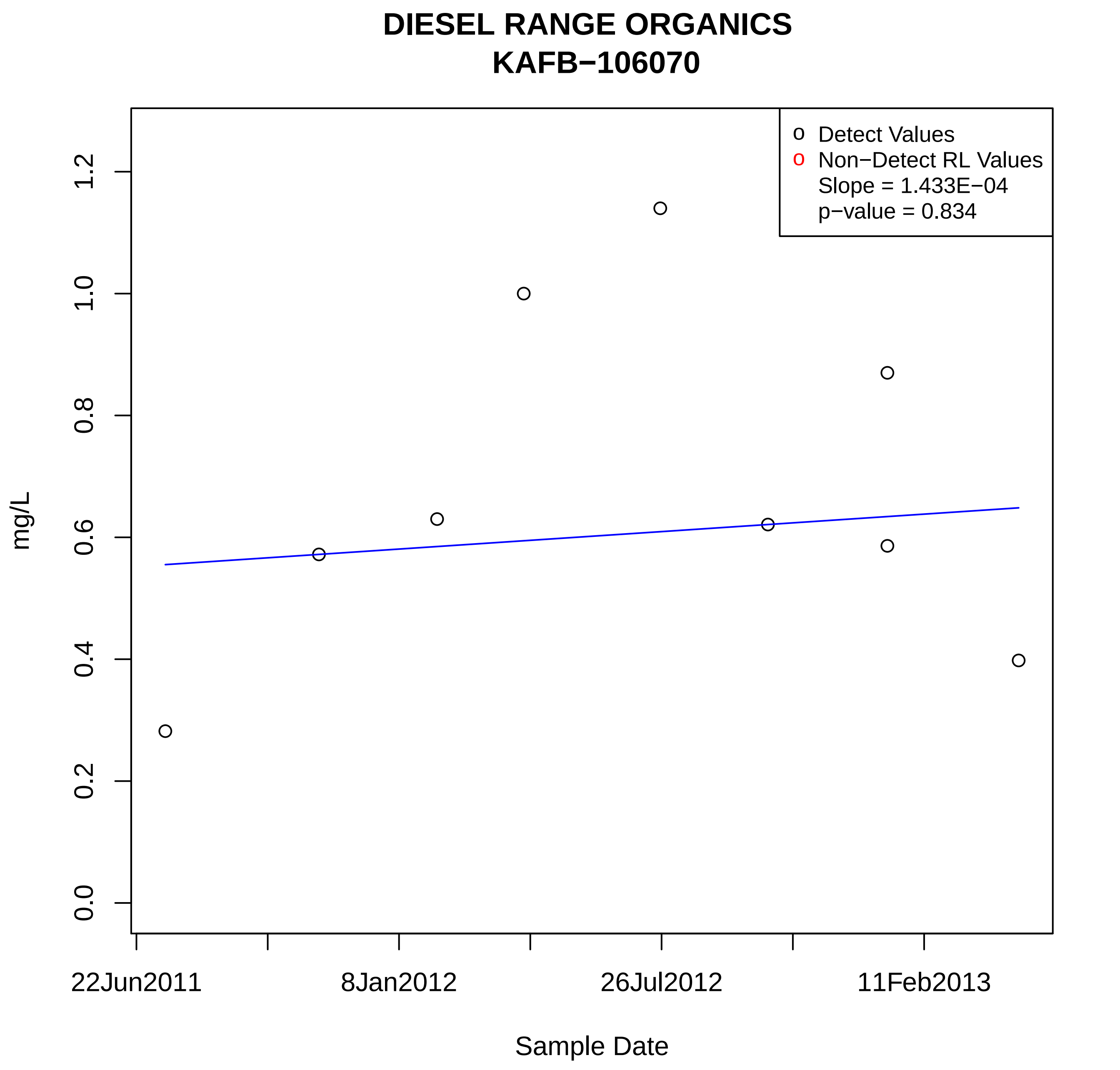


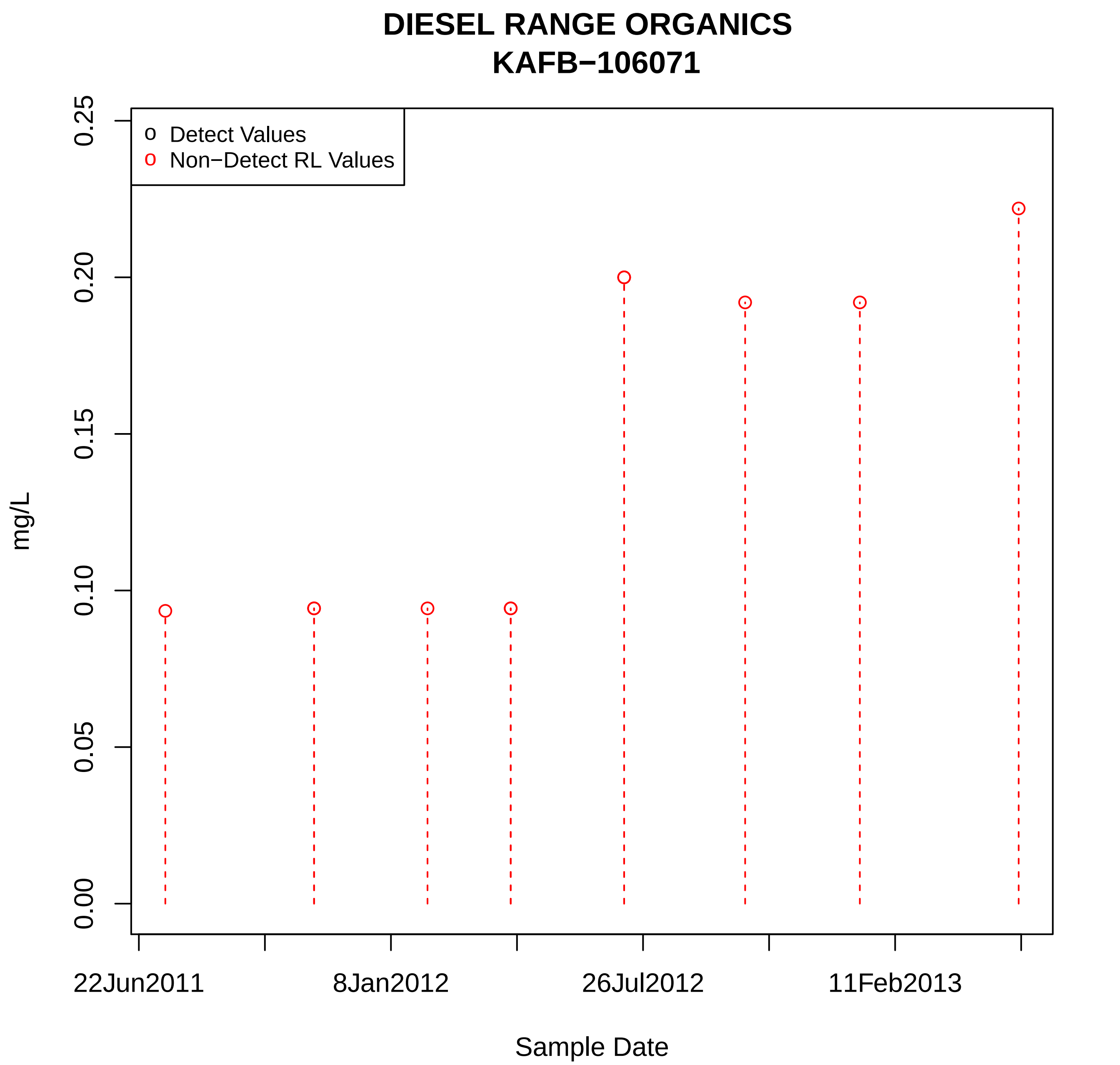
DIESEL RANGE ORGANICS
KAFB−106067
o Detect Values
o Non−Detect RL Values
Slope = 3.542E−03
p−value = 0.093
mg/L
0
1
2
3
4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

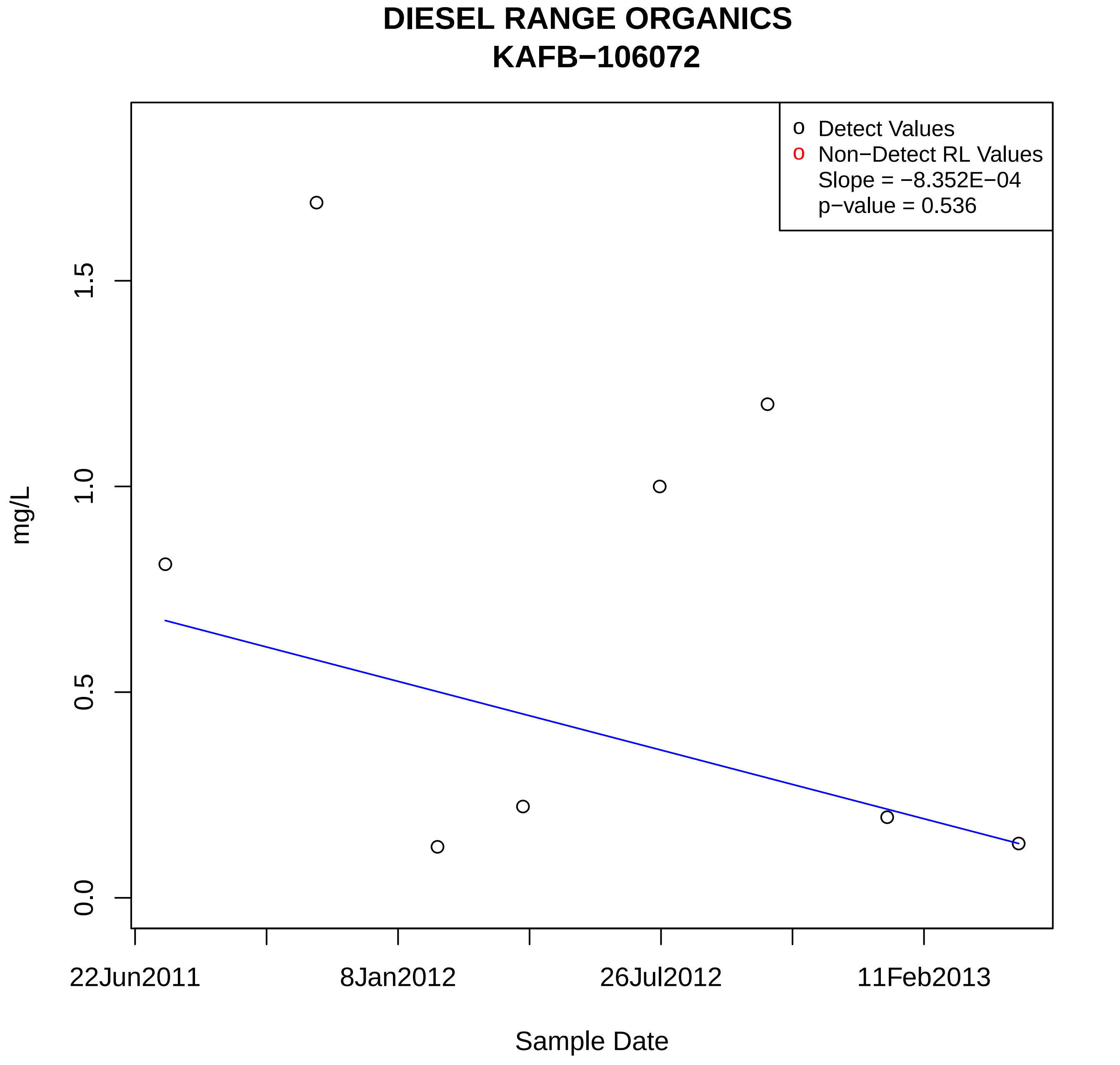

DIESEL RANGE ORGANICS
KAFB−106068
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

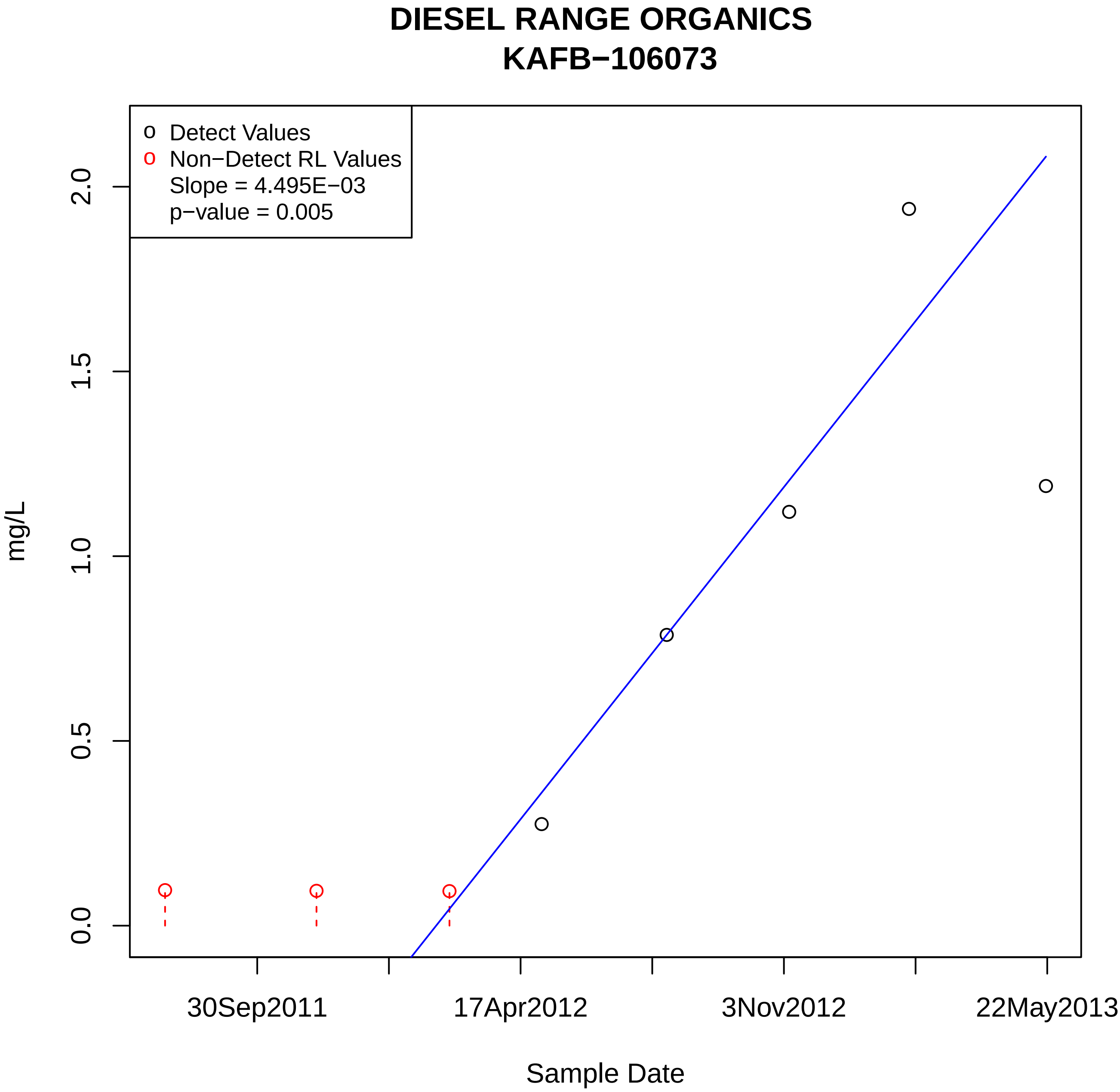


DIESEL RANGE ORGANICS
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = 3.214E−04
p−value = 0.378
mg/L
0.00
0.05
0.10
0.15
0.20
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

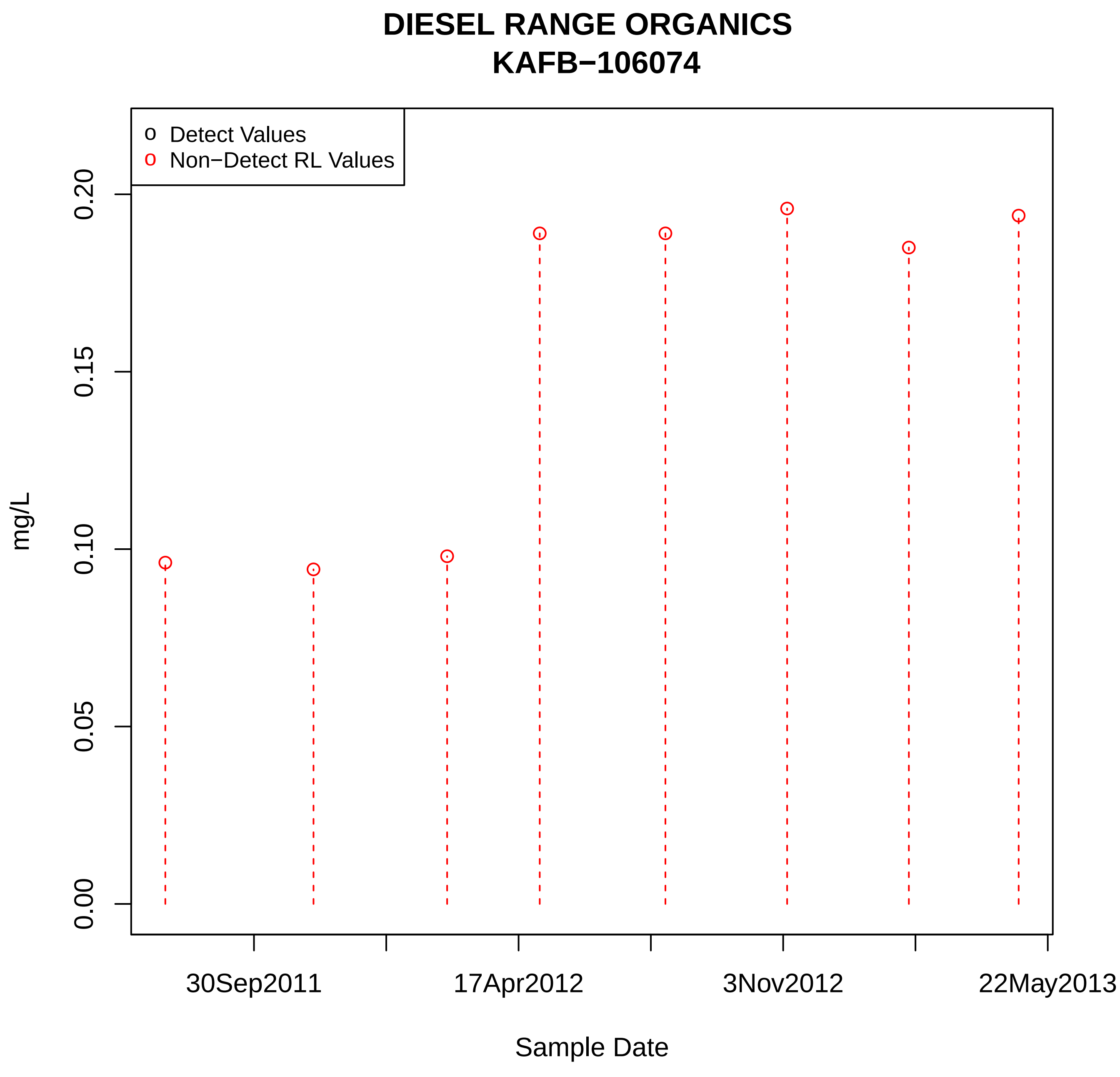

DIESEL RANGE ORGANICS
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = 1.433E−04
p−value = 0.834
mg/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106071
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

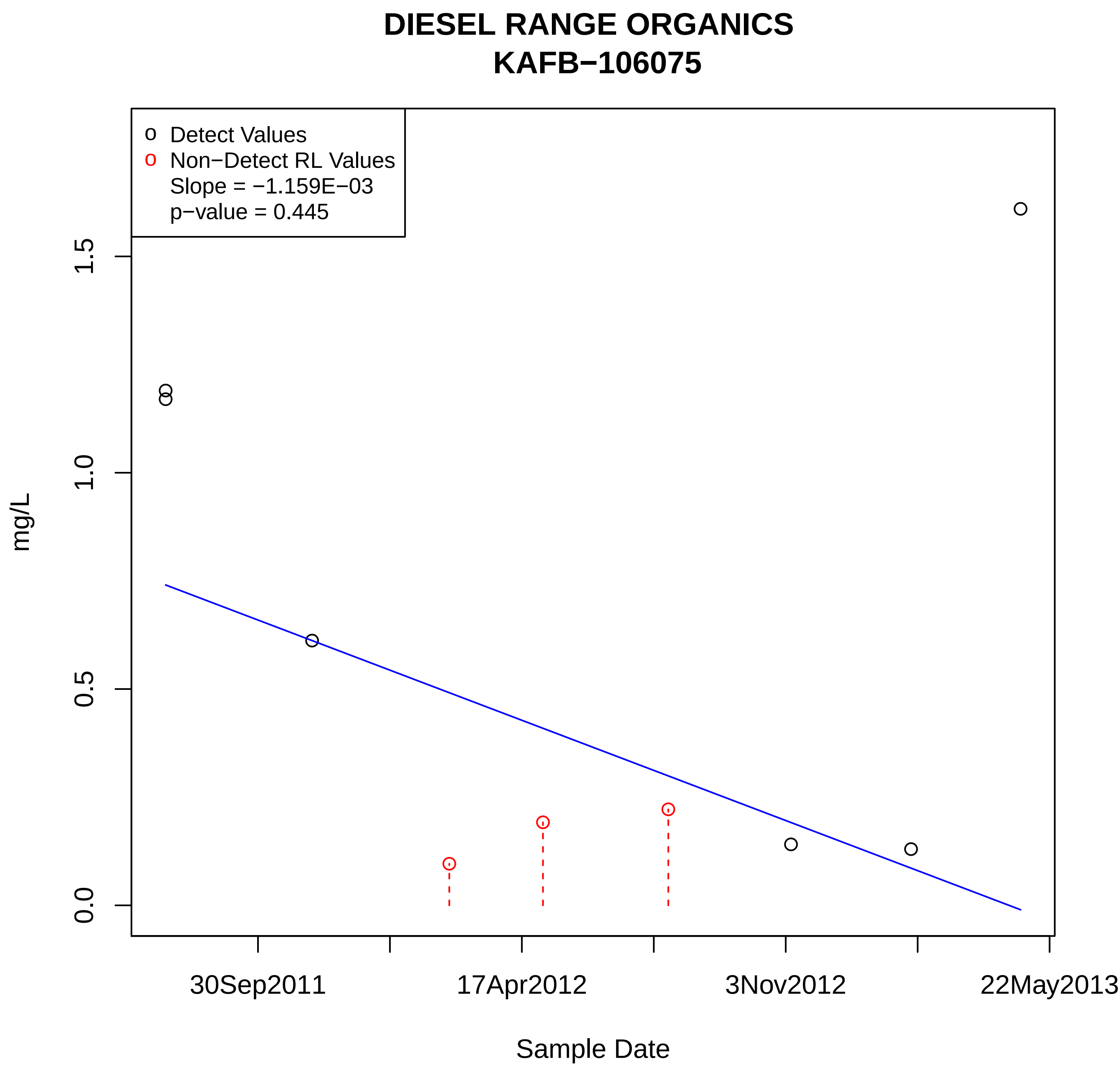

DIESEL RANGE ORGANICS
KAFB−106072
Detect Values
Non−Detect RL Values
Slope = −8.352E−04
p−value = 0.536
mg/L
0.0
0.5
1.0
1.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



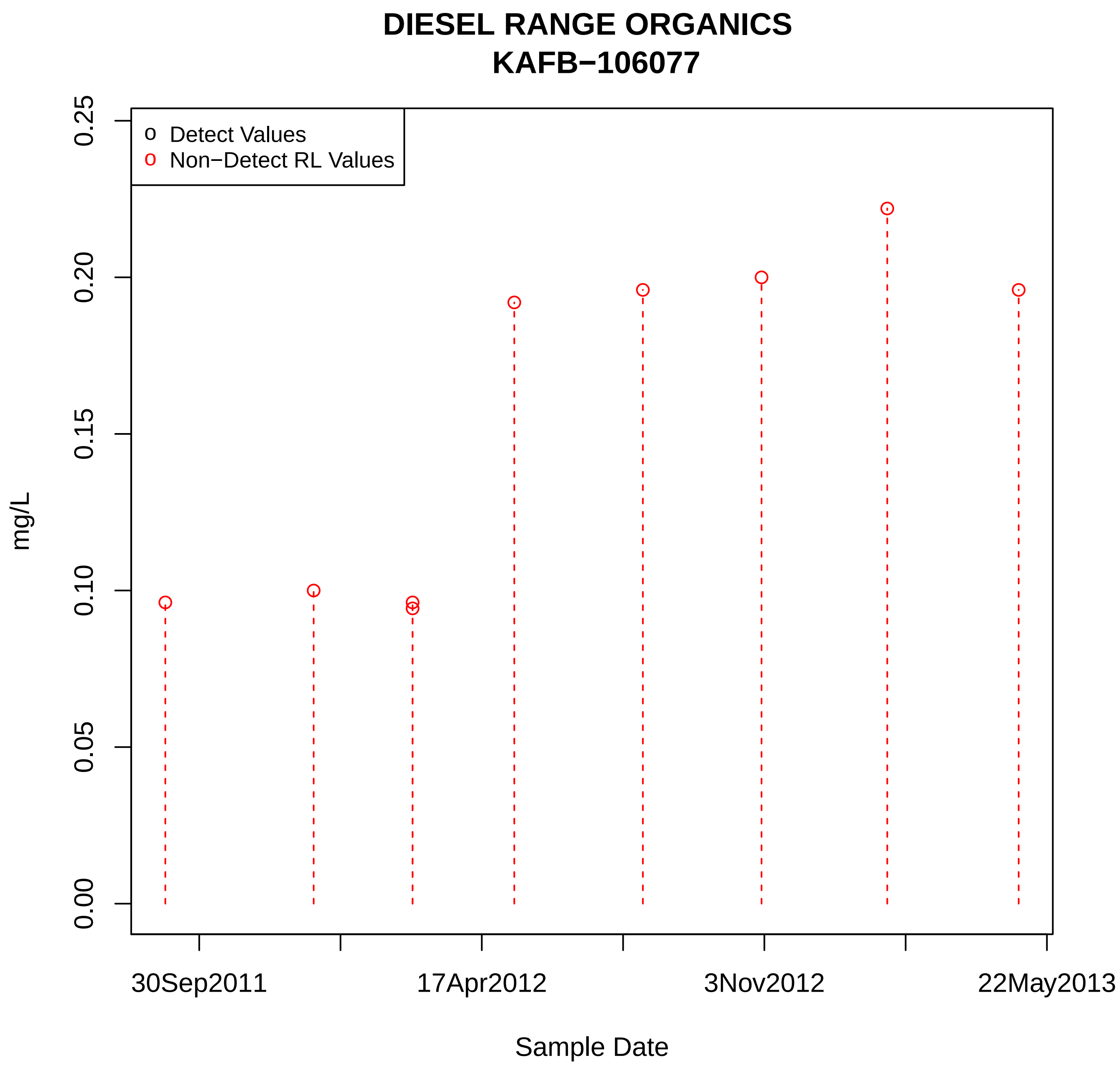
DIESEL RANGE ORGANICS
KAFB−106073
Detect Values
Non−Detect RL Values
Slope = 4.495E−03
p−value = 0.005
mg/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

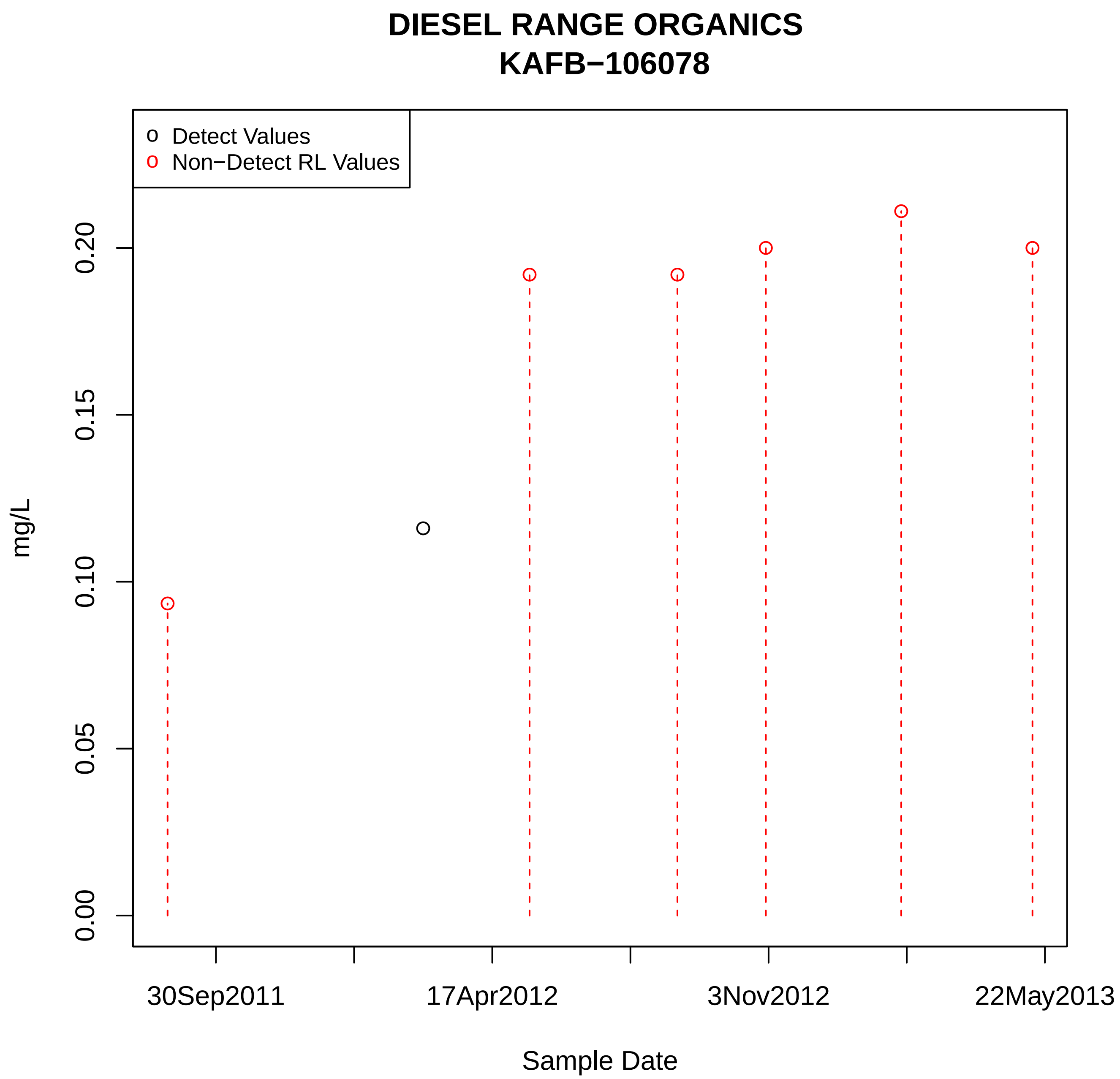


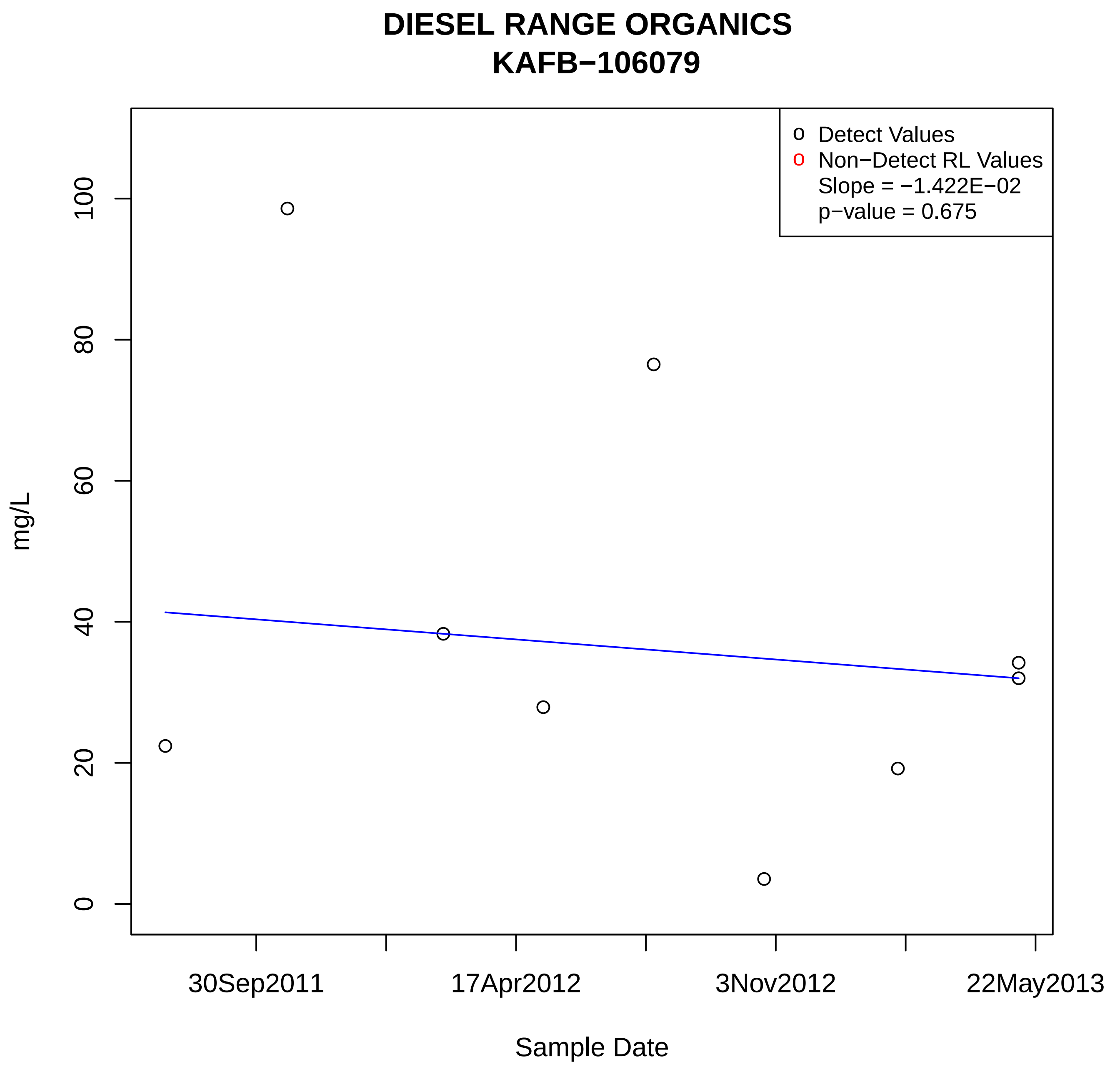
DIESEL RANGE ORGANICS
KAFB−106074
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

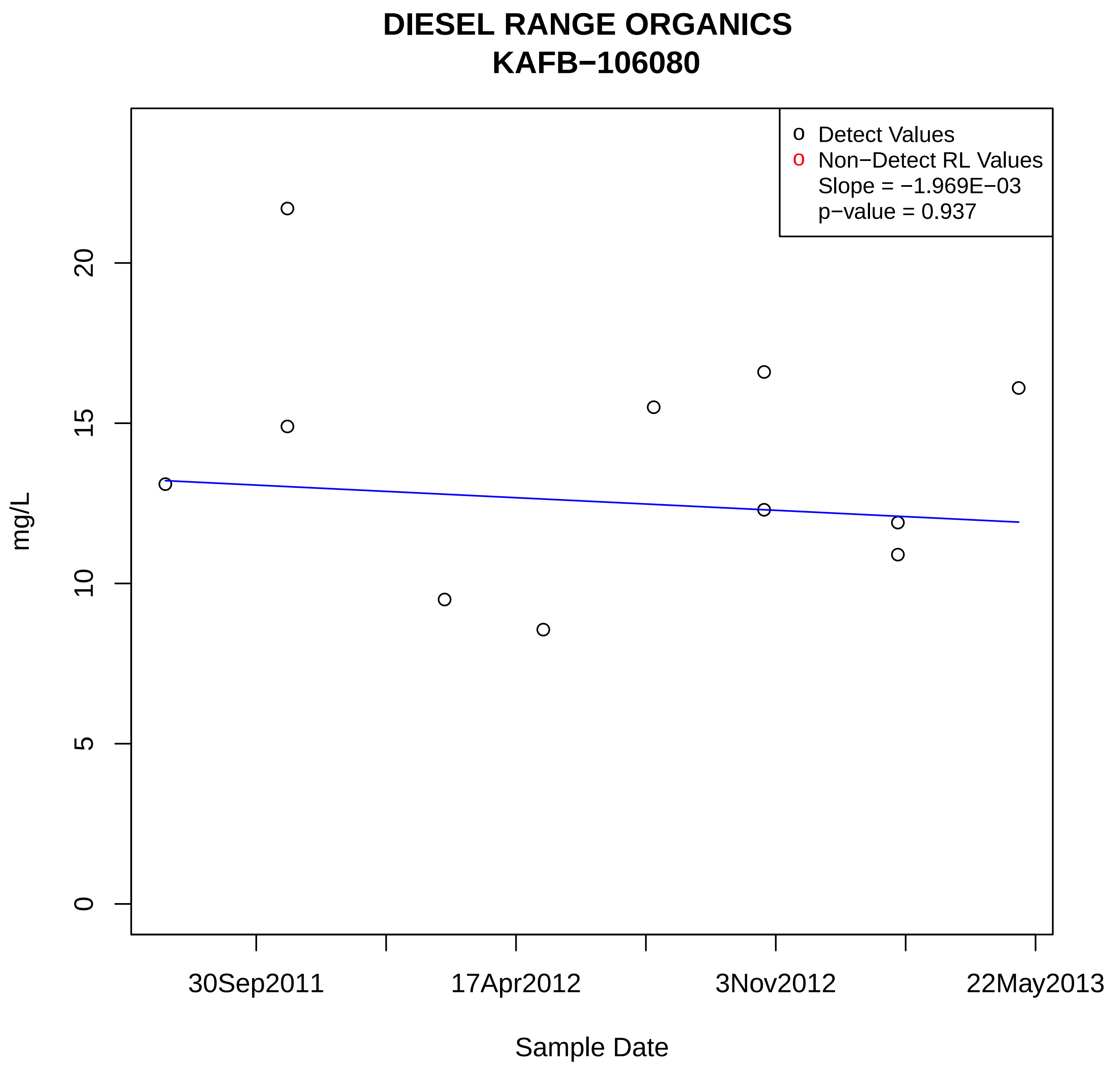


DIESEL RANGE ORGANICS
KAFB−106075
Detect Values
Non−Detect RL Values
Slope = −1.159E−03
p−value = 0.445
mg/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

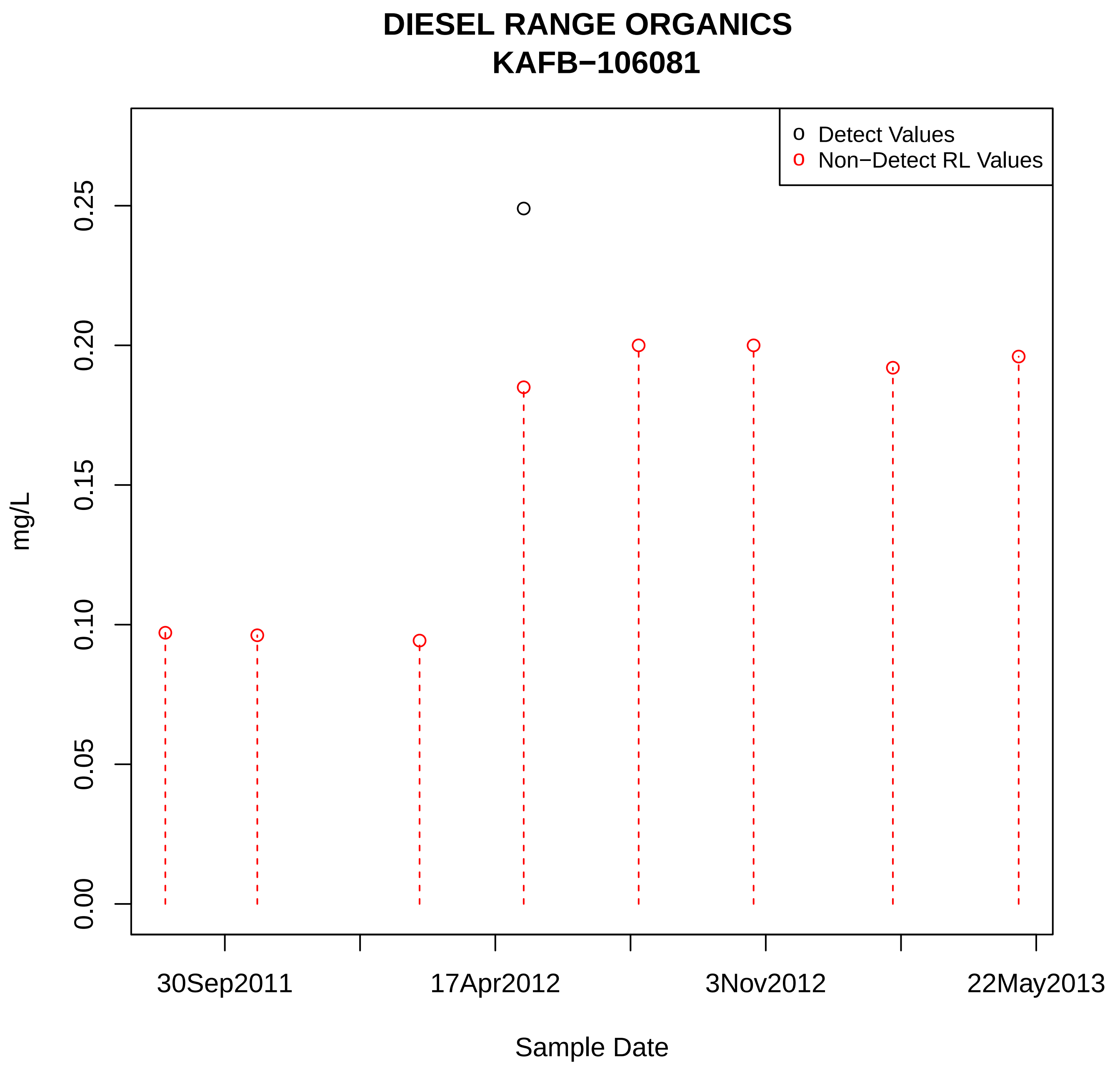

DIESEL RANGE ORGANICS
KAFB−106077
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
0.25
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

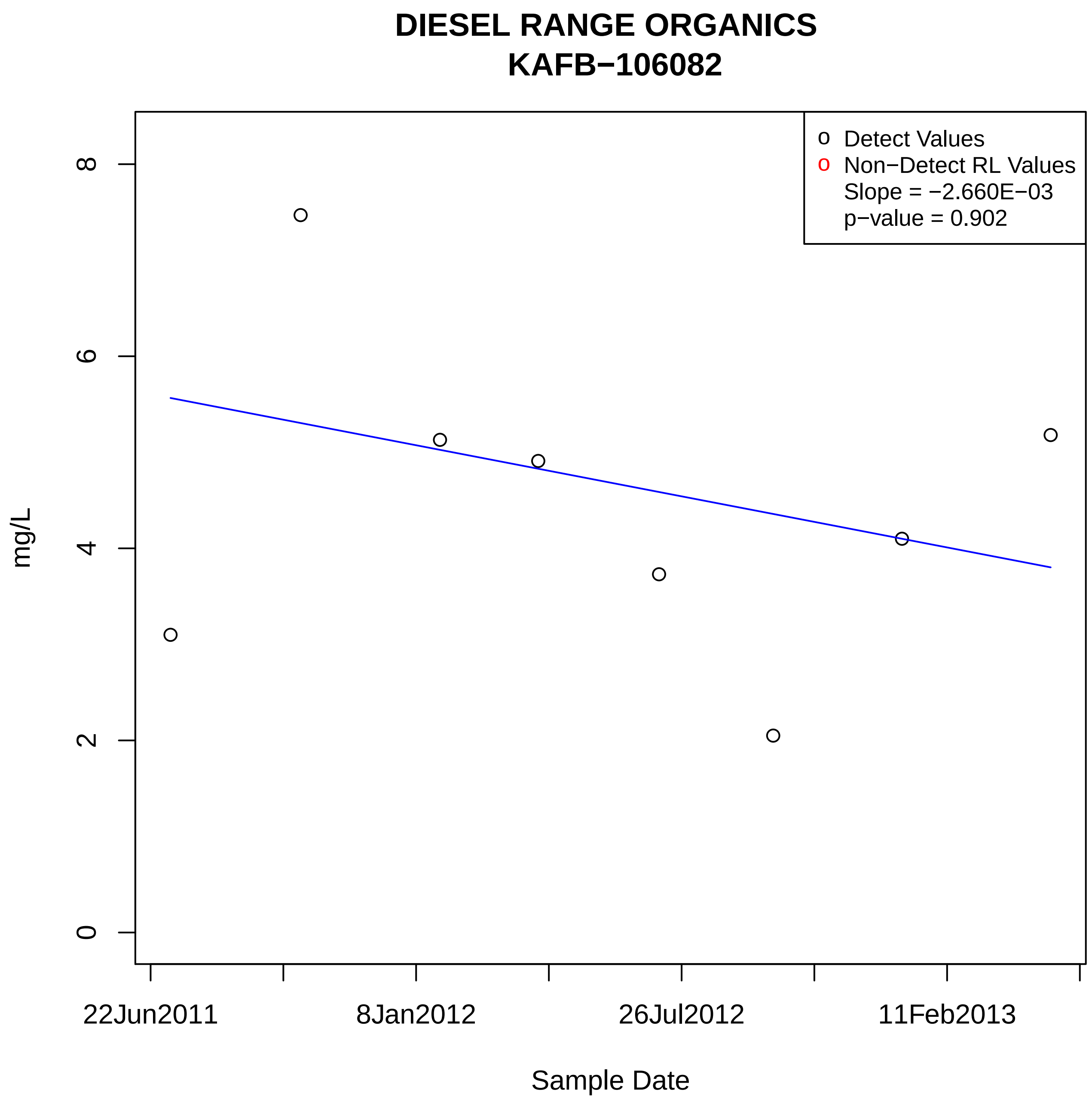

DIESEL RANGE ORGANICS
KAFB−106078
Detect Values
Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

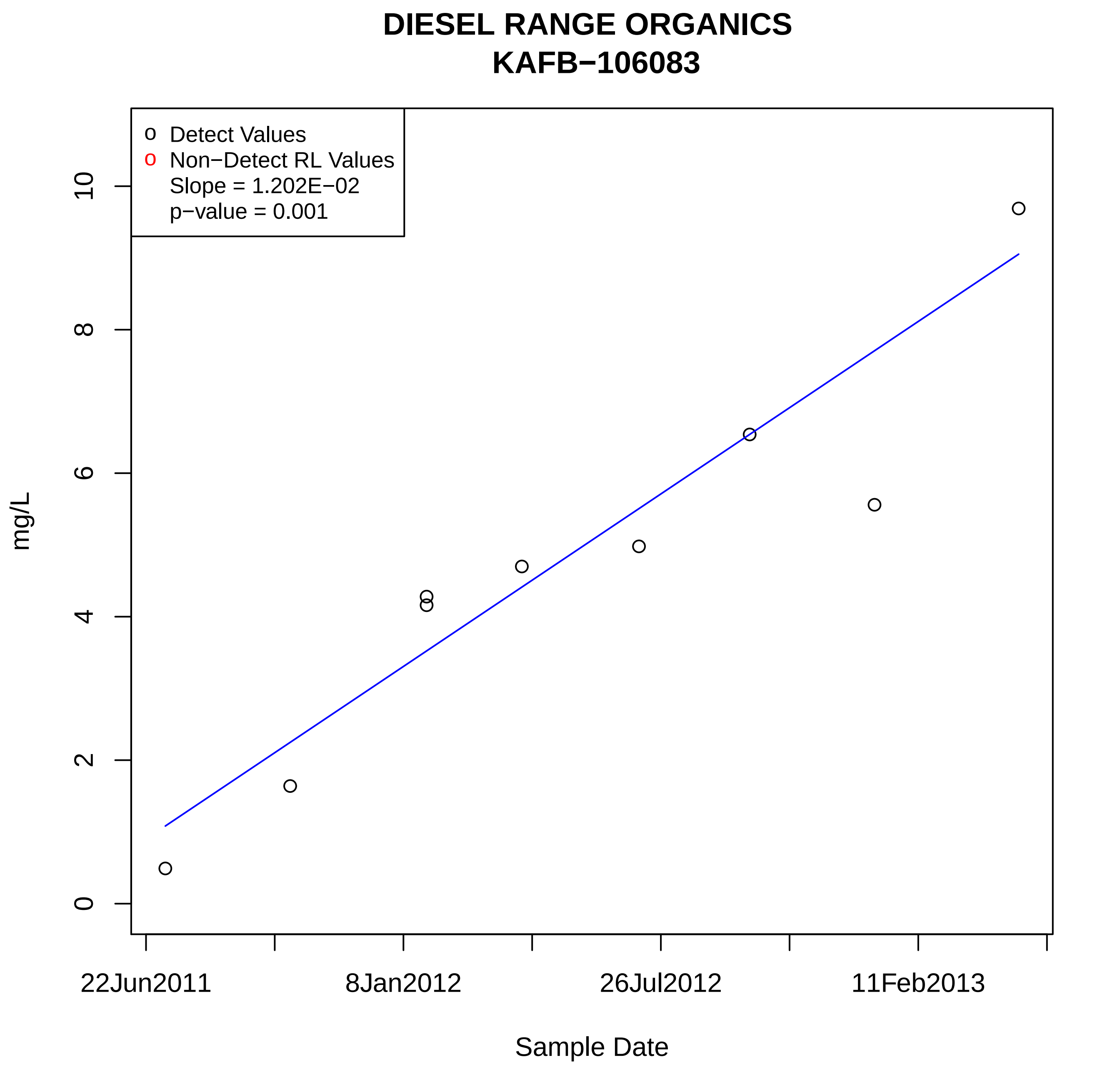

DIESEL RANGE ORGANICS
KAFB−106079
o Detect Values
o Non−Detect RL Values
Slope = −1.422E−02
p−value = 0.675
mg/L
0
20
40
60
80
100
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



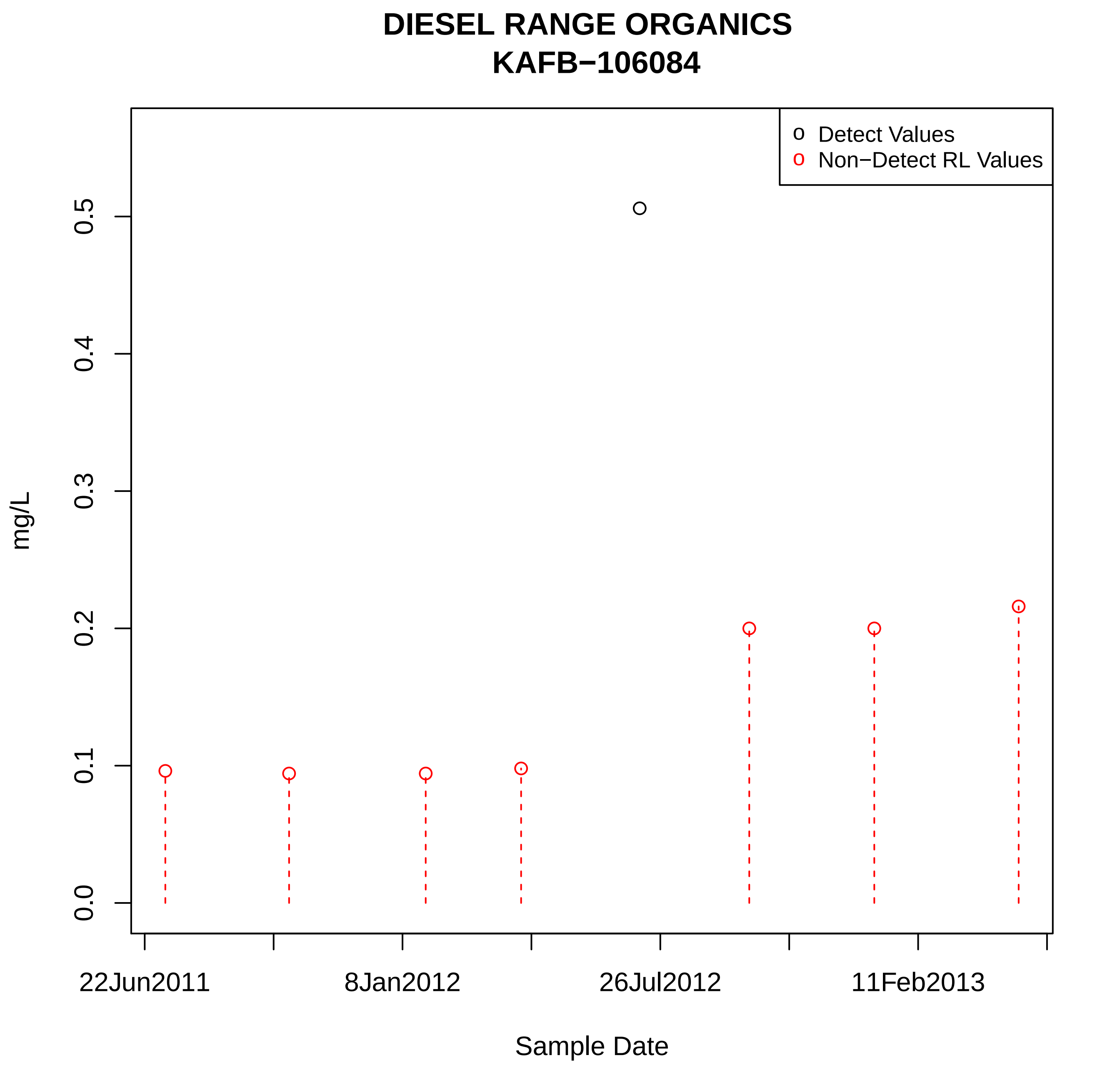
DIESEL RANGE ORGANICS
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −1.969E−03
p−value = 0.937
mg/L
0
5
10
15
20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106081
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

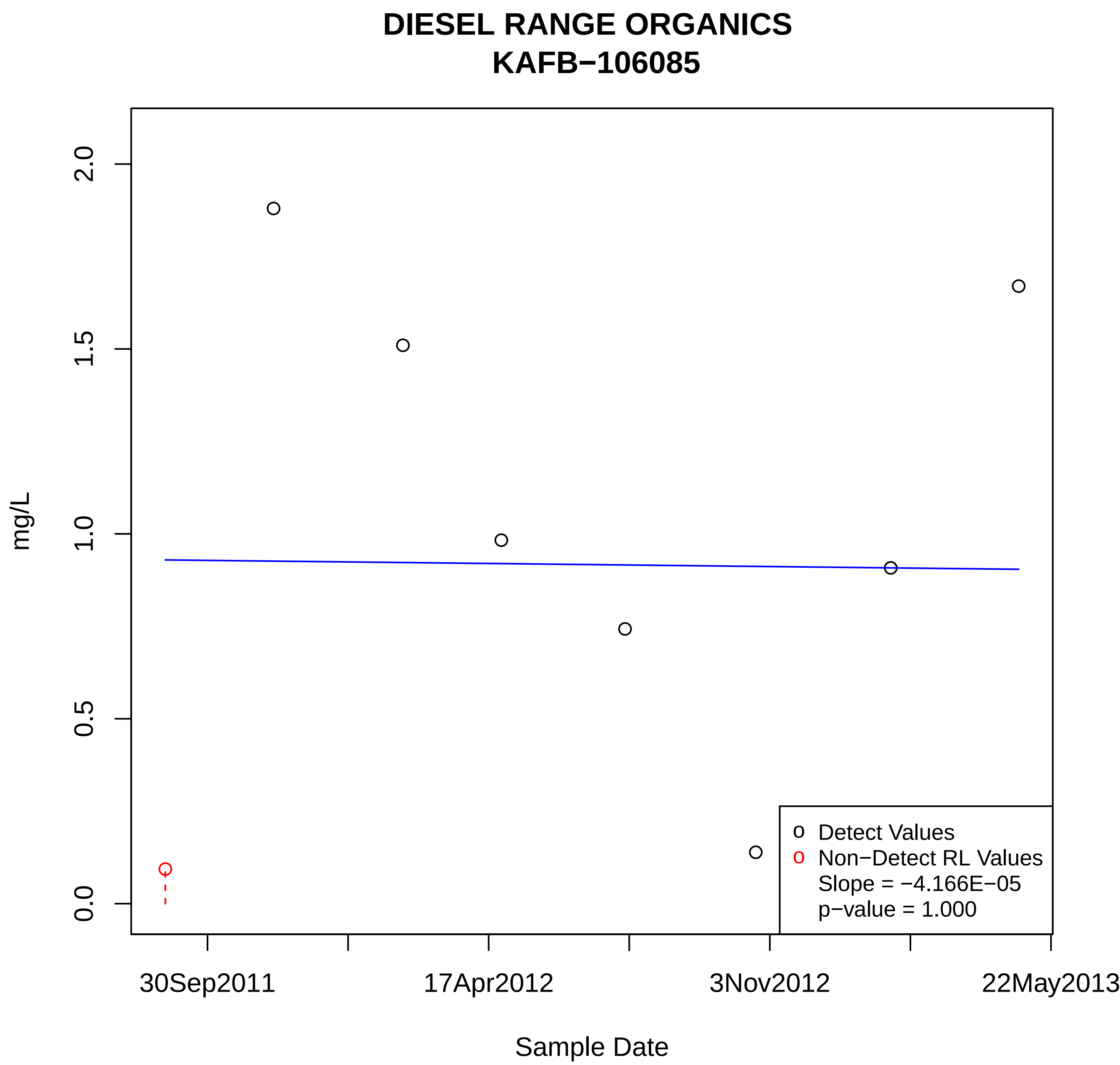

DIESEL RANGE ORGANICS
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −2.660E−03
p−value = 0.902
mg/L
0
2
4
6
8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



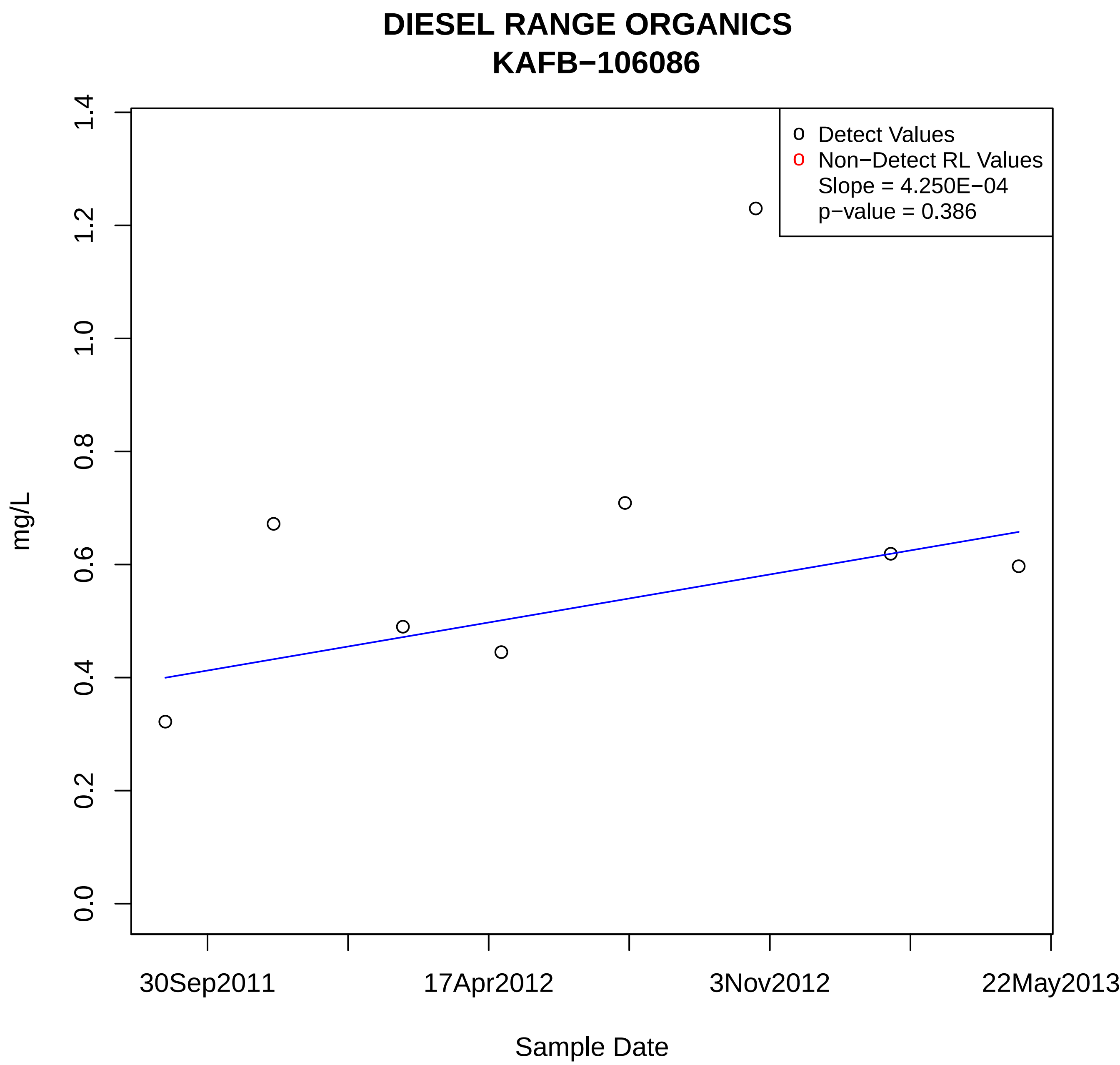
DIESEL RANGE ORGANICS
KAFB−106083
o Detect Values
o Non−Detect RL Values
Slope = 1.202E−02
p−value = 0.001
mg/L
0
2
4
6
8
10
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

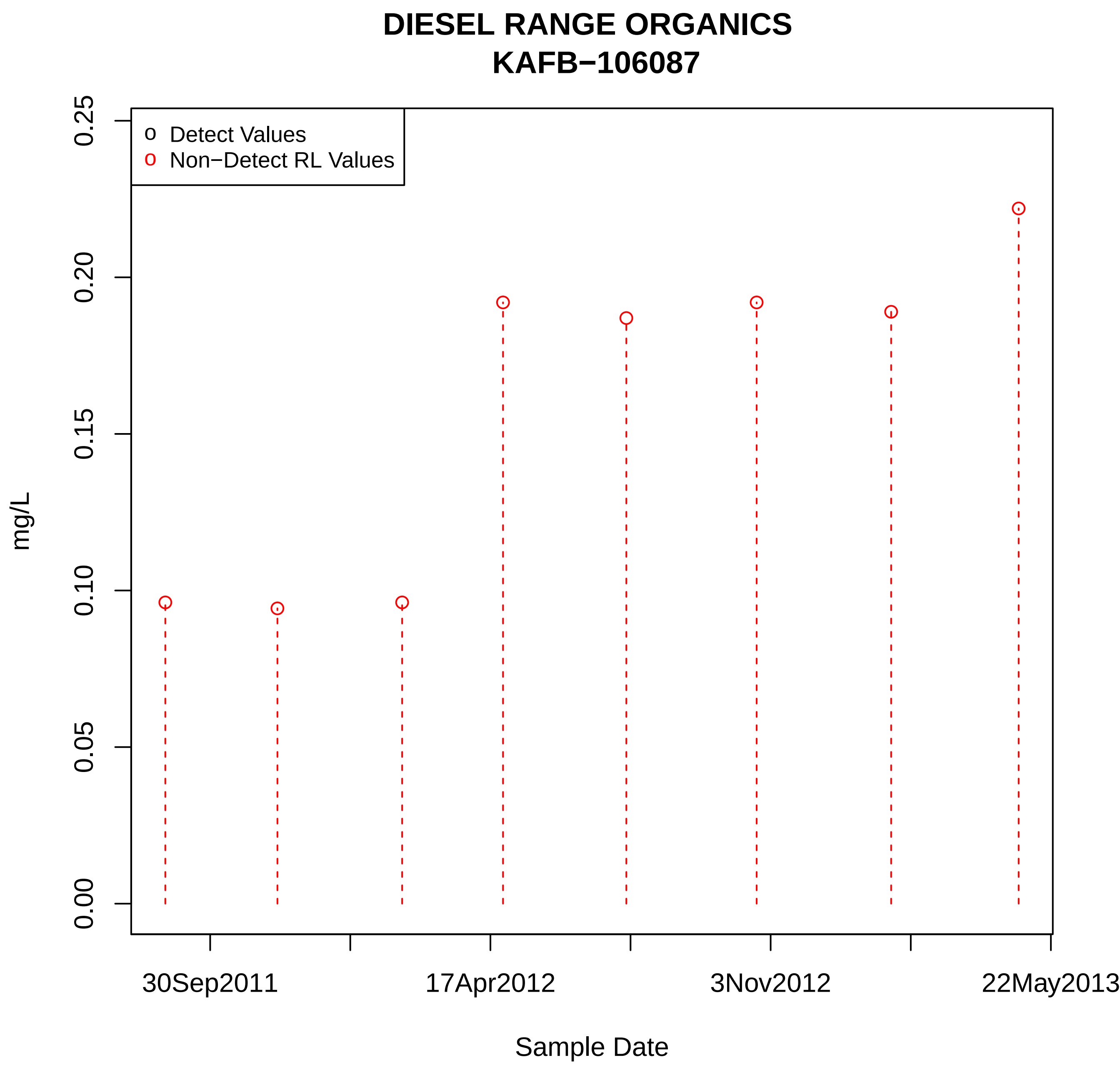


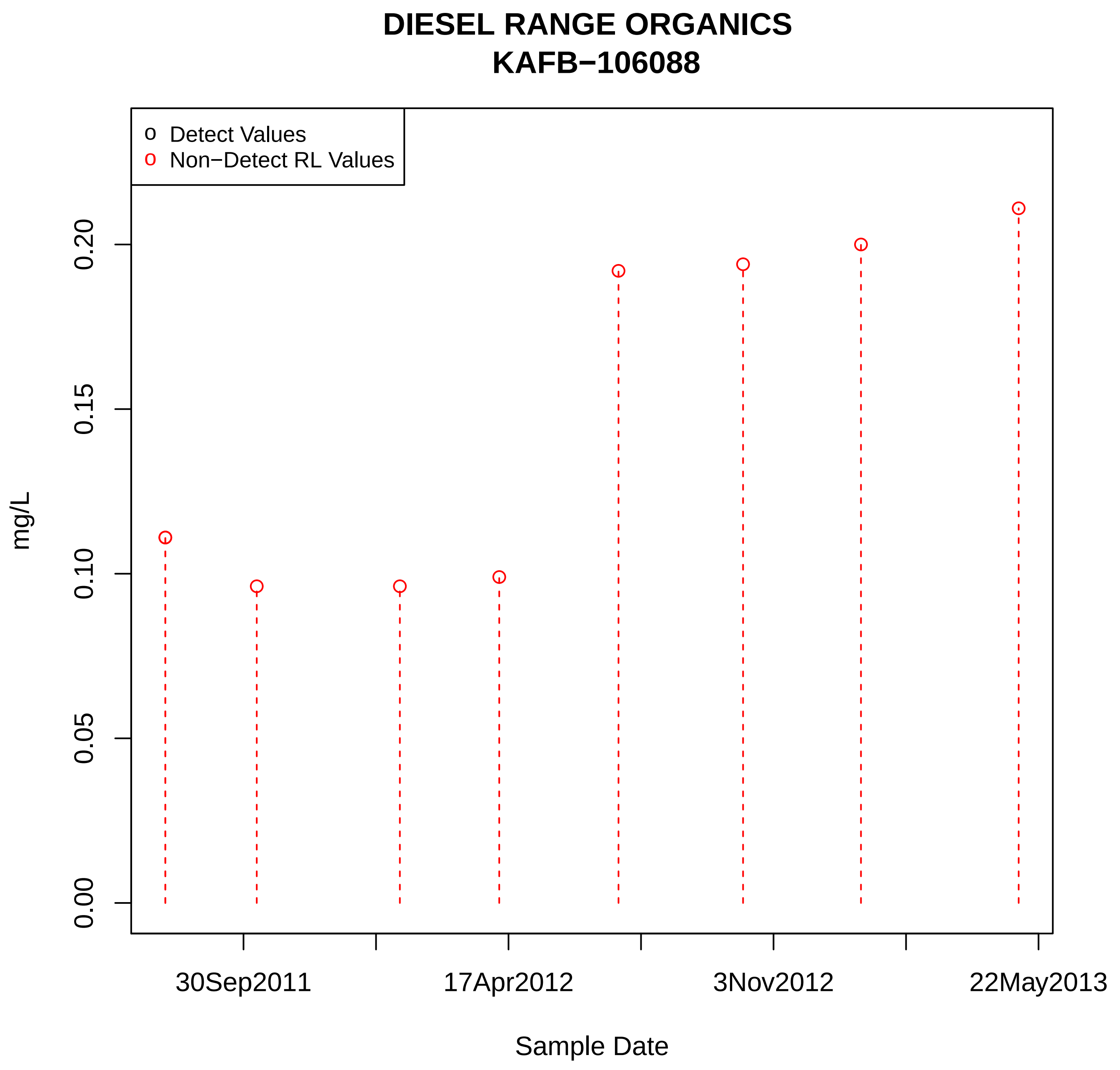
DIESEL RANGE ORGANICS
KAFB−106084
Detect Values
Non−Detect RL Values
mg/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

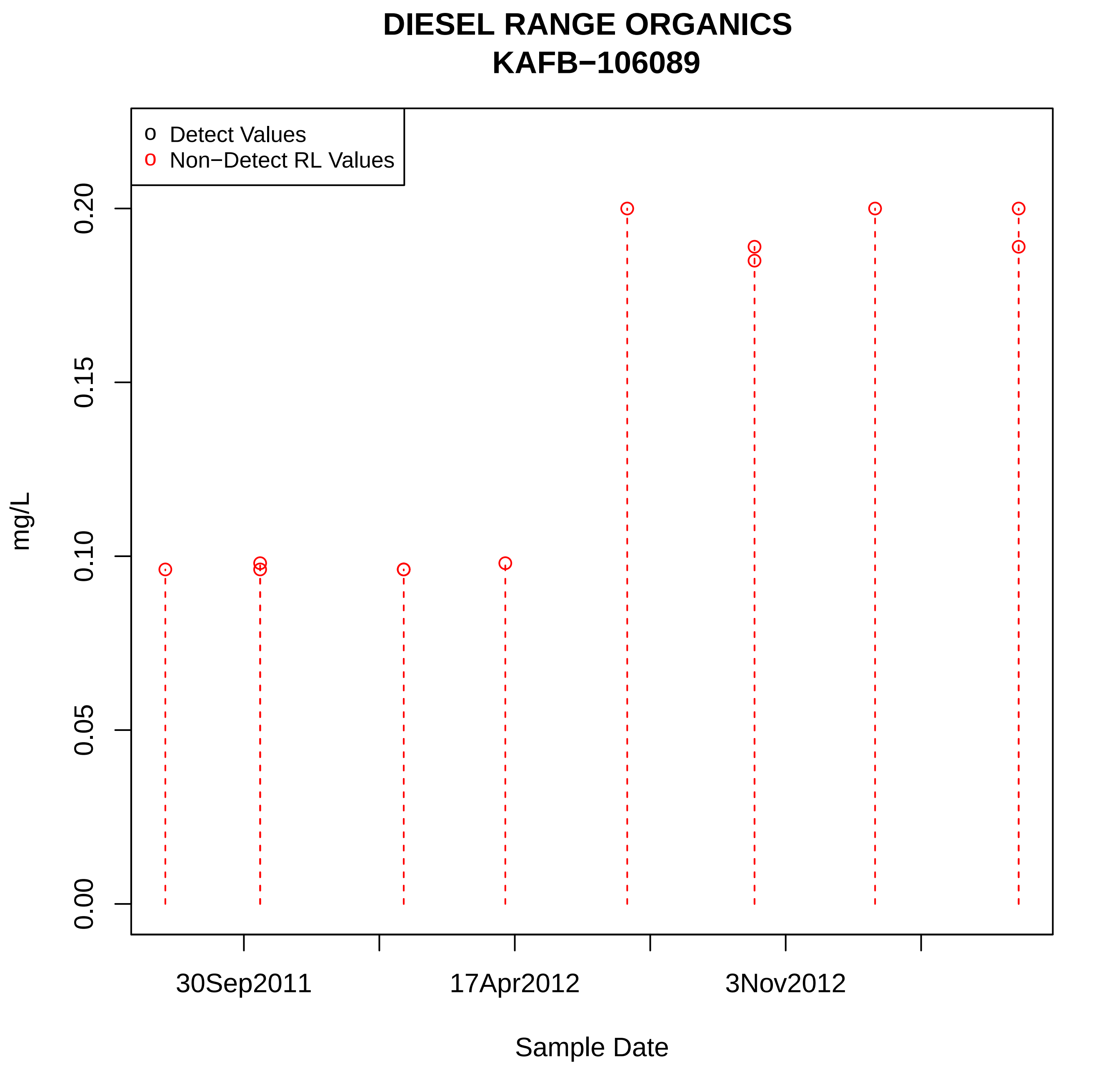


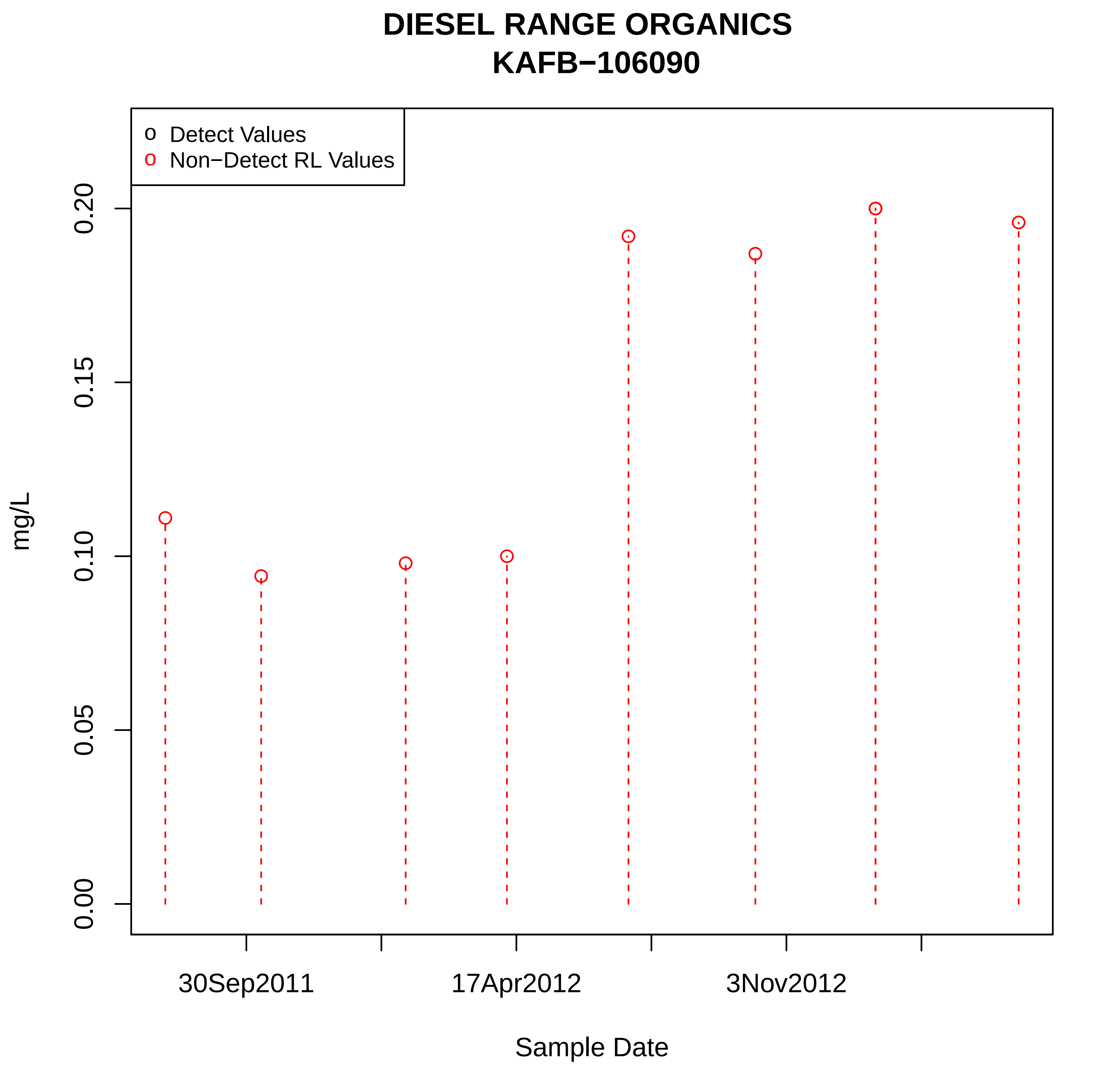
DIESEL RANGE ORGANICS
KAFB−106085
mg/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −4.166E−05
p−value = 1.000

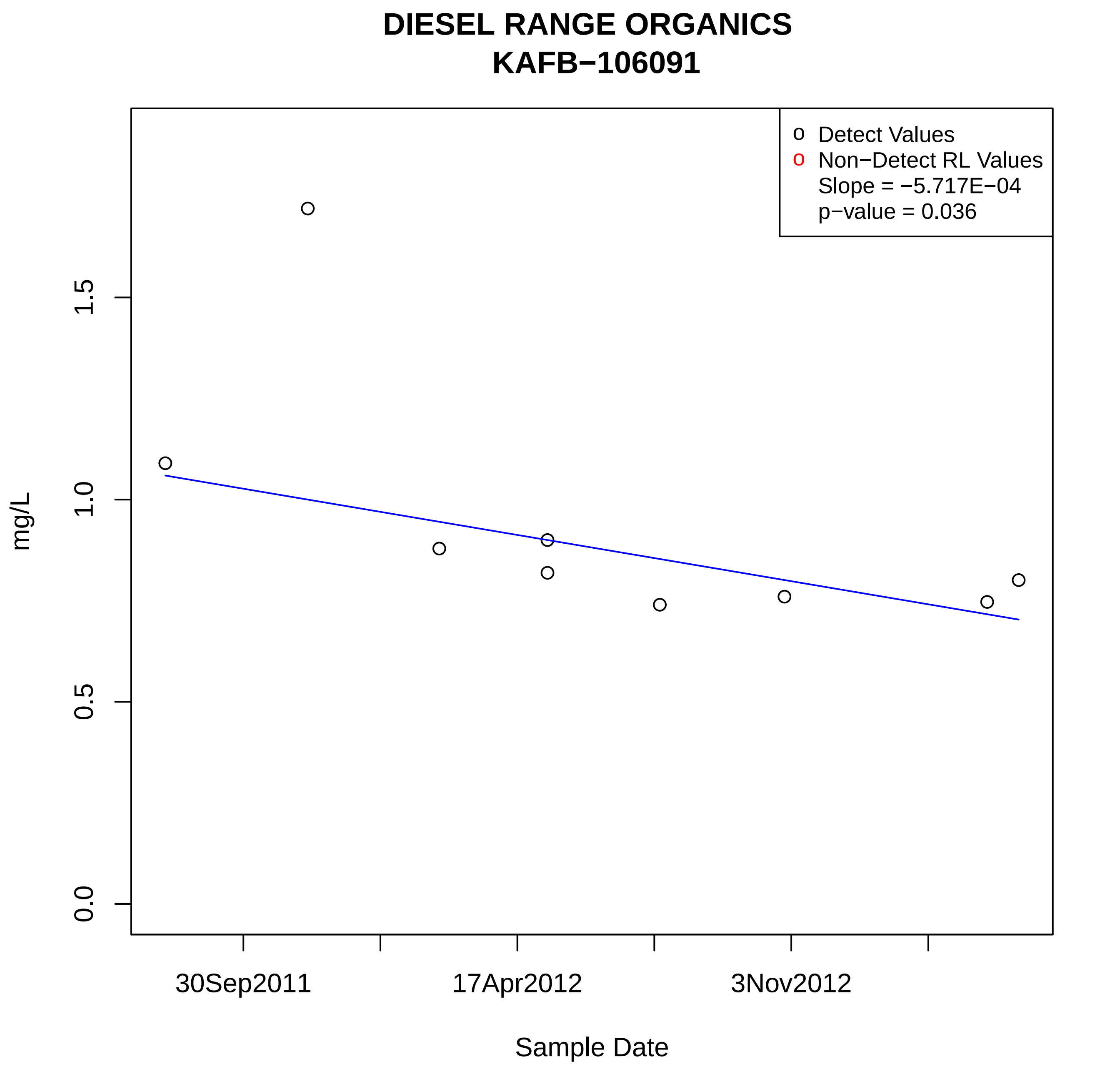

DIESEL RANGE ORGANICS
KAFB−106086
o Detect Values
o Non−Detect RL Values
Slope = 4.250E−04
p−value = 0.386
mg/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

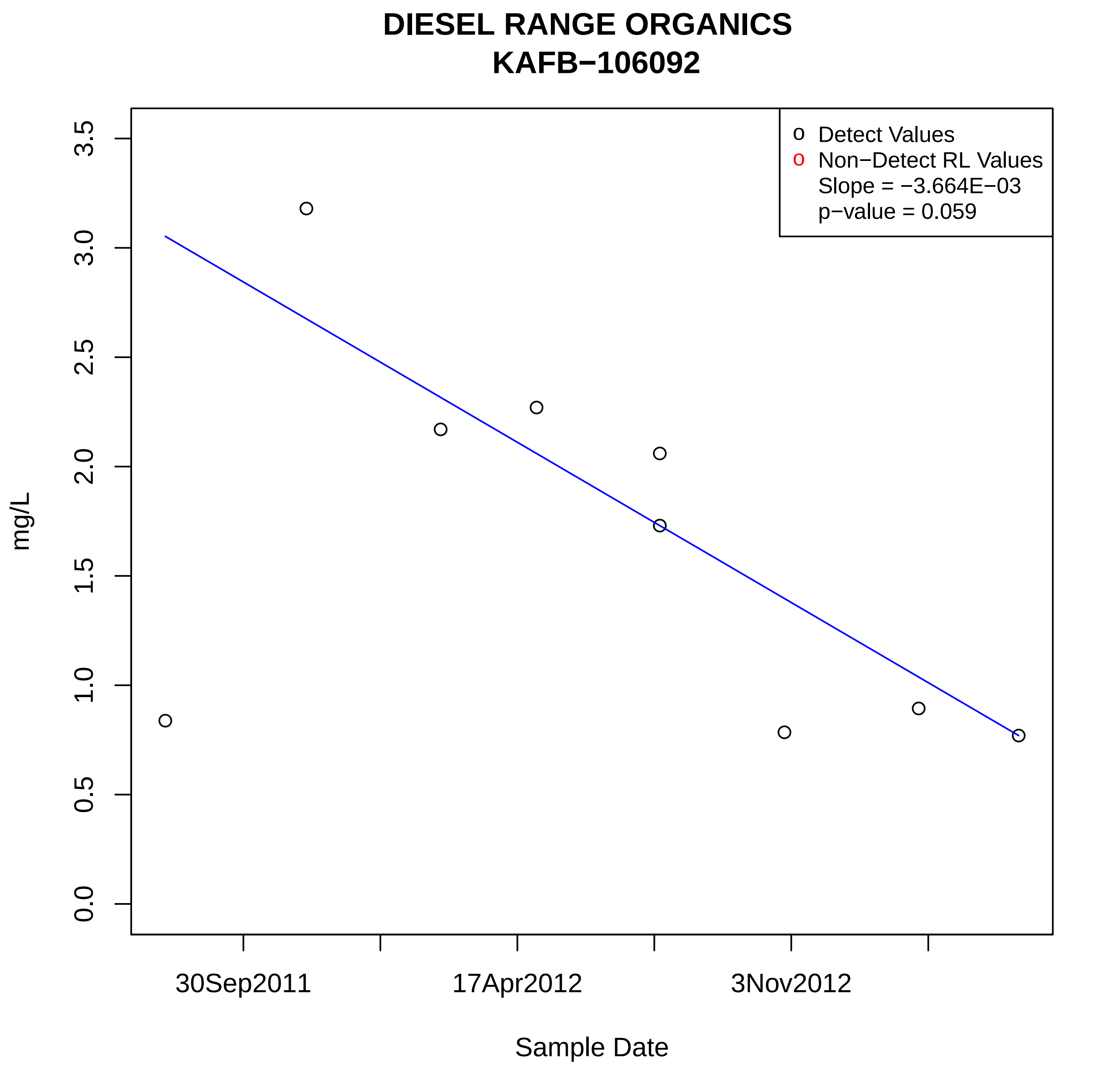

DIESEL RANGE ORGANICS
KAFB−106087
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106088
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

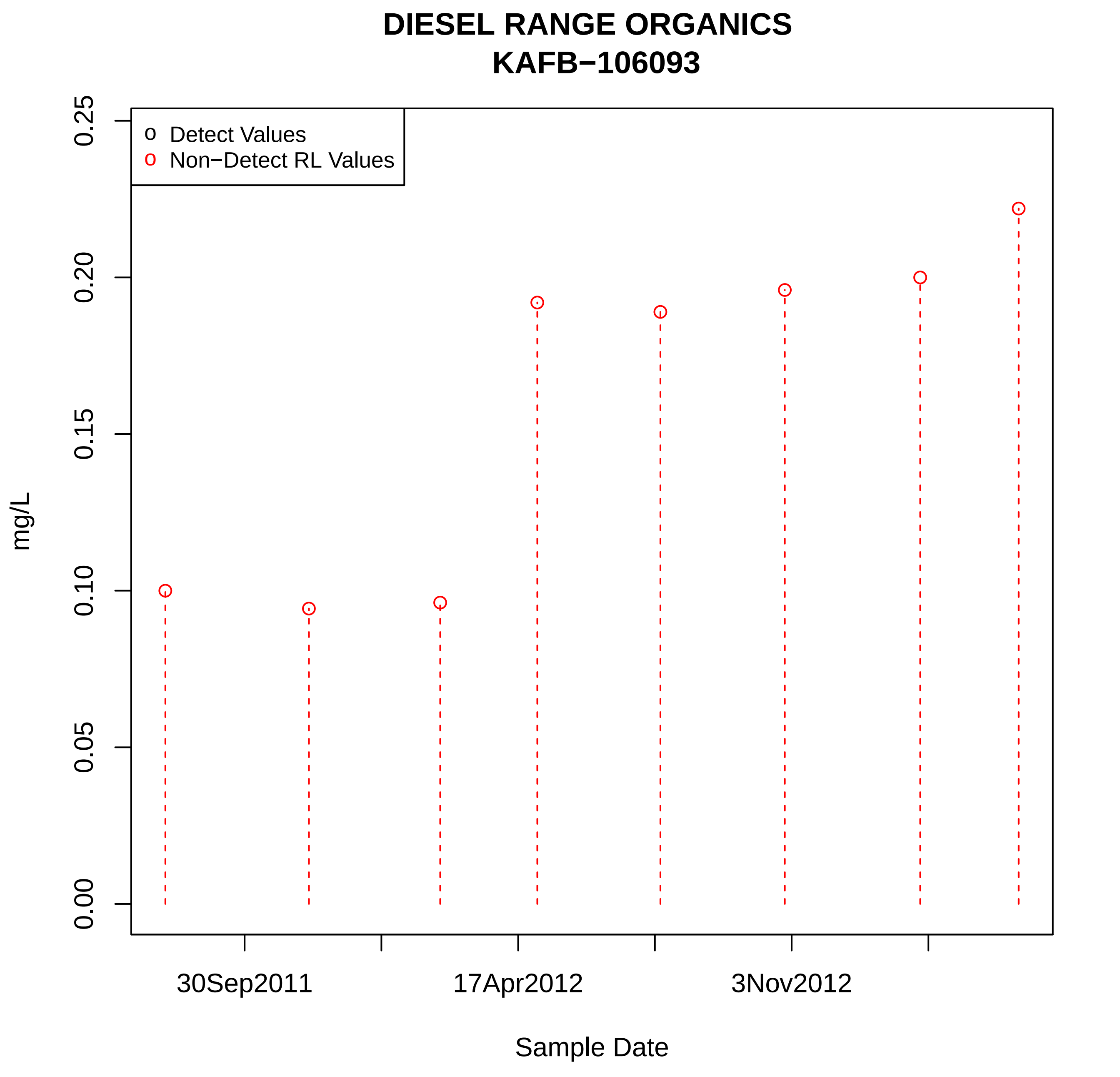

DIESEL RANGE ORGANICS
KAFB−106089
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date


DIESEL RANGE ORGANICS
KAFB−106090
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date

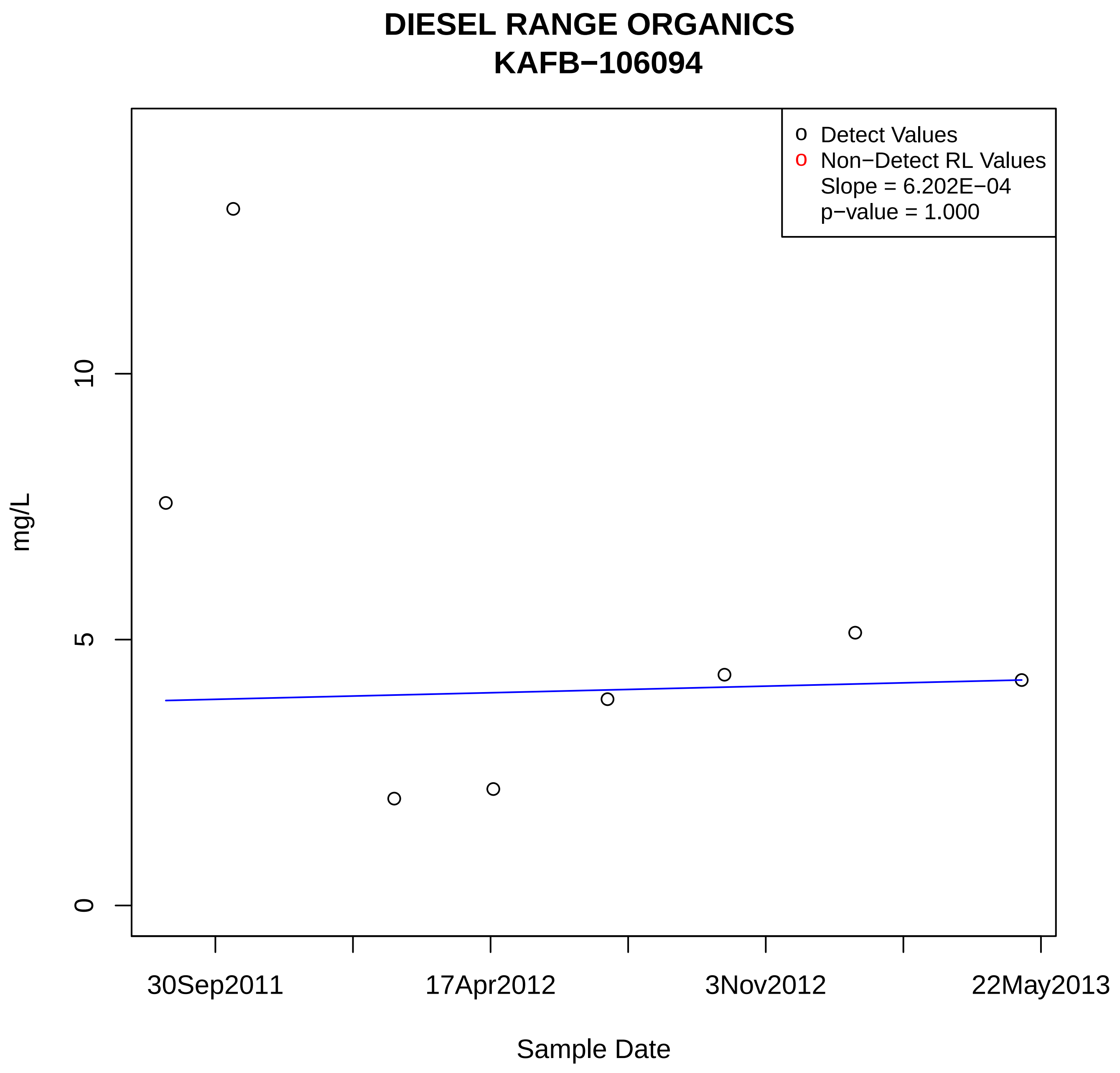

DIESEL RANGE ORGANICS
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = −5.717E−04
p−value = 0.036
mg/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

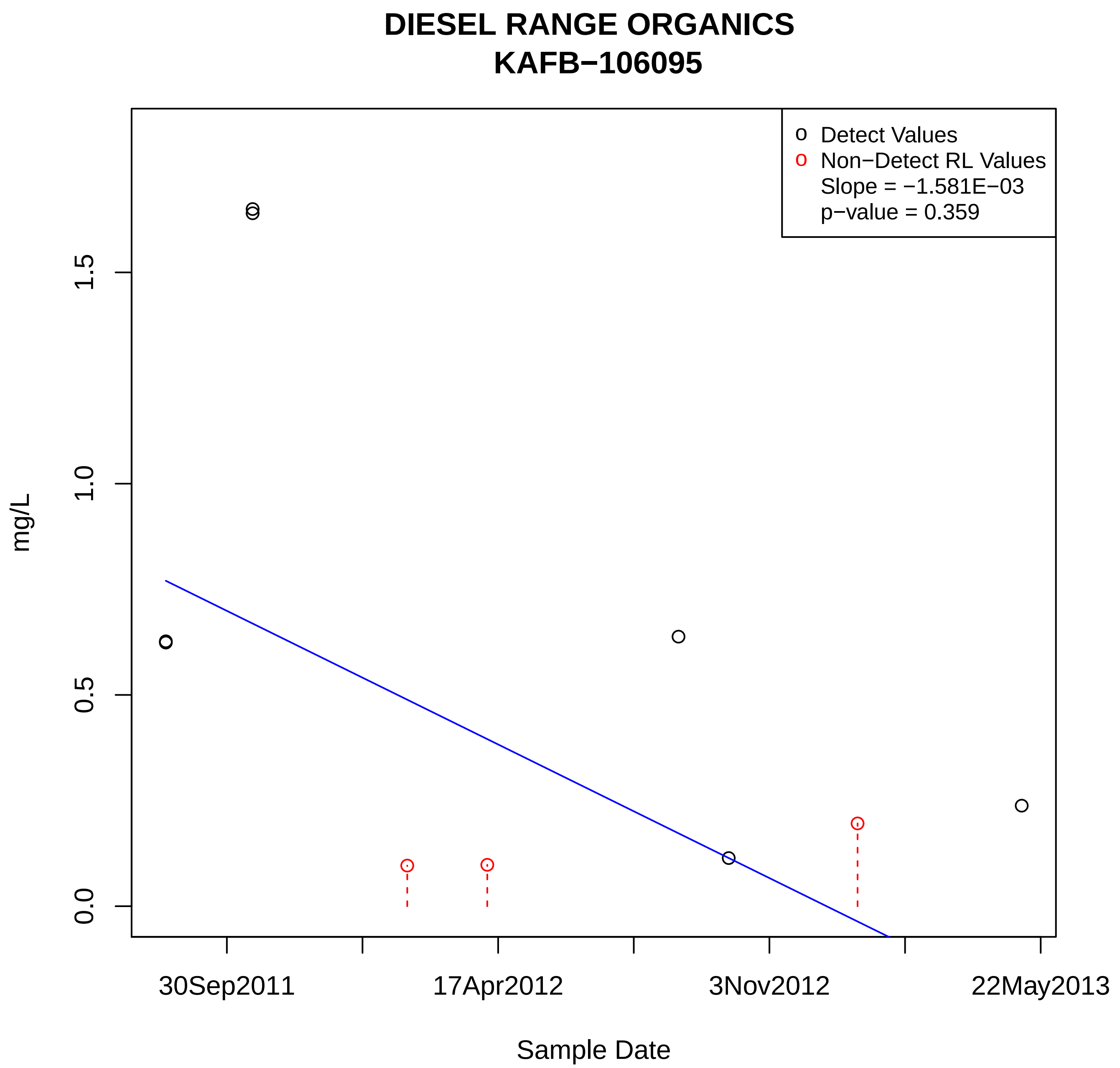


DIESEL RANGE ORGANICS
KAFB−106092
o Detect Values
o Non−Detect RL Values
Slope = −3.664E−03
p−value = 0.059
mg/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

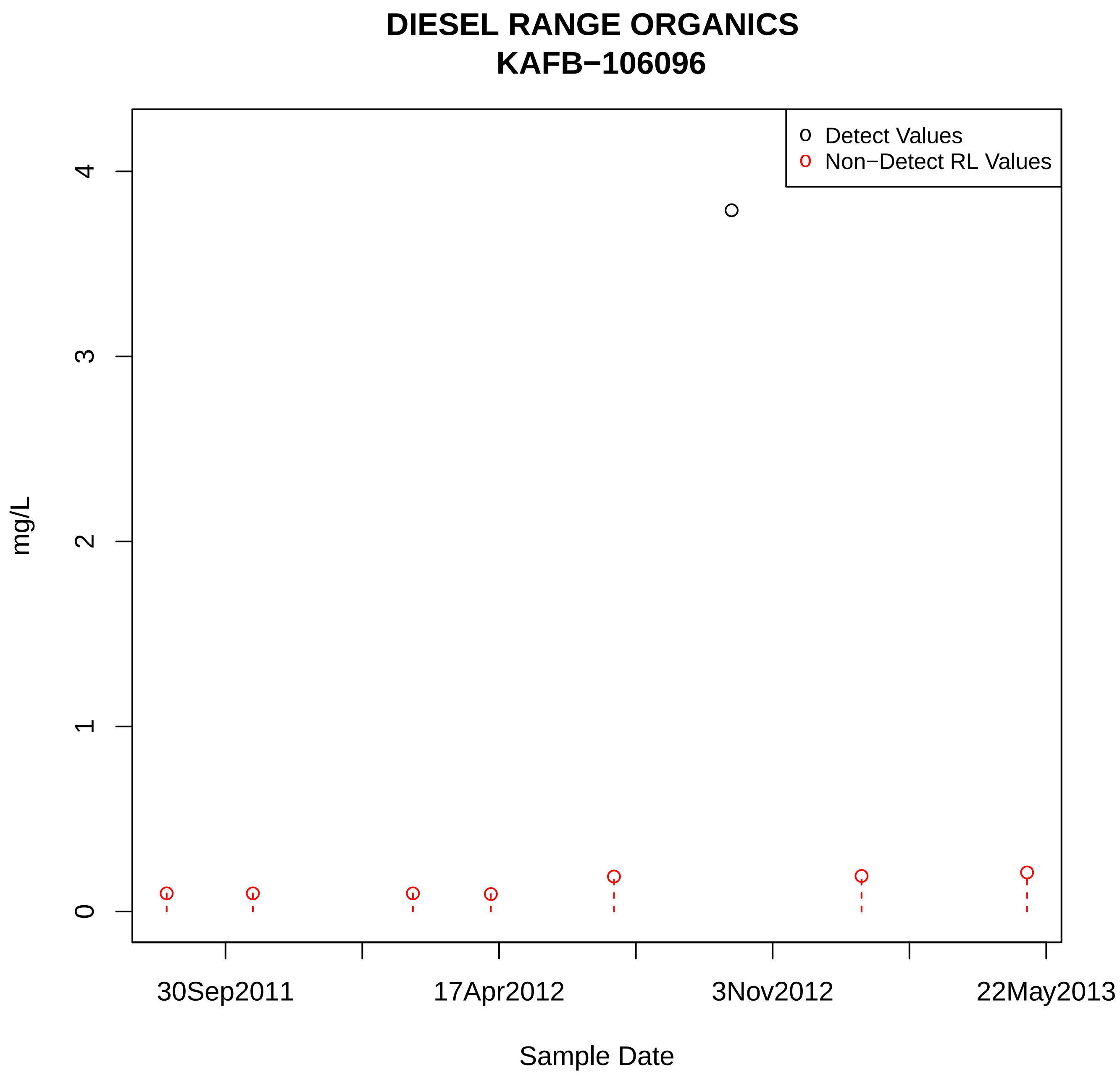


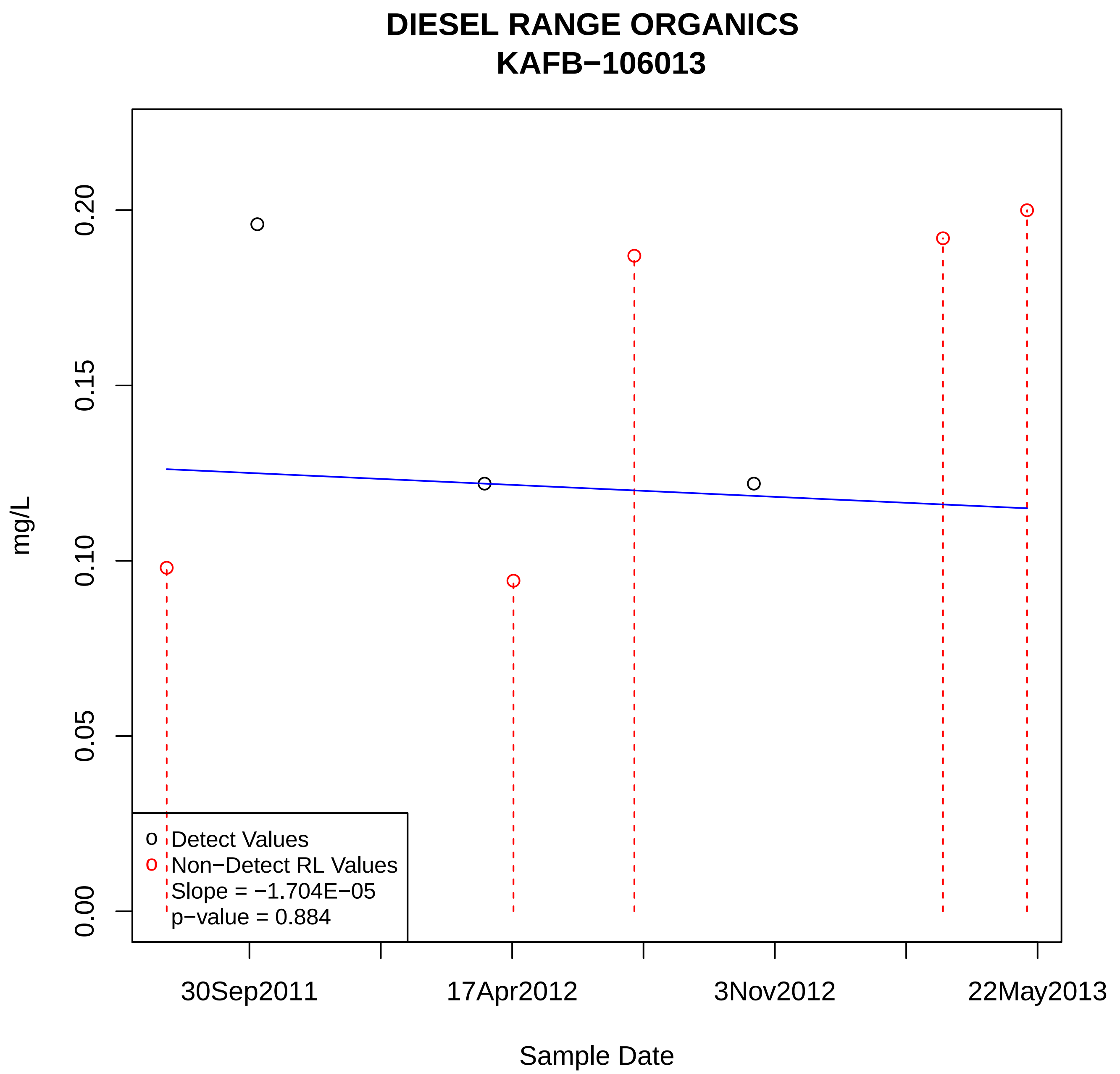
DIESEL RANGE ORGANICS
KAFB−106093
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date


DIESEL RANGE ORGANICS
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = 6.202E−04
p−value = 1.000
mg/L
0
5
10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

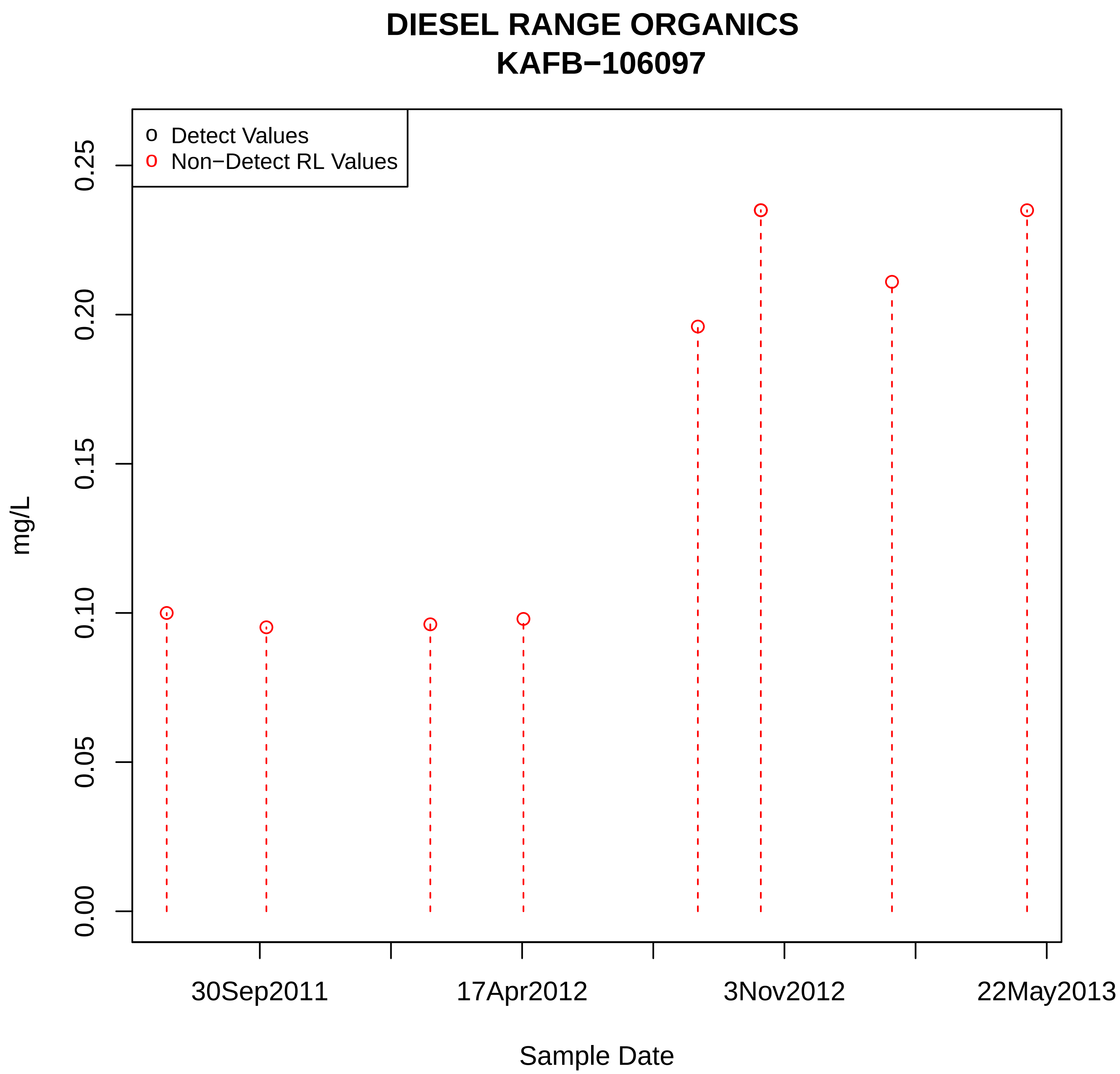


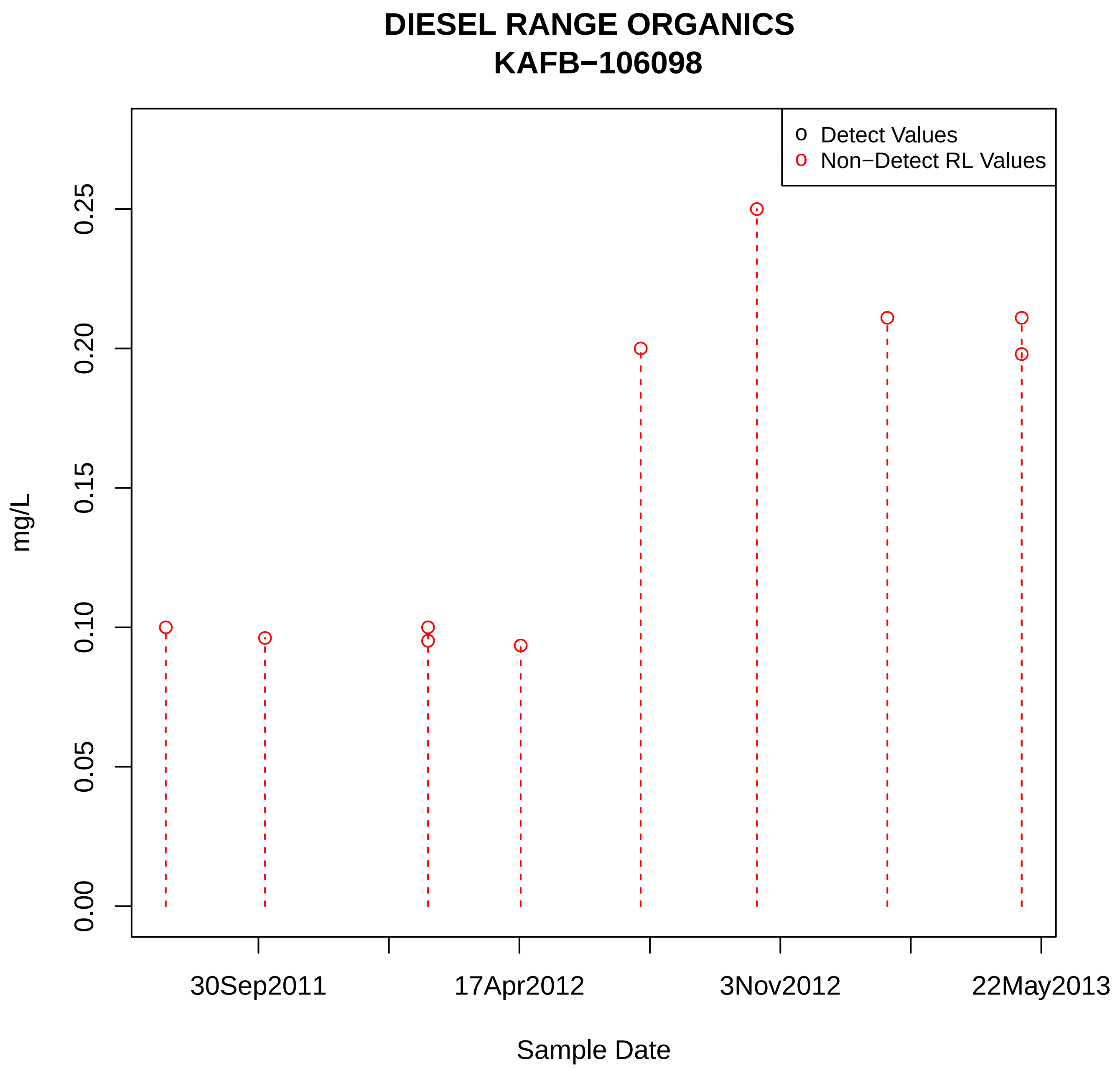
DIESEL RANGE ORGANICS
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −1.581E−03
p−value = 0.359
mg/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106096
Detect Values
Non−Detect RL Values
mg/L
0
1
2
3
4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

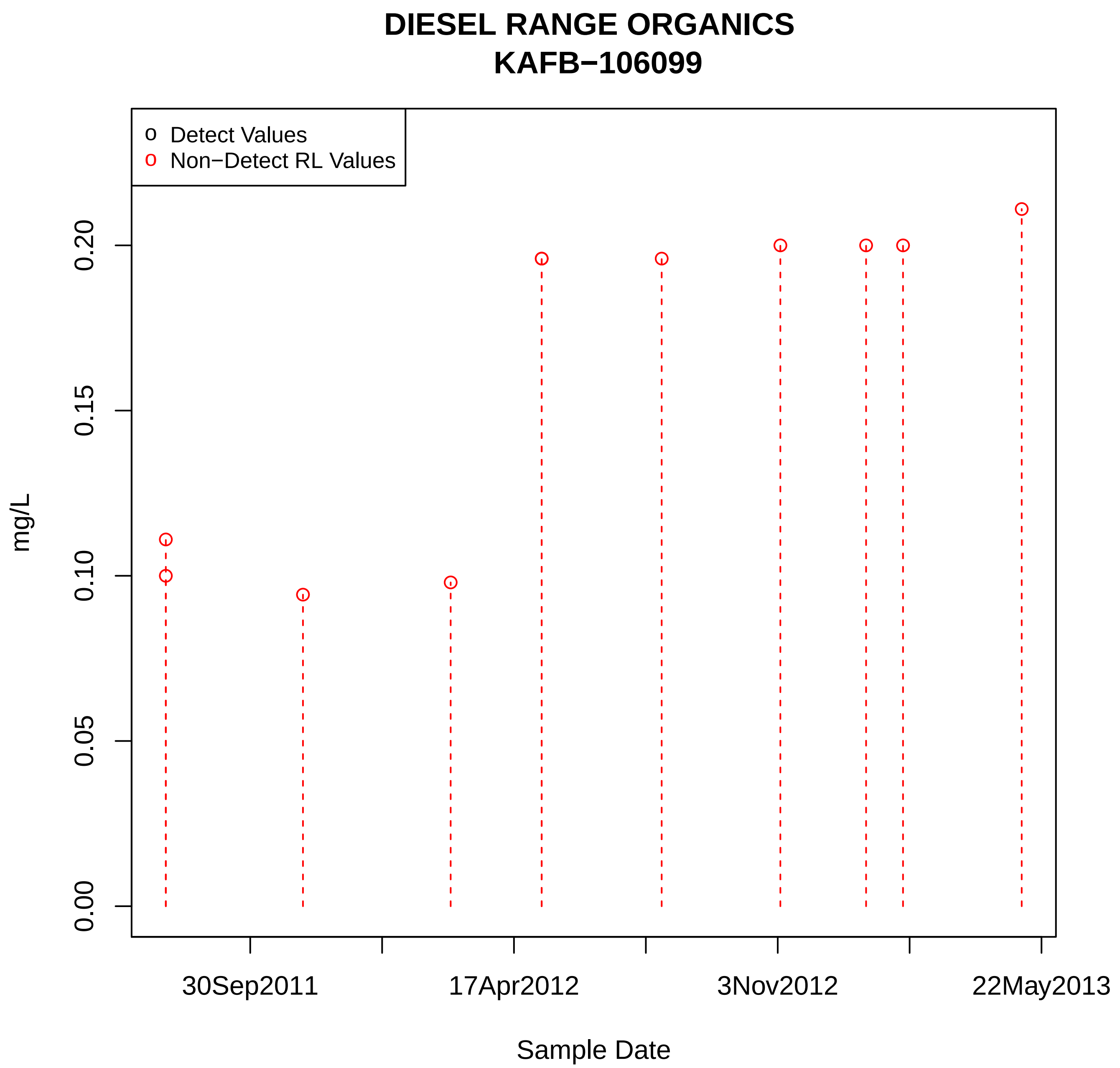


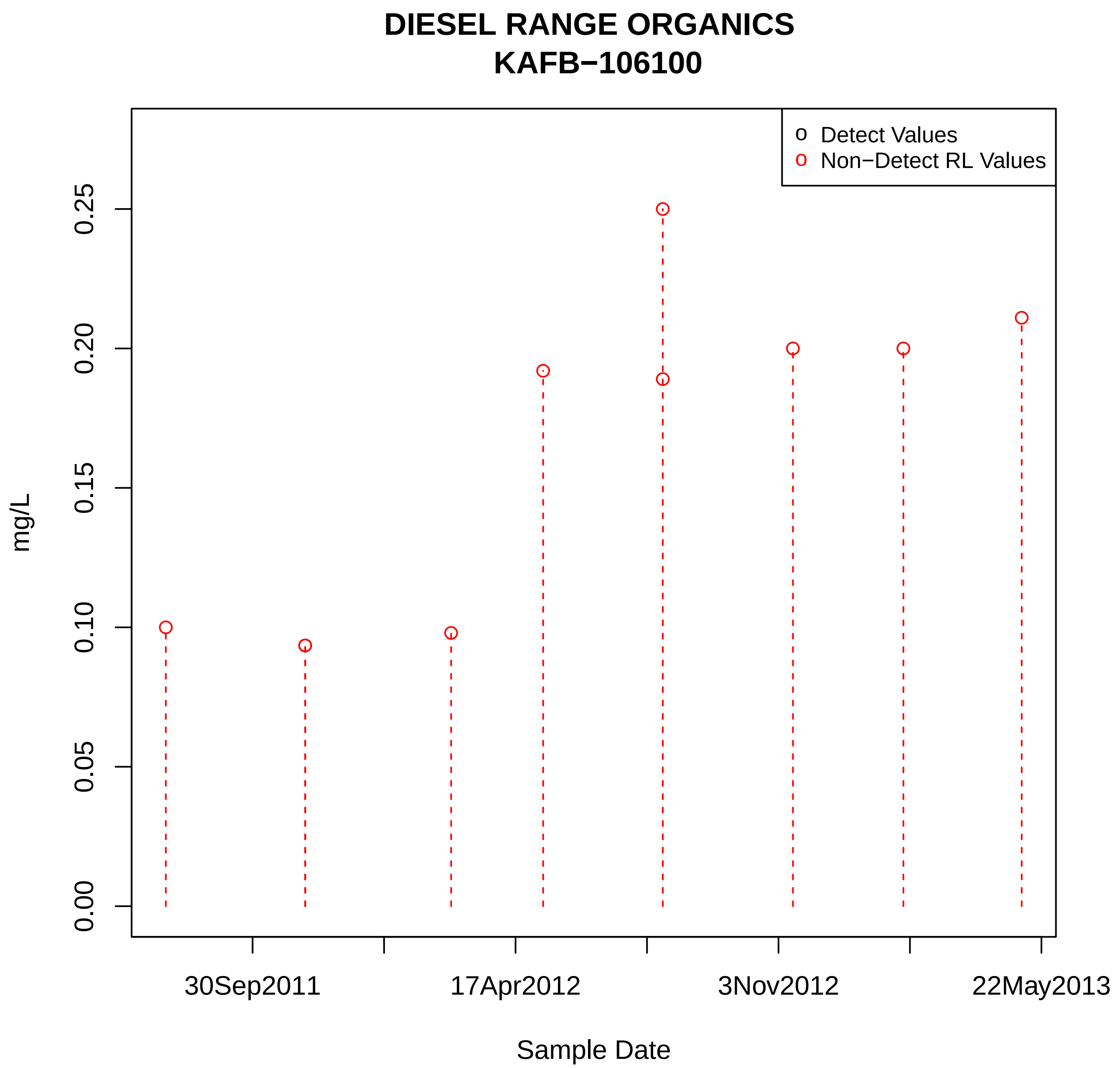
DIESEL RANGE ORGANICS
KAFB−106013
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = −1.704E−05
p−value = 0.884

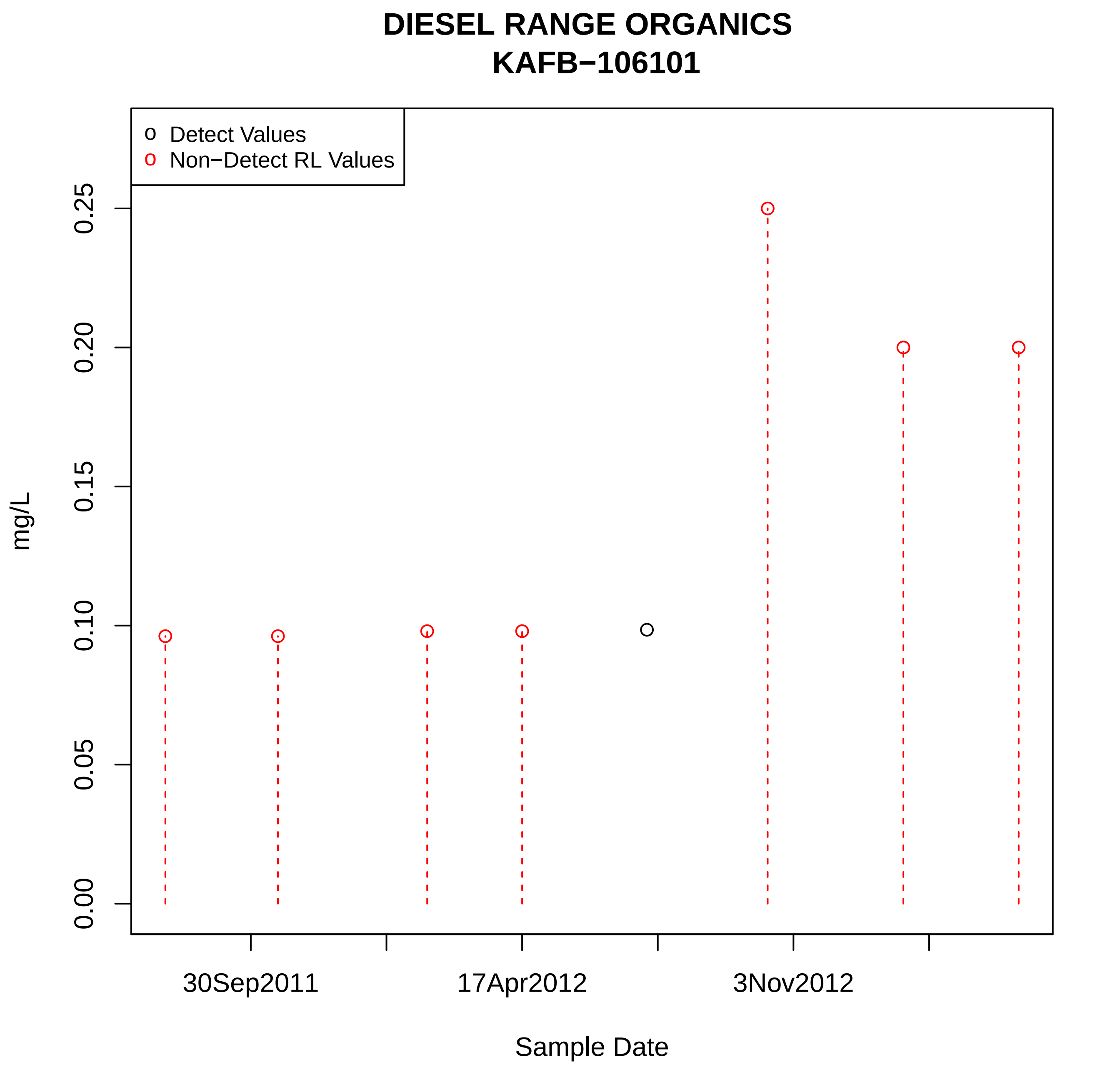

DIESEL RANGE ORGANICS
KAFB−106097
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



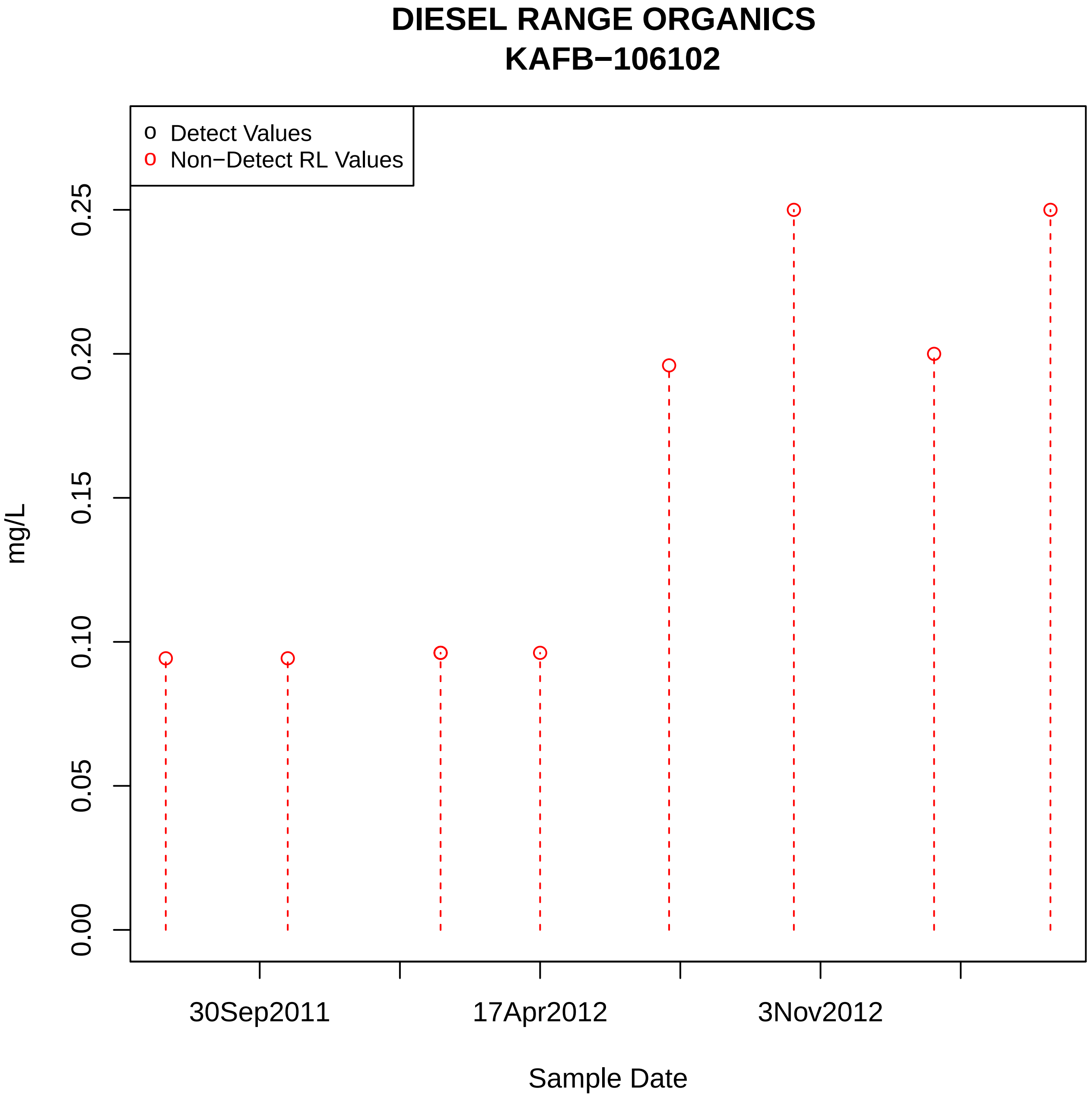
DIESEL RANGE ORGANICS
KAFB−106098
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

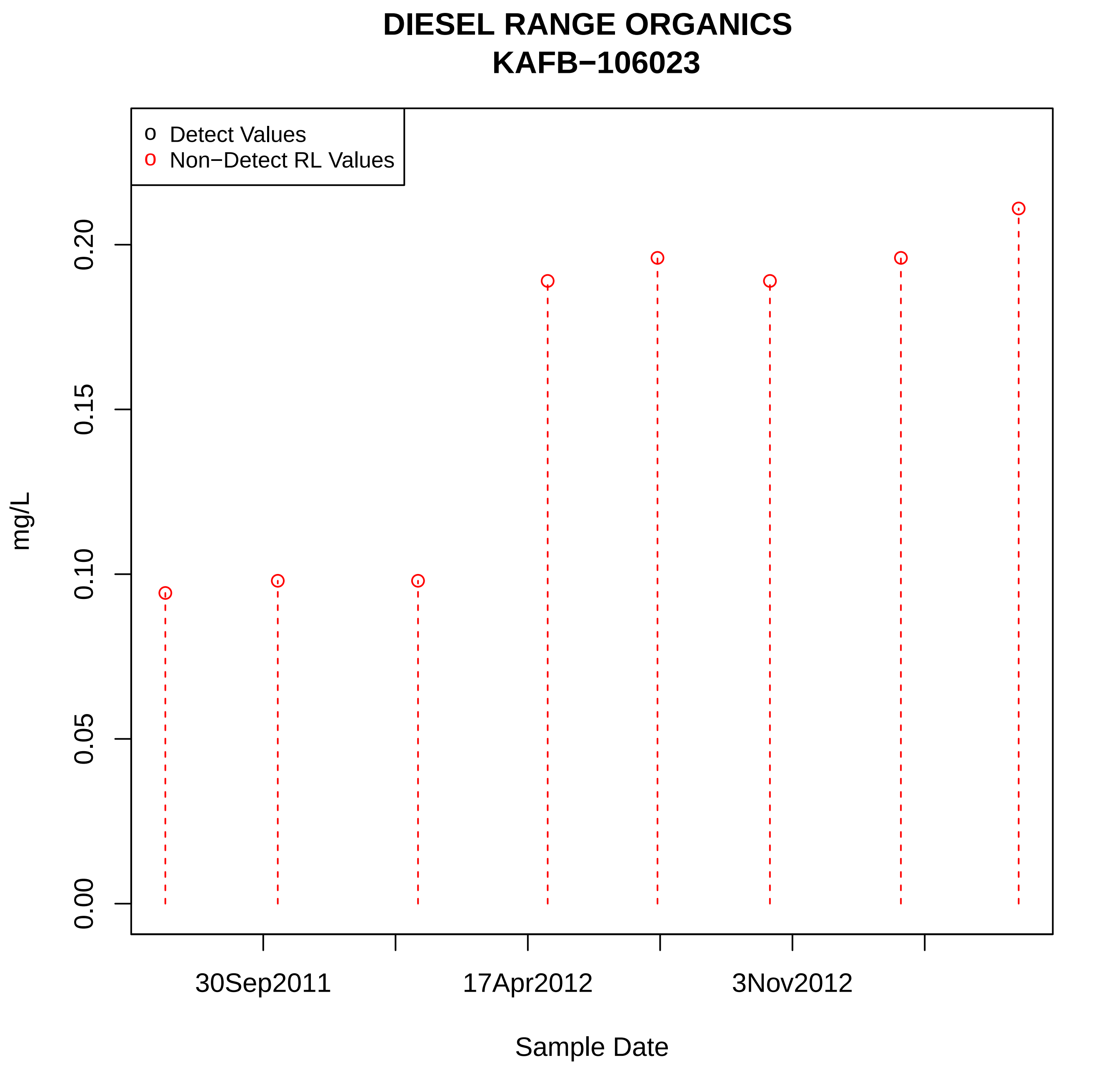

DIESEL RANGE ORGANICS
KAFB−106099
Detect Values
Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


DIESEL RANGE ORGANICS
KAFB−106100
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

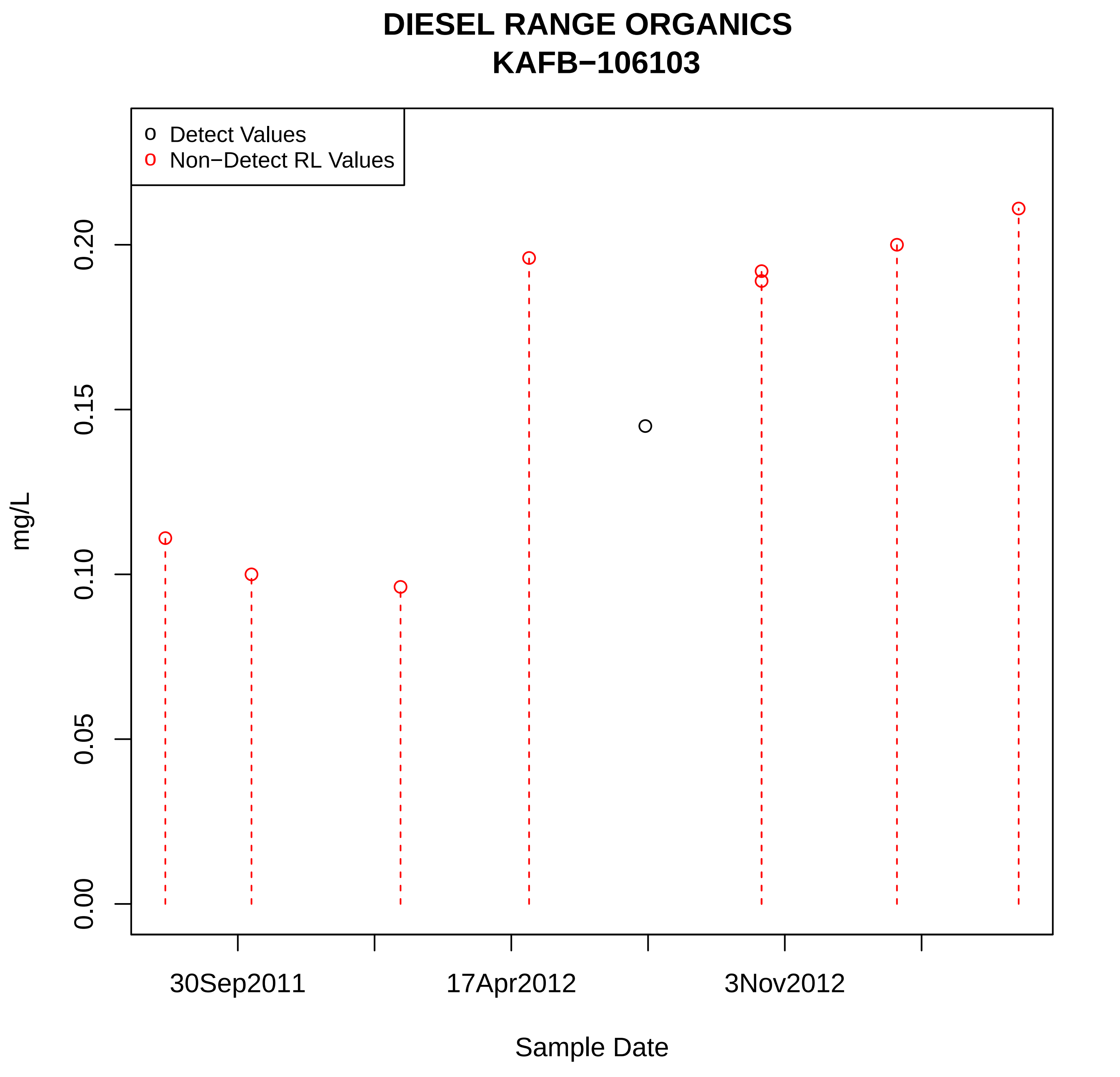


DIESEL RANGE ORGANICS
KAFB−106101
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

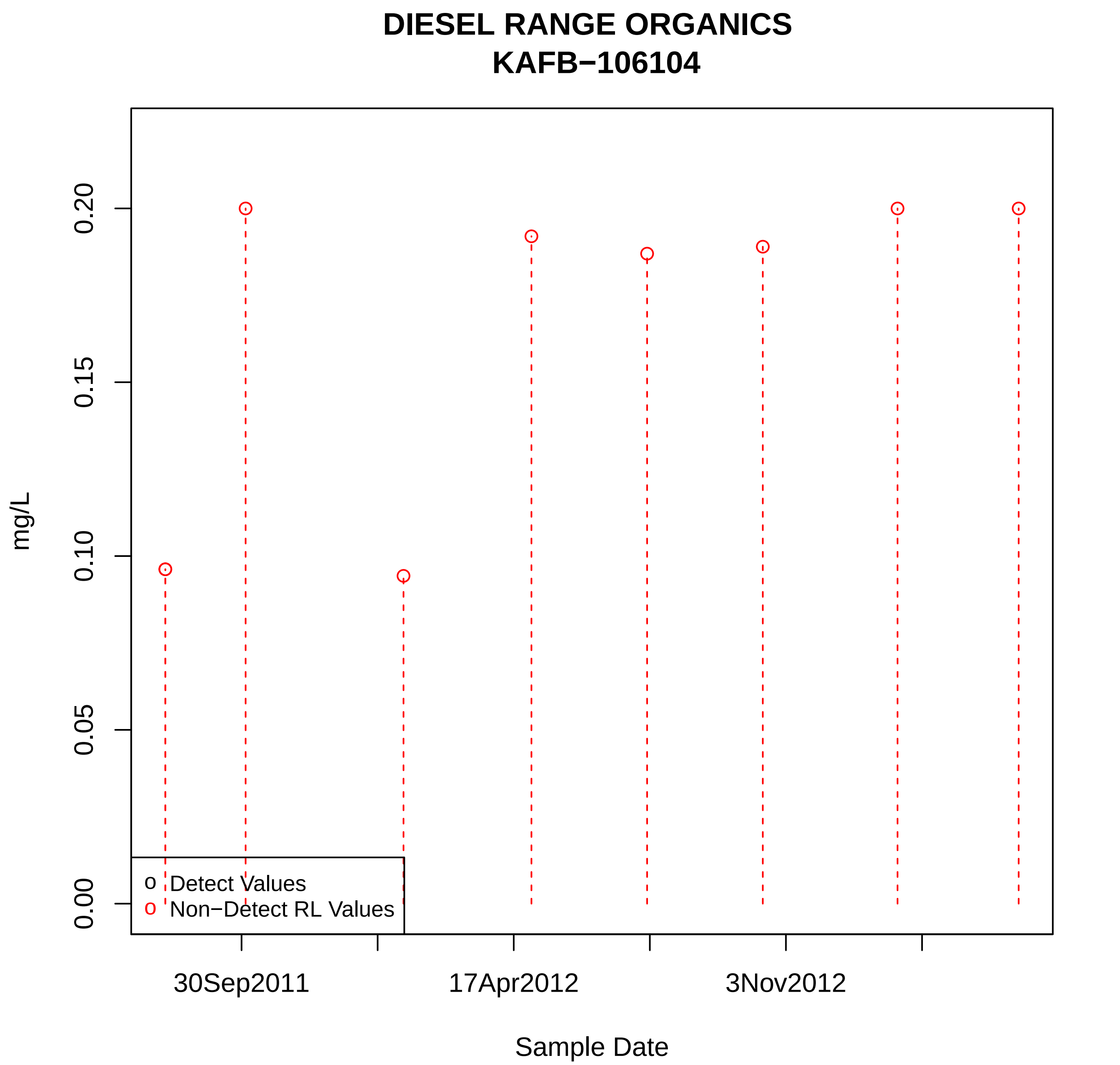

DIESEL RANGE ORGANICS
KAFB−106102
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

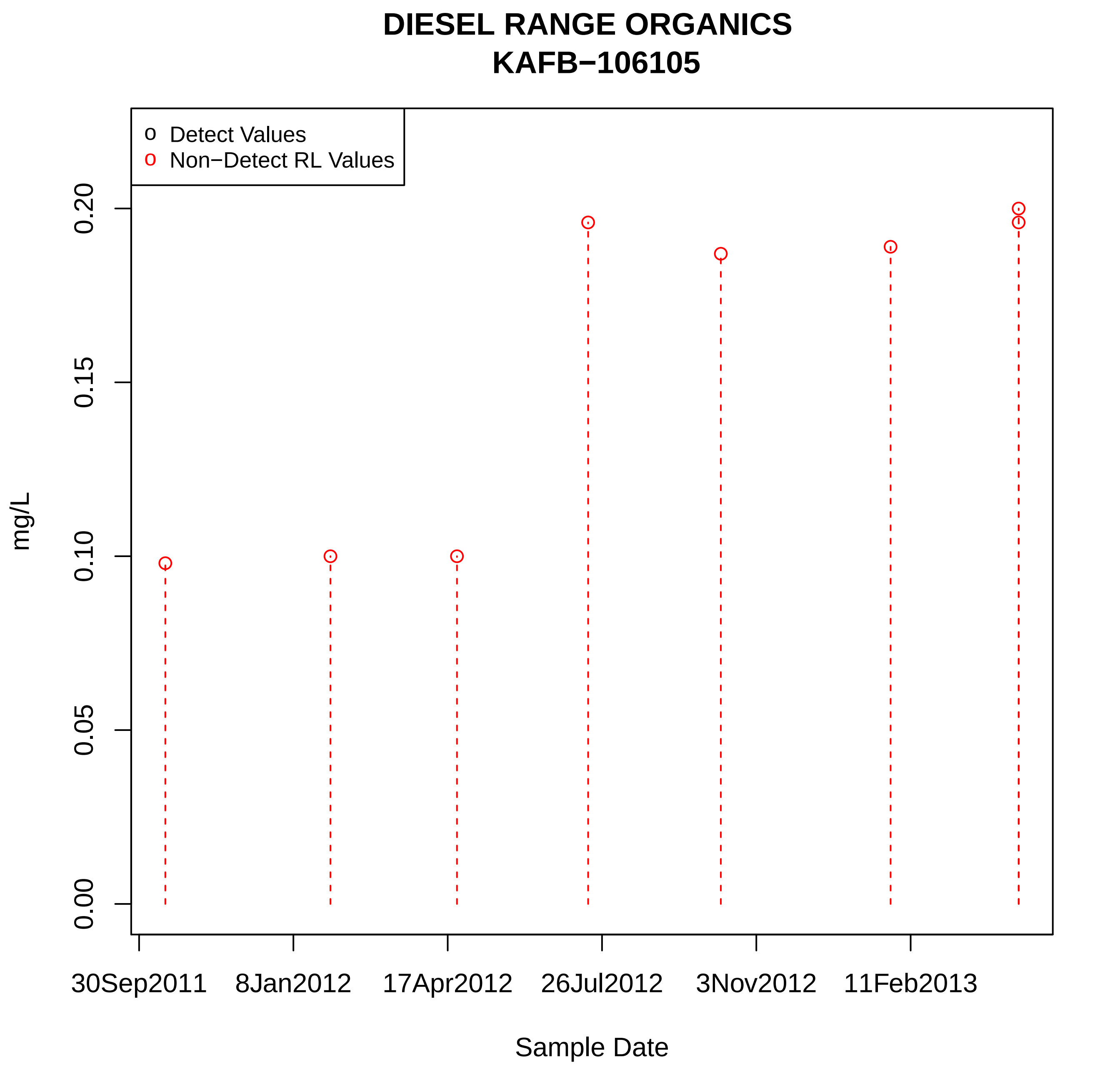


DIESEL RANGE ORGANICS
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

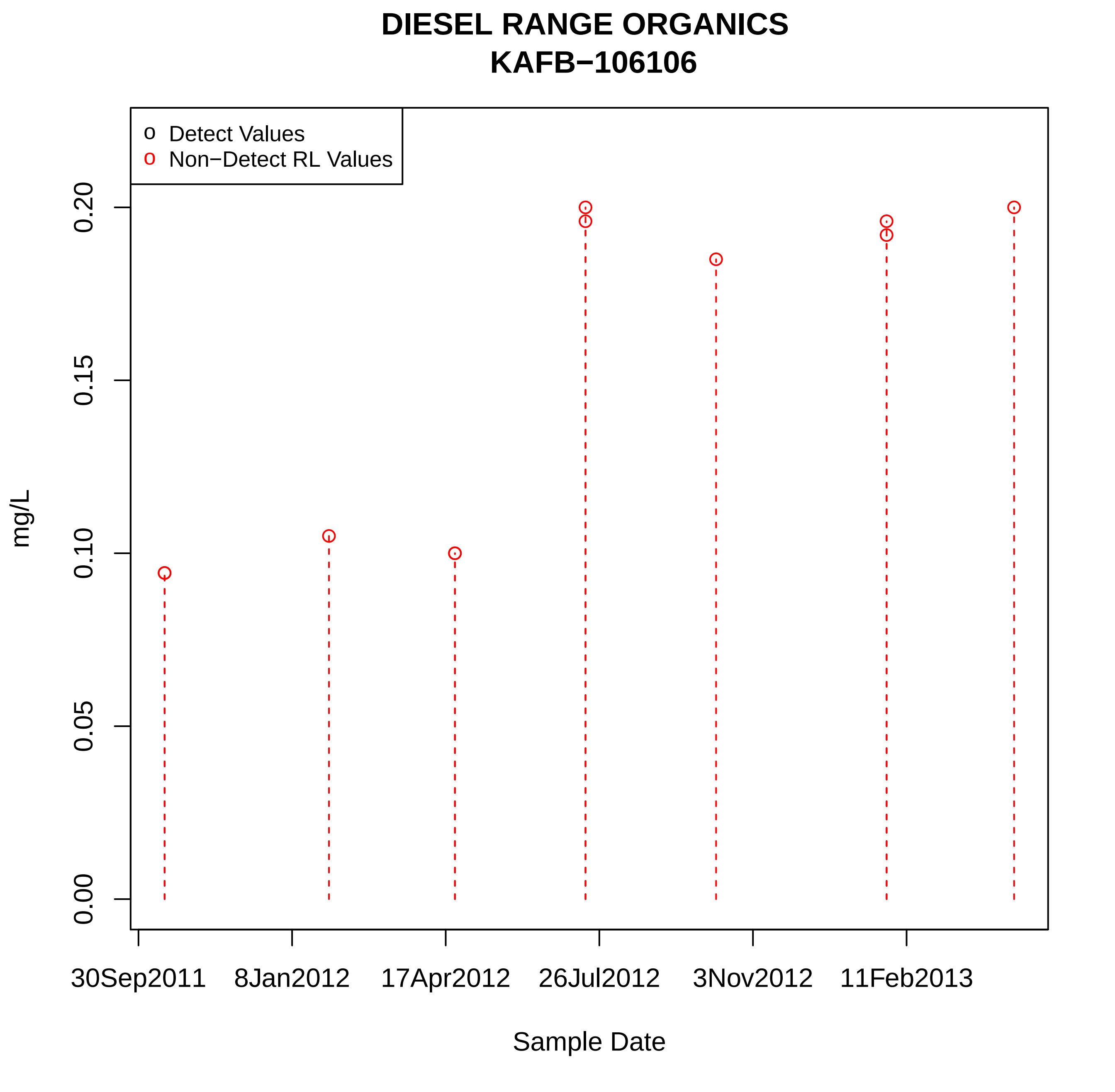


DIESEL RANGE ORGANICS
KAFB−106103
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
Sample Date

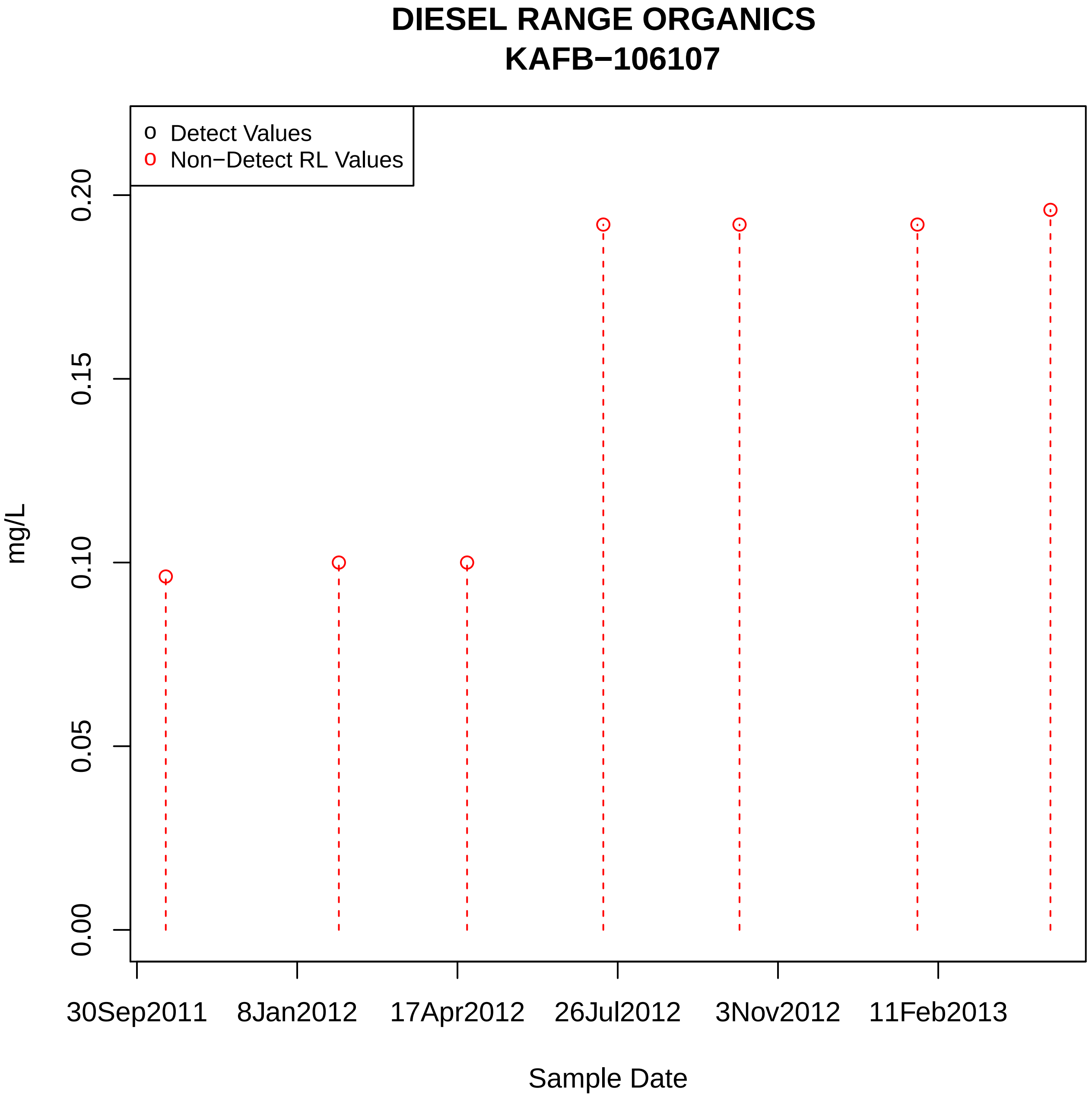

DIESEL RANGE ORGANICS
KAFB−106104
mg/L
0.00
0.05
0.10
0.15
0.20
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date



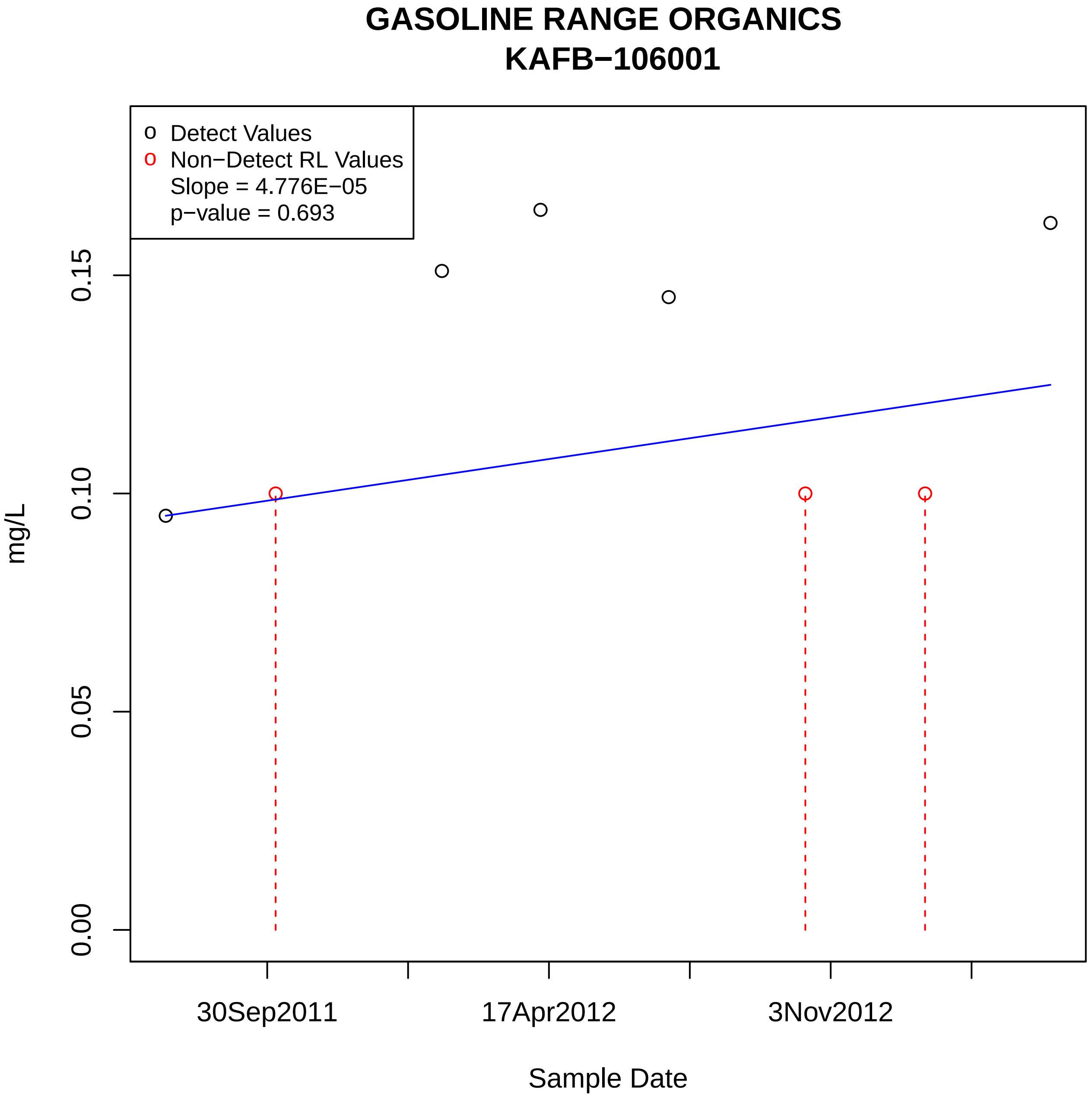
DIESEL RANGE ORGANICS
KAFB−106105
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

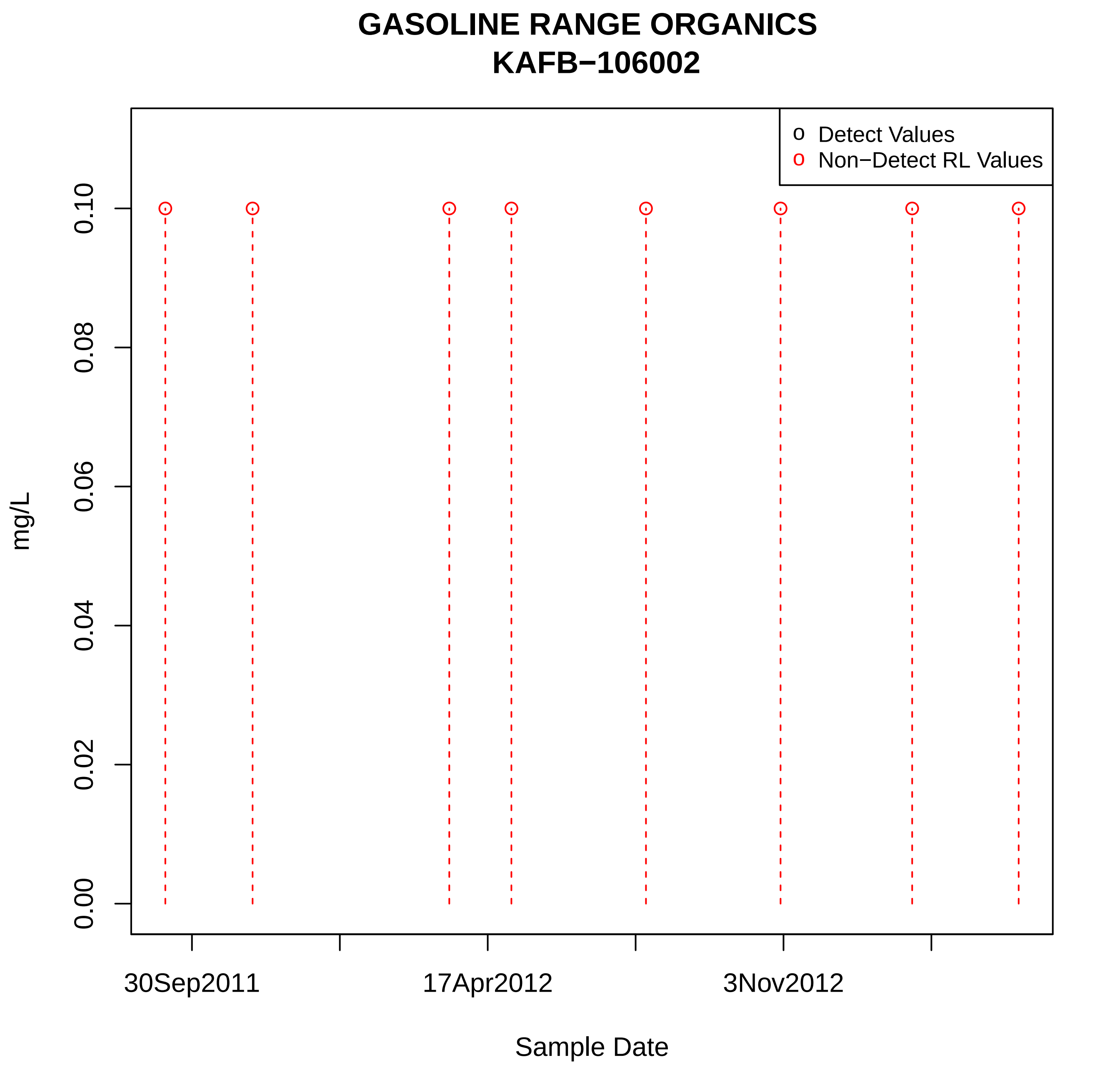


DIESEL RANGE ORGANICS
KAFB−106106
Detect Values
Non−Detect RL Values
0.00
0.05
0.10
0.15
0.20
mg/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

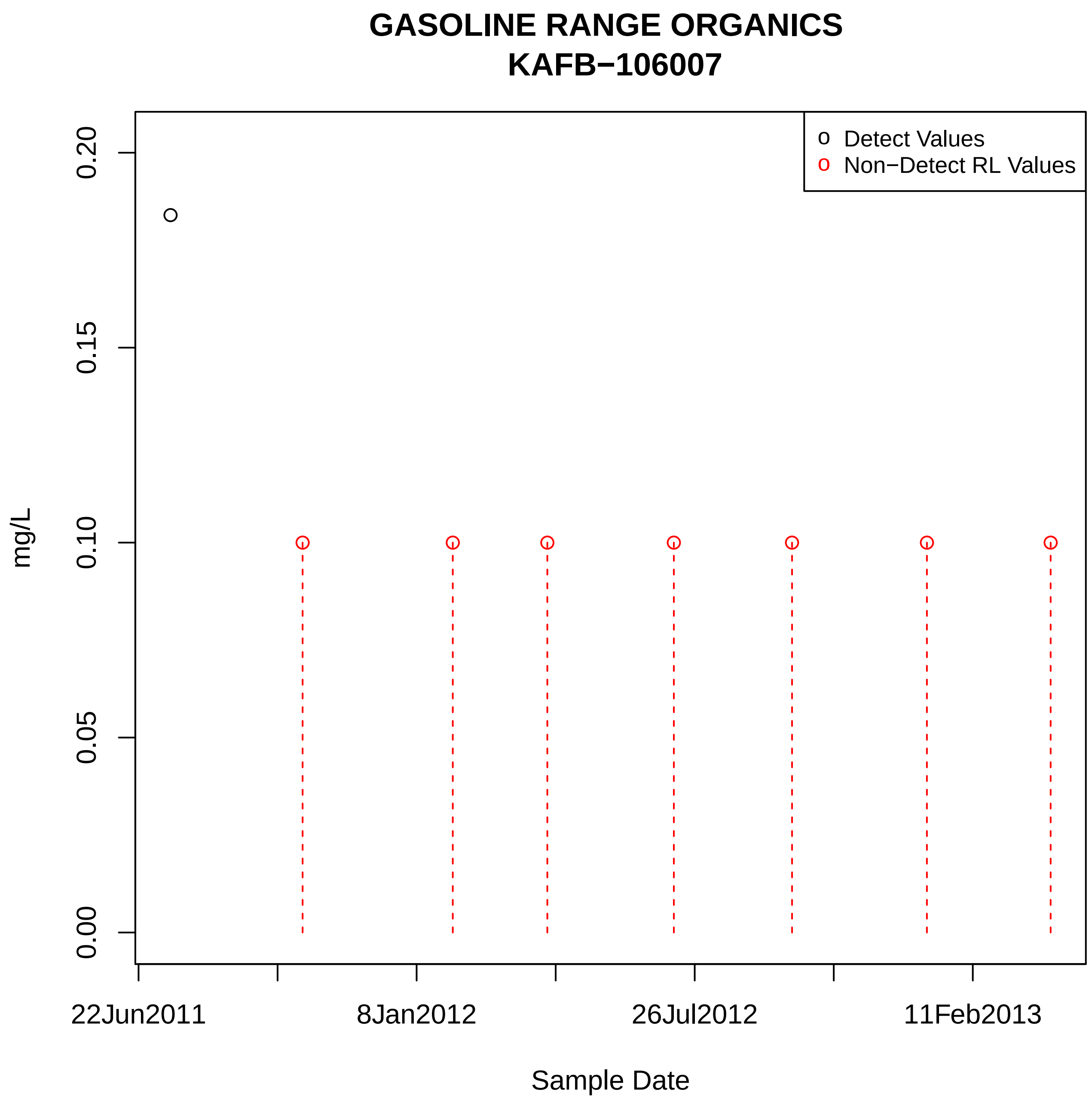


DIESEL RANGE ORGANICS
KAFB−106107
Detect Values
Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

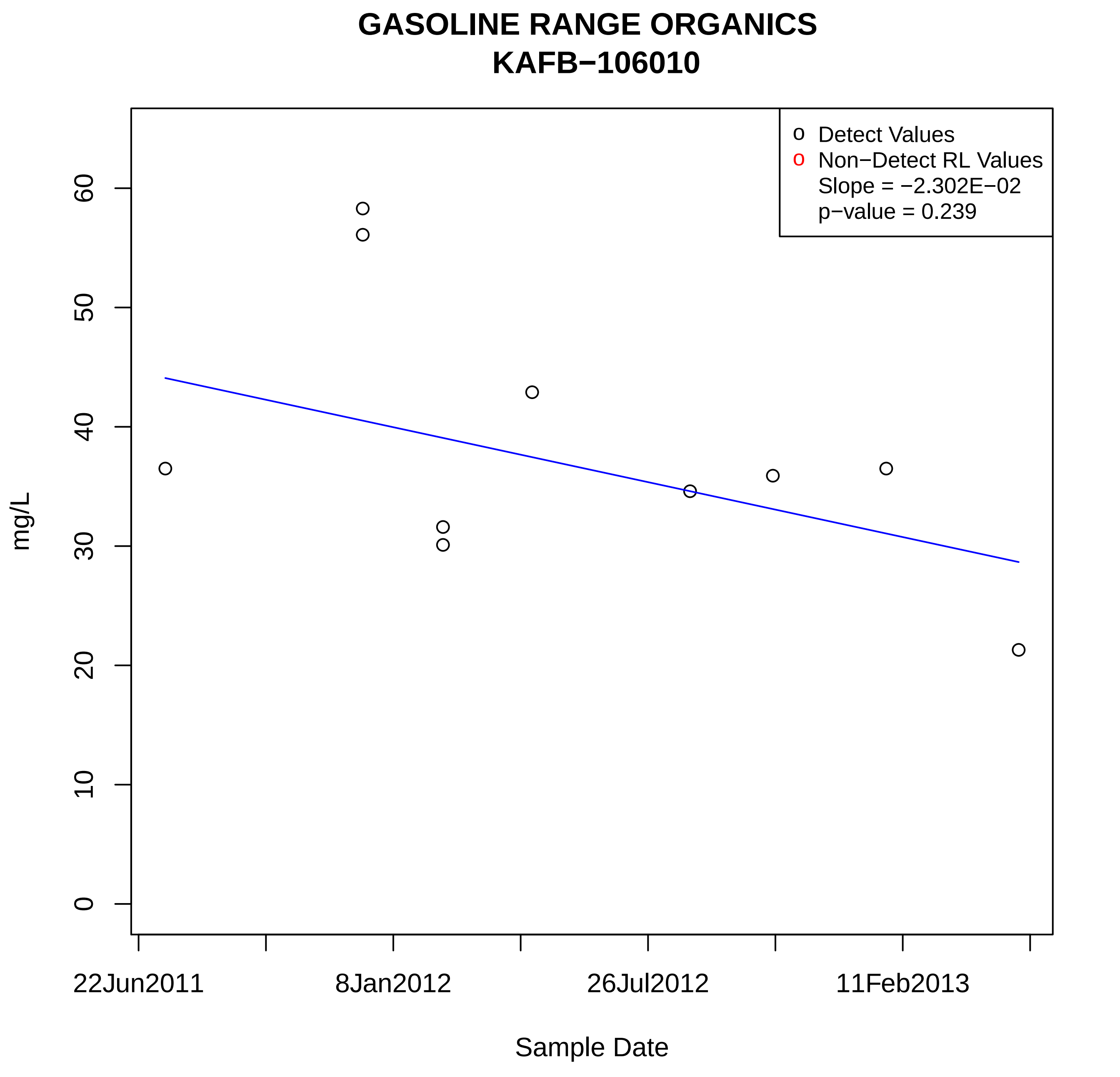

GASOLINE RANGE ORGANICS
KAFB−106001
o Detect Values
o Non−Detect RL Values
Slope = 4.776E−05
p−value = 0.693
mg/L
0.00
0.05
0.10
0.15
30Sep2011
17Apr2012
3Nov2012
Sample Date

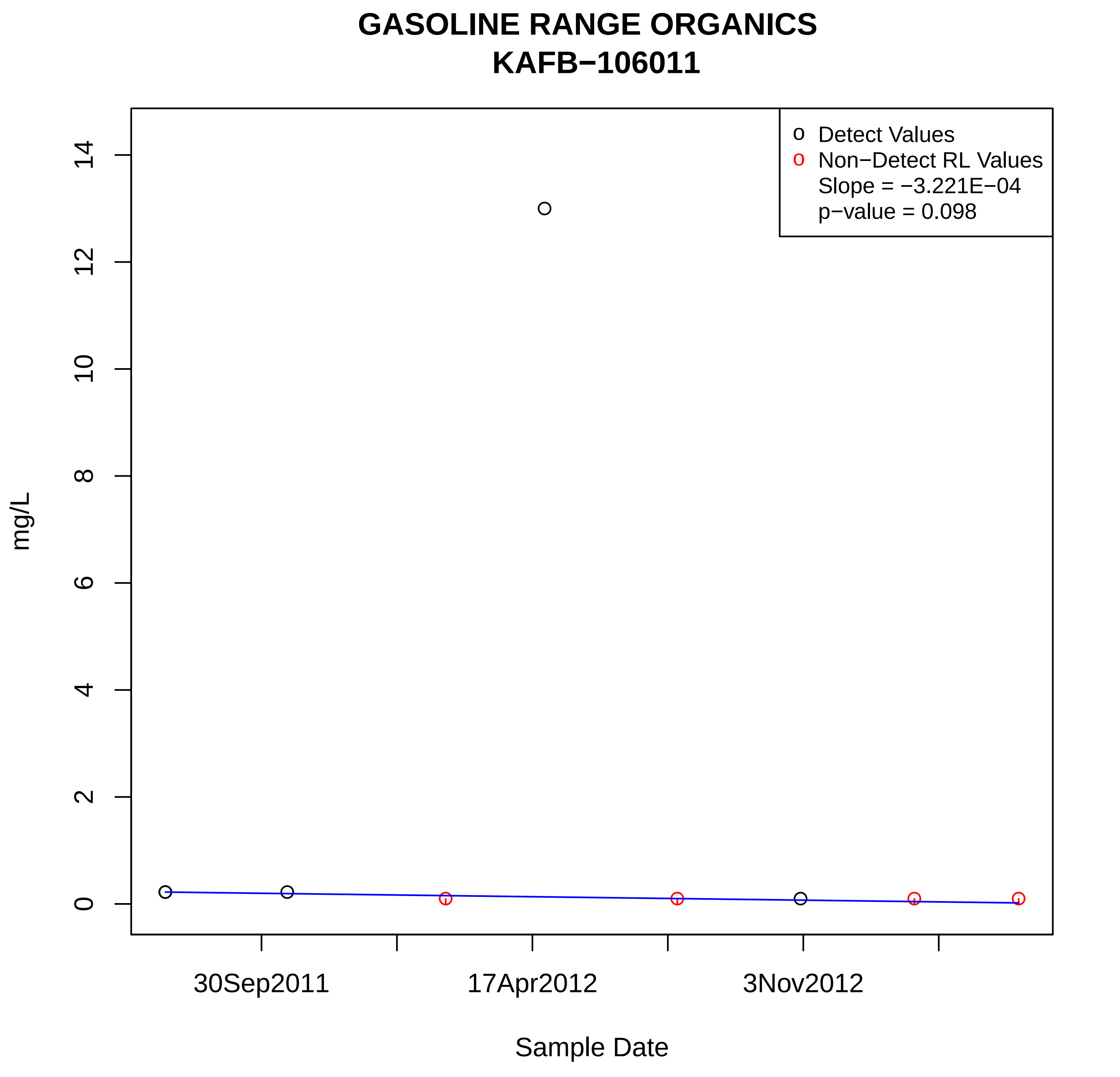


GASOLINE RANGE ORGANICS
KAFB−106002
o Detect Values
o Non−Detect RL Values
0.00
0.02
0.04
0.06
0.08
0.10
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

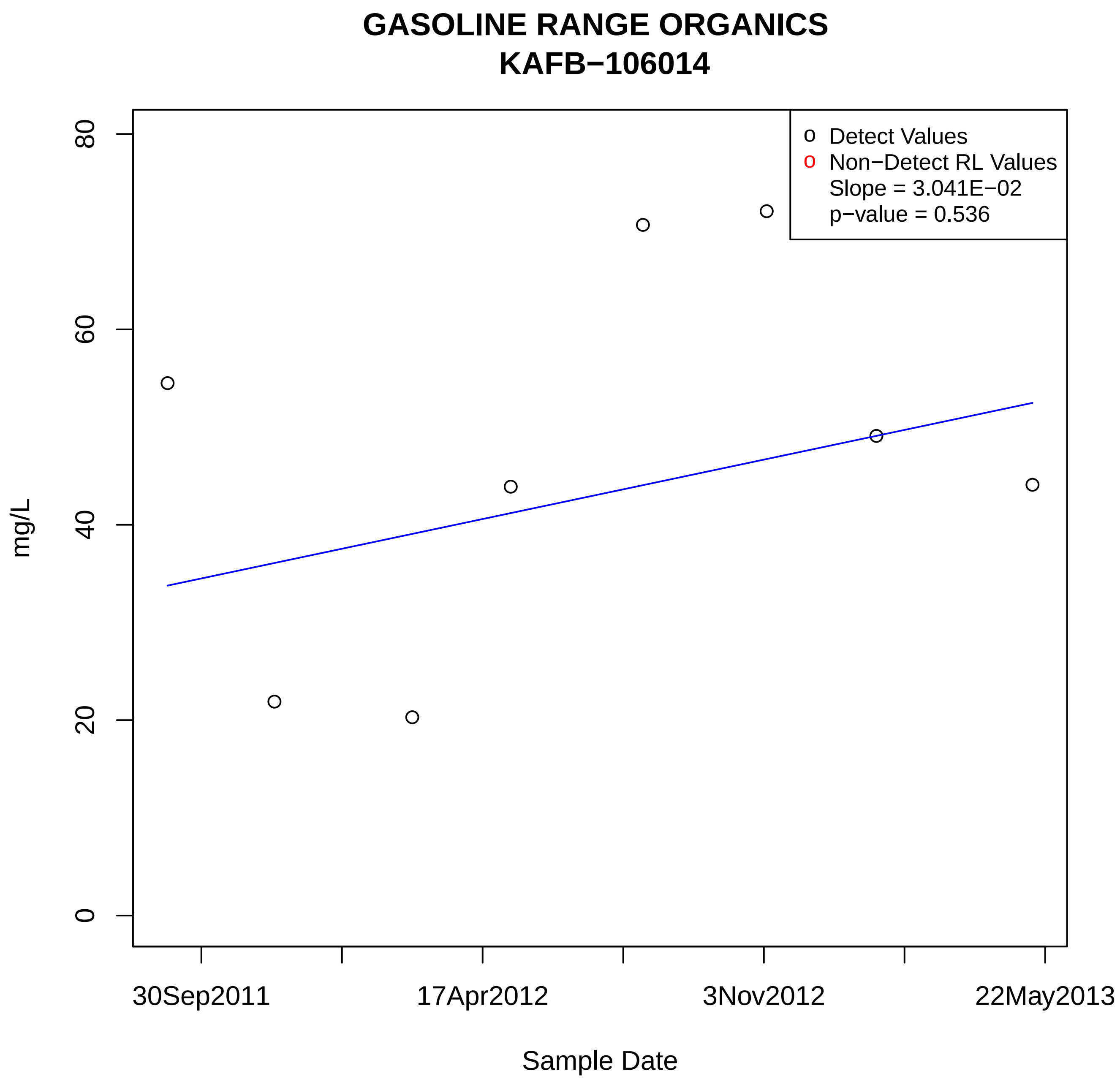


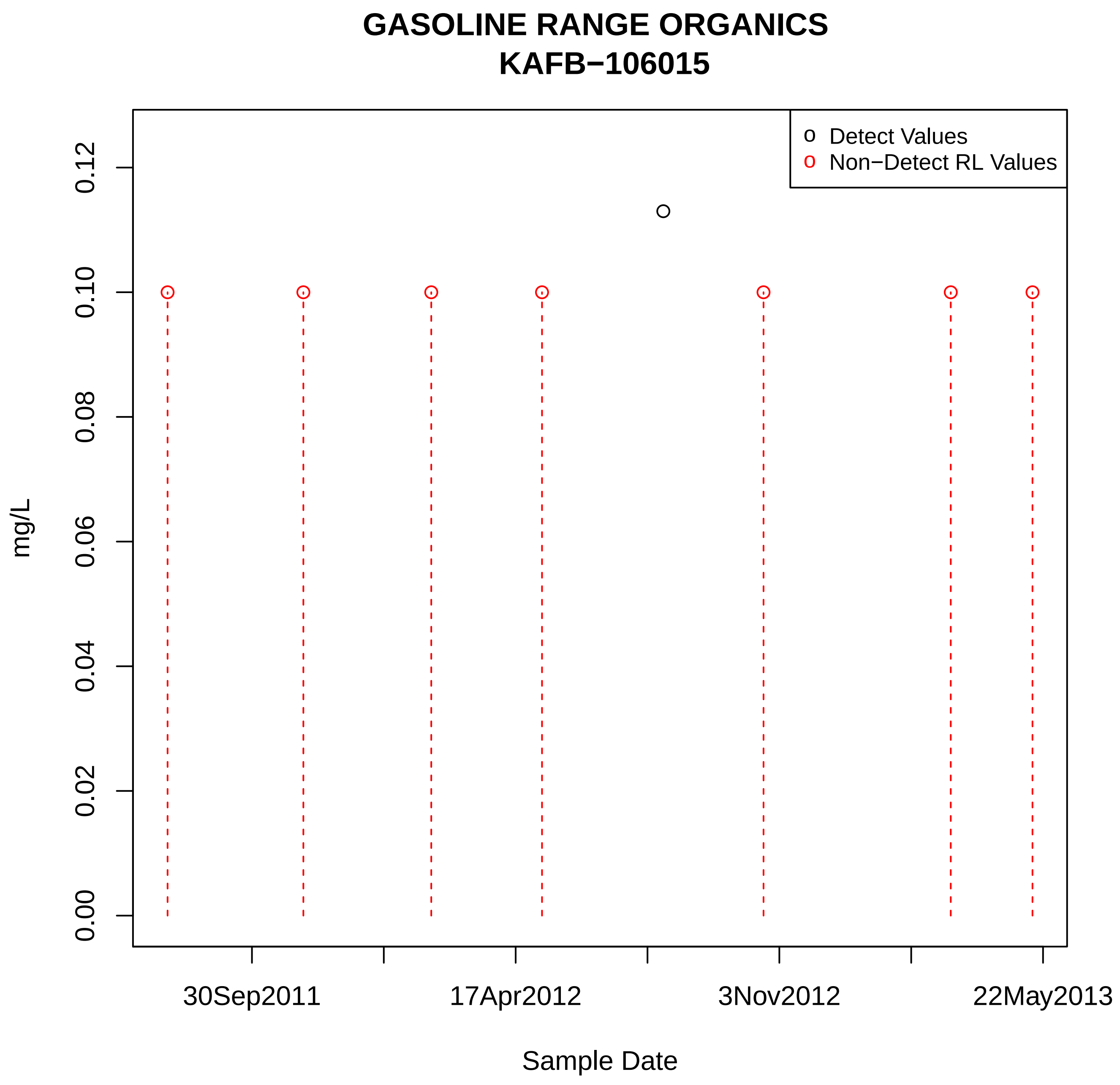
GASOLINE RANGE ORGANICS
KAFB−106007
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = −2.302E−02
p−value = 0.239
mg/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

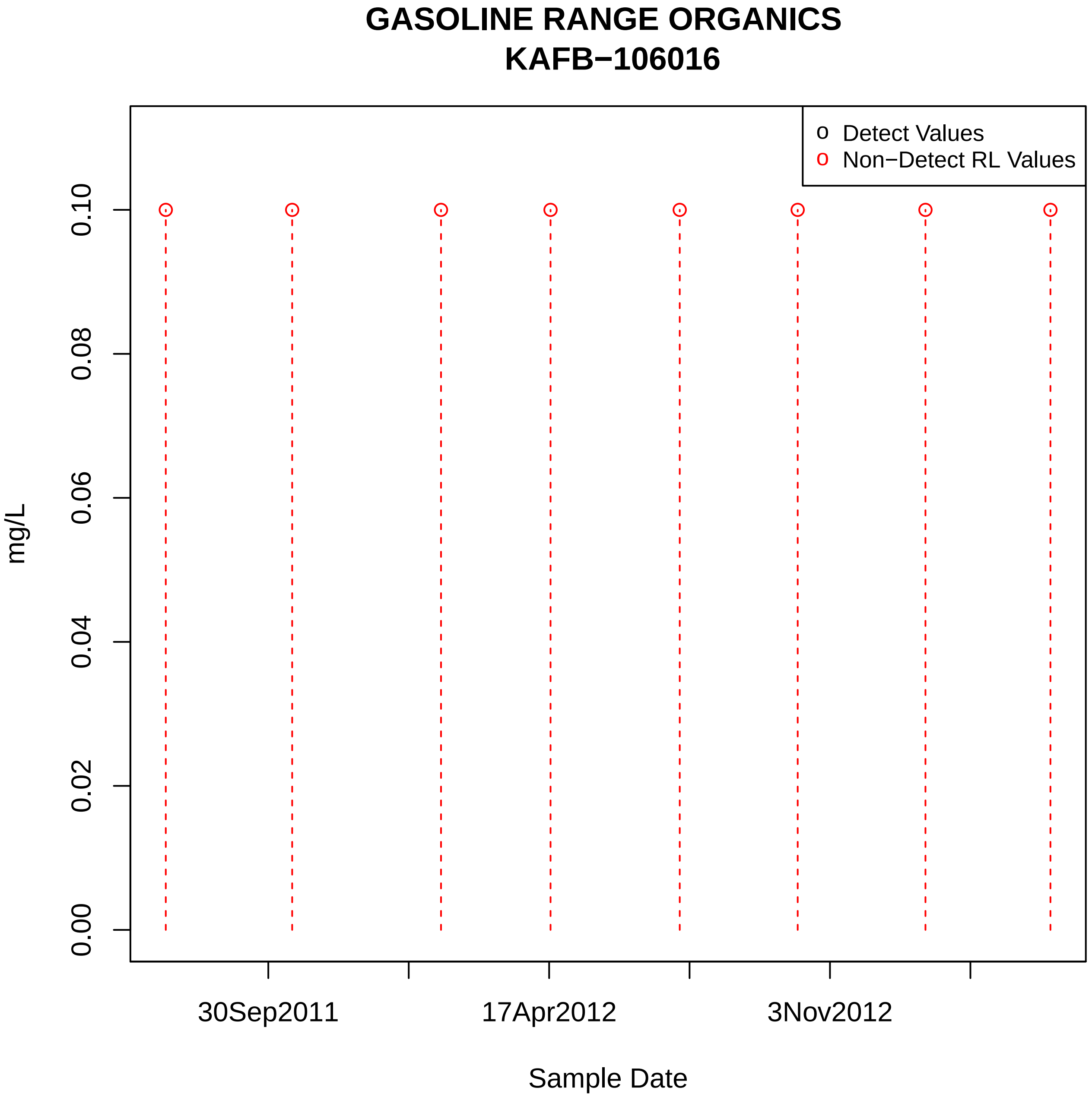


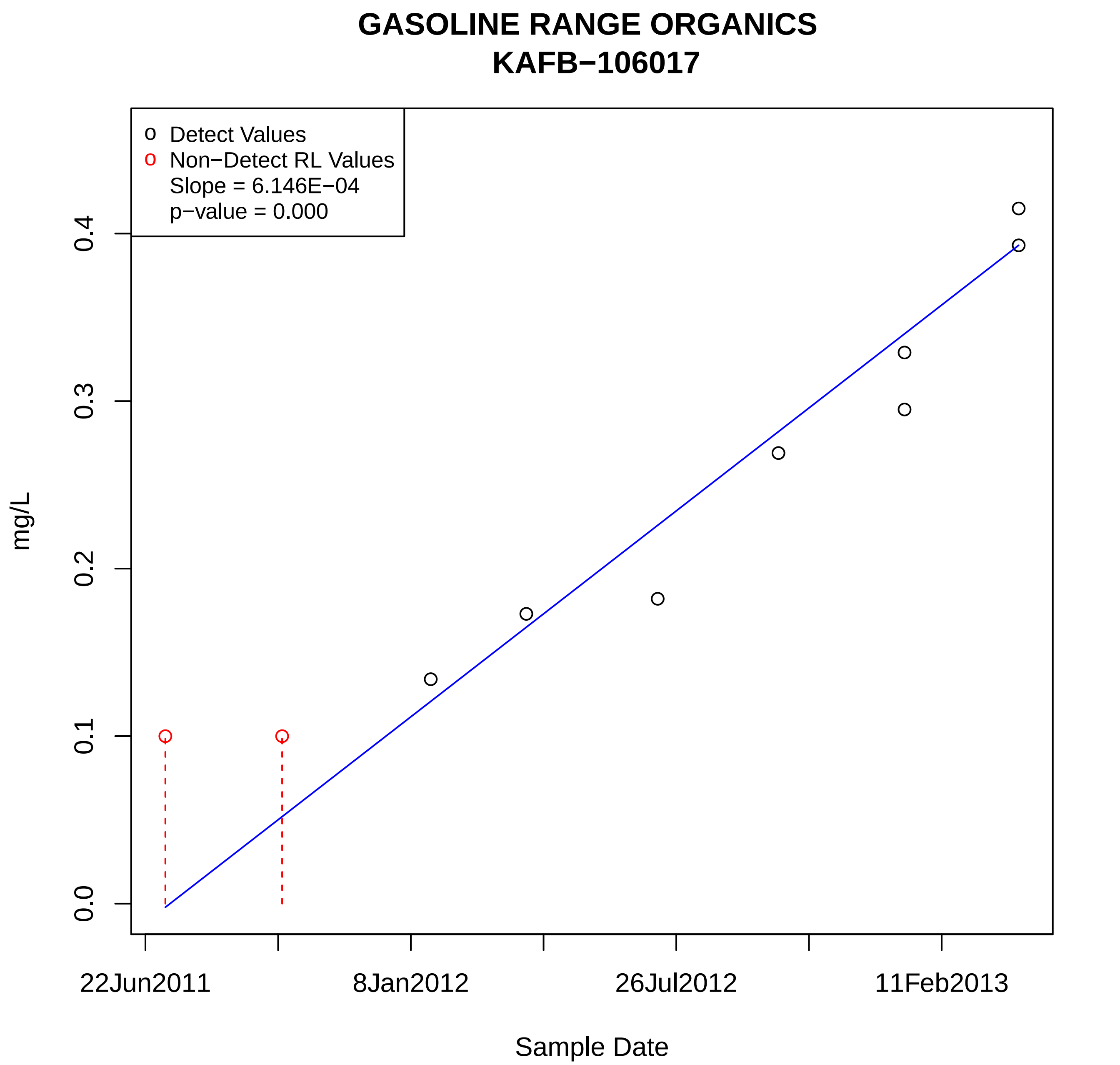
GASOLINE RANGE ORGANICS
KAFB−106011
o Detect Values
o Non−Detect RL Values
Slope = −3.221E−04
p−value = 0.098
mg/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
Sample Date

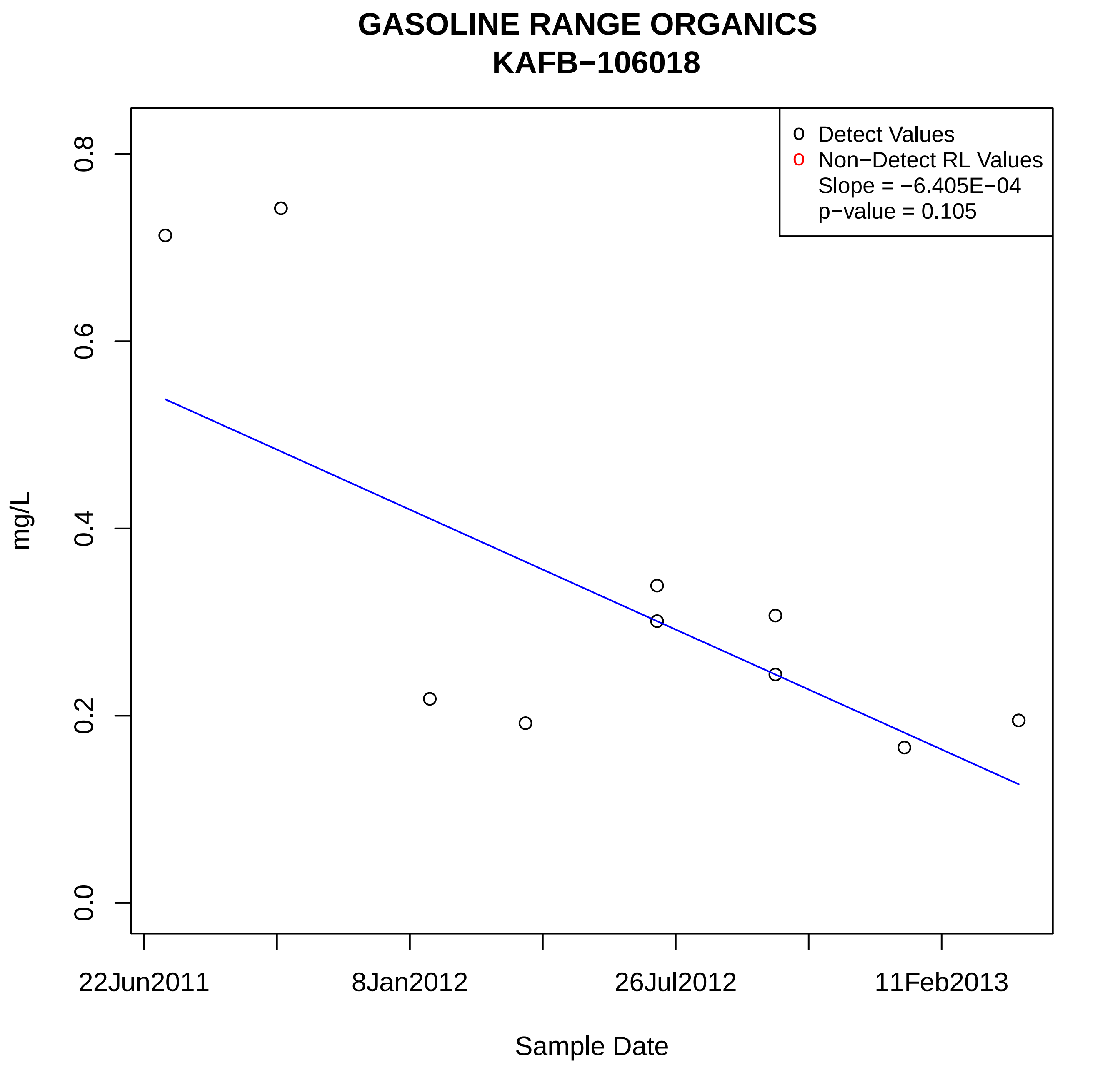

GASOLINE RANGE ORGANICS
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = 3.041E−02
p−value = 0.536
mg/L
0
20
40
60
80
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



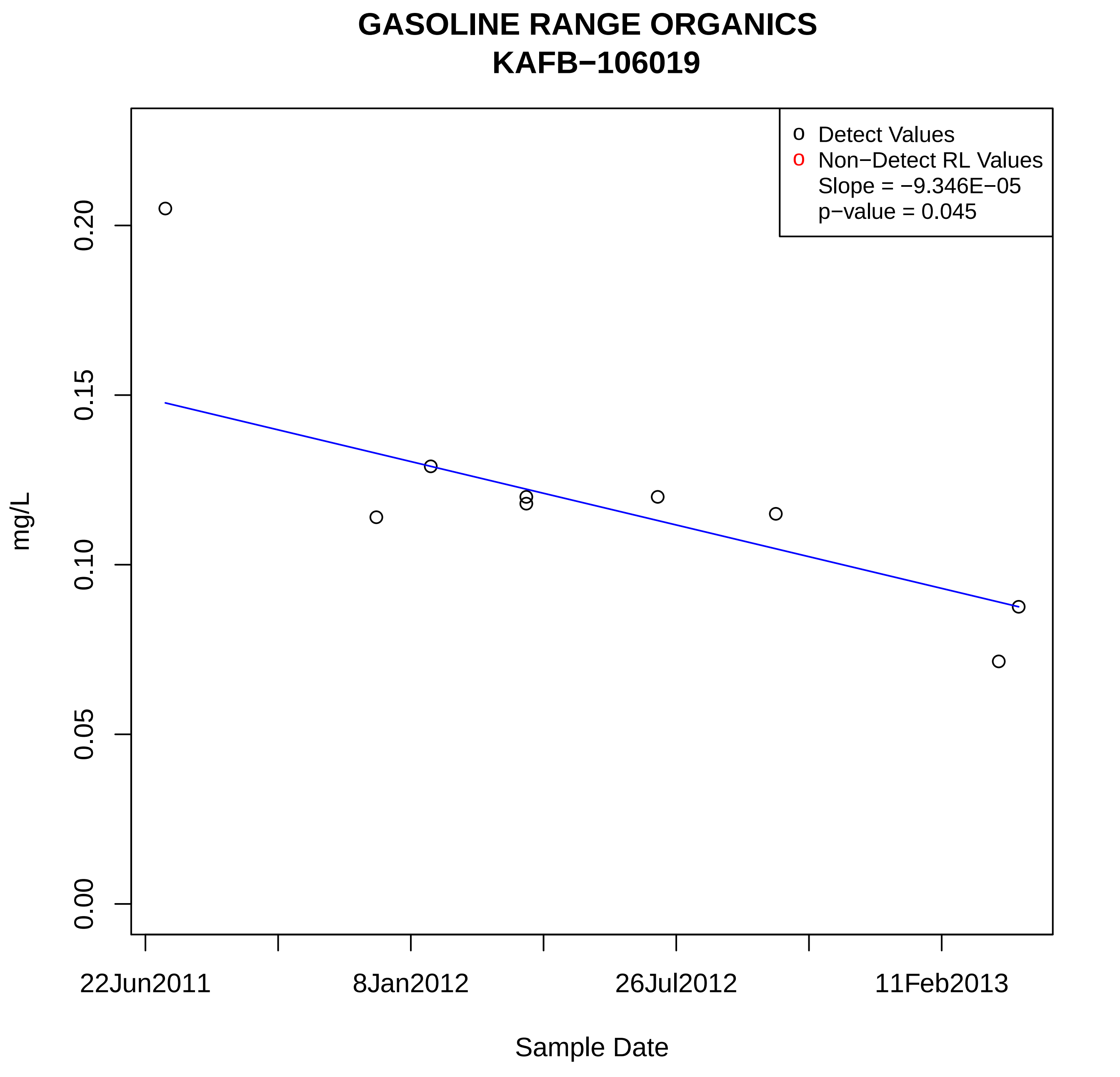
GASOLINE RANGE ORGANICS
KAFB−106015
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
0.12
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

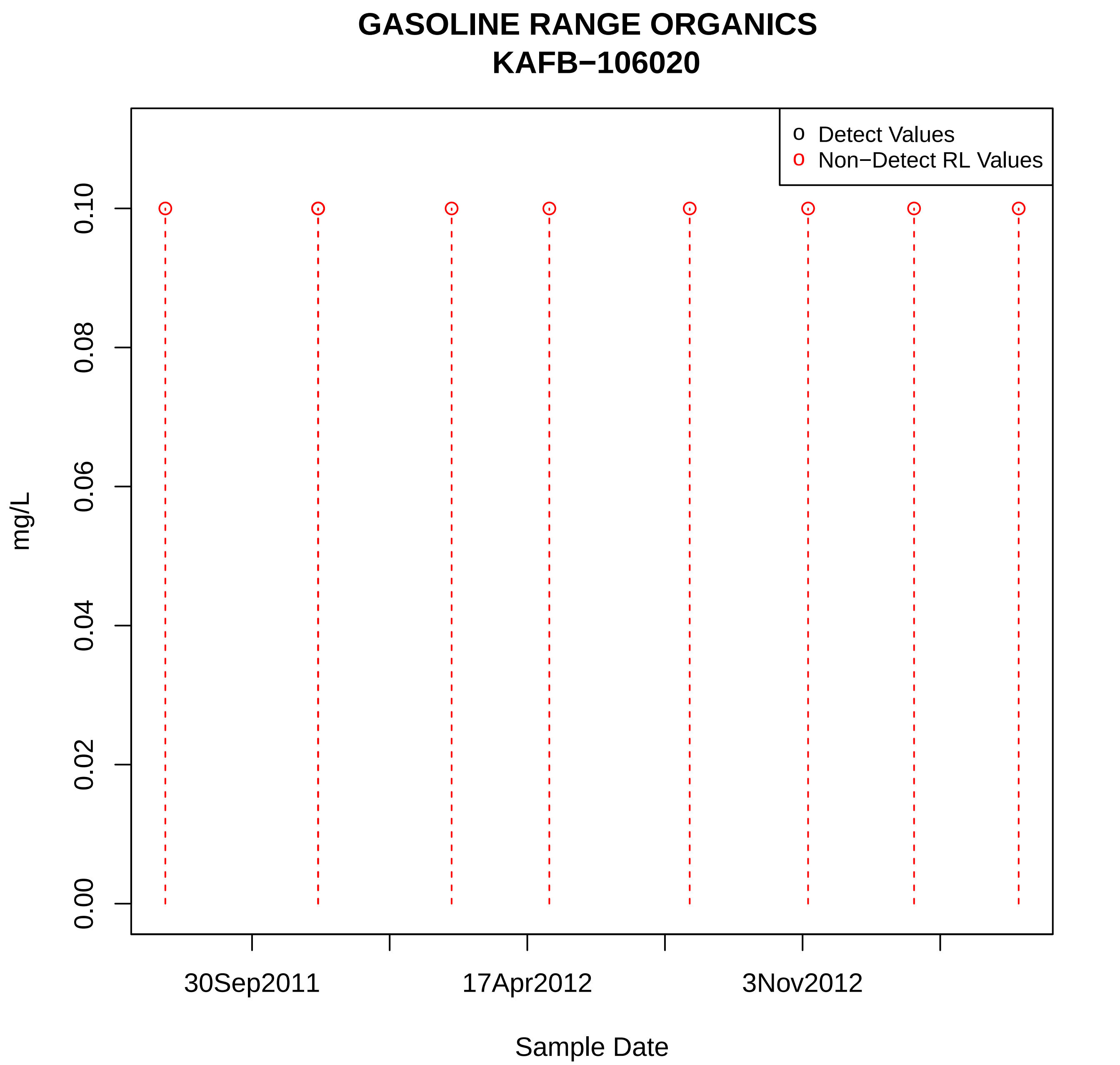

GASOLINE RANGE ORGANICS
KAFB−106016
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

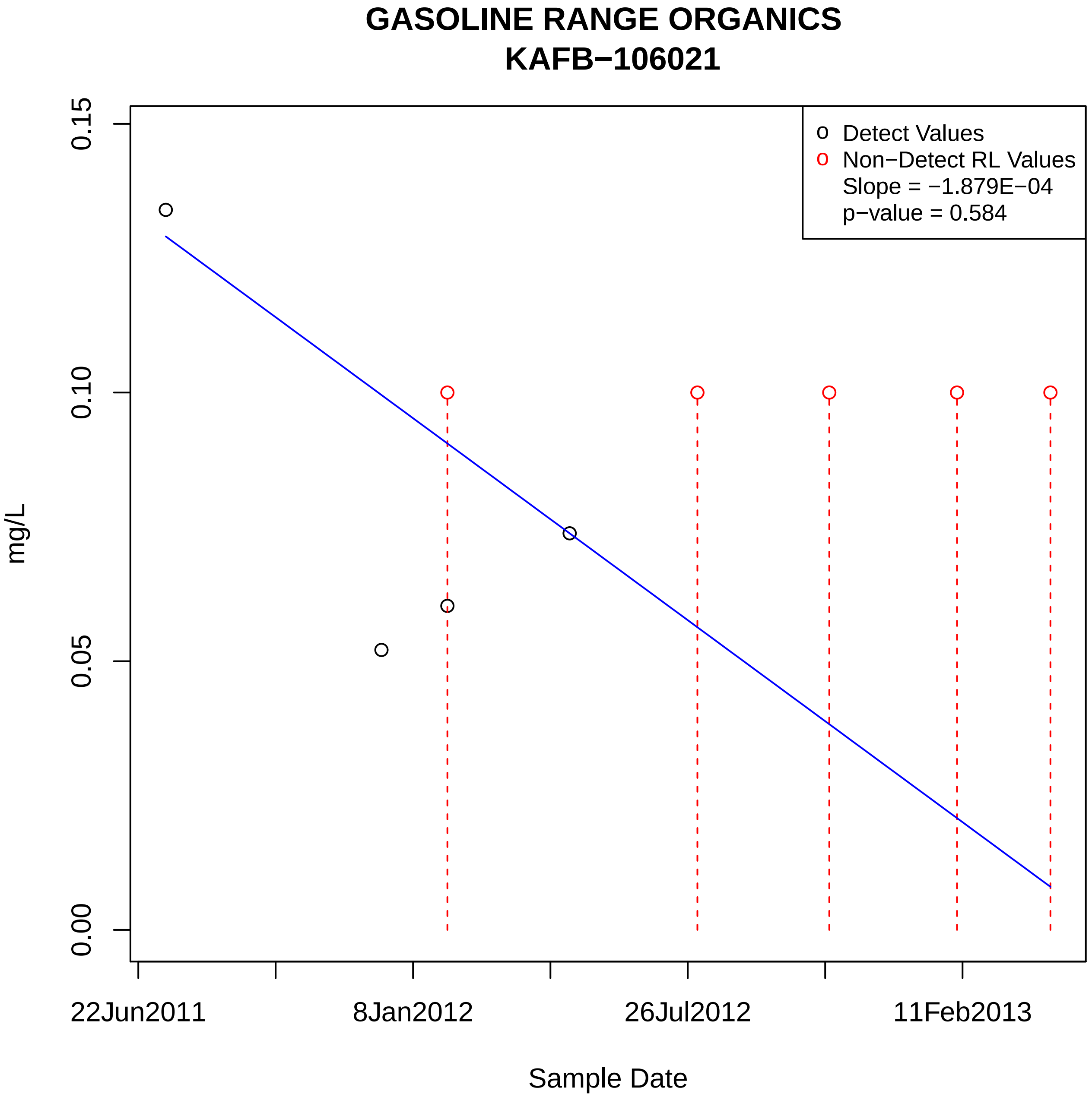

GASOLINE RANGE ORGANICS
KAFB−106017
Detect Values
Non−Detect RL Values
Slope = 6.146E−04
p−value = 0.000
mg/L
0.0
0.1
0.2
0.3
0.4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



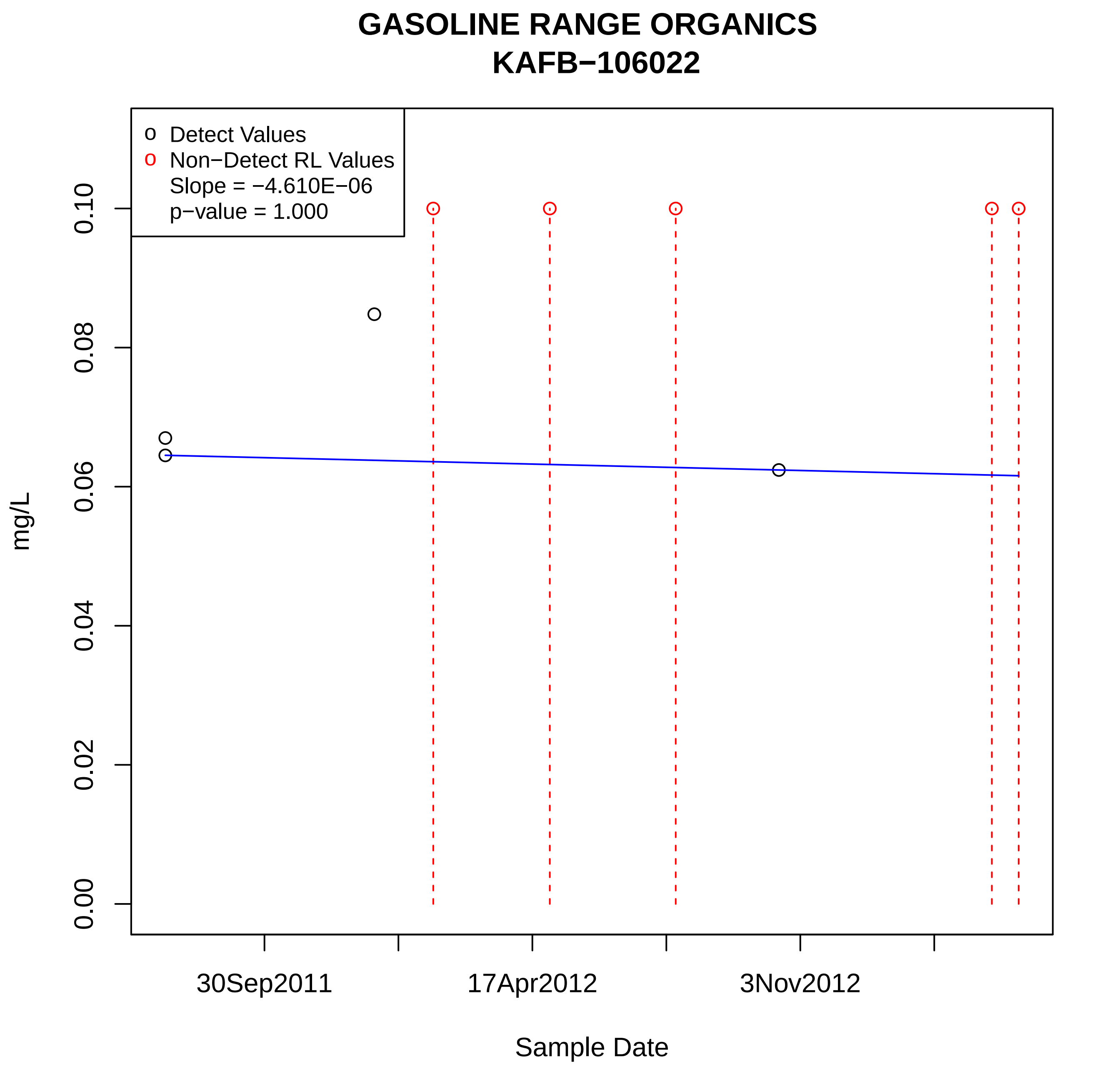
GASOLINE RANGE ORGANICS
KAFB−106018
o Detect Values
o Non−Detect RL Values
Slope = −6.405E−04
p−value = 0.105
mg/L
0.0
0.2
0.4
0.6
0.8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

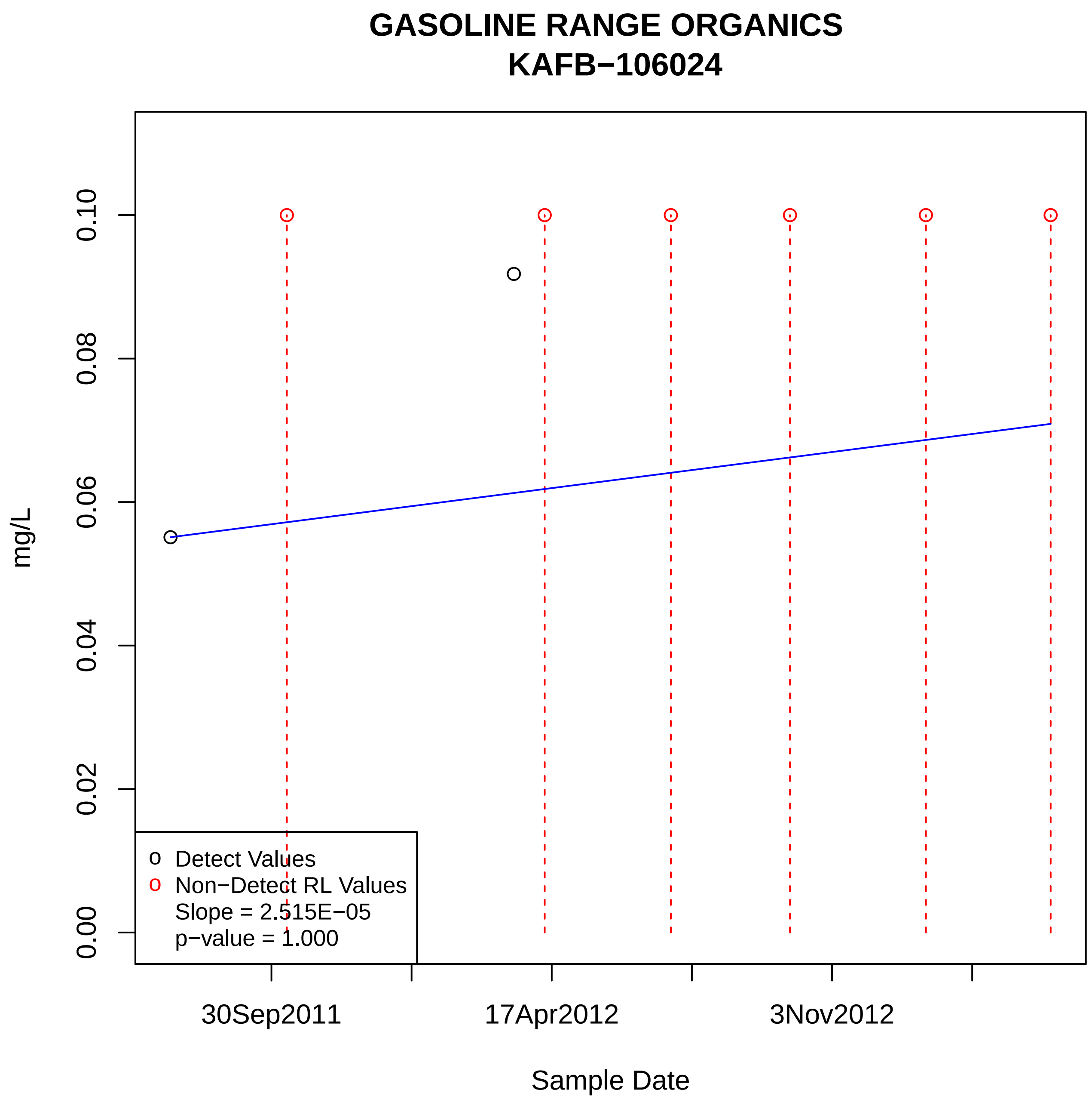

GASOLINE RANGE ORGANICS
KAFB−106019
o Detect Values
o Non−Detect RL Values
Slope = −9.346E−05
p−value = 0.045
mg/L
0.00
0.05
0.10
0.15
0.20
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106020
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

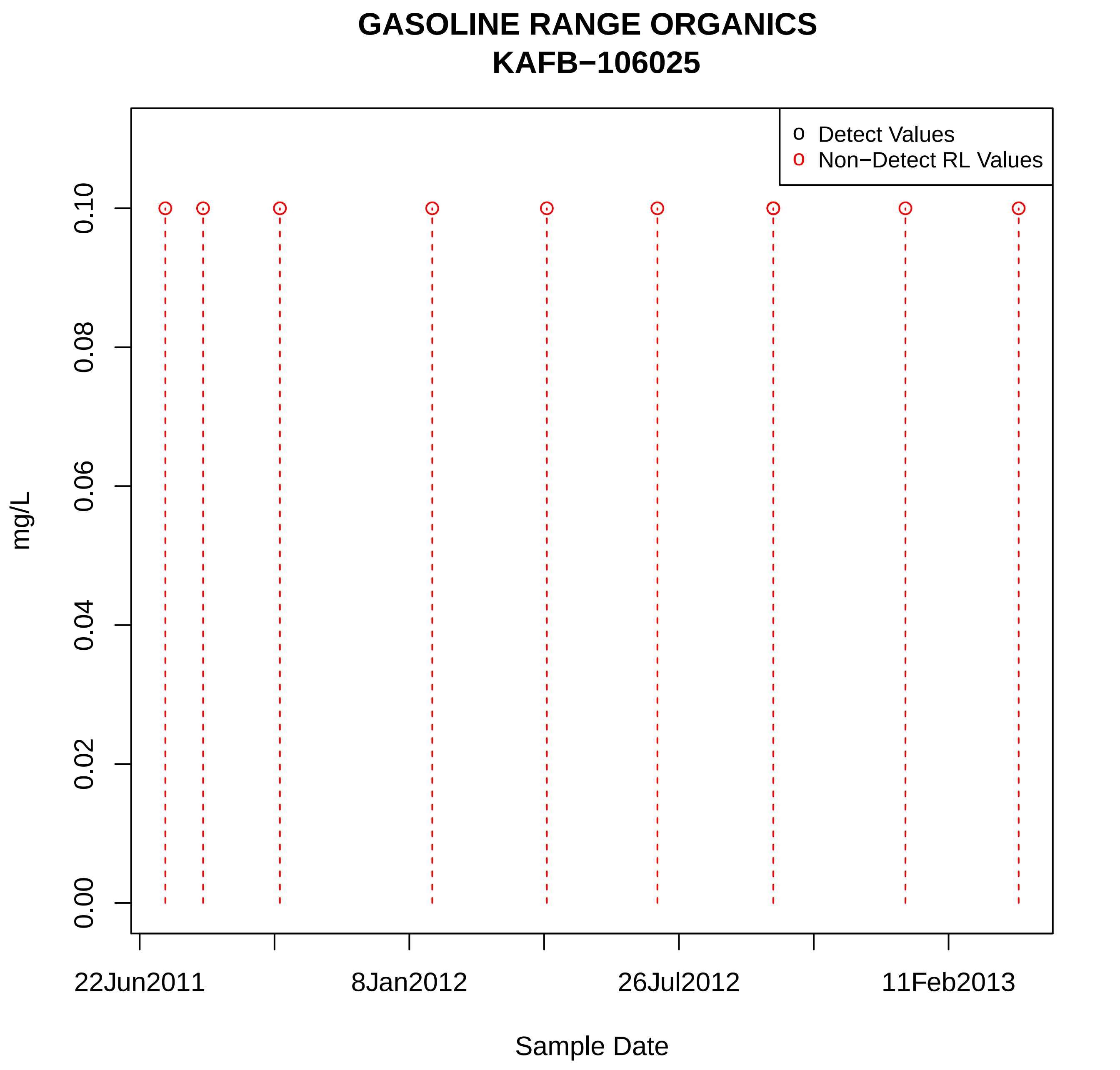


GASOLINE RANGE ORGANICS
KAFB−106021
o Detect Values
o Non−Detect RL Values
Slope = −1.879E−04
p−value = 0.584
0.15
0.10
0.05
0.00
mg/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

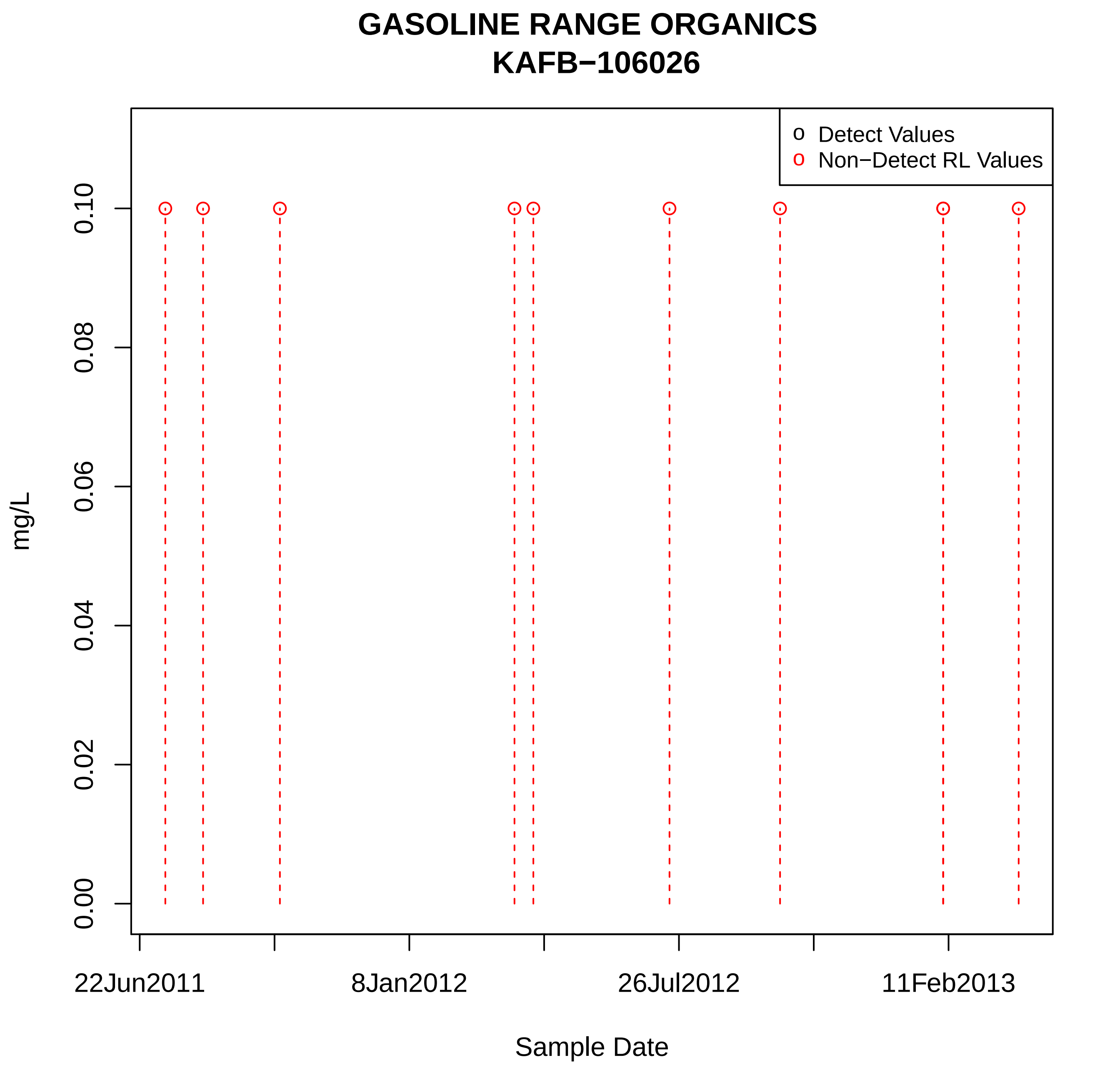

GASOLINE RANGE ORGANICS
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −4.610E−06
p−value = 1.000
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

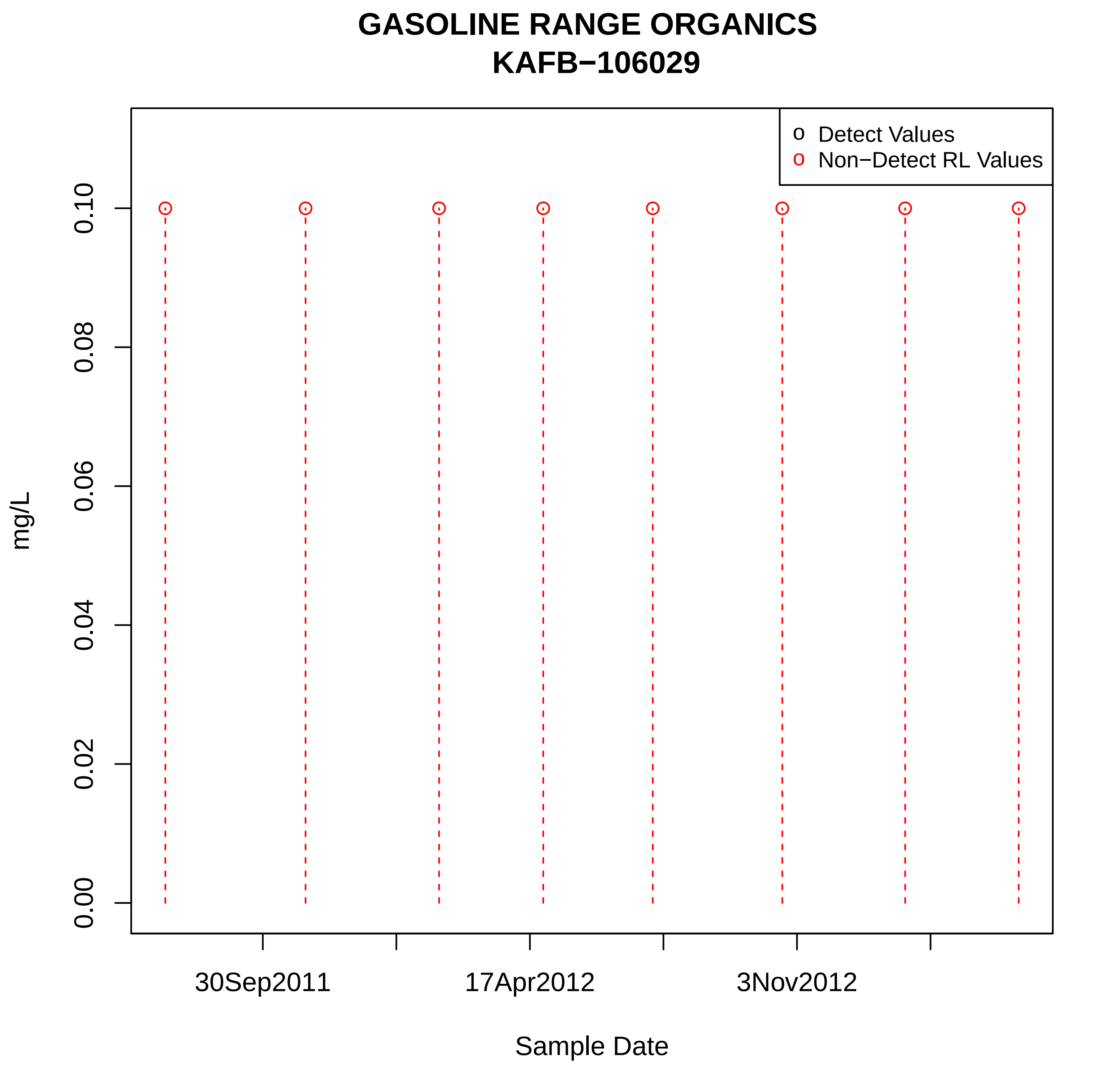


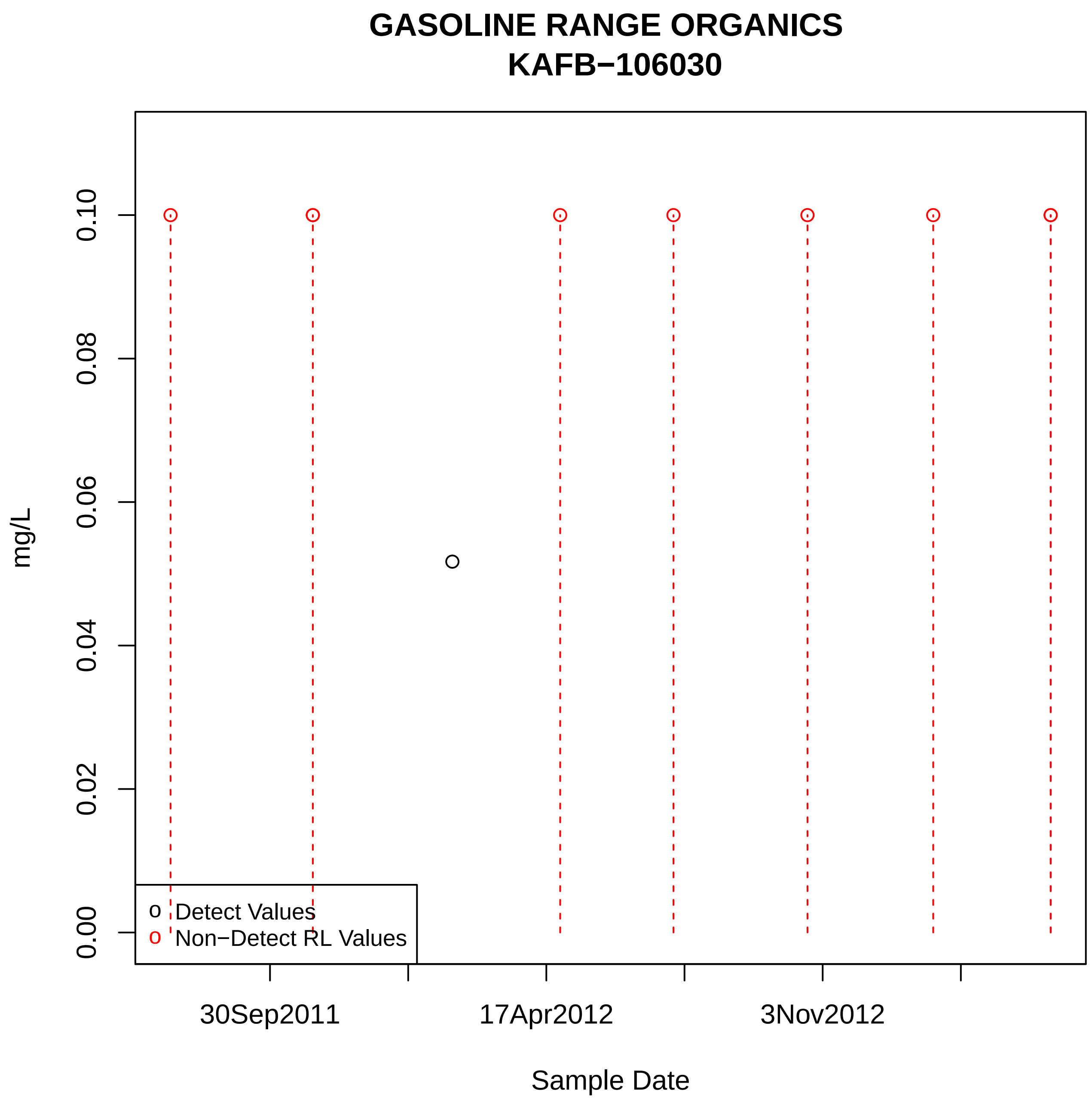
GASOLINE RANGE ORGANICS
KAFB−106024
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 2.515E−05
p−value = 1.000



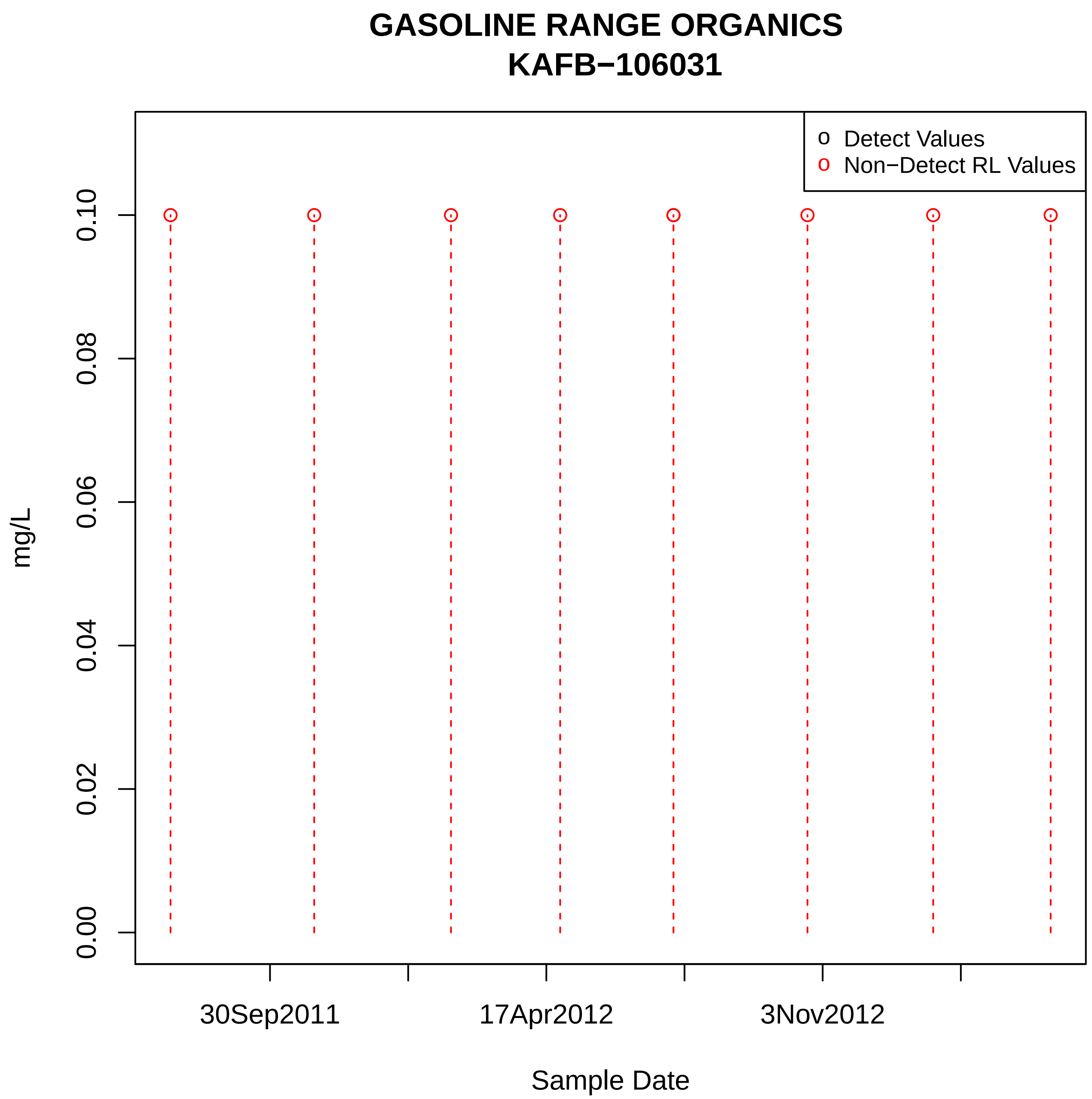
GASOLINE RANGE ORGANICS
KAFB−106025
o Detect Values
o Non−Detect RL Values
0.00
0.02
0.04
0.06
0.08
0.10
mg/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

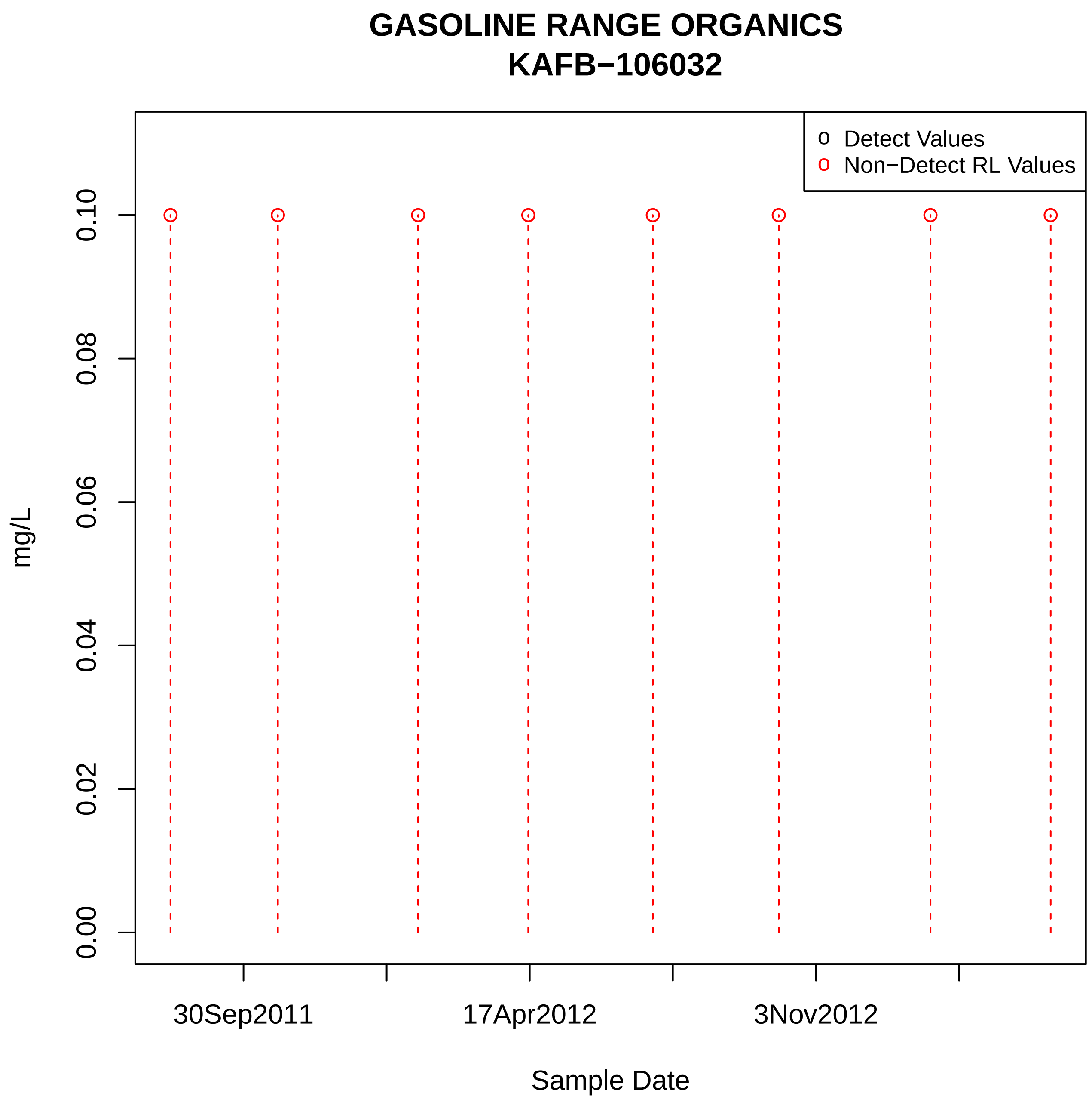

GASOLINE RANGE ORGANICS
KAFB−106026
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

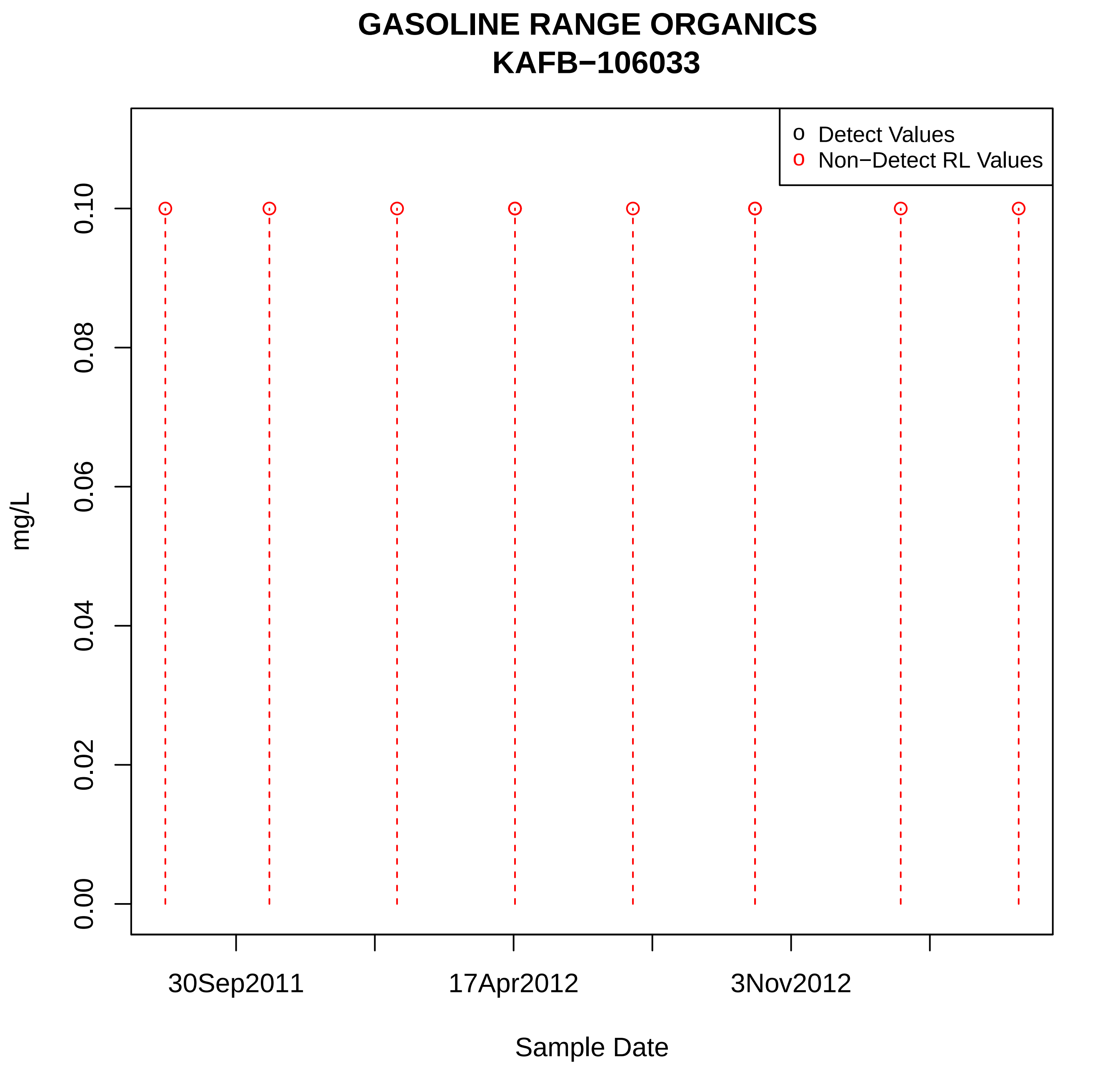

GASOLINE RANGE ORGANICS
KAFB−106029
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

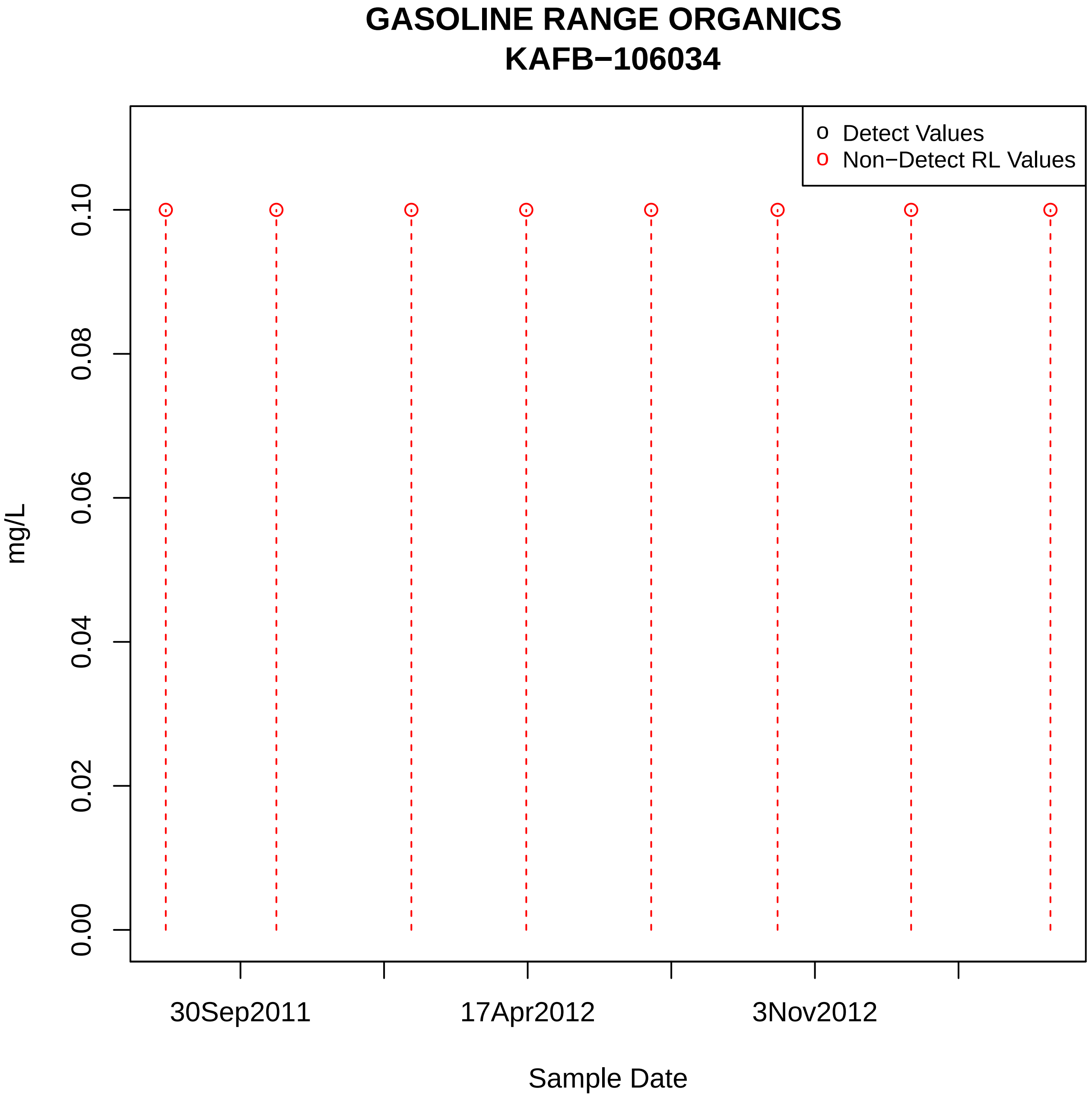


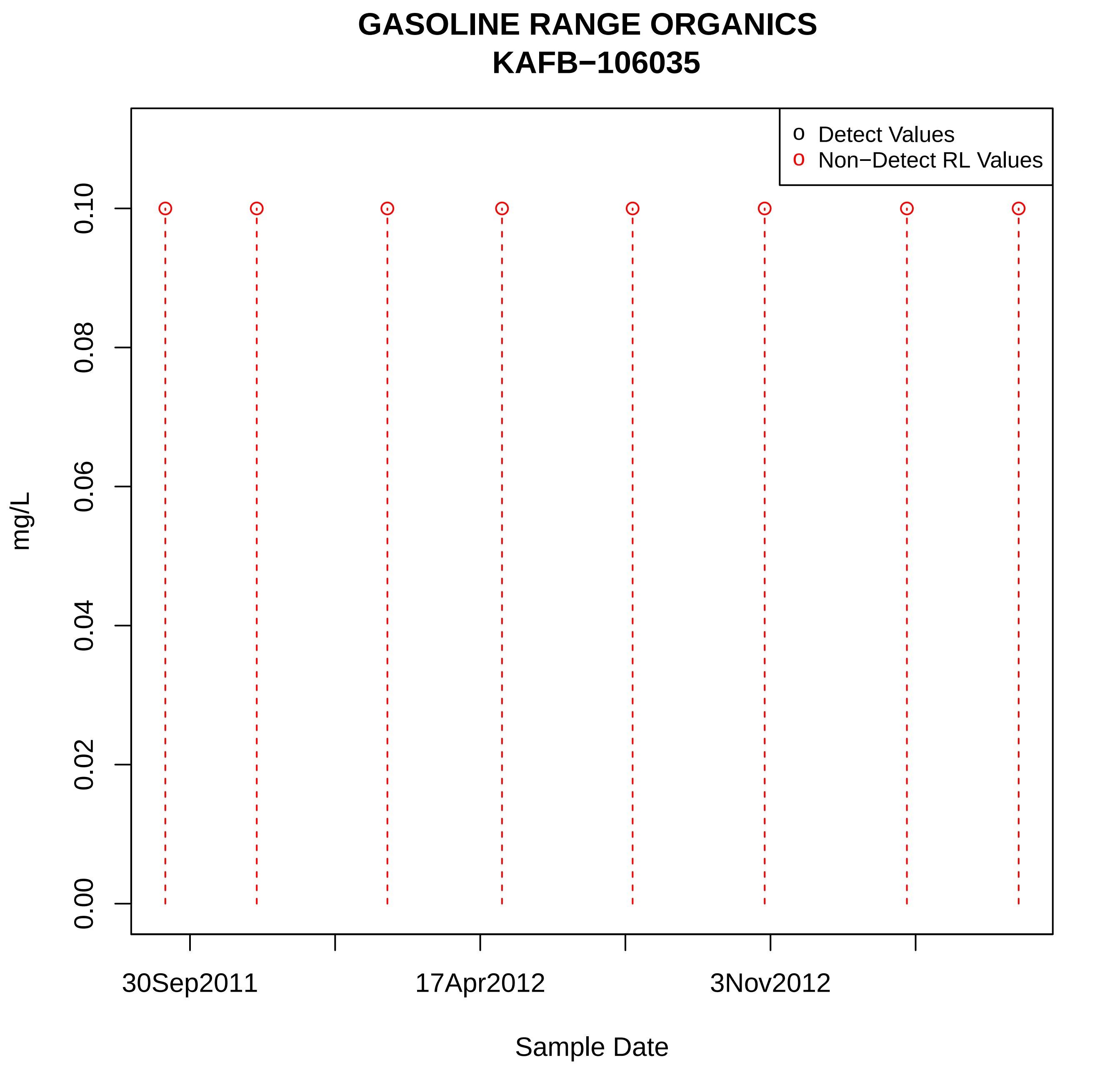
GASOLINE RANGE ORGANICS
KAFB−106030
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values


GASOLINE RANGE ORGANICS
KAFB−106031
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

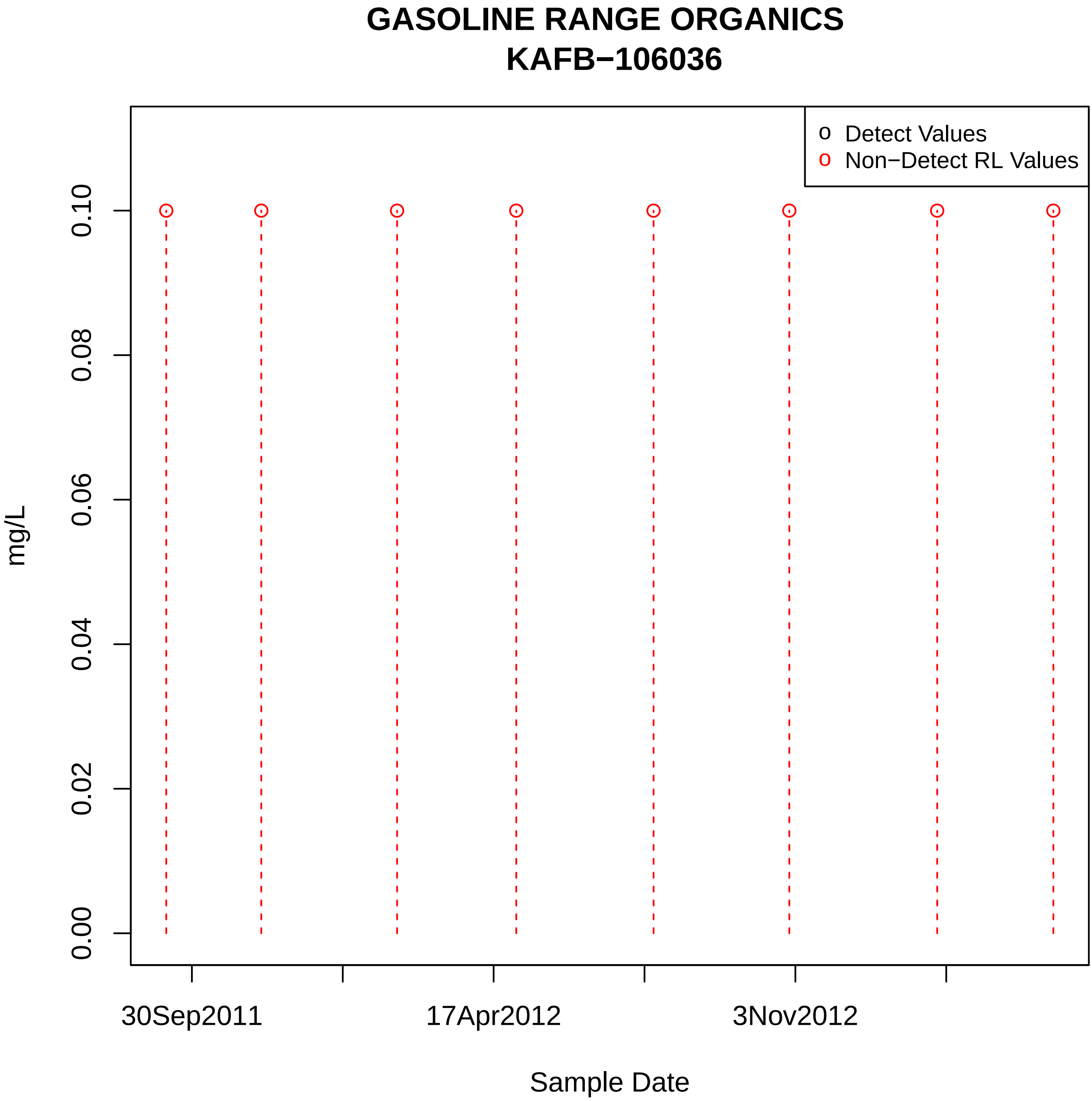

GASOLINE RANGE ORGANICS
KAFB−106032
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106033
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

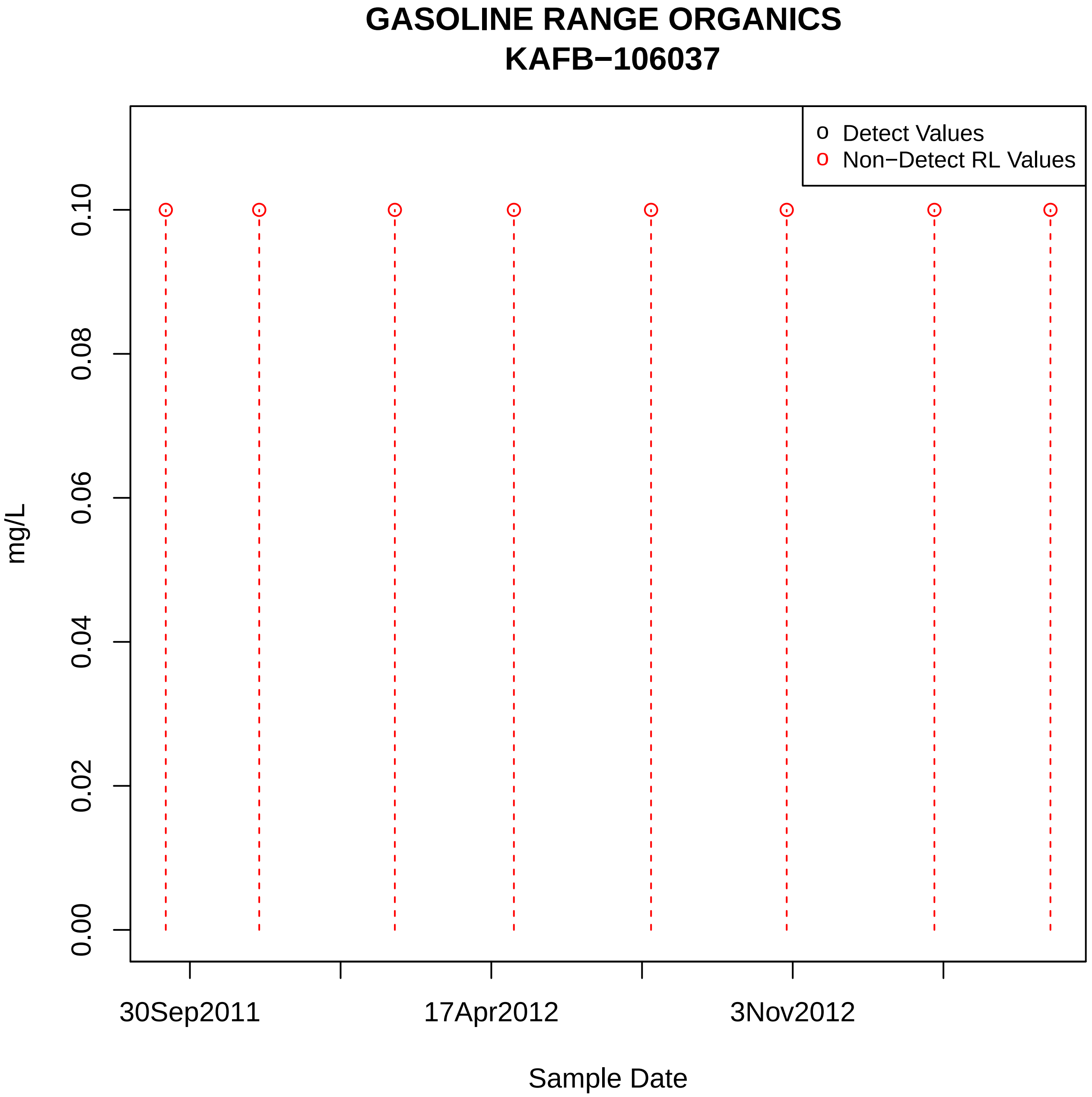

GASOLINE RANGE ORGANICS
KAFB−106034
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

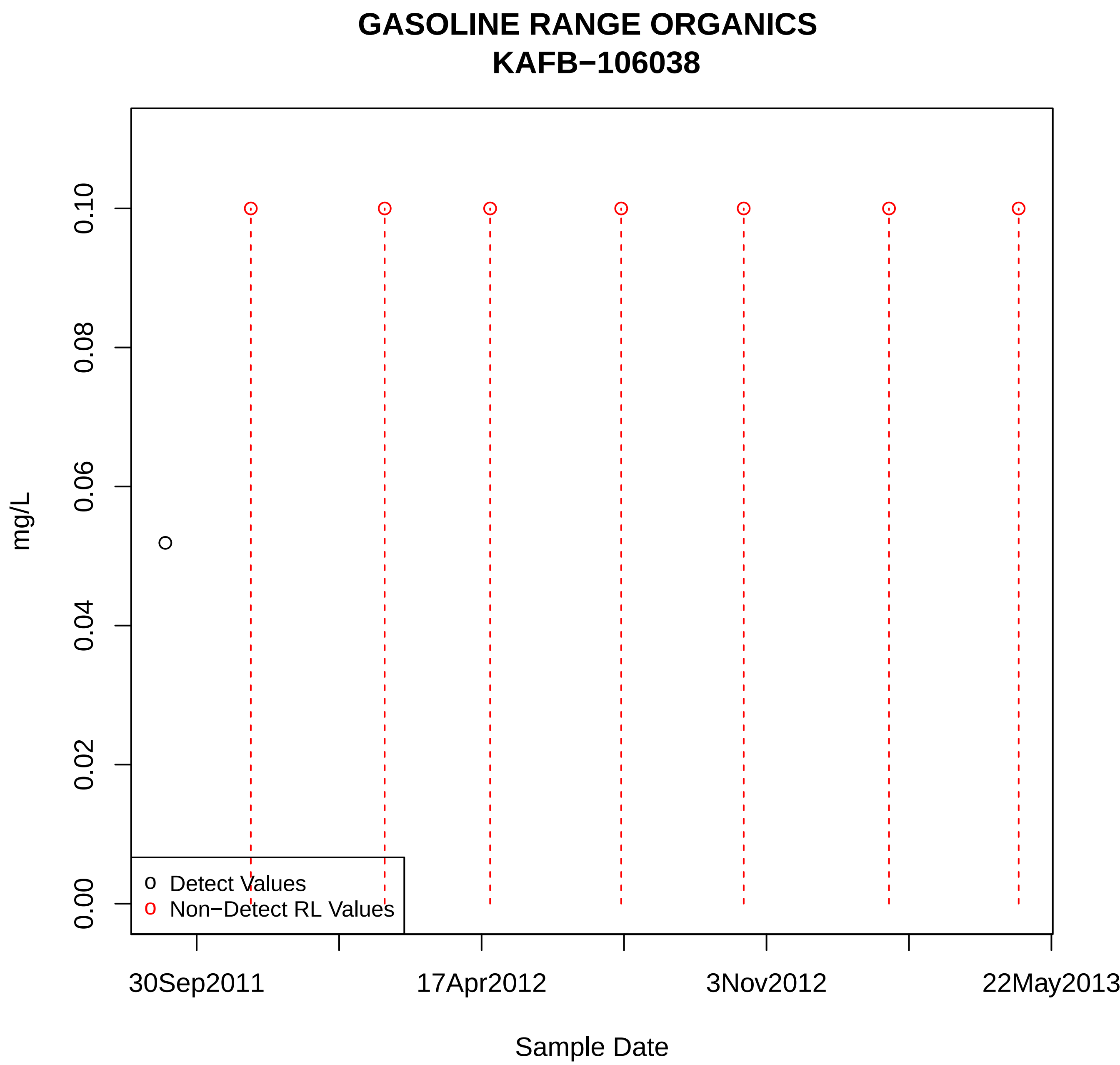


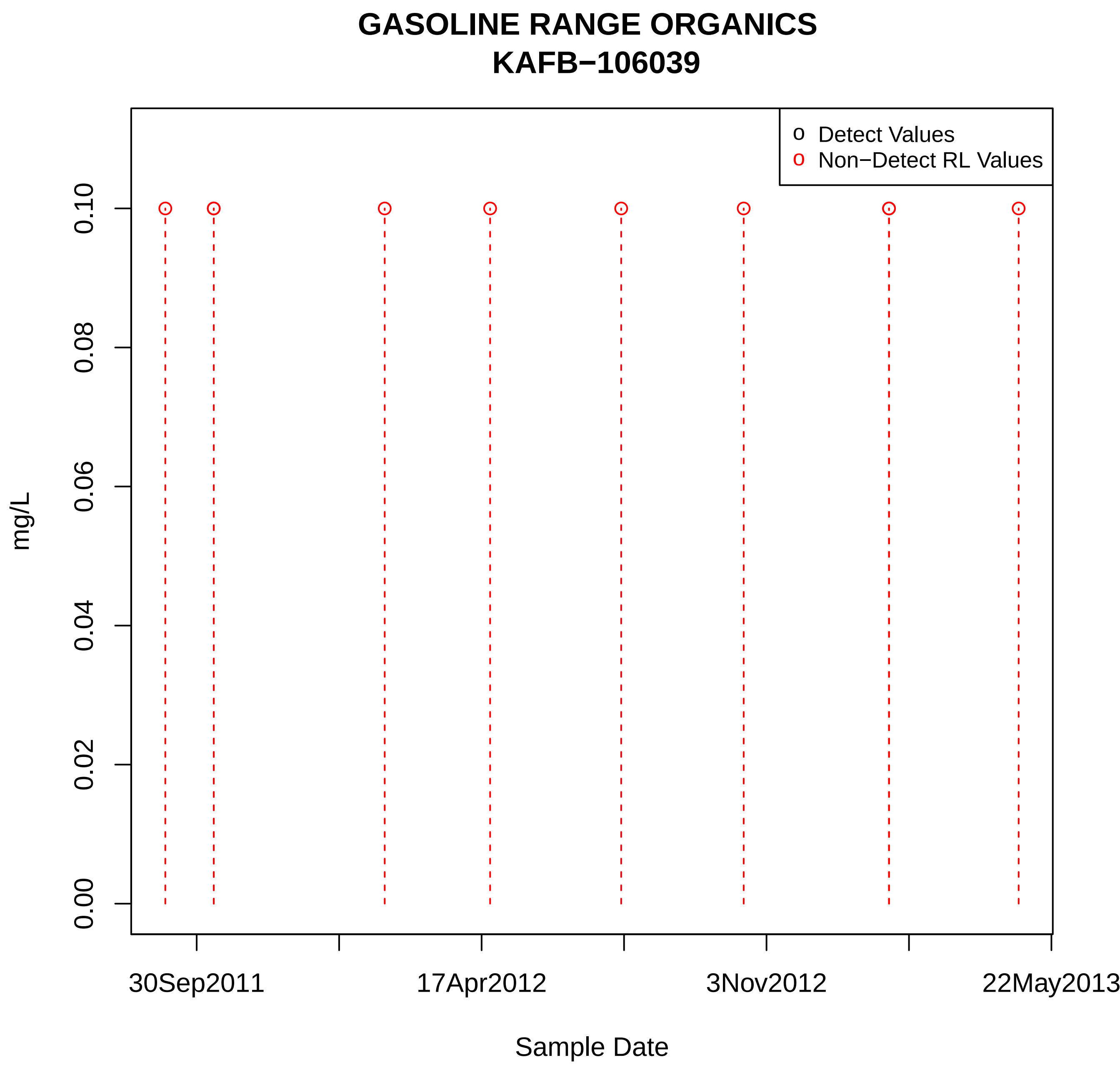
GASOLINE RANGE ORGANICS
KAFB−106035
Detect Values
Non−Detect RL Values
0.00
0.02
0.04
0.06
0.08
0.10
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



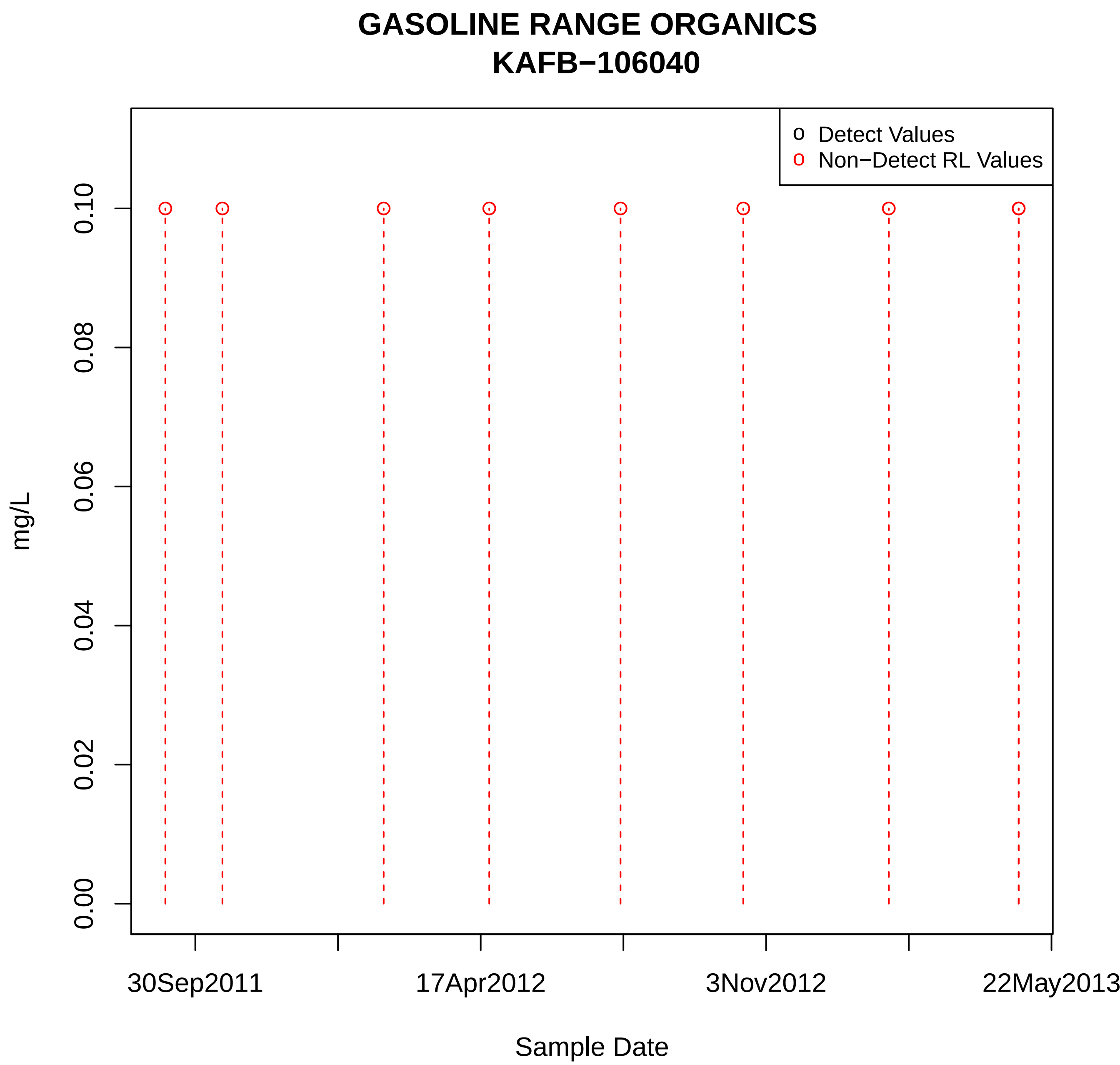
GASOLINE RANGE ORGANICS
KAFB−106036
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106037
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

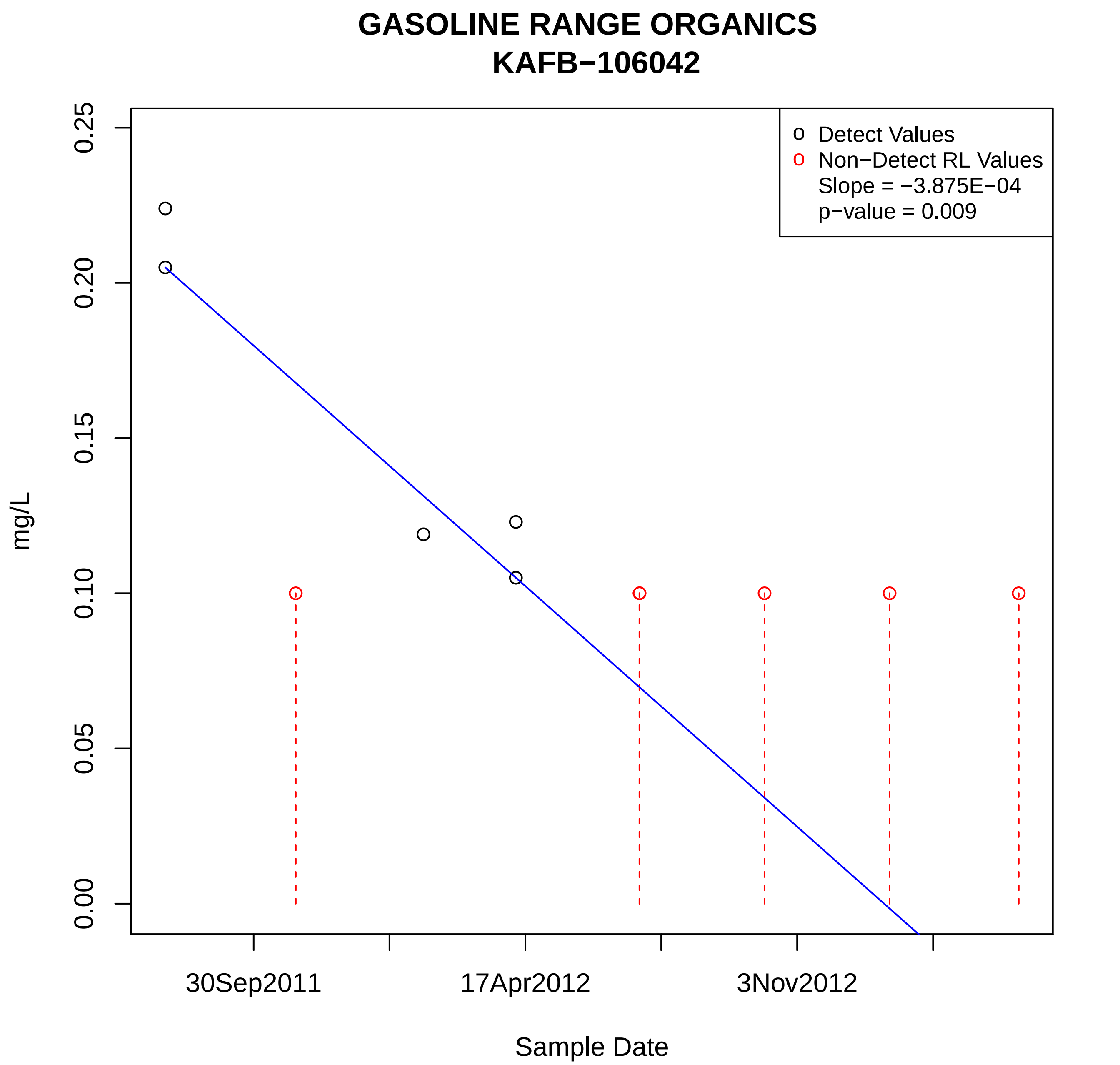

GASOLINE RANGE ORGANICS
KAFB−106038
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

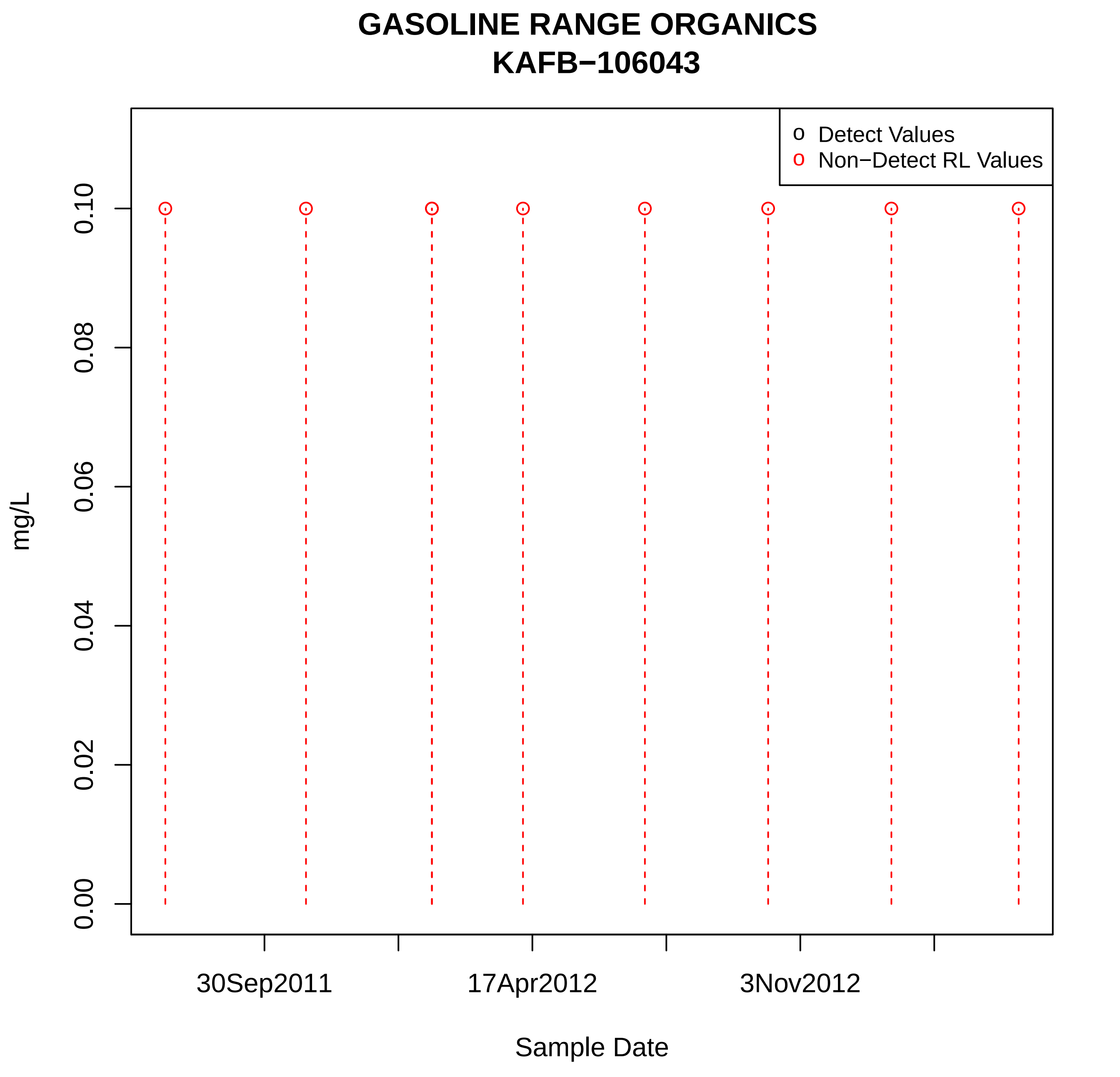


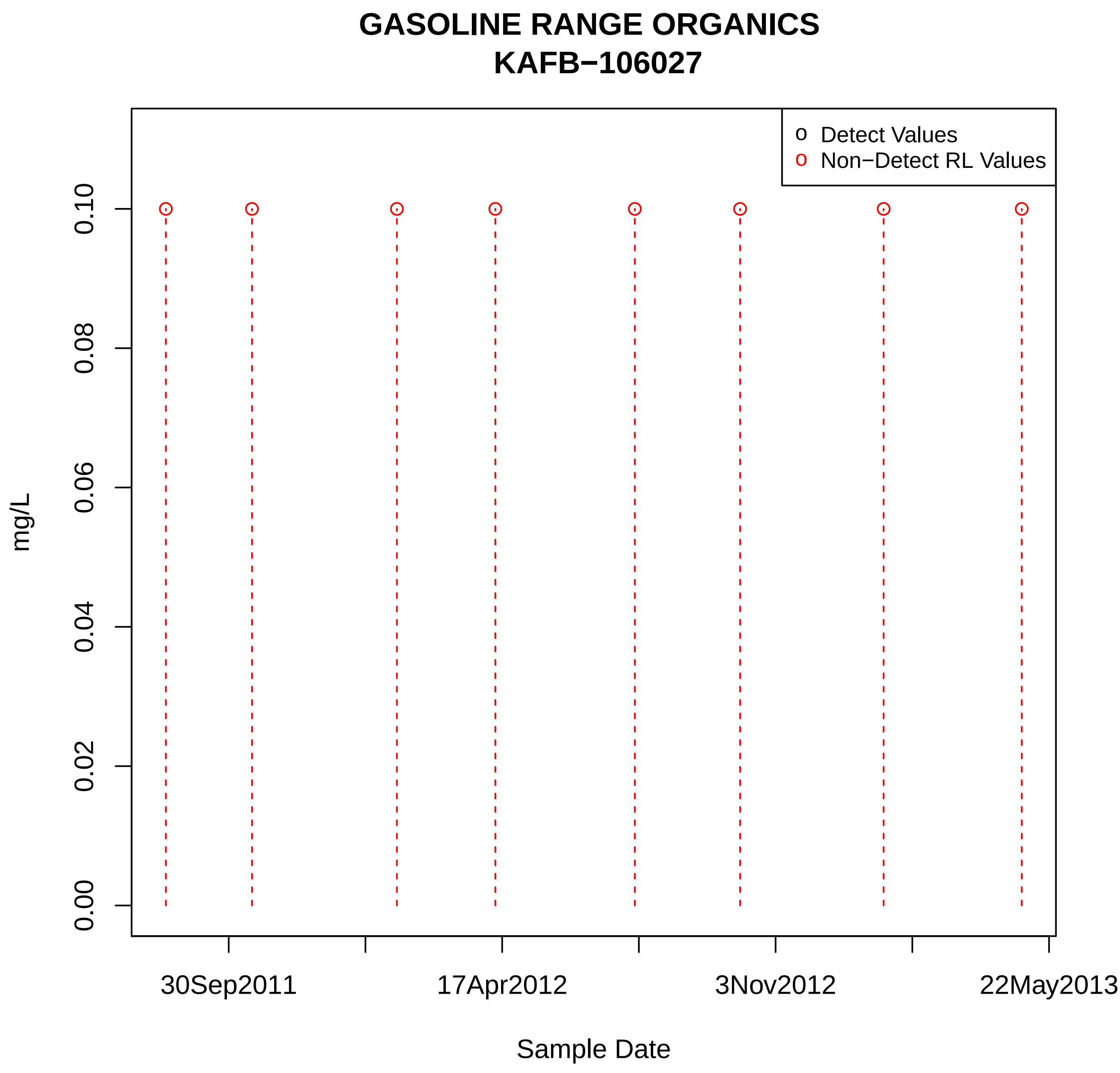
GASOLINE RANGE ORGANICS
KAFB−106039
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



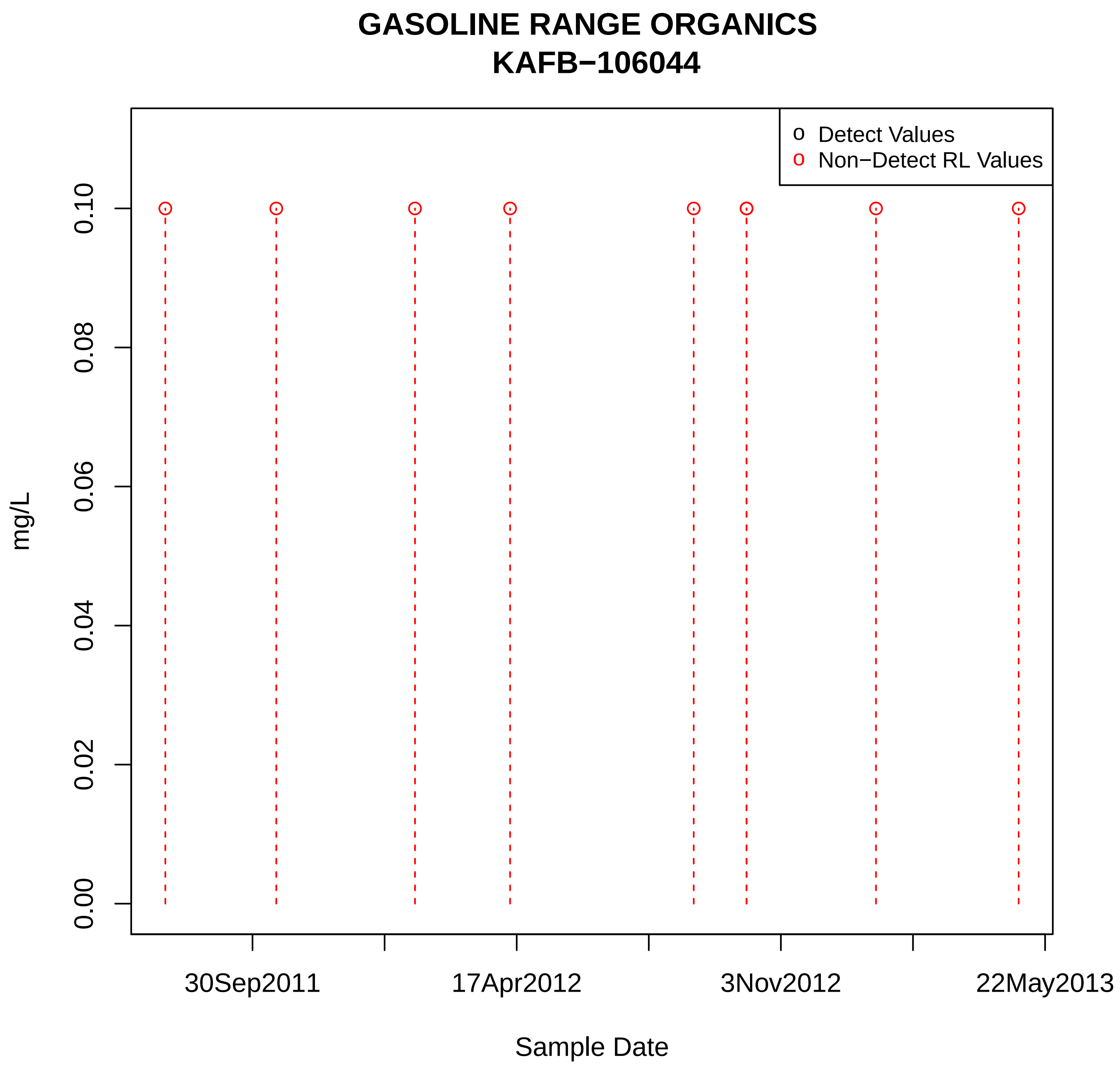
GASOLINE RANGE ORGANICS
KAFB−106040
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106042
o Detect Values
o Non−Detect RL Values
Slope = −3.875E−04
p−value = 0.009
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
30Sep2011
17Apr2012
3Nov2012
Sample Date

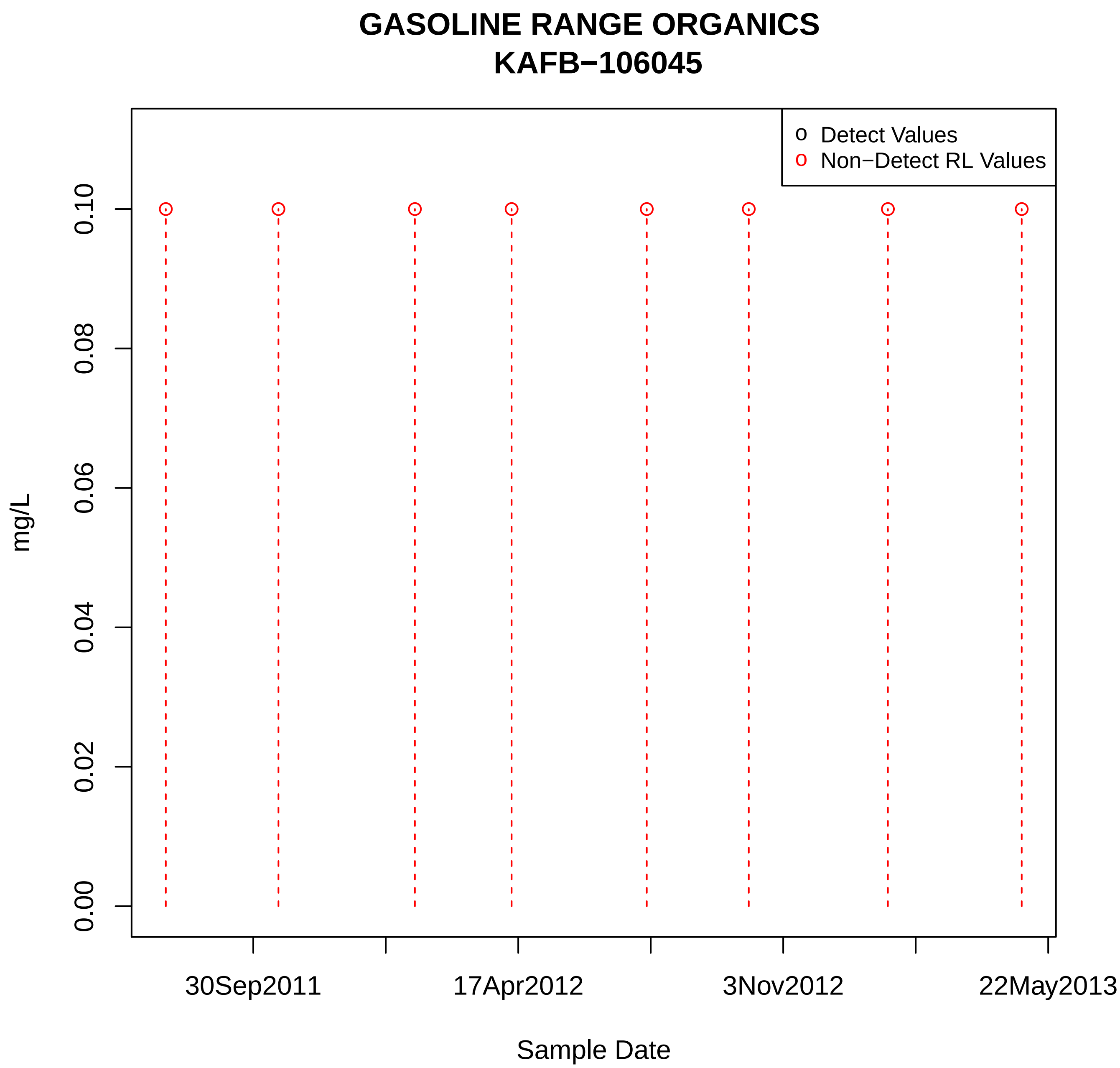

GASOLINE RANGE ORGANICS
KAFB−106043
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

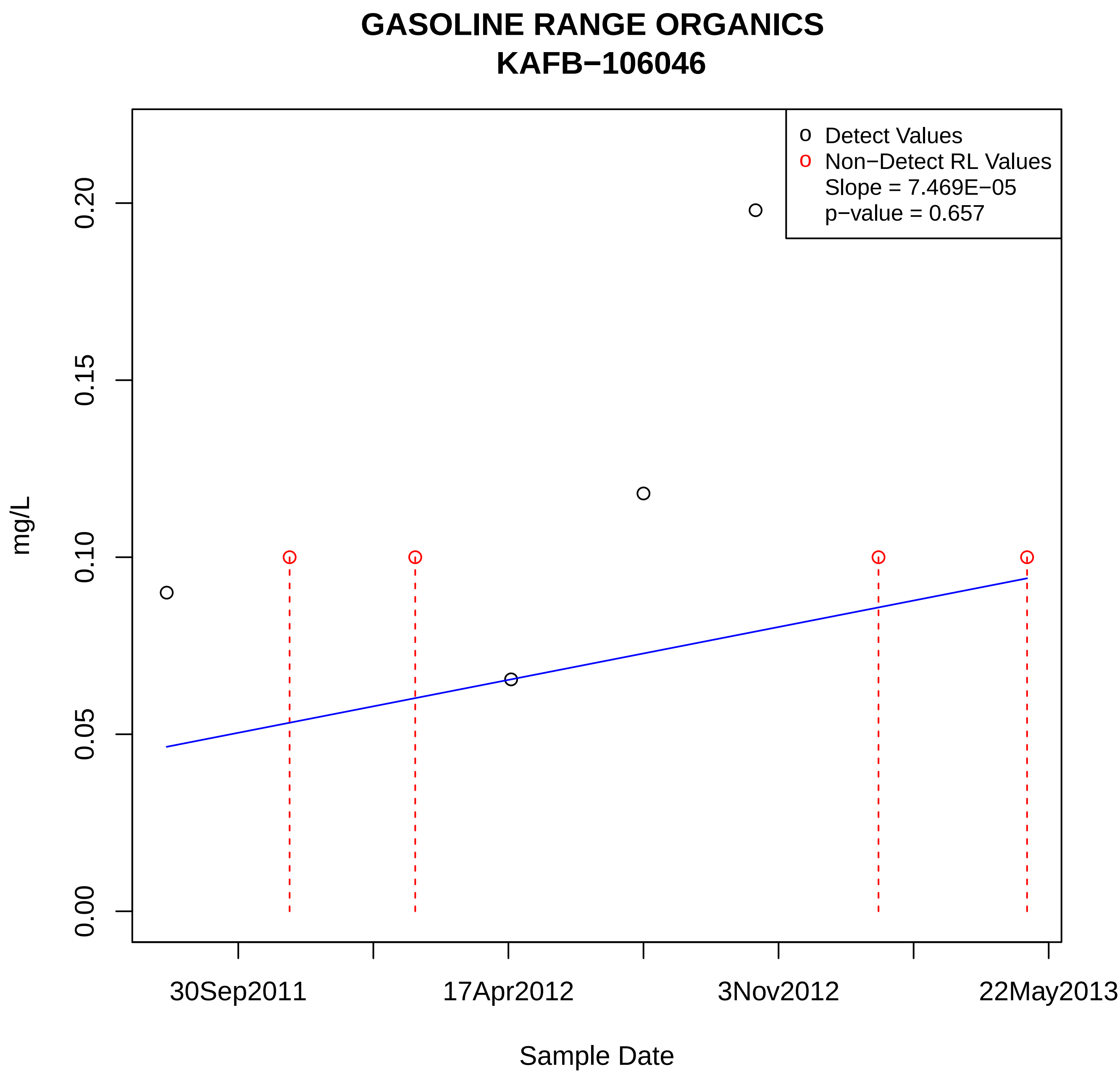


GASOLINE RANGE ORGANICS
KAFB−106027
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

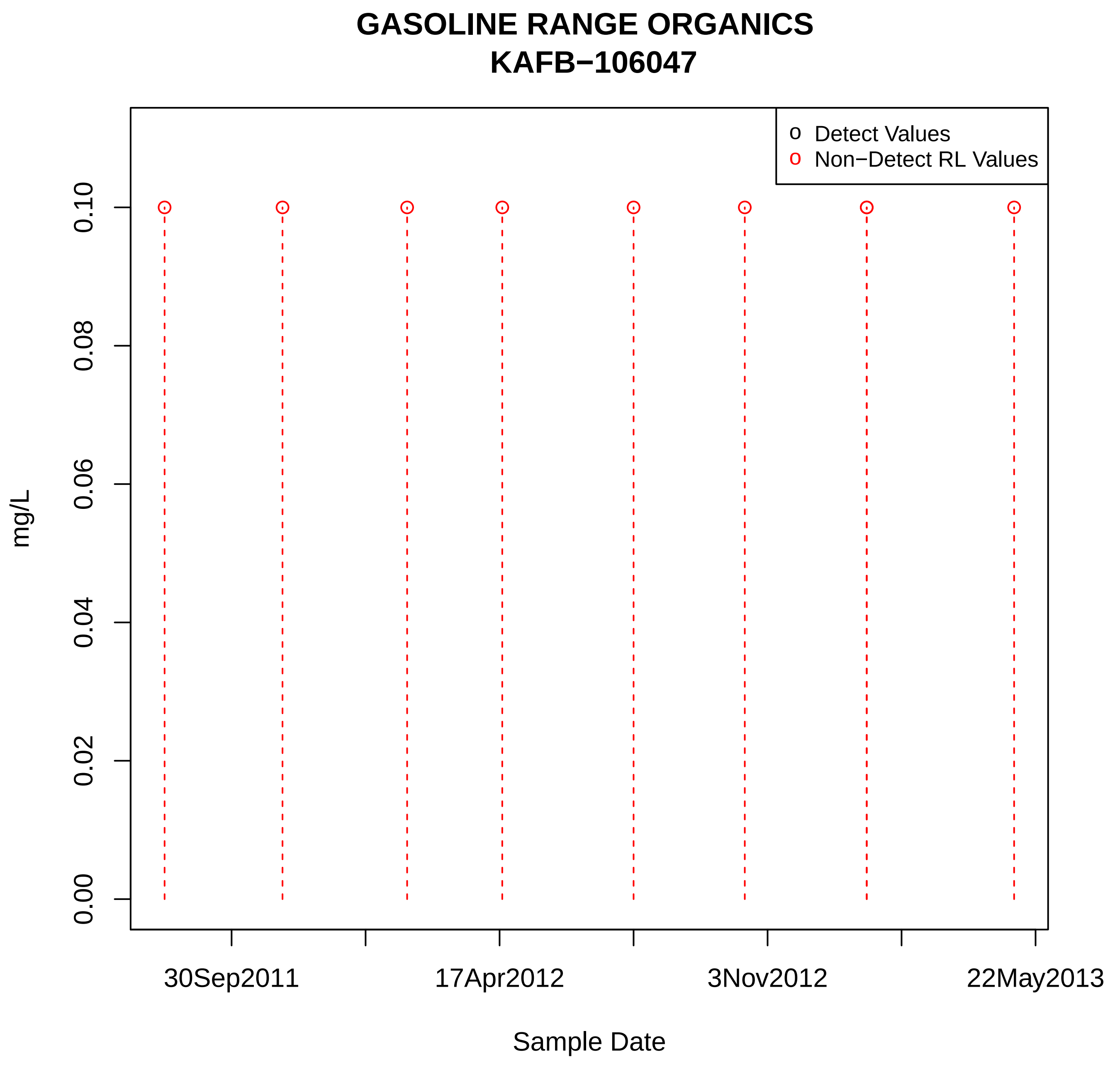


GASOLINE RANGE ORGANICS
KAFB−106044
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

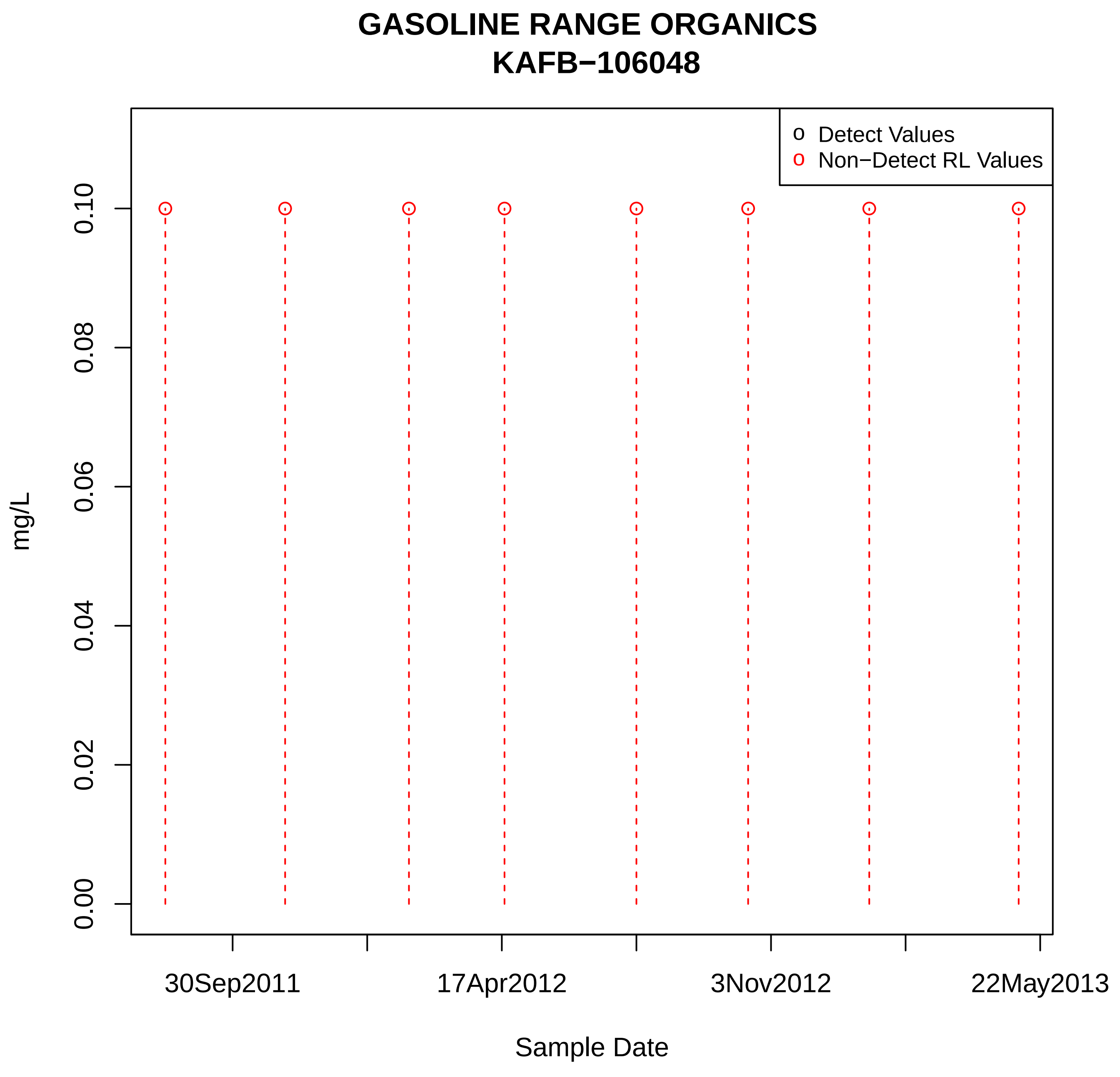

GASOLINE RANGE ORGANICS
KAFB−106045
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

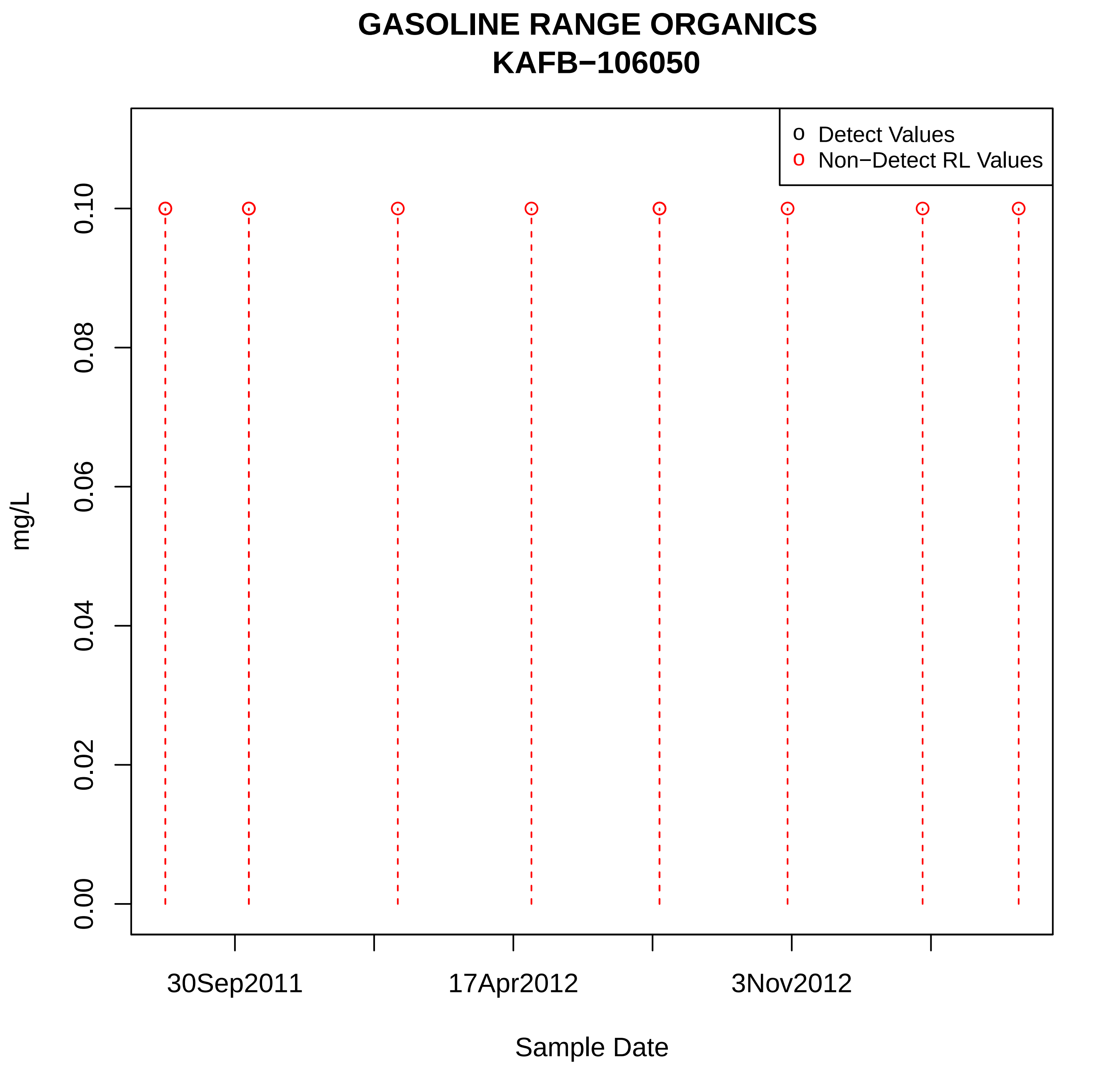


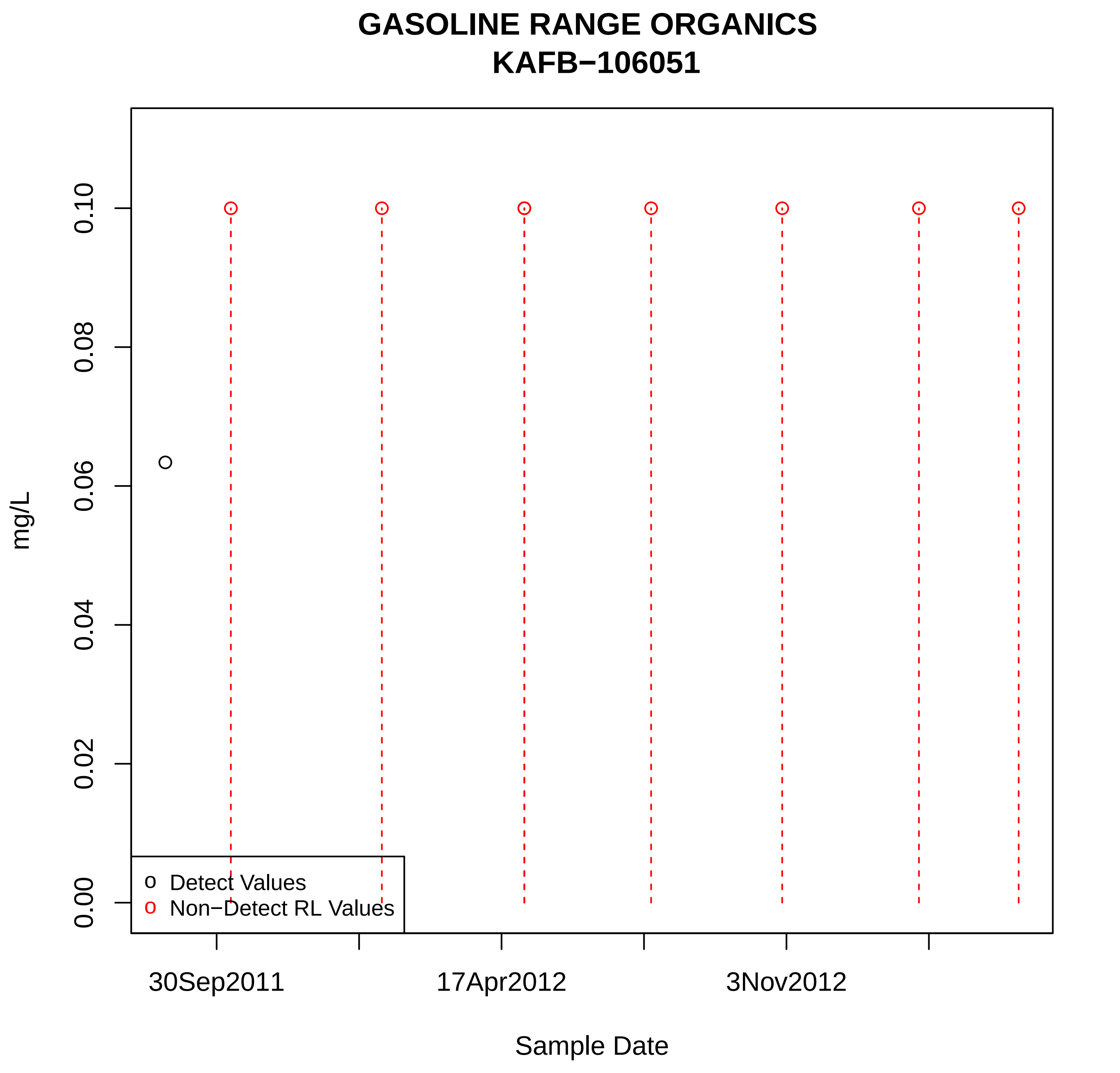
GASOLINE RANGE ORGANICS
KAFB−106046
Detect Values
Non−Detect RL Values
Slope = 7.469E−05
p−value = 0.657
mg/L
0.00
0.05
0.10
0.15
0.20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



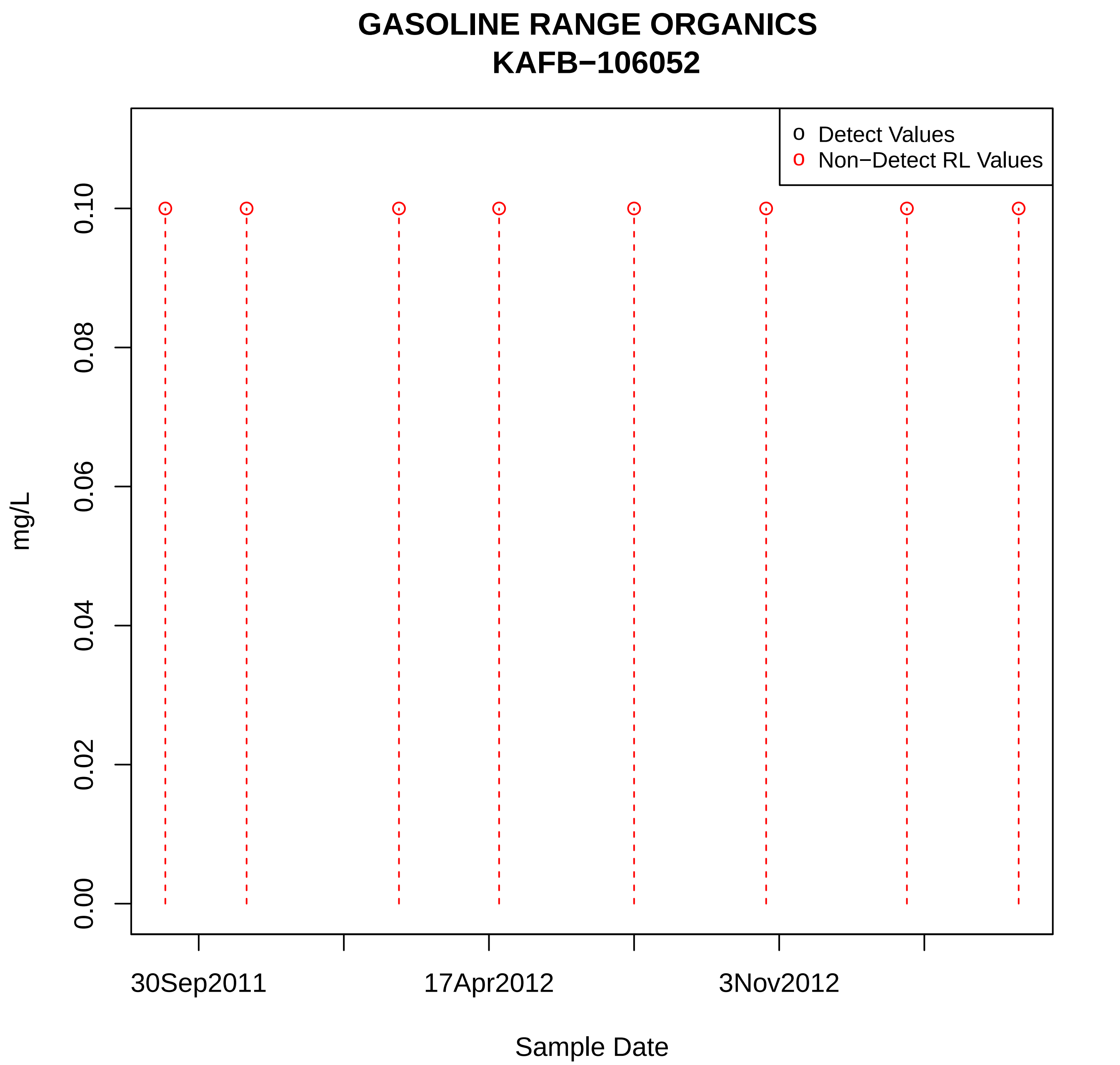
GASOLINE RANGE ORGANICS
KAFB−106047
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

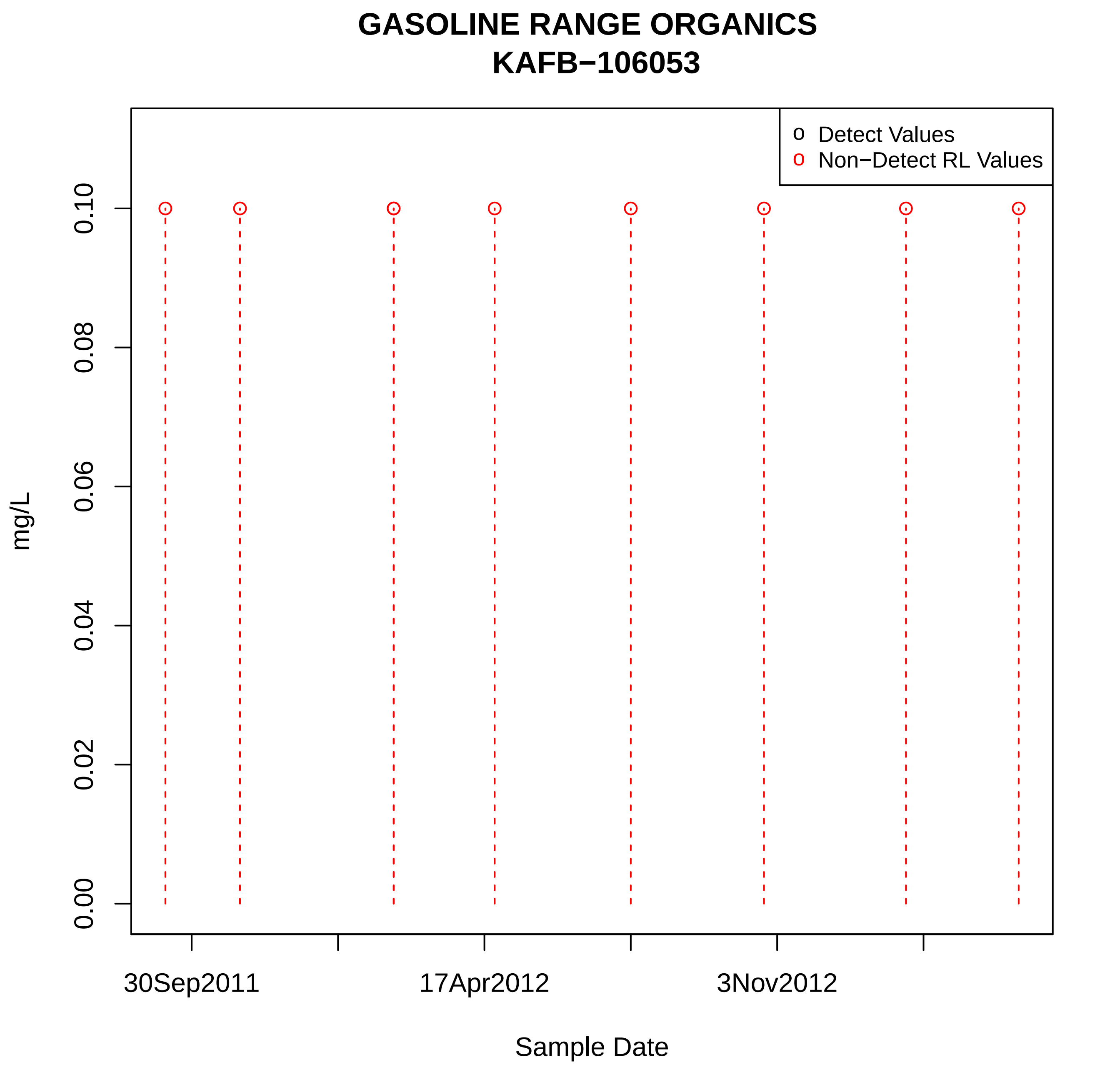

GASOLINE RANGE ORGANICS
KAFB−106048
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

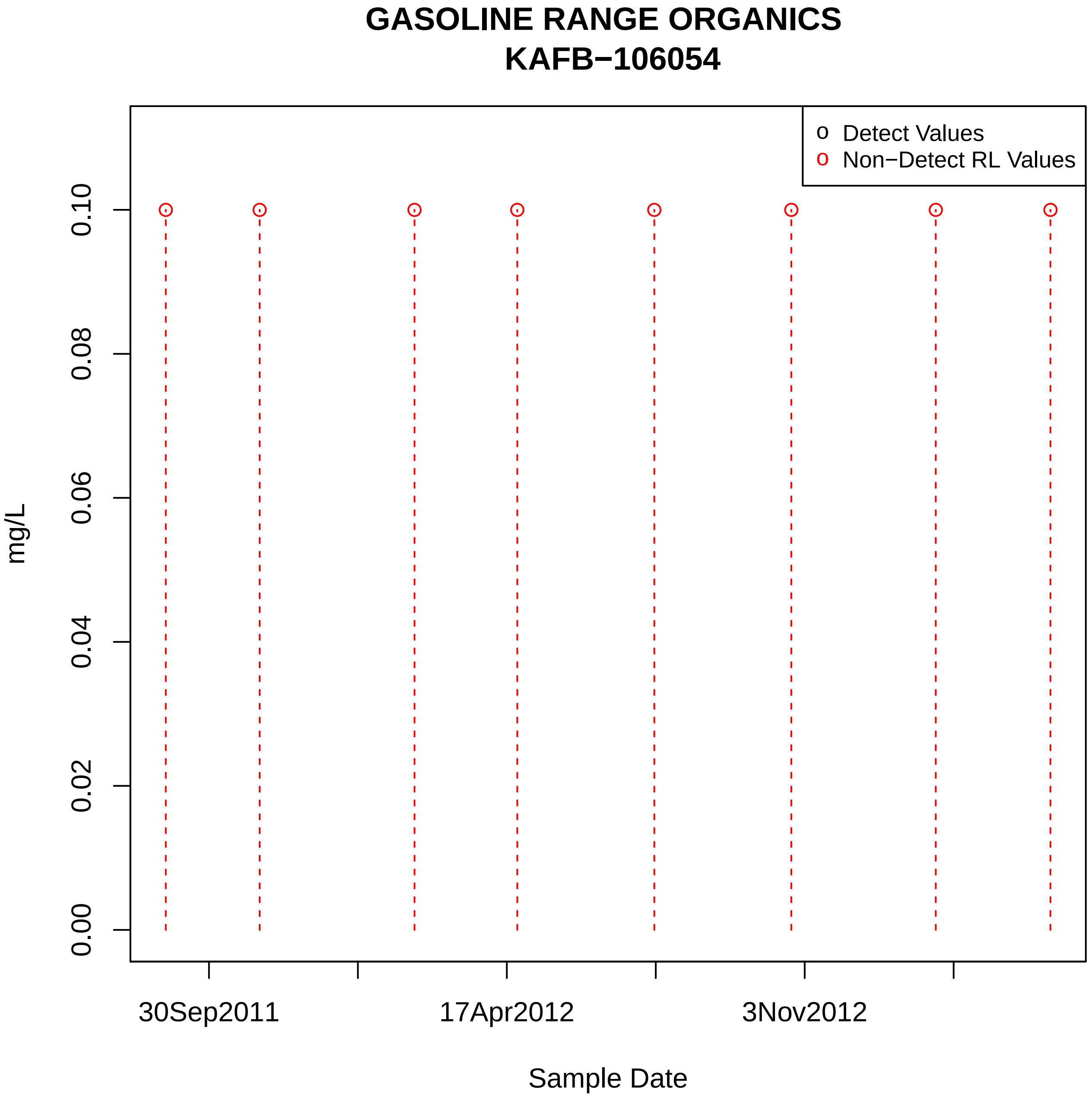

GASOLINE RANGE ORGANICS
KAFB−106050
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

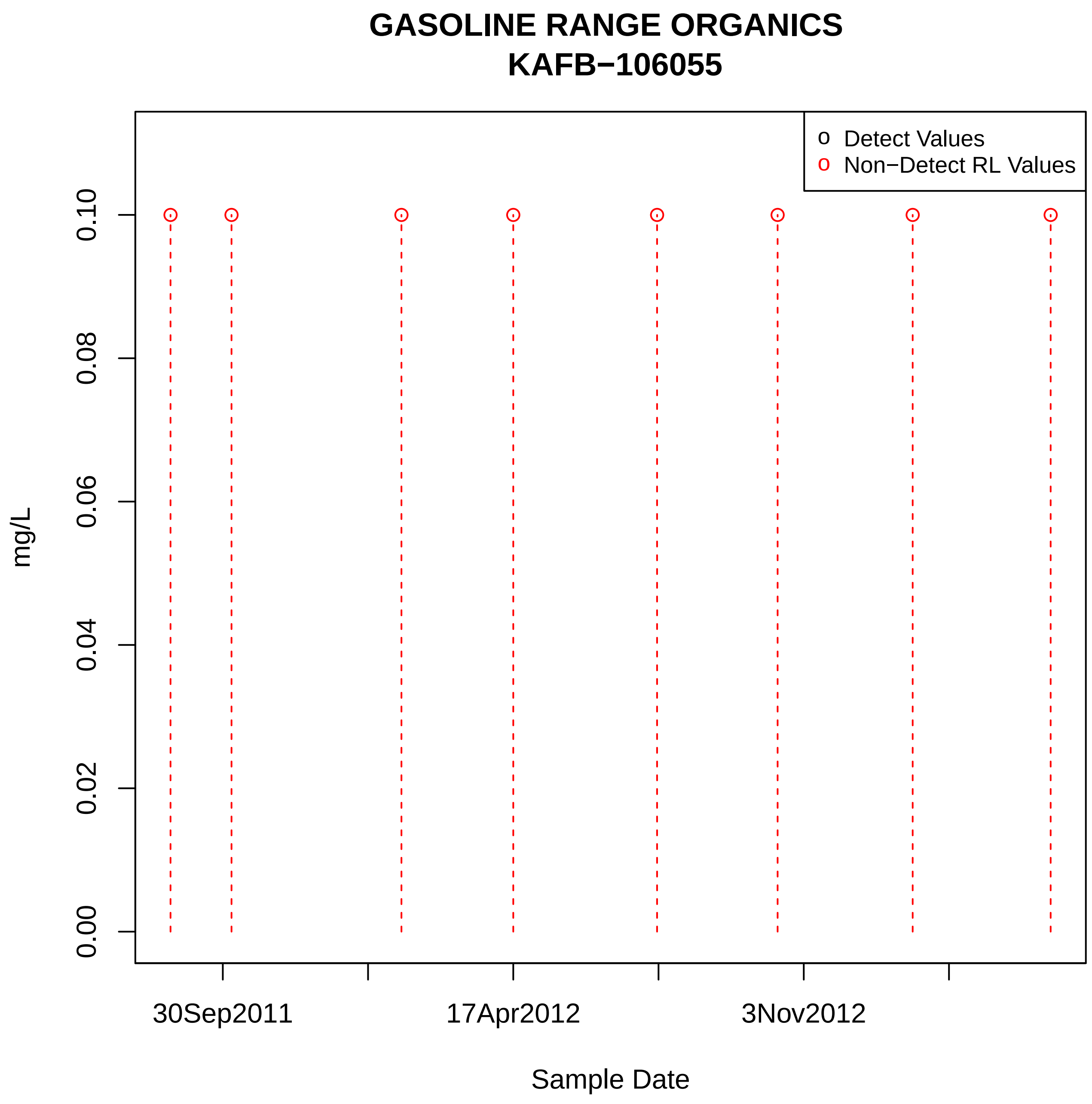


GASOLINE RANGE ORGANICS
KAFB−106051
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

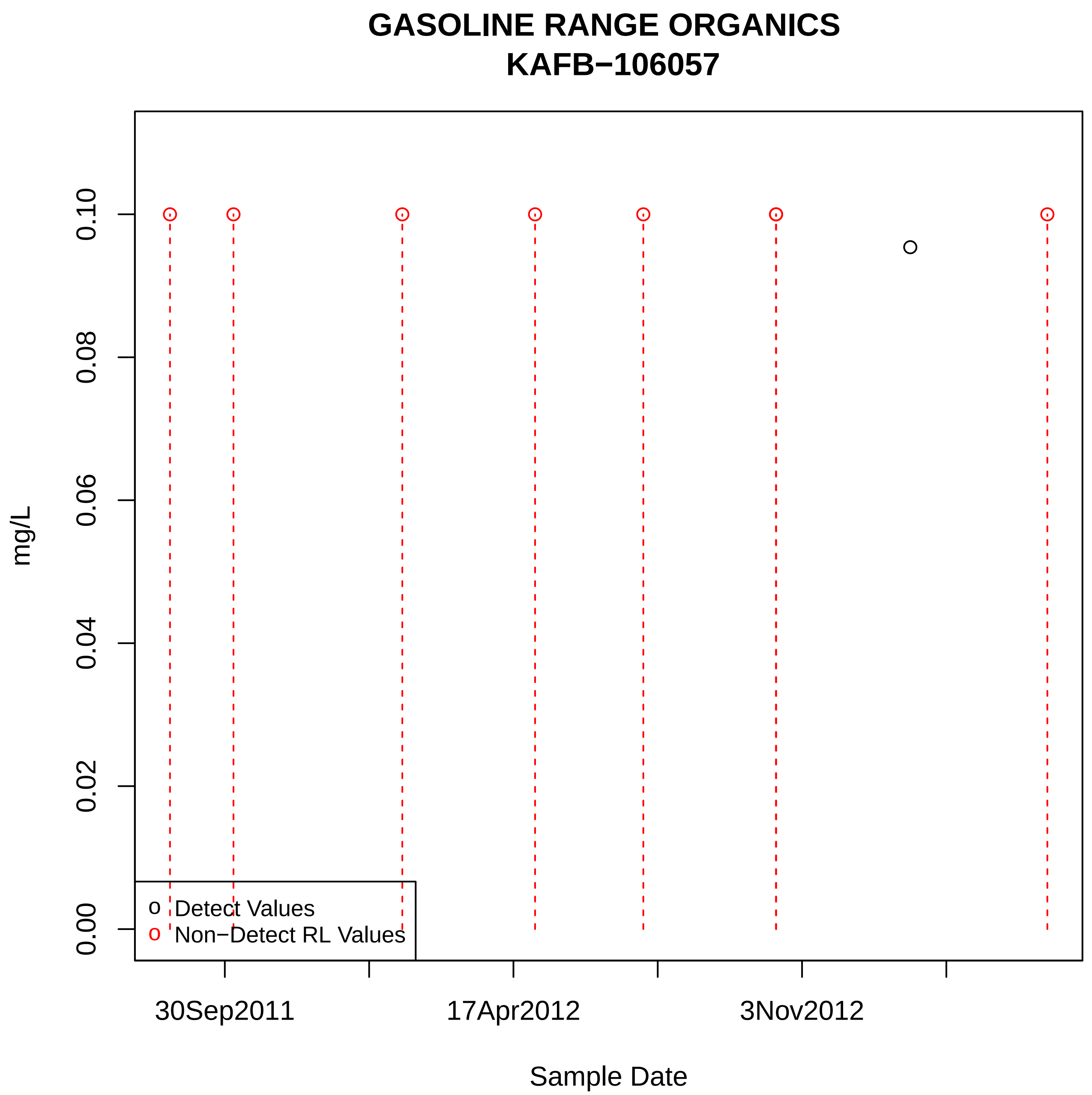

GASOLINE RANGE ORGANICS
KAFB−106052
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

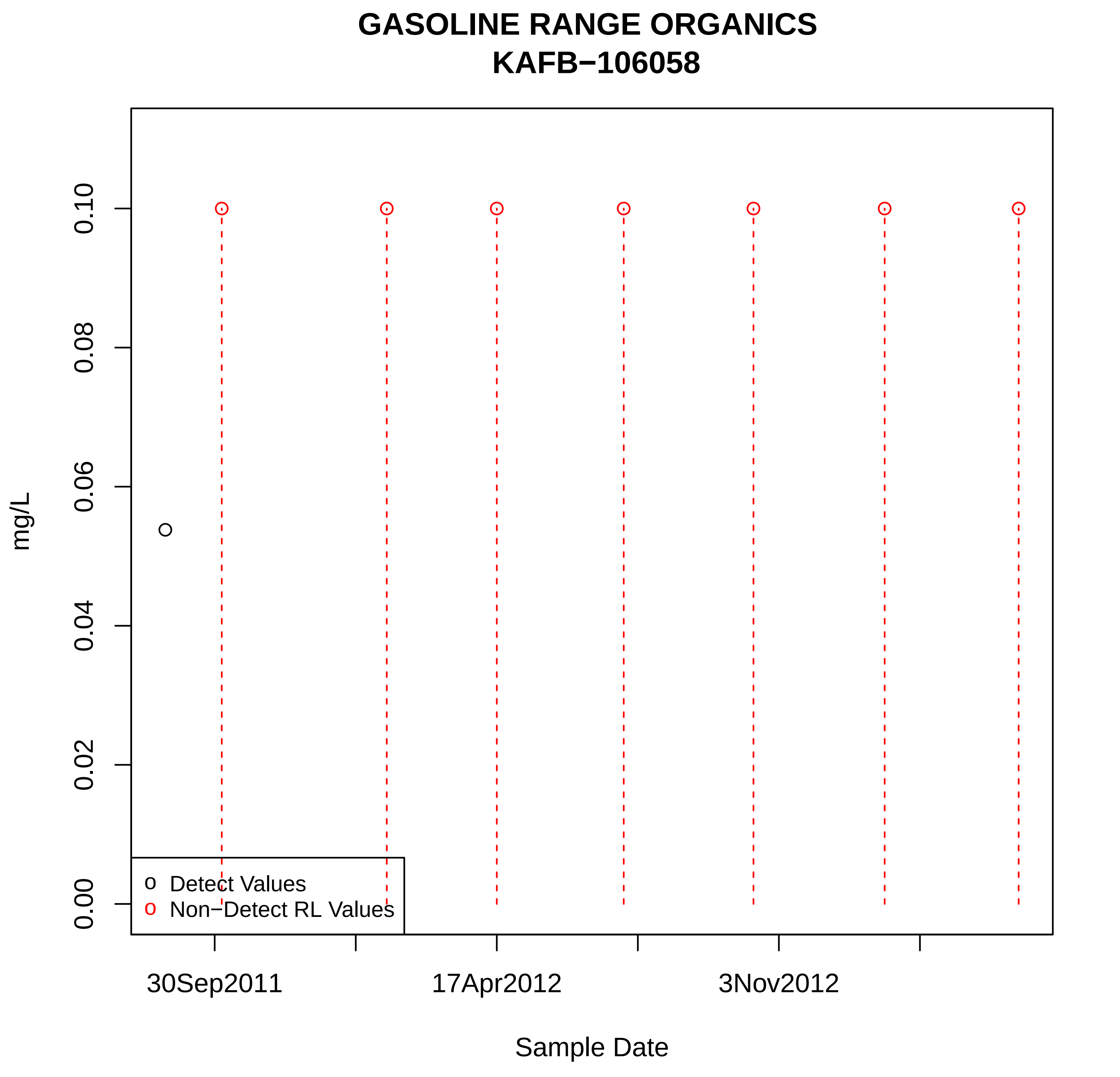

GASOLINE RANGE ORGANICS
KAFB−106053
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106054
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

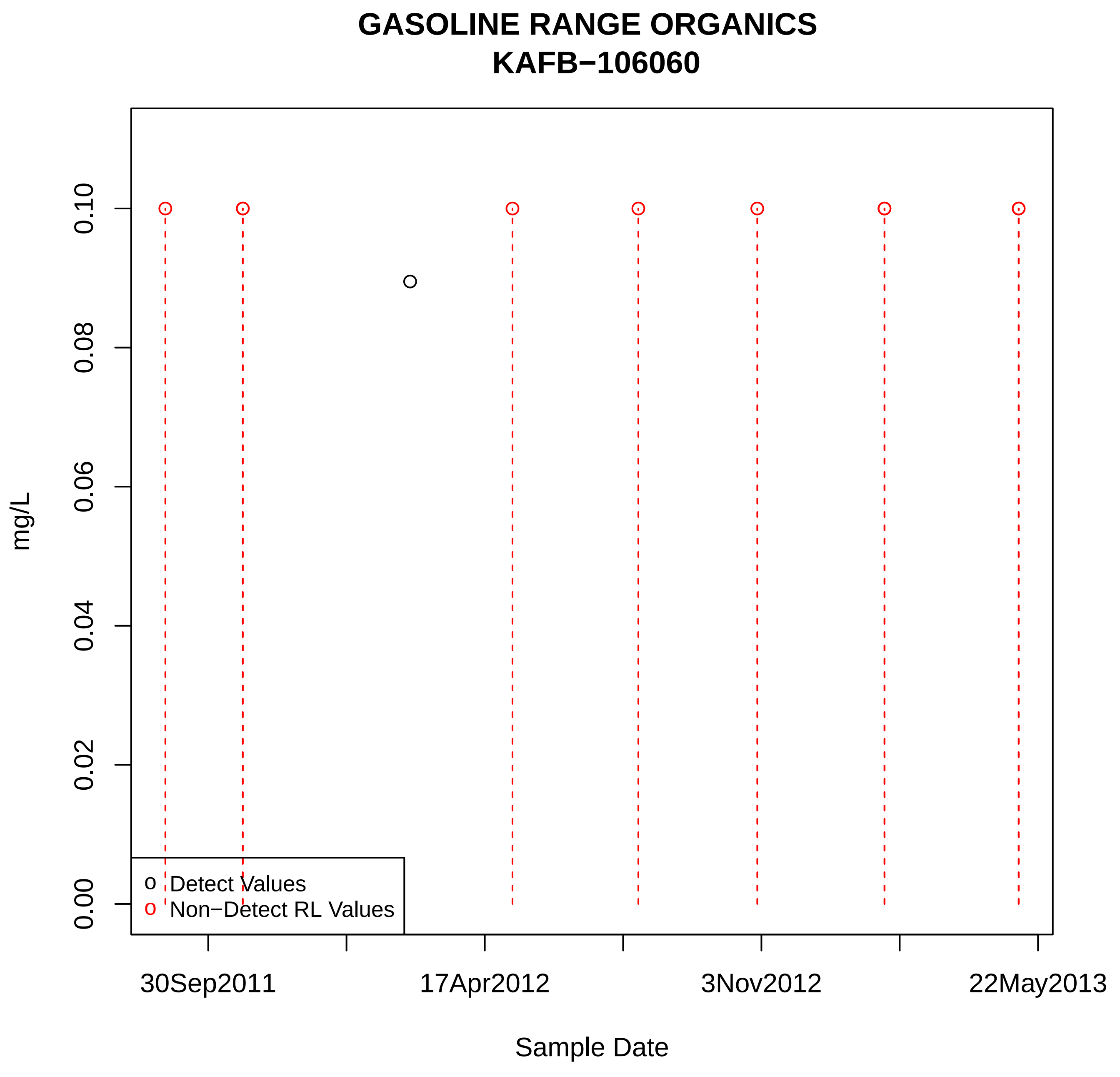


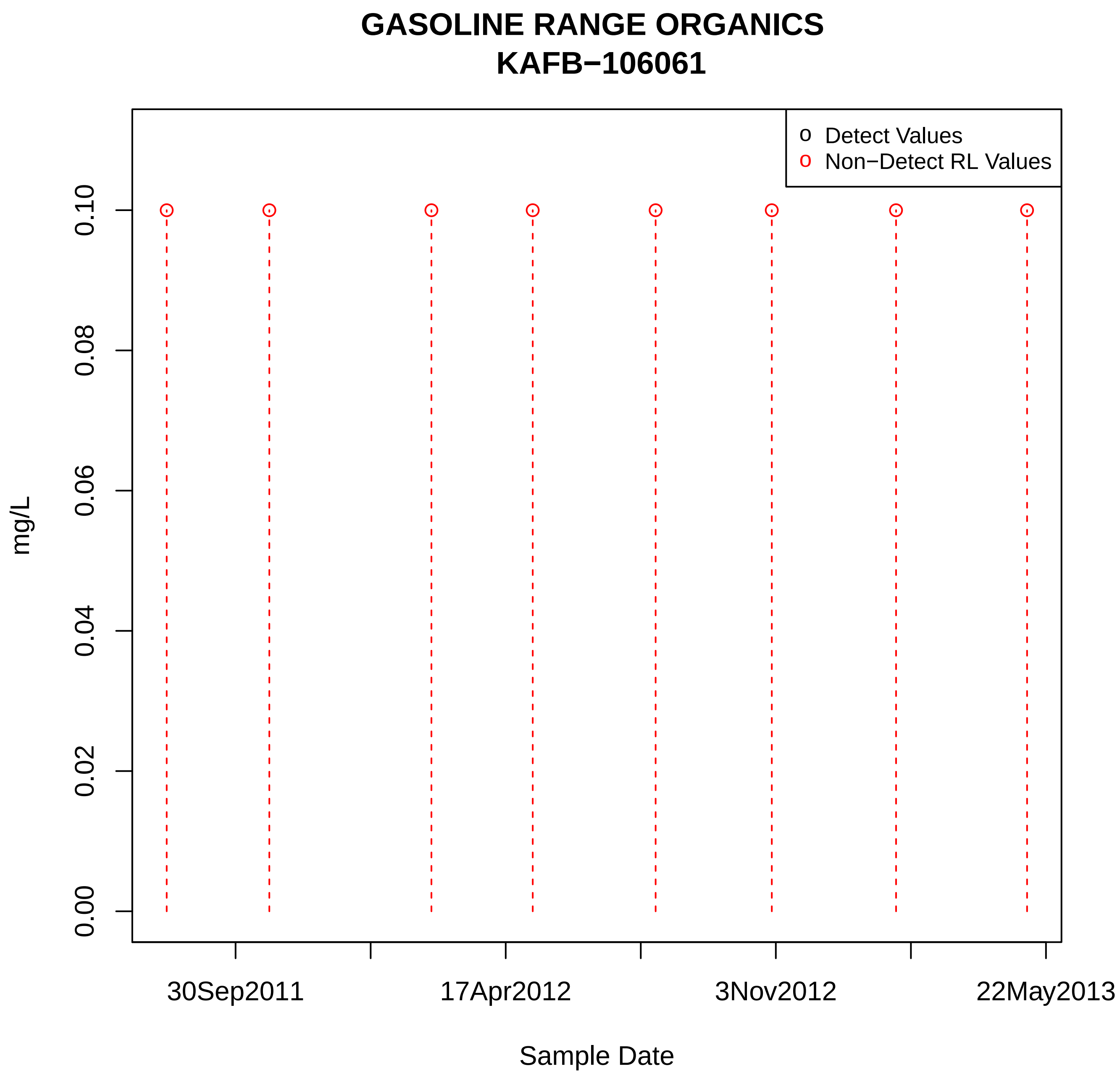
GASOLINE RANGE ORGANICS
KAFB−106055
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

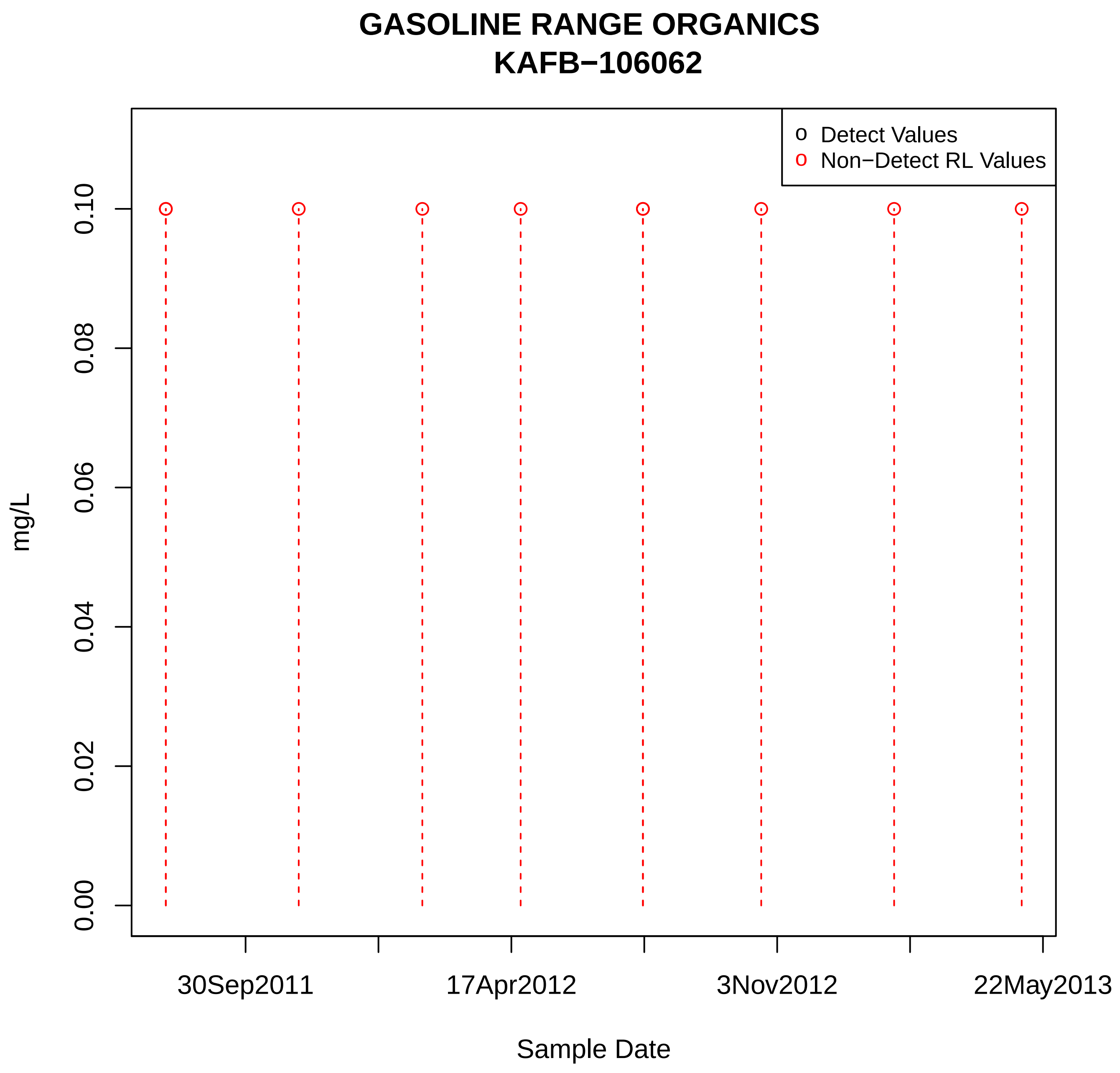

GASOLINE RANGE ORGANICS
KAFB−106057
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

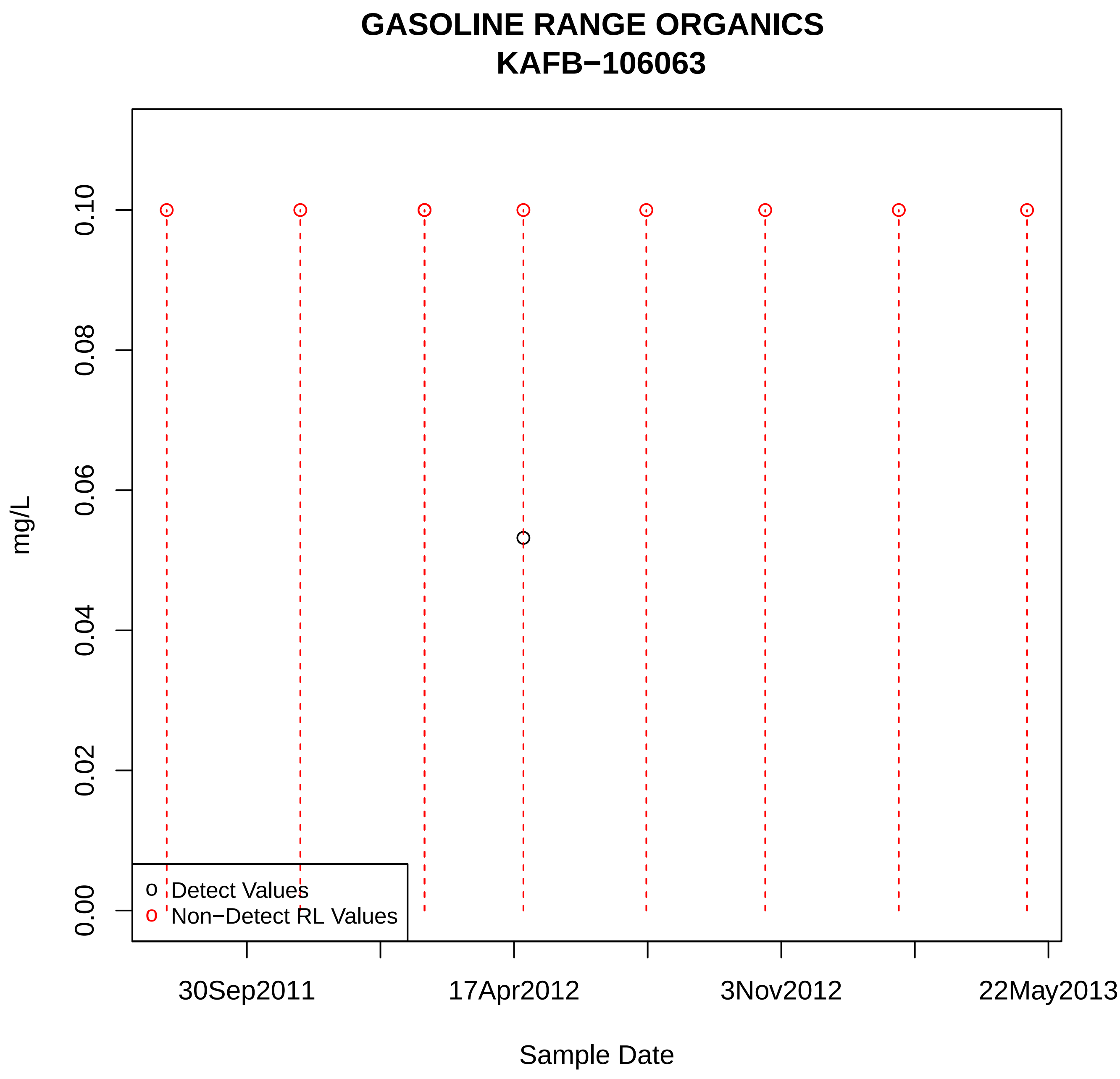


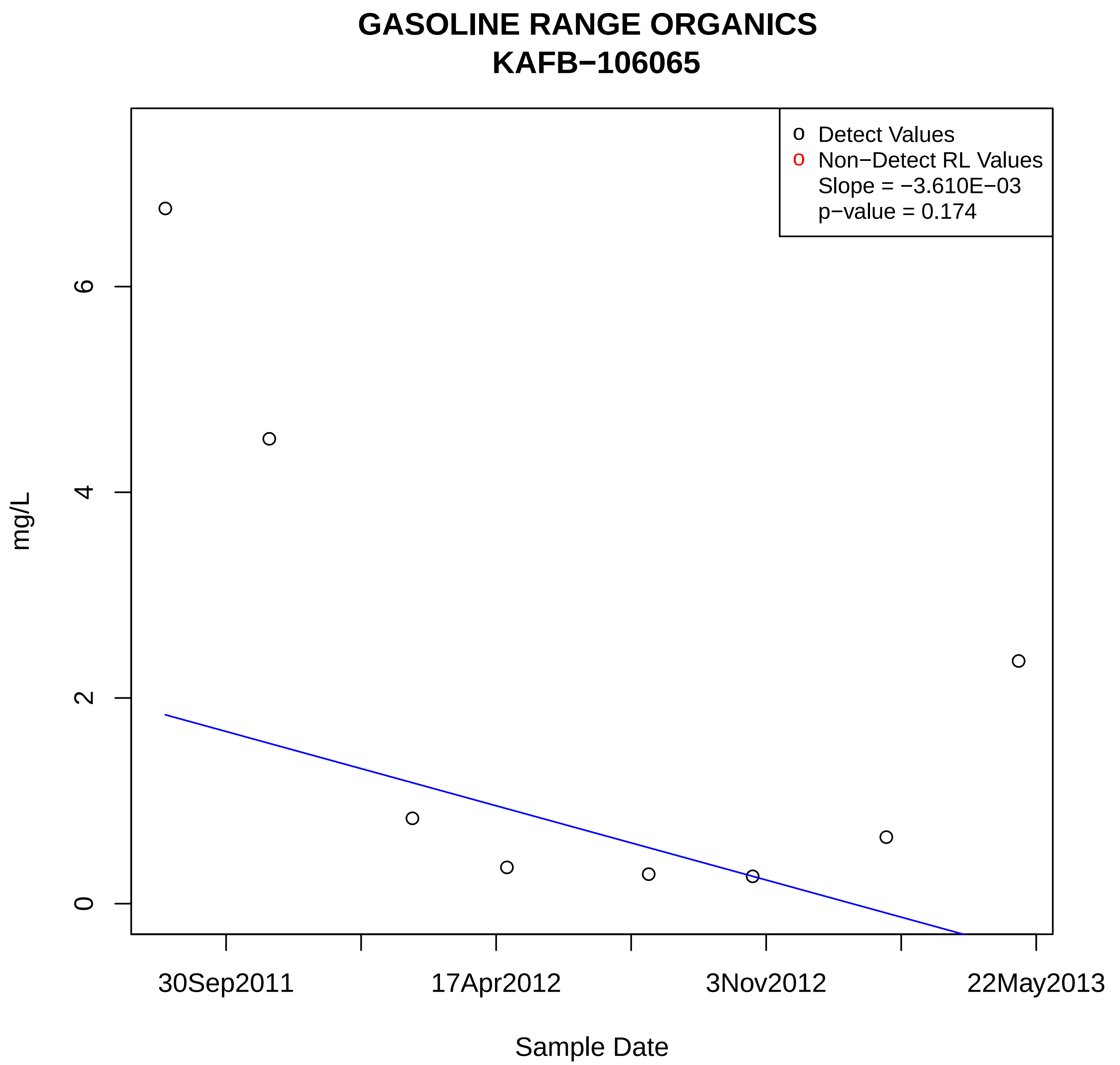
GASOLINE RANGE ORGANICS
KAFB−106058
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values


GASOLINE RANGE ORGANICS
KAFB−106060
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

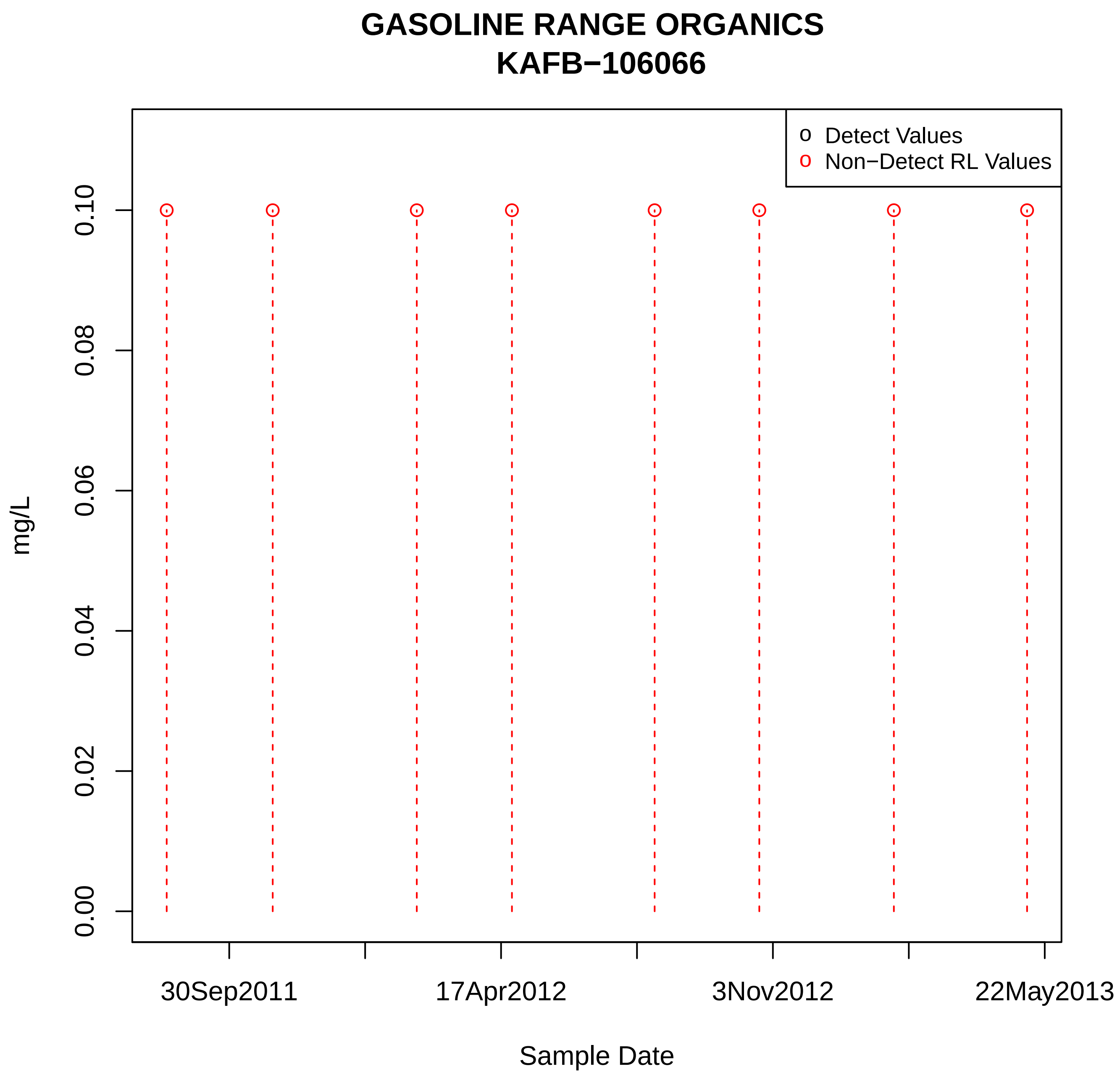

GASOLINE RANGE ORGANICS
KAFB−106061
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

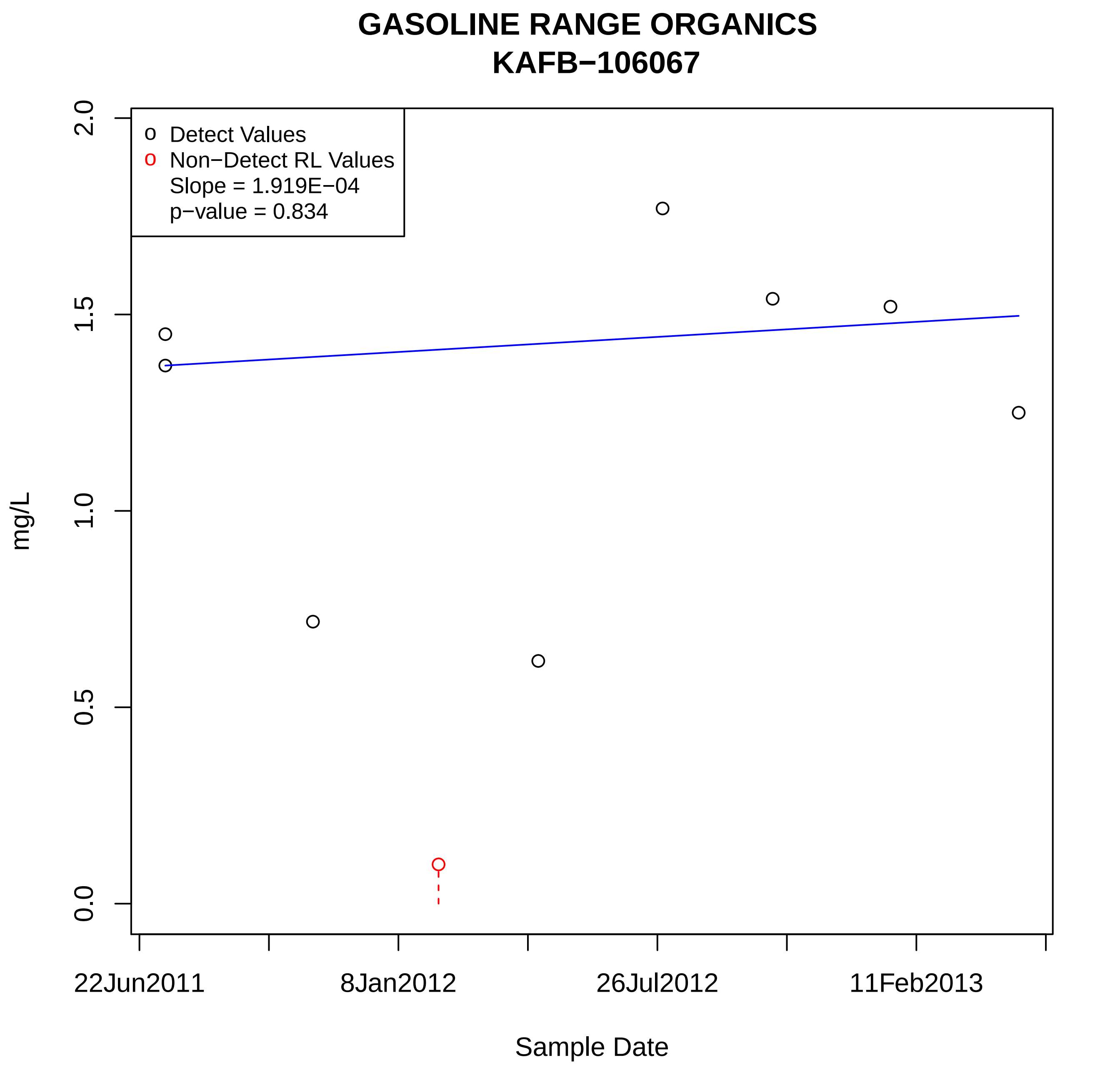

GASOLINE RANGE ORGANICS
KAFB−106062
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

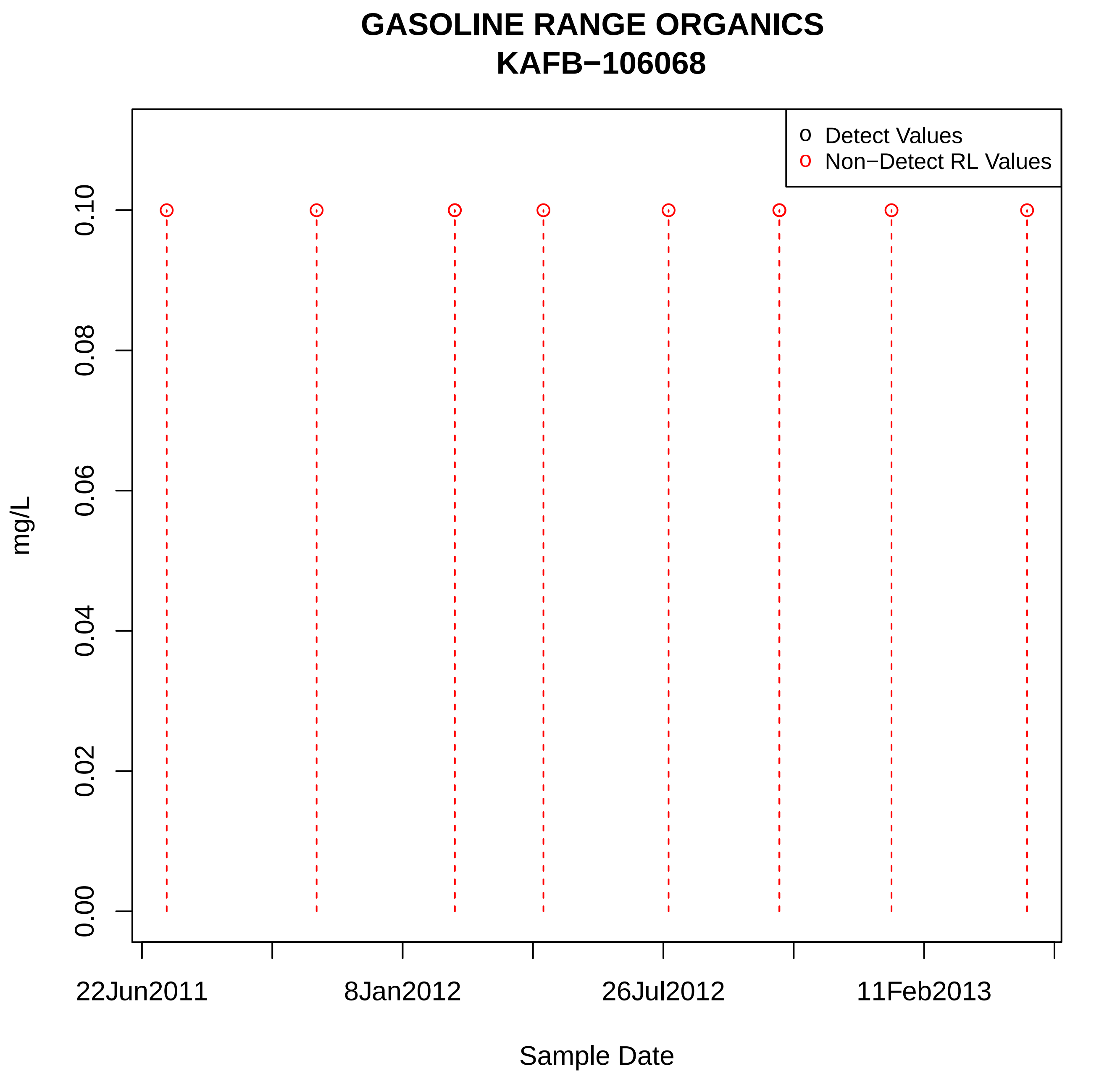

GASOLINE RANGE ORGANICS
KAFB−106063
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values



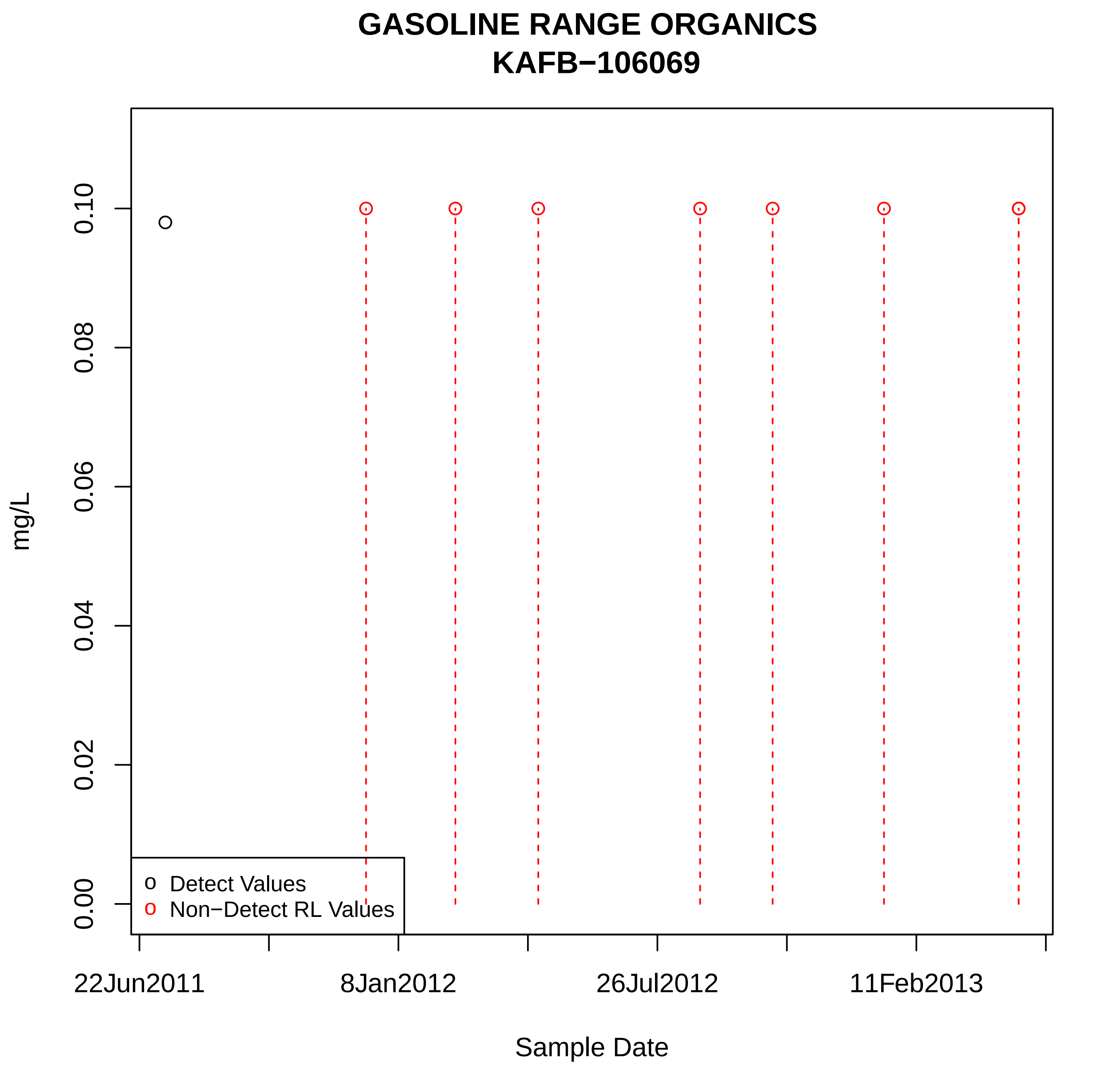
GASOLINE RANGE ORGANICS
KAFB−106065
o Detect Values
o Non−Detect RL Values
Slope = −3.610E−03
p−value = 0.174
mg/L
0
2
4
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

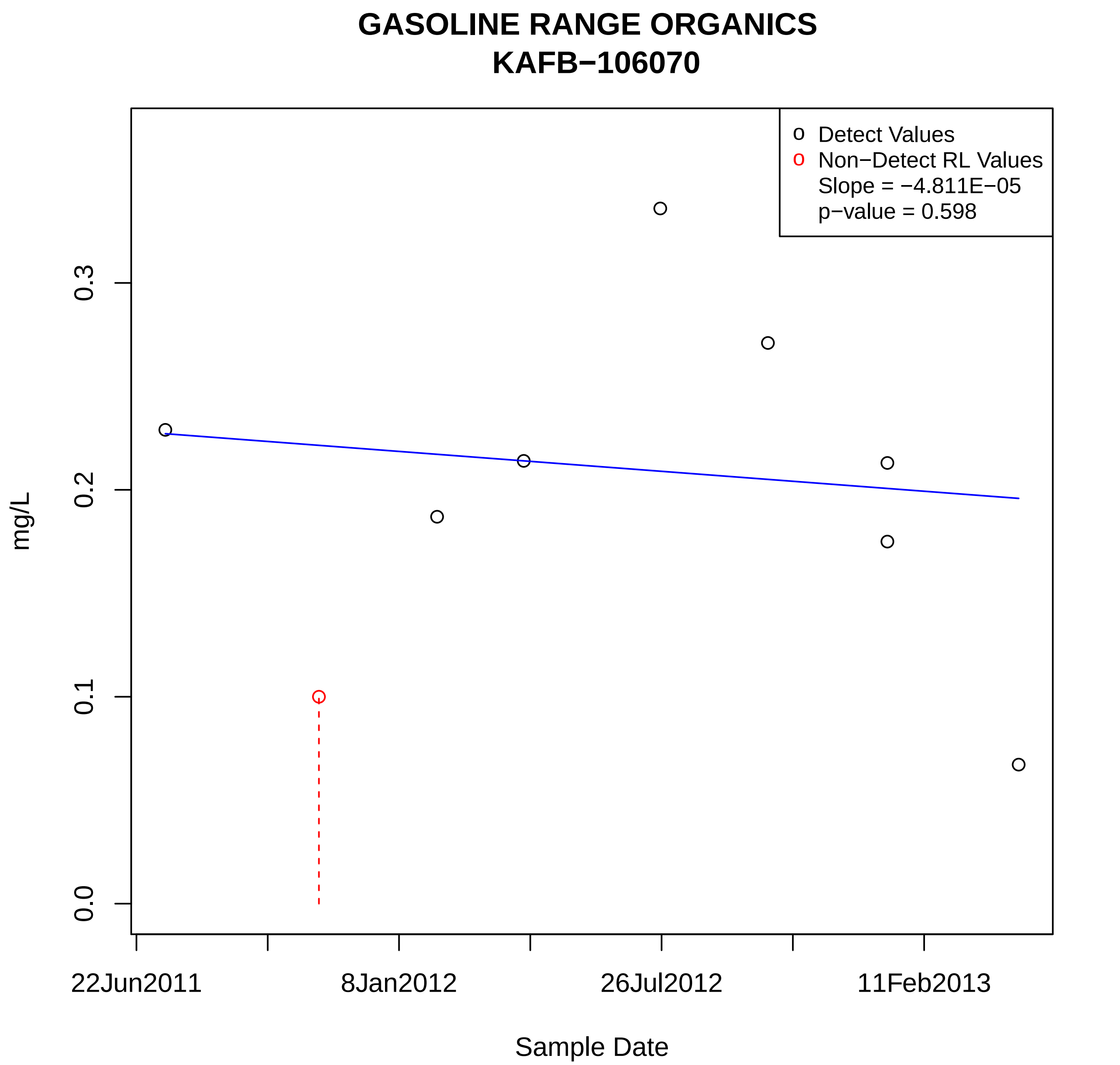

GASOLINE RANGE ORGANICS
KAFB−106066
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = 1.919E−04
p−value = 0.834
mg/L
0.0
0.5
1.0
1.5
2.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

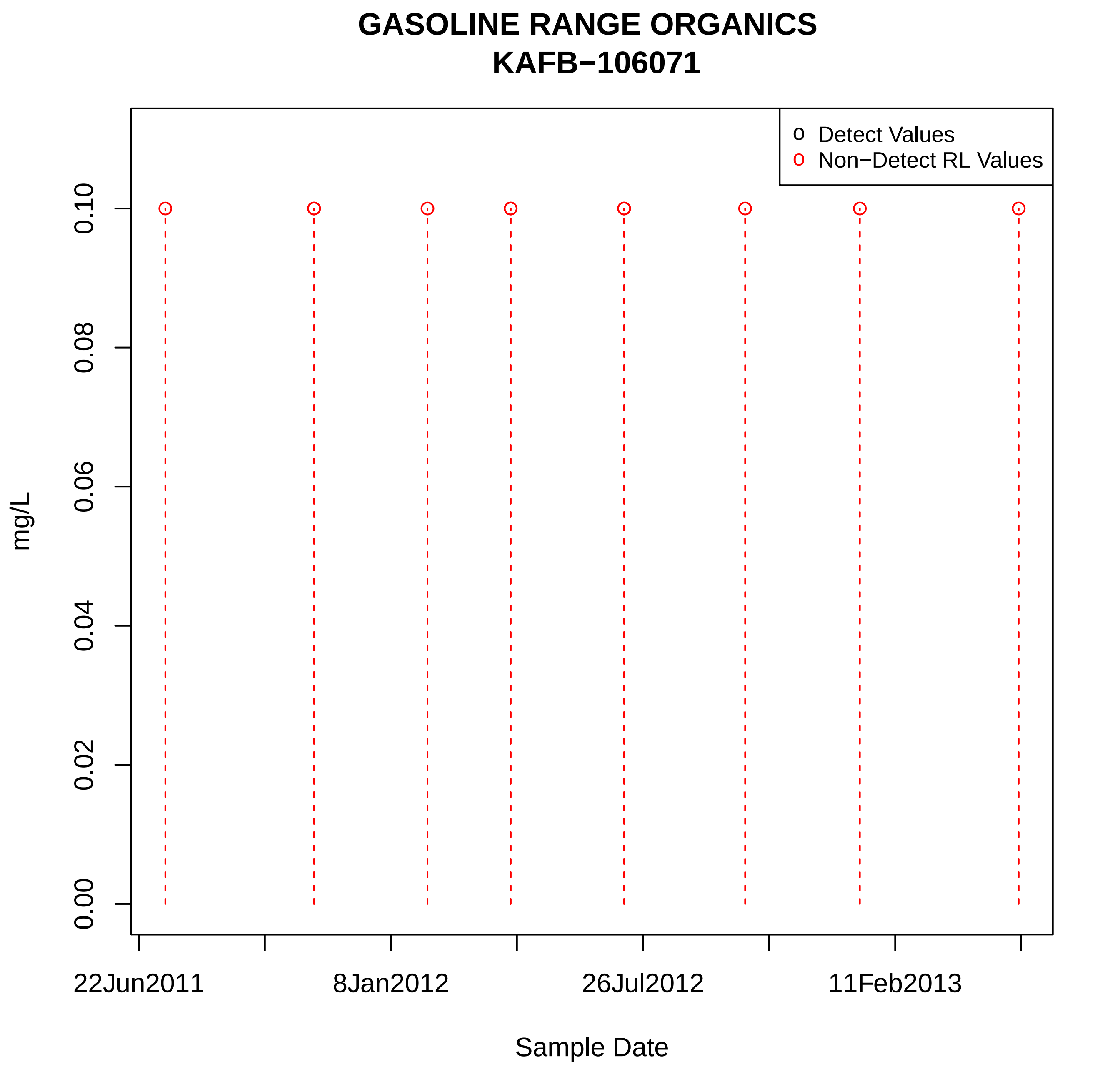


GASOLINE RANGE ORGANICS
KAFB−106068
o Detect Values
o Non−Detect RL Values
0.00
0.02
0.04
0.06
0.08
0.10
mg/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

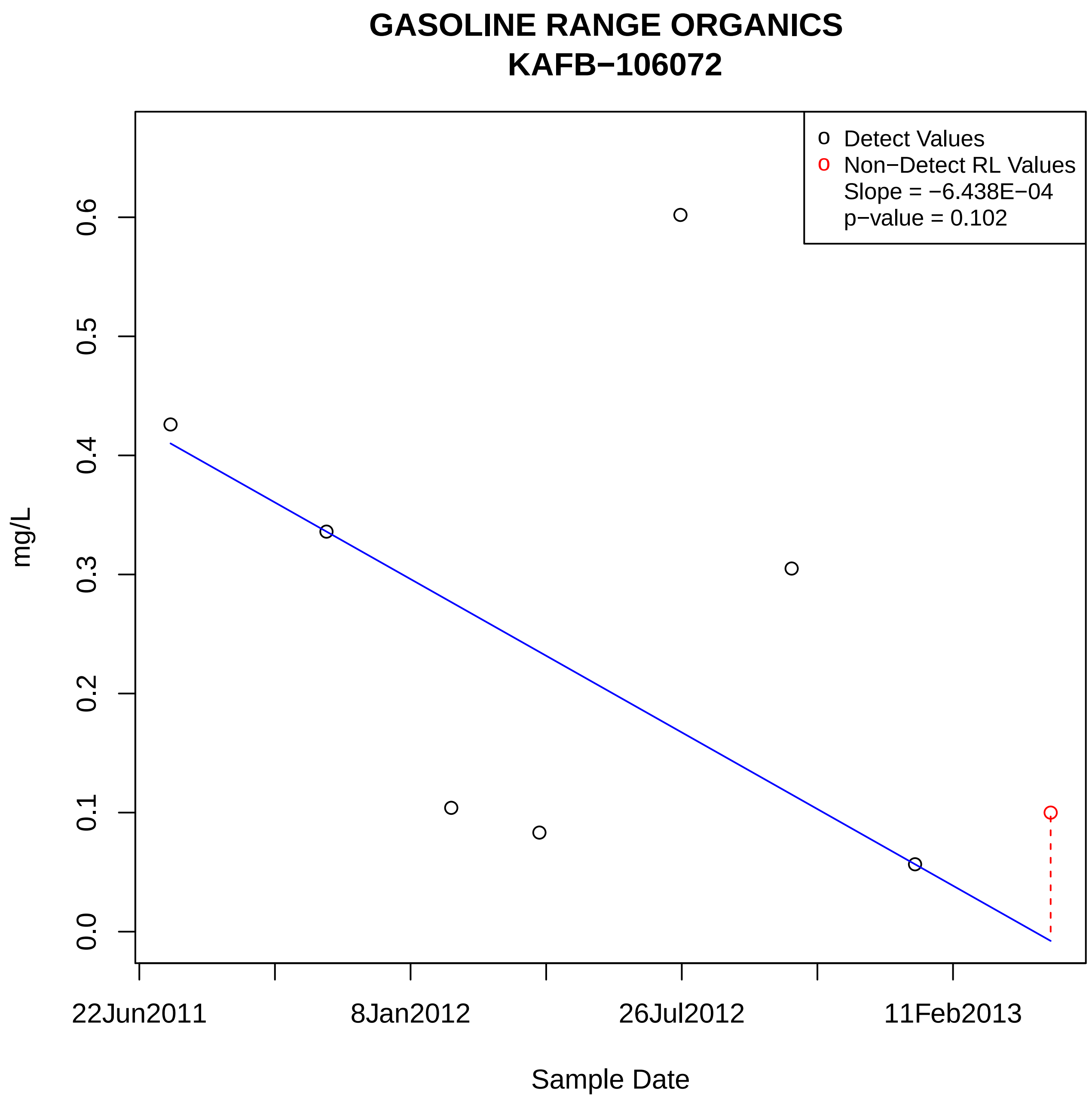

GASOLINE RANGE ORGANICS
KAFB−106069
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values

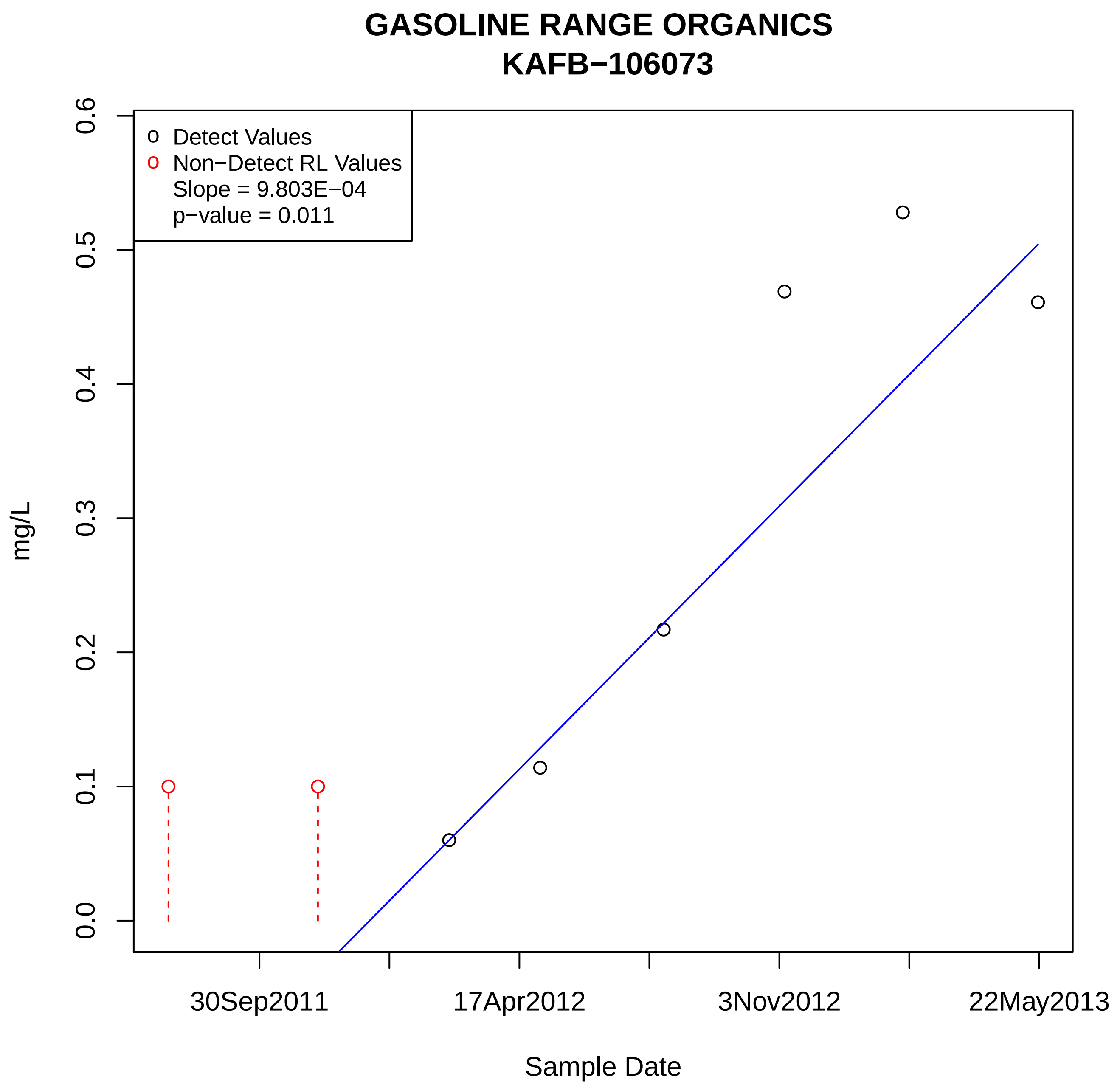


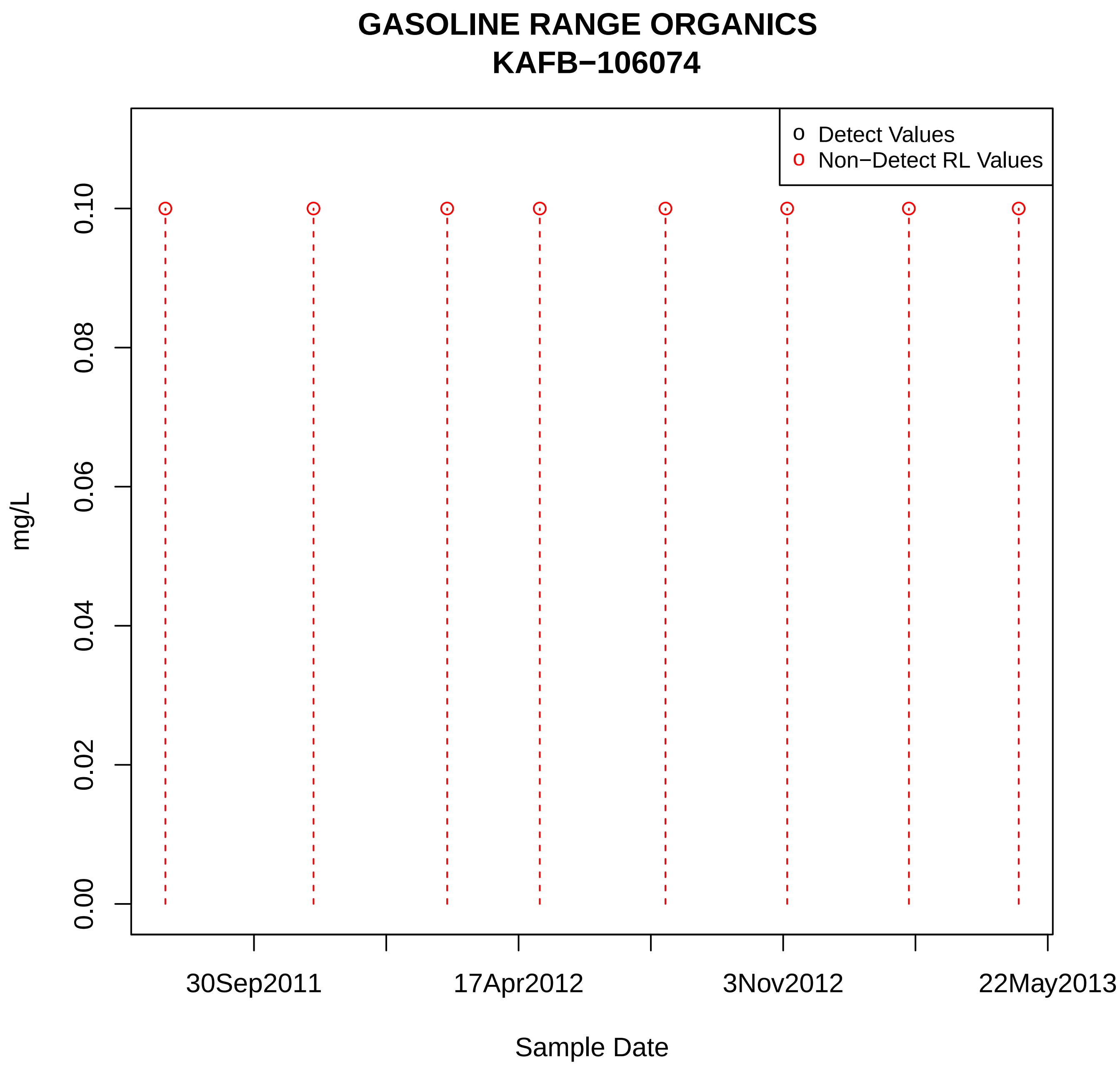
GASOLINE RANGE ORGANICS
KAFB−106070
o Detect Values
o Non−Detect RL Values
Slope = −4.811E−05
p−value = 0.598
mg/L
0.0
0.1
0.2
0.3
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

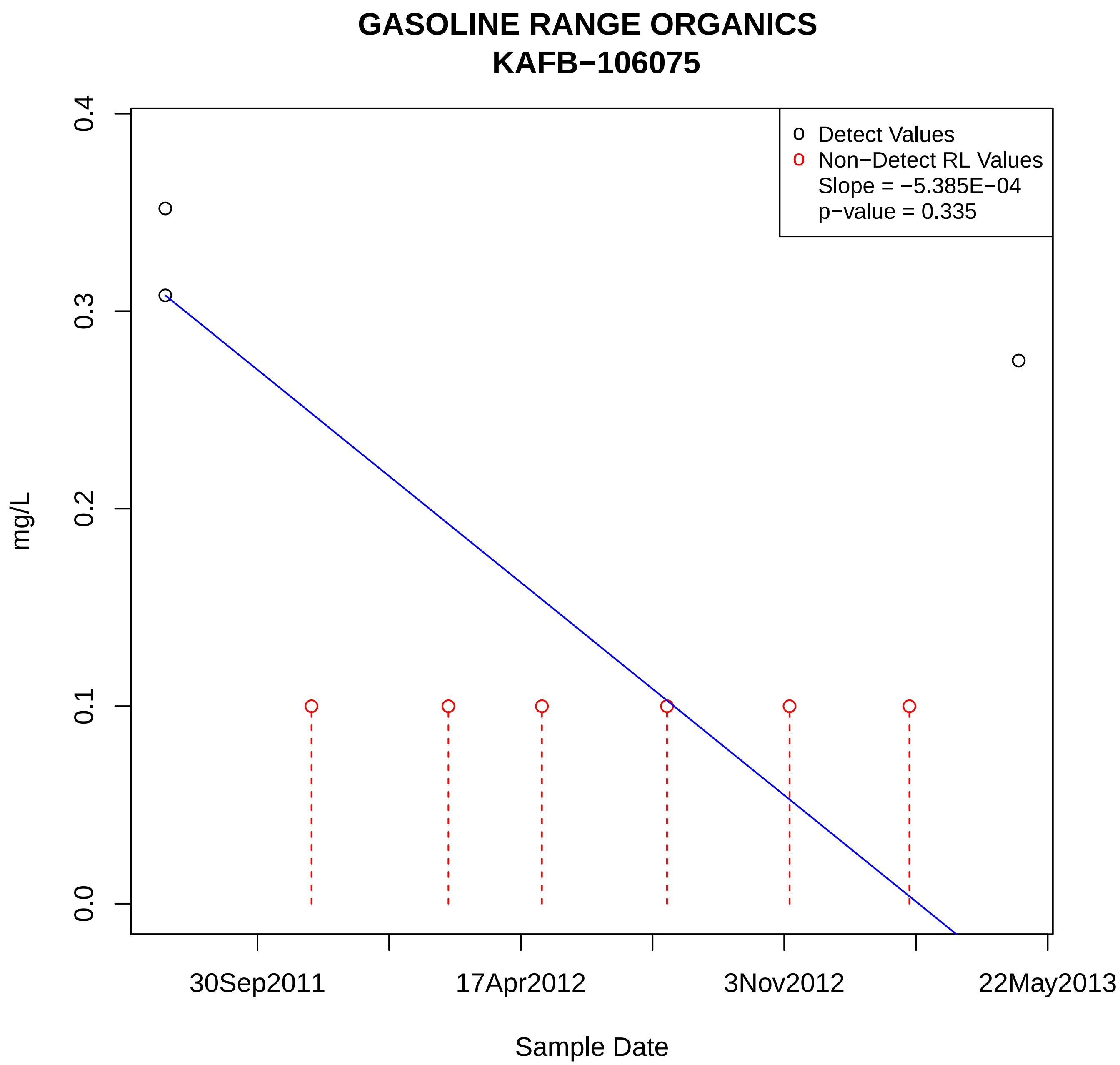


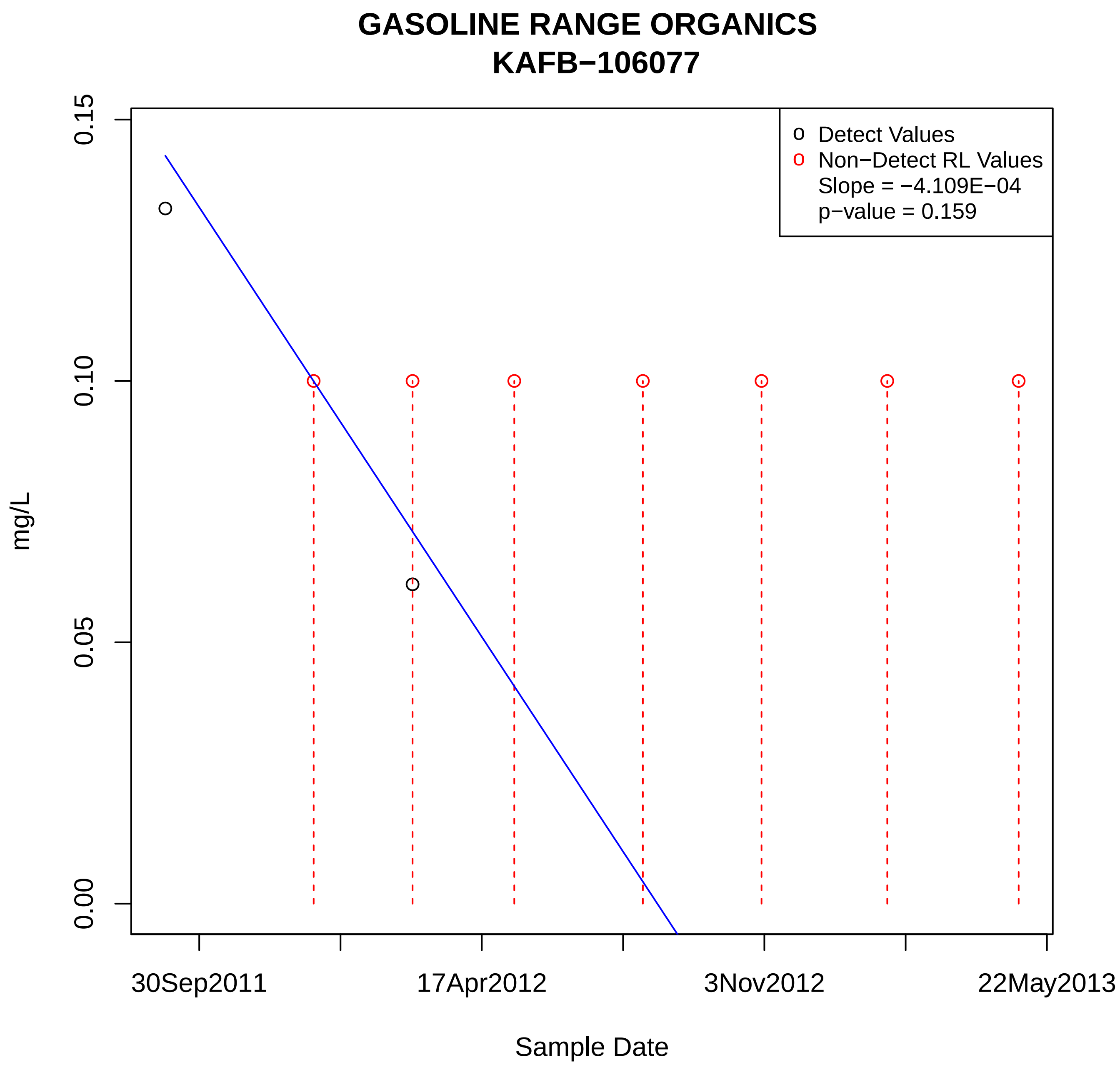
GASOLINE RANGE ORGANICS
KAFB−106071
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106072
Detect Values
Non−Detect RL Values
Slope = −6.438E−04
p−value = 0.102
mg/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

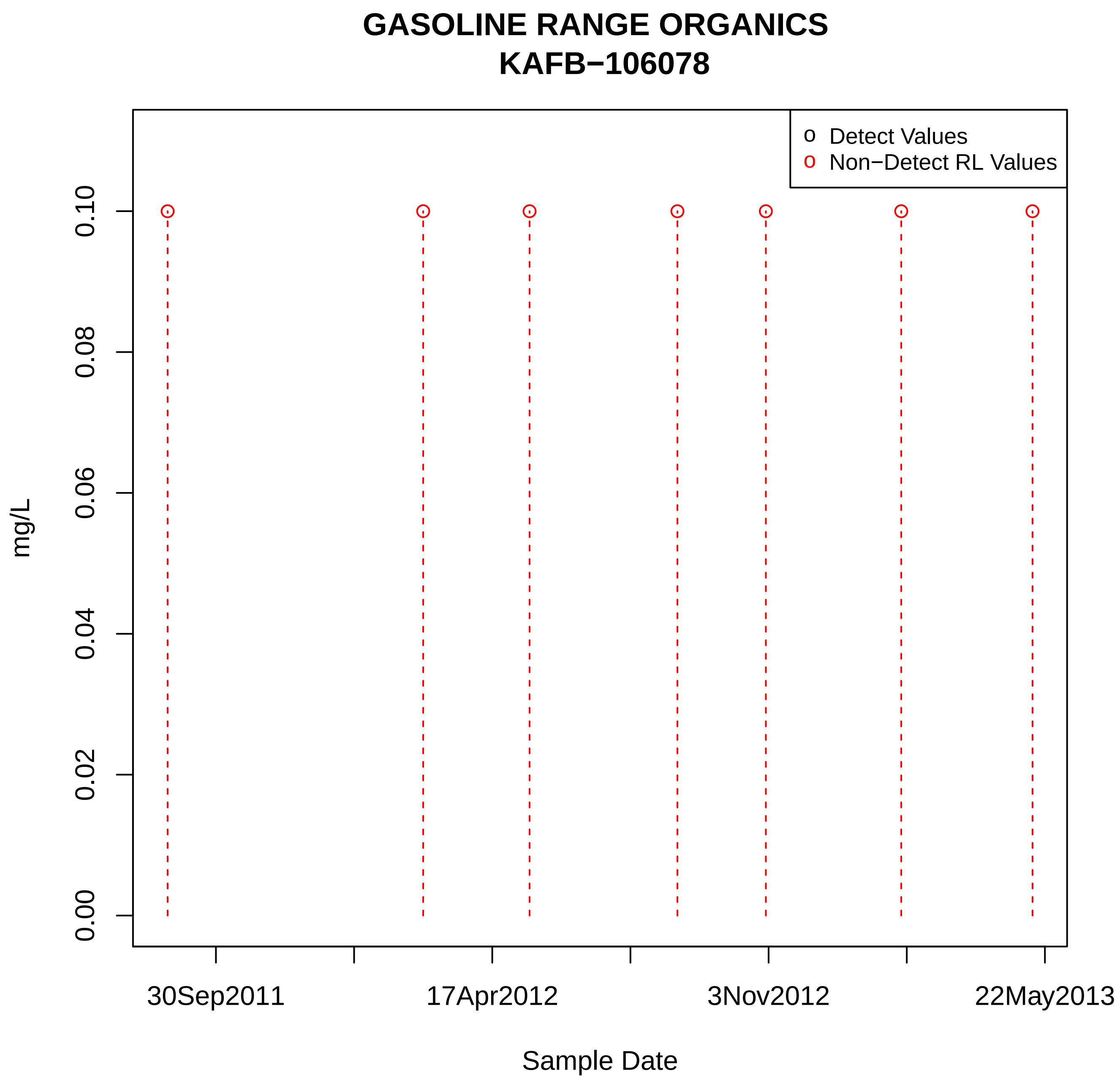

GASOLINE RANGE ORGANICS
KAFB−106073
Detect Values
Non−Detect RL Values
Slope = 9.803E−04
p−value = 0.011
mg/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

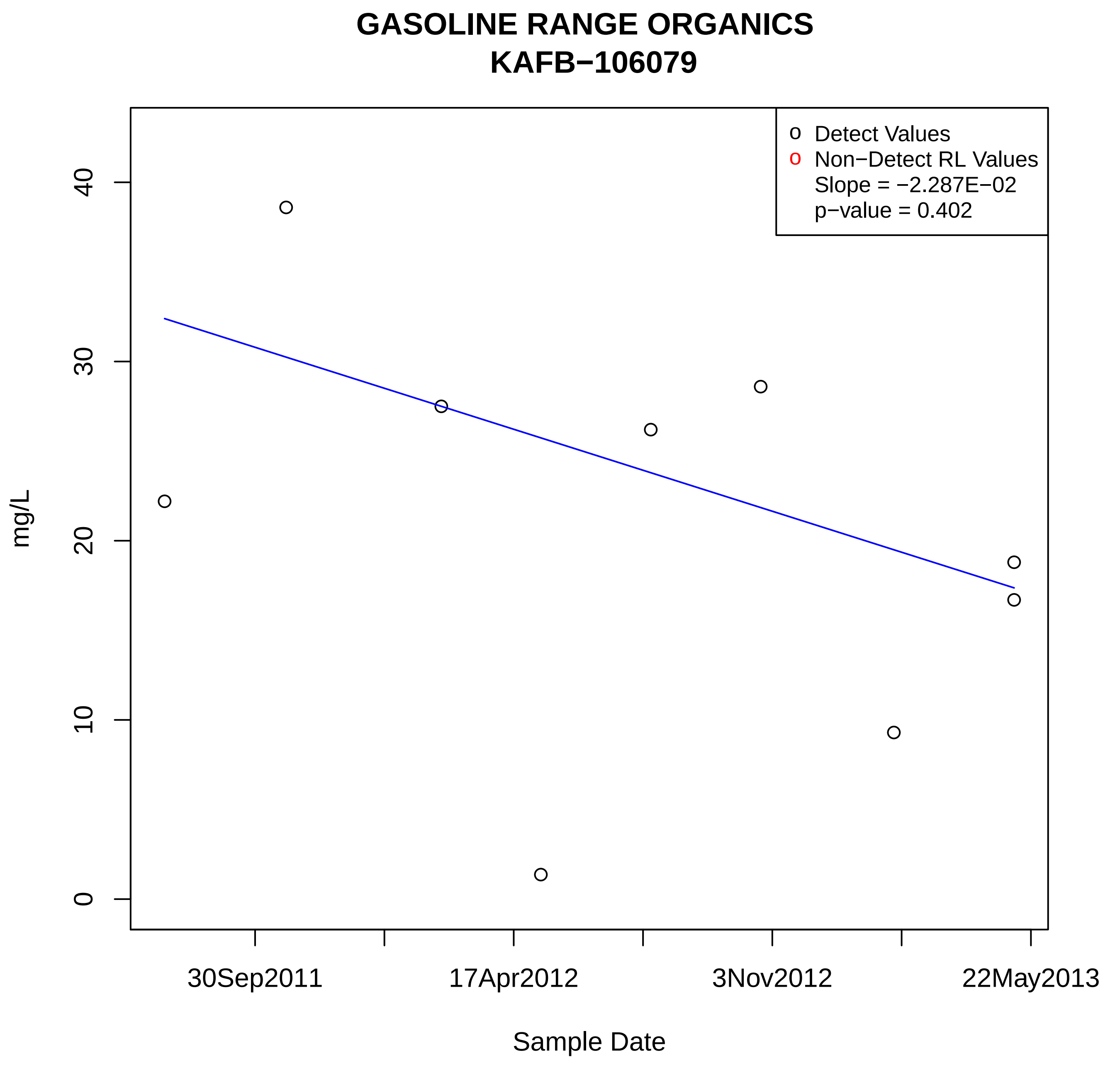

GASOLINE RANGE ORGANICS
KAFB−106074
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

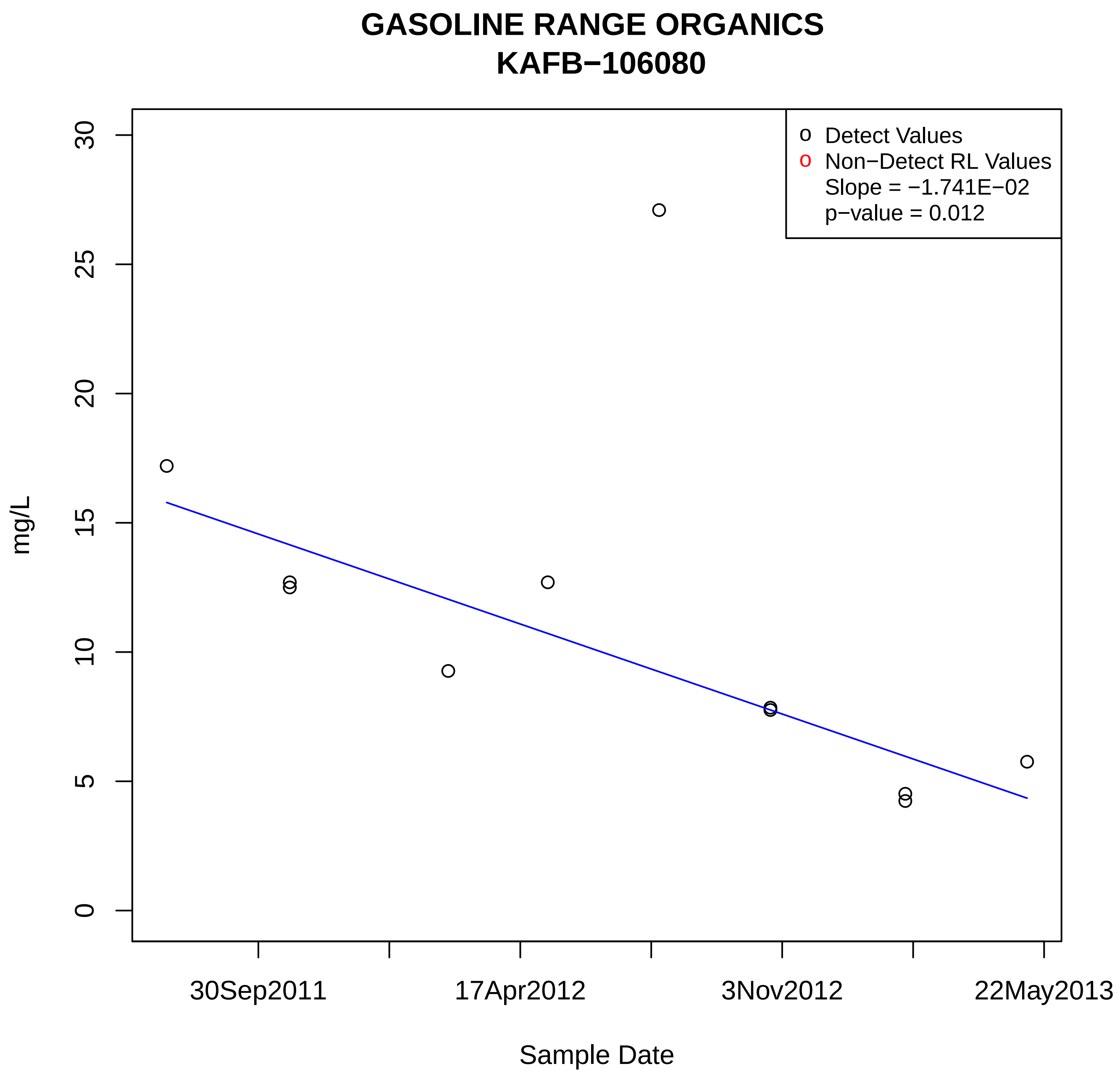

GASOLINE RANGE ORGANICS
KAFB−106075
o Detect Values
o Non−Detect RL Values
Slope = −5.385E−04
p−value = 0.335
mg/L
0.0
0.1
0.2
0.3
0.4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



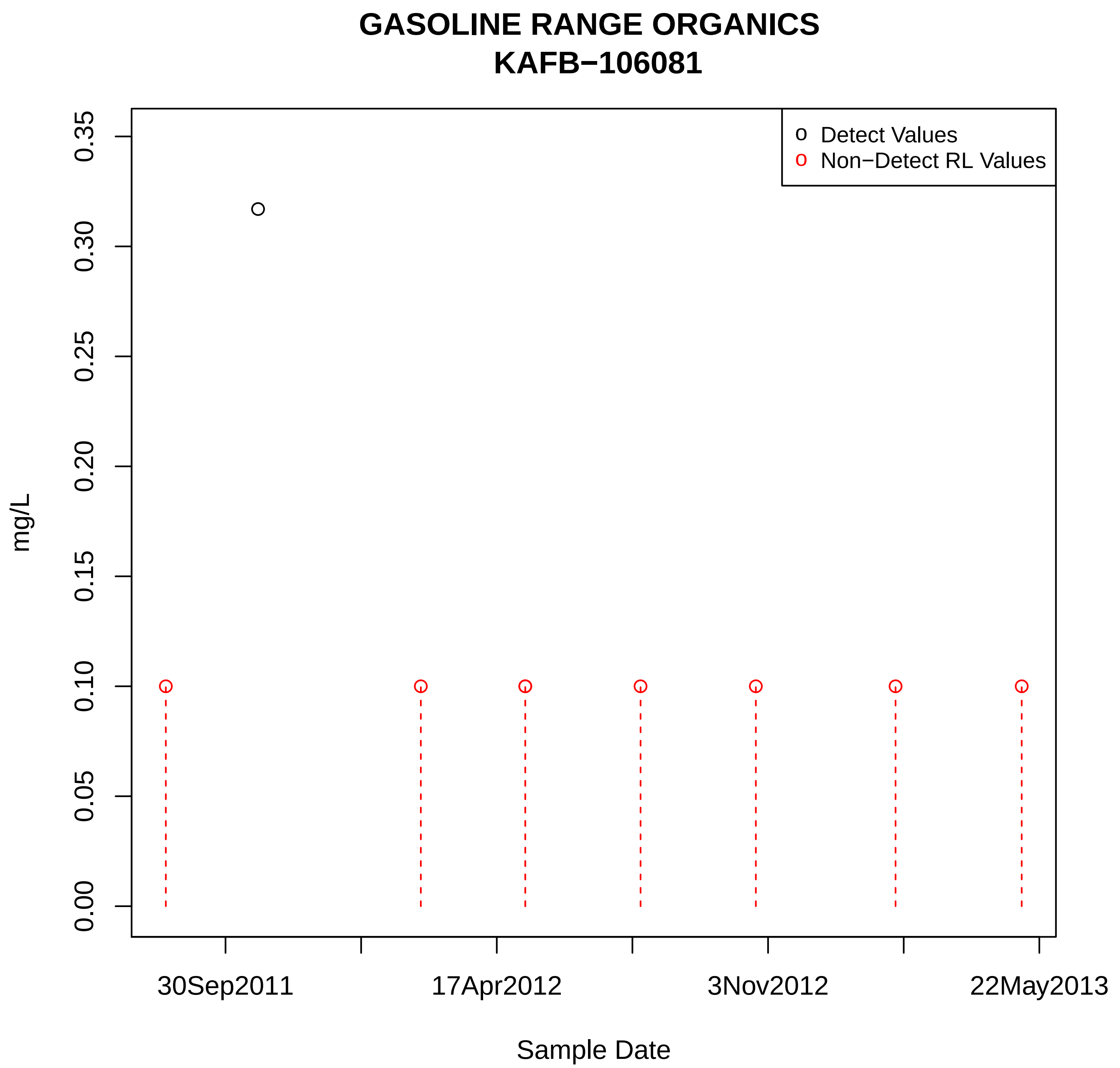
GASOLINE RANGE ORGANICS
KAFB−106077
o Detect Values
o Non−Detect RL Values
Slope = −4.109E−04
p−value = 0.159
0.15
0.10
0.05
0.00
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

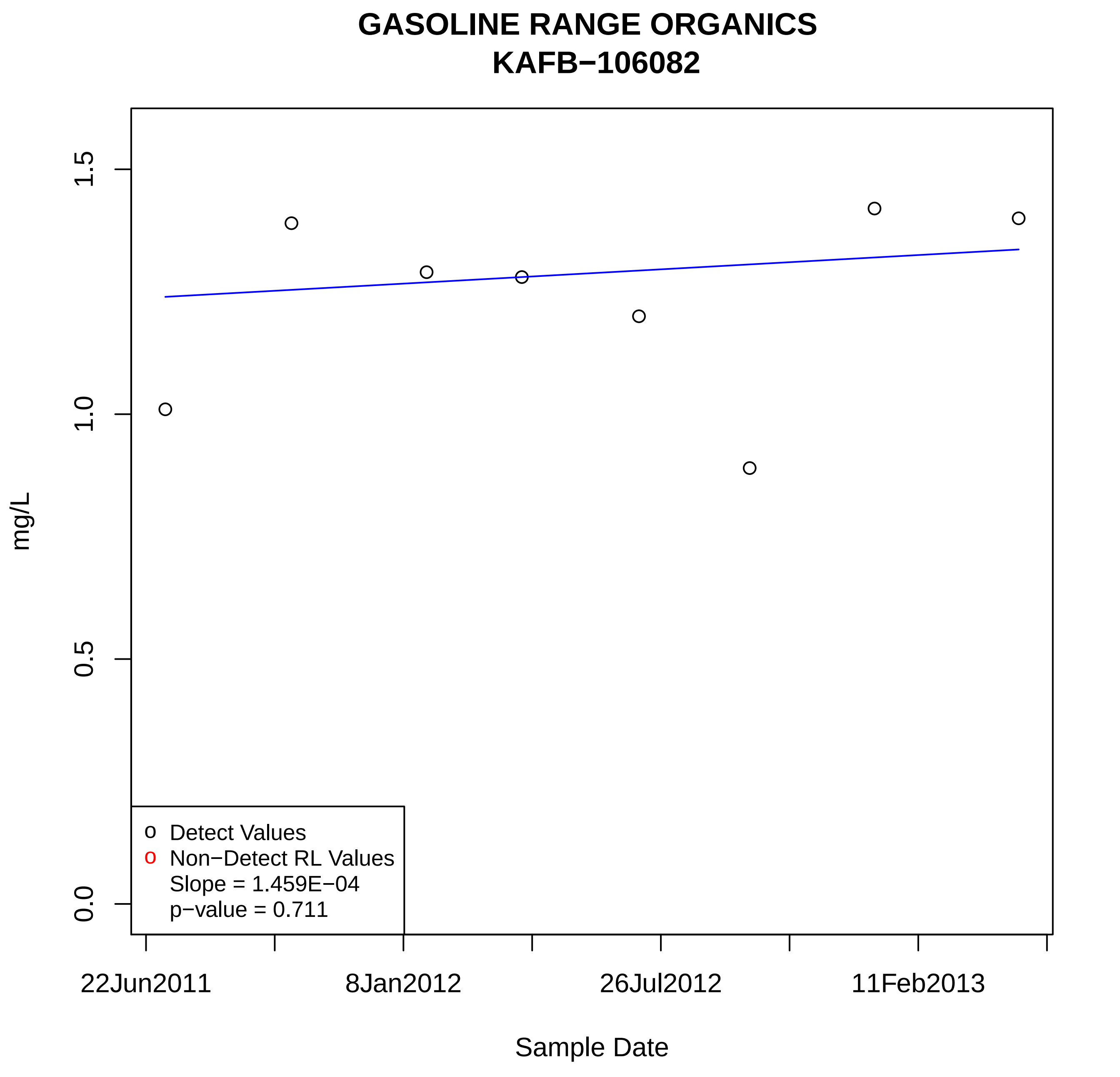

GASOLINE RANGE ORGANICS
KAFB−106078
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106079
o Detect Values
o Non−Detect RL Values
Slope = −2.287E−02
p−value = 0.402
mg/L
0
10
20
30
40
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

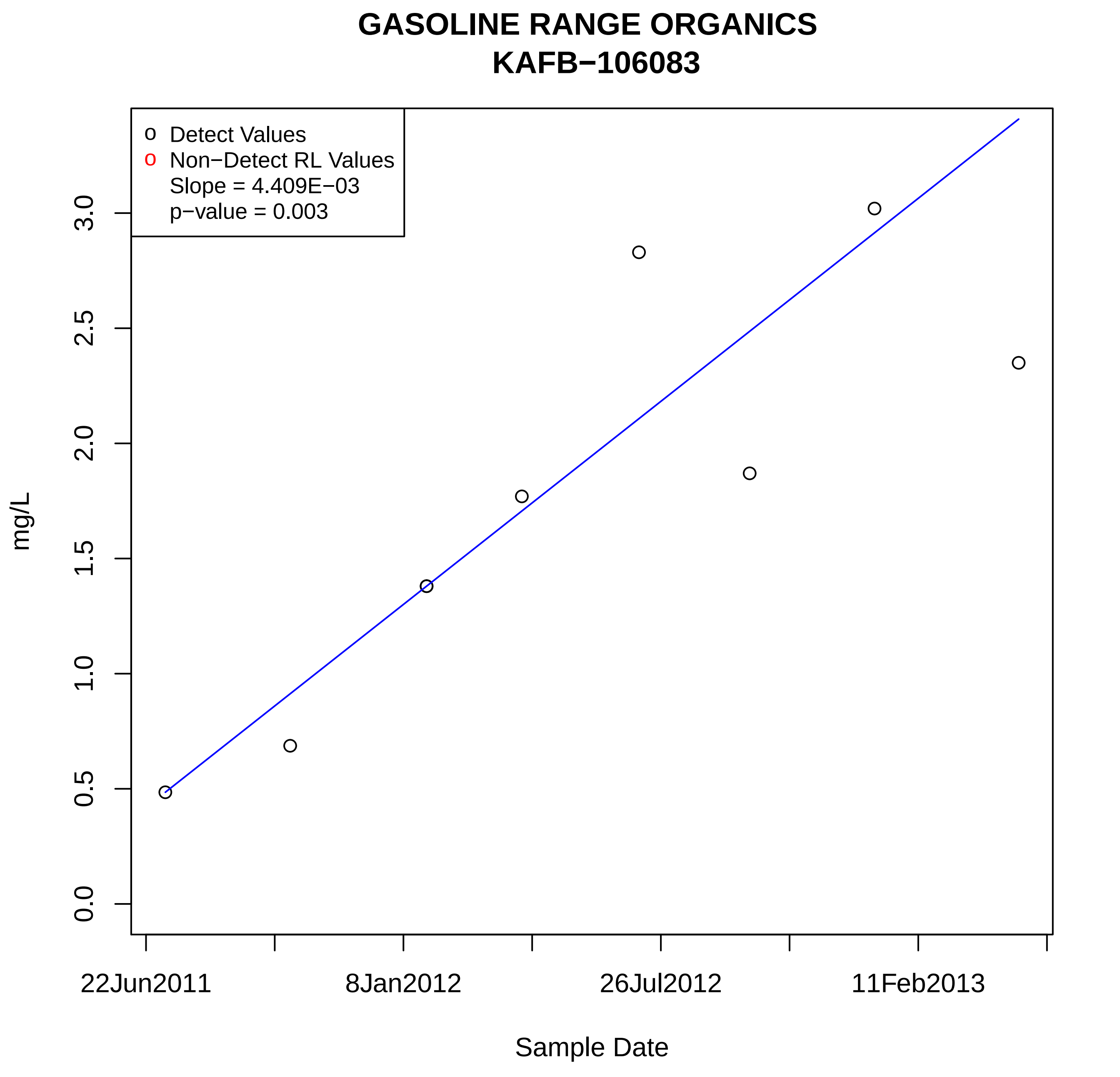


GASOLINE RANGE ORGANICS
KAFB−106080
o Detect Values
o Non−Detect RL Values
Slope = −1.741E−02
p−value = 0.012
mg/L
0
5
10
15
20
25
30
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

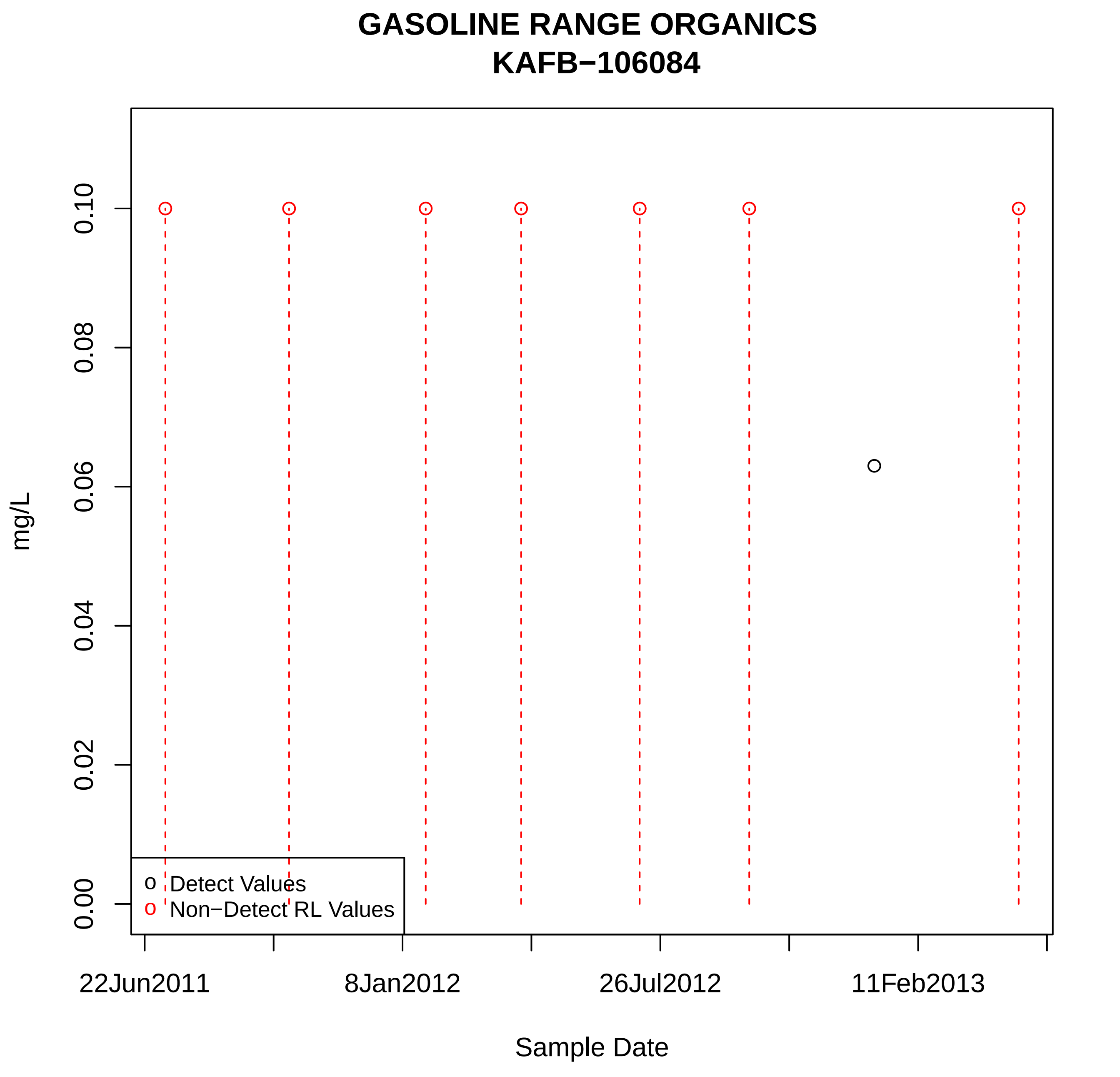

GASOLINE RANGE ORGANICS
KAFB−106081
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

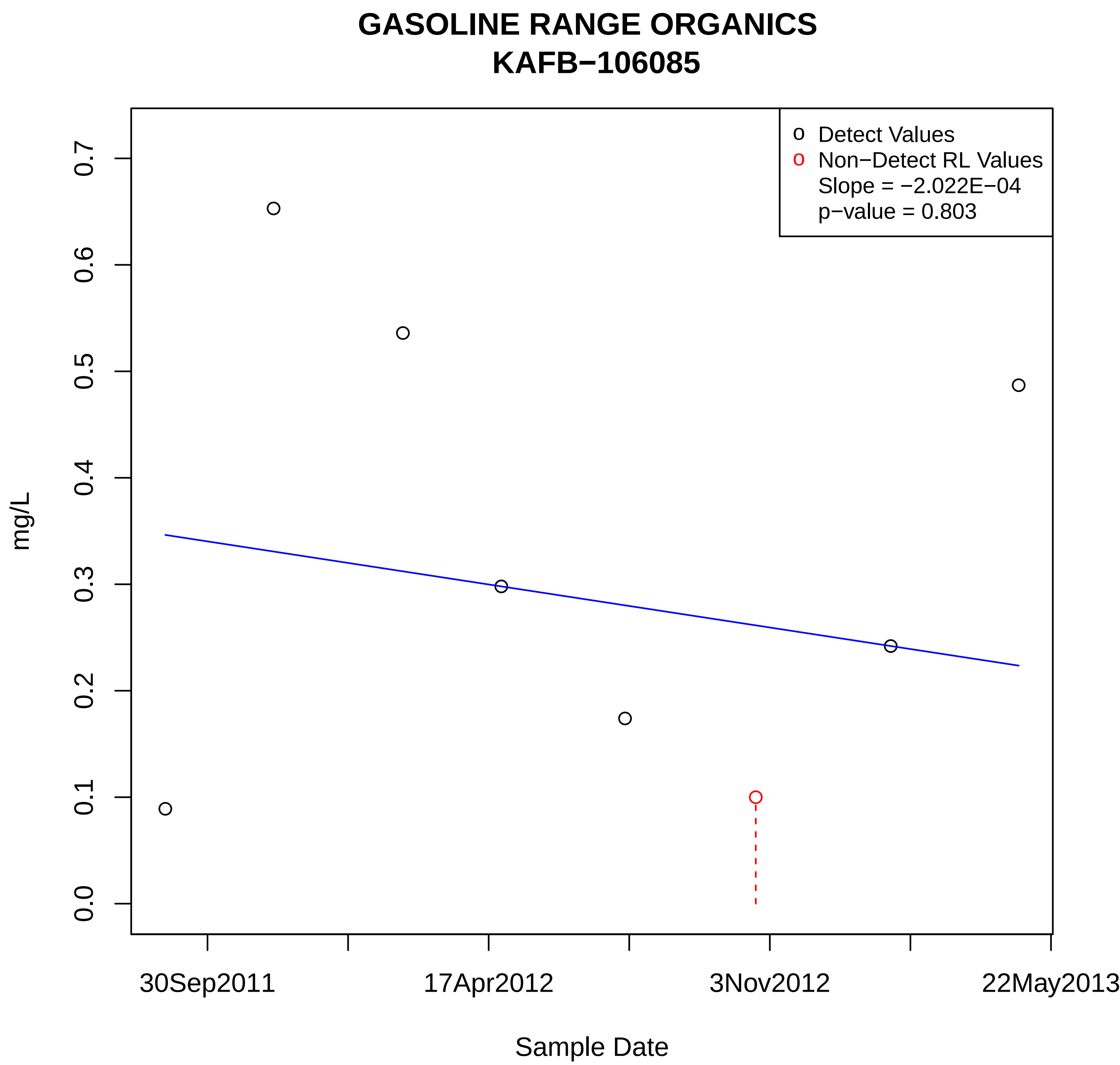


GASOLINE RANGE ORGANICS
KAFB−106082
mg/L
0.0
0.5
1.0
1.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.459E−04
p−value = 0.711

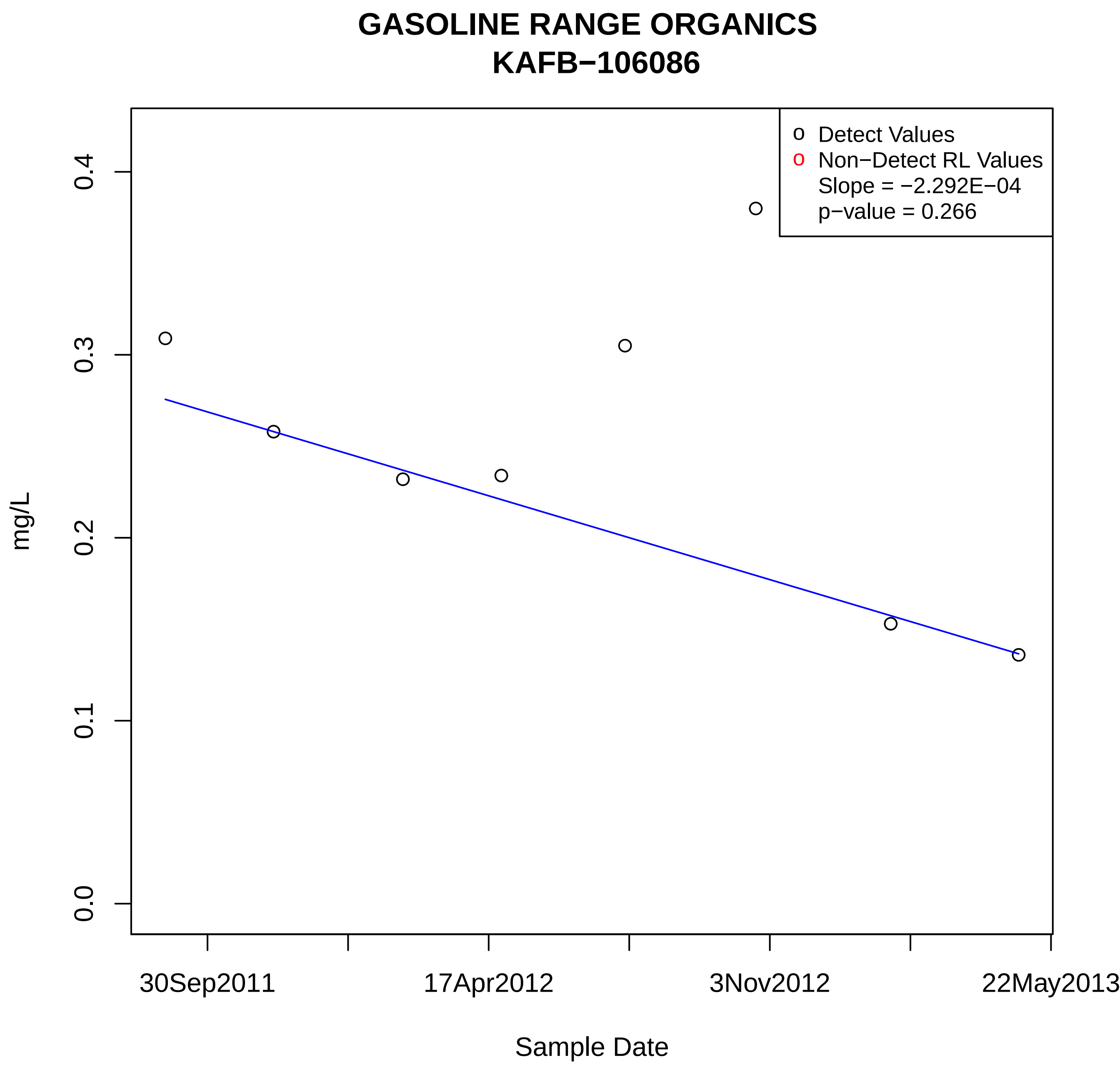


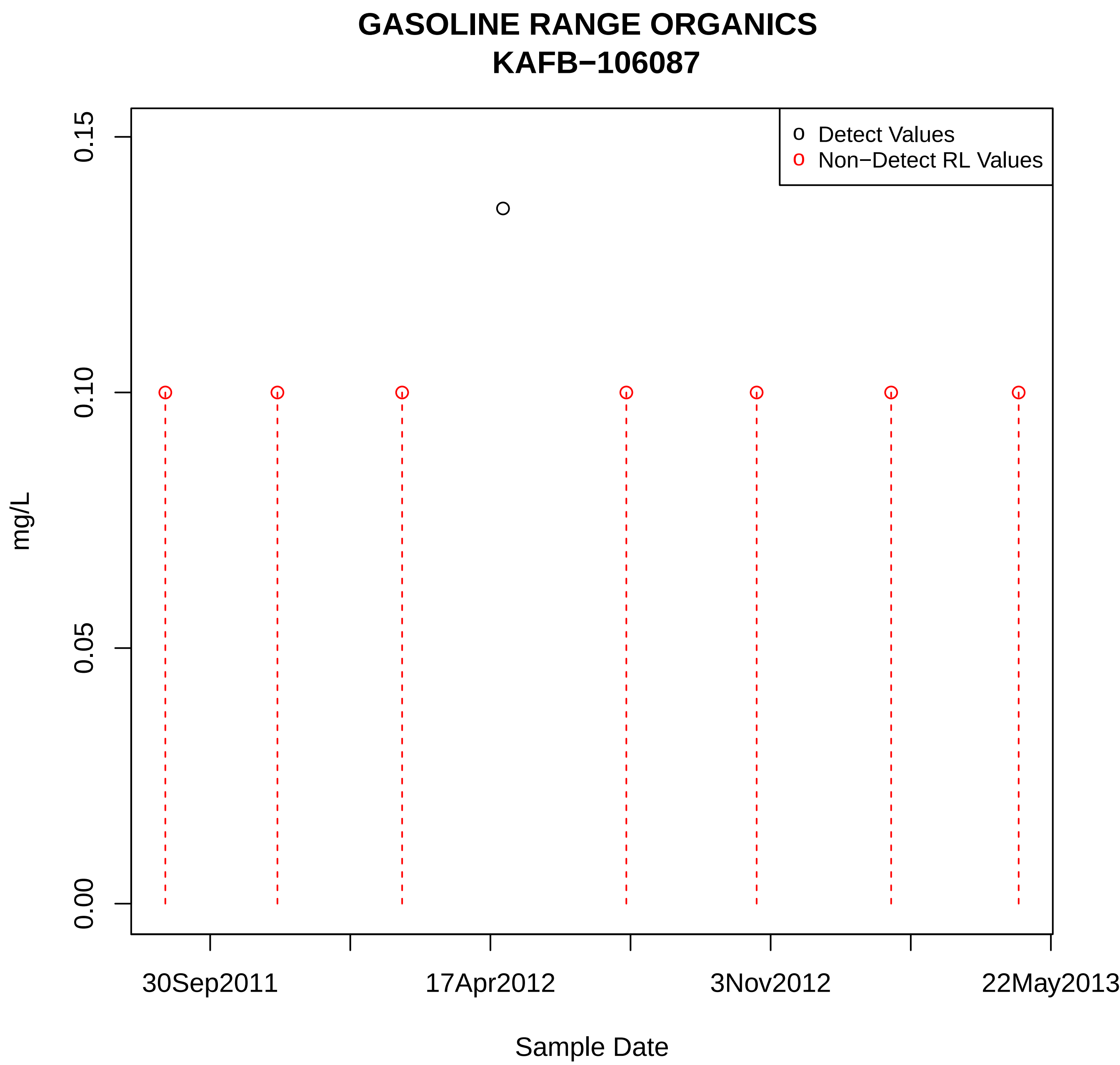
GASOLINE RANGE ORGANICS
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 4.409E−03
p−value = 0.003
mg/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

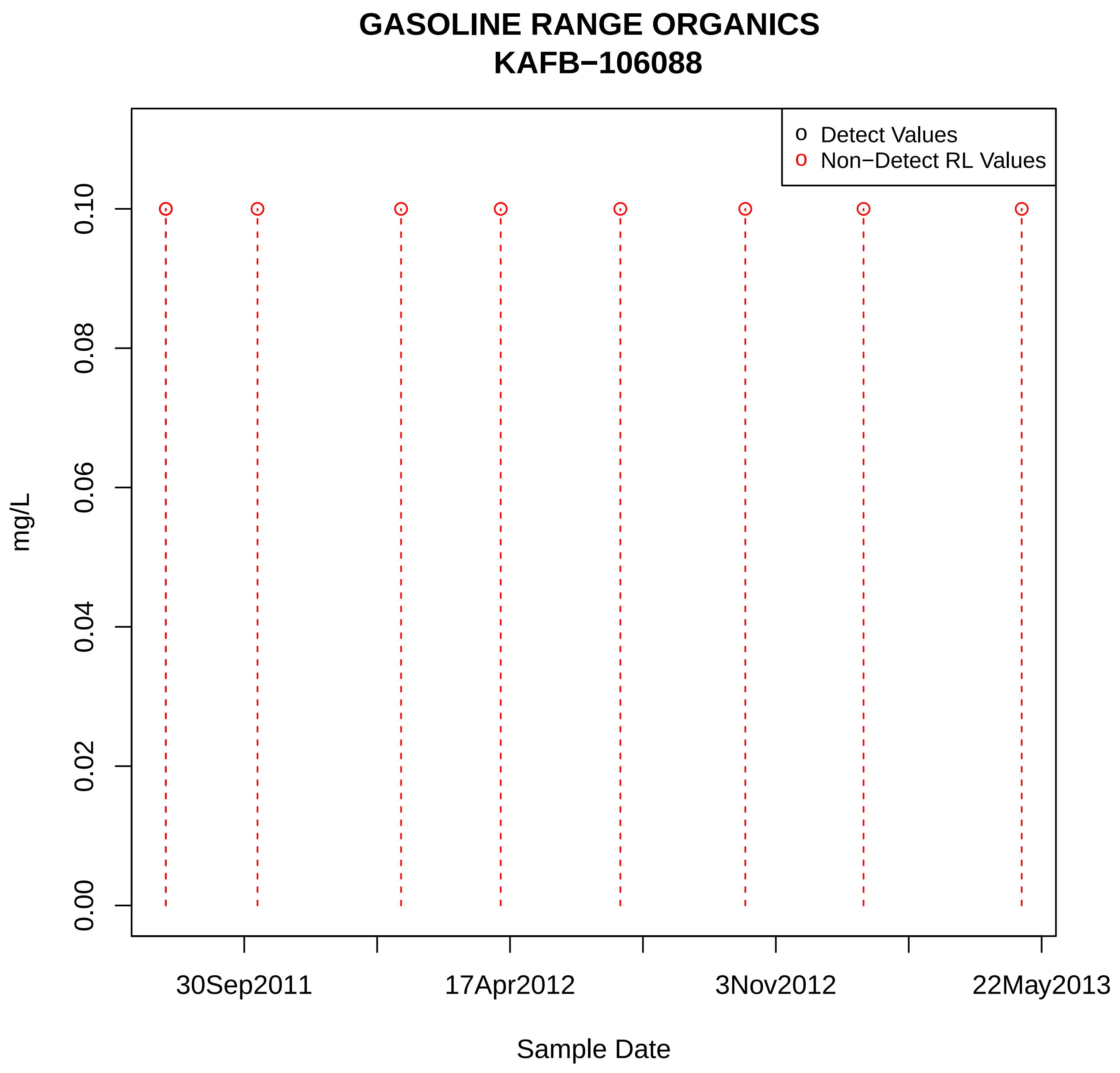

GASOLINE RANGE ORGANICS
KAFB−106084
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
Detect Values
Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



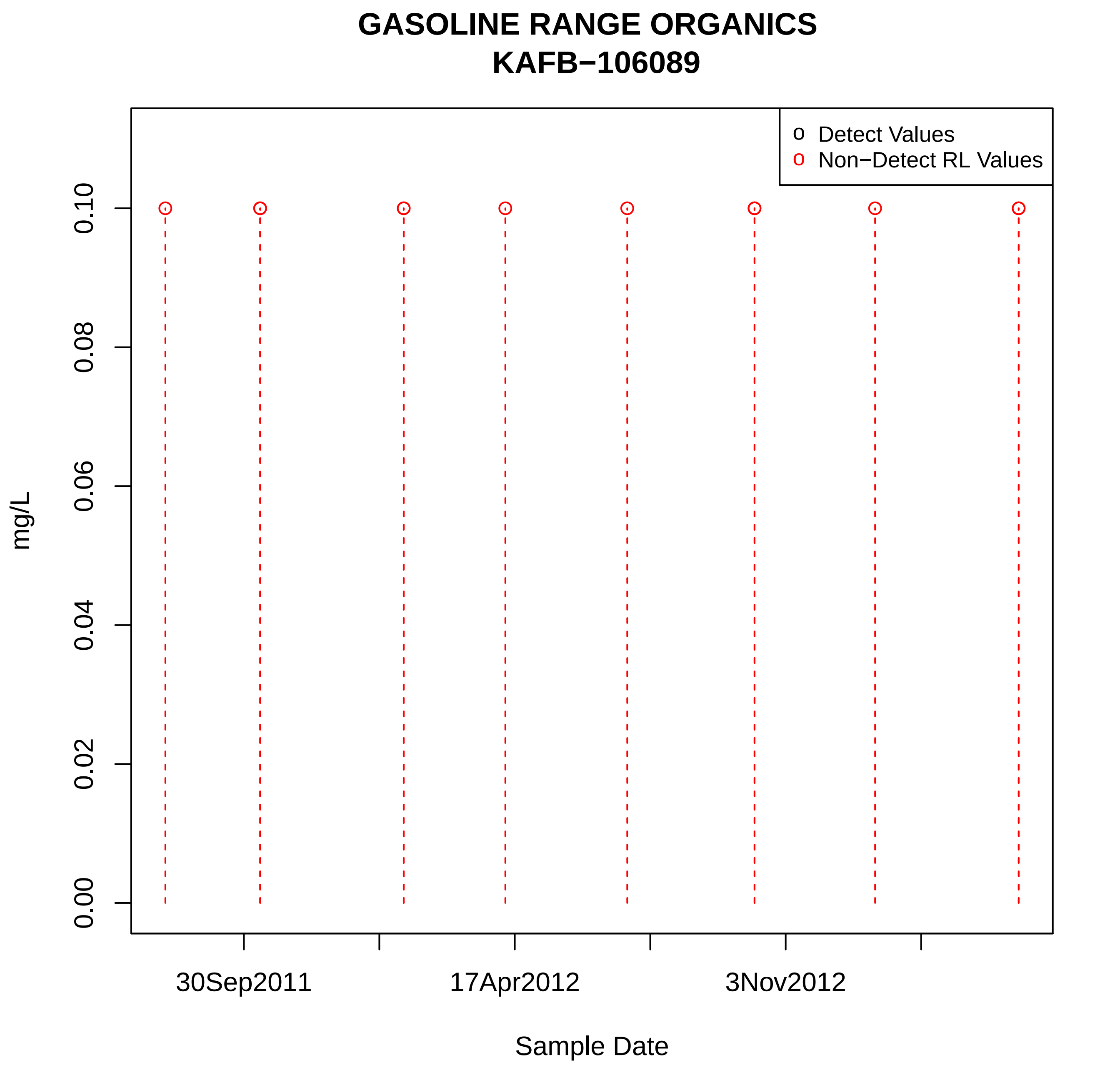
GASOLINE RANGE ORGANICS
KAFB−106085
o Detect Values
o Non−Detect RL Values
Slope = −2.022E−04
p−value = 0.803
mg/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = −2.292E−04
p−value = 0.266
mg/L
0.0
0.1
0.2
0.3
0.4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

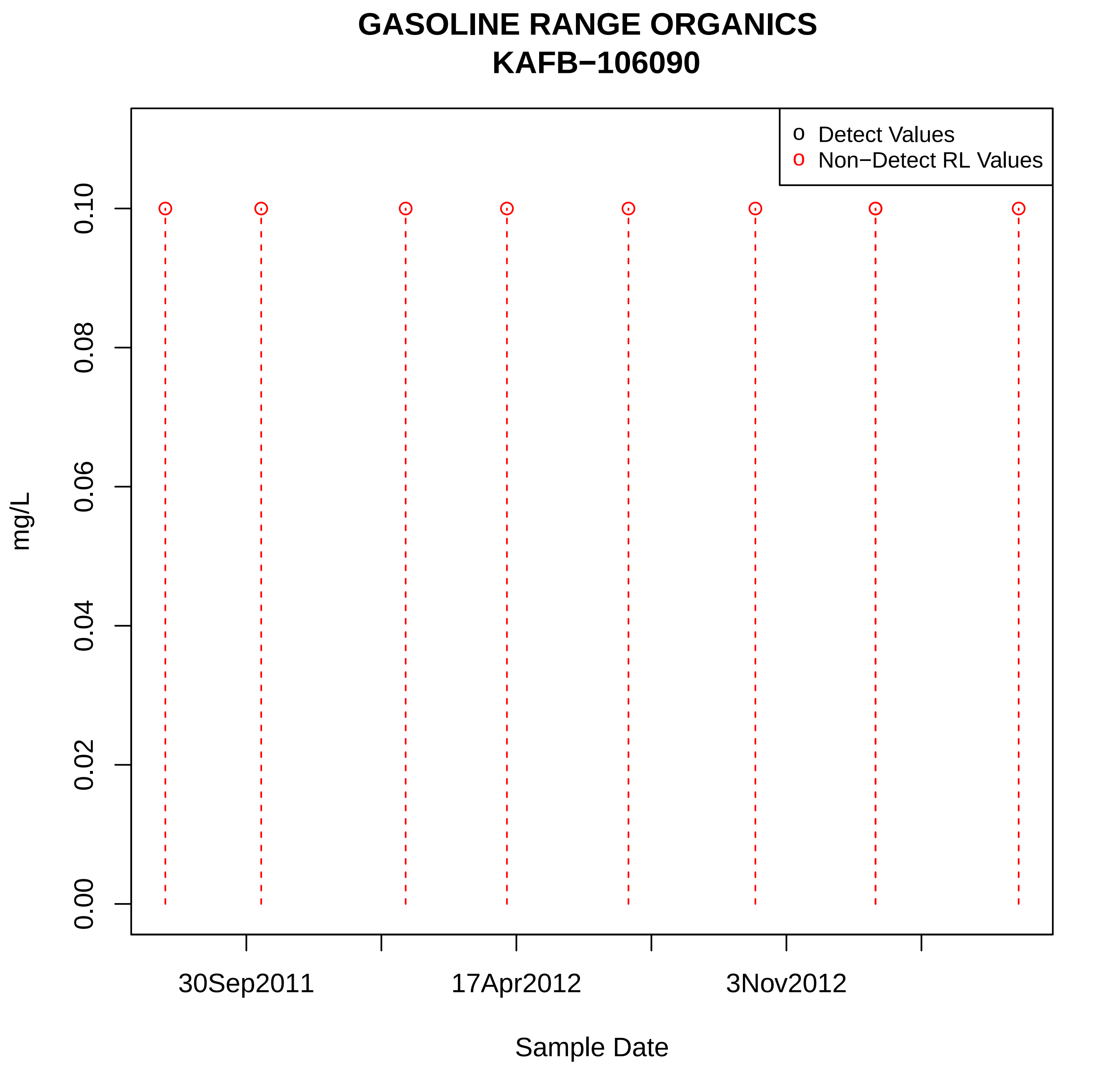

GASOLINE RANGE ORGANICS
KAFB−106087
Detect Values
Non−Detect RL Values
0.00
0.05
0.10
0.15
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



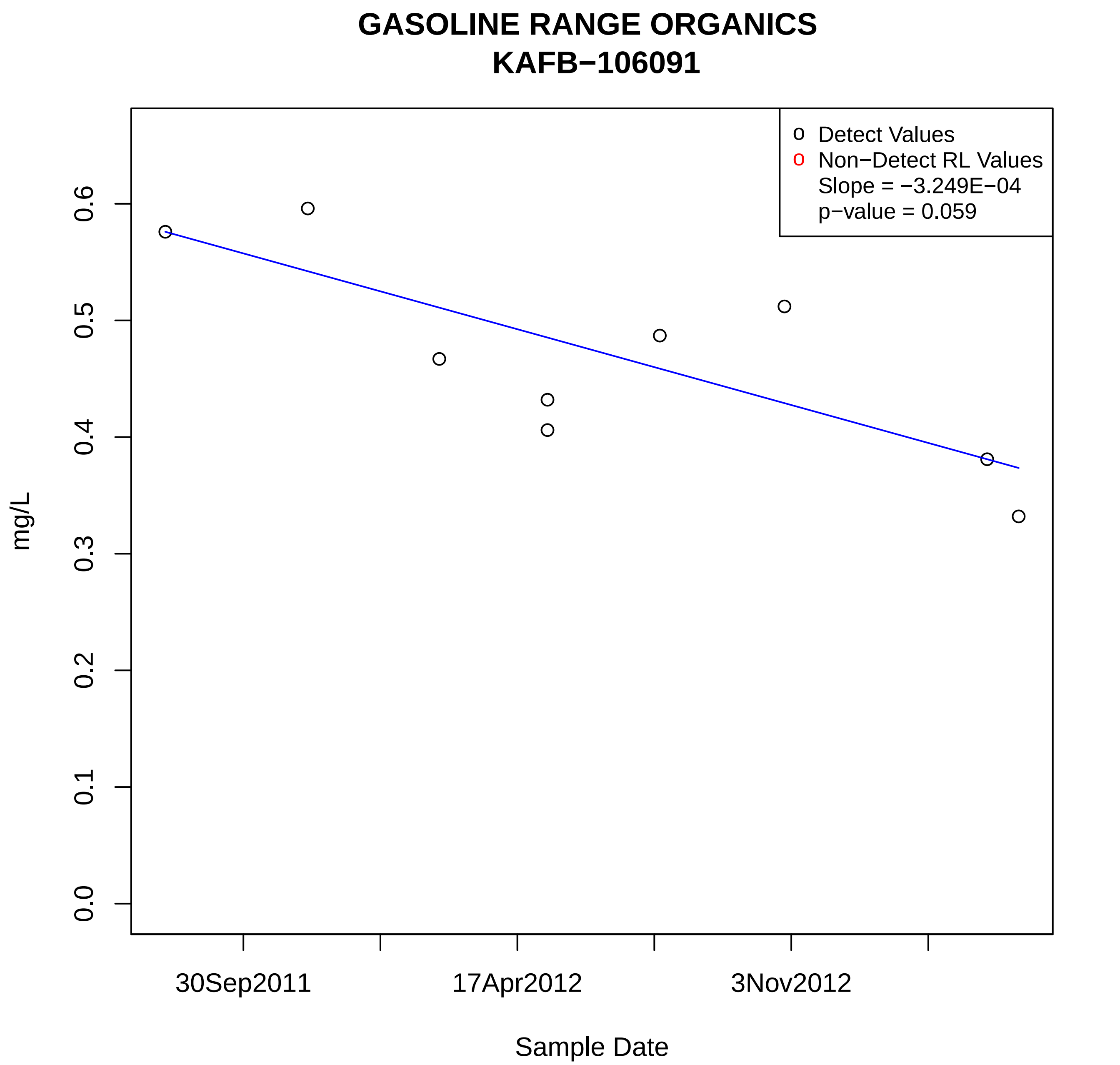
GASOLINE RANGE ORGANICS
KAFB−106088
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

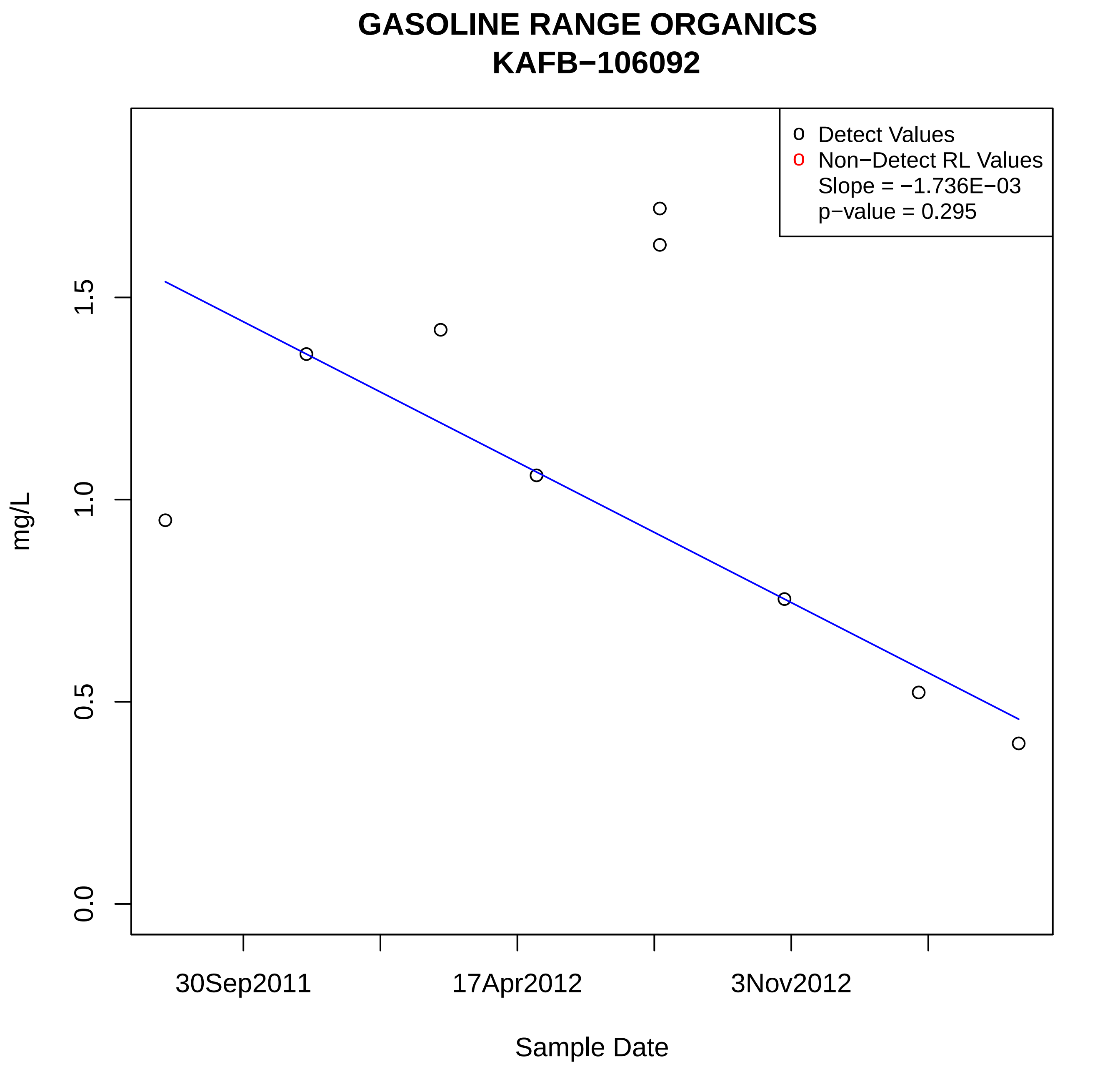


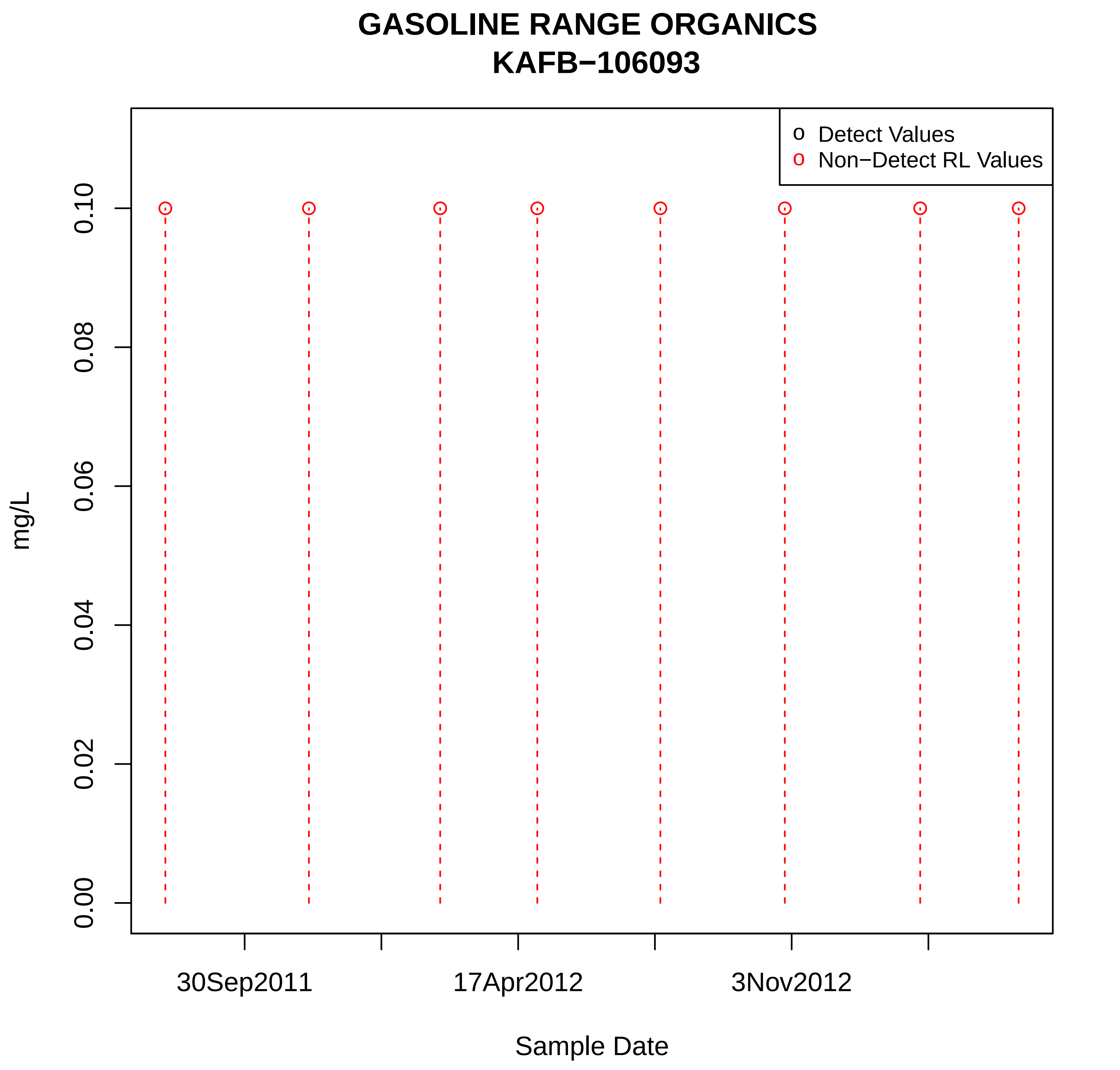
GASOLINE RANGE ORGANICS
KAFB−106089
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

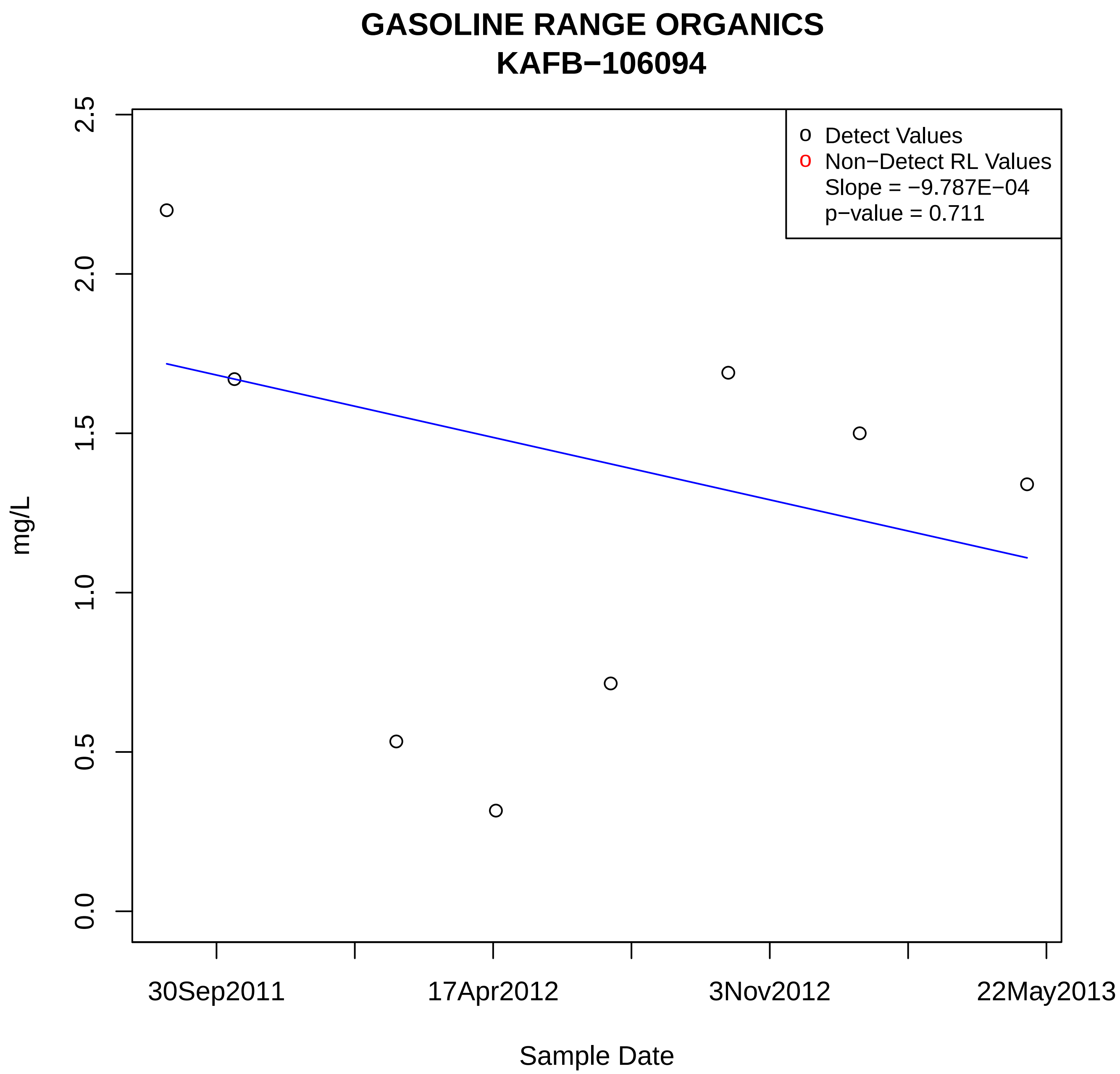


GASOLINE RANGE ORGANICS
KAFB−106090
o Detect Values
o Non−Detect RL Values
0.00
0.02
0.04
0.06
0.08
0.10
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

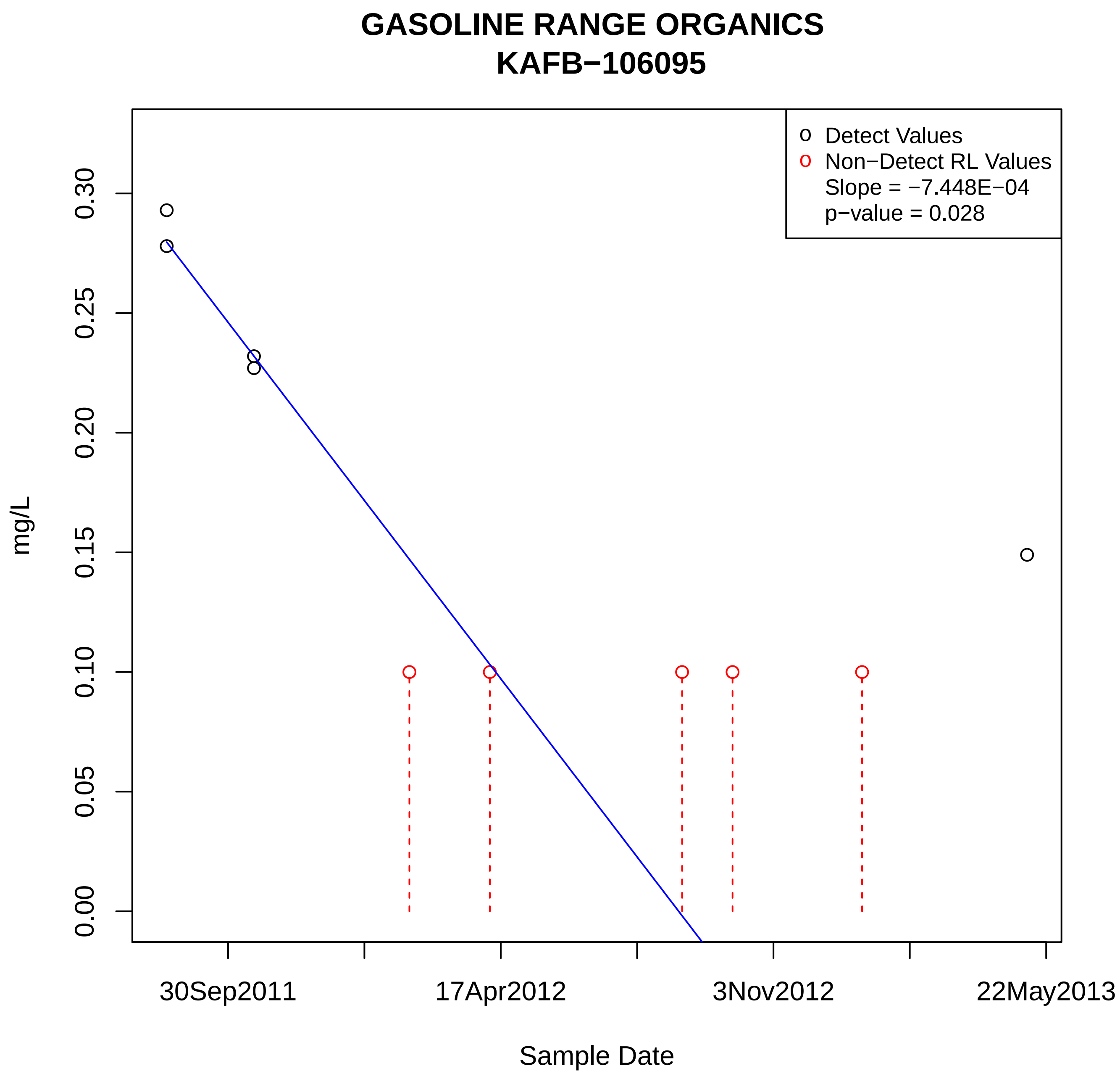

GASOLINE RANGE ORGANICS
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = −3.249E−04
p−value = 0.059
mg/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
Sample Date

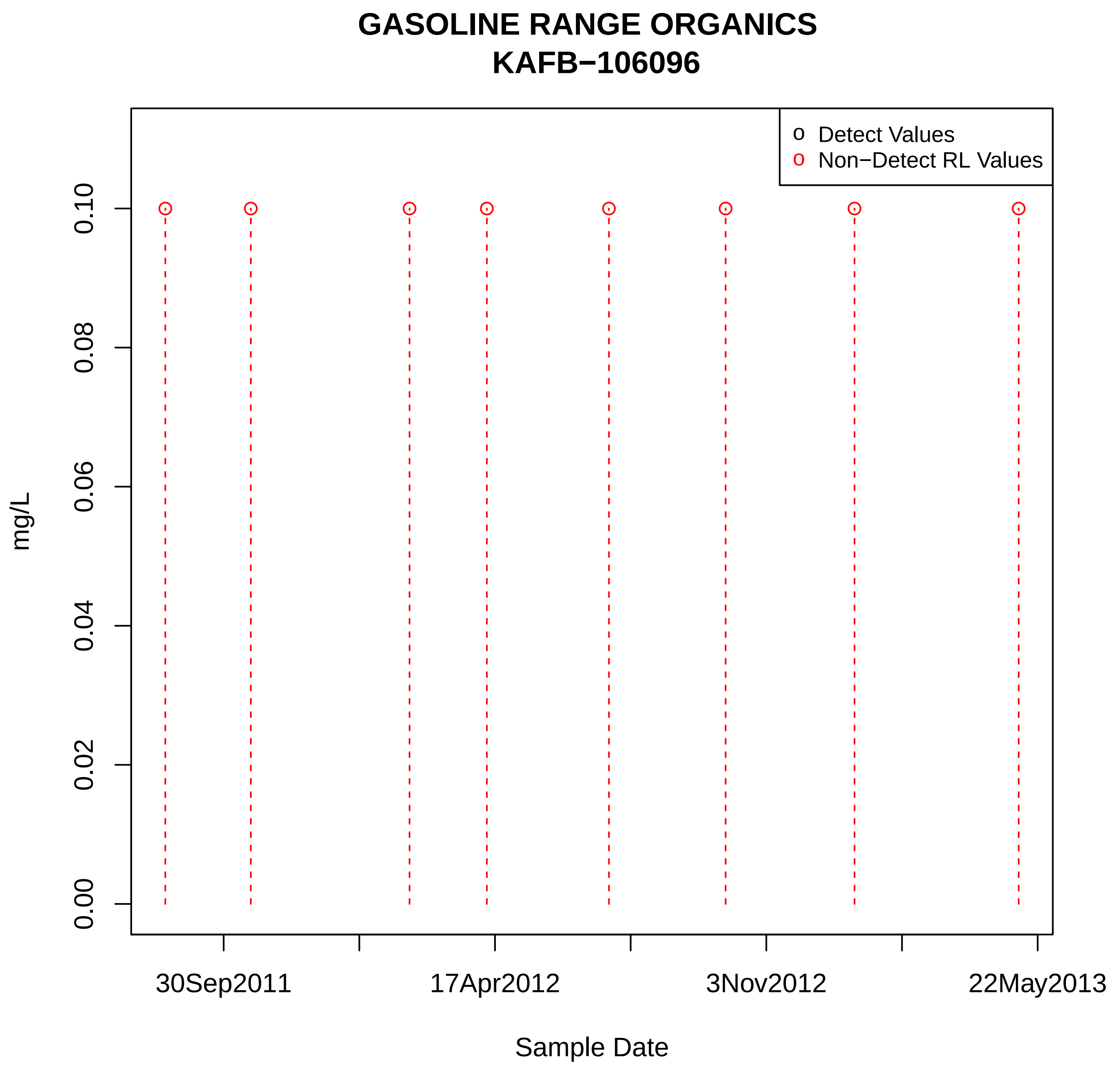

GASOLINE RANGE ORGANICS
KAFB−106092
o Detect Values
o Non−Detect RL Values
Slope = −1.736E−03
p−value = 0.295
mg/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106093
o Detect Values
o Non−Detect RL Values
0.00
0.02
0.04
0.06
0.08
0.10
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

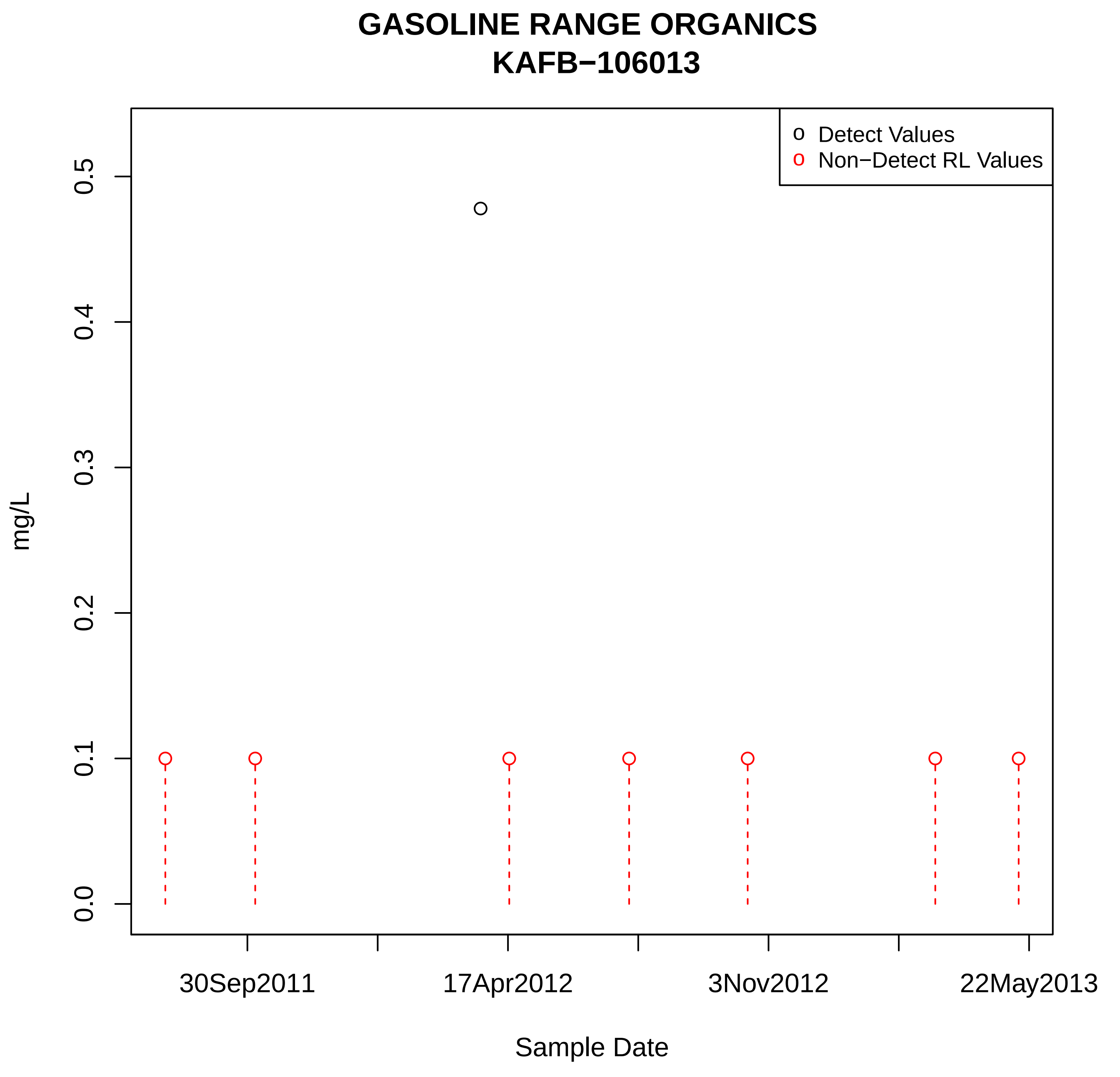


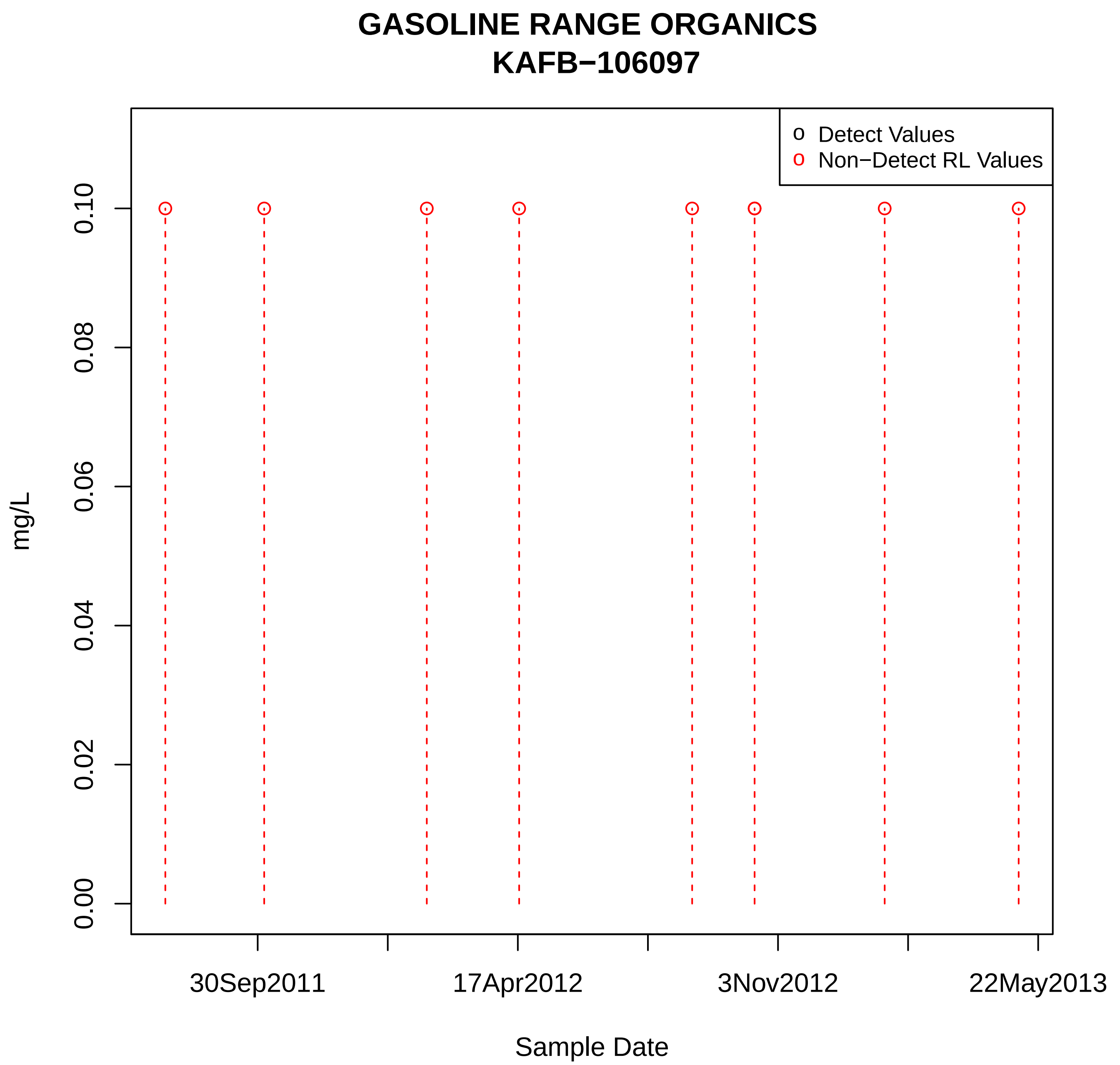
GASOLINE RANGE ORGANICS
KAFB−106094
o Detect Values
o Non−Detect RL Values
Slope = −9.787E−04
p−value = 0.711
mg/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −7.448E−04
p−value = 0.028
mg/L
0.00
0.05
0.10
0.15
0.20
0.25
0.30
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

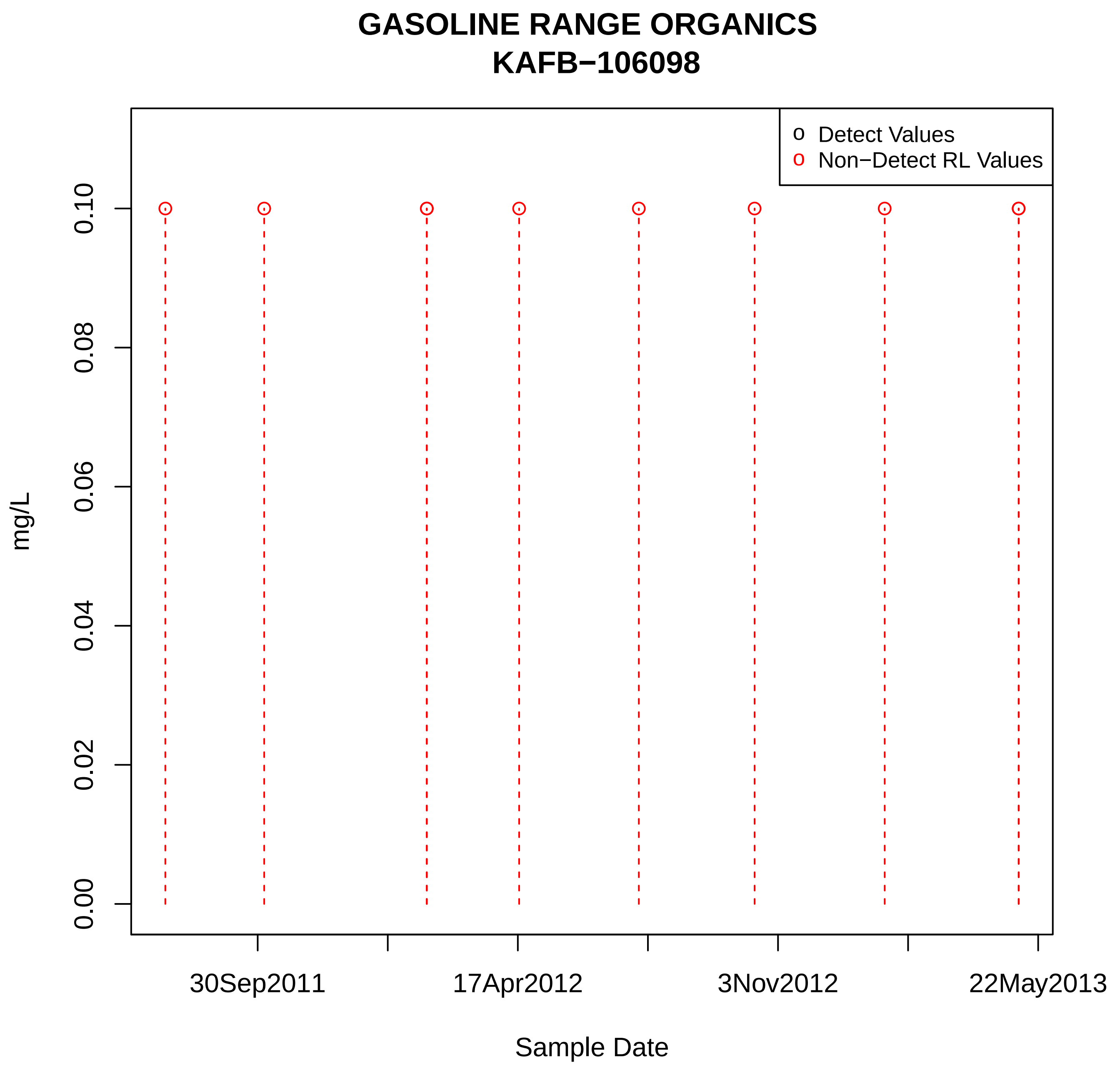


GASOLINE RANGE ORGANICS
KAFB−106096
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

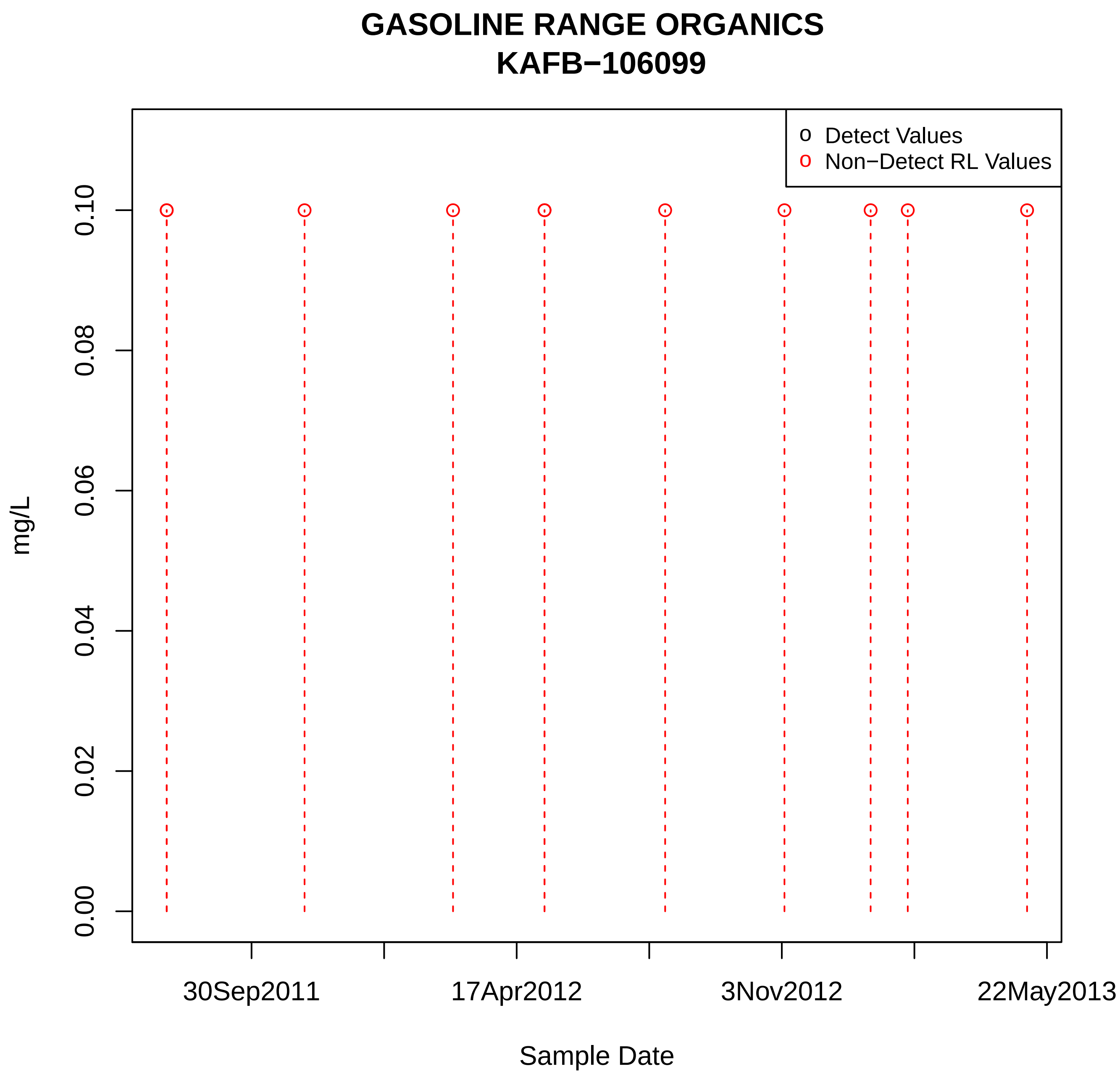

GASOLINE RANGE ORGANICS
KAFB−106013
o Detect Values
o Non−Detect RL Values
mg/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



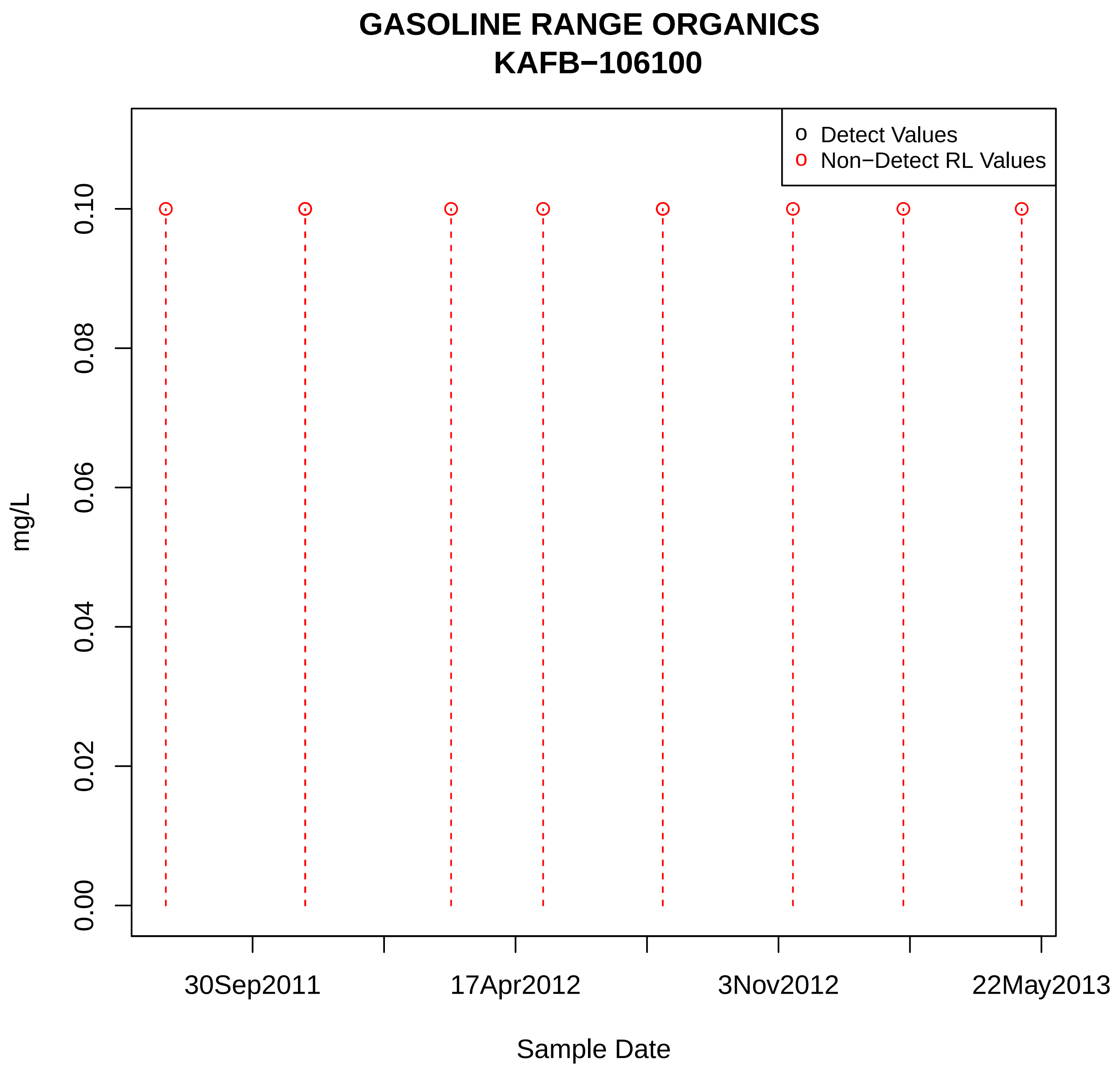
GASOLINE RANGE ORGANICS
KAFB−106097
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



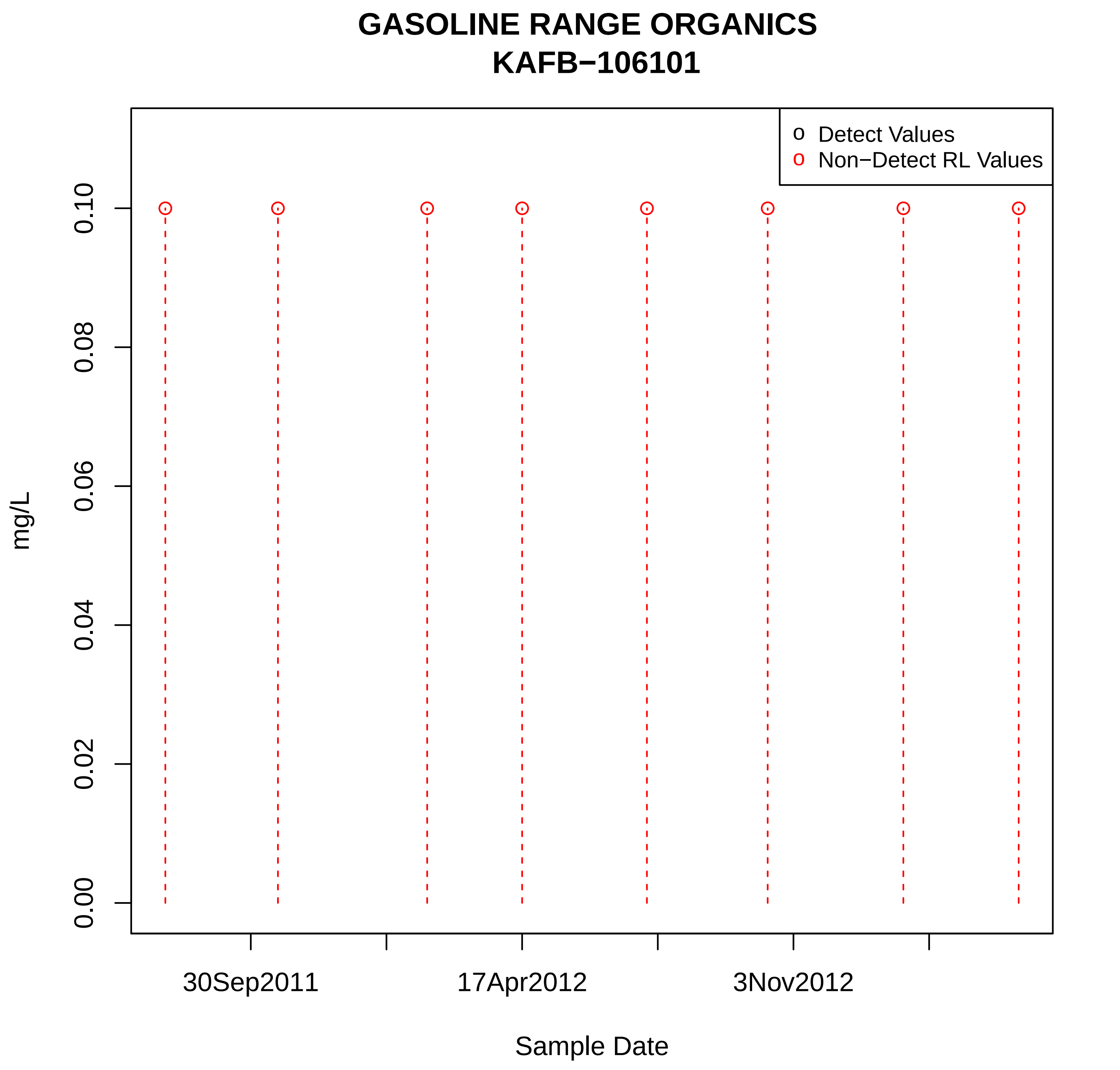
GASOLINE RANGE ORGANICS
KAFB−106098
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

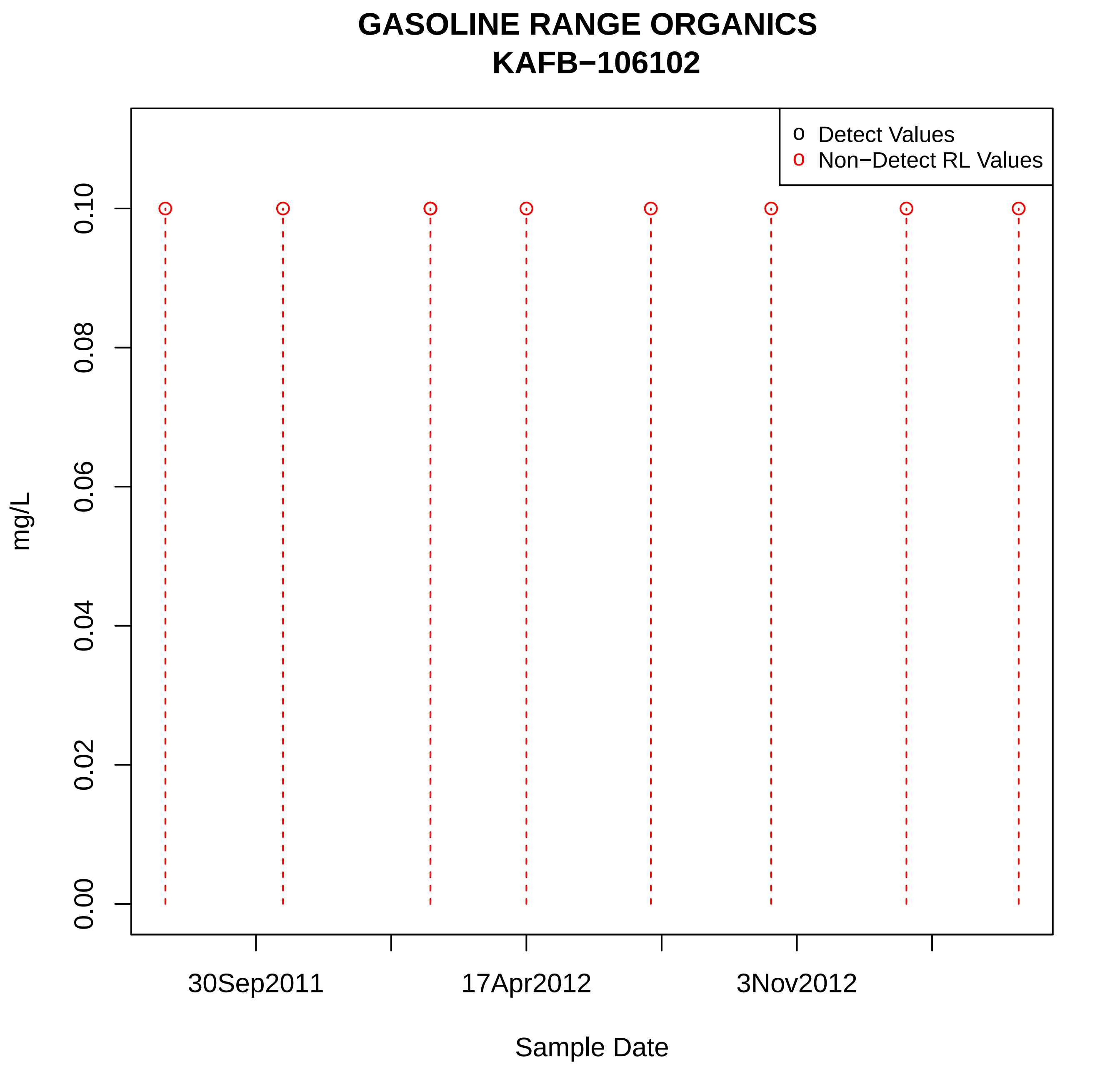


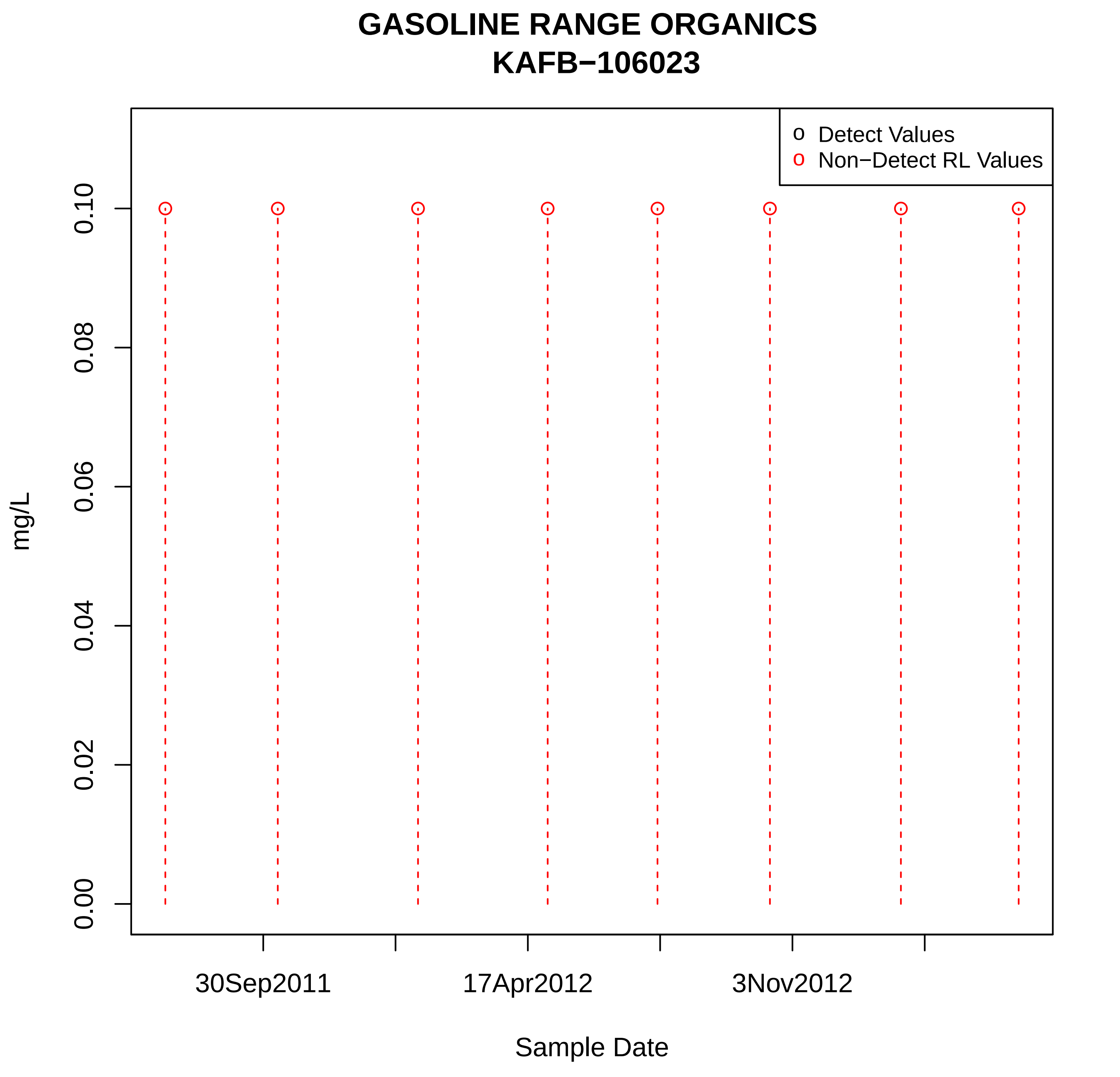
GASOLINE RANGE ORGANICS
KAFB−106099
o Detect Values
o Non−Detect RL Values
0.10
0.08
0.06
0.04
0.02
0.00
mg/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

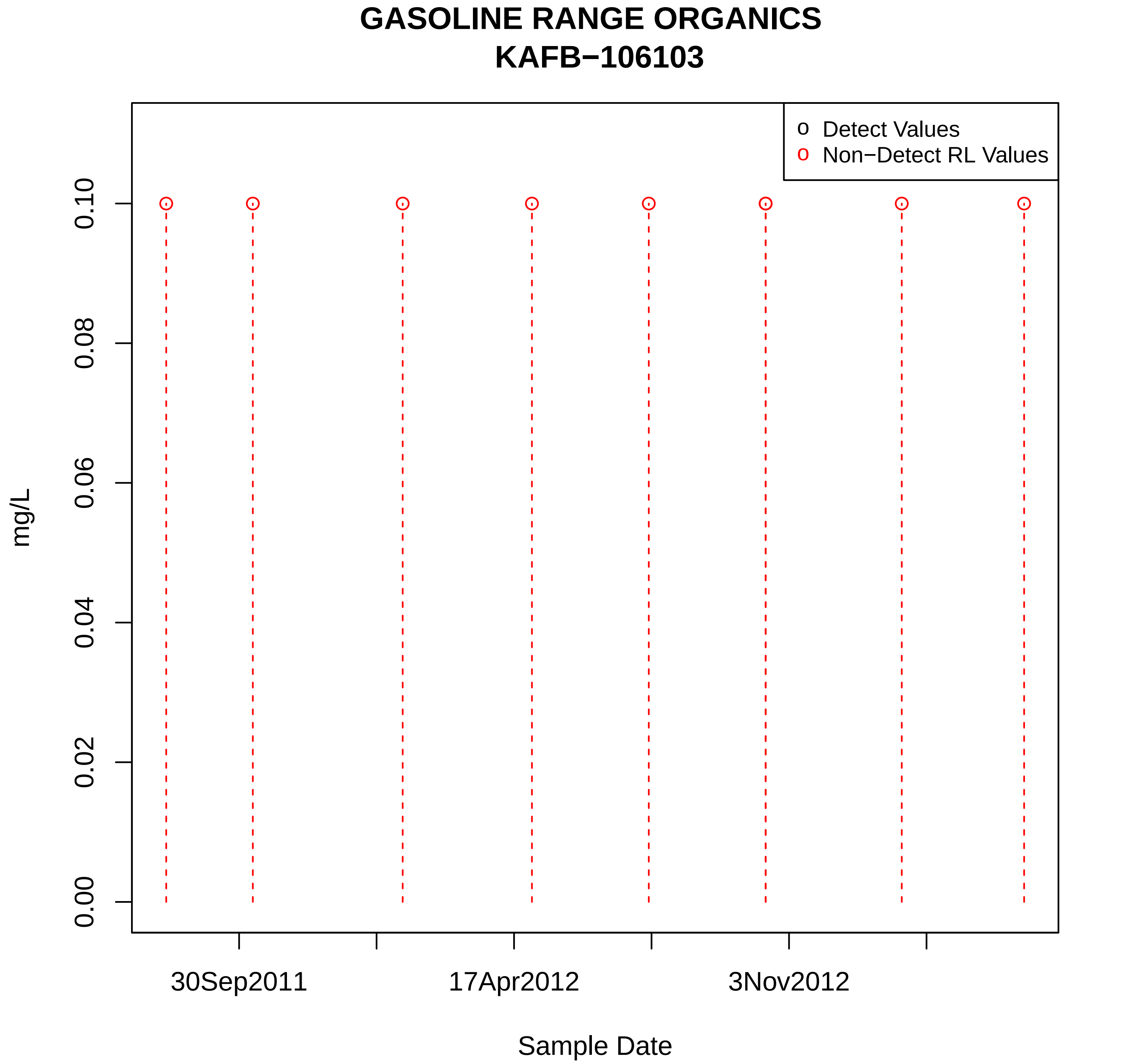


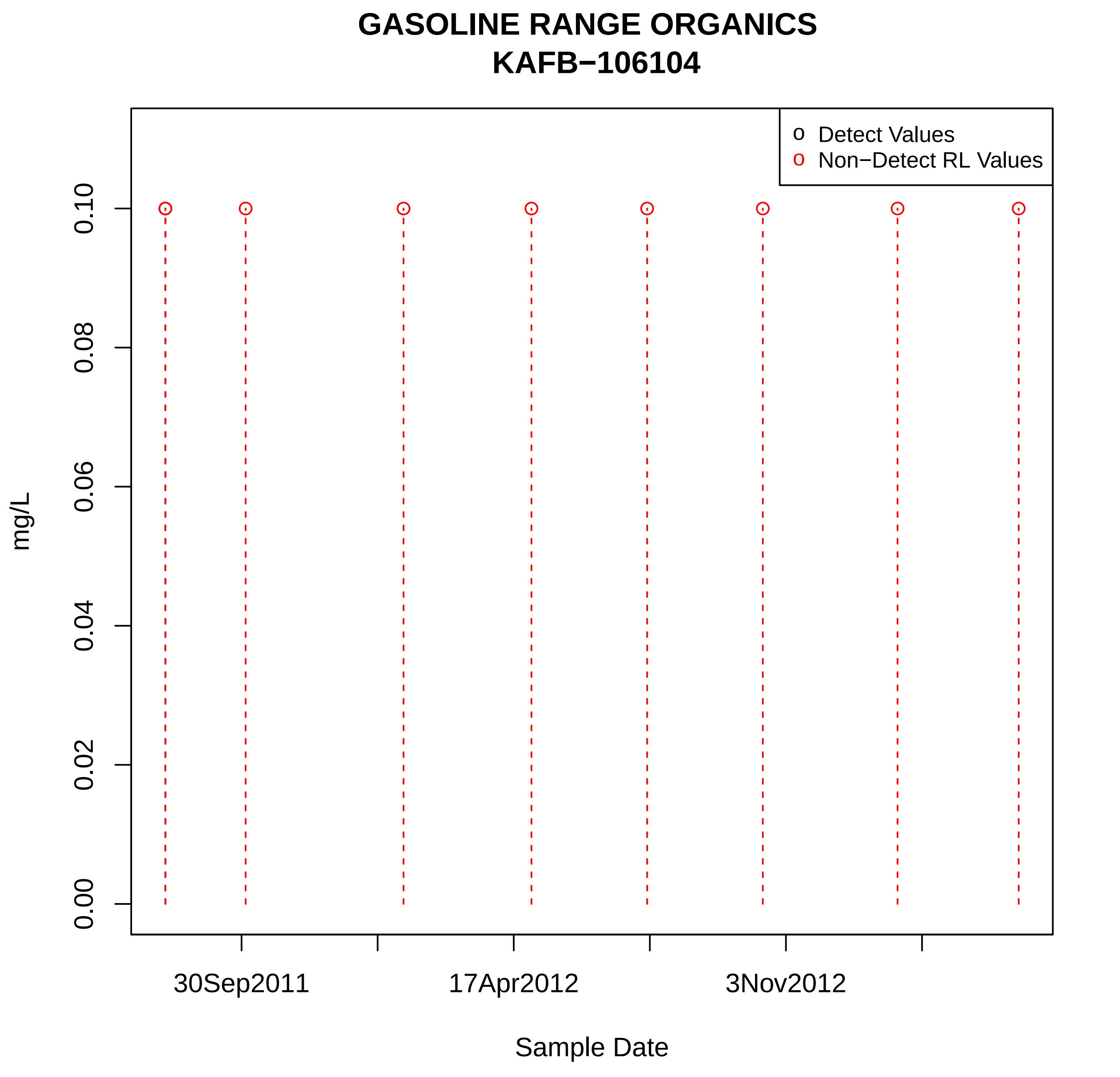
GASOLINE RANGE ORGANICS
KAFB−106100
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

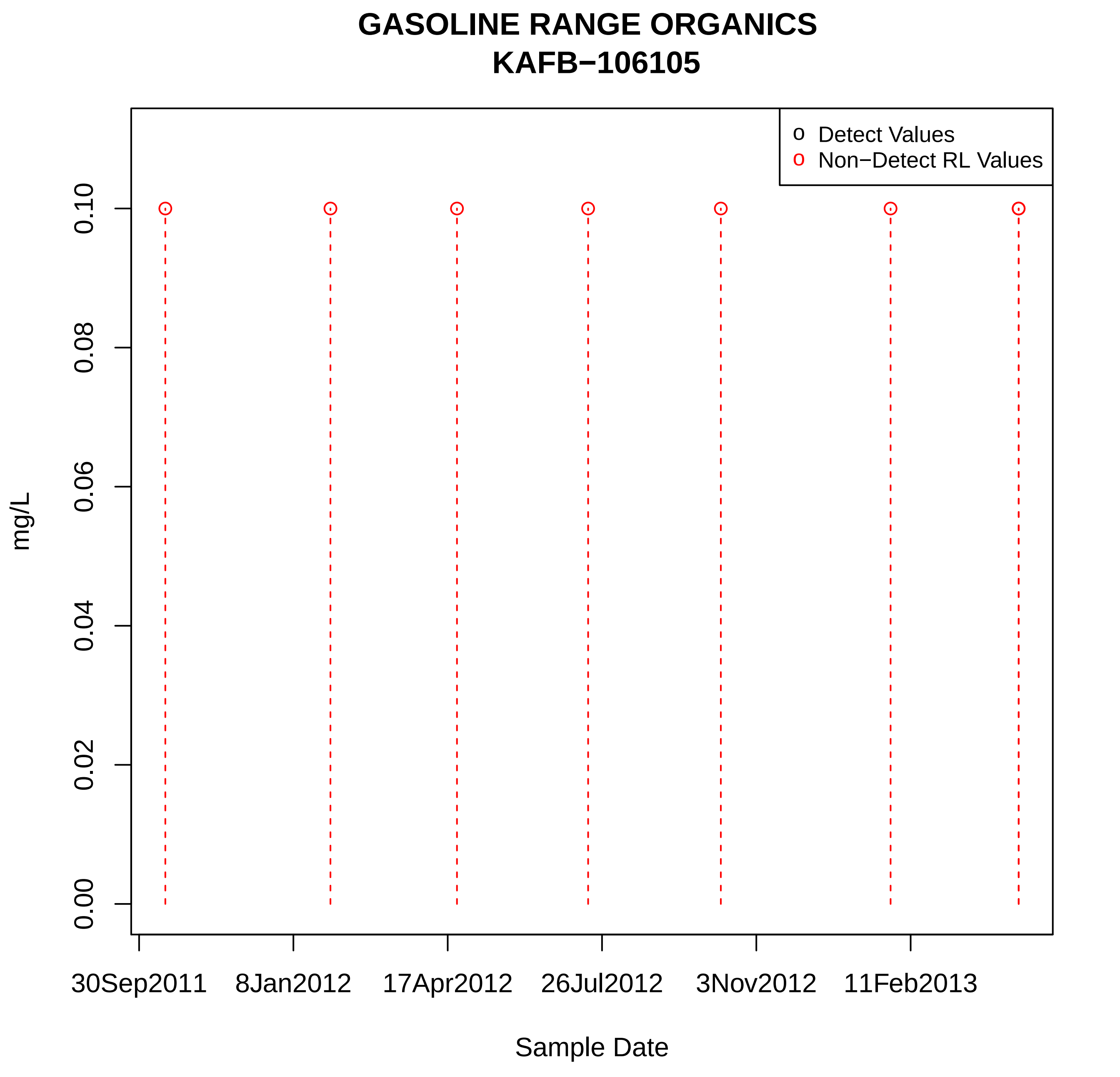

GASOLINE RANGE ORGANICS
KAFB−106101
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106102
o Detect Values
o Non−Detect RL Values
0.10
0.08
0.06
0.04
0.02
0.00
mg/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

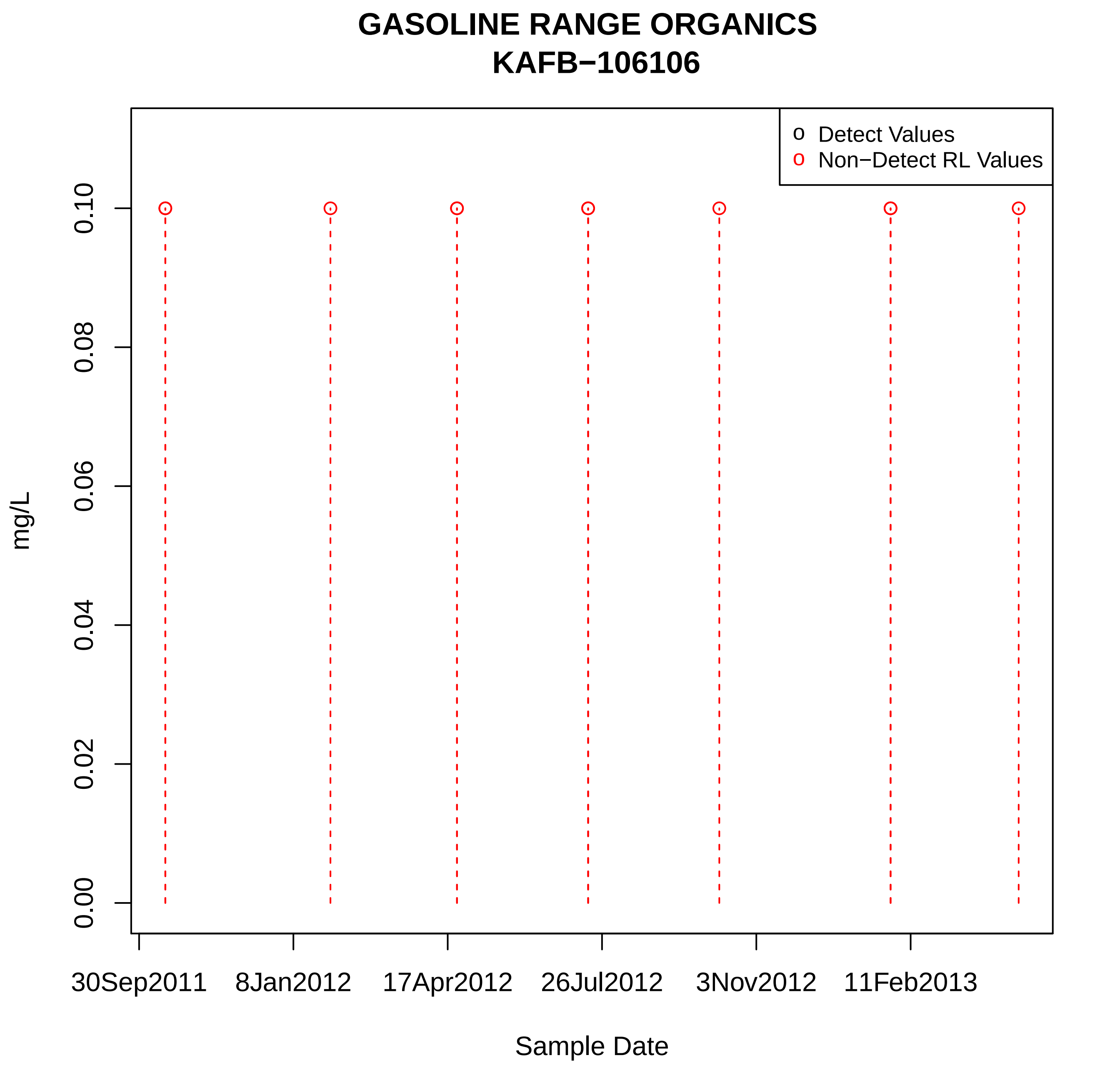

GASOLINE RANGE ORGANICS
KAFB−106023
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

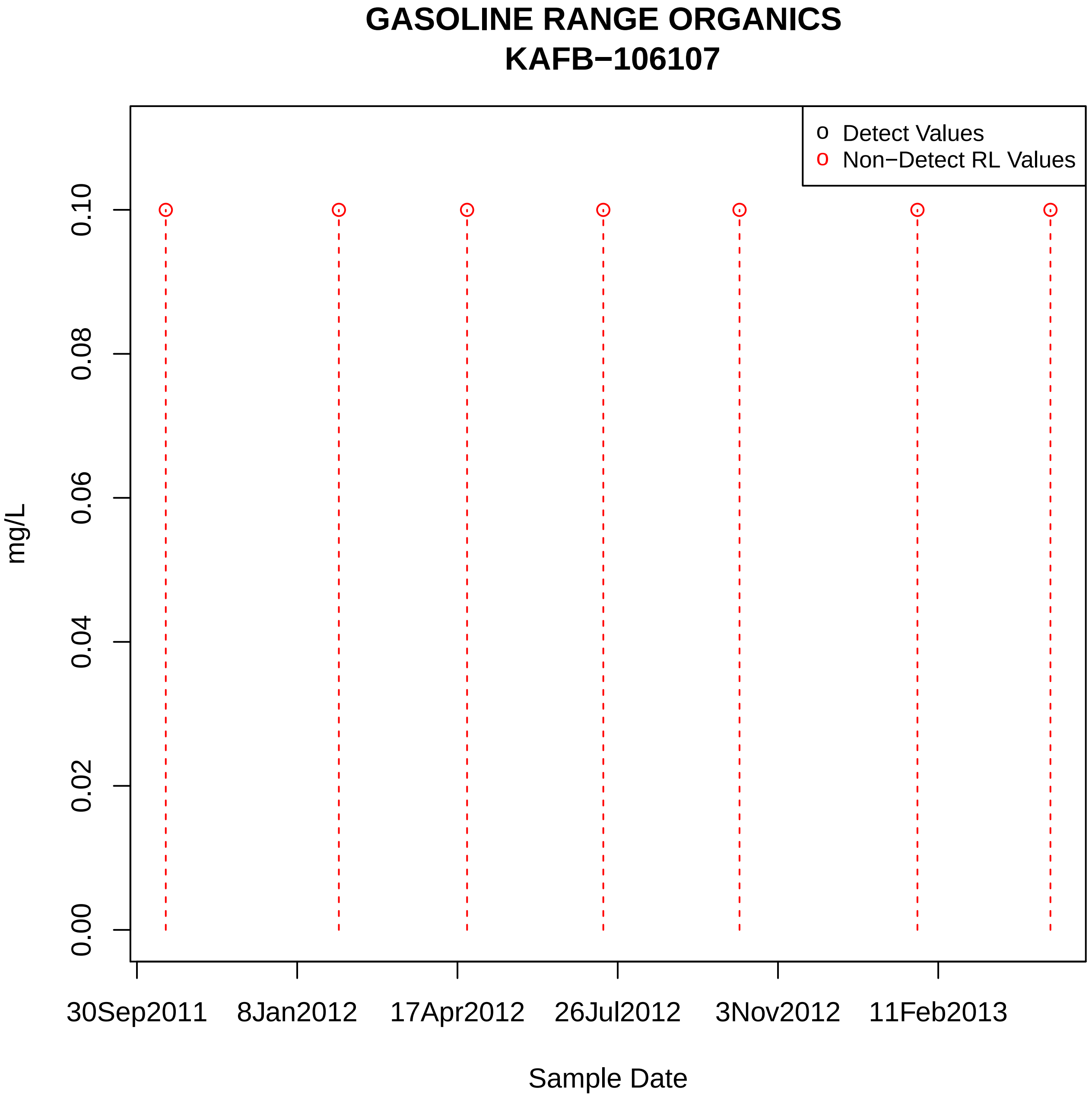

GASOLINE RANGE ORGANICS
KAFB−106103
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date

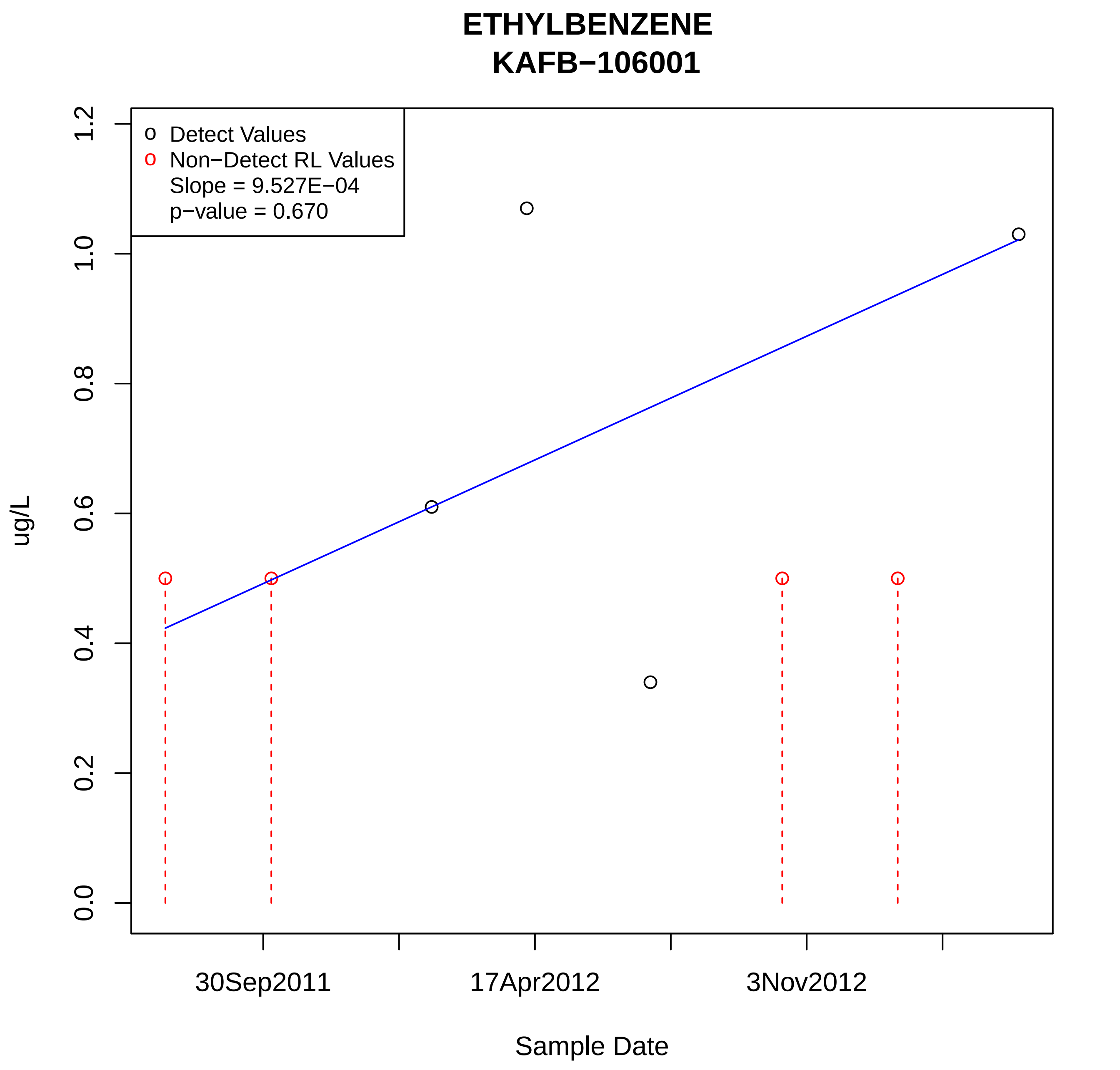

GASOLINE RANGE ORGANICS
KAFB−106104
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
17Apr2012
3Nov2012
Sample Date



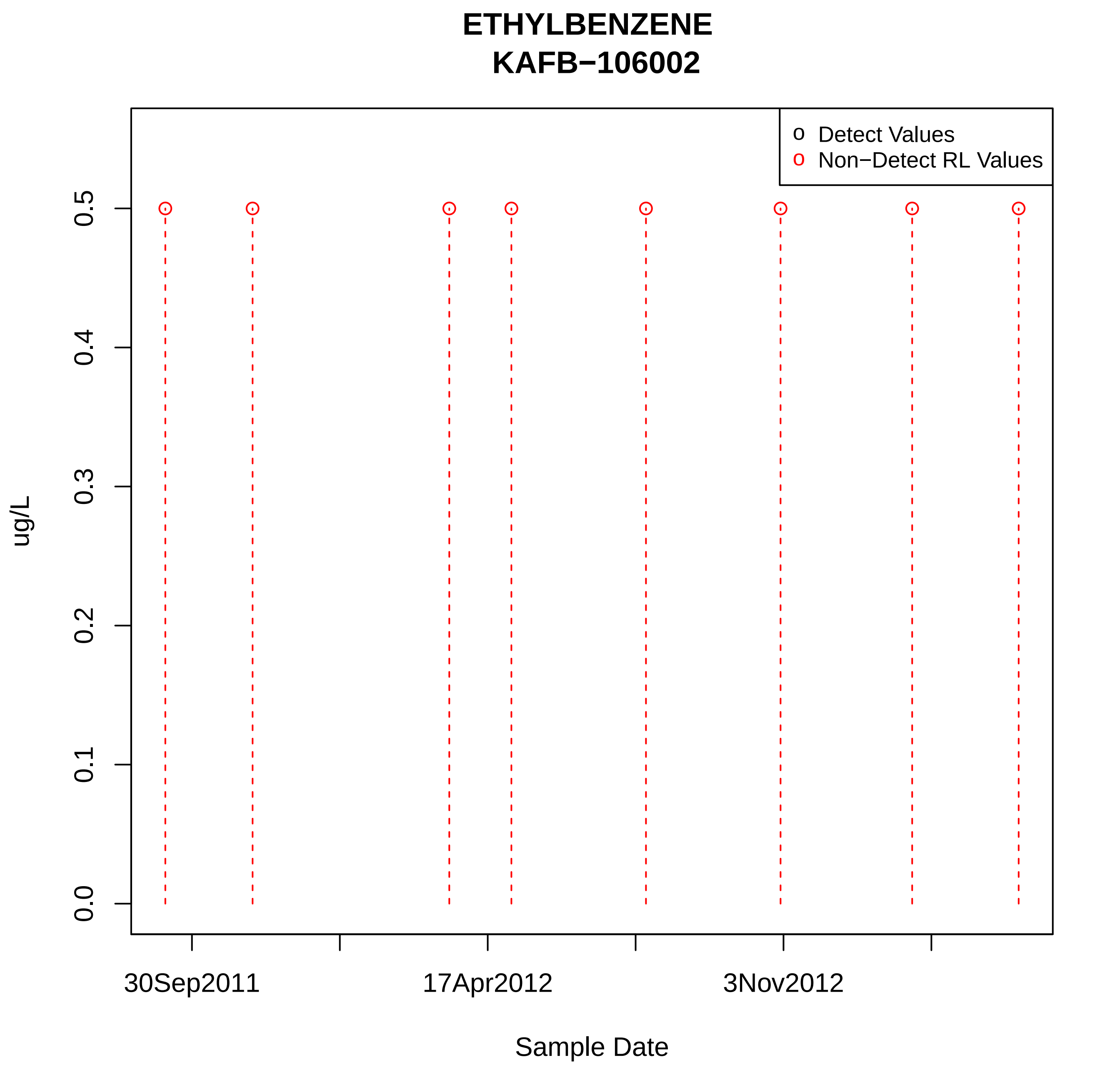
GASOLINE RANGE ORGANICS
KAFB−106105
Detect Values
Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

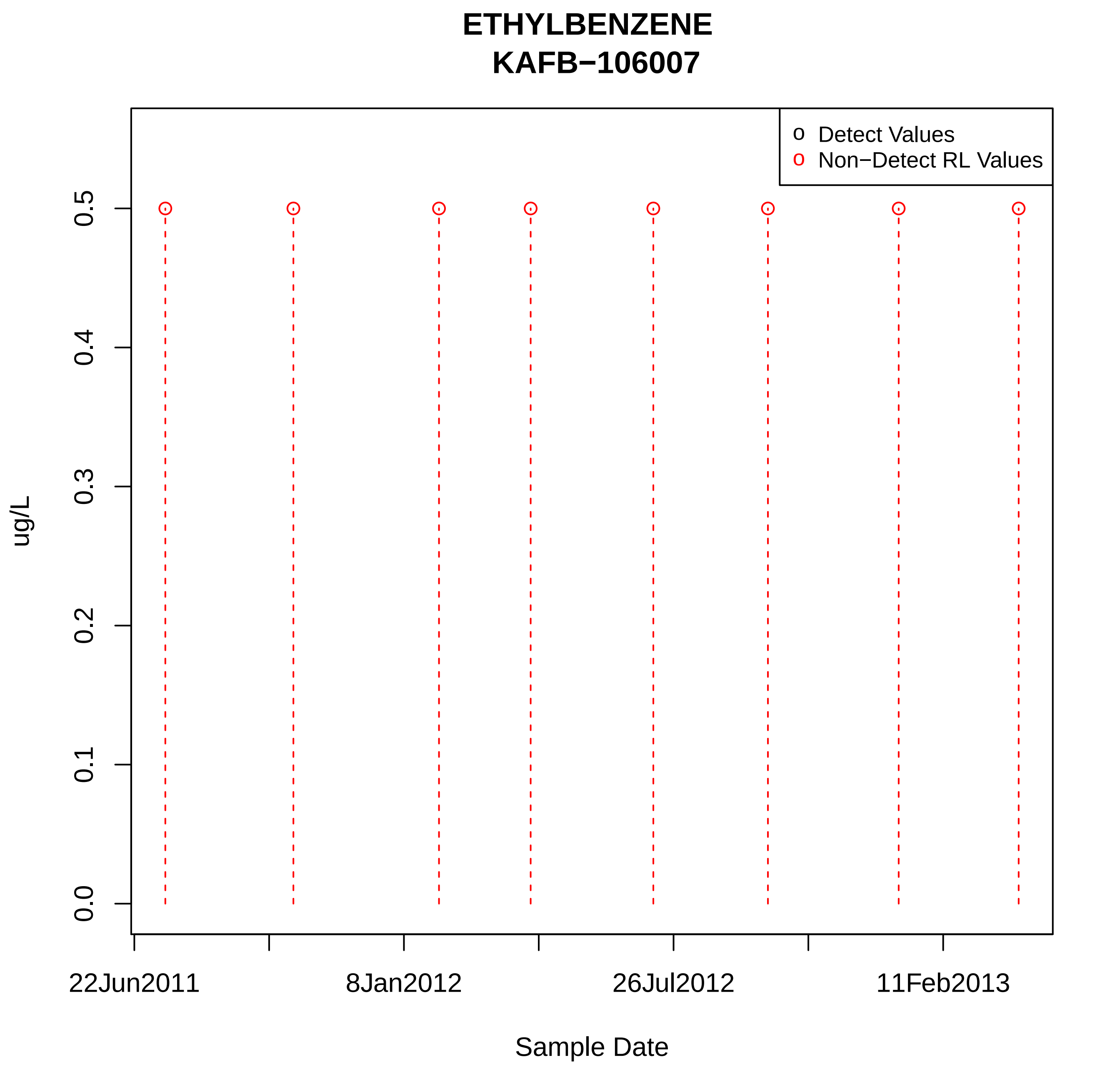

GASOLINE RANGE ORGANICS
KAFB−106106
o Detect Values
o Non−Detect RL Values
0.00
0.02
0.04
0.06
0.08
0.10
mg/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


GASOLINE RANGE ORGANICS
KAFB−106107
o Detect Values
o Non−Detect RL Values
mg/L
0.00
0.02
0.04
0.06
0.08
0.10
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

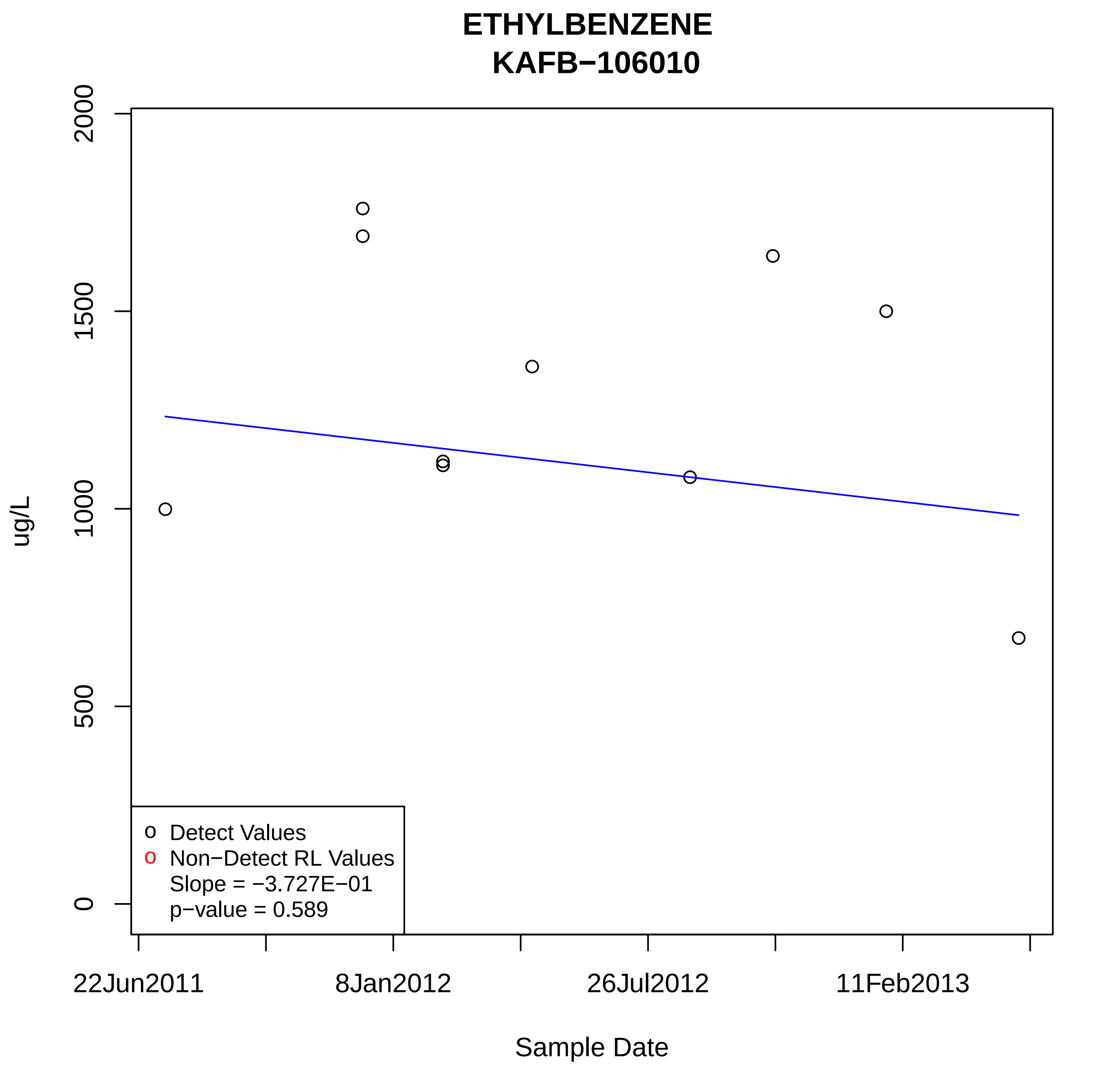


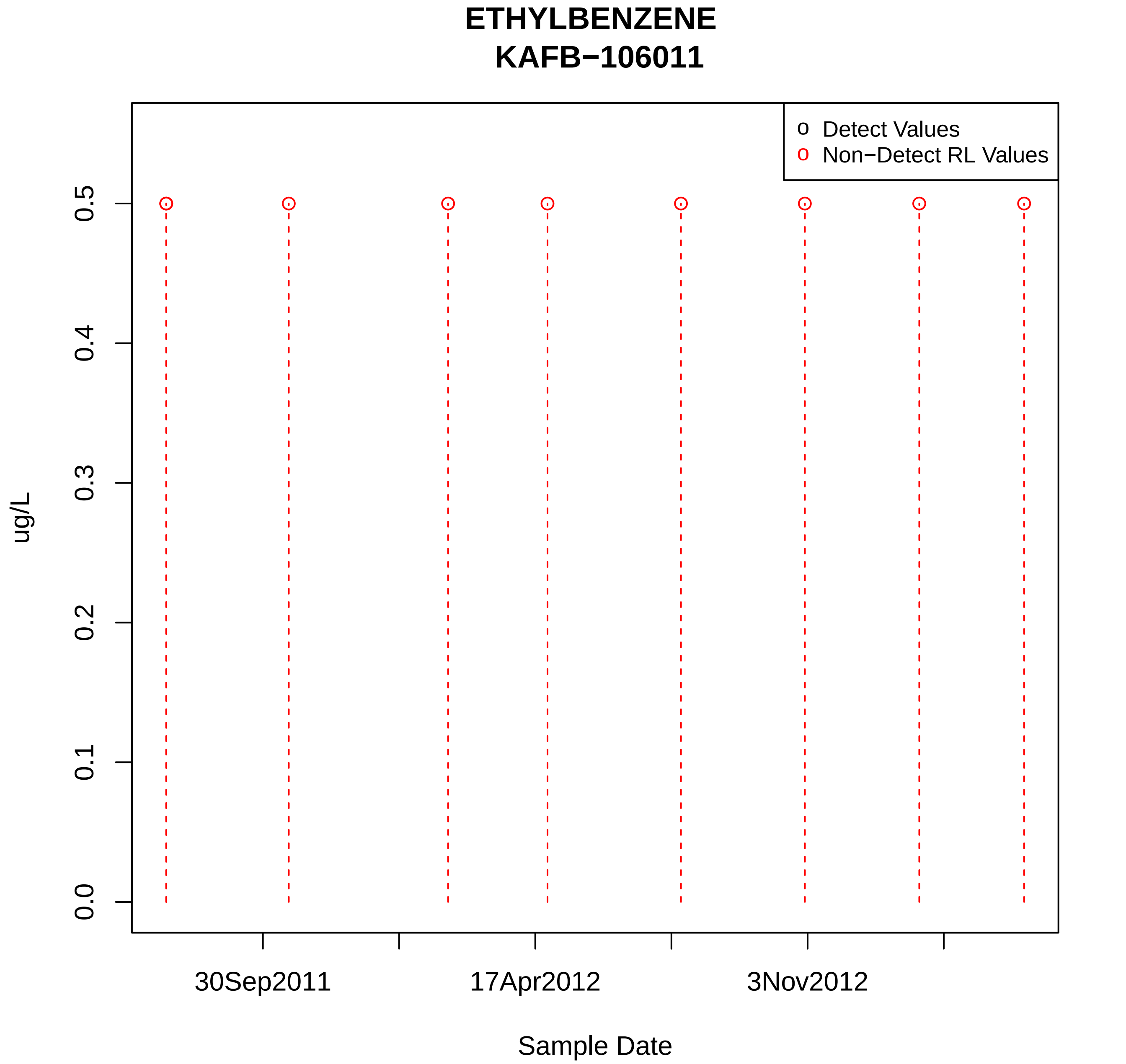
ETHYLBENZENE
KAFB−106001
o Detect Values
o Non−Detect RL Values
Slope = 9.527E−04
p−value = 0.670
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
30Sep2011
17Apr2012
3Nov2012
Sample Date

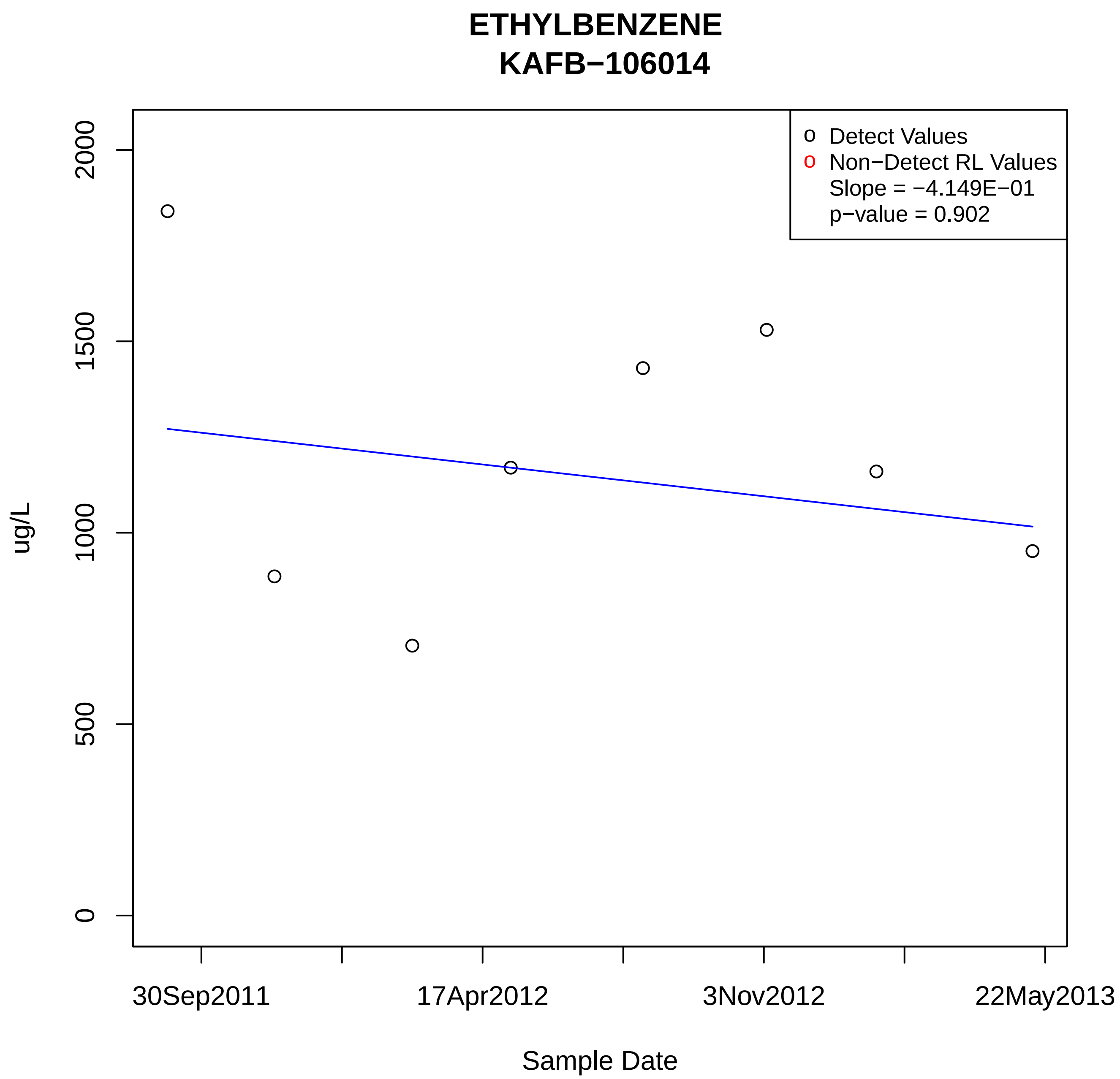

ETHYLBENZENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

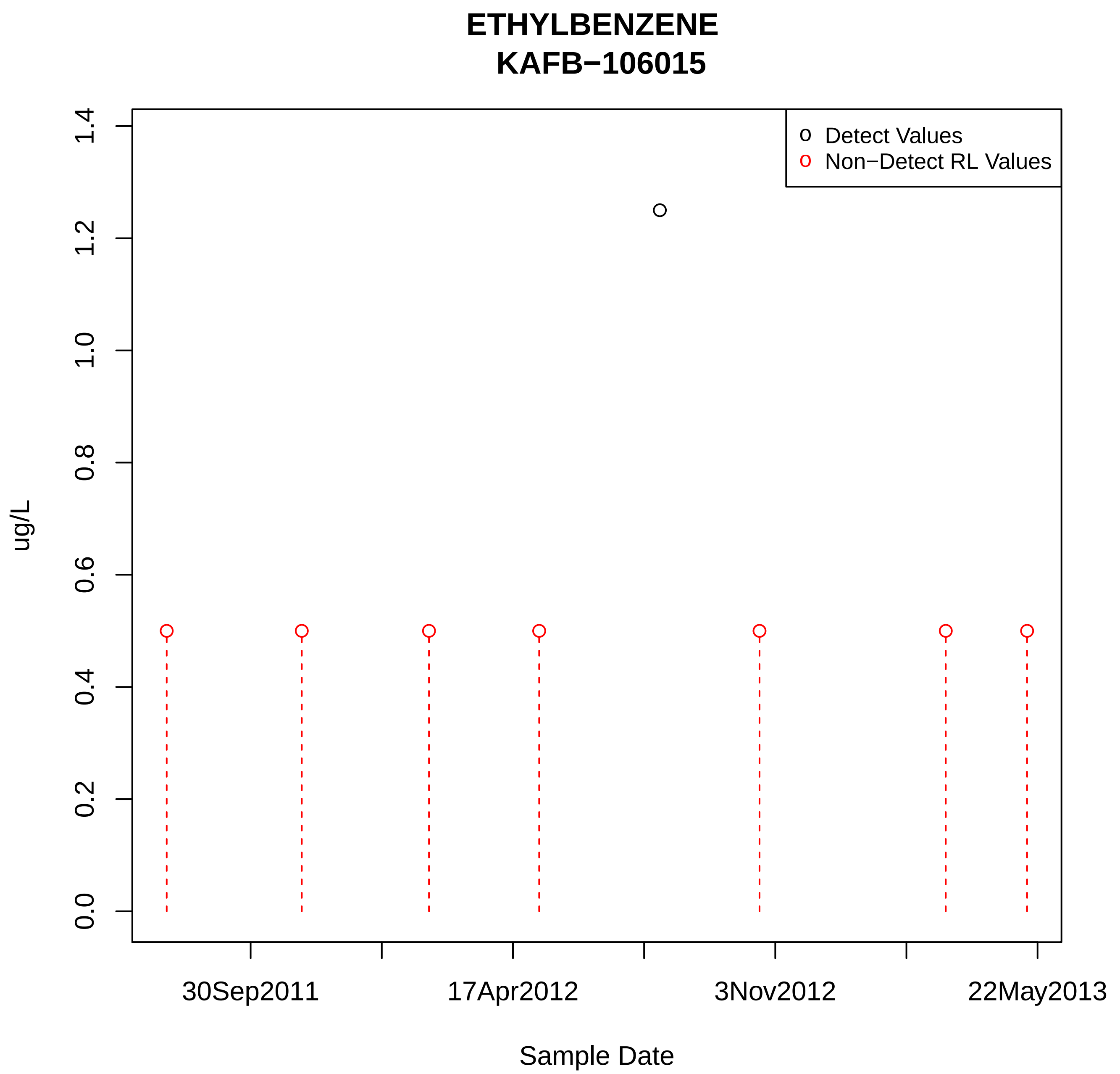


ETHYLBENZENE
KAFB−106007
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

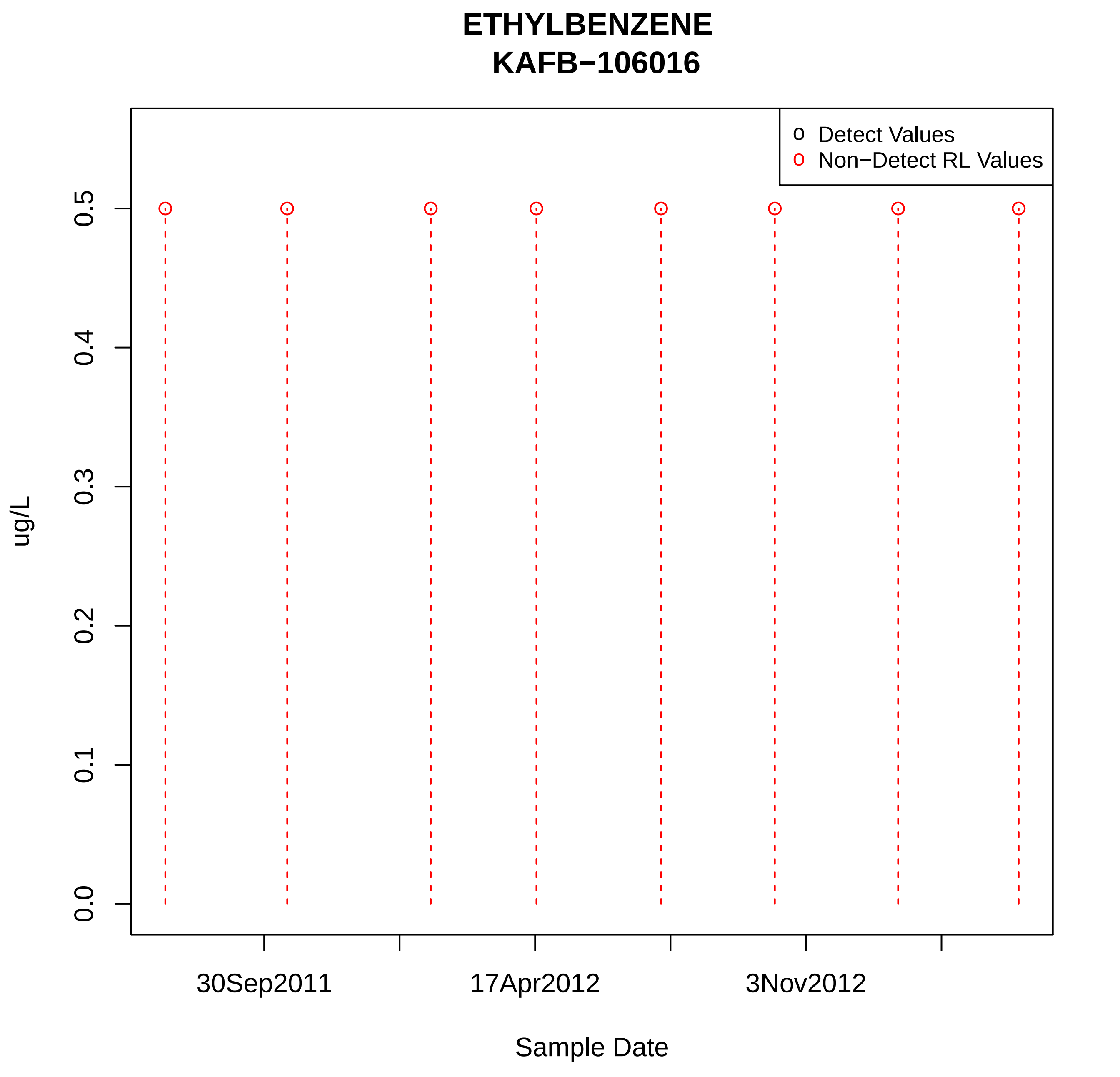

ETHYLBENZENE
KAFB−106010
2000
1500
1000
500
0
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −3.727E−01
p−value = 0.589

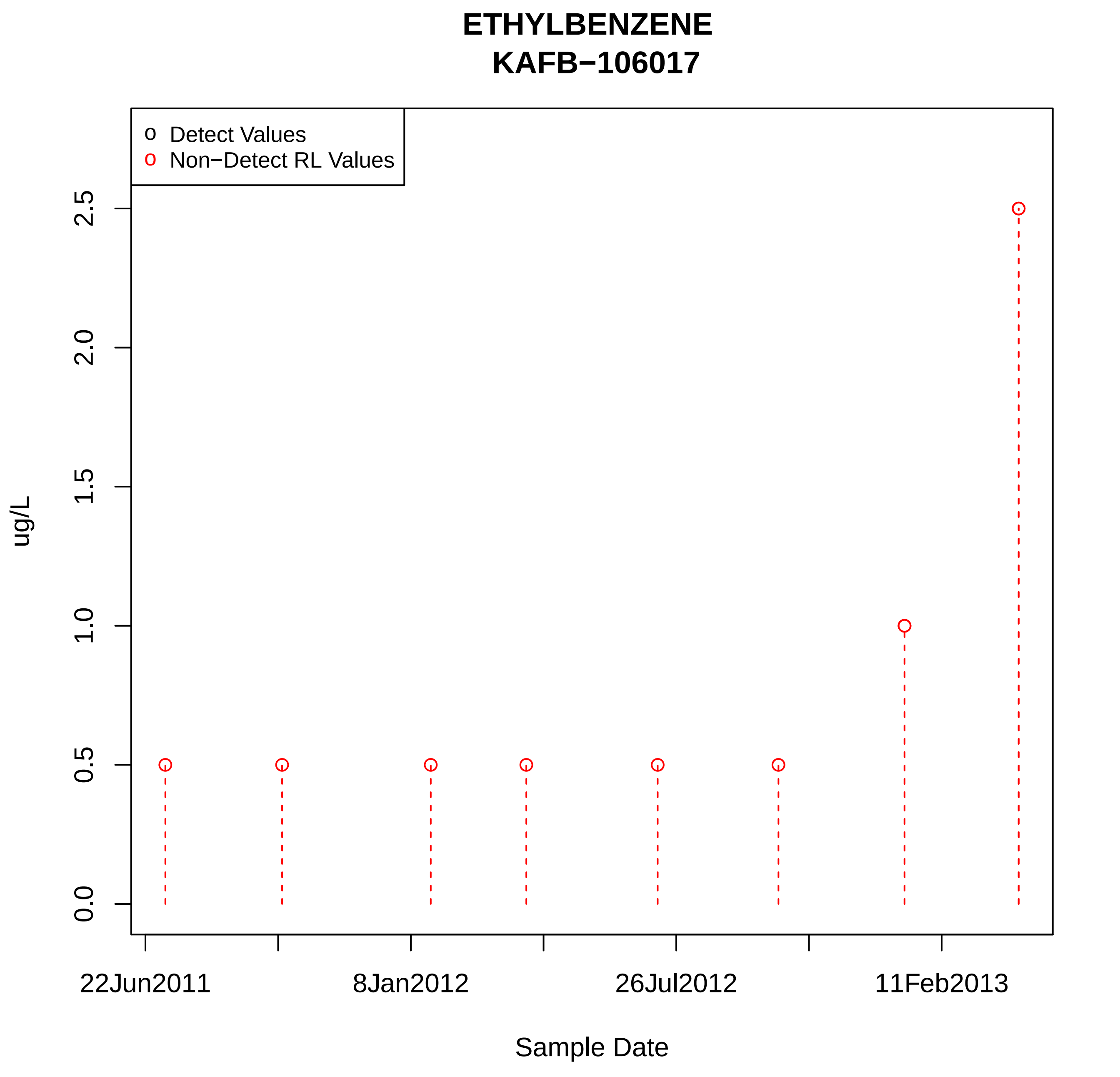

ETHYLBENZENE
KAFB−106011
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

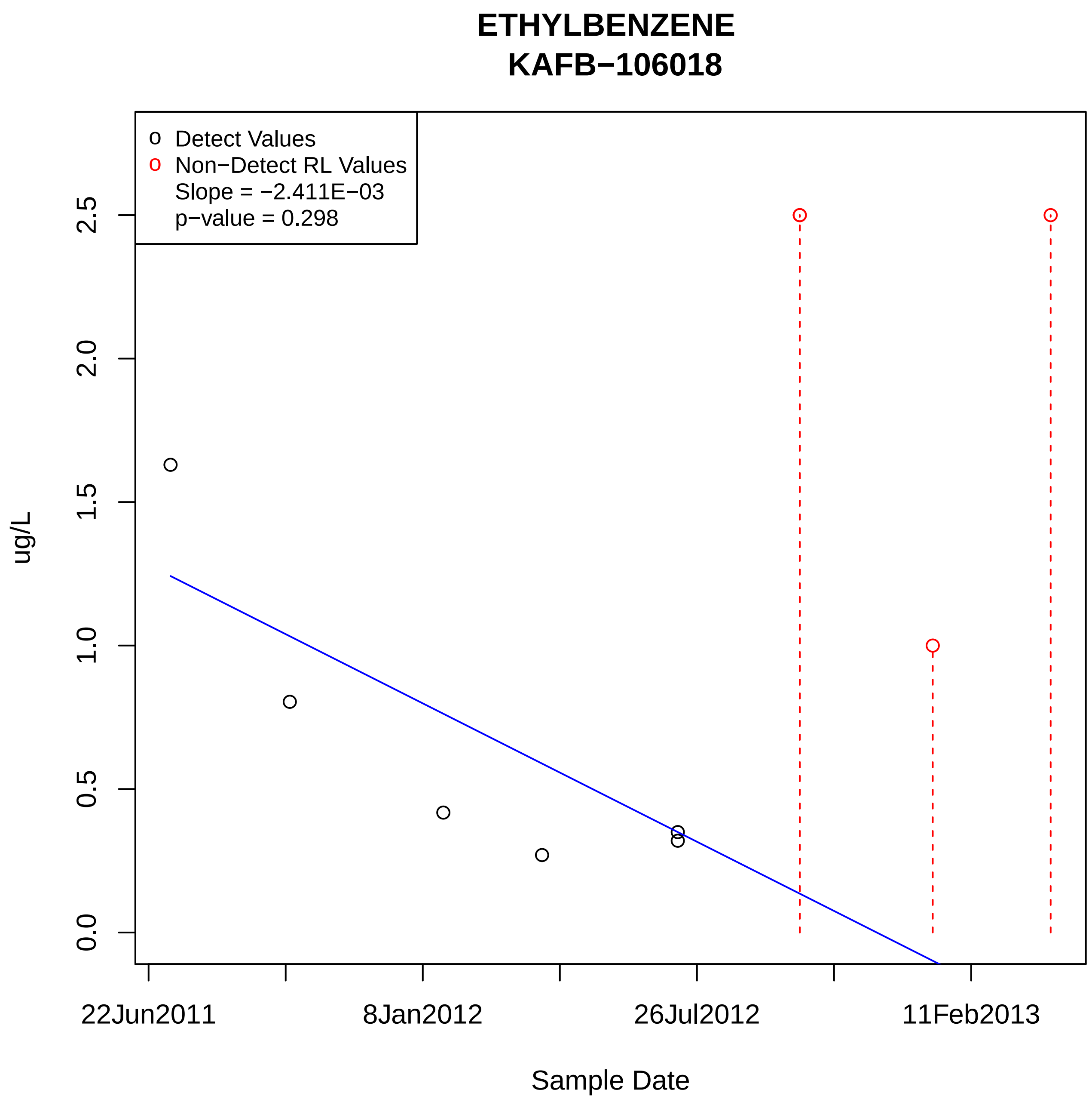

ETHYLBENZENE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −4.149E−01
p−value = 0.902
ug/L
0
500
1000
1500
2000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



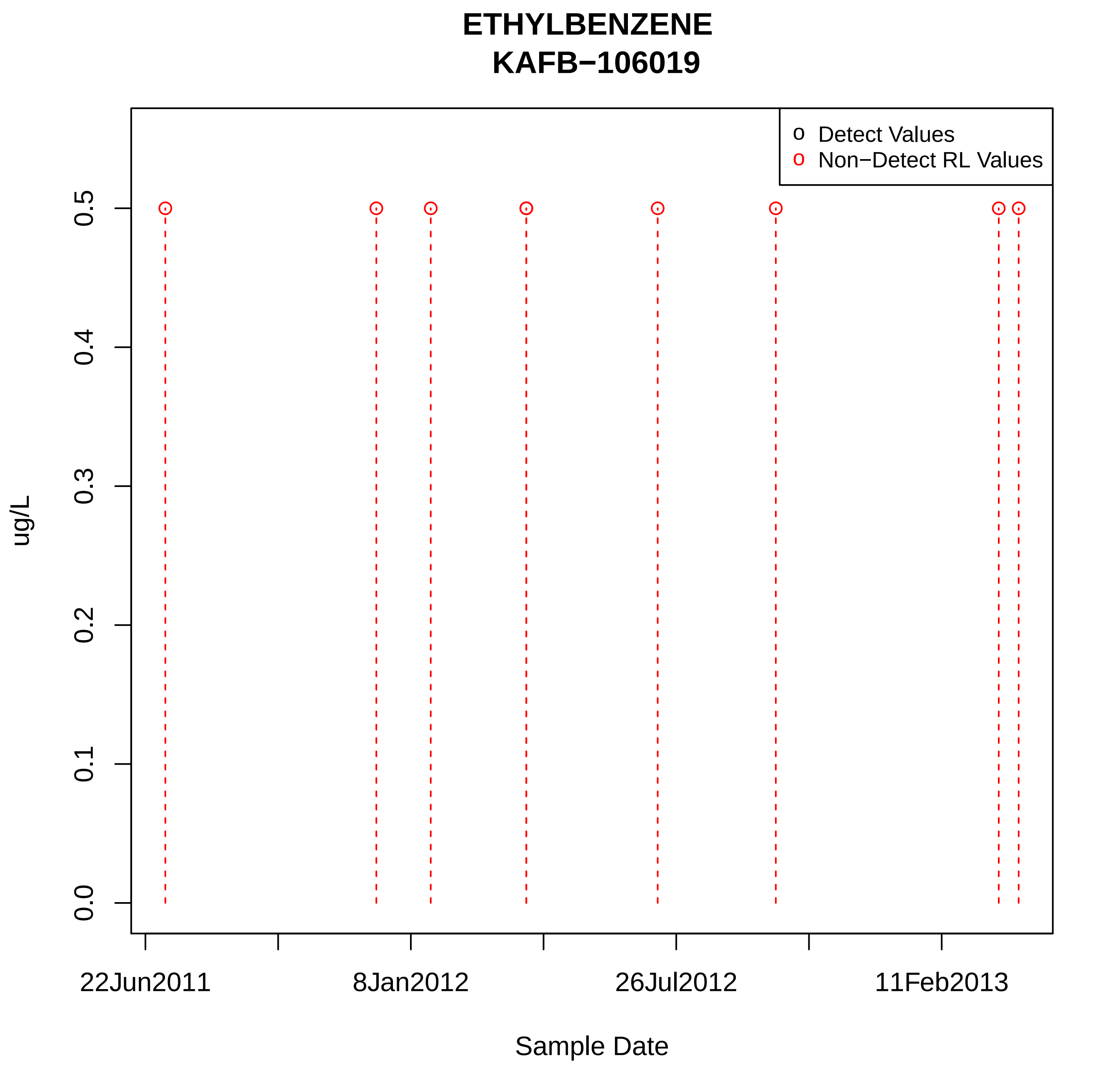
ETHYLBENZENE
KAFB−106015
Detect Values
Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ETHYLBENZENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

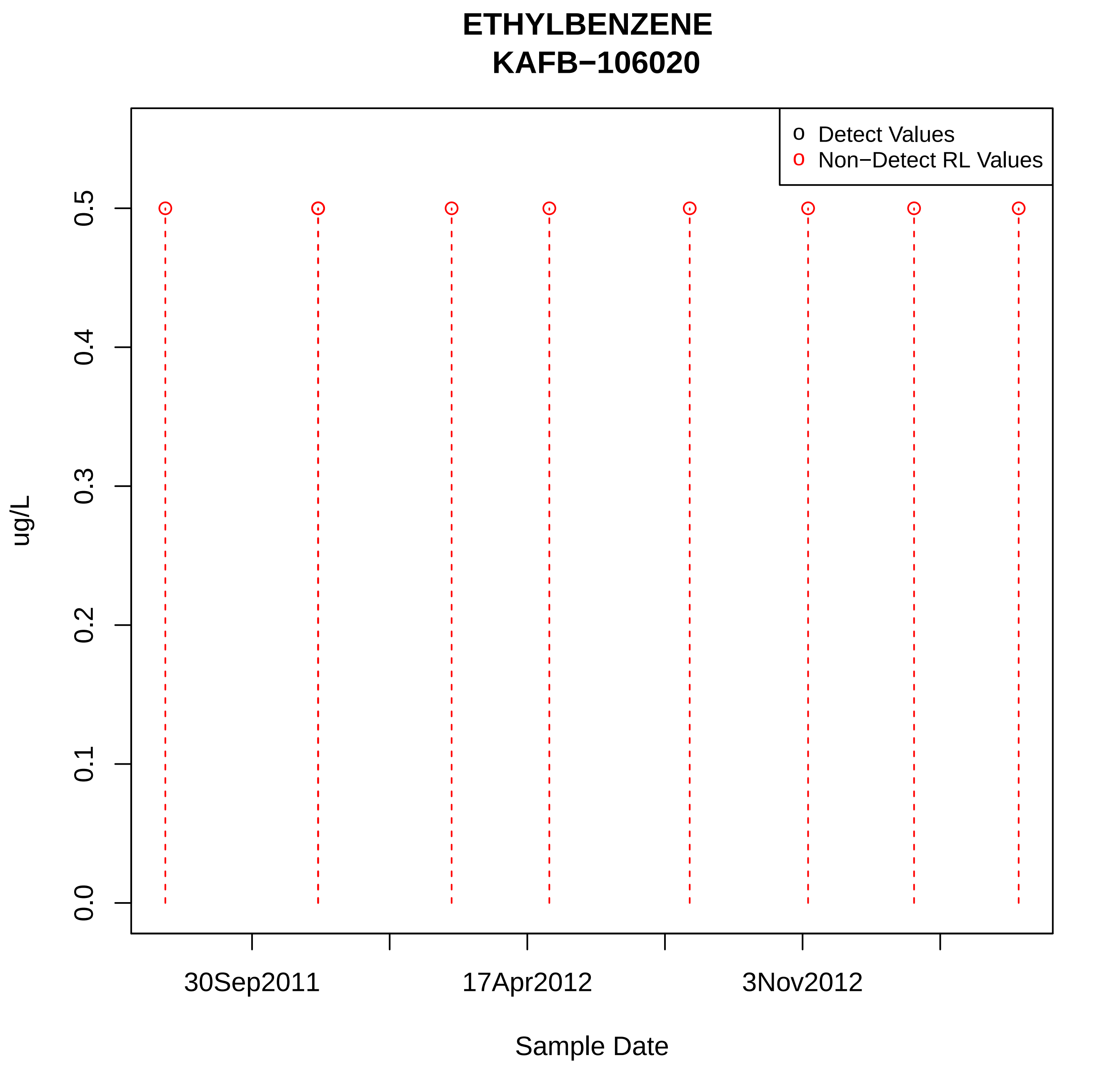

ETHYLBENZENE
KAFB−106017
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



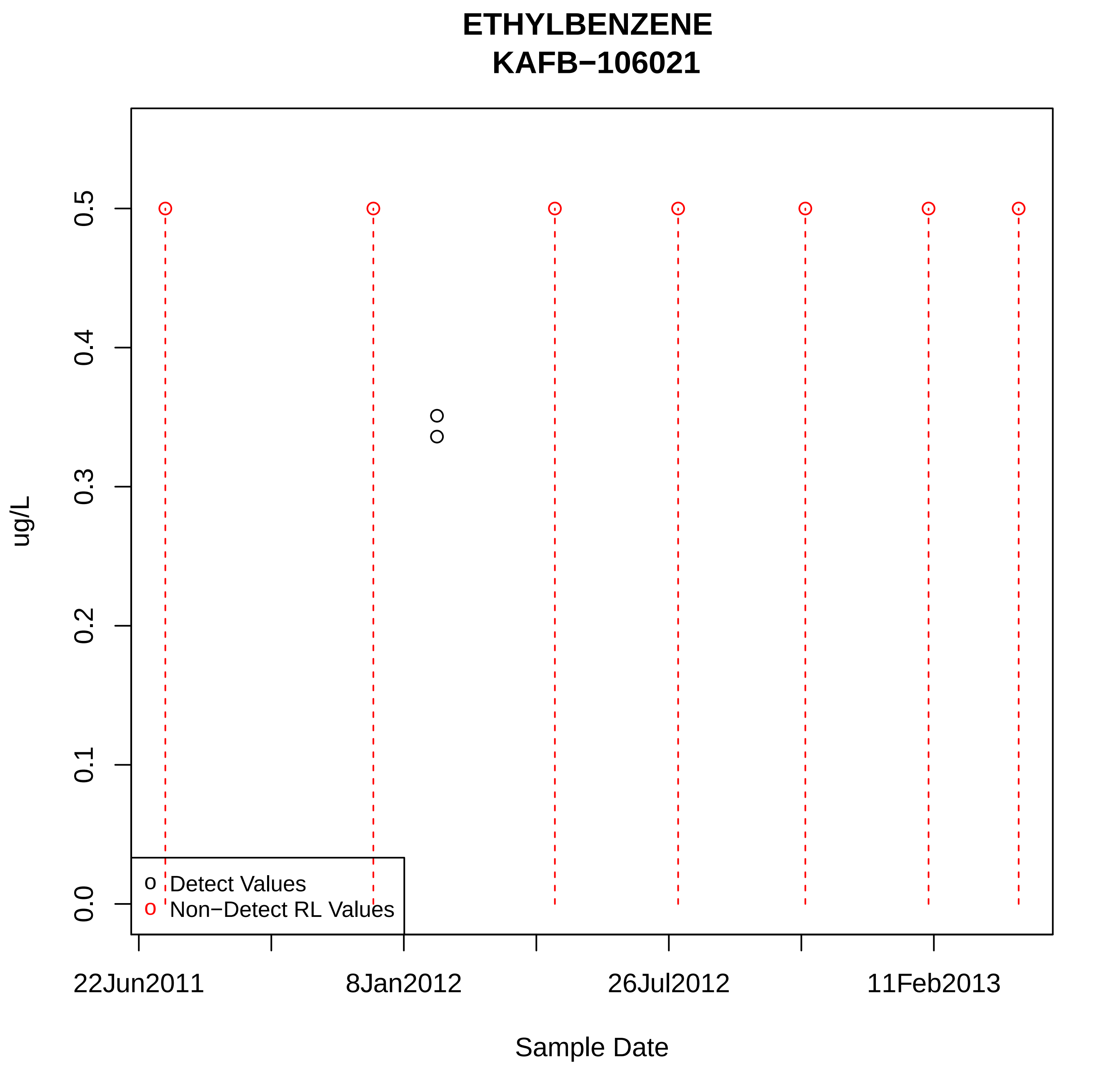
ETHYLBENZENE
KAFB−106018
o Detect Values
o Non−Detect RL Values
Slope = −2.411E−03
p−value = 0.298
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



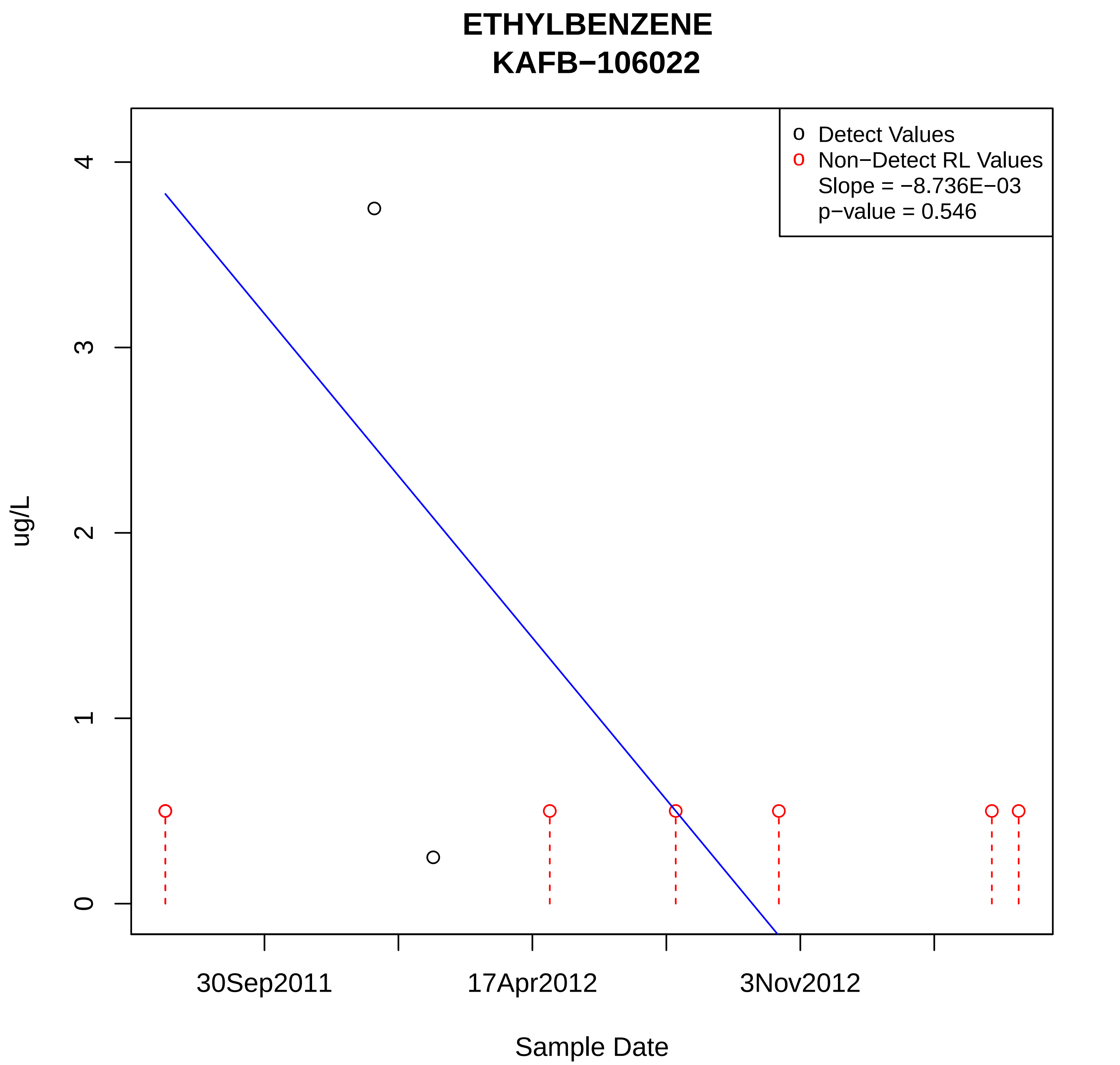
ETHYLBENZENE
KAFB−106019
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

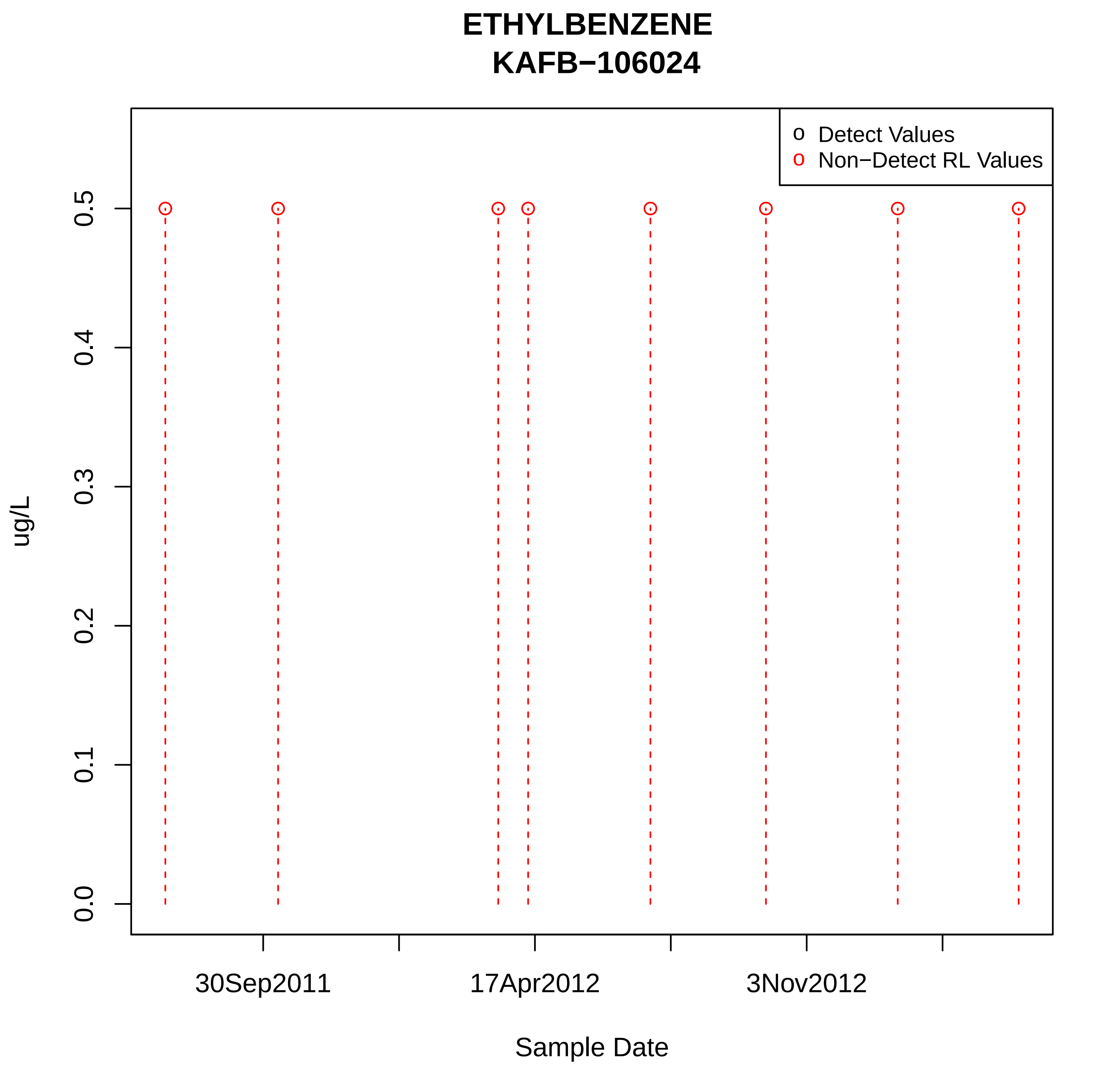


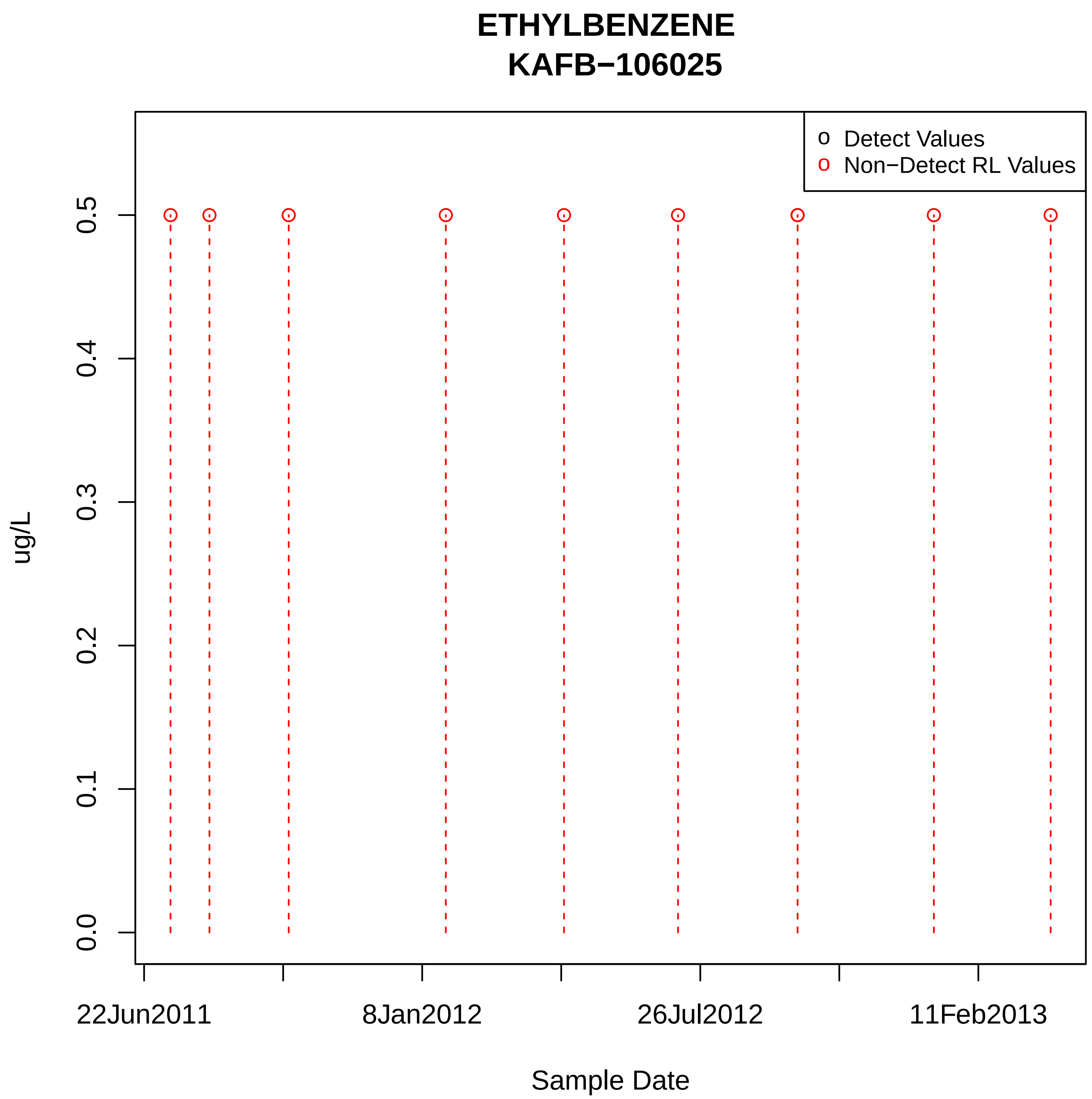
ETHYLBENZENE
KAFB−106020
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



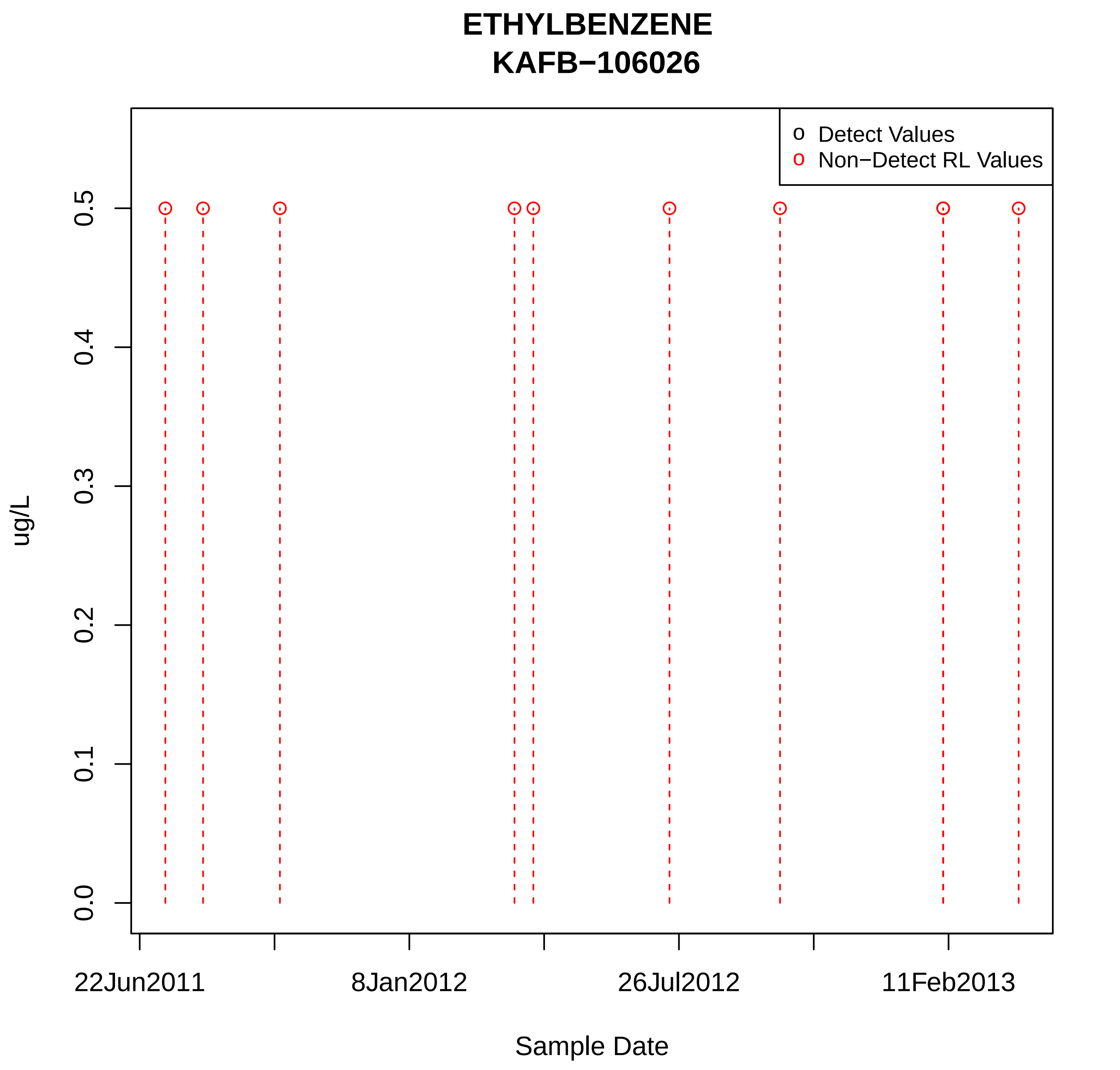
ETHYLBENZENE
KAFB−106021
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
Detect Values
Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ETHYLBENZENE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −8.736E−03
p−value = 0.546
ug/L
0
1
2
3
4
30Sep2011
17Apr2012
3Nov2012
Sample Date

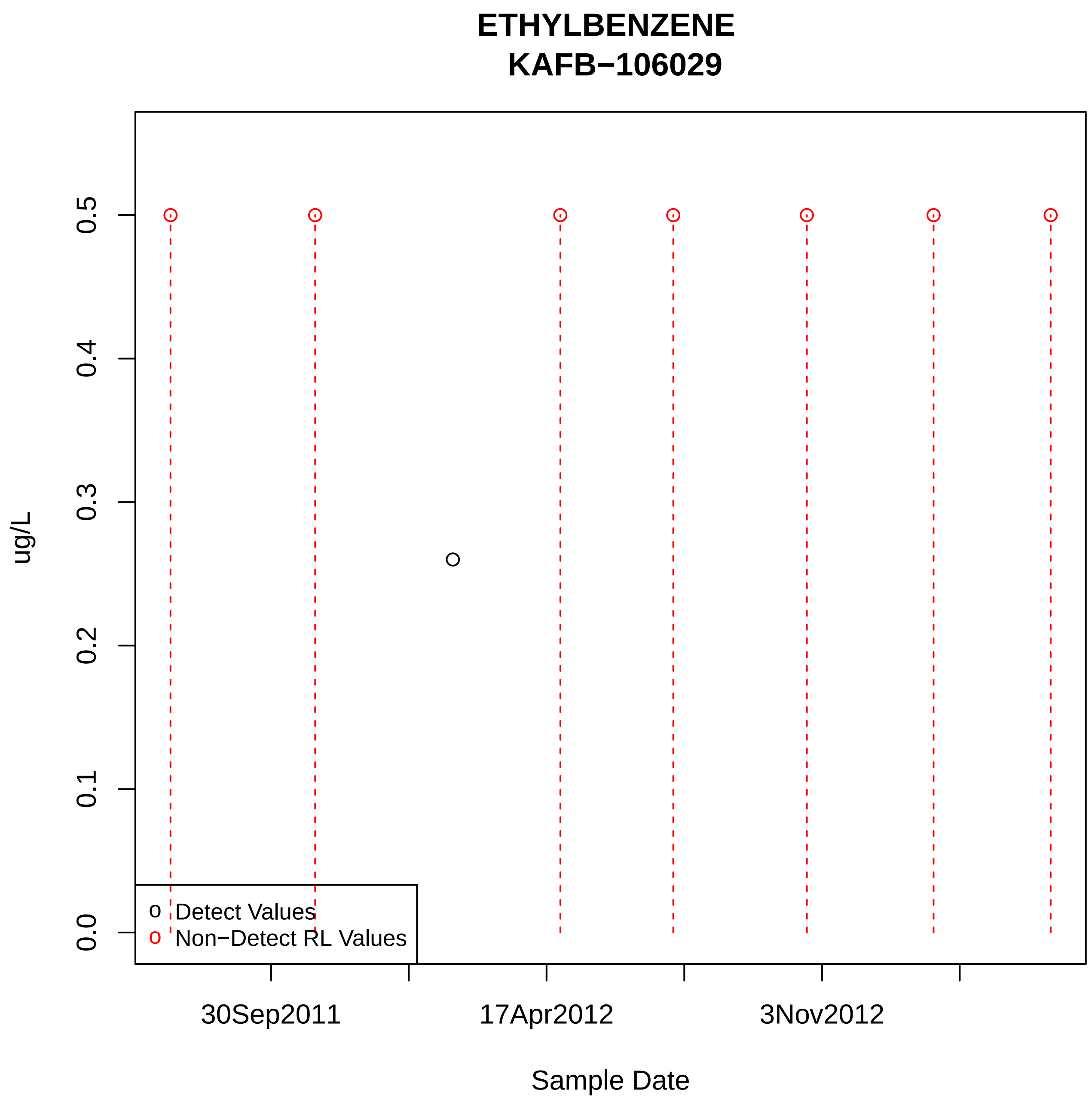

ETHYLBENZENE
KAFB−106024
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

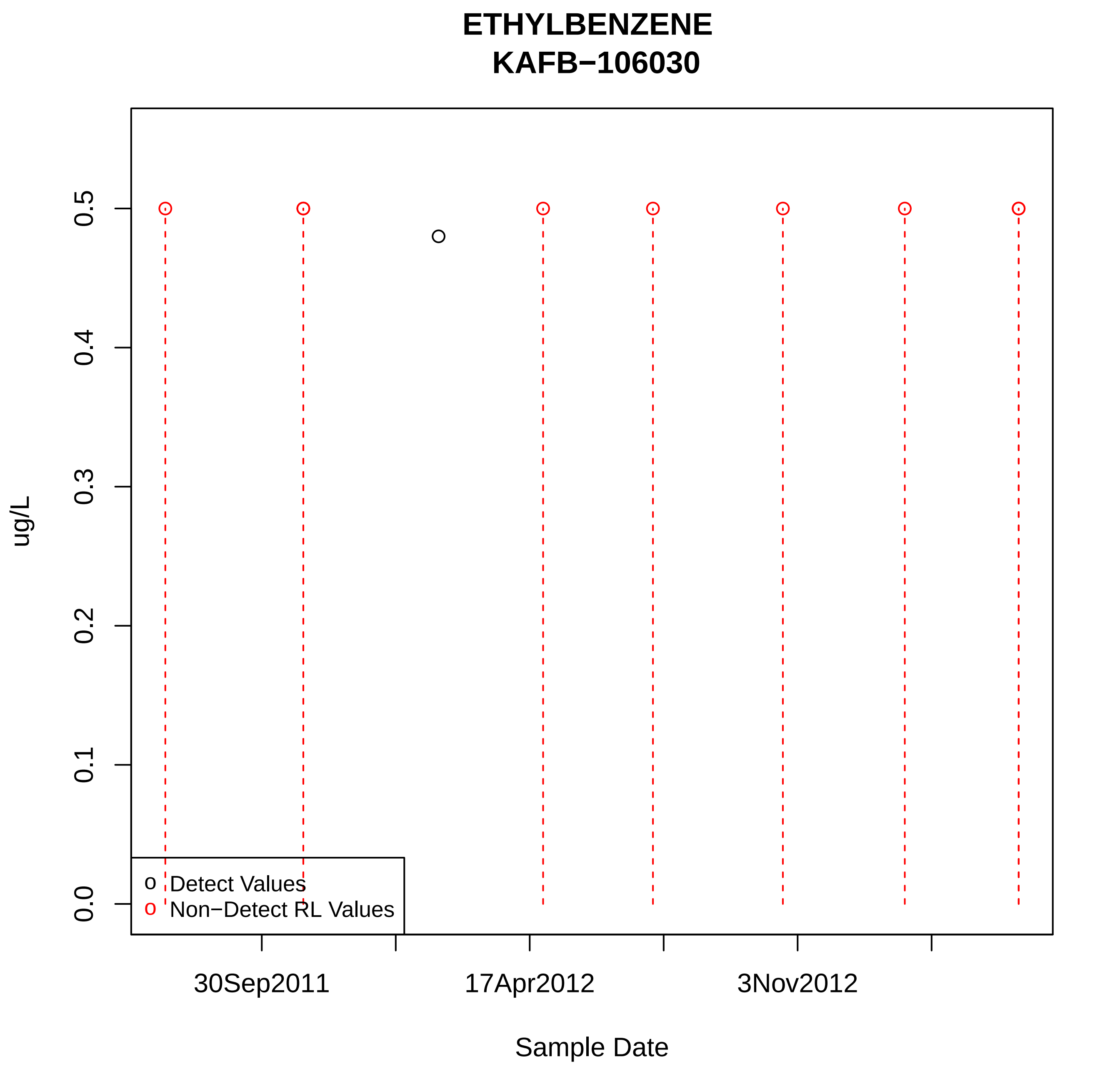


ETHYLBENZENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

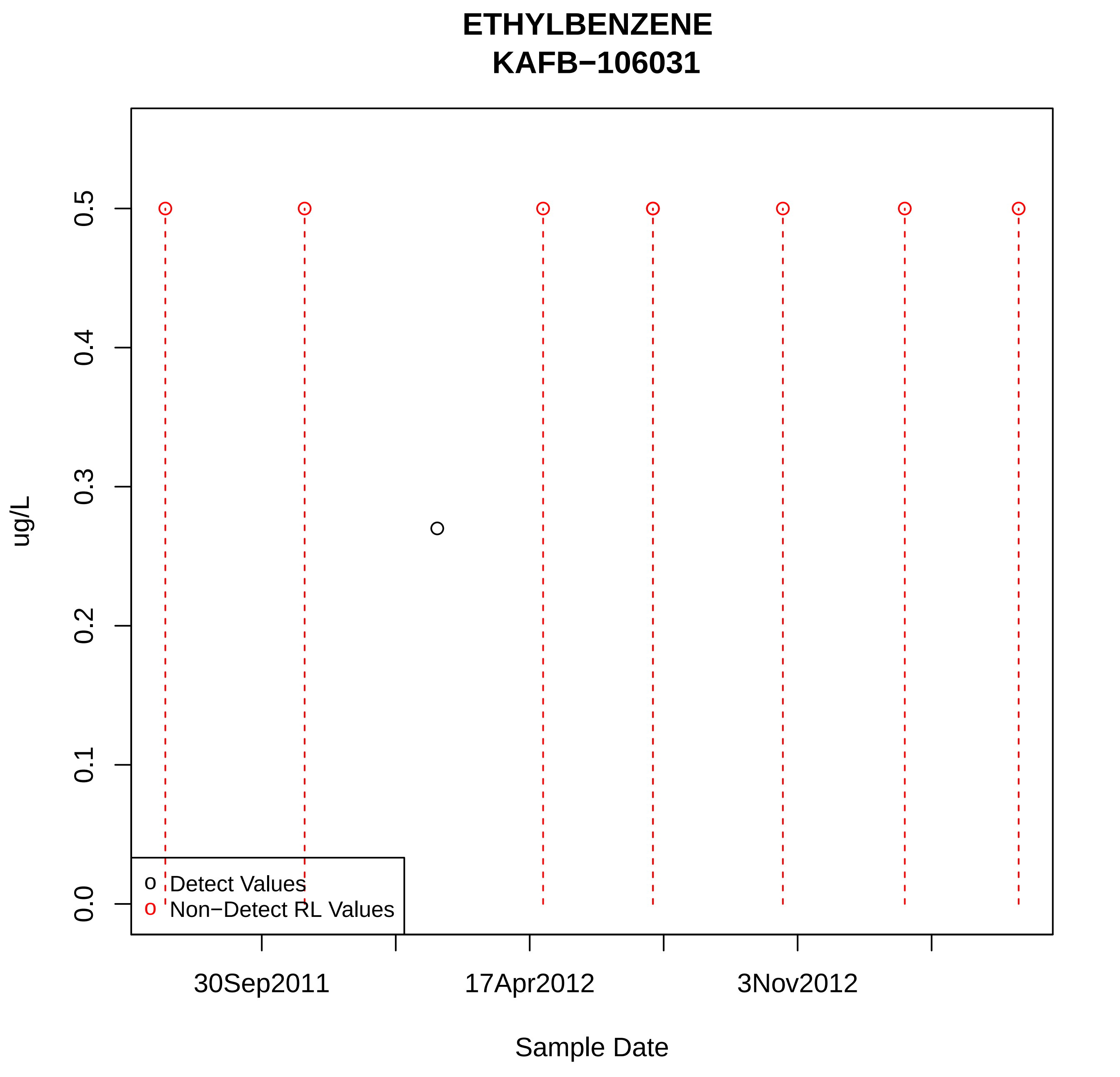


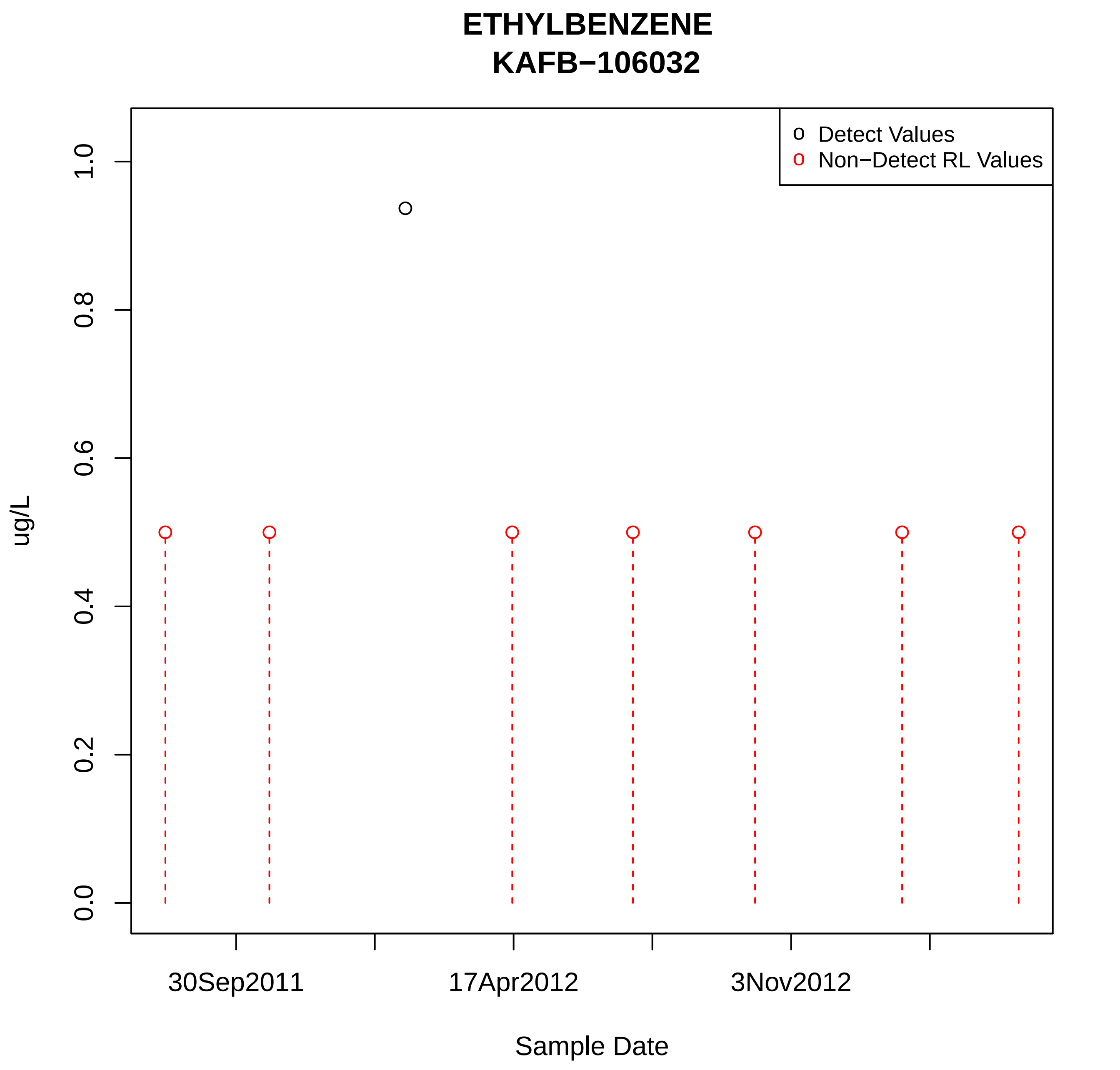
ETHYLBENZENE
KAFB−106026
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

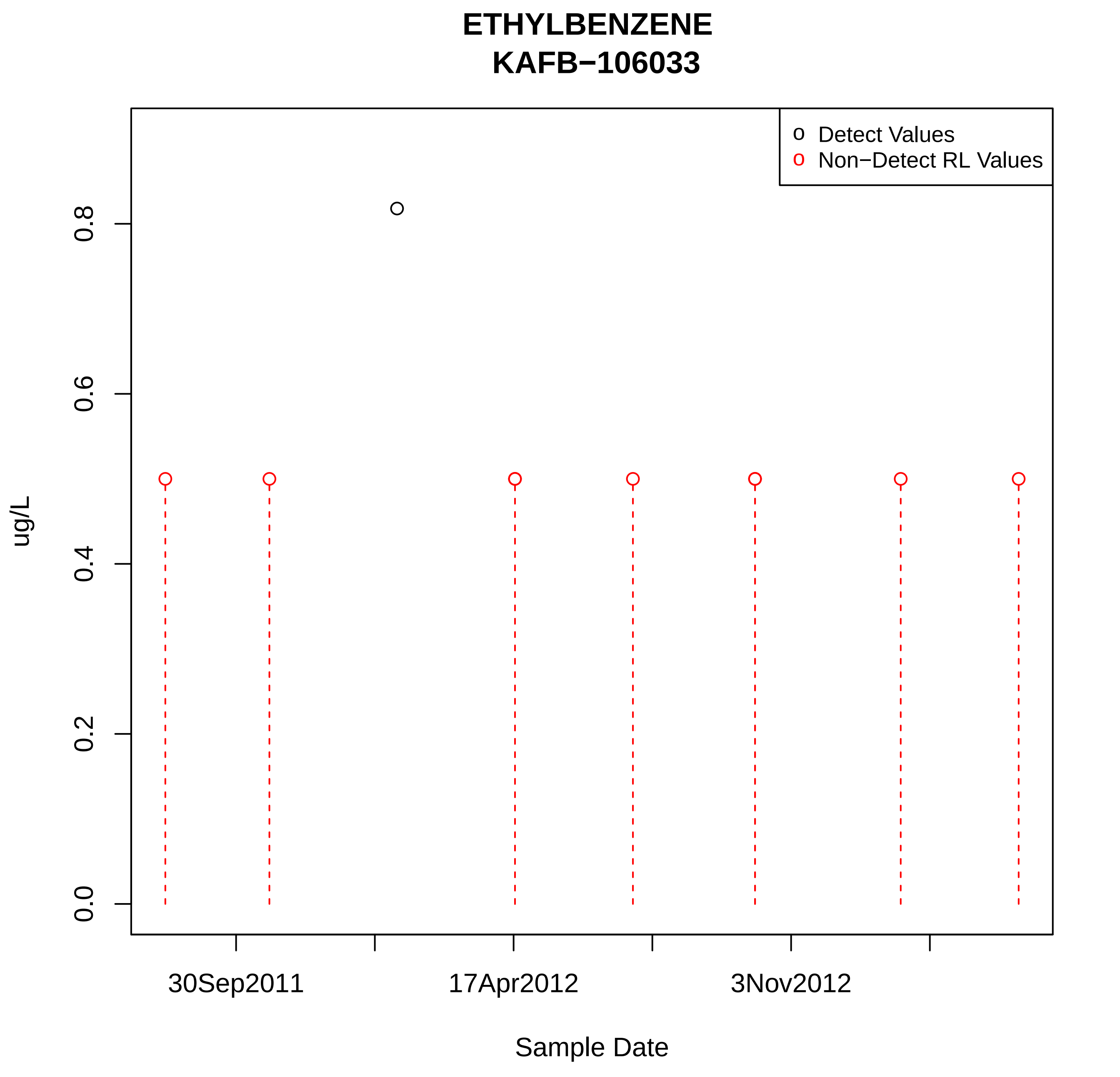

ETHYLBENZENE
KAFB−106029
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date



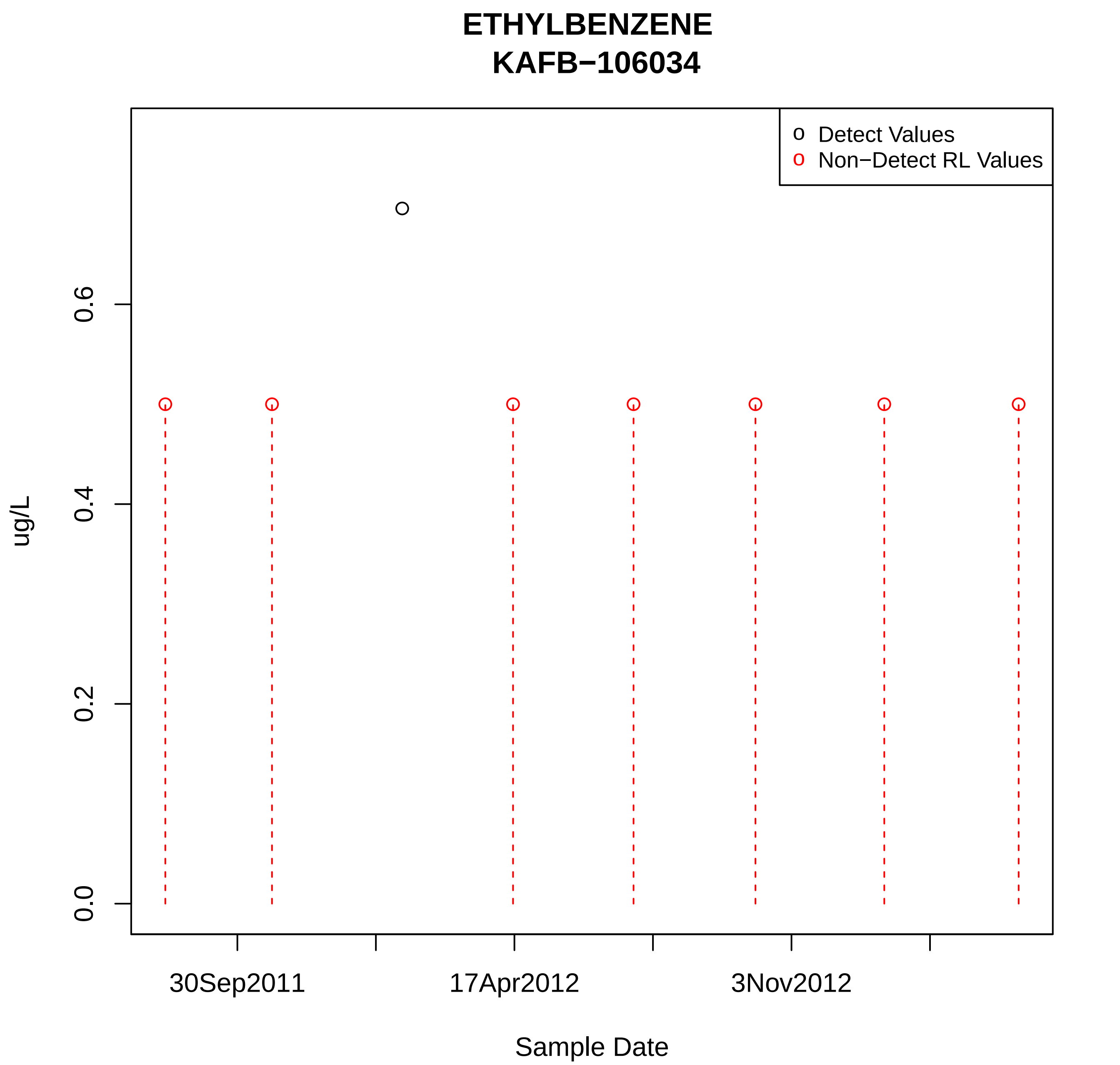
ETHYLBENZENE
KAFB−106030
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

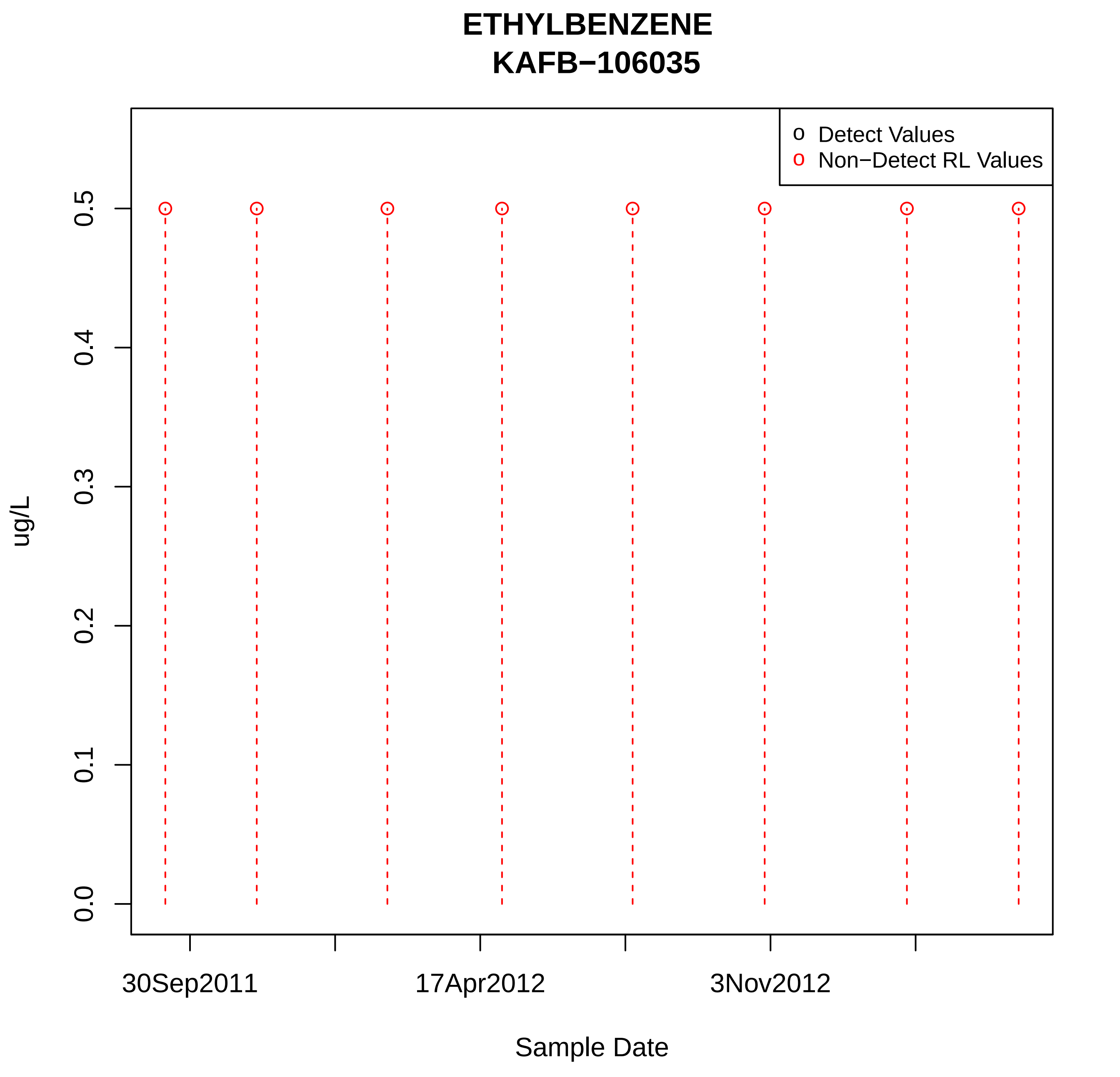

ETHYLBENZENE
KAFB−106031
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

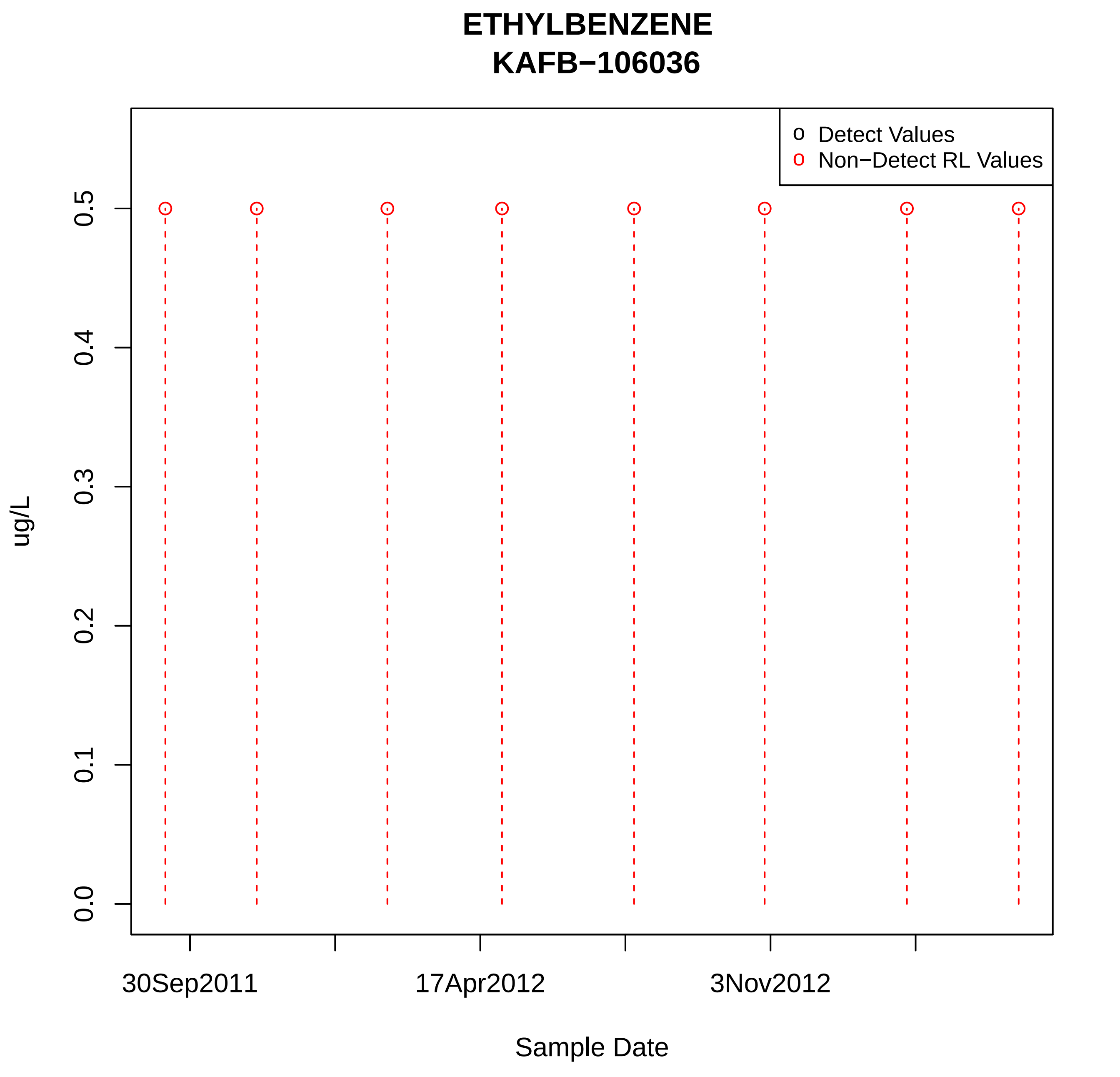

ETHYLBENZENE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

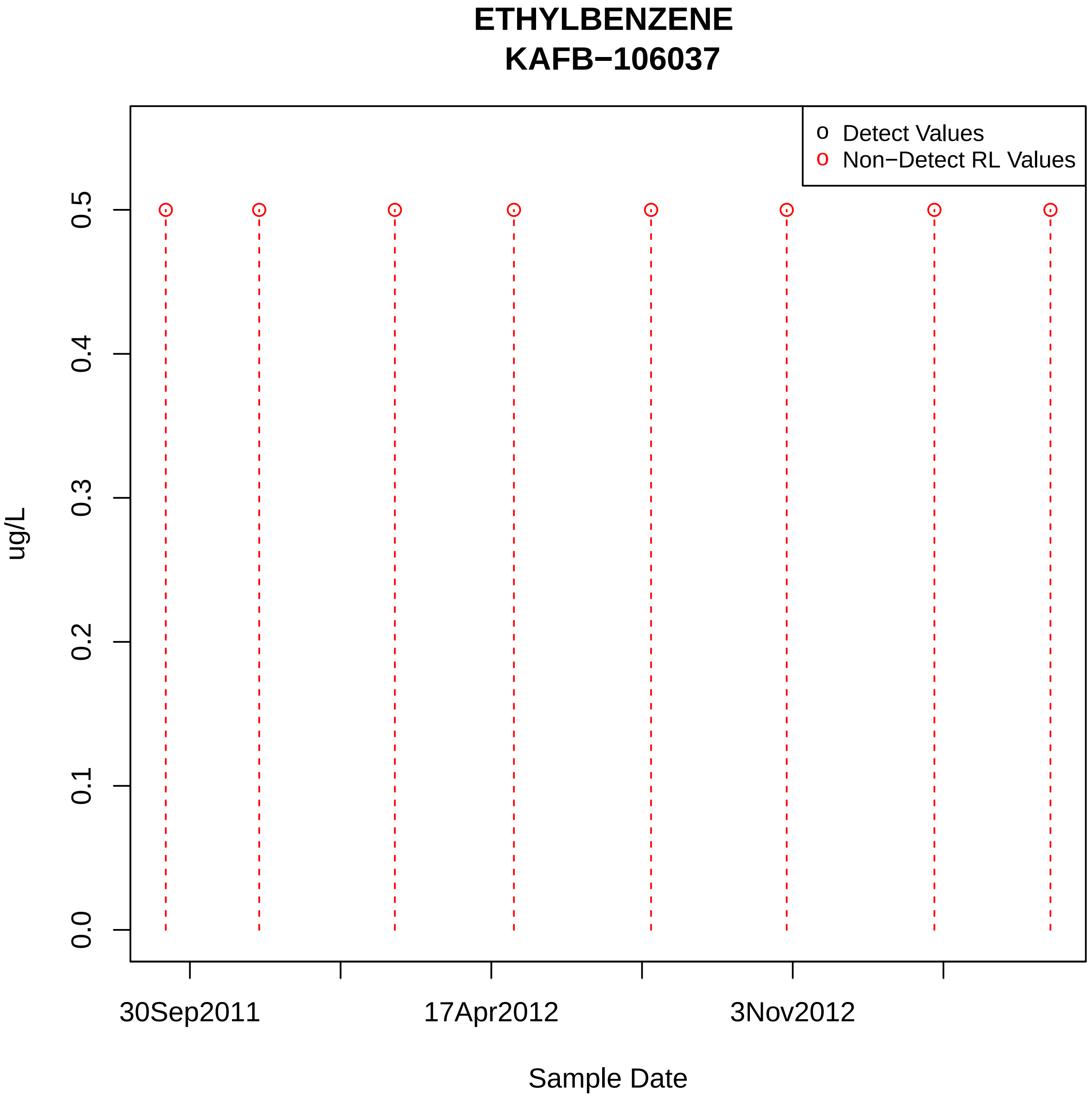


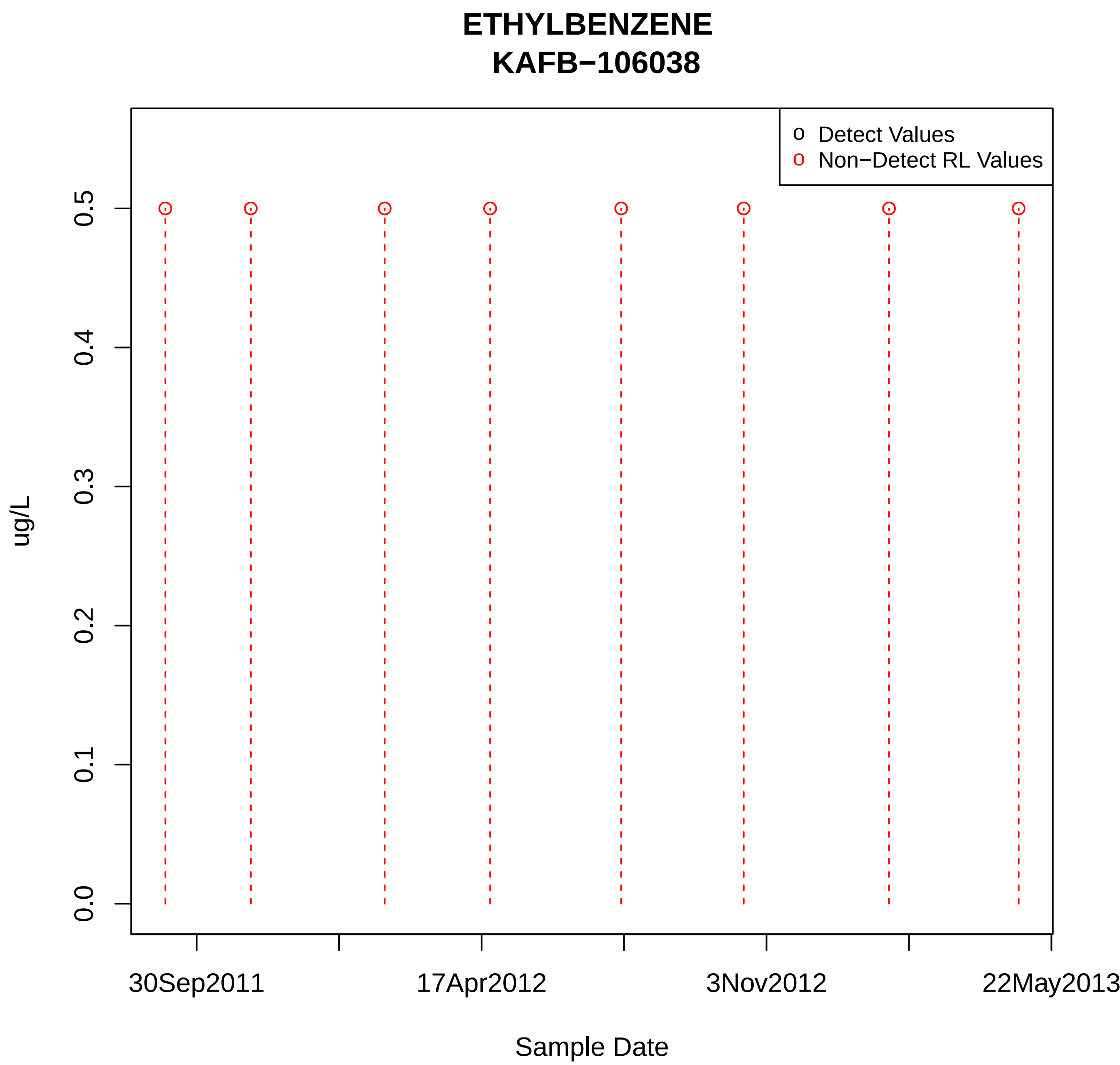
ETHYLBENZENE
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
30Sep2011
17Apr2012
3Nov2012
Sample Date


ETHYLBENZENE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
30Sep2011
17Apr2012
3Nov2012
Sample Date

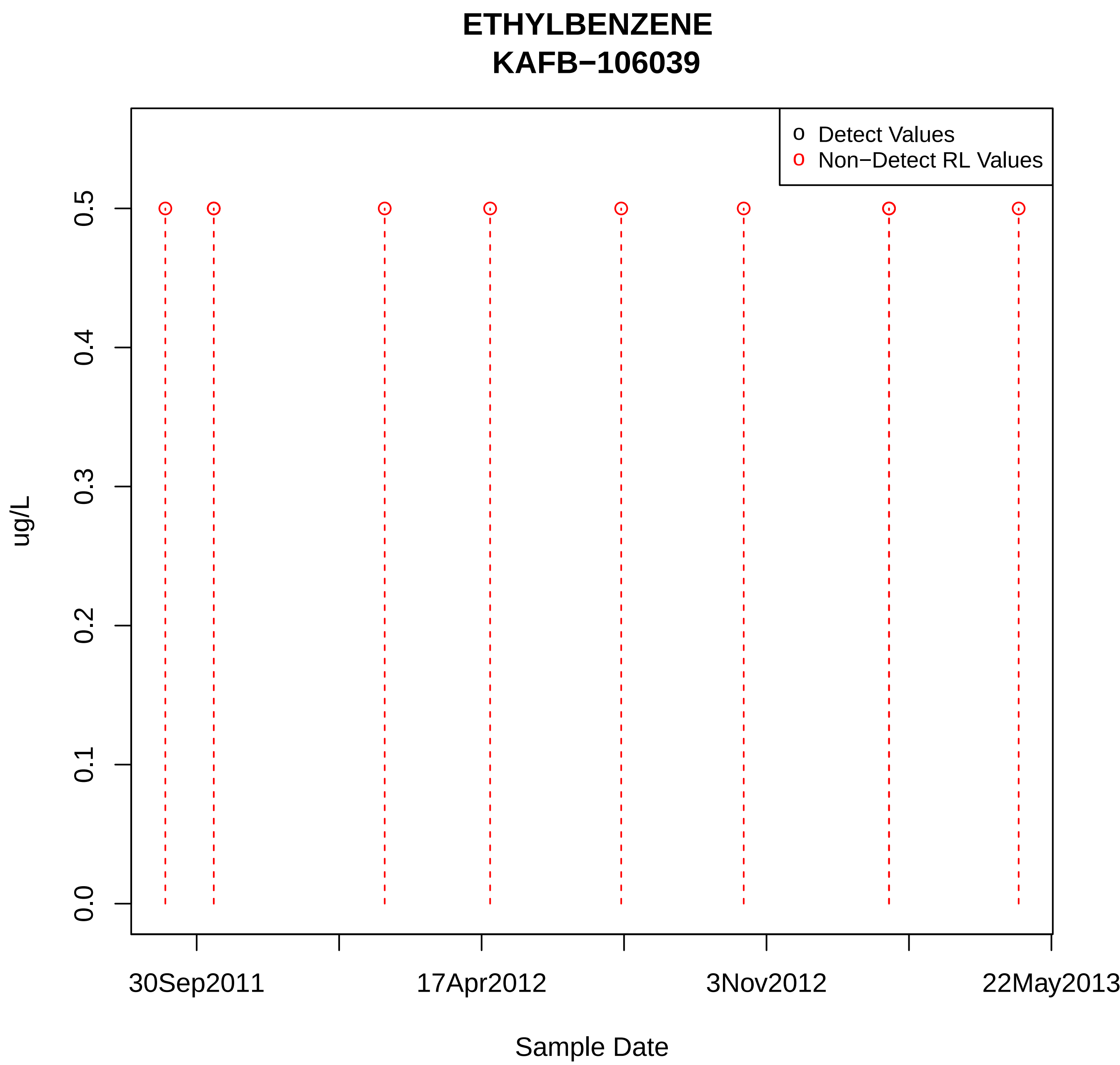

ETHYLBENZENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

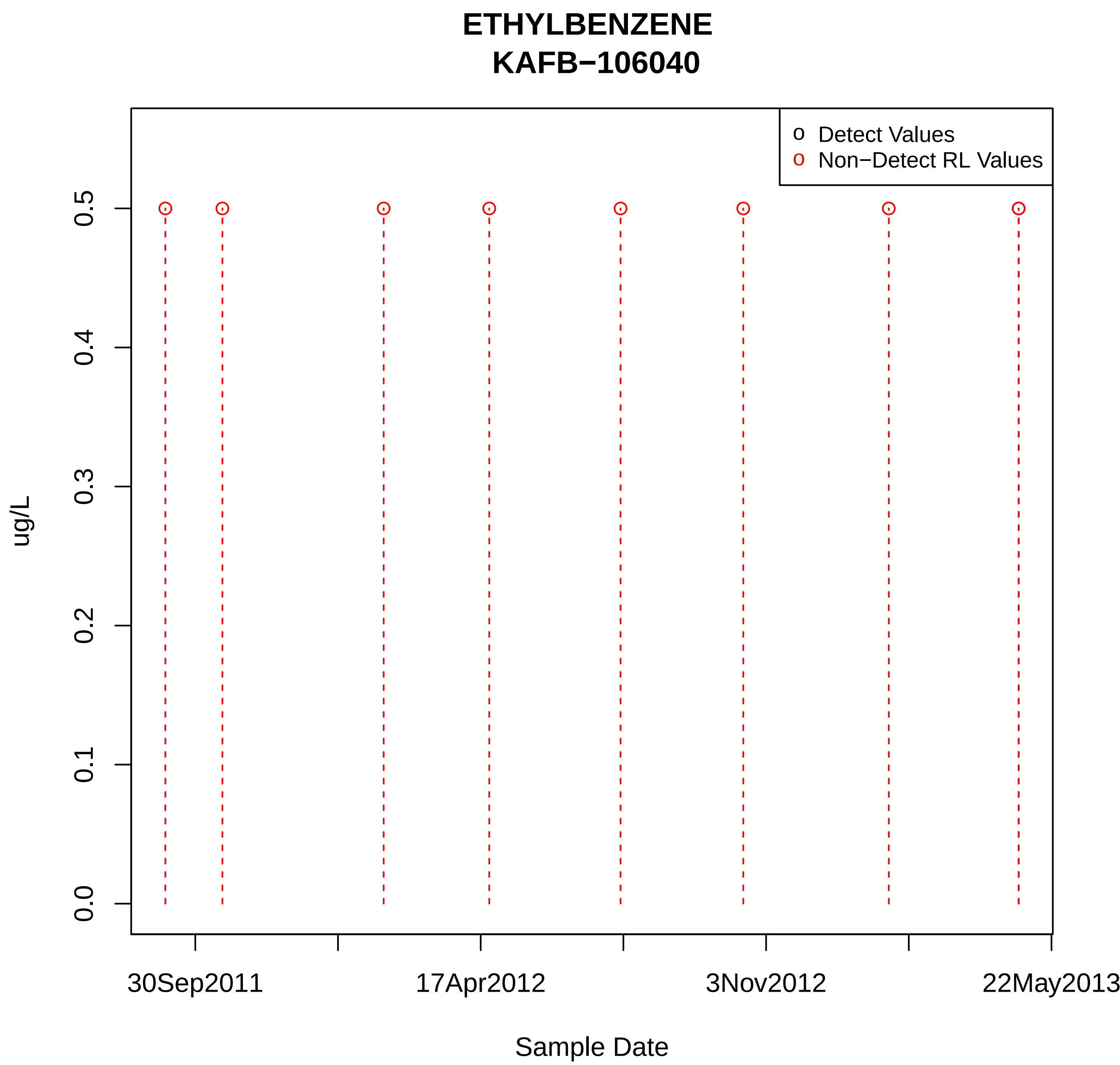

ETHYLBENZENE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

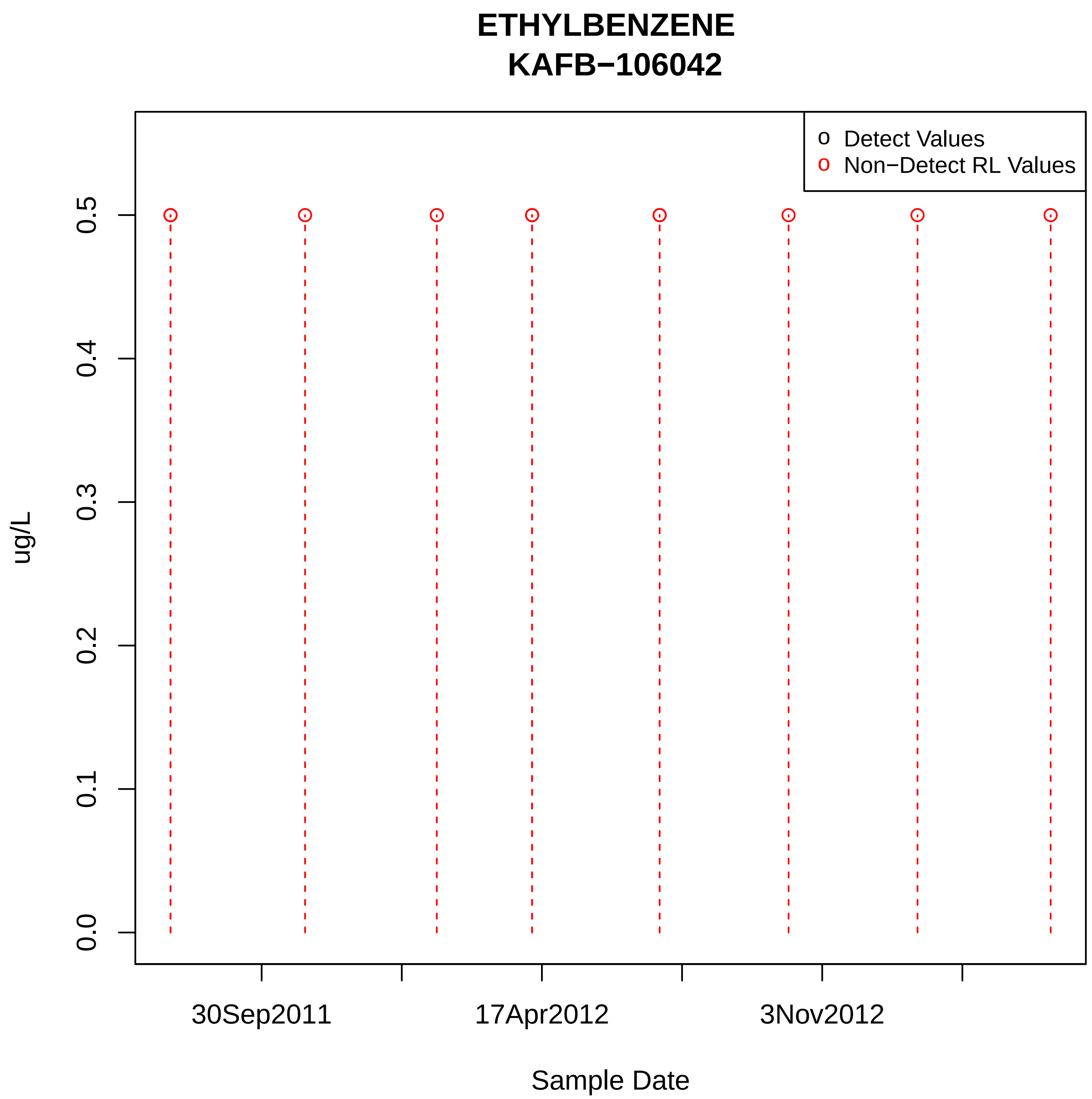

ETHYLBENZENE
KAFB−106037
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

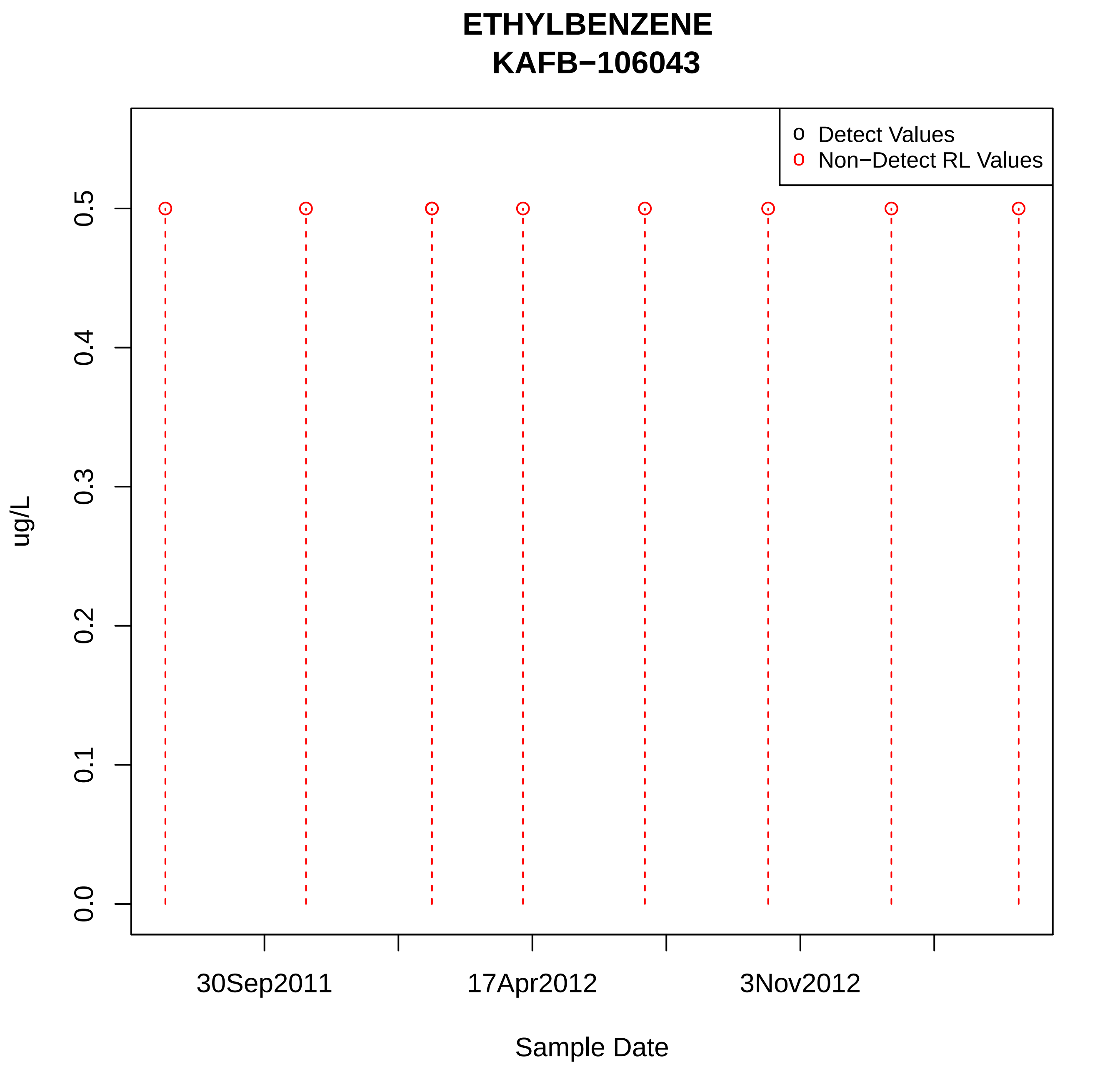


ETHYLBENZENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

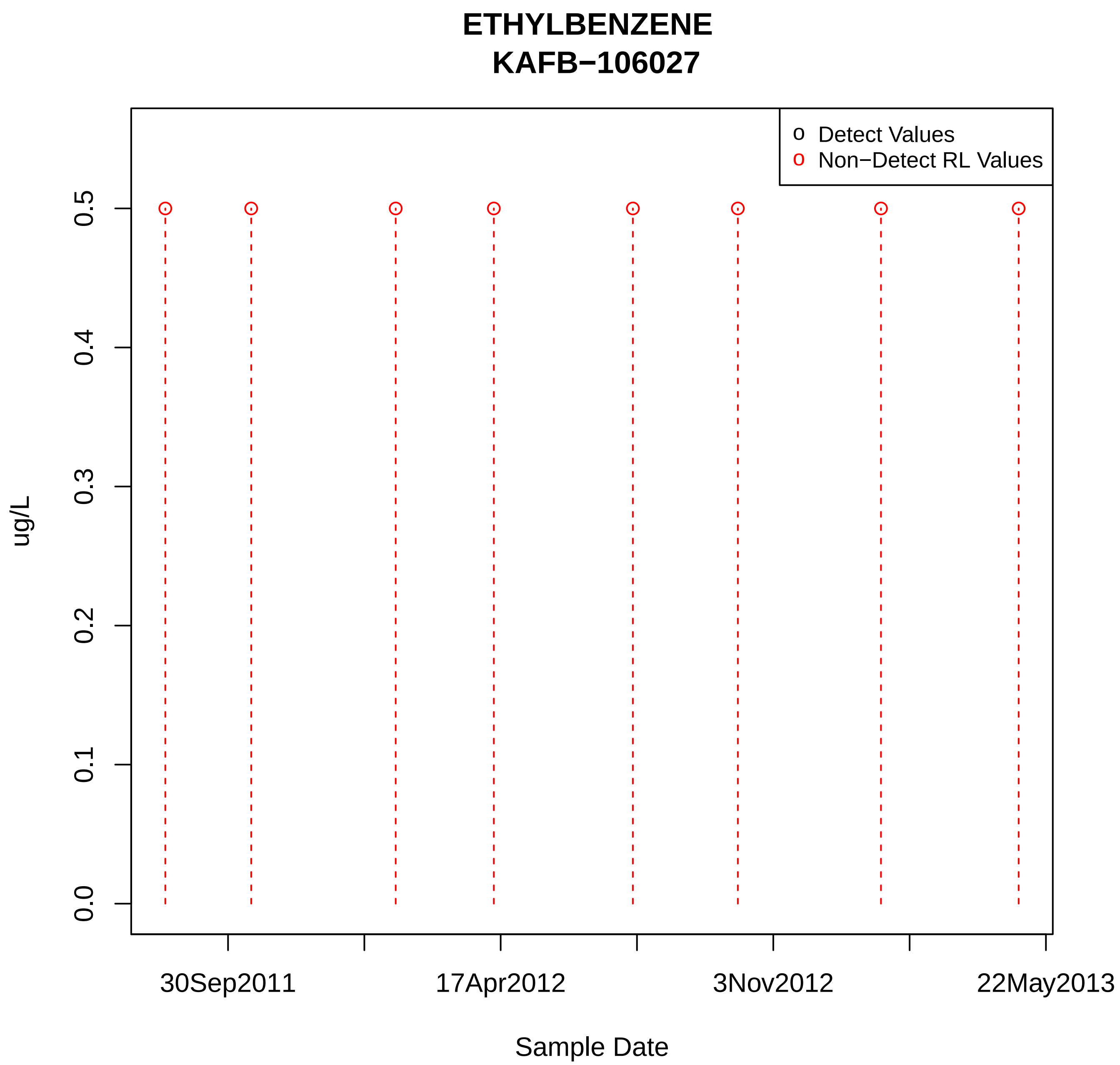

ETHYLBENZENE
KAFB−106039
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

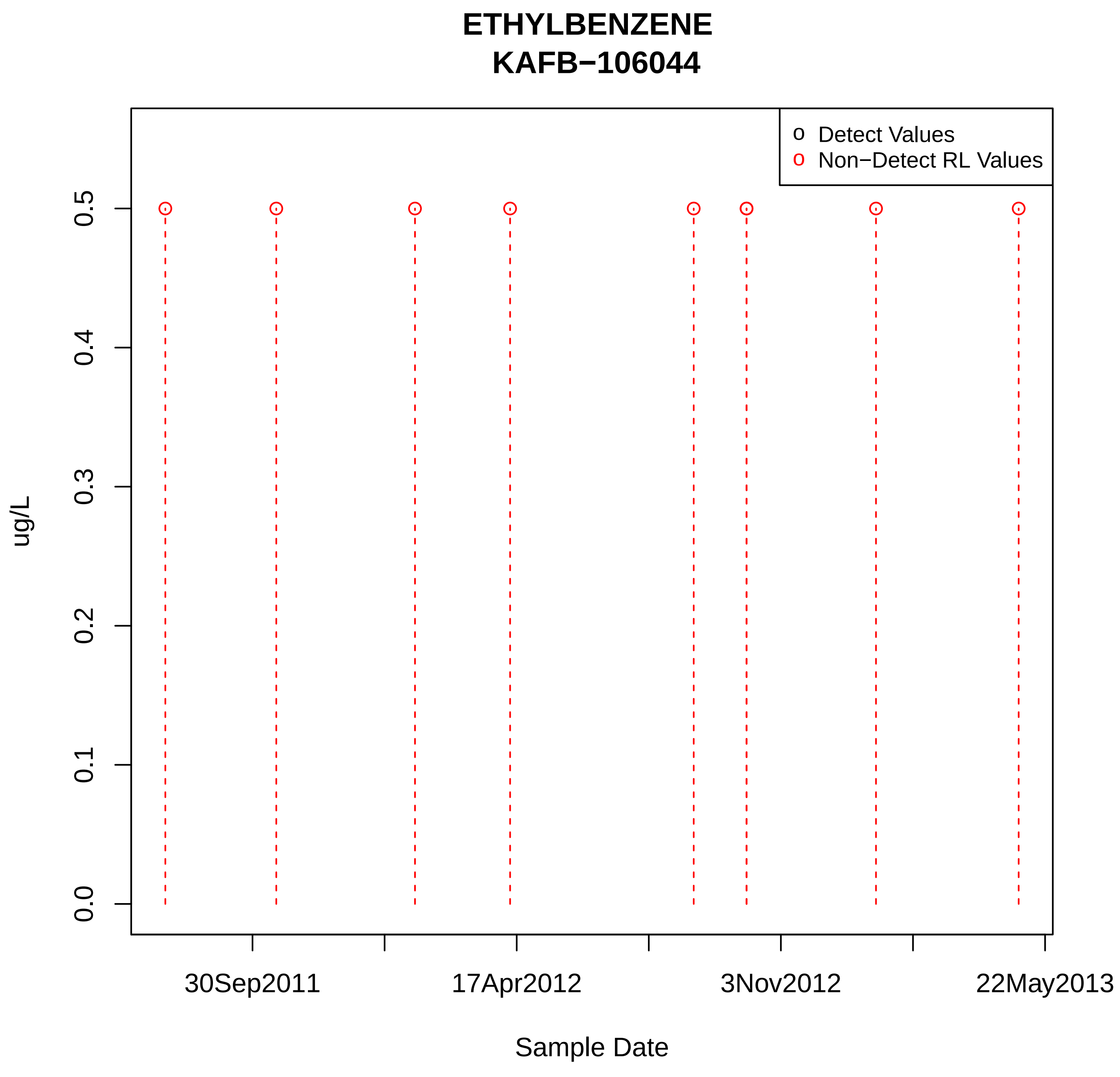

ETHYLBENZENE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

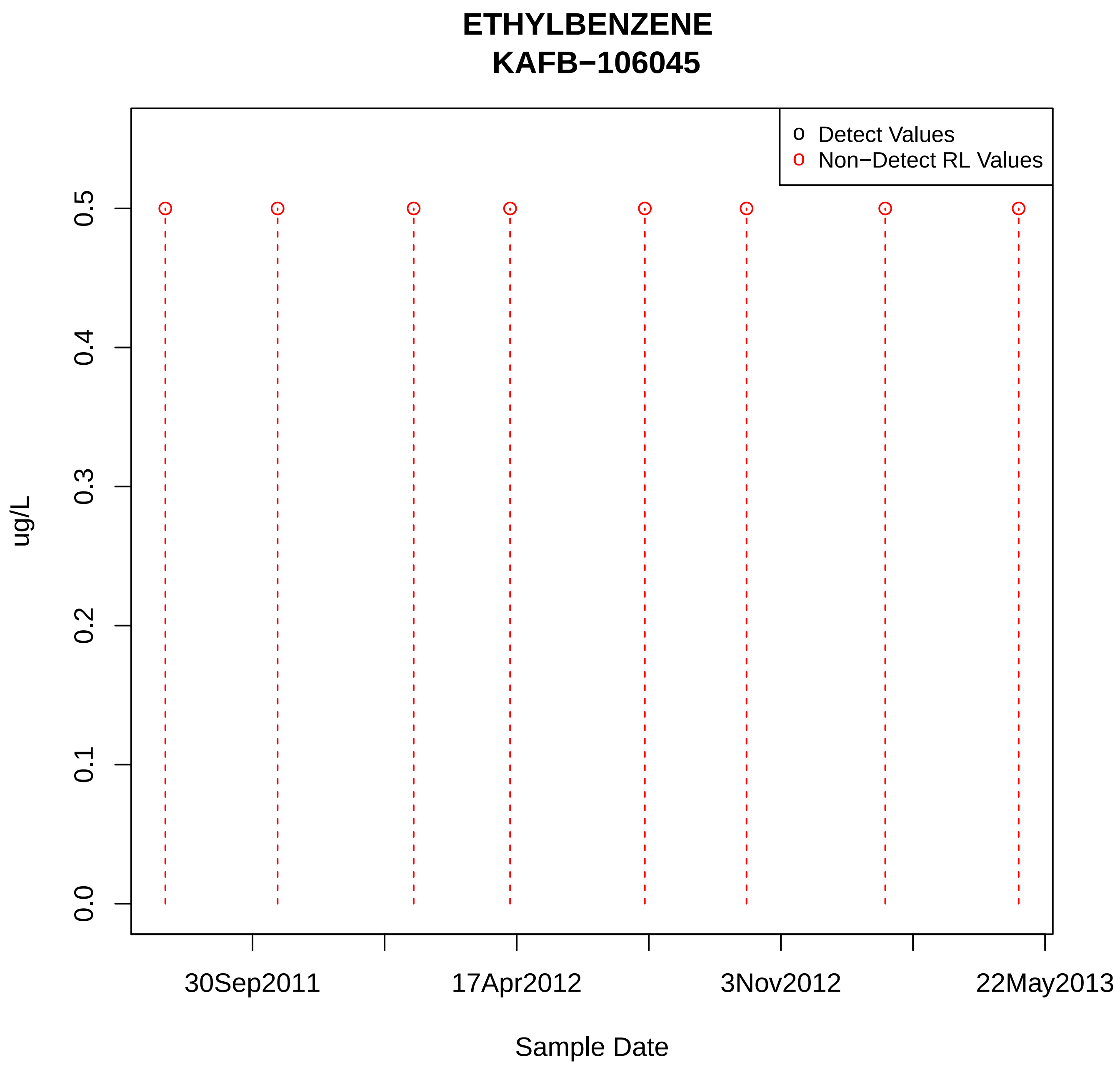

ETHYLBENZENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



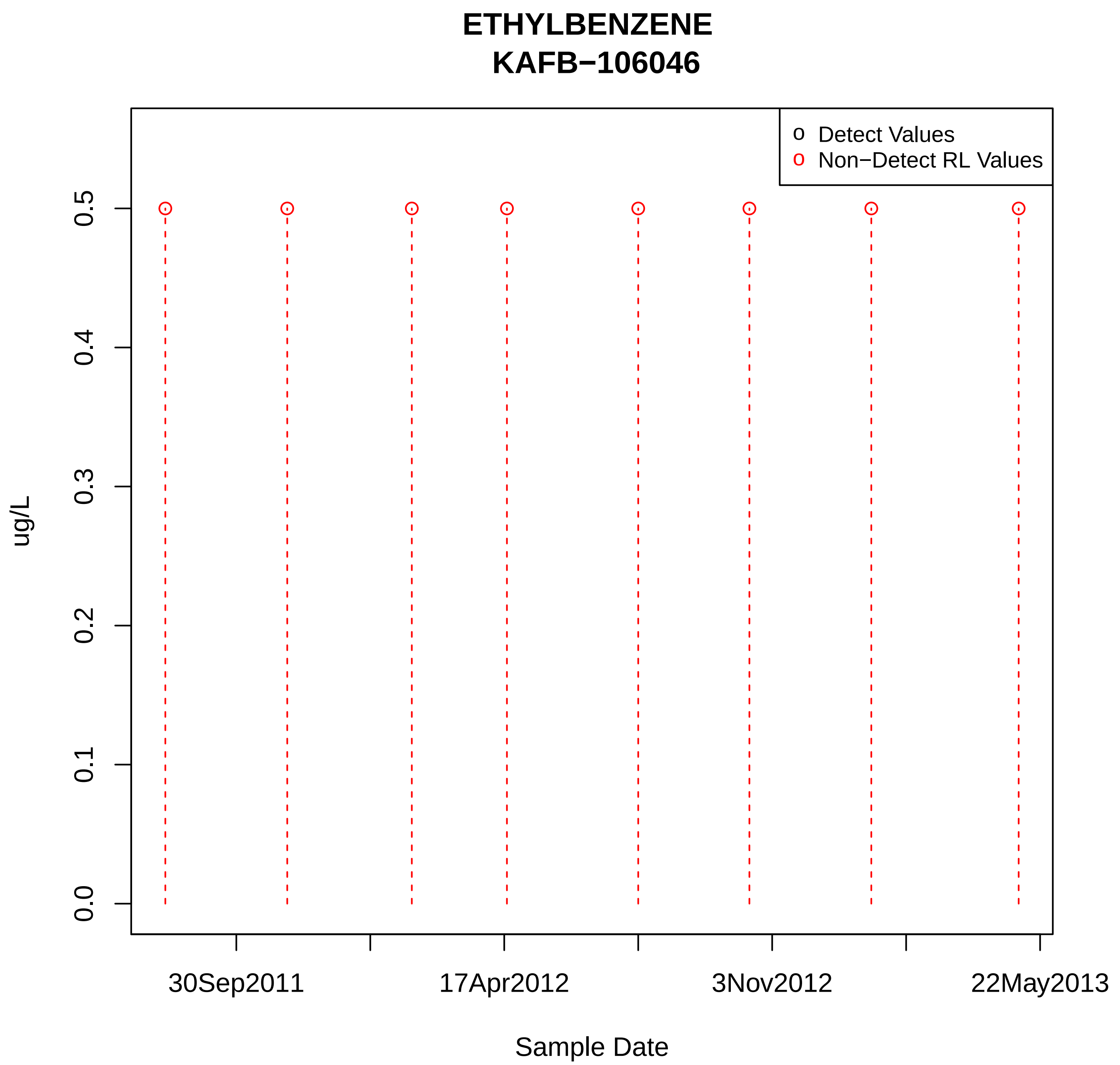
ETHYLBENZENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

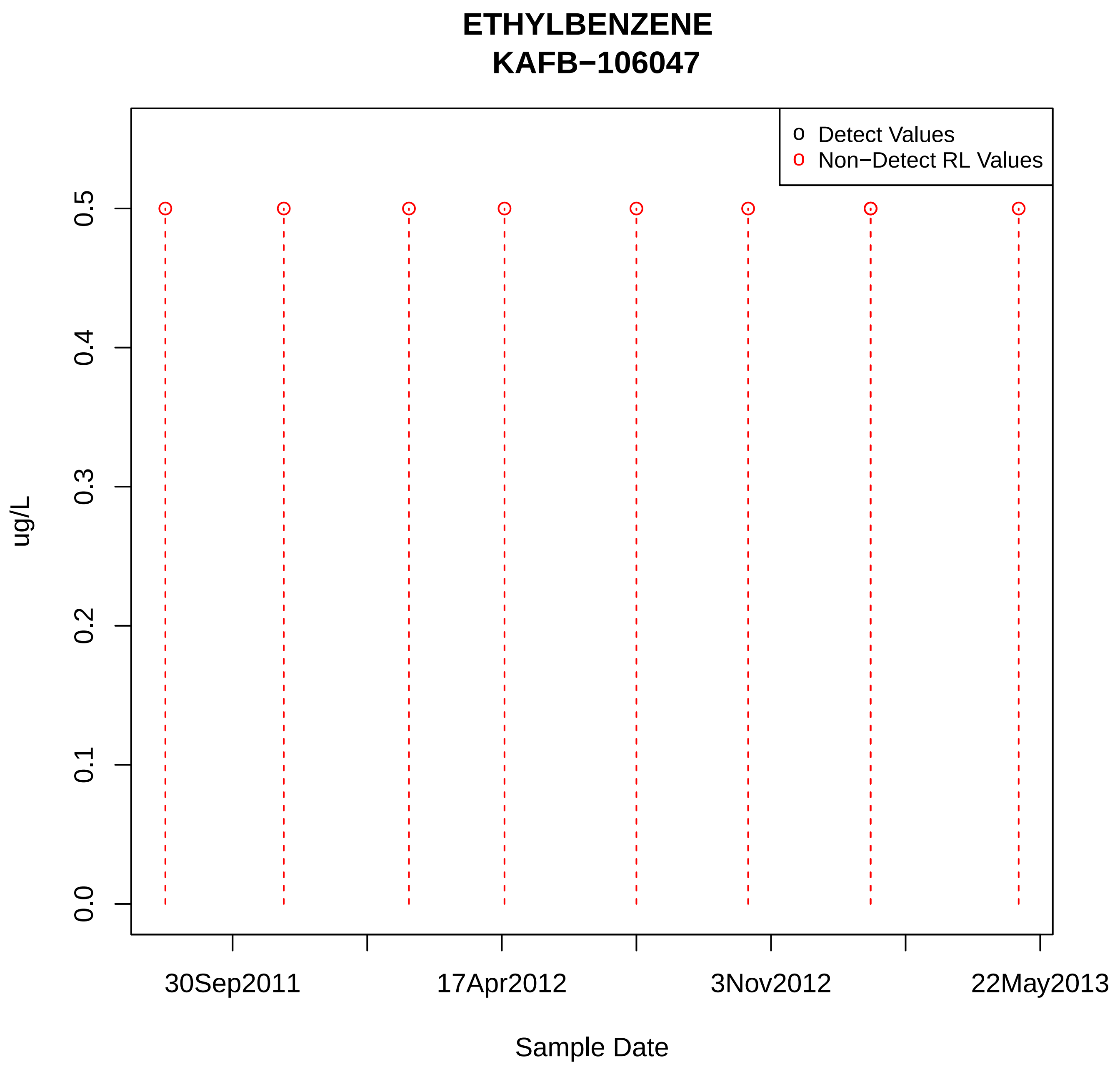

ETHYLBENZENE
KAFB−106027
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

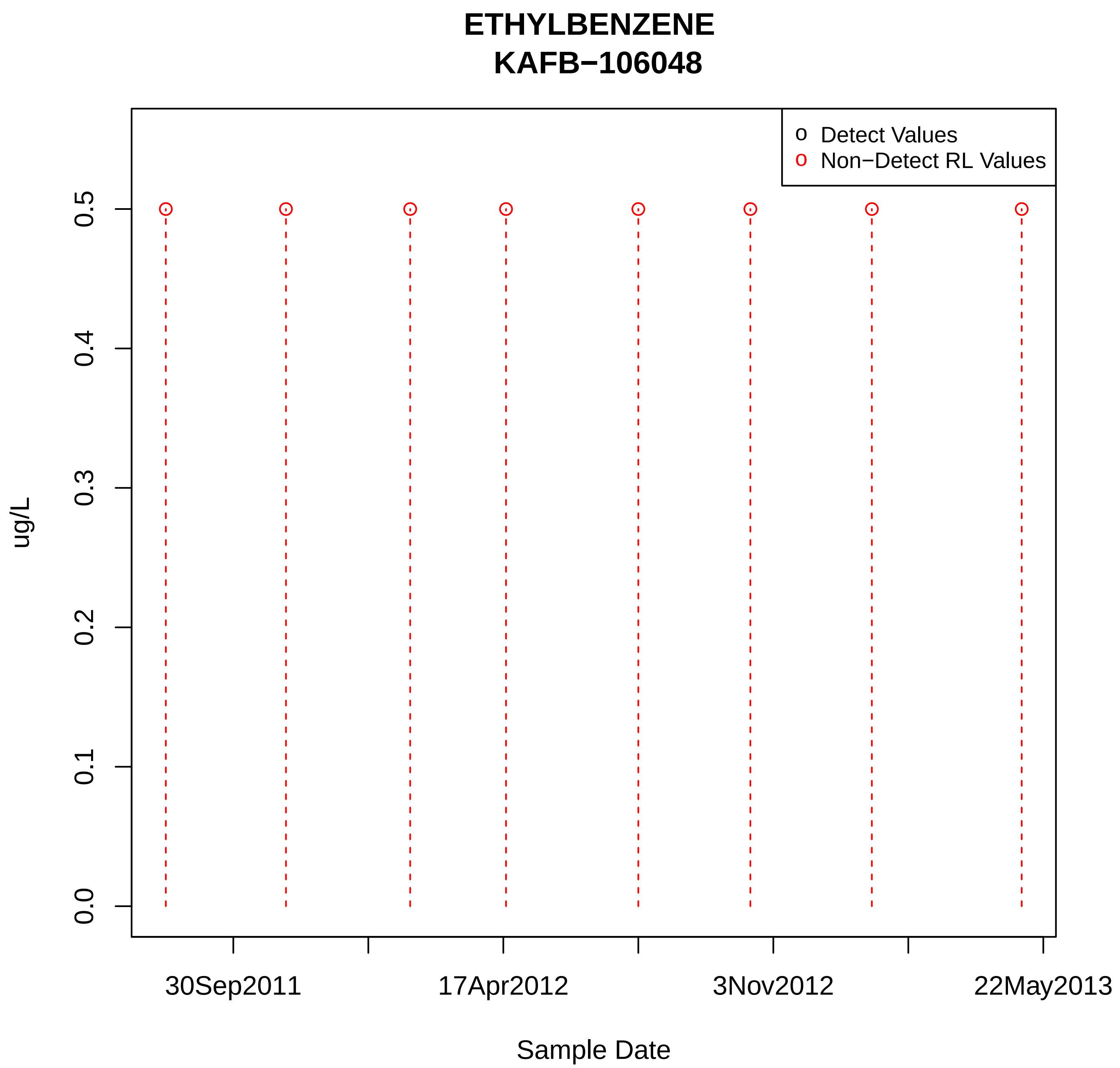

ETHYLBENZENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



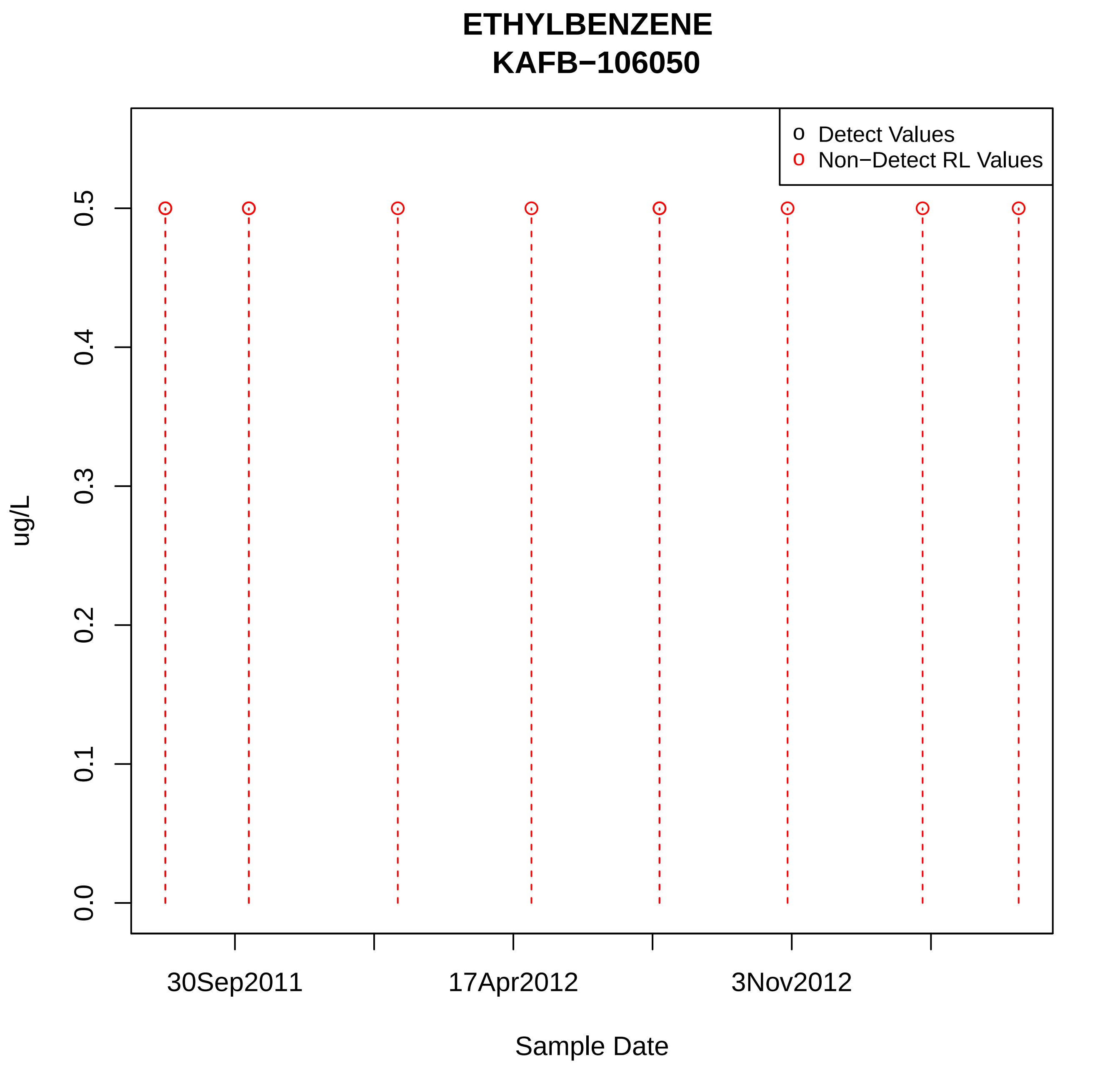
ETHYLBENZENE
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

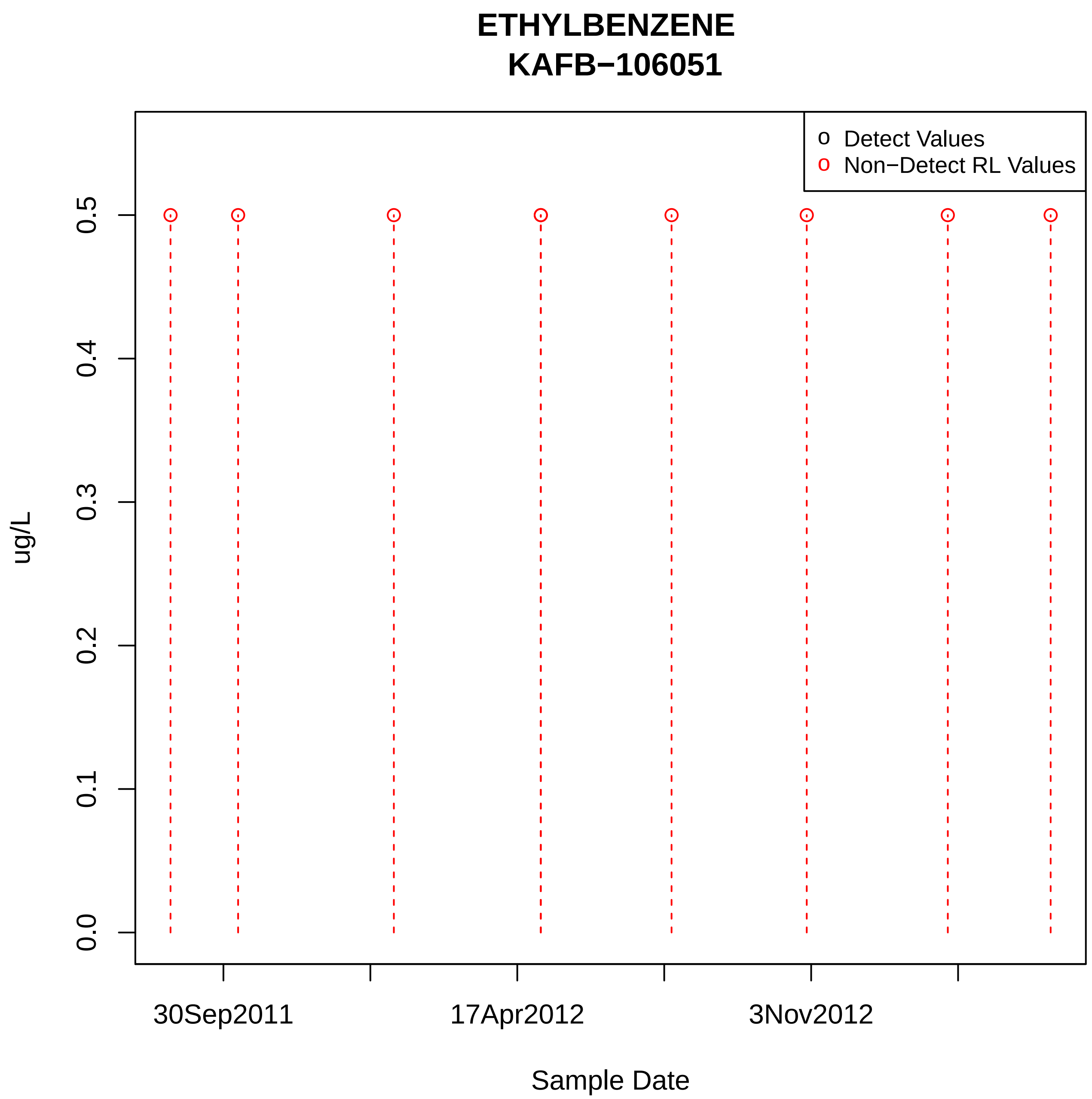

ETHYLBENZENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

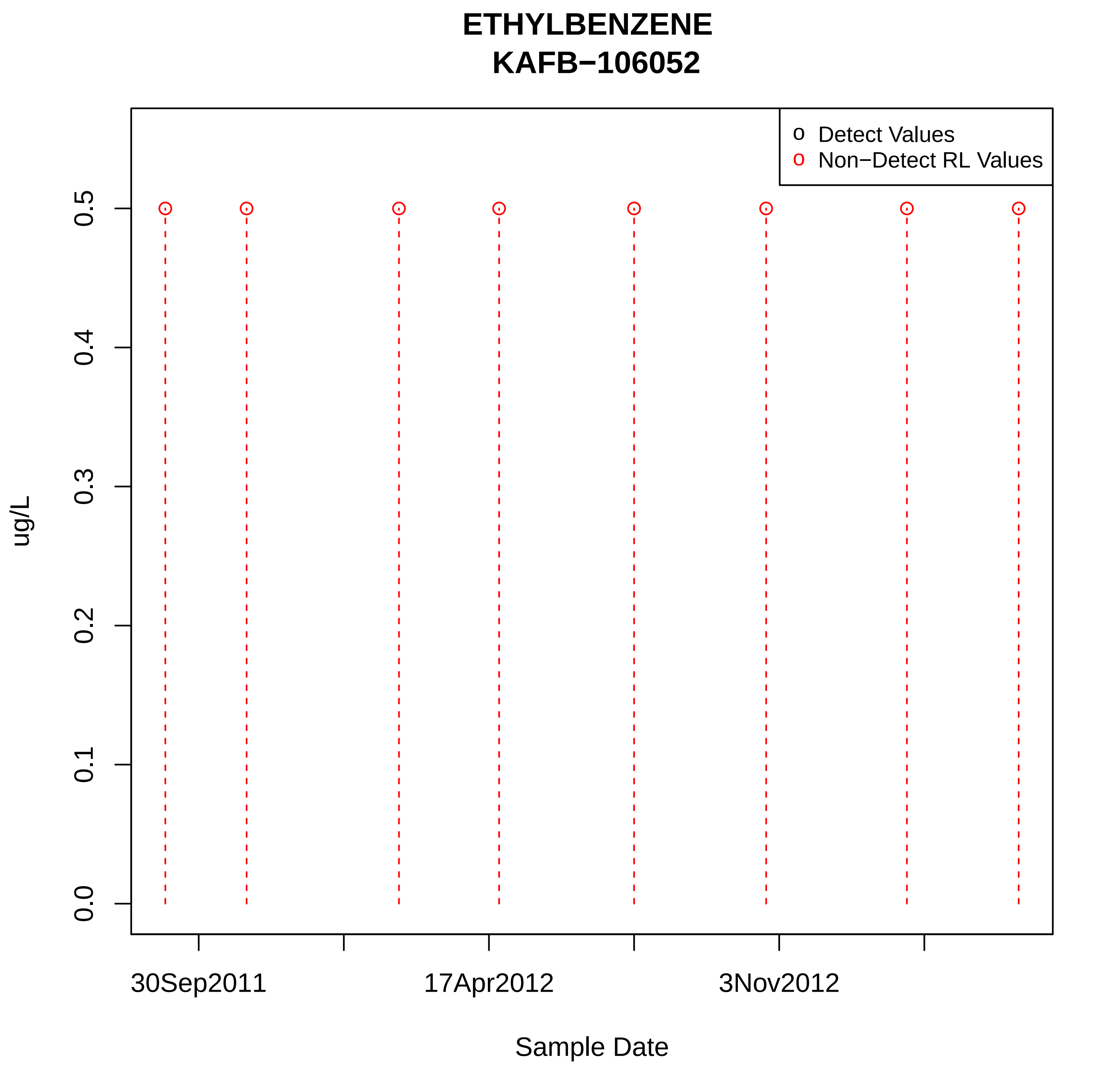

ETHYLBENZENE
KAFB−106047
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



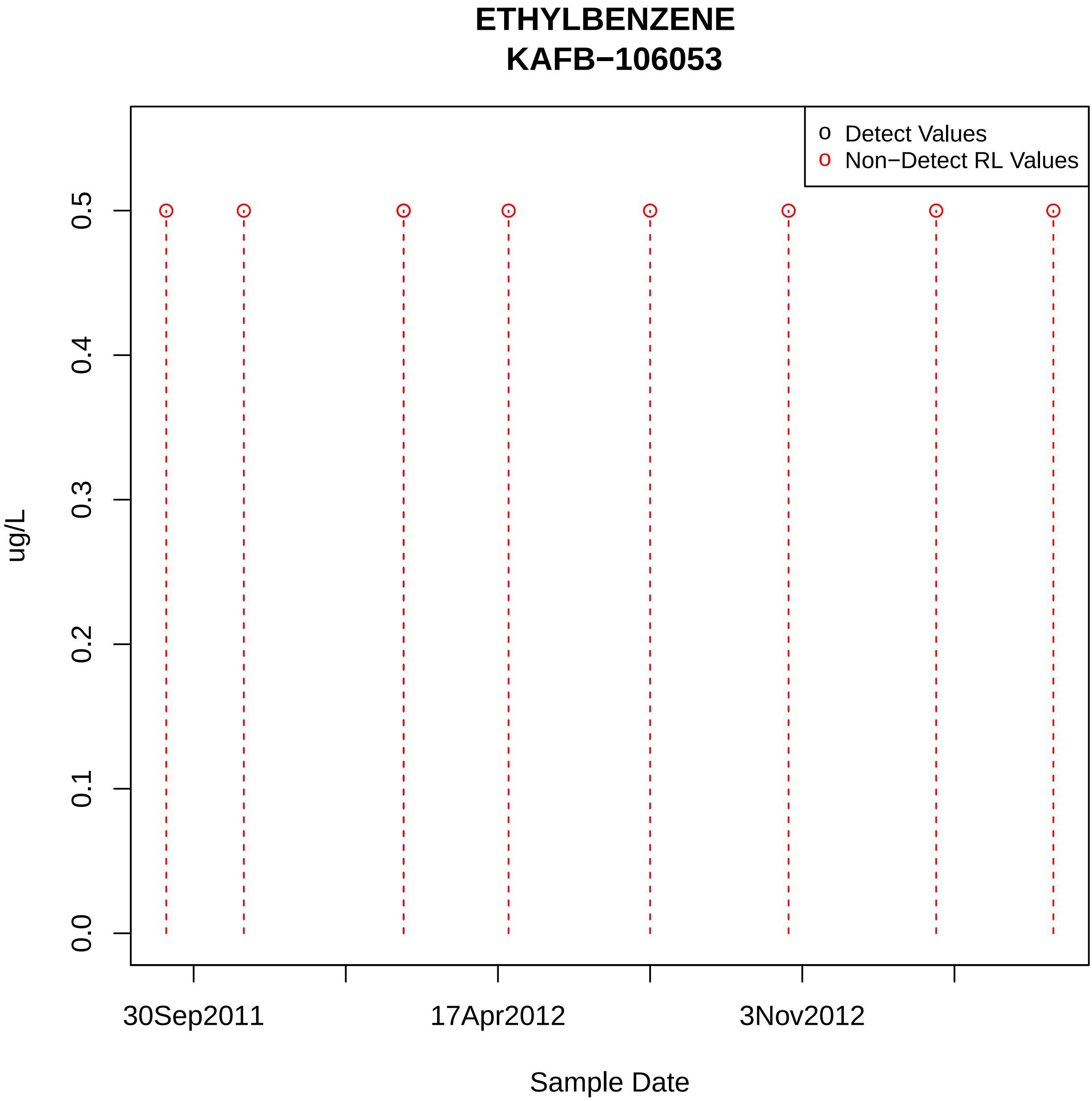
ETHYLBENZENE
KAFB−106048
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

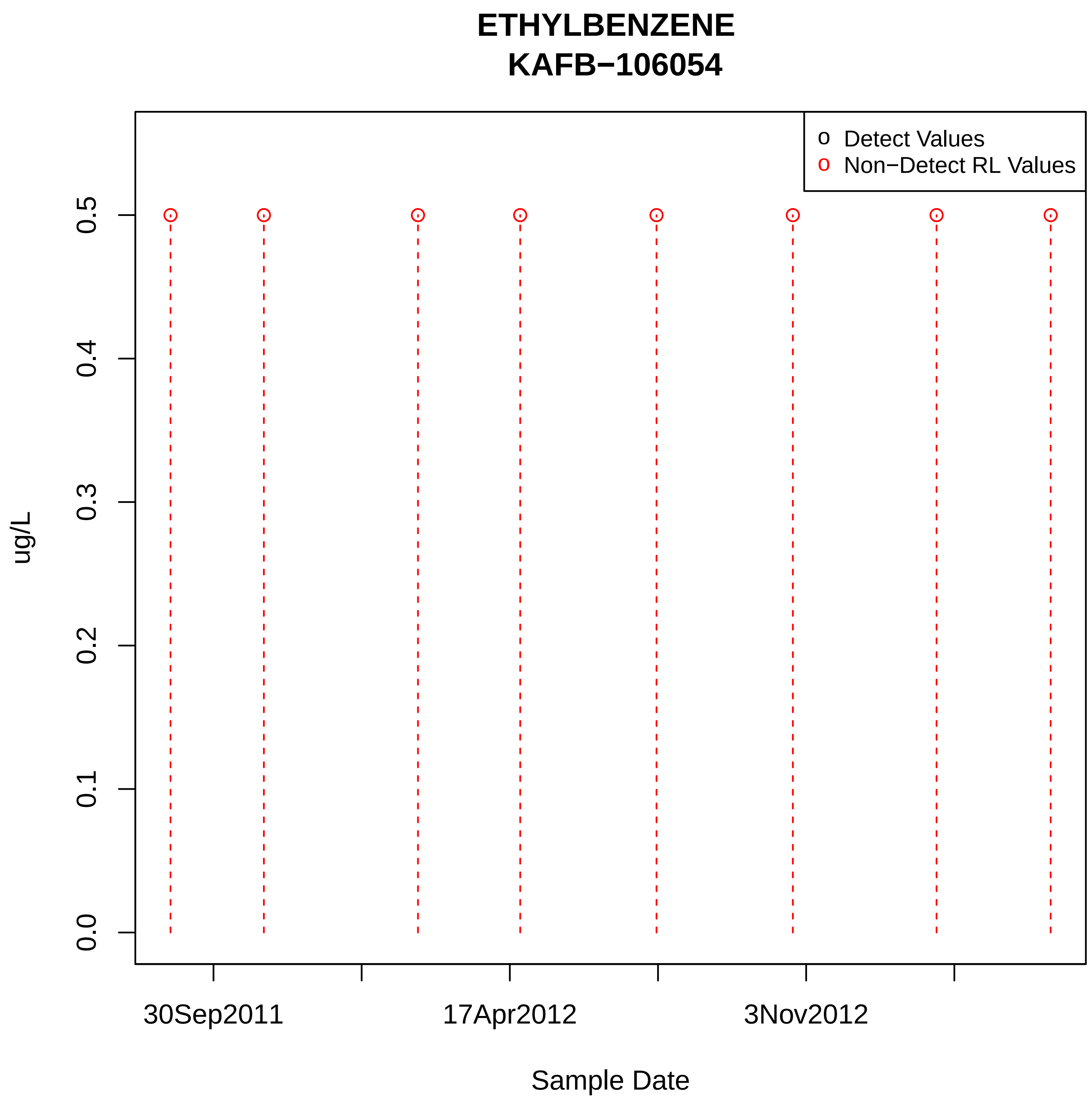

ETHYLBENZENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


ETHYLBENZENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

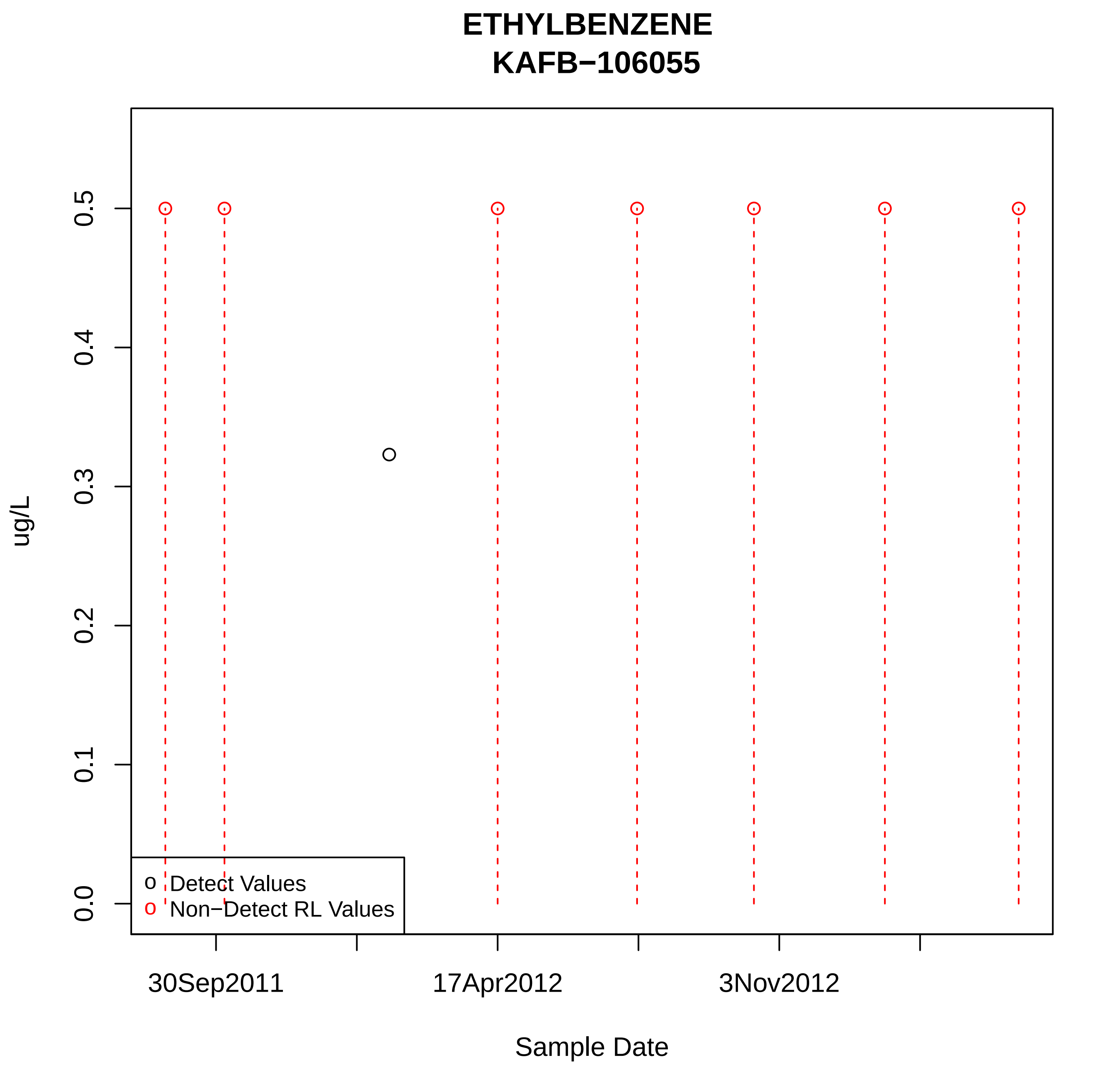


ETHYLBENZENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

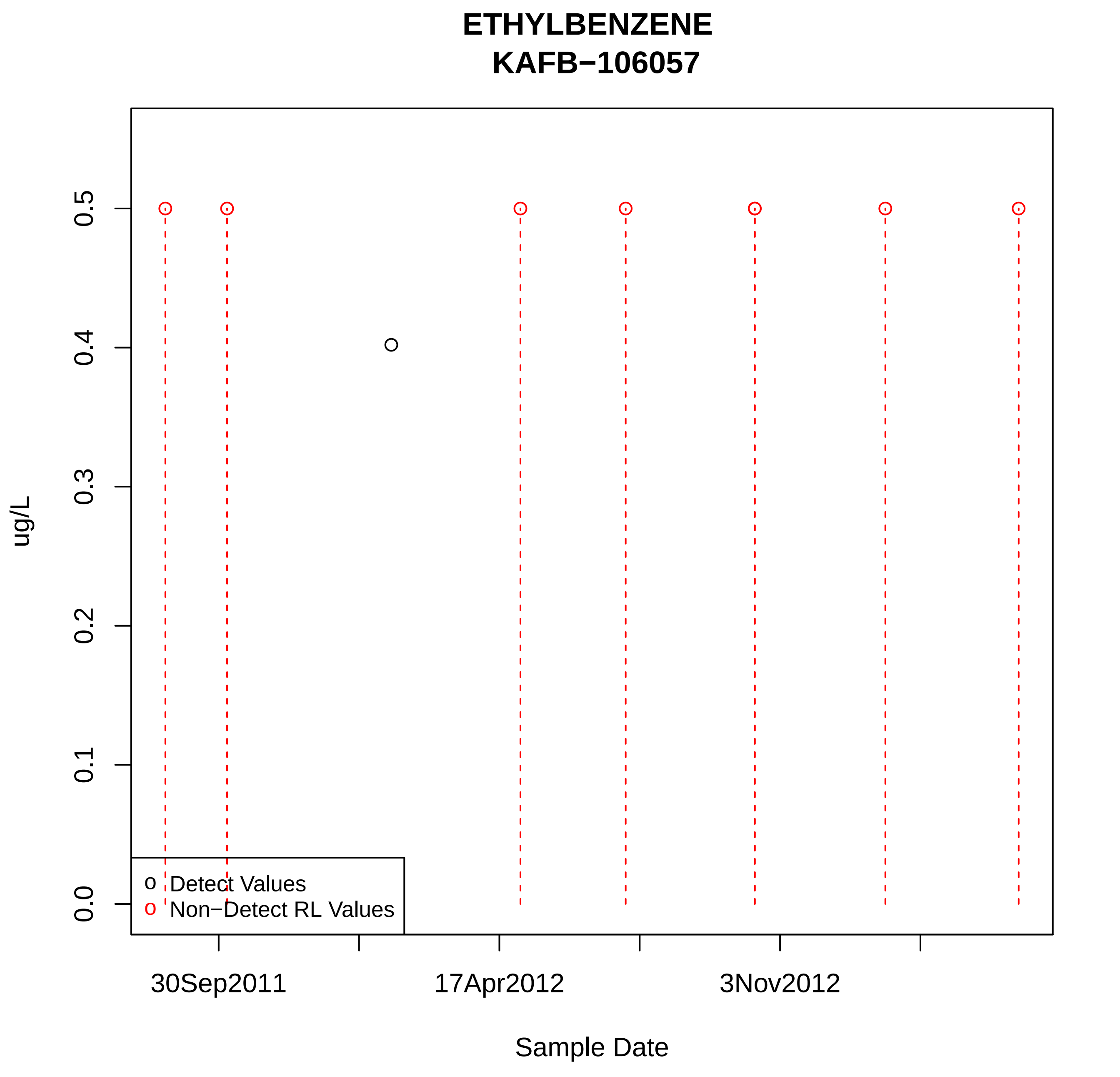

ETHYLBENZENE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



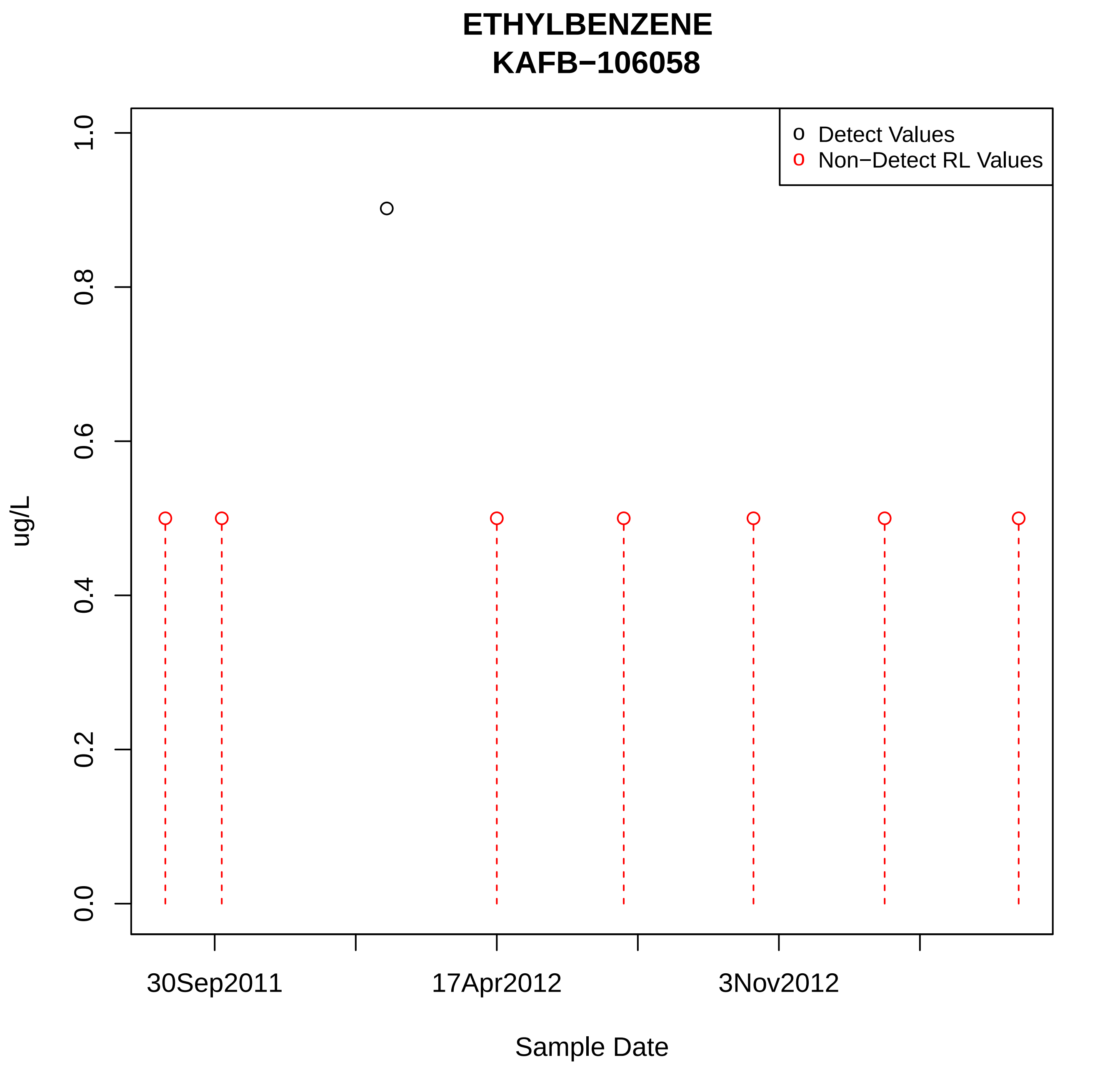
ETHYLBENZENE
KAFB−106054
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

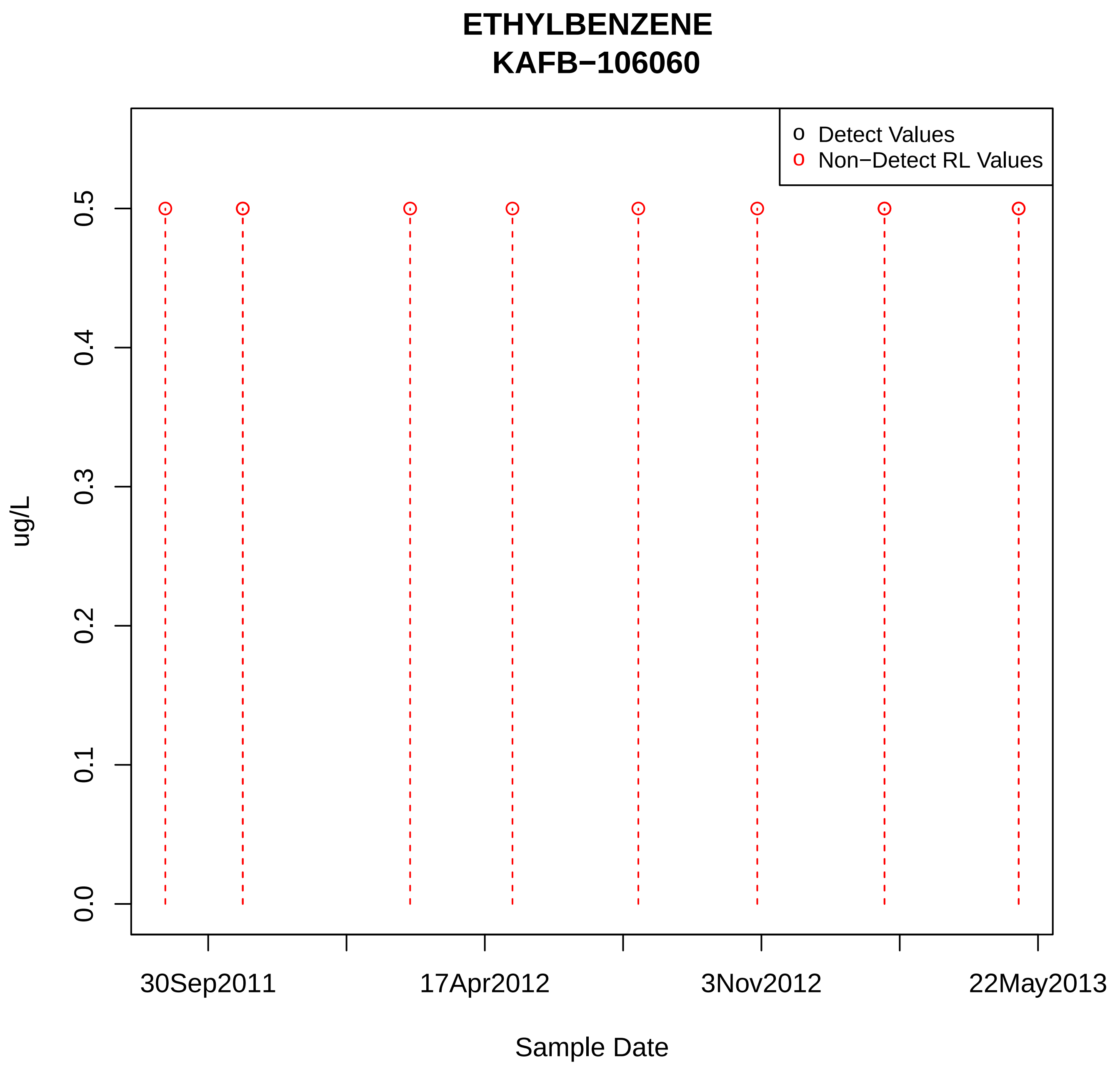


ETHYLBENZENE
KAFB−106055
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

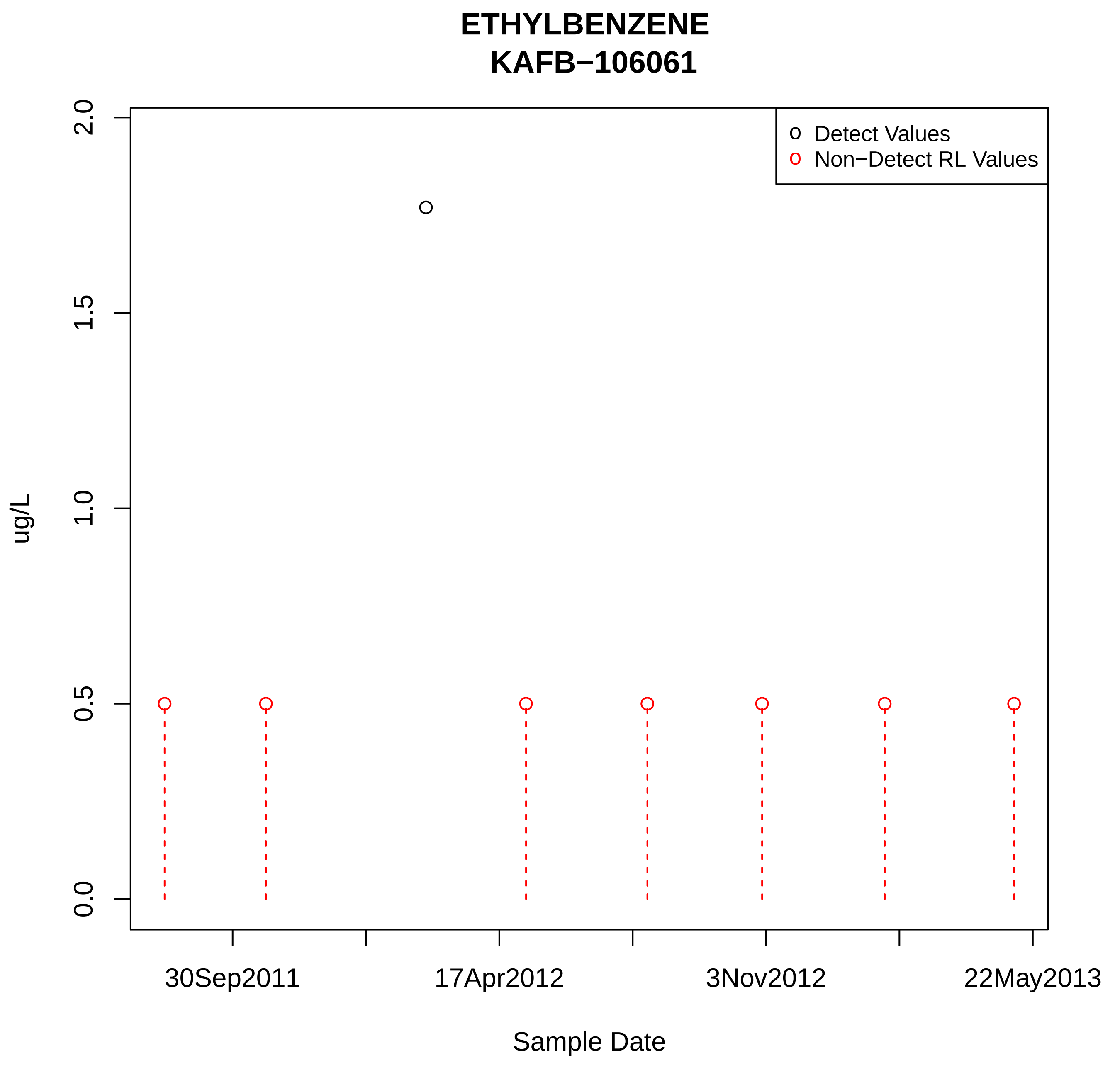


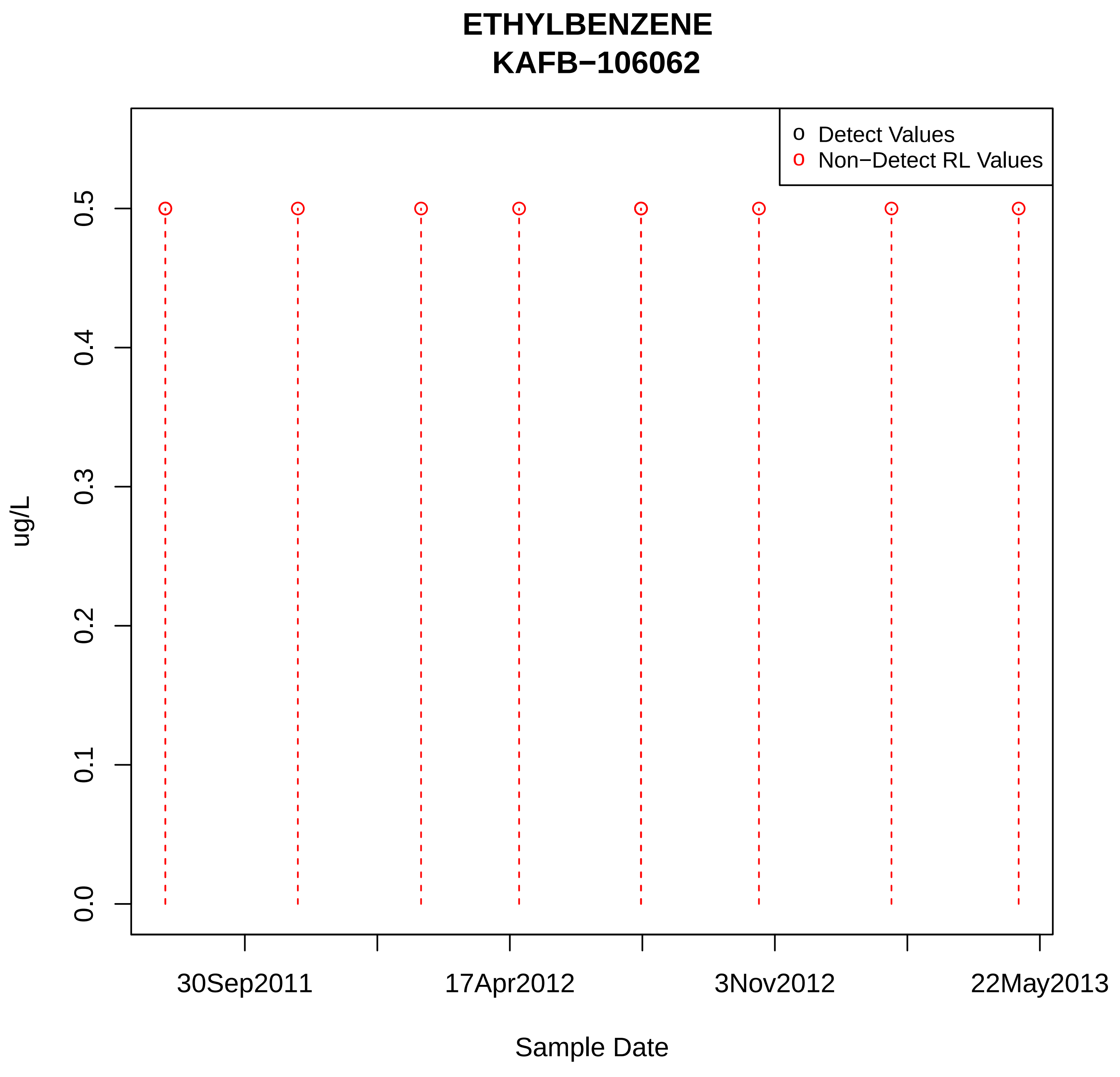
ETHYLBENZENE
KAFB−106057
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values


ETHYLBENZENE
KAFB−106058
Detect Values
Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

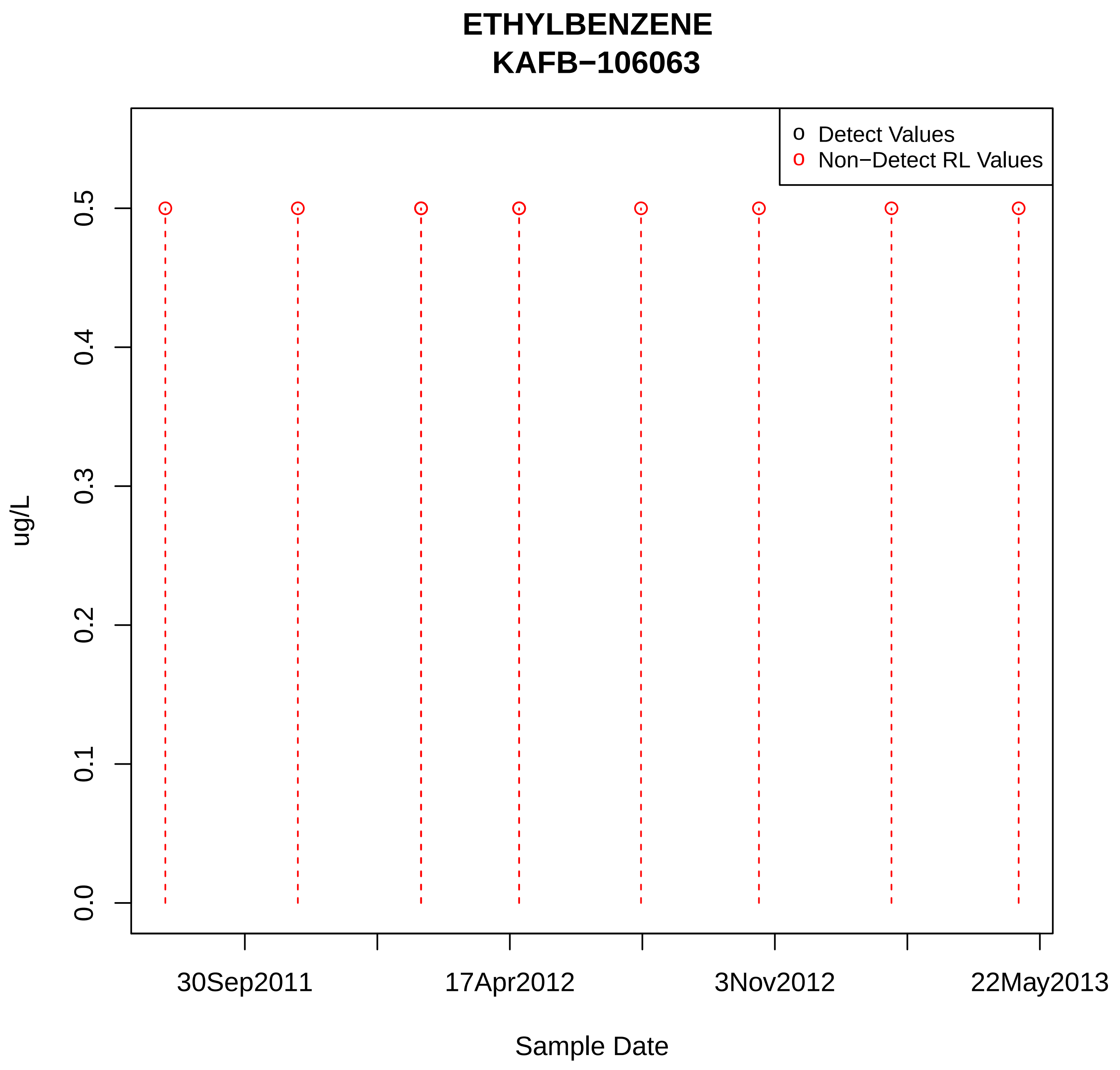


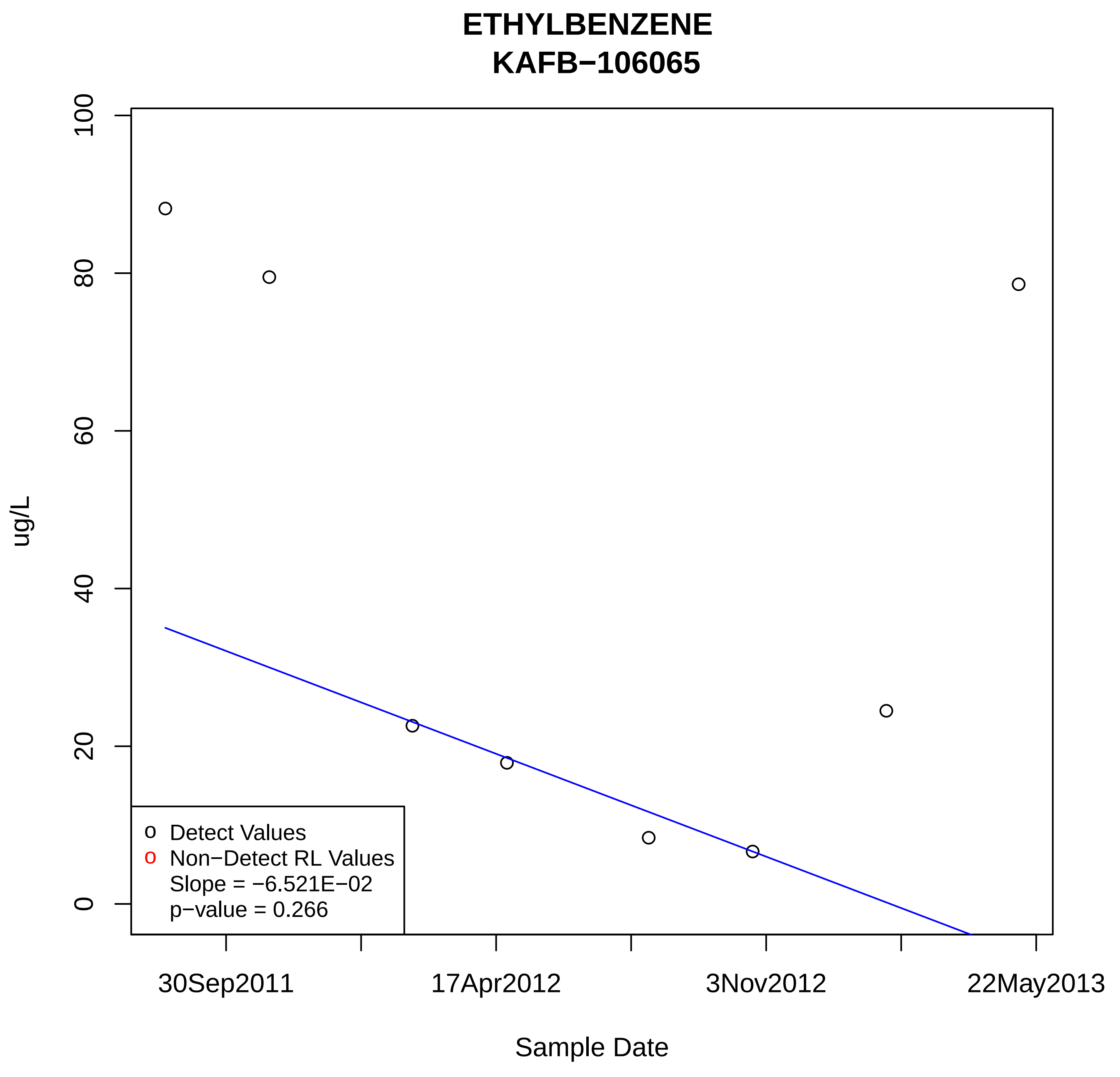
ETHYLBENZENE
KAFB−106060
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

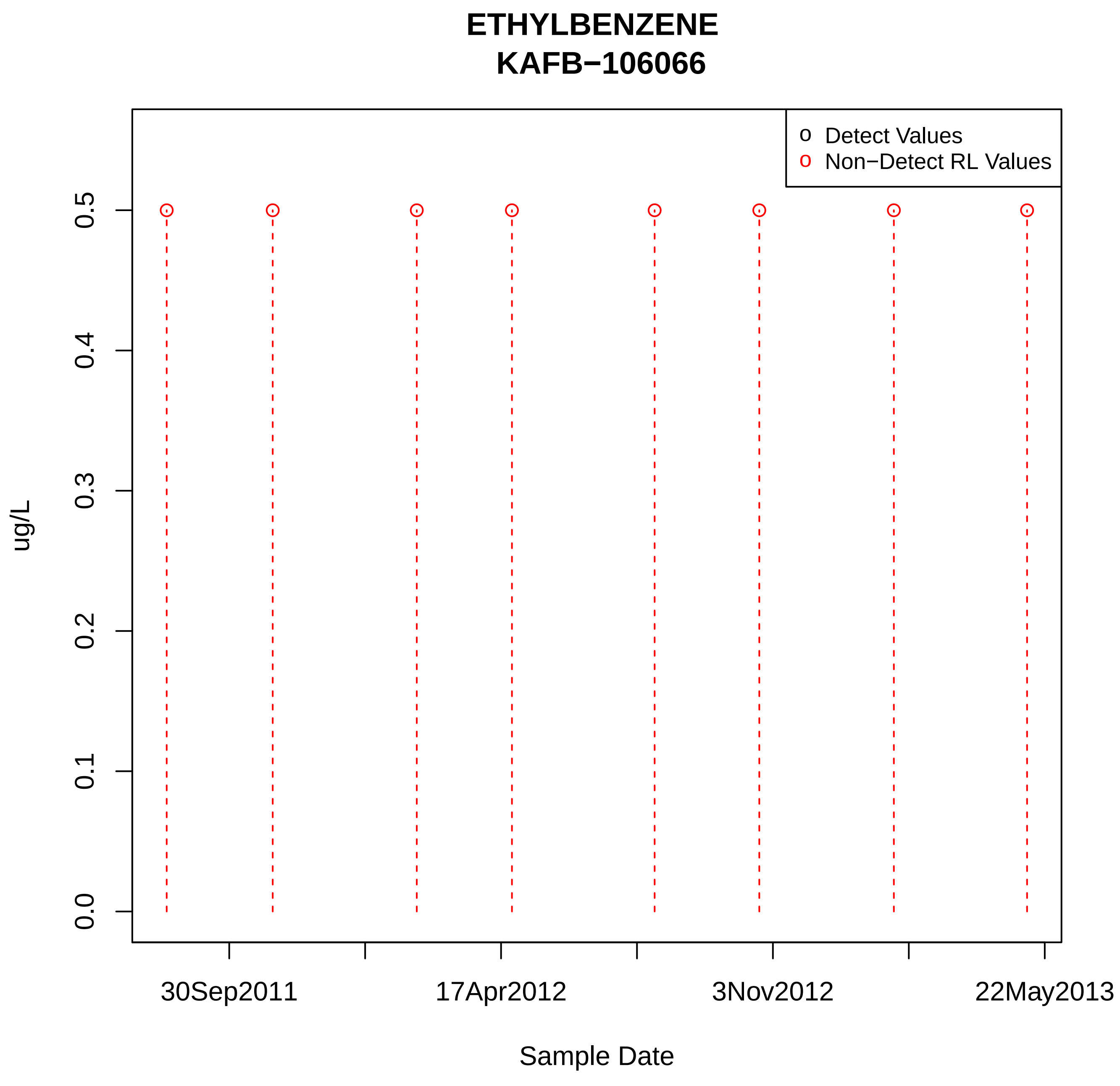

ETHYLBENZENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



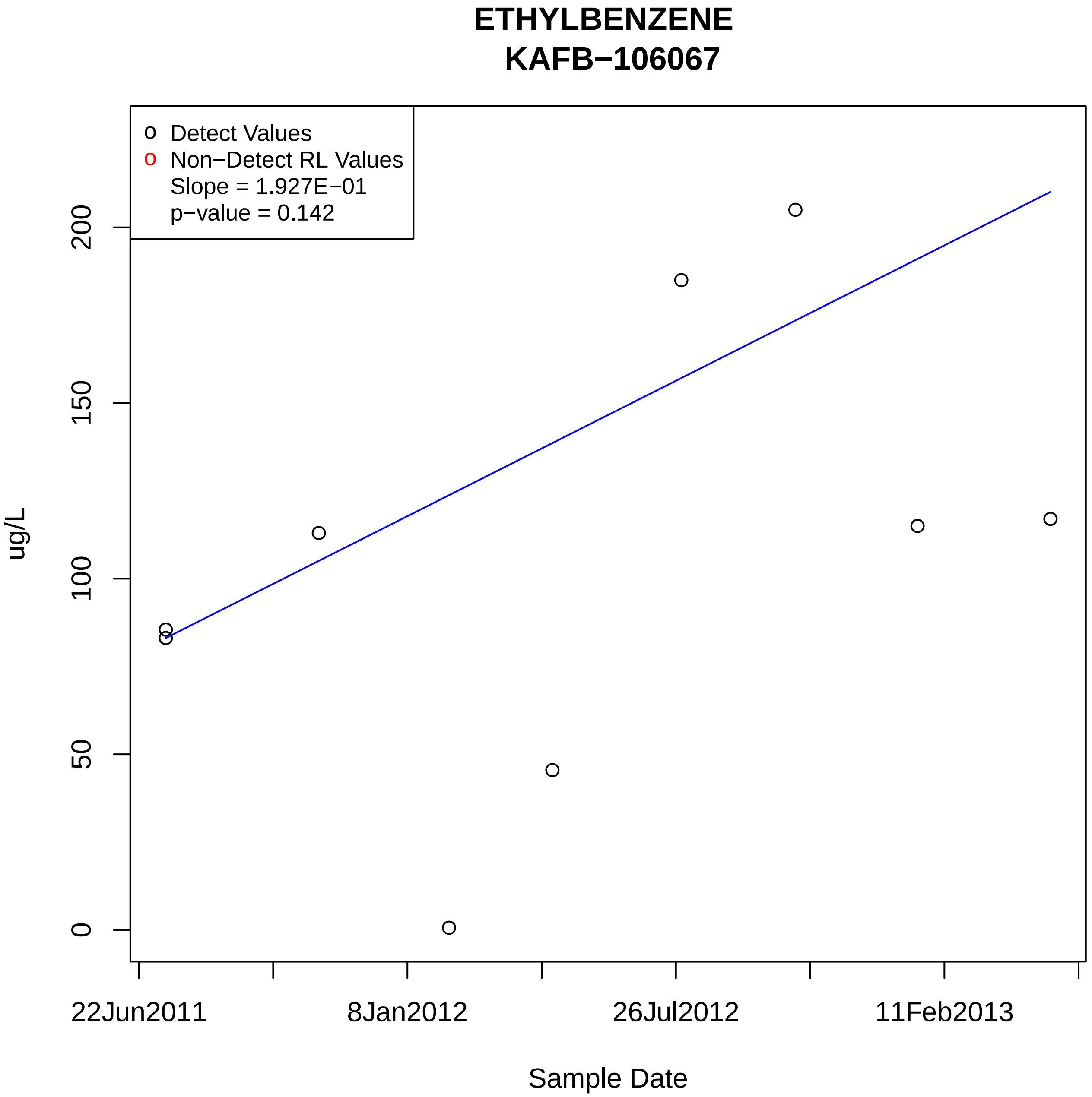
ETHYLBENZENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ETHYLBENZENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

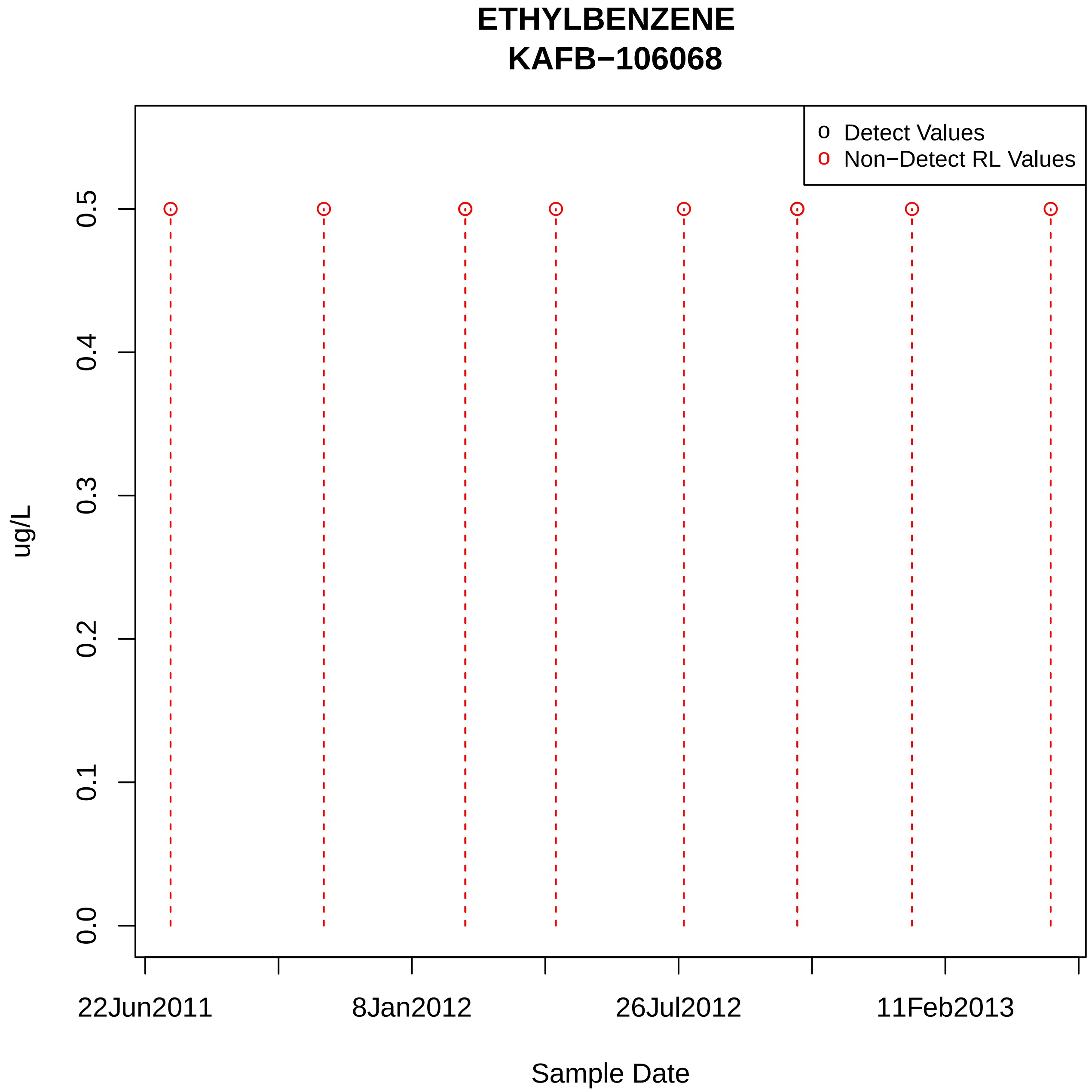

ETHYLBENZENE
KAFB−106065
100
80
60
40
20
0
ug/L
o Detect Values
o Non−Detect RL Values
Slope = −6.521E−02
p−value = 0.266
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



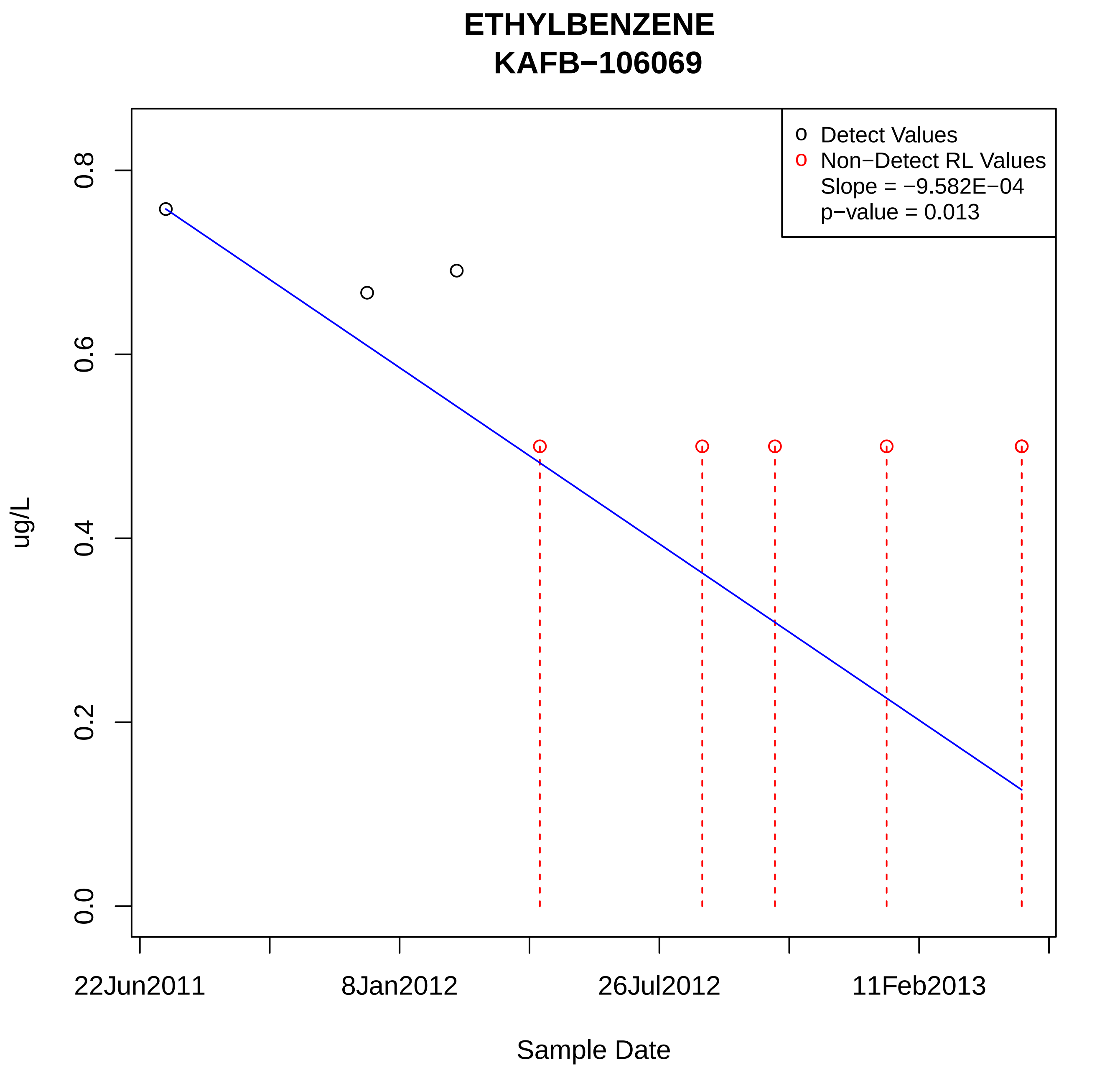
ETHYLBENZENE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

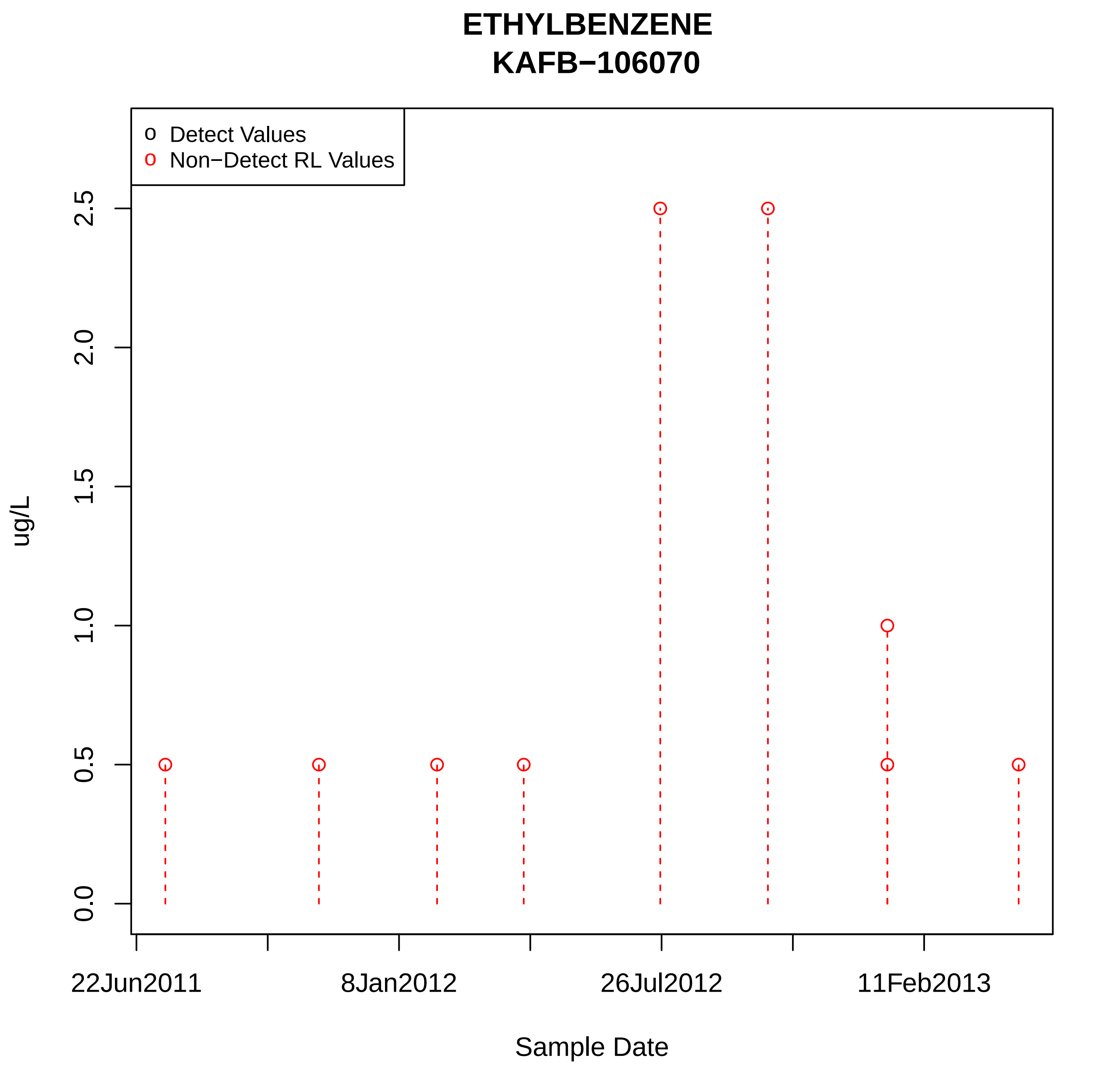


ETHYLBENZENE
KAFB−106067
o Detect Values
o Non−Detect RL Values
Slope = 1.927E−01
p−value = 0.142
ug/L
0
50
100
150
200
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



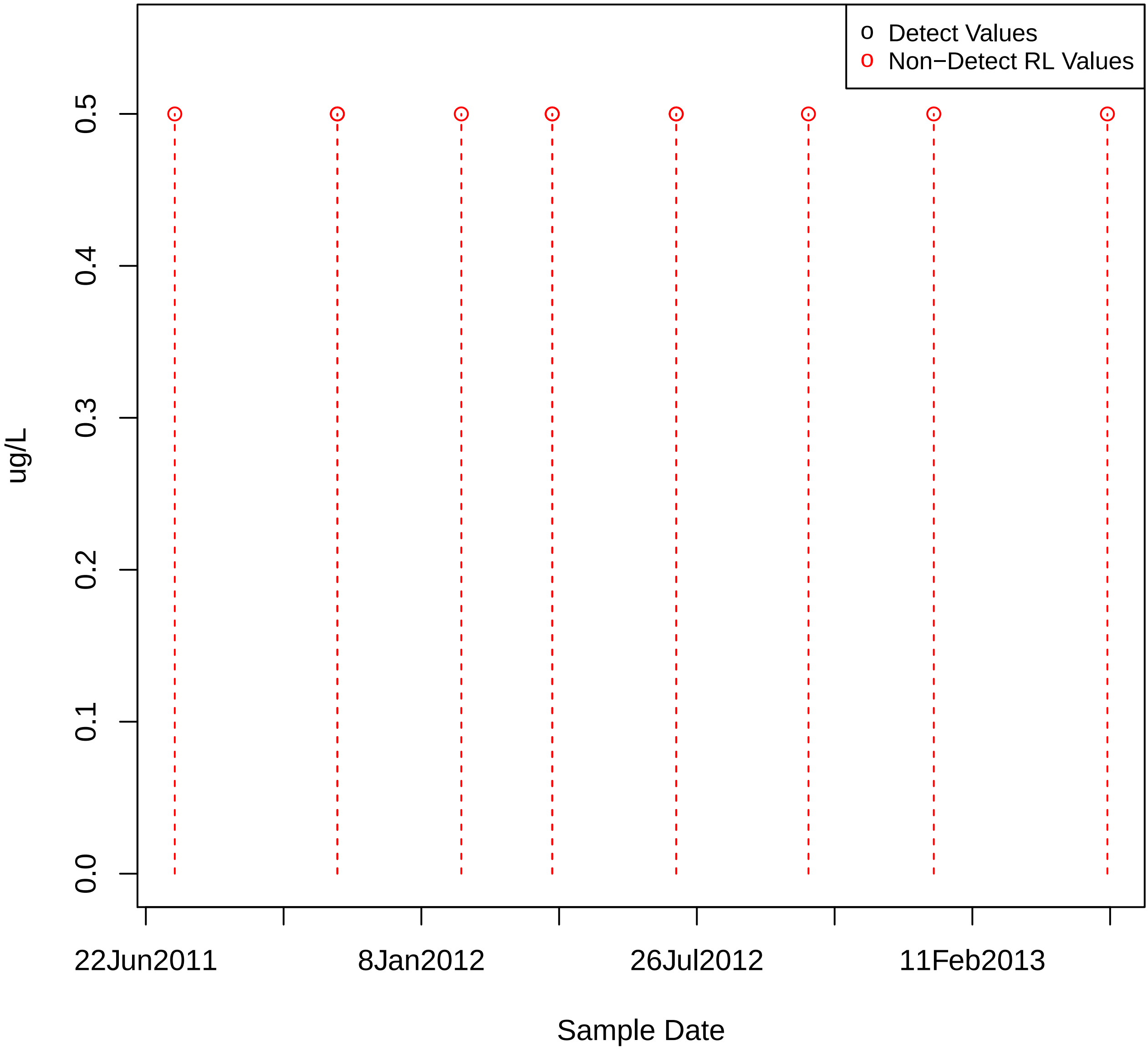
ETHYLBENZENE
KAFB−106068
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

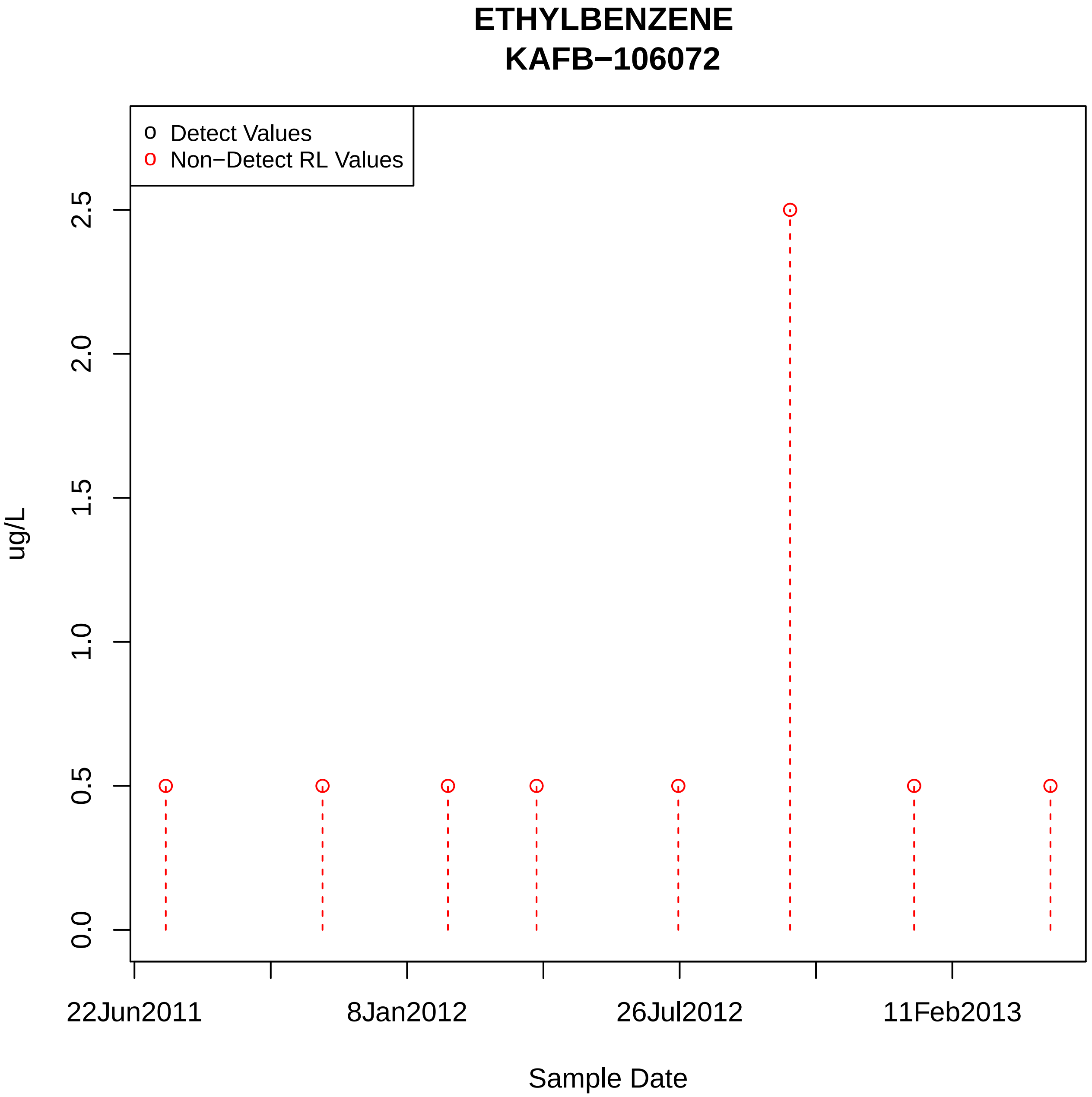

ETHYLBENZENE
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = −9.582E−04
p−value = 0.013
ug/L
0.0
0.2
0.4
0.6
0.8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



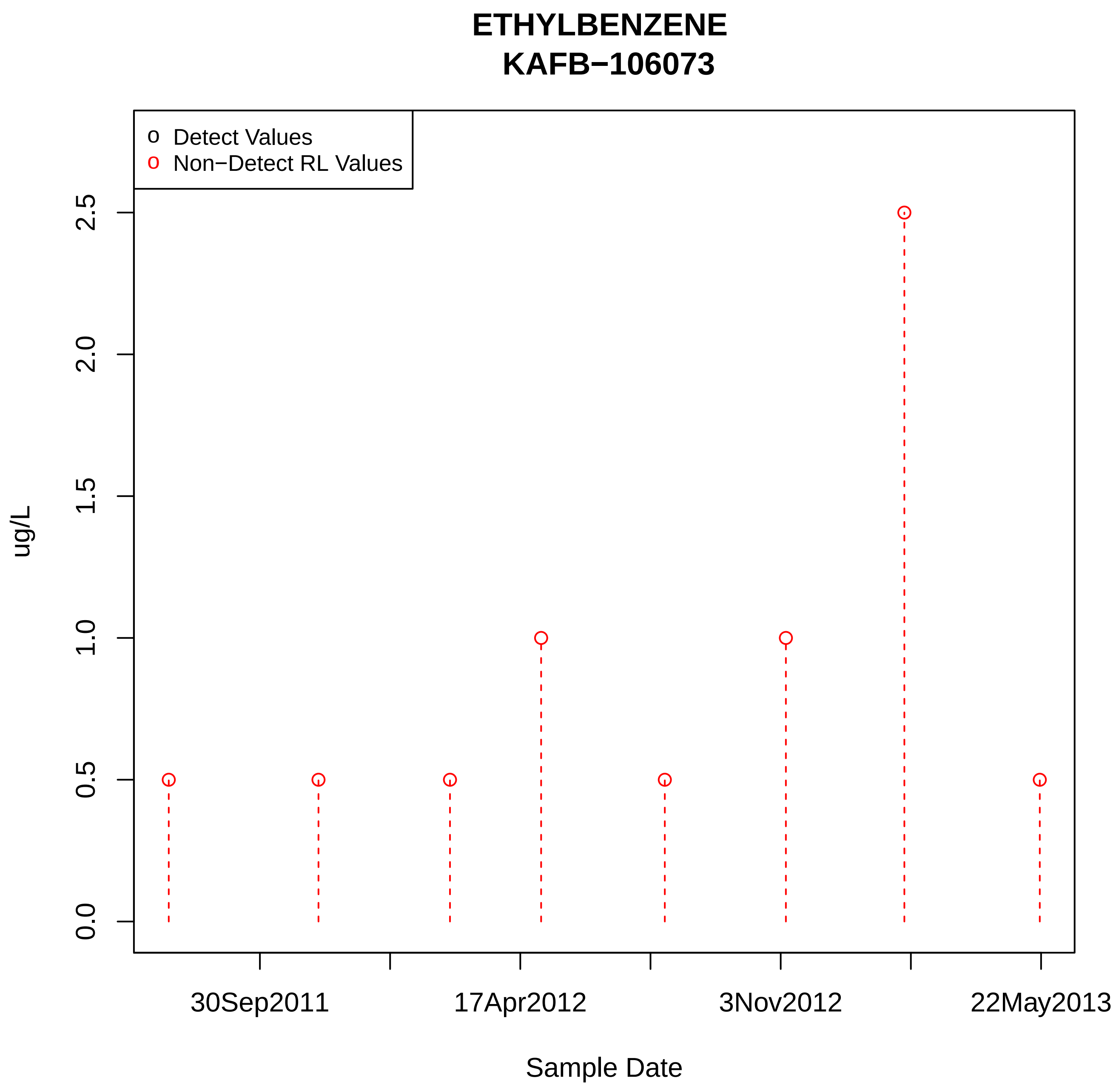
ETHYLBENZENE
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

ETHYLBENZENE
KAFB−106071

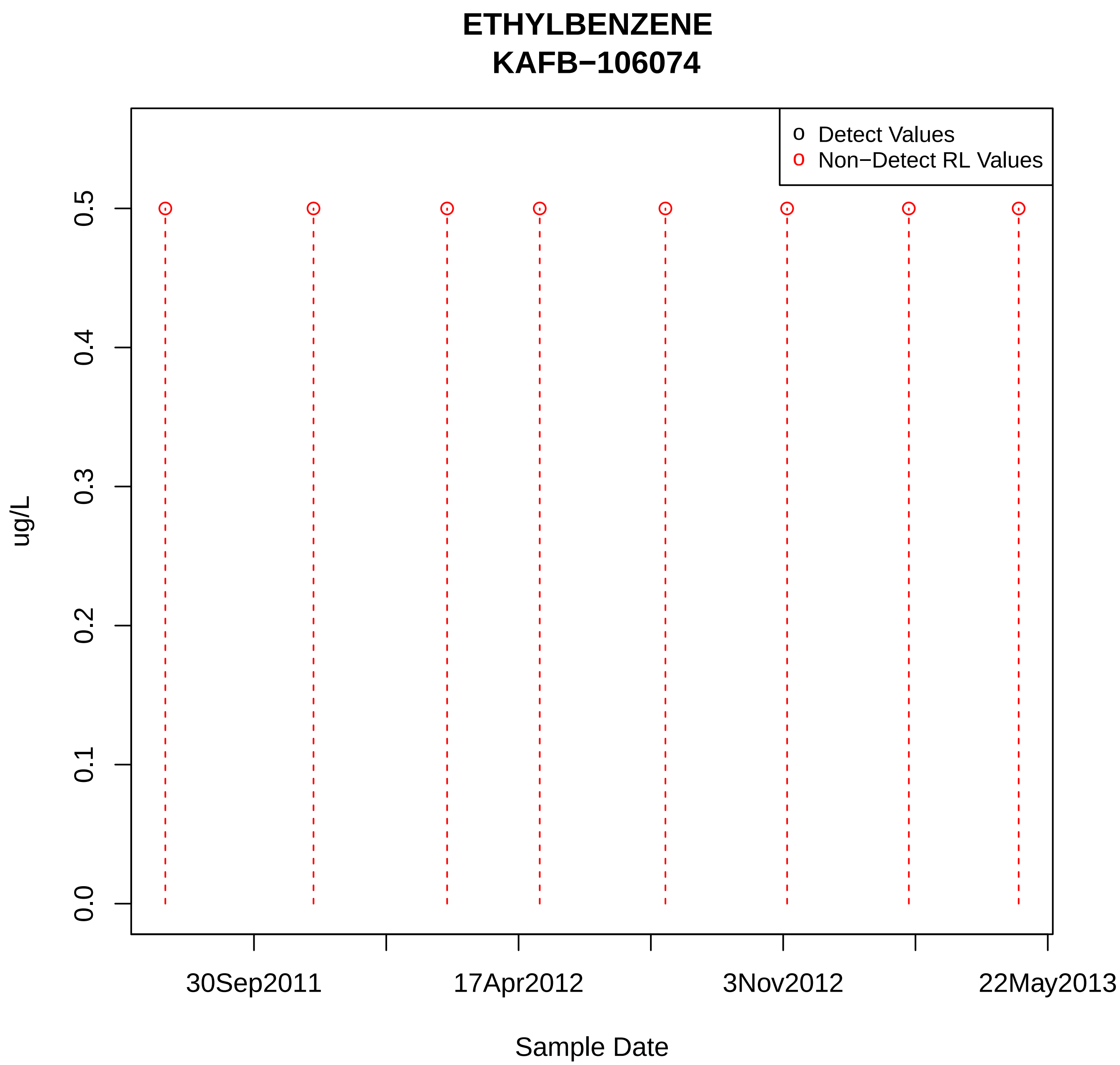




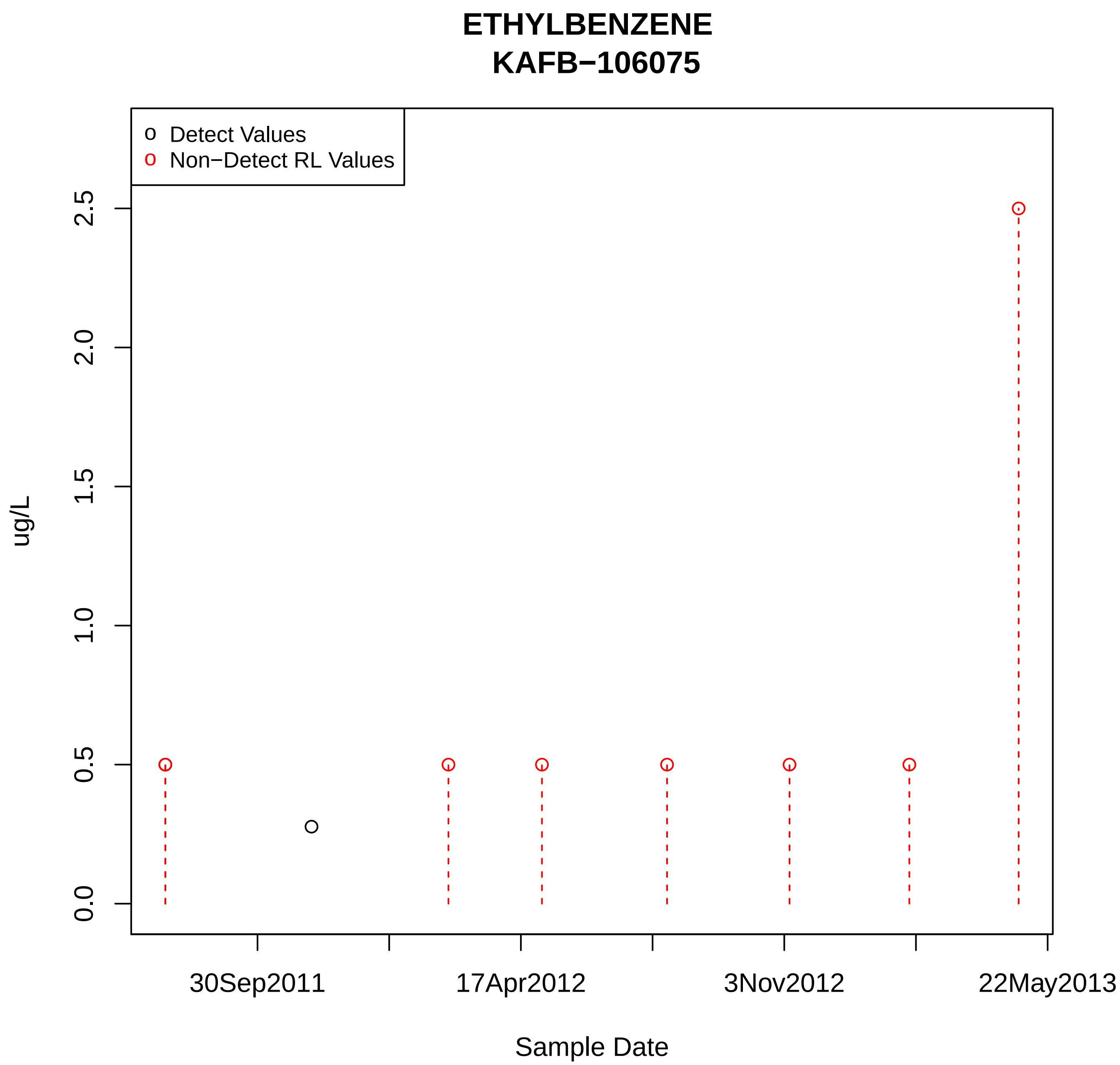
ETHYLBENZENE
KAFB−106072
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



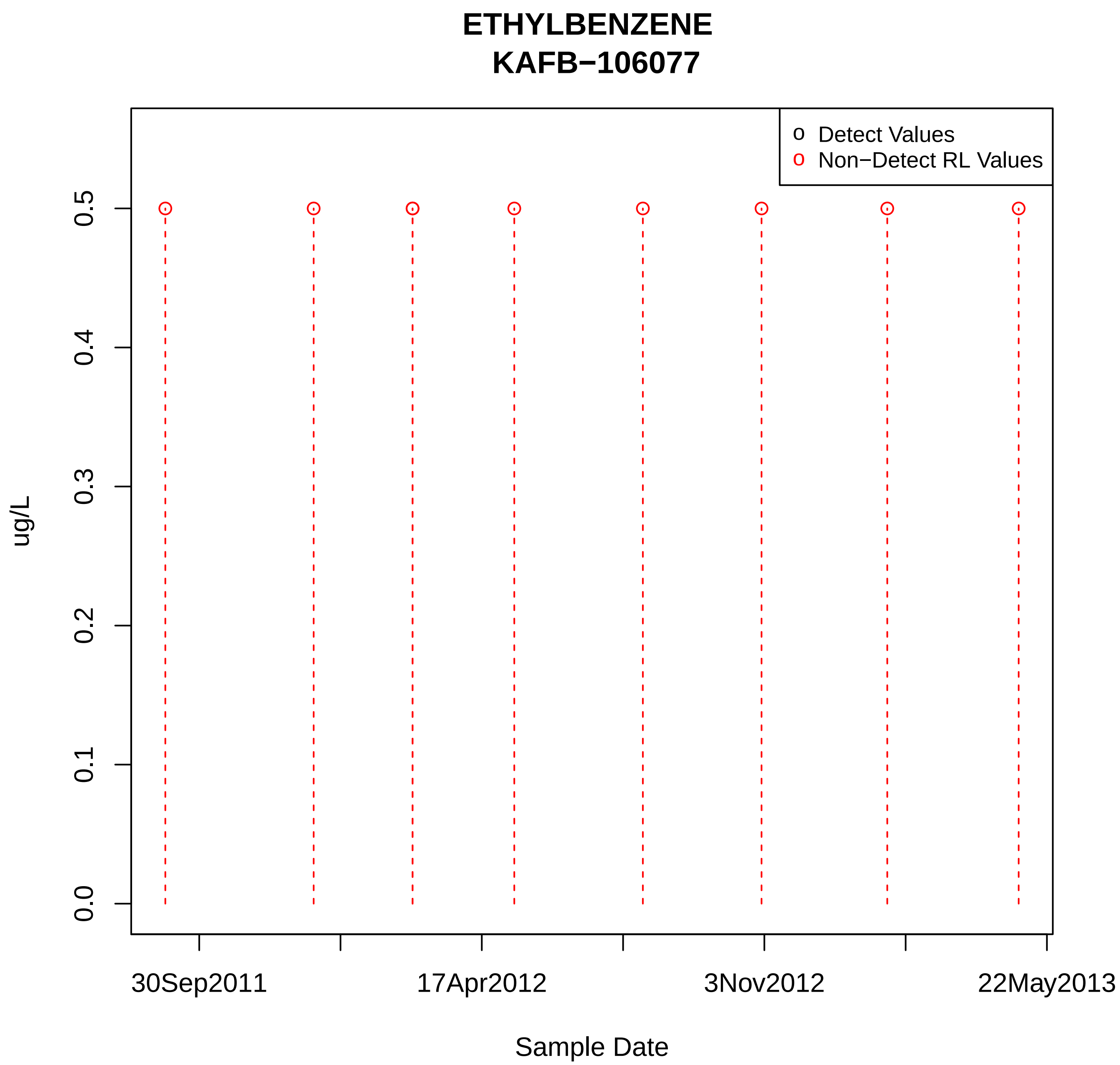
ETHYLBENZENE
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

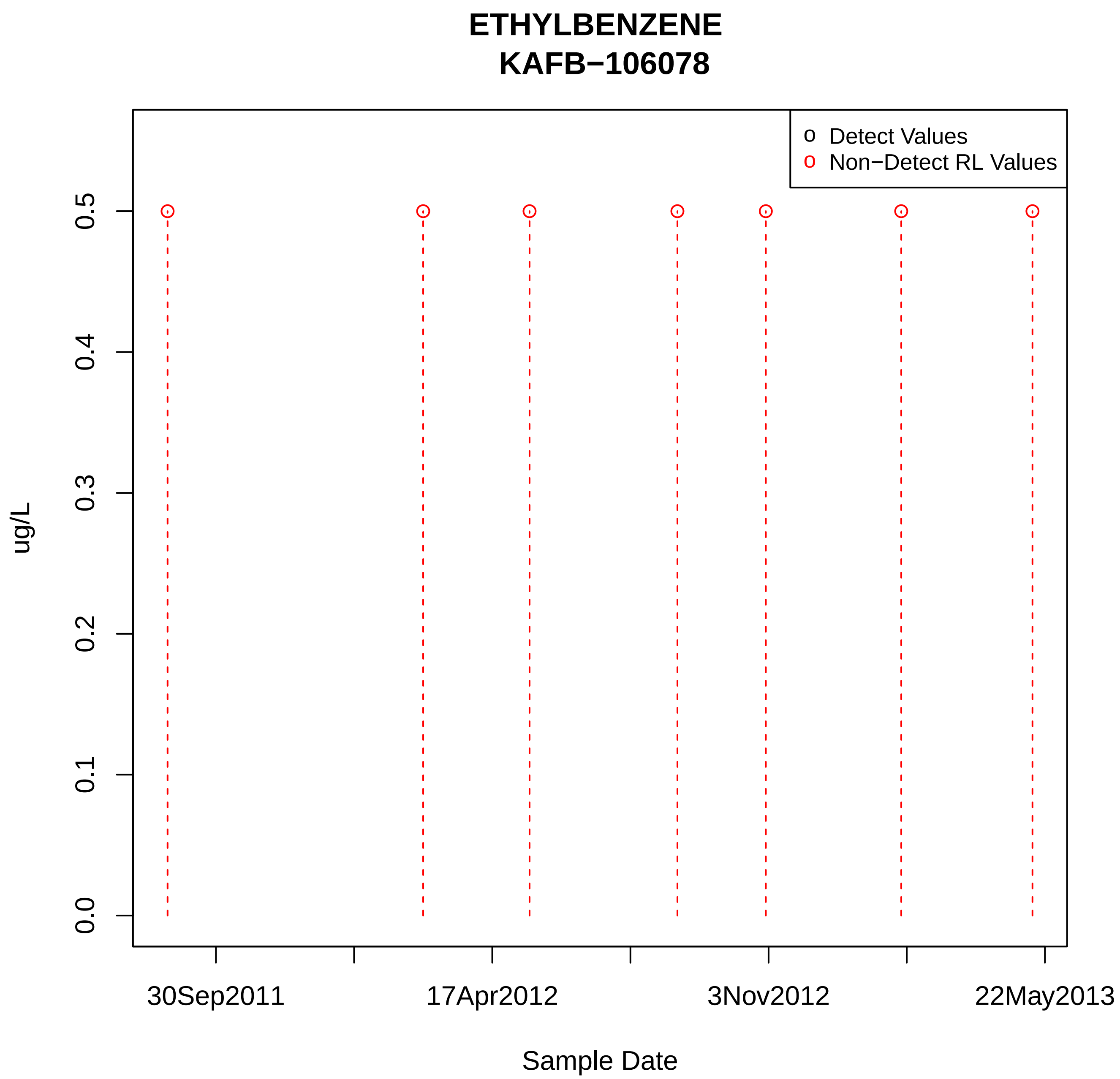


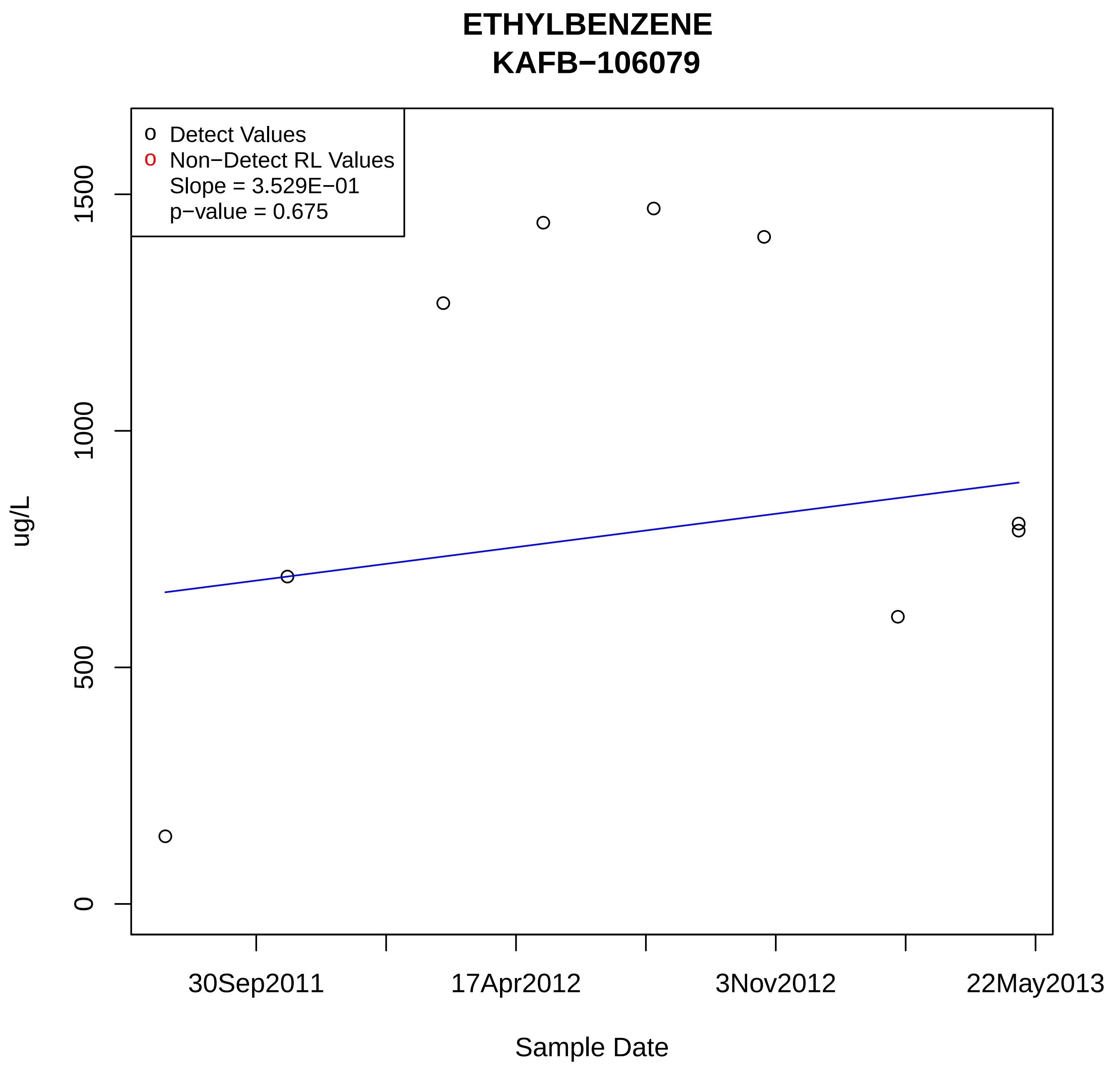
ETHYLBENZENE
KAFB−106074
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



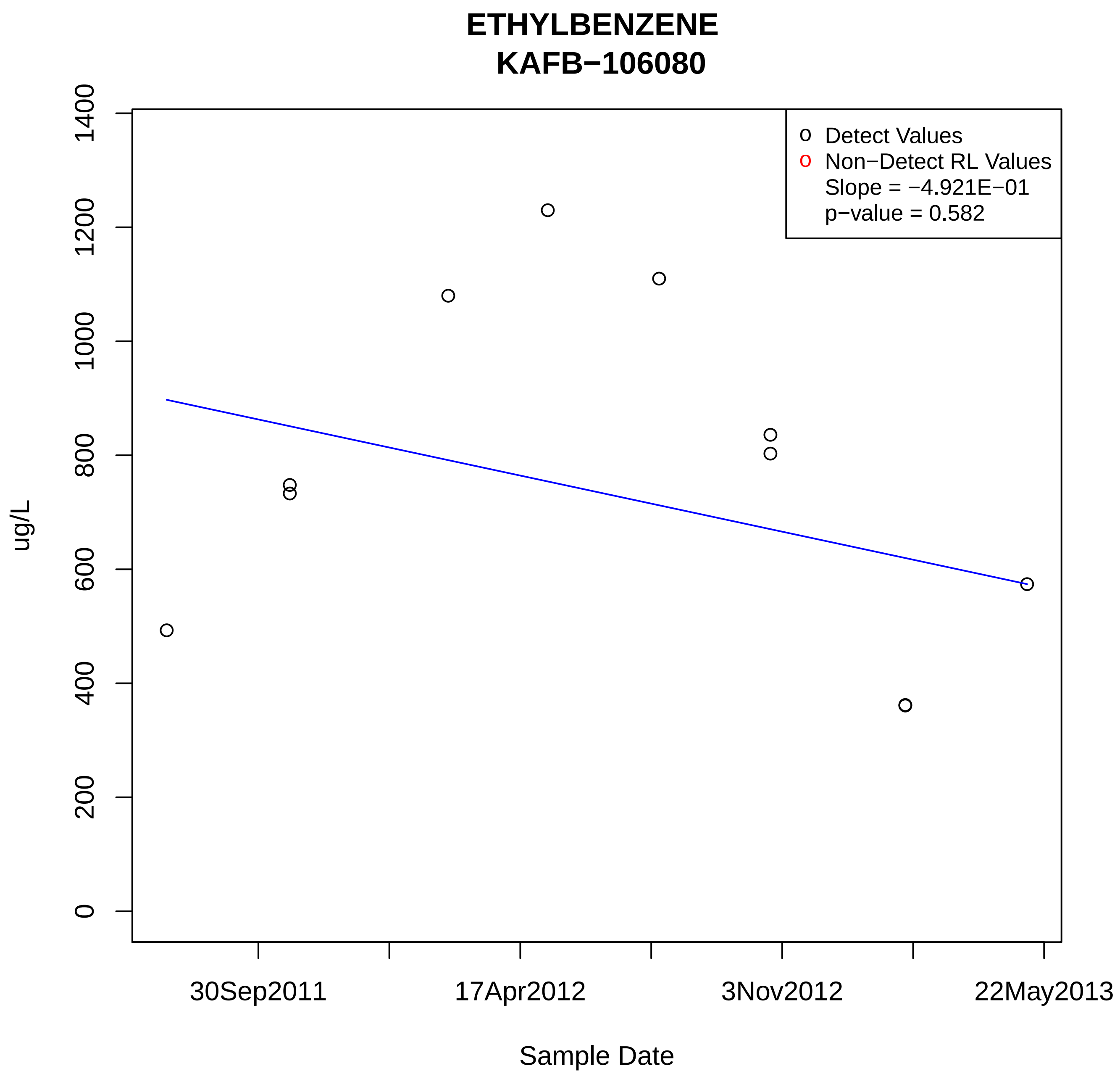
ETHYLBENZENE
KAFB−106075
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

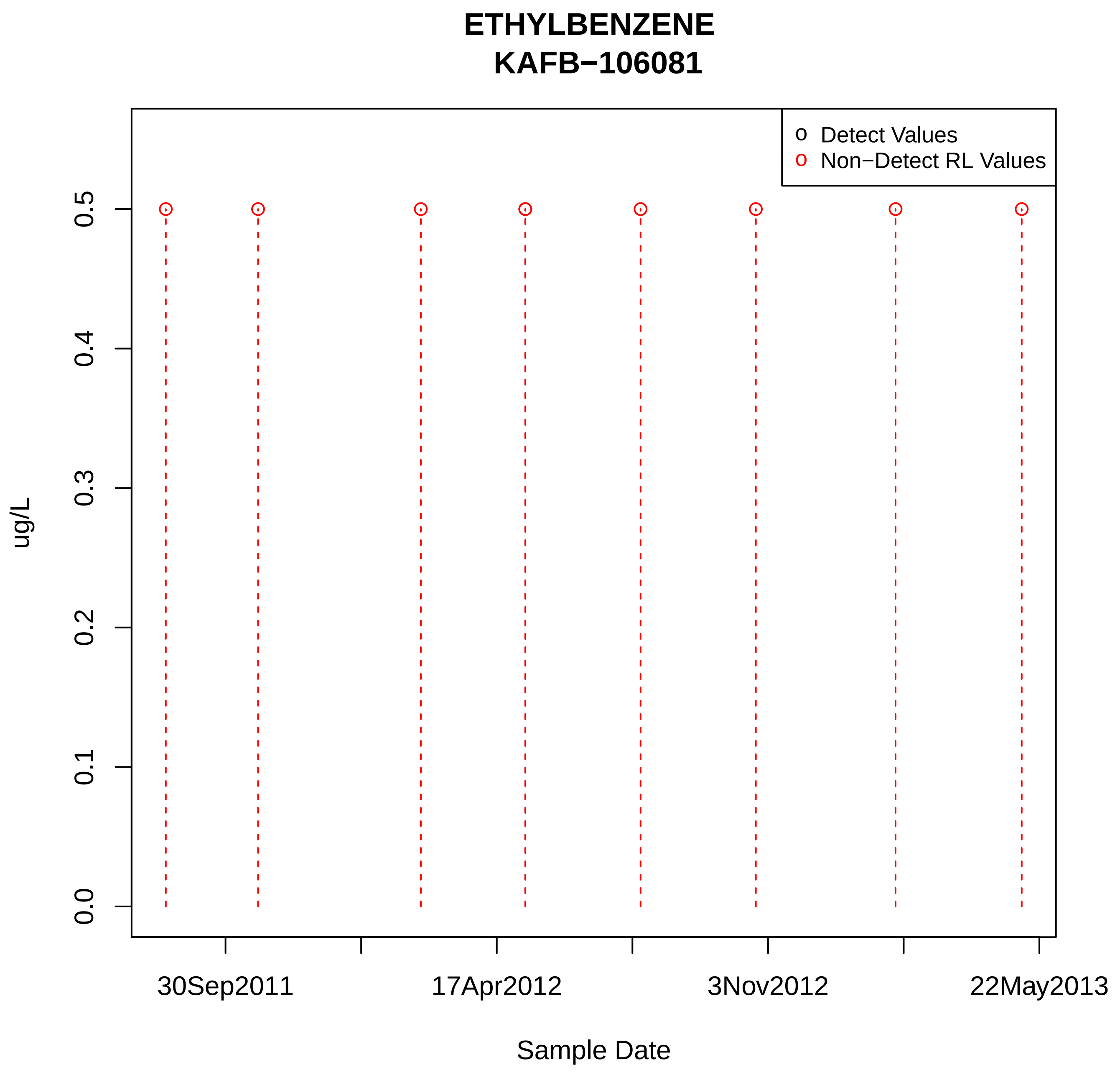

ETHYLBENZENE
KAFB−106077
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

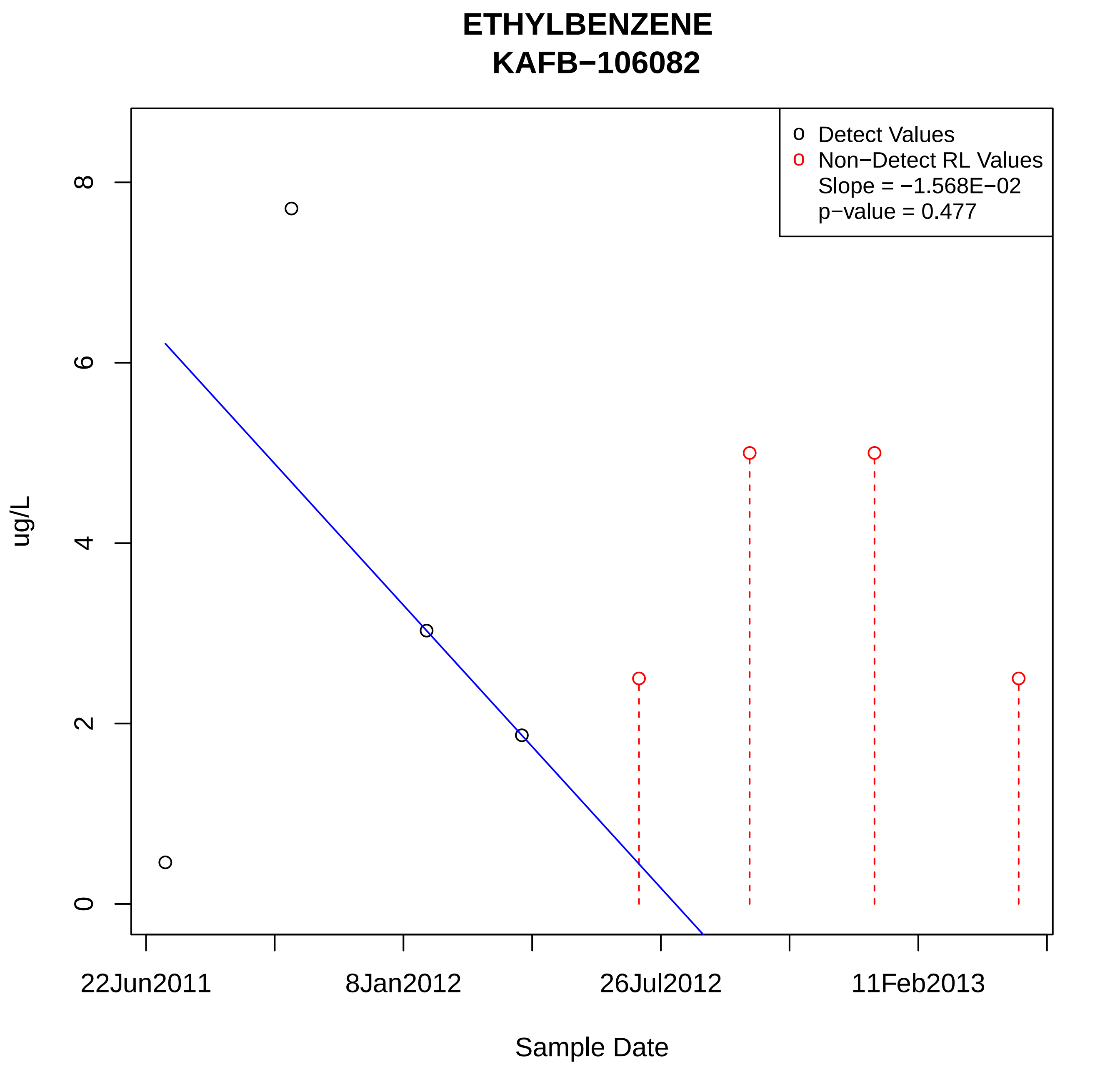

ETHYLBENZENE
KAFB−106078
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

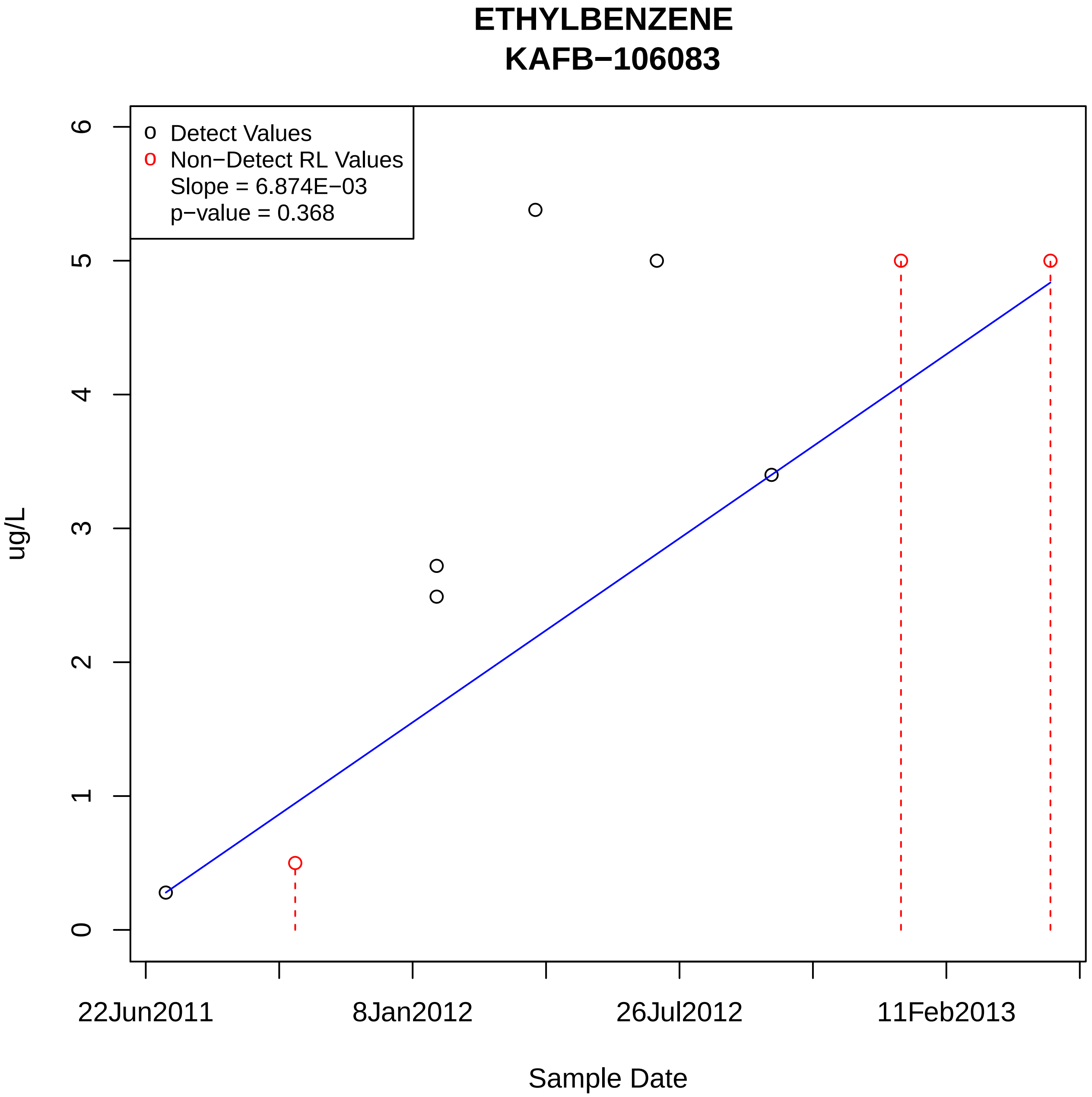


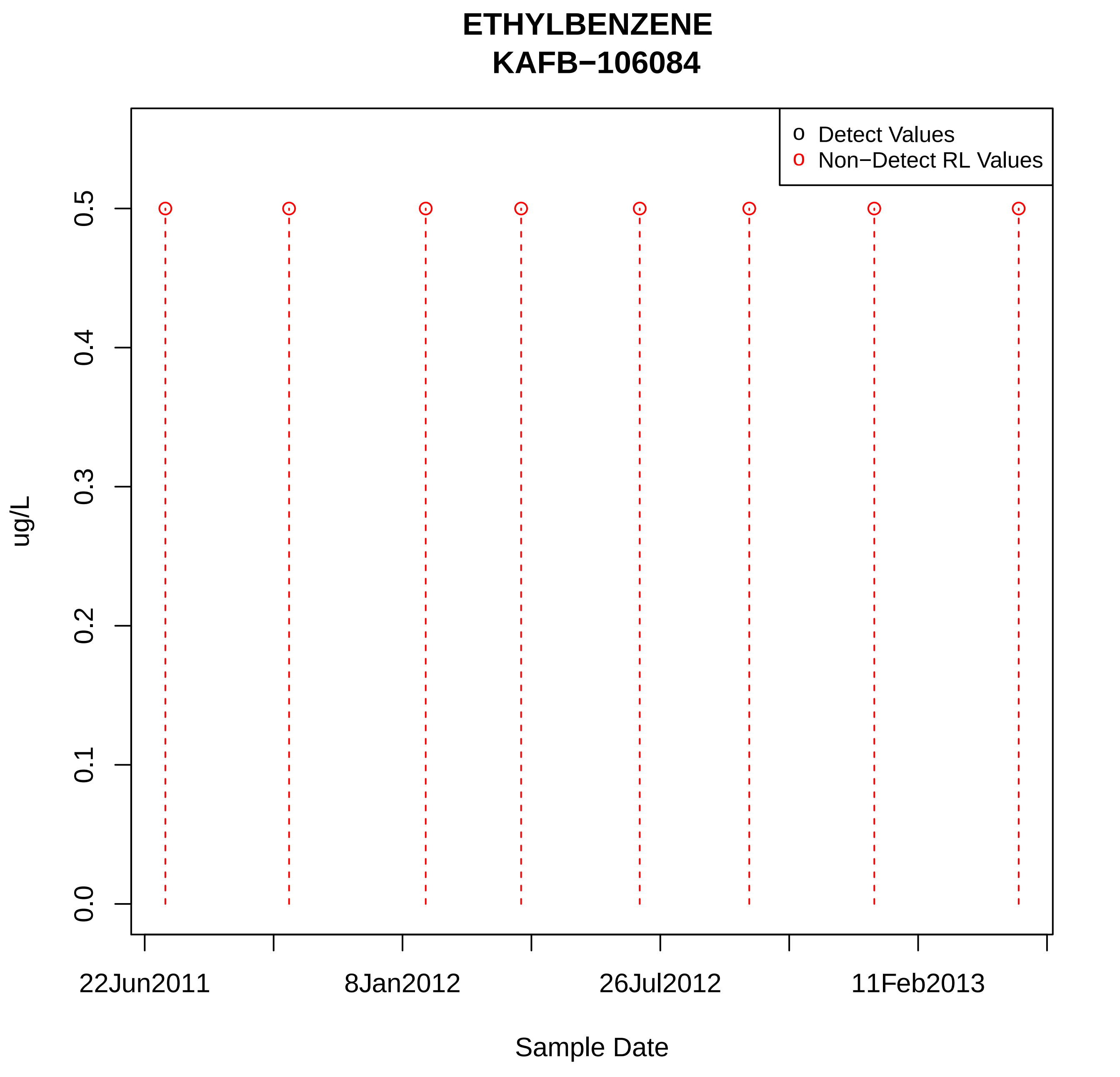
ETHYLBENZENE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = 3.529E−01
p−value = 0.675
ug/L
0
500
1000
1500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

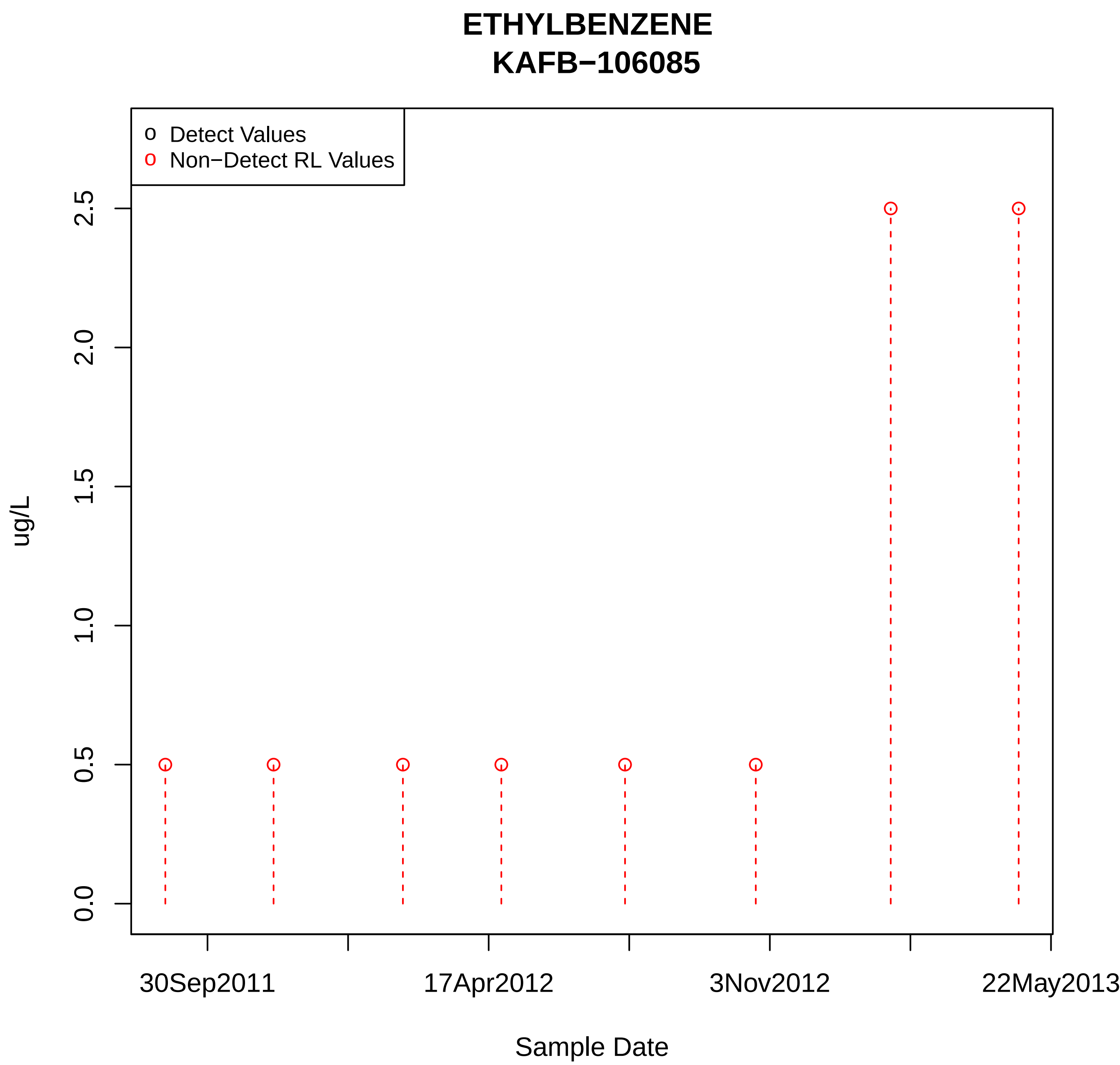

ETHYLBENZENE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −4.921E−01
p−value = 0.582
ug/L
0
200
400
600
800
1000
1200
1400
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

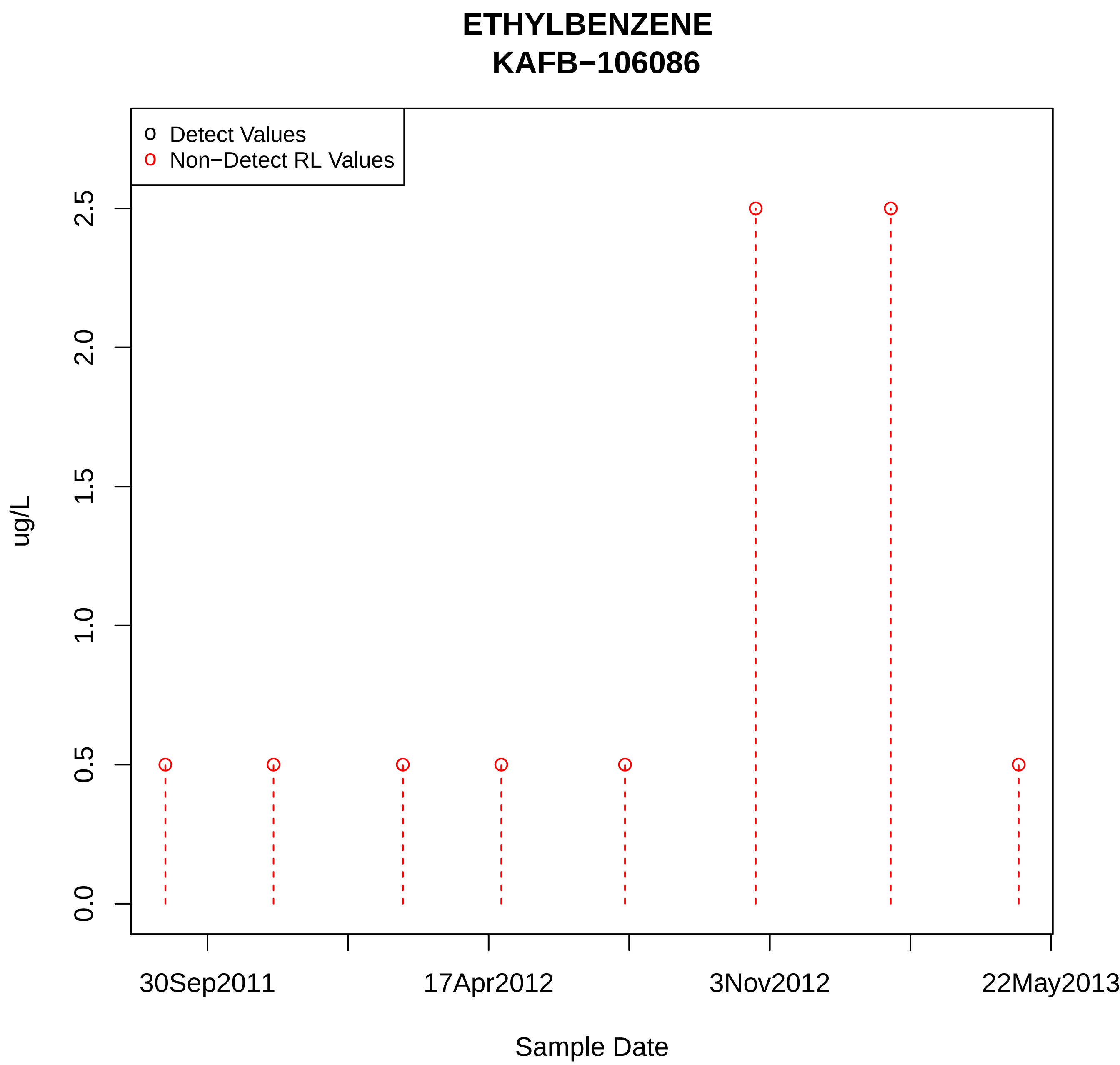

ETHYLBENZENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

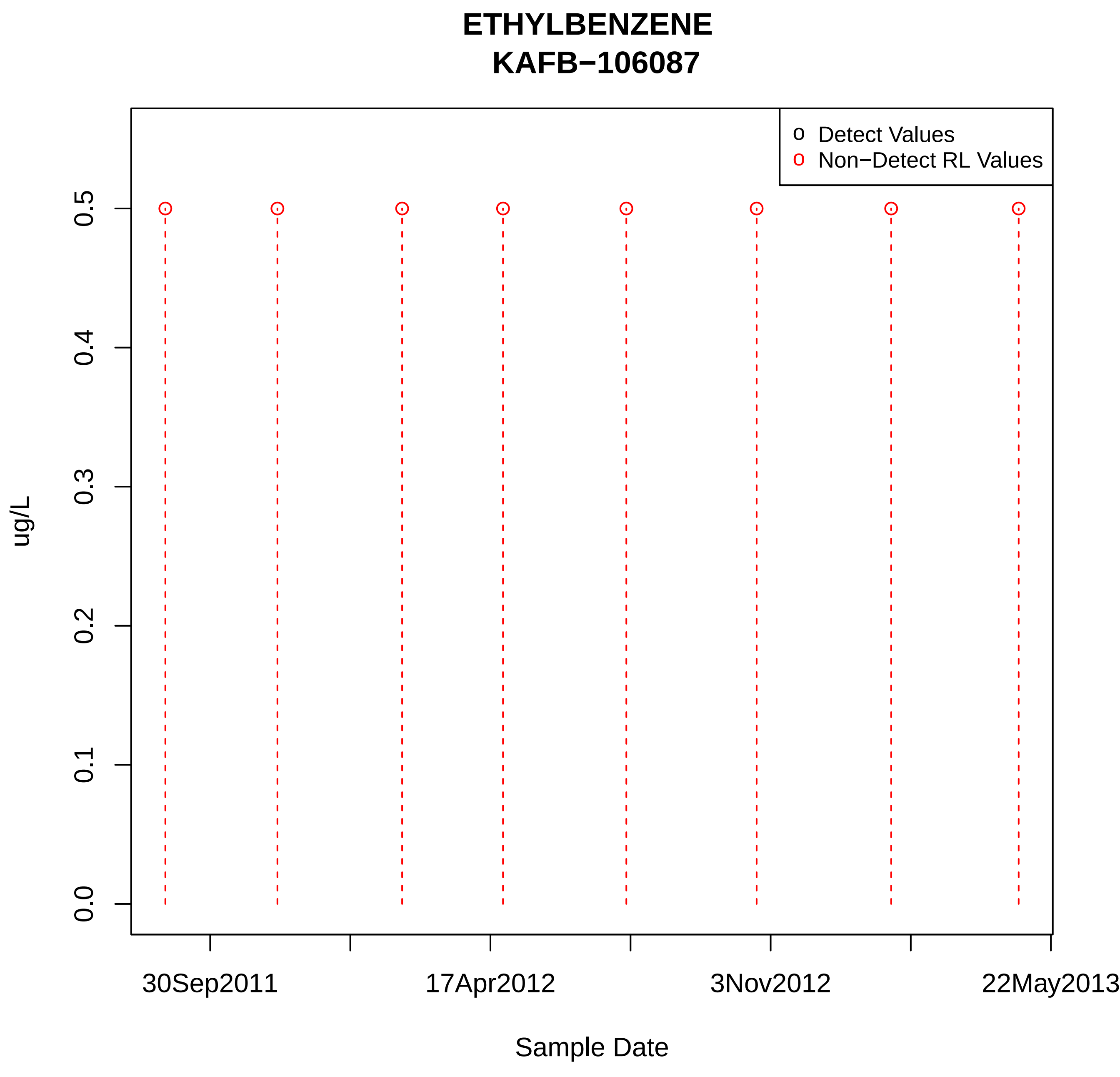

ETHYLBENZENE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −1.568E−02
p−value = 0.477
ug/L
0
2
4
6
8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ETHYLBENZENE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 6.874E−03
p−value = 0.368
ug/L
0
1
2
3
4
5
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

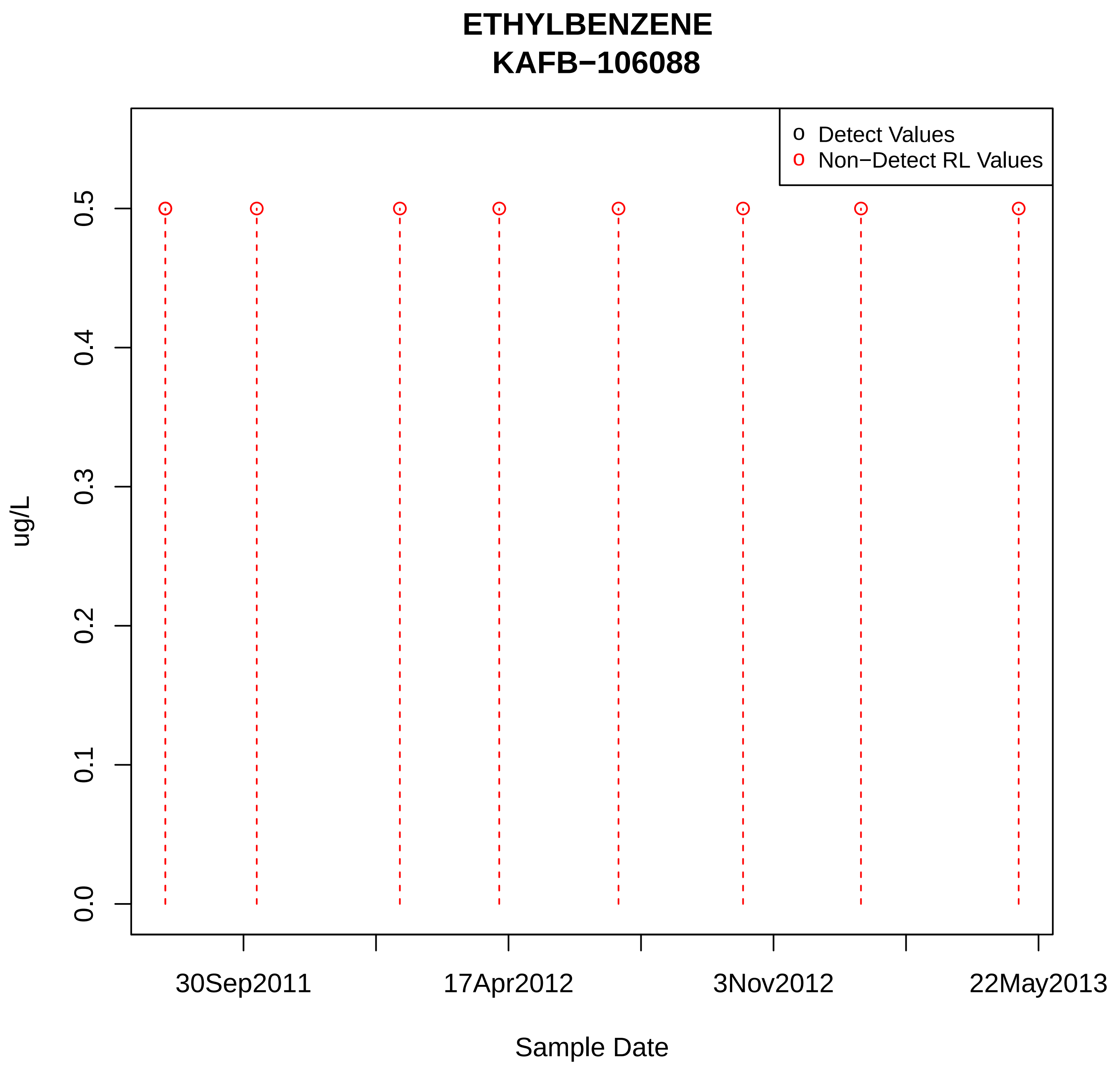

ETHYLBENZENE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

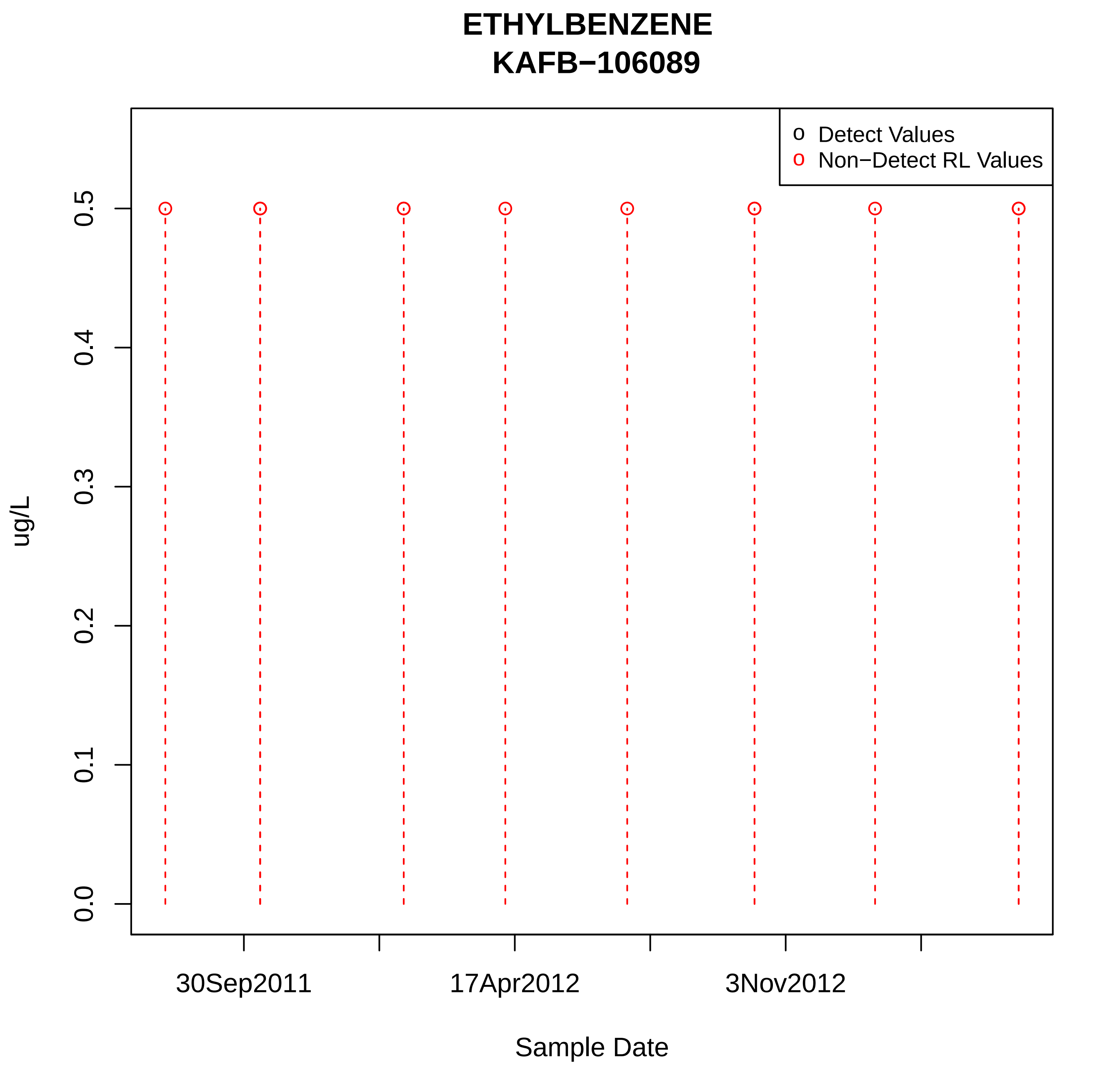

ETHYLBENZENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ETHYLBENZENE
KAFB−106086
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

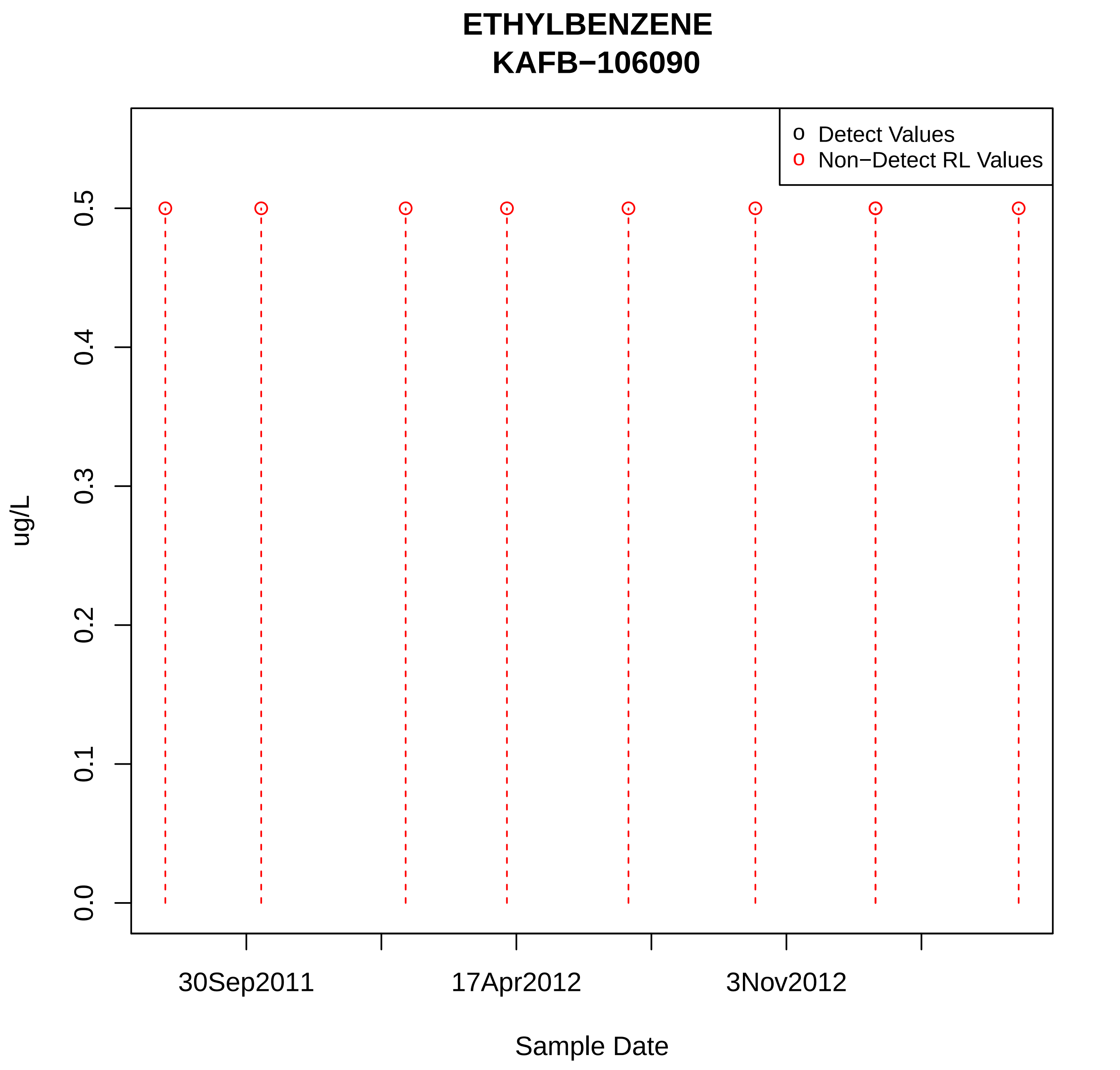


ETHYLBENZENE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

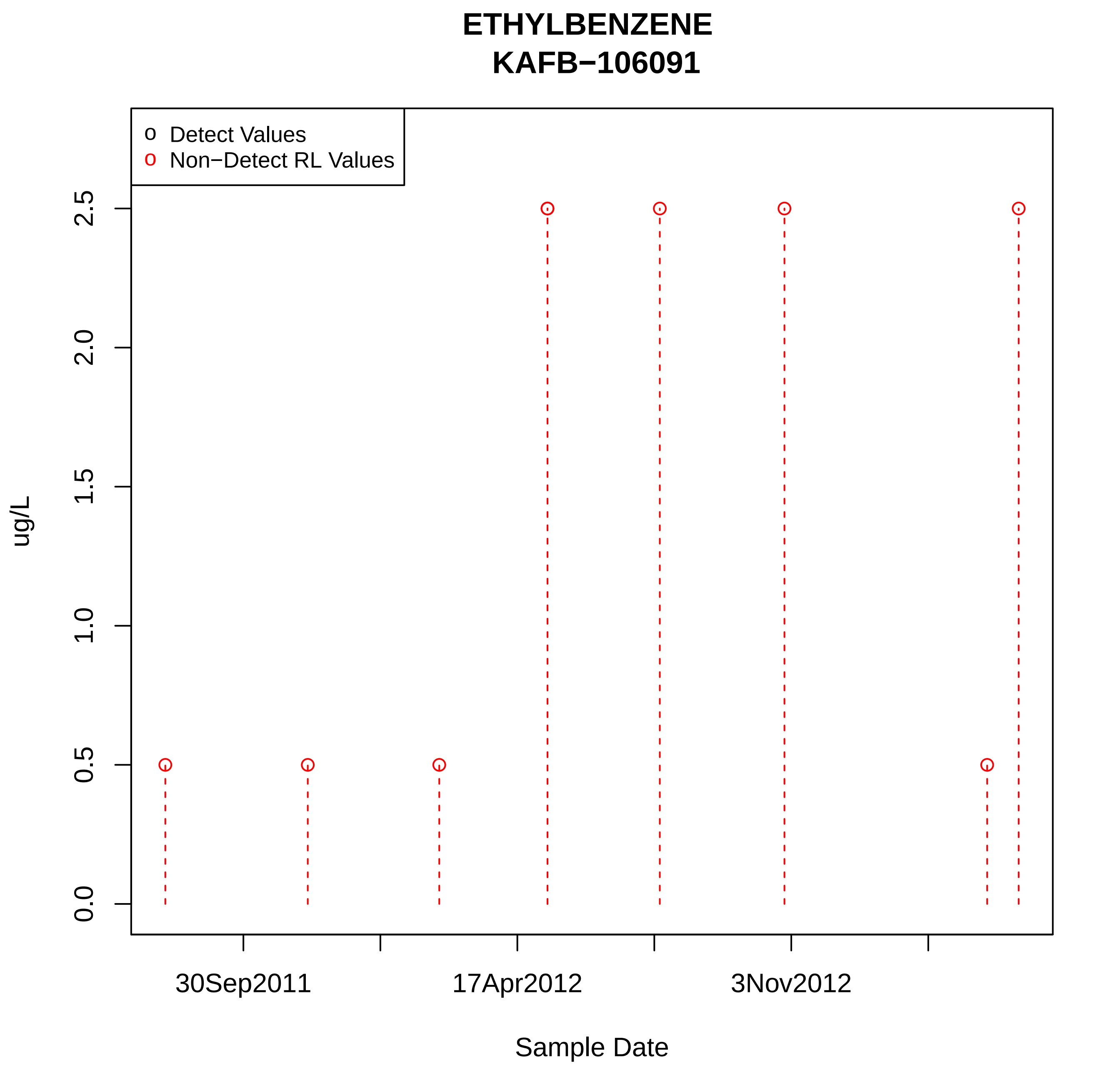

ETHYLBENZENE
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

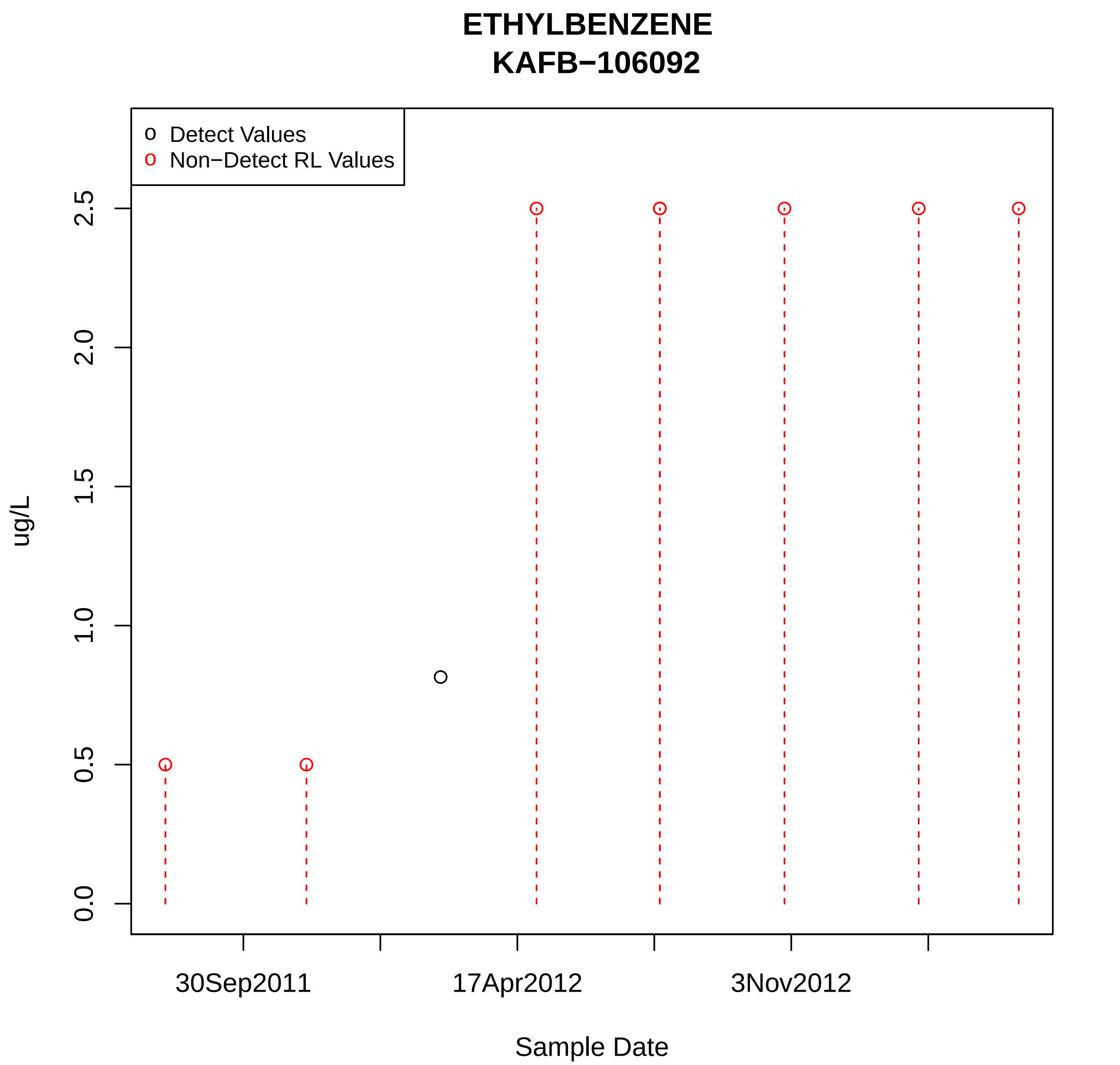


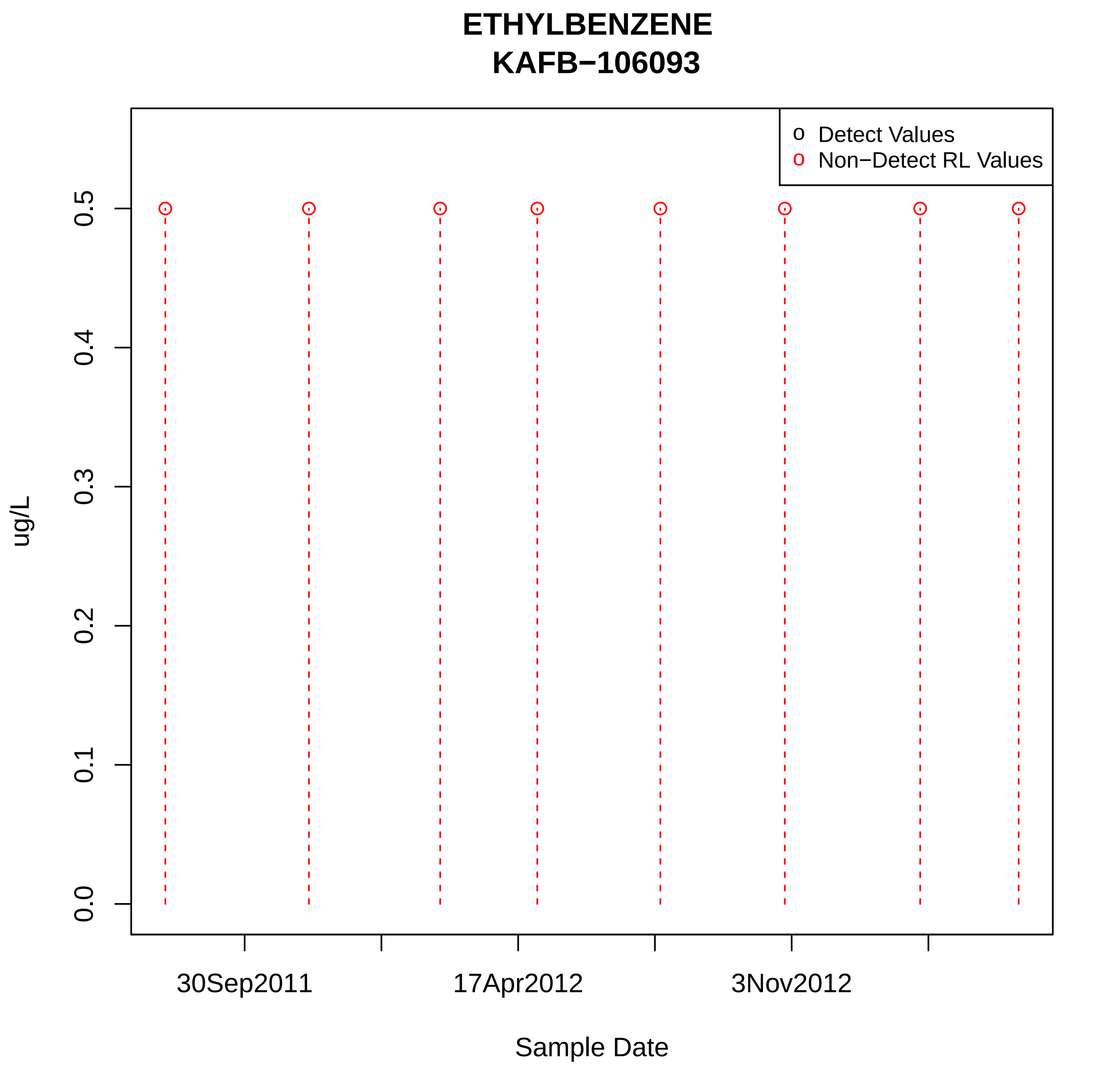
ETHYLBENZENE
KAFB−106089
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



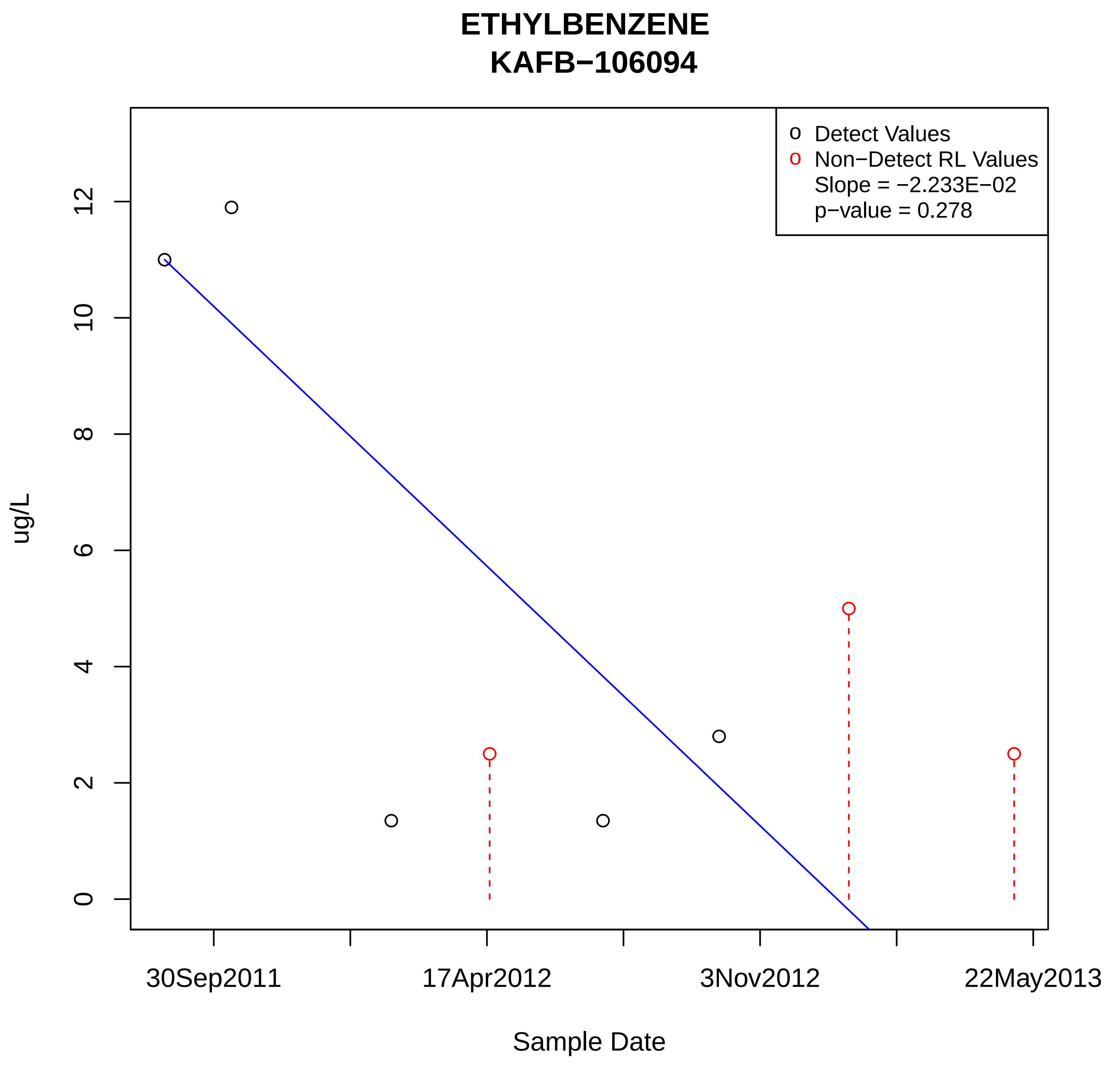
ETHYLBENZENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

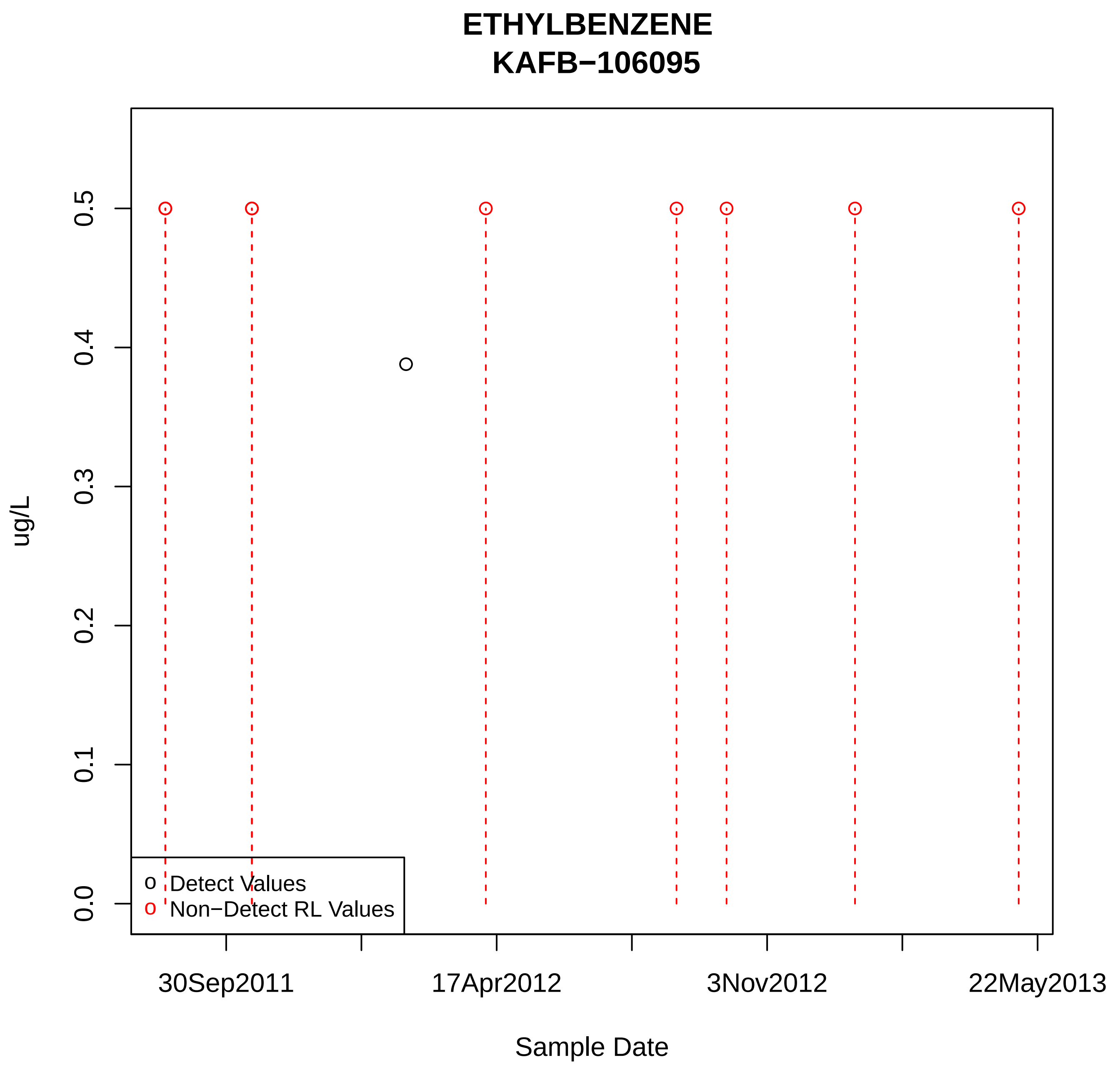

ETHYLBENZENE
KAFB−106091
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ETHYLBENZENE
KAFB−106092
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

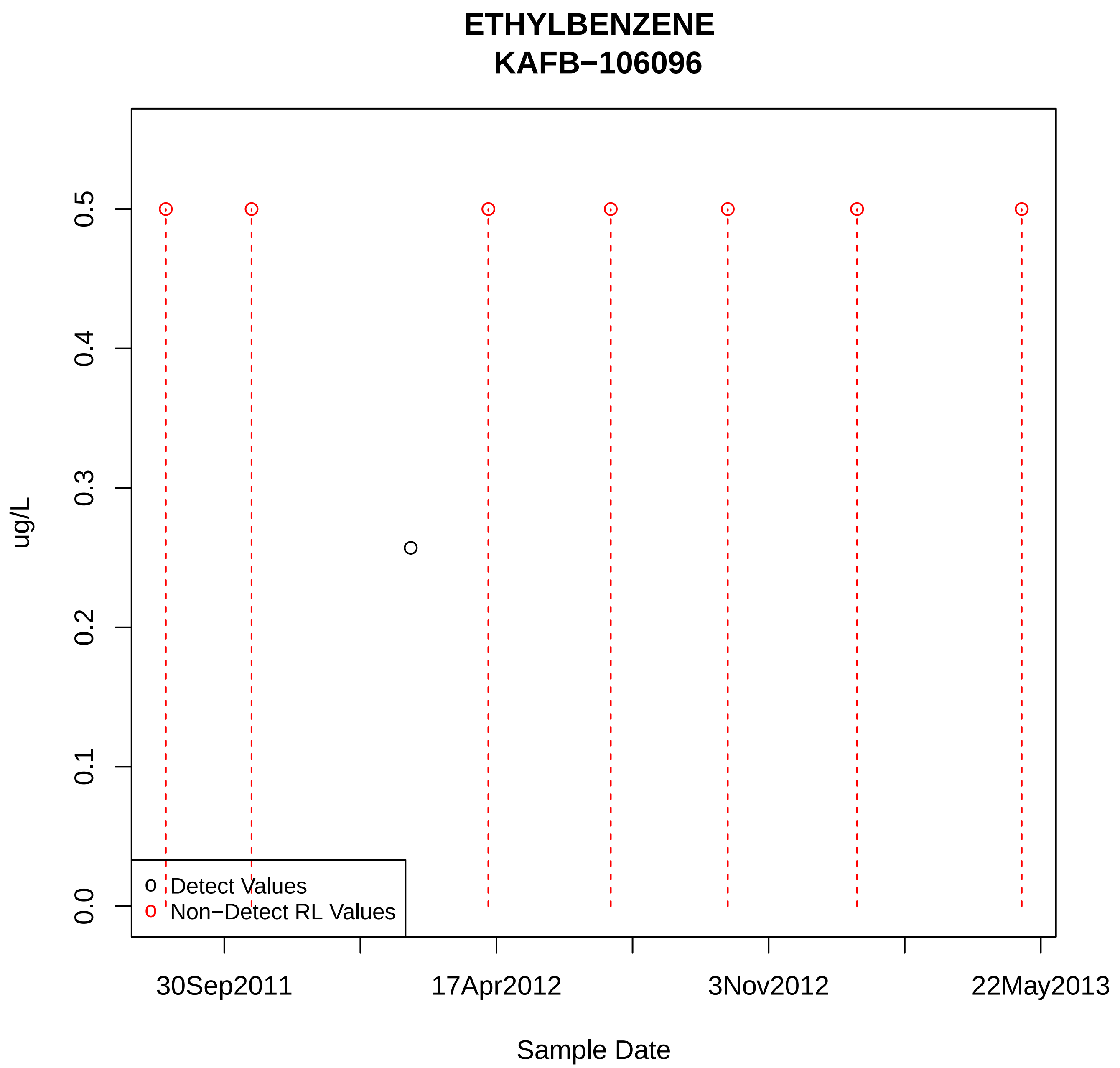


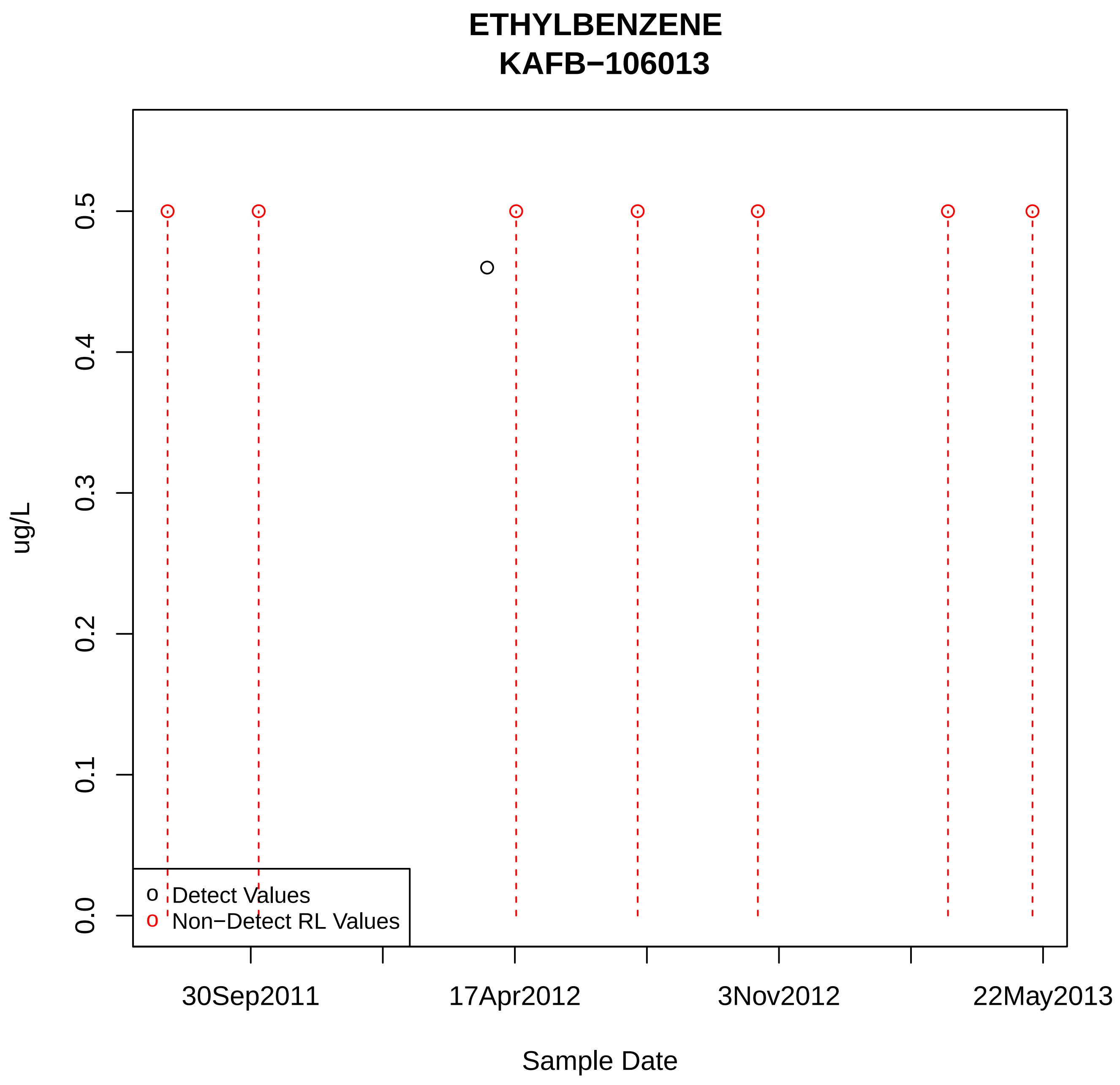
ETHYLBENZENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ETHYLBENZENE
KAFB−106094
o Detect Values
o Non−Detect RL Values
Slope = −2.233E−02
p−value = 0.278
ug/L
0
2
4
6
8
10
12
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

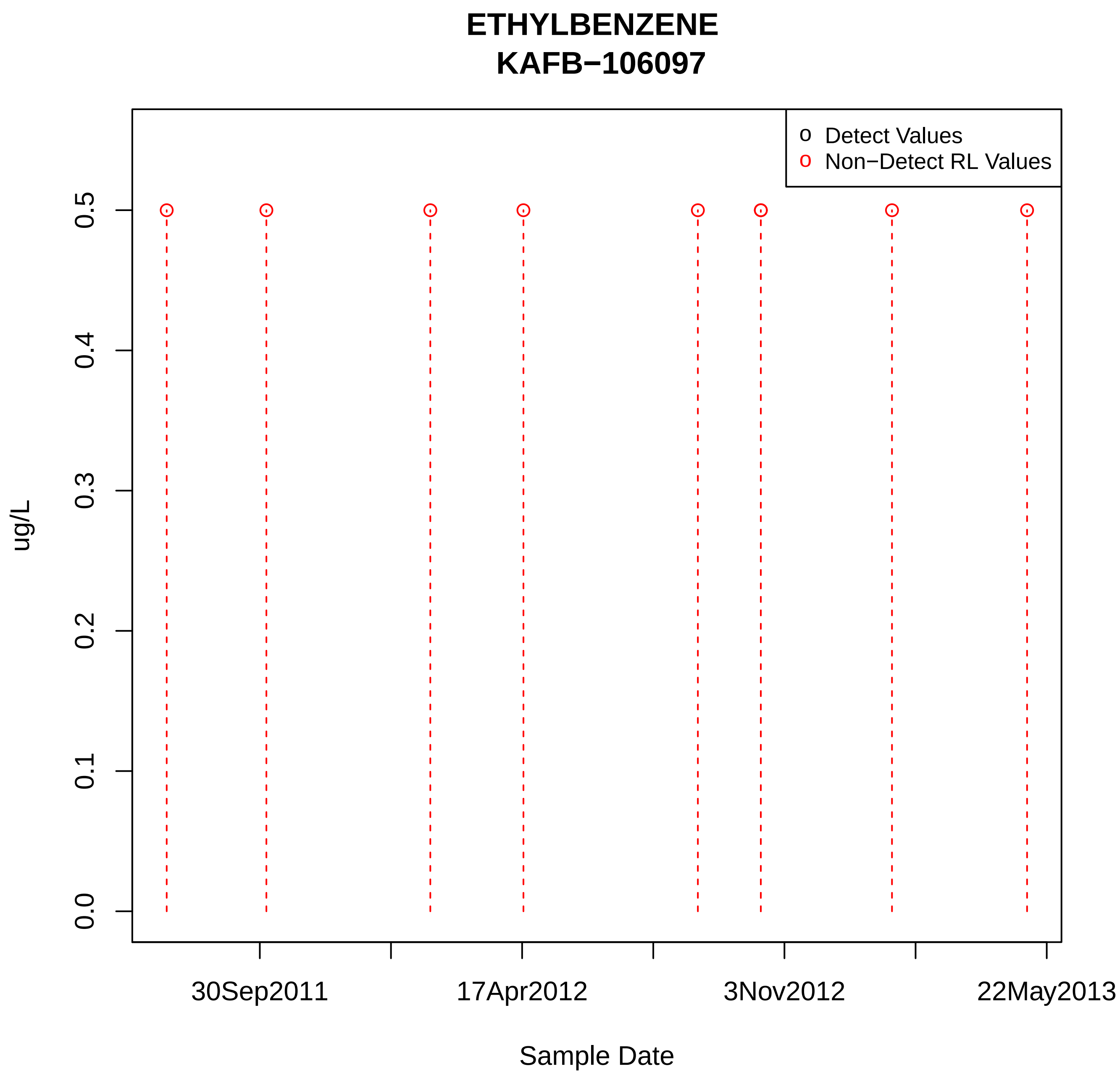


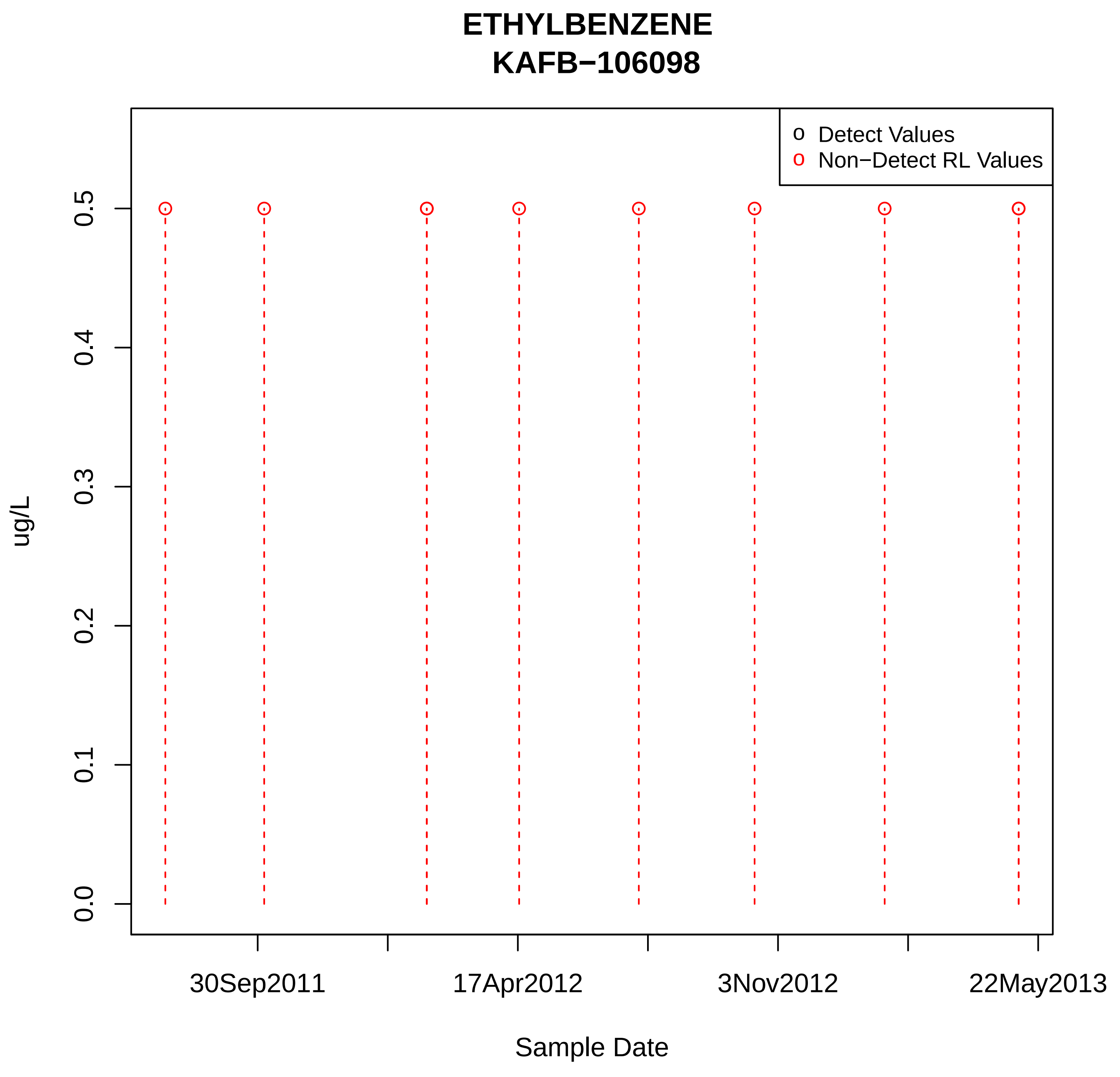
ETHYLBENZENE
KAFB−106095
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values

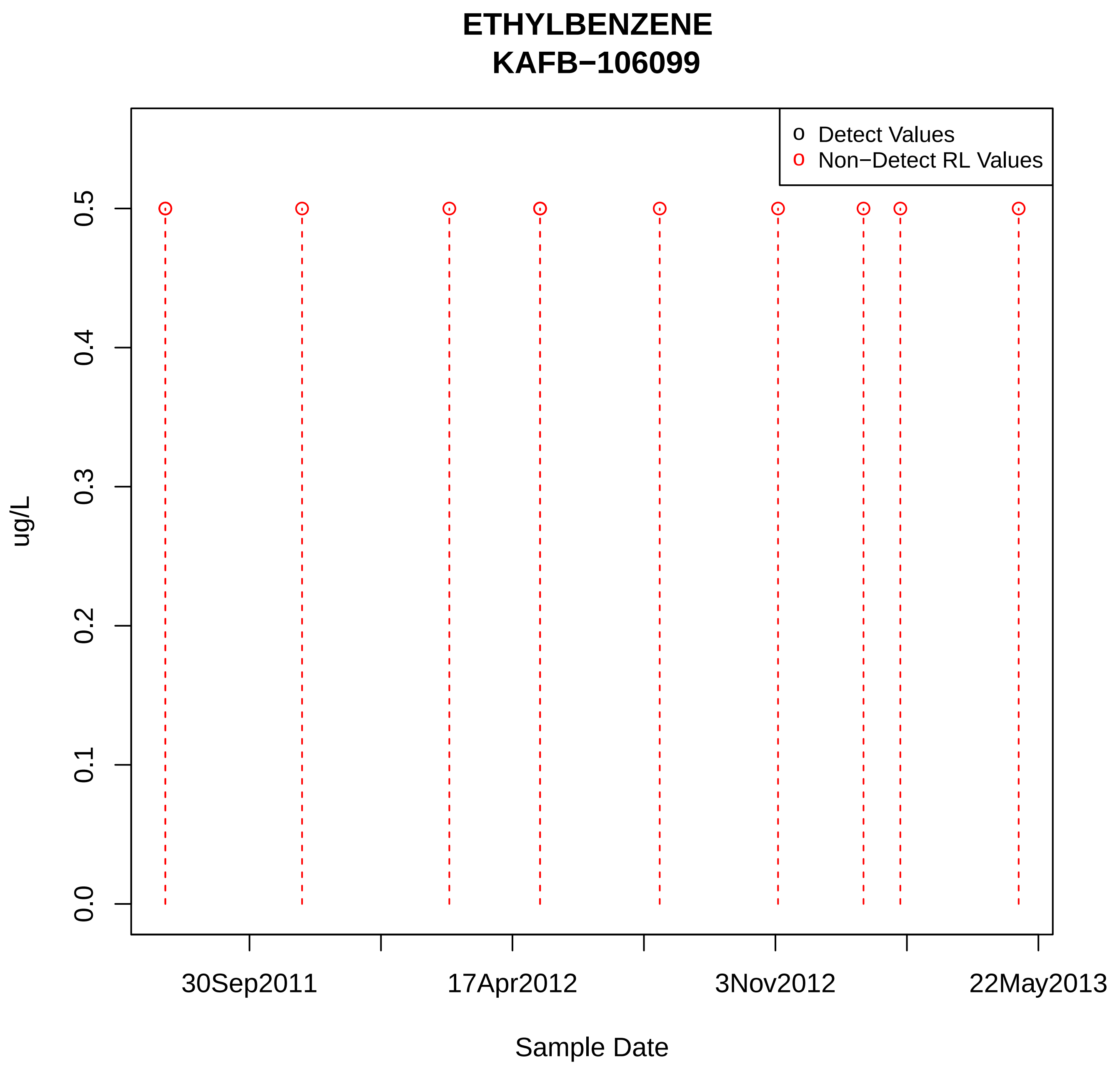

ETHYLBENZENE
KAFB−106096
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values

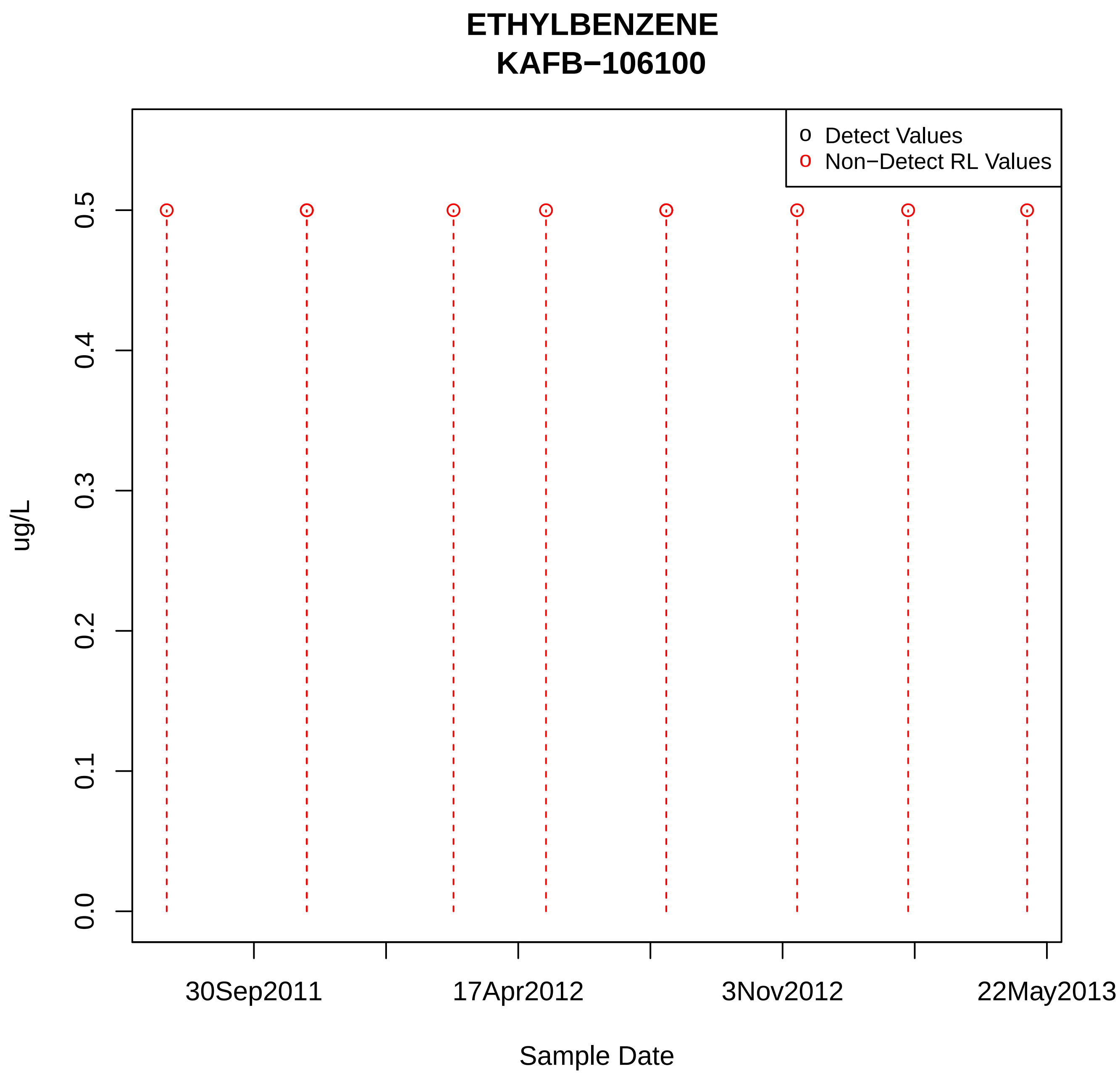


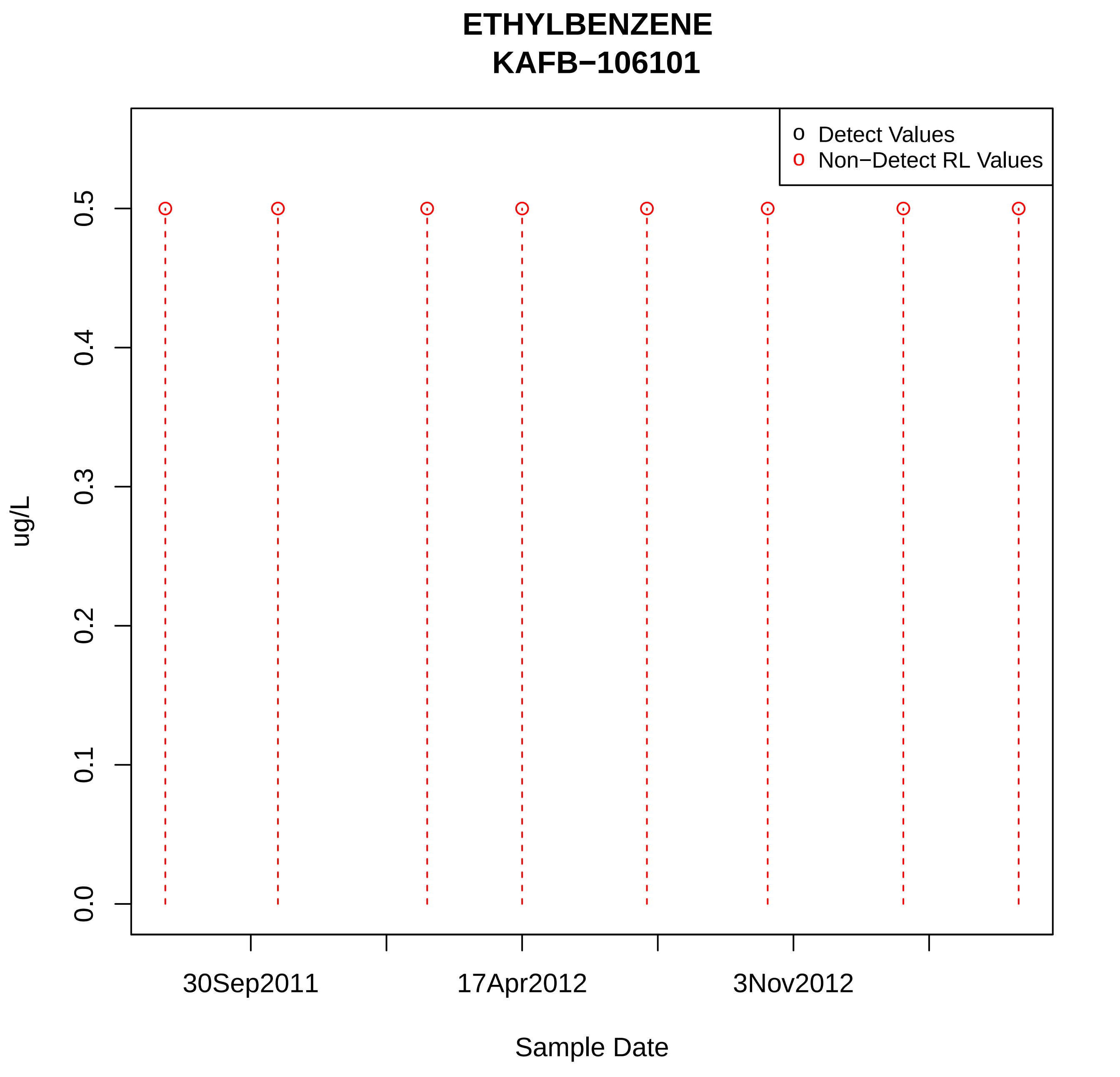
ETHYLBENZENE
KAFB−106013
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values


ETHYLBENZENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

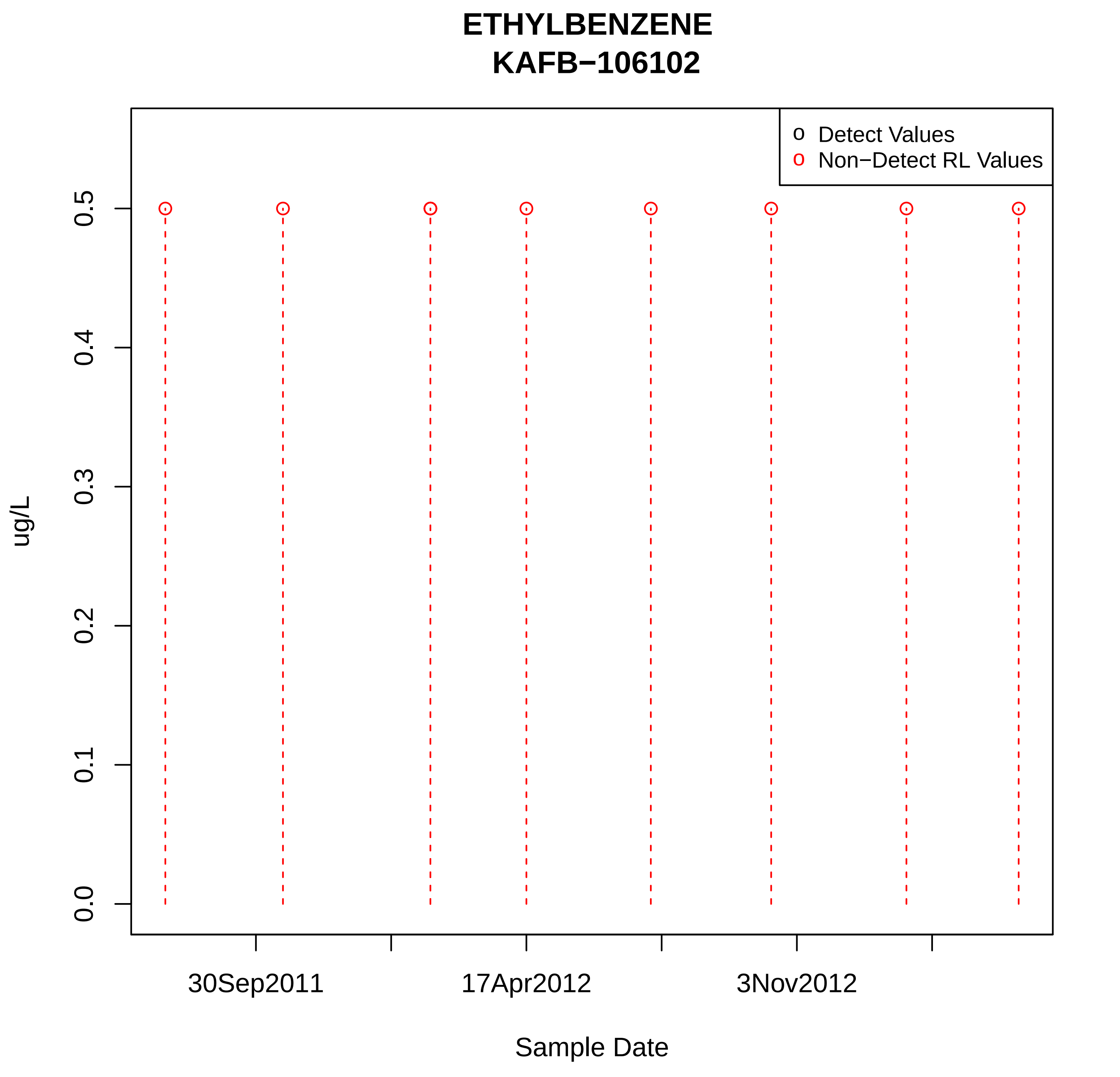

ETHYLBENZENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ETHYLBENZENE
KAFB−106099
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

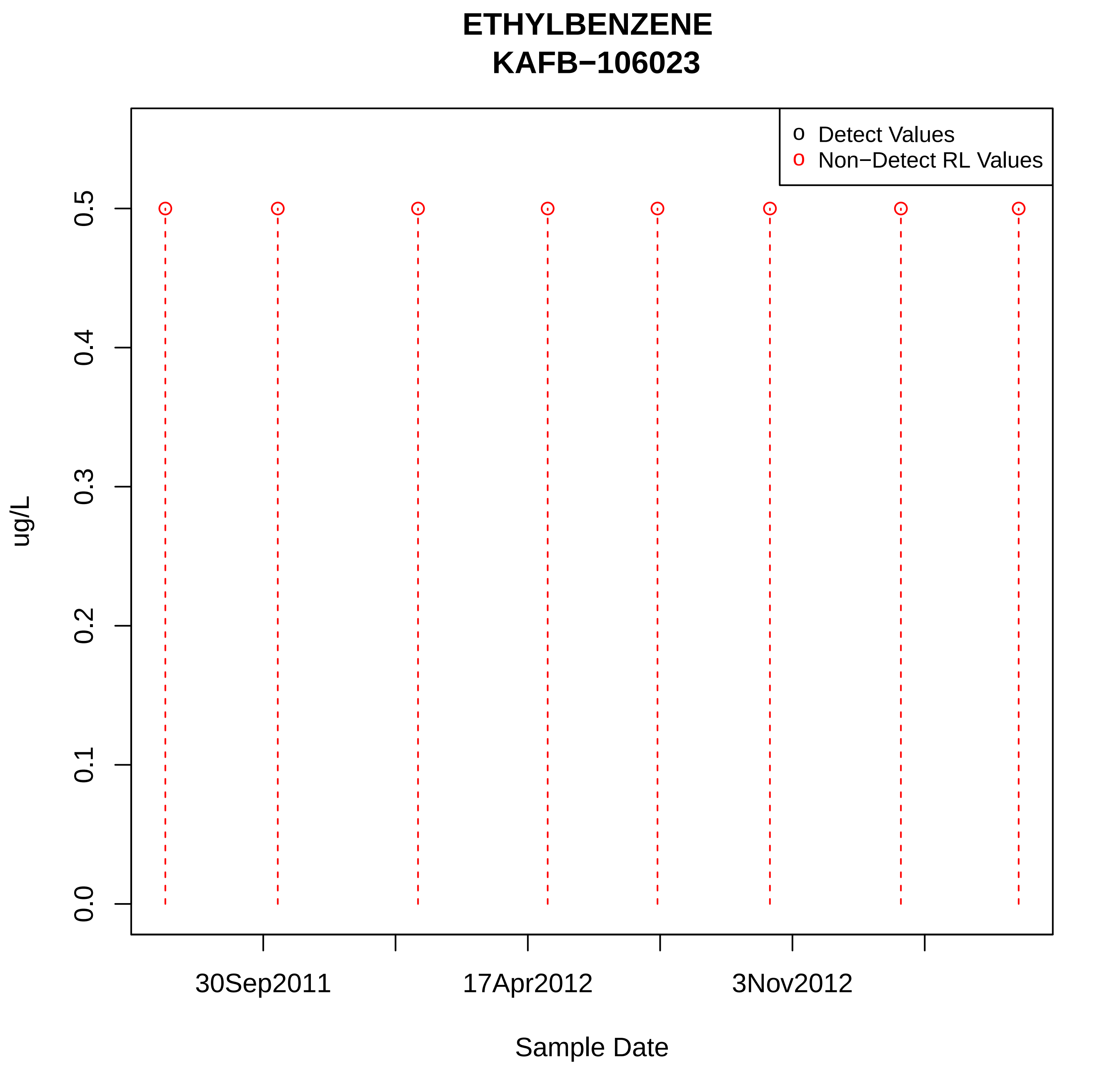

ETHYLBENZENE
KAFB−106100
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

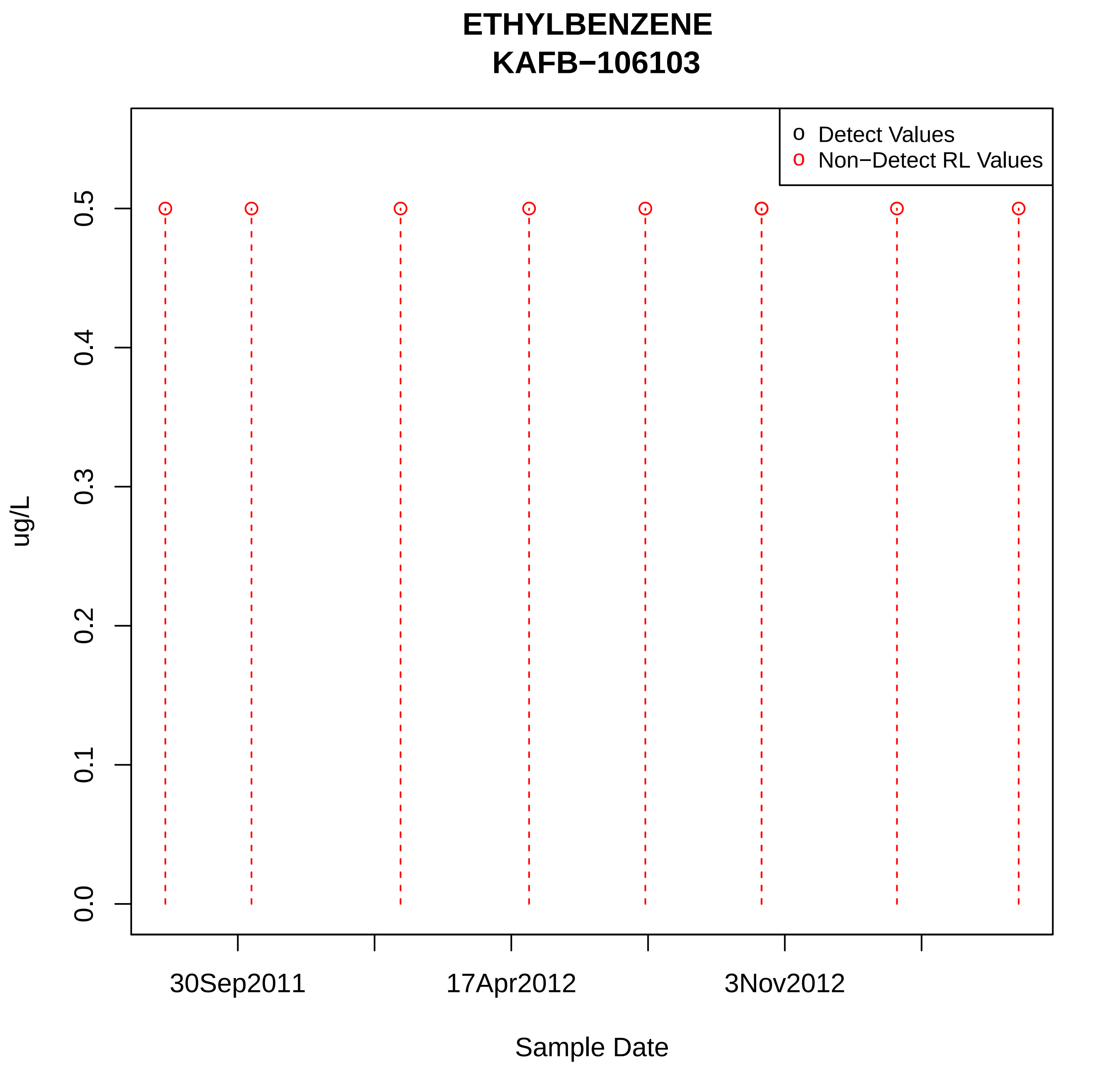


ETHYLBENZENE
KAFB−106101
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

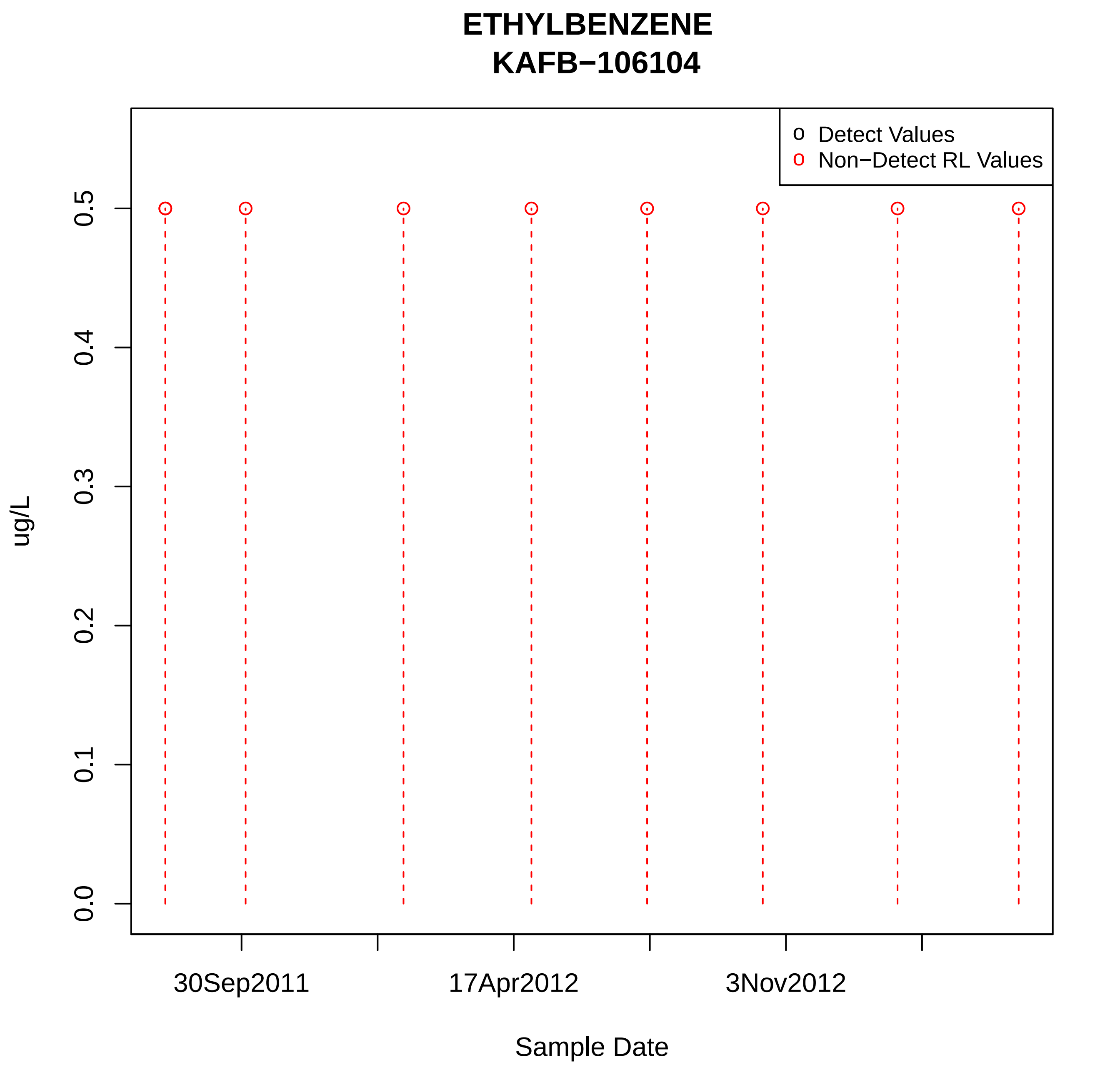


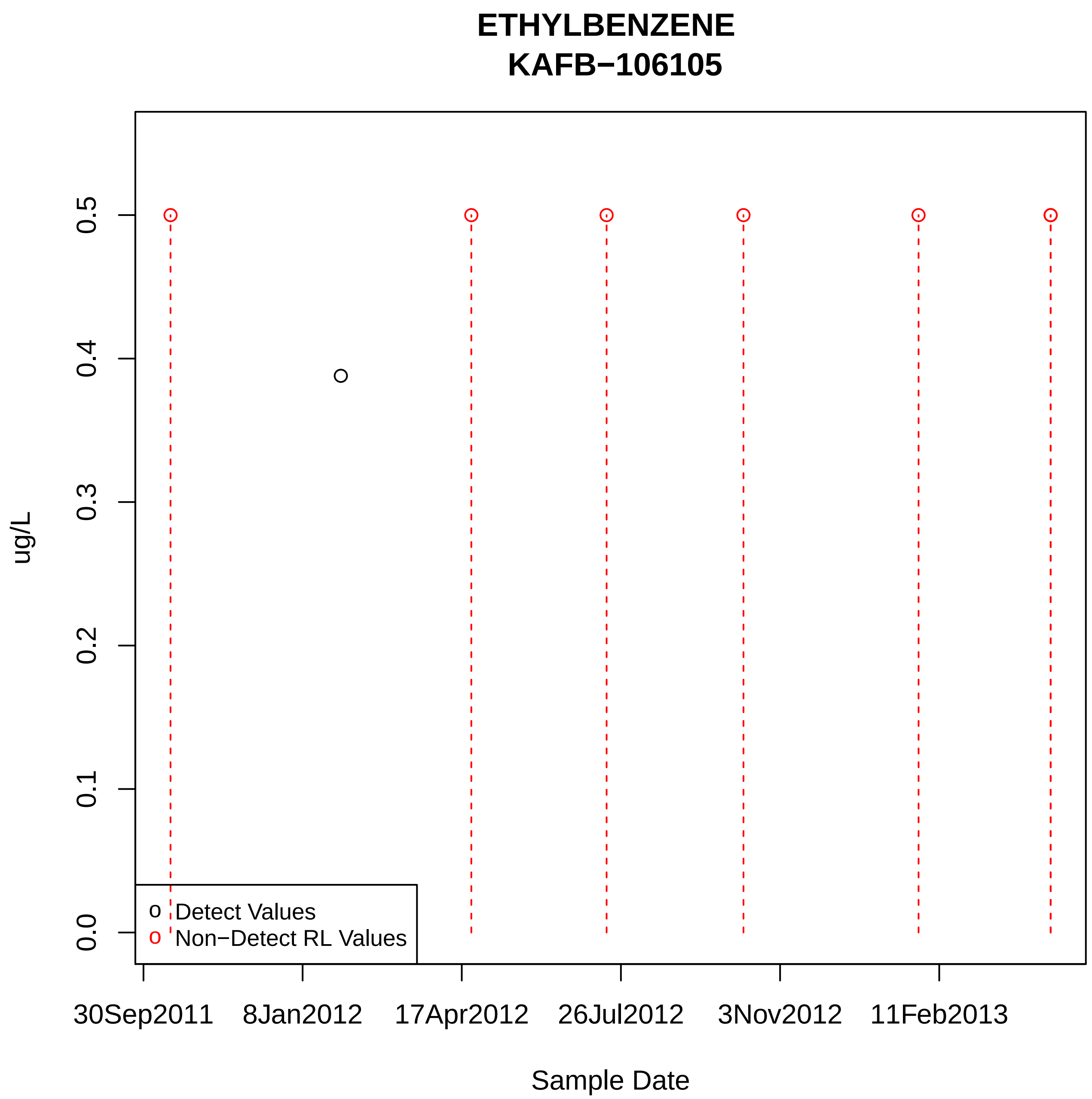
ETHYLBENZENE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ETHYLBENZENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

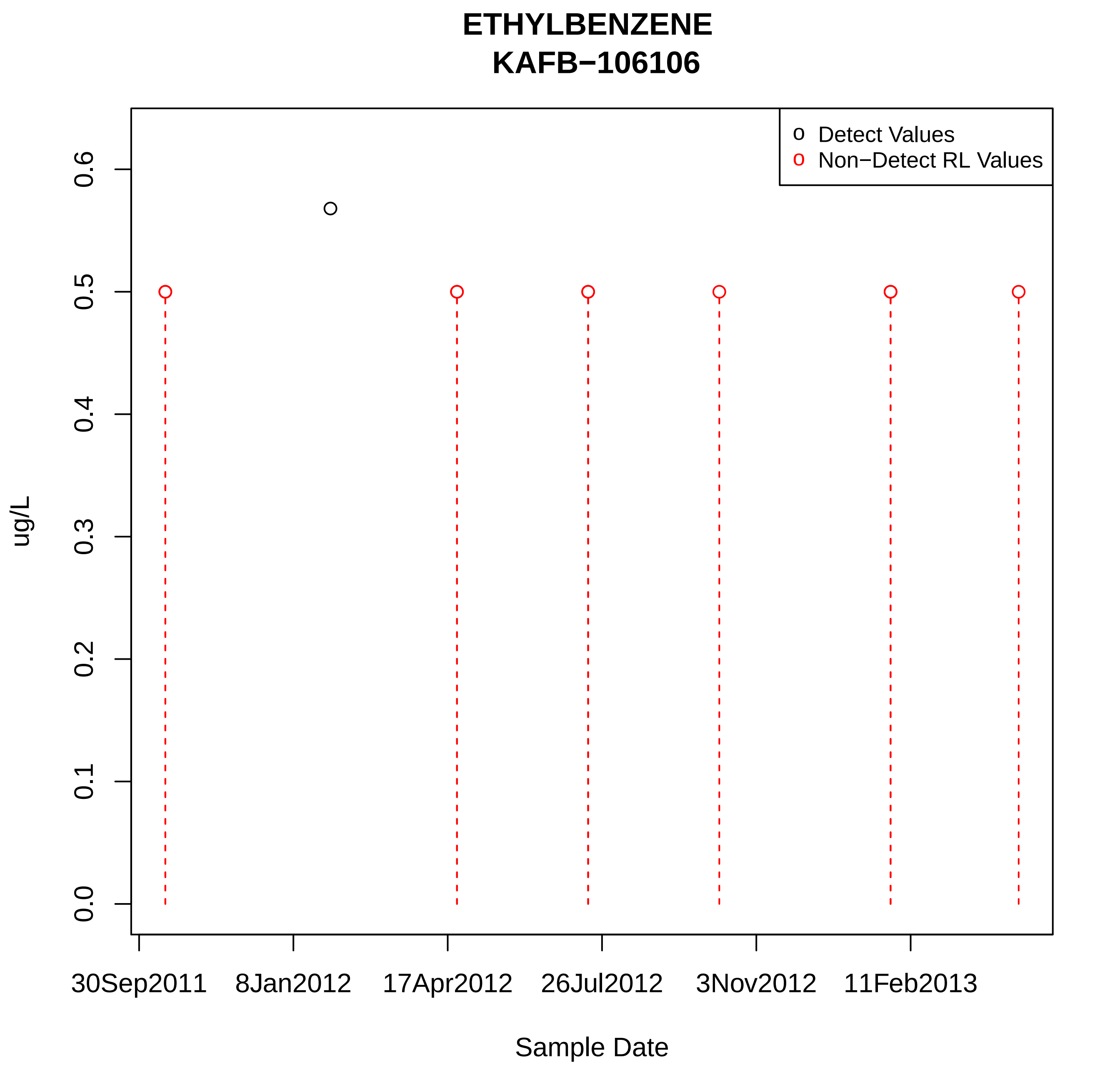


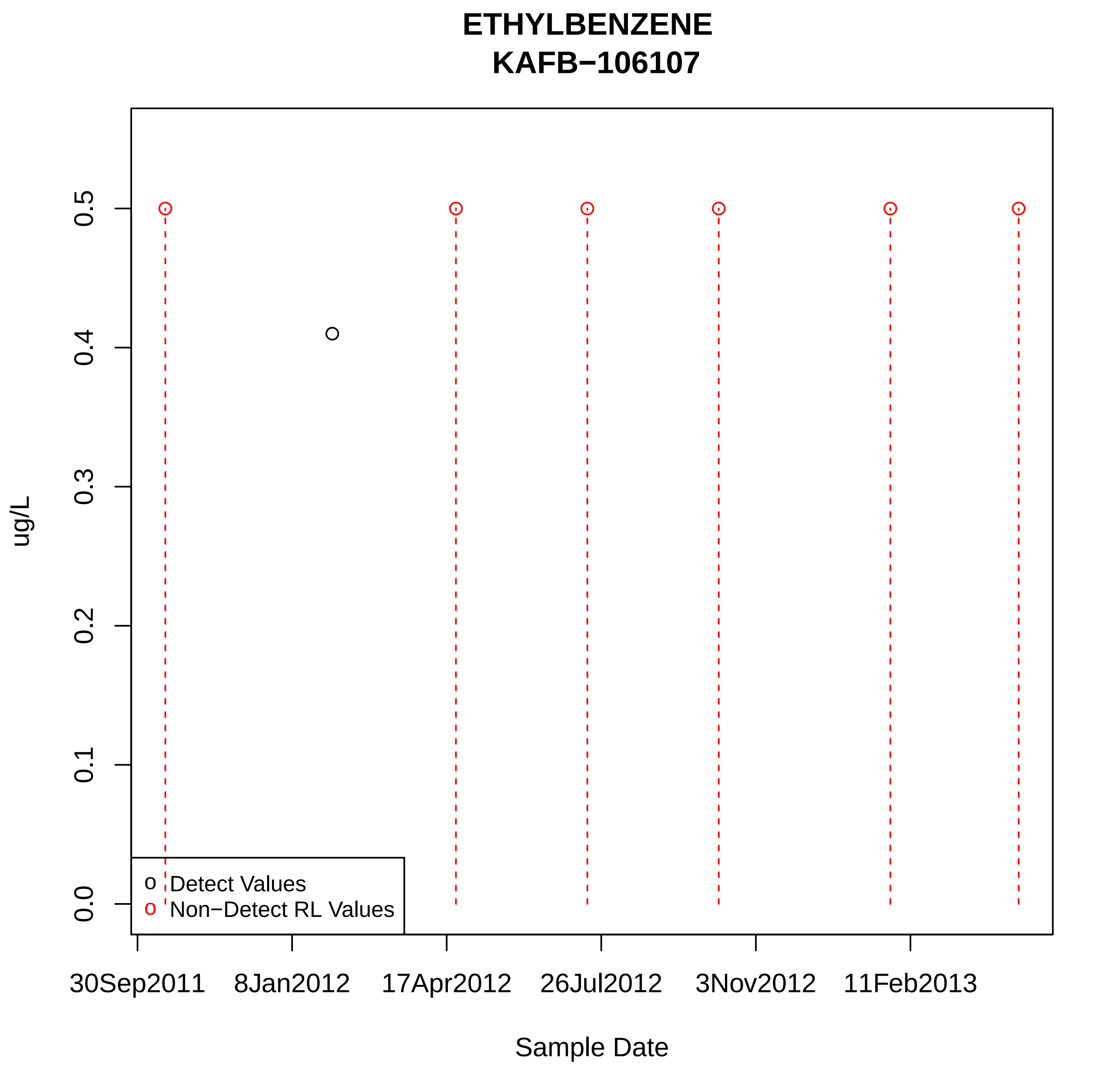
ETHYLBENZENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ETHYLBENZENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

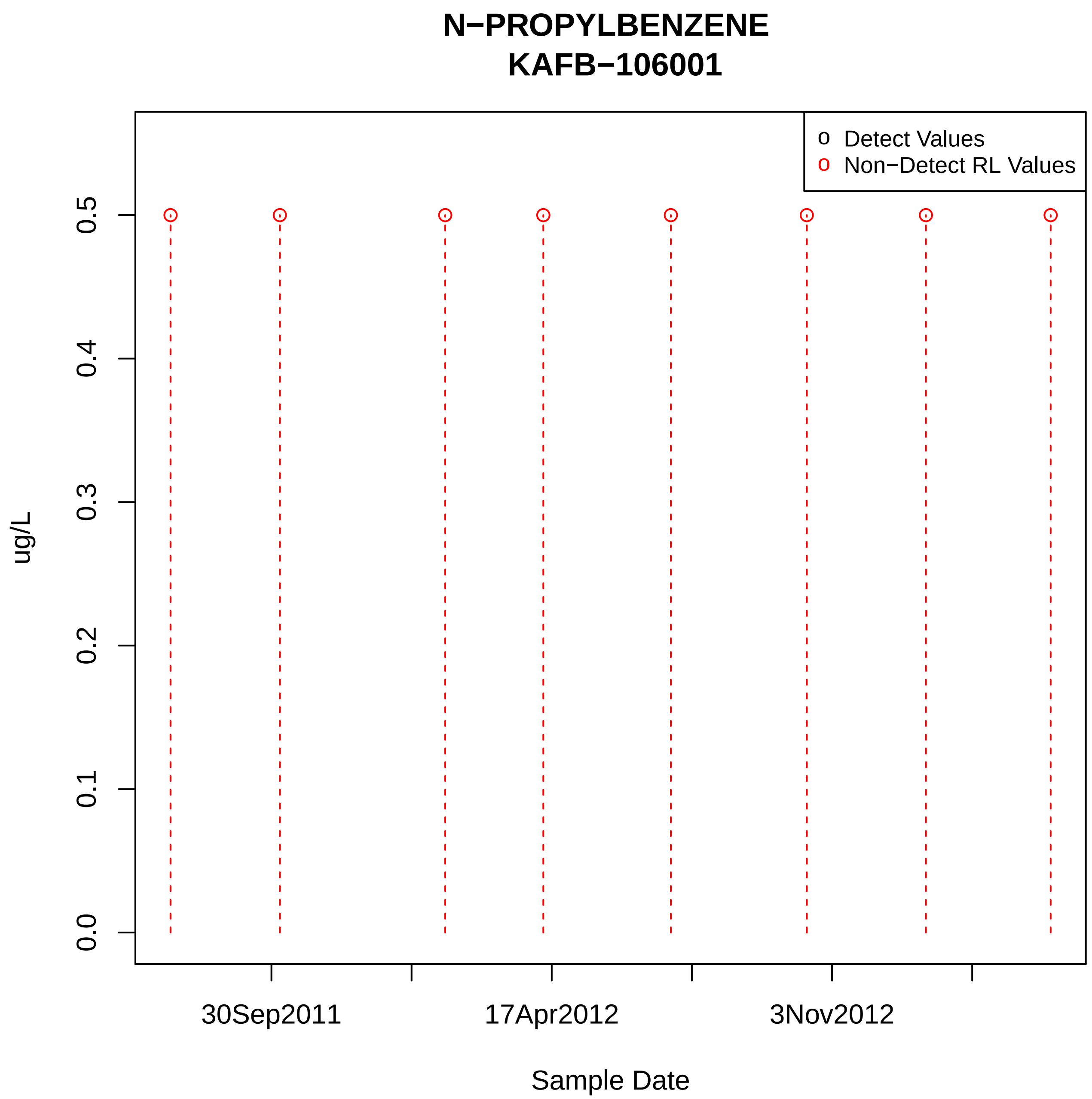


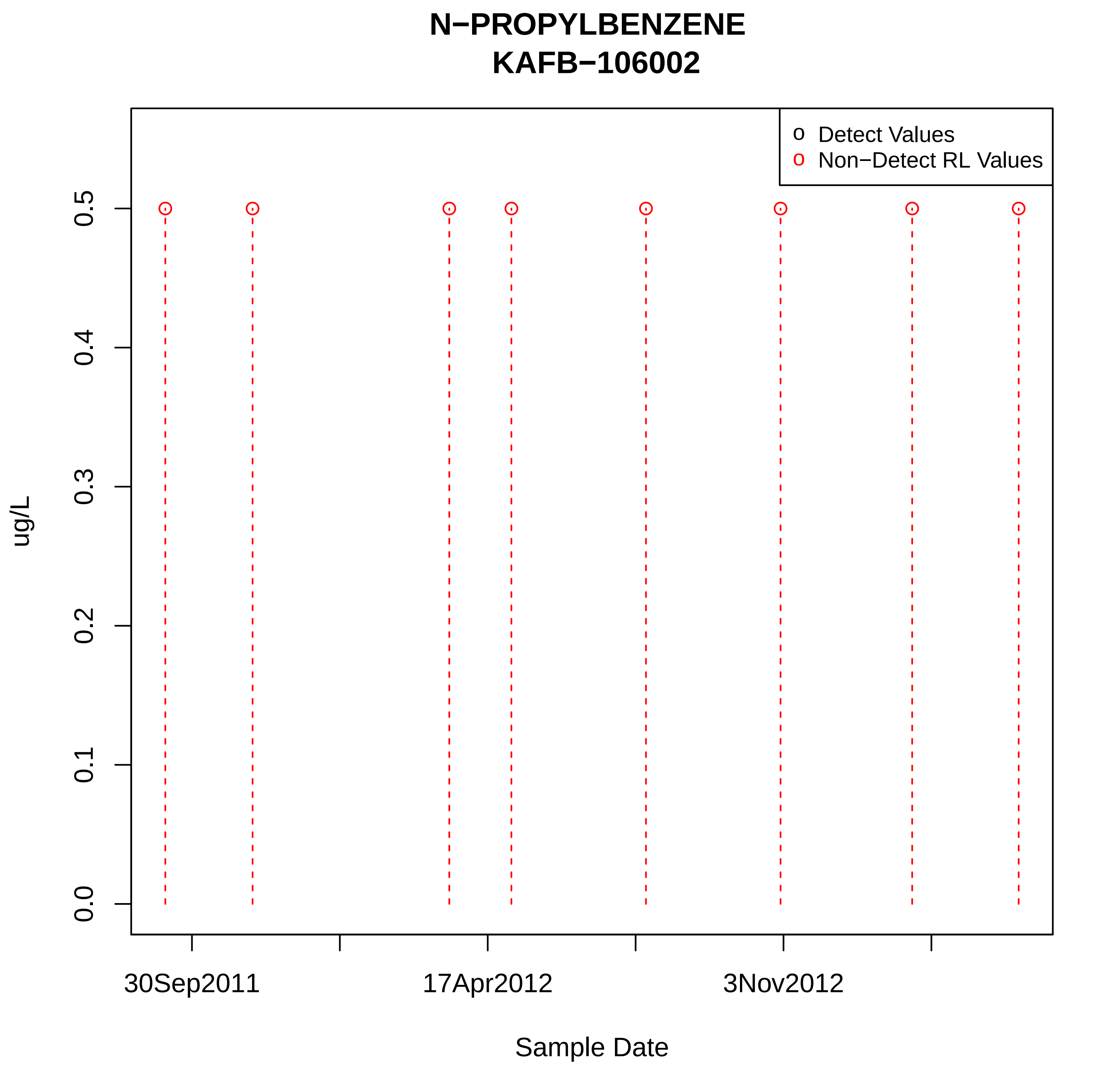
ETHYLBENZENE
KAFB−106105
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
Detect Values
Non−Detect RL Values
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


ETHYLBENZENE
KAFB−106106
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

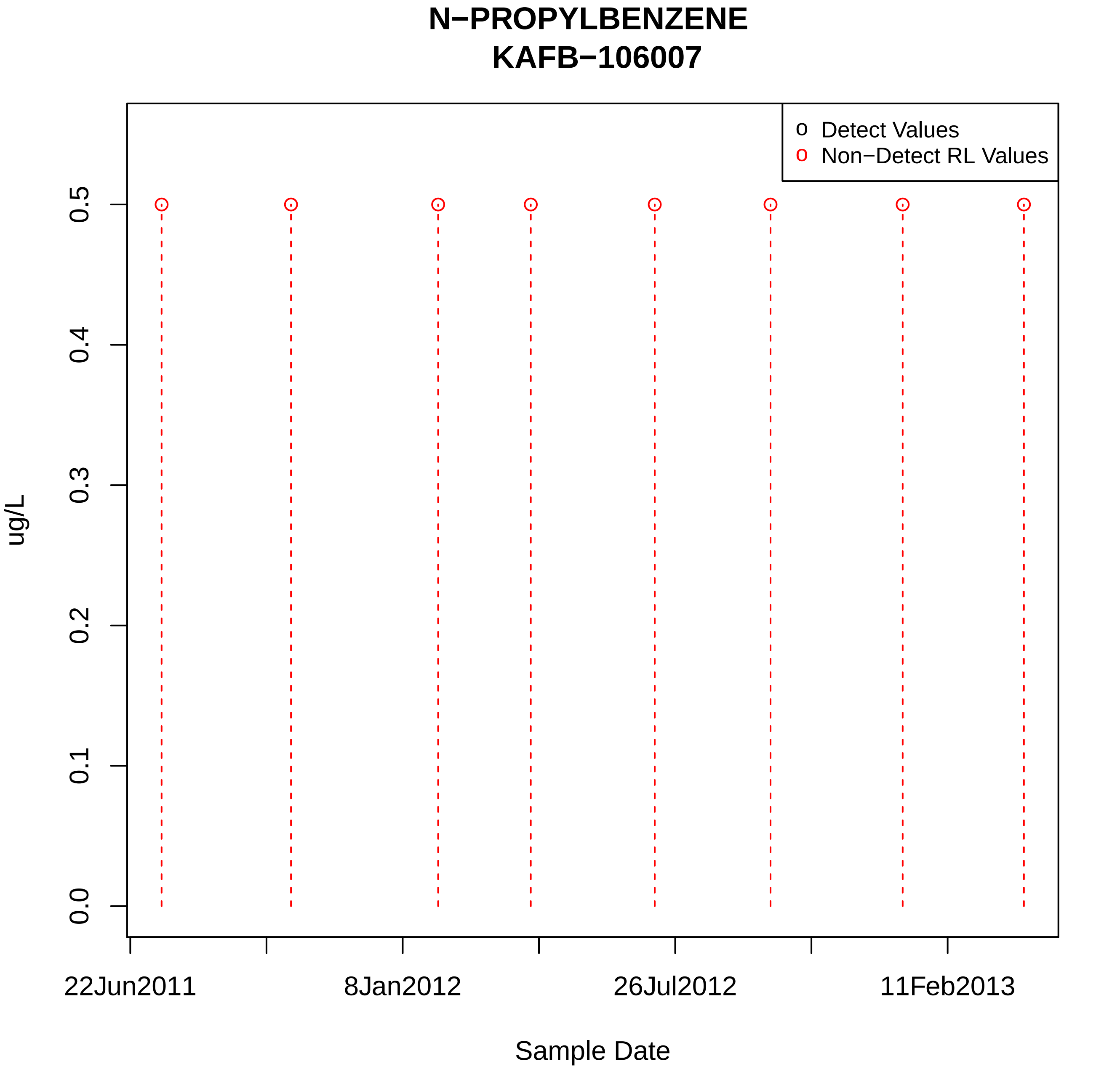


ETHYLBENZENE
KAFB−106107
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values

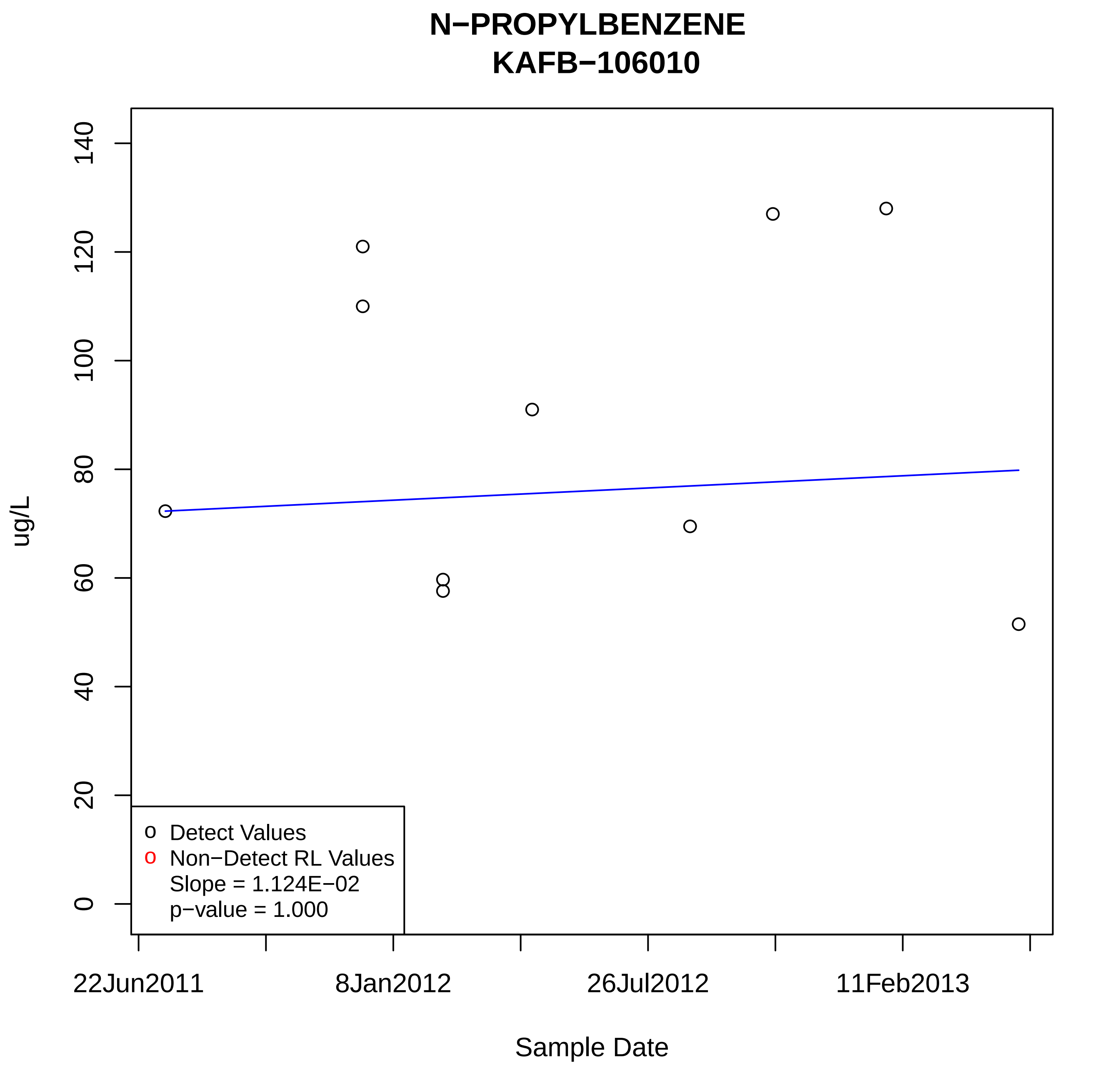

N−PROPYLBENZENE
KAFB−106001
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



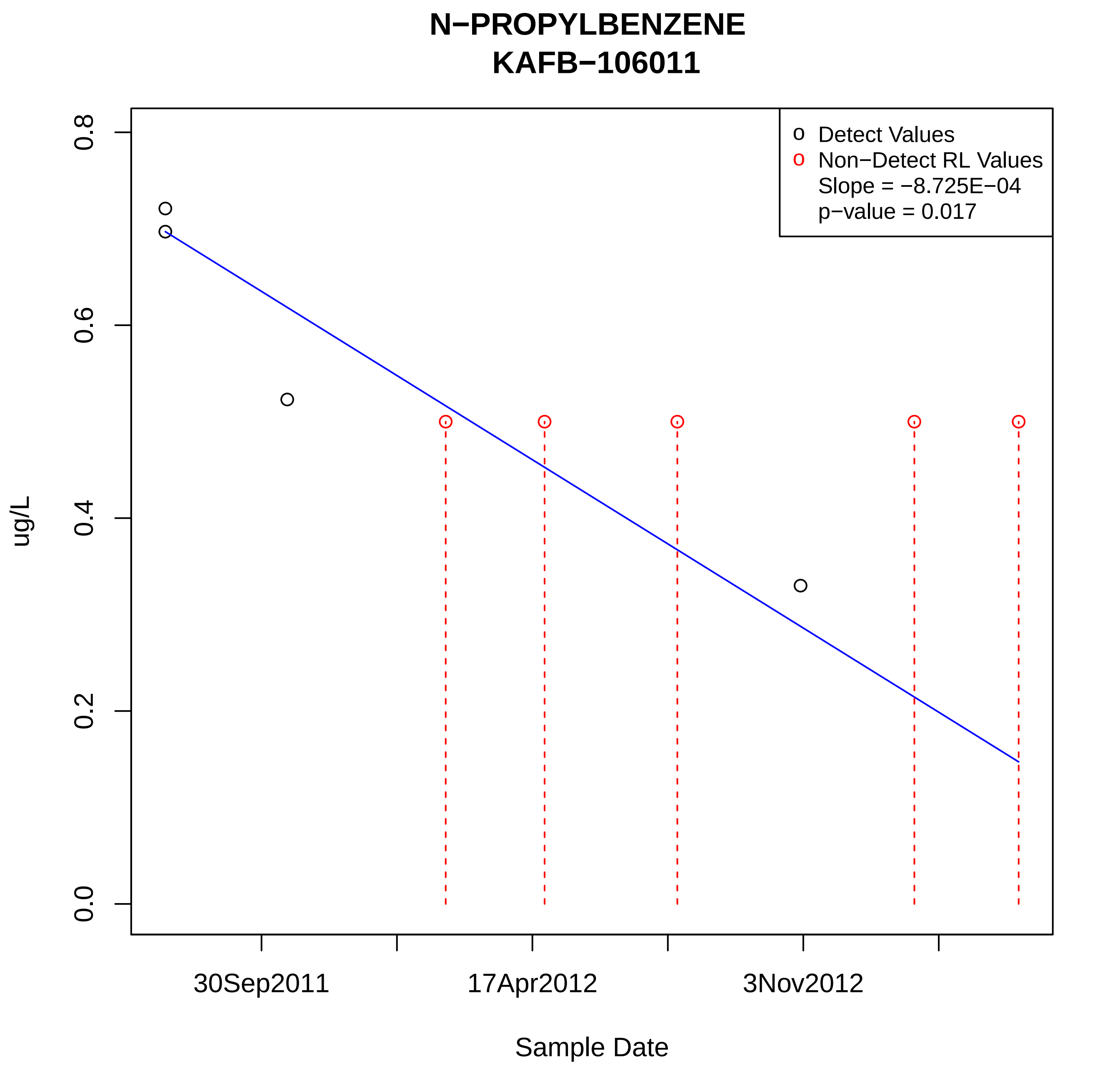
N−PROPYLBENZENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



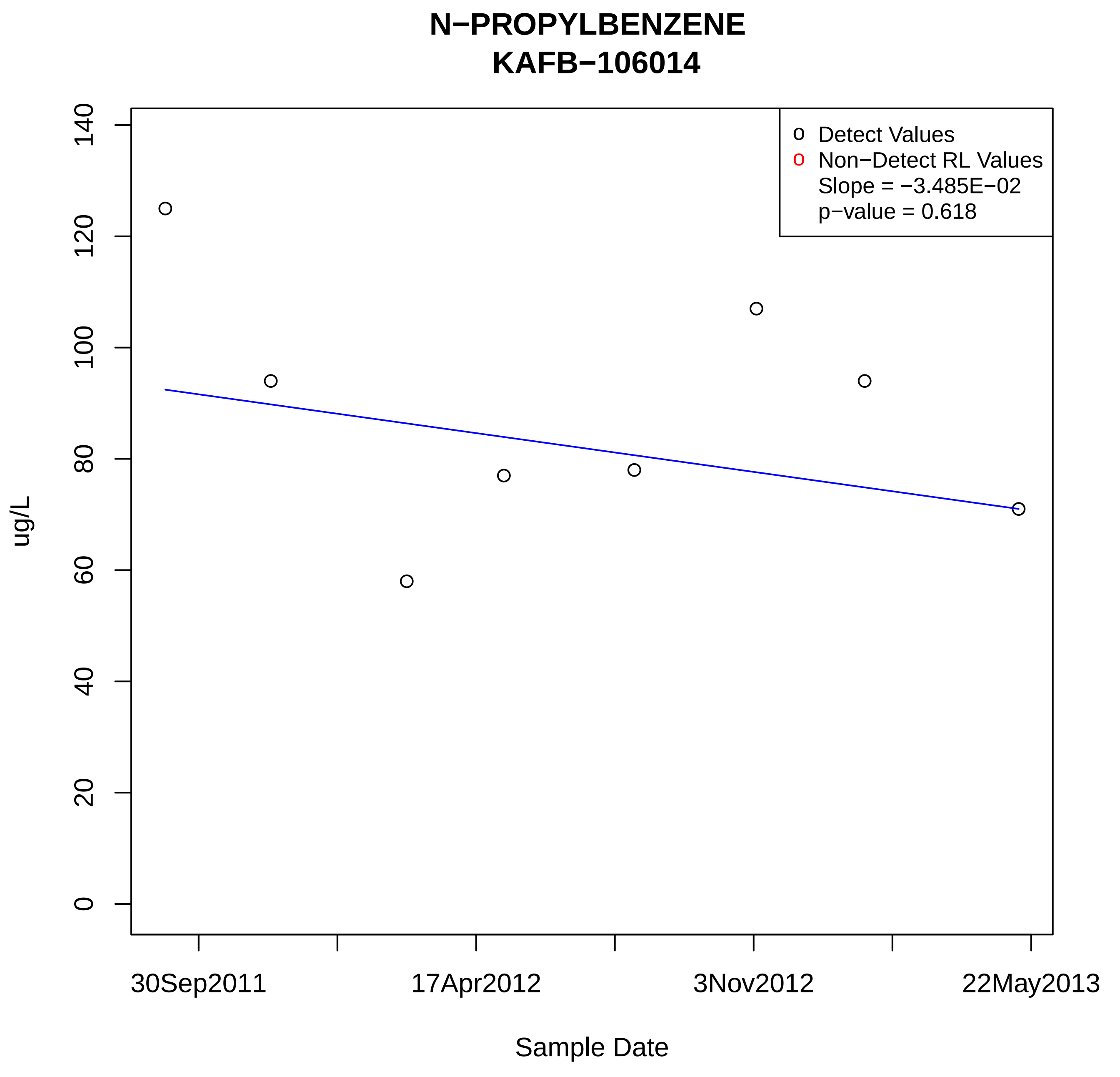
N−PROPYLBENZENE
KAFB−106007
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

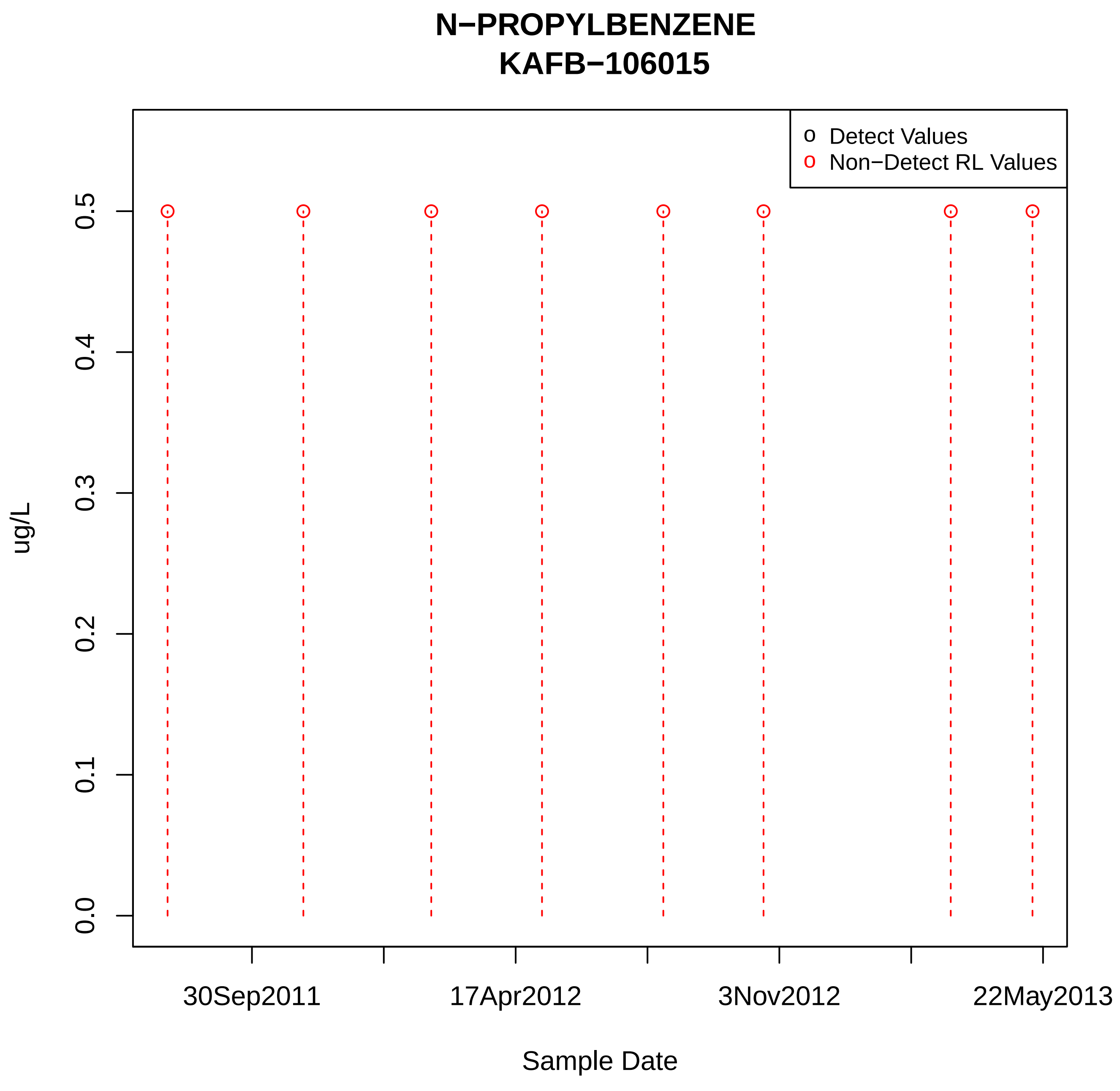


N−PROPYLBENZENE
KAFB−106010
ug/L
0
20
40
60
80
100
120
140
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = 1.124E−02
p−value = 1.000

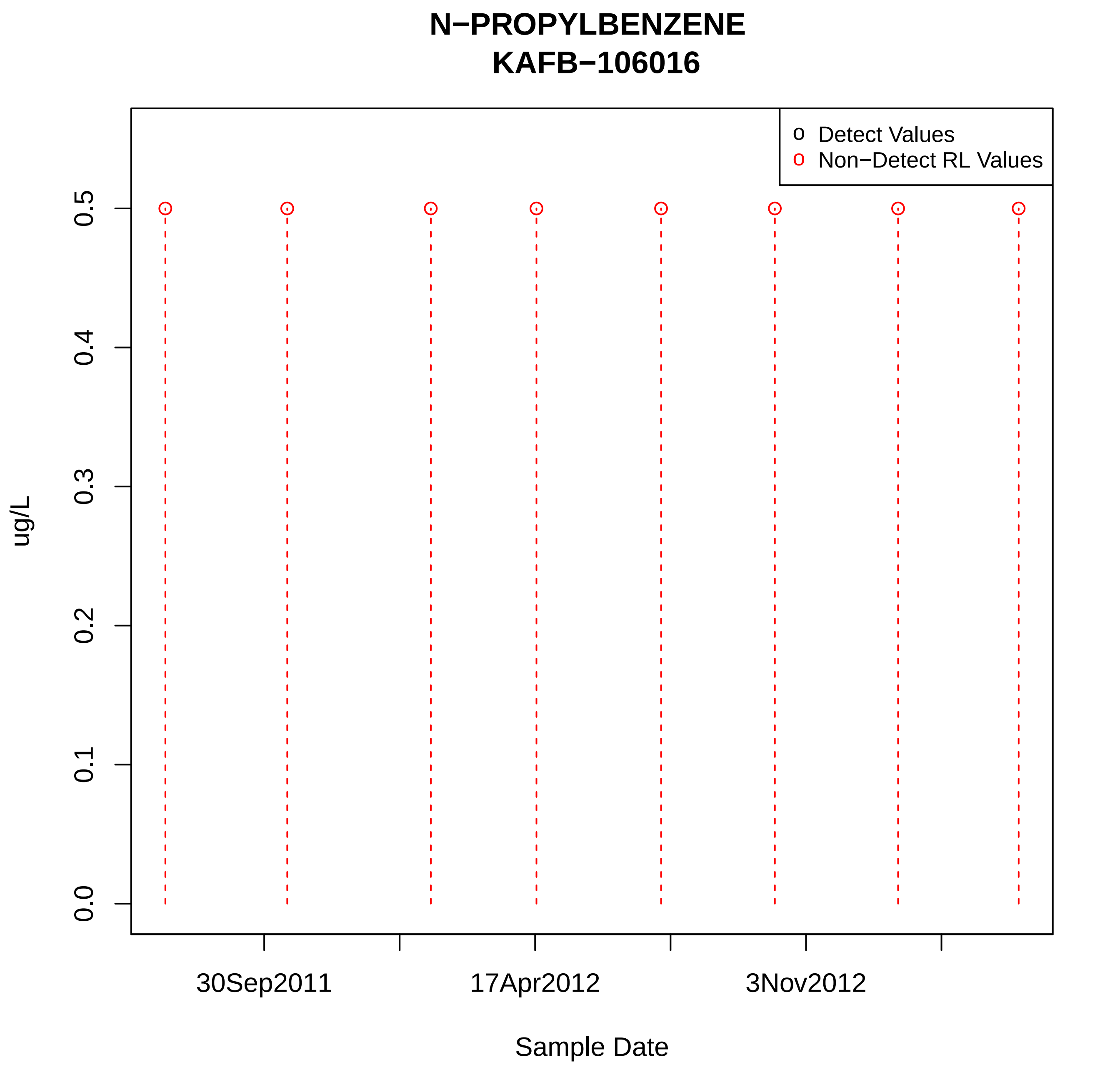


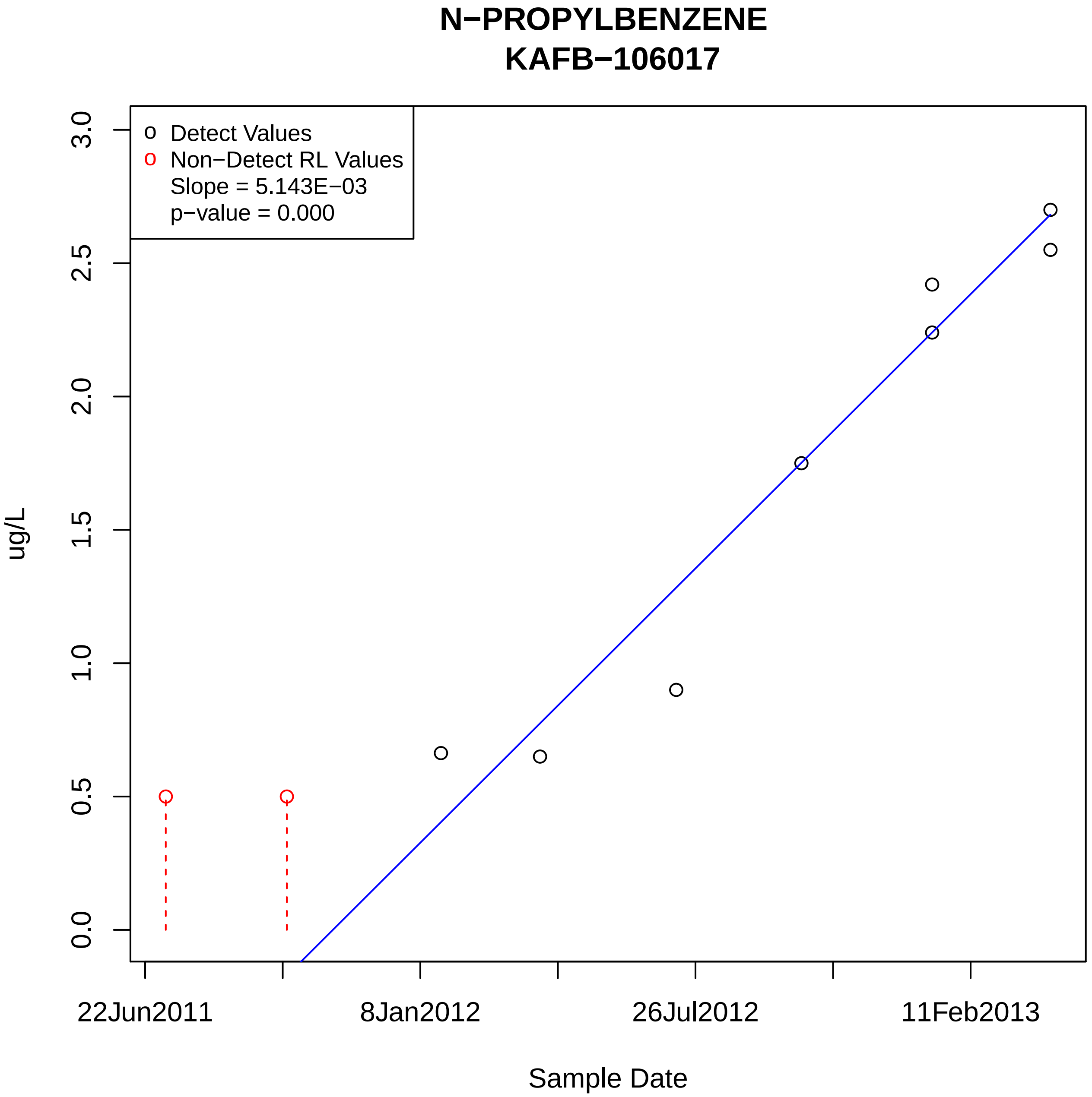
N−PROPYLBENZENE
KAFB−106011
o Detect Values
o Non−Detect RL Values
Slope = −8.725E−04
p−value = 0.017
ug/L
0.0
0.2
0.4
0.6
0.8
30Sep2011
17Apr2012
3Nov2012
Sample Date

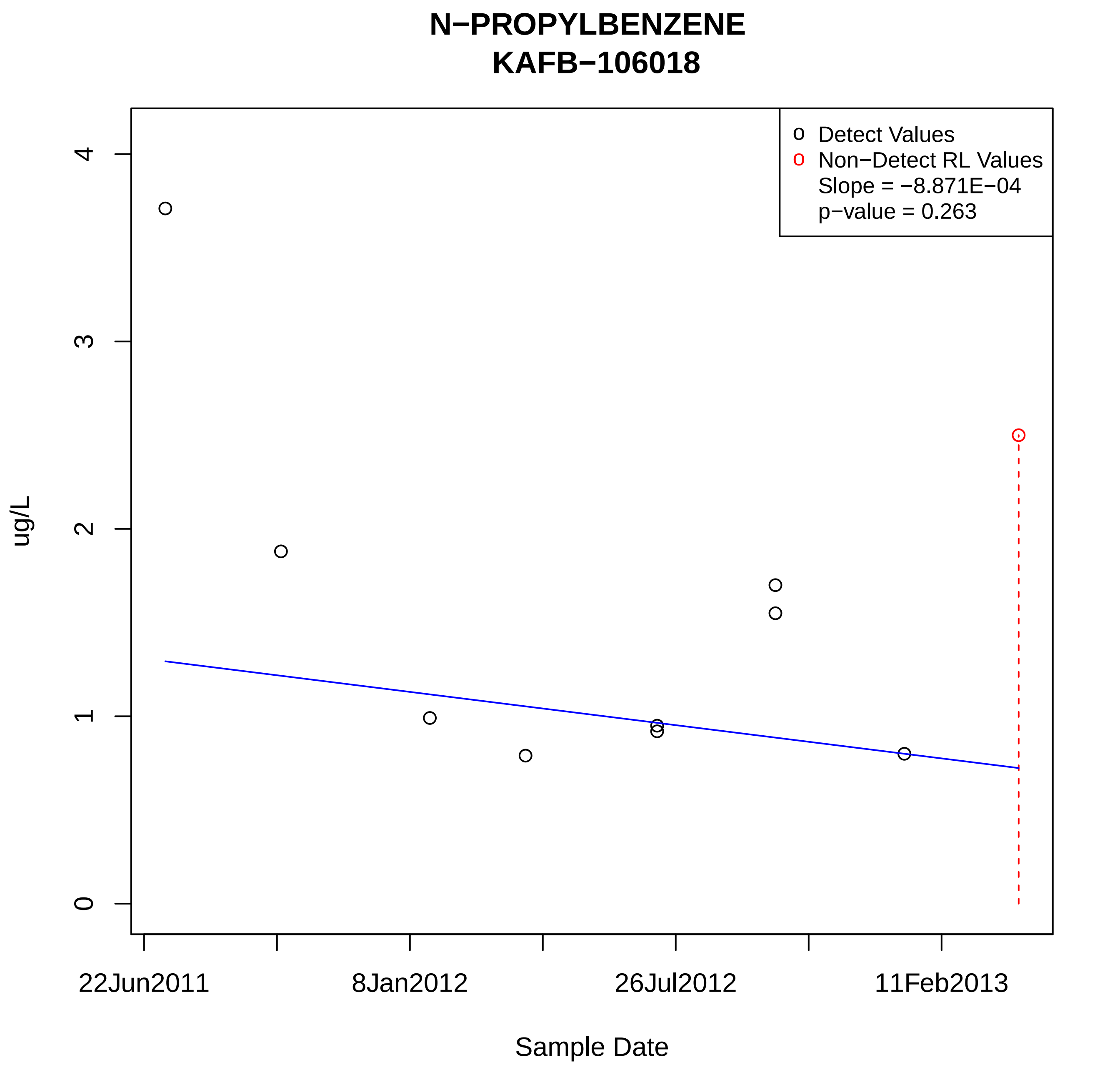

N−PROPYLBENZENE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −3.485E−02
p−value = 0.618
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

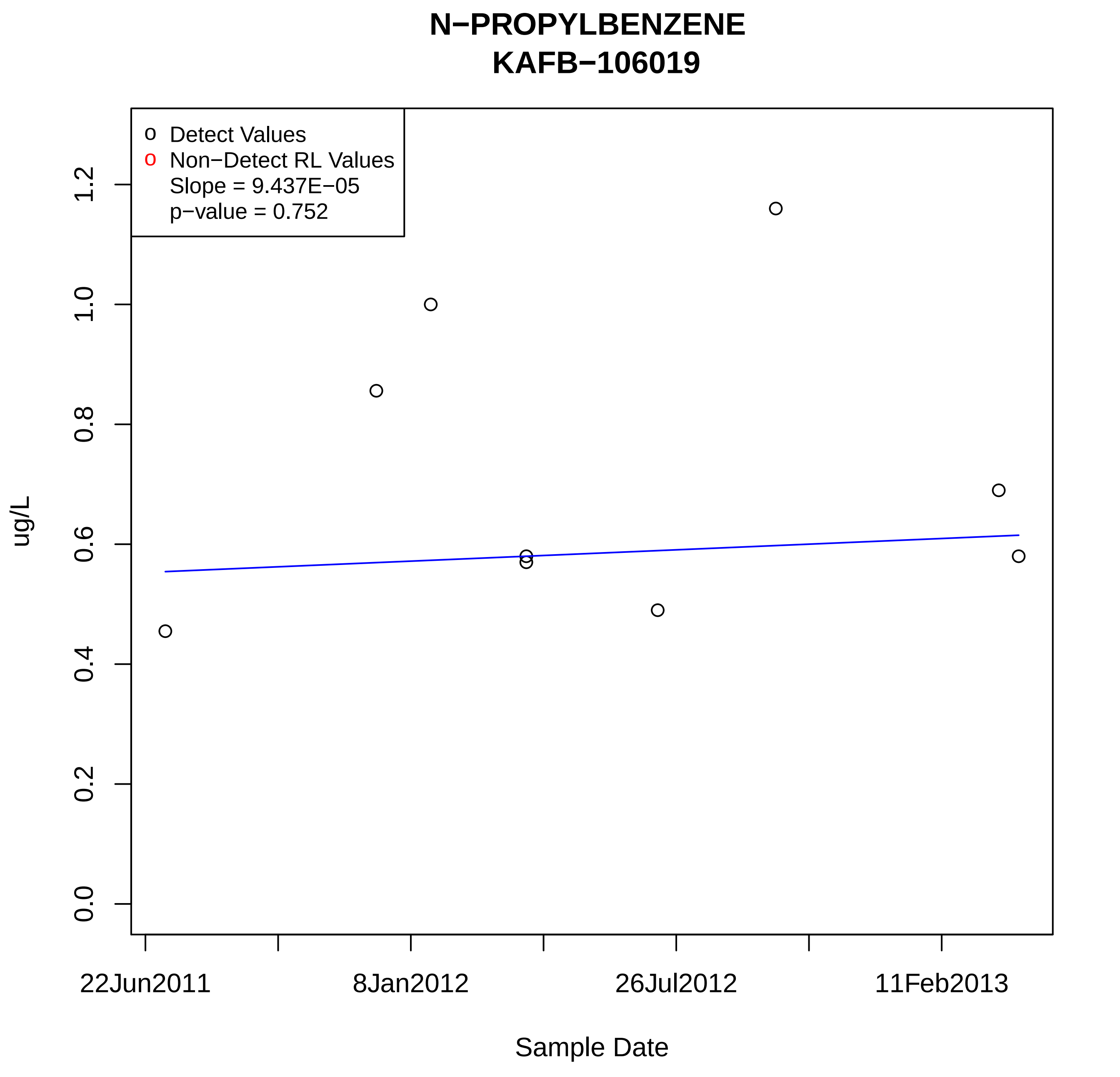


N−PROPYLBENZENE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

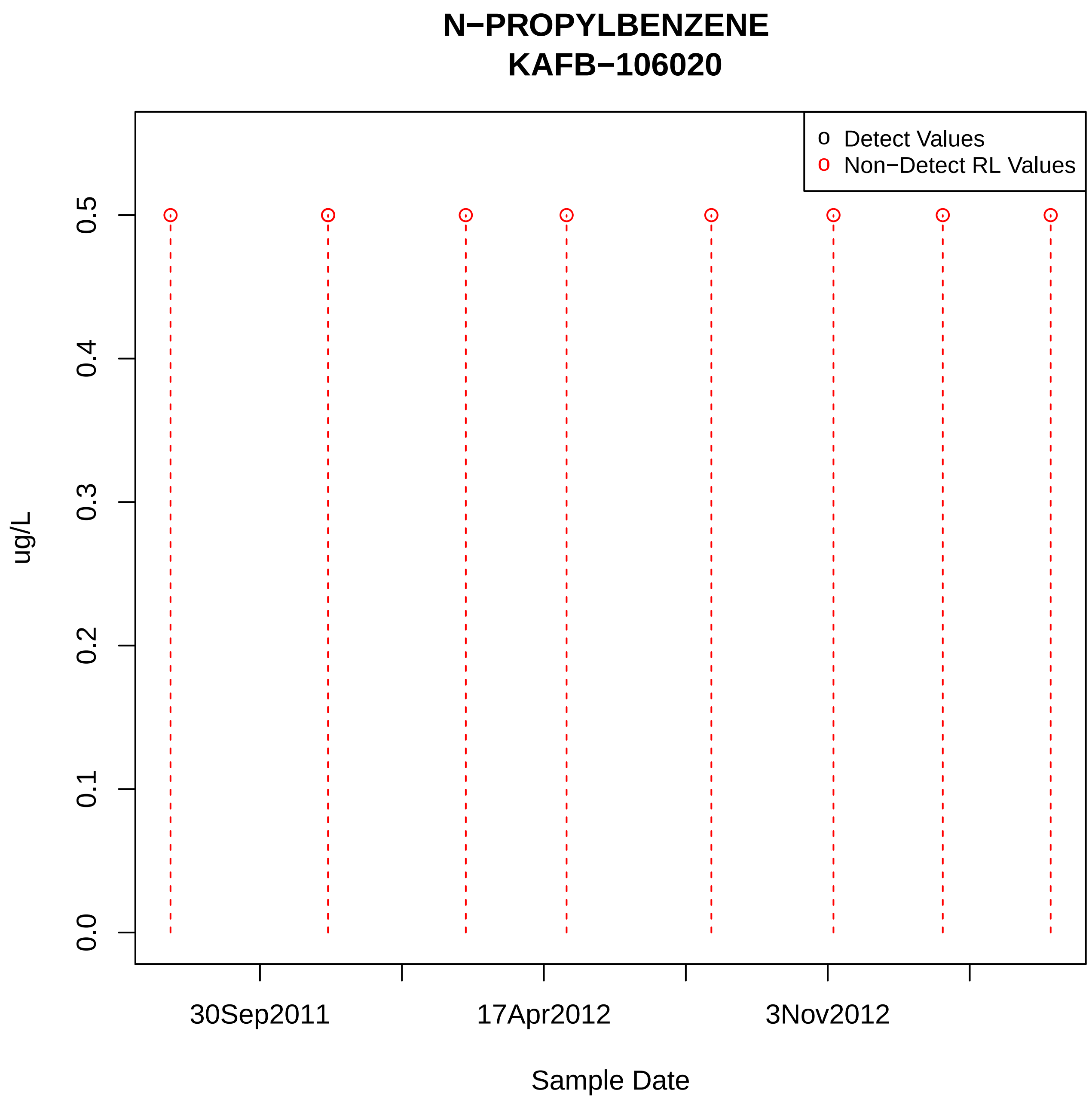

N−PROPYLBENZENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


N−PROPYLBENZENE
KAFB−106017
Detect Values
Non−Detect RL Values
Slope = 5.143E−03
p−value = 0.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

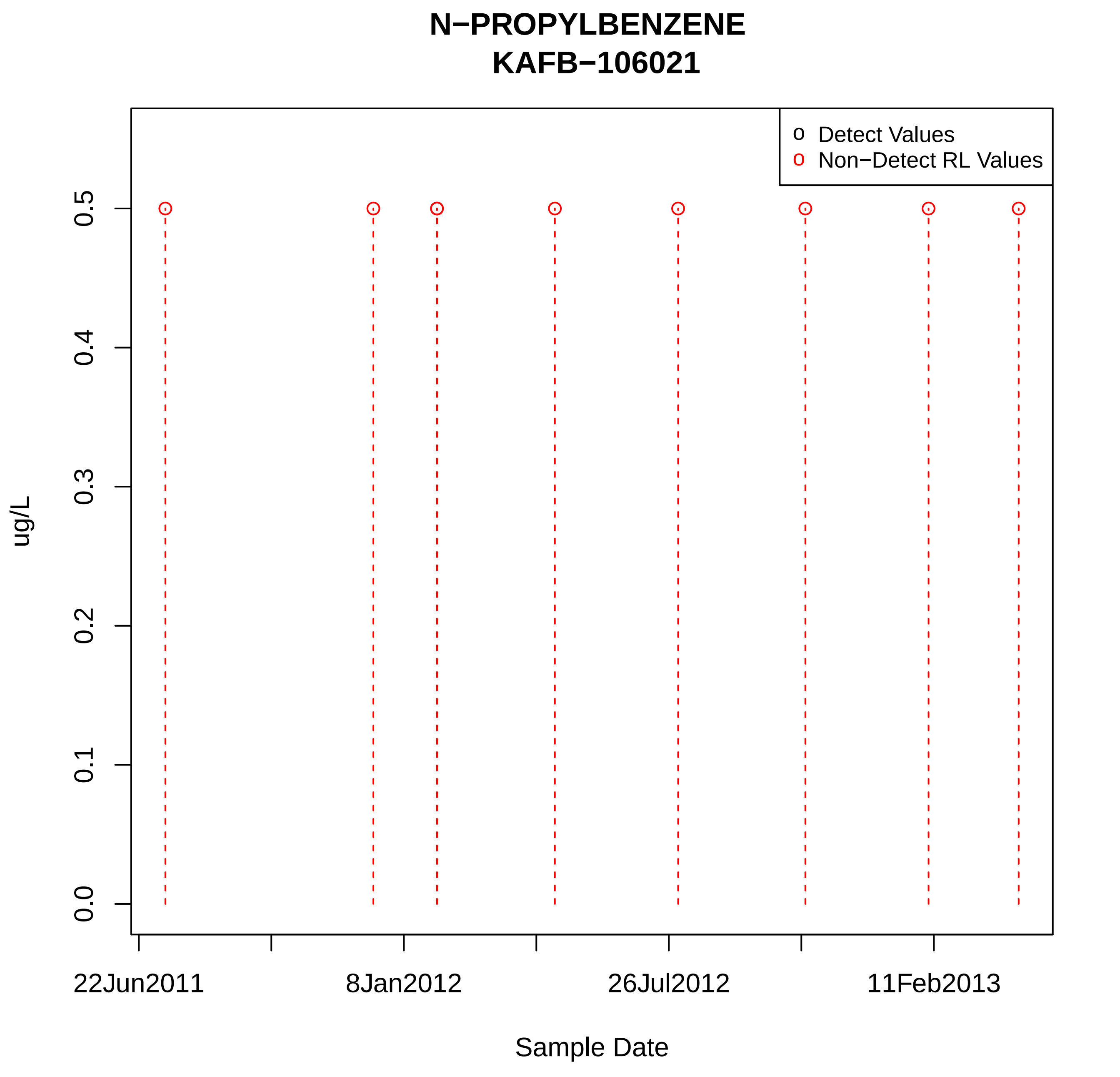

N−PROPYLBENZENE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −8.871E−04
p−value = 0.263
ug/L
0
1
2
3
4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

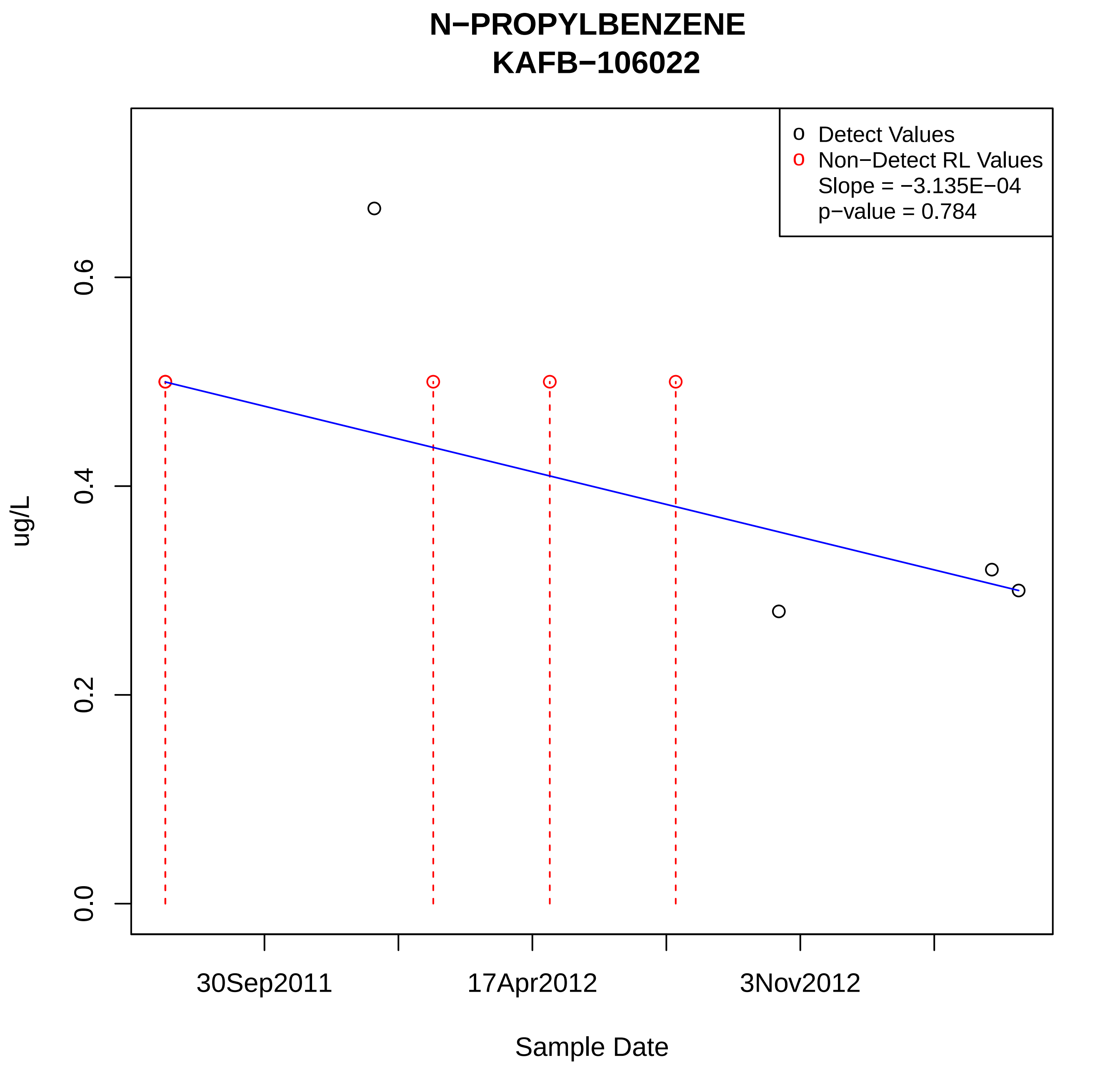


N−PROPYLBENZENE
KAFB−106019
Detect Values
Non−Detect RL Values
Slope = 9.437E−05
p−value = 0.752
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

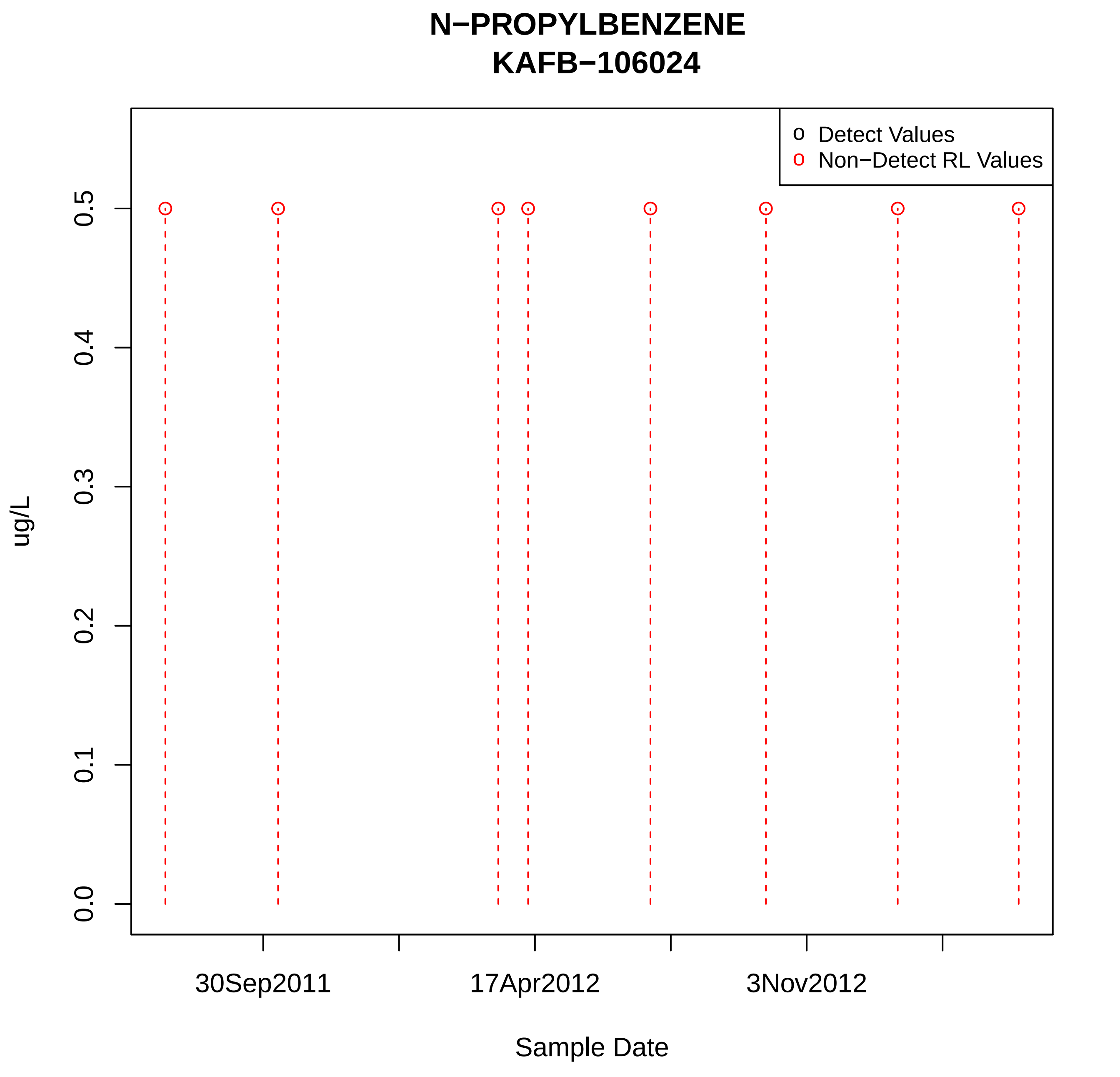


N−PROPYLBENZENE
KAFB−106020
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

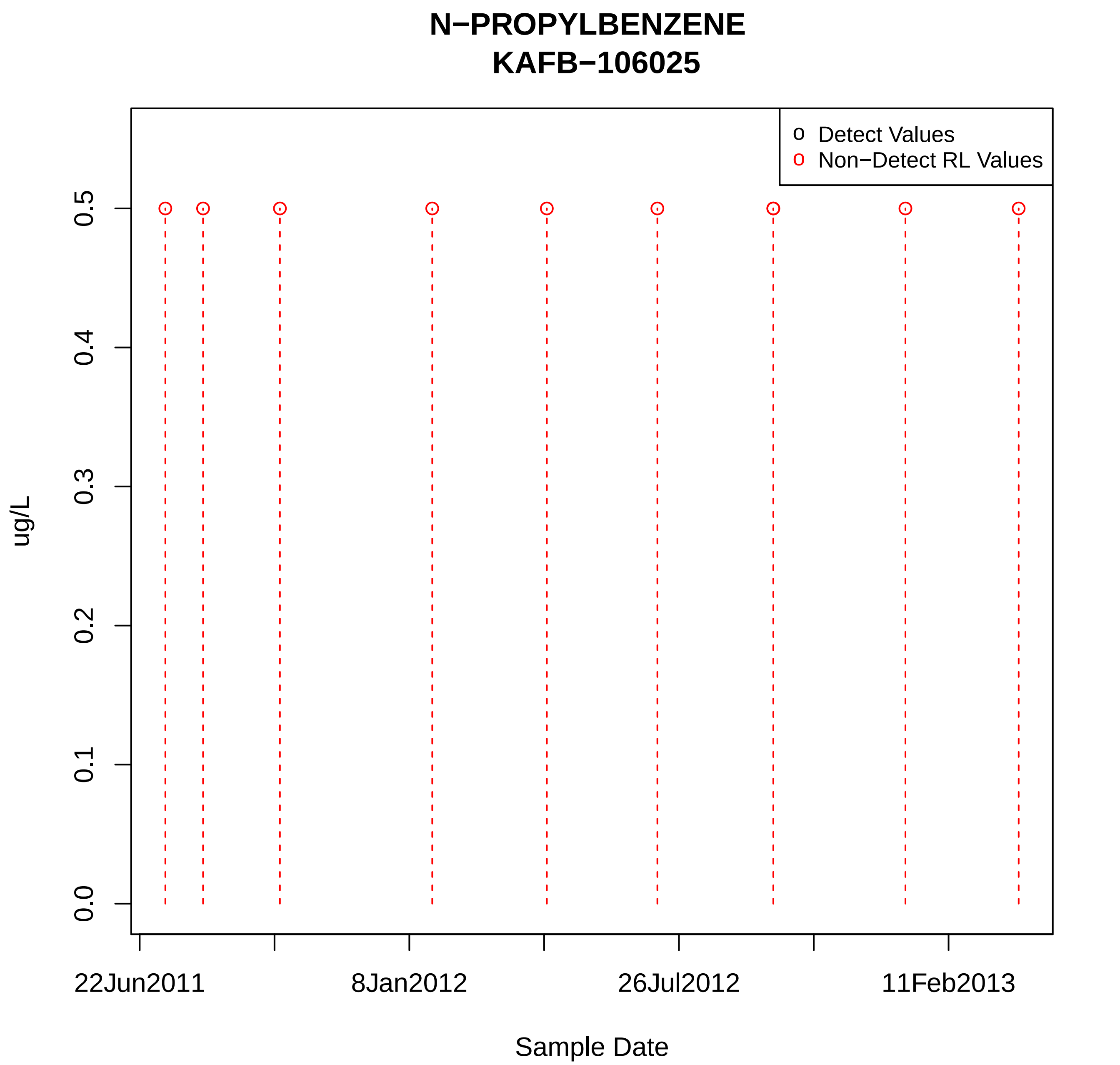

N−PROPYLBENZENE
KAFB−106021
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

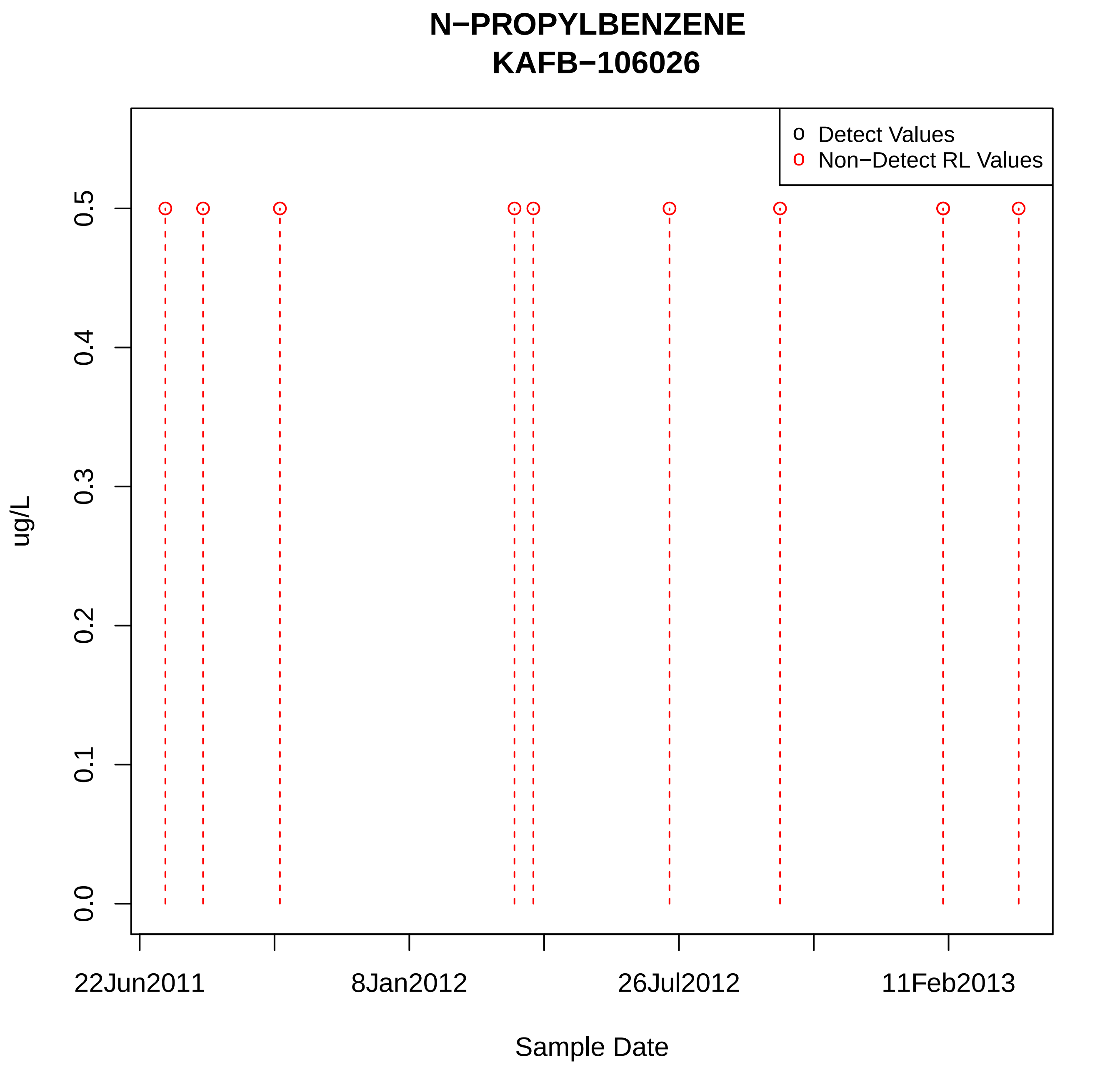


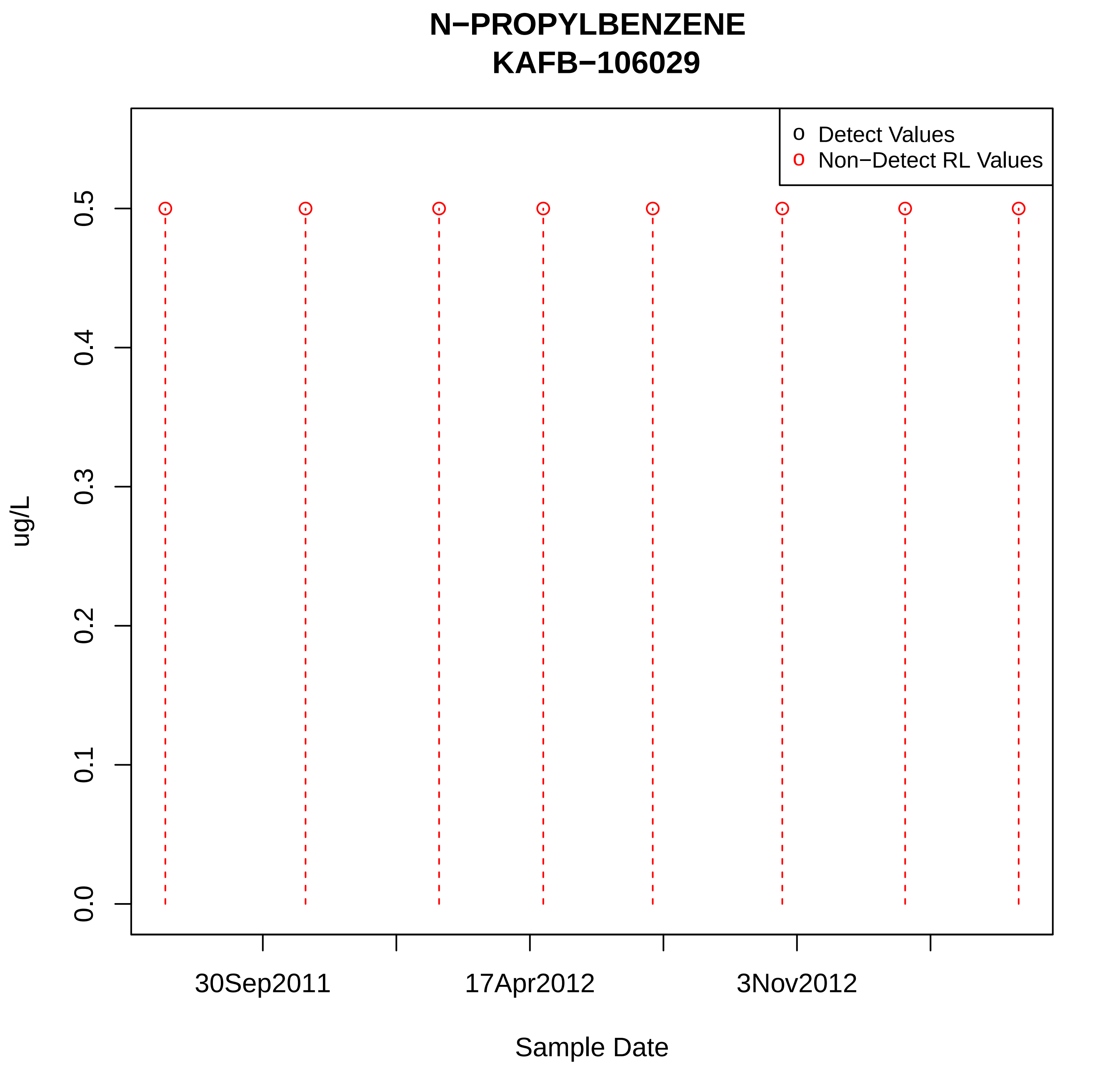
N−PROPYLBENZENE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −3.135E−04
p−value = 0.784
0.0
0.2
0.4
0.6
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

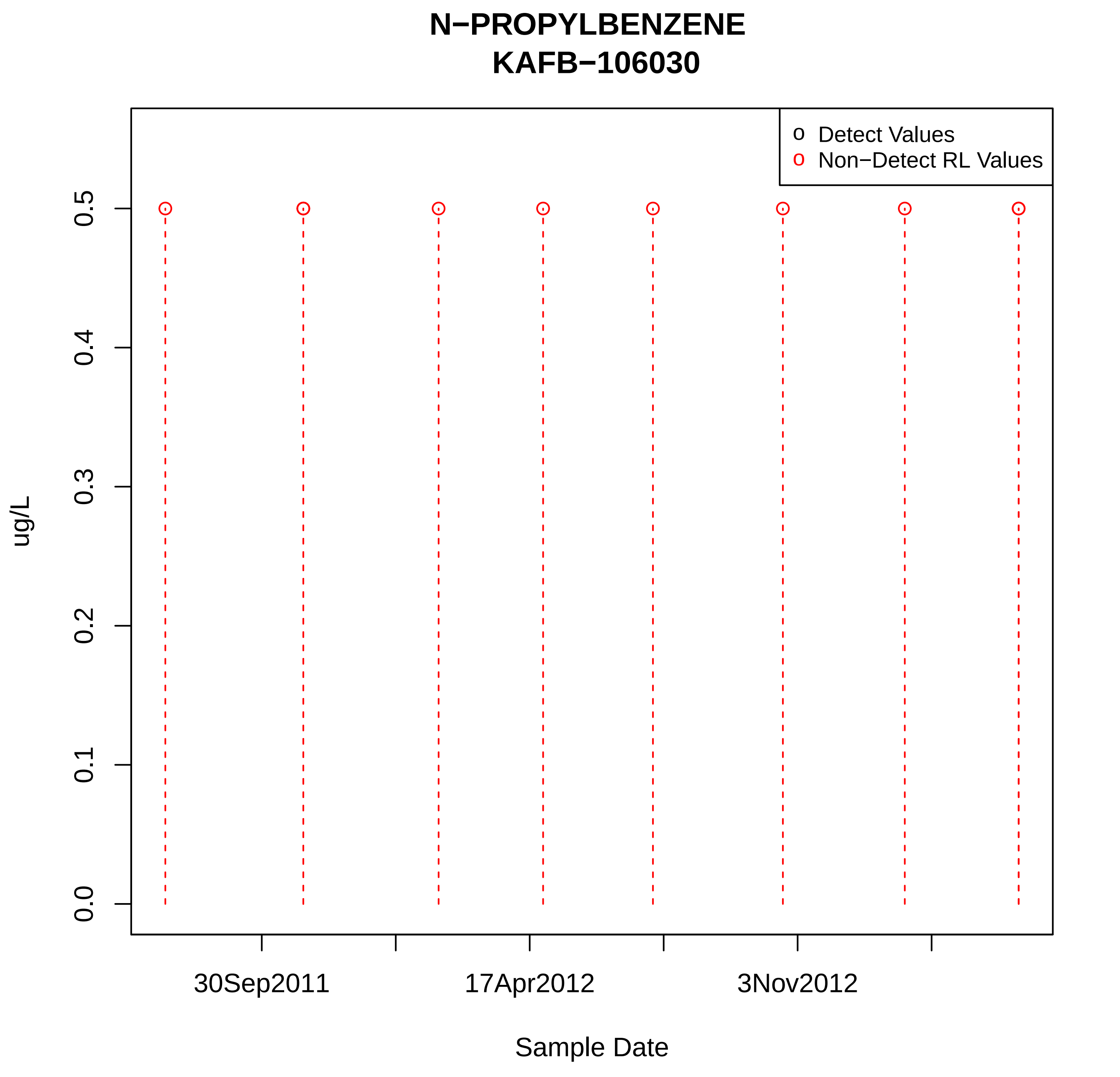


N−PROPYLBENZENE
KAFB−106024
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

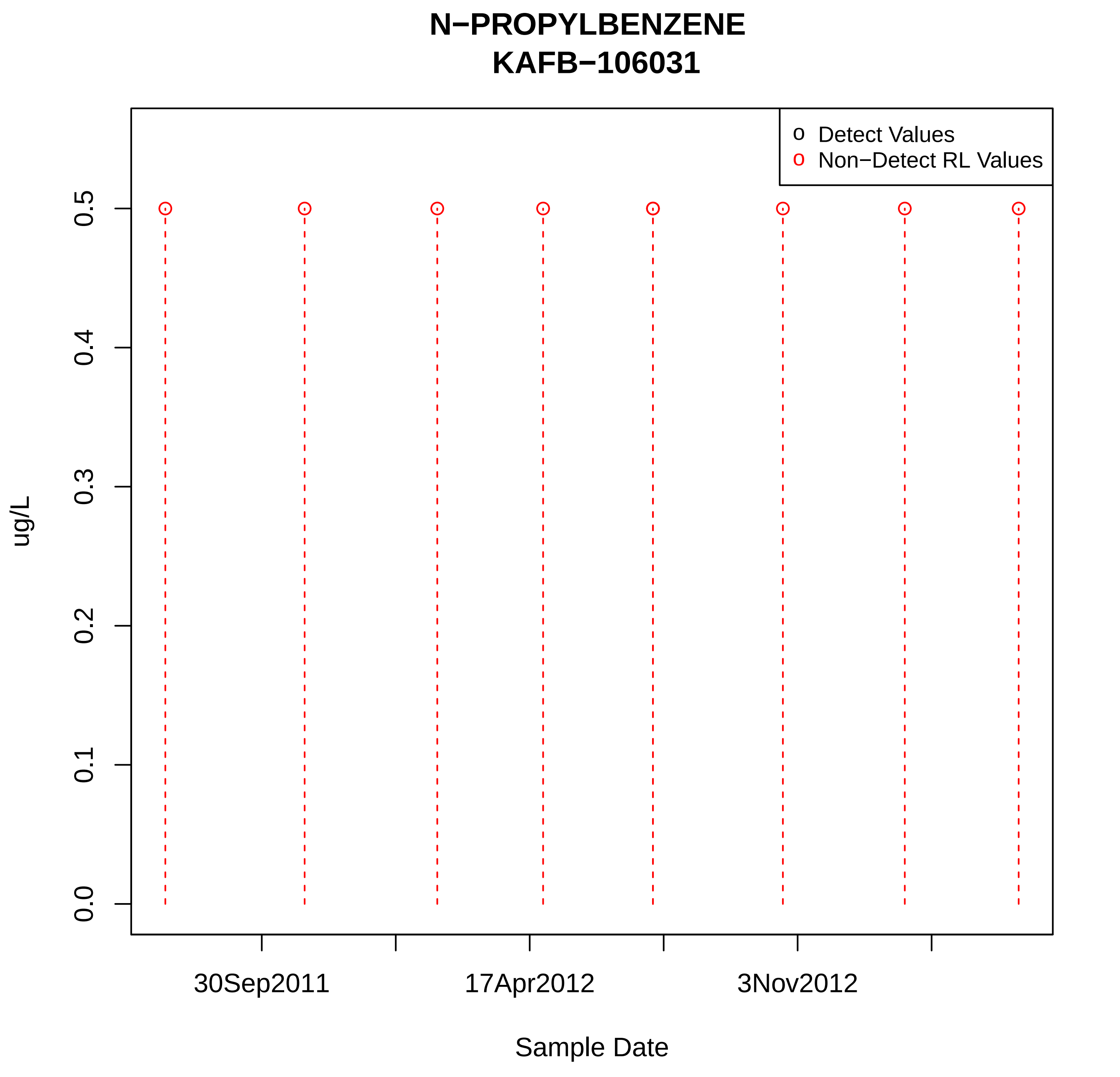

N−PROPYLBENZENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

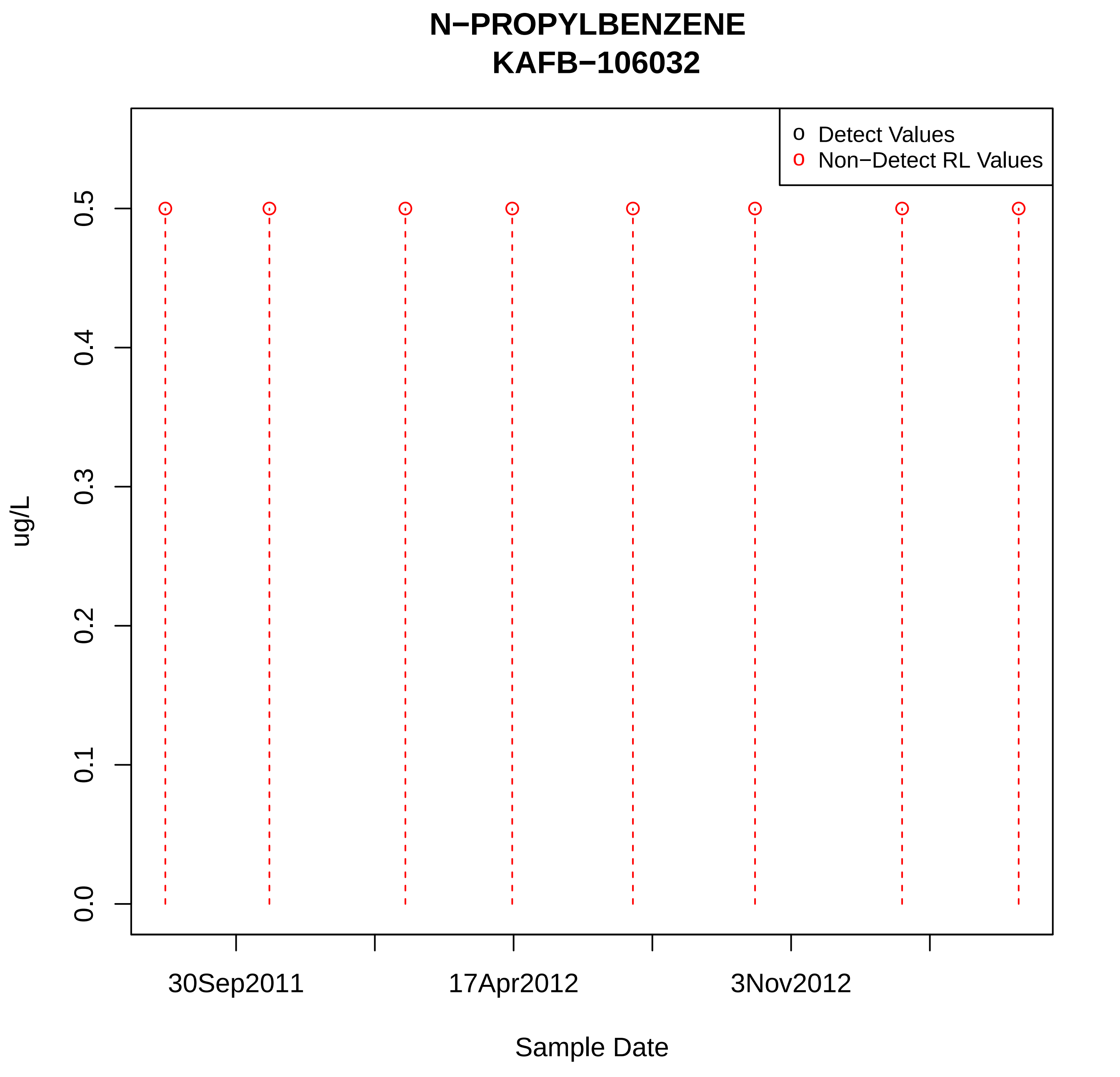

N−PROPYLBENZENE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

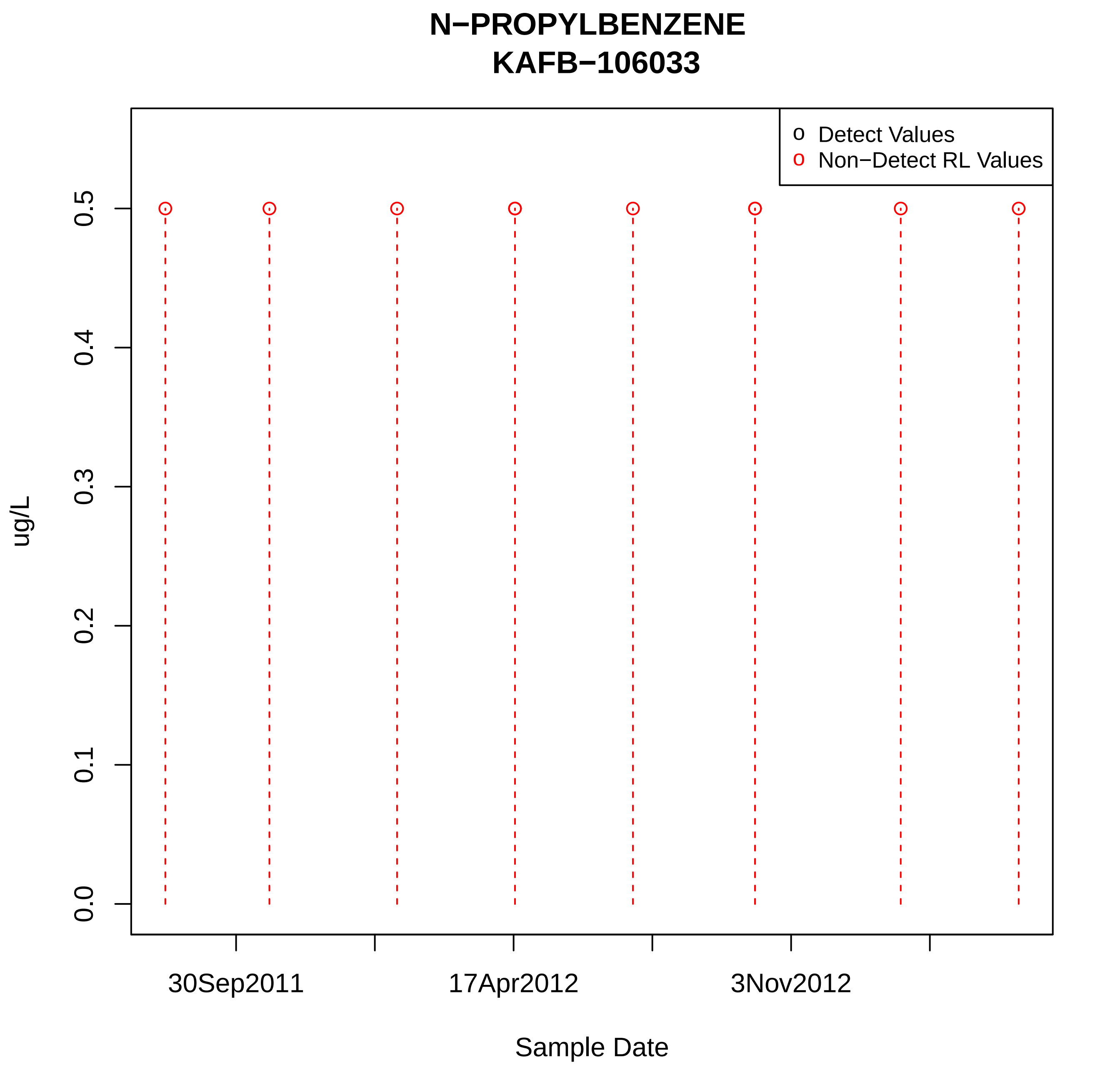

N−PROPYLBENZENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



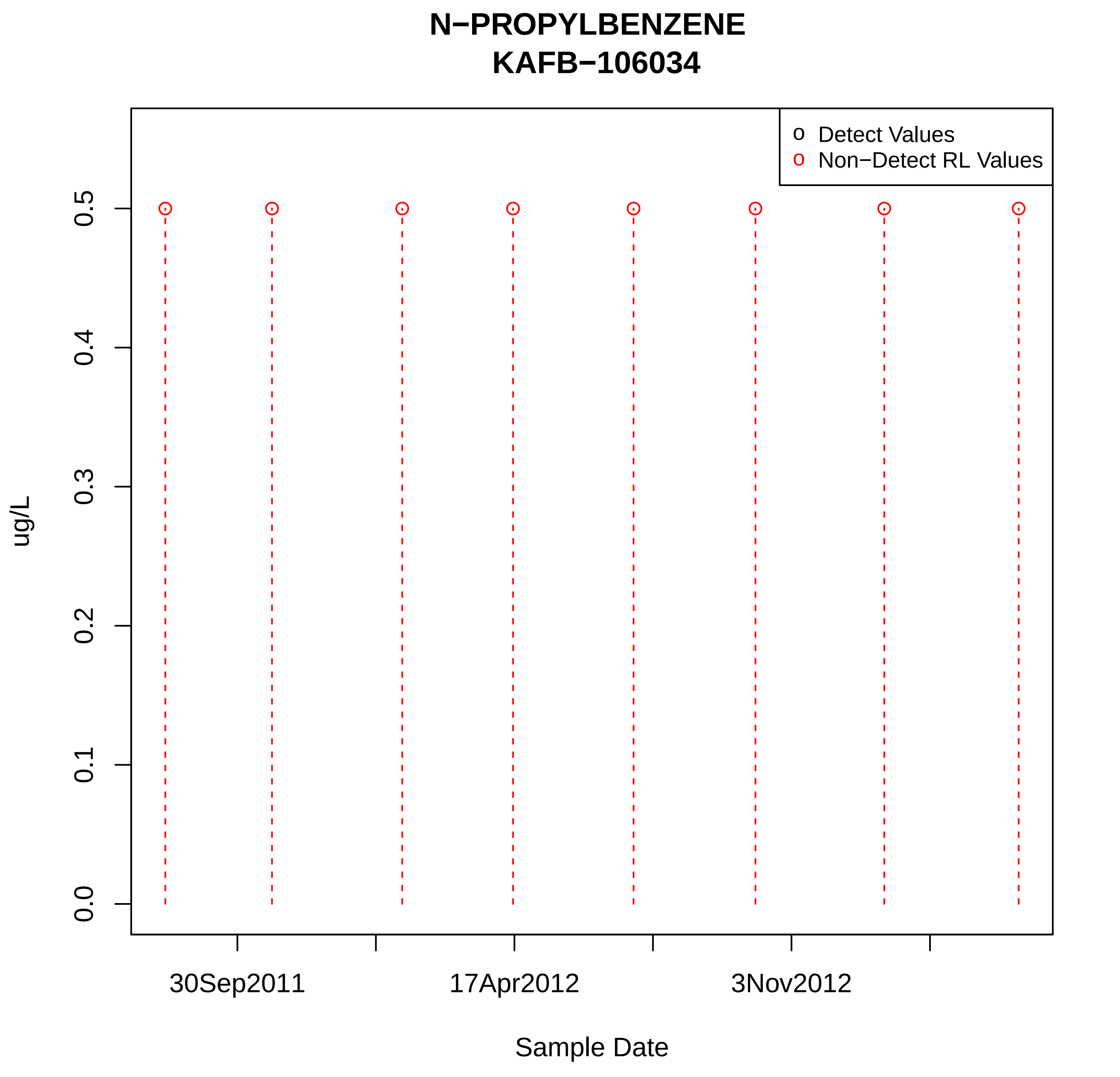
N−PROPYLBENZENE
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

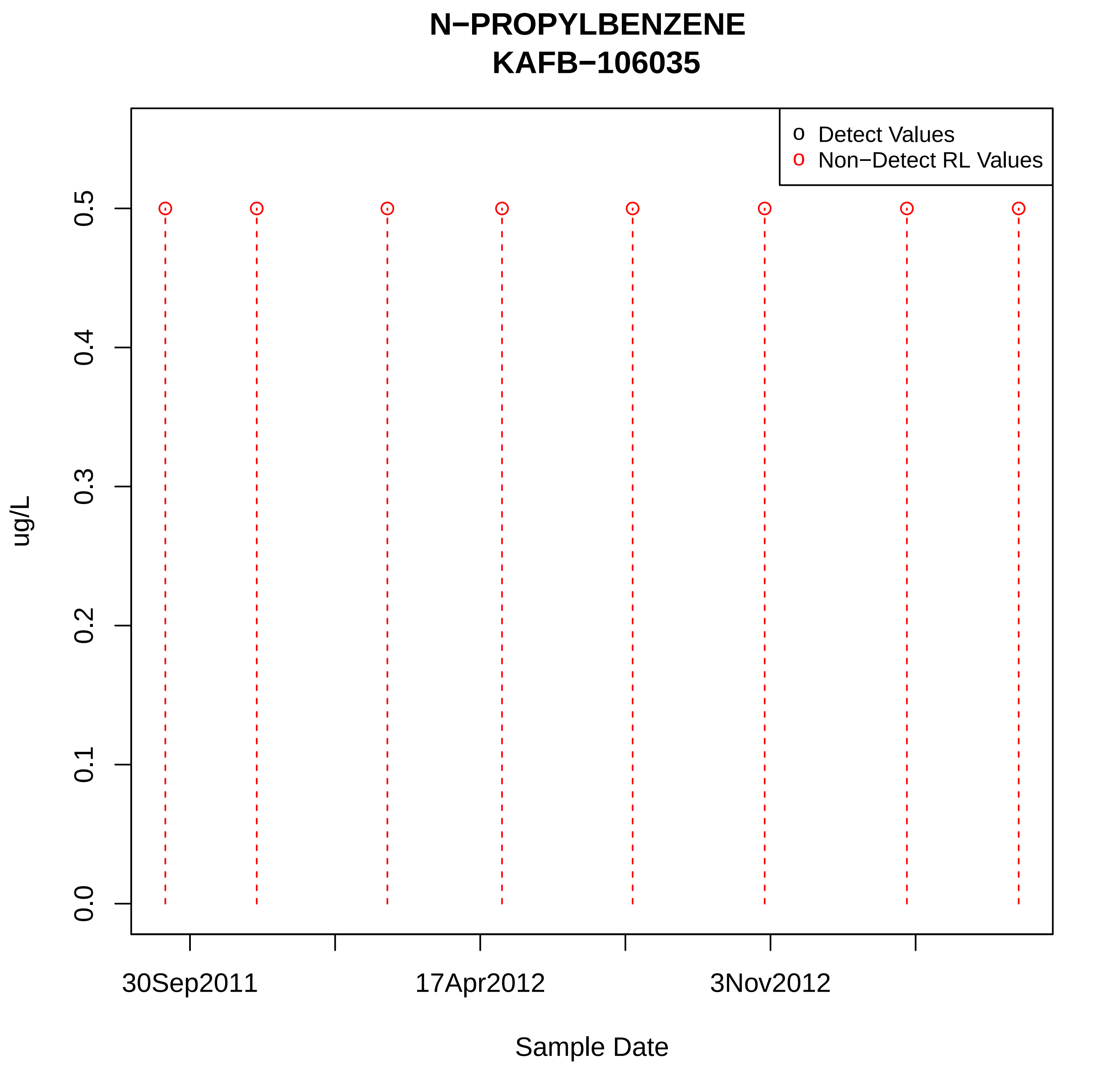

N−PROPYLBENZENE
KAFB−106031
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


N−PROPYLBENZENE
KAFB−106032
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

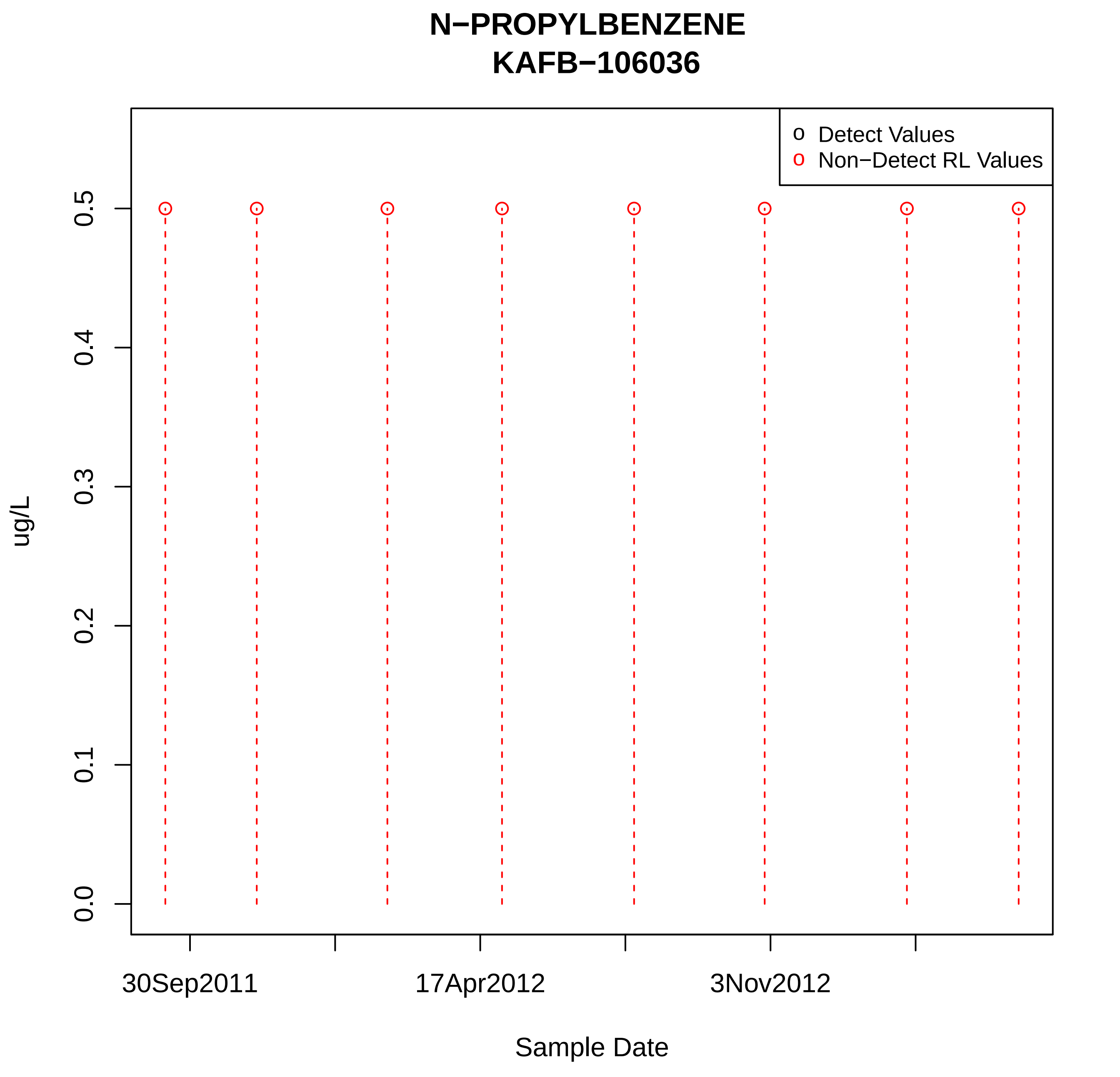


N−PROPYLBENZENE
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

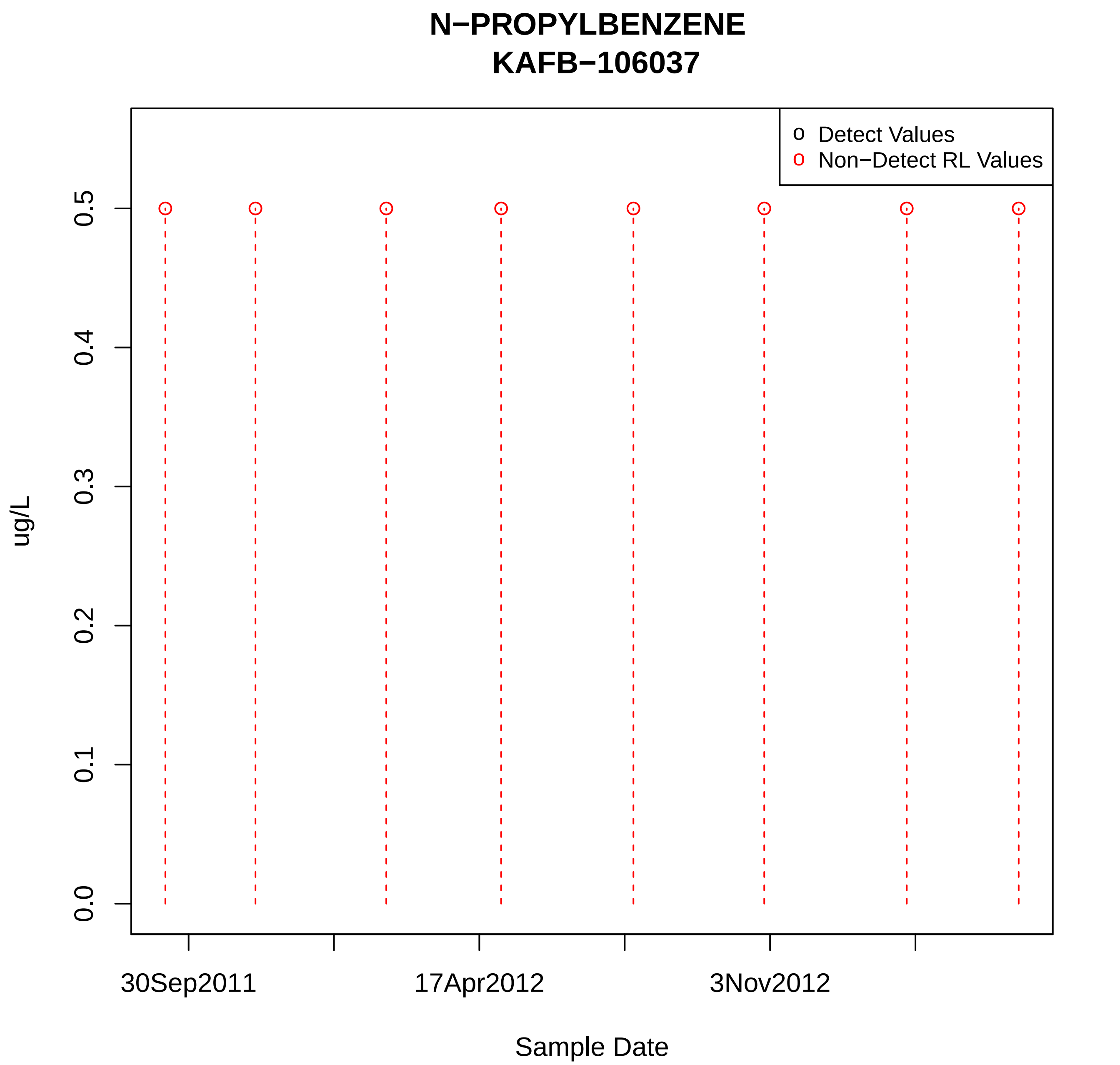

N−PROPYLBENZENE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



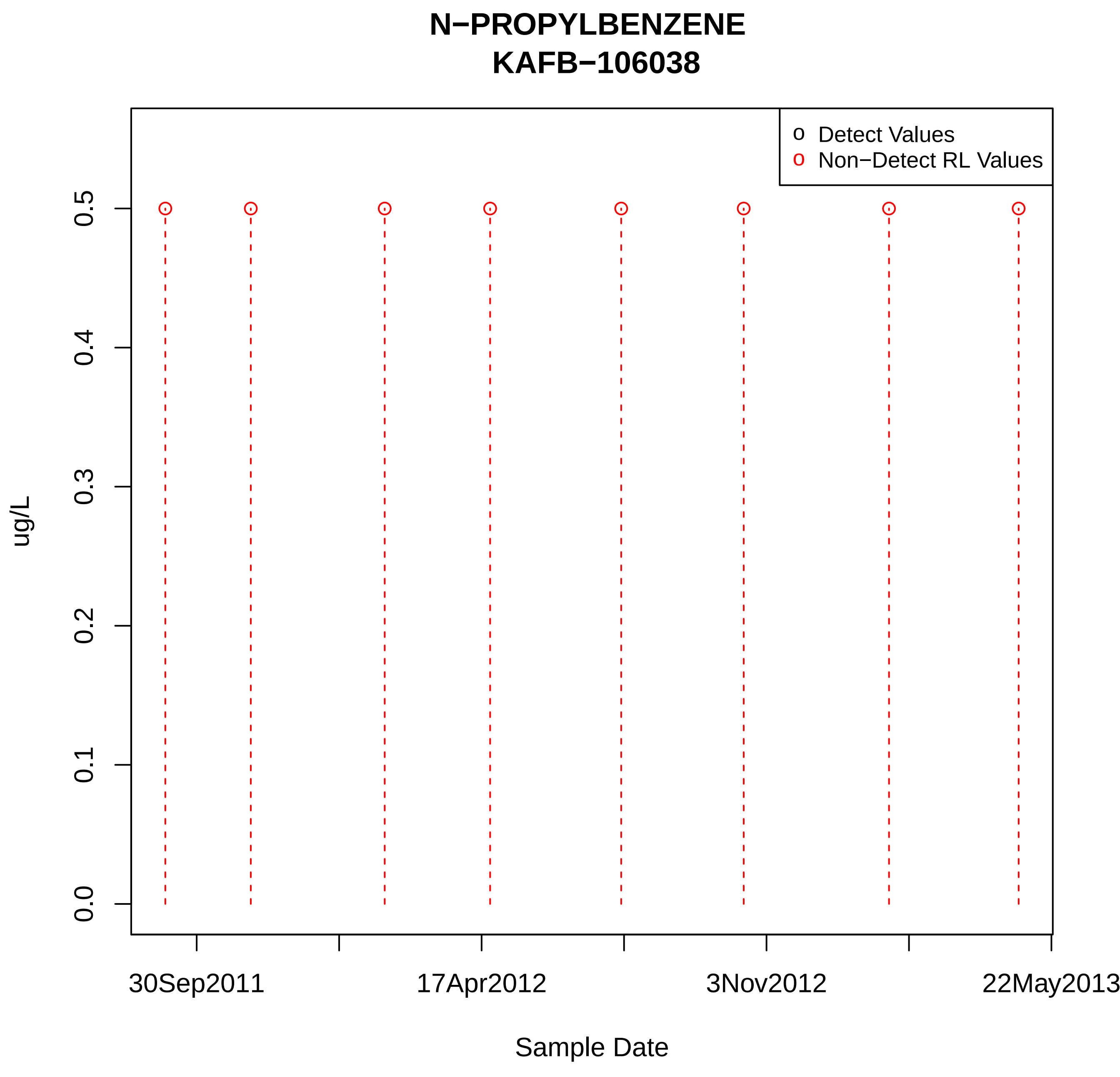
N−PROPYLBENZENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

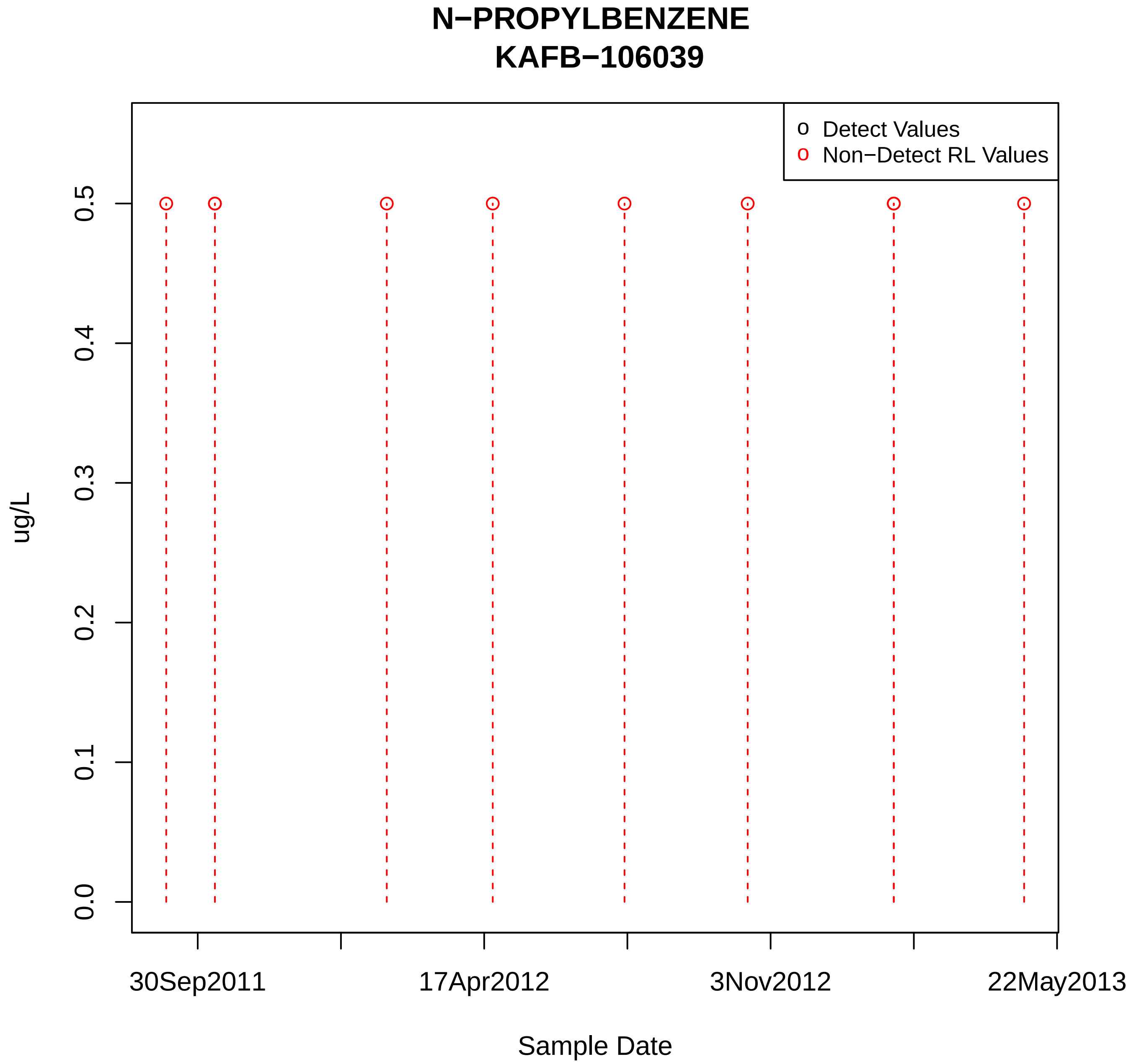


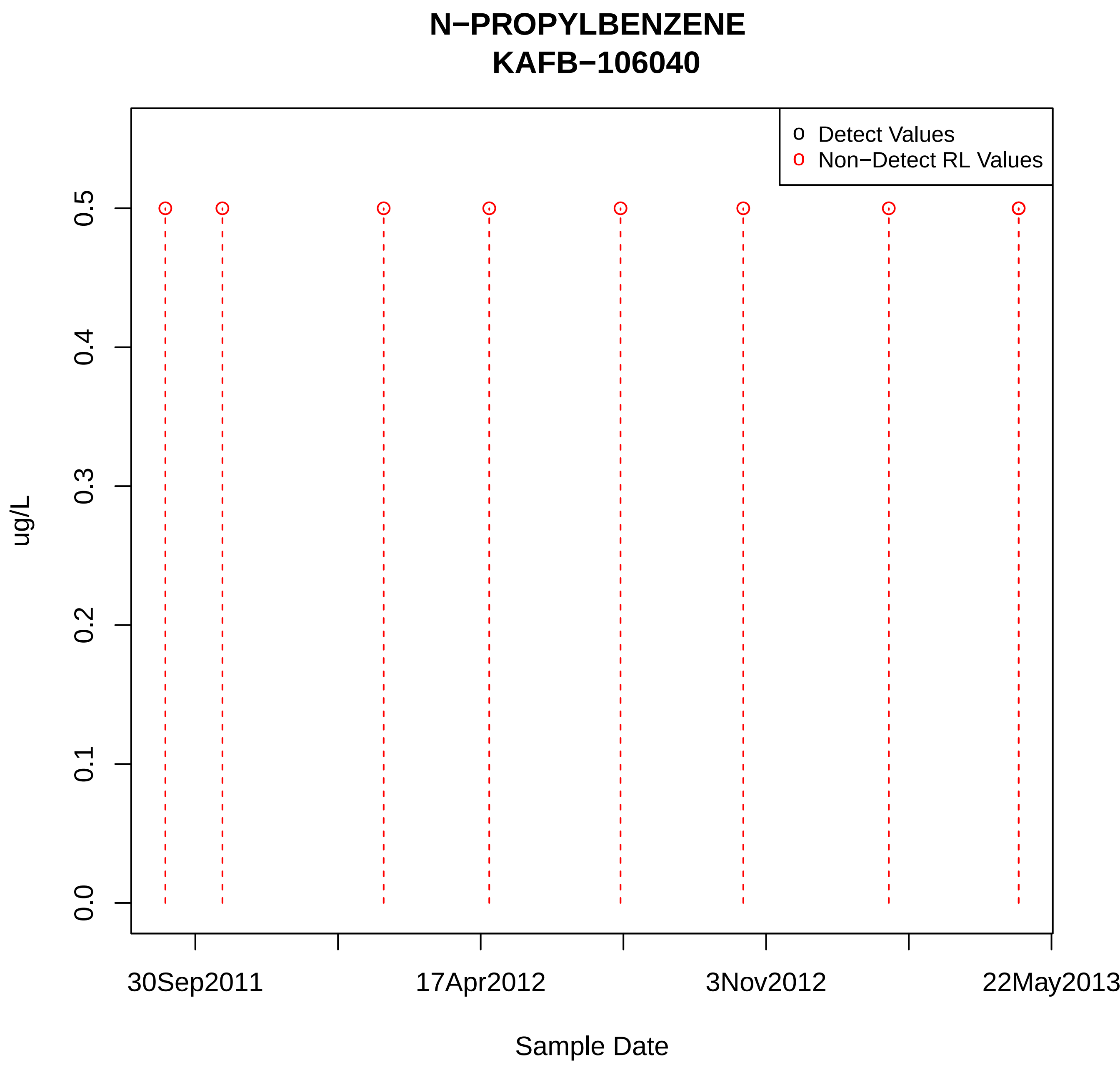
N−PROPYLBENZENE
KAFB−106036
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

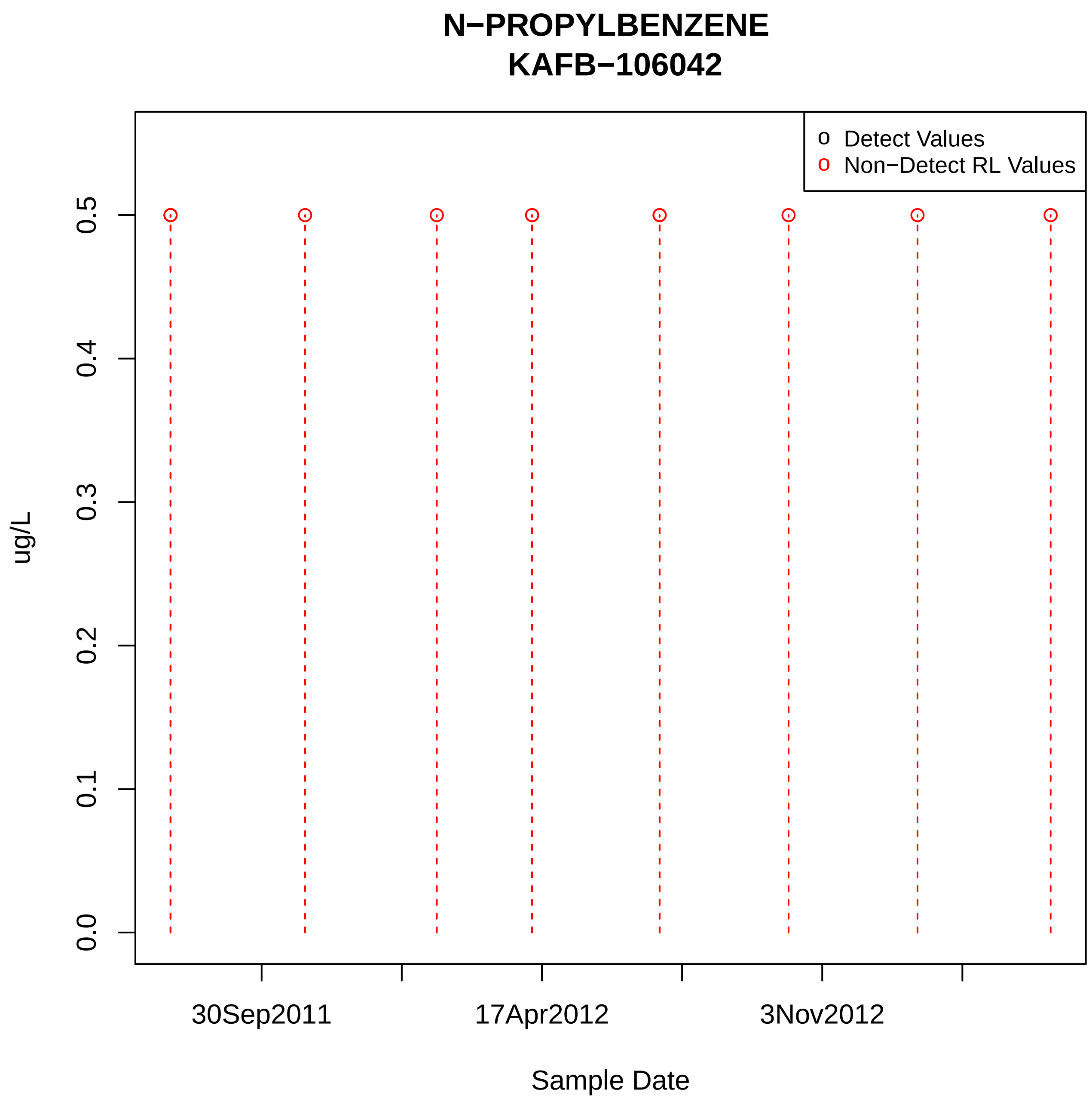


N−PROPYLBENZENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

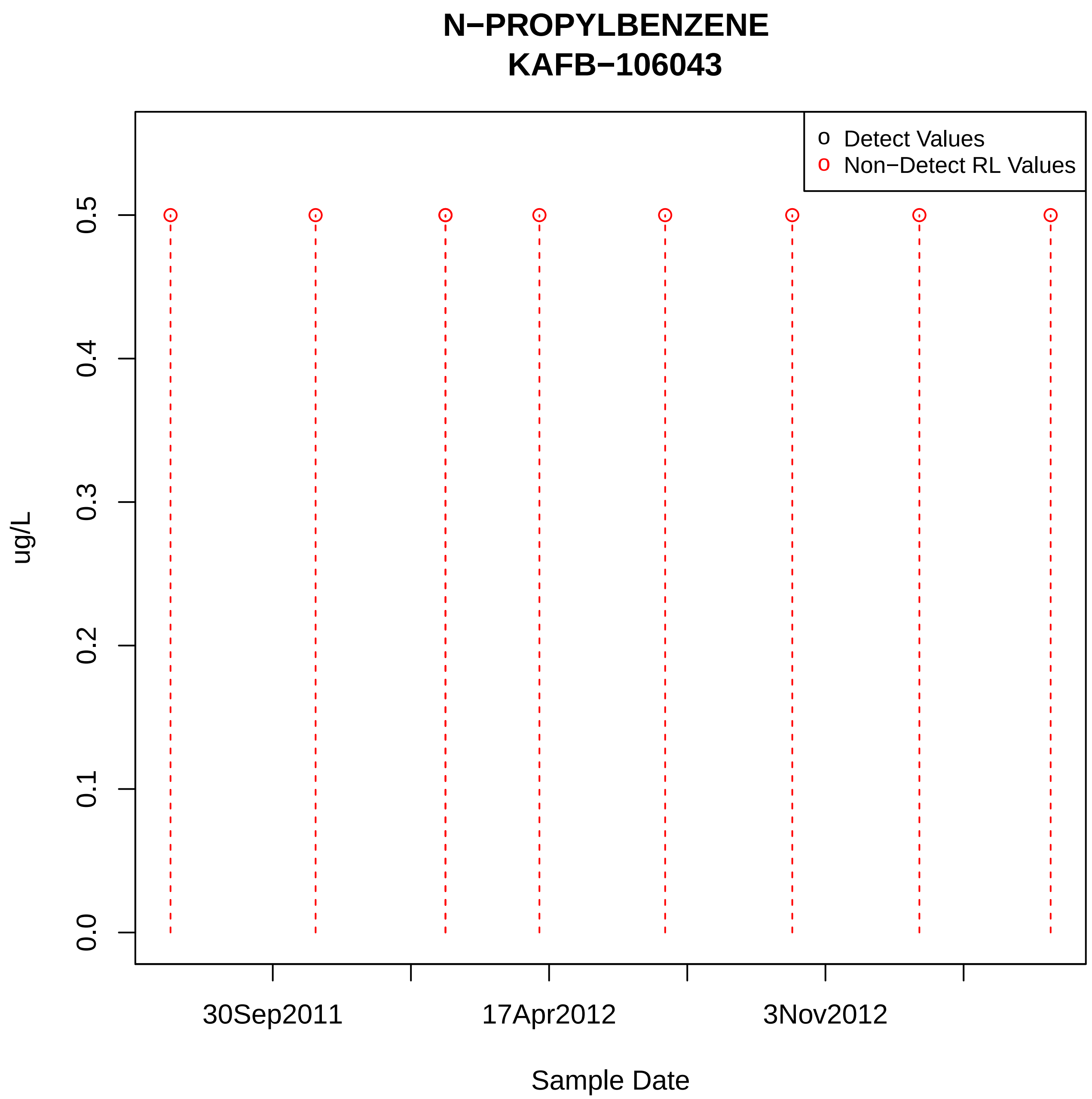

N−PROPYLBENZENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

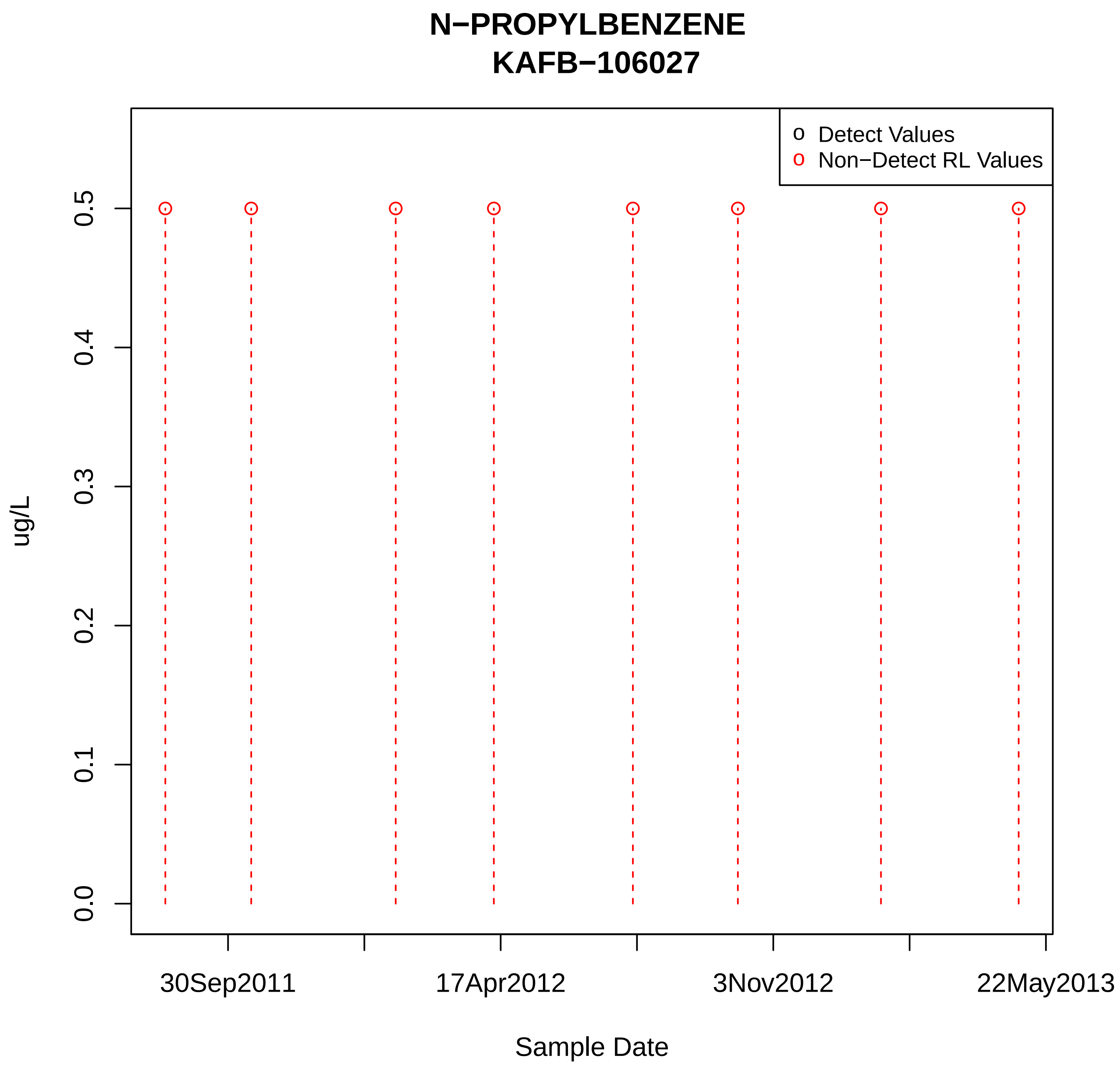

N−PROPYLBENZENE
KAFB−106040
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



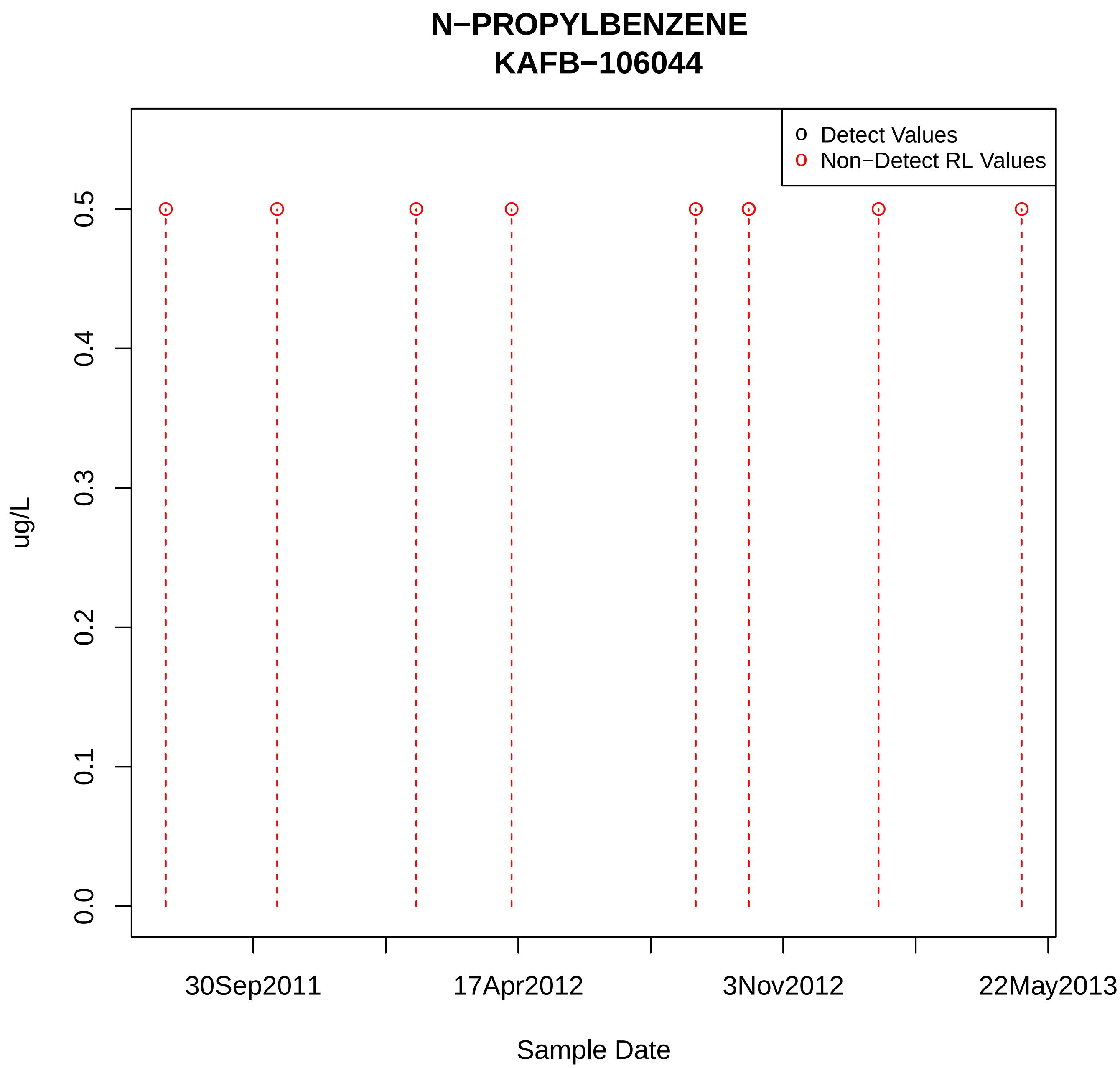
N−PROPYLBENZENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



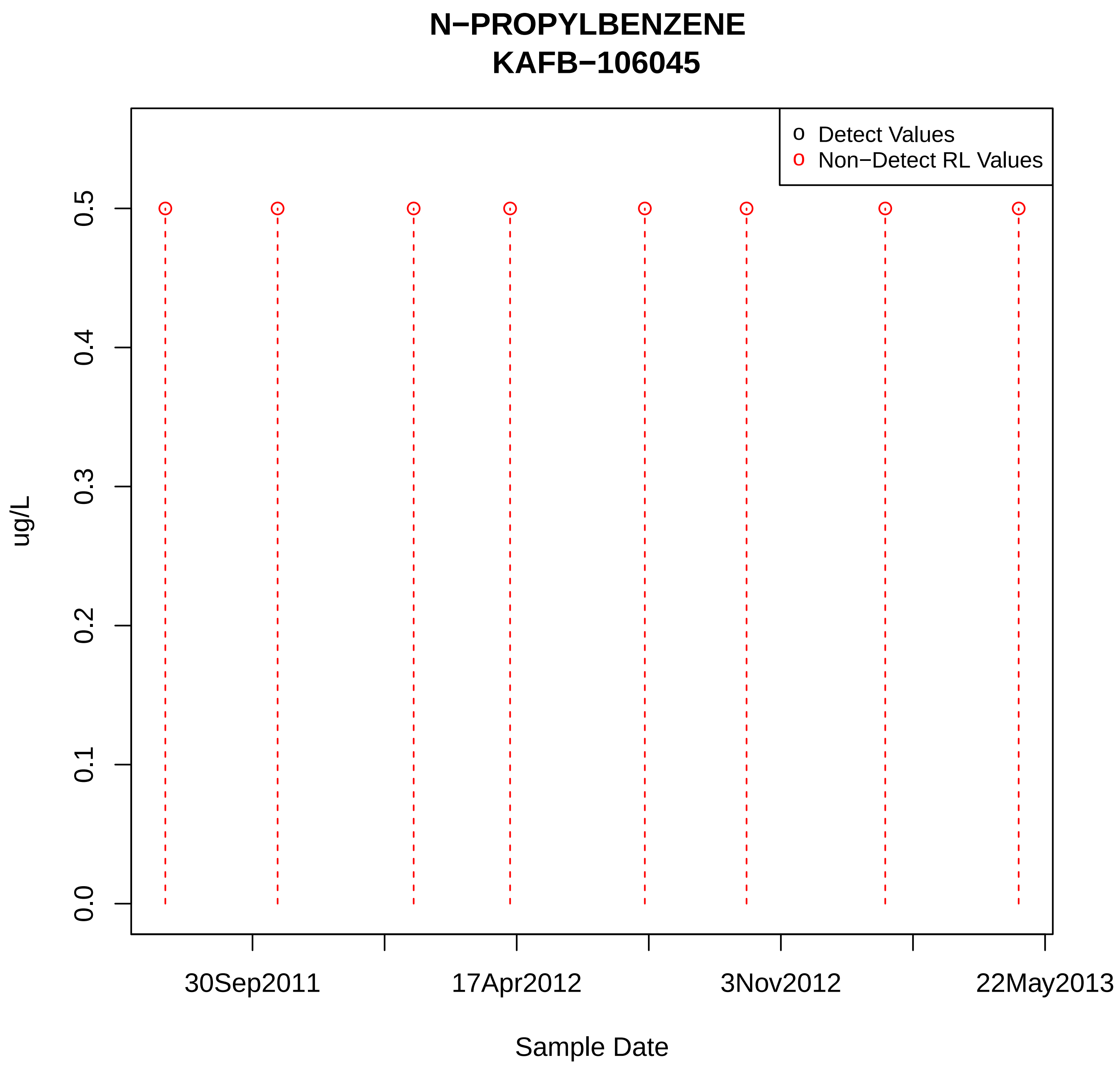
N−PROPYLBENZENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

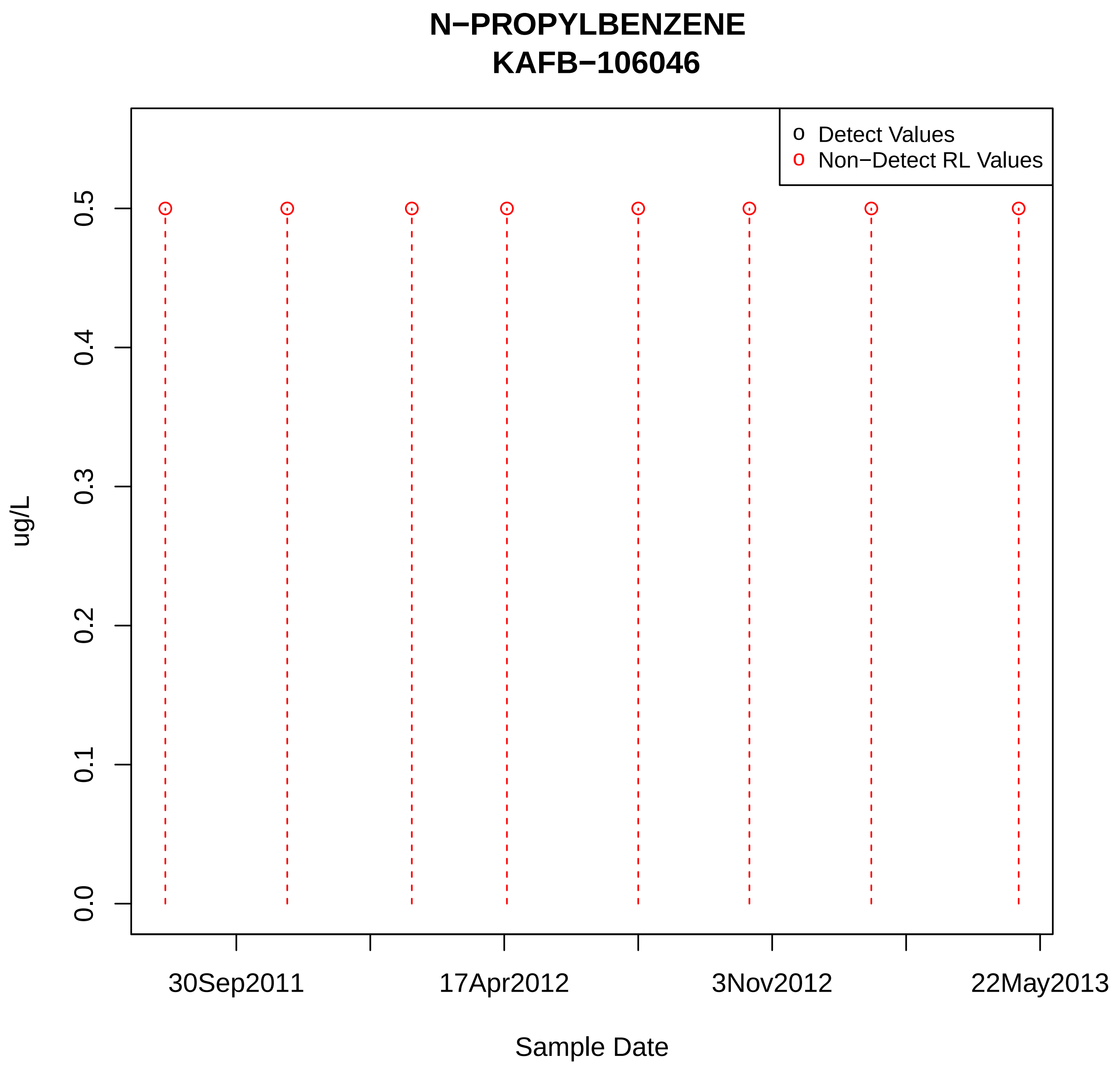


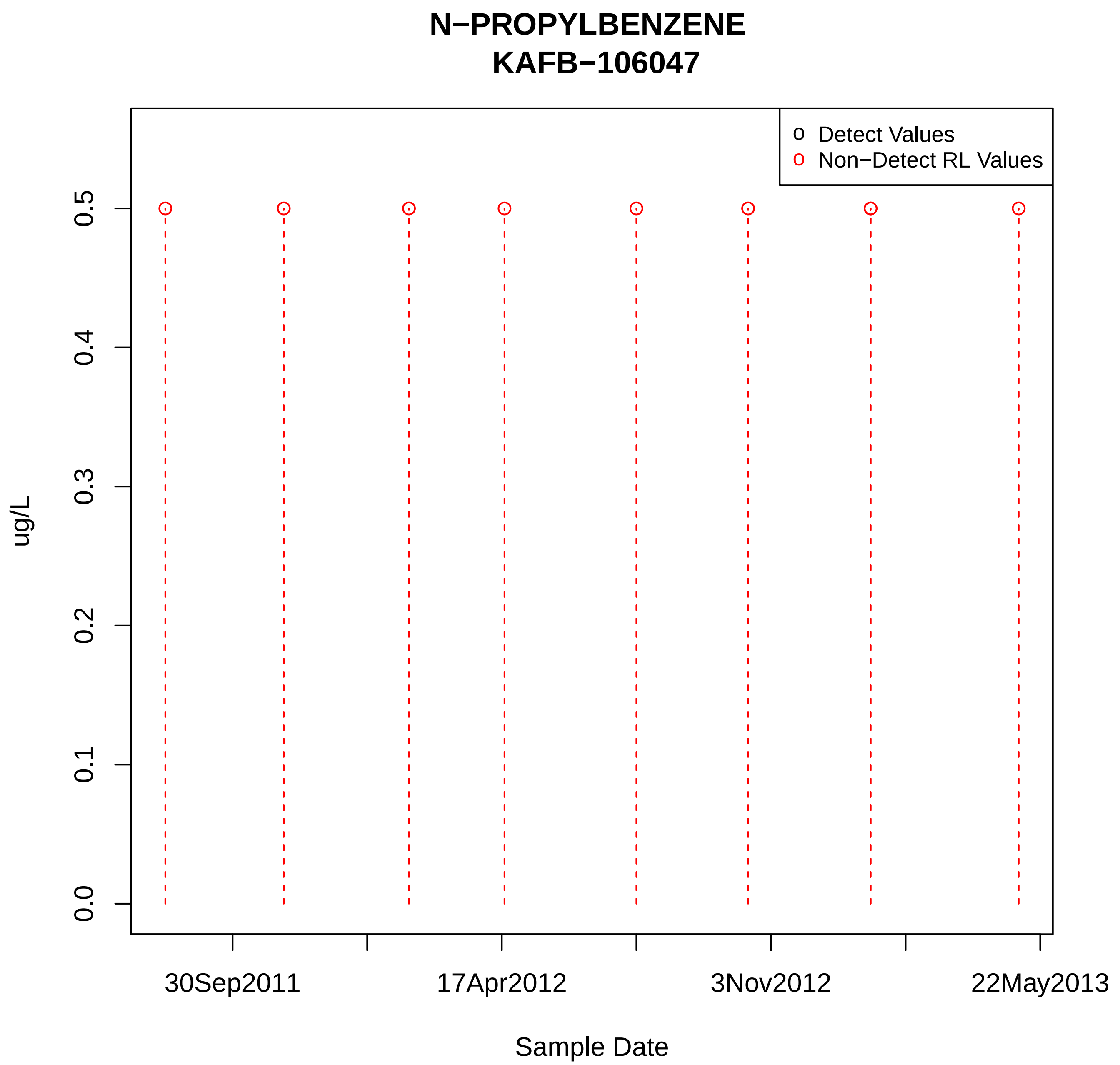
N−PROPYLBENZENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

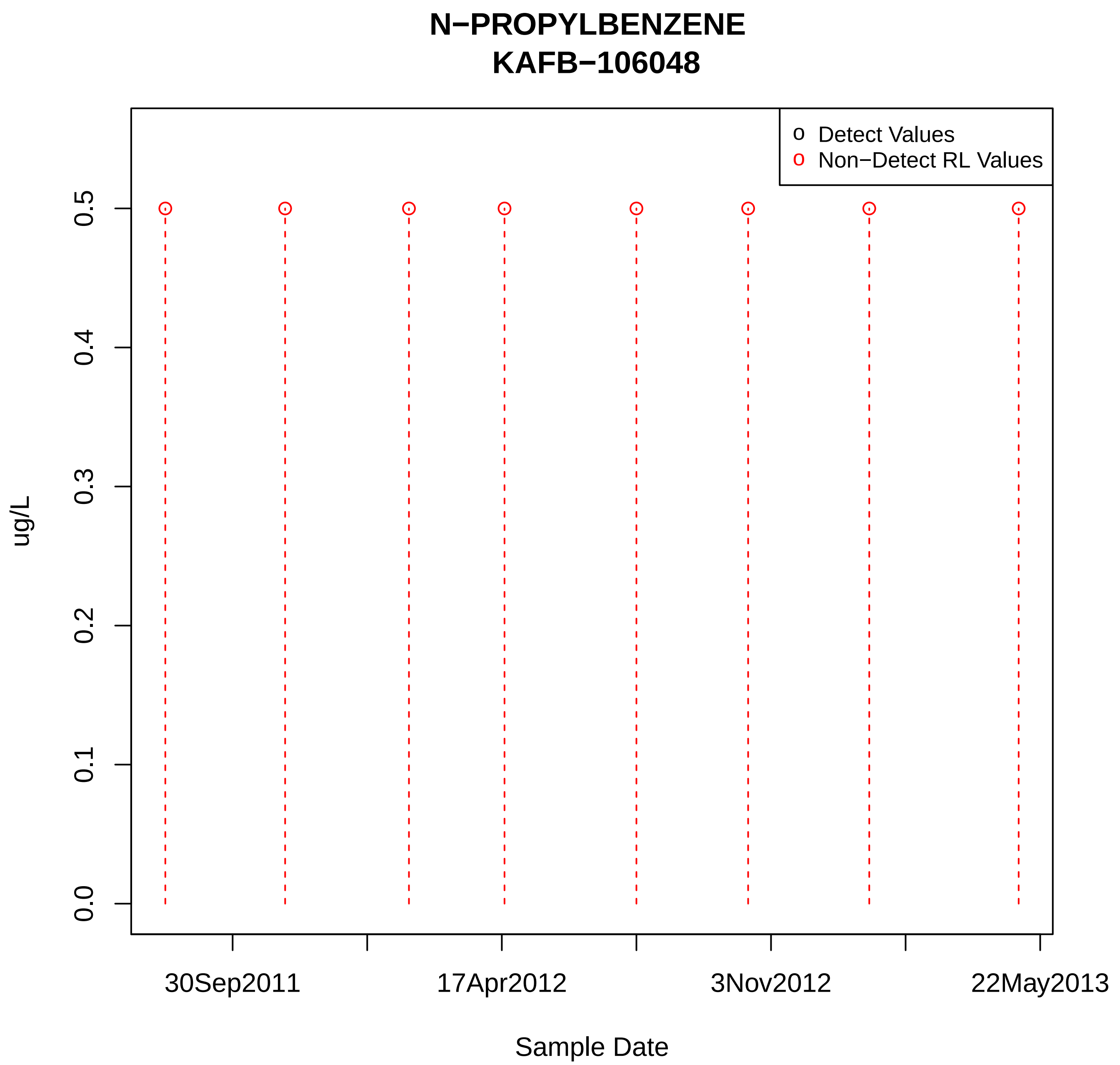


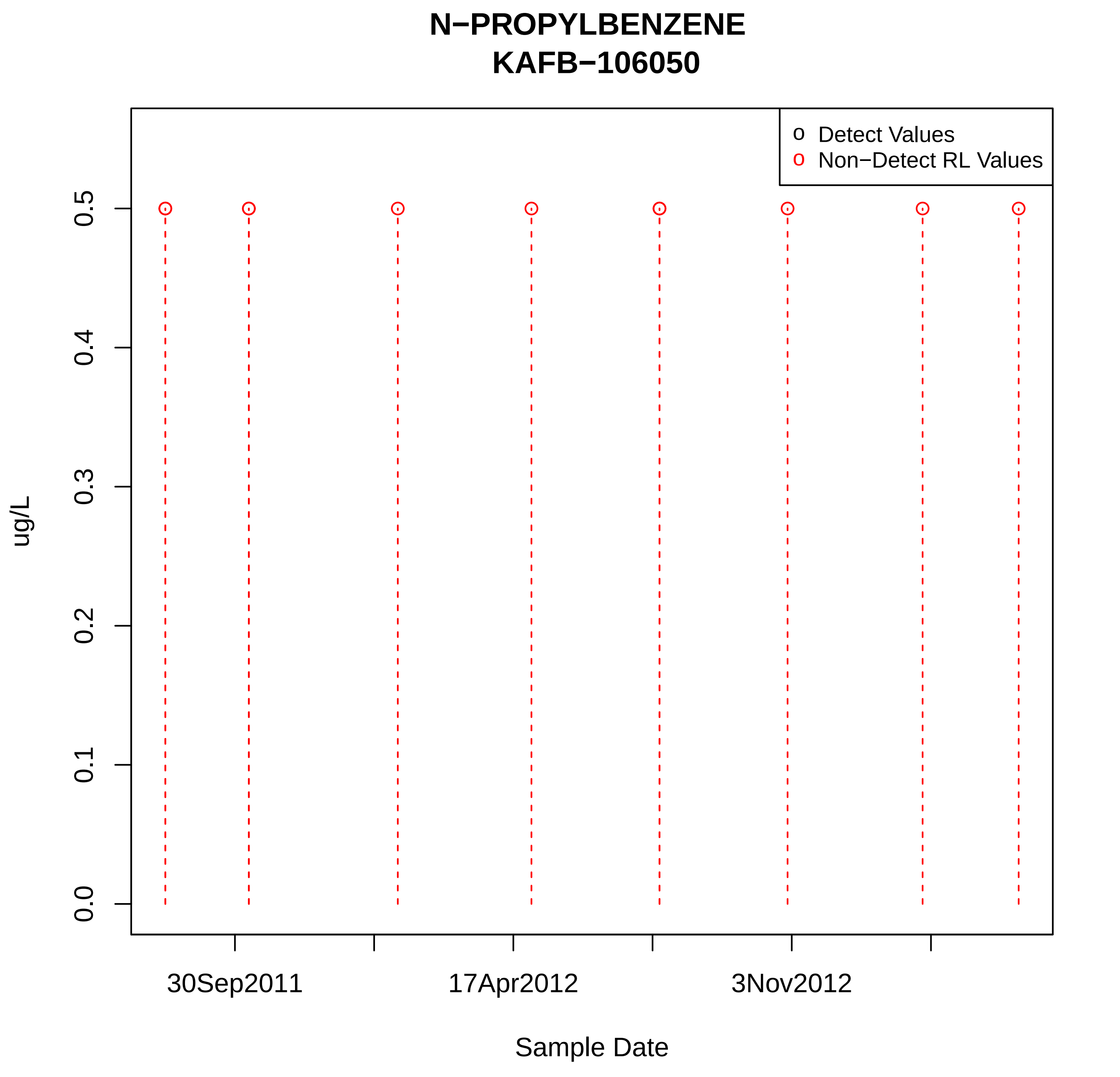
N−PROPYLBENZENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

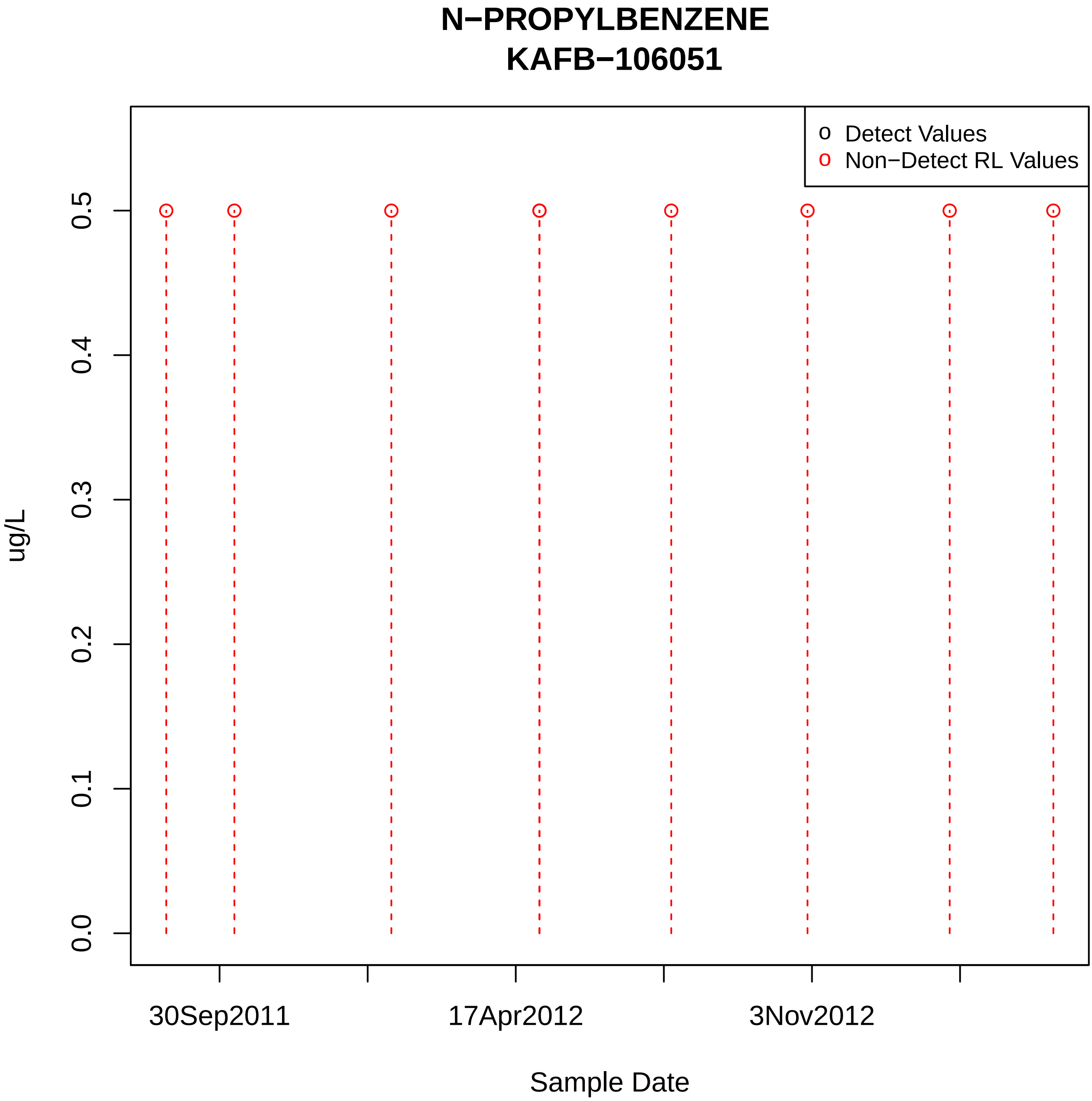

N−PROPYLBENZENE
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

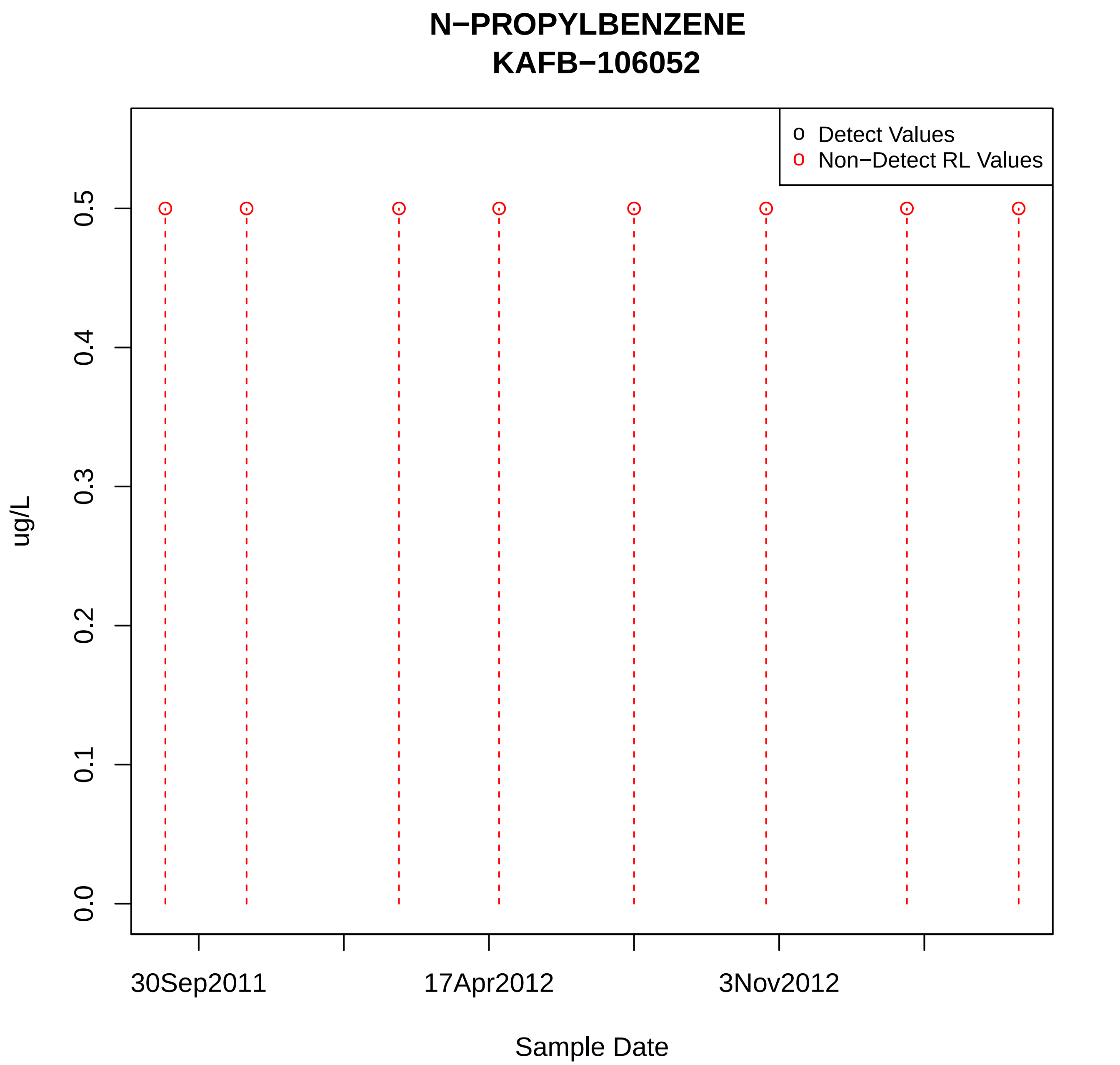

N−PROPYLBENZENE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

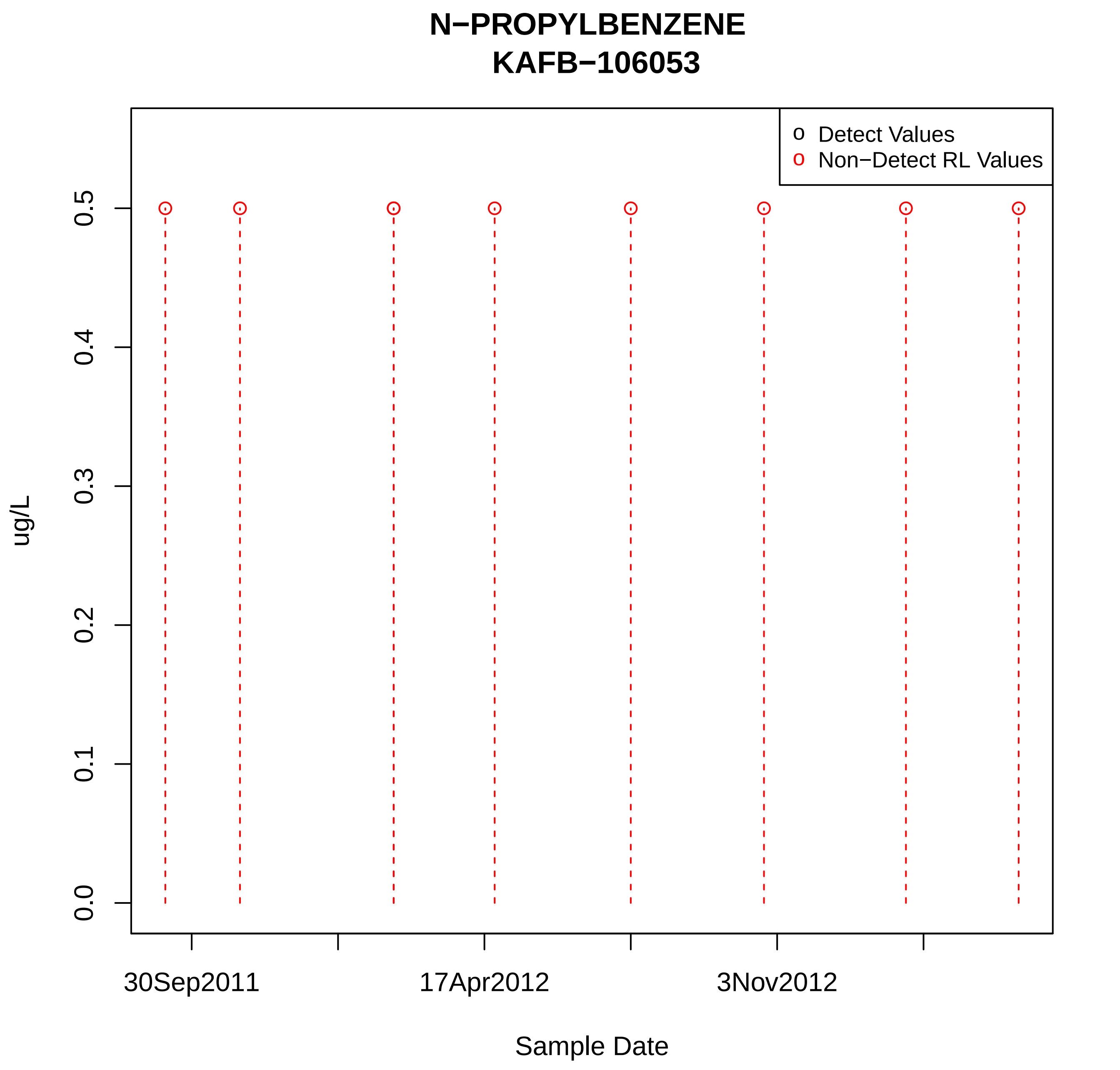

N−PROPYLBENZENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

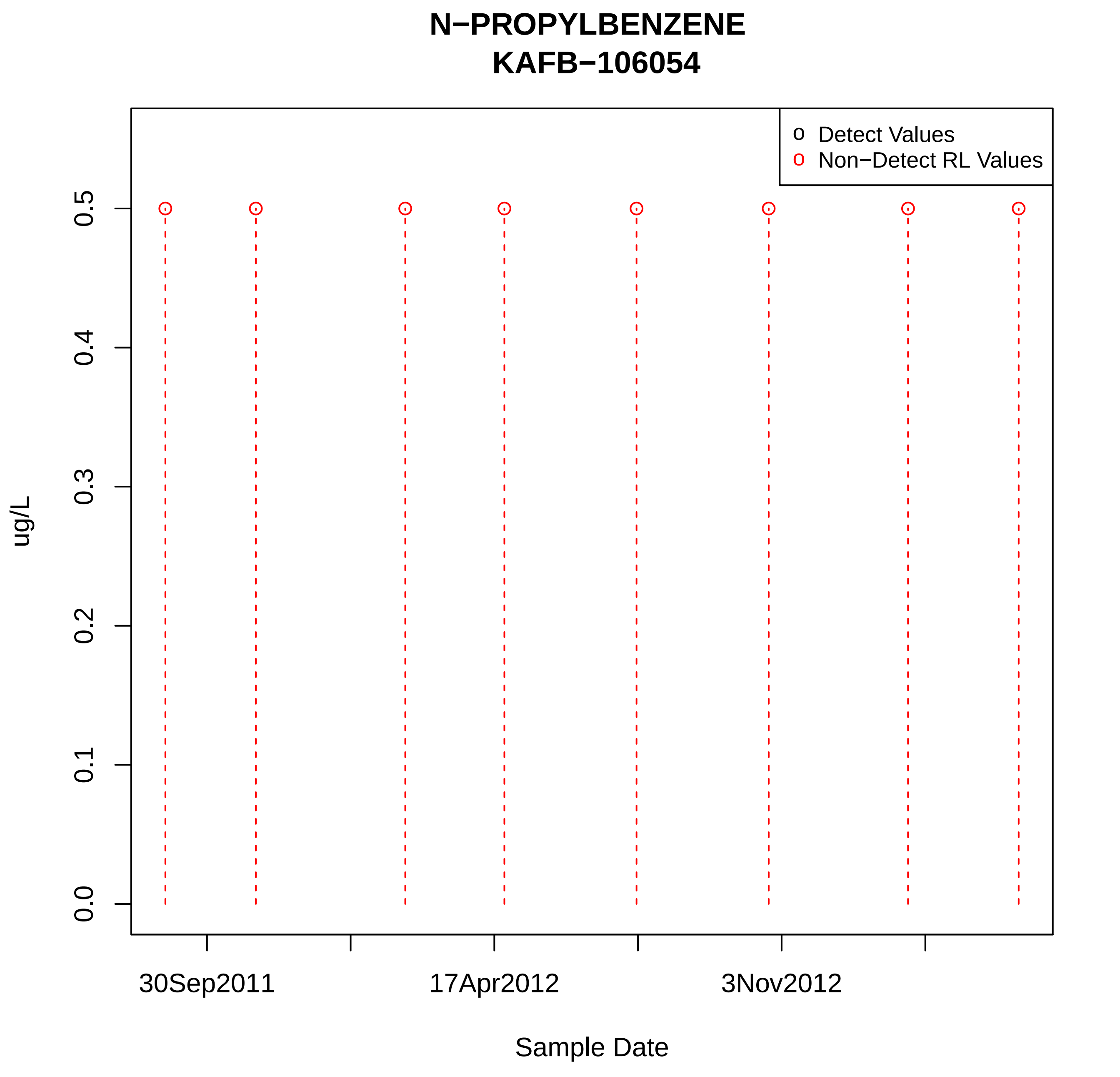


N−PROPYLBENZENE
KAFB−106051
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

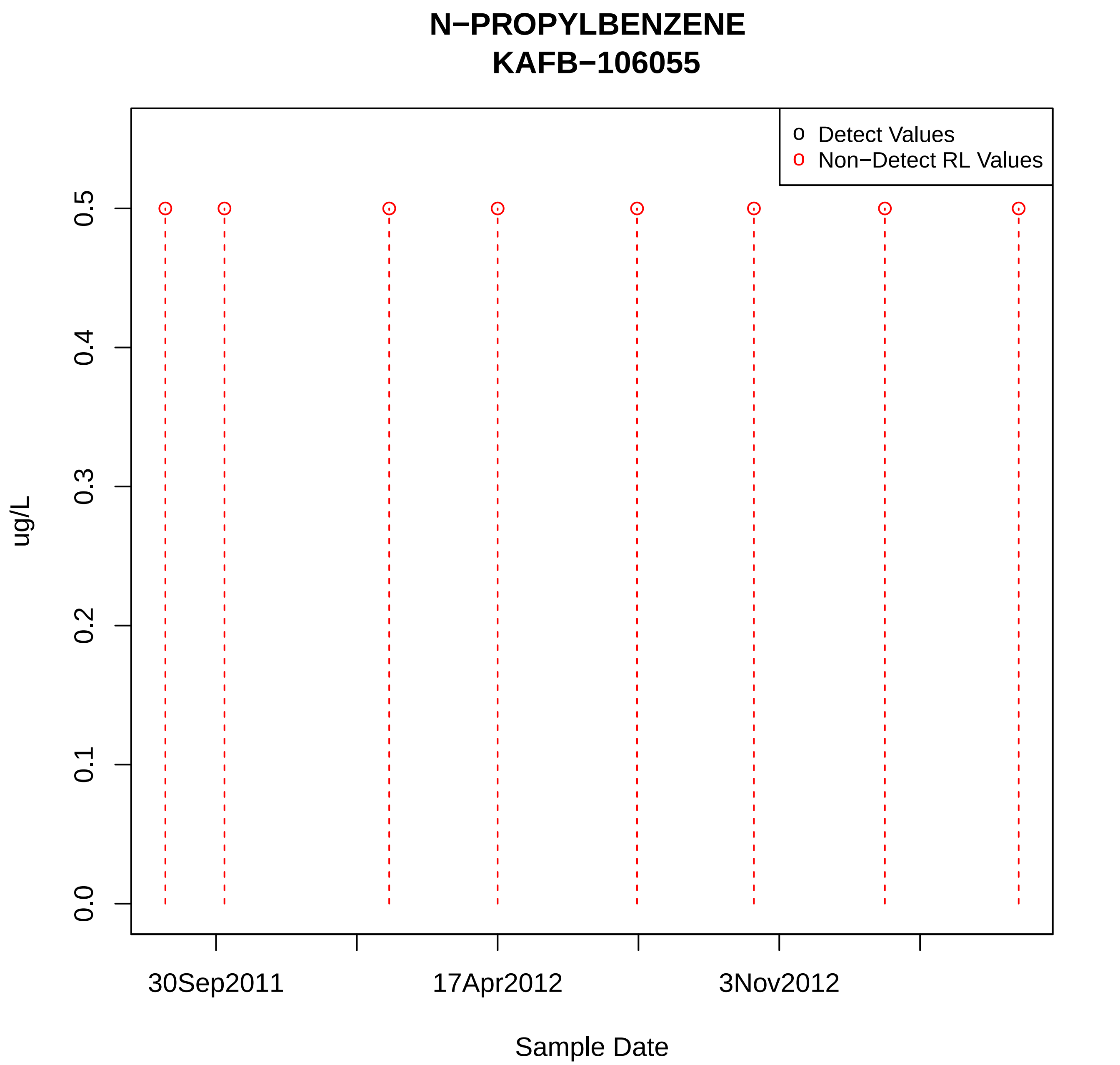

N−PROPYLBENZENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

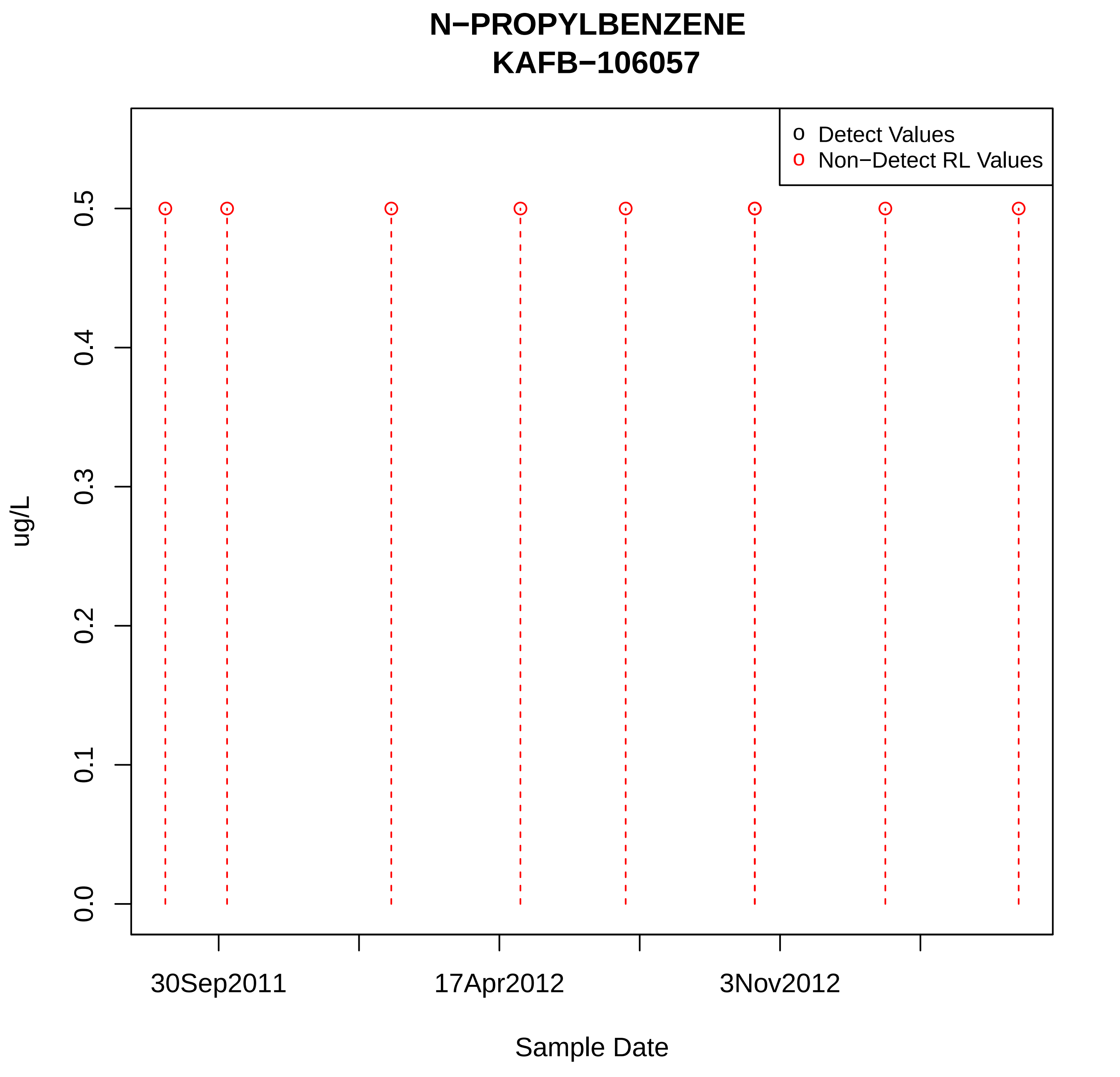


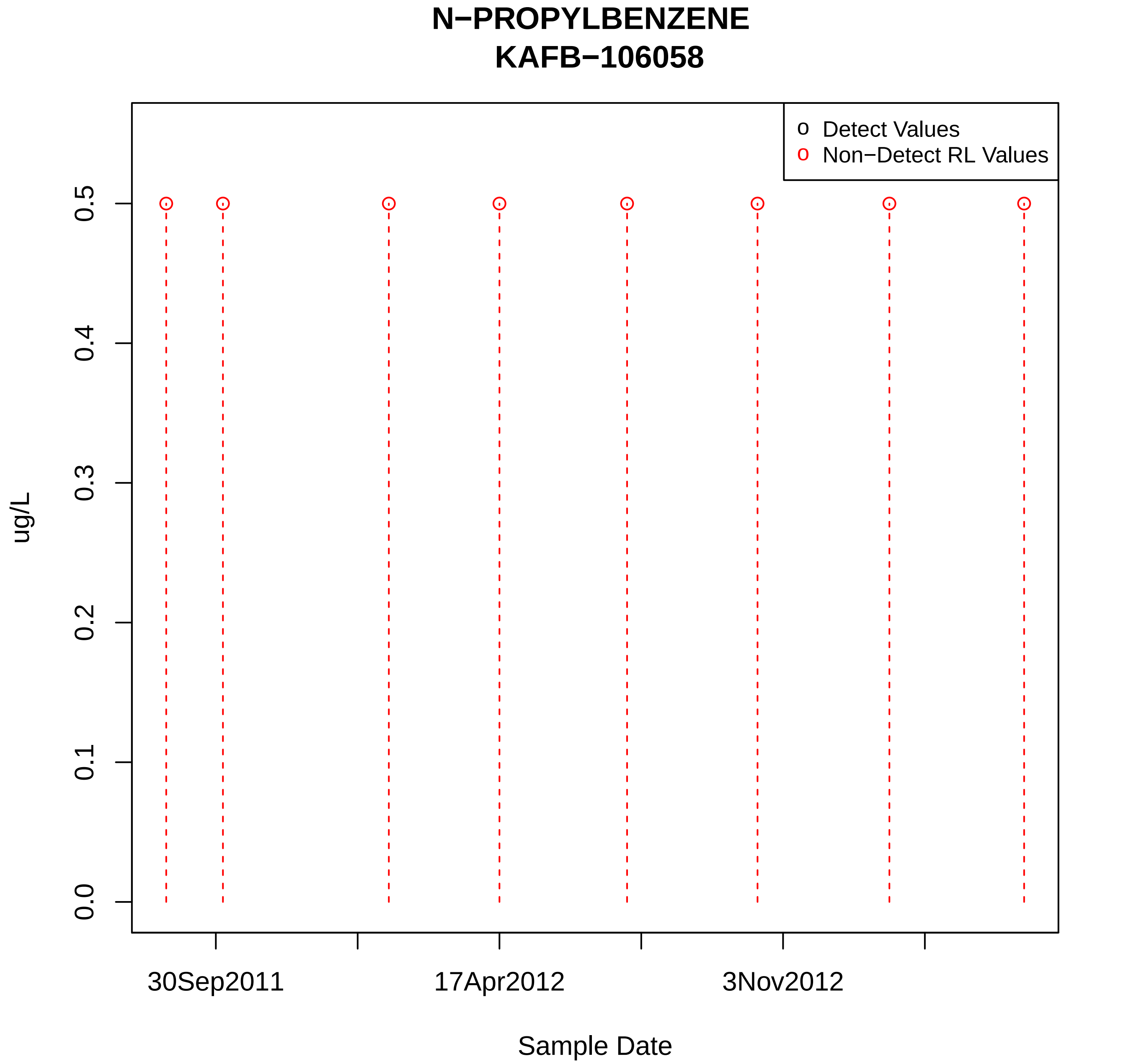
N−PROPYLBENZENE
KAFB−106053
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

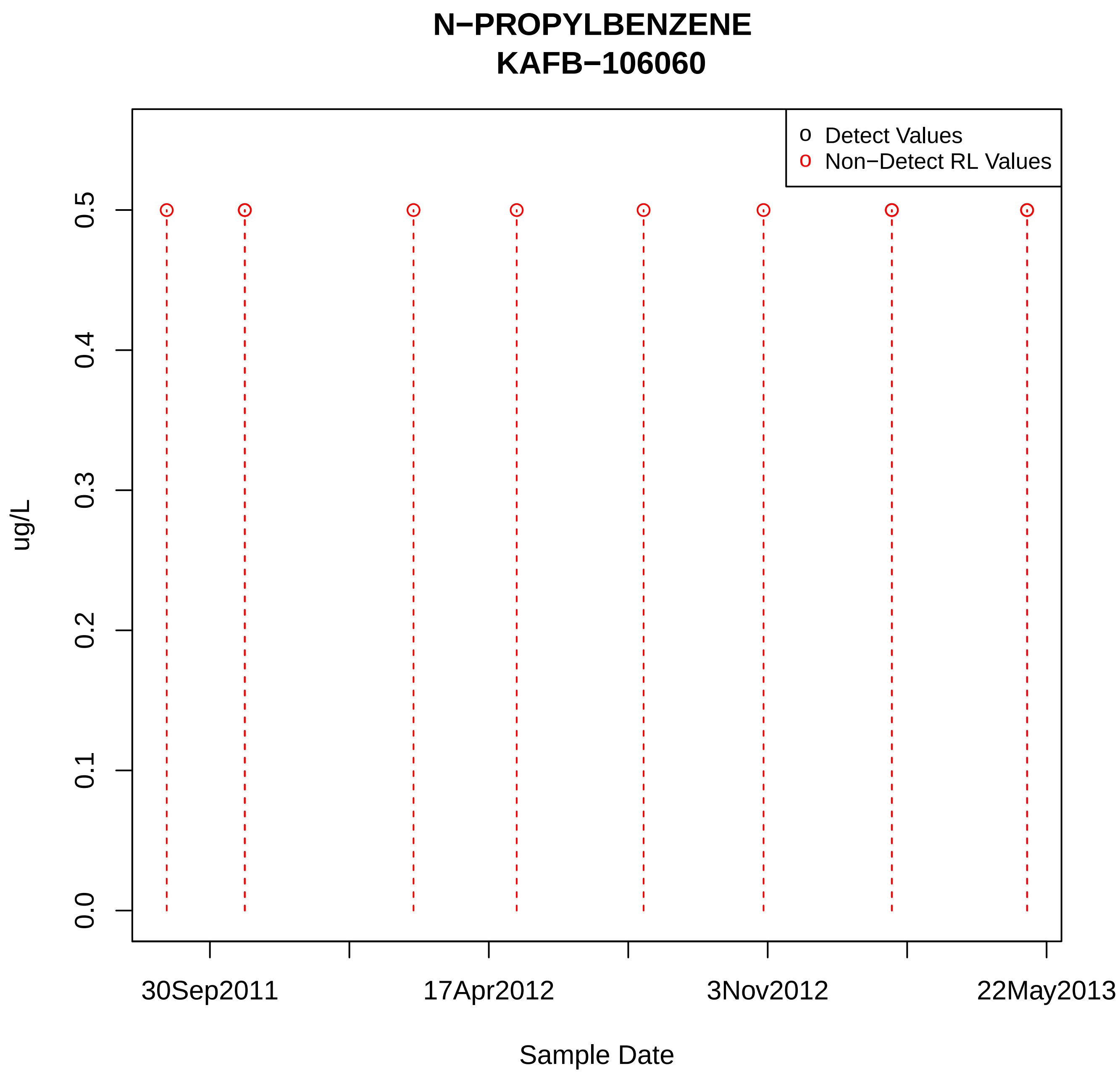


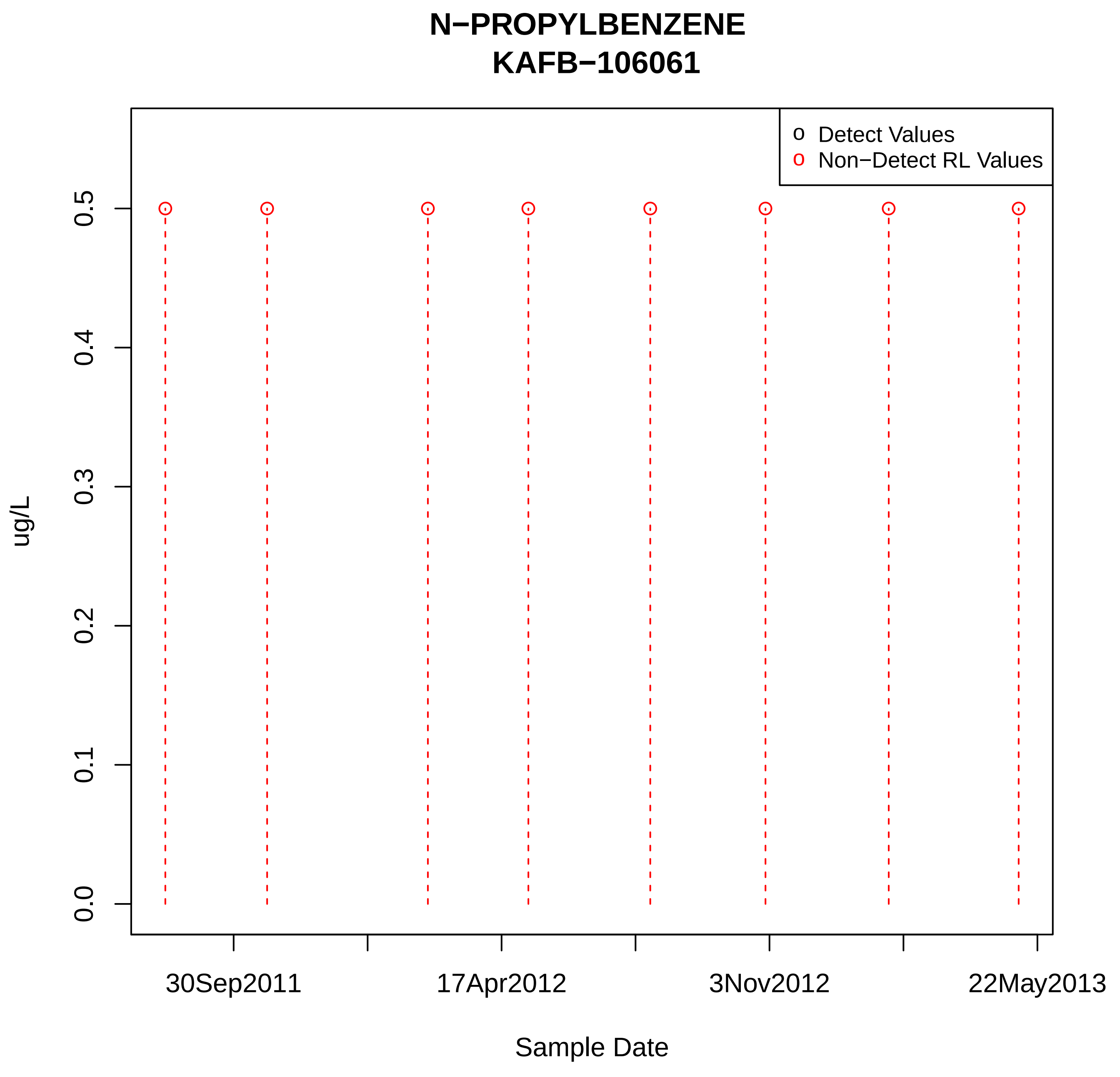
N−PROPYLBENZENE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


N−PROPYLBENZENE
KAFB−106055
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

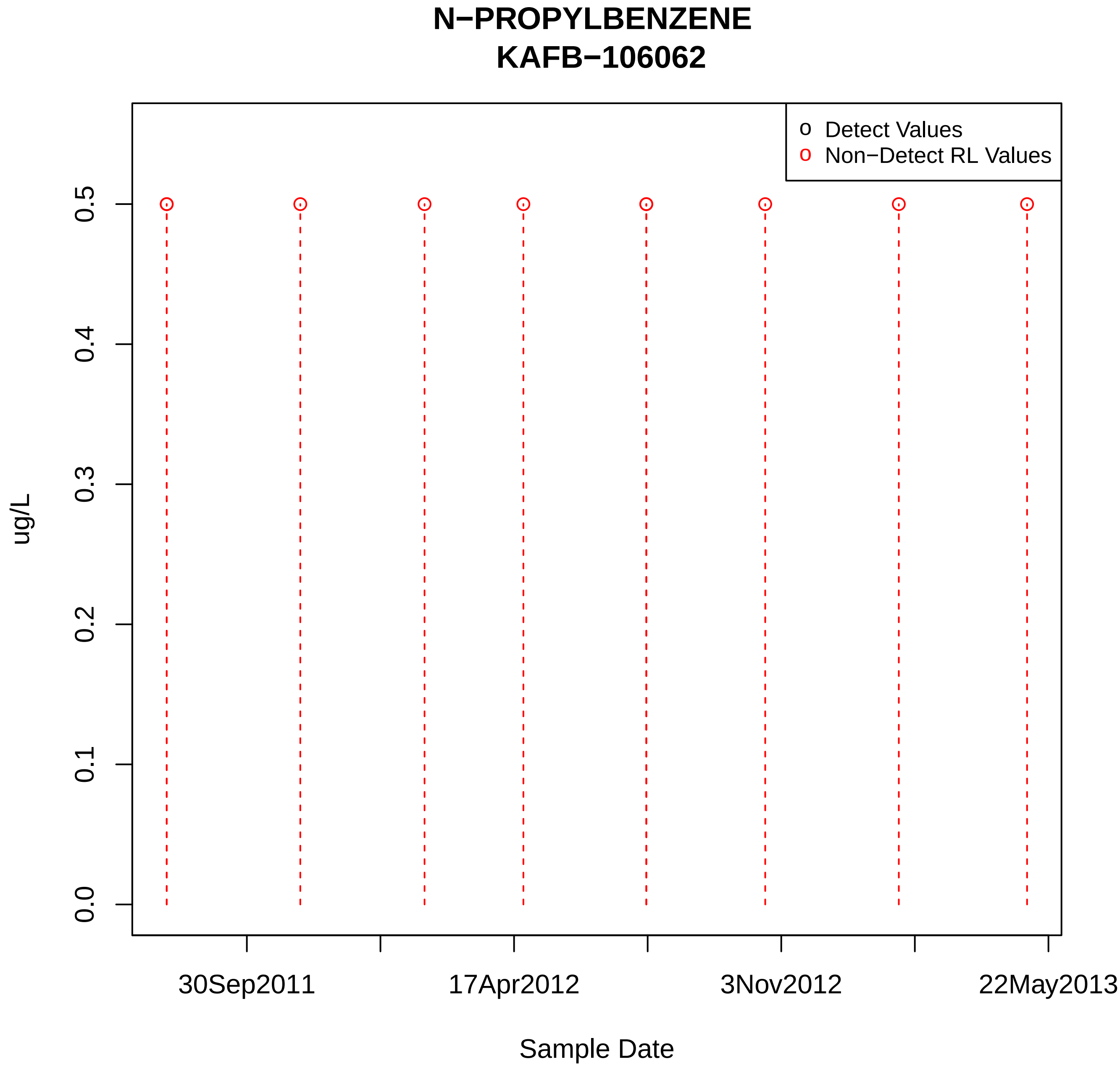

N−PROPYLBENZENE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


N−PROPYLBENZENE
KAFB−106058
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

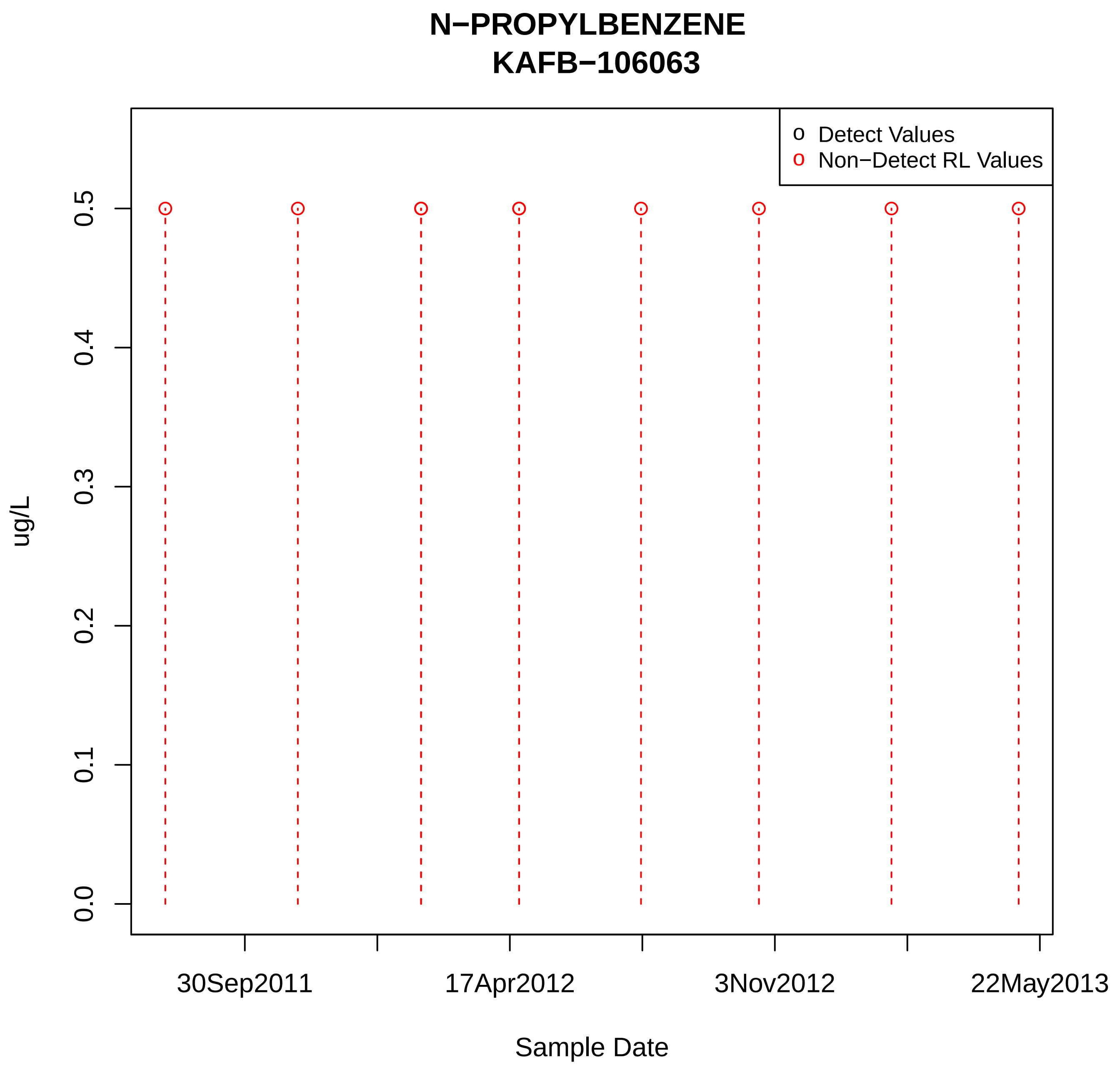

N−PROPYLBENZENE
KAFB−106060
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



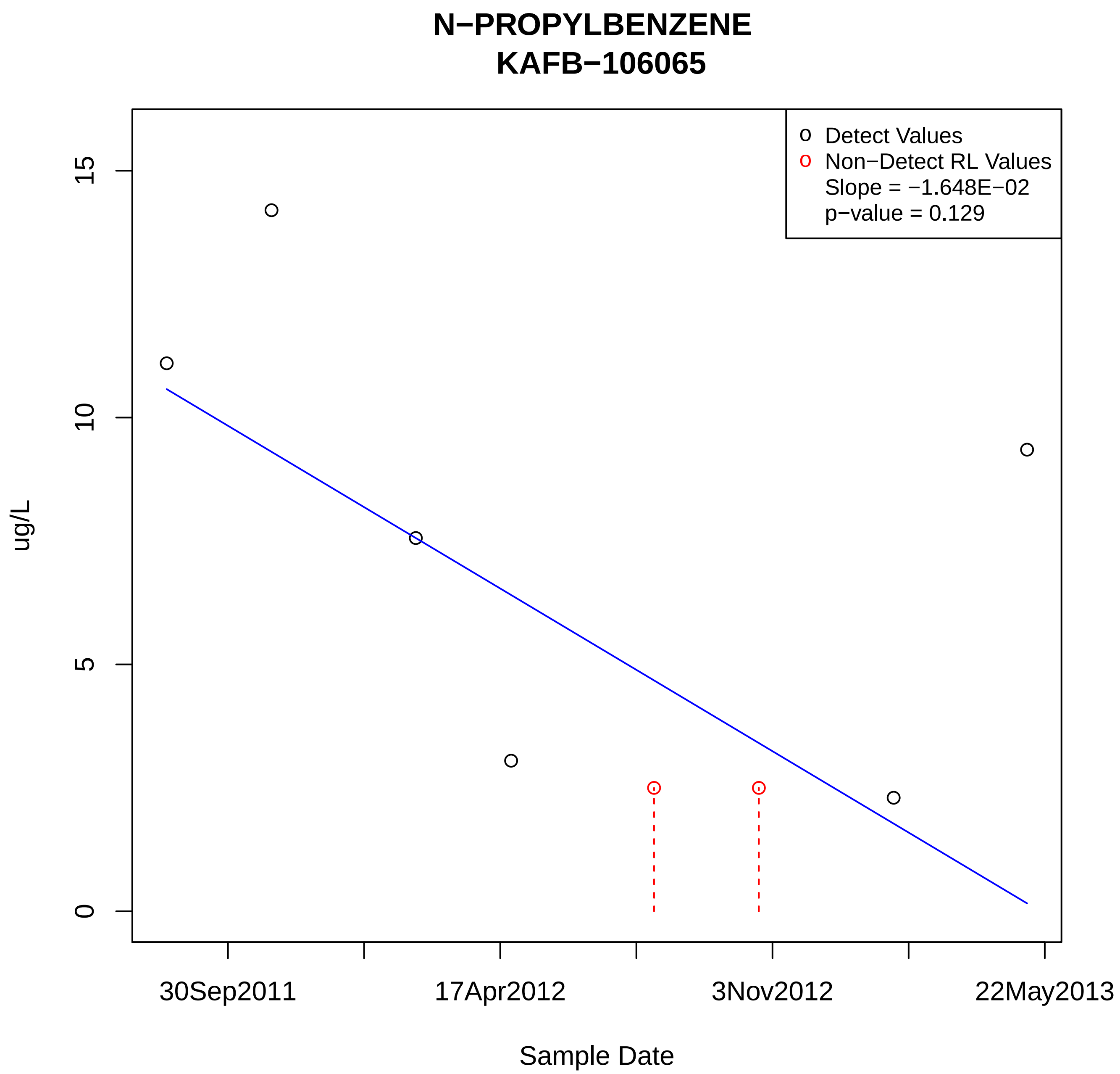
N−PROPYLBENZENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

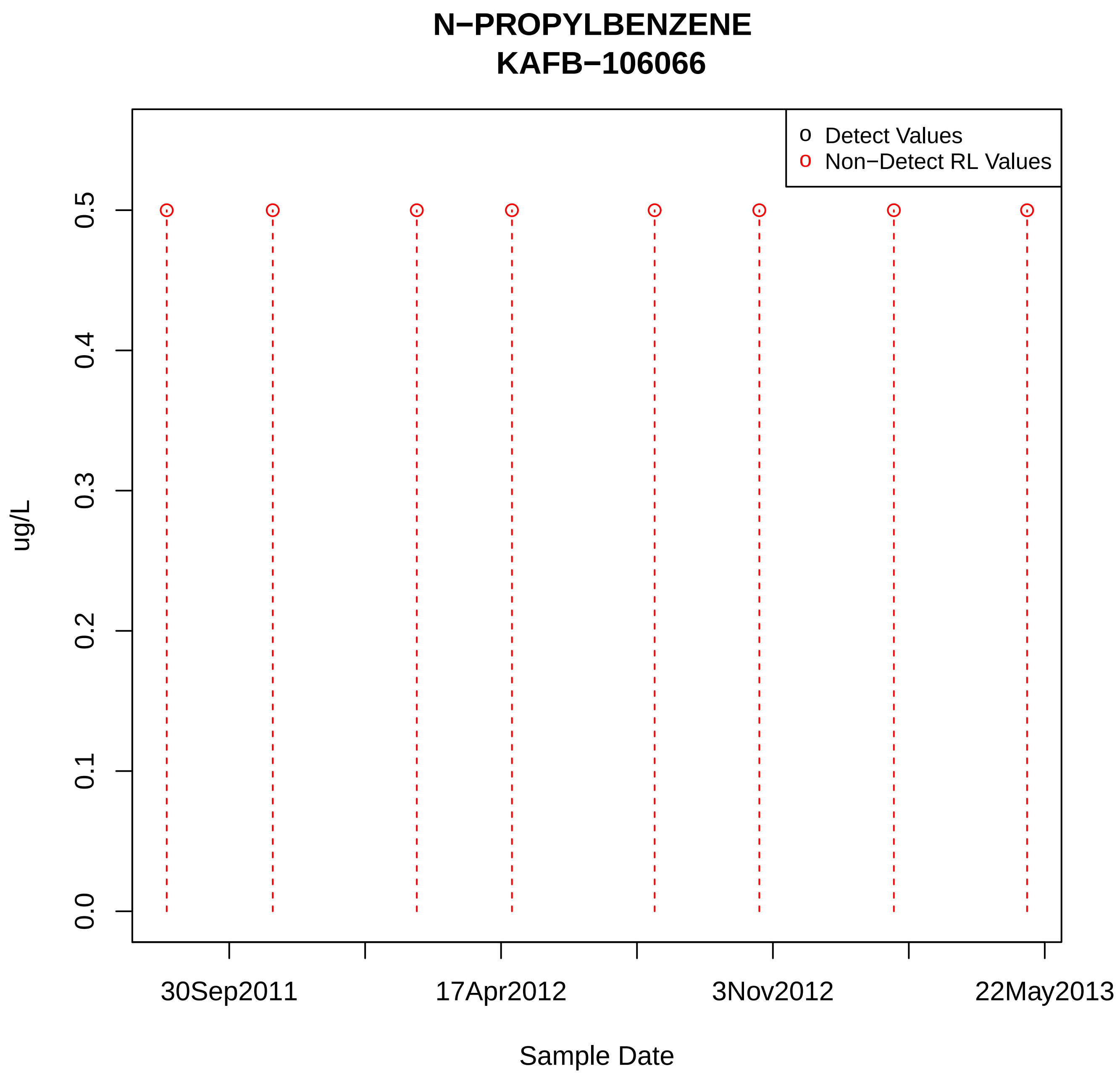


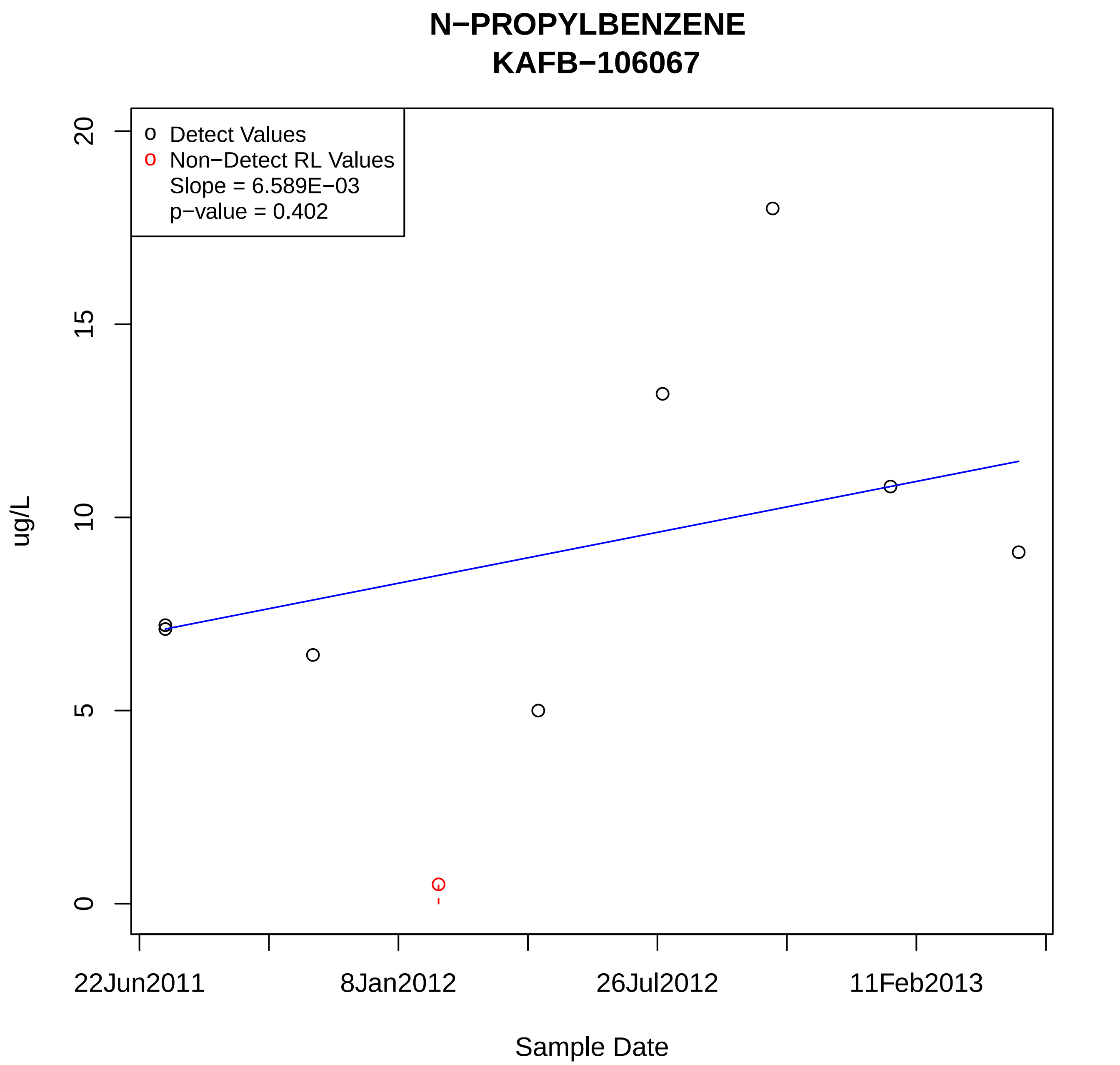
N−PROPYLBENZENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



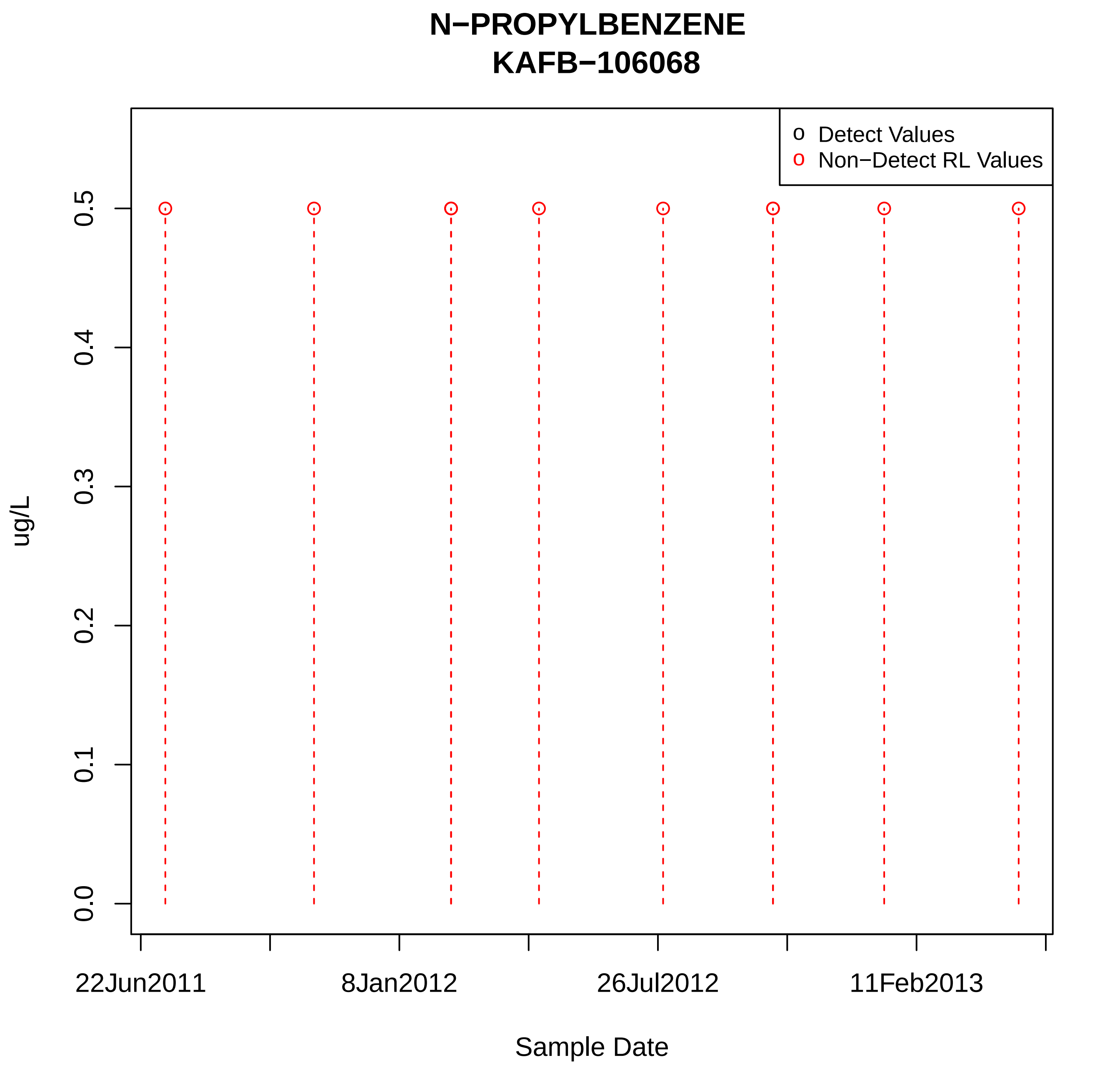
N−PROPYLBENZENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −1.648E−02
p−value = 0.129
ug/L
0
5
10
15
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

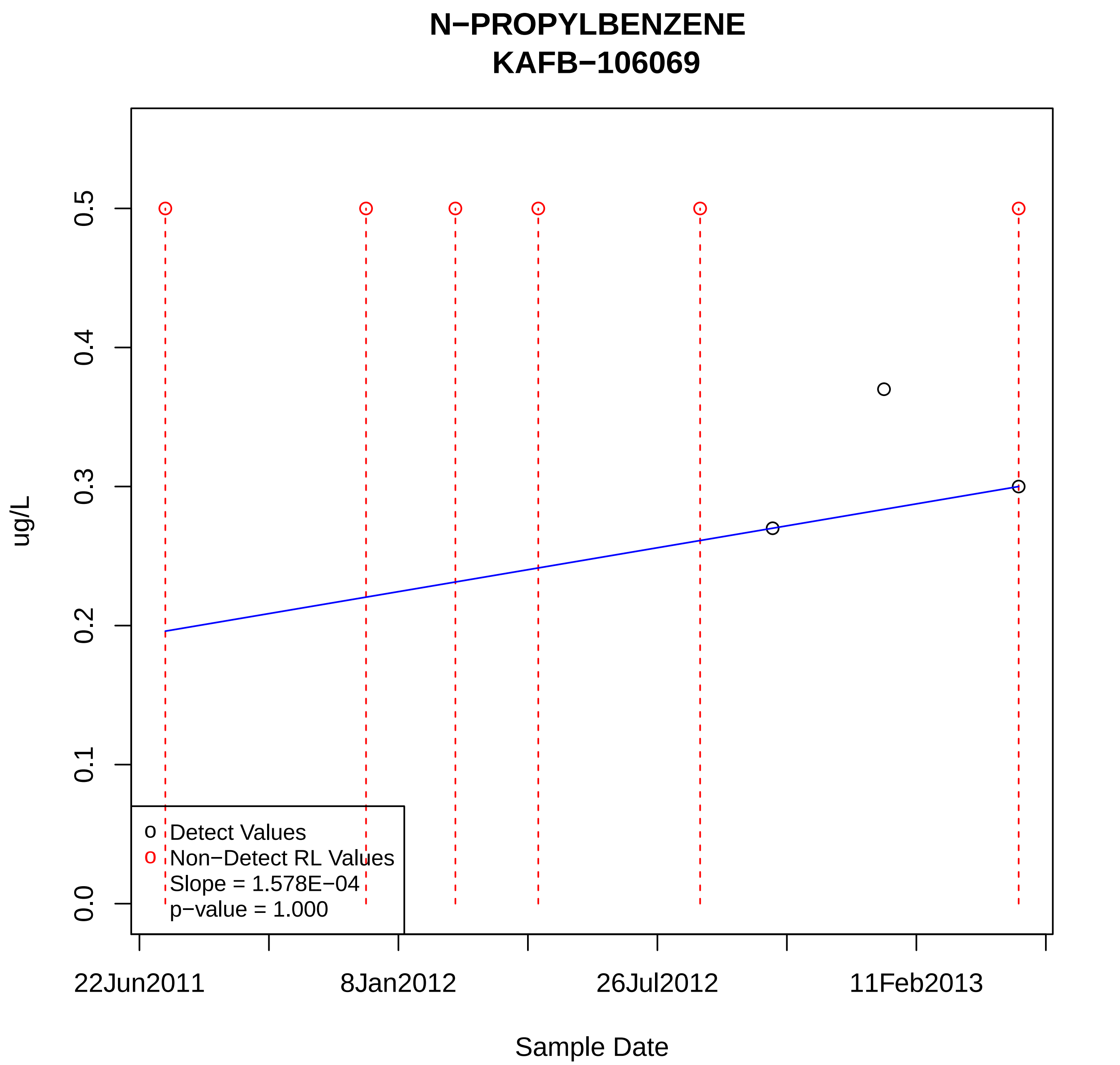

N−PROPYLBENZENE
KAFB−106066
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



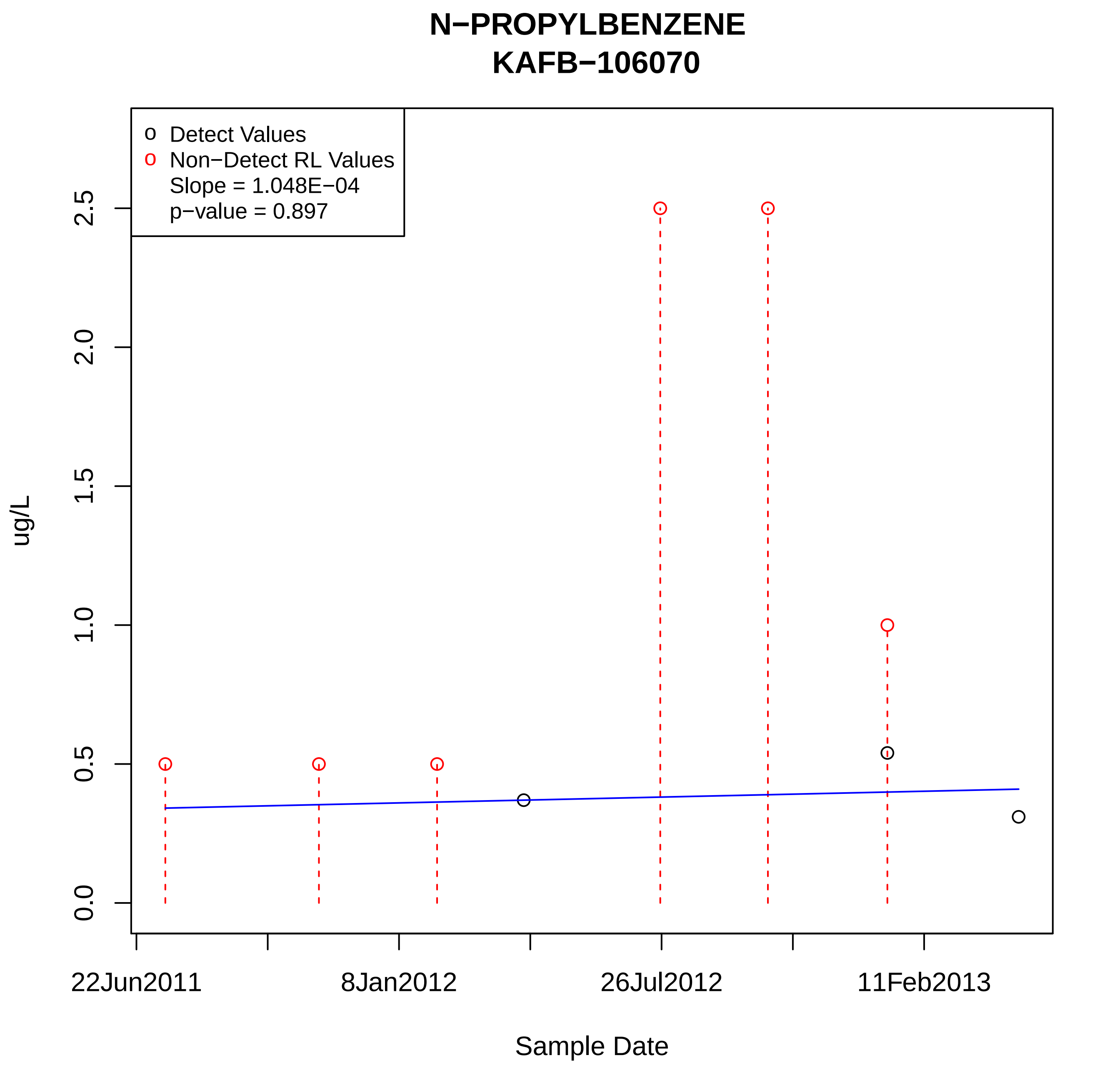
N−PROPYLBENZENE
KAFB−106067
o Detect Values
o Non−Detect RL Values
Slope = 6.589E−03
p−value = 0.402
ug/L
0
5
10
15
20
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



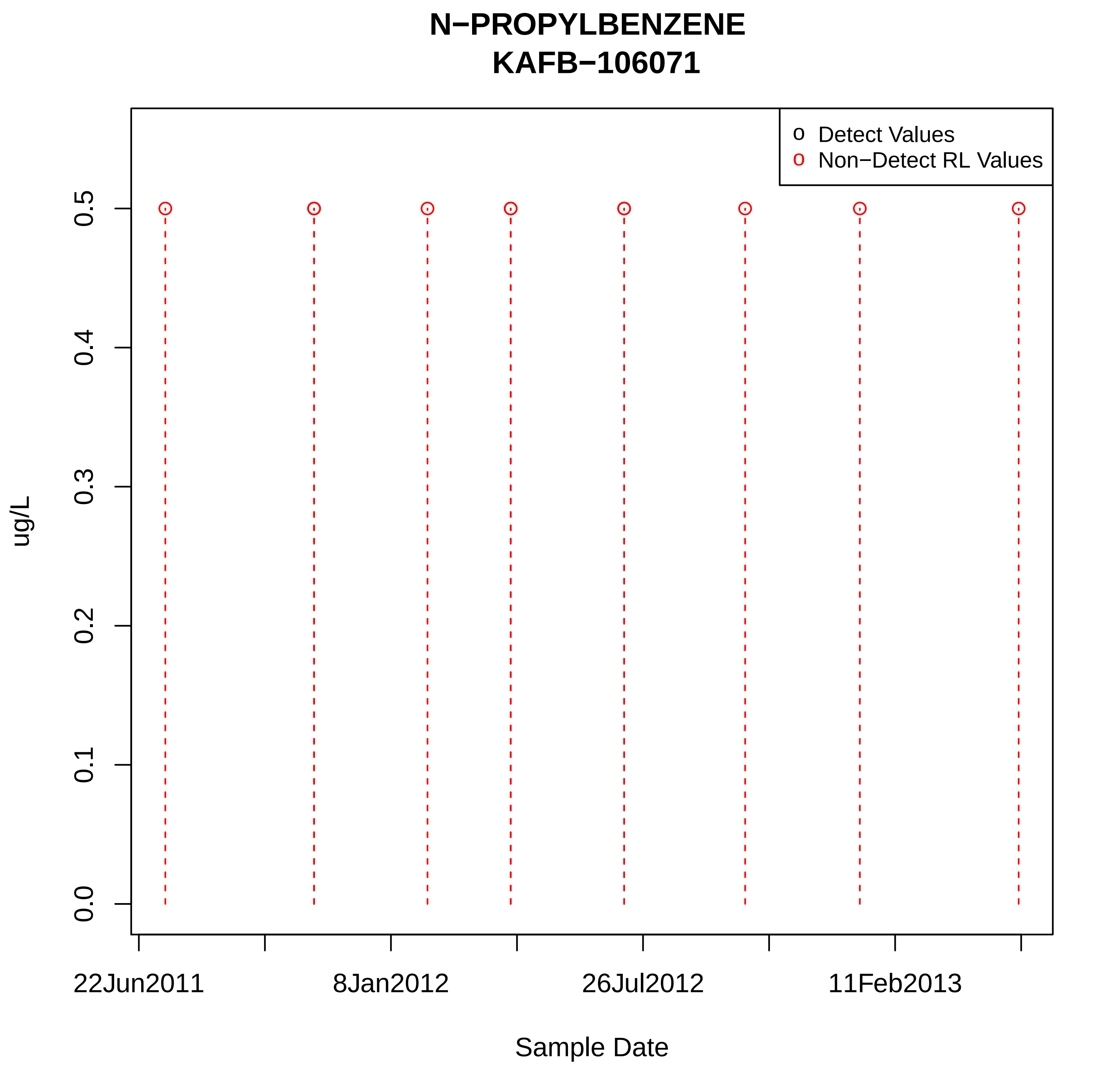
N−PROPYLBENZENE
KAFB−106068
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



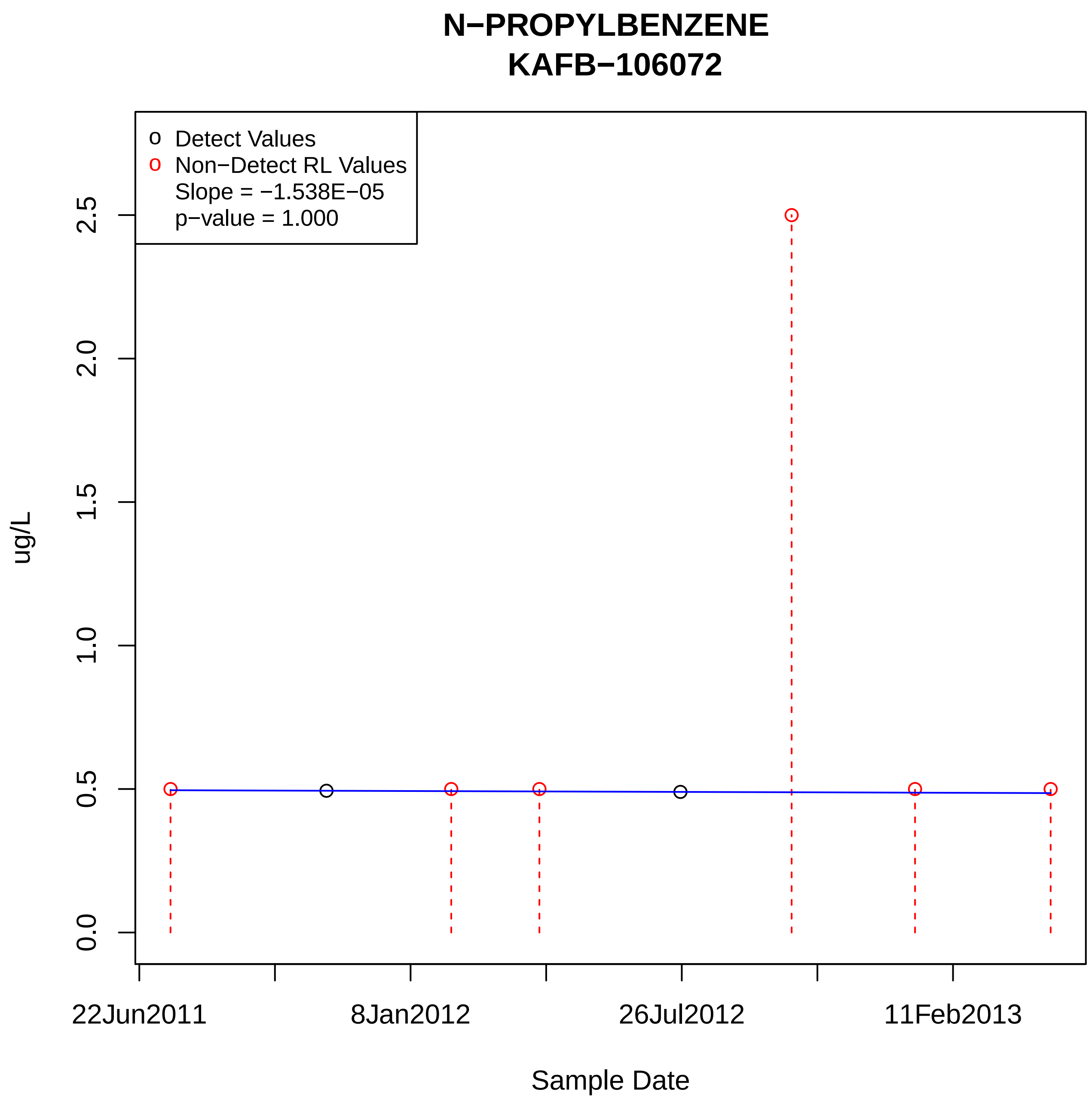
N−PROPYLBENZENE
KAFB−106069
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.578E−04
p−value = 1.000

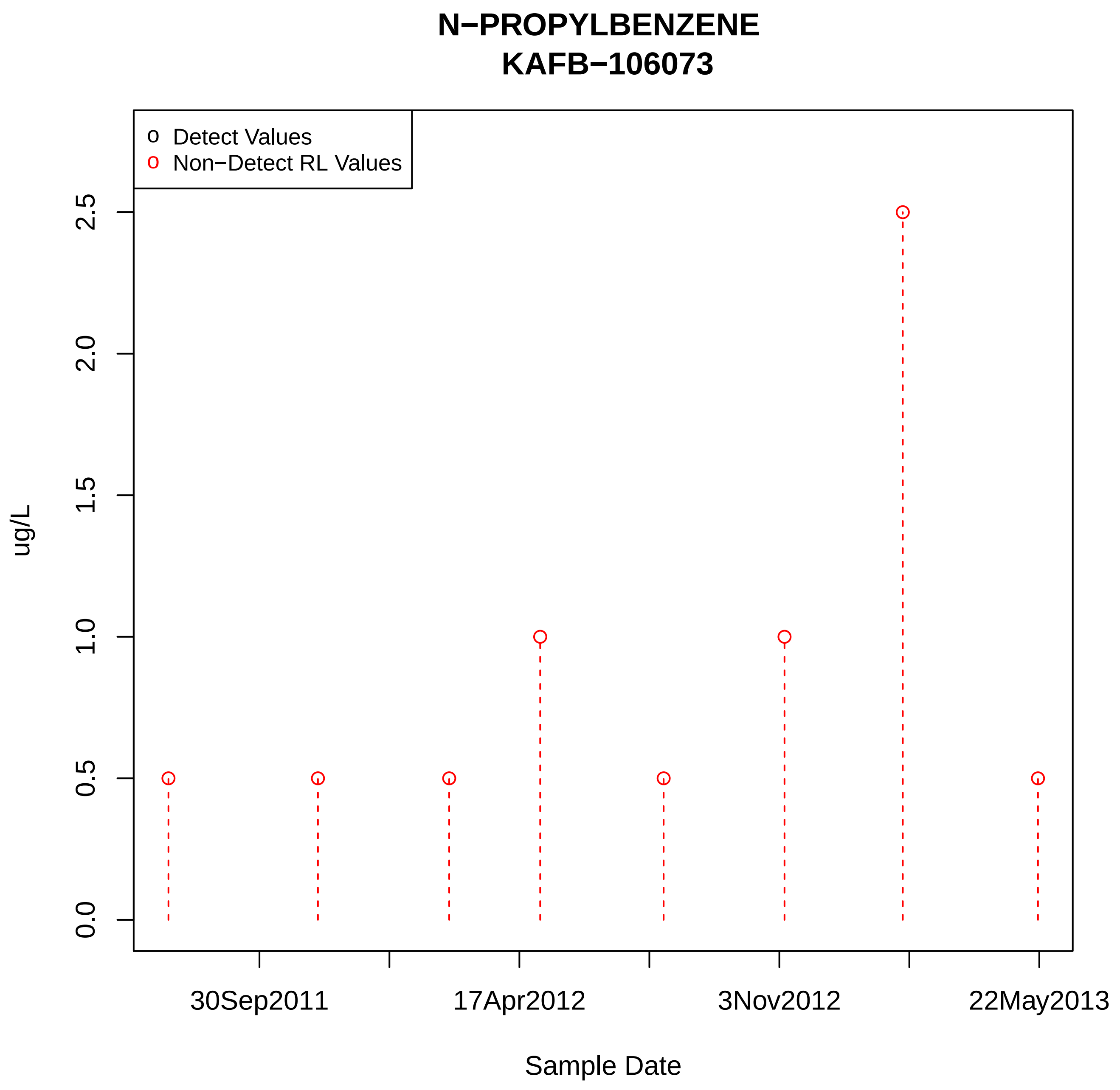


N−PROPYLBENZENE
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = 1.048E−04
p−value = 0.897
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

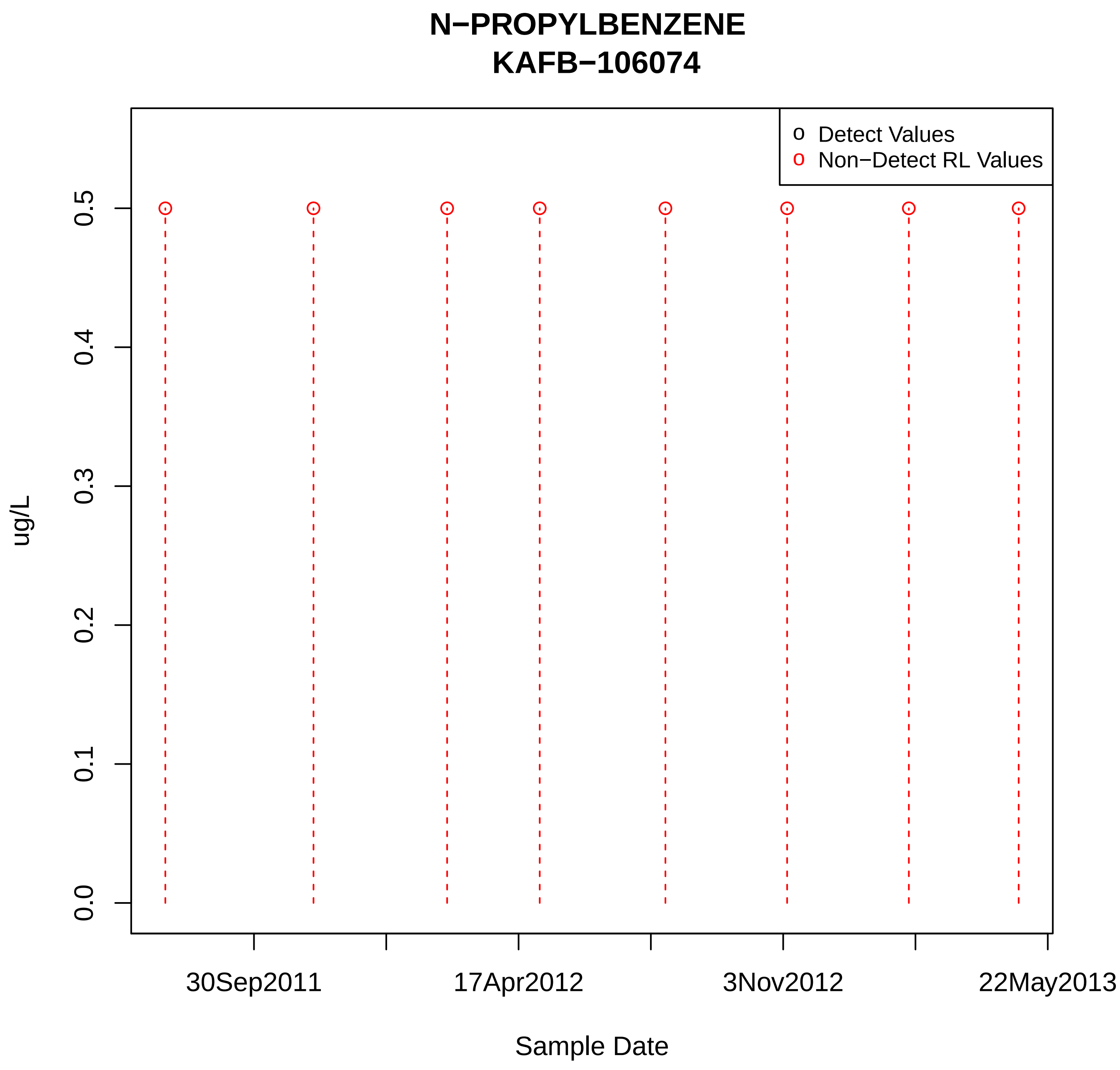


N−PROPYLBENZENE
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

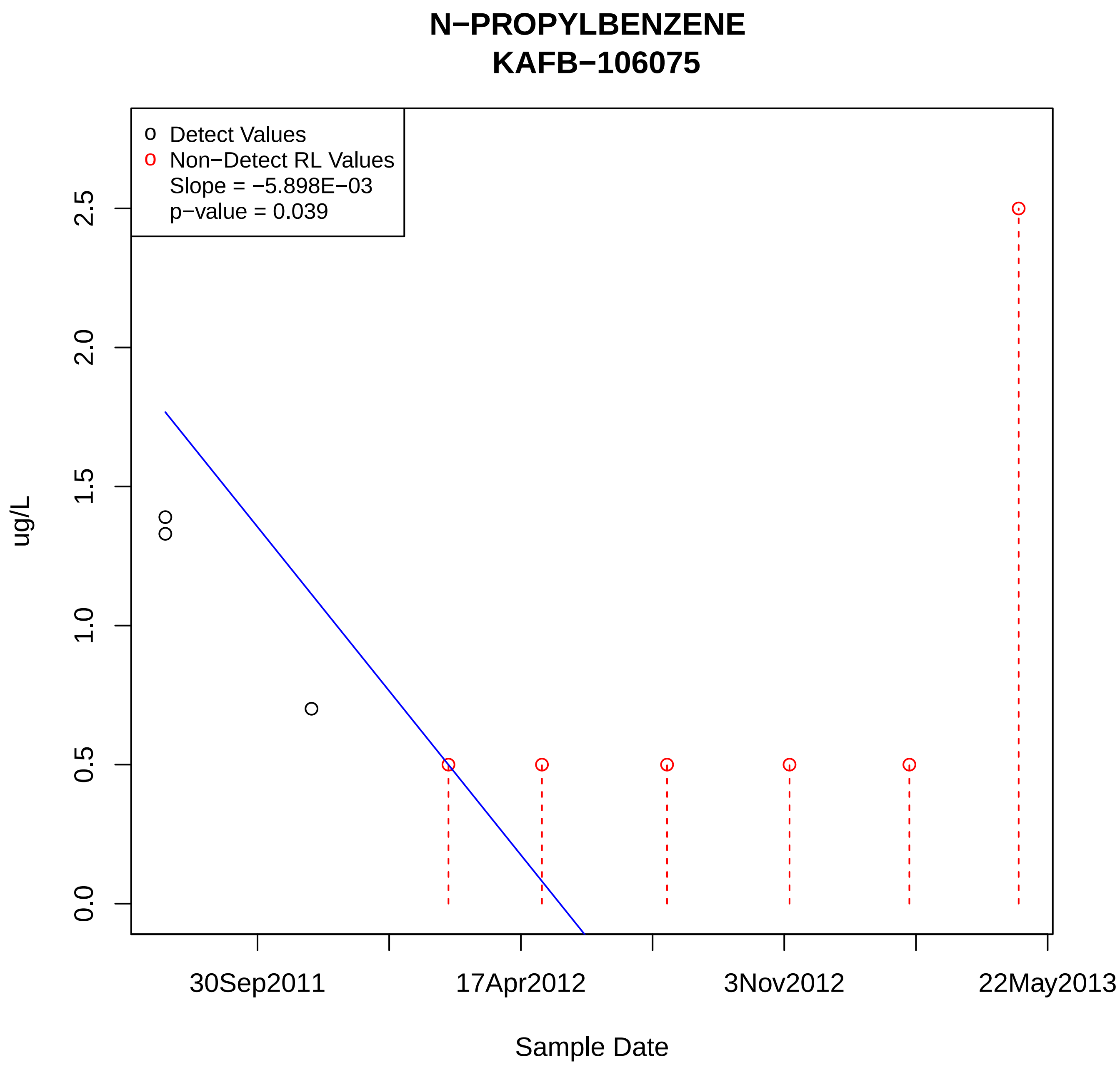

N−PROPYLBENZENE
KAFB−106072
o Detect Values
o Non−Detect RL Values
Slope = −1.538E−05
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

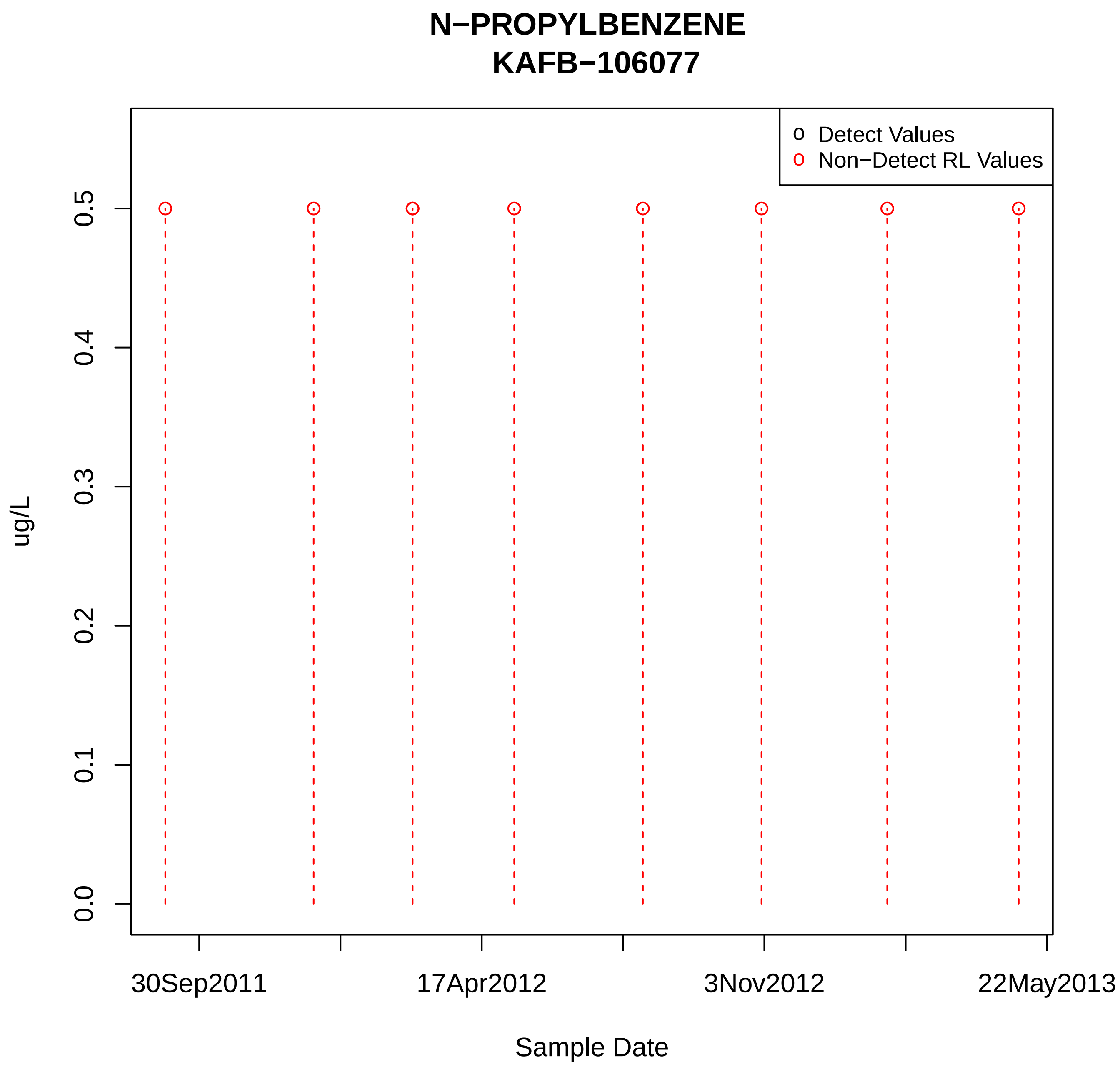


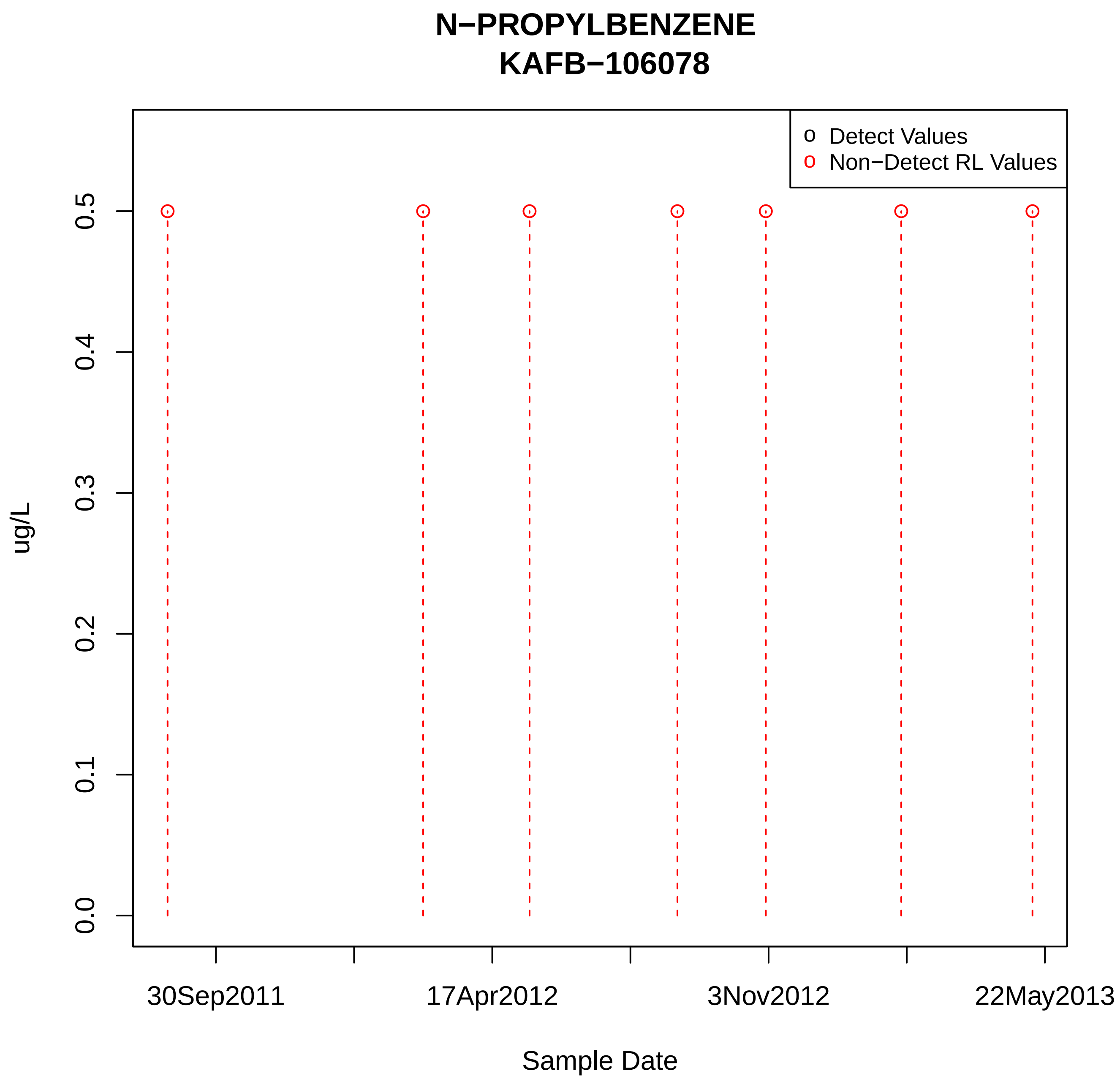
N−PROPYLBENZENE
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



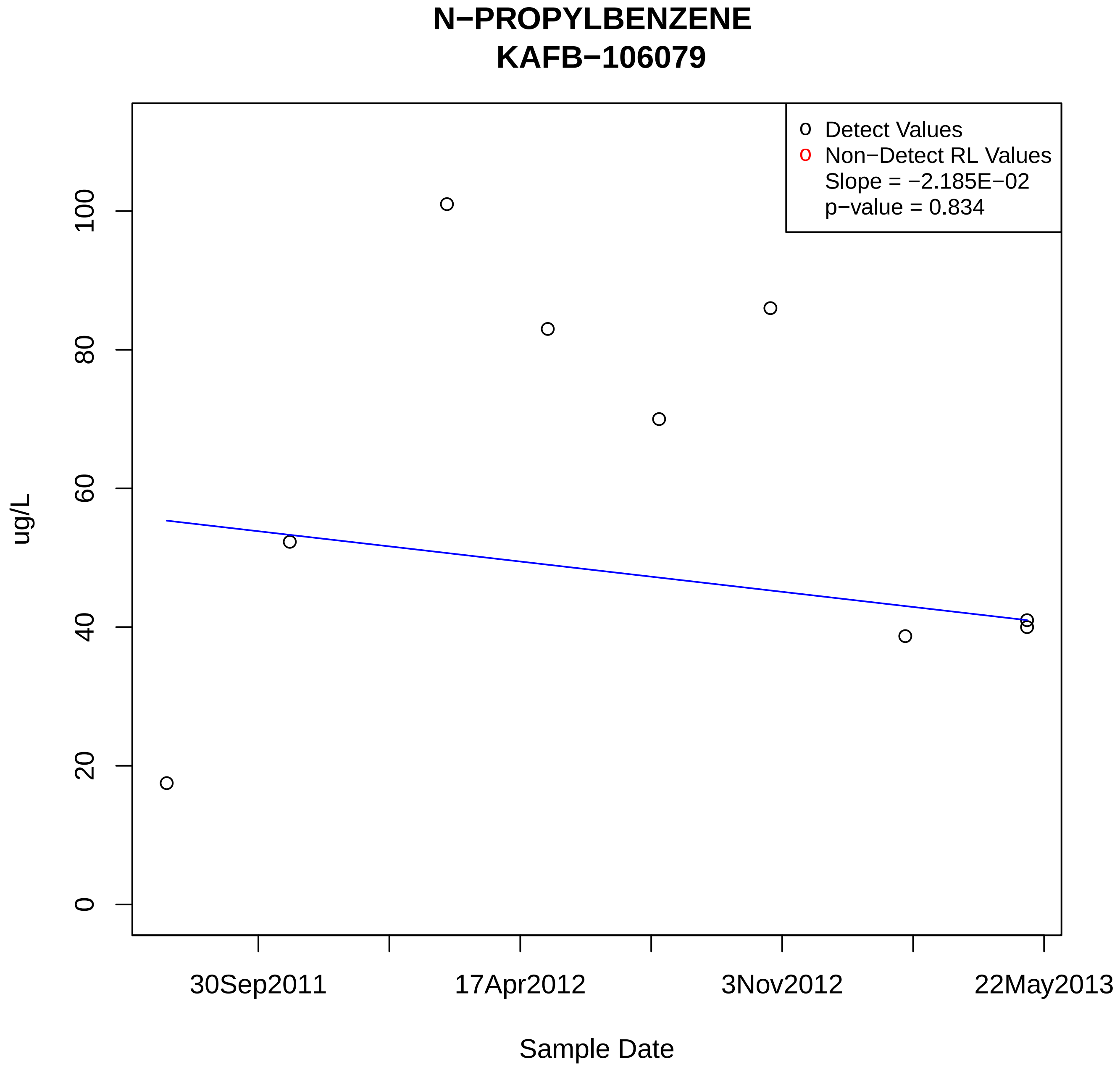
N−PROPYLBENZENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106075
Detect Values
Non−Detect RL Values
Slope = −5.898E−03
p−value = 0.039
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

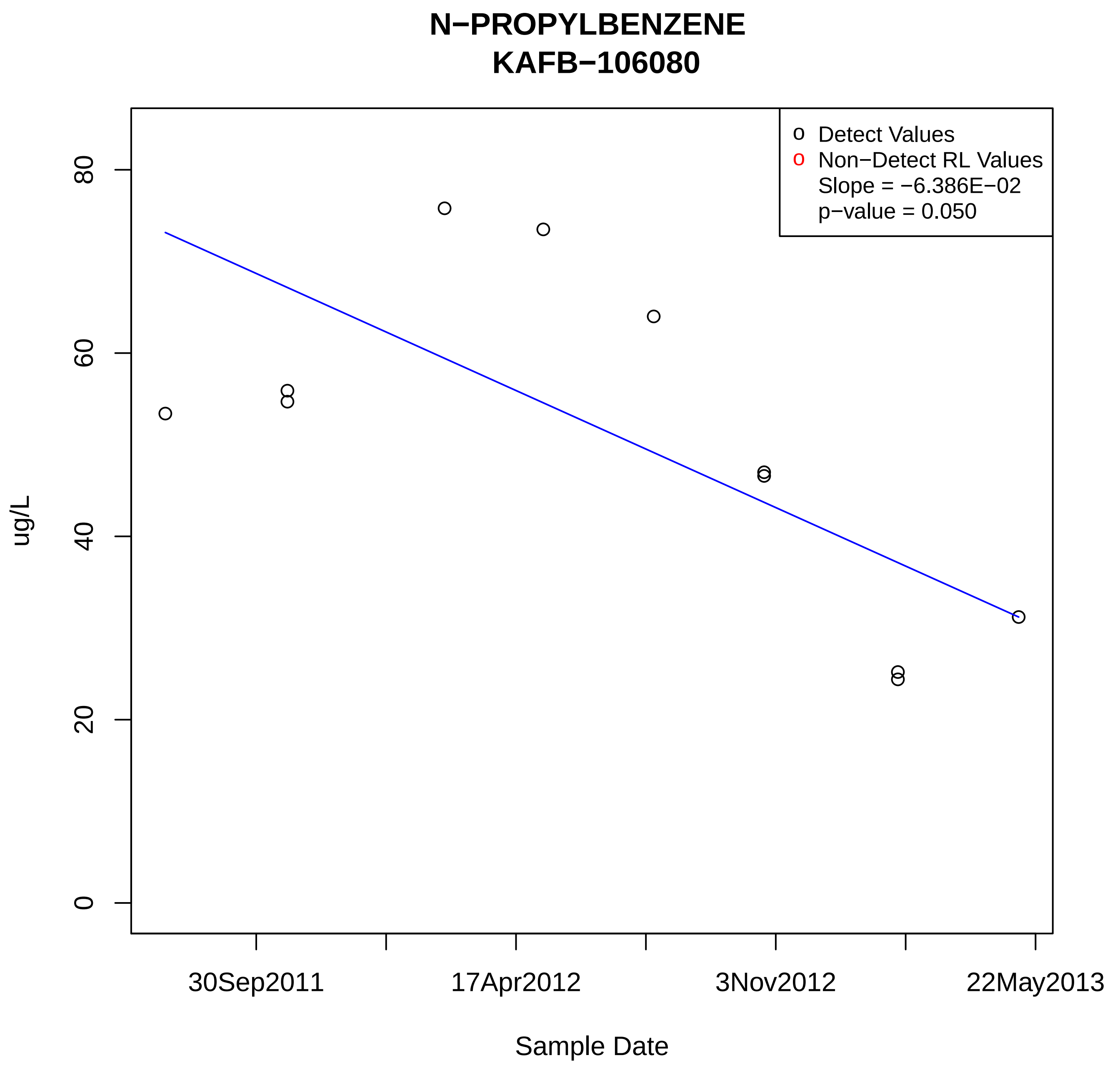

N−PROPYLBENZENE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

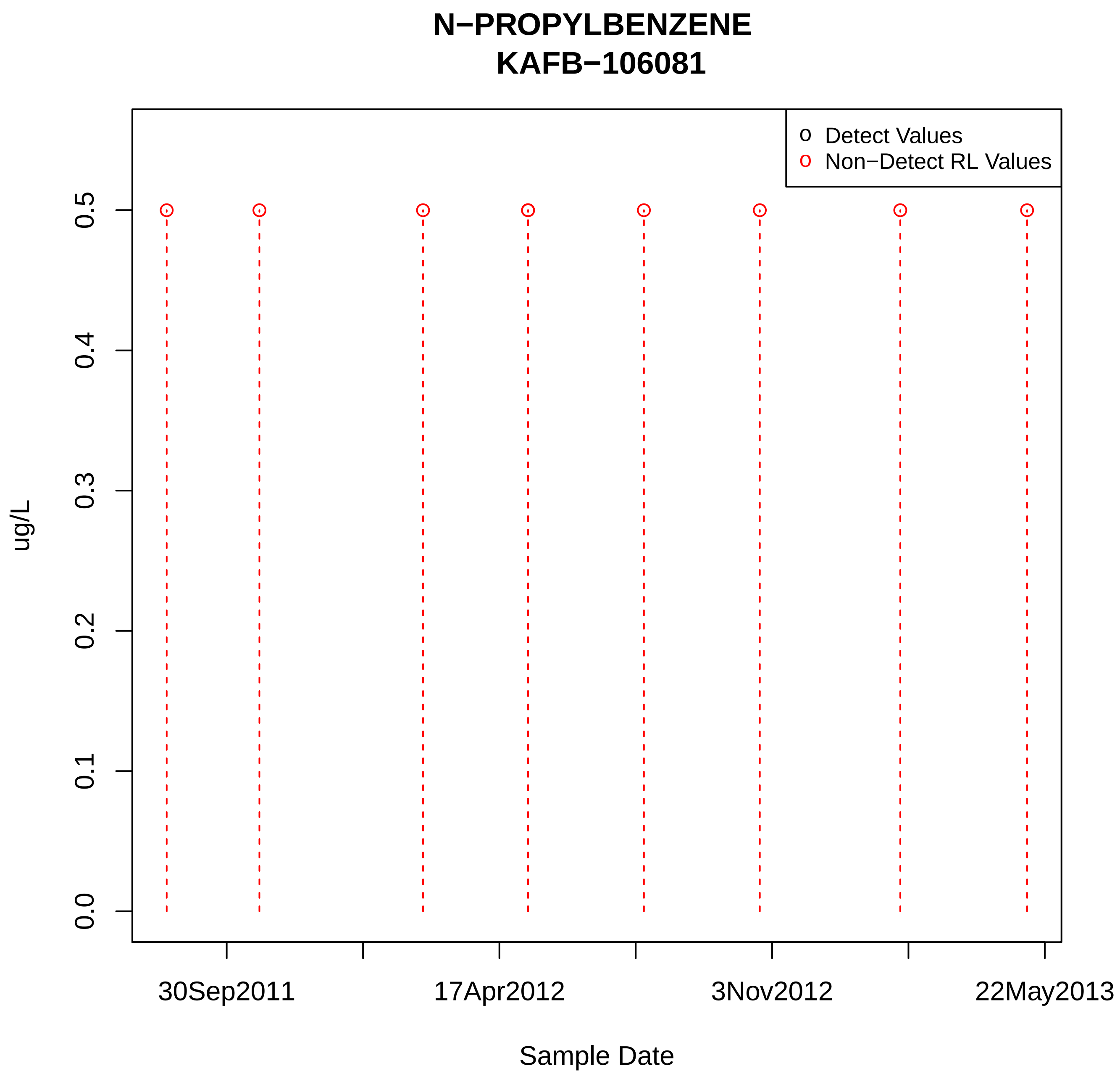


N−PROPYLBENZENE
KAFB−106078
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

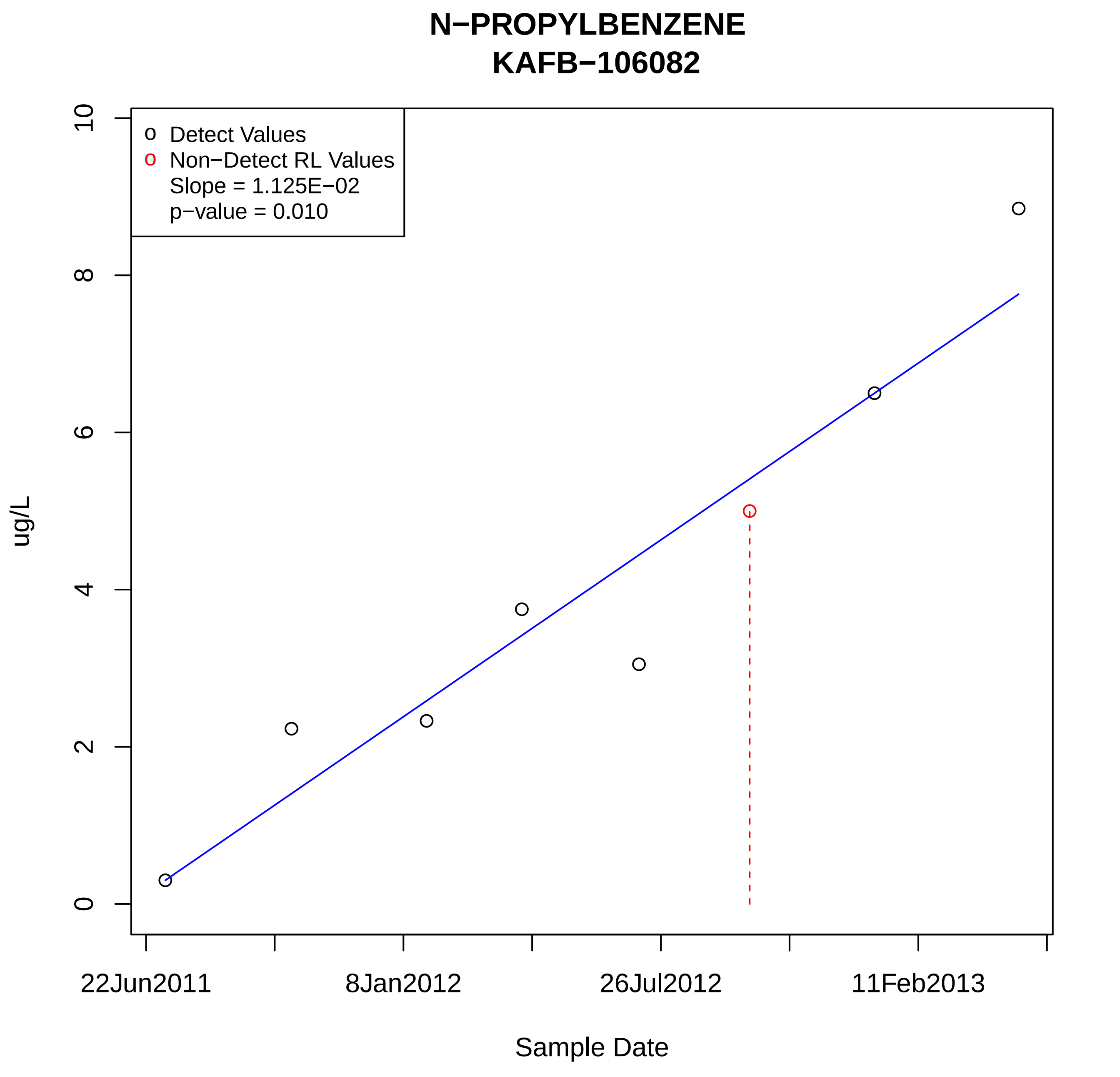


N−PROPYLBENZENE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −2.185E−02
p−value = 0.834
0
20
40
60
80
100
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

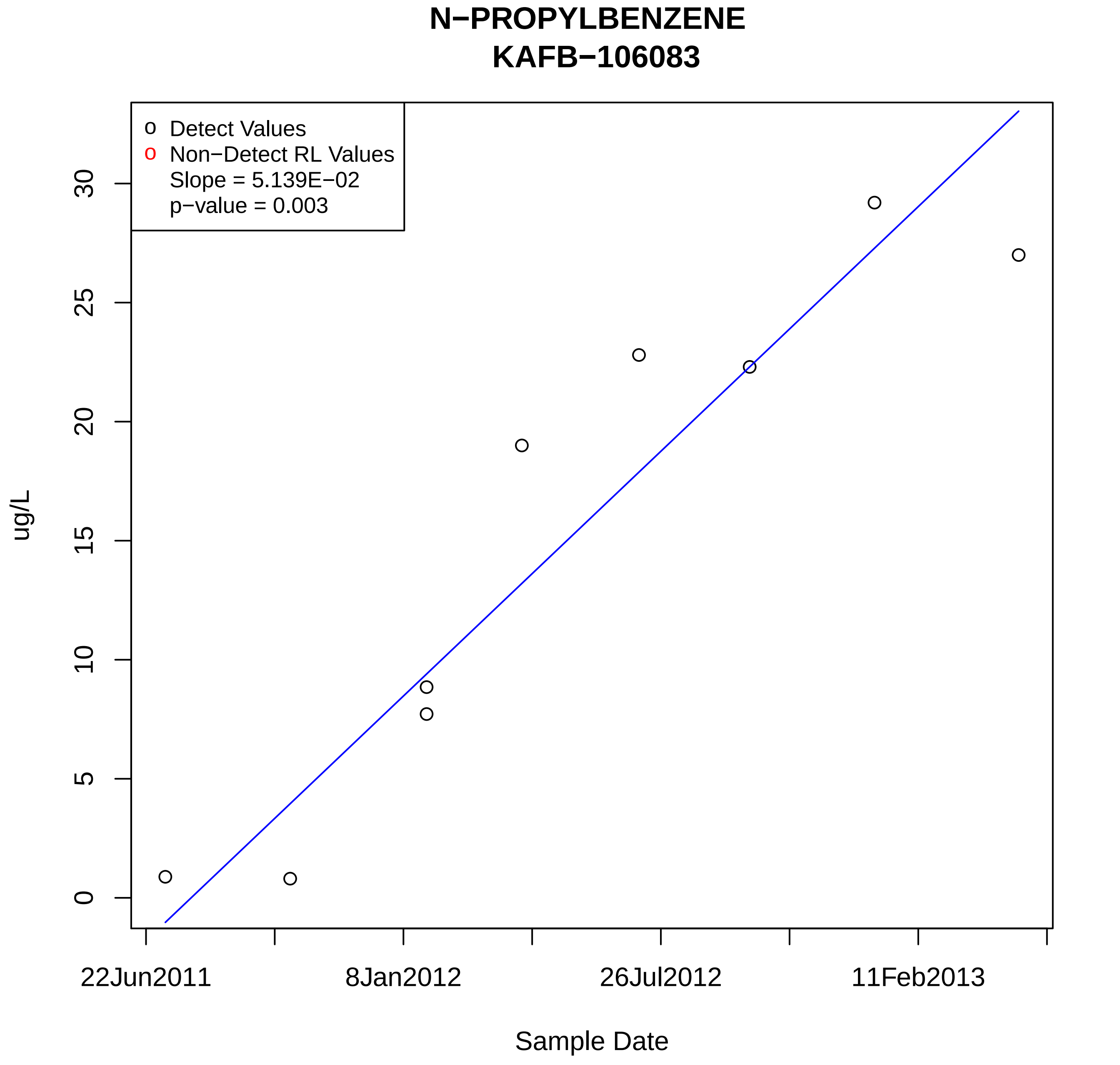

N−PROPYLBENZENE
KAFB−106080
o Detect Values
o Non−Detect RL Values
Slope = −6.386E−02
p−value = 0.050
ug/L
0
20
40
60
80
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



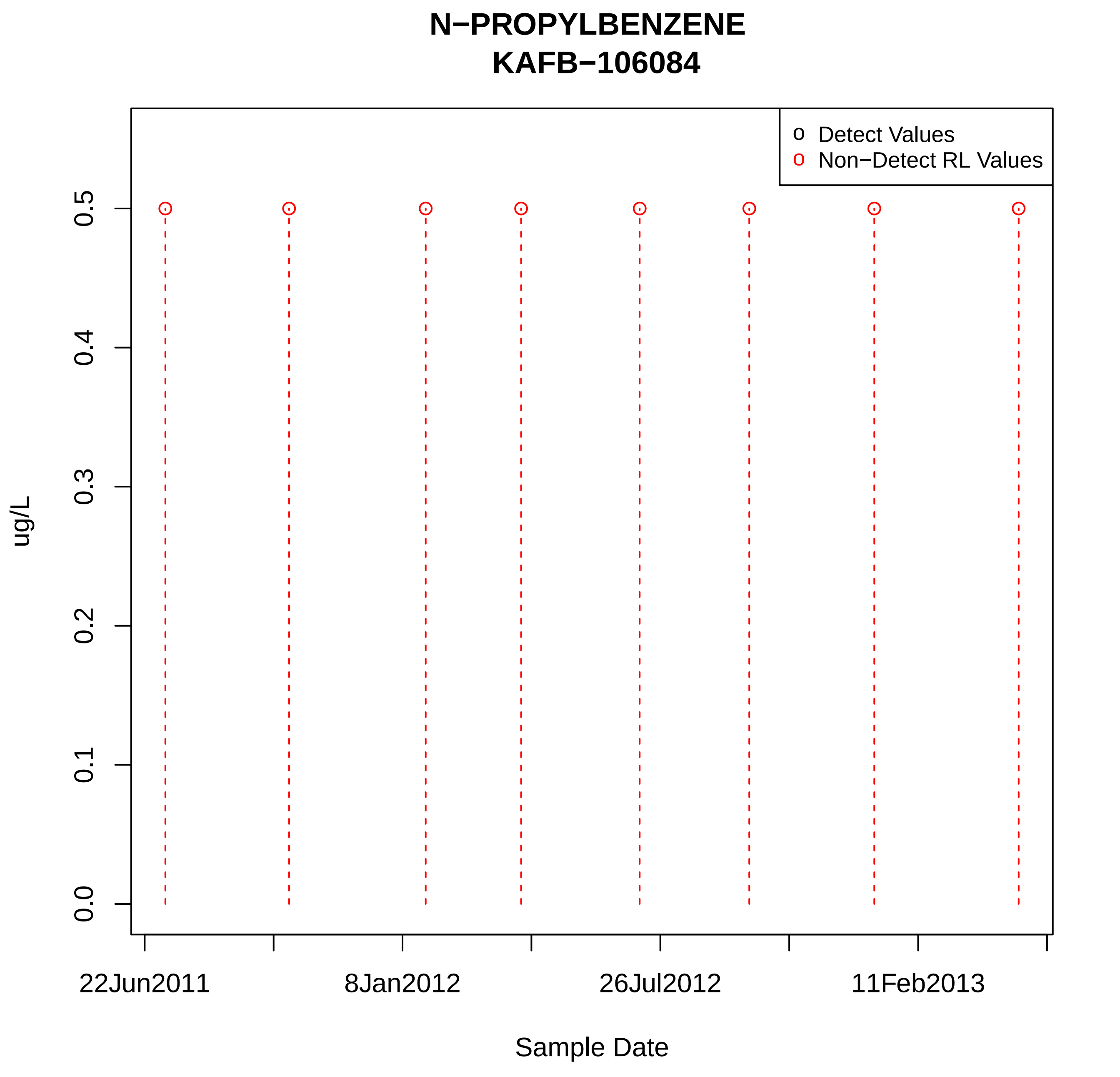
N−PROPYLBENZENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



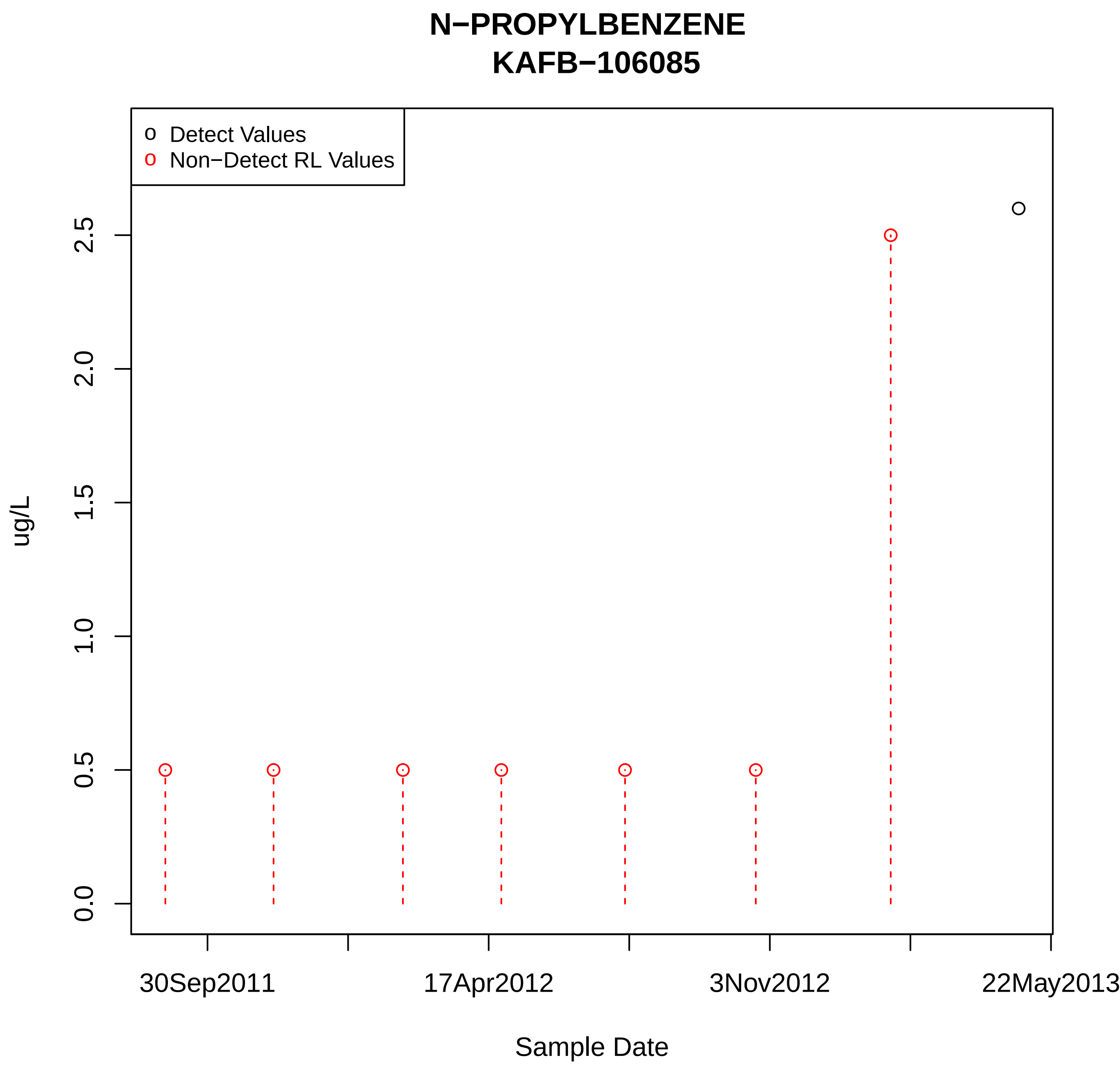
N−PROPYLBENZENE
KAFB−106082
o Detect Values
o Non−Detect RL Values
Slope = 1.125E−02
p−value = 0.010
ug/L
0
2
4
6
8
10
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

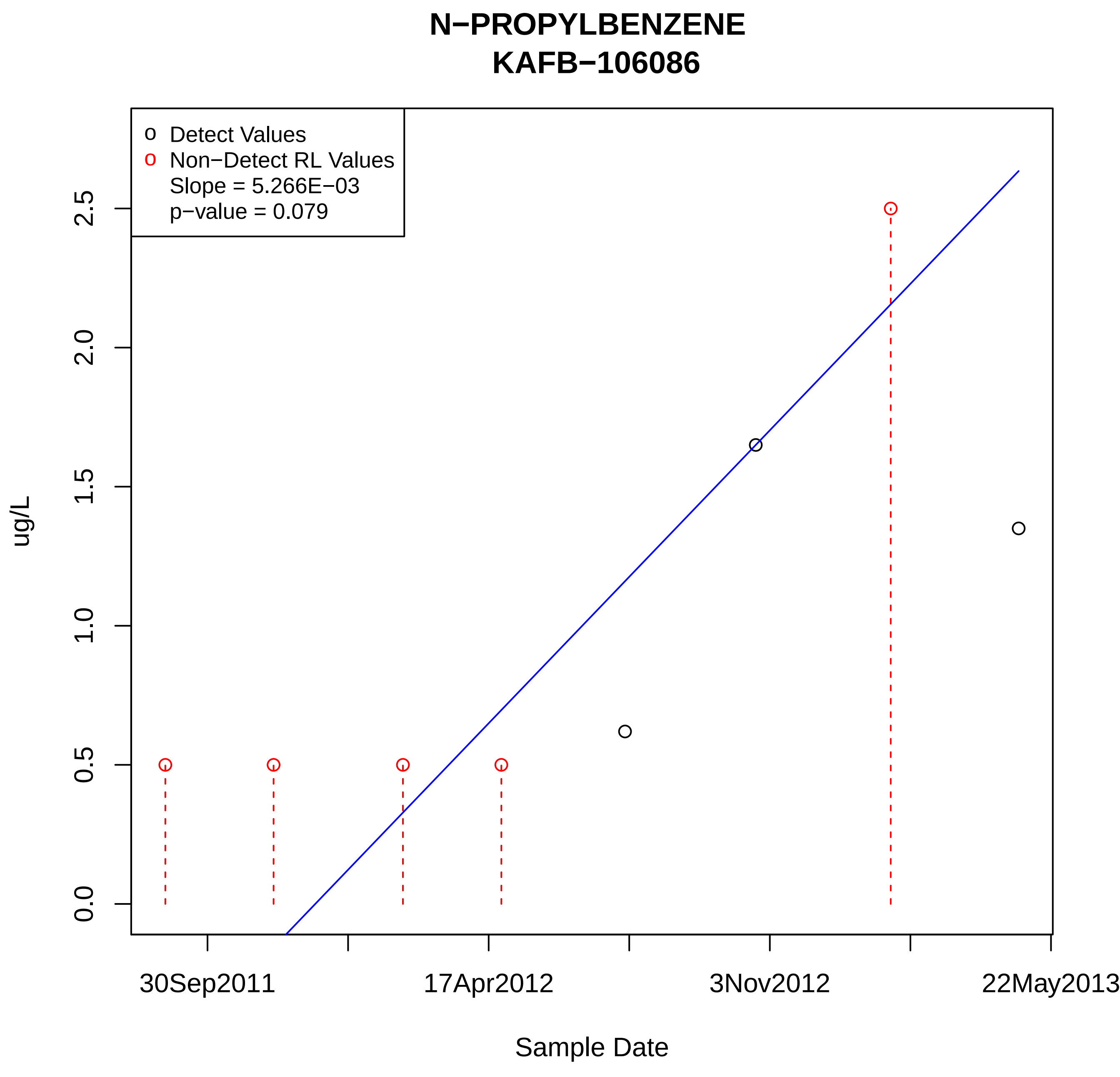


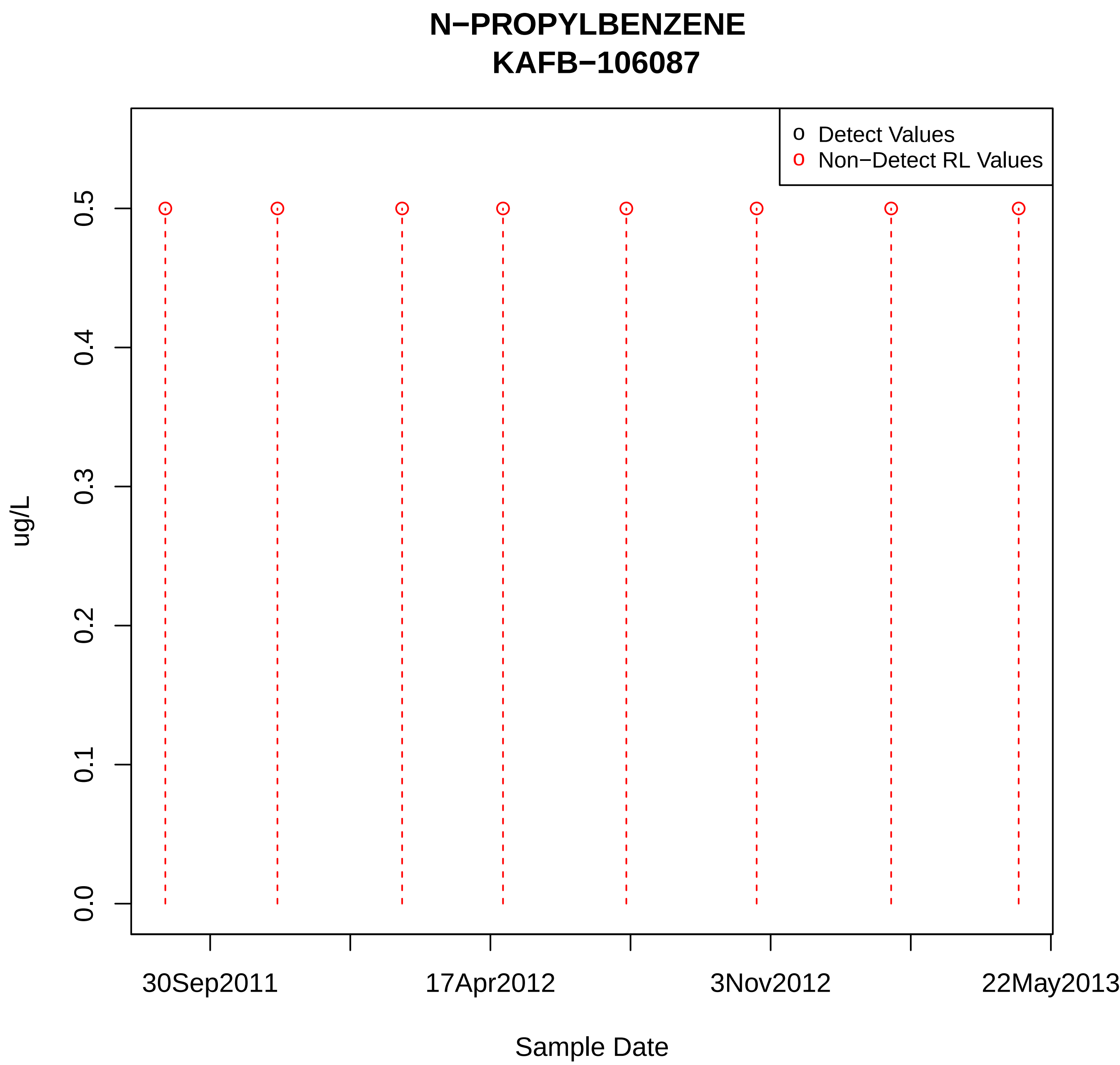
N−PROPYLBENZENE
KAFB−106083
o Detect Values
o Non−Detect RL Values
Slope = 5.139E−02
p−value = 0.003
ug/L
0
5
10
15
20
25
30
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

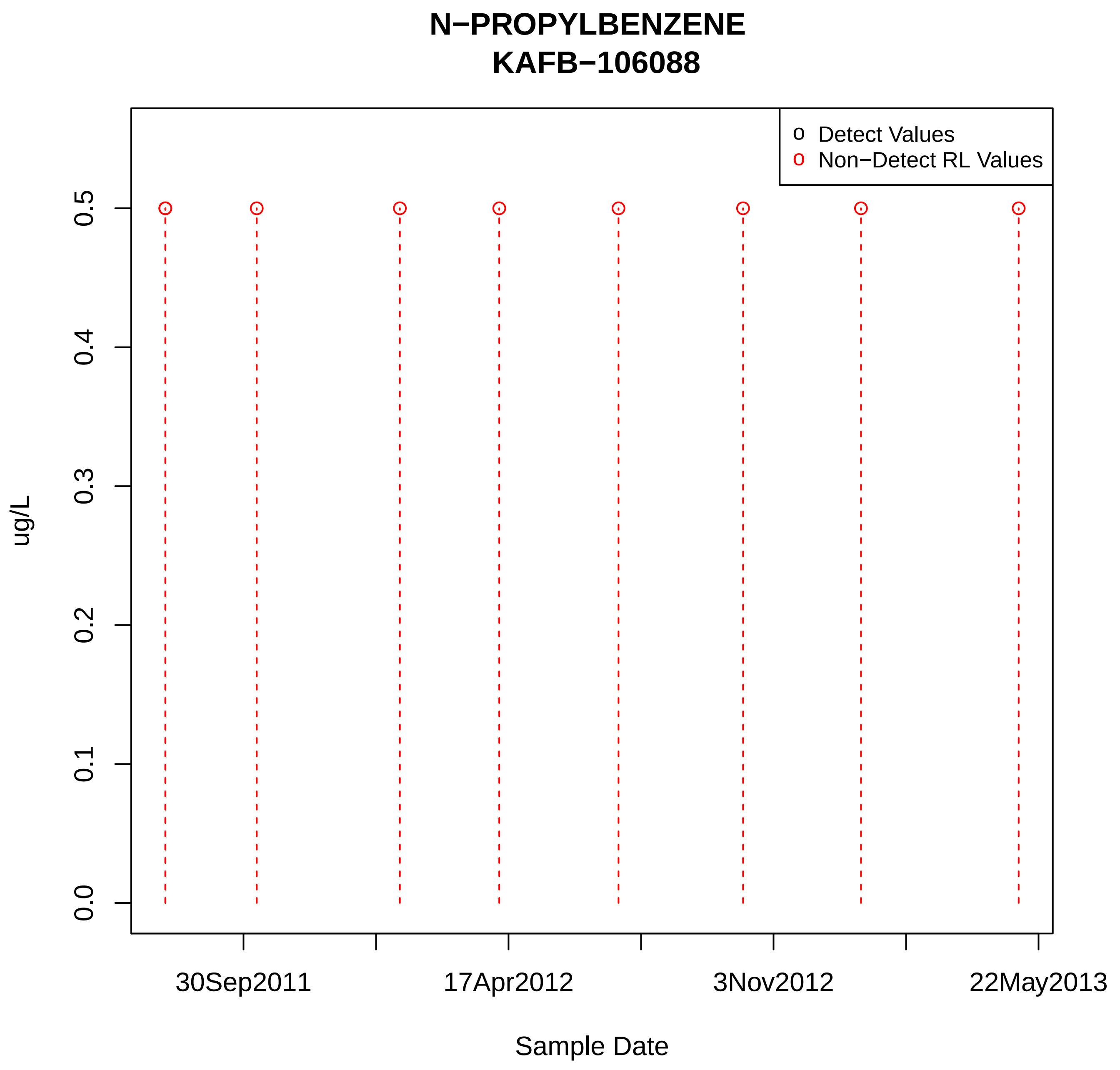


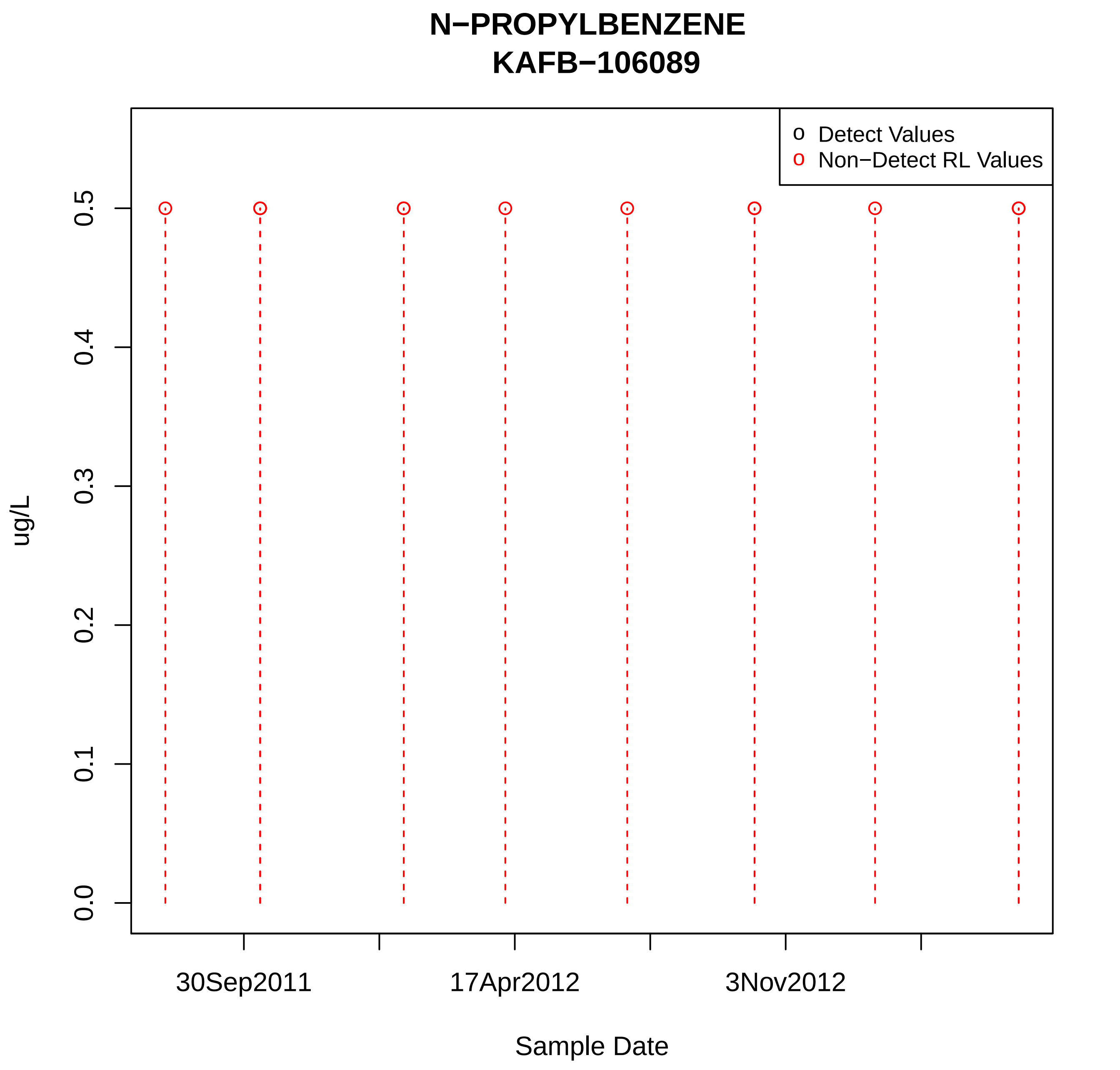
N−PROPYLBENZENE
KAFB−106084
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

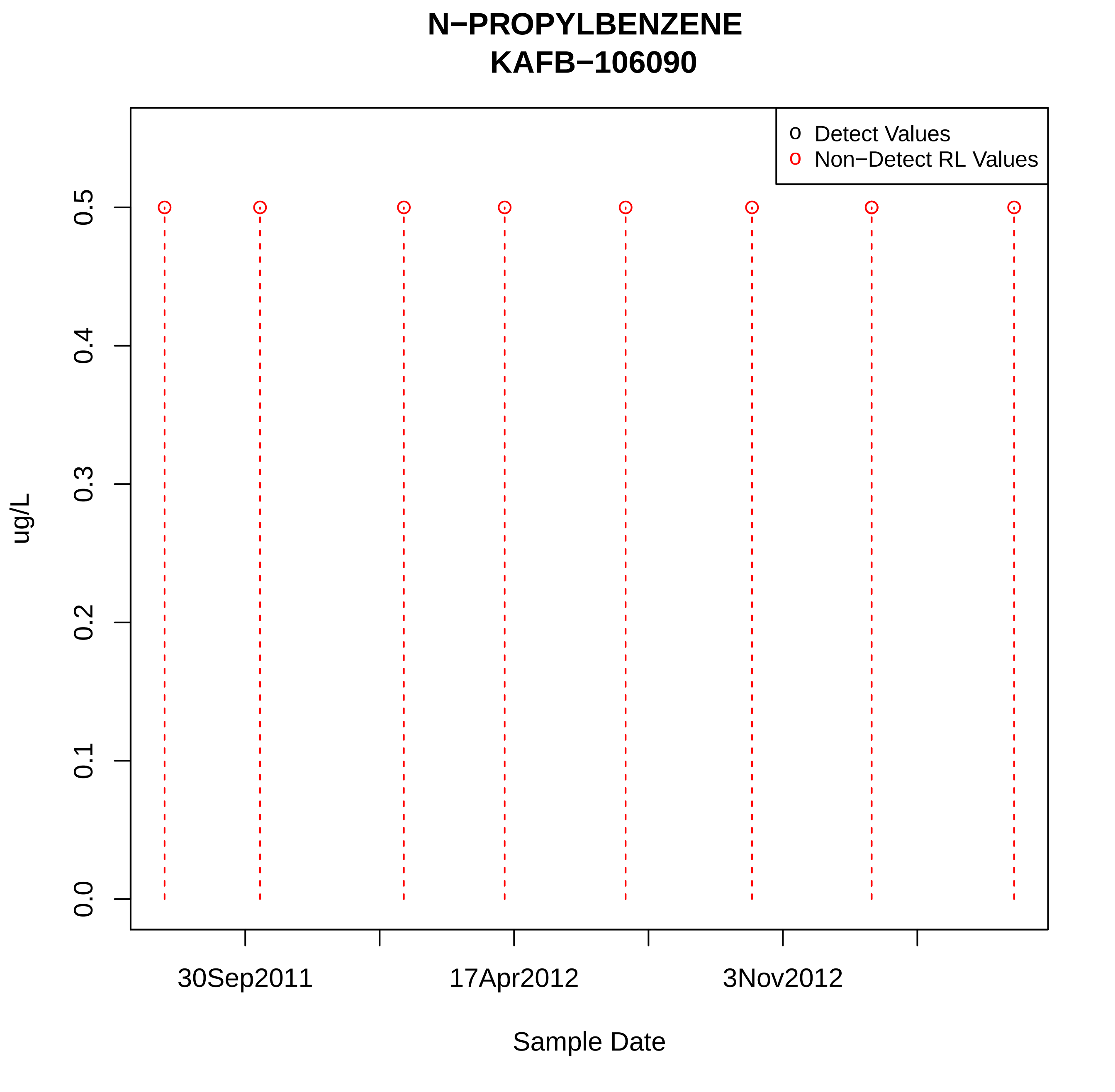

N−PROPYLBENZENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

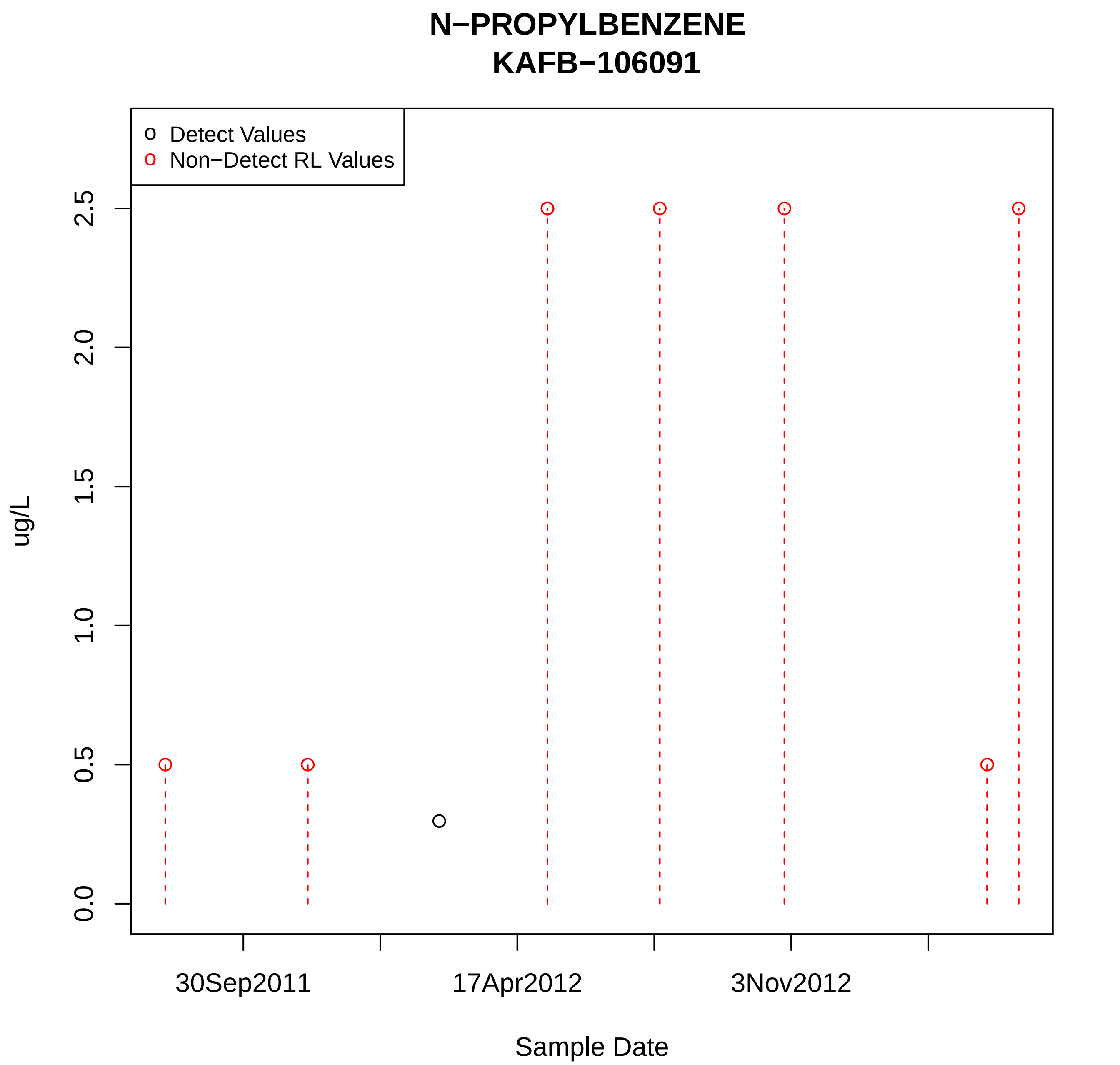

N−PROPYLBENZENE
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = 5.266E−03
p−value = 0.079
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

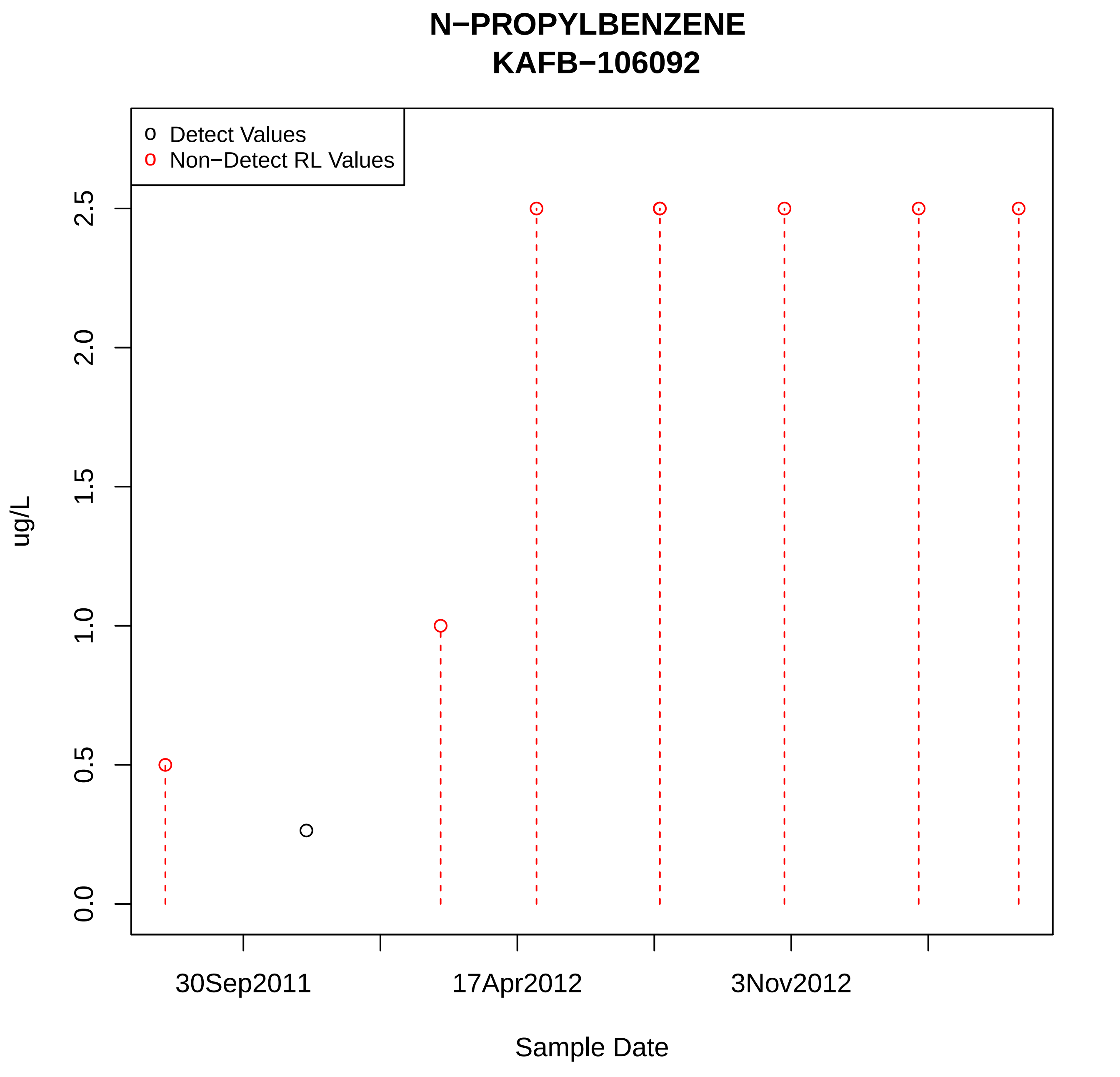

N−PROPYLBENZENE
KAFB−106088
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106089
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

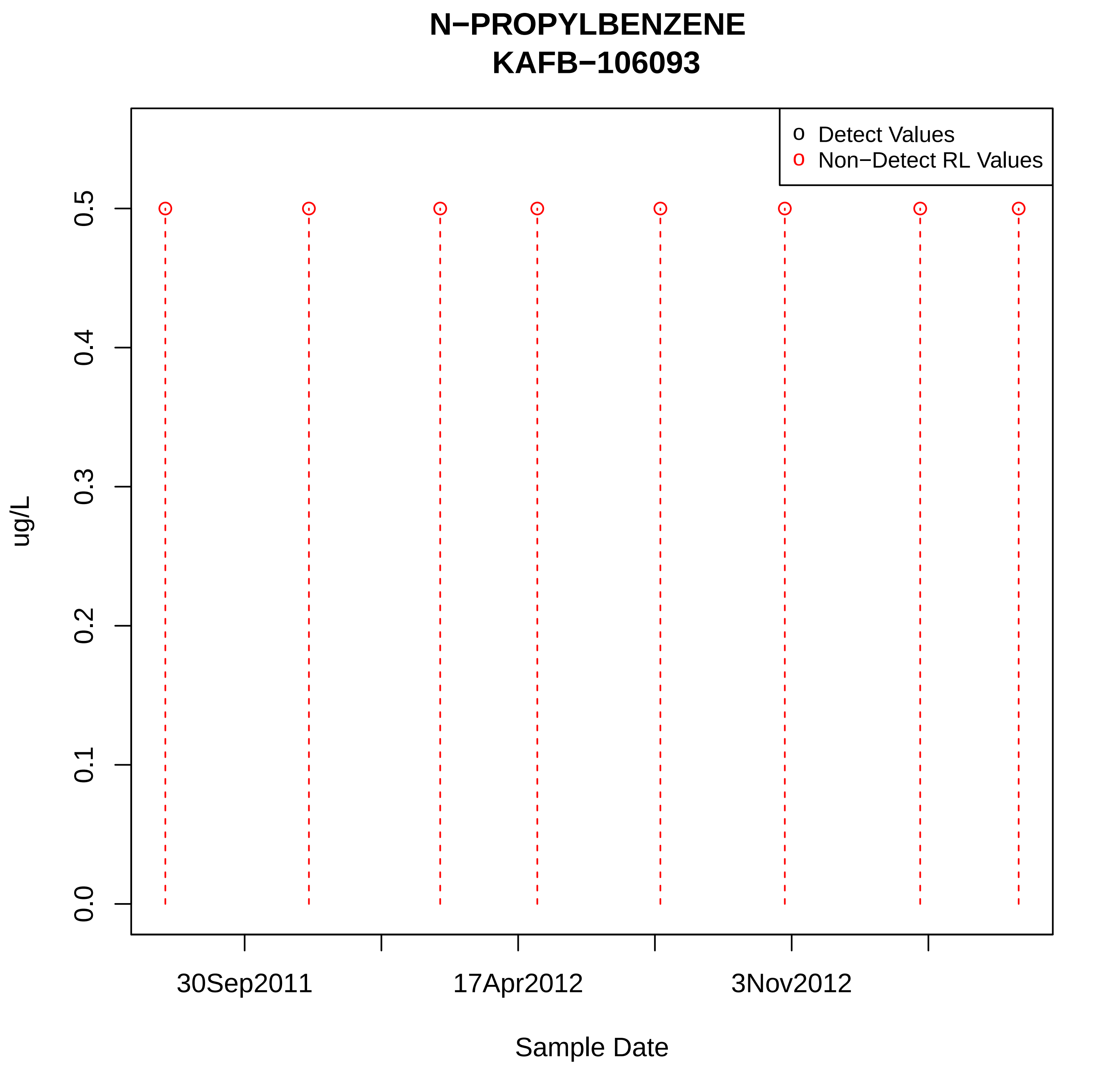

N−PROPYLBENZENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

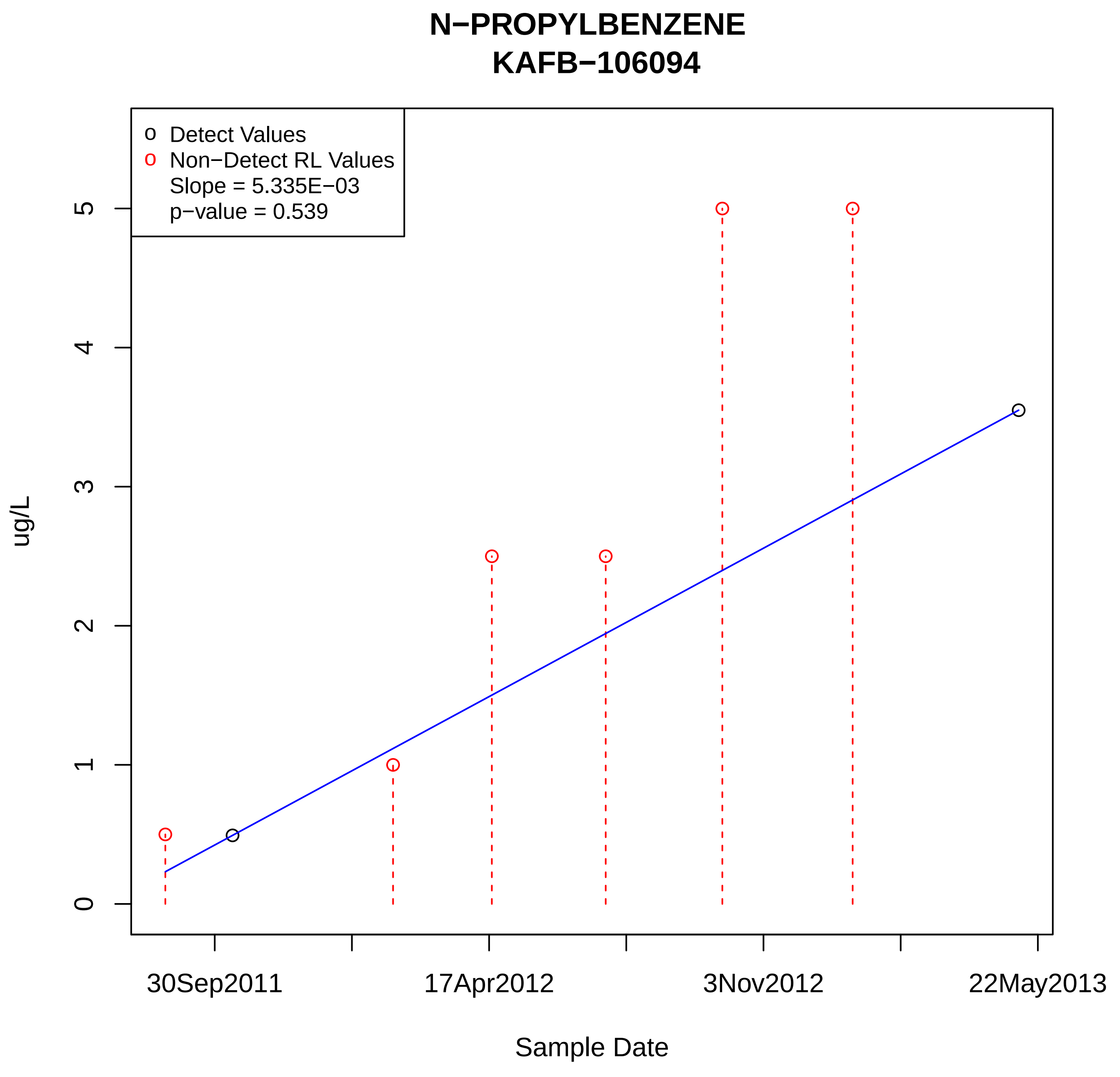


N−PROPYLBENZENE
KAFB−106091
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

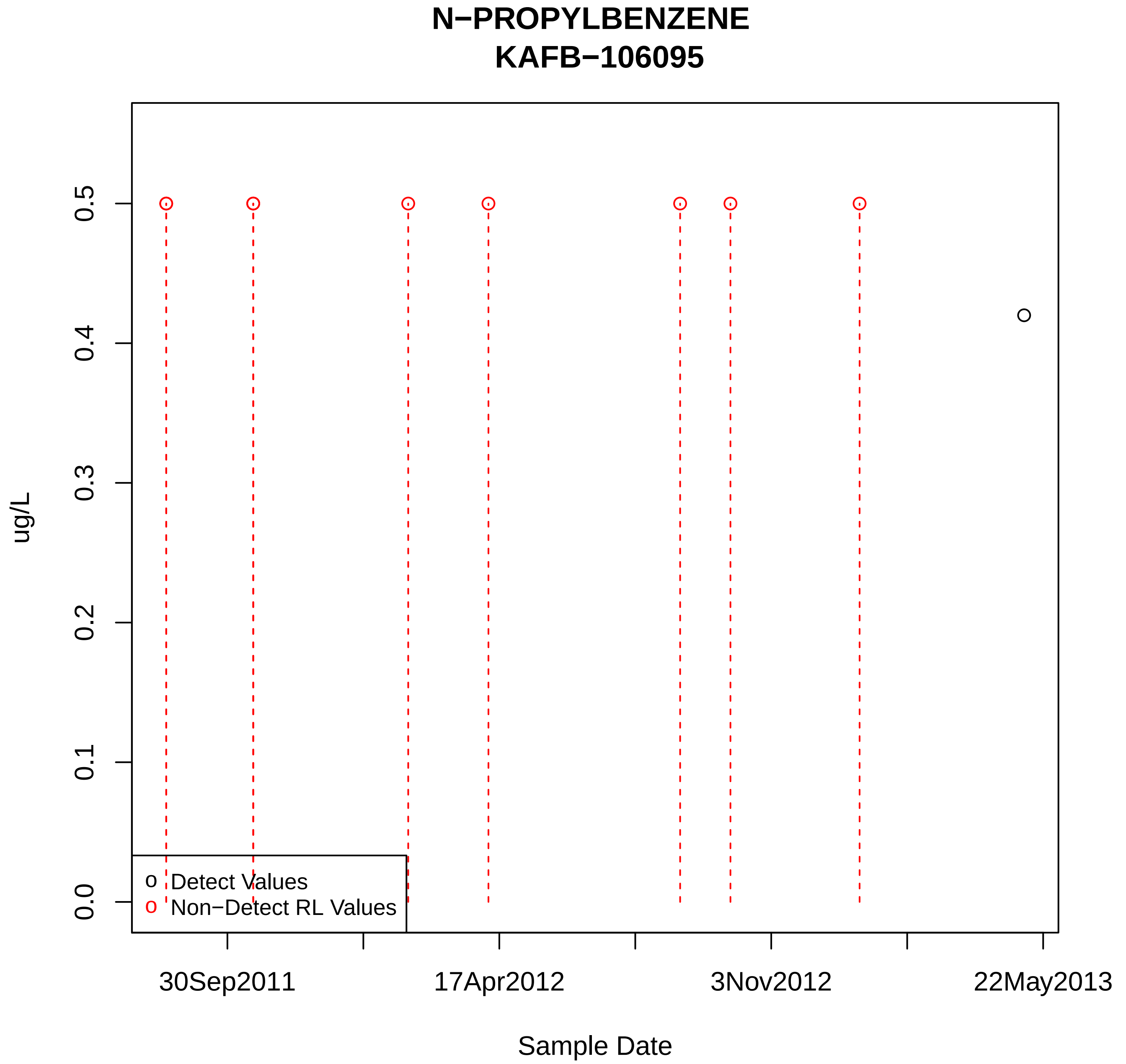


N−PROPYLBENZENE
KAFB−106092
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

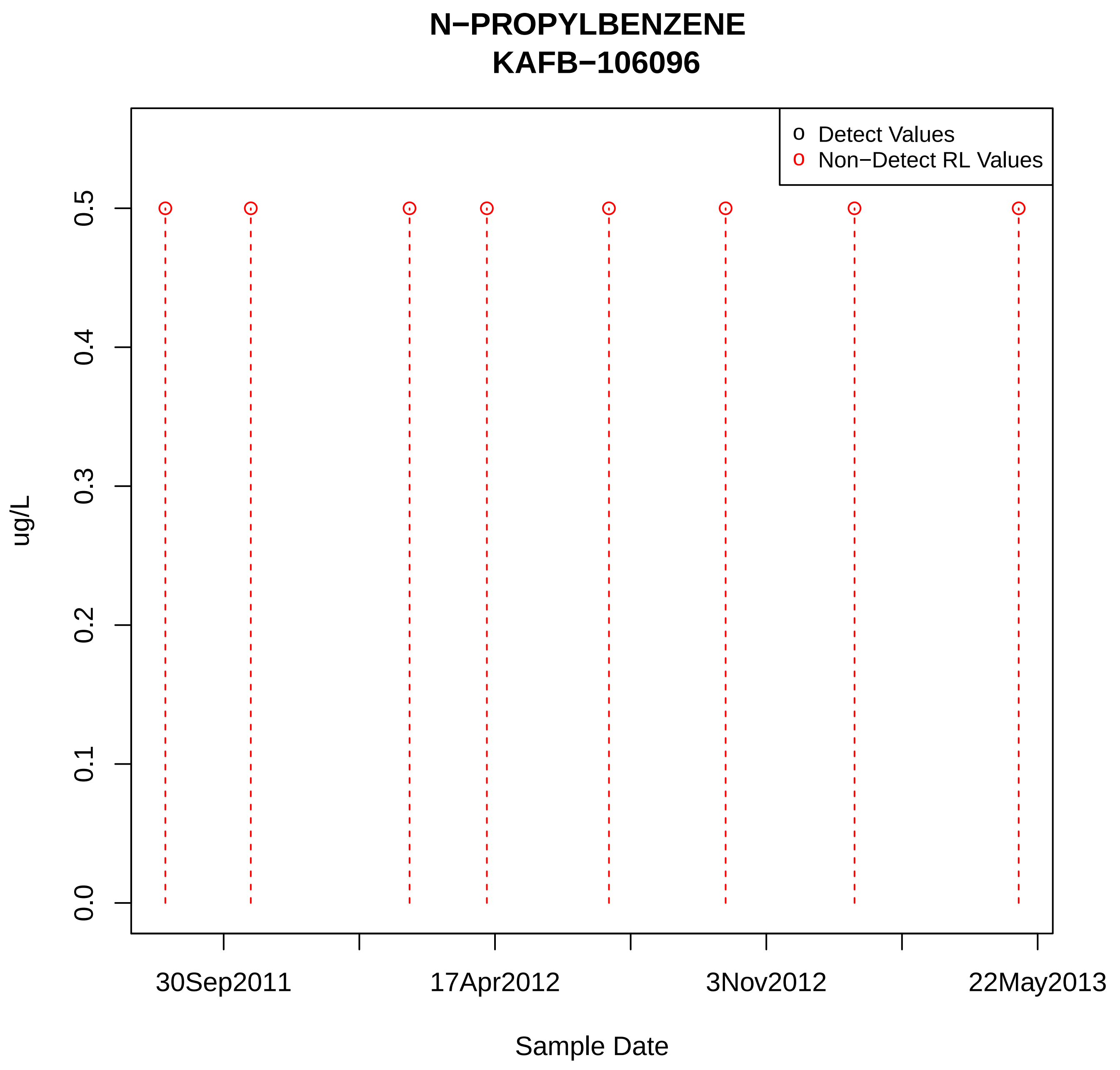

N−PROPYLBENZENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



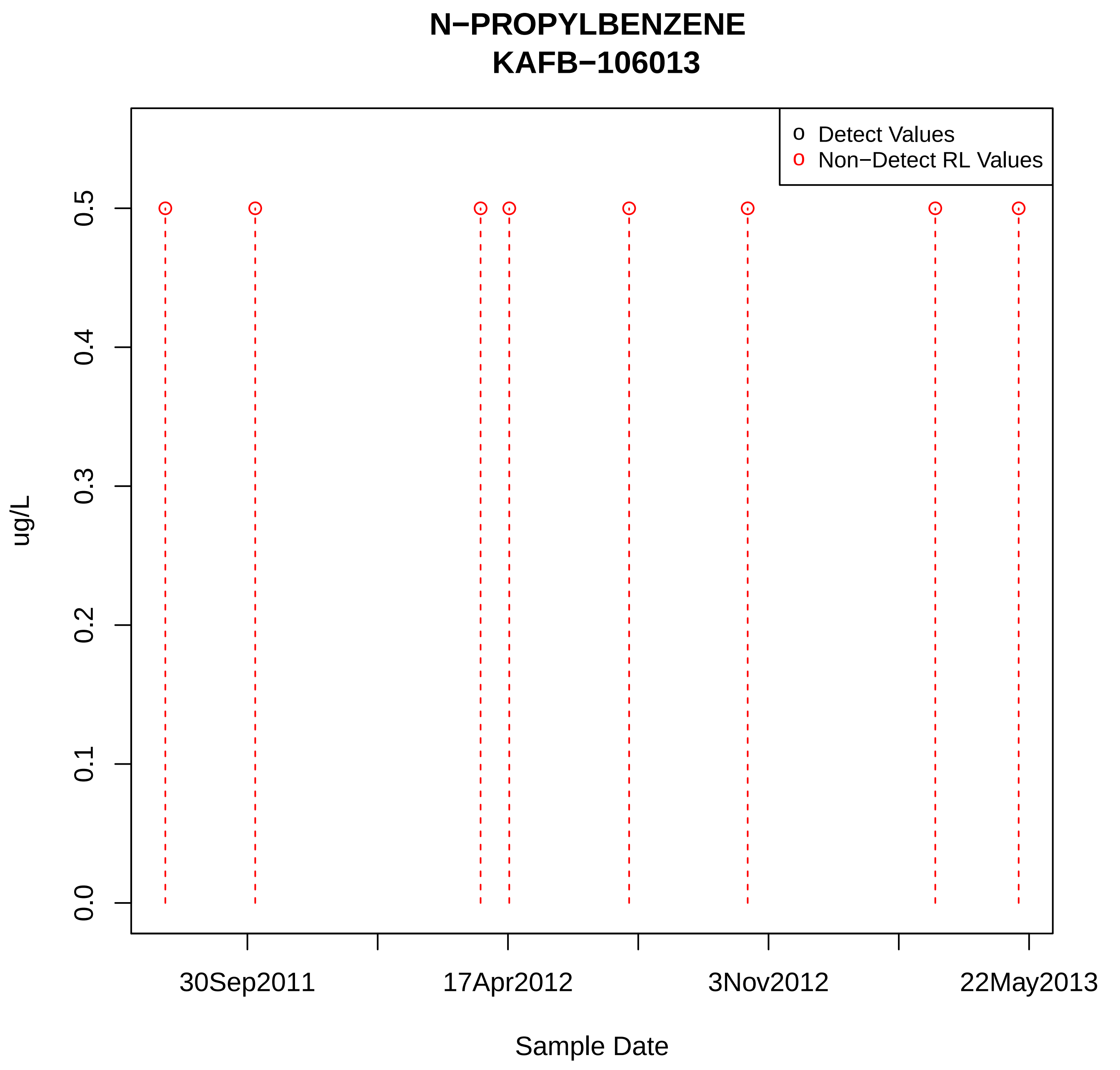
N−PROPYLBENZENE
KAFB−106094
o Detect Values
o Non−Detect RL Values
Slope = 5.335E−03
p−value = 0.539
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

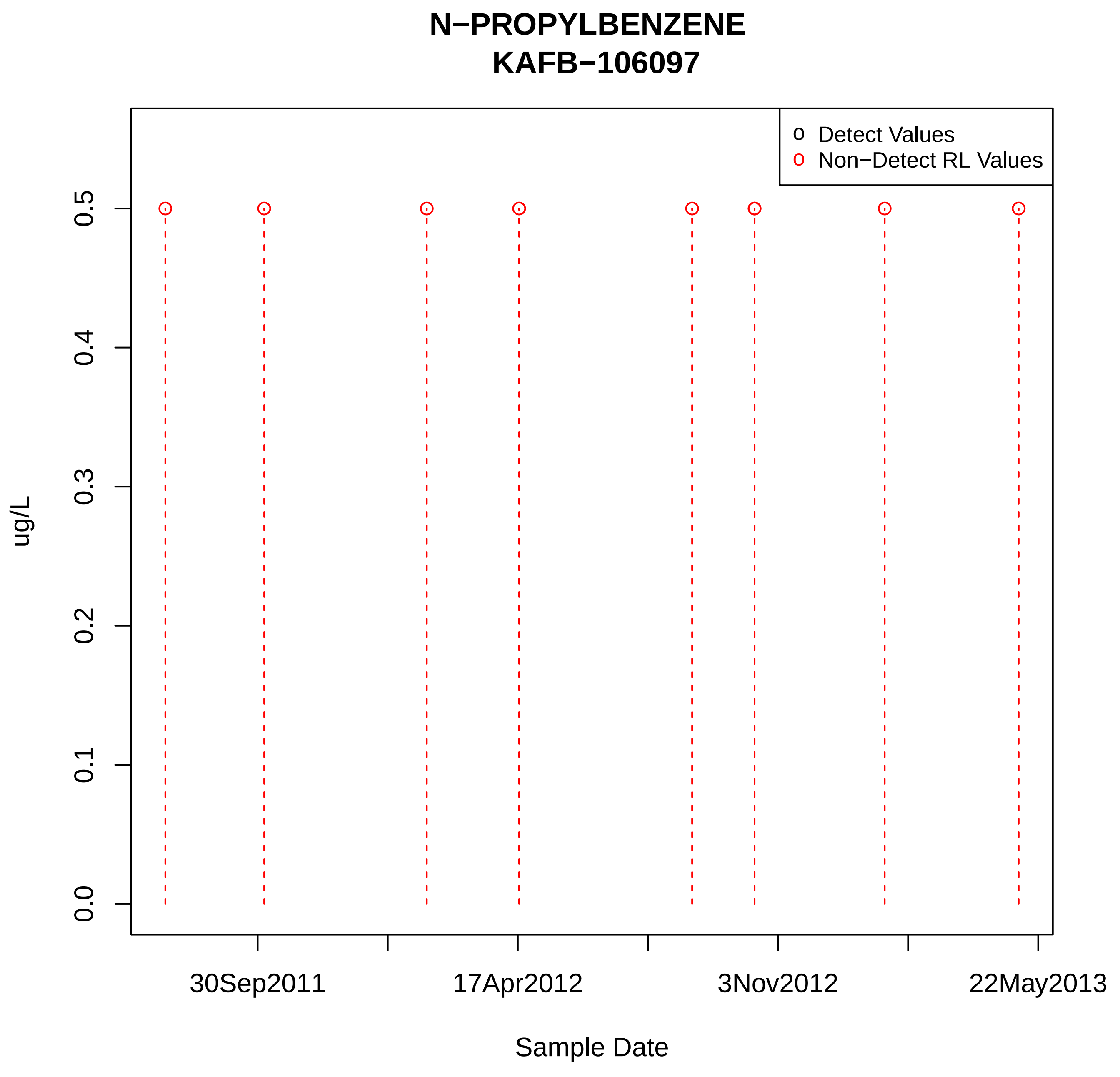


N−PROPYLBENZENE
KAFB−106095
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

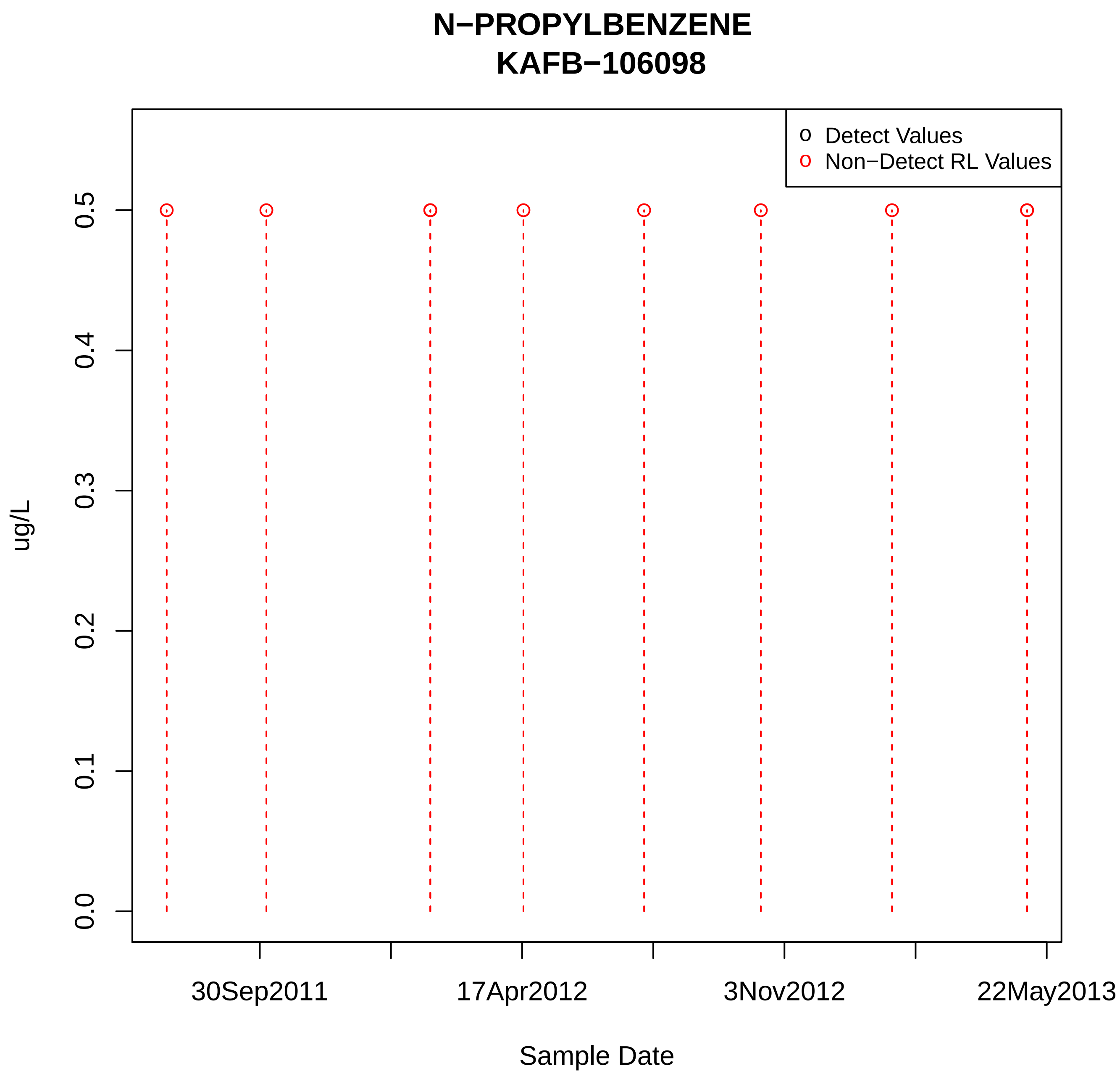


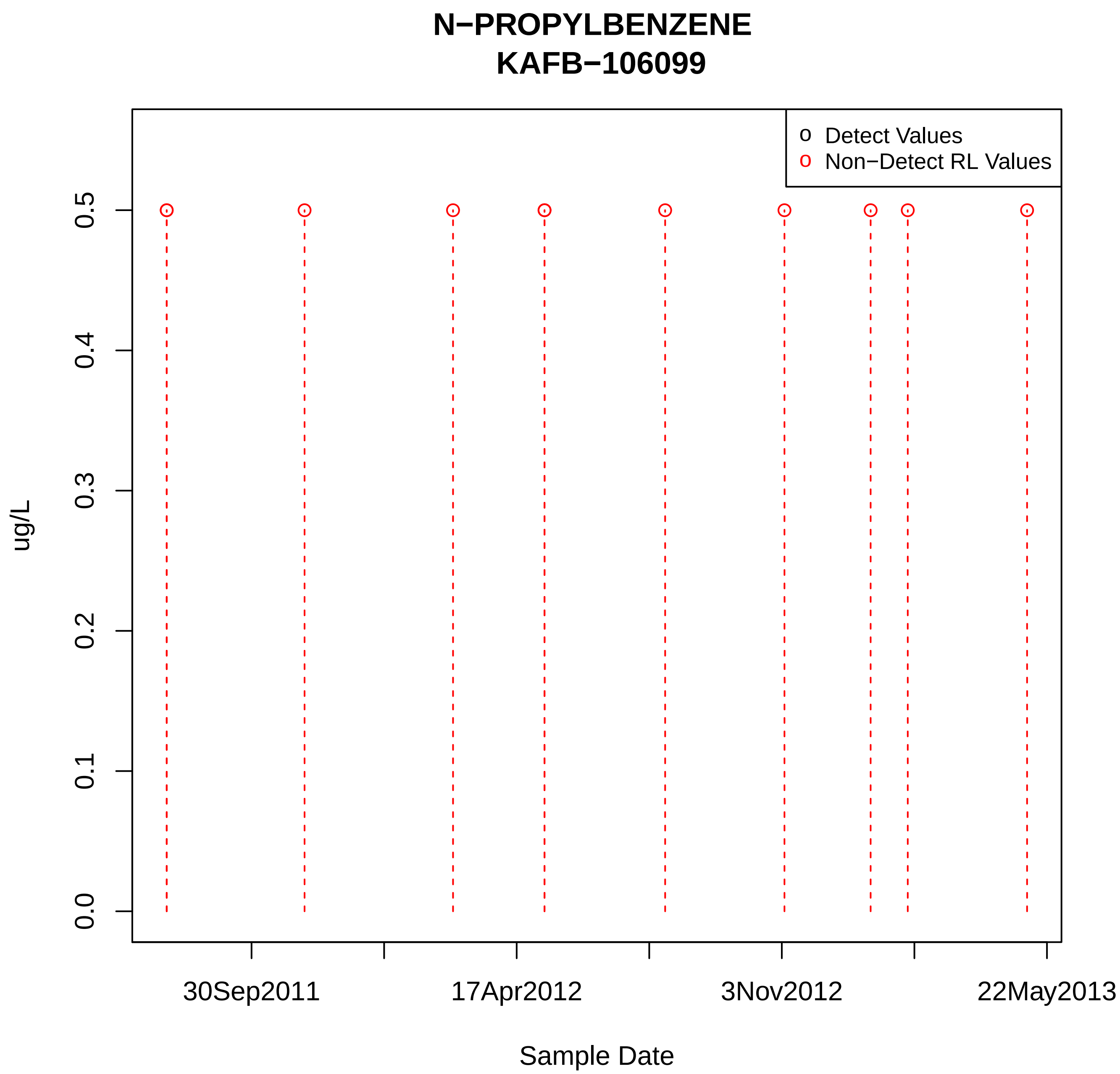
N−PROPYLBENZENE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


N−PROPYLBENZENE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

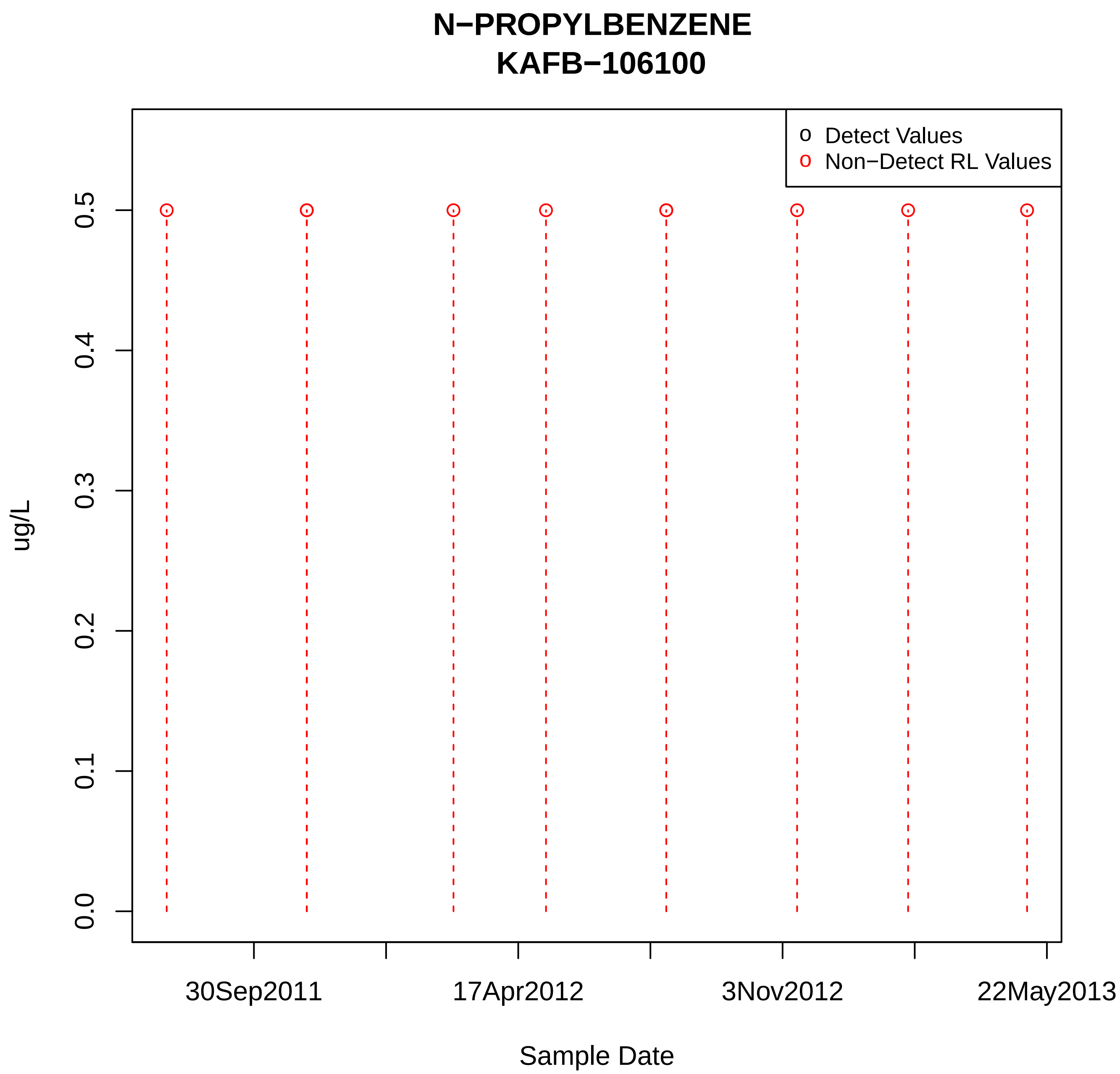


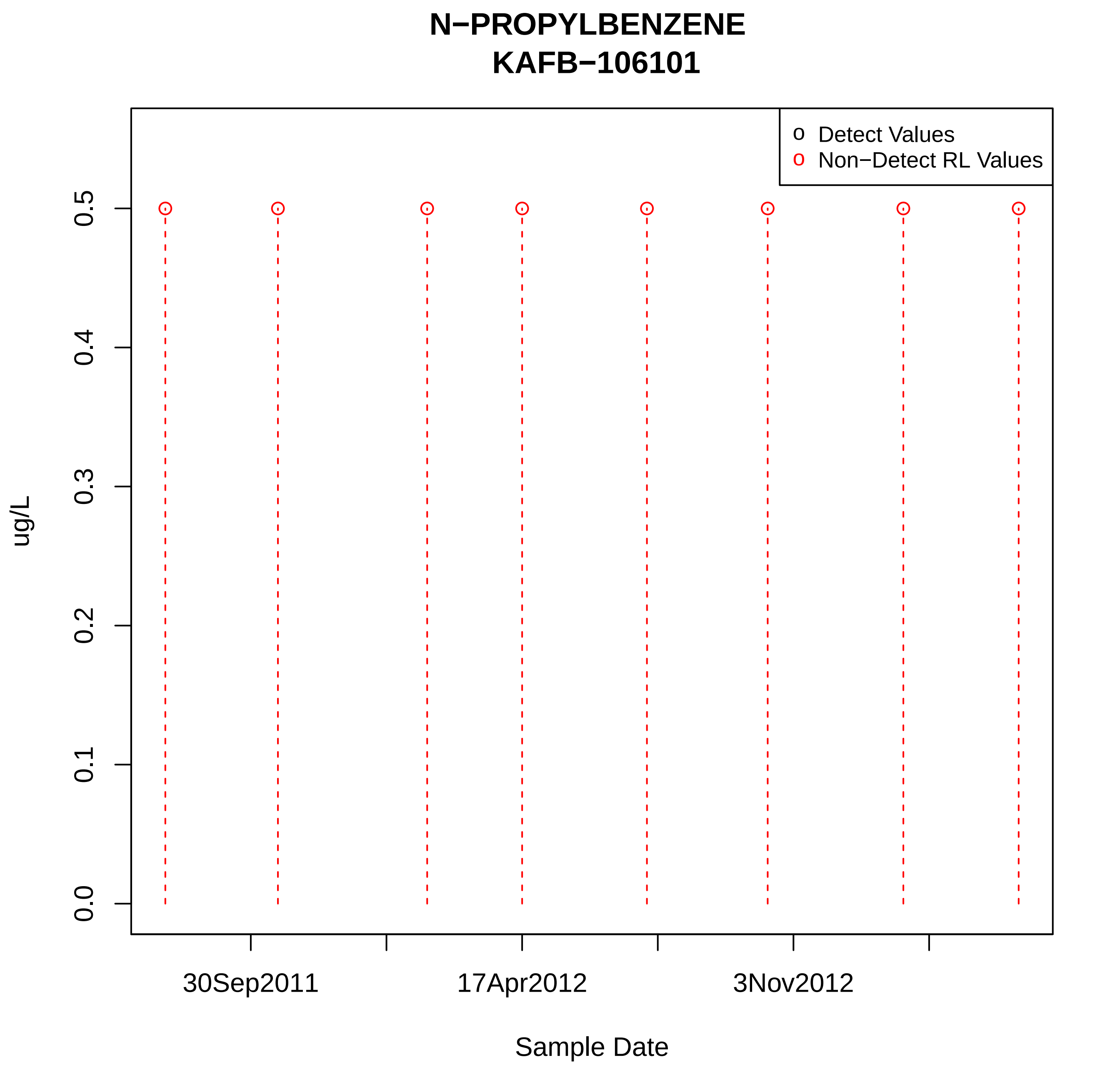
N−PROPYLBENZENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

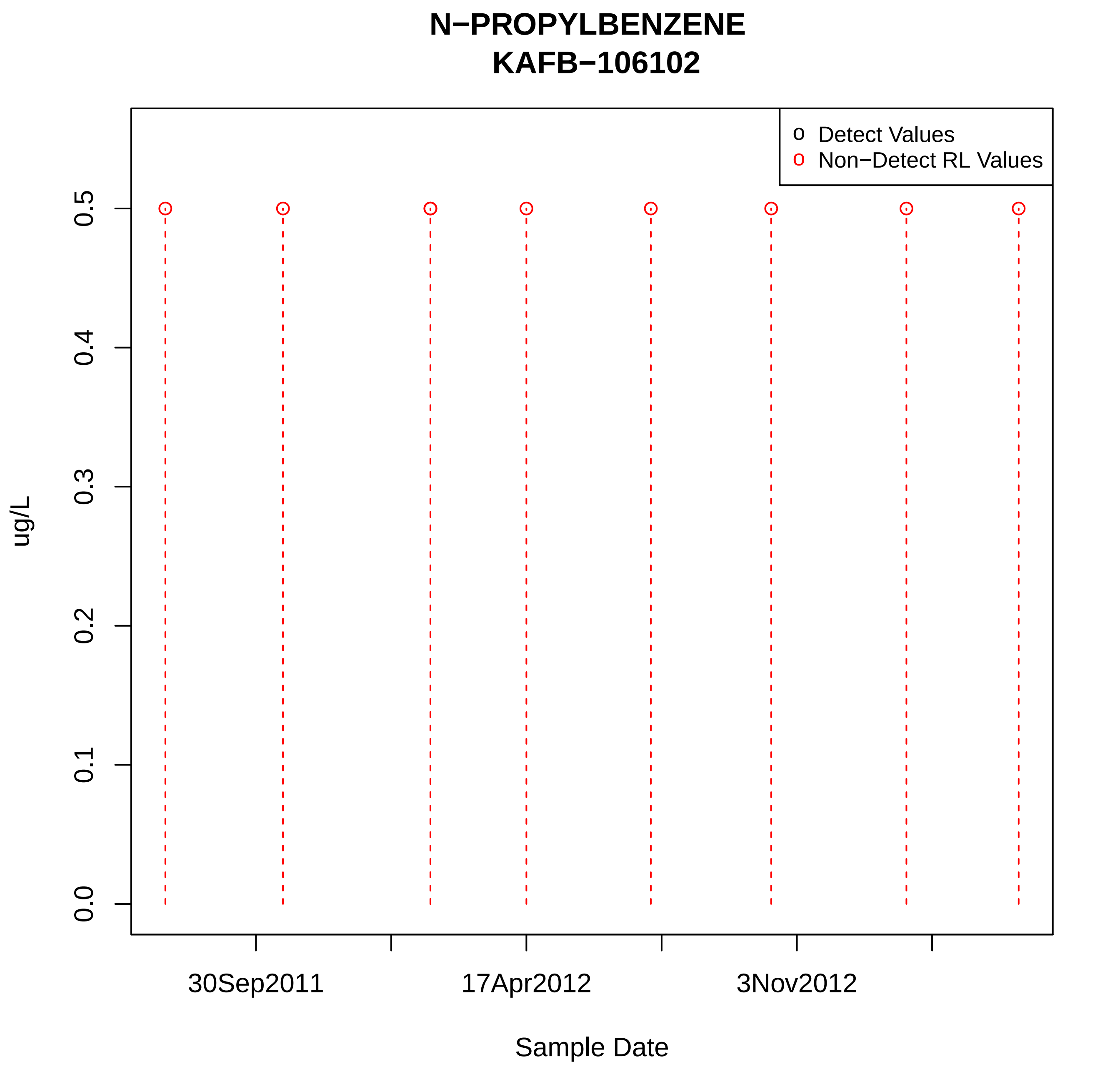

N−PROPYLBENZENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



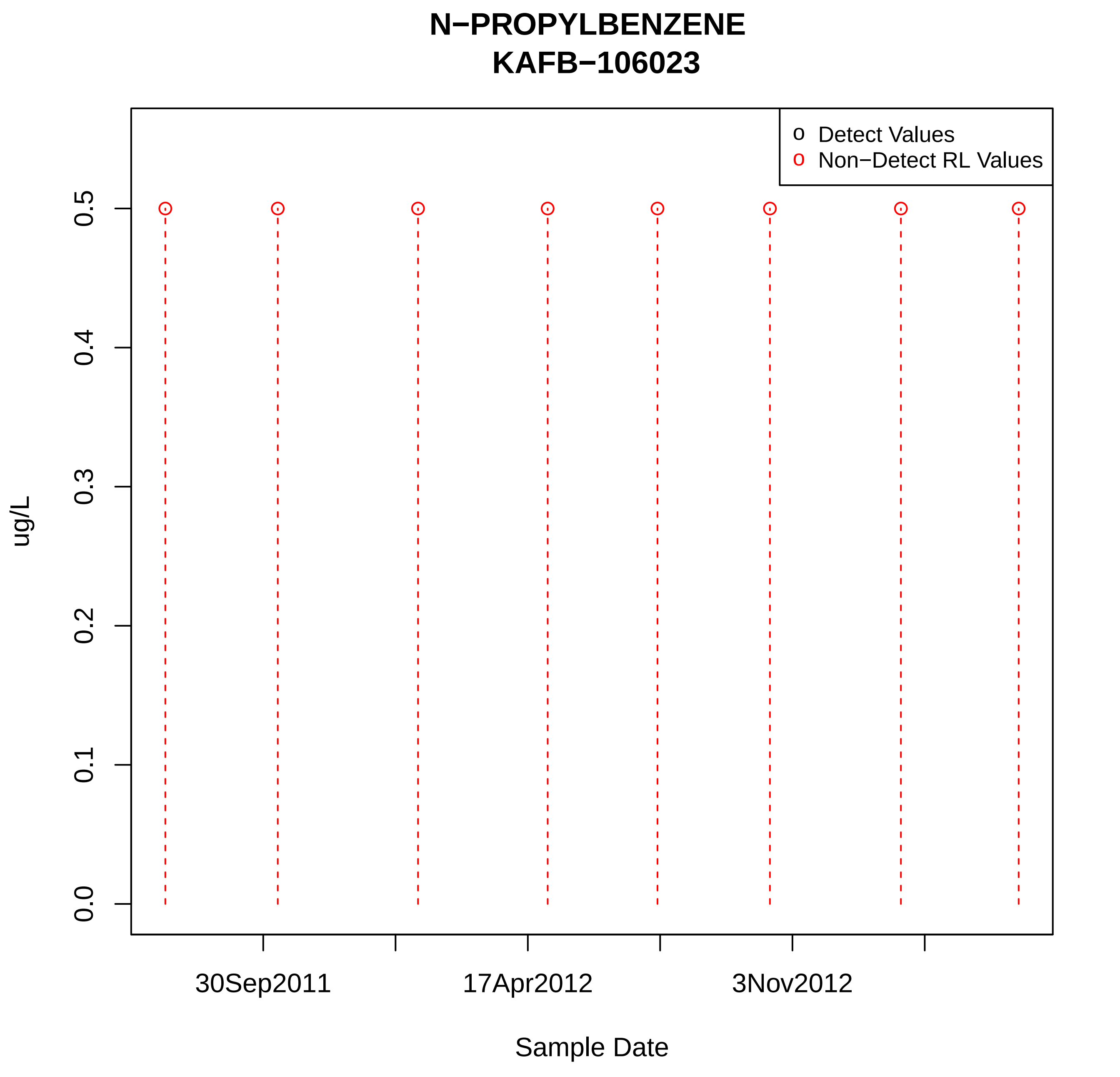
N−PROPYLBENZENE
KAFB−106099
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

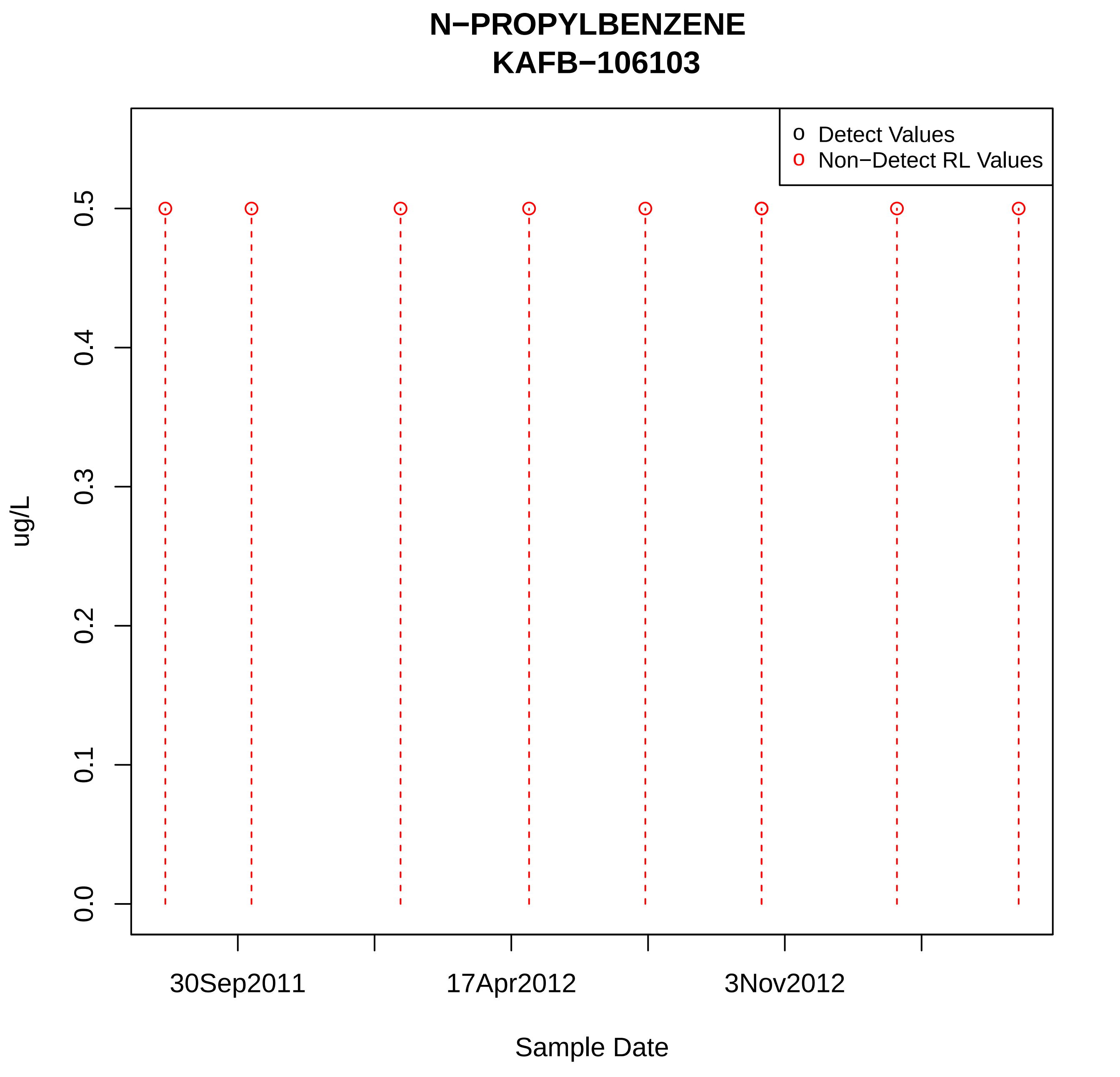

N−PROPYLBENZENE
KAFB−106100
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

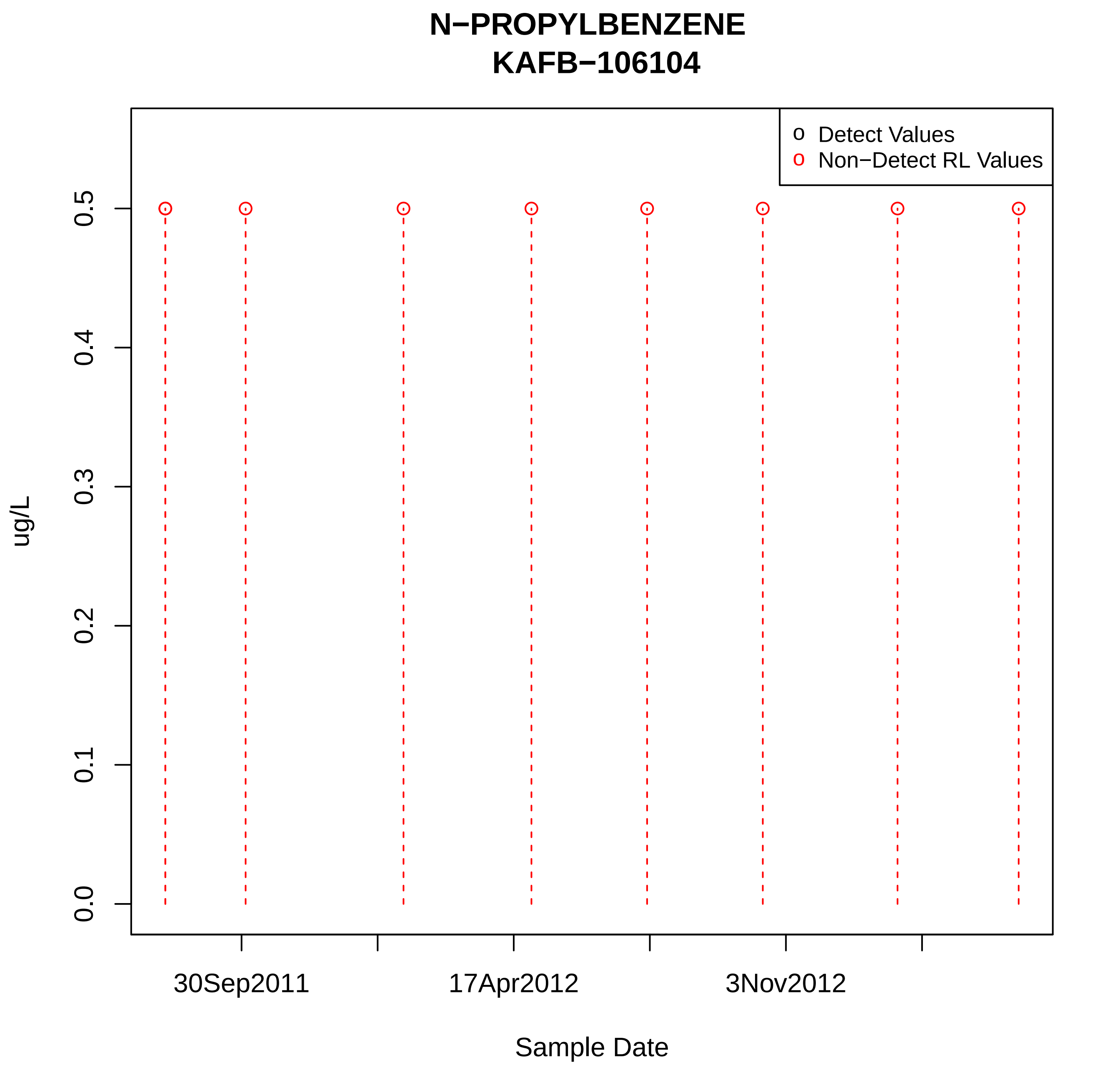

N−PROPYLBENZENE
KAFB−106101
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

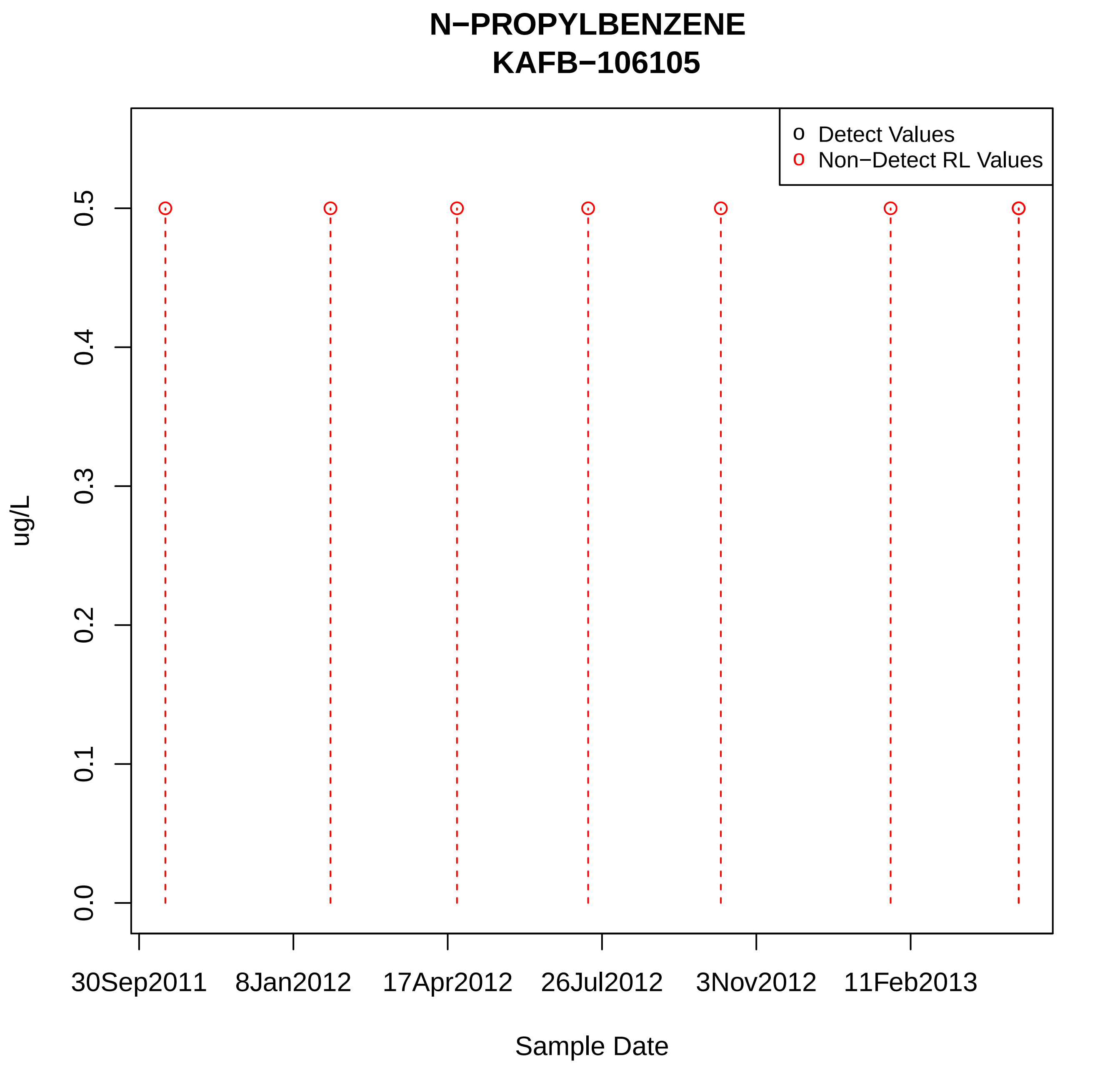


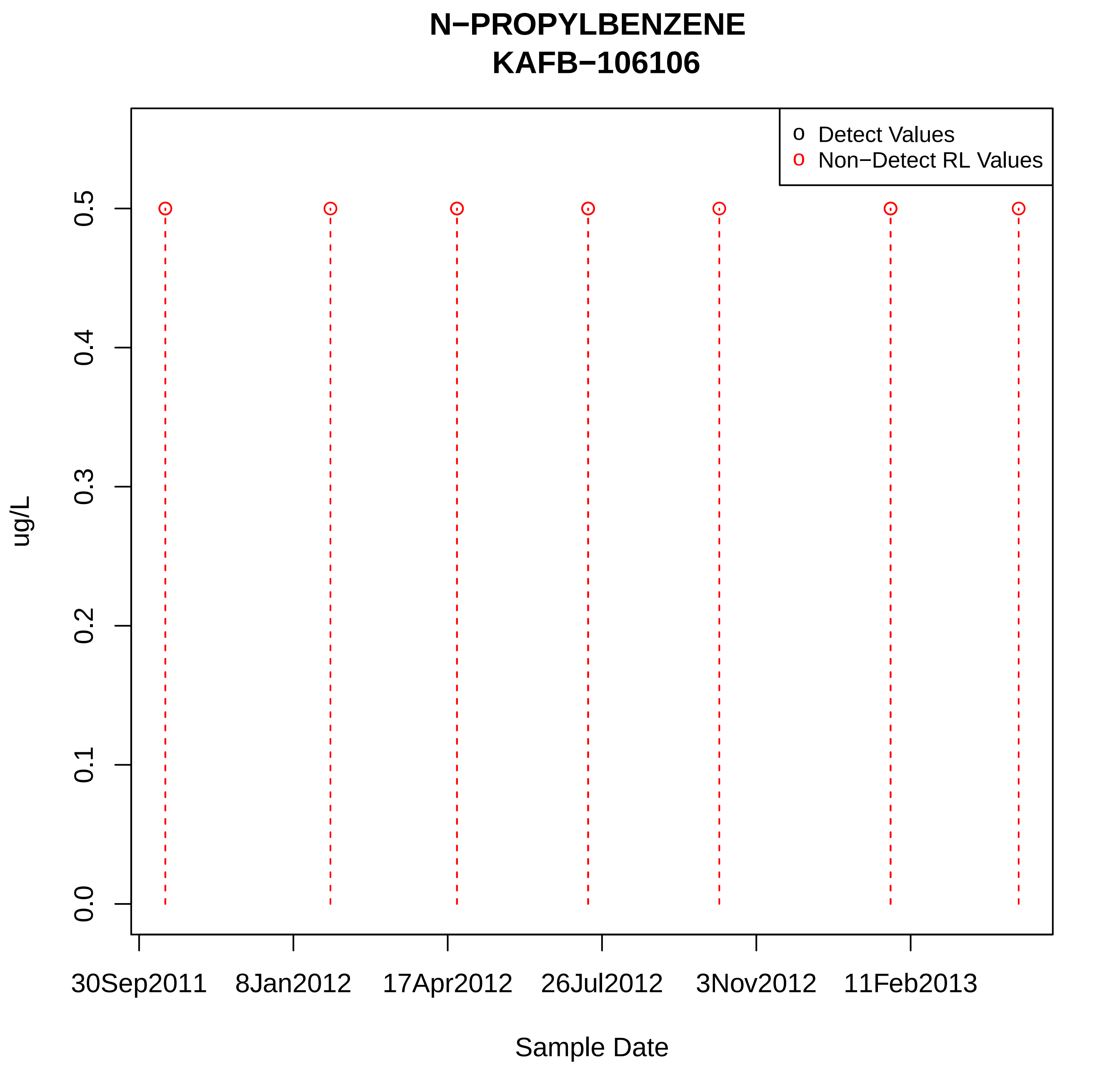
N−PROPYLBENZENE
KAFB−106102
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


N−PROPYLBENZENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

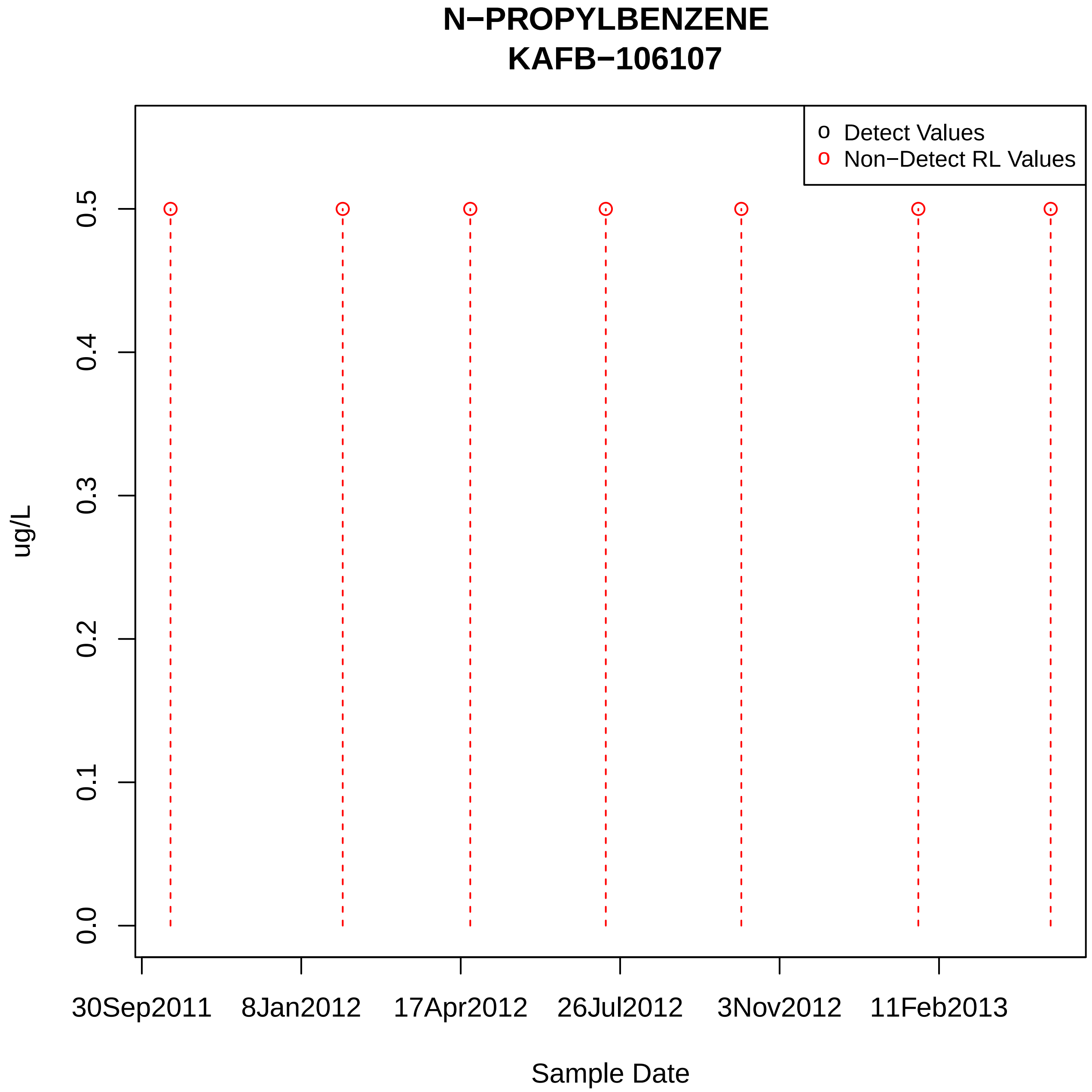

N−PROPYLBENZENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


N−PROPYLBENZENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

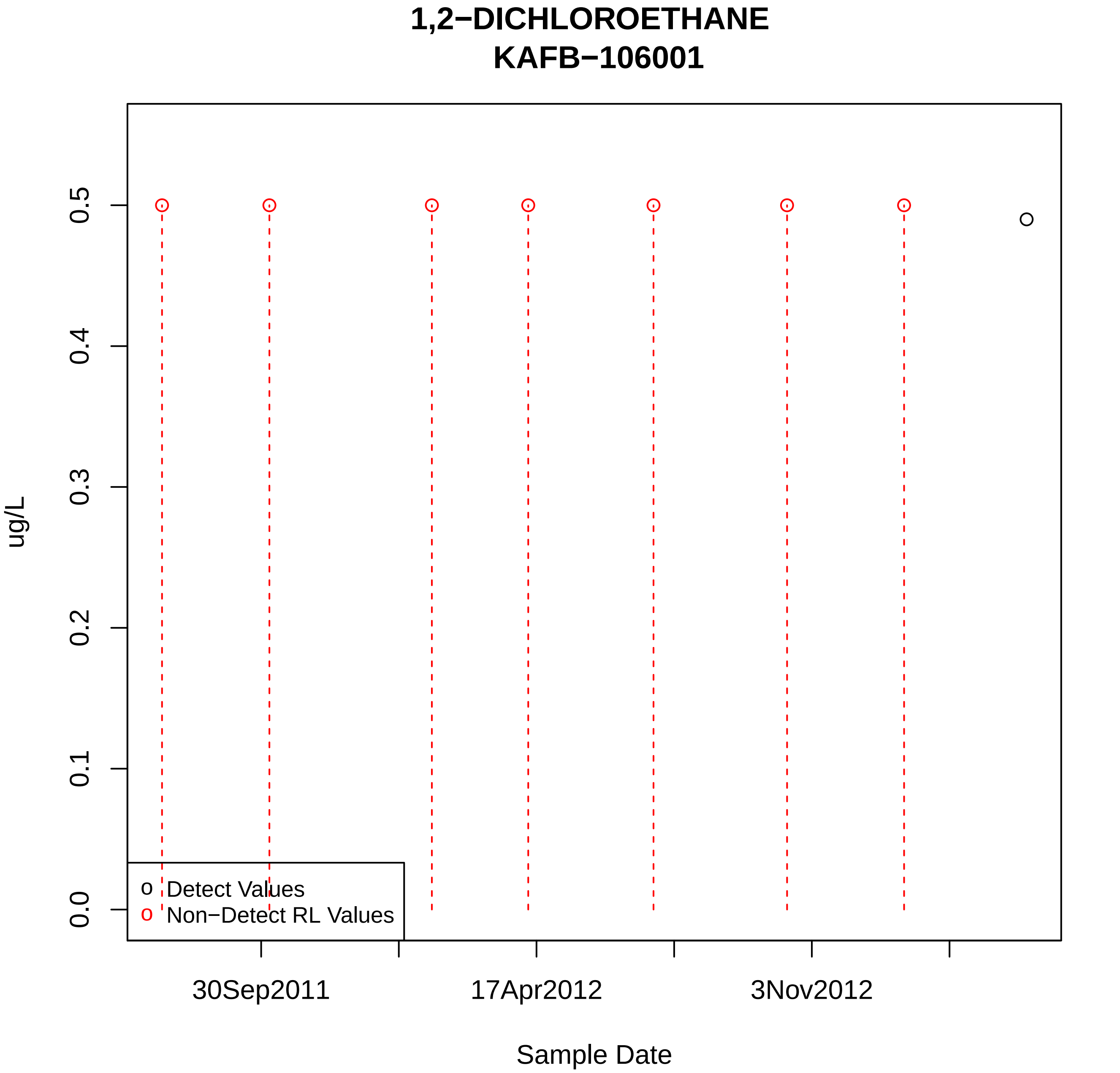

N−PROPYLBENZENE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



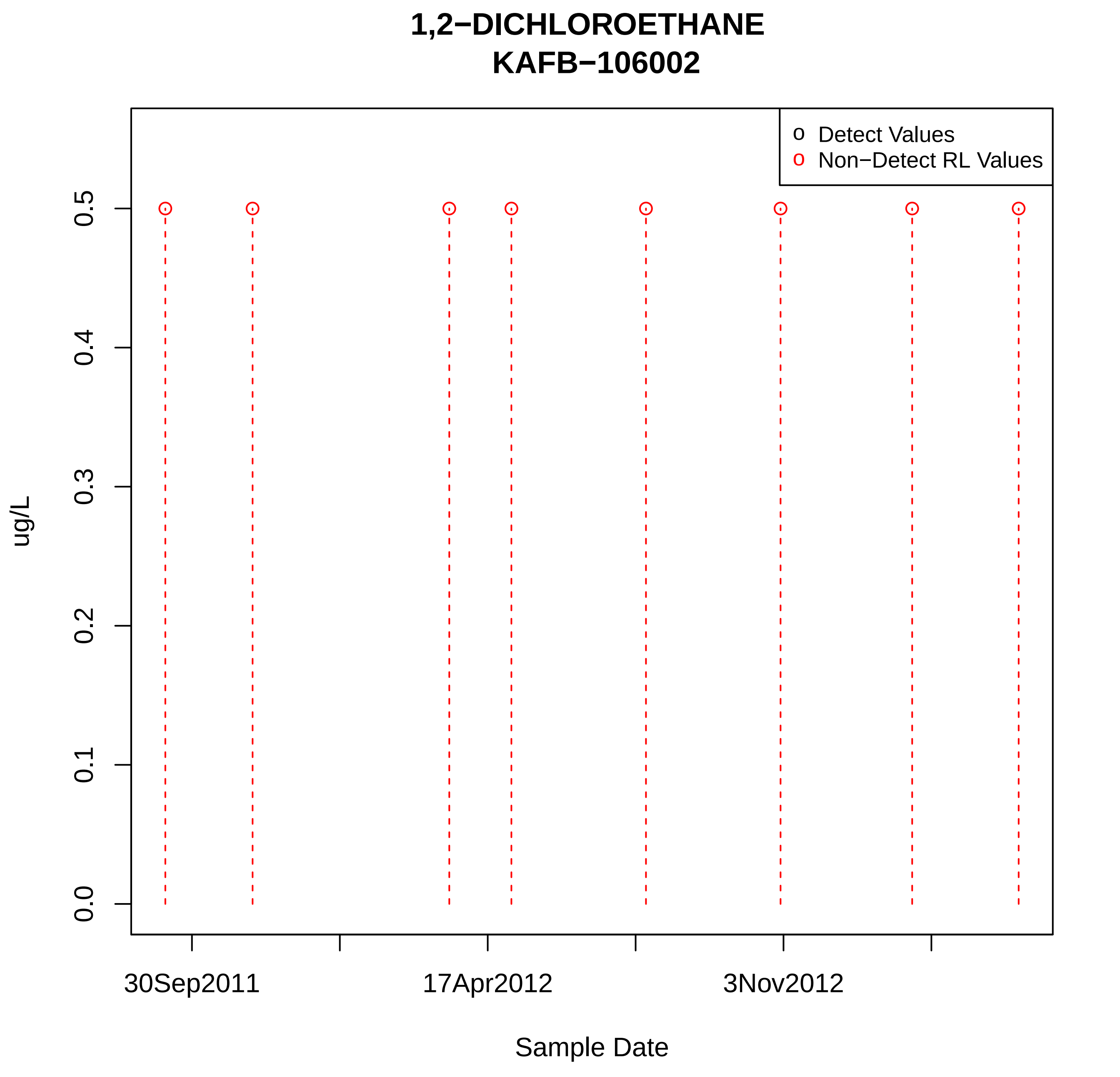
N−PROPYLBENZENE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



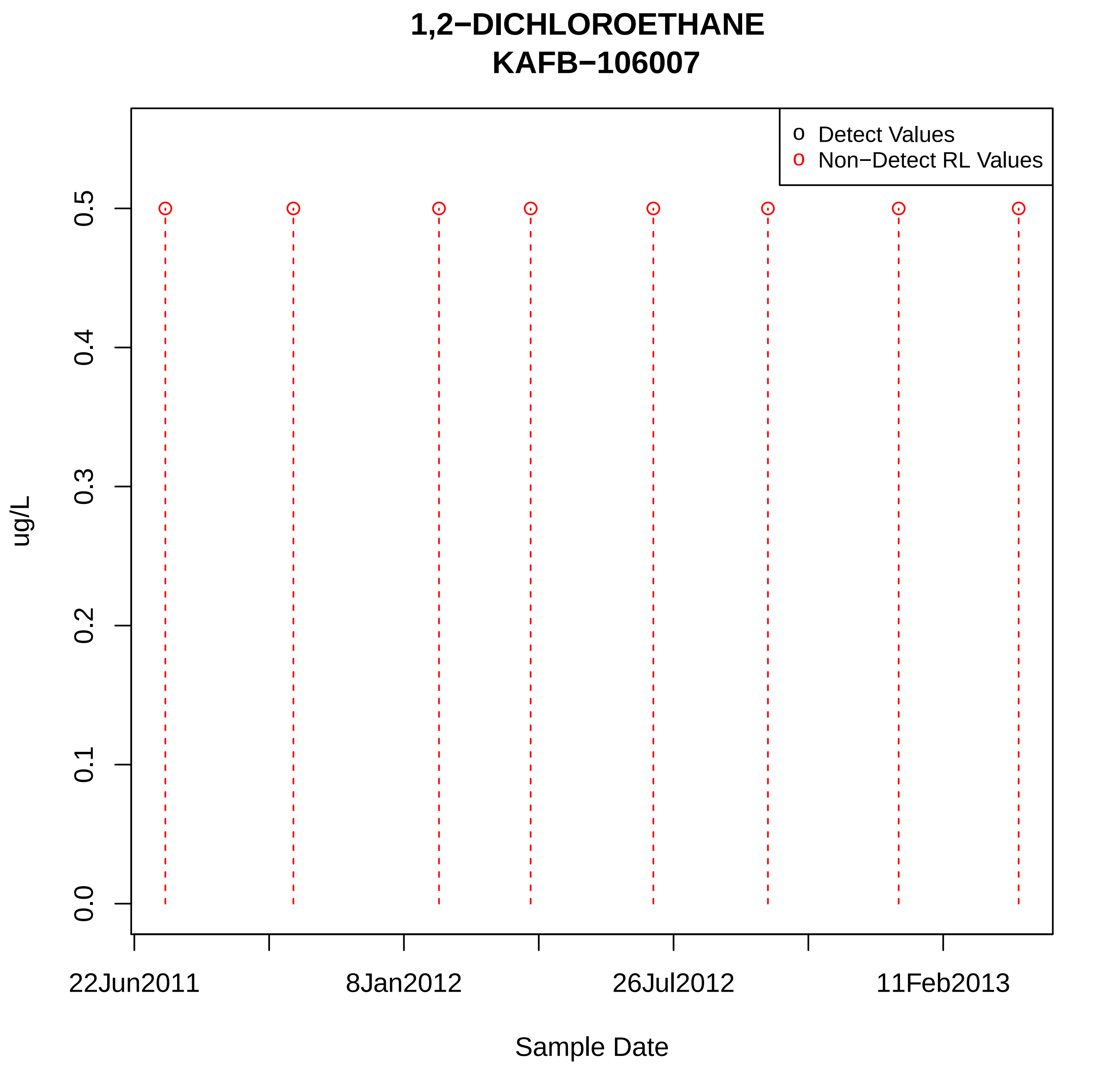
N−PROPYLBENZENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



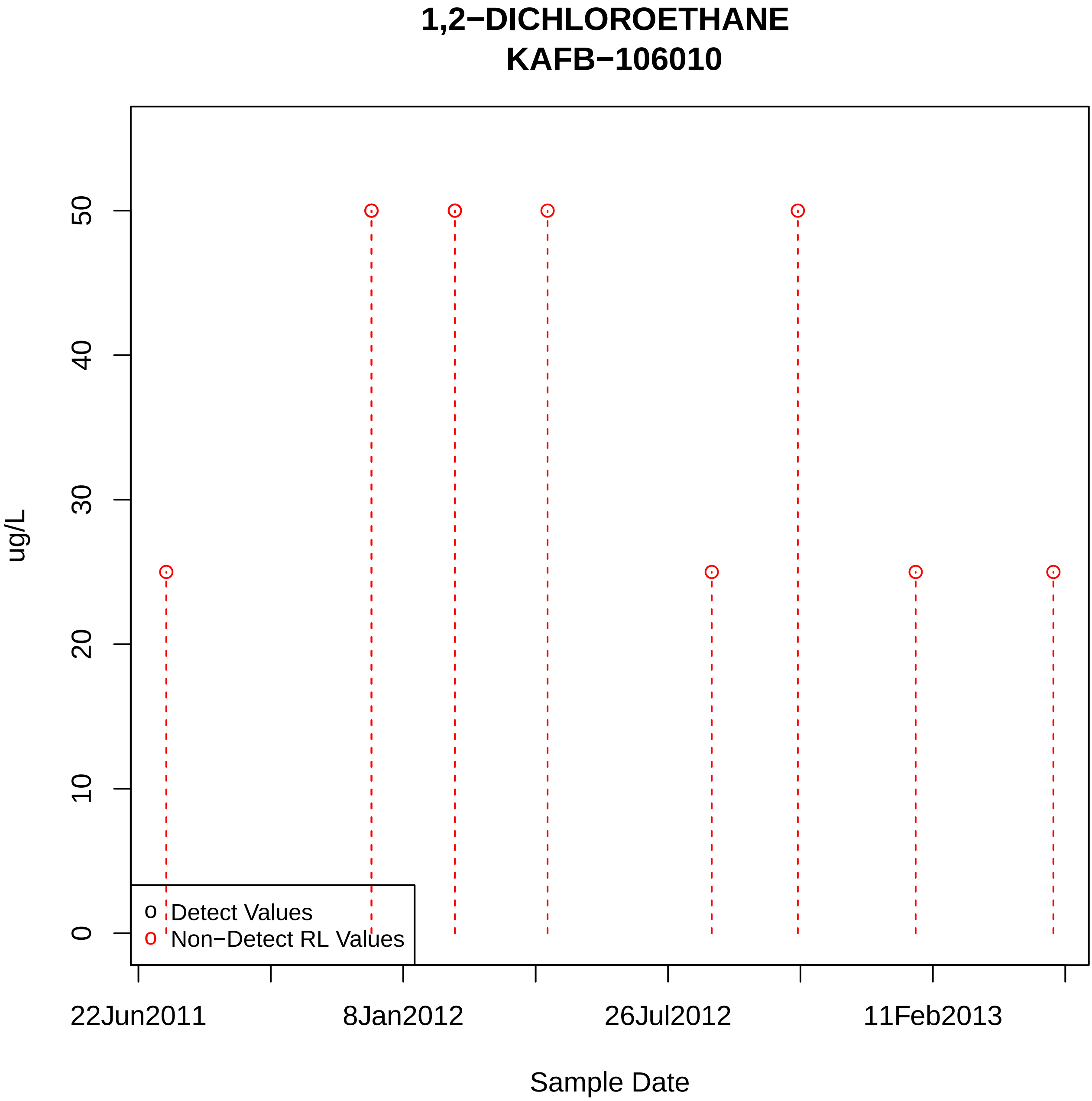
1,2−DICHLOROETHANE
KAFB−106001
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values



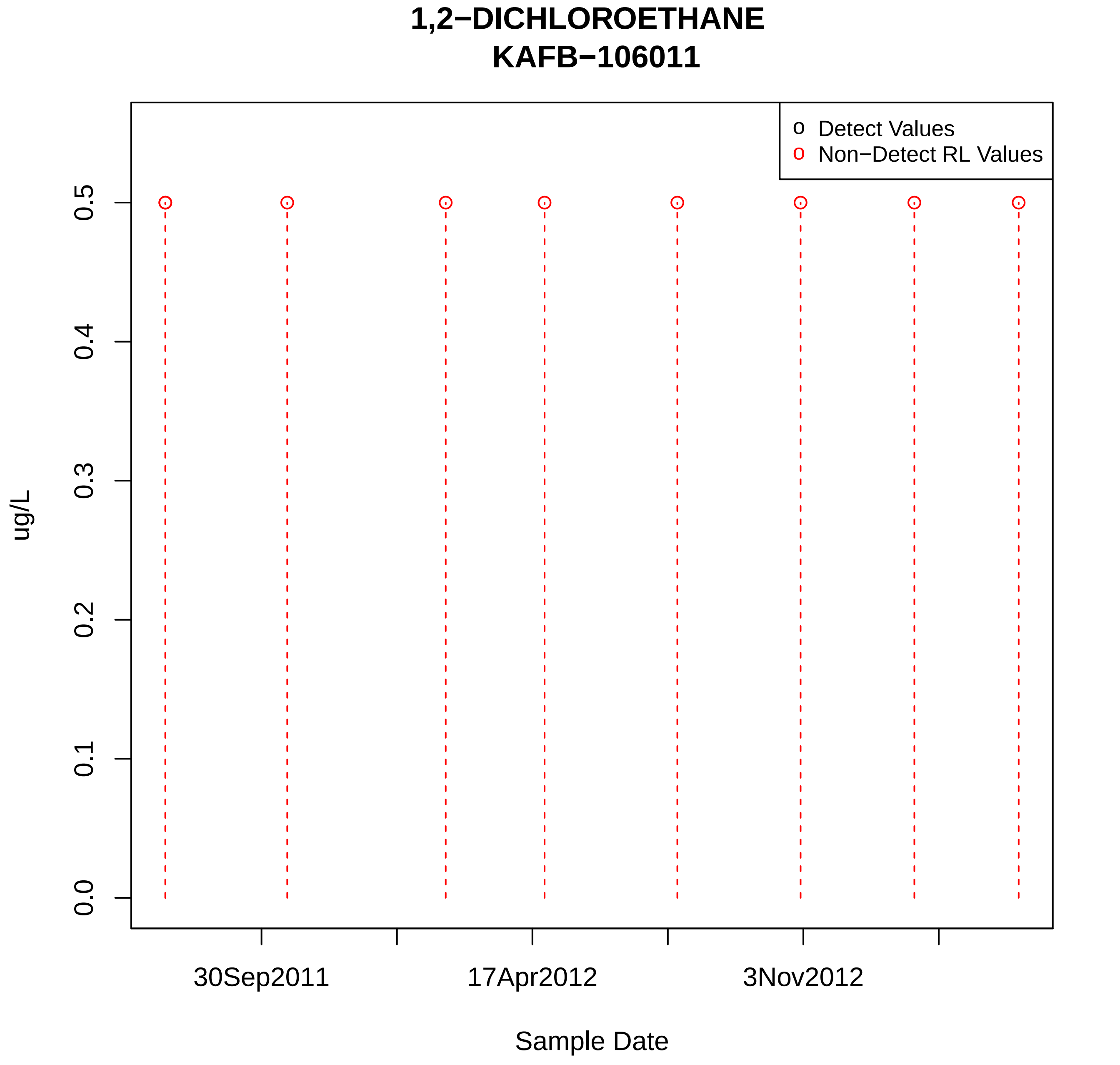
1,2−DICHLOROETHANE
KAFB−106002
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

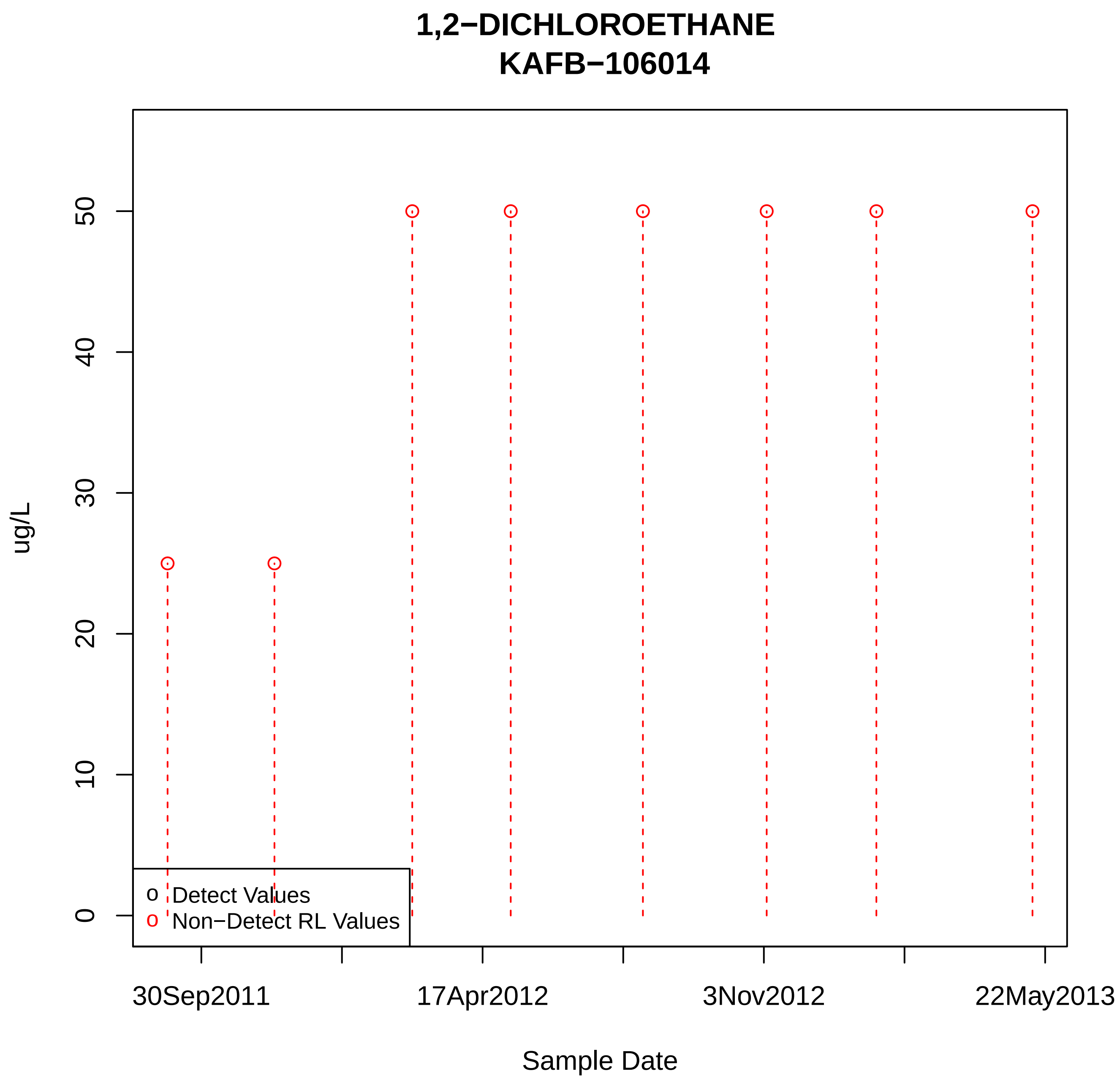


1,2−DICHLOROETHANE
KAFB−106007
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

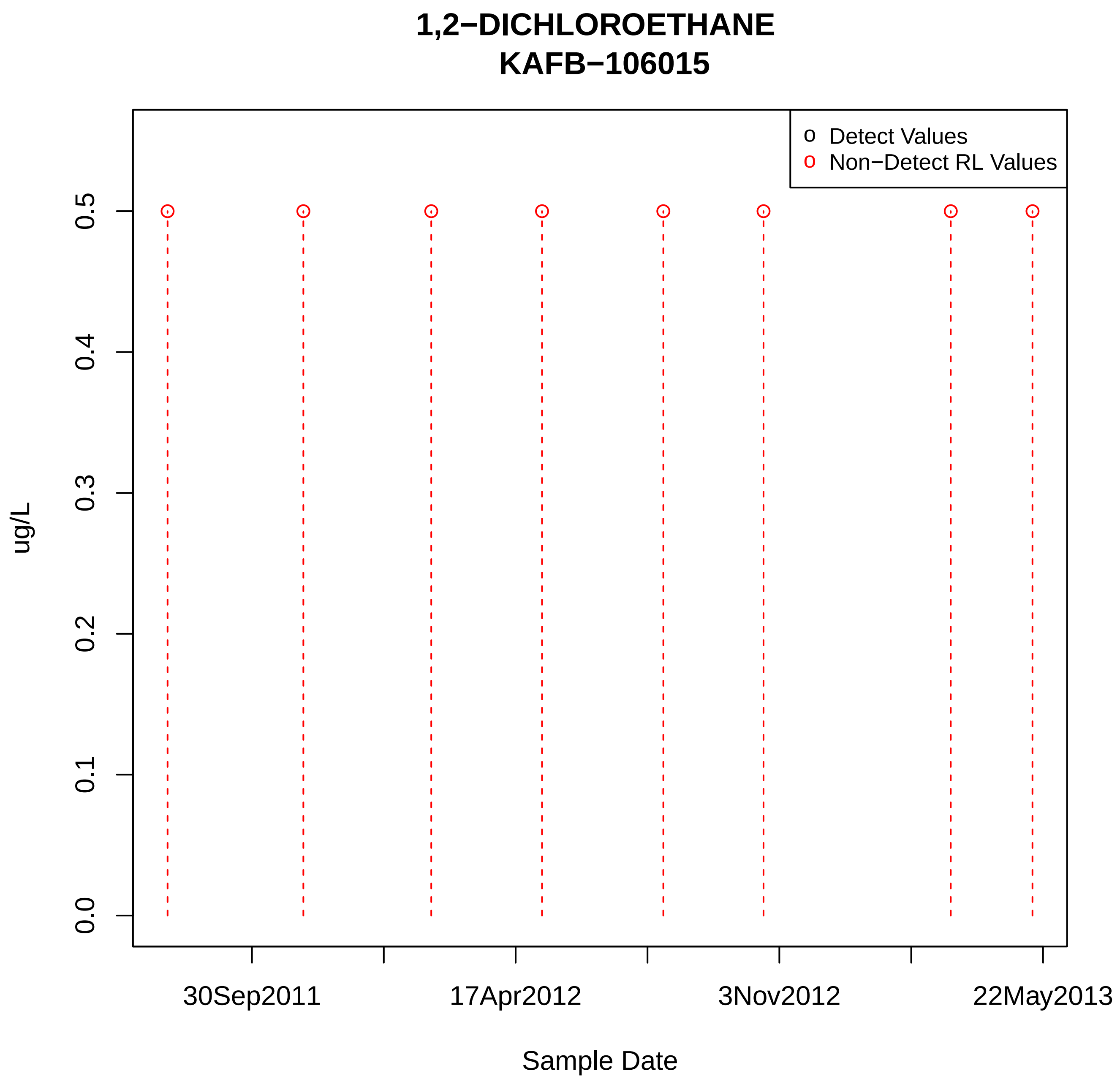


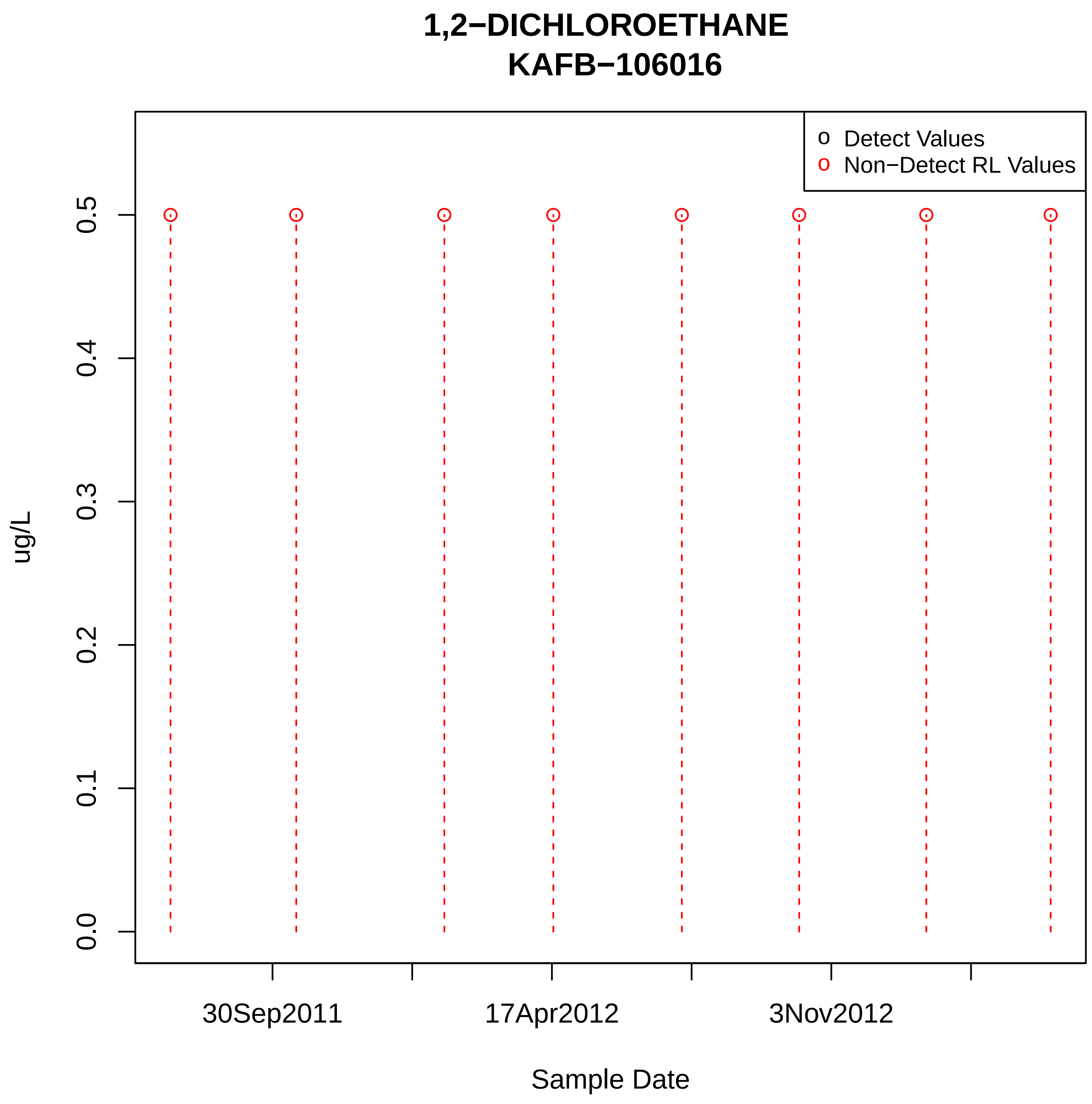
1,2−DICHLOROETHANE
KAFB−106010
ug/L
0
10
20
30
40
50
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values

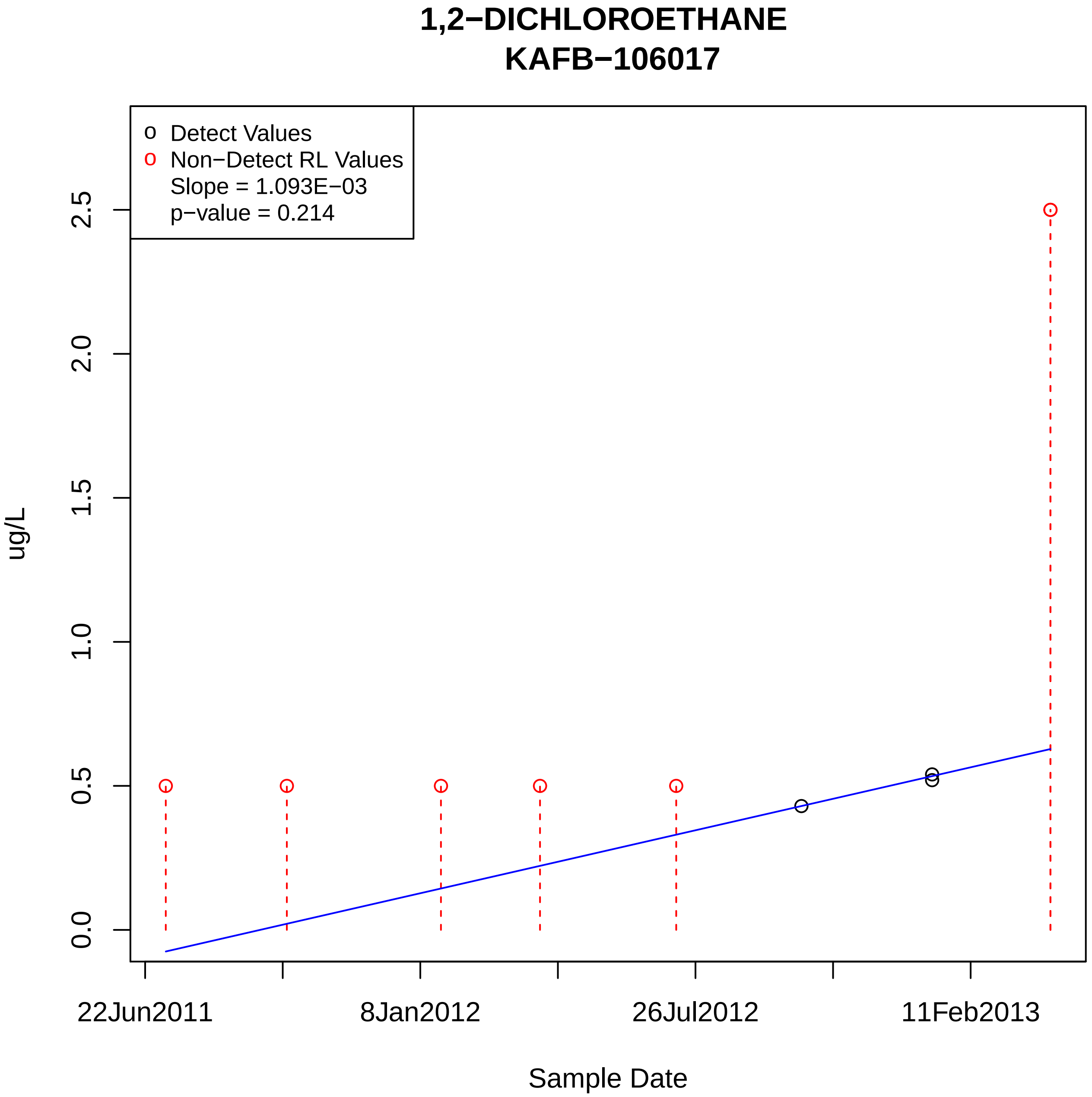

1,2−DICHLOROETHANE
KAFB−106011
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

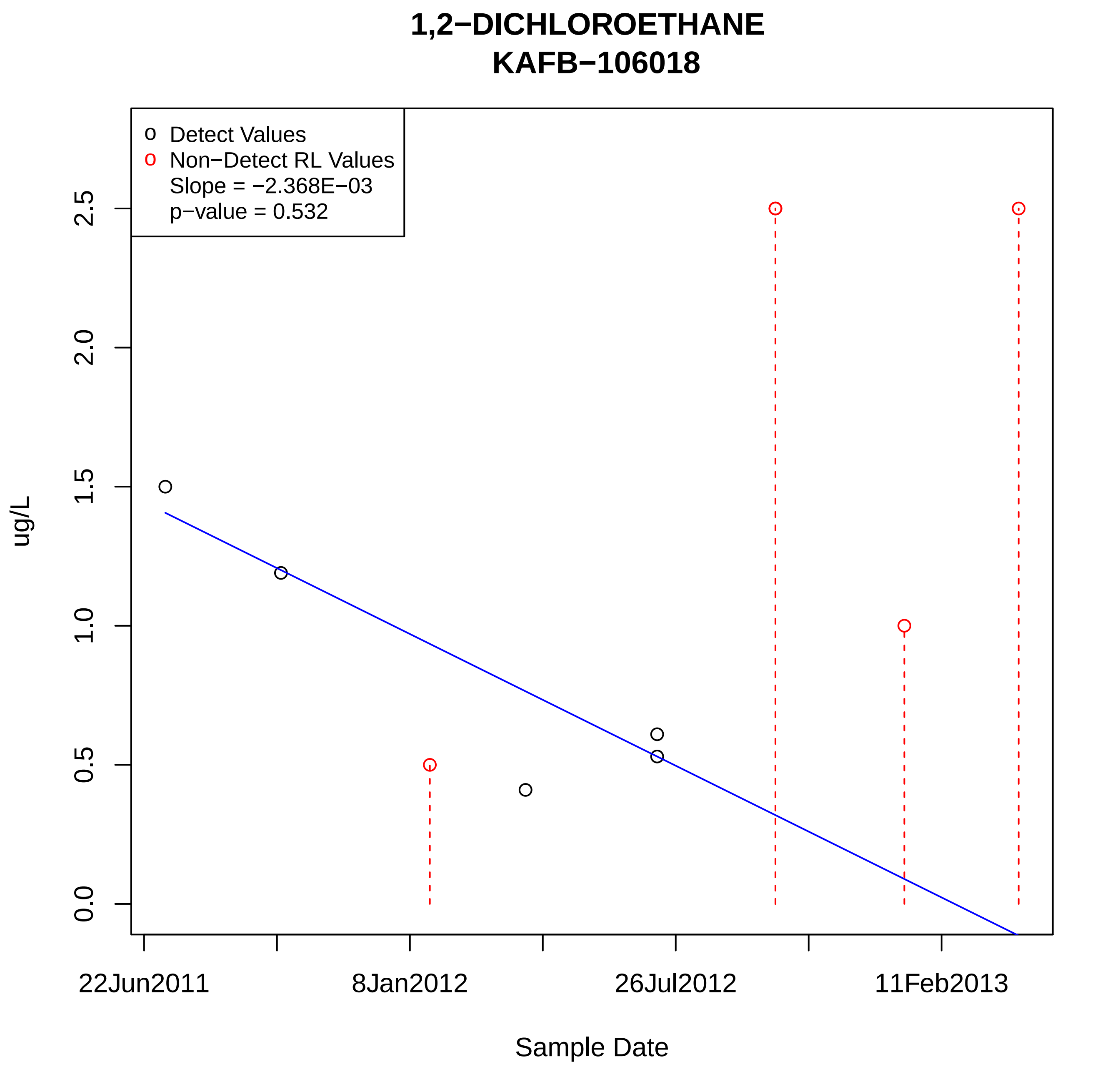


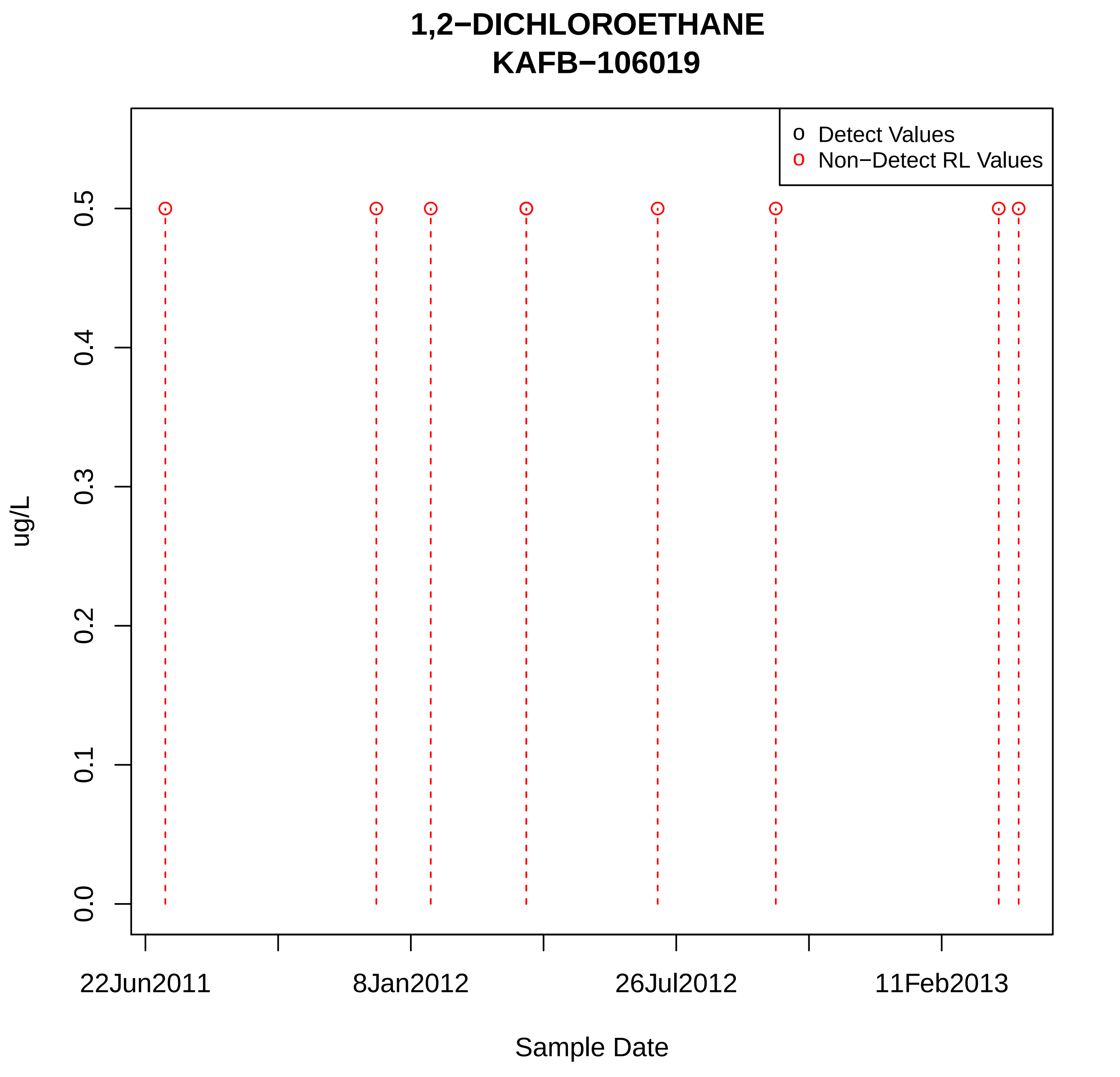
1,2−DICHLOROETHANE
KAFB−106014
ug/L
0
10
20
30
40
50
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

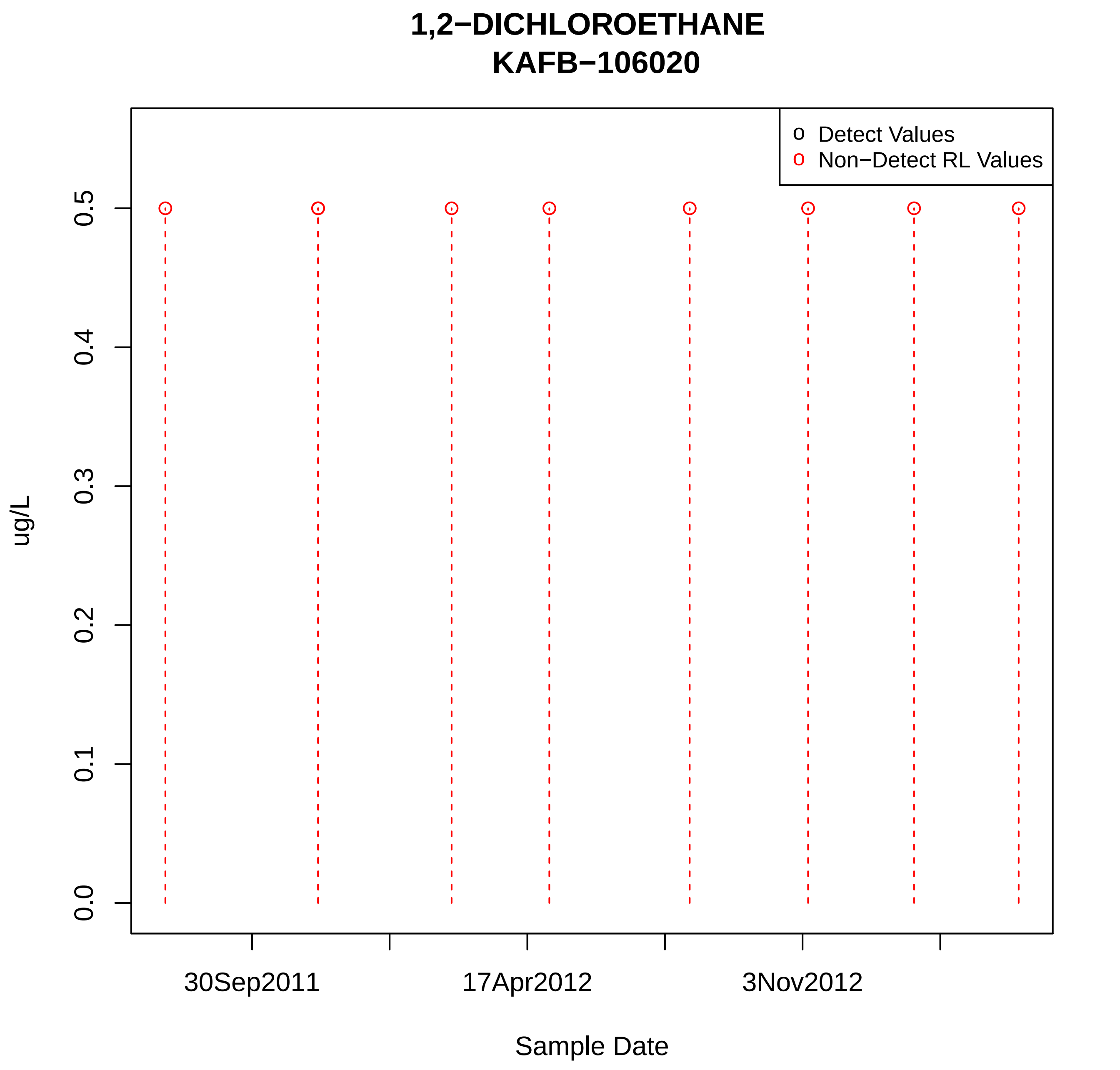

1,2−DICHLOROETHANE
KAFB−106016
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

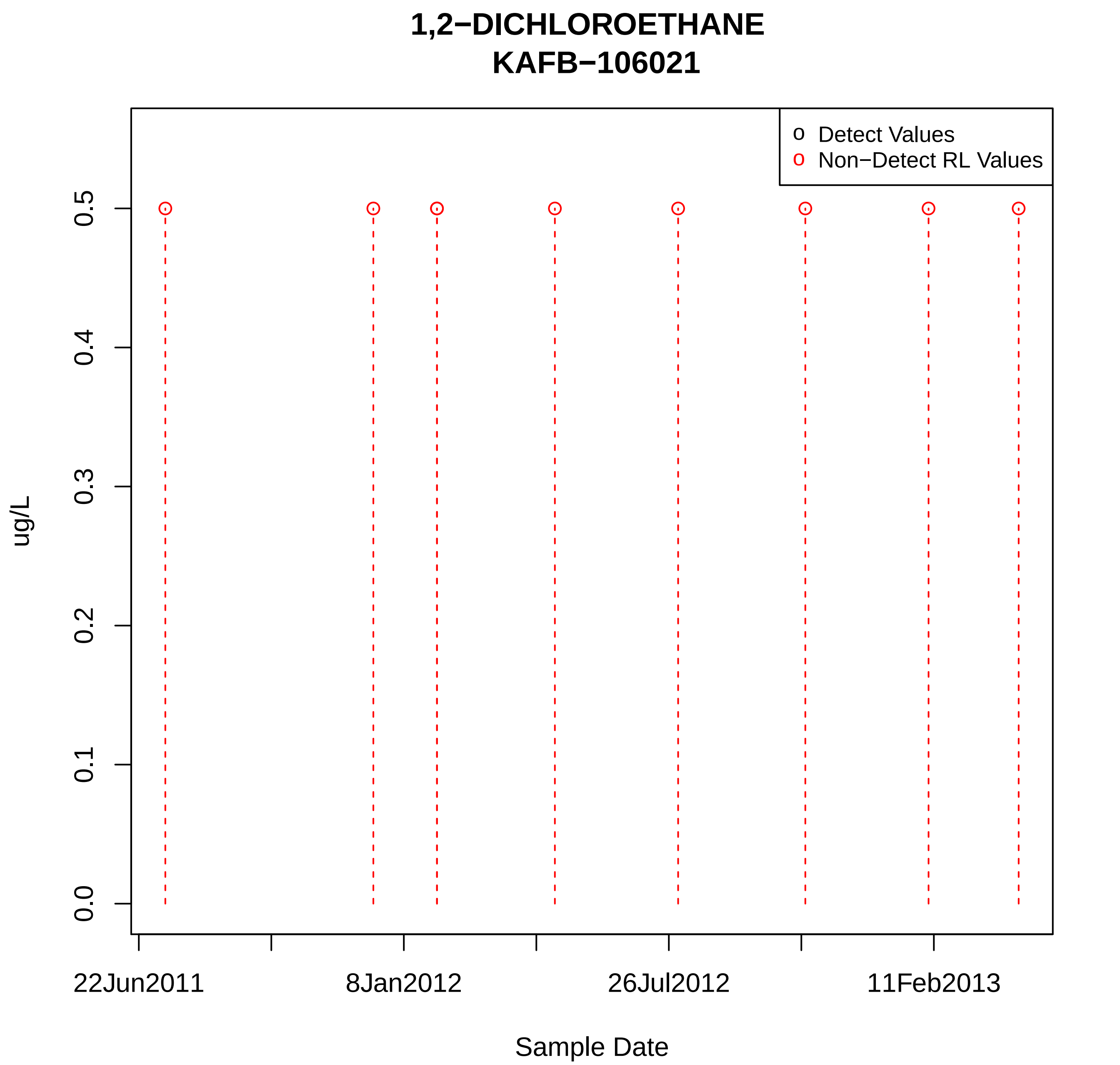

1,2−DICHLOROETHANE
KAFB−106017
Detect Values
Non−Detect RL Values
Slope = 1.093E−03
p−value = 0.214
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

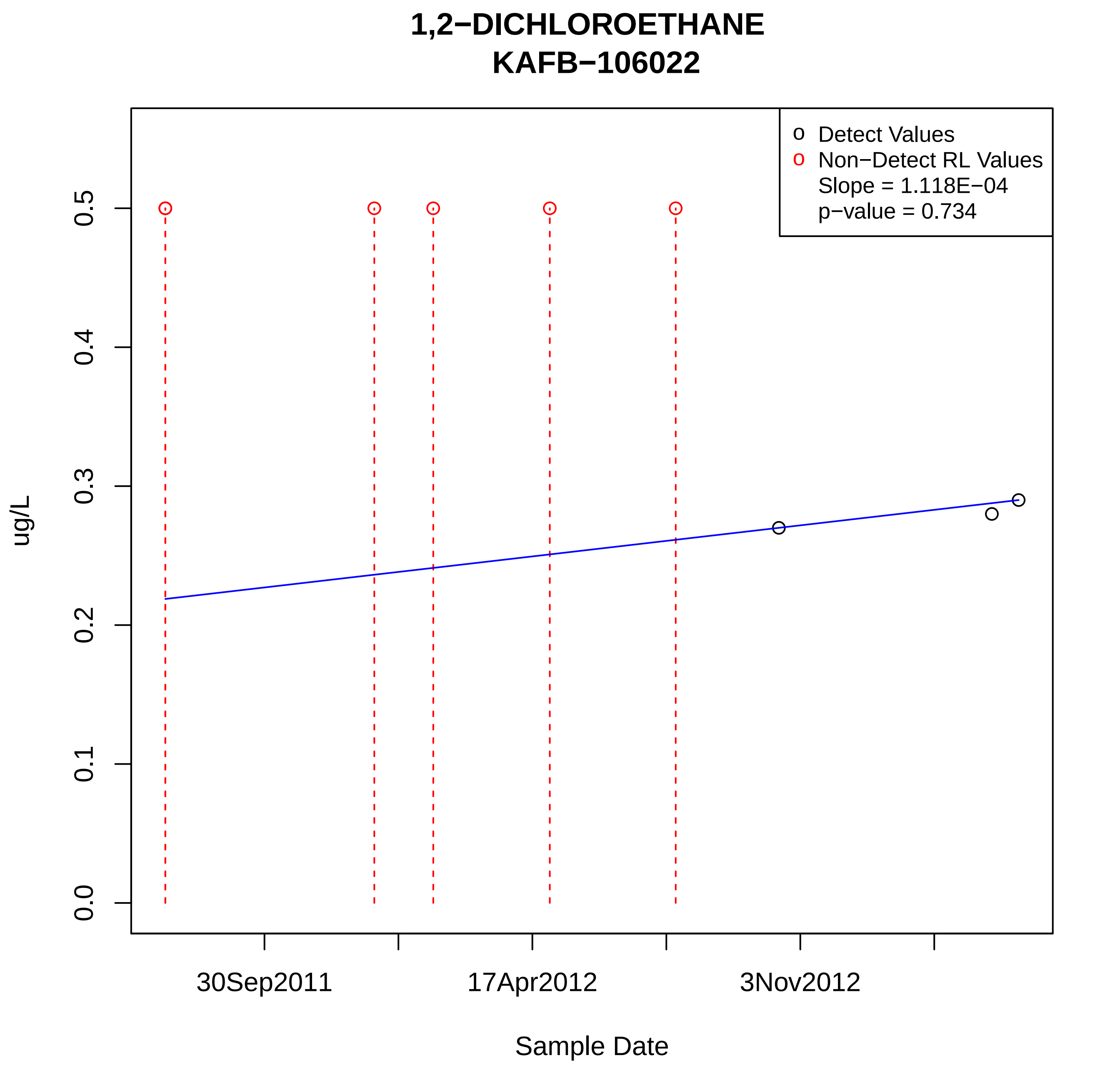

1,2−DICHLOROETHANE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −2.368E−03
p−value = 0.532
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



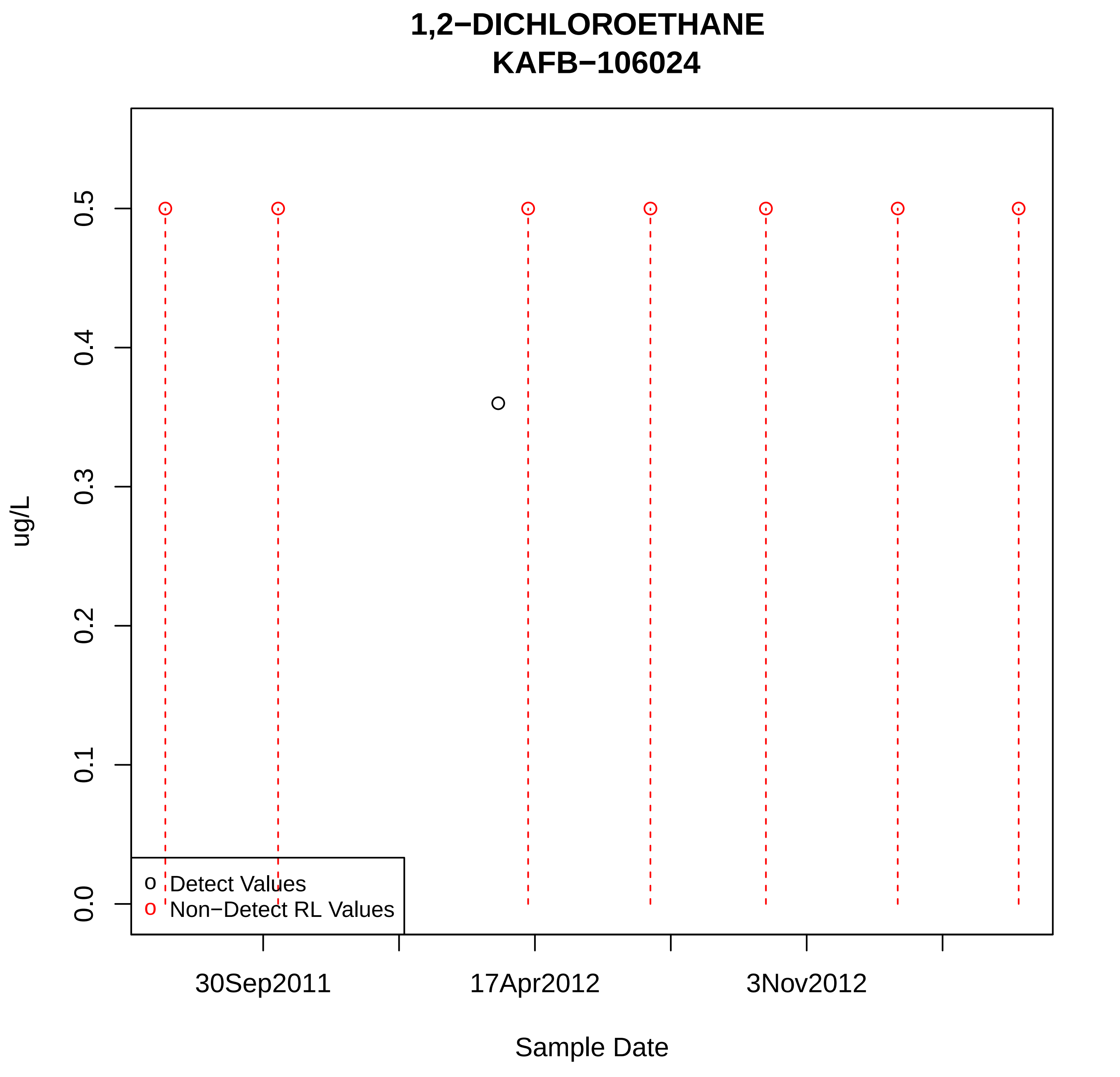
1,2−DICHLOROETHANE
KAFB−106019
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106020
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

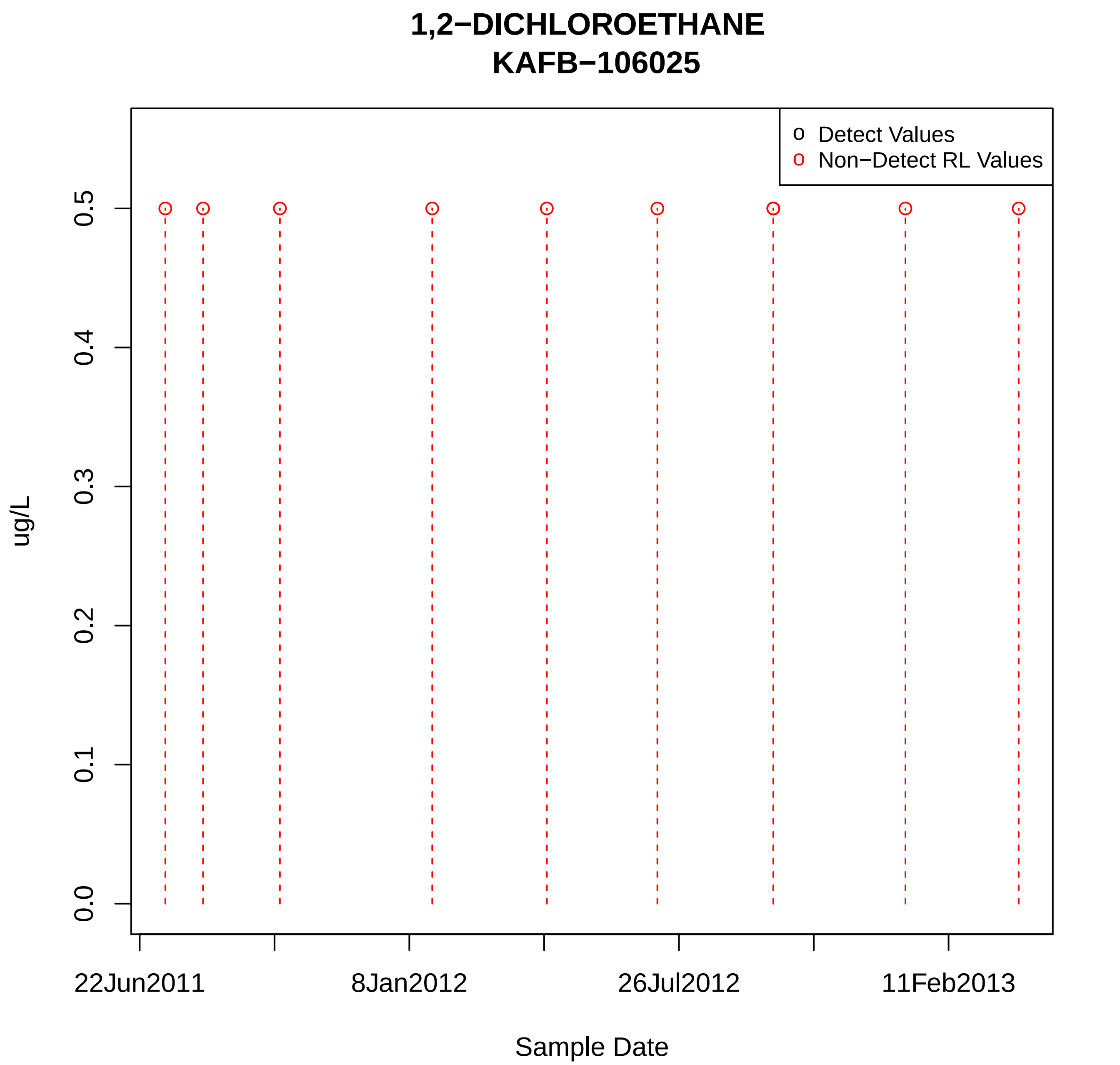

1,2−DICHLOROETHANE
KAFB−106021
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

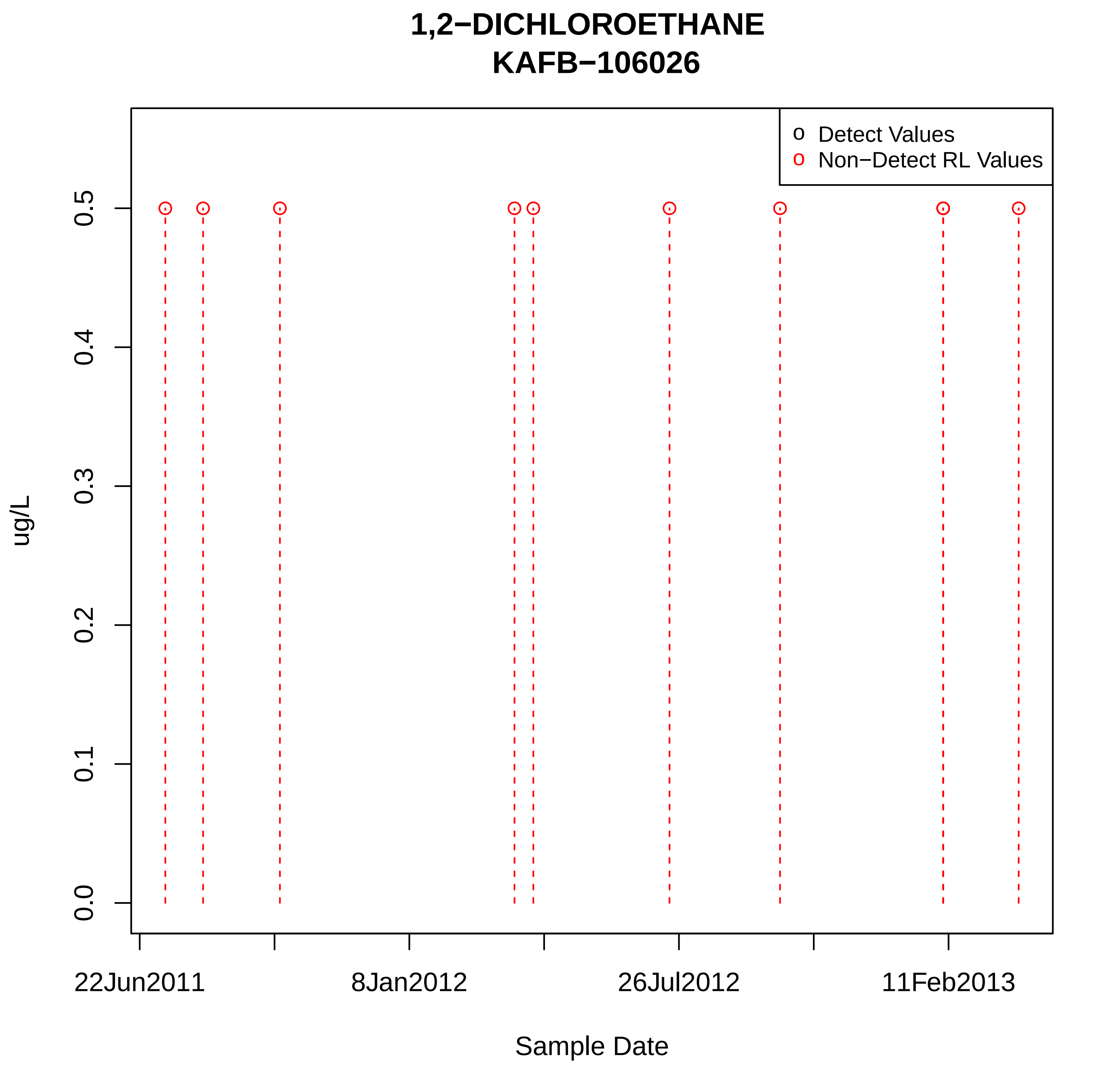


1,2−DICHLOROETHANE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = 1.118E−04
p−value = 0.734
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

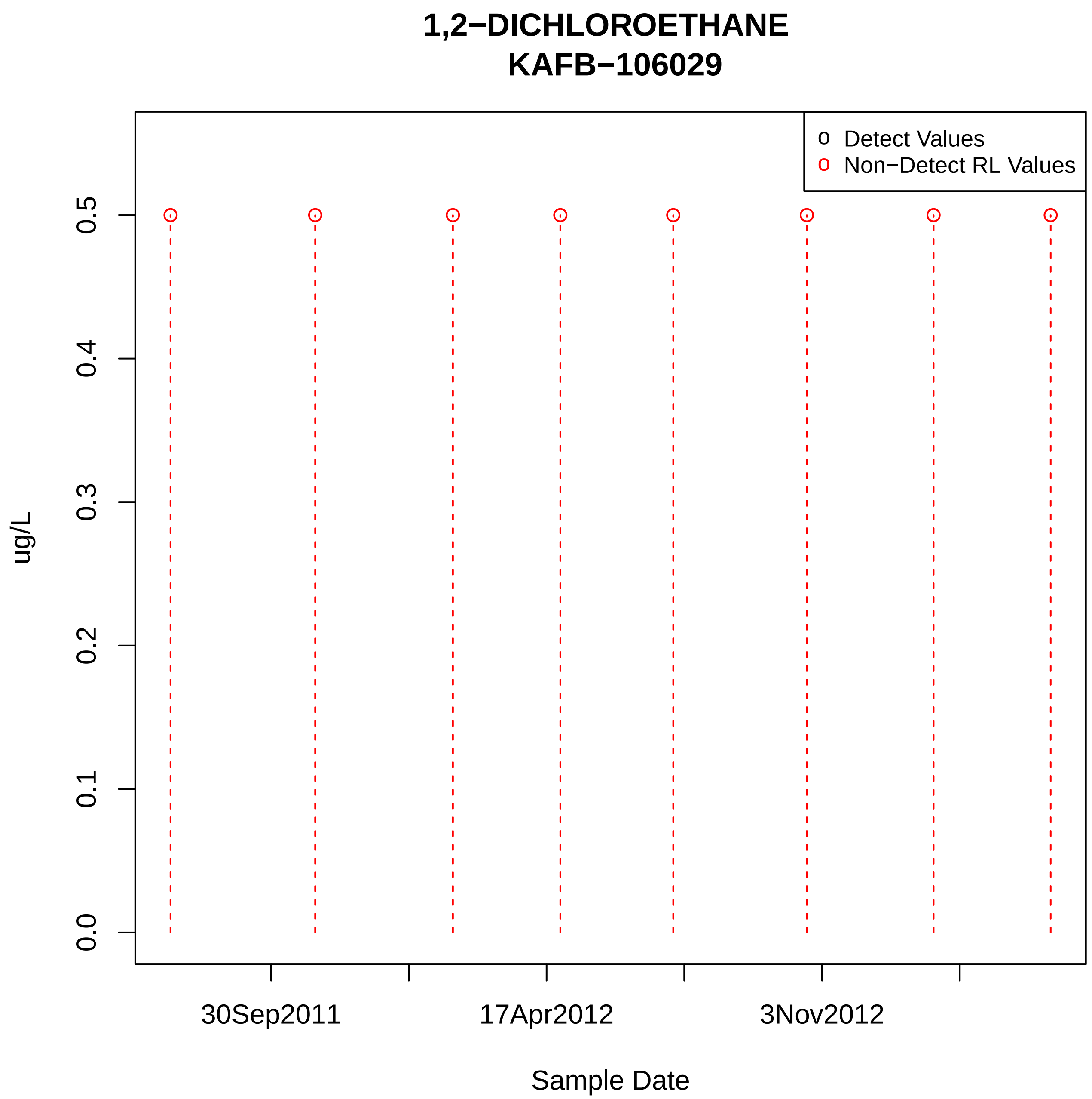


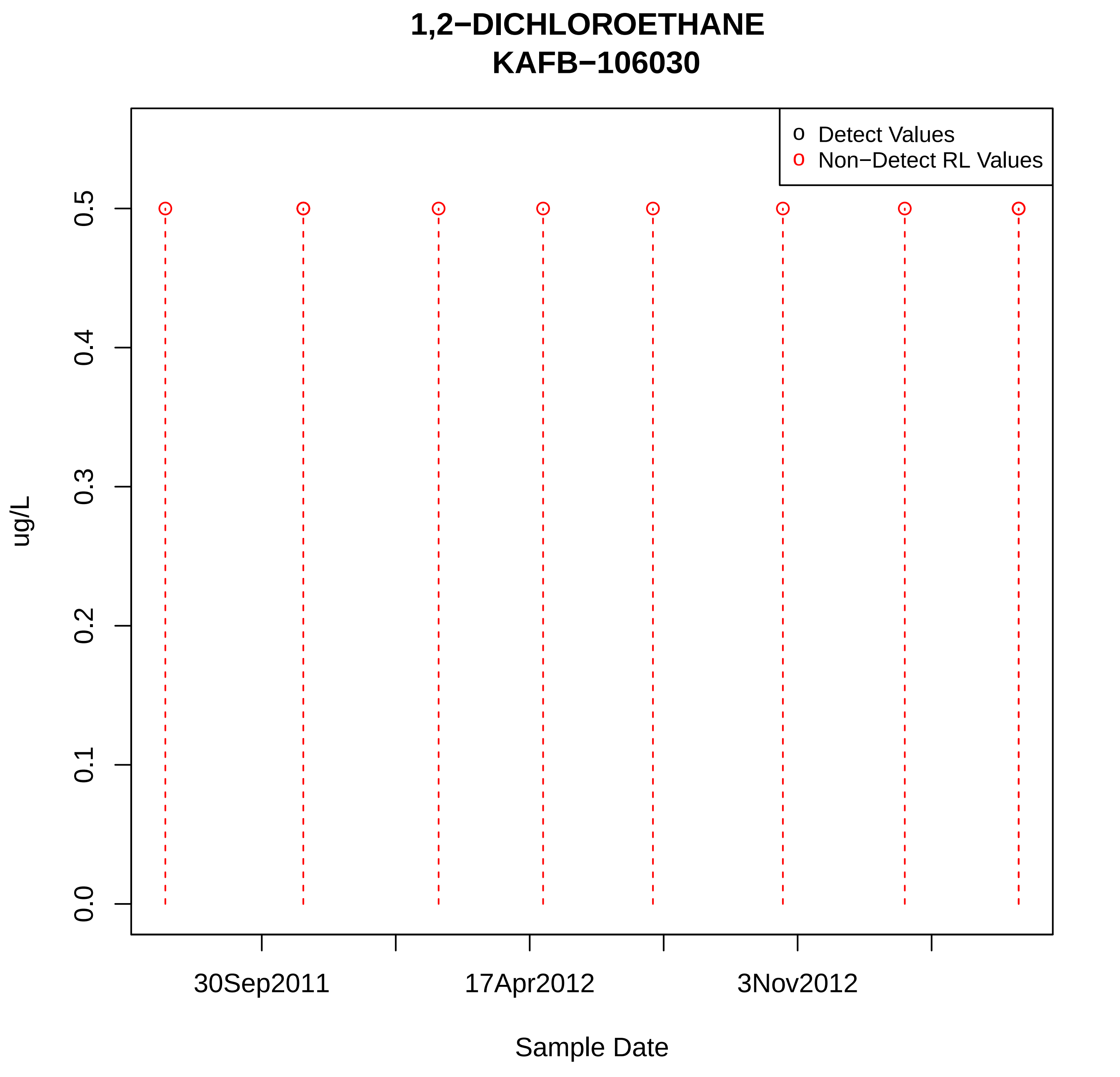
1,2−DICHLOROETHANE
KAFB−106024
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values


1,2−DICHLOROETHANE
KAFB−106025
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

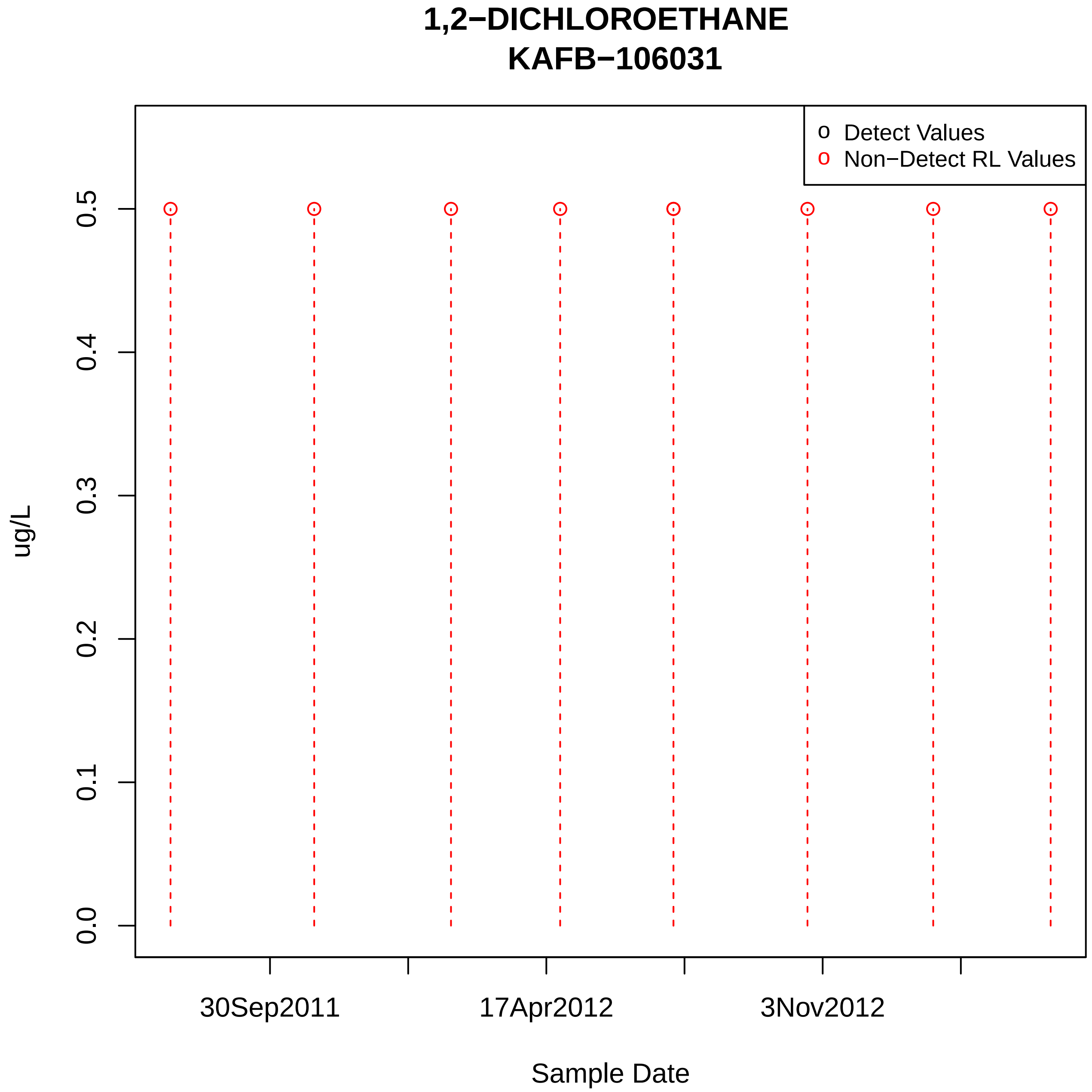


1,2−DICHLOROETHANE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

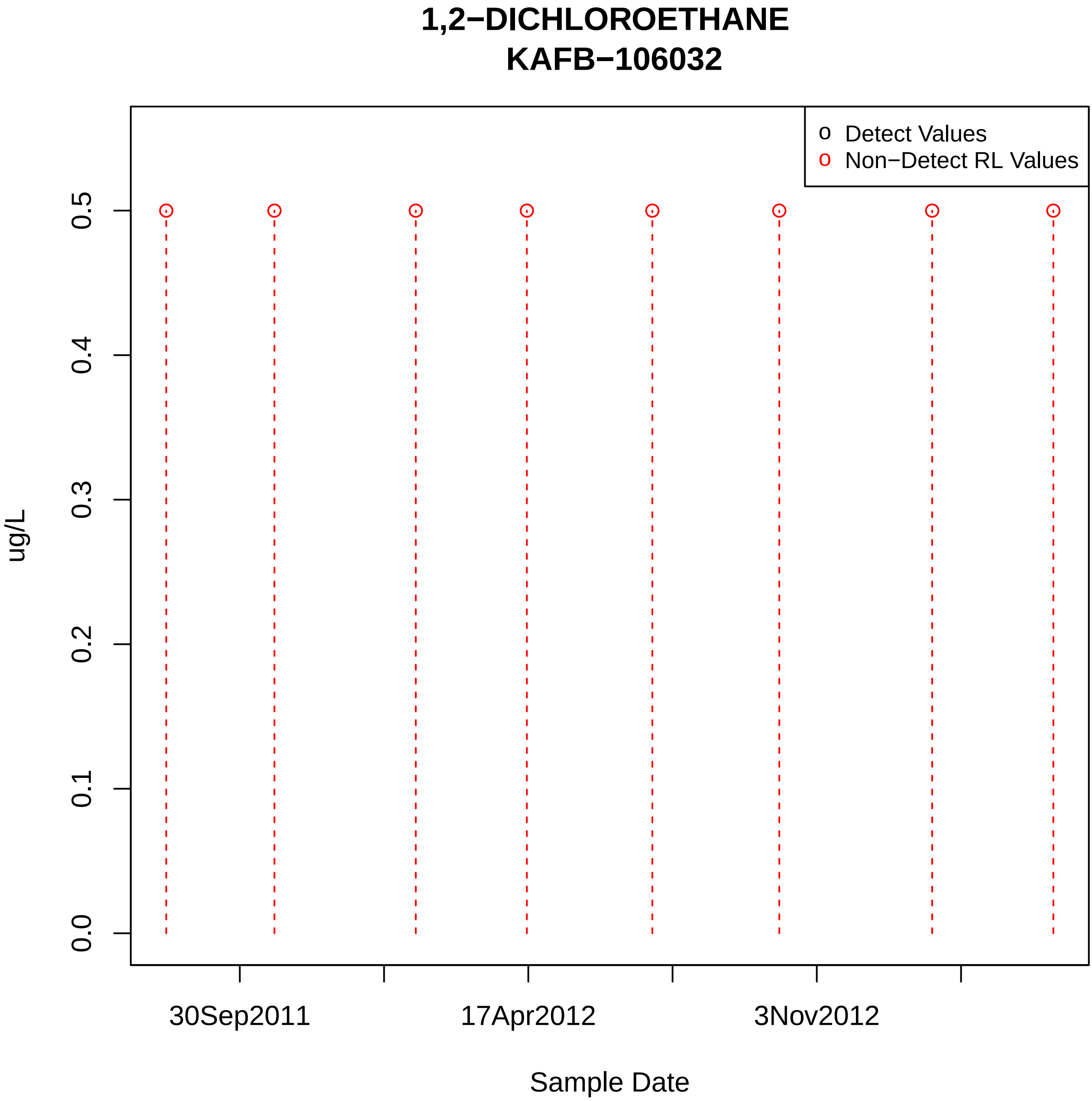

1,2−DICHLOROETHANE
KAFB−106029
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



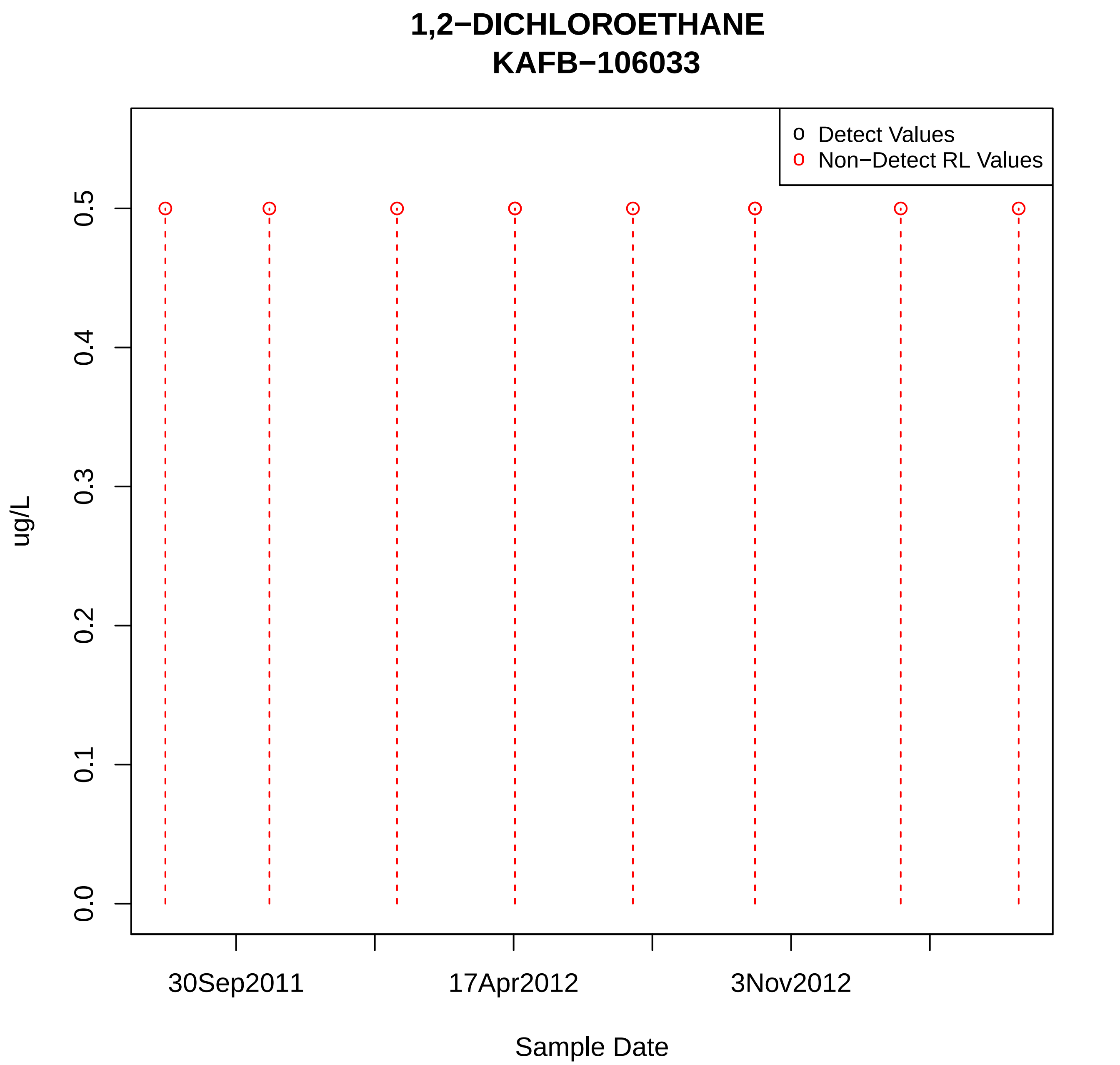
1,2−DICHLOROETHANE
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

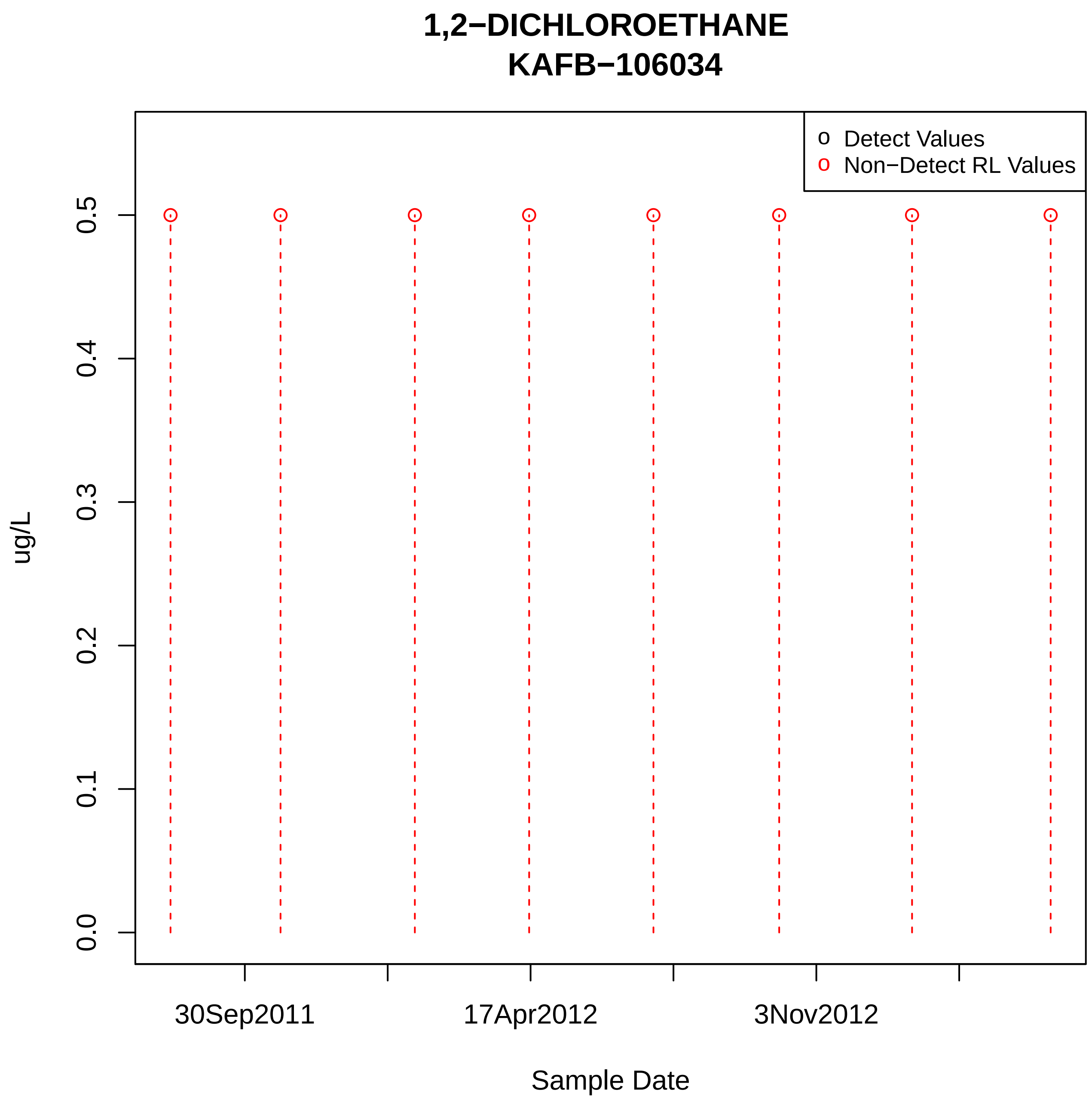


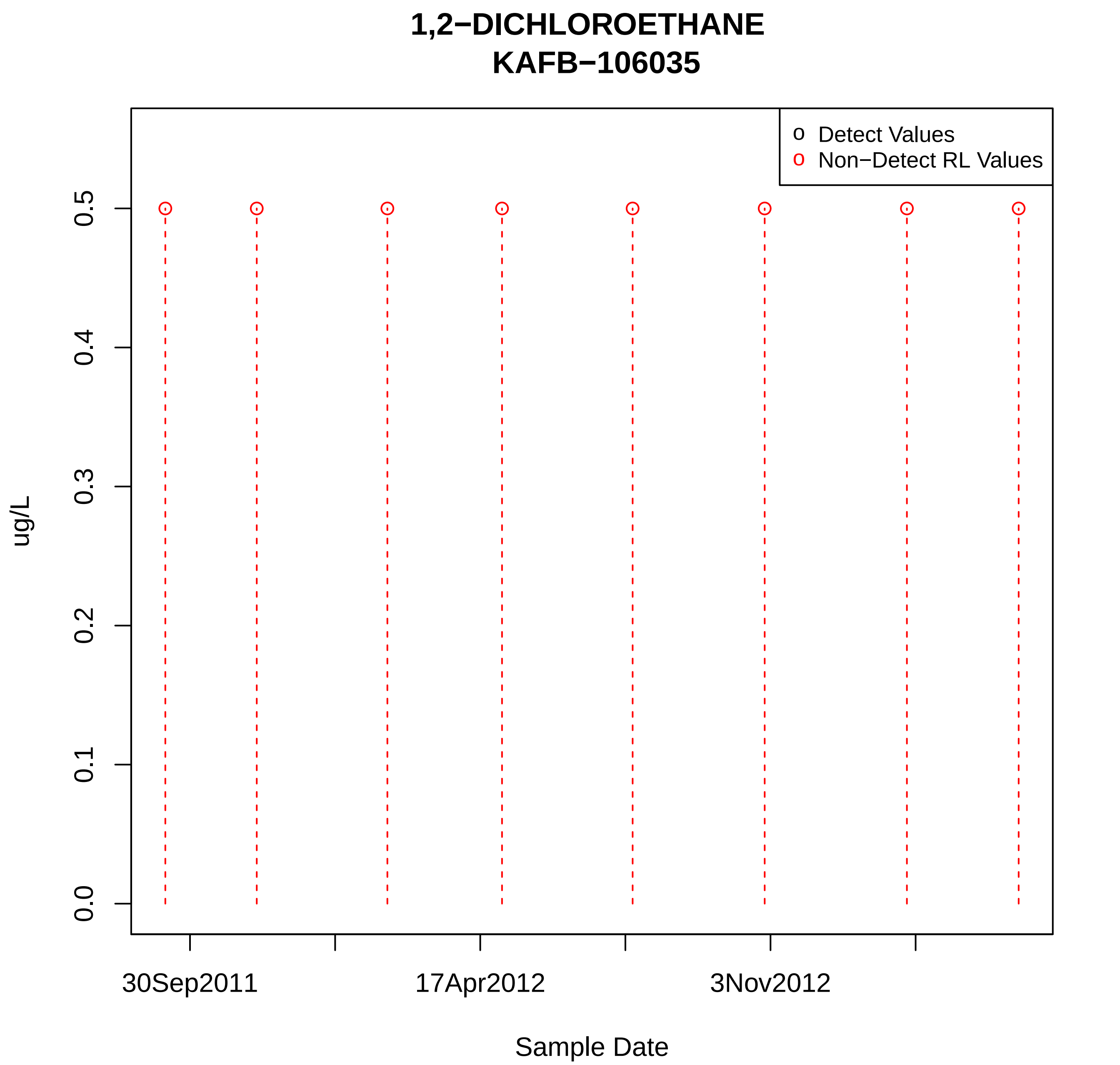
1,2−DICHLOROETHANE
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

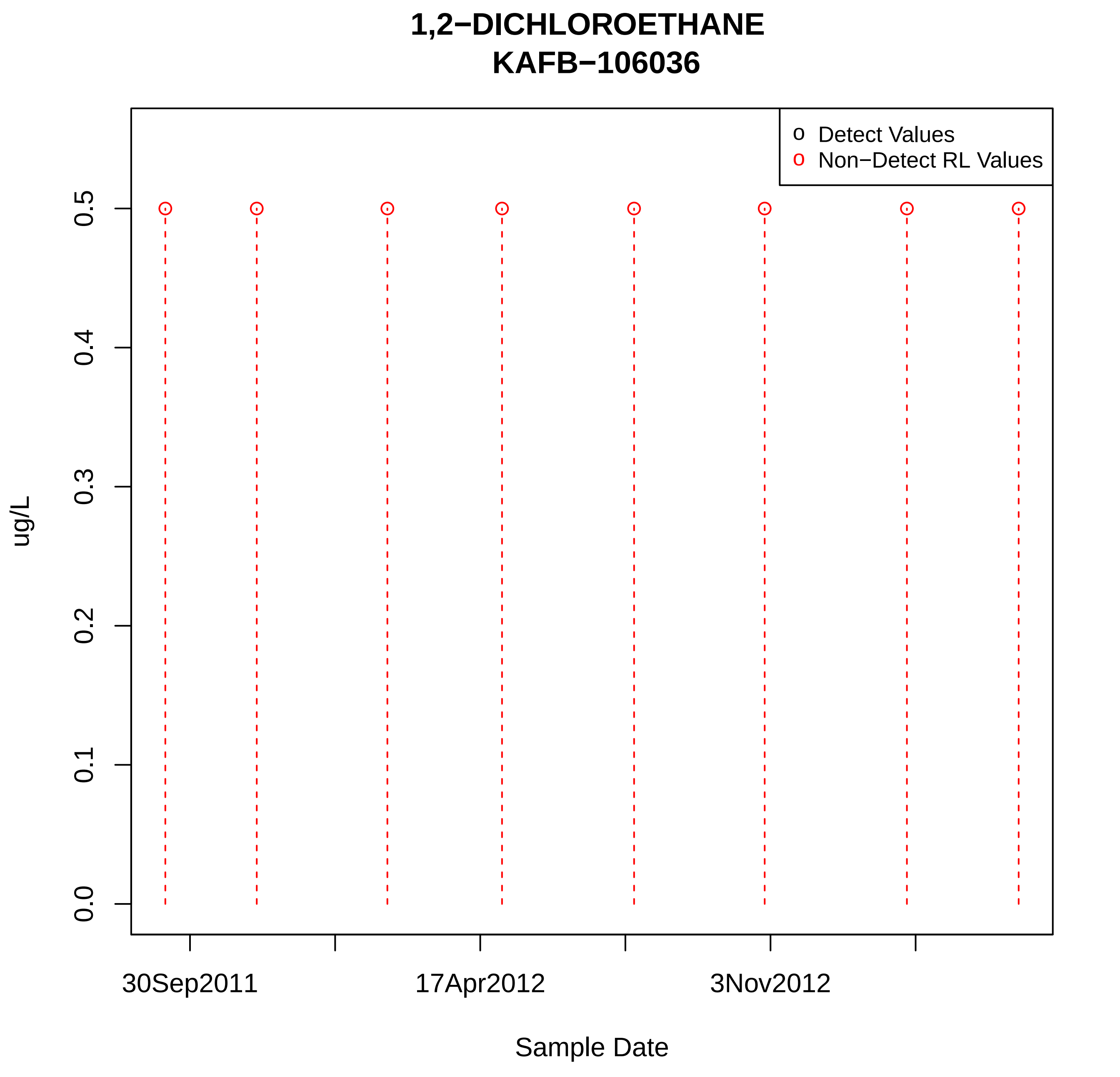


1,2−DICHLOROETHANE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

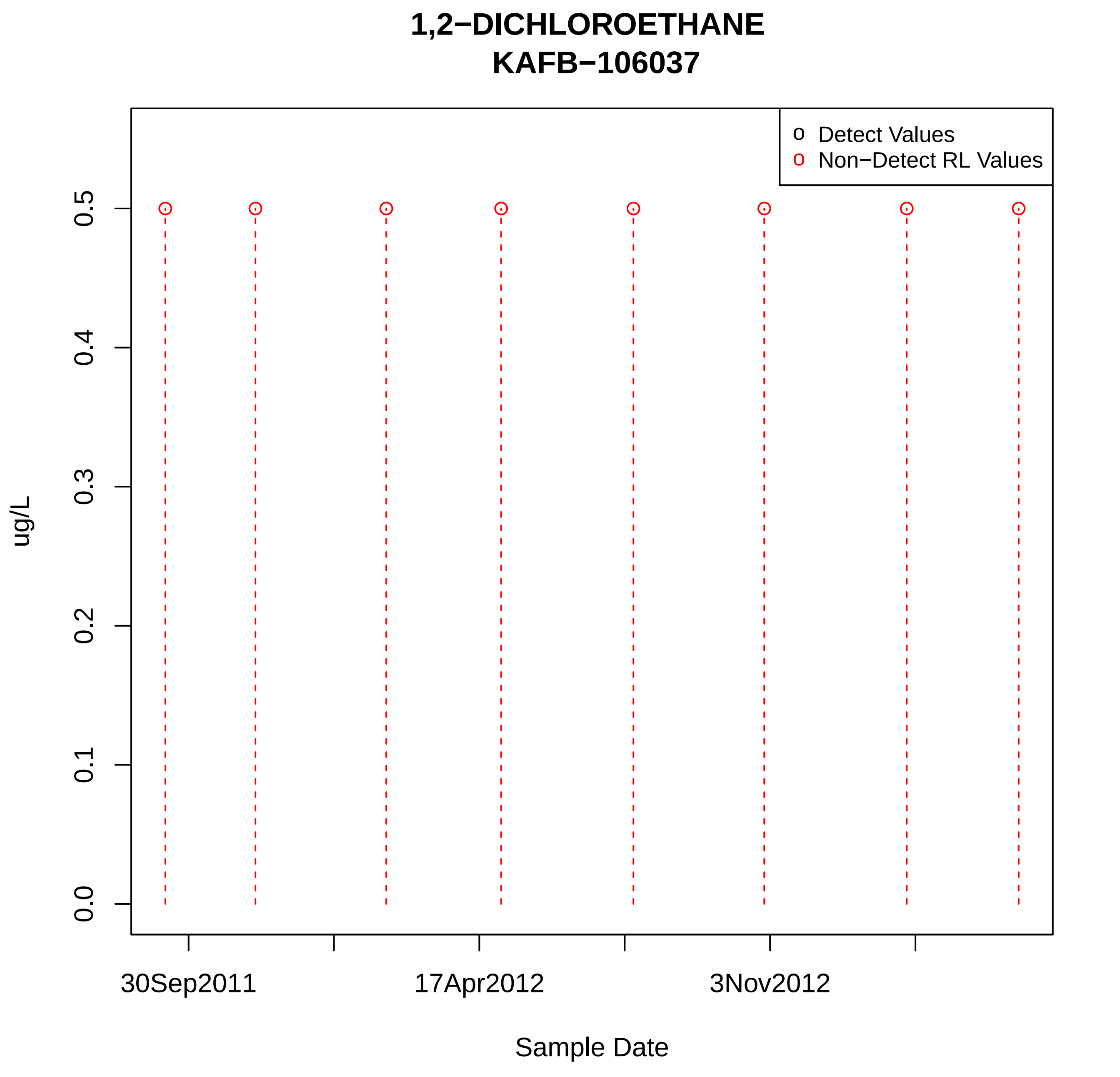

1,2−DICHLOROETHANE
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2−DICHLOROETHANE
KAFB−106034
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

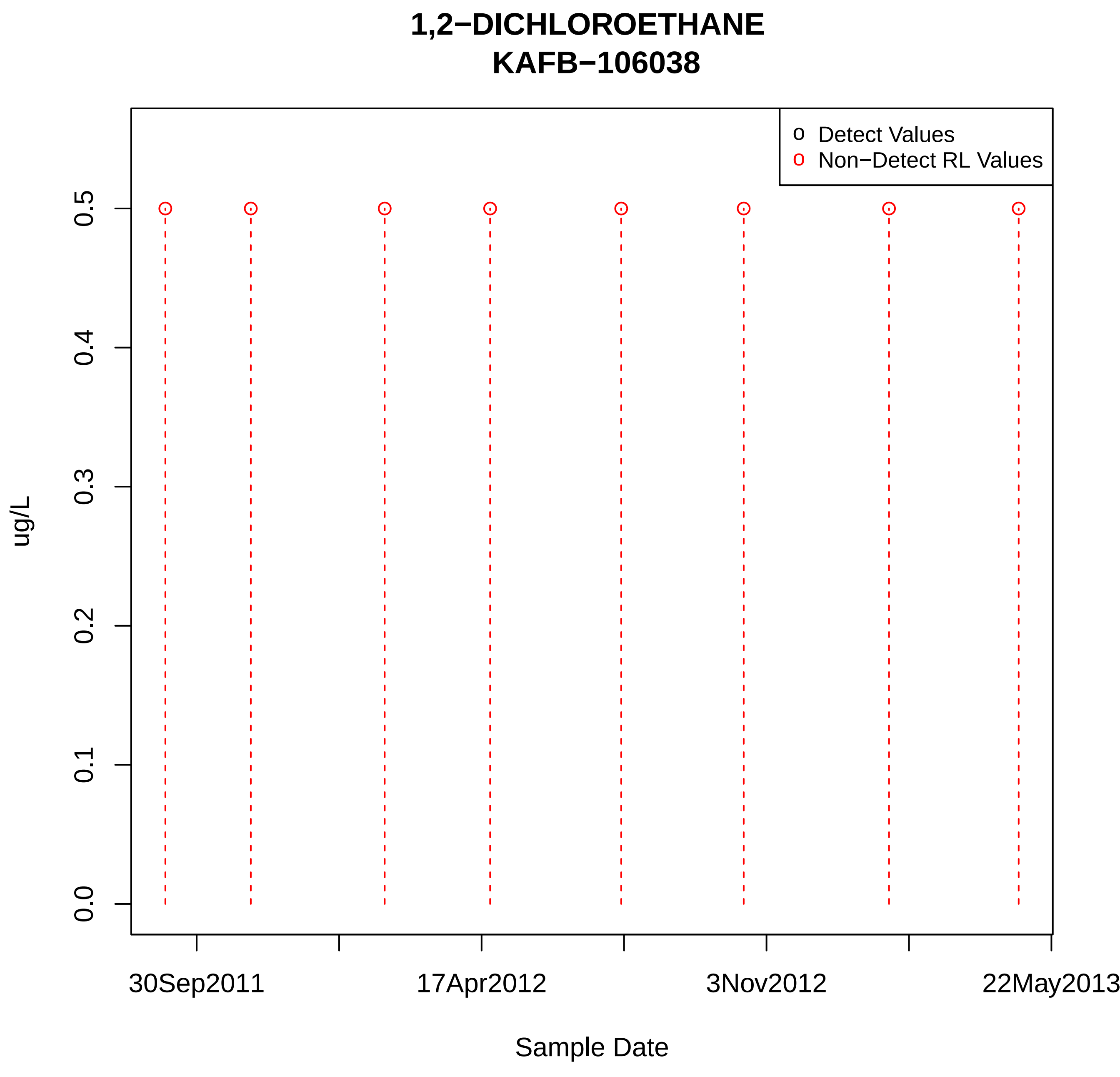

1,2−DICHLOROETHANE
KAFB−106035
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



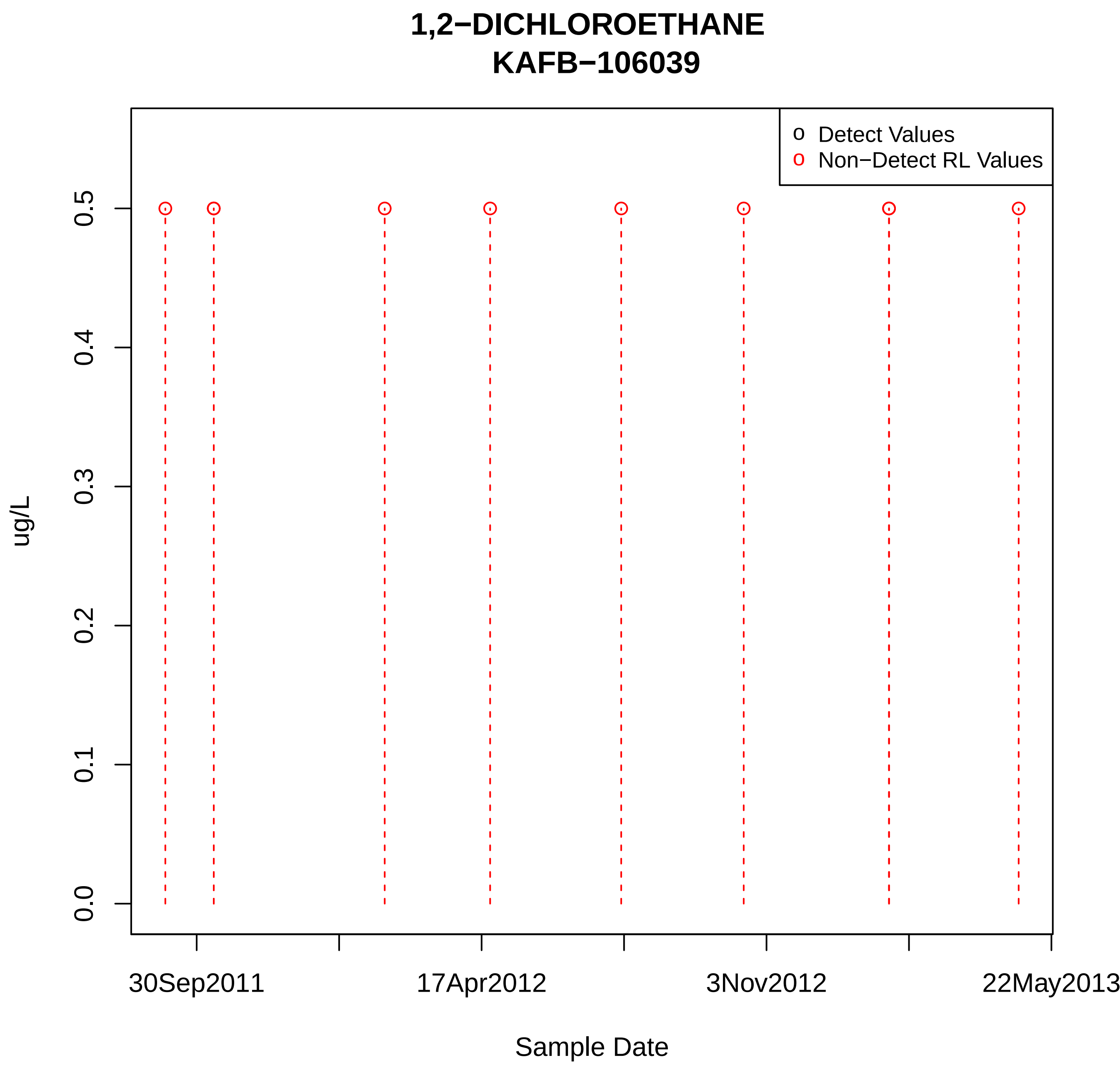
1,2−DICHLOROETHANE
KAFB−106036
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

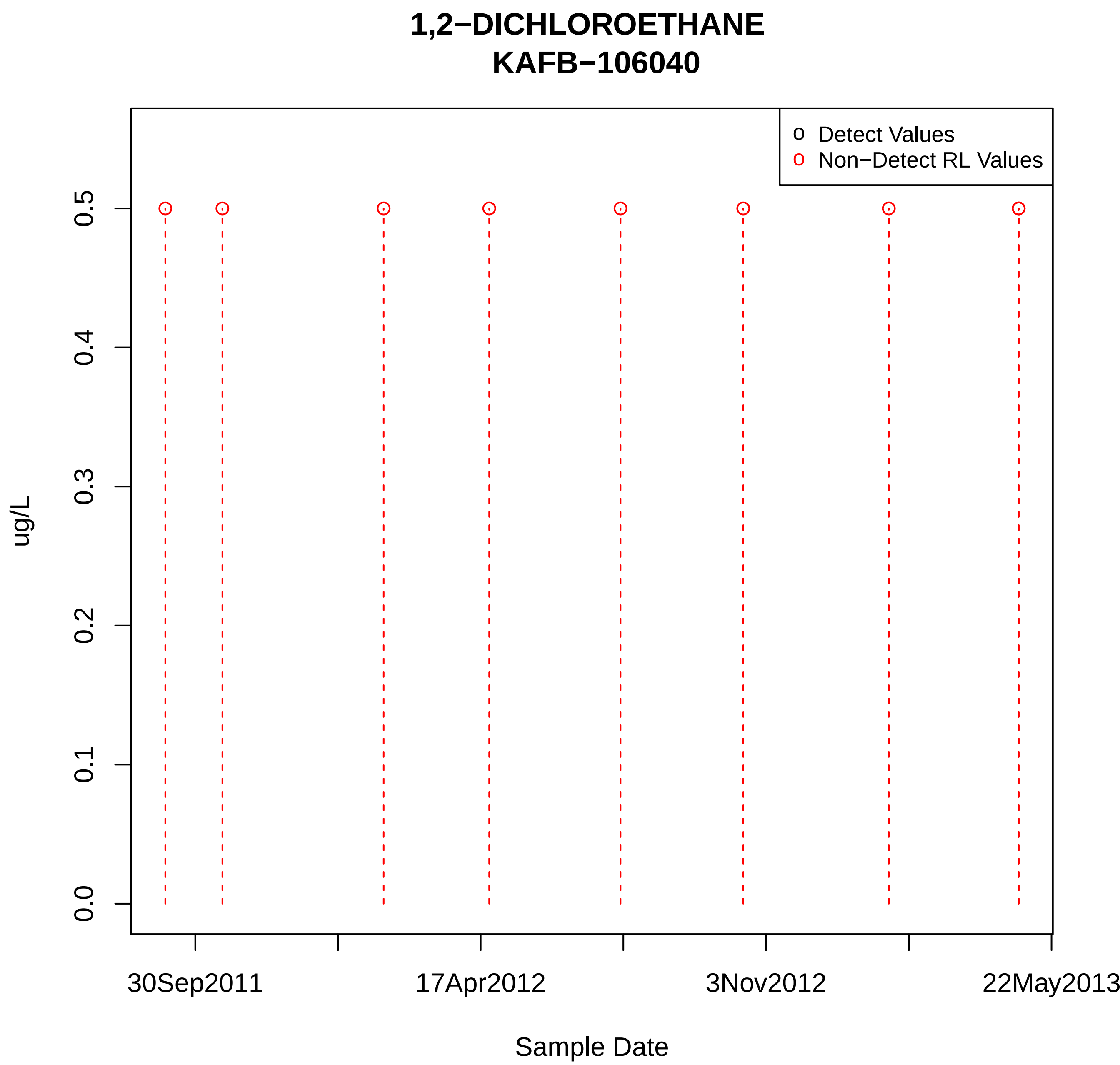


1,2−DICHLOROETHANE
KAFB−106037
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

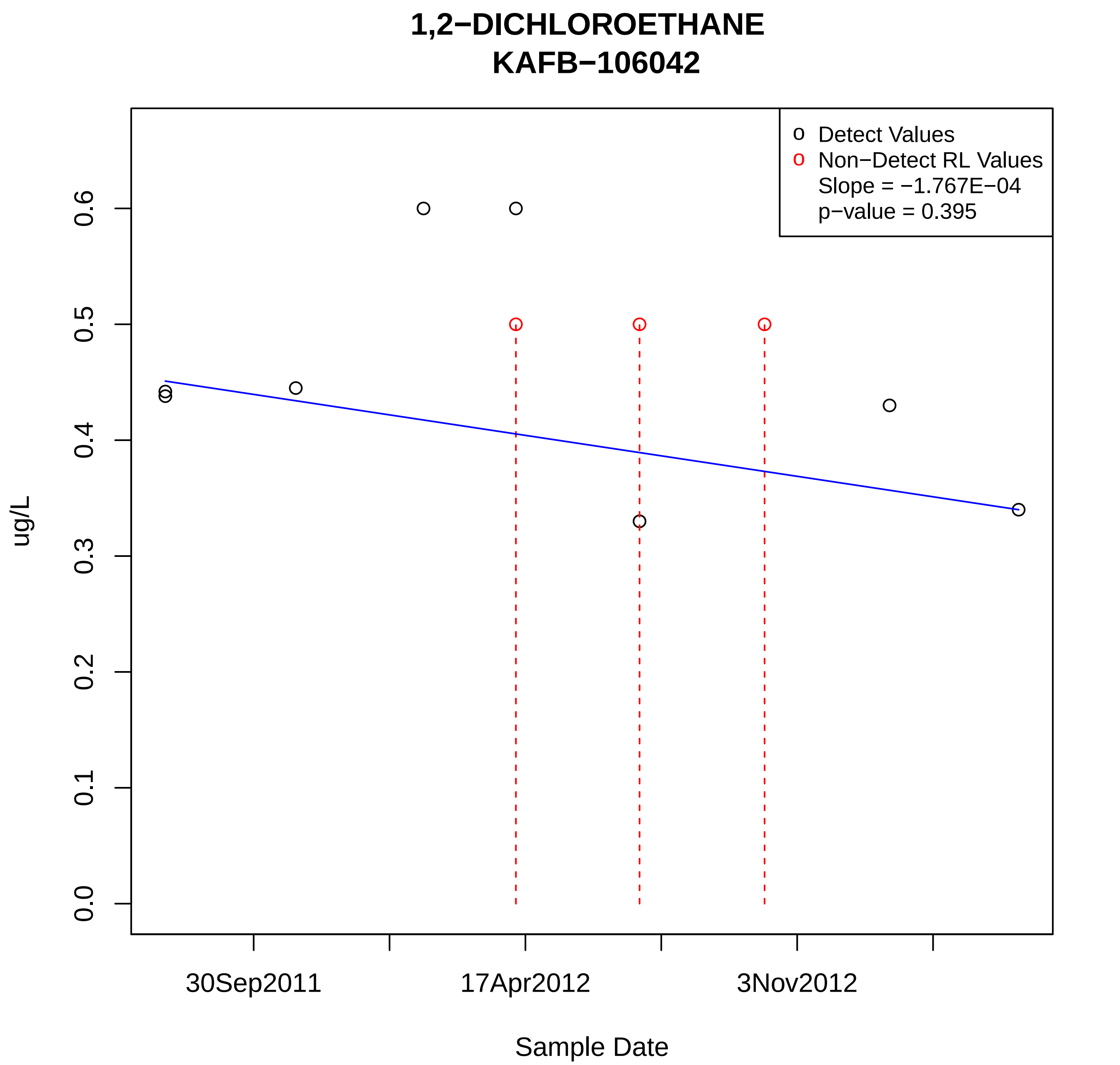


1,2−DICHLOROETHANE
KAFB−106038
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

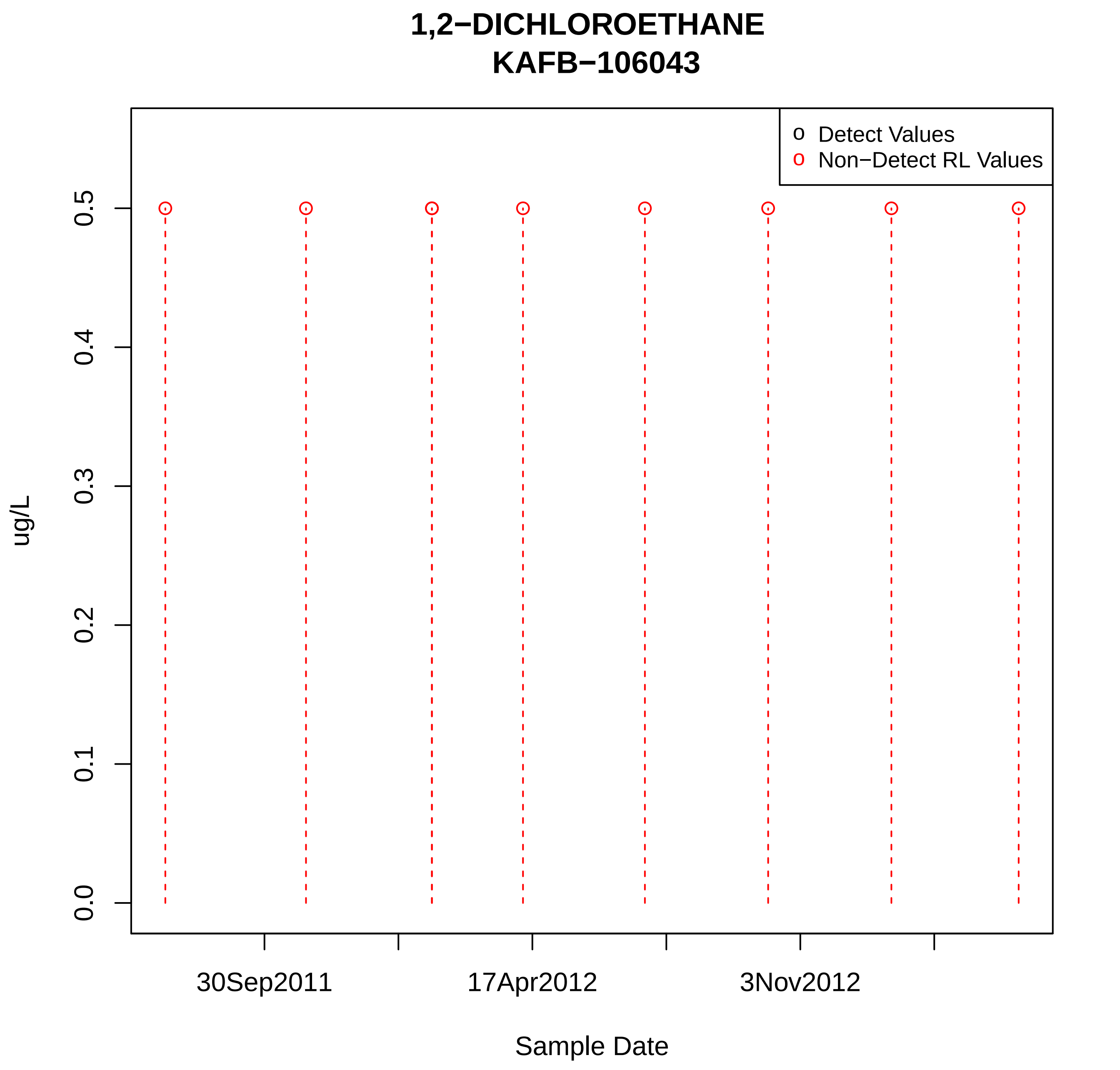

1,2−DICHLOROETHANE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

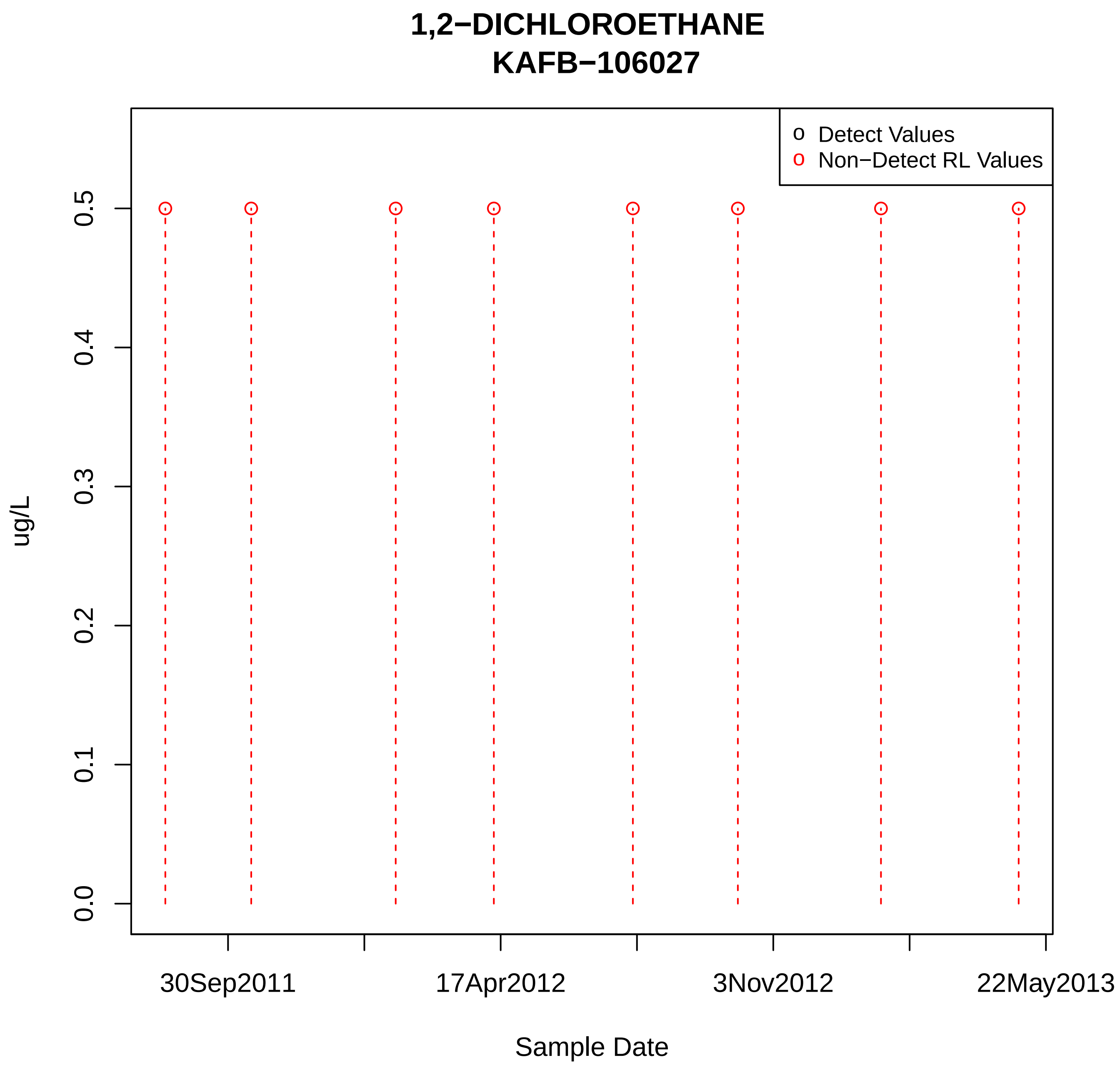


1,2−DICHLOROETHANE
KAFB−106040
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

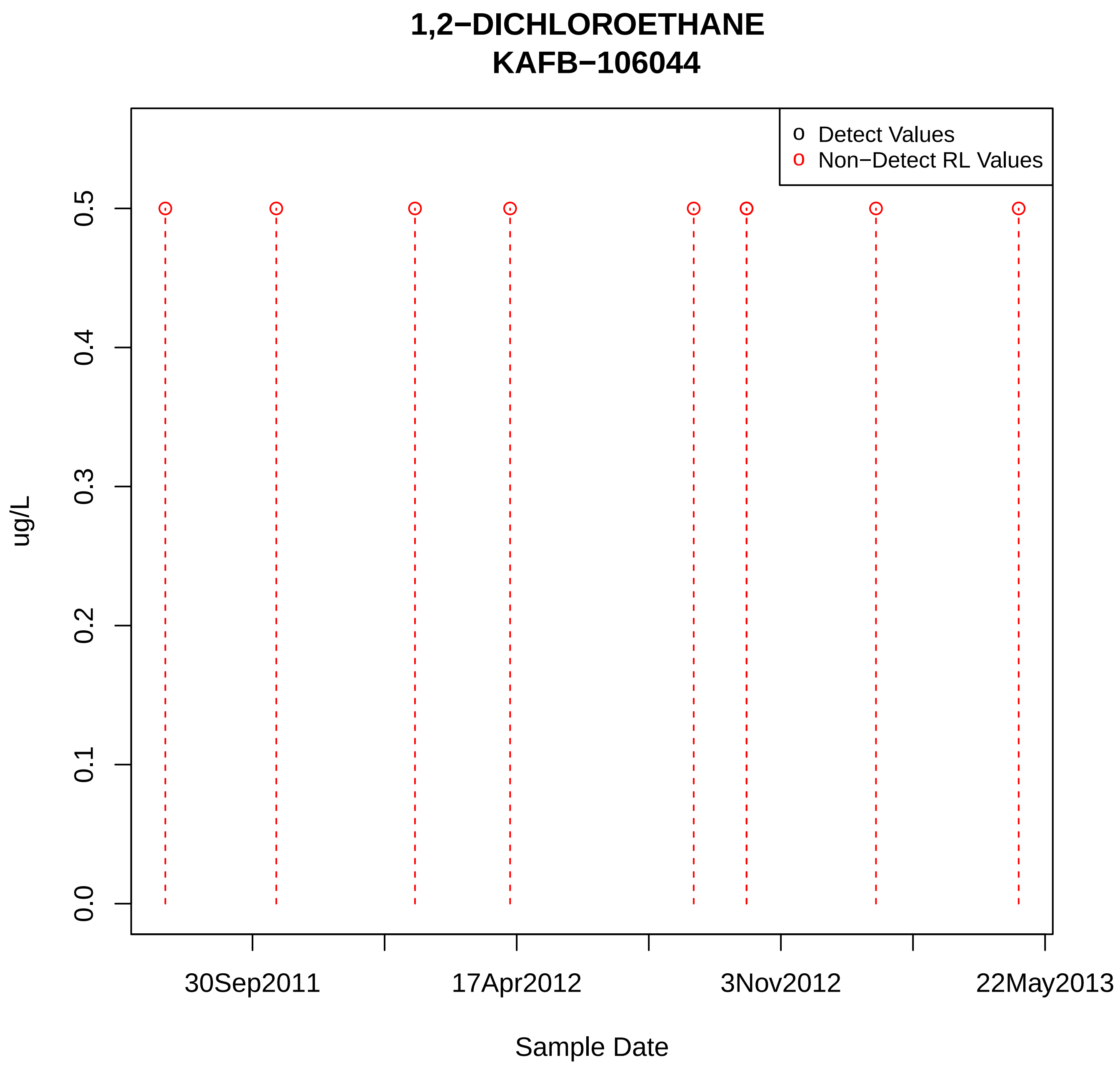


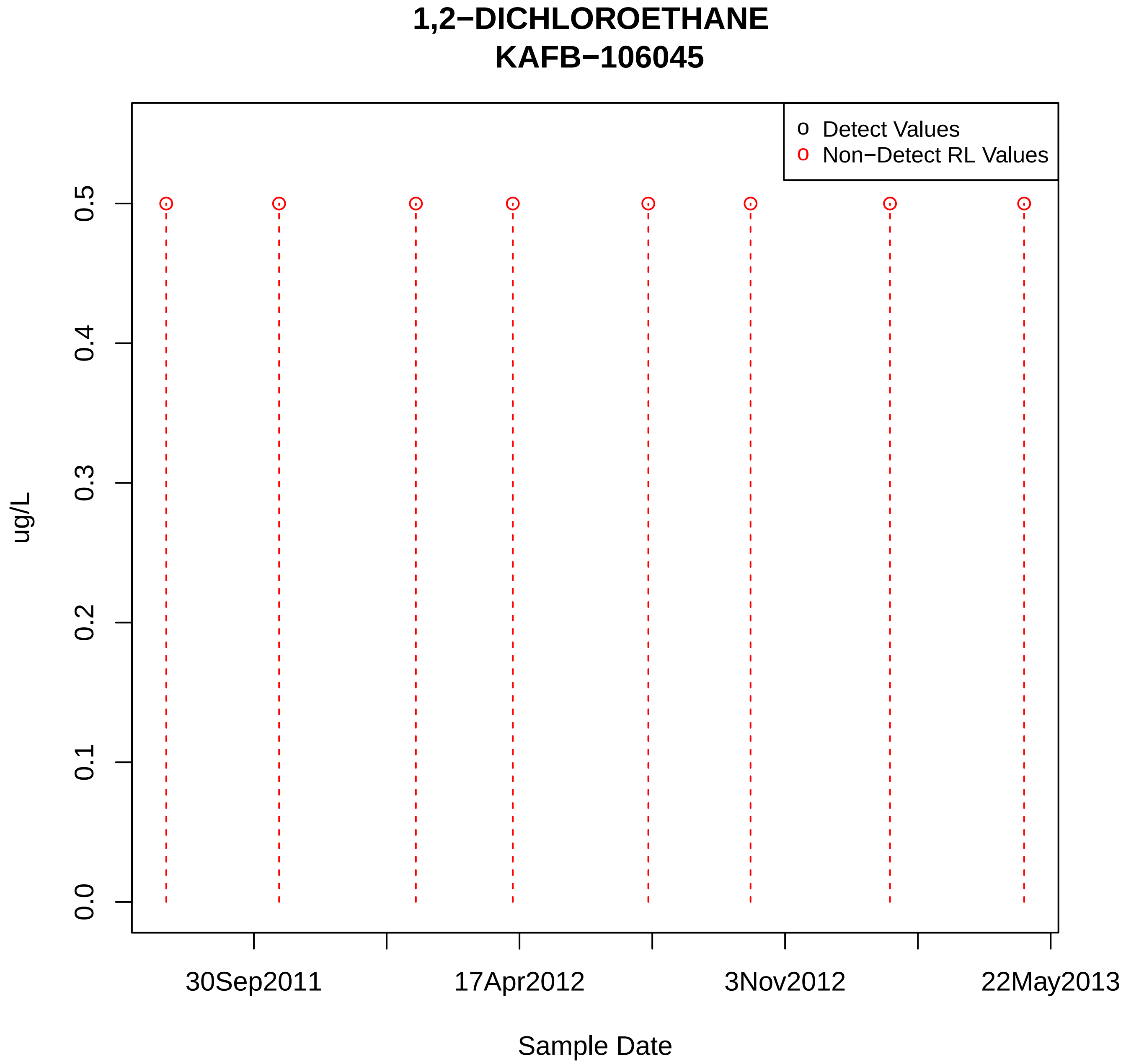
1,2−DICHLOROETHANE
KAFB−106042
Detect Values
Non−Detect RL Values
Slope = −1.767E−04
p−value = 0.395
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
Sample Date

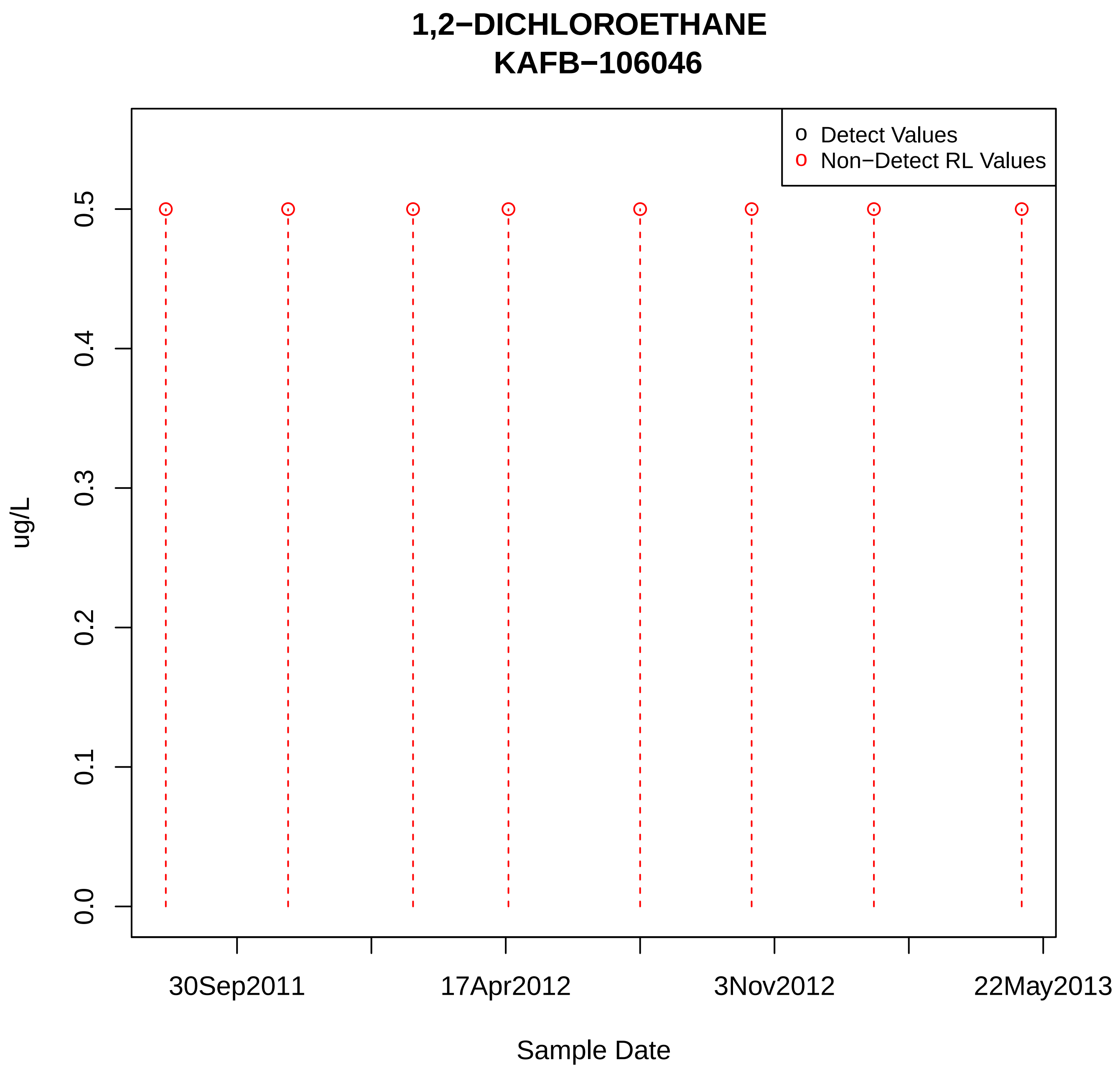

1,2−DICHLOROETHANE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



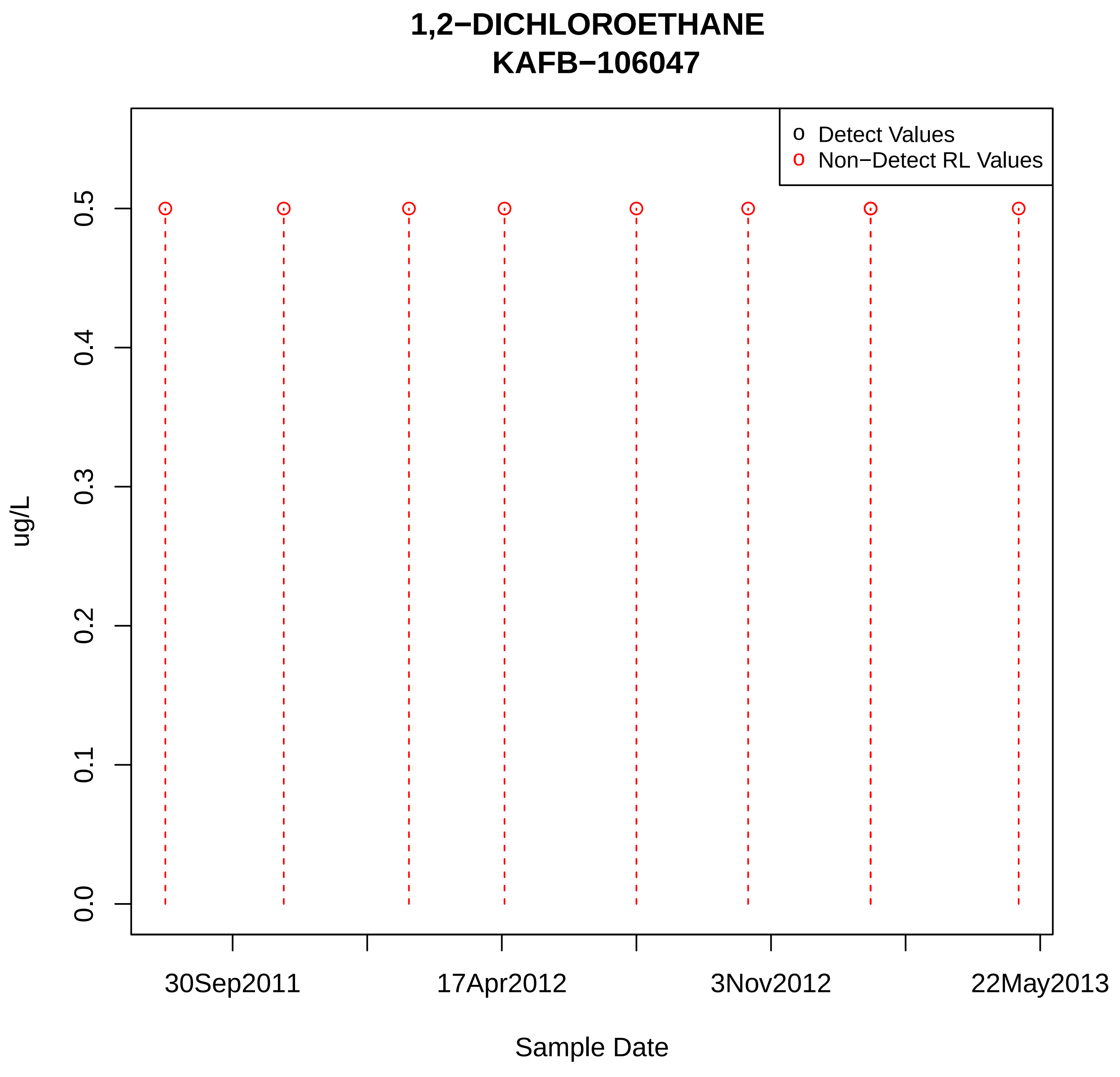
1,2−DICHLOROETHANE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106044
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

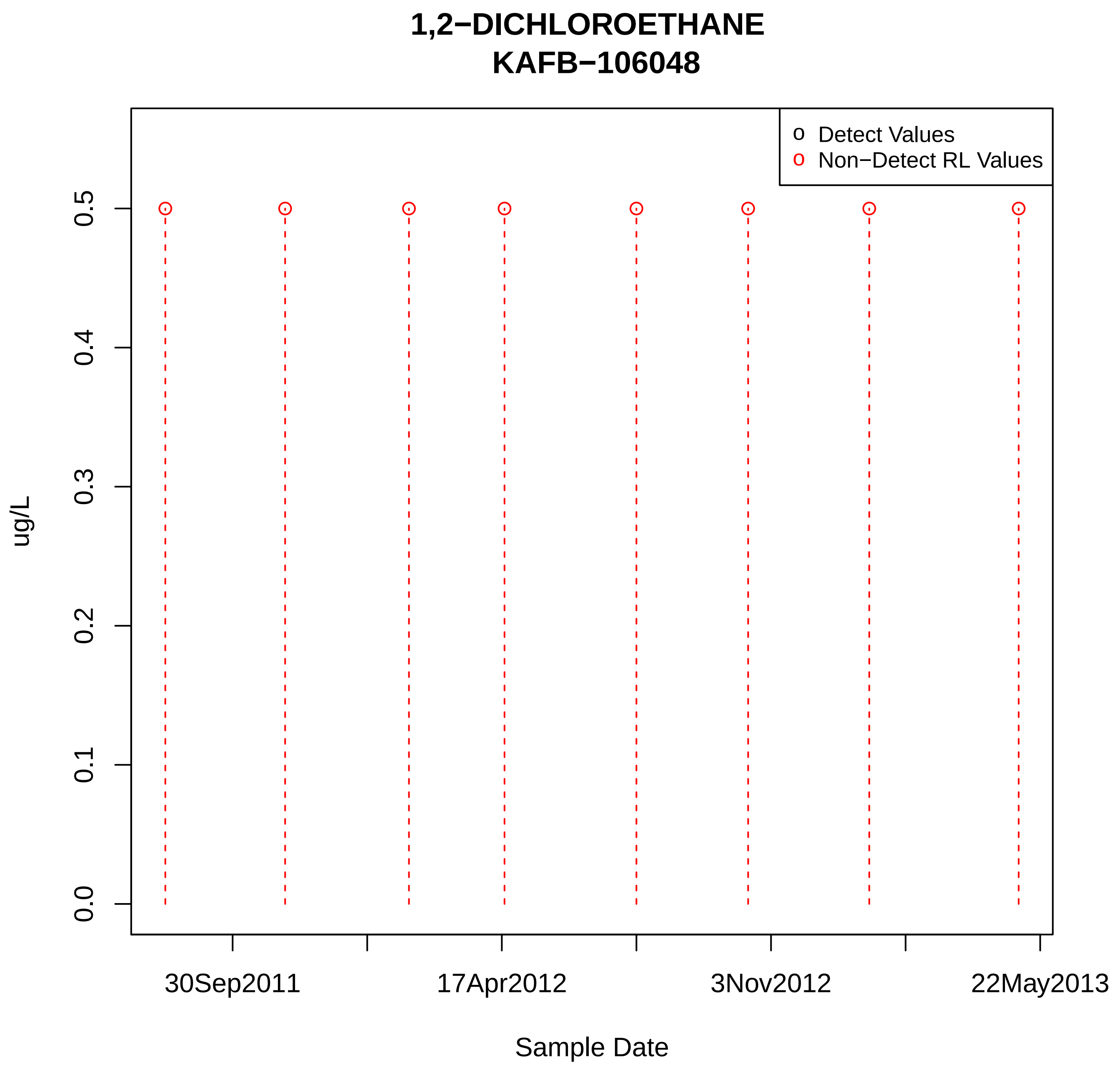

1,2−DICHLOROETHANE
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



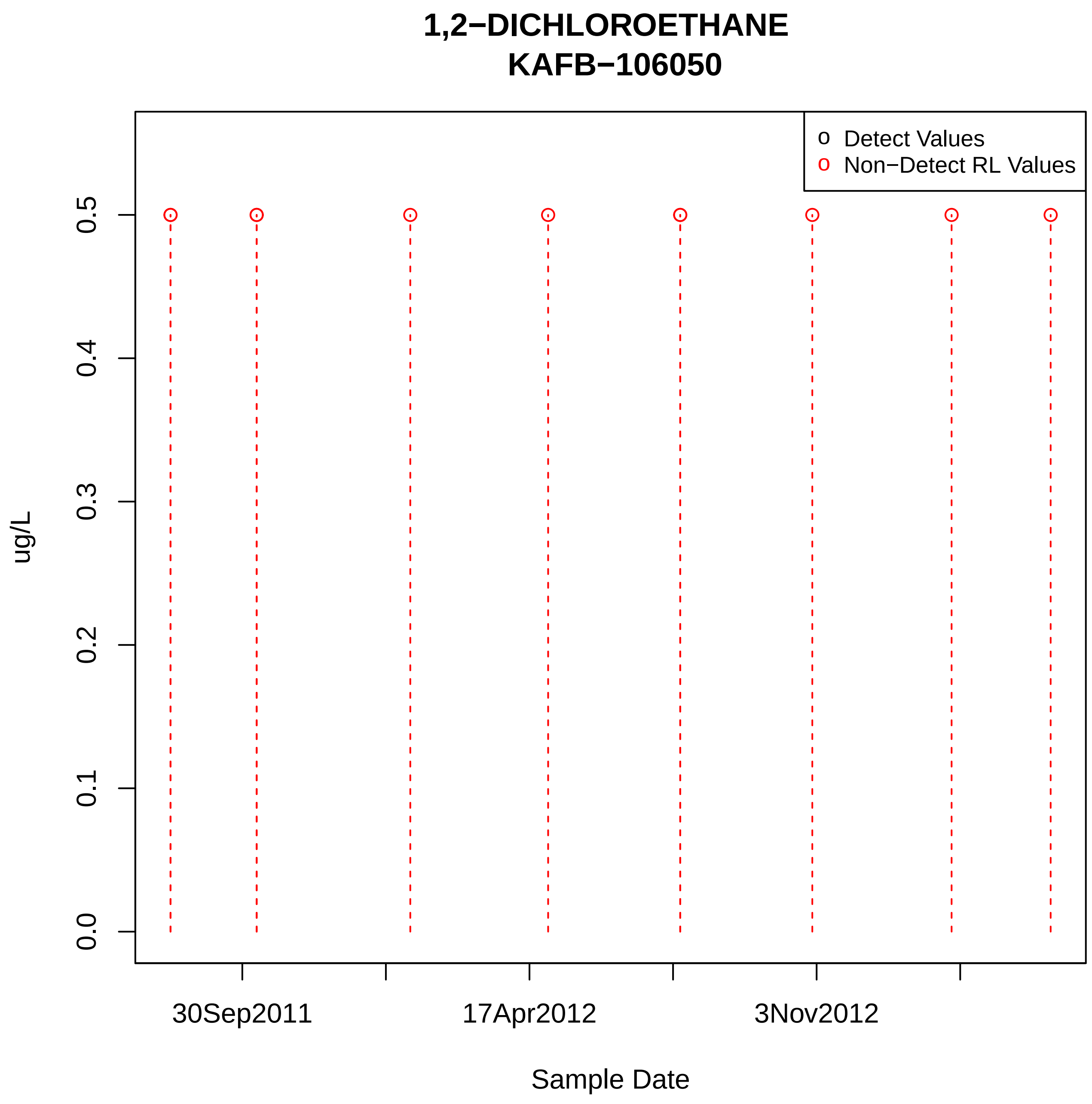
1,2−DICHLOROETHANE
KAFB−106046
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



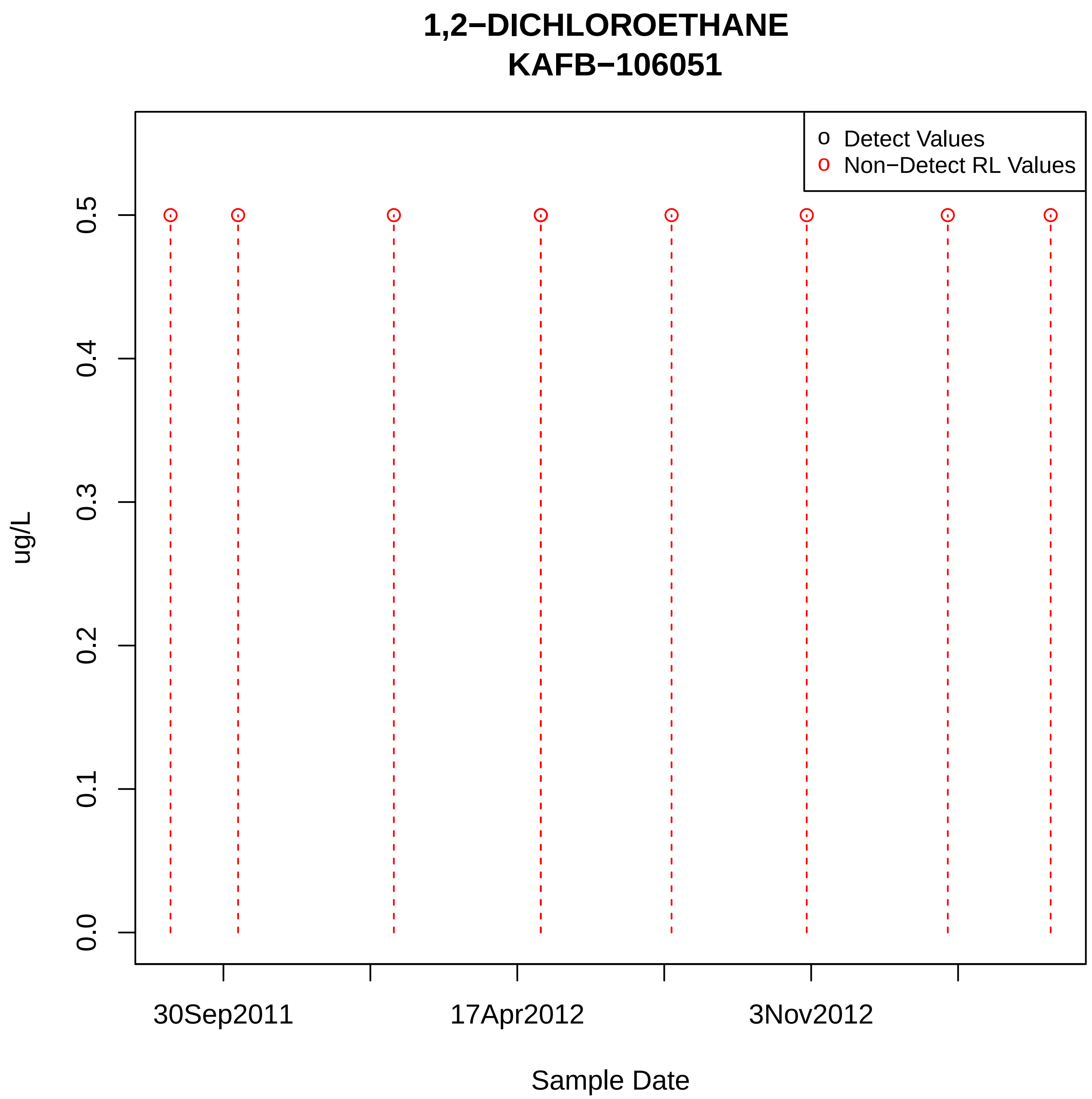
1,2−DICHLOROETHANE
KAFB−106047
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



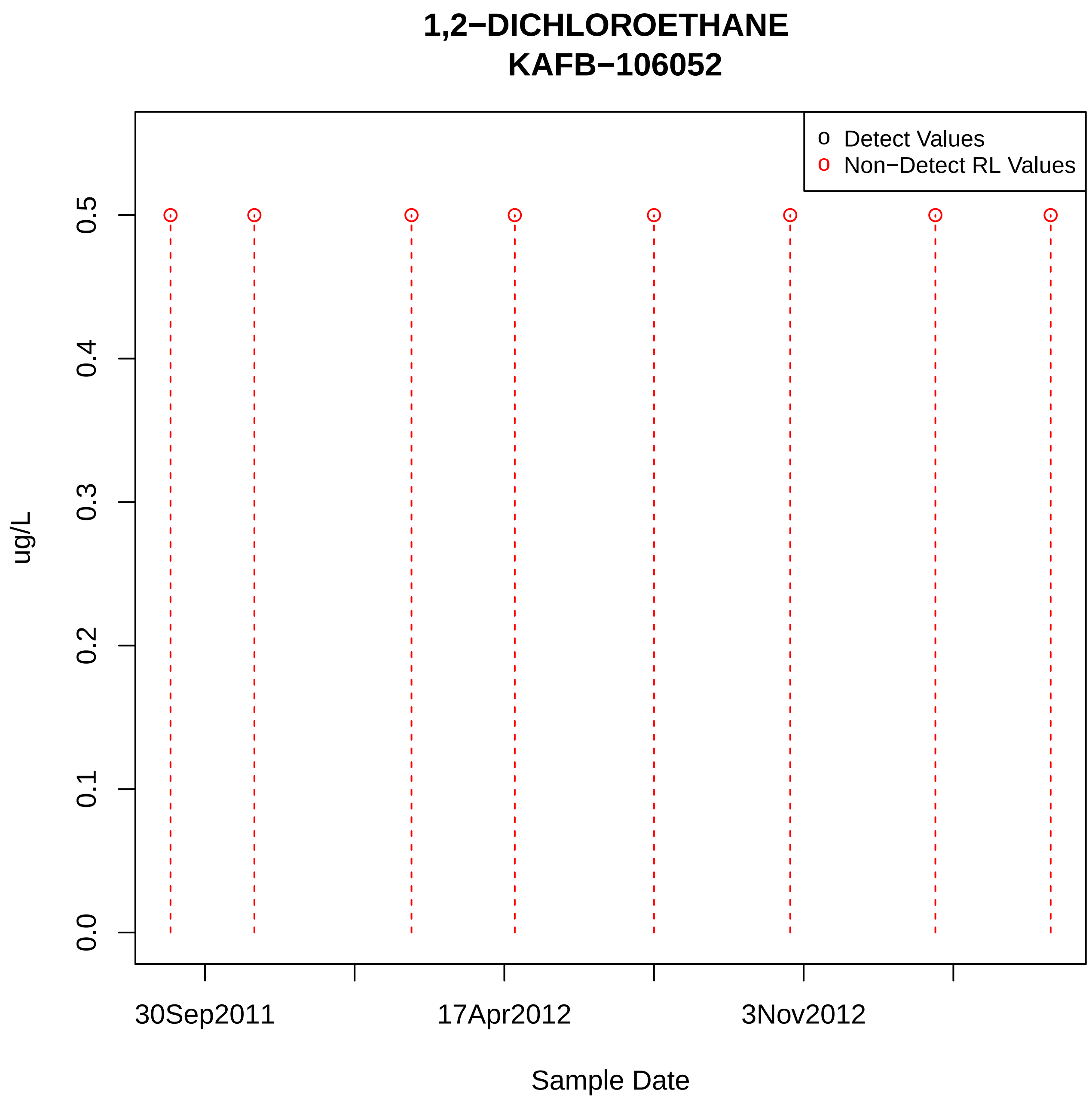
1,2−DICHLOROETHANE
KAFB−106048
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

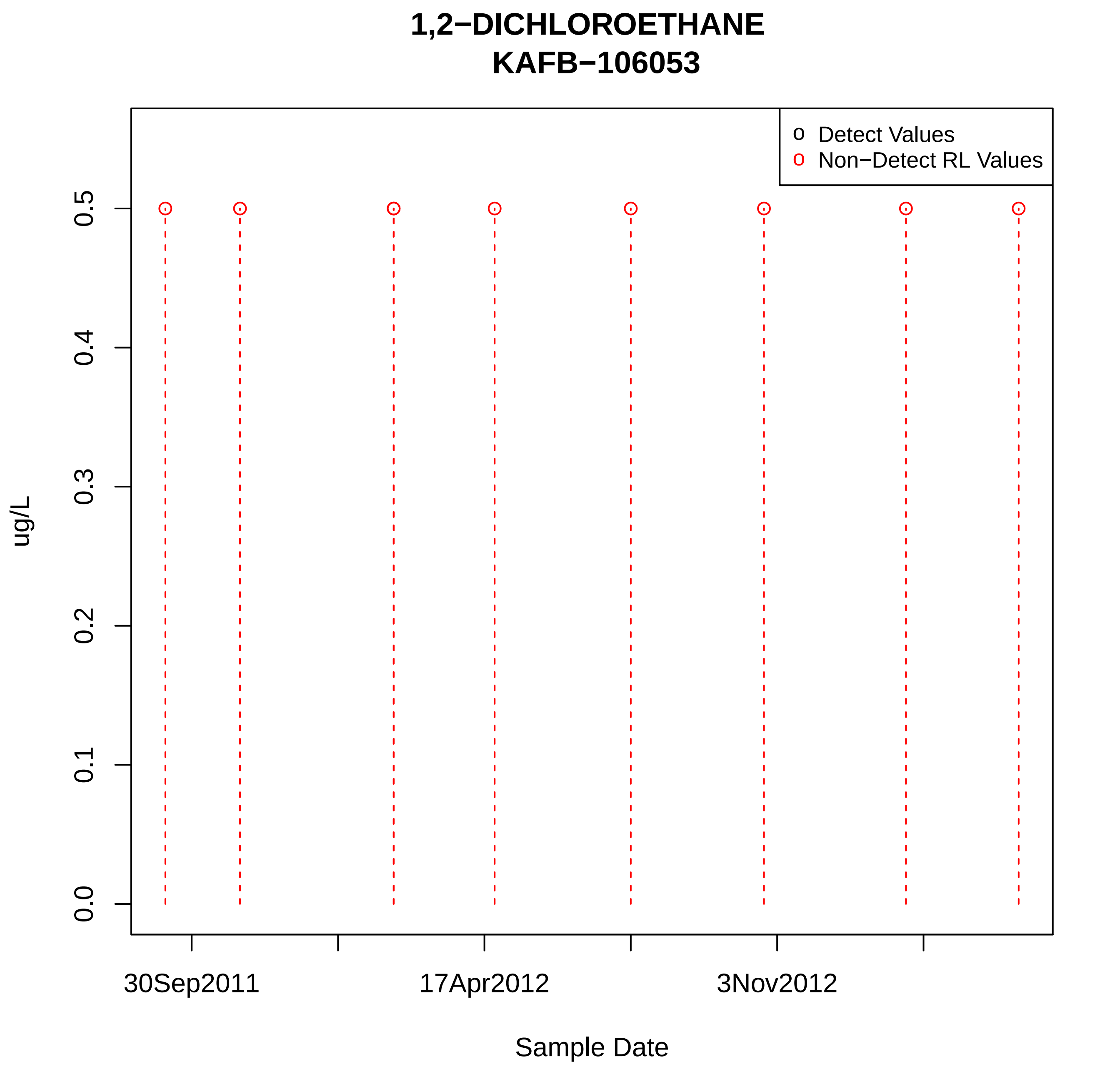


1,2−DICHLOROETHANE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

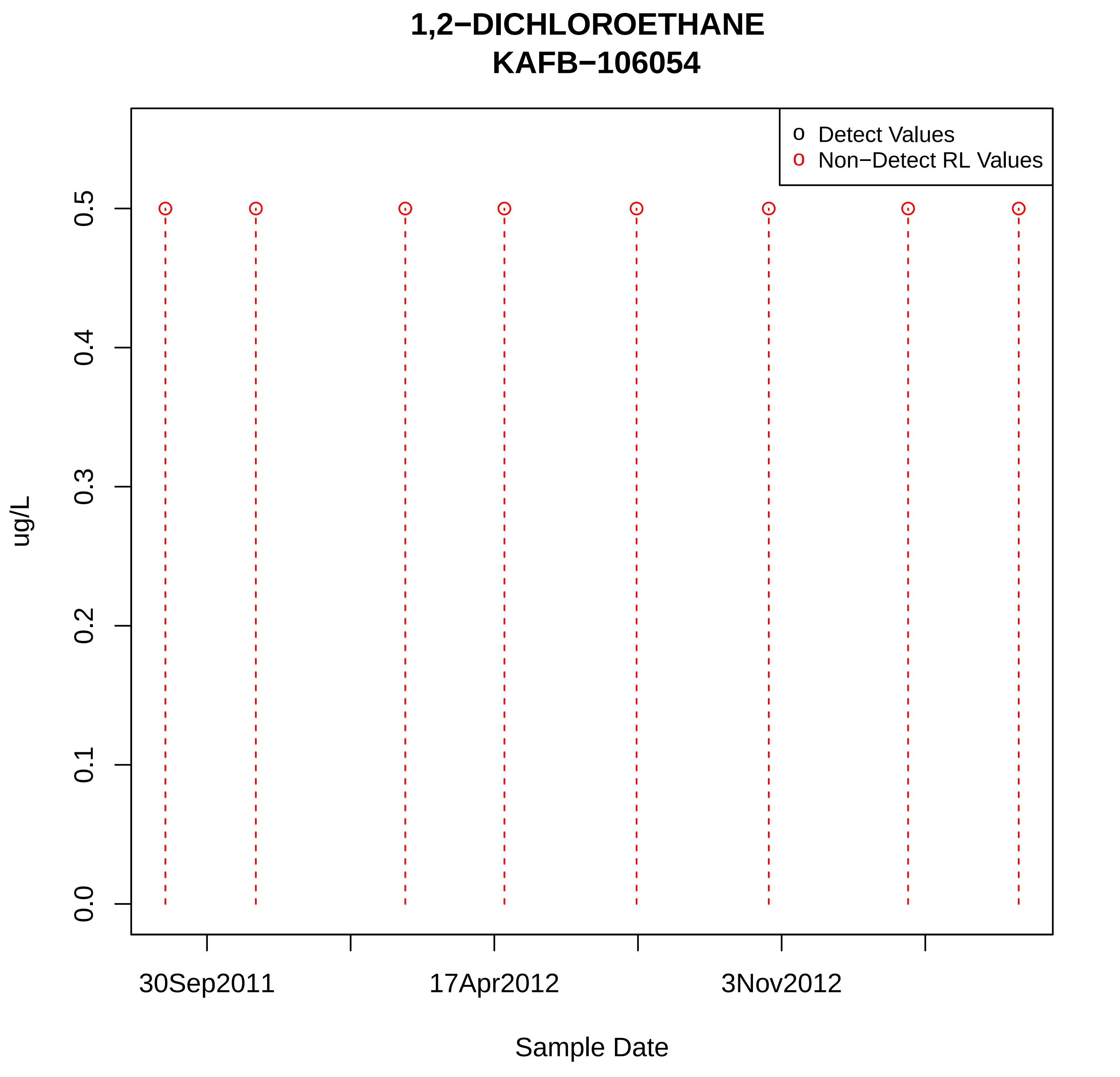


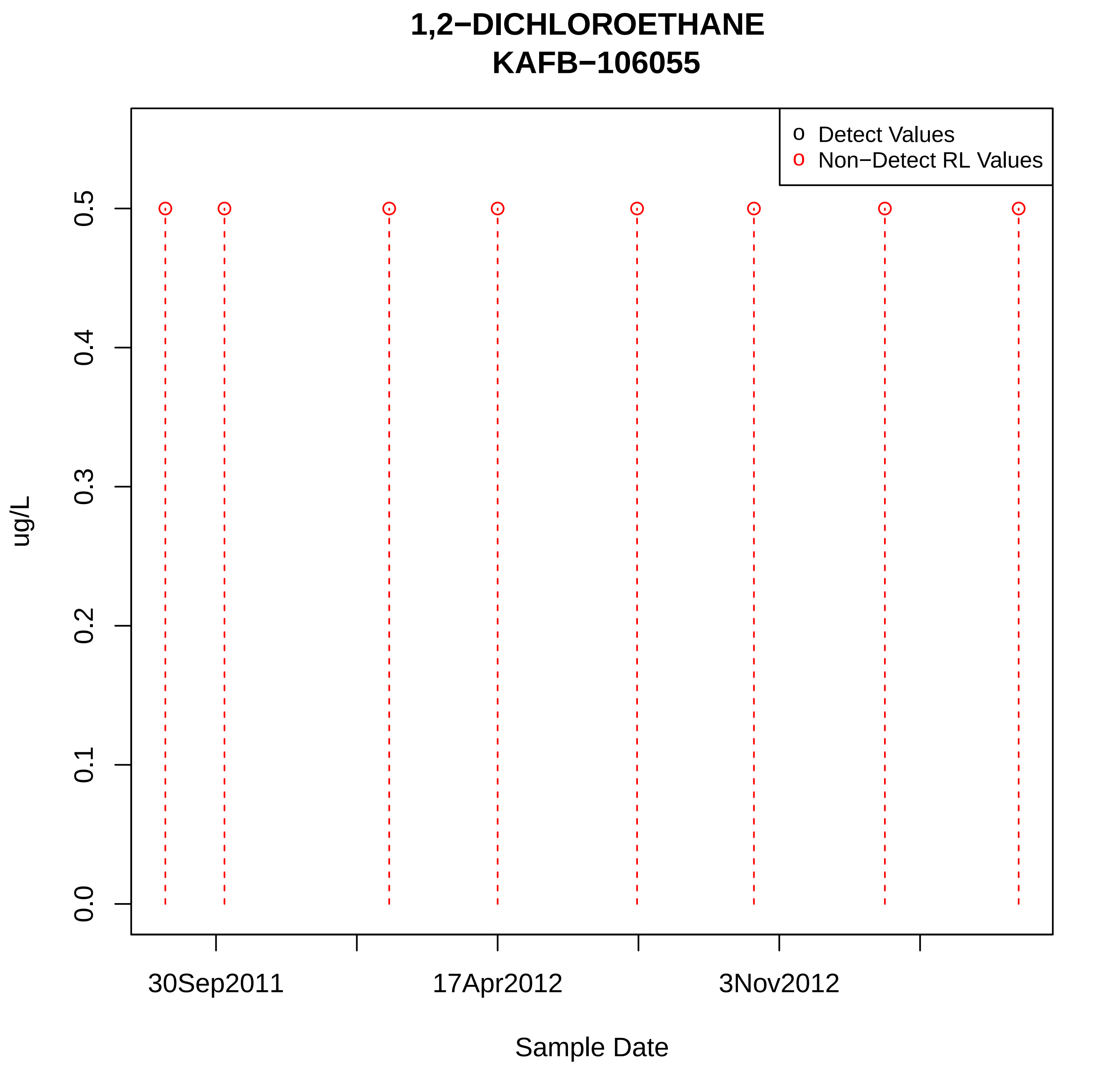
1,2−DICHLOROETHANE
KAFB−106051
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2−DICHLOROETHANE
KAFB−106052
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

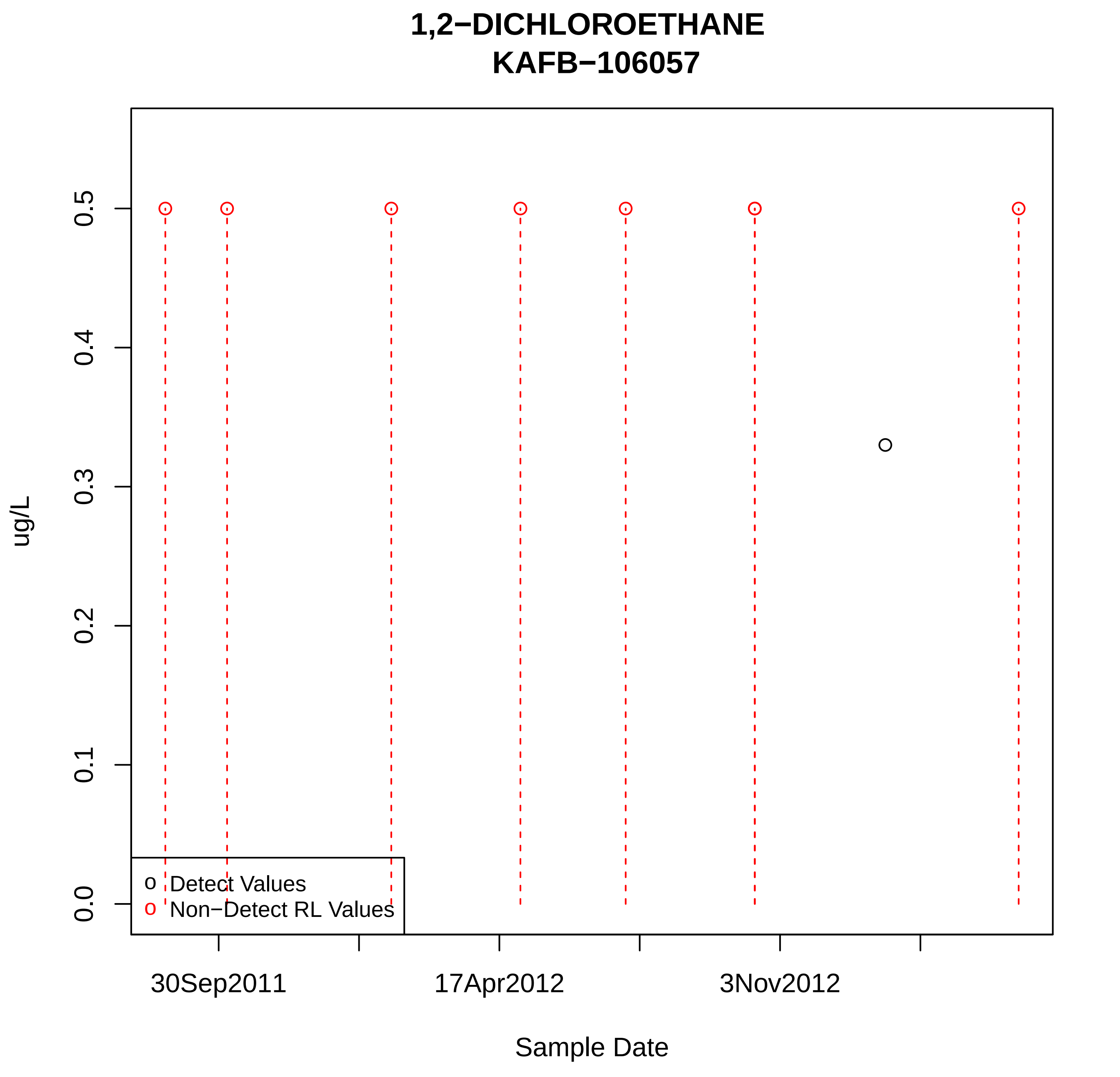


1,2−DICHLOROETHANE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

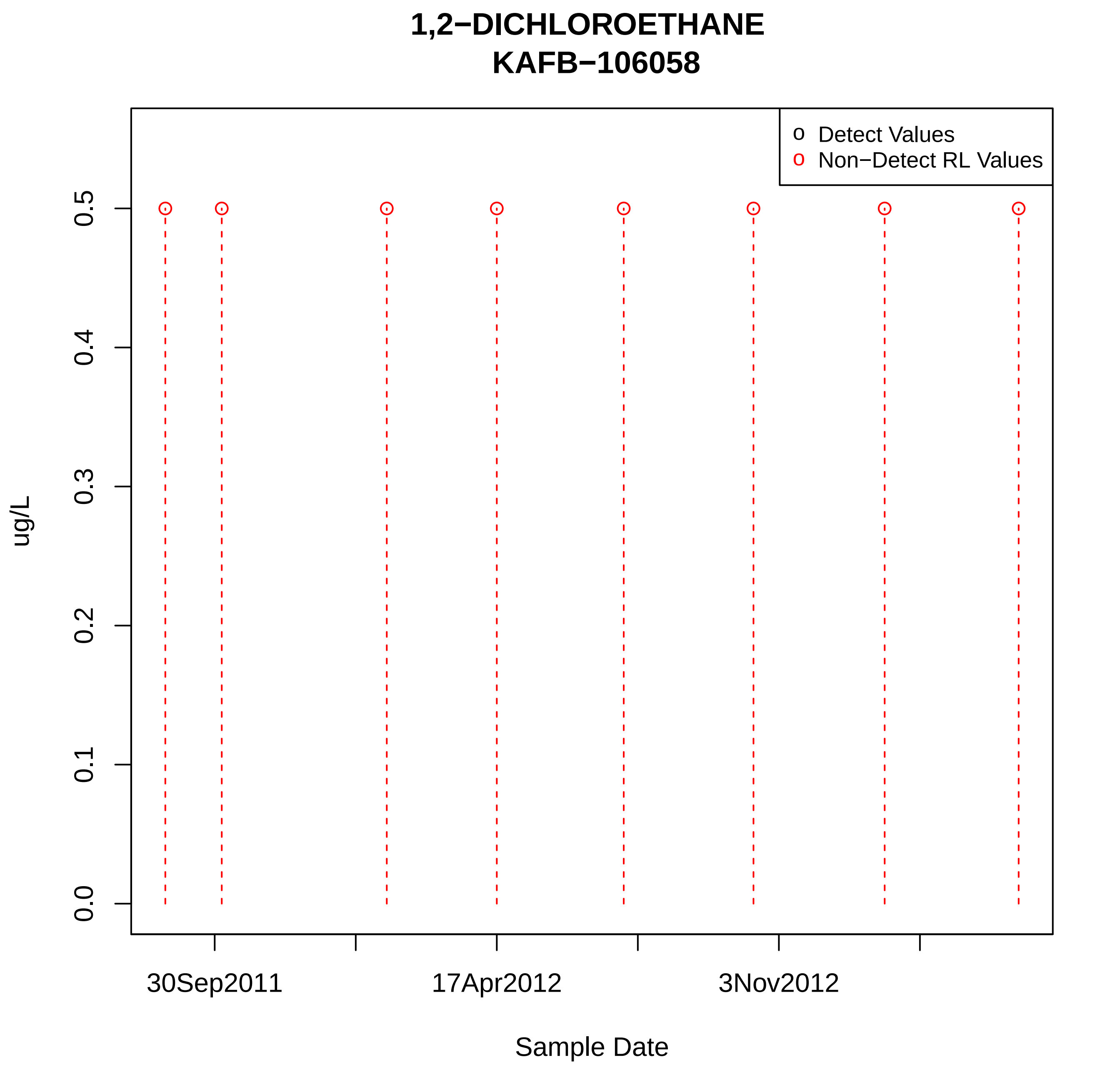

1,2−DICHLOROETHANE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



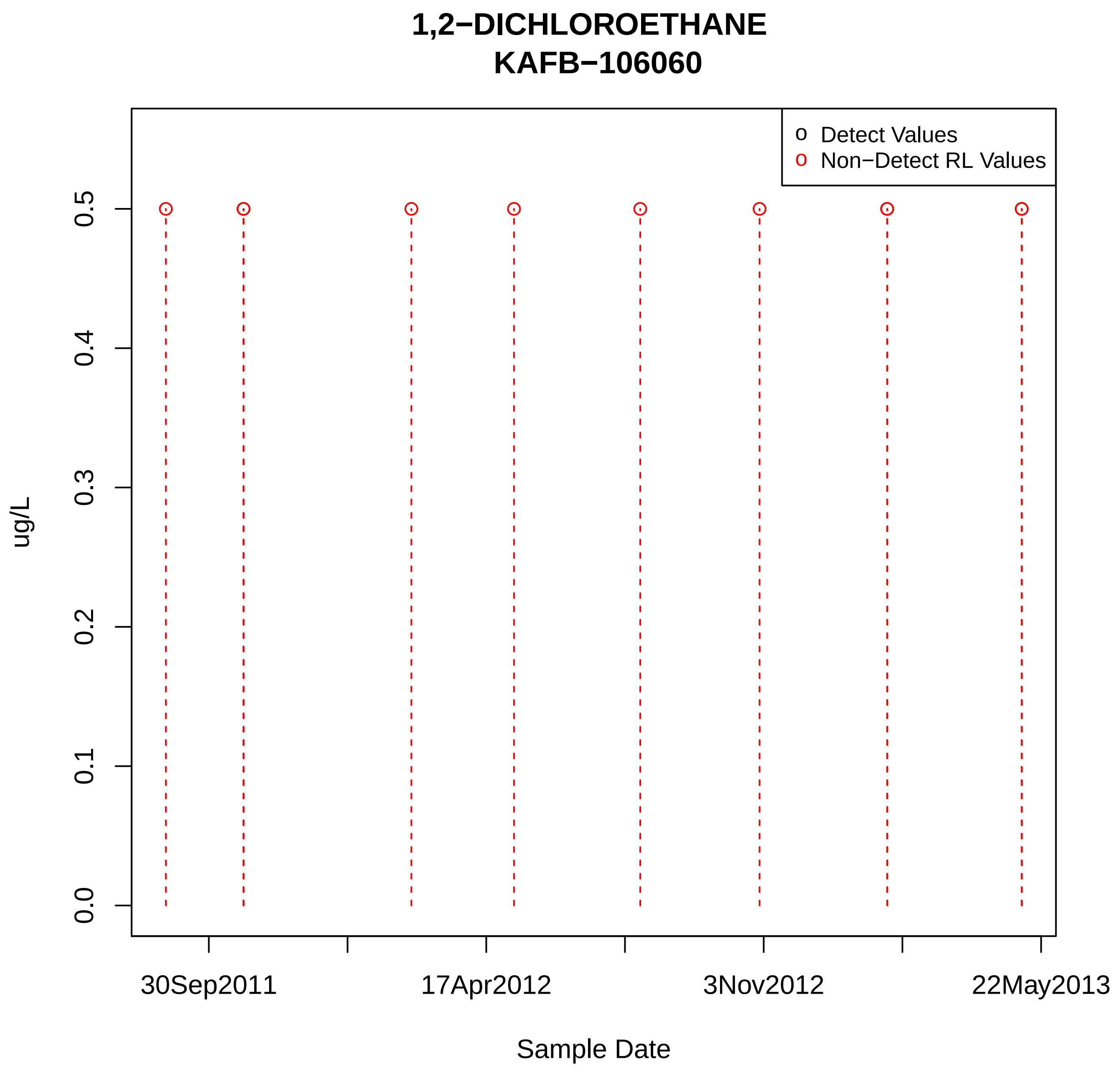
1,2−DICHLOROETHANE
KAFB−106055
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



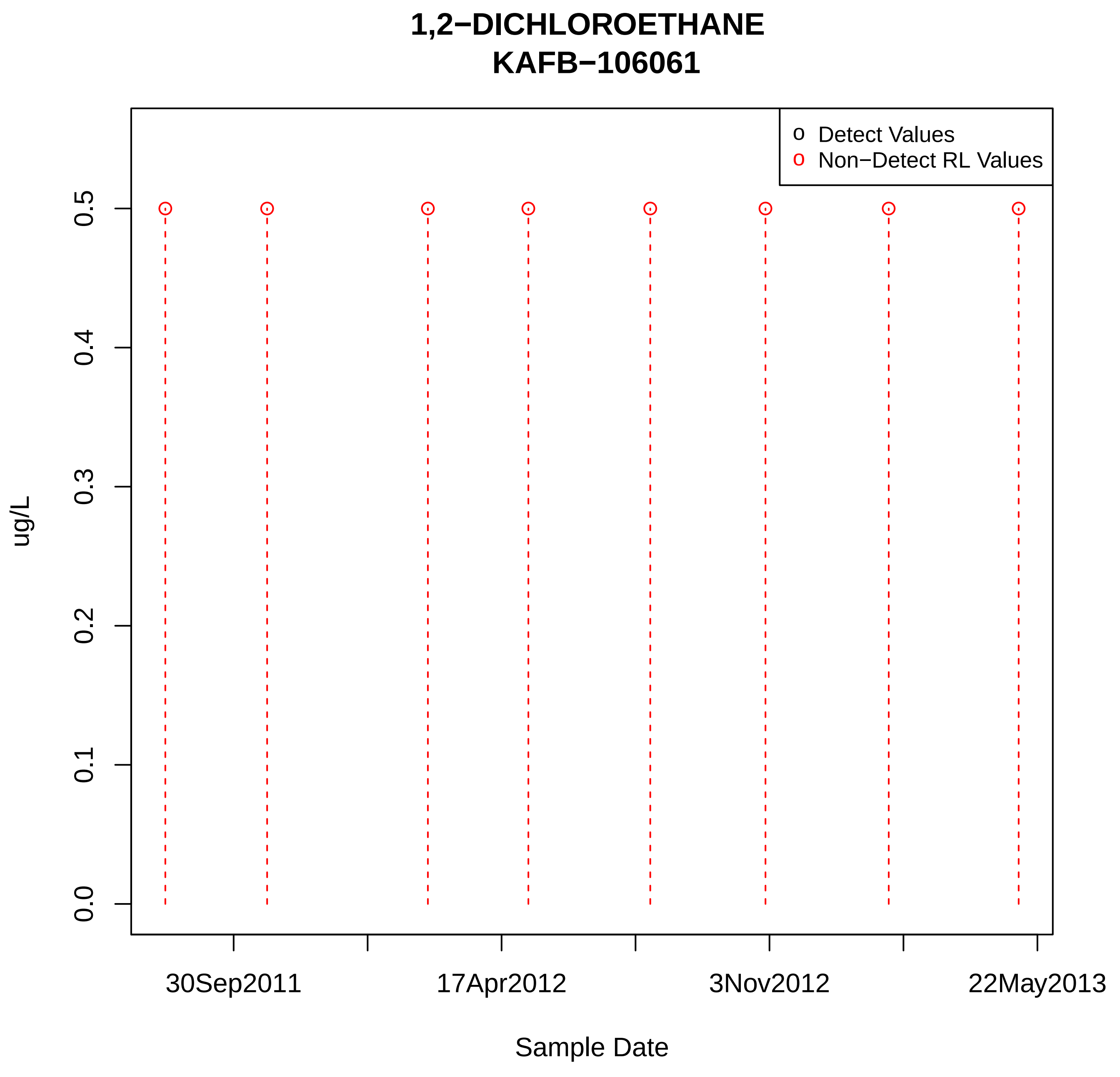
1,2−DICHLOROETHANE
KAFB−106057
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

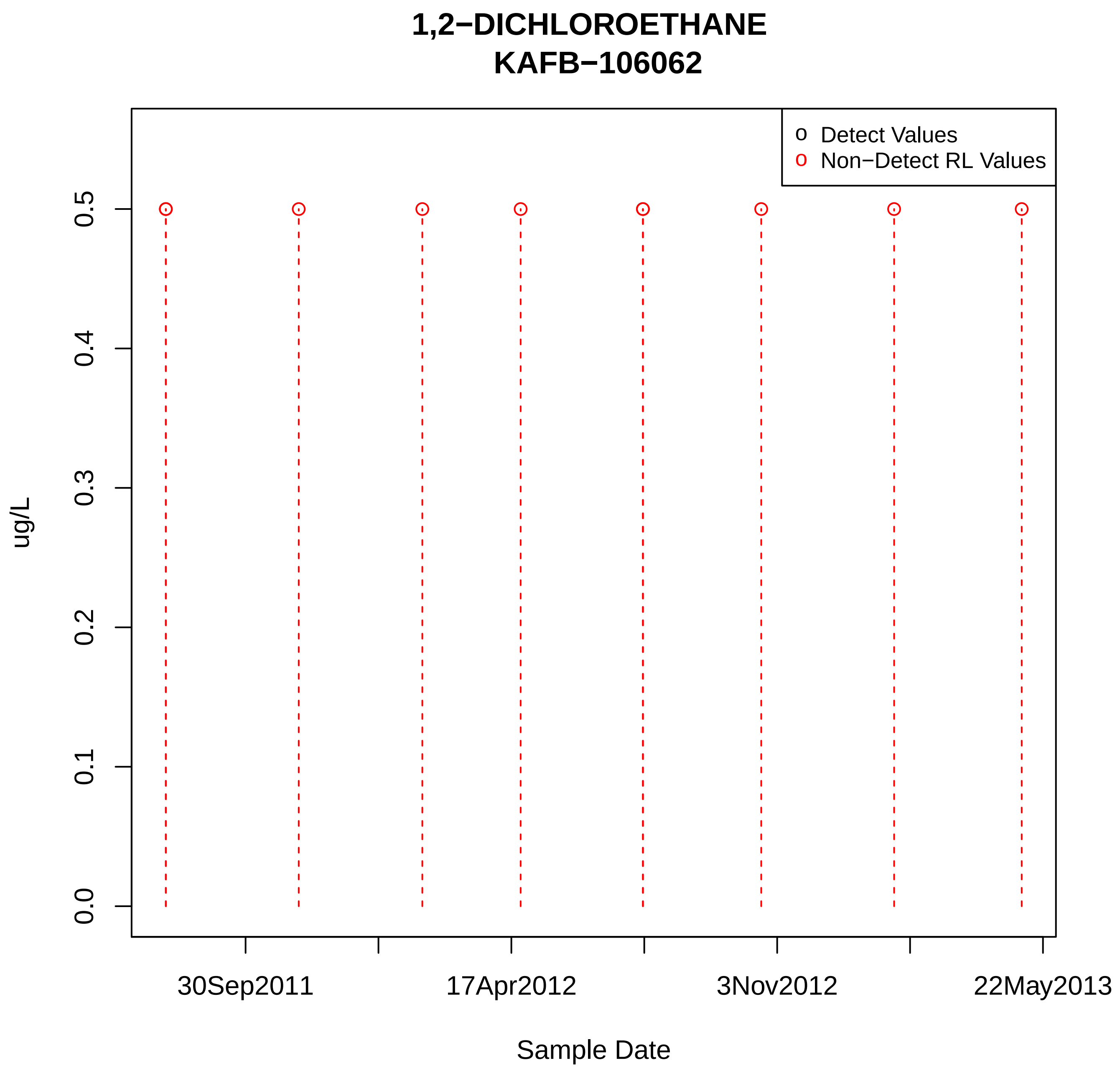


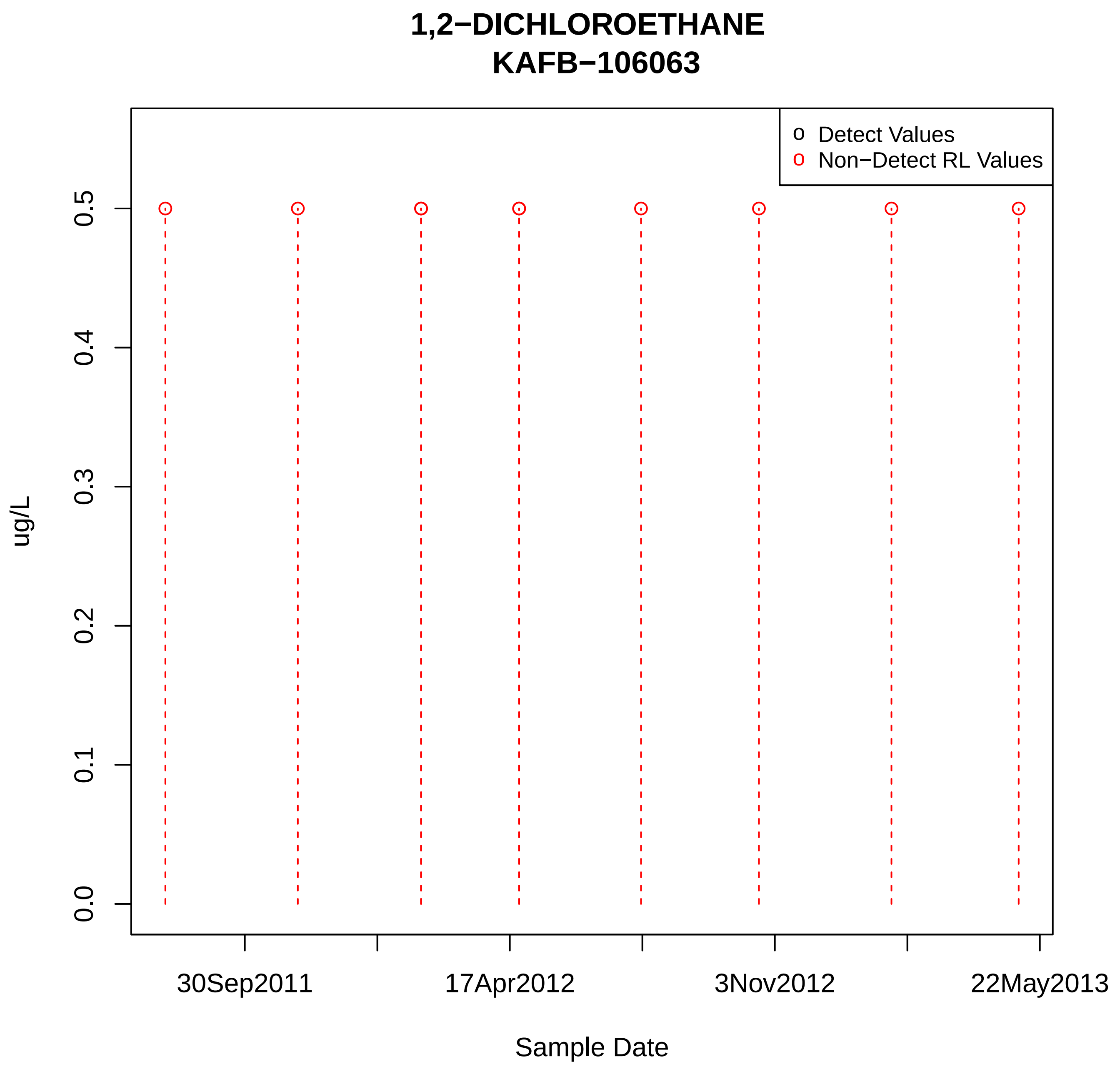
1,2−DICHLOROETHANE
KAFB−106058
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

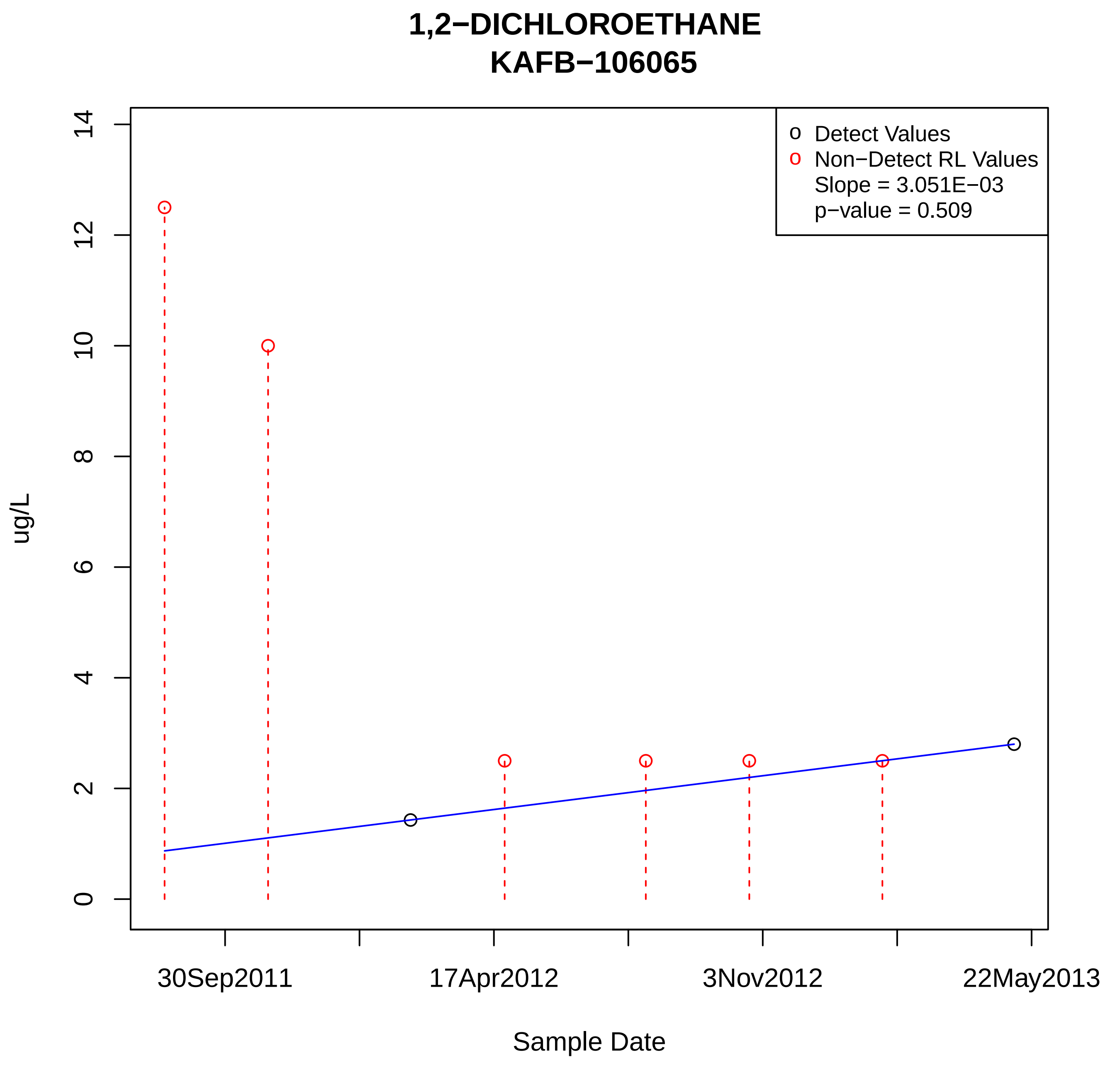


1,2−DICHLOROETHANE
KAFB−106060
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

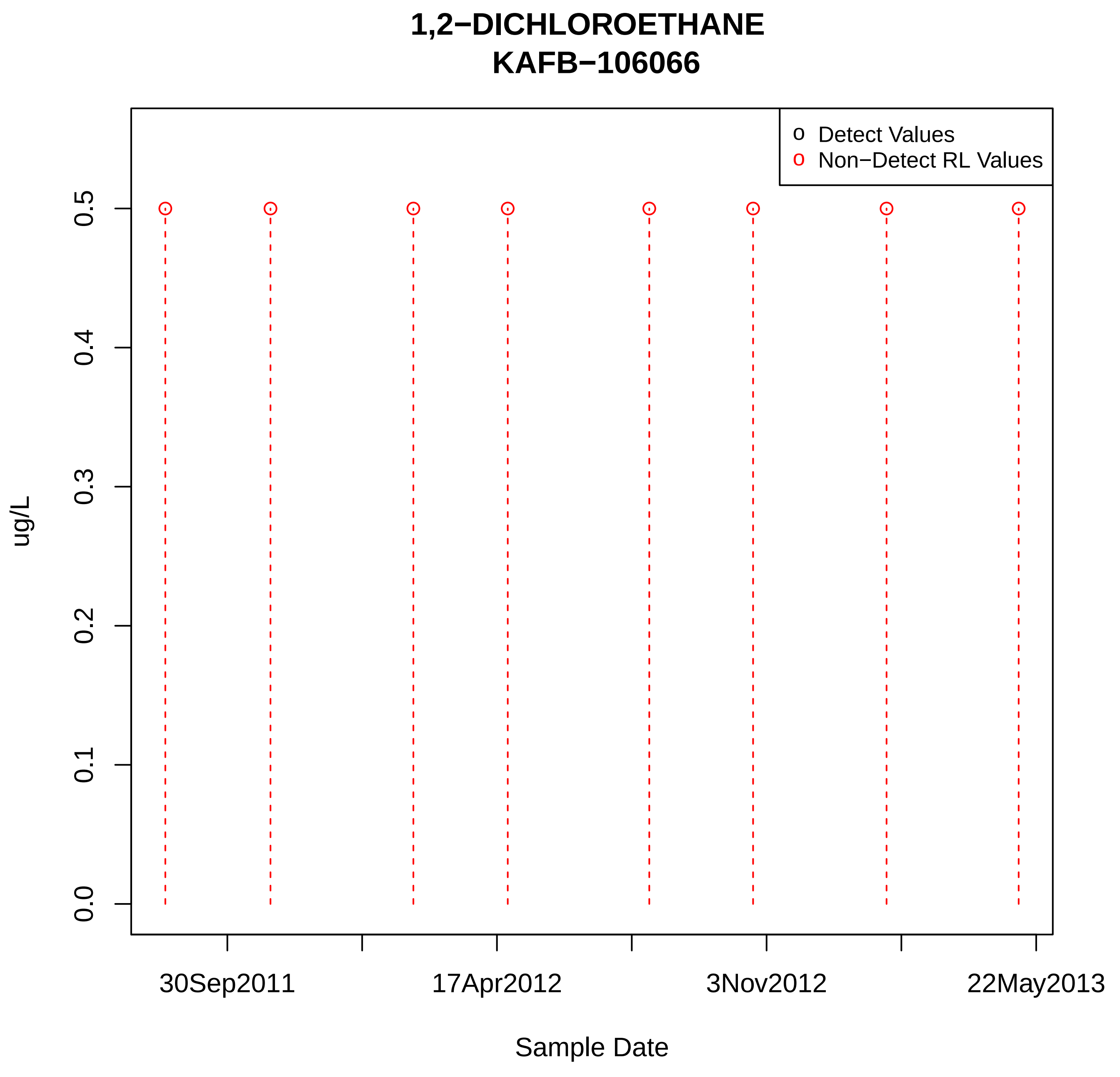

1,2−DICHLOROETHANE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

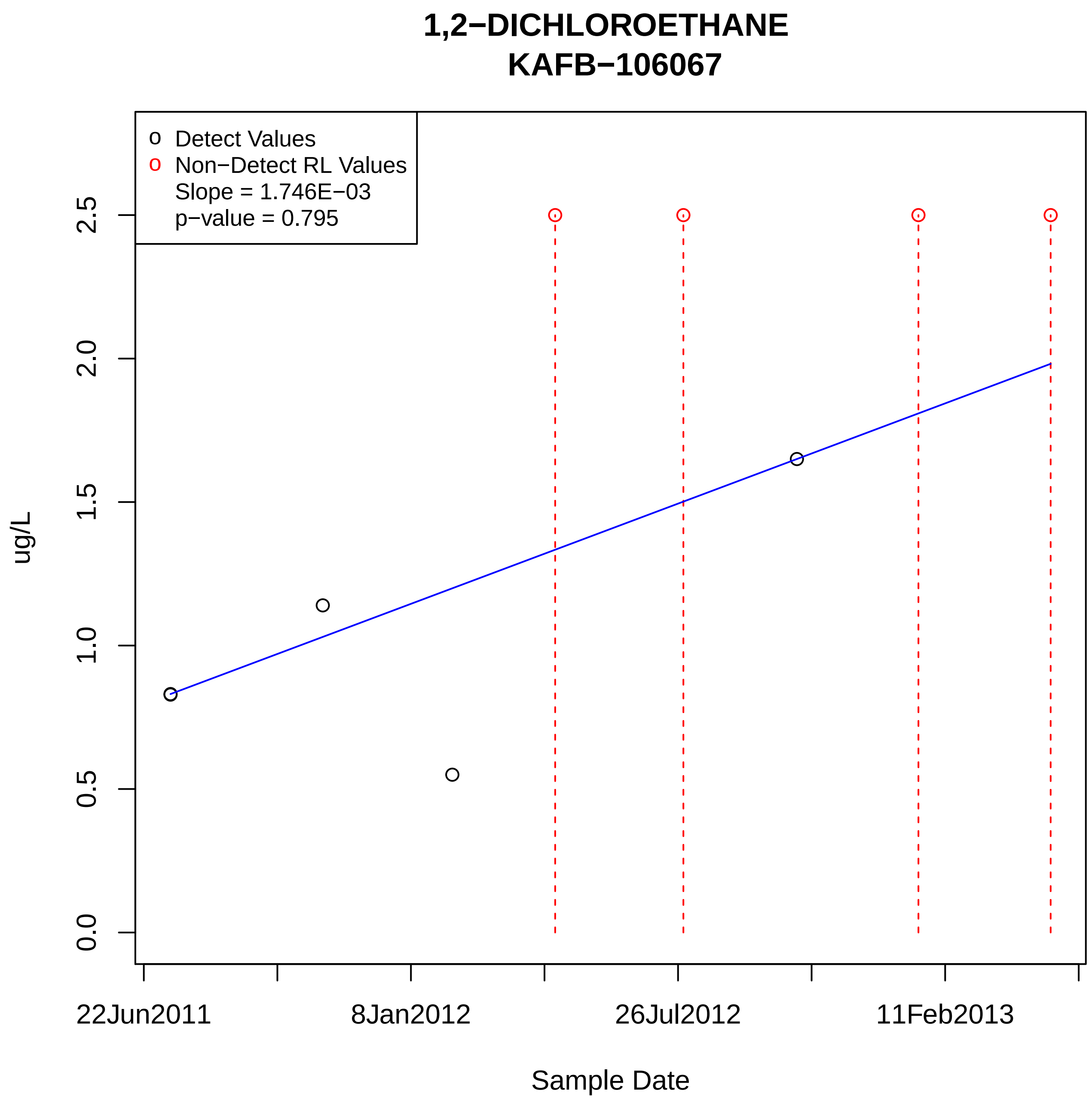

1,2−DICHLOROETHANE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

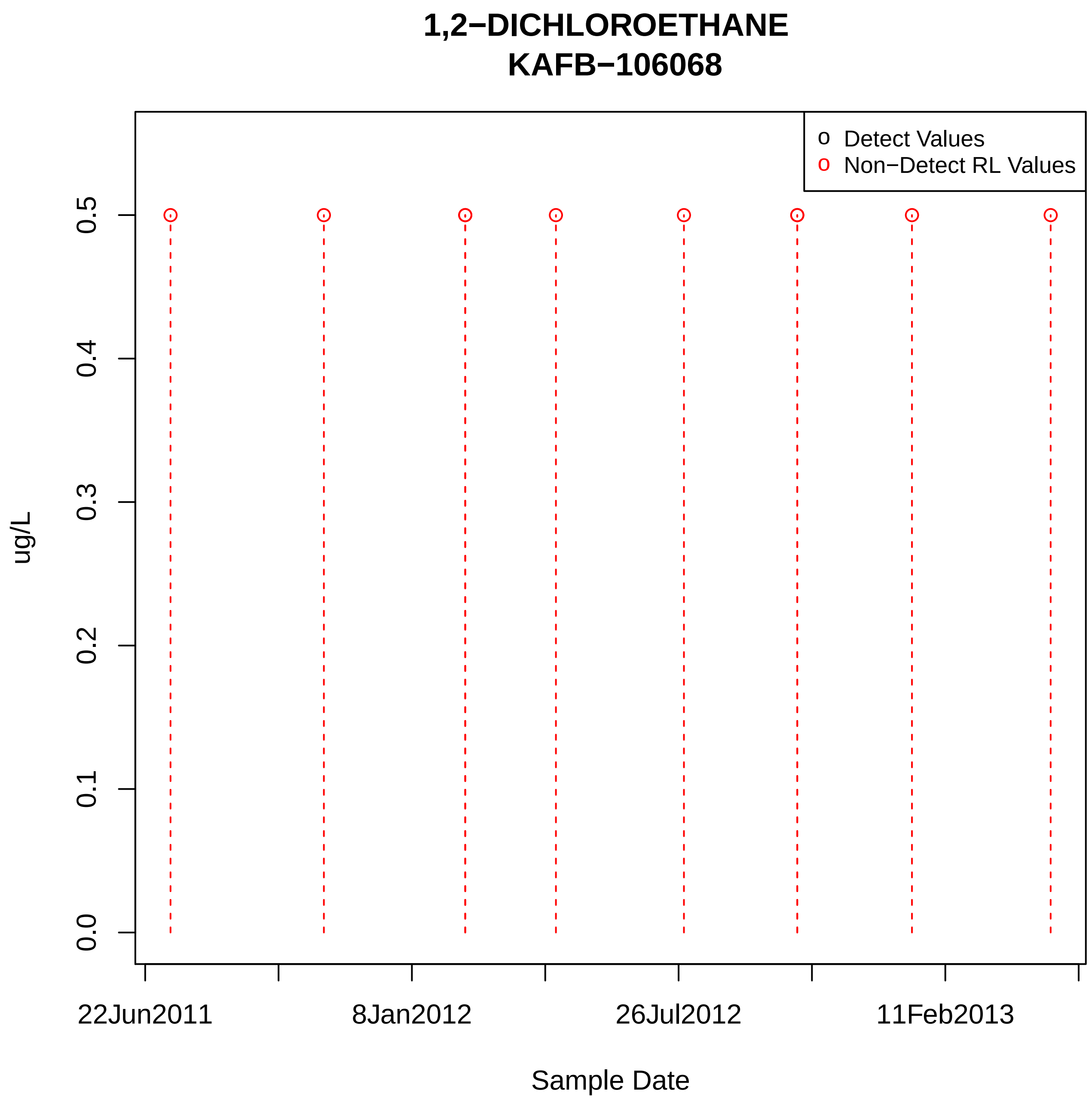


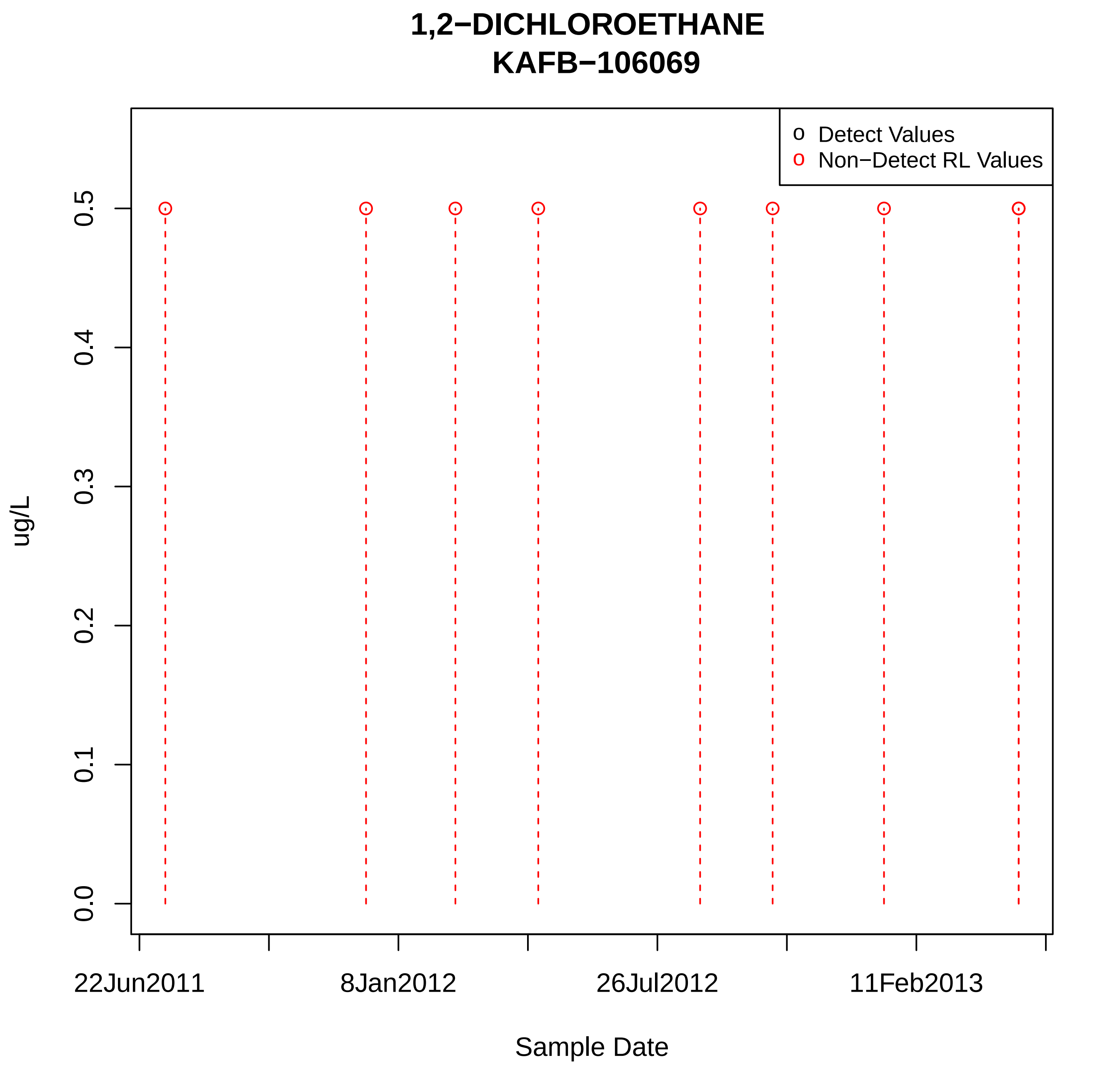
1,2−DICHLOROETHANE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = 3.051E−03
p−value = 0.509
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

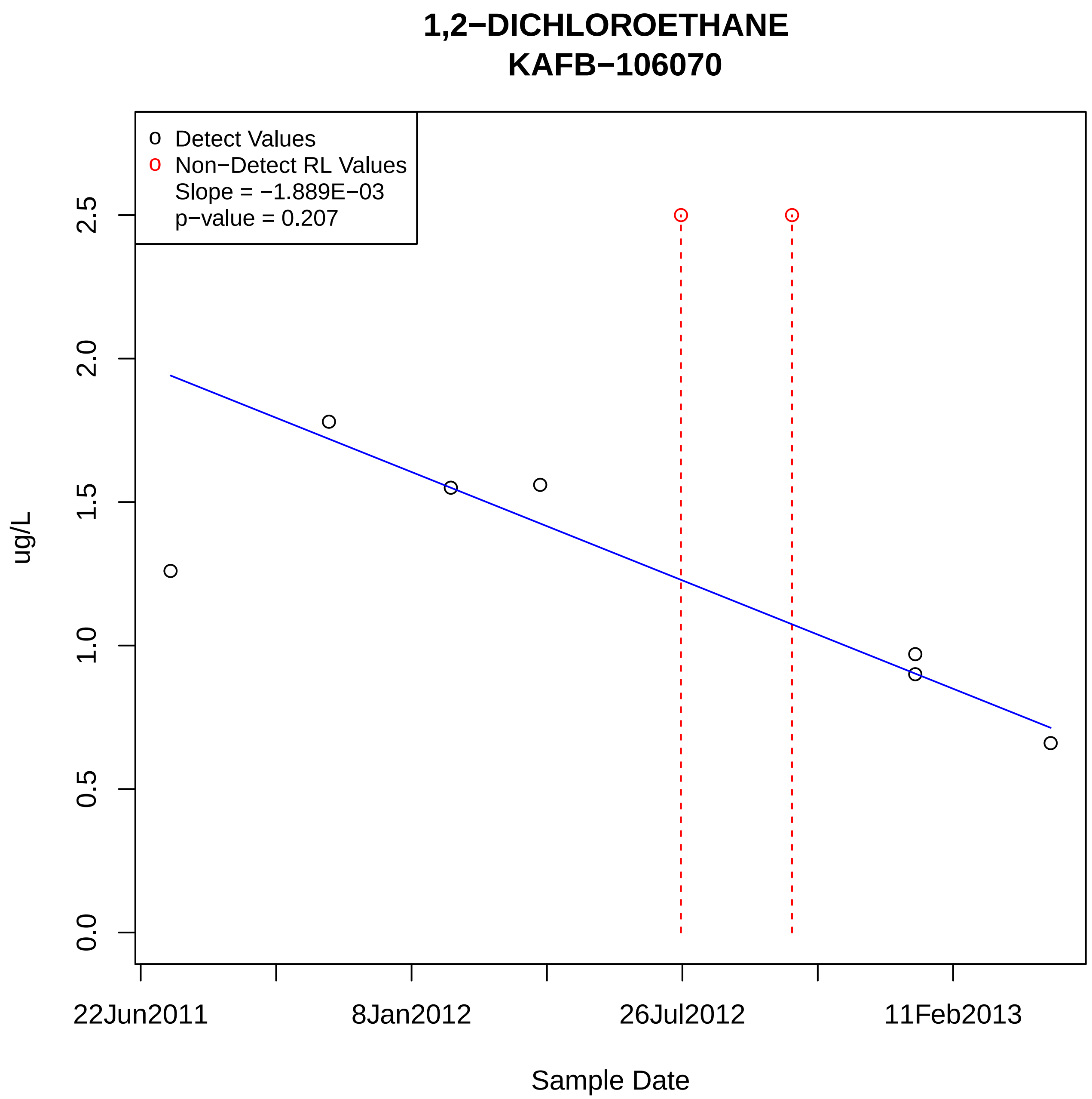

1,2−DICHLOROETHANE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

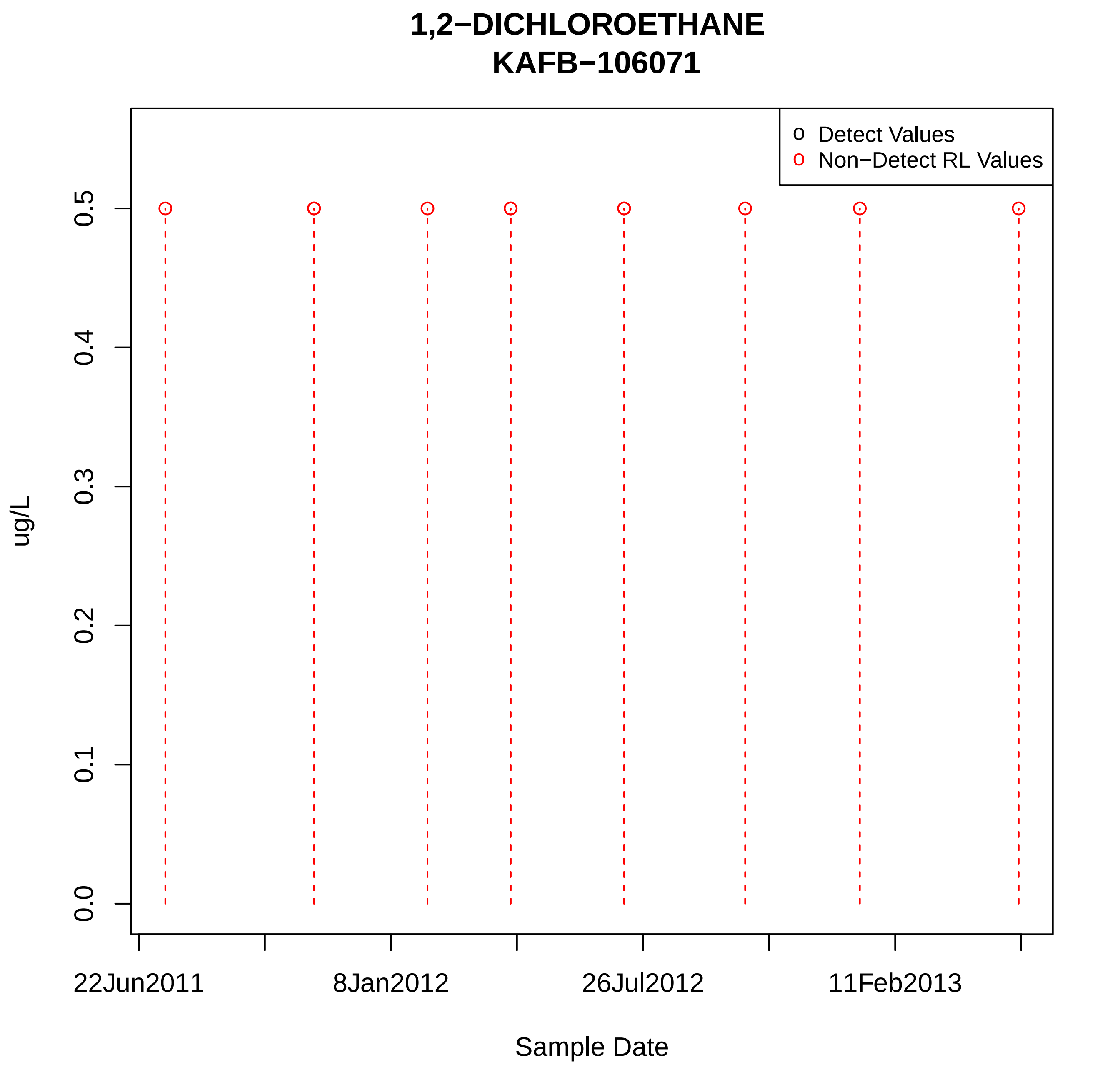


1,2−DICHLOROETHANE
KAFB−106067
o Detect Values
o Non−Detect RL Values
Slope = 1.746E−03
p−value = 0.795
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

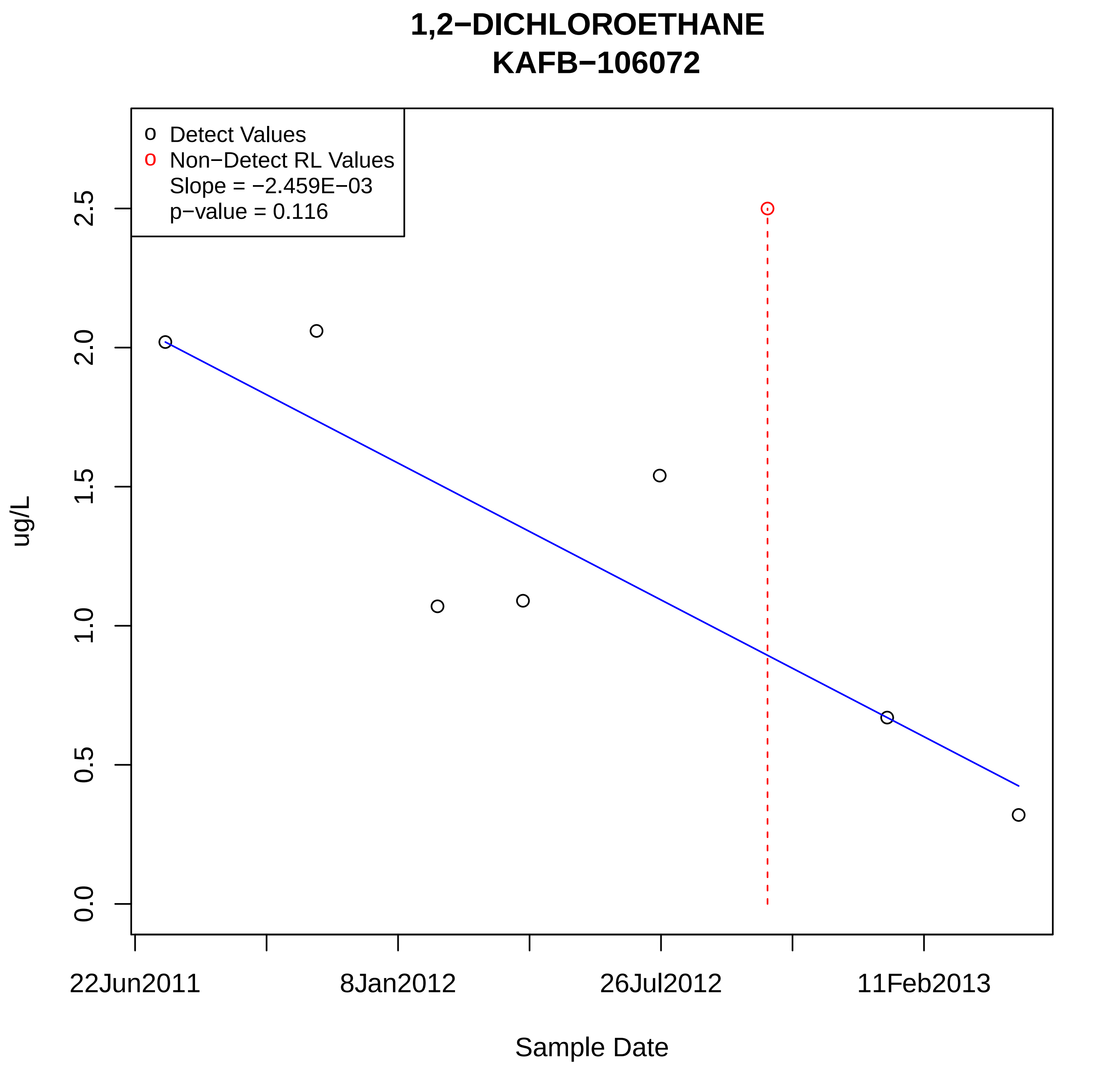

1,2−DICHLOROETHANE
KAFB−106068
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106069
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

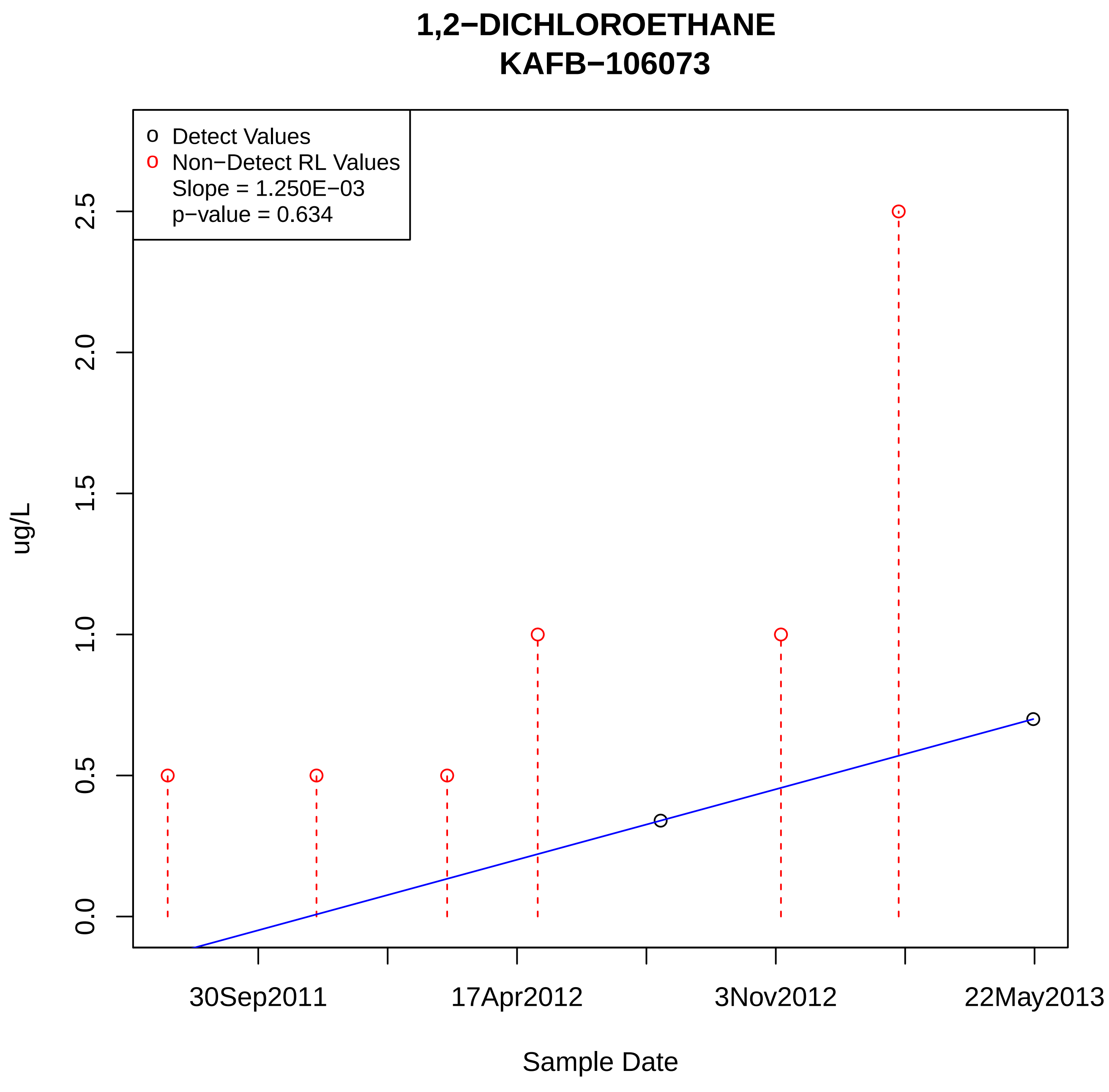

1,2−DICHLOROETHANE
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = −1.889E−03
p−value = 0.207
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

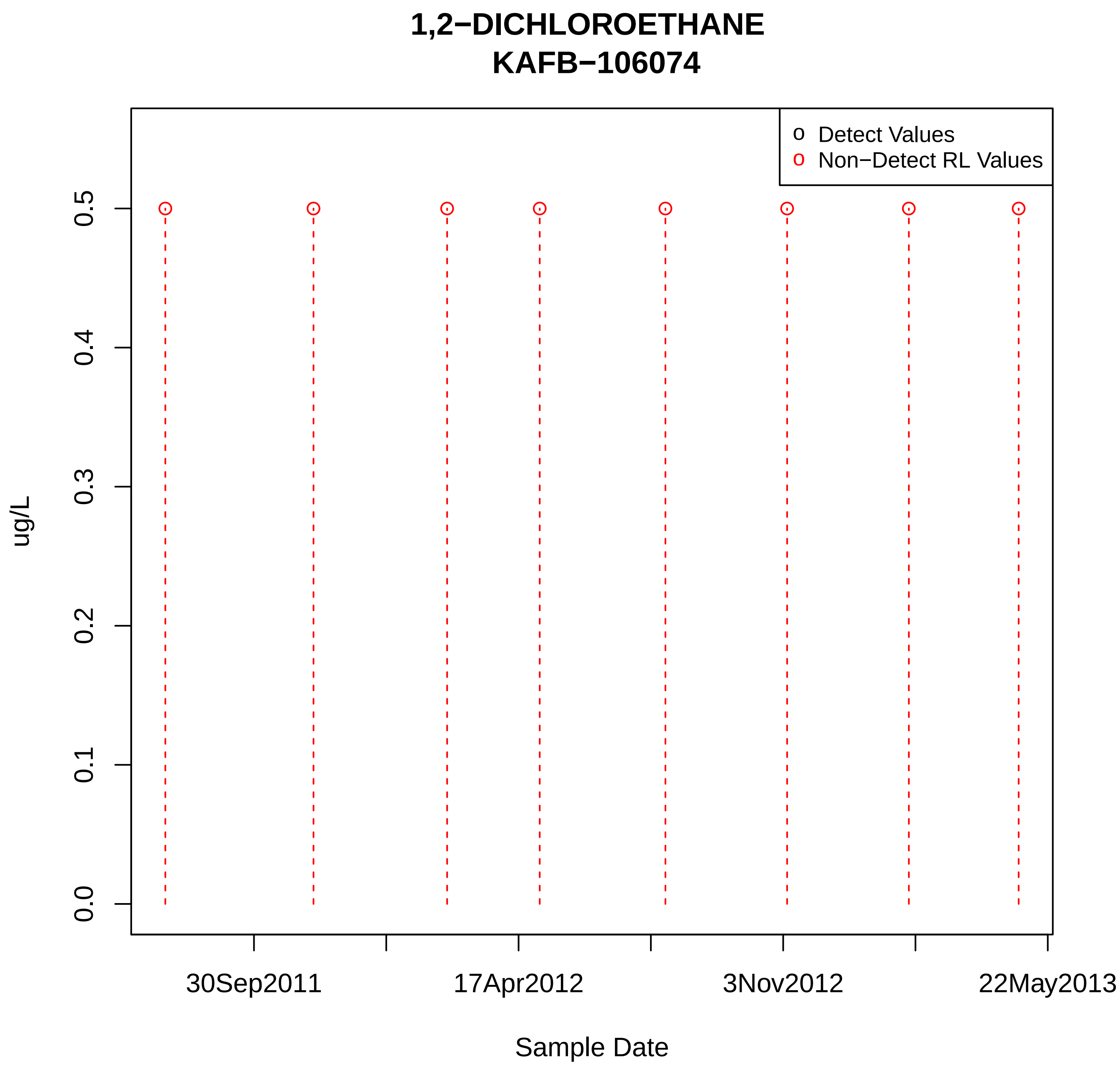


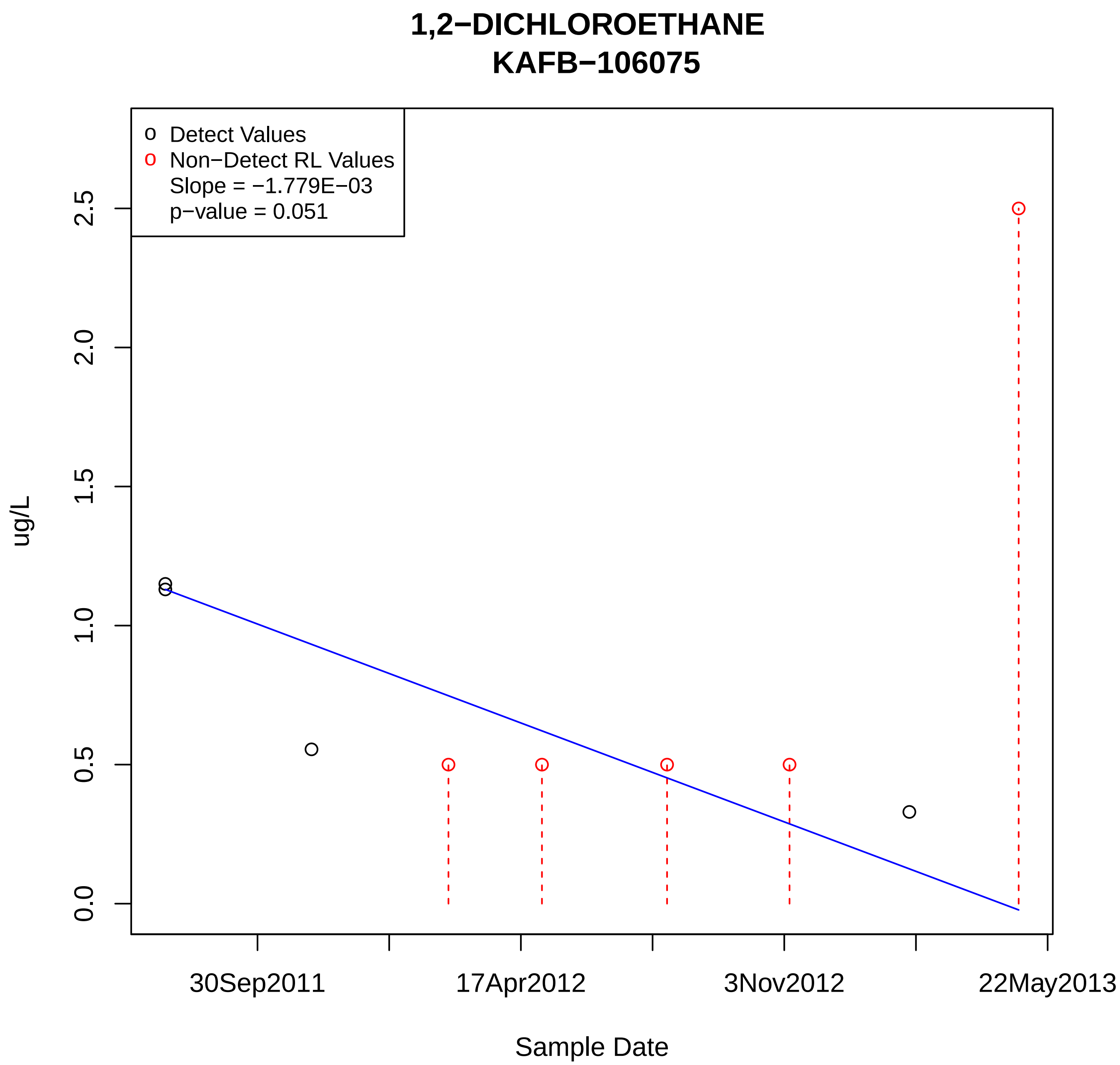
1,2−DICHLOROETHANE
KAFB−106071
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

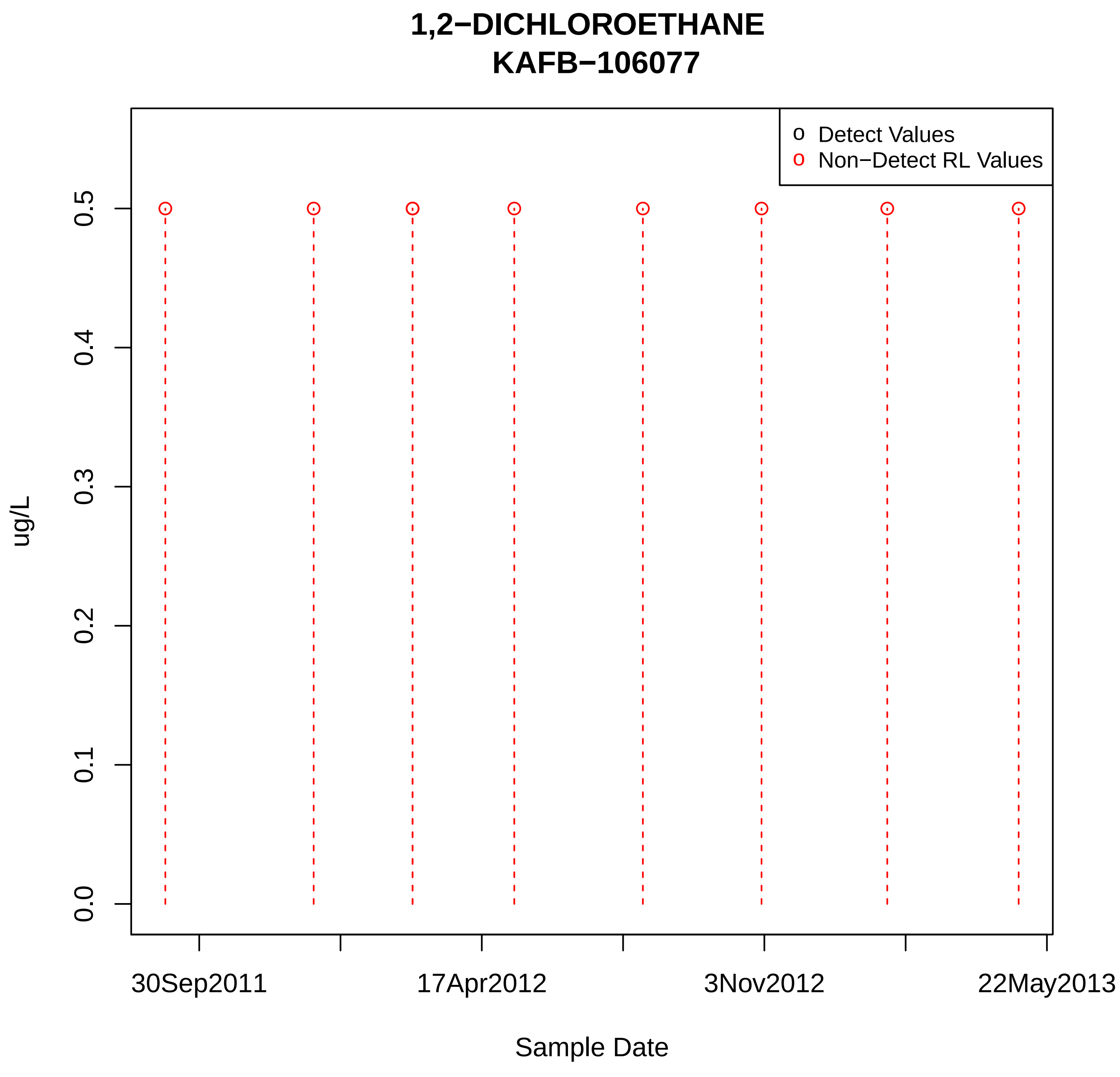


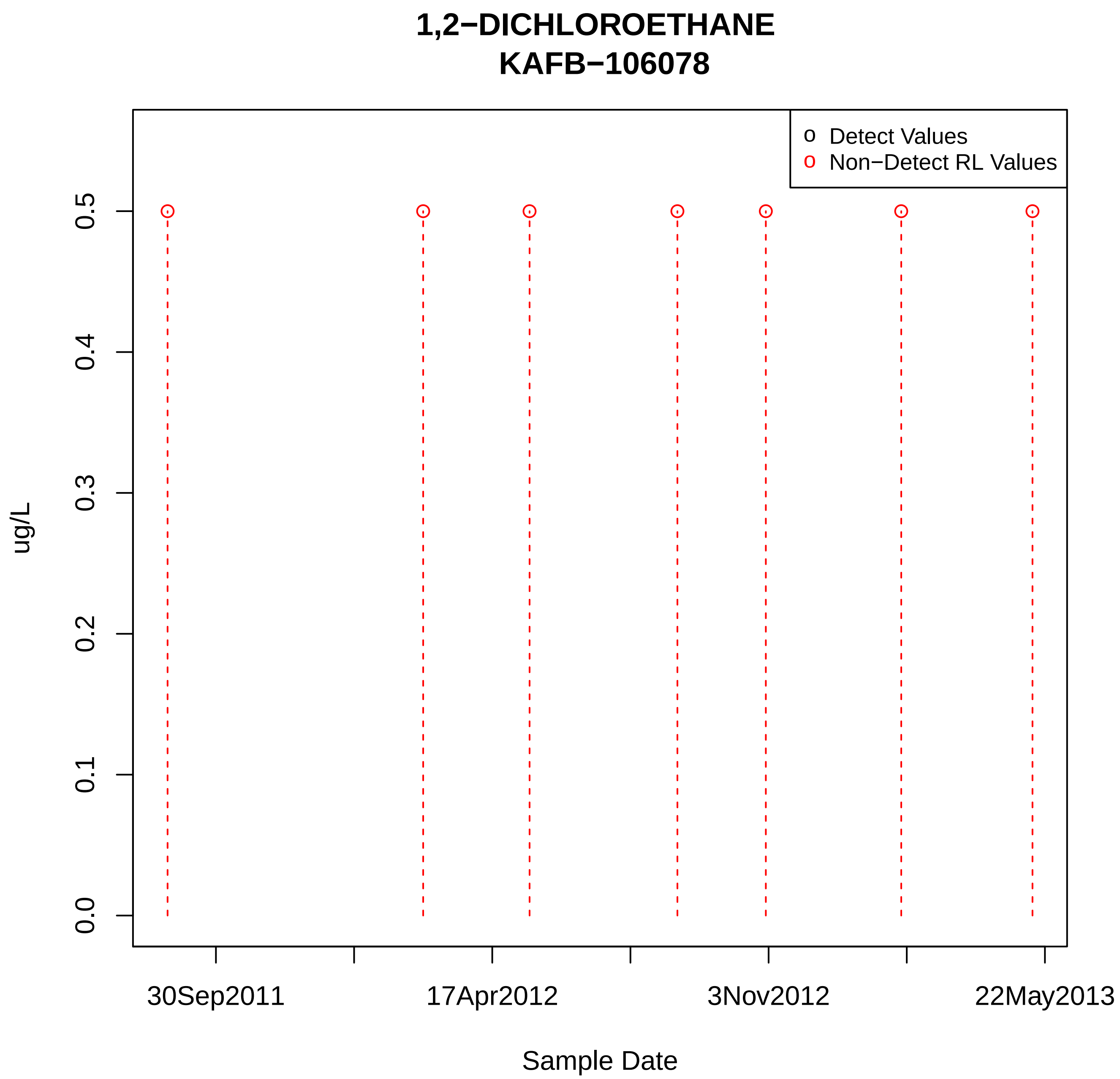
1,2−DICHLOROETHANE
KAFB−106072
Detect Values
Non−Detect RL Values
Slope = −2.459E−03
p−value = 0.116
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106073
o Detect Values
o Non−Detect RL Values
Slope = 1.250E−03
p−value = 0.634
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

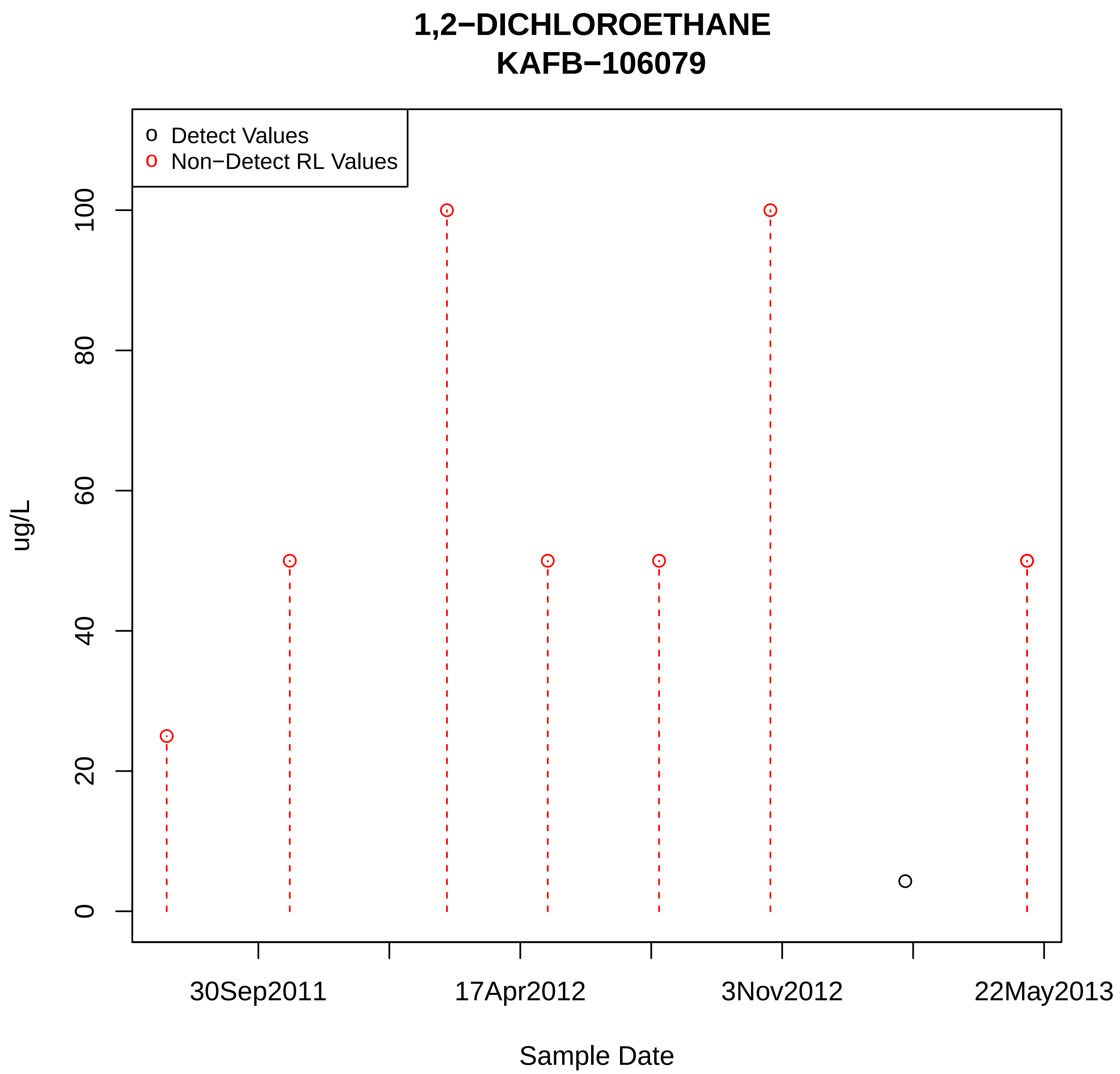

1,2−DICHLOROETHANE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106075
Detect Values
Non−Detect RL Values
Slope = −1.779E−03
p−value = 0.051
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

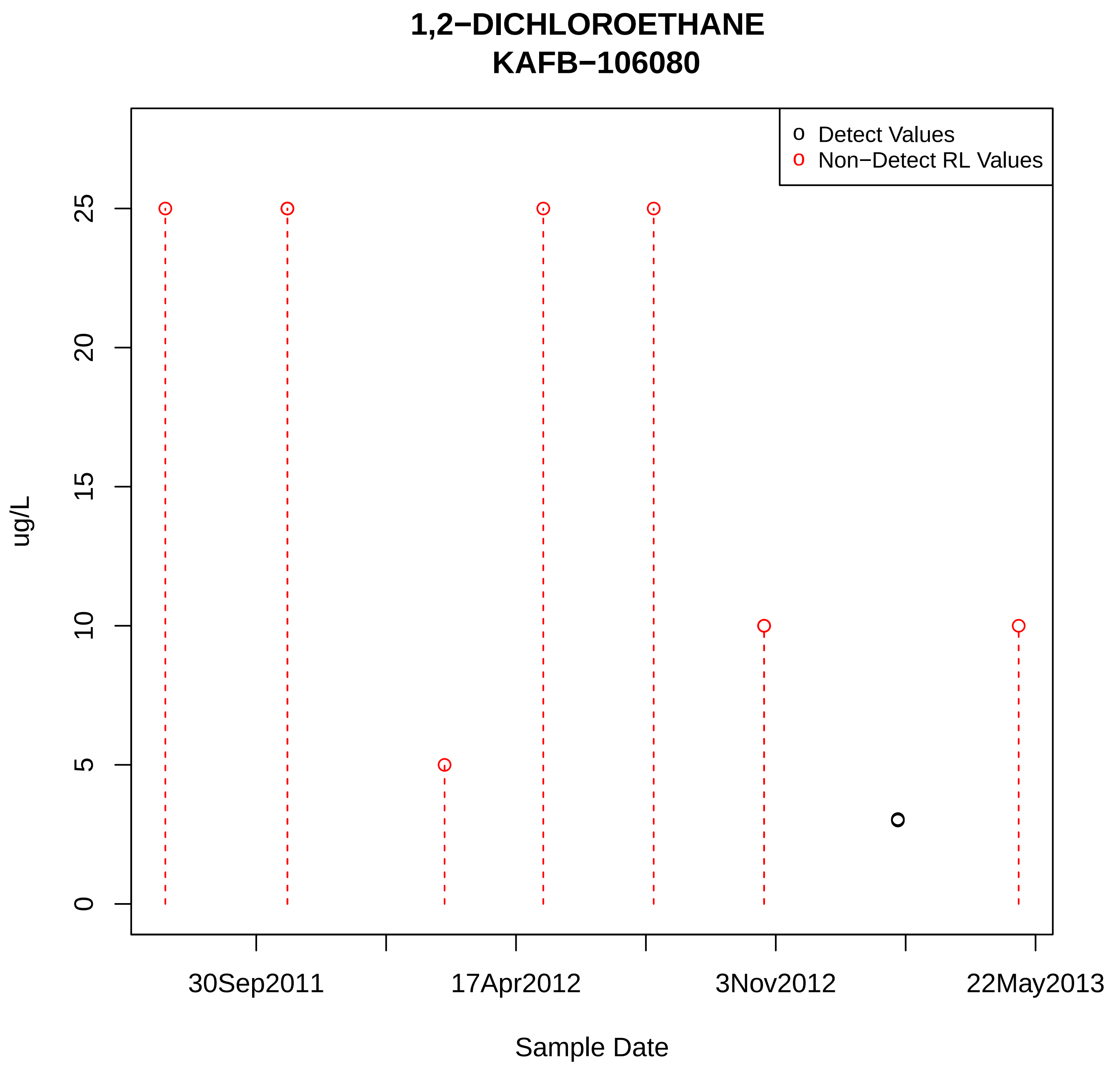

1,2−DICHLOROETHANE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



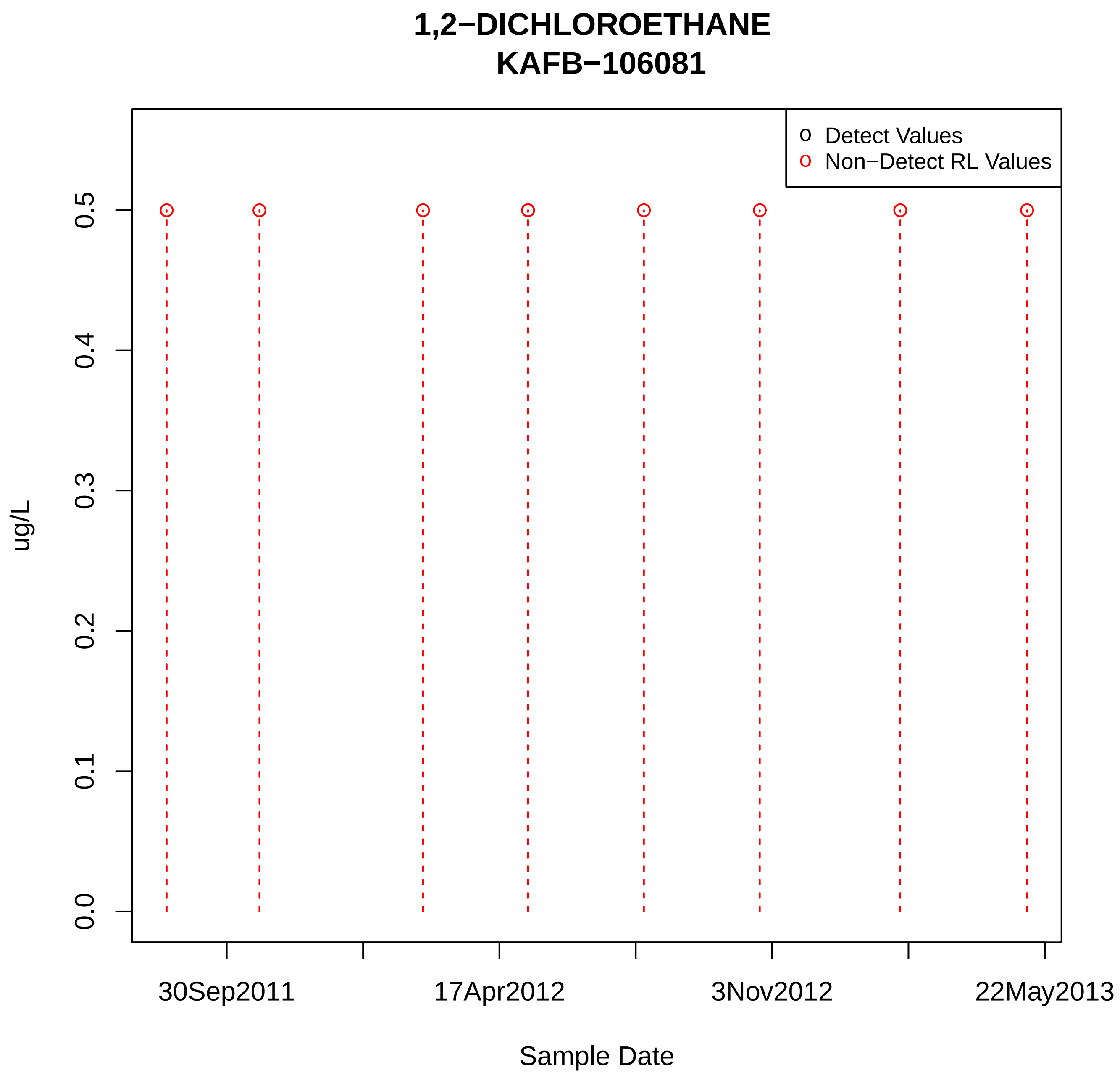
1,2−DICHLOROETHANE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



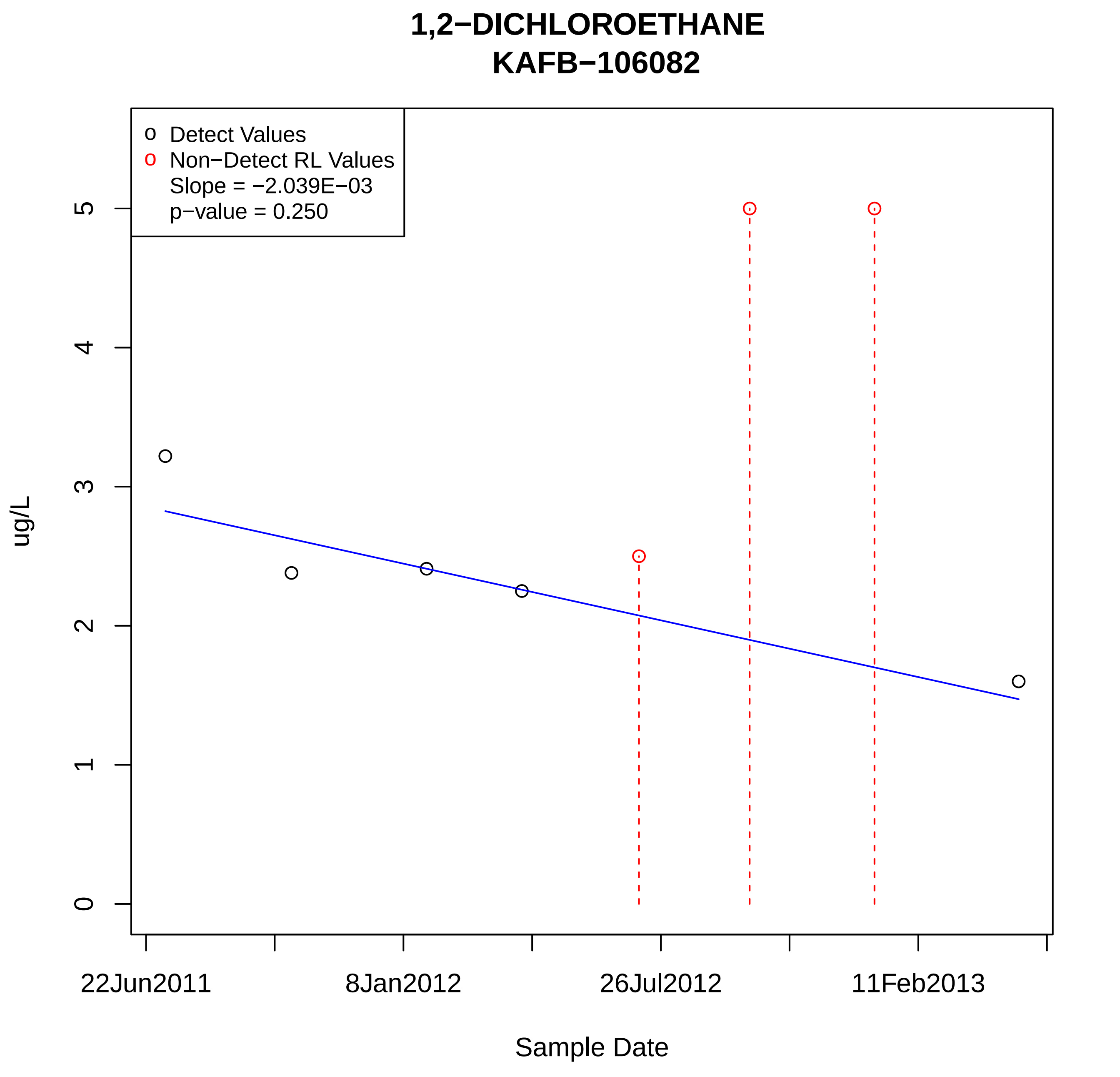
1,2−DICHLOROETHANE
KAFB−106079
o Detect Values
o Non−Detect RL Values
ug/L
0
20
40
60
80
100
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

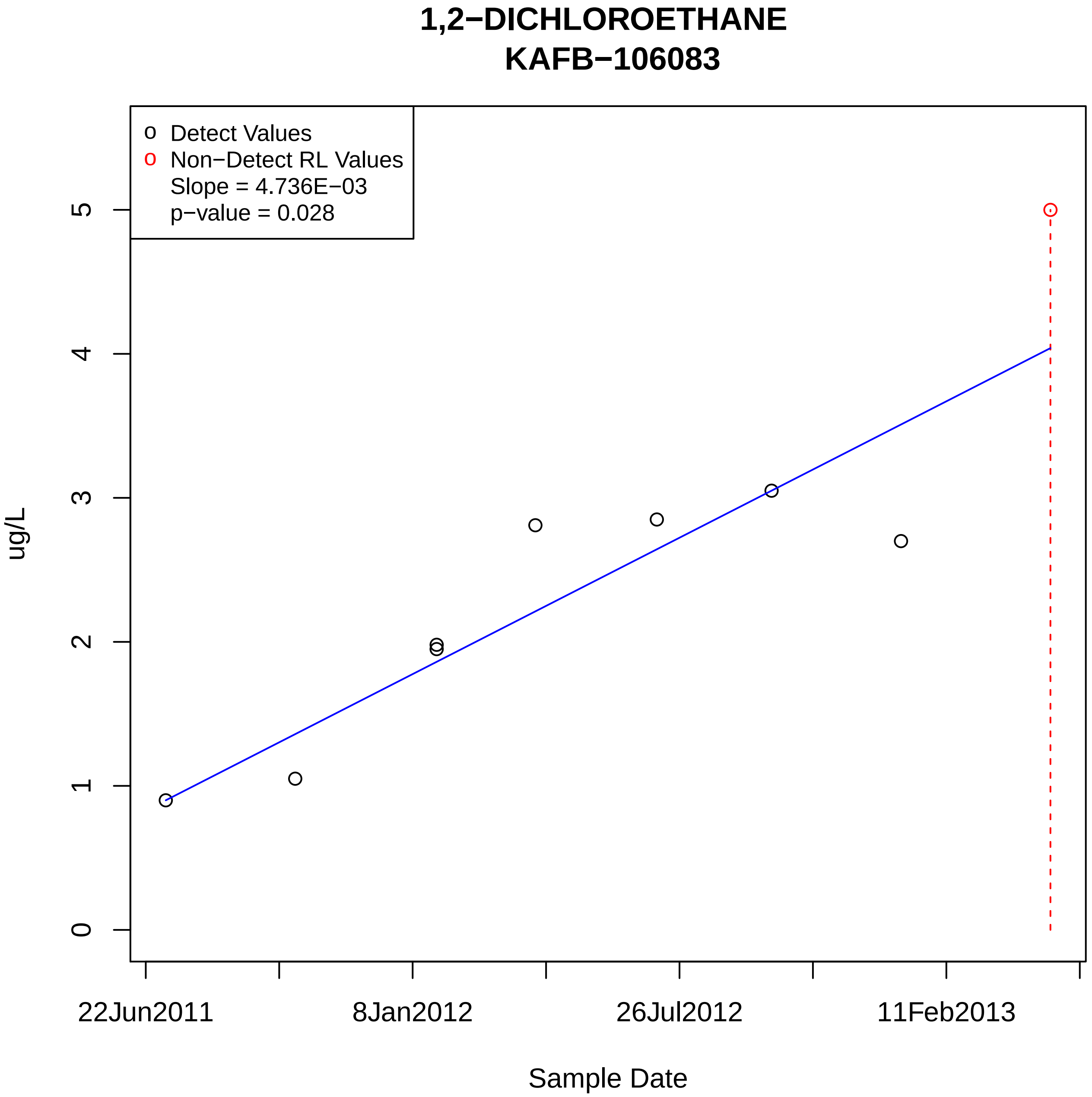


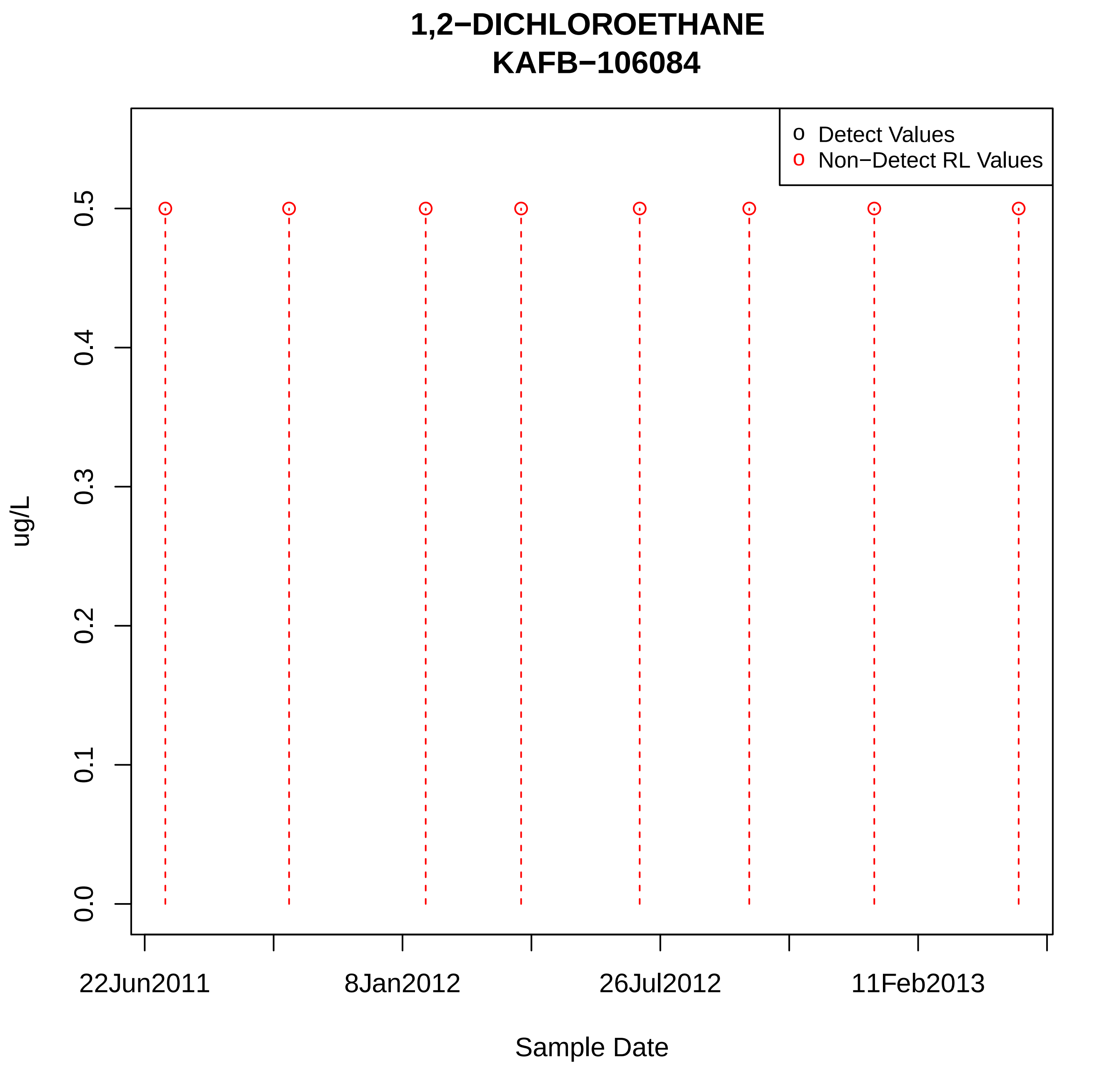
1,2−DICHLOROETHANE
KAFB−106080
o Detect Values
o Non−Detect RL Values
0
5
10
15
20
25
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

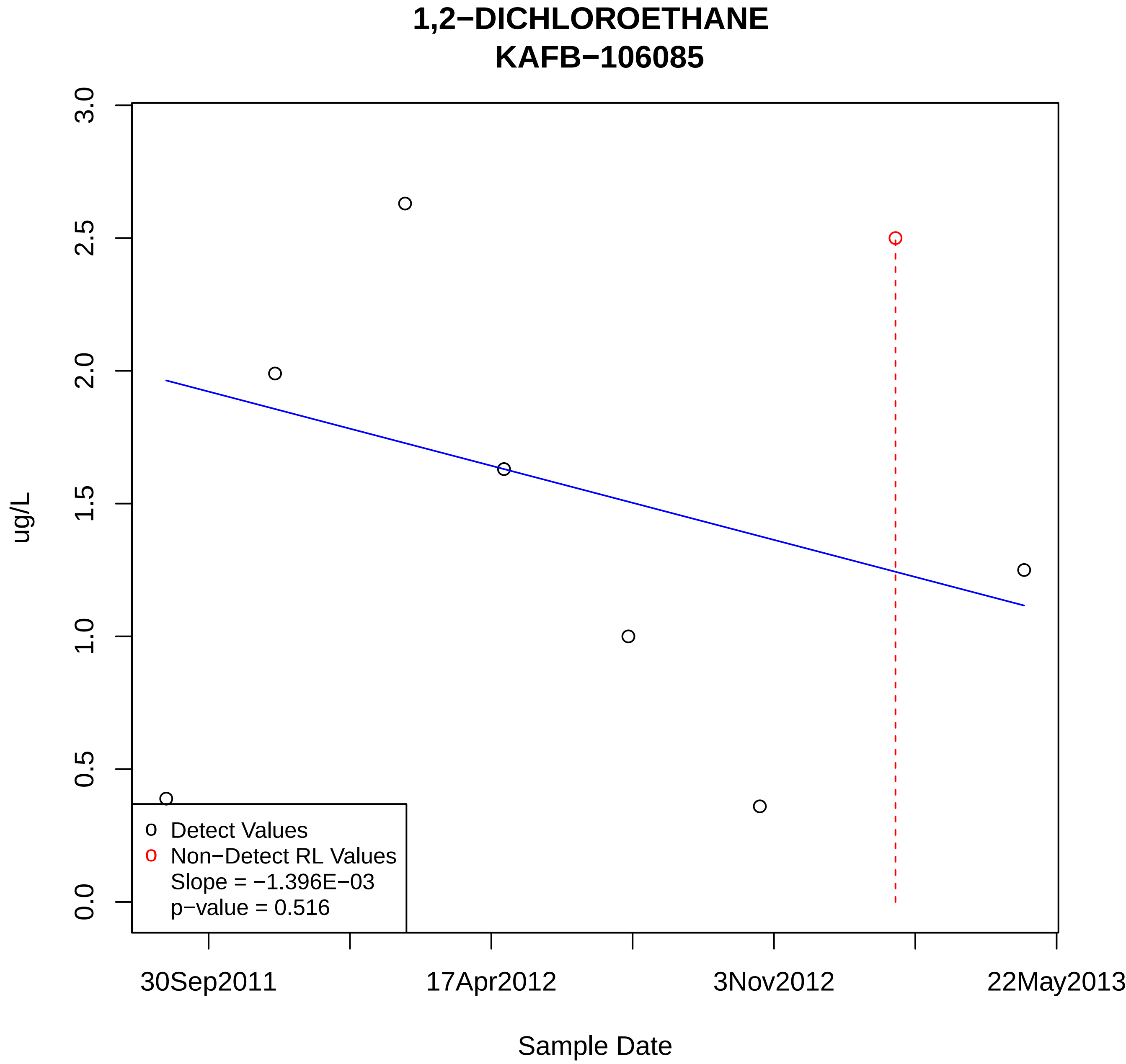


1,2−DICHLOROETHANE
KAFB−106081
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

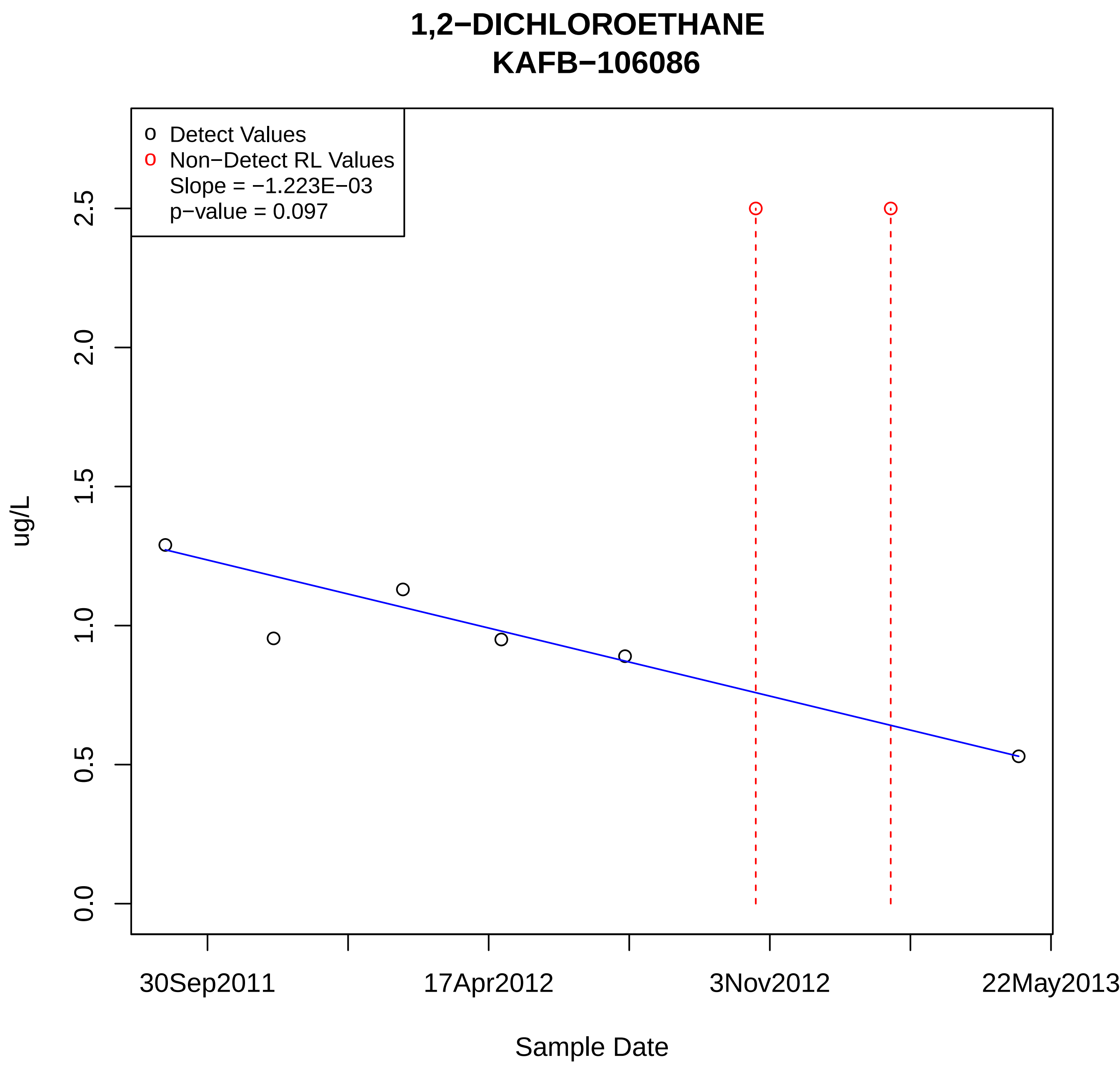

1,2−DICHLOROETHANE
KAFB−106082
o Detect Values
o Non−Detect RL Values
Slope = −2.039E−03
p−value = 0.250
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 4.736E−03
p−value = 0.028
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

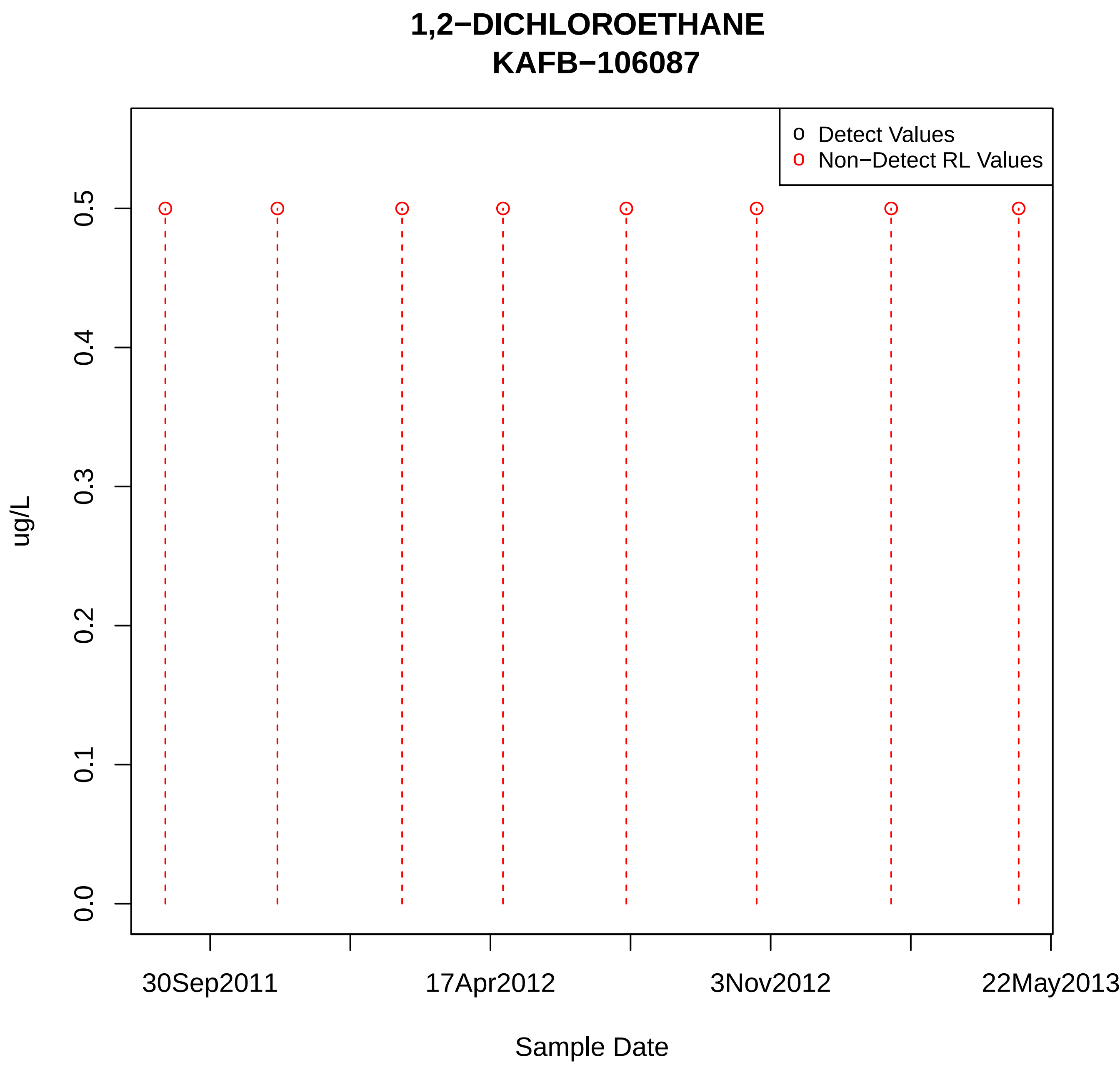

1,2−DICHLOROETHANE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

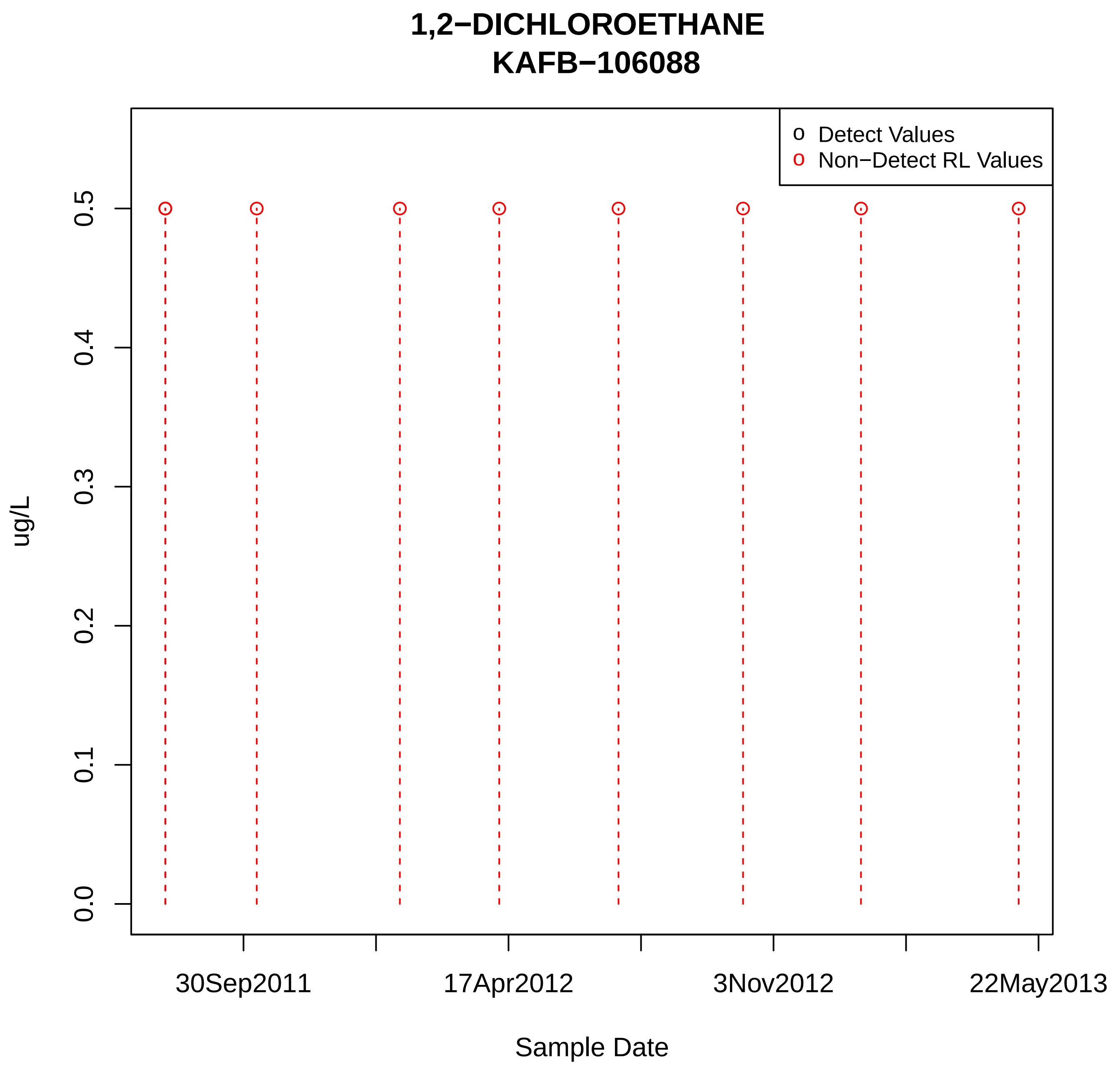


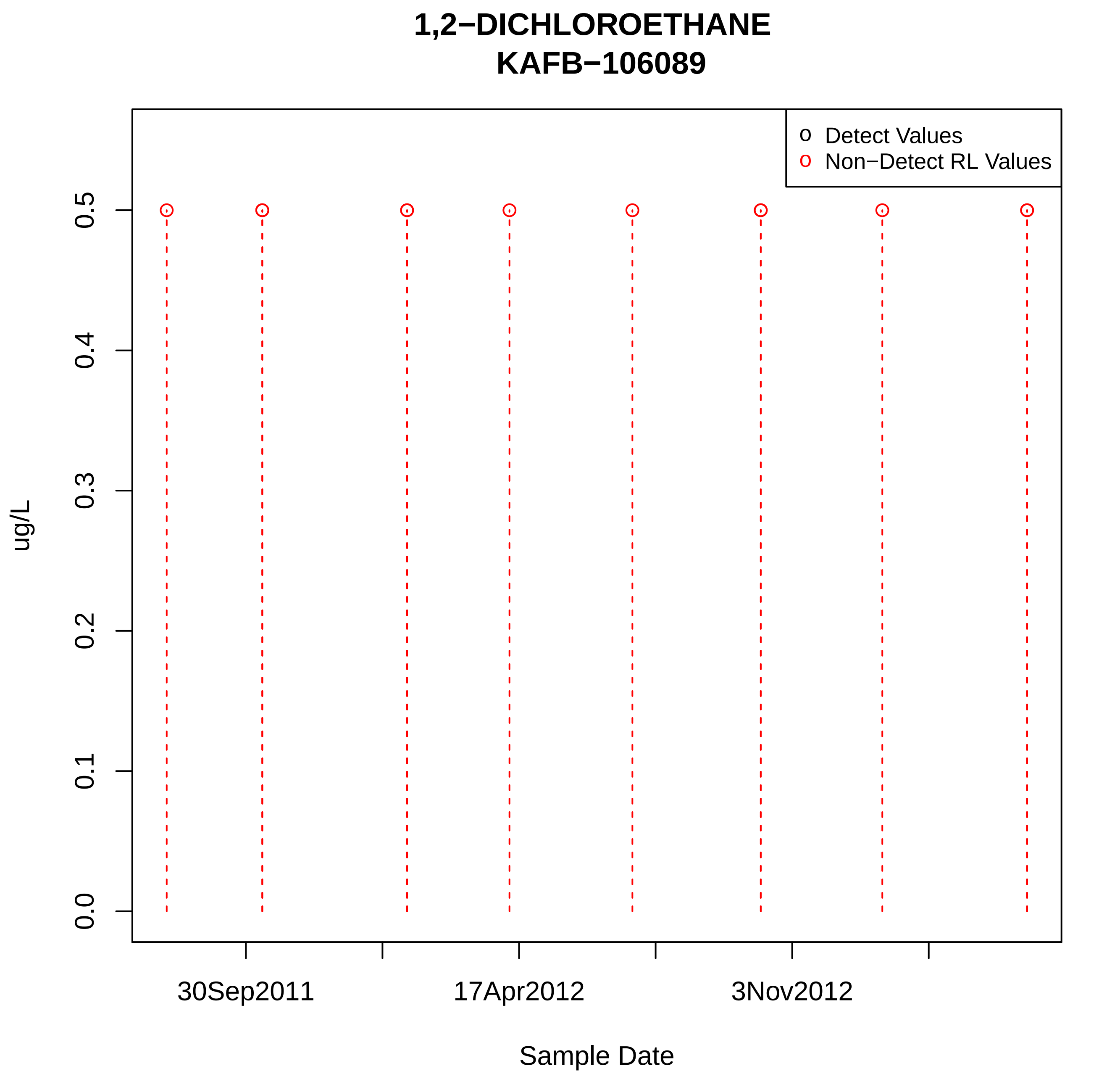
1,2−DICHLOROETHANE
KAFB−106085
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = −1.396E−03
p−value = 0.516

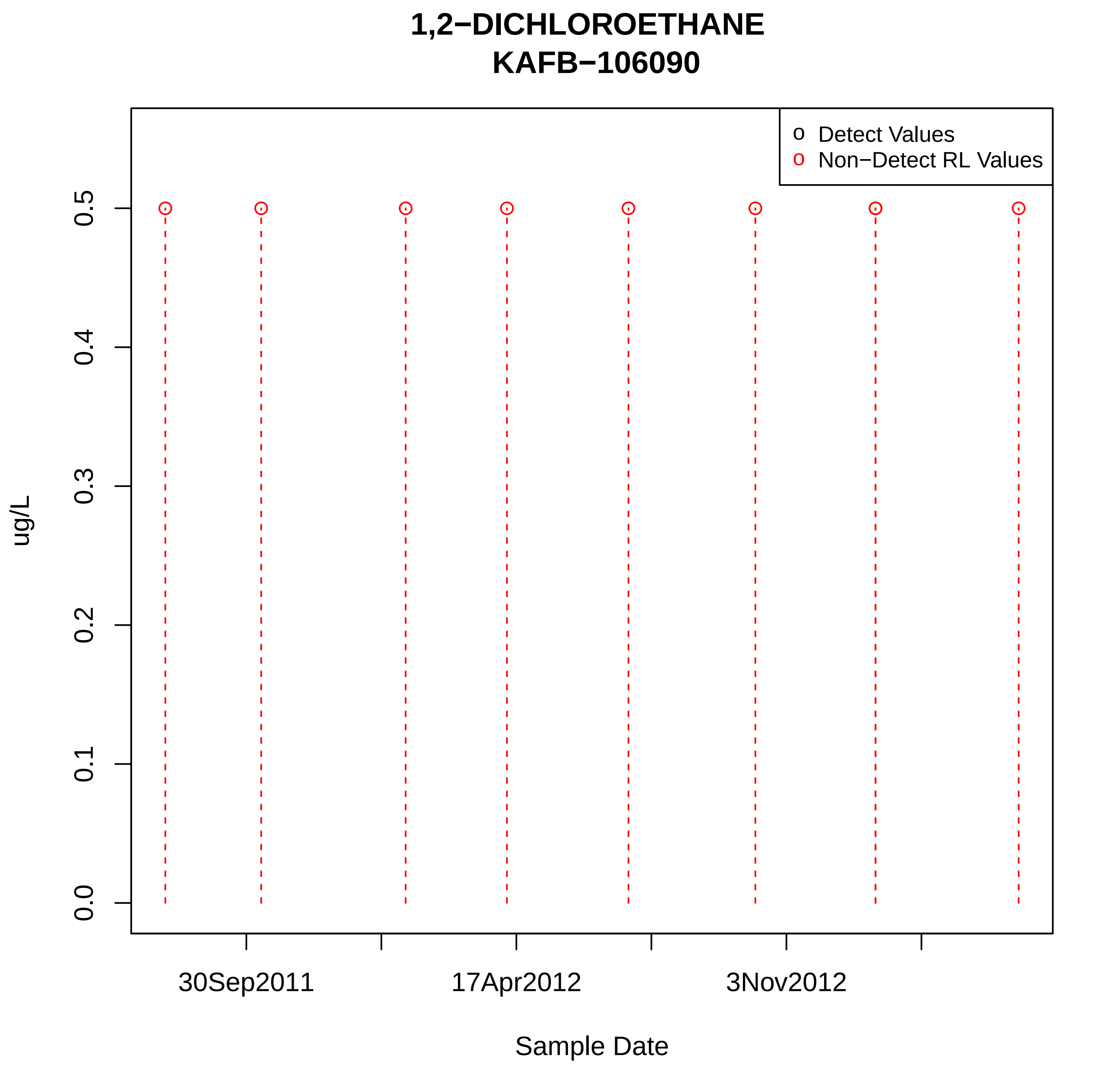


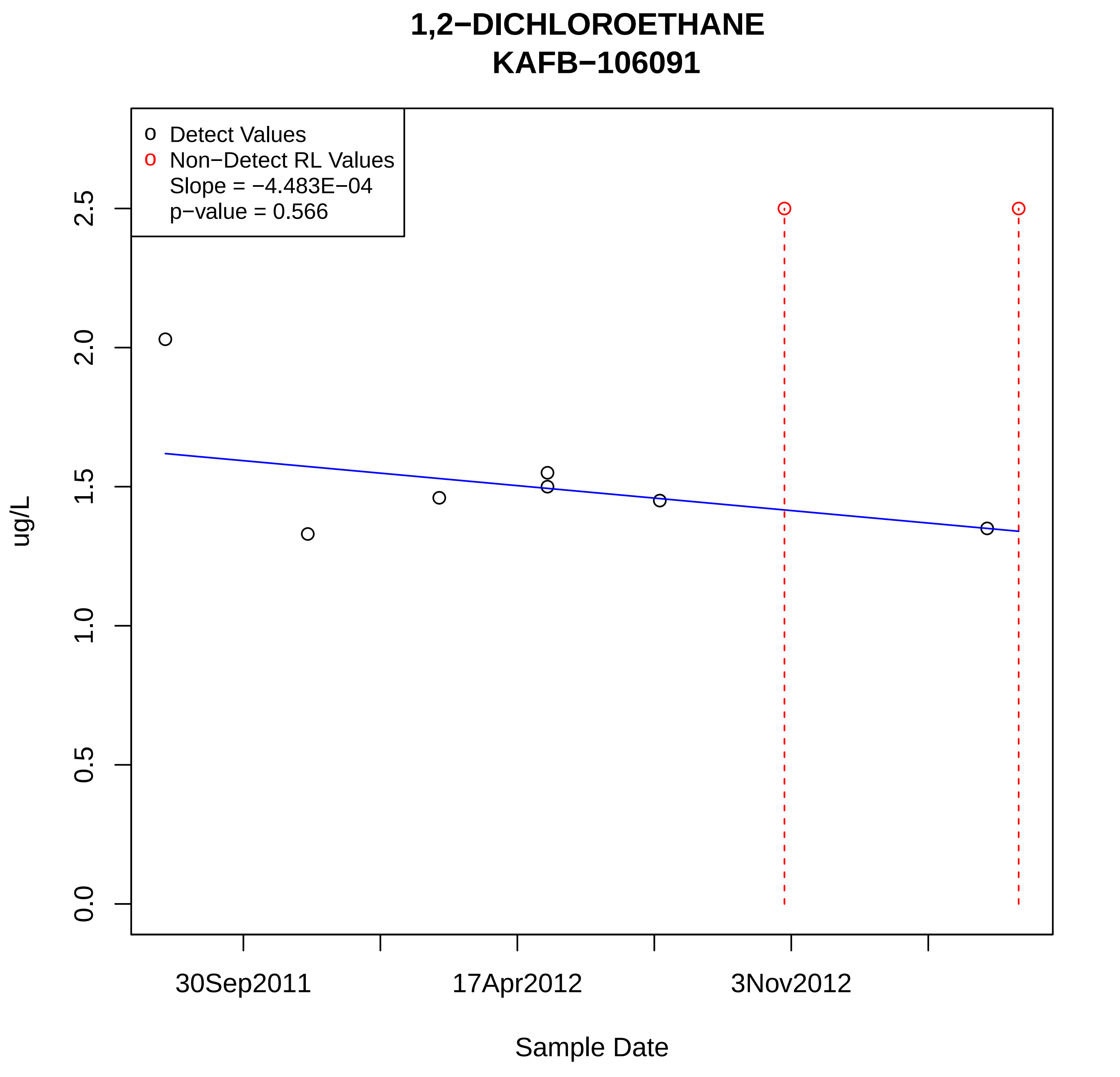
1,2−DICHLOROETHANE
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = −1.223E−03
p−value = 0.097
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

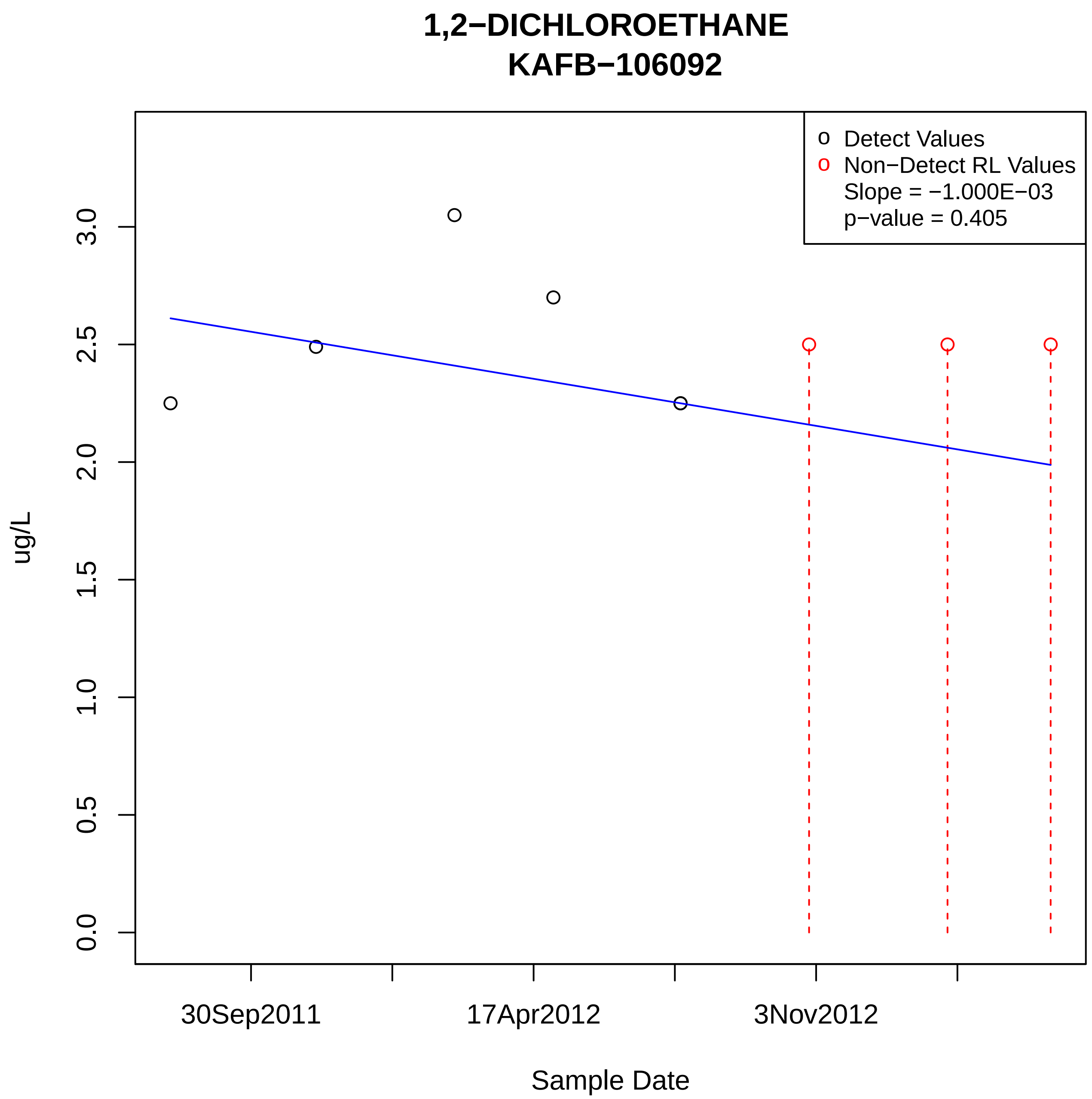

1,2−DICHLOROETHANE
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106089
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

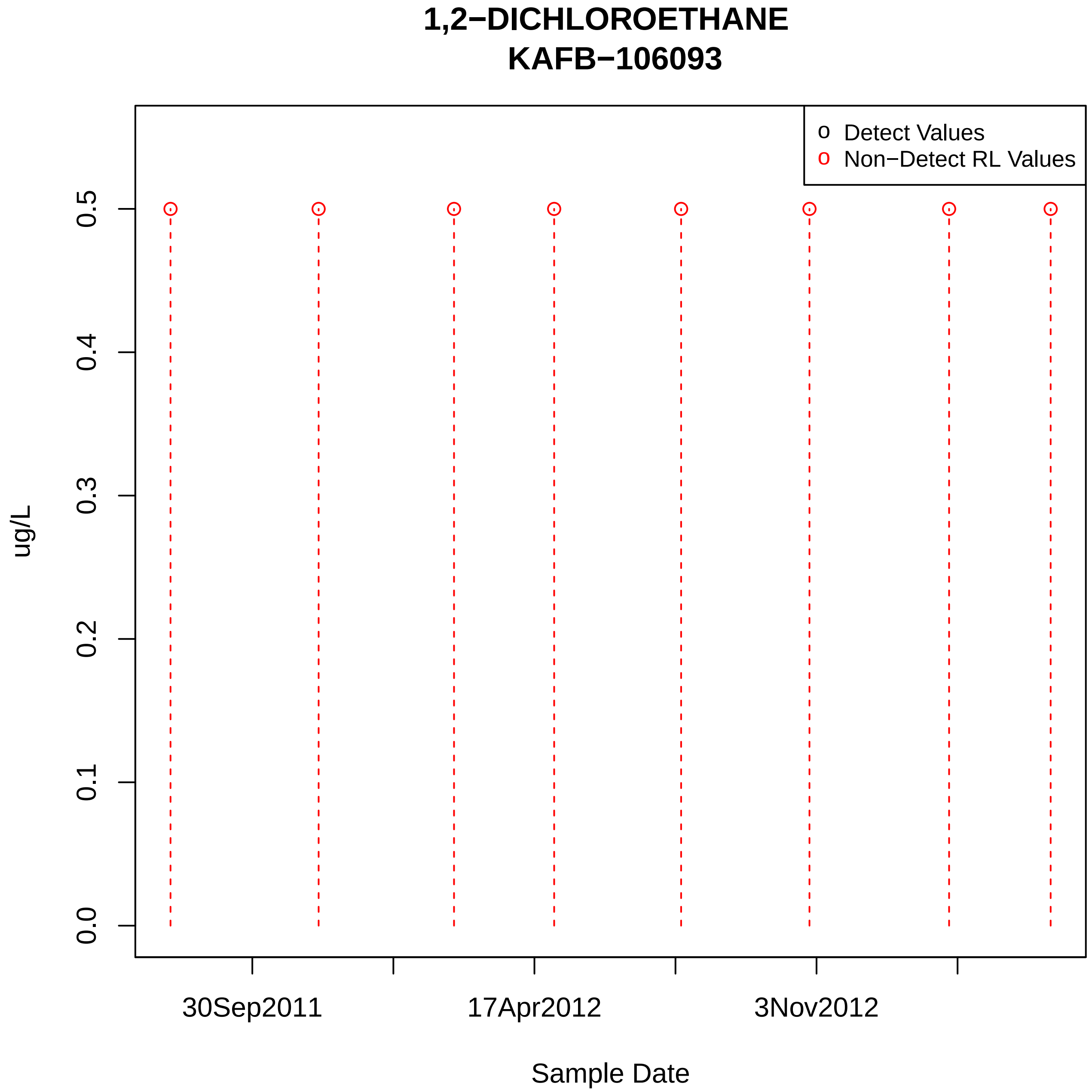

1,2−DICHLOROETHANE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

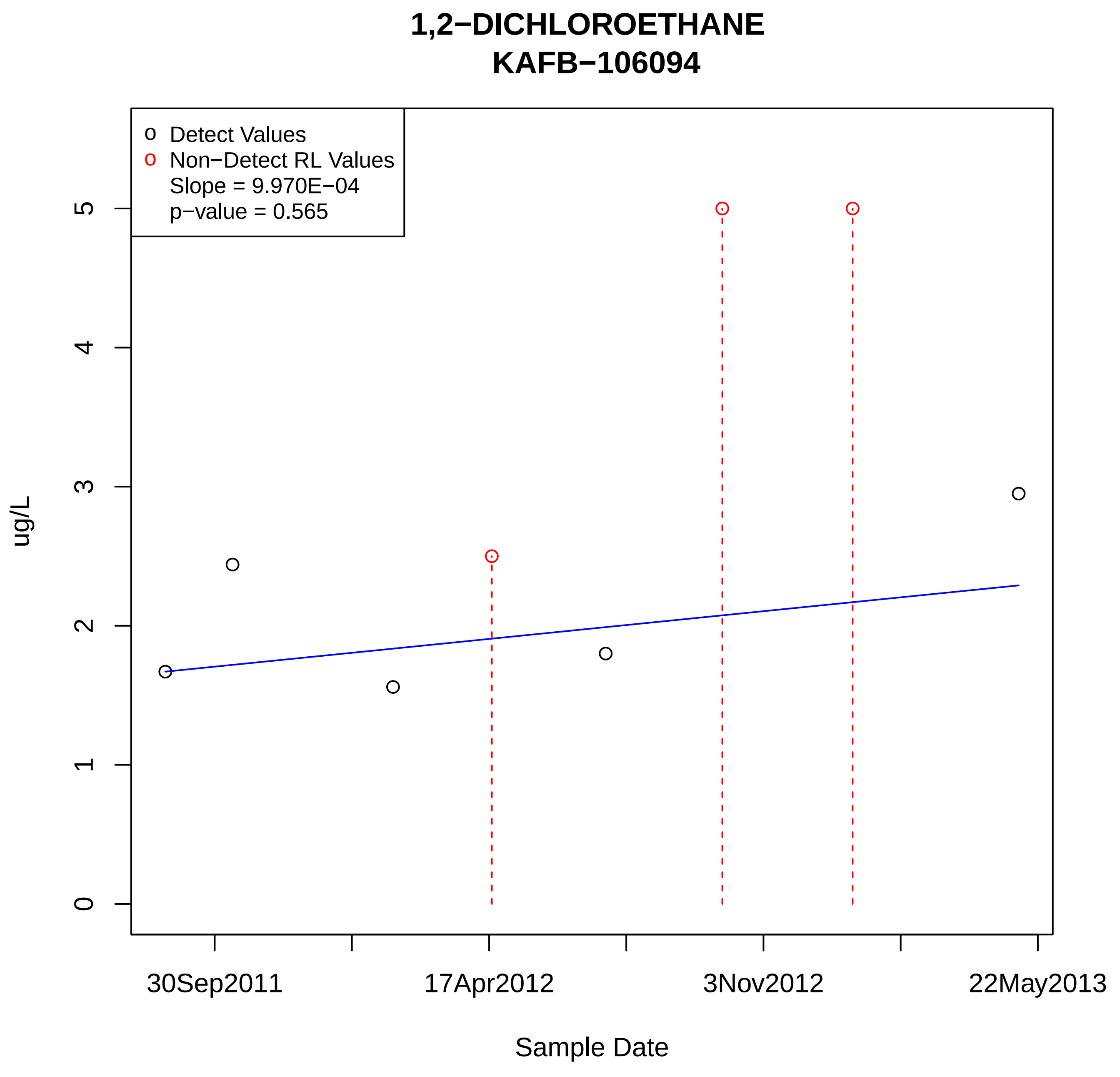


1,2−DICHLOROETHANE
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = −4.483E−04
p−value = 0.566
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

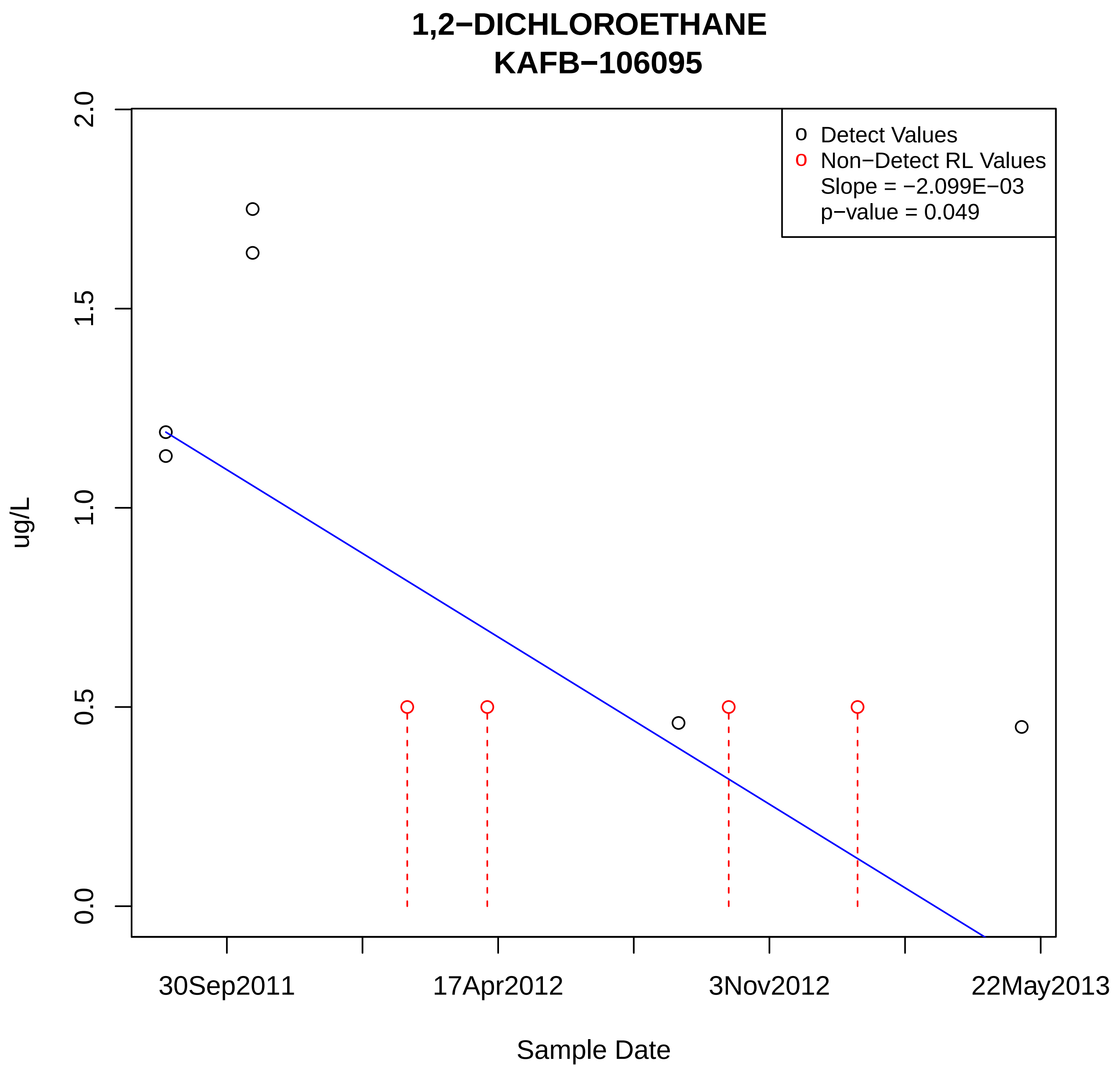


1,2−DICHLOROETHANE
KAFB−106092
o Detect Values
o Non−Detect RL Values
Slope = −1.000E−03
p−value = 0.405
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

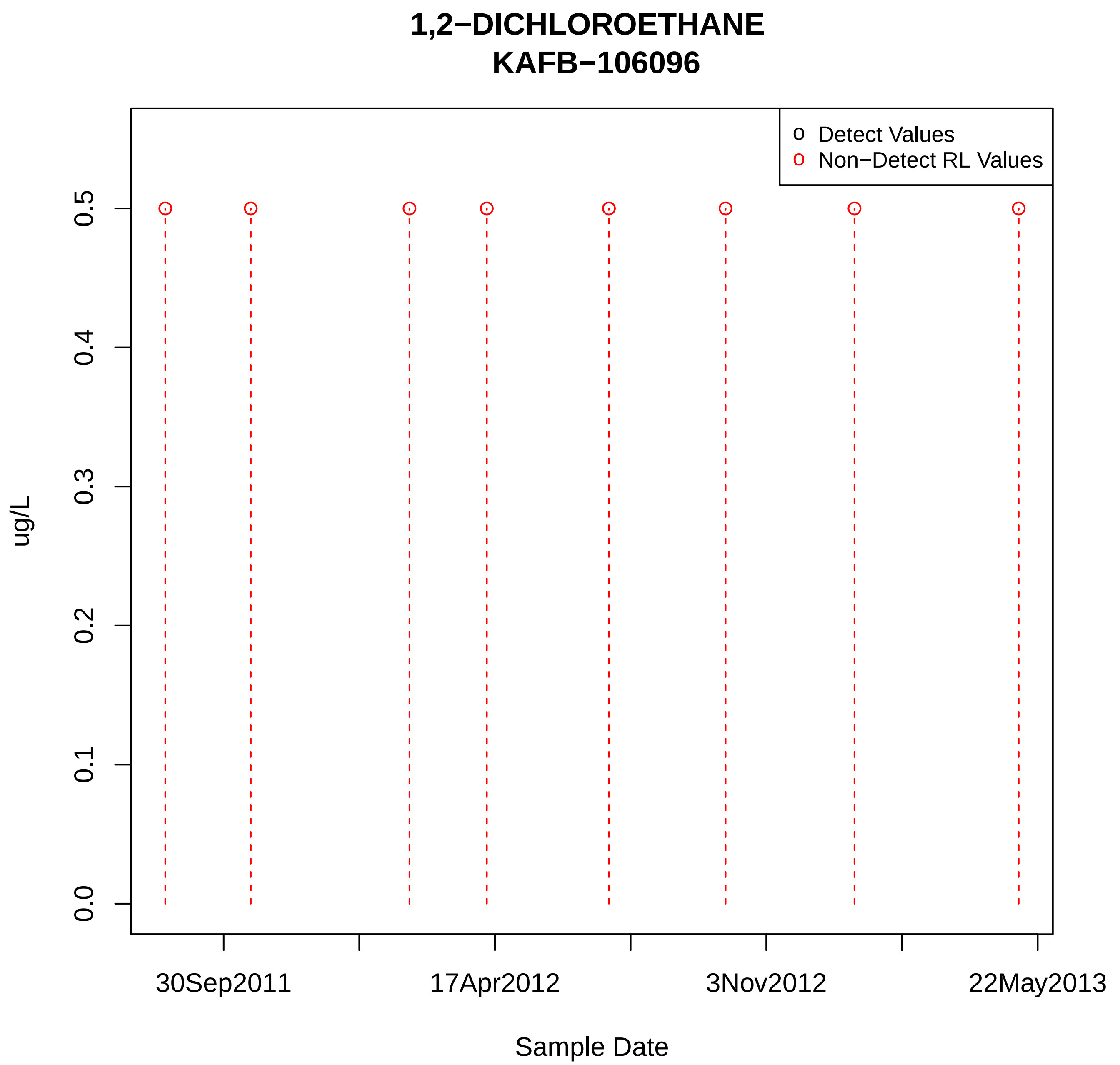

1,2−DICHLOROETHANE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



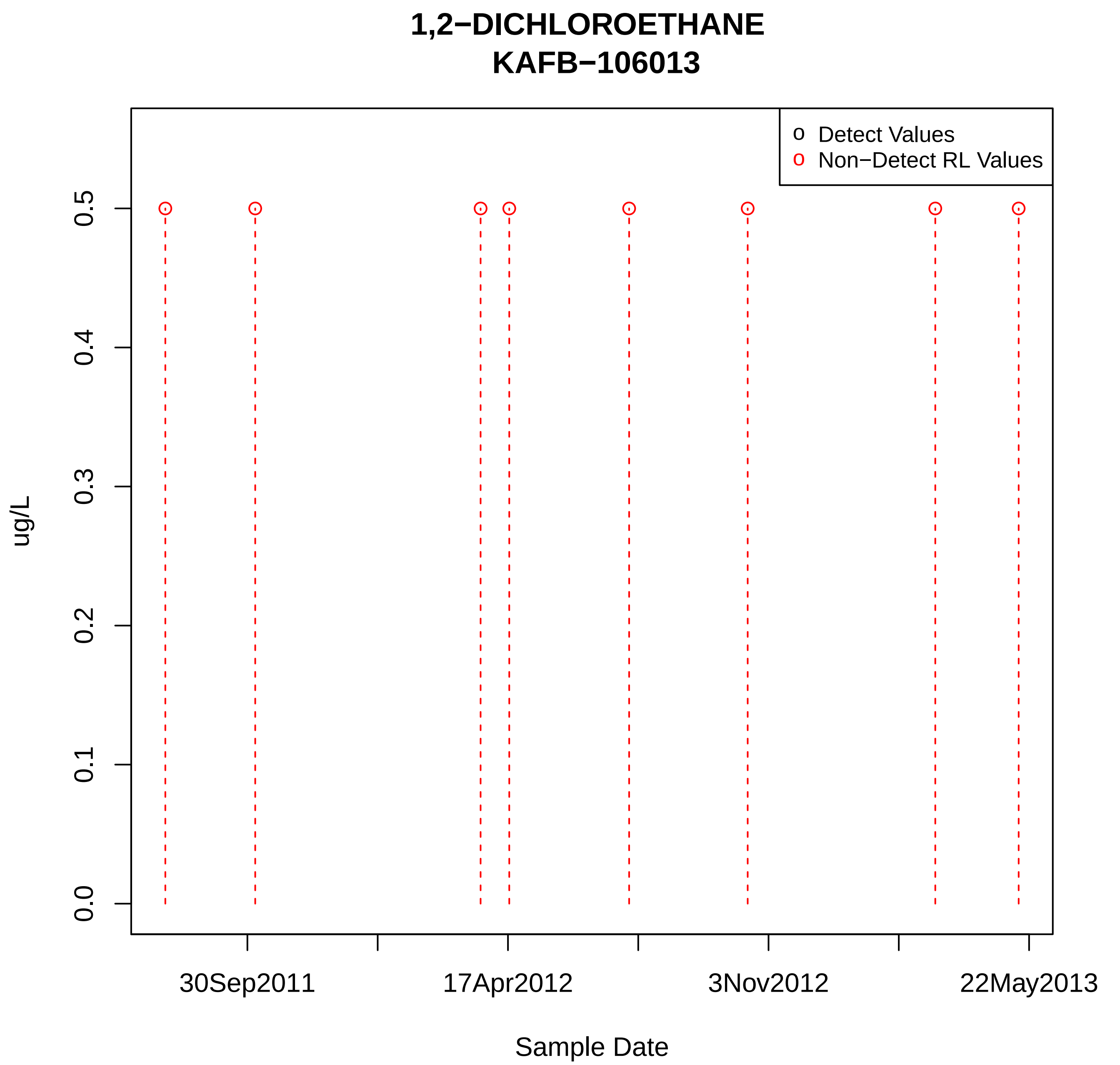
1,2−DICHLOROETHANE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = 9.970E−04
p−value = 0.565
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

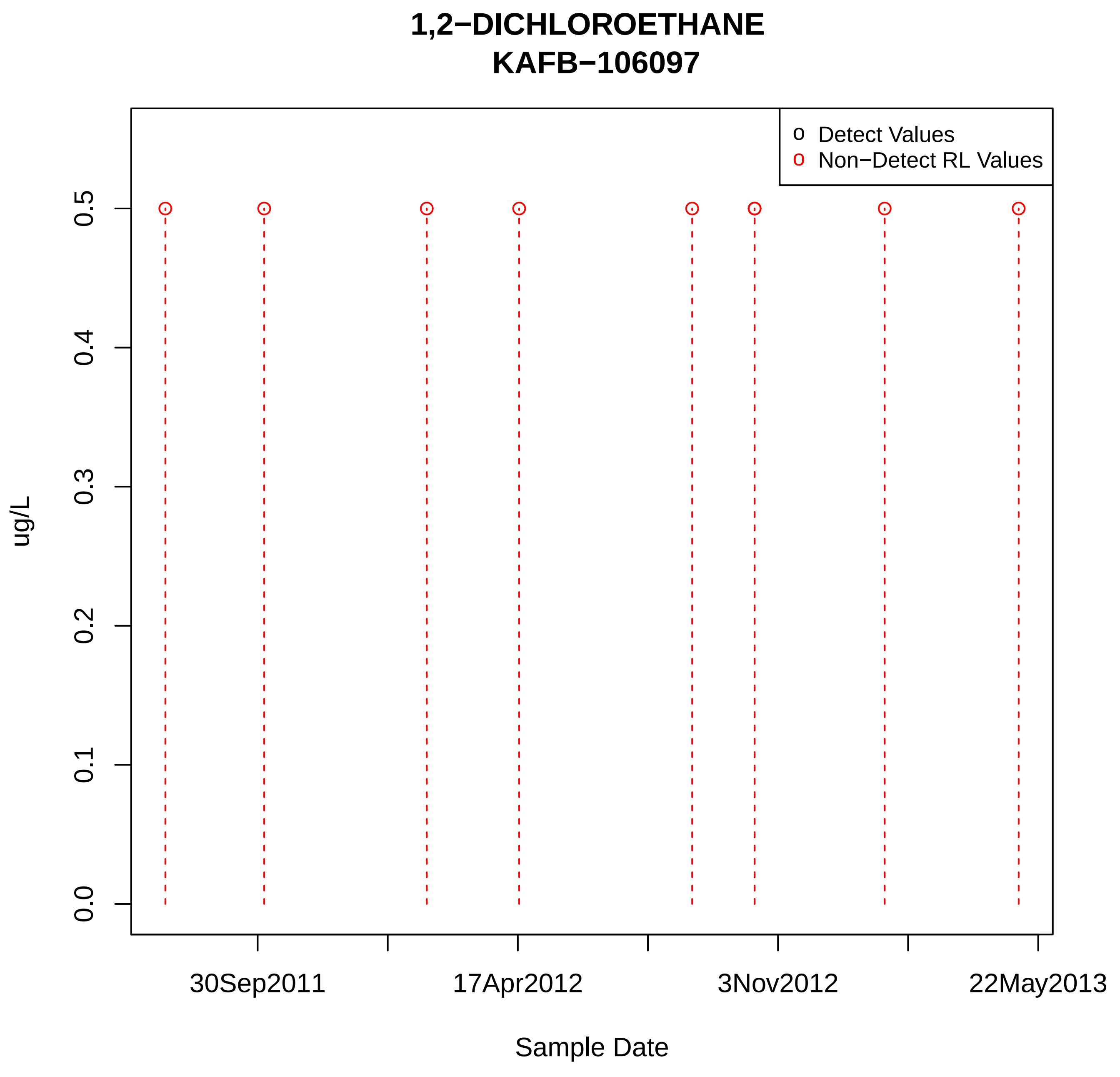


1,2−DICHLOROETHANE
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −2.099E−03
p−value = 0.049
2.0
1.5
1.0
0.5
0.0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

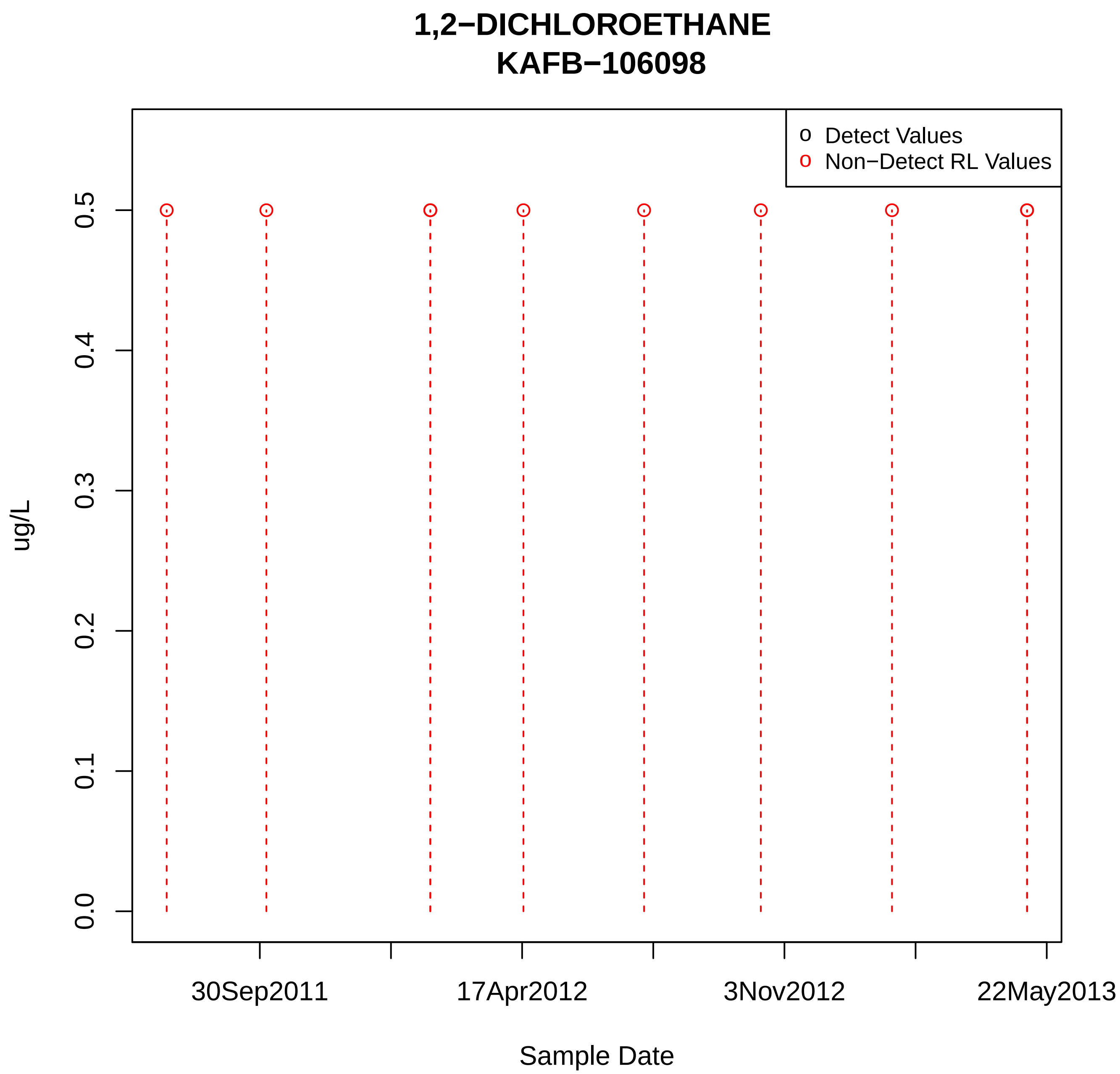


1,2−DICHLOROETHANE
KAFB−106096
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

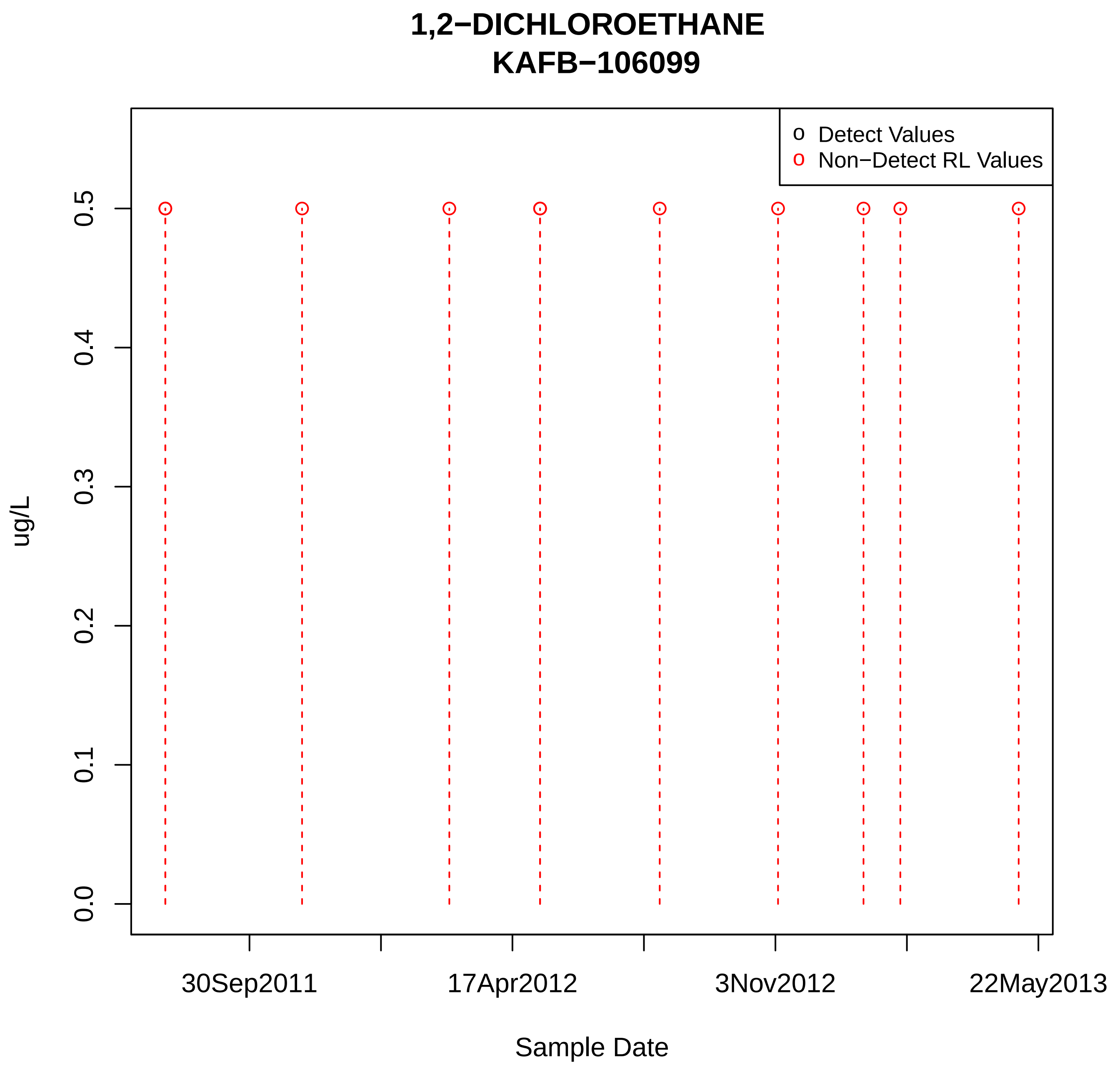

1,2−DICHLOROETHANE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



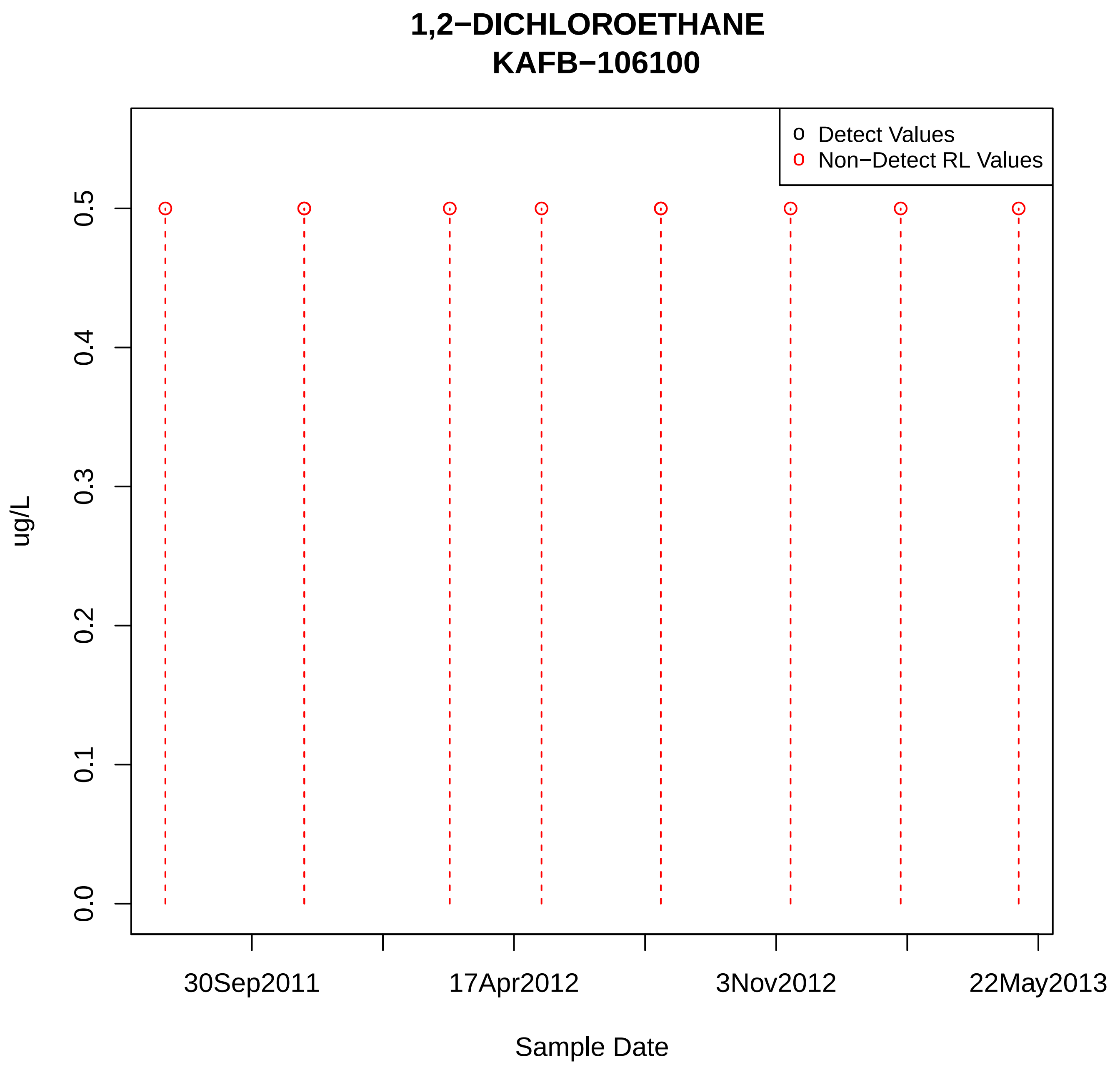
1,2−DICHLOROETHANE
KAFB−106097
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



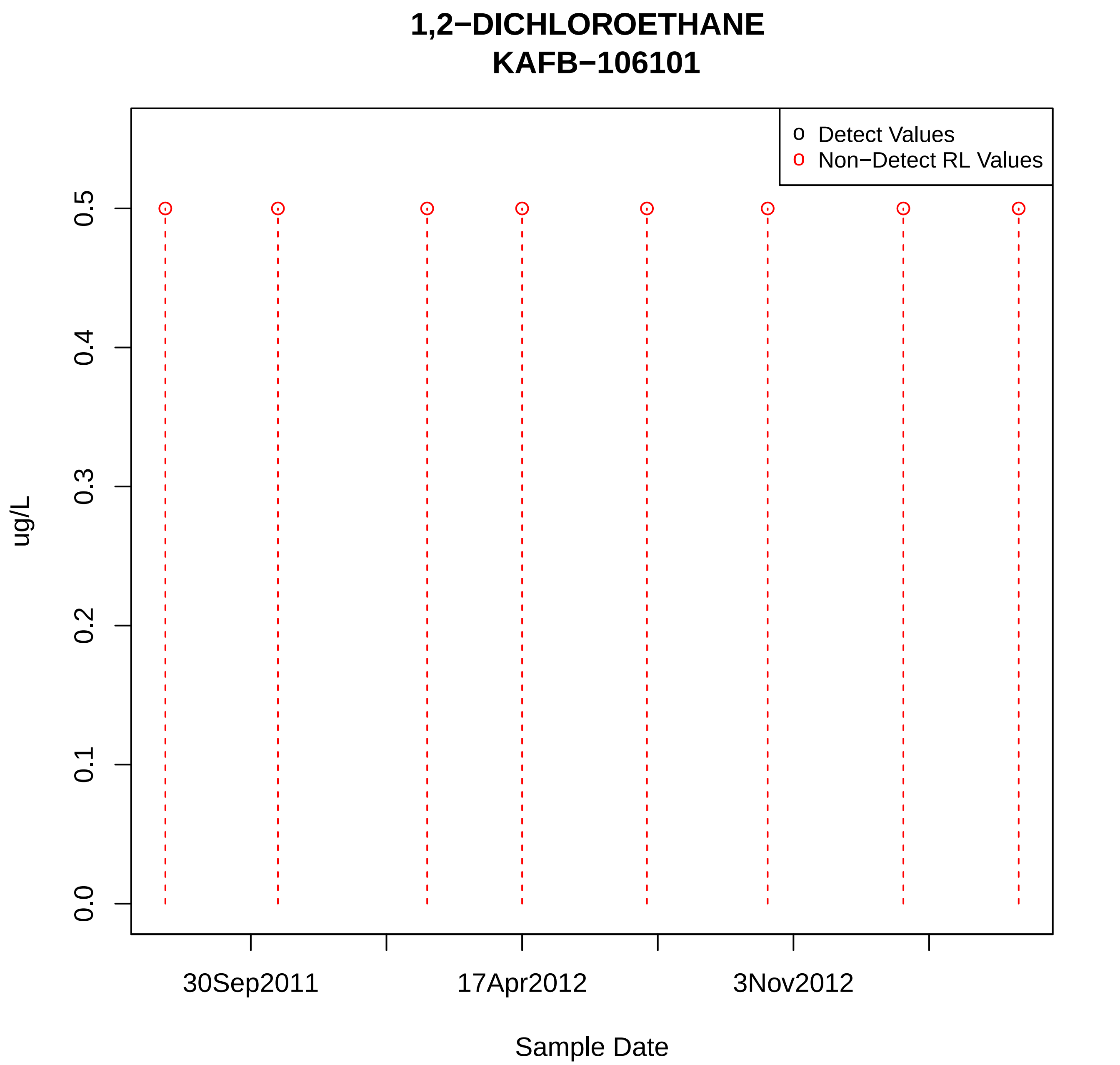
1,2−DICHLOROETHANE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

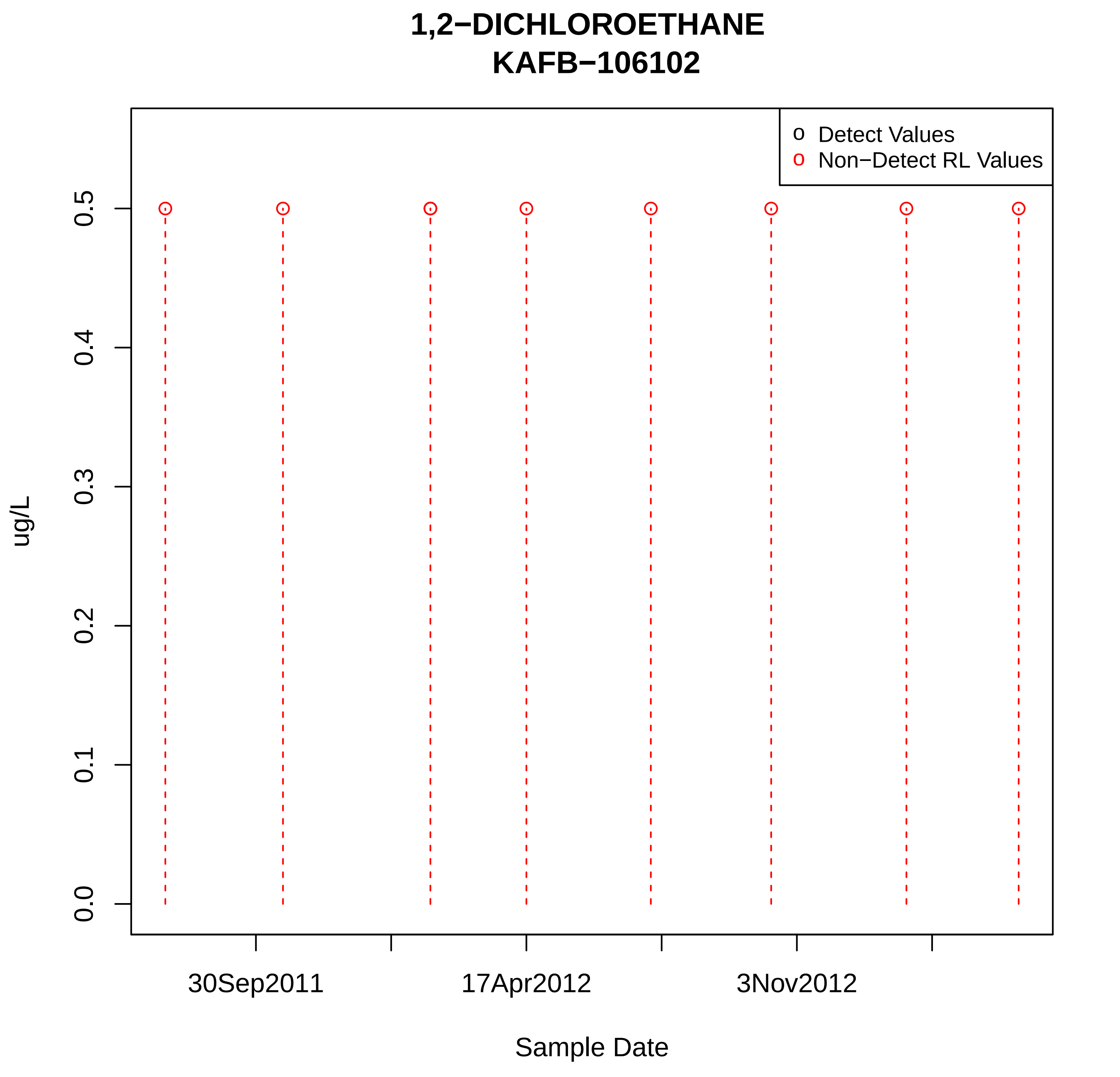


1,2−DICHLOROETHANE
KAFB−106099
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

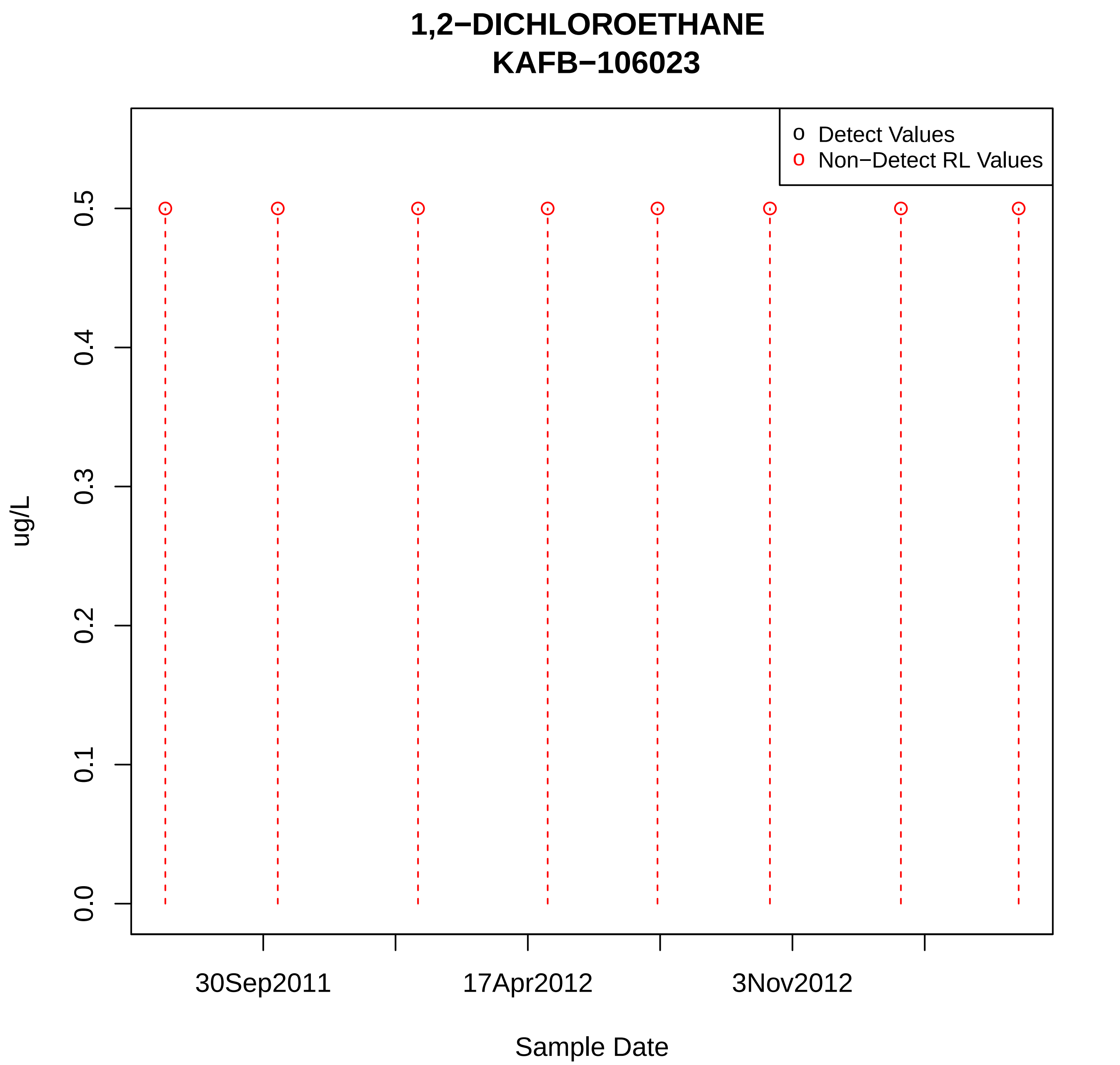


1,2−DICHLOROETHANE
KAFB−106100
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

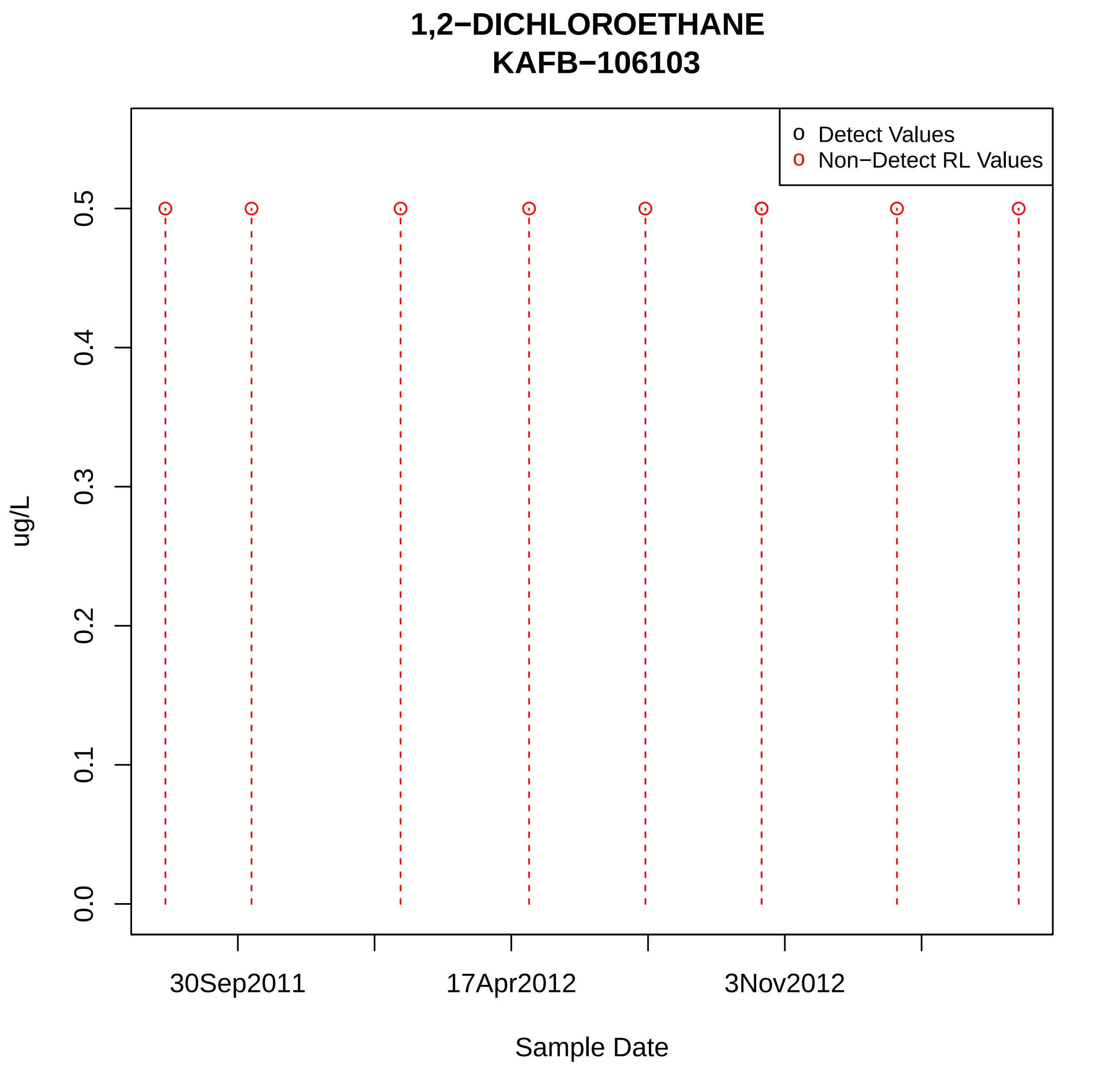

1,2−DICHLOROETHANE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

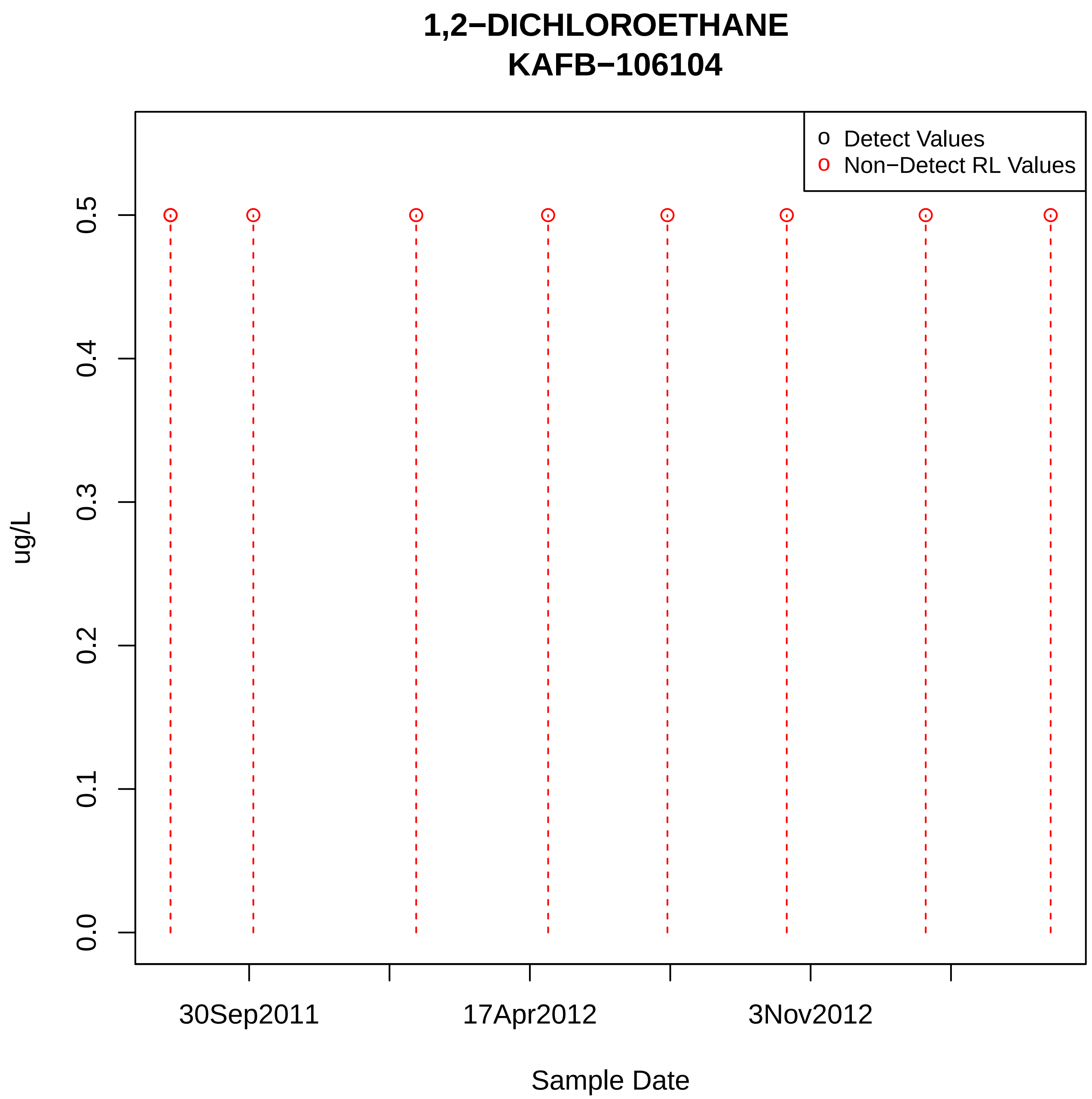


1,2−DICHLOROETHANE
KAFB−106102
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

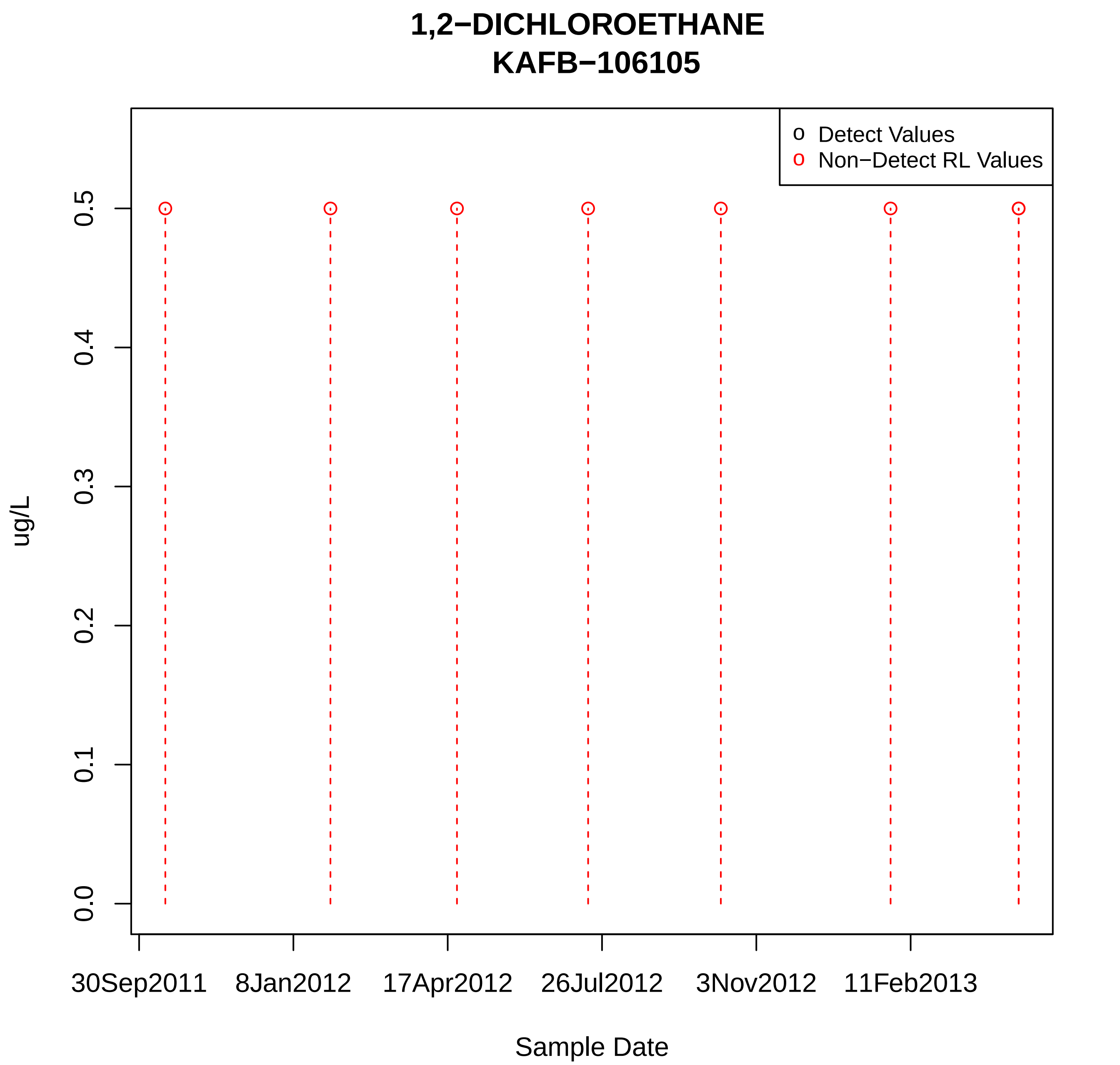


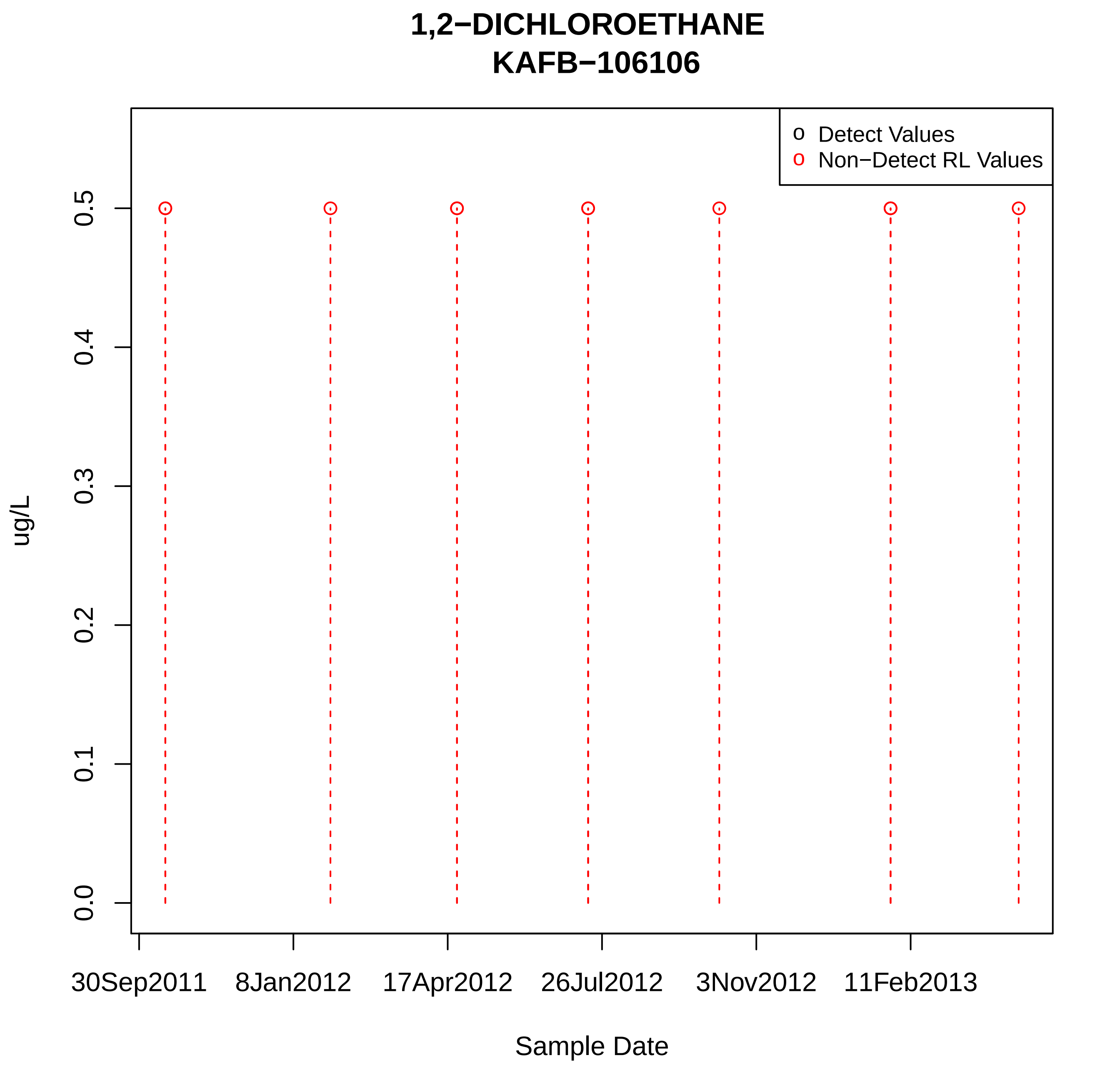
1,2−DICHLOROETHANE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

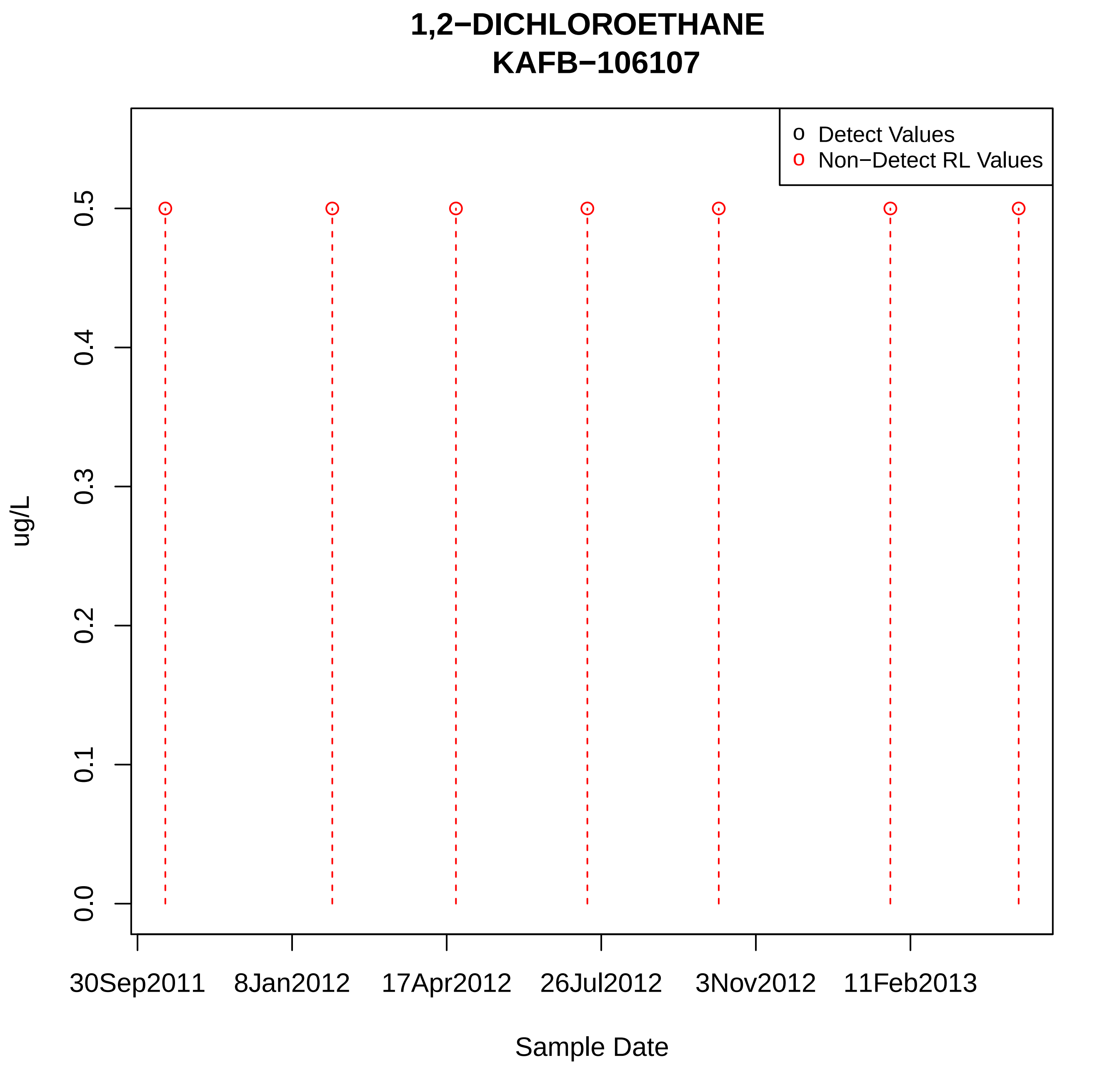

1,2−DICHLOROETHANE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

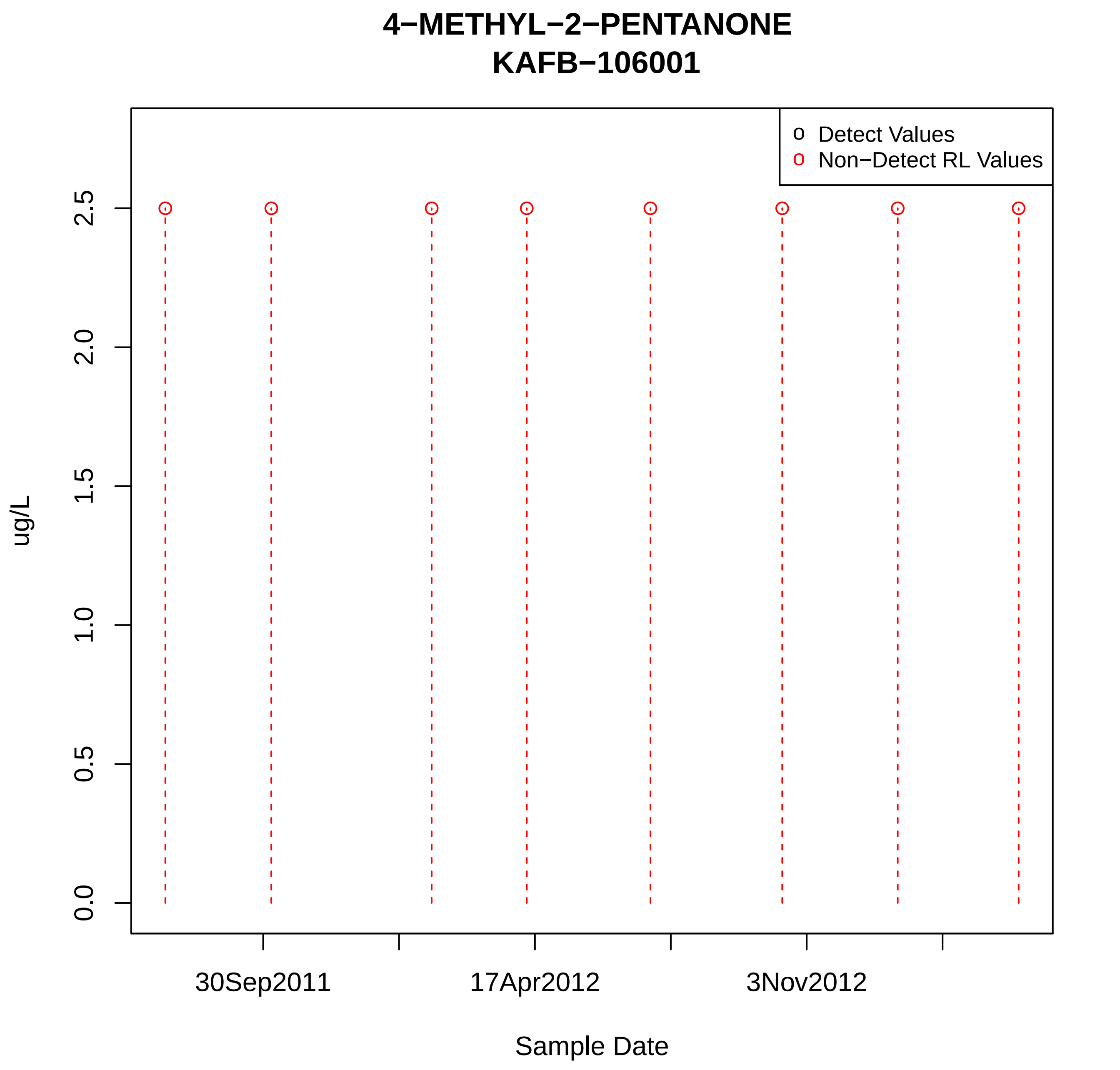


1,2−DICHLOROETHANE
KAFB−106104
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

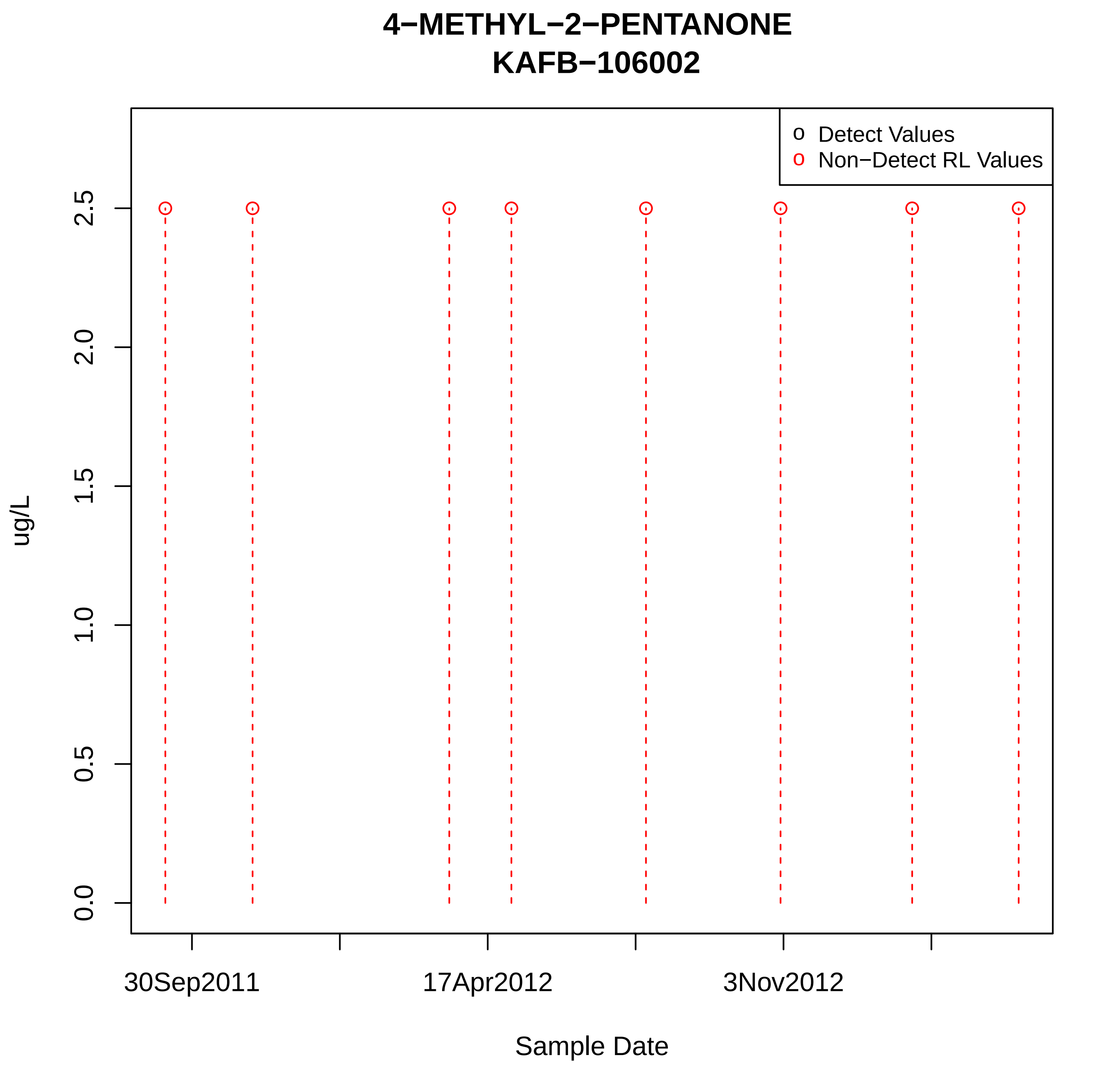

1,2−DICHLOROETHANE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


1,2−DICHLOROETHANE
KAFB−106106
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

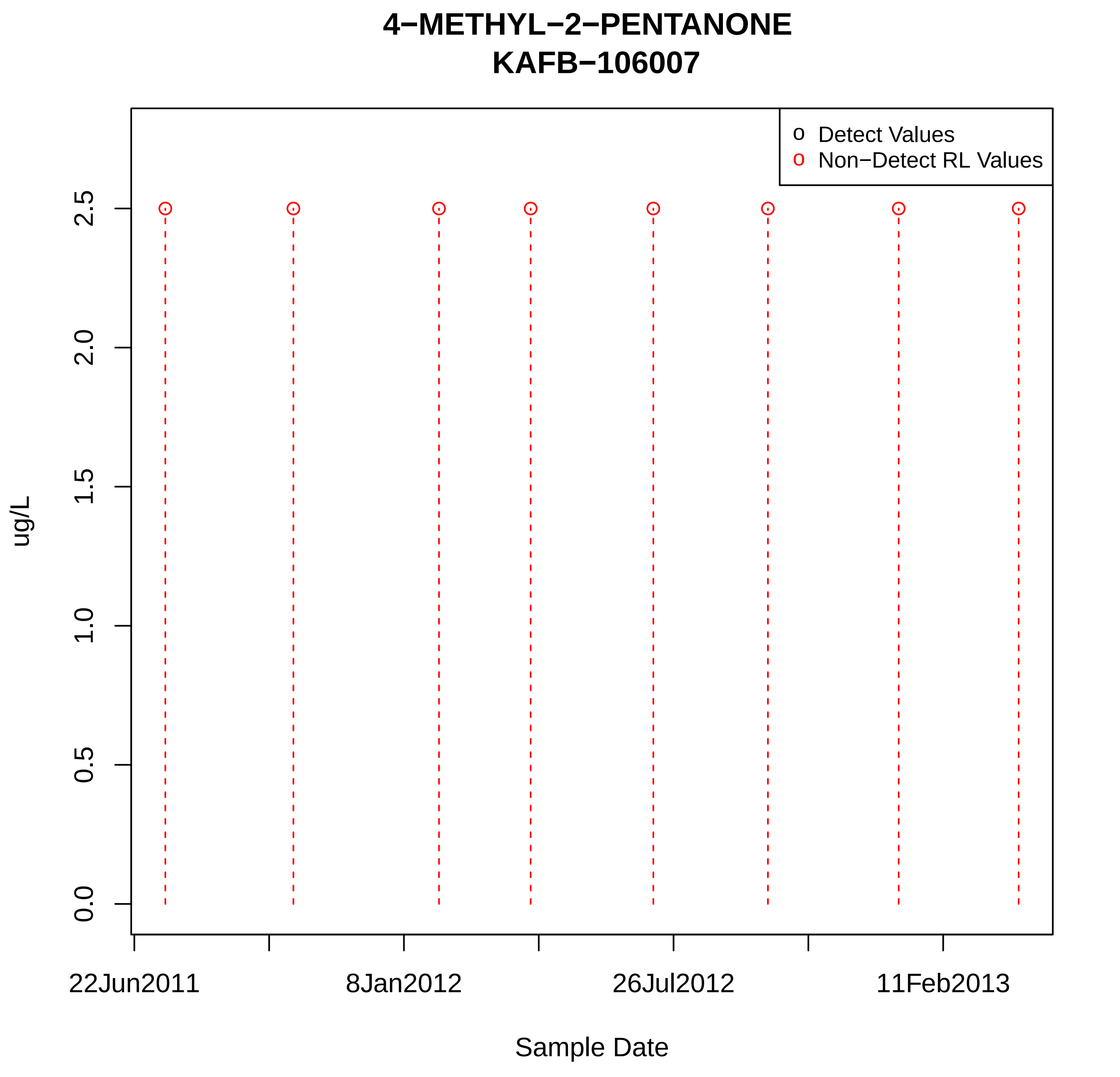

1,2−DICHLOROETHANE
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



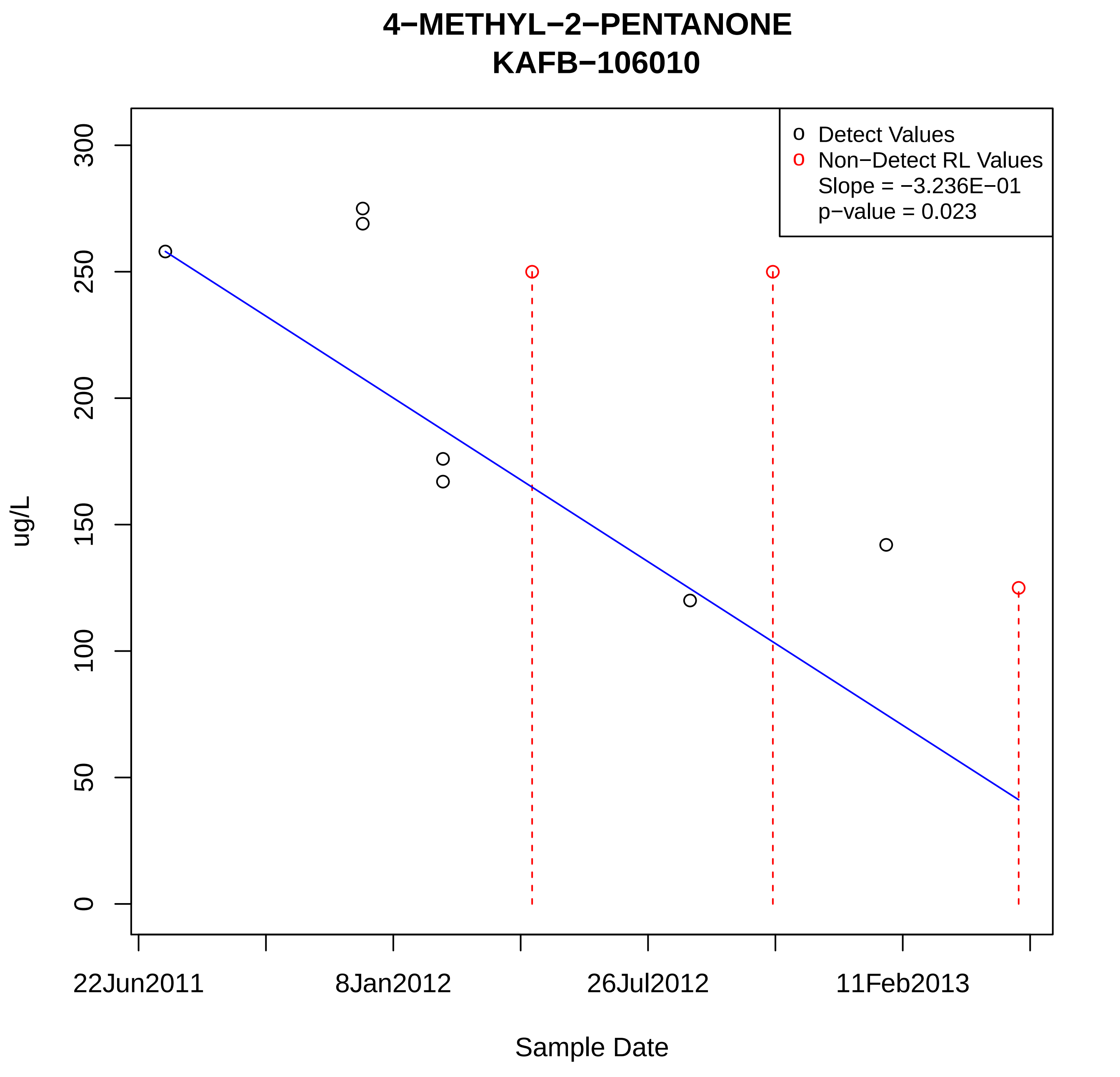
4−METHYL−2−PENTANONE
KAFB−106001
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

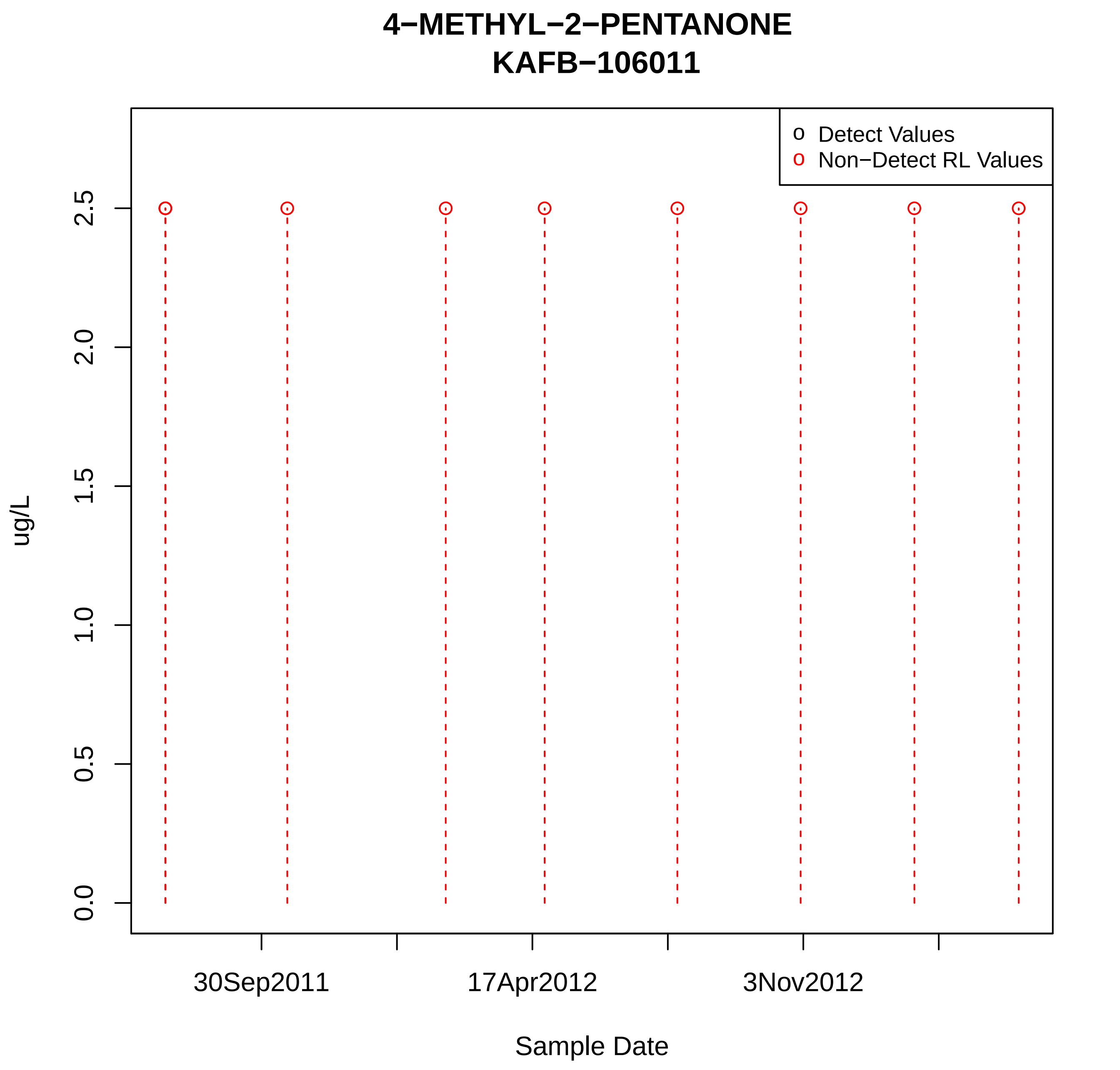


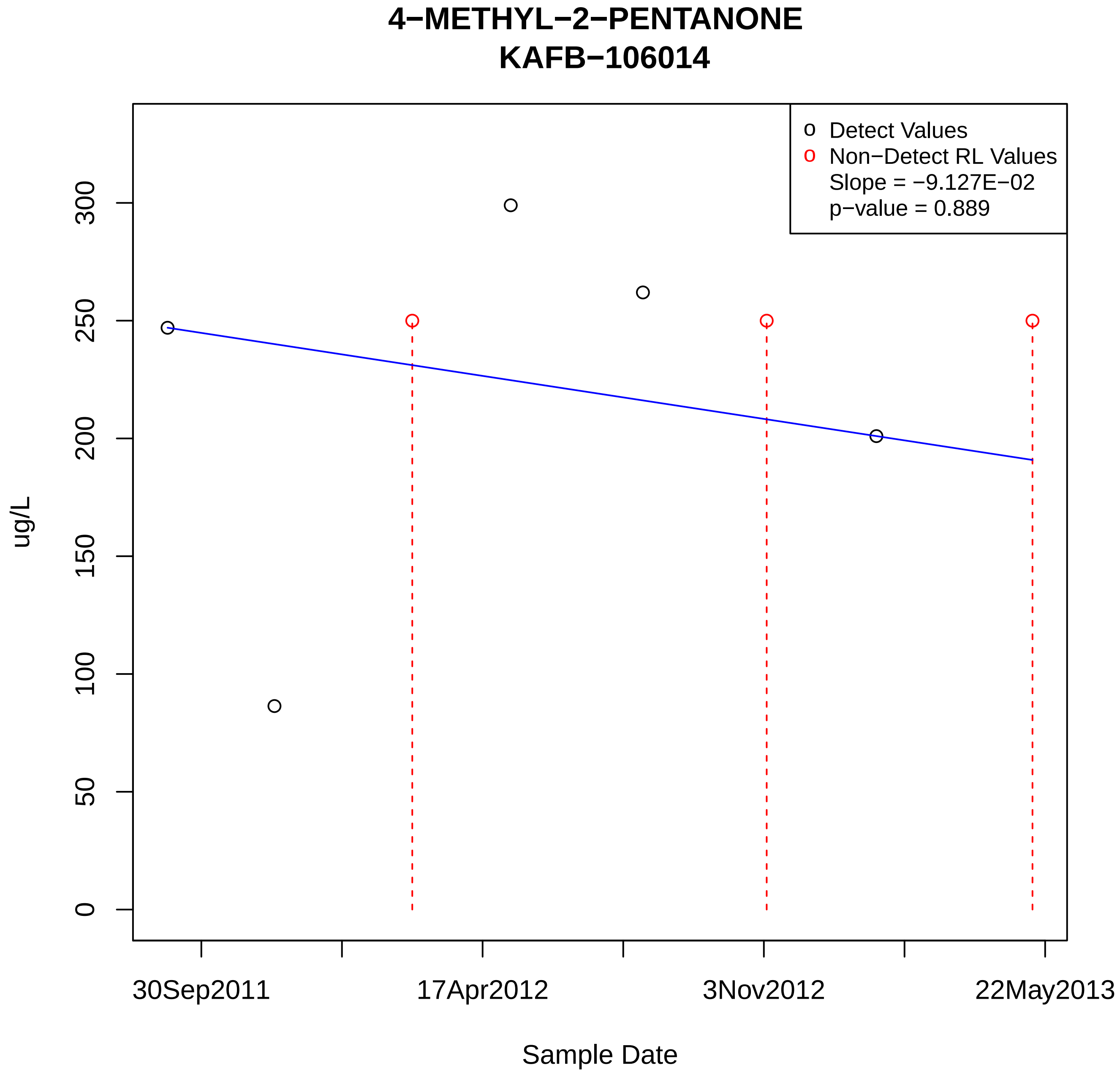
4−METHYL−2−PENTANONE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



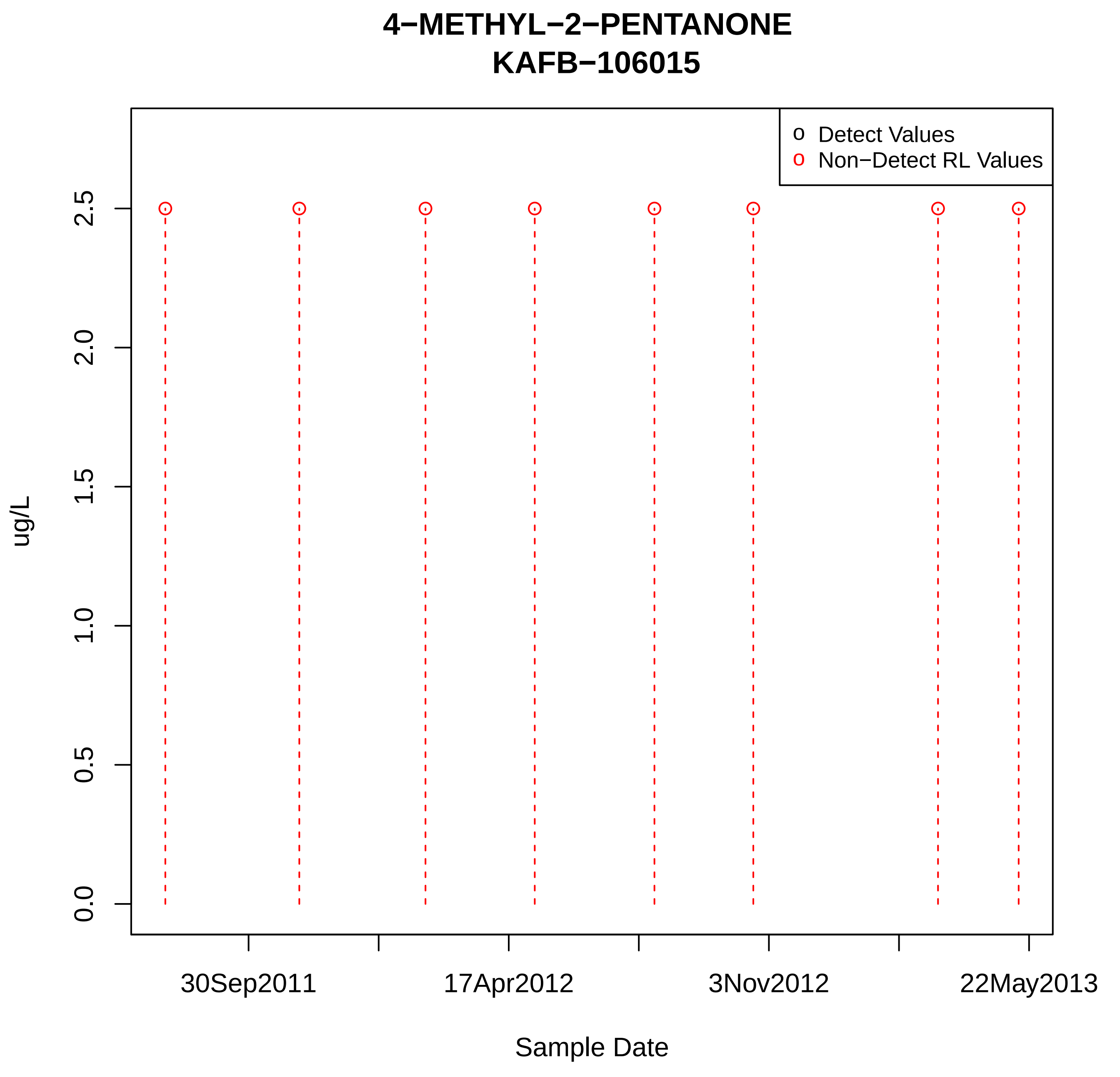
4−METHYL−2−PENTANONE
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = −3.236E−01
p−value = 0.023
ug/L
0
50
100
150
200
250
300
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

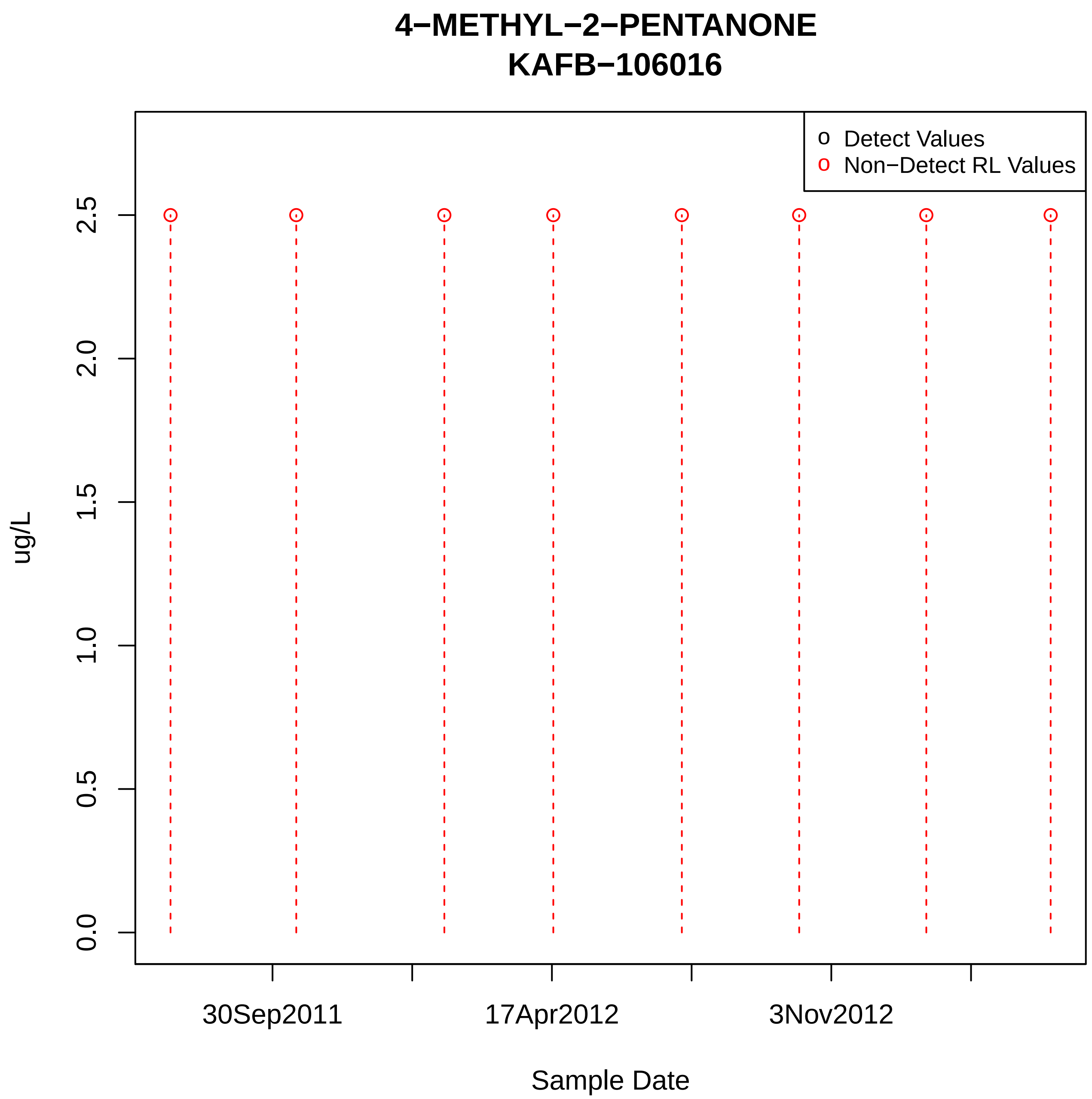

4−METHYL−2−PENTANONE
KAFB−106011
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

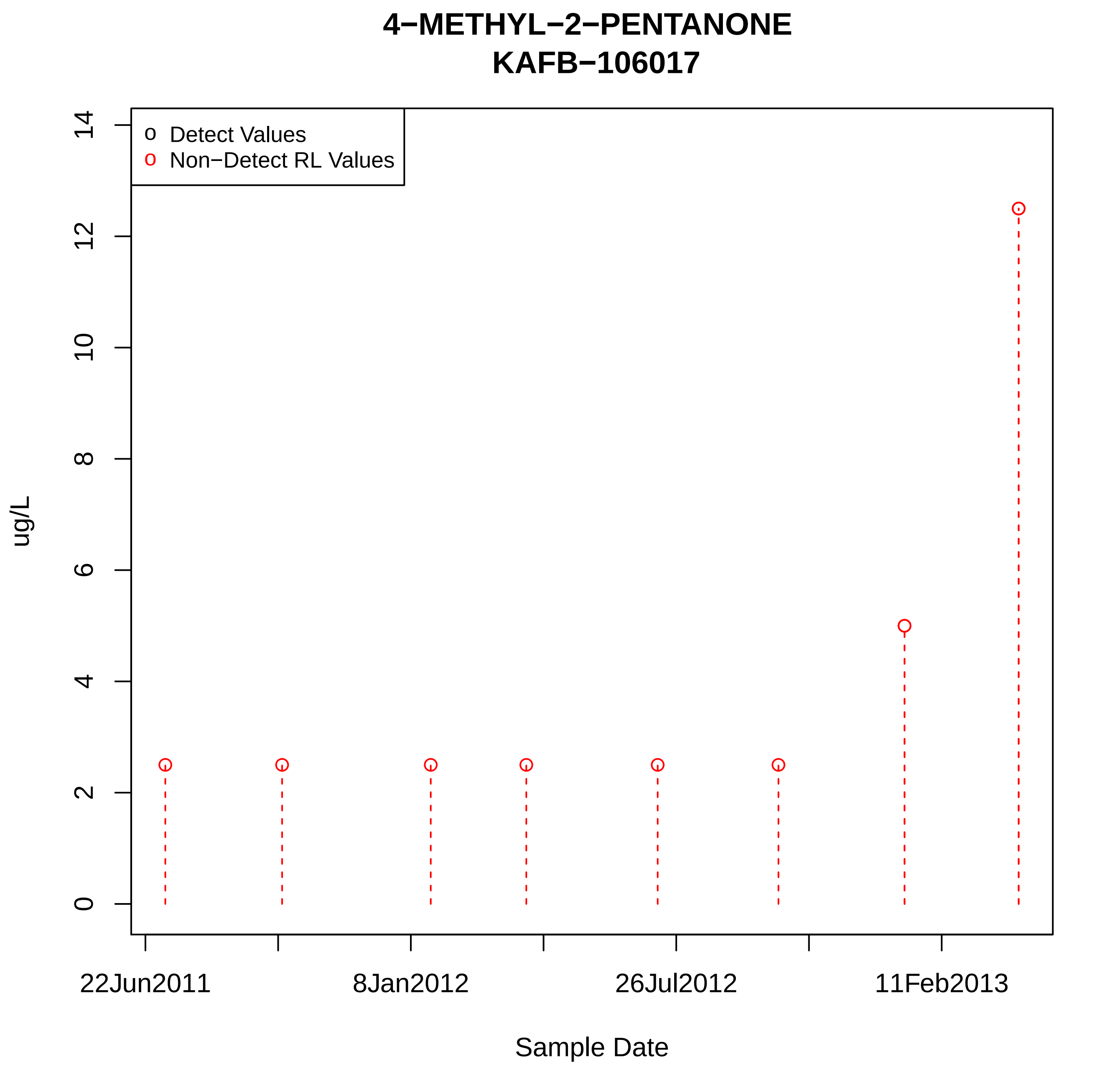


4−METHYL−2−PENTANONE
KAFB−106014
o Detect Values
o Non−Detect RL Values
Slope = −9.127E−02
p−value = 0.889
ug/L
0
50
100
150
200
250
300
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

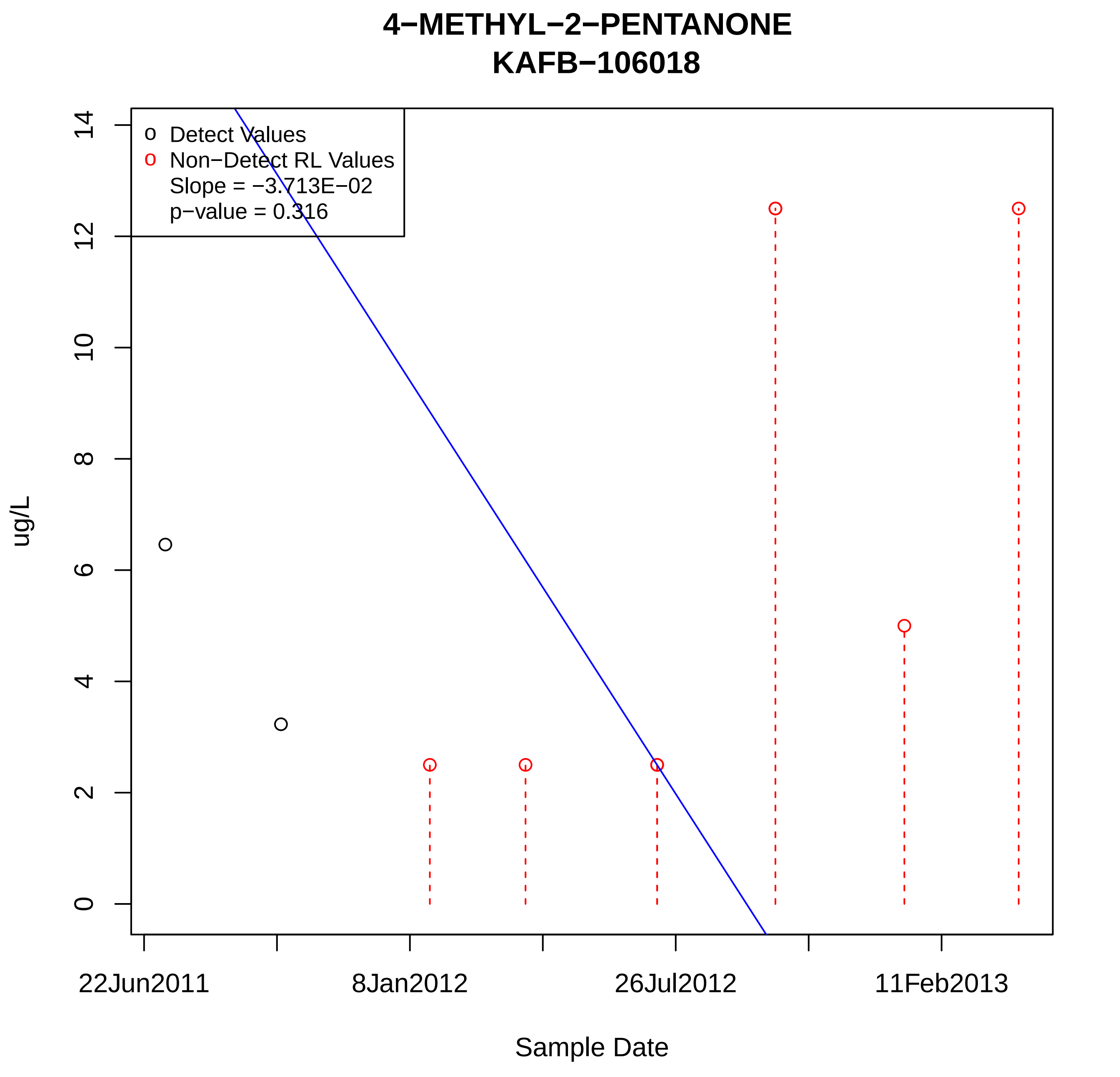


4−METHYL−2−PENTANONE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

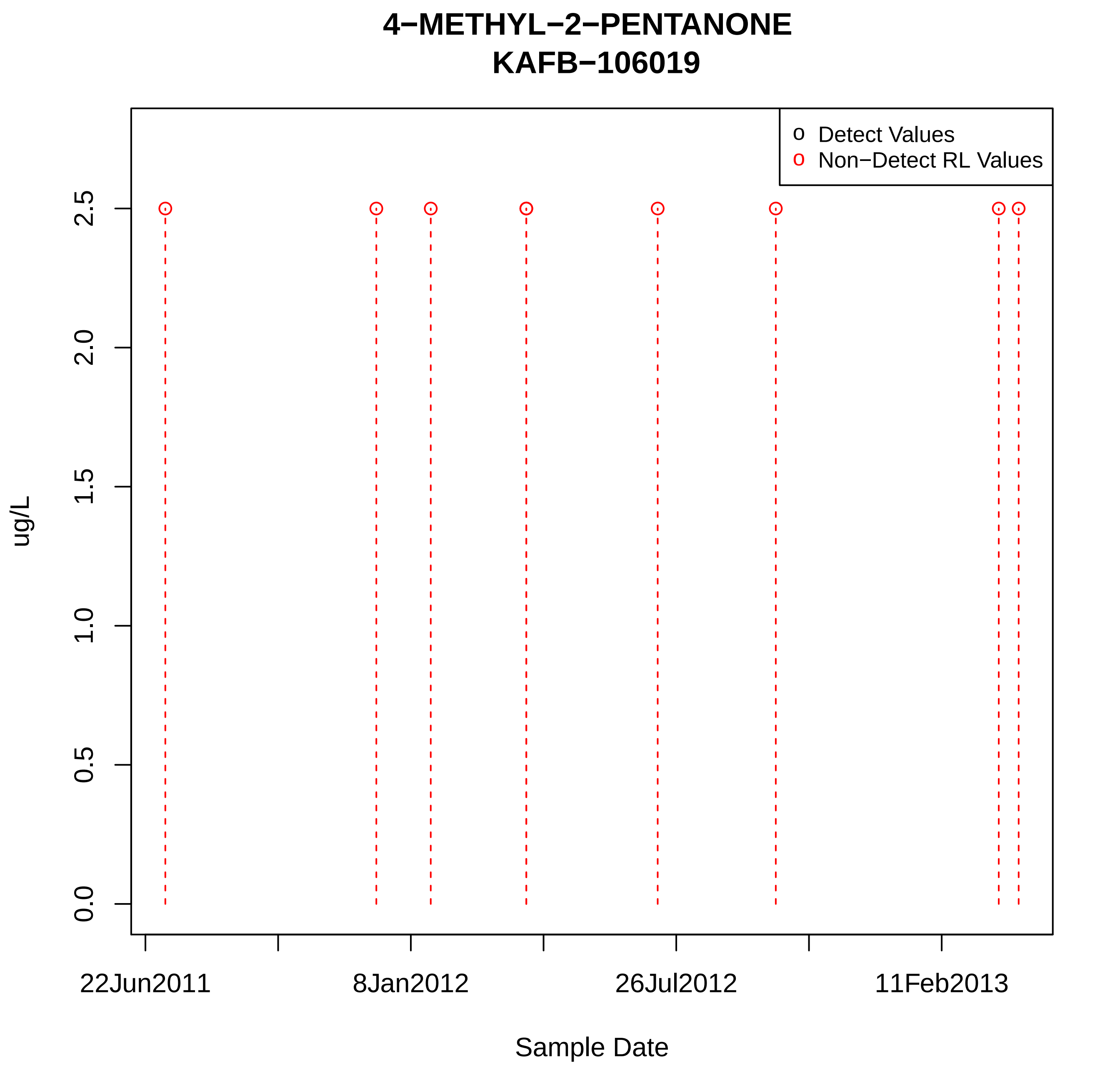

4−METHYL−2−PENTANONE
KAFB−106016
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

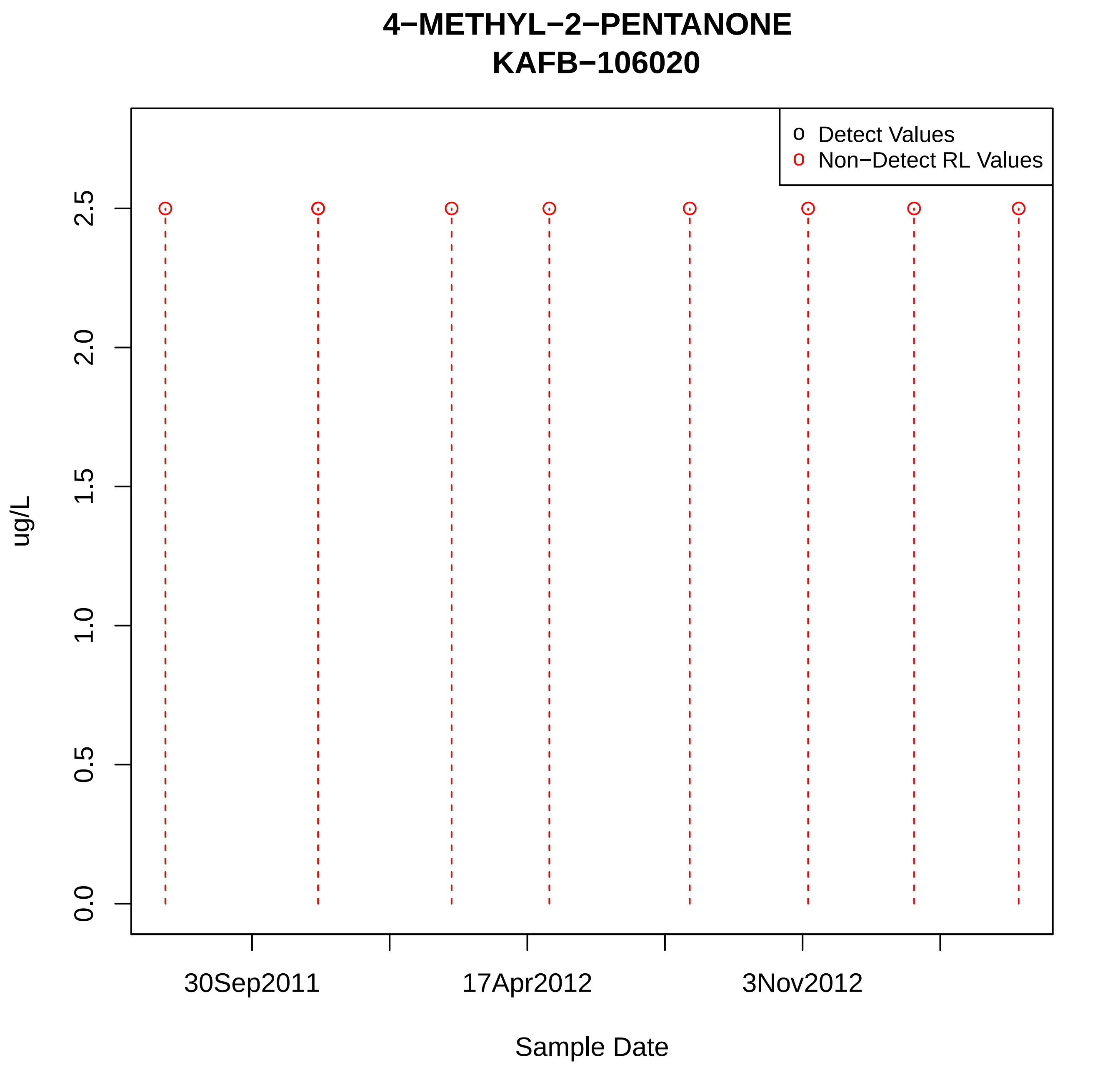


4−METHYL−2−PENTANONE
KAFB−106017
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

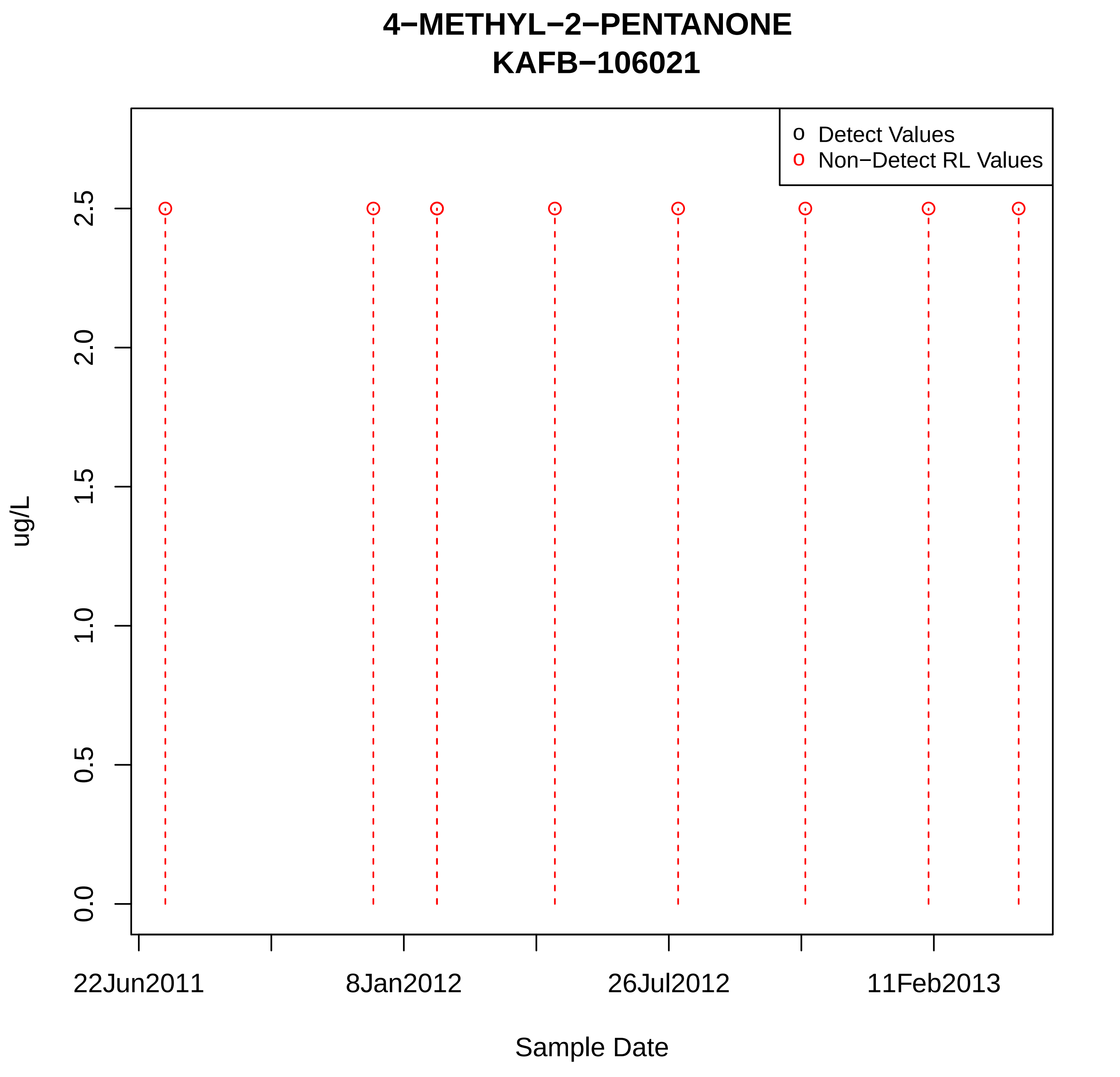


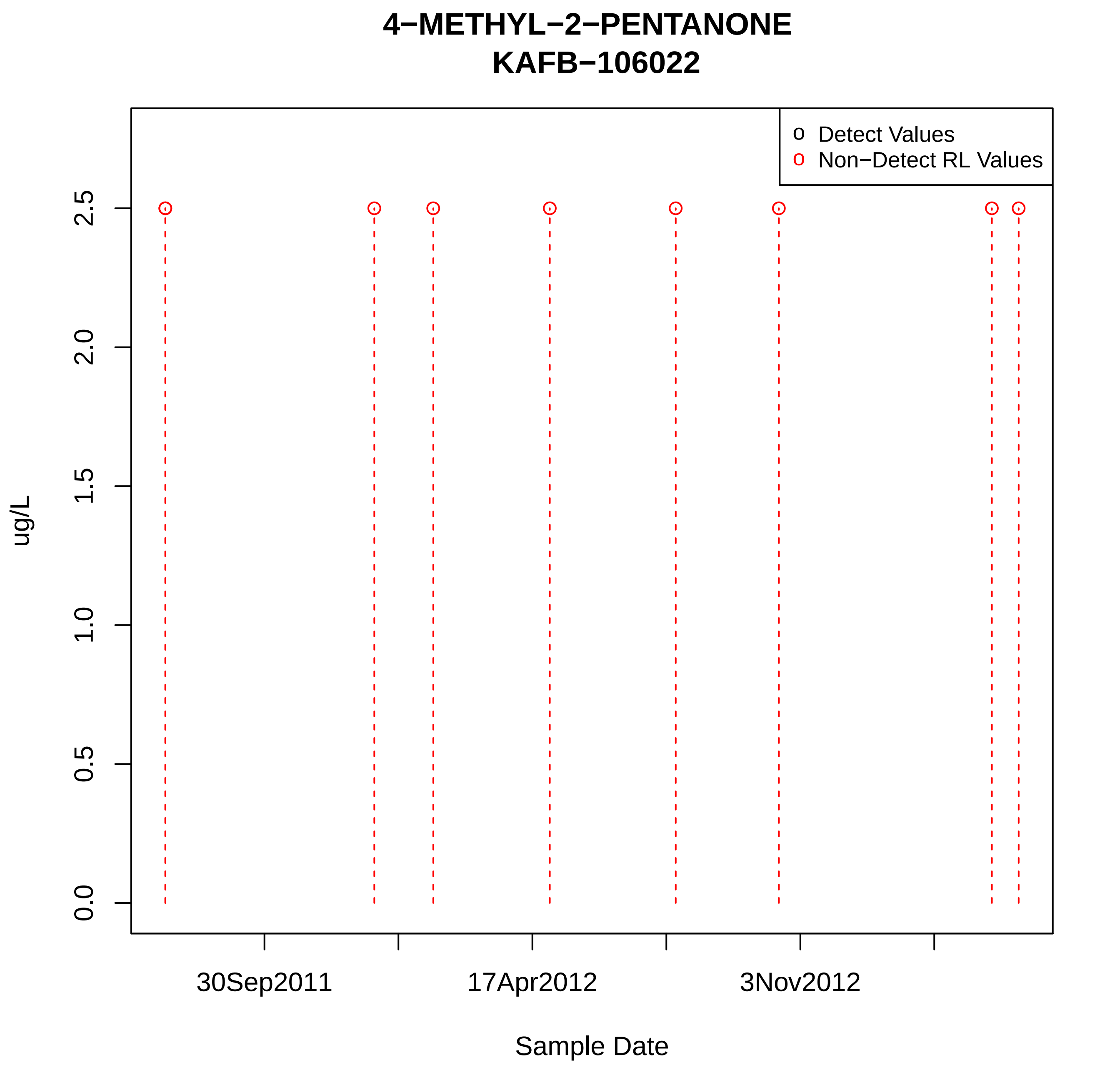
4−METHYL−2−PENTANONE
KAFB−106018
o Detect Values
o Non−Detect RL Values
Slope = −3.713E−02
p−value = 0.316
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106019
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

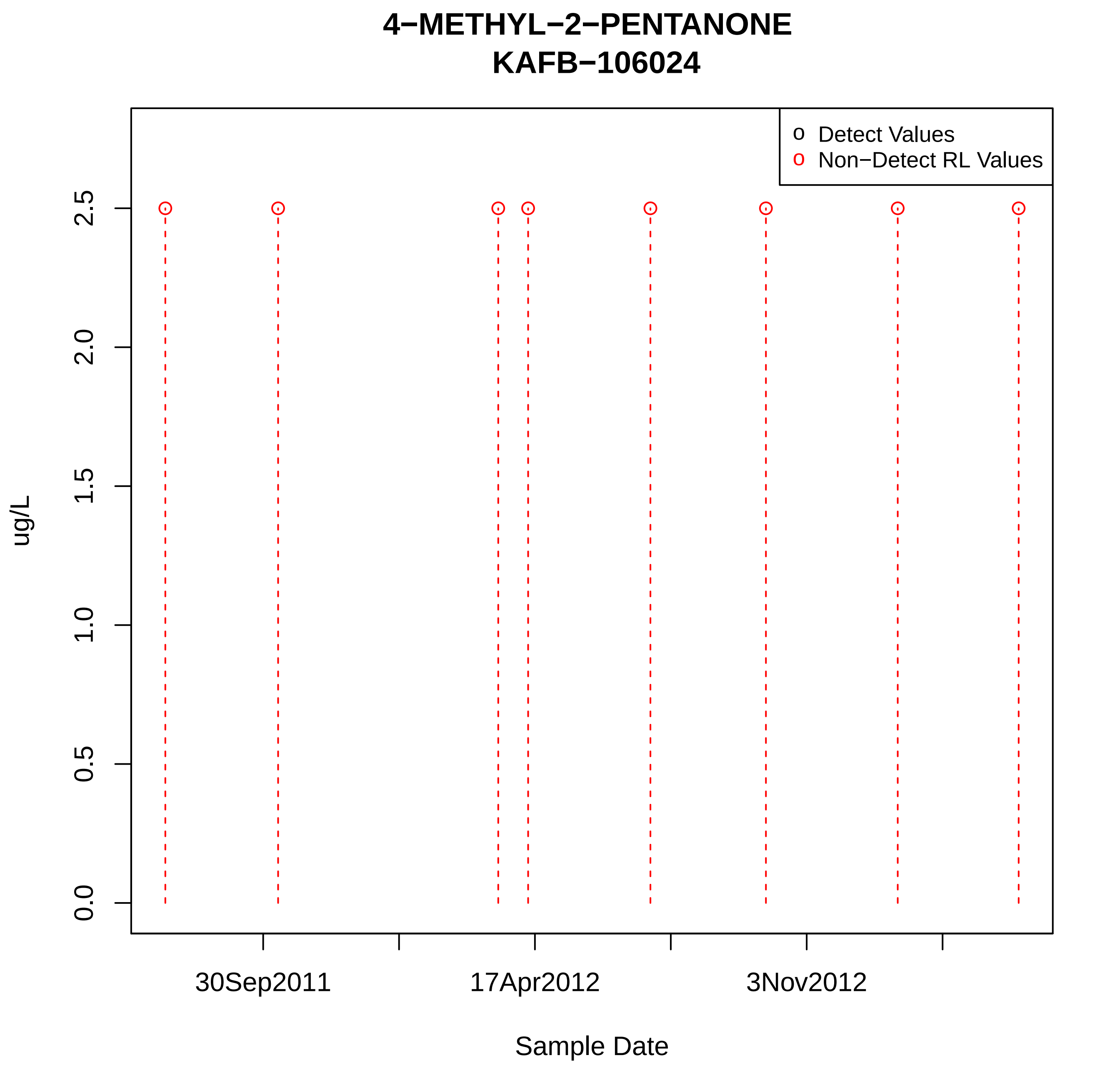


4−METHYL−2−PENTANONE
KAFB−106020
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

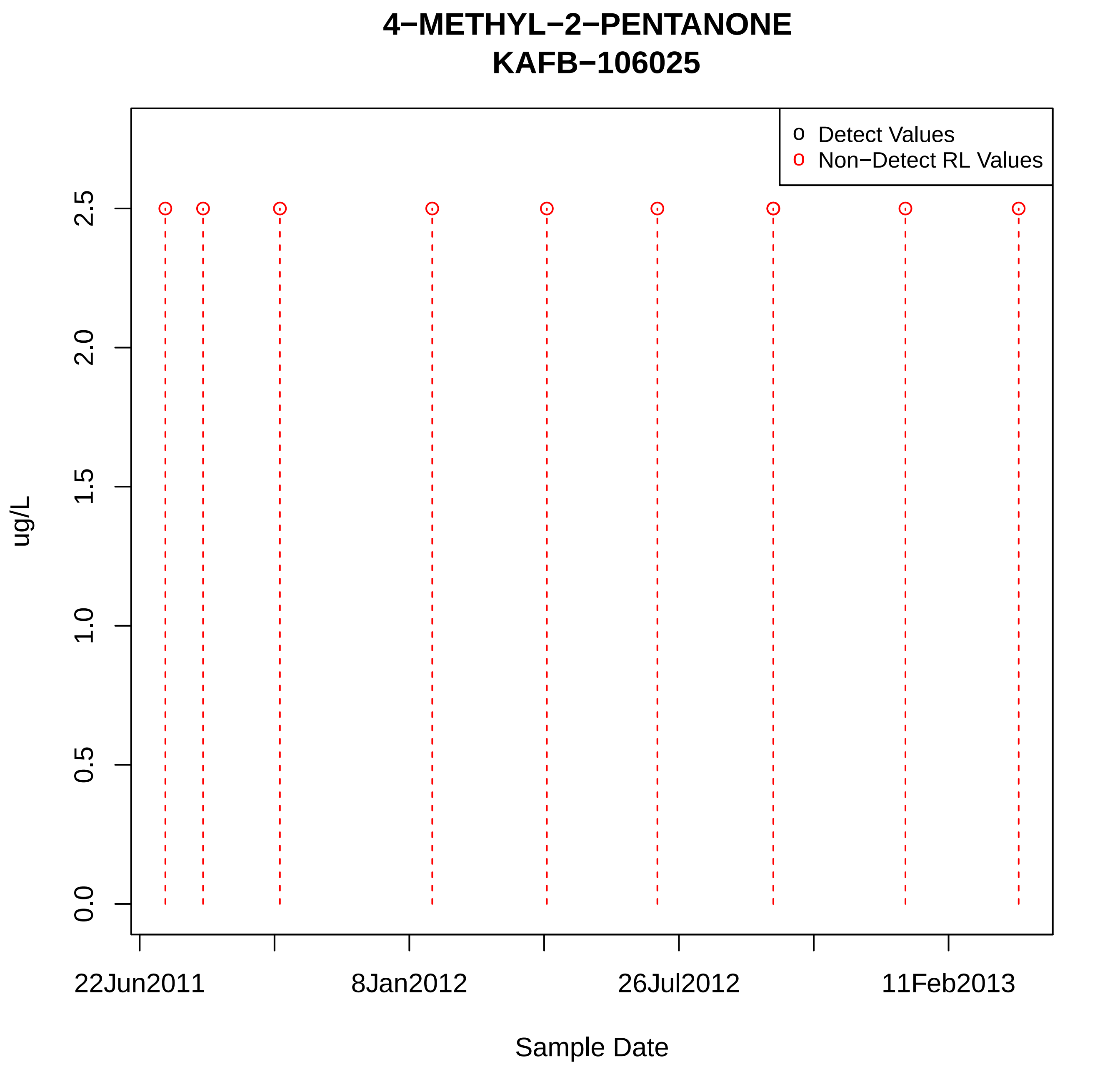

4−METHYL−2−PENTANONE
KAFB−106021
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



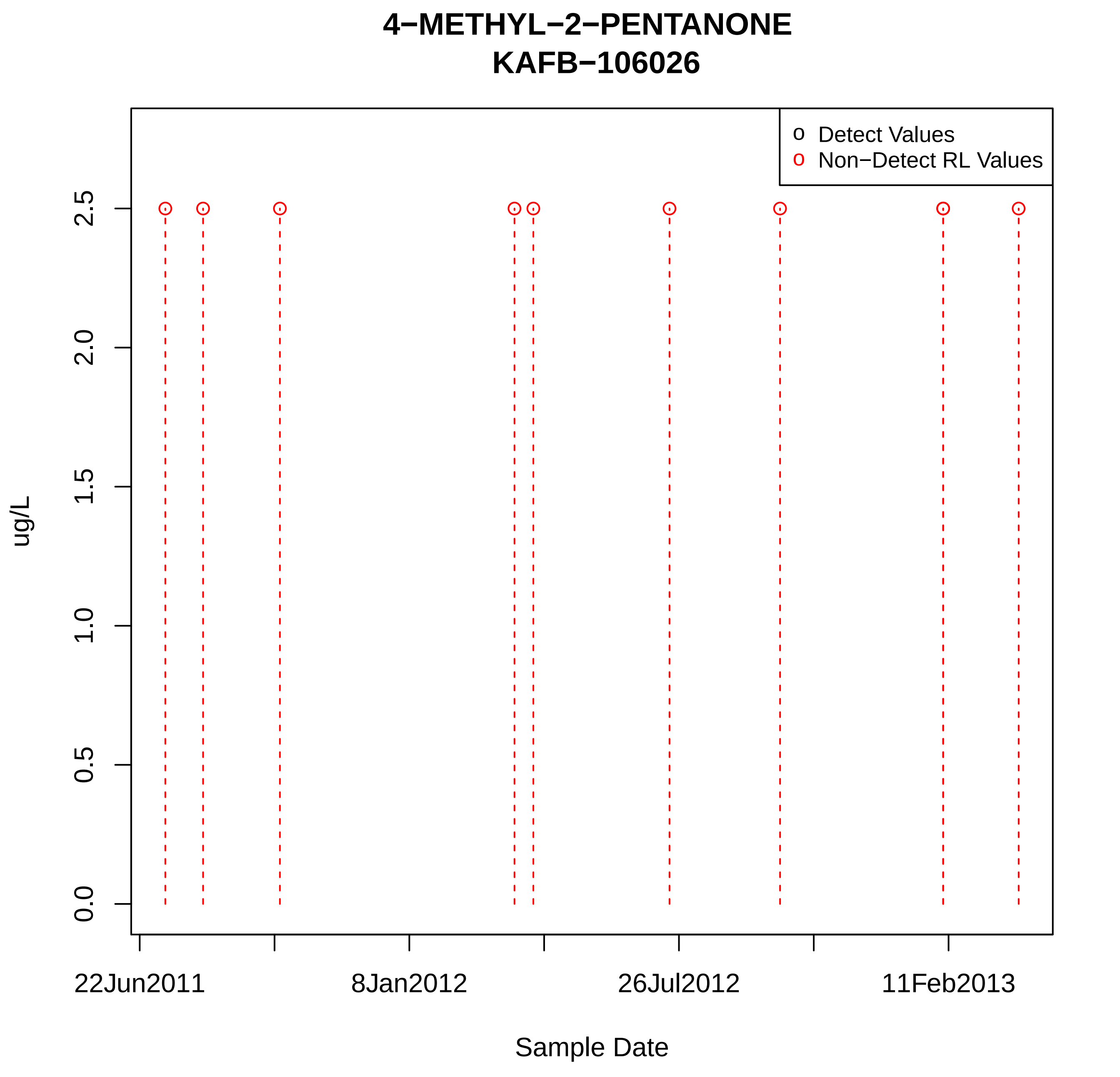
4−METHYL−2−PENTANONE
KAFB−106022
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

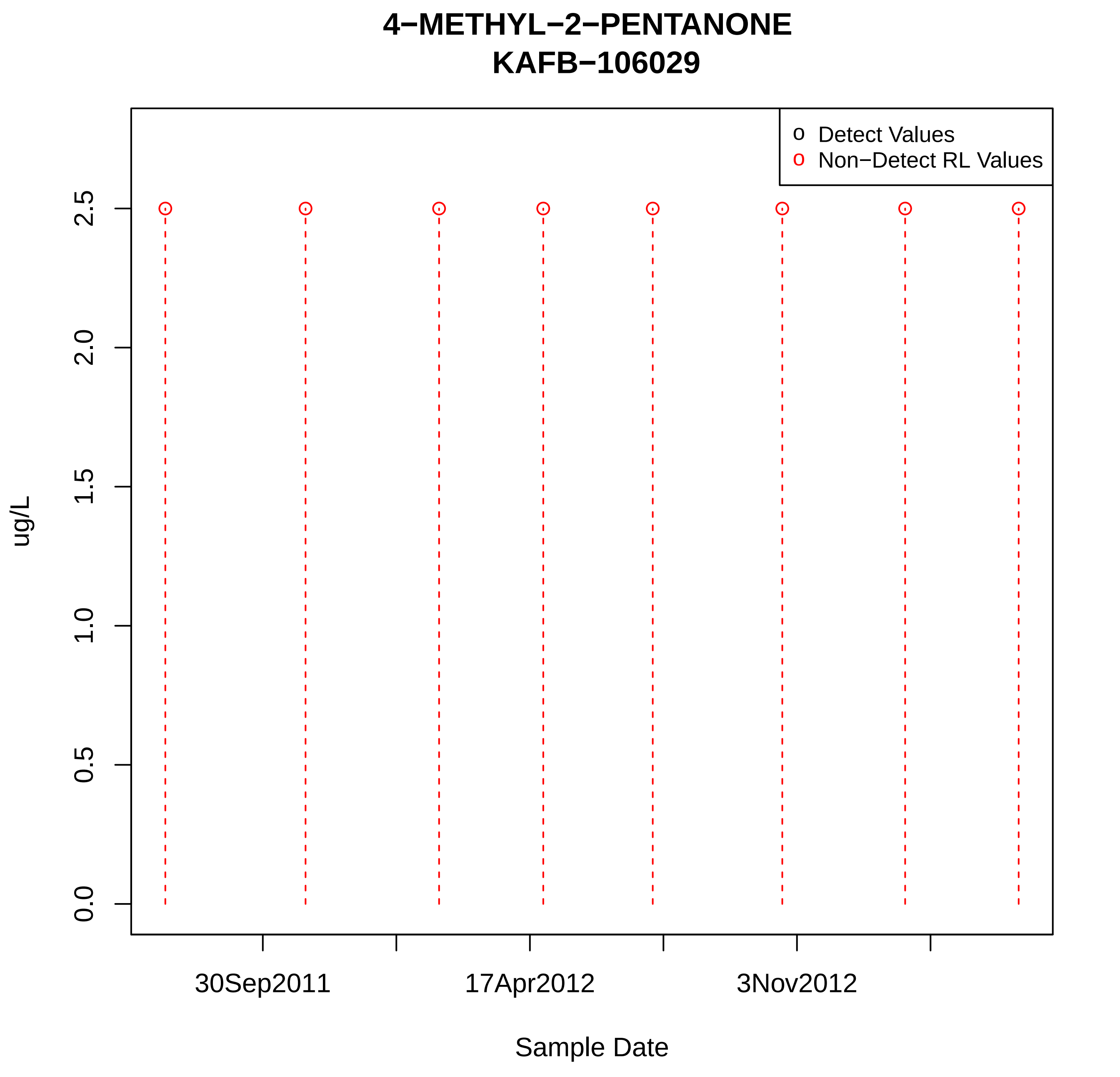


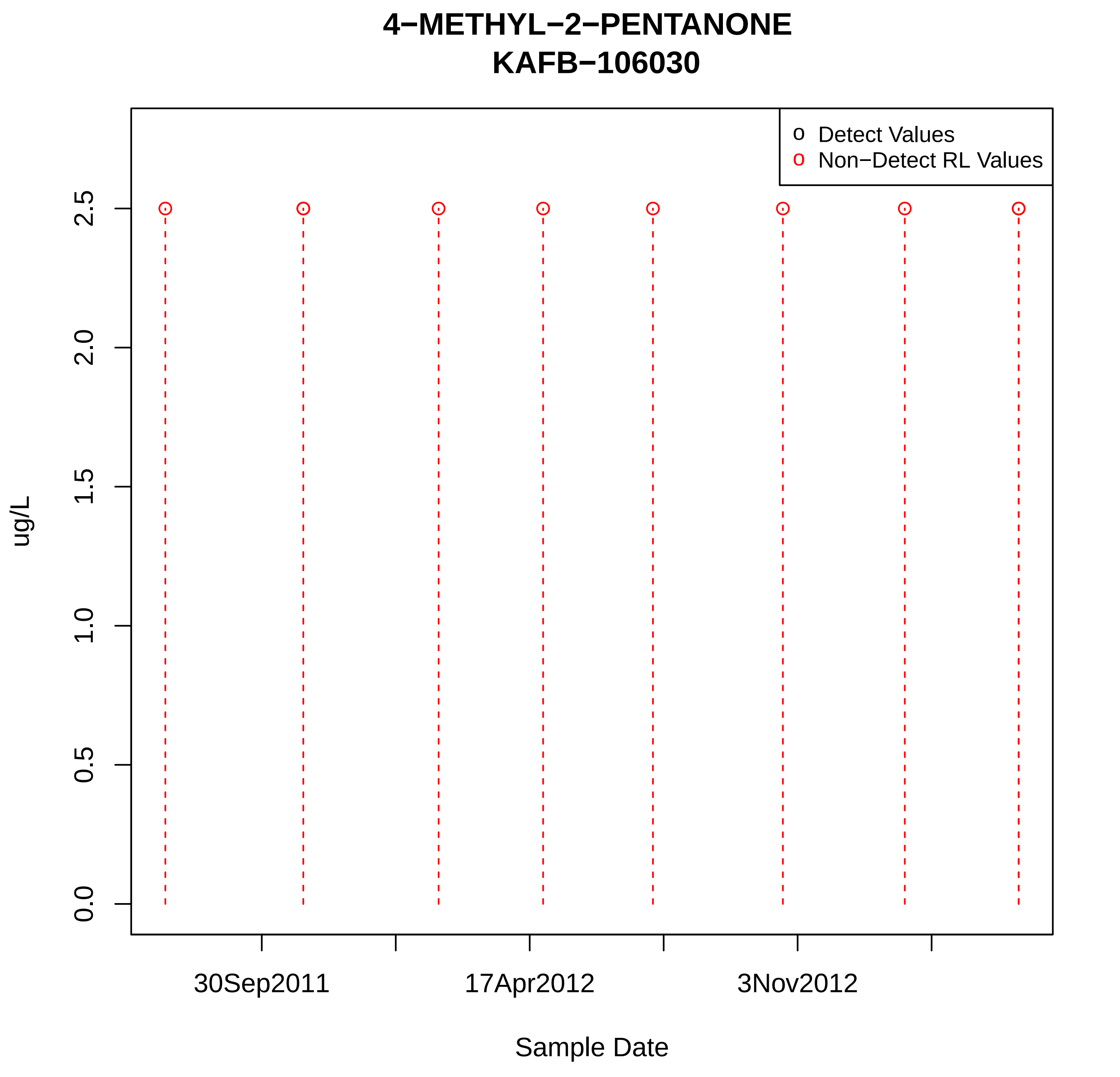
4−METHYL−2−PENTANONE
KAFB−106024
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

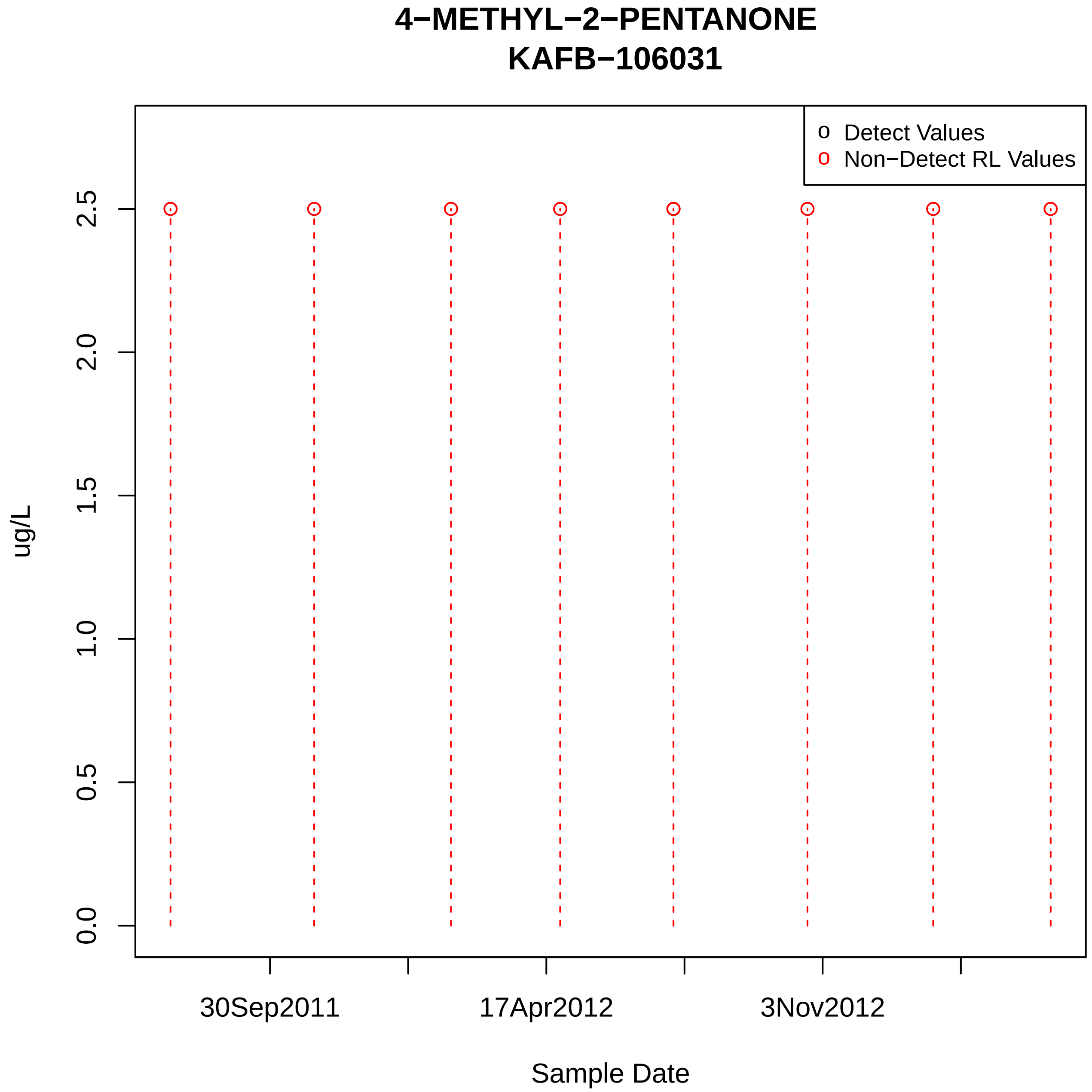


4−METHYL−2−PENTANONE
KAFB−106025
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

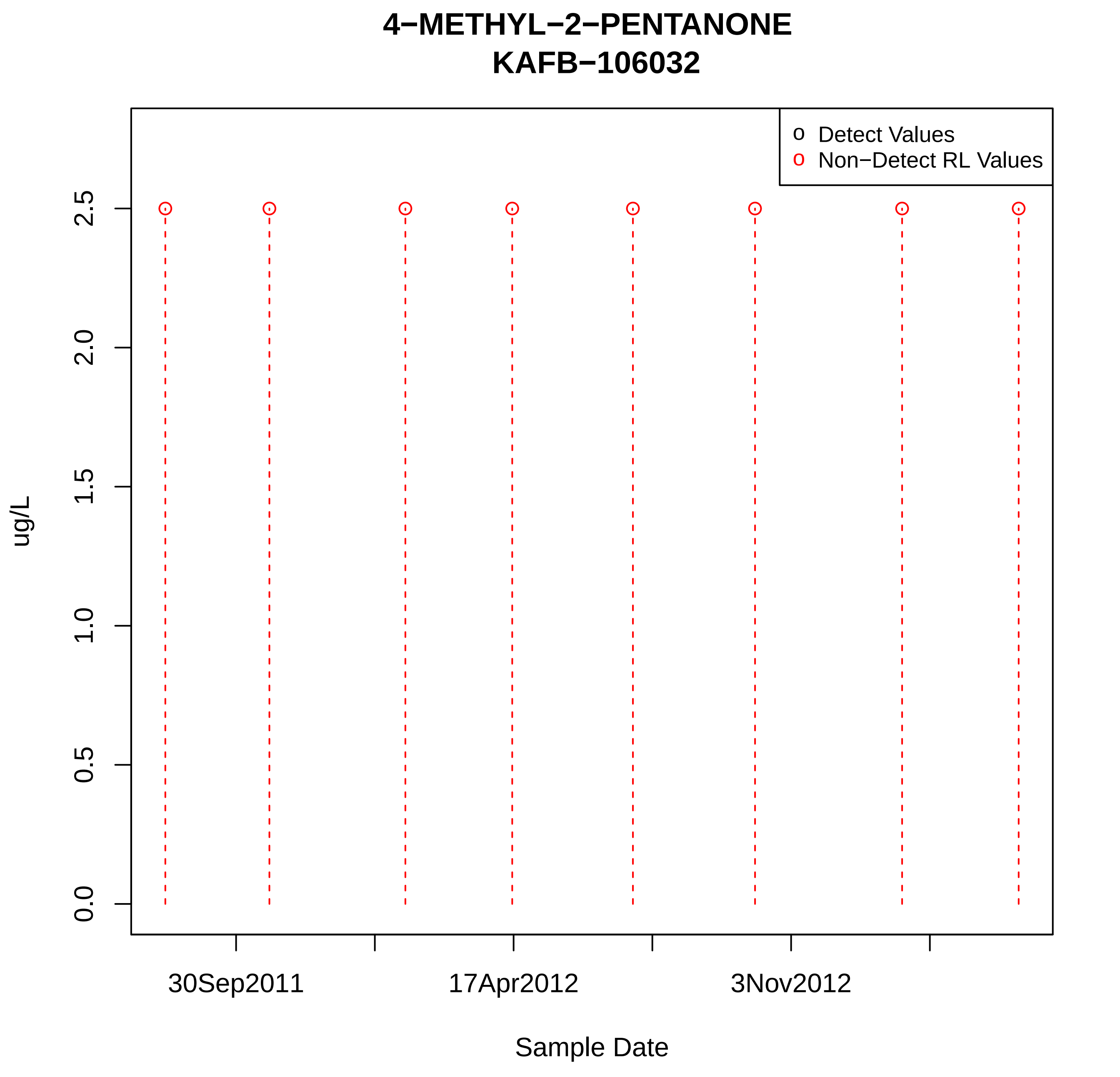

4−METHYL−2−PENTANONE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

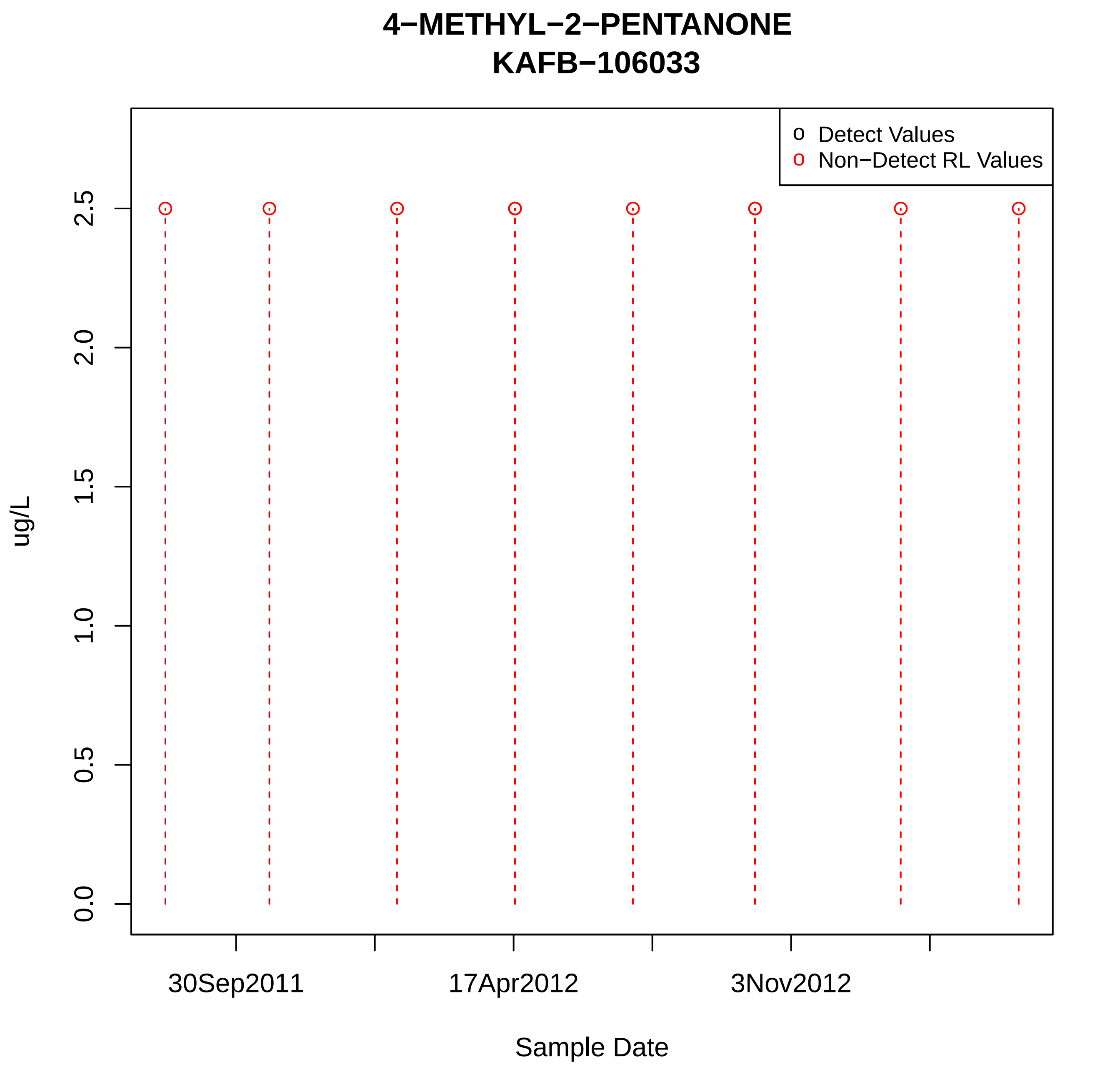

4−METHYL−2−PENTANONE
KAFB−106029
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

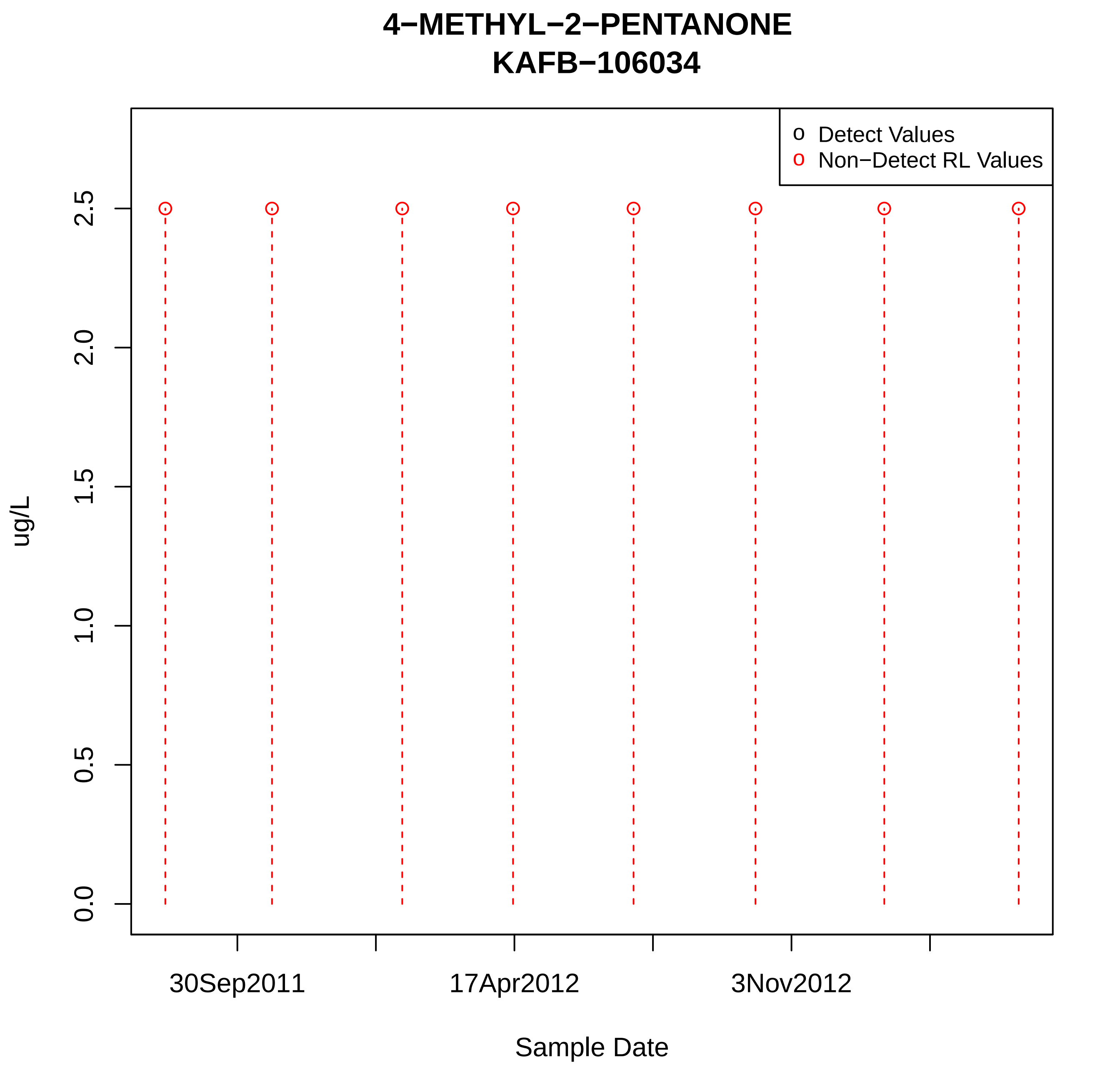

4−METHYL−2−PENTANONE
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

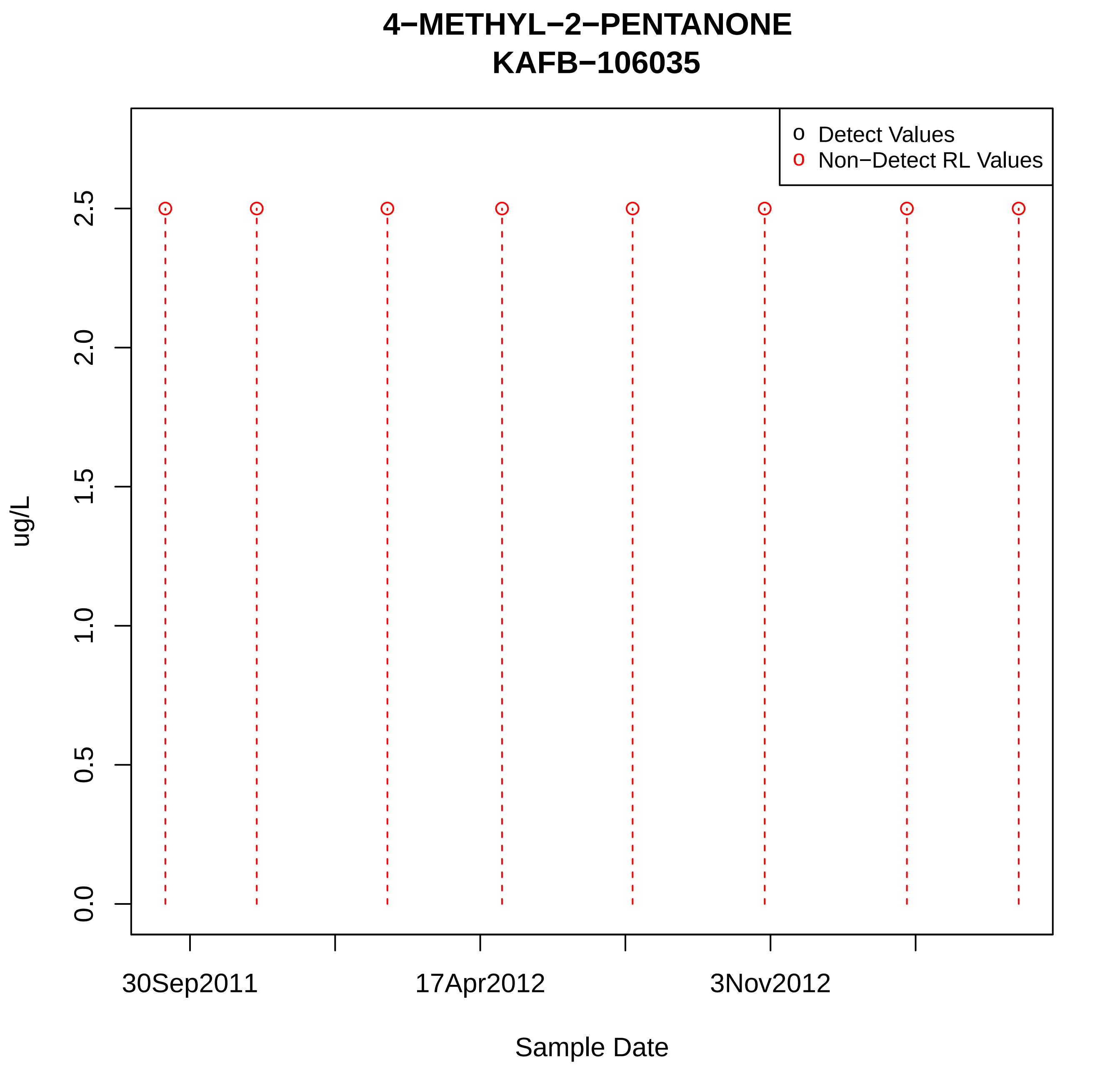


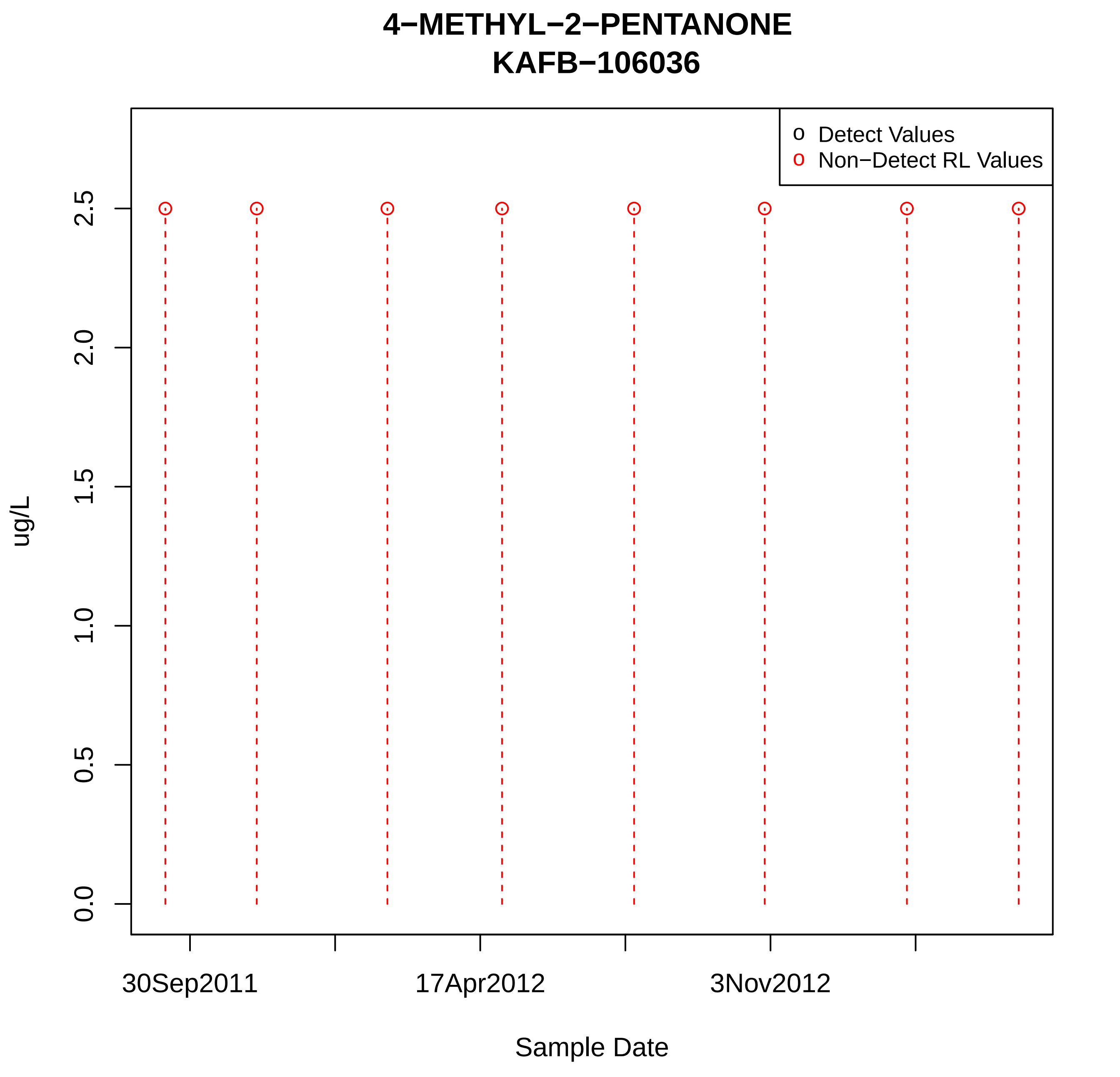
4−METHYL−2−PENTANONE
KAFB−106031
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


4−METHYL−2−PENTANONE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

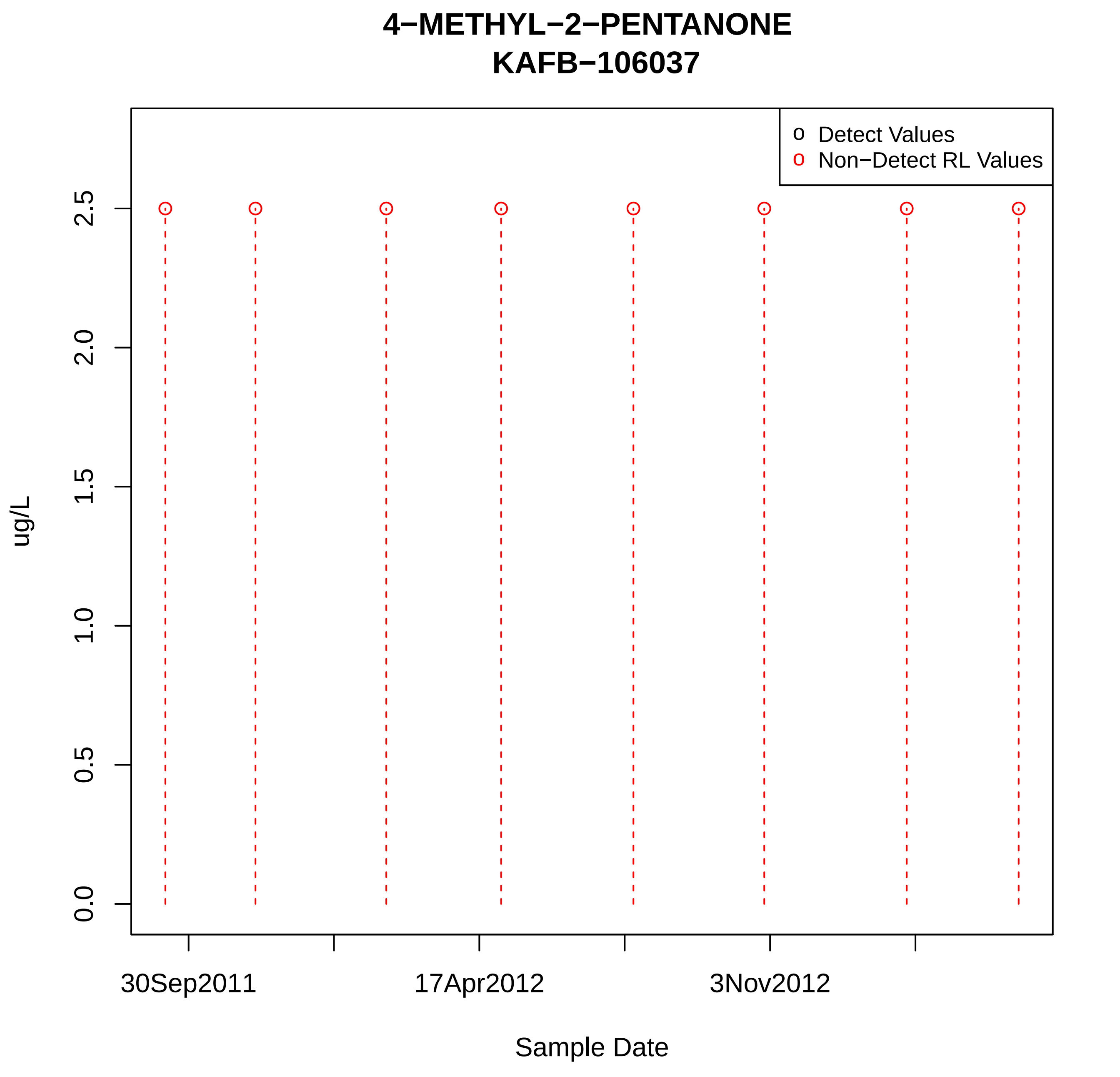

4−METHYL−2−PENTANONE
KAFB−106033
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

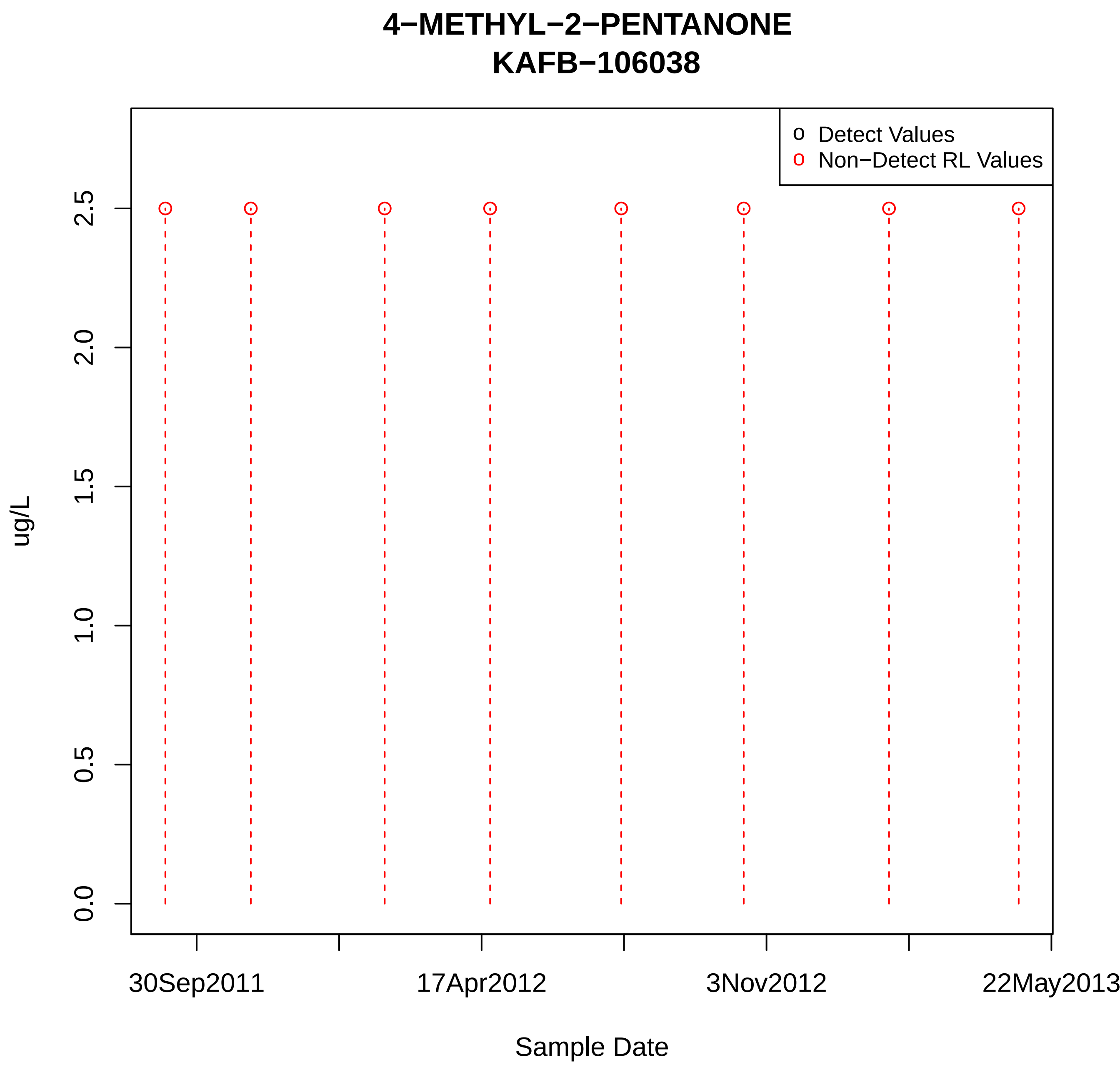

4−METHYL−2−PENTANONE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


4−METHYL−2−PENTANONE
KAFB−106035
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

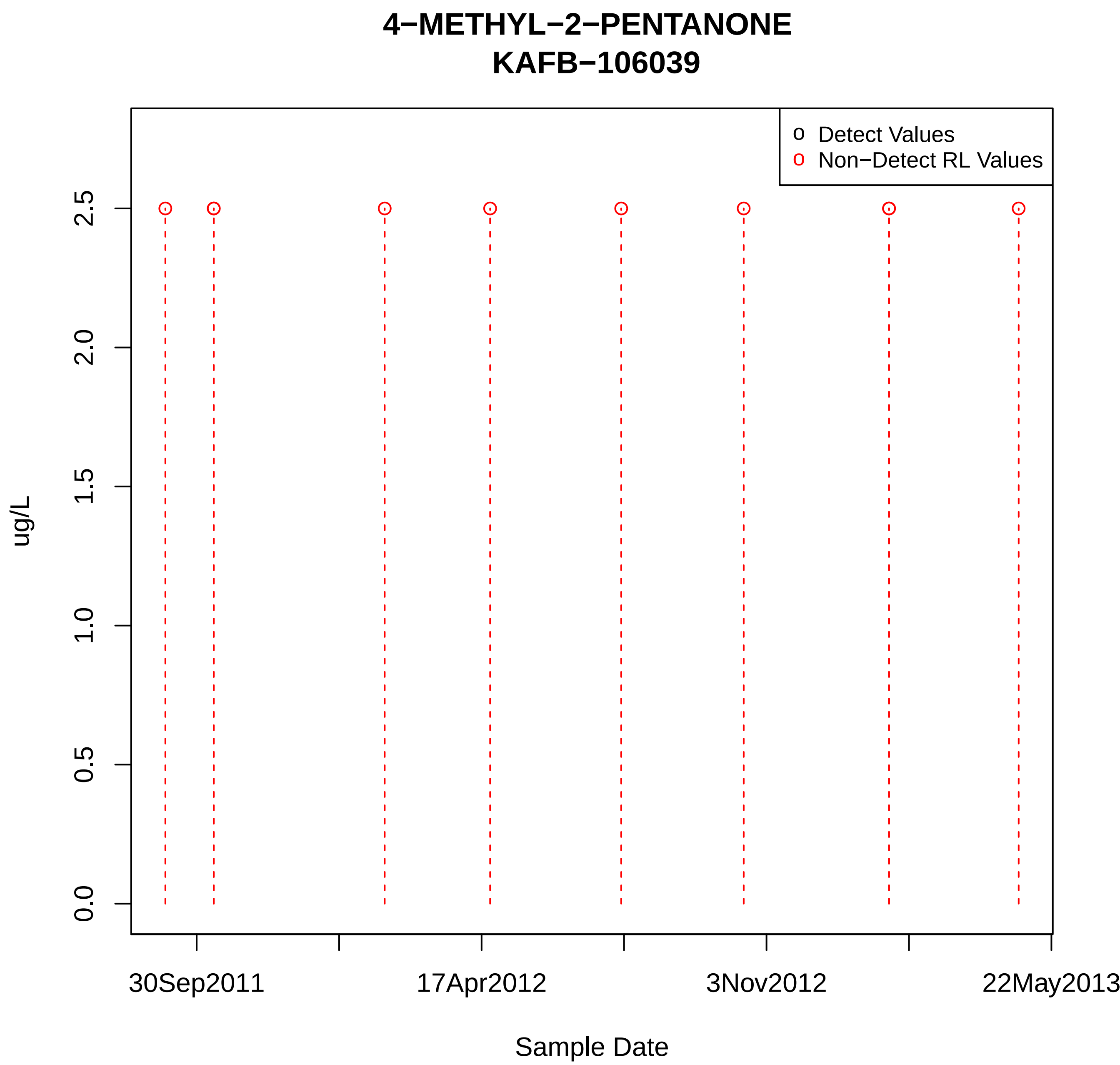


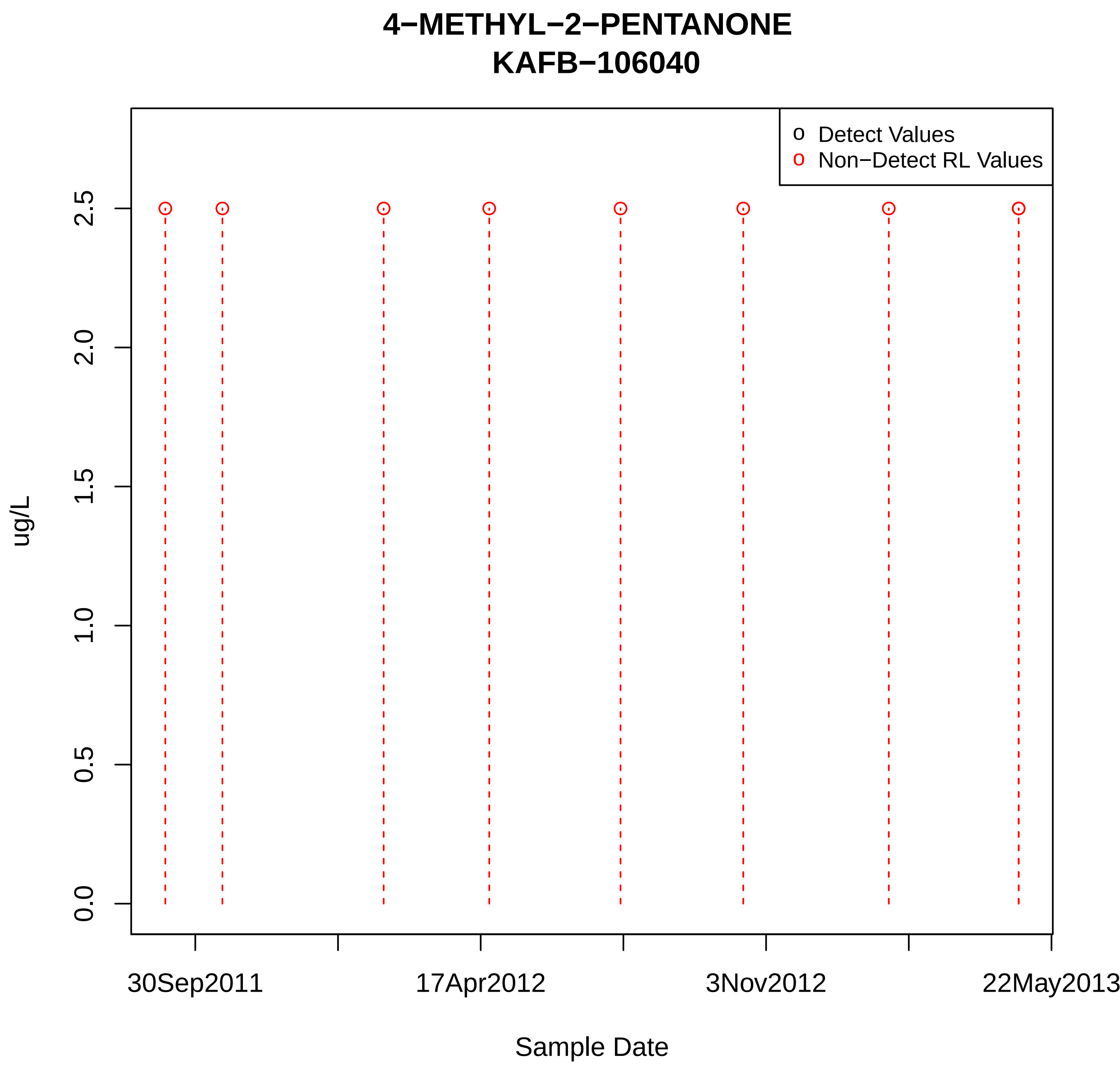
4−METHYL−2−PENTANONE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

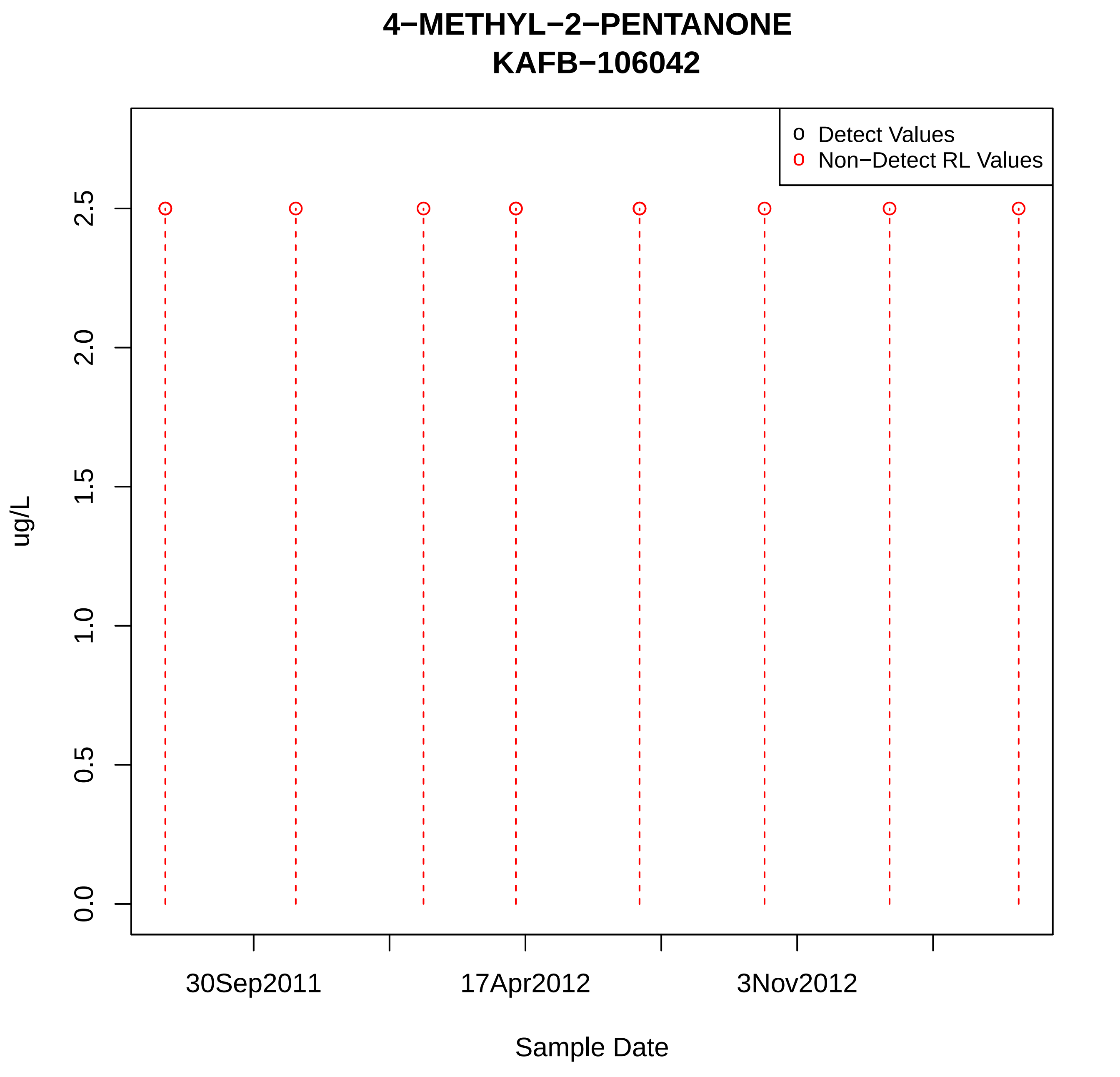

4−METHYL−2−PENTANONE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

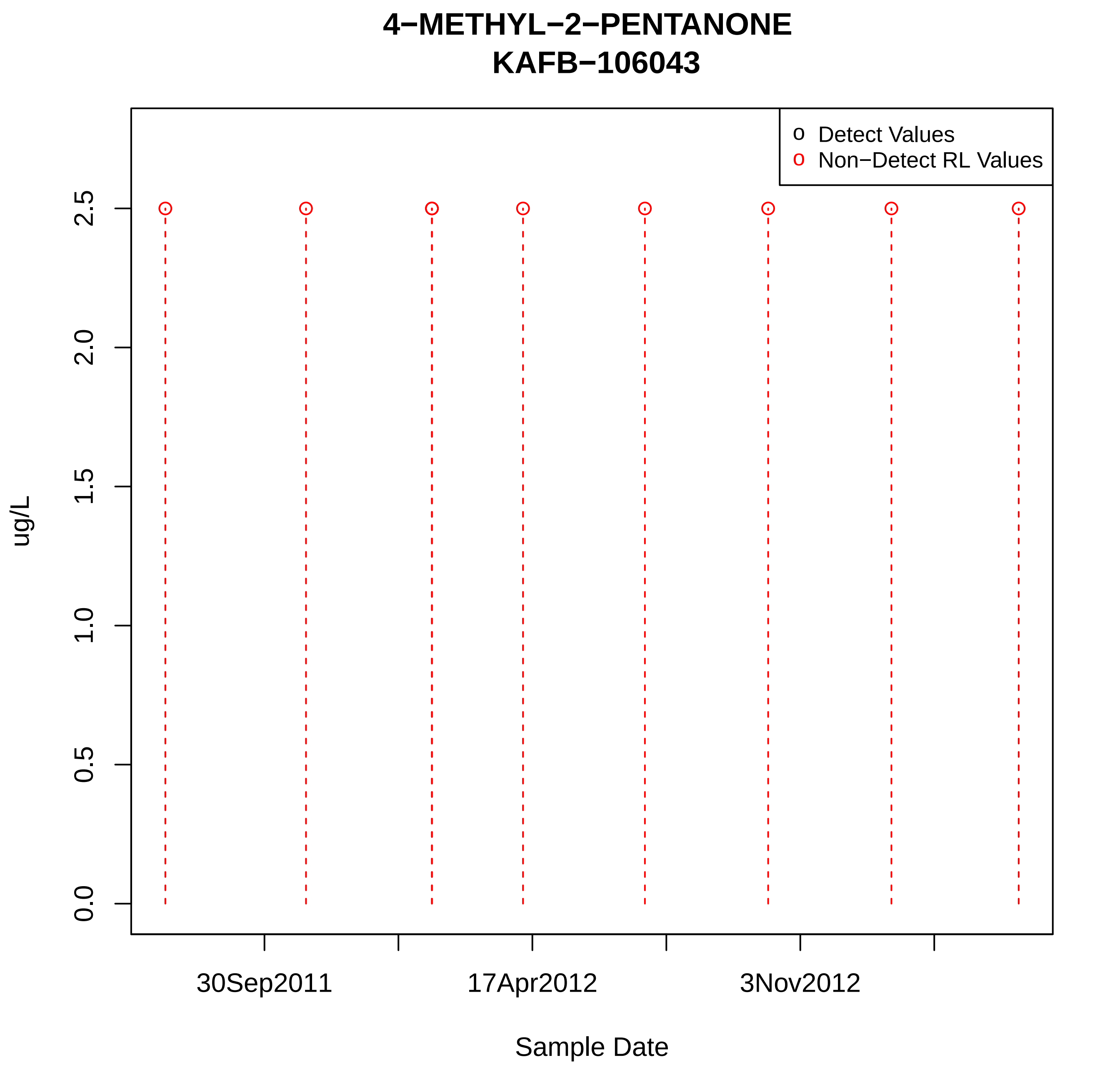


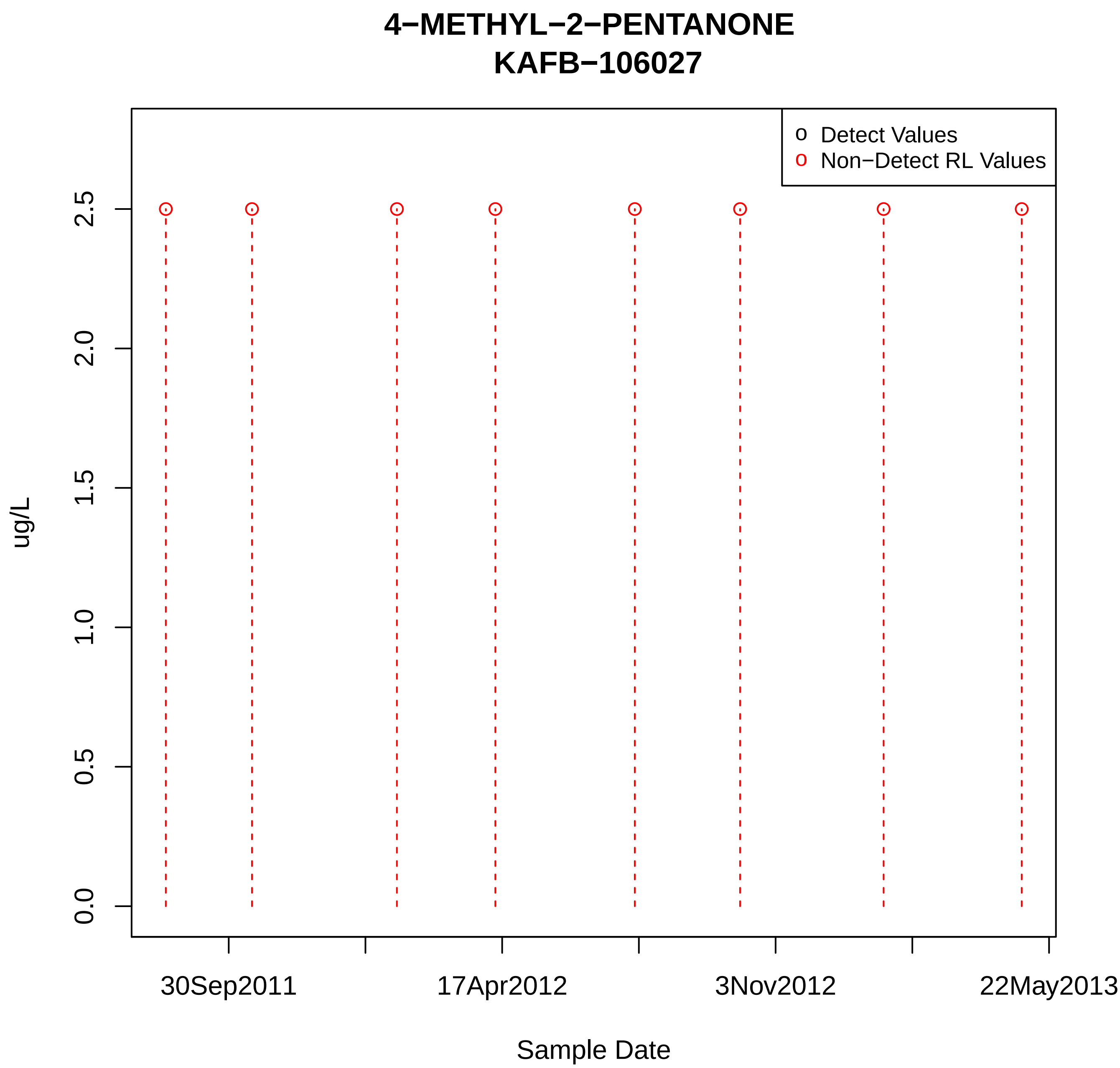
4−METHYL−2−PENTANONE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

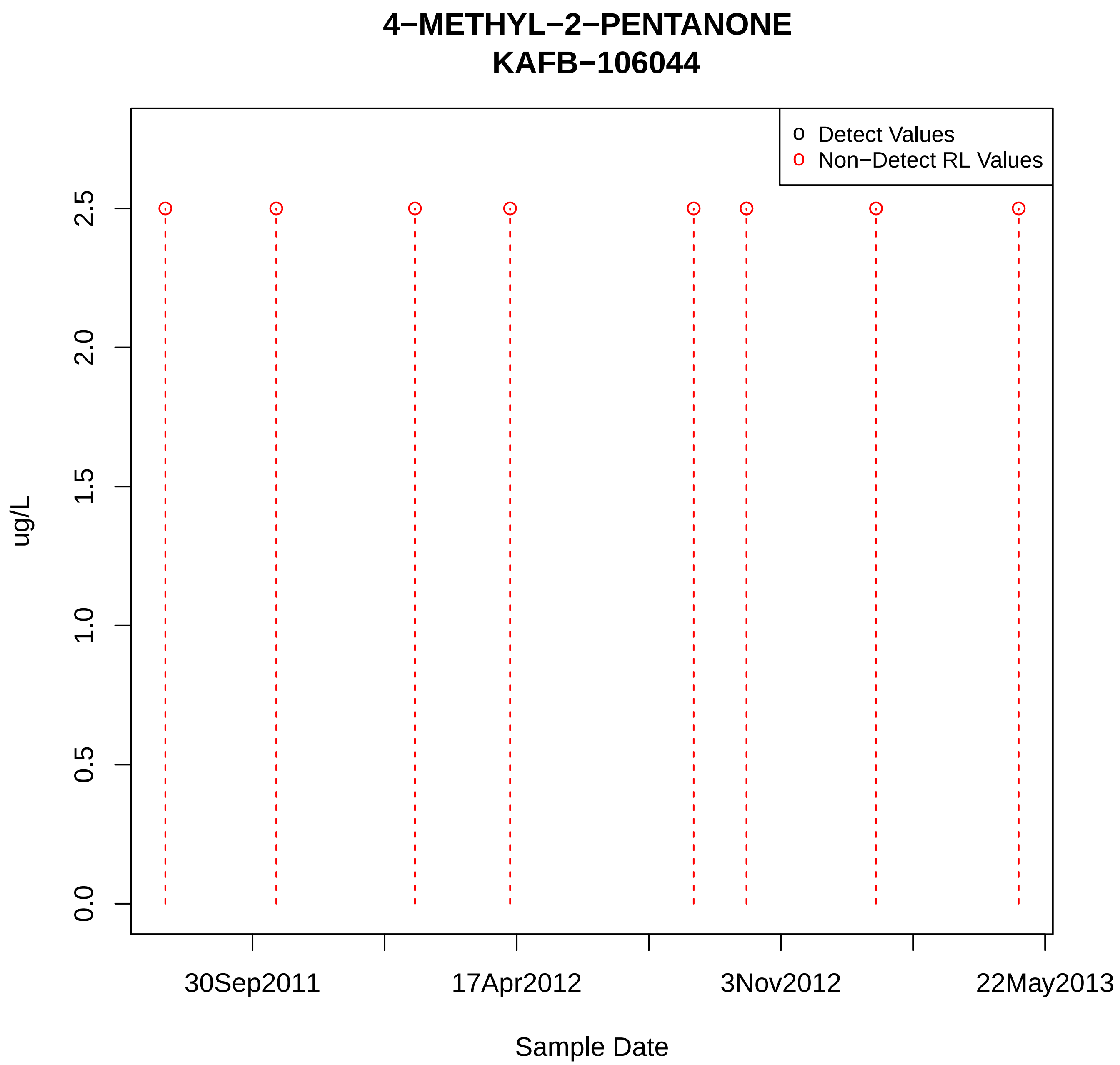

4−METHYL−2−PENTANONE
KAFB−106040
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

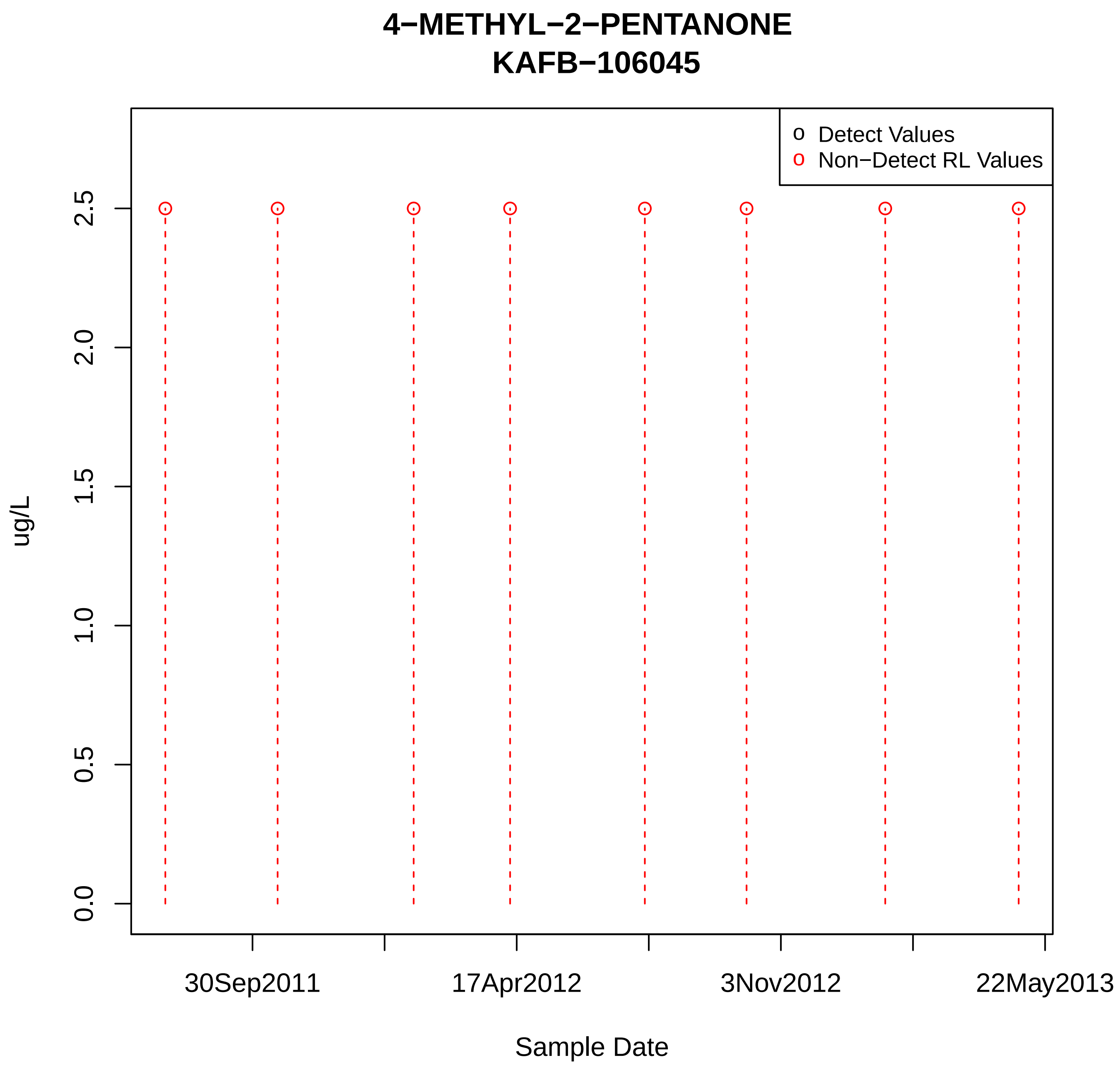

4−METHYL−2−PENTANONE
KAFB−106042
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

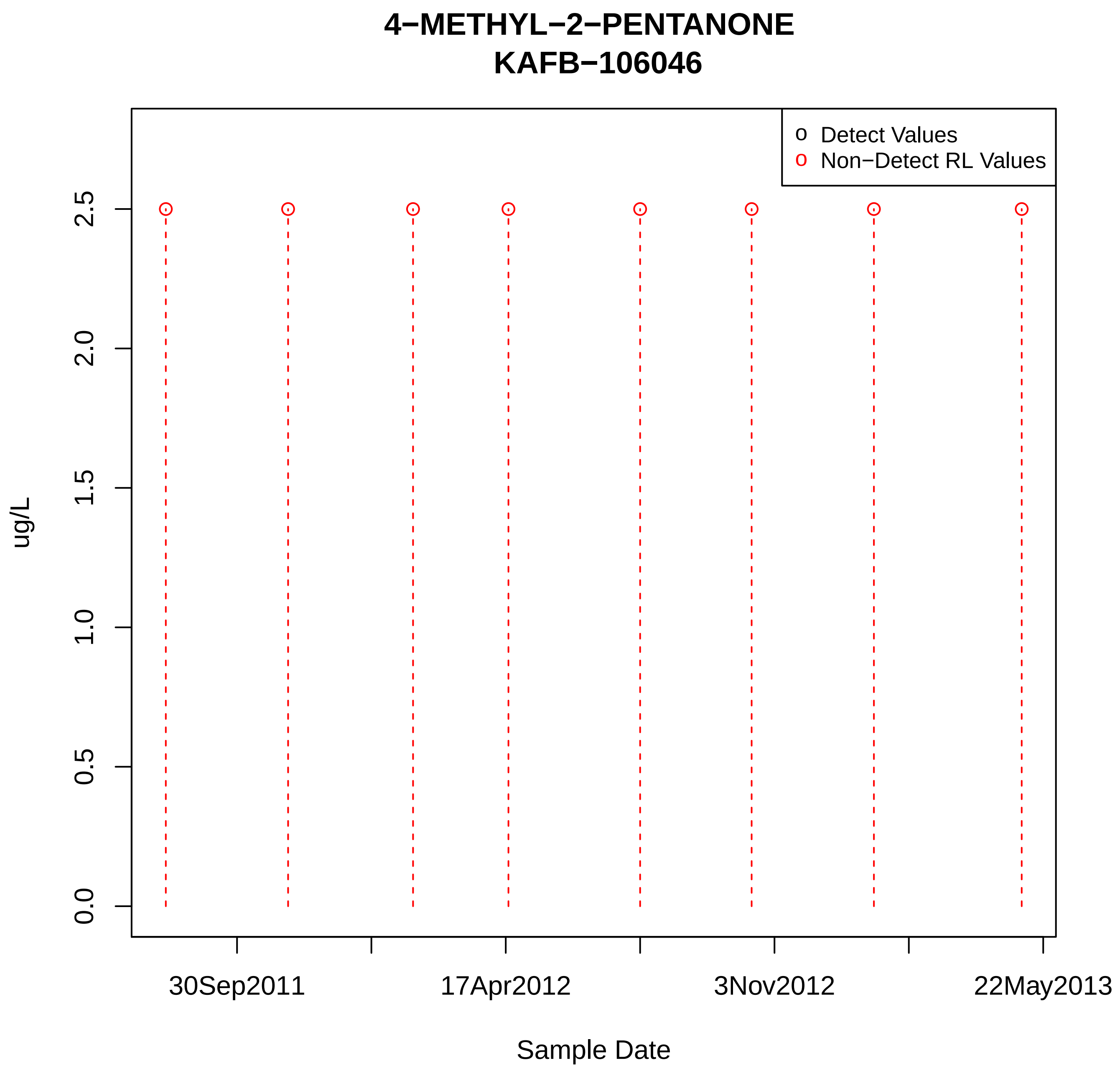

4−METHYL−2−PENTANONE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



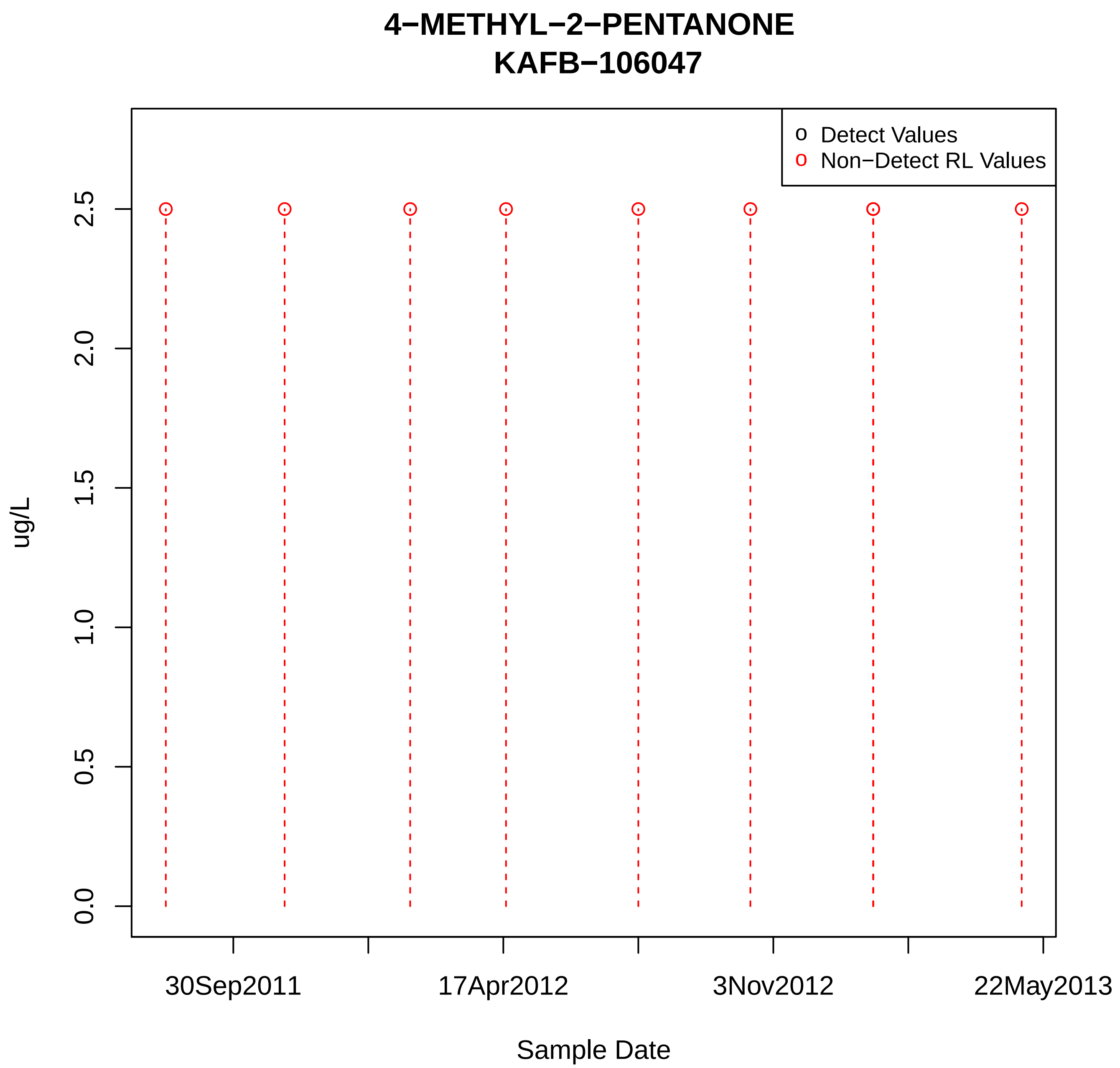
4−METHYL−2−PENTANONE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

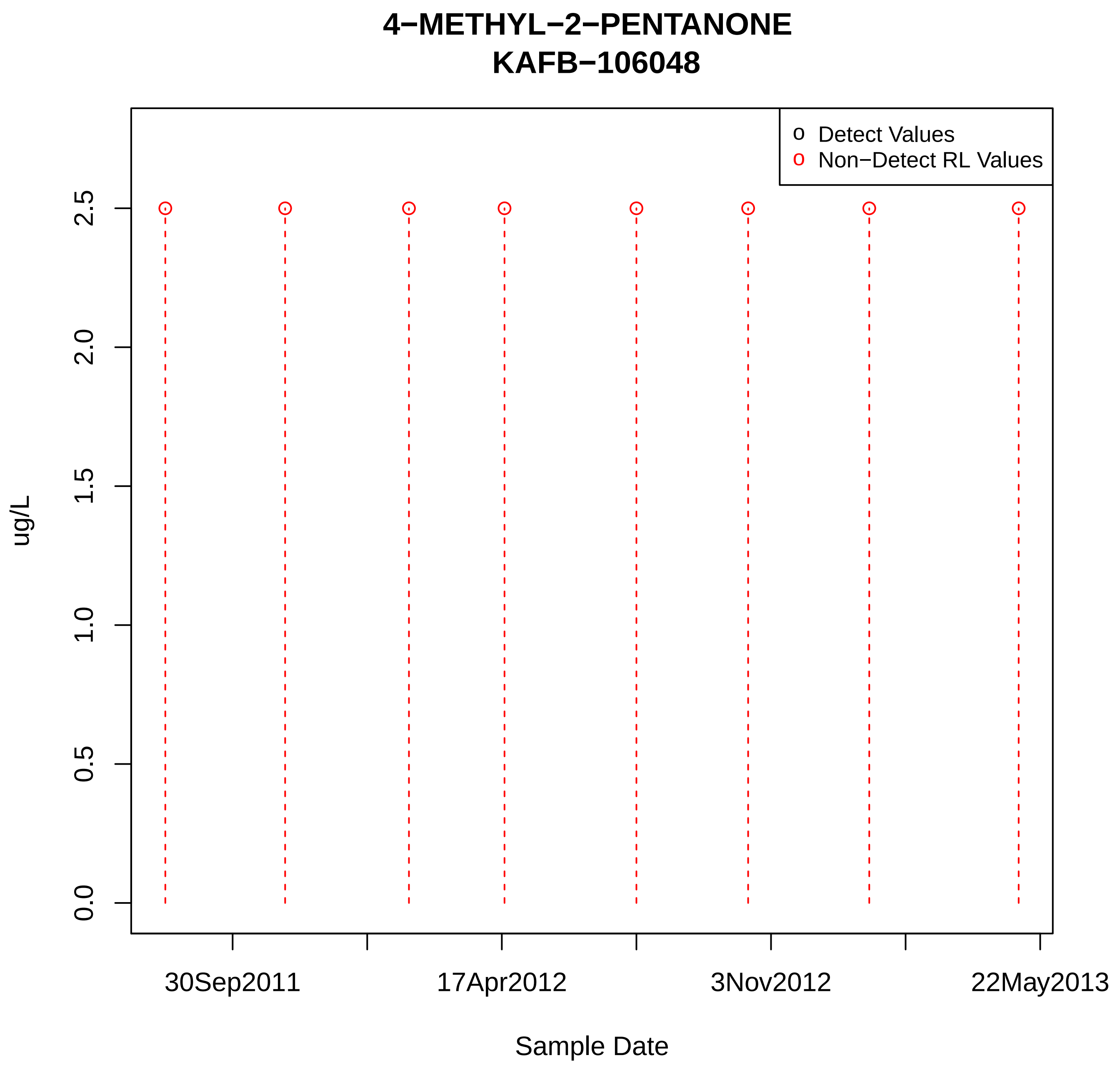

4−METHYL−2−PENTANONE
KAFB−106045
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

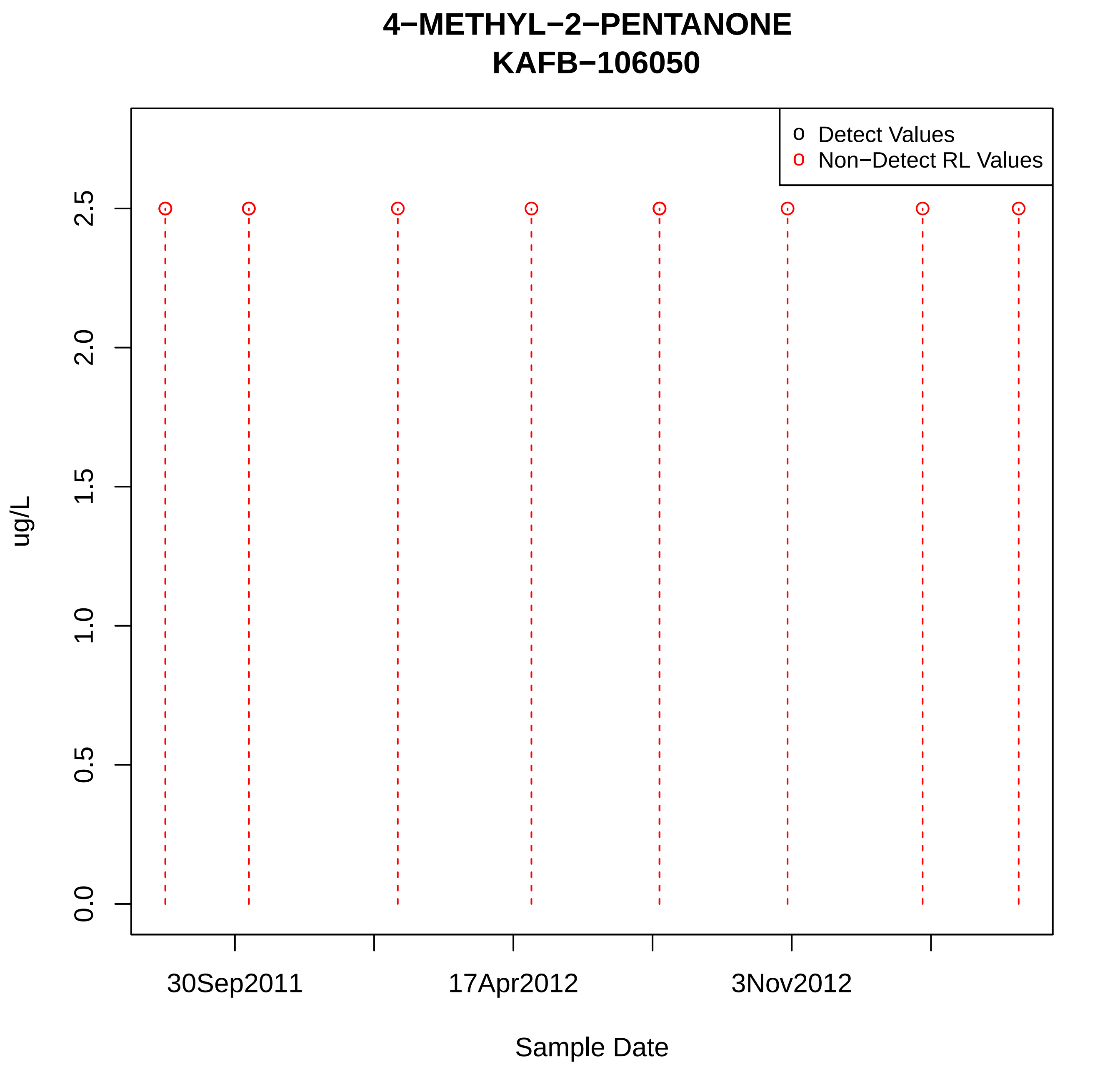


4−METHYL−2−PENTANONE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

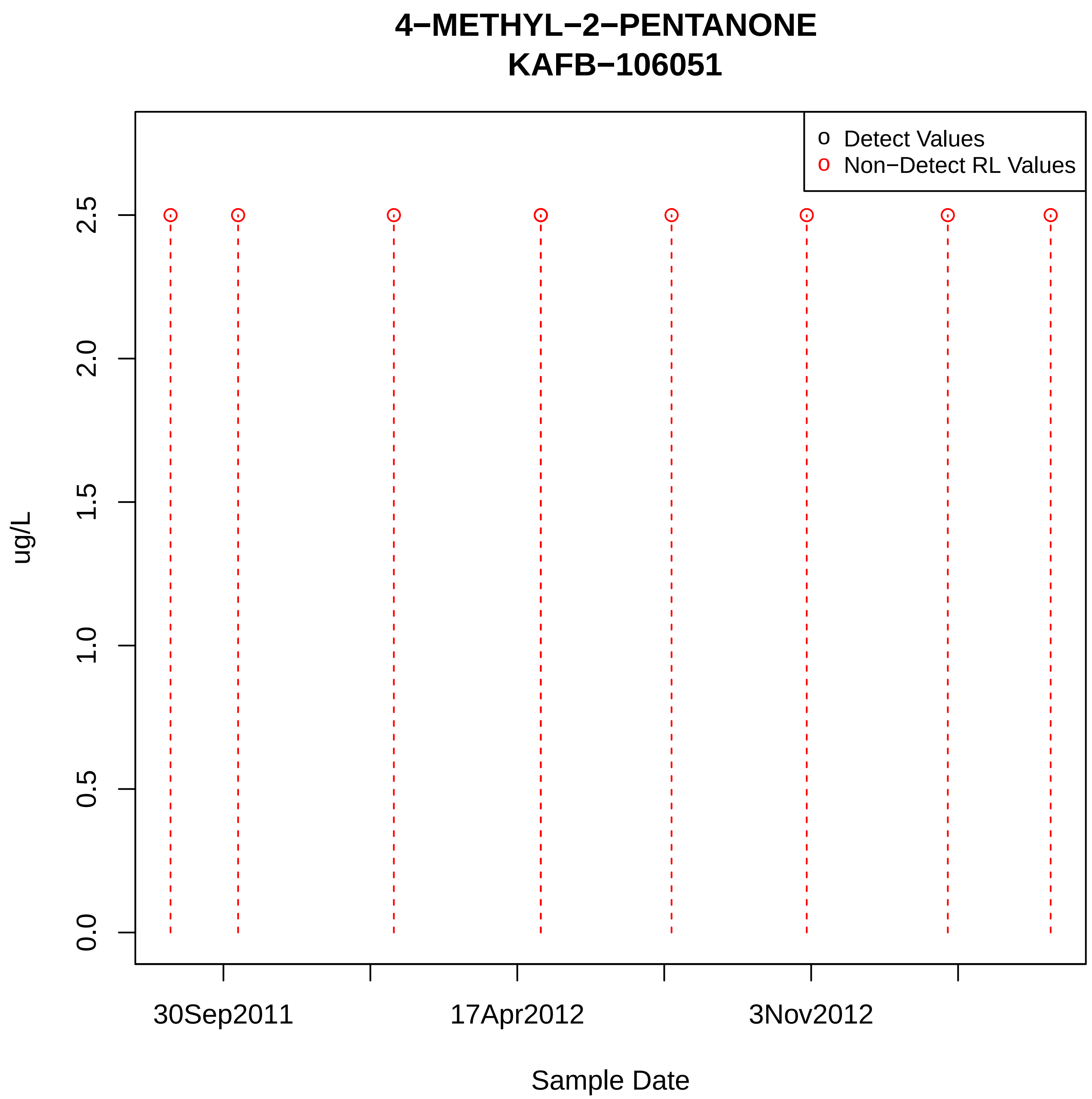


4−METHYL−2−PENTANONE
KAFB−106047
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

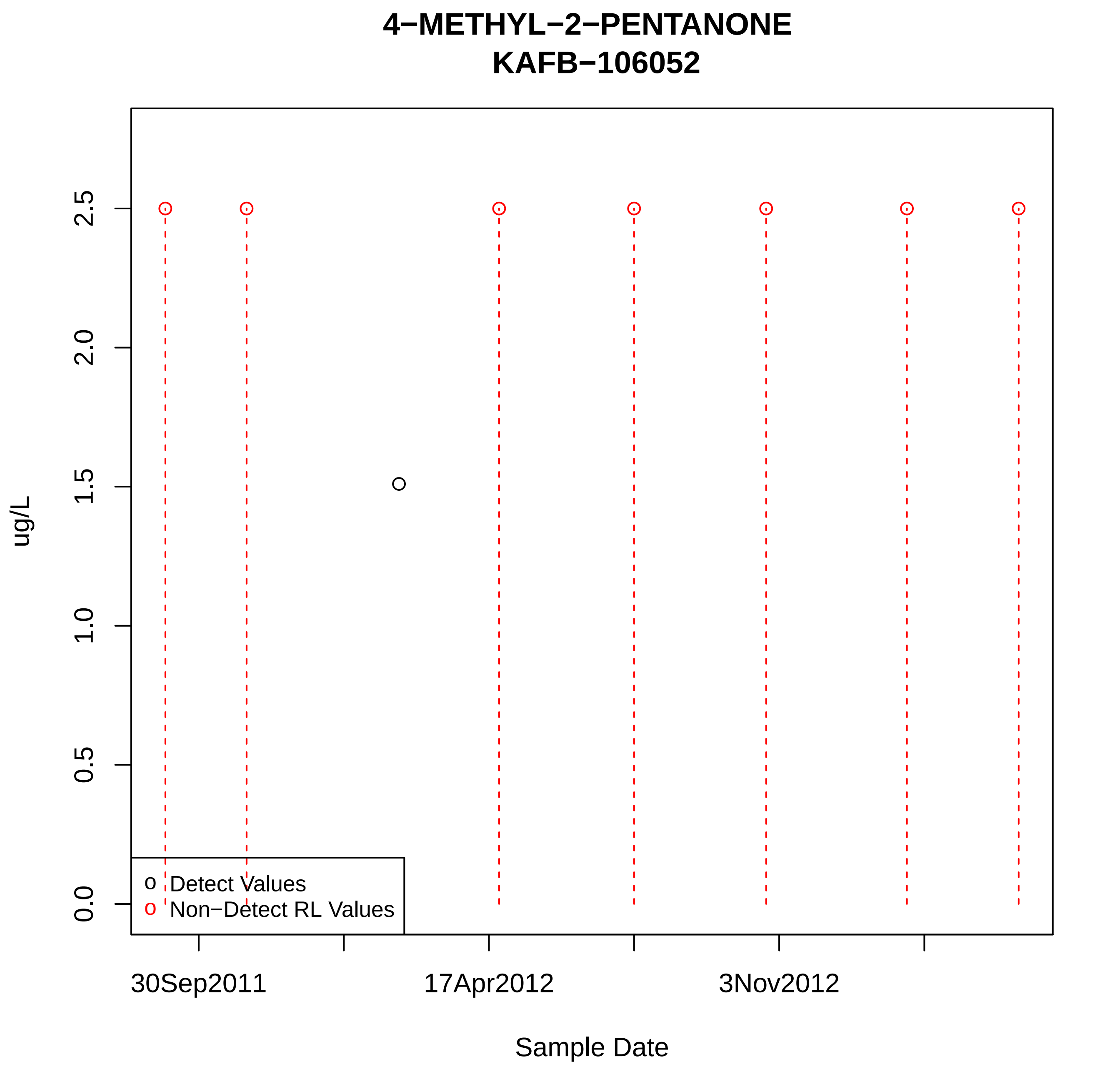

4−METHYL−2−PENTANONE
KAFB−106048
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



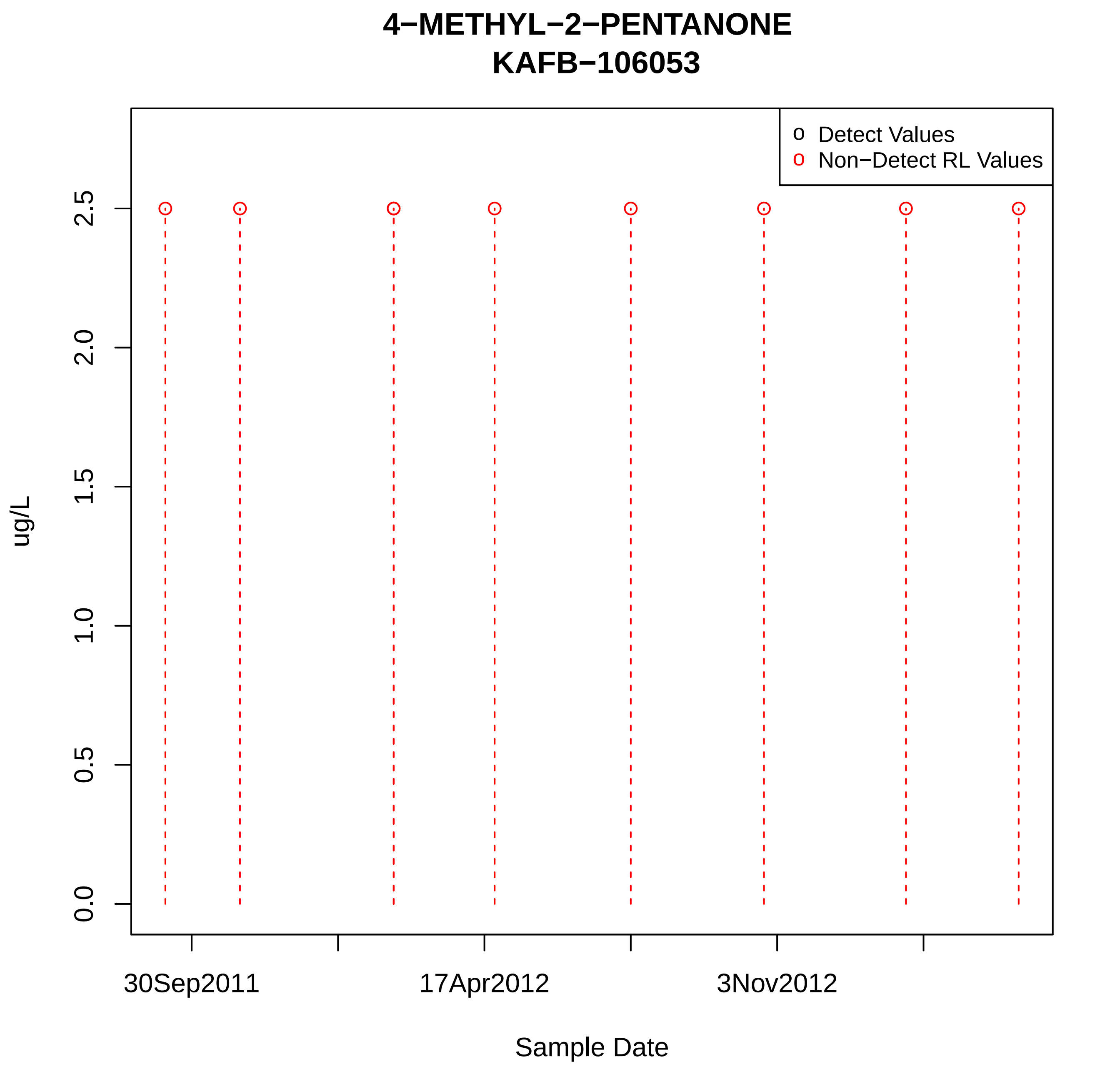
4−METHYL−2−PENTANONE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

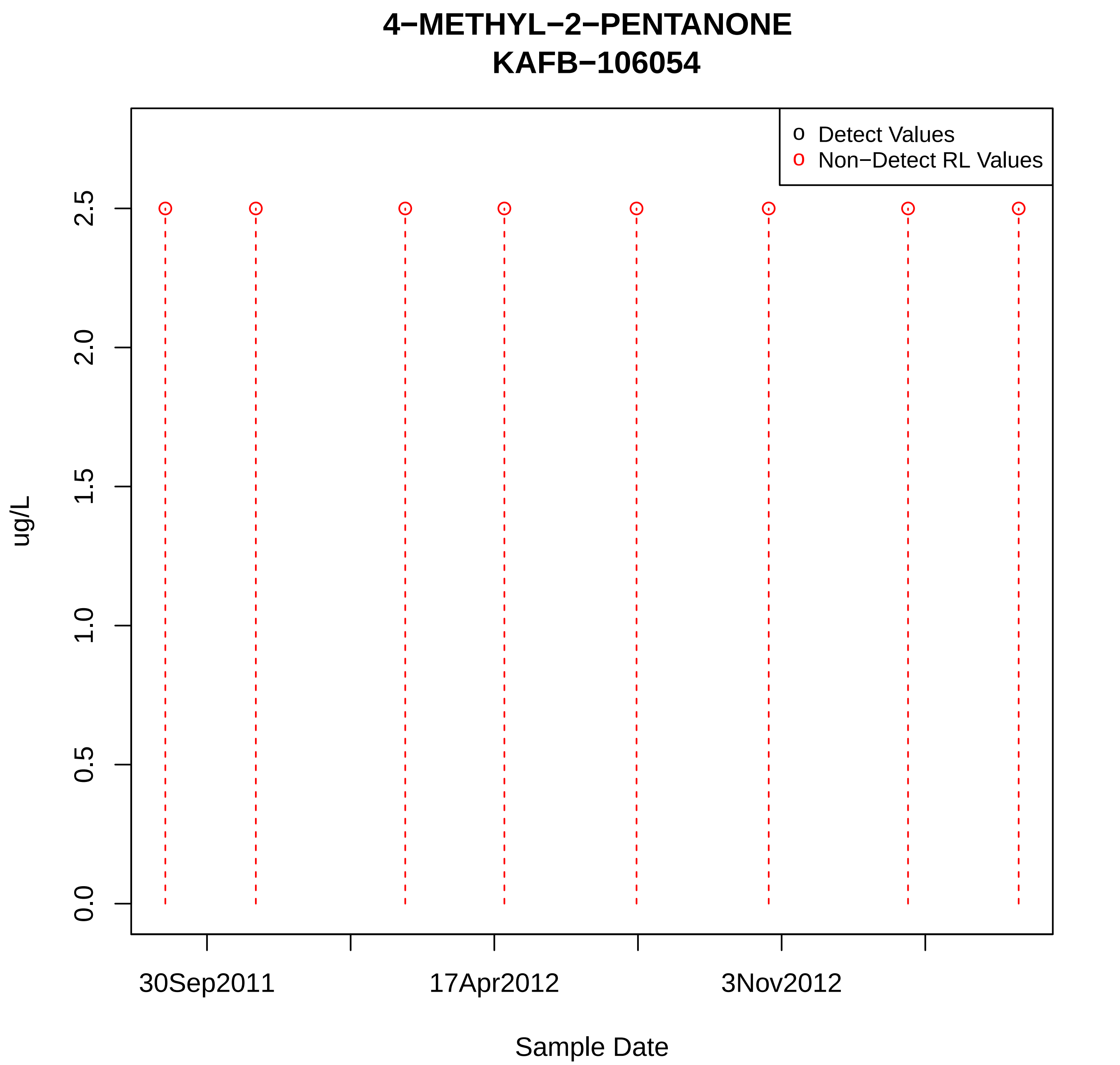


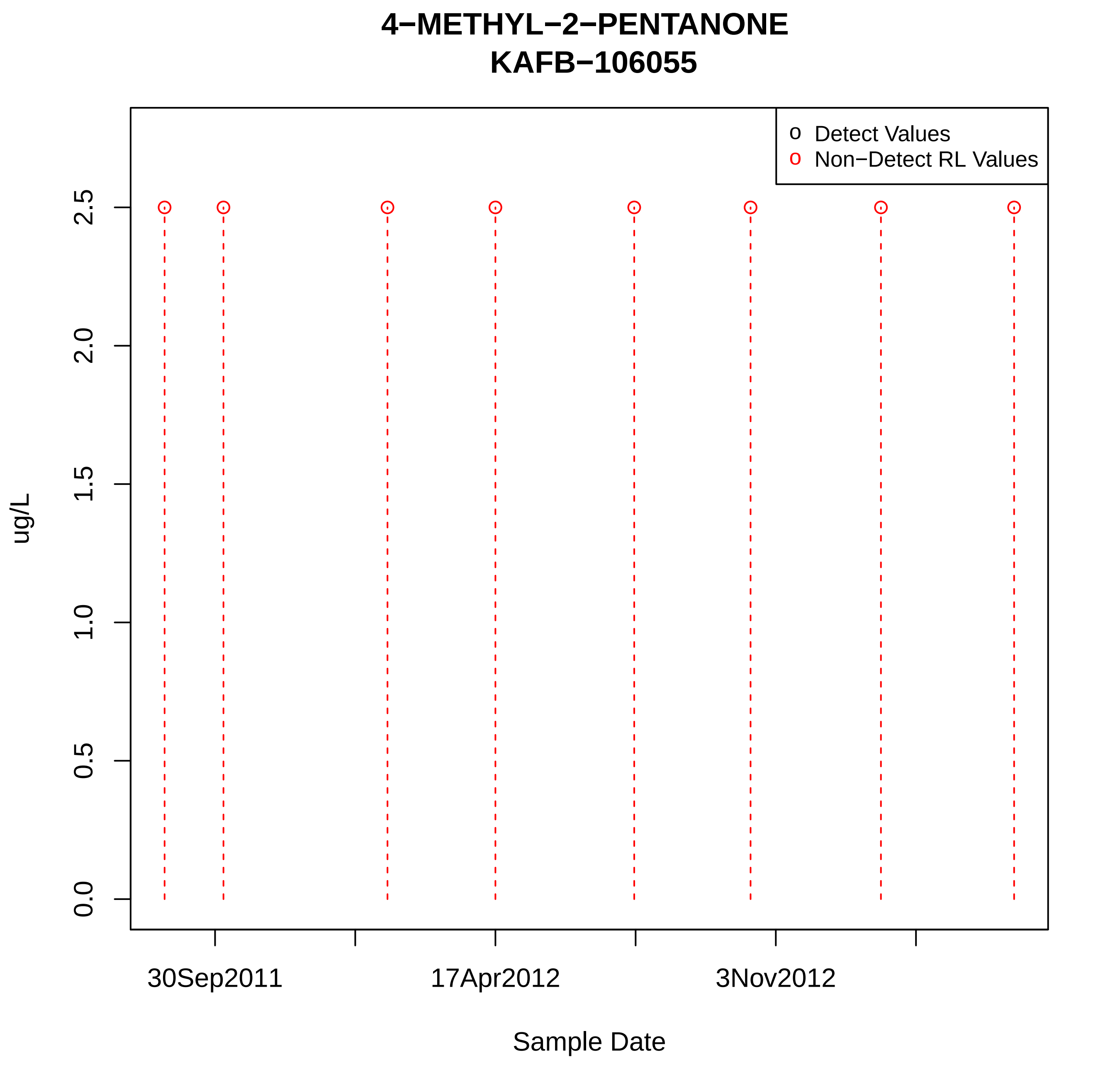
4−METHYL−2−PENTANONE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



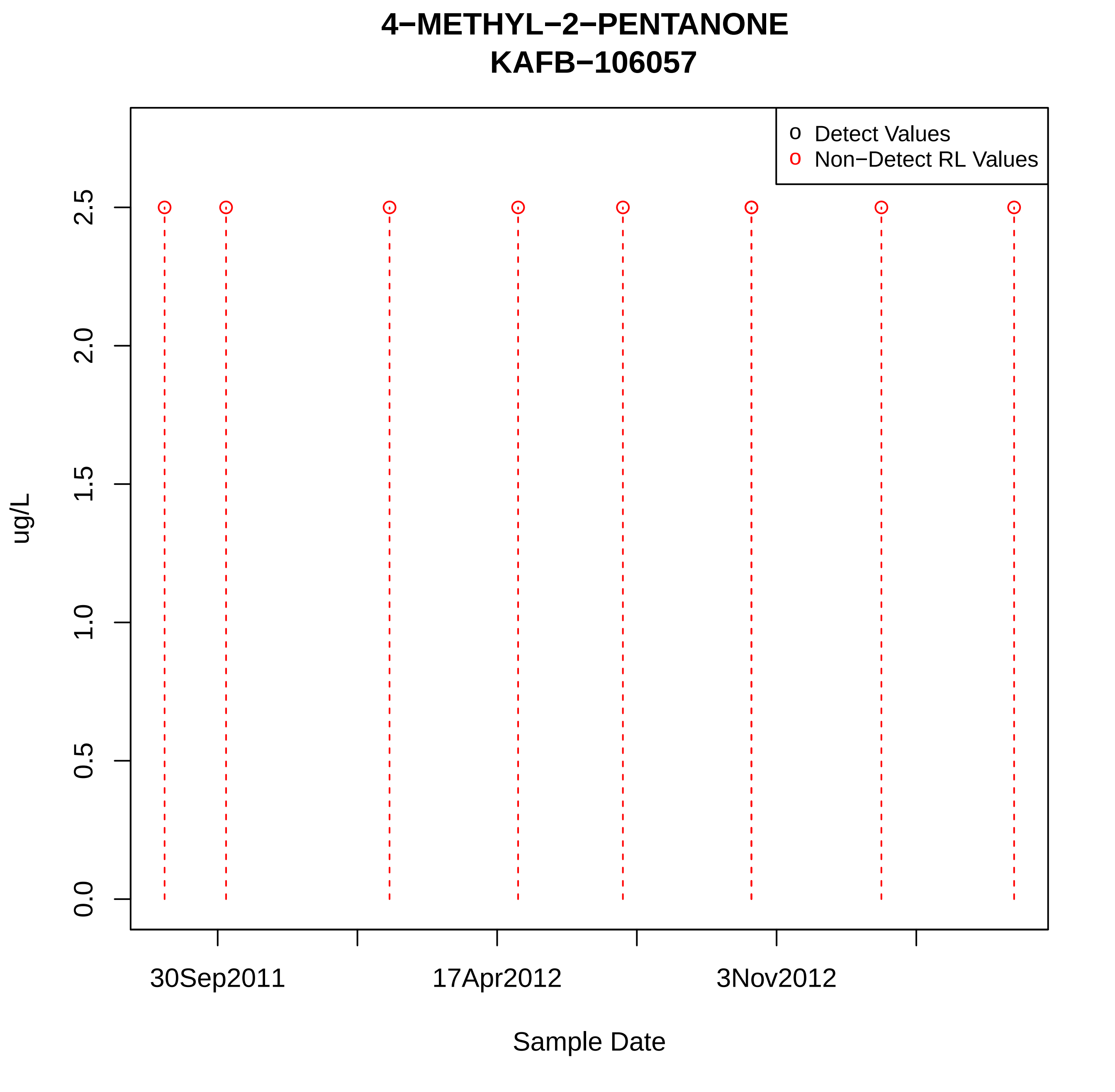
4−METHYL−2−PENTANONE
KAFB−106052
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

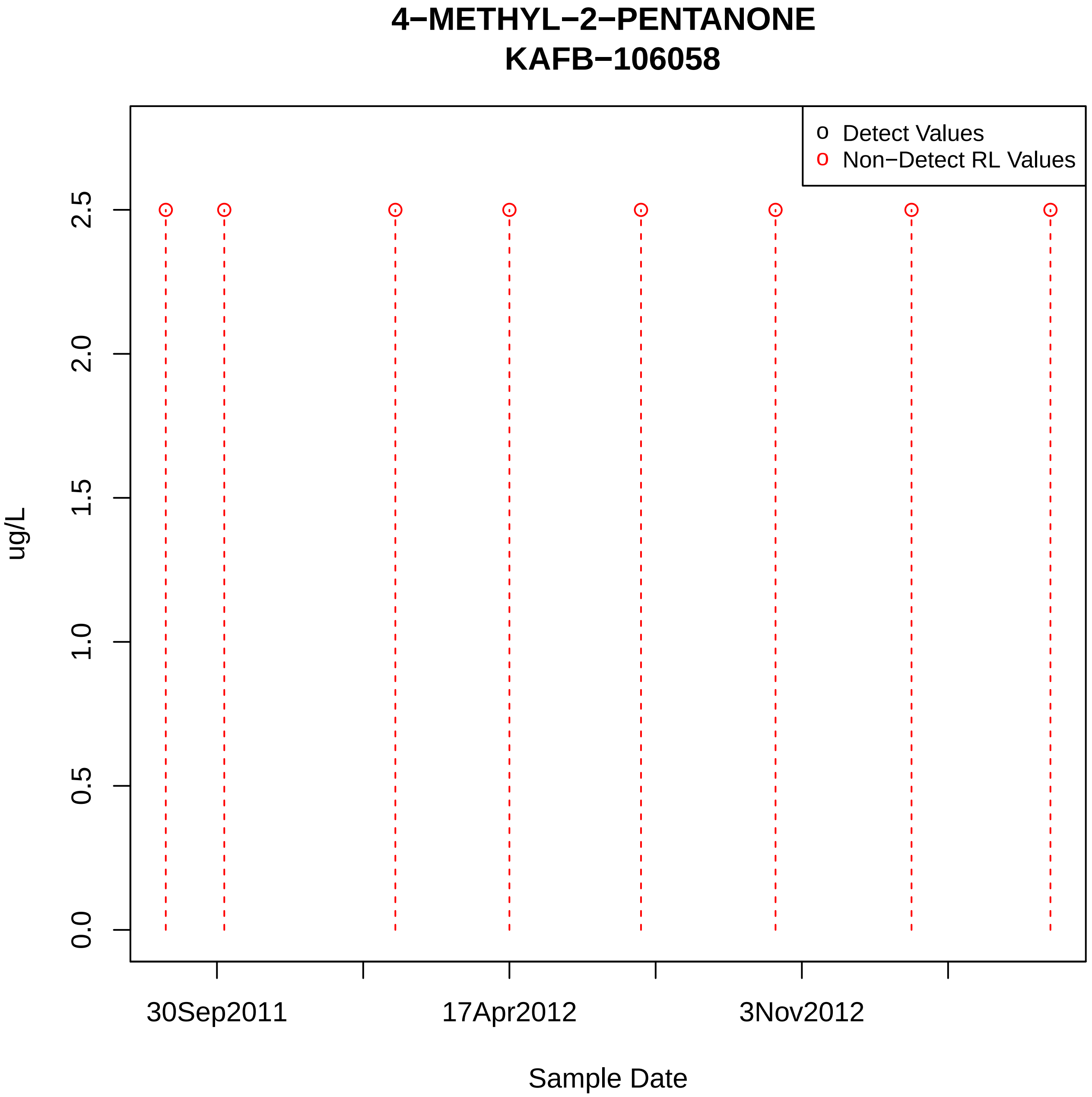

4−METHYL−2−PENTANONE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


4−METHYL−2−PENTANONE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

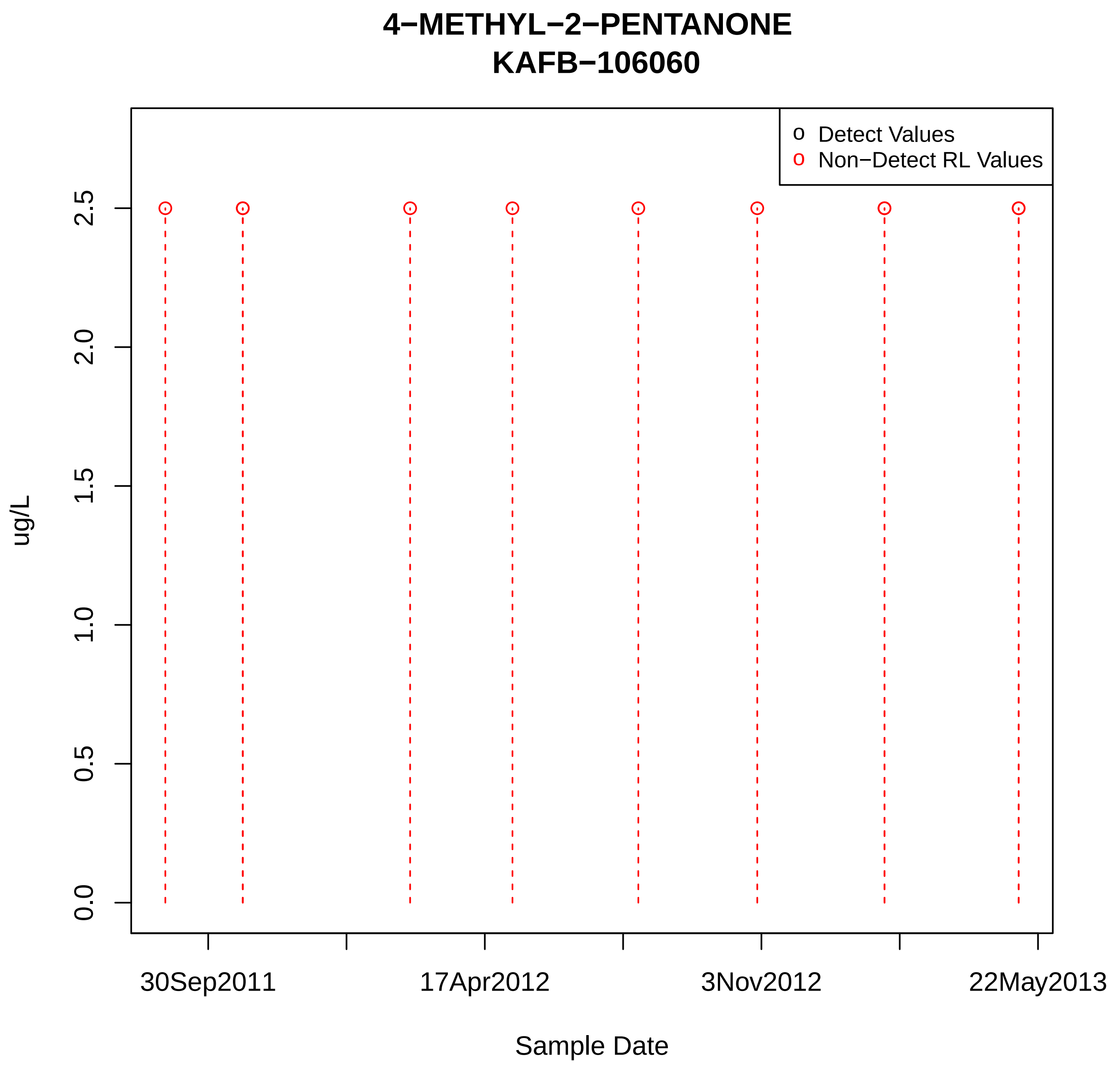


4−METHYL−2−PENTANONE
KAFB−106055
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

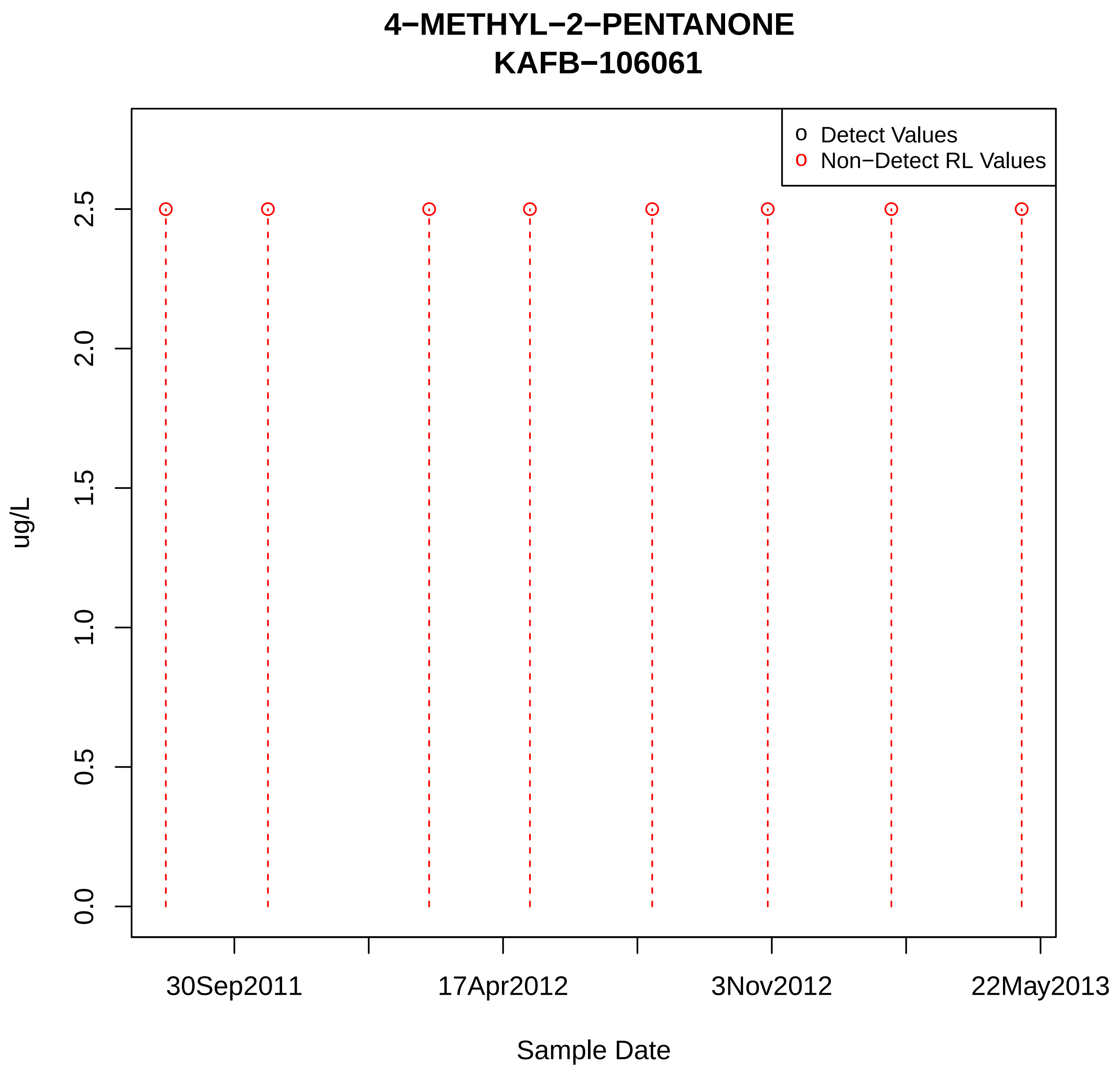

4−METHYL−2−PENTANONE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

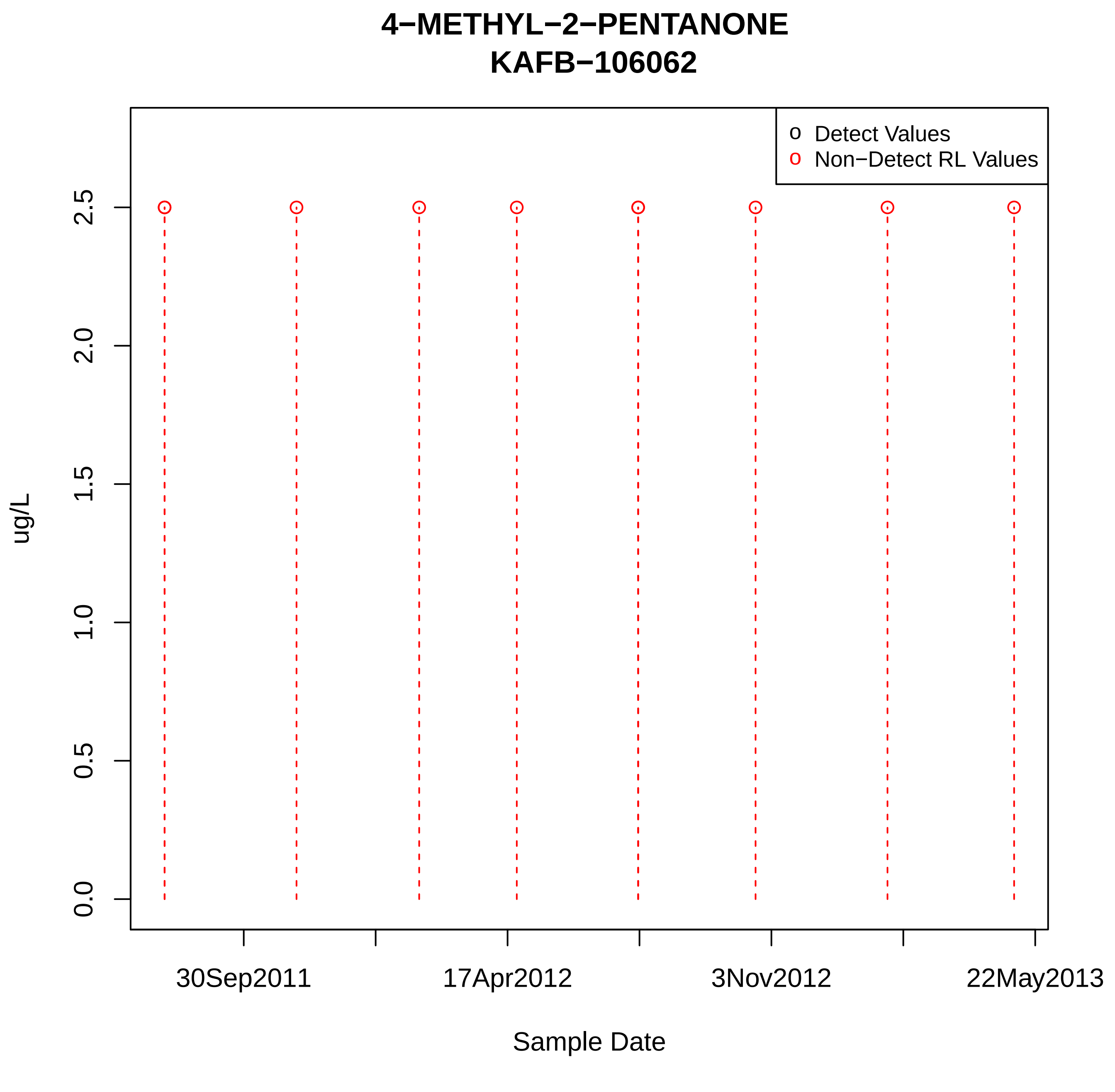


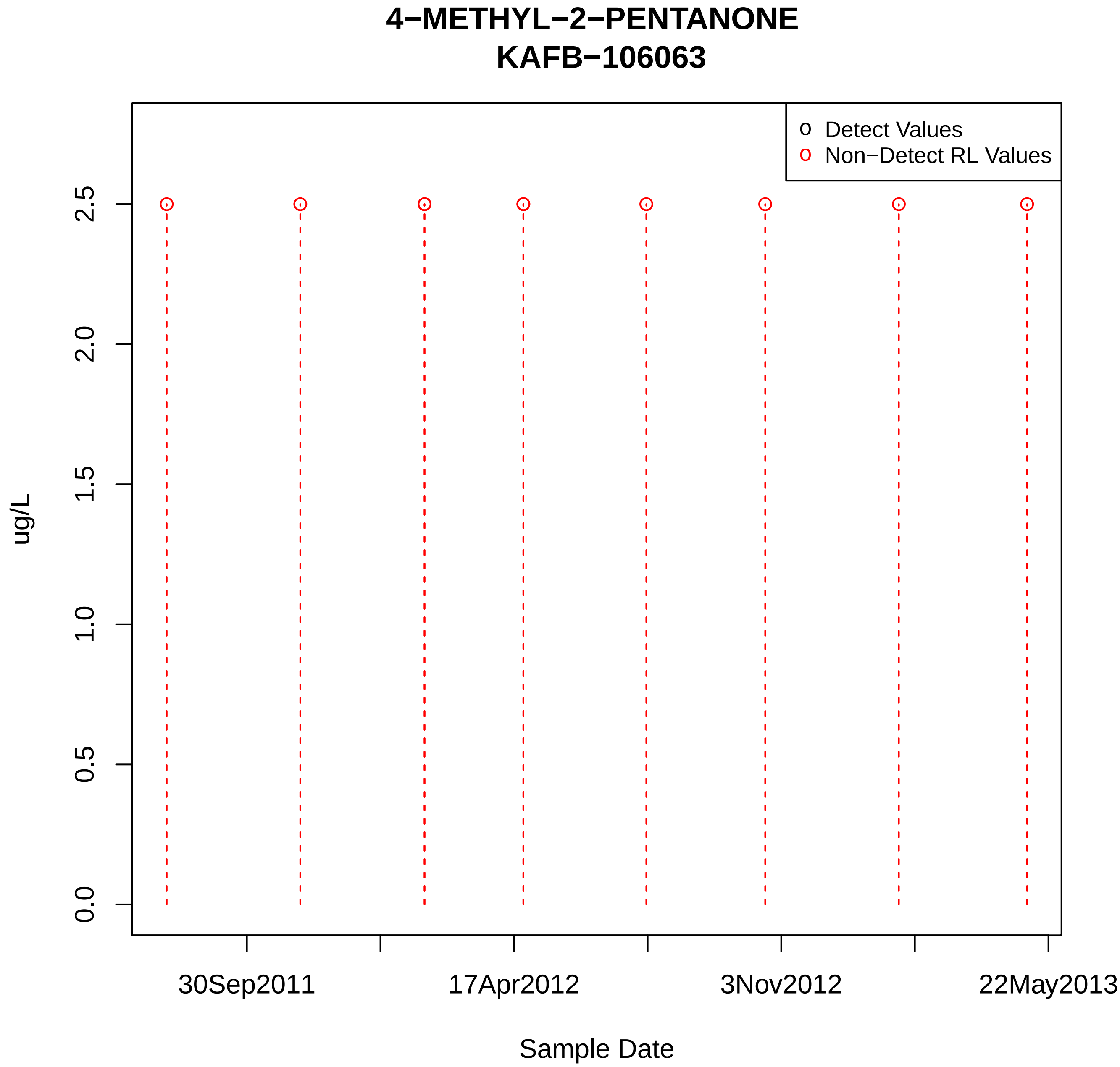
4−METHYL−2−PENTANONE
KAFB−106058
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



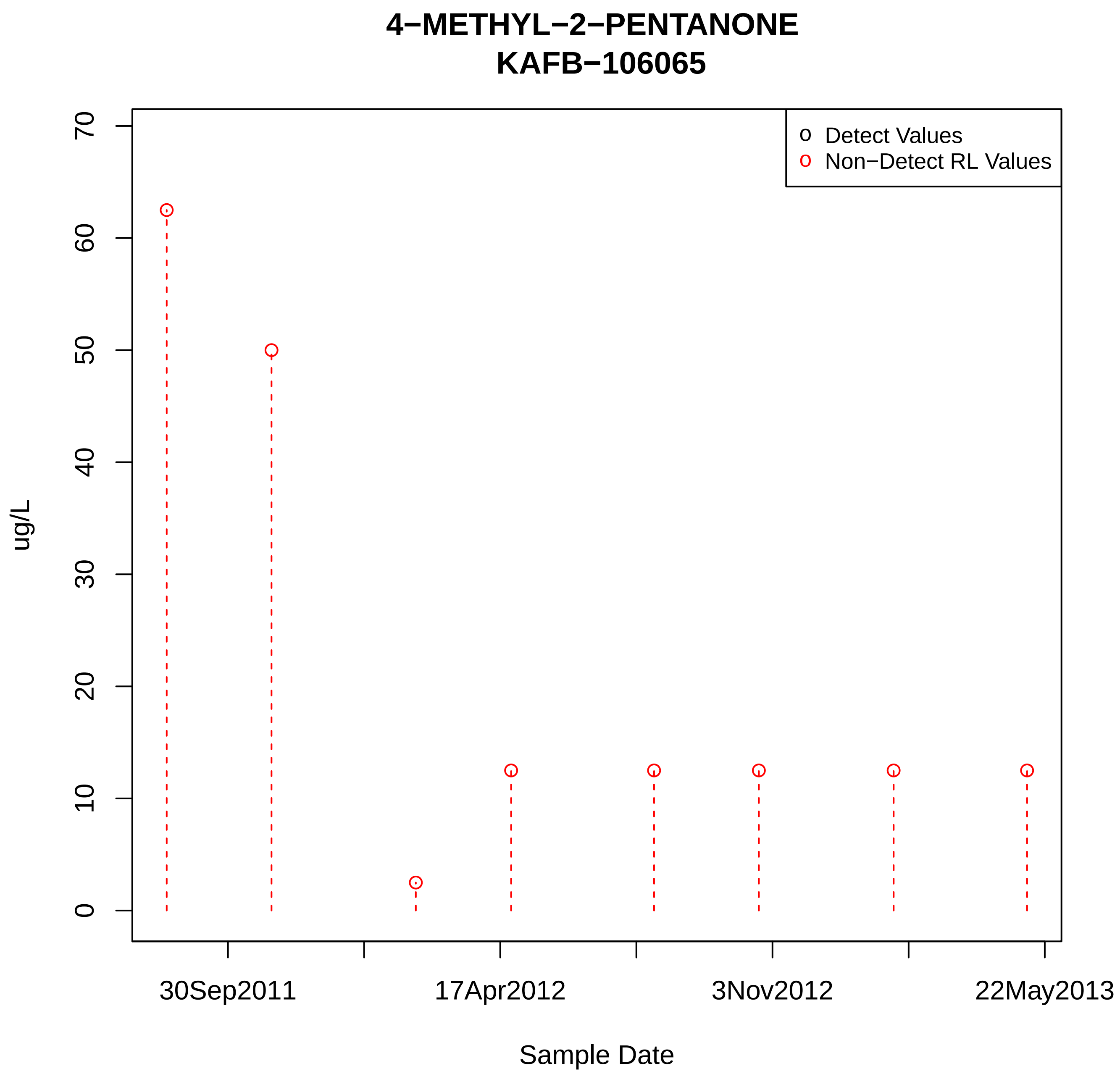
4−METHYL−2−PENTANONE
KAFB−106060
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

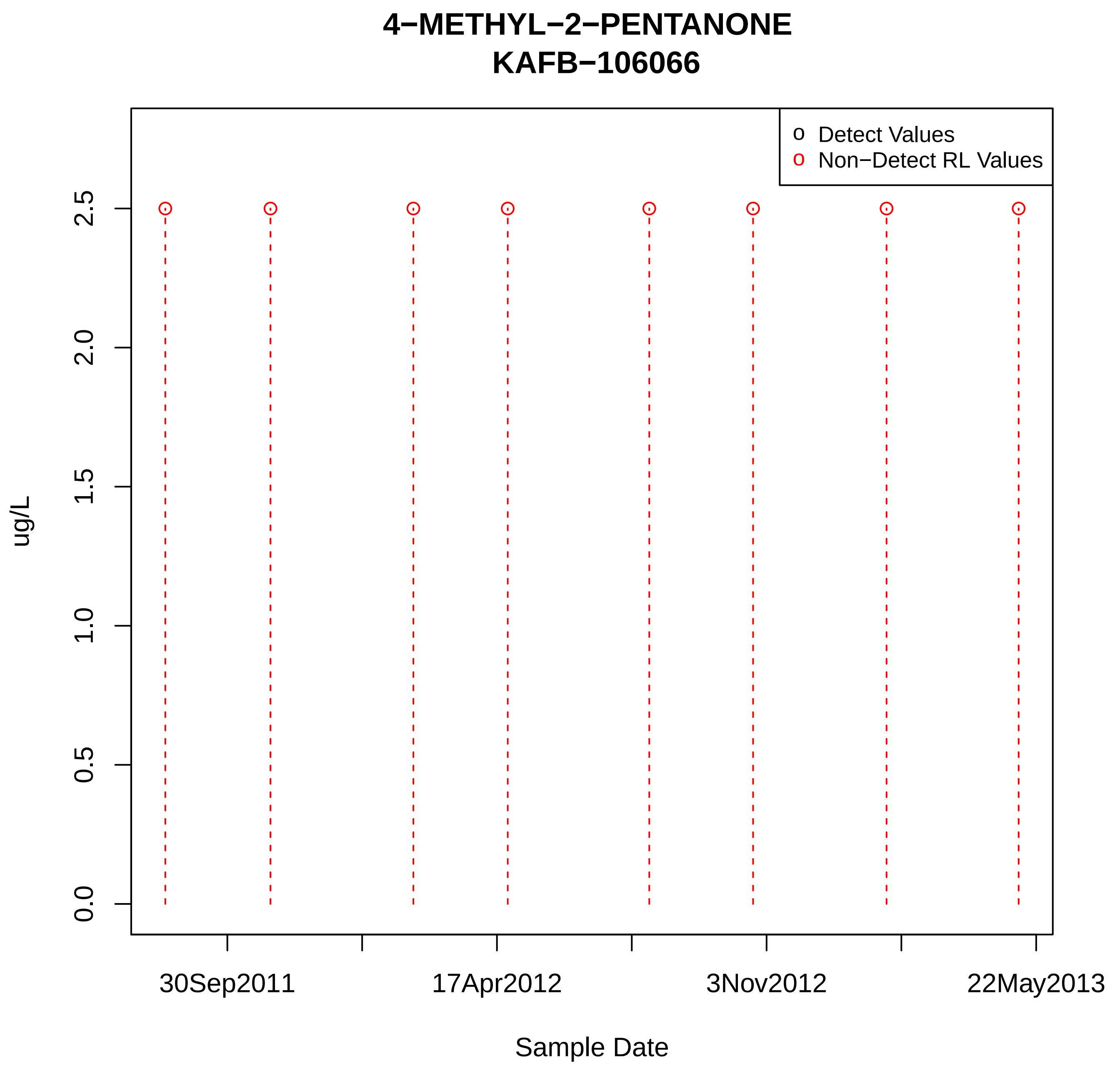

4−METHYL−2−PENTANONE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



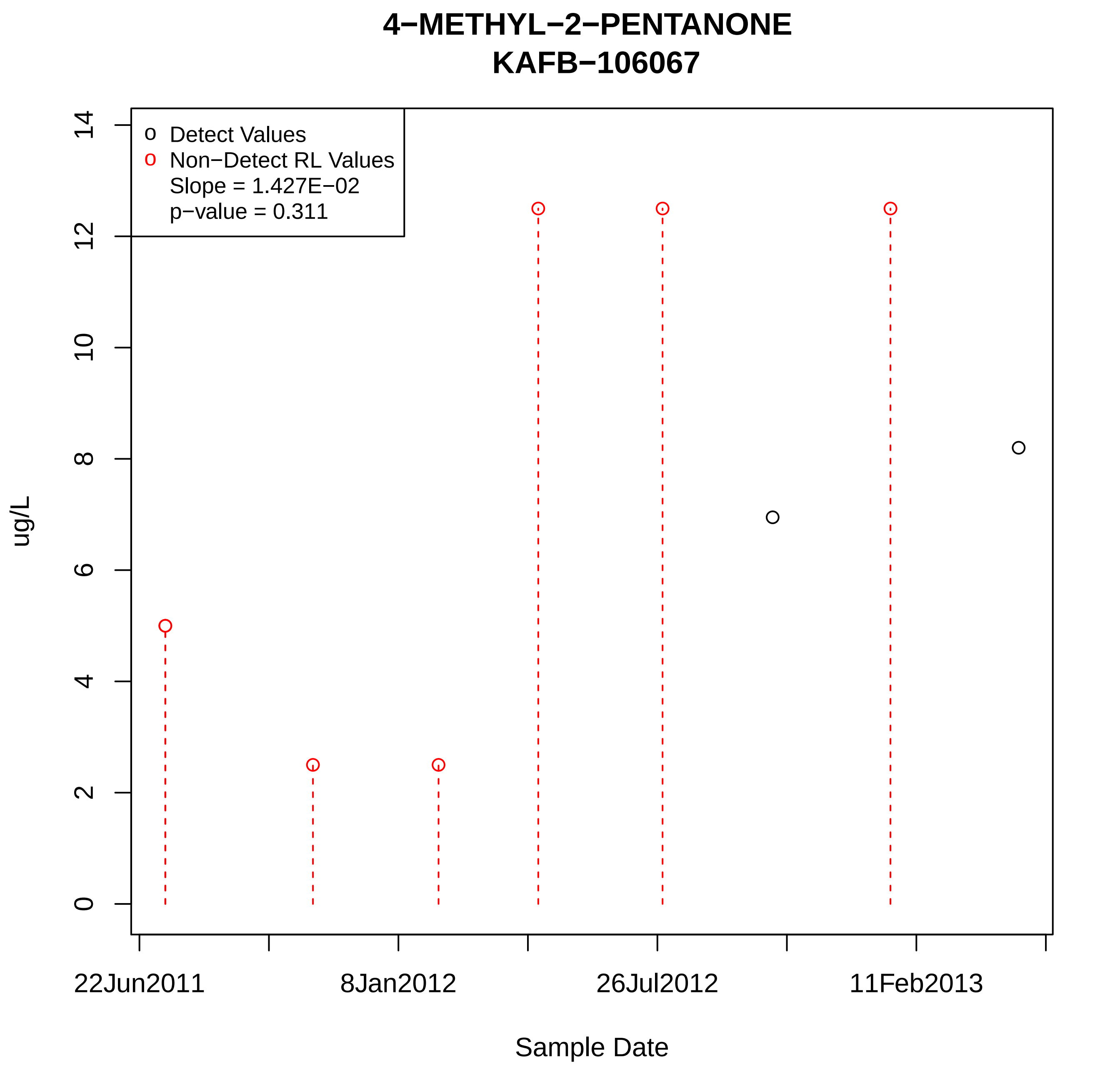
4−METHYL−2−PENTANONE
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



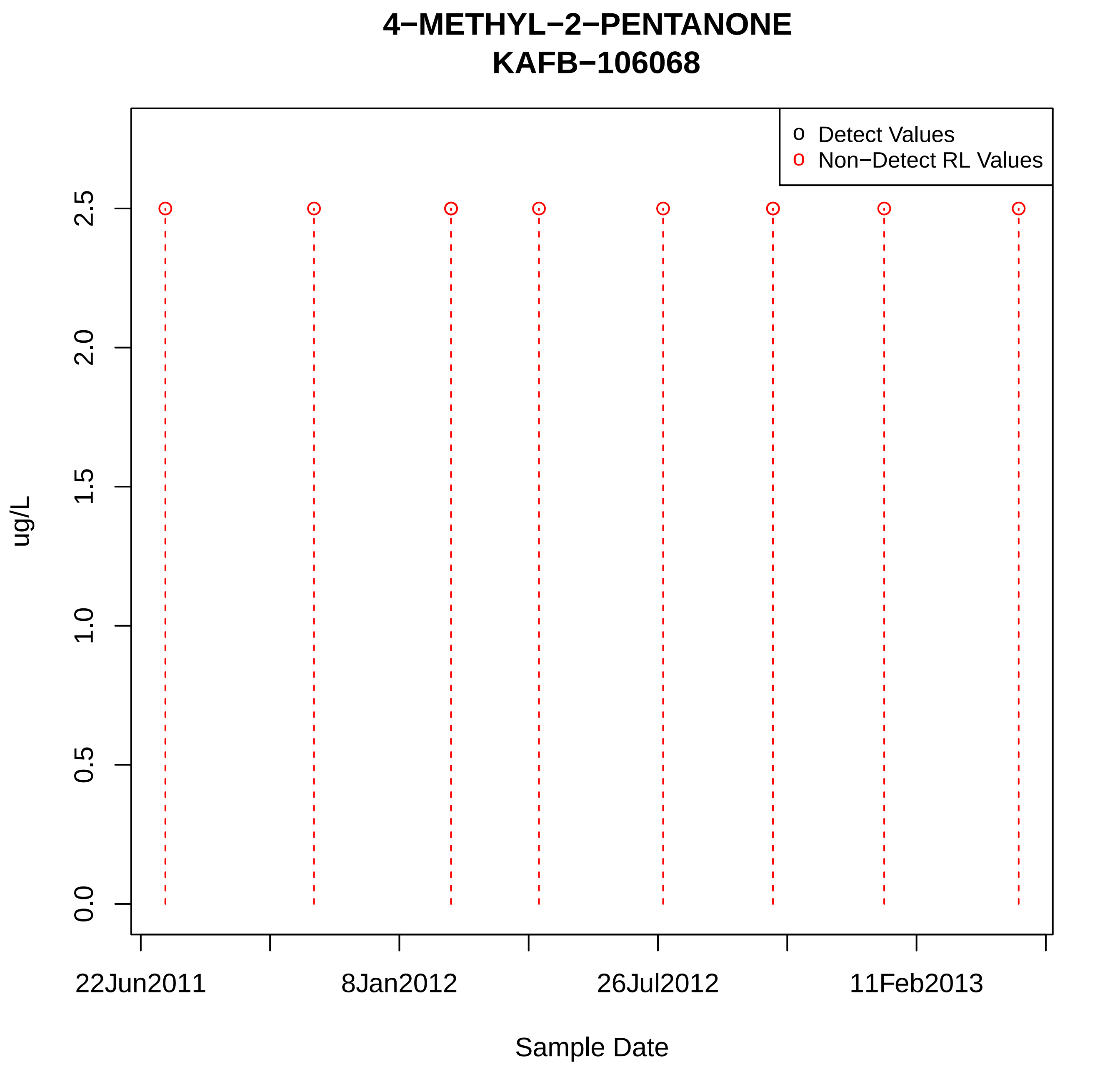
4−METHYL−2−PENTANONE
KAFB−106065
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
70
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

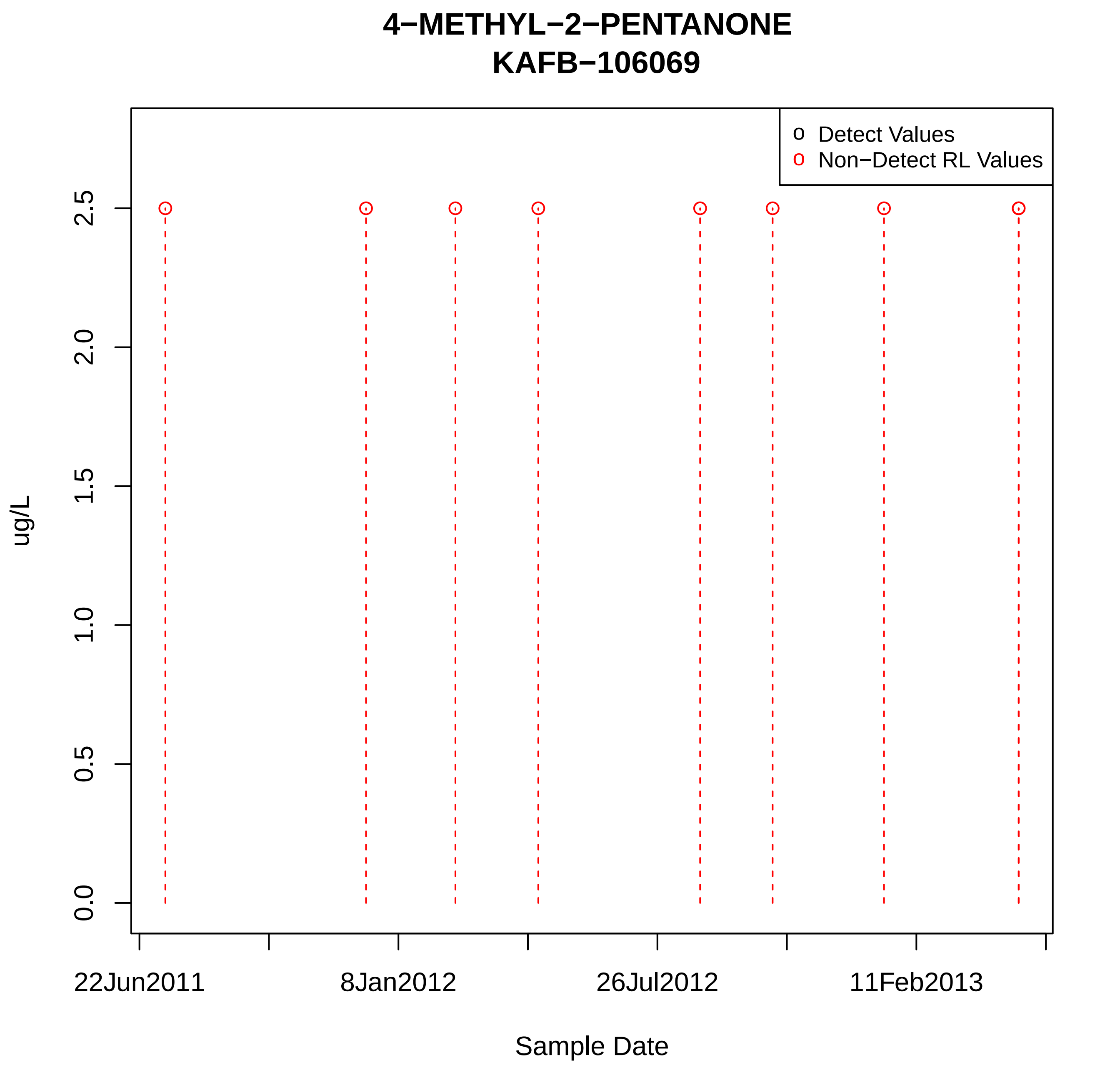


4−METHYL−2−PENTANONE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

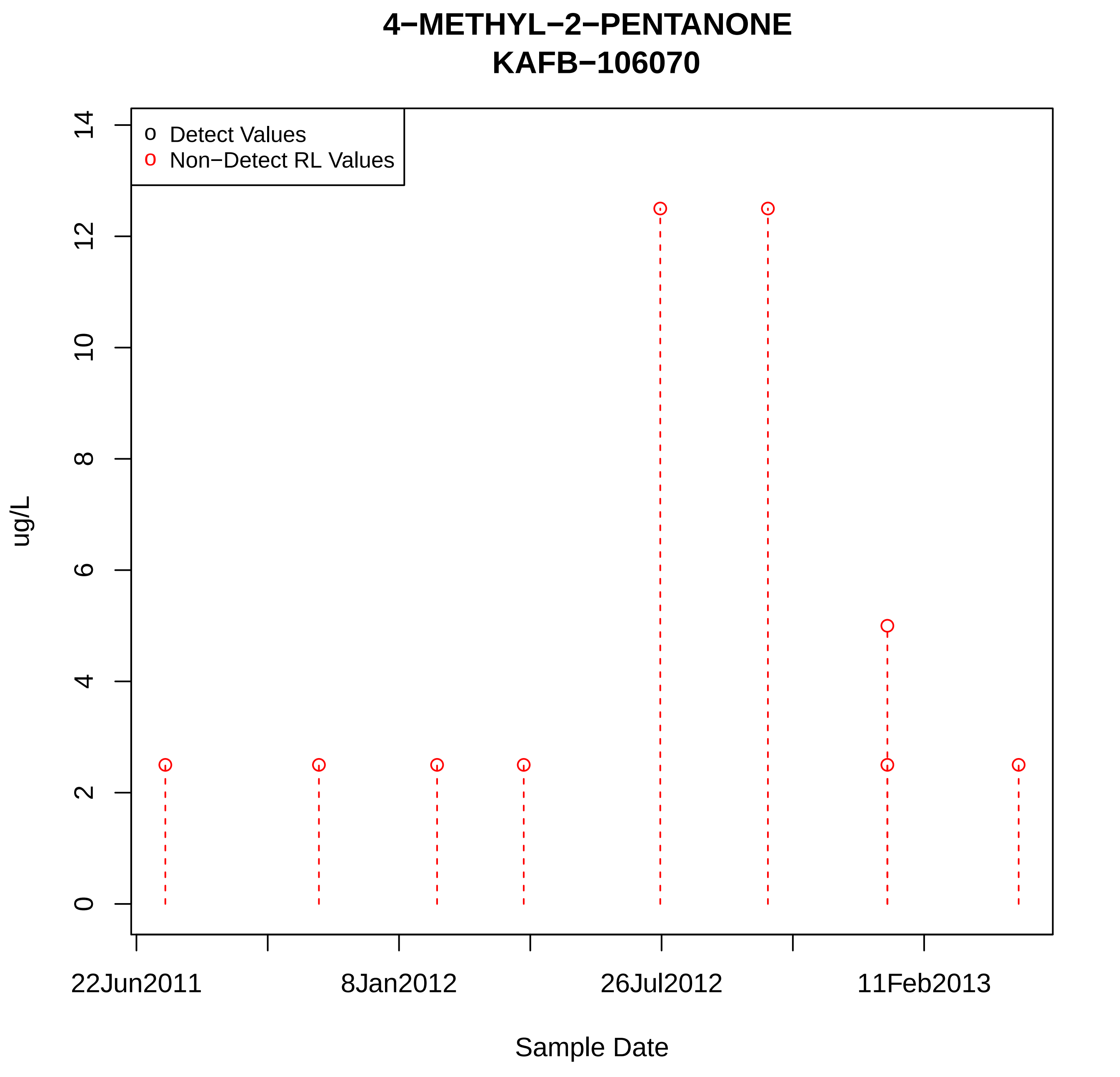


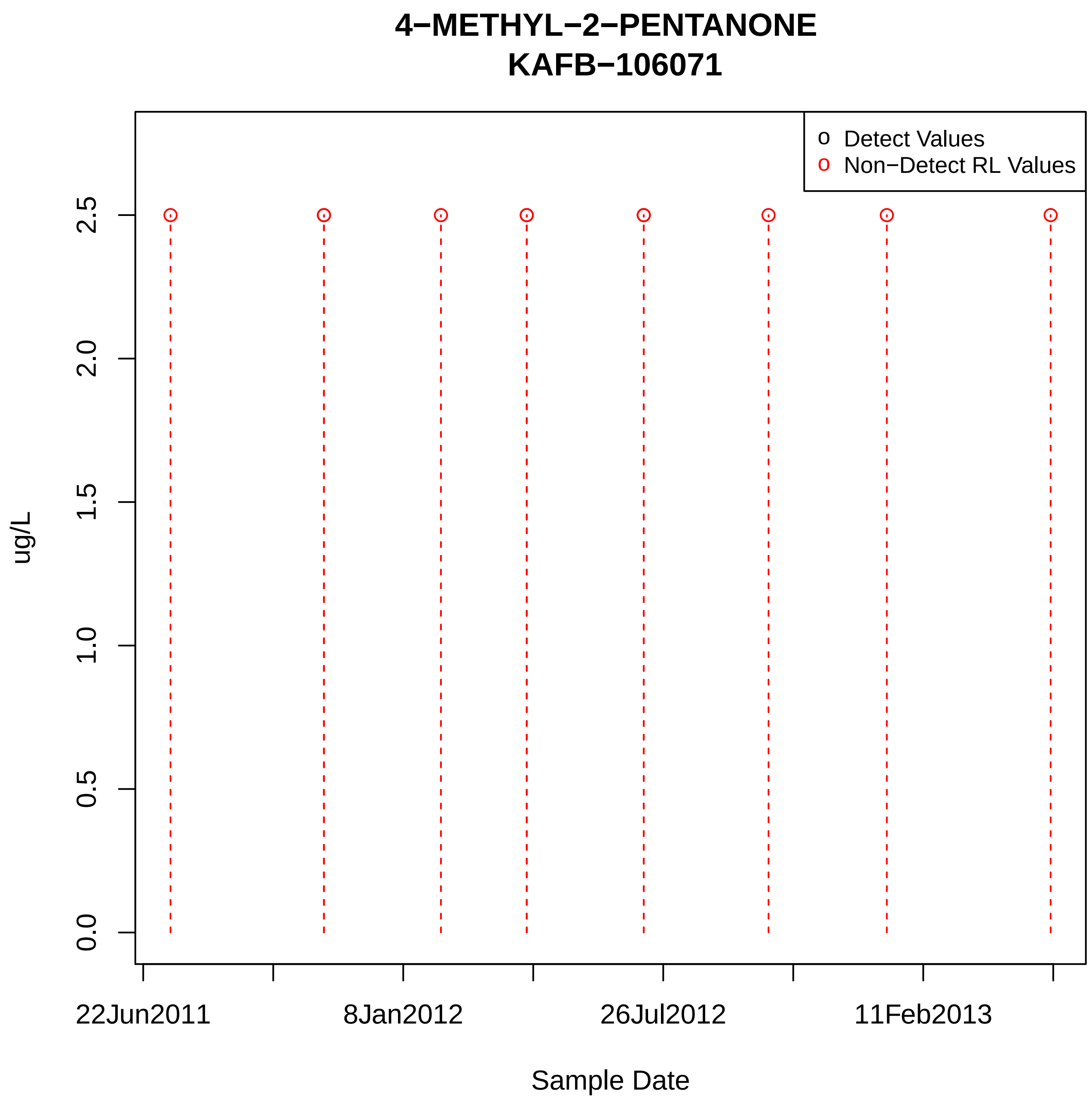
4−METHYL−2−PENTANONE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = 1.427E−02
p−value = 0.311
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

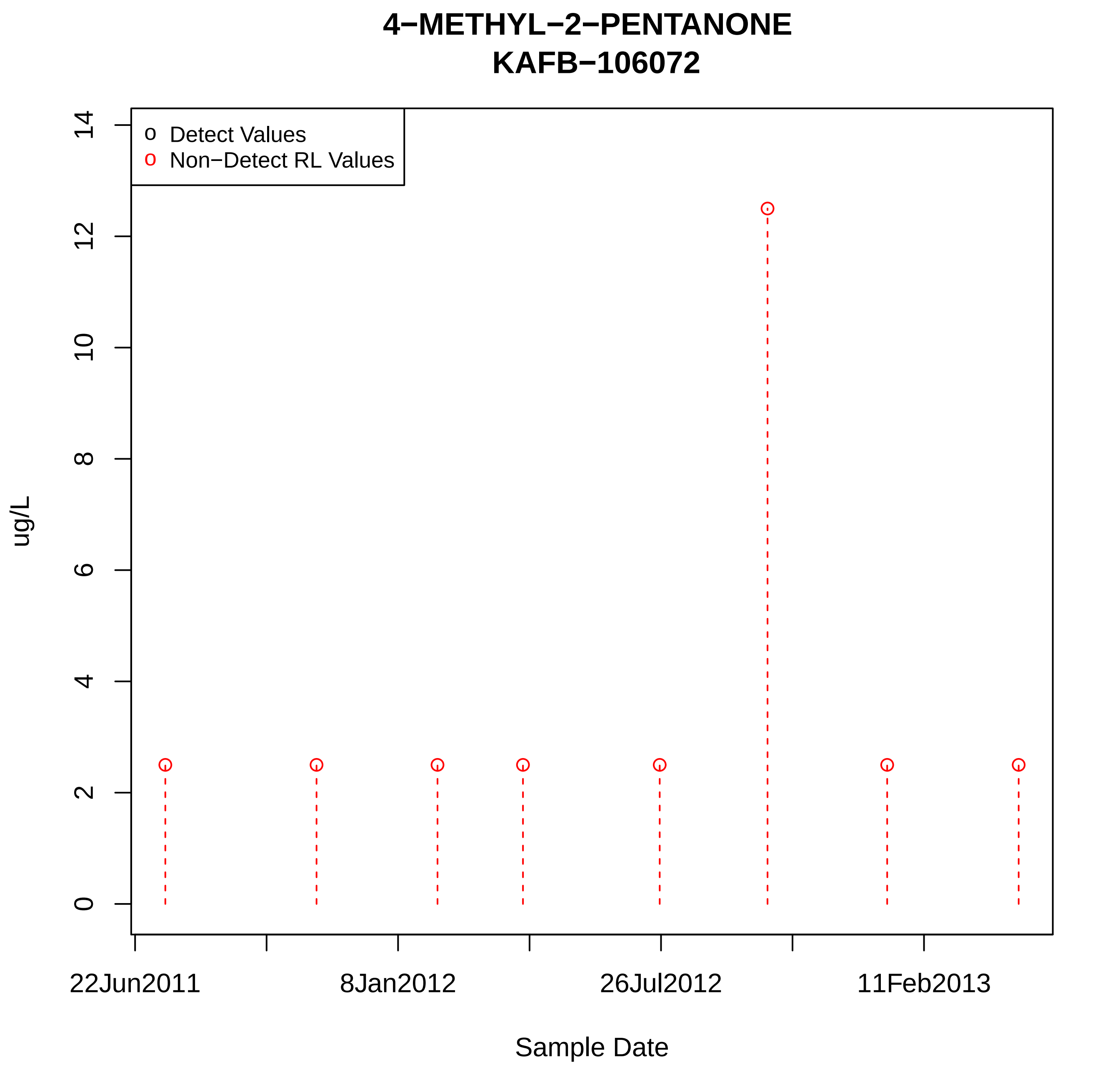

4−METHYL−2−PENTANONE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

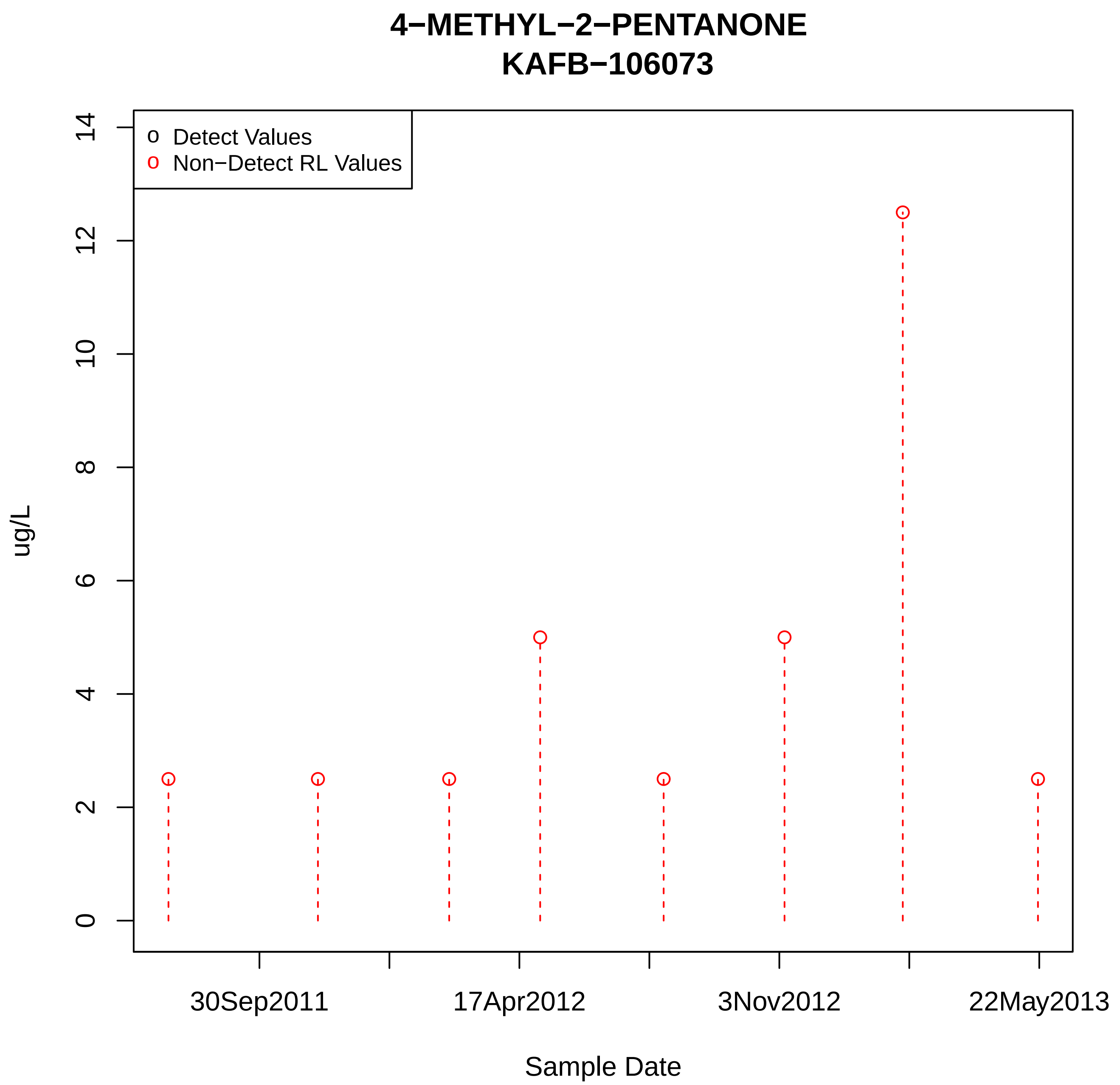


4−METHYL−2−PENTANONE
KAFB−106069
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

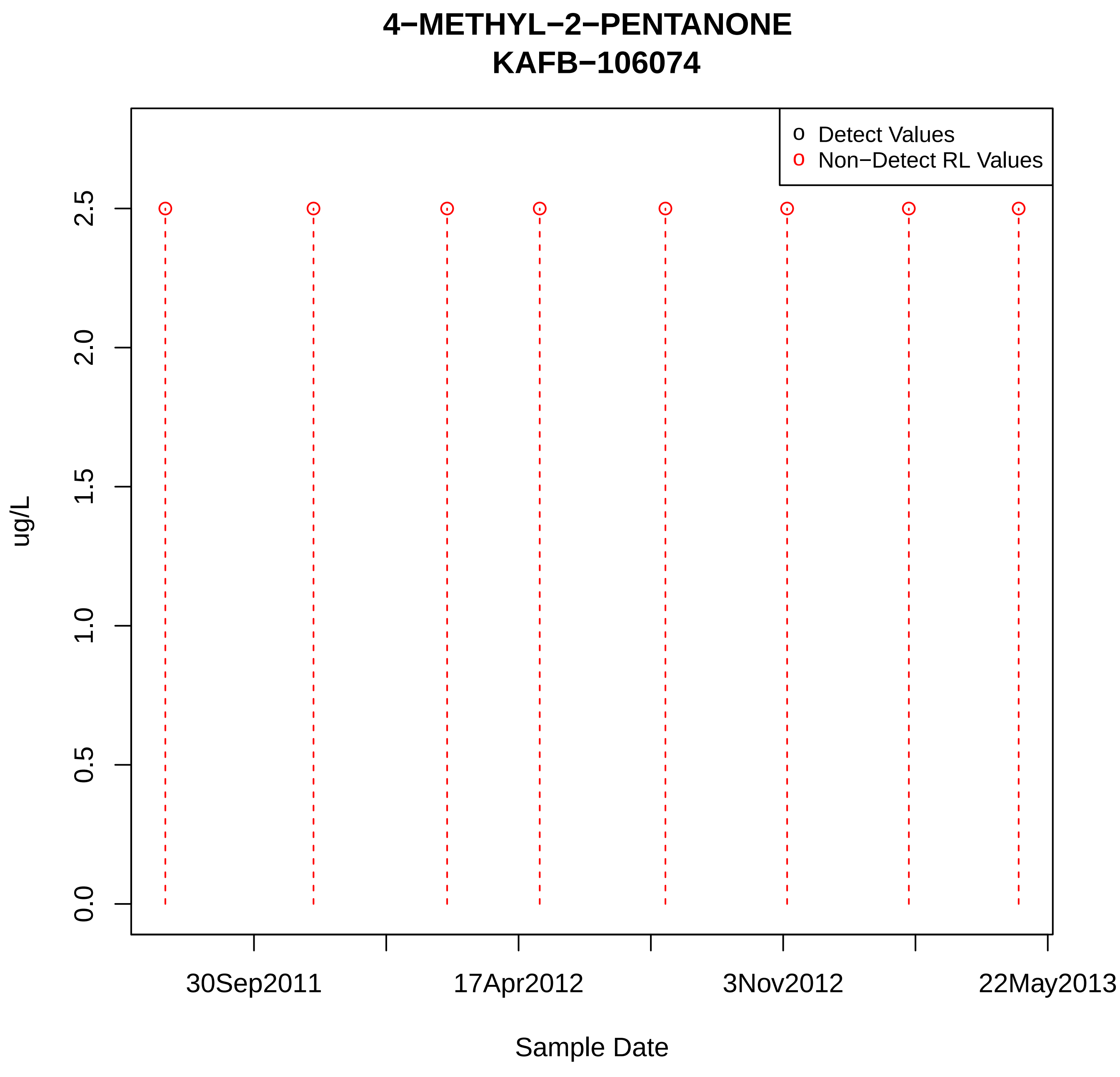

4−METHYL−2−PENTANONE
KAFB−106070
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

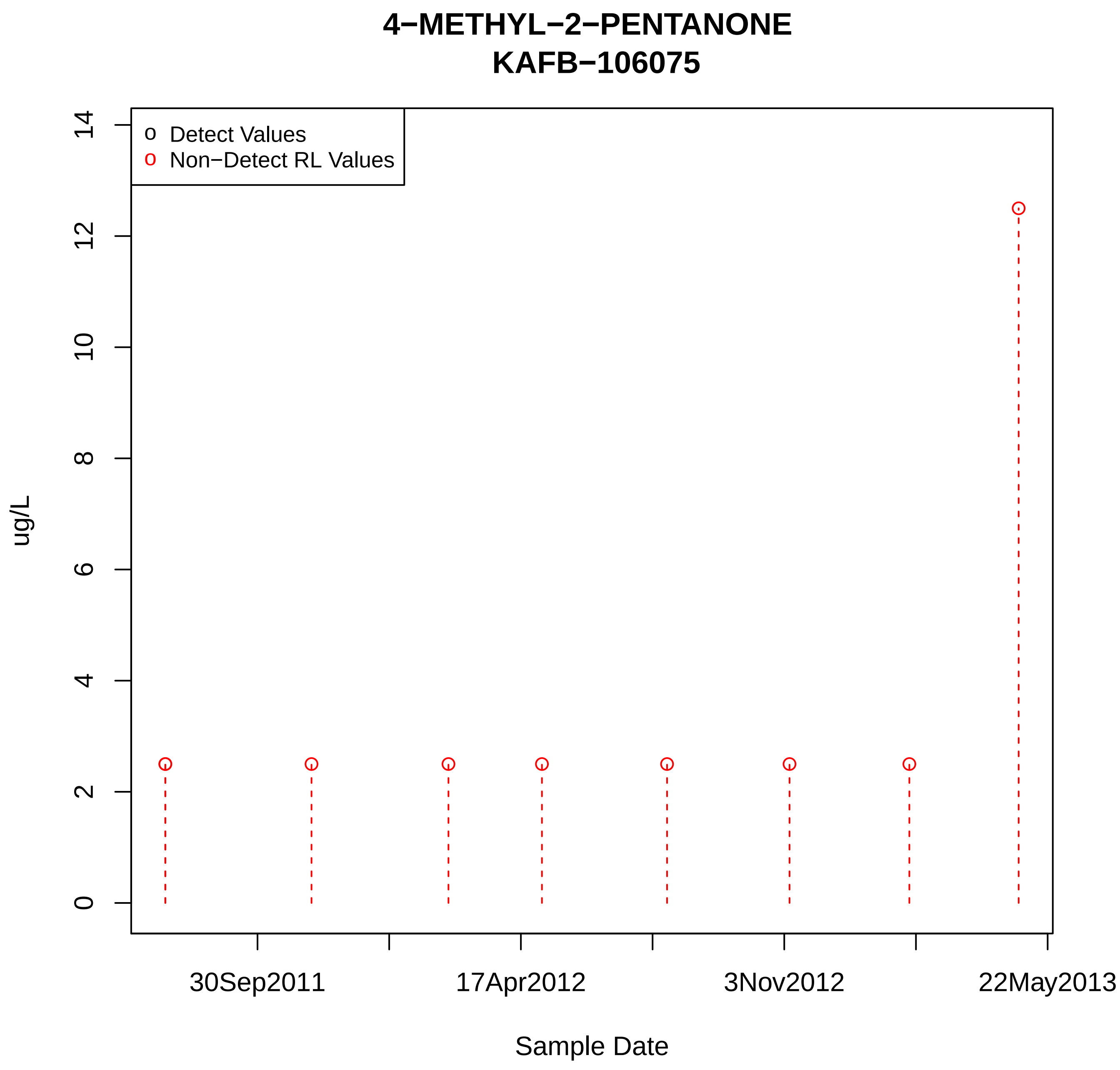

4−METHYL−2−PENTANONE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

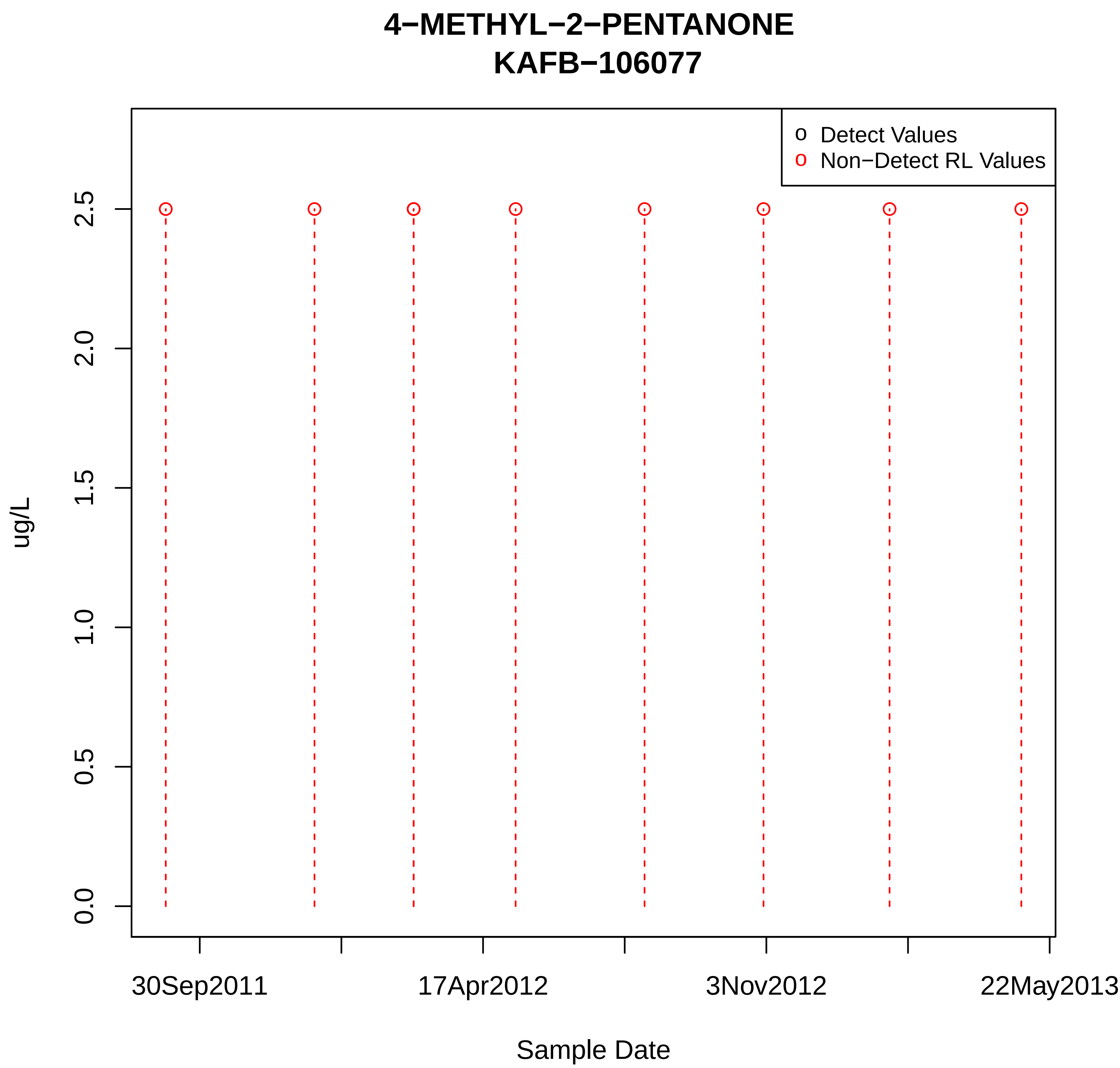

4−METHYL−2−PENTANONE
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

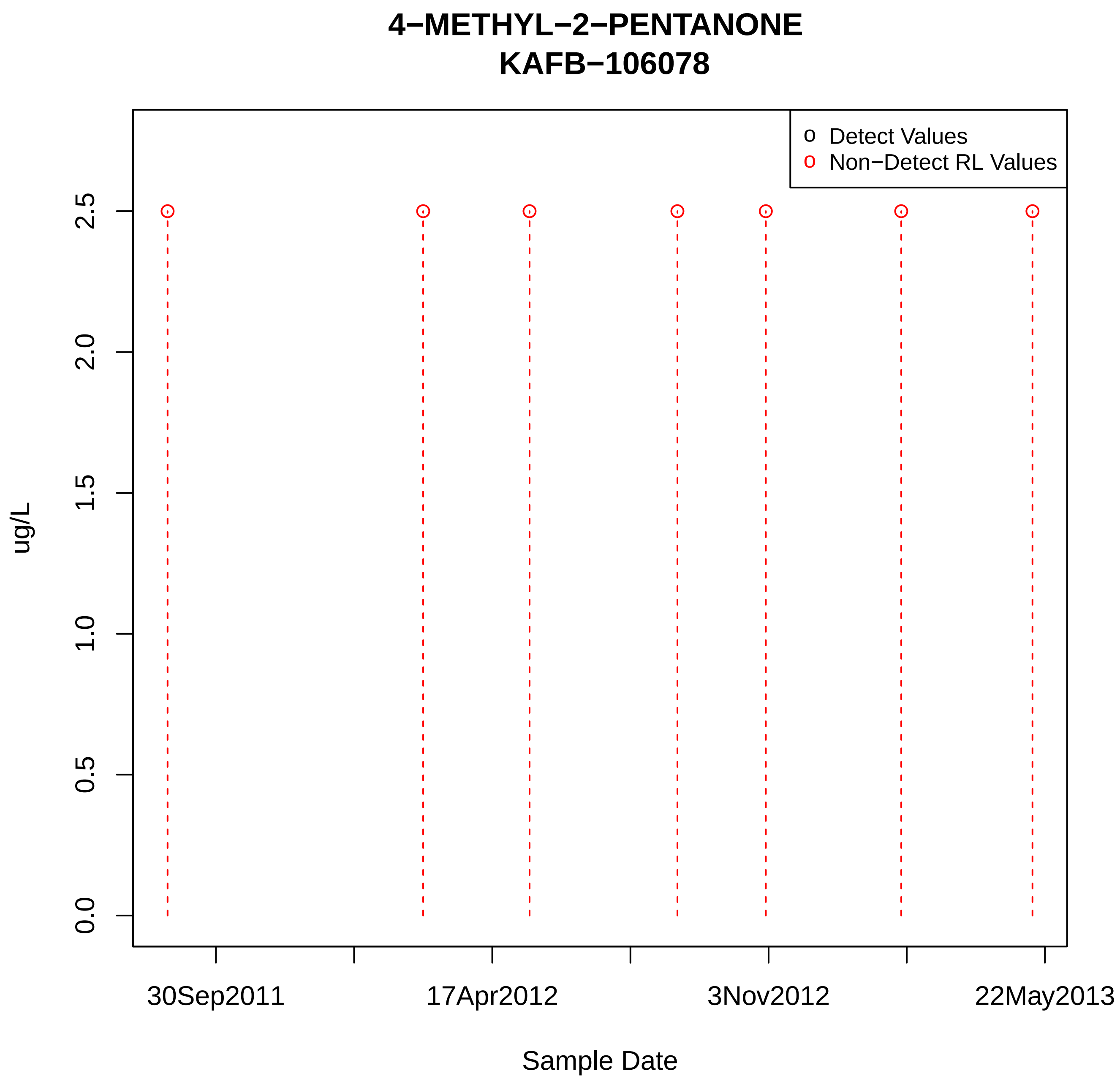


4−METHYL−2−PENTANONE
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

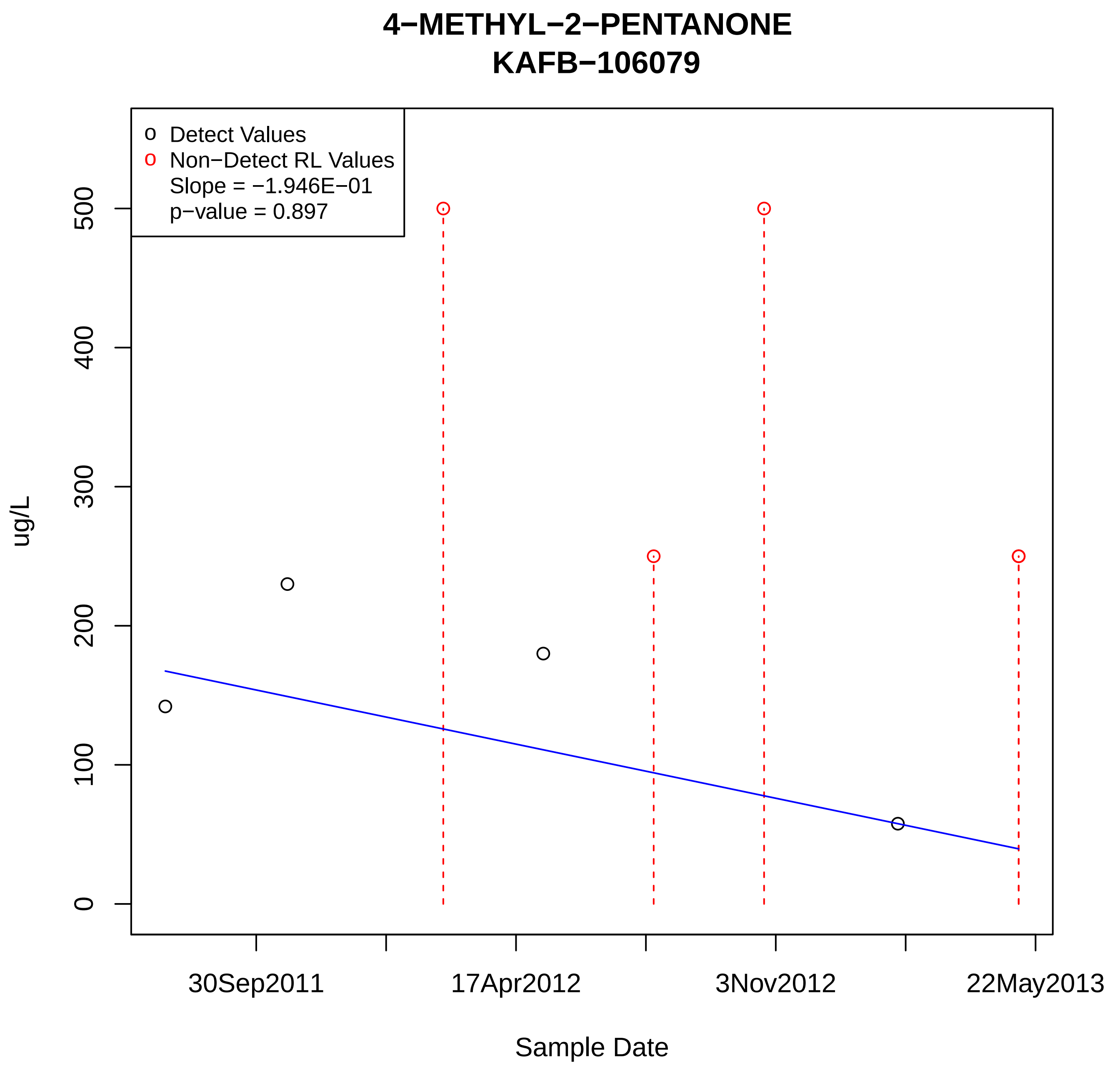

4−METHYL−2−PENTANONE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

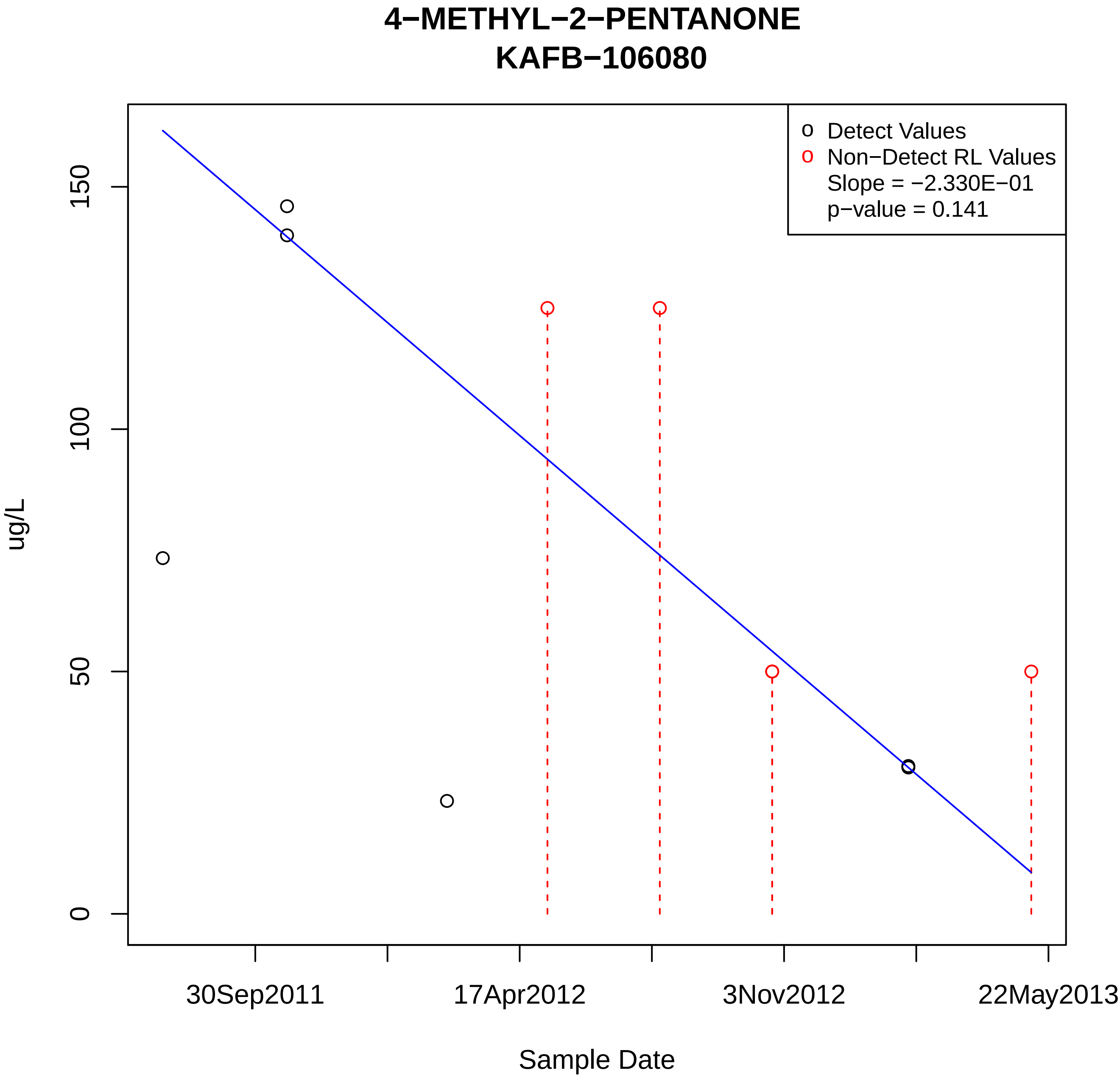

4−METHYL−2−PENTANONE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

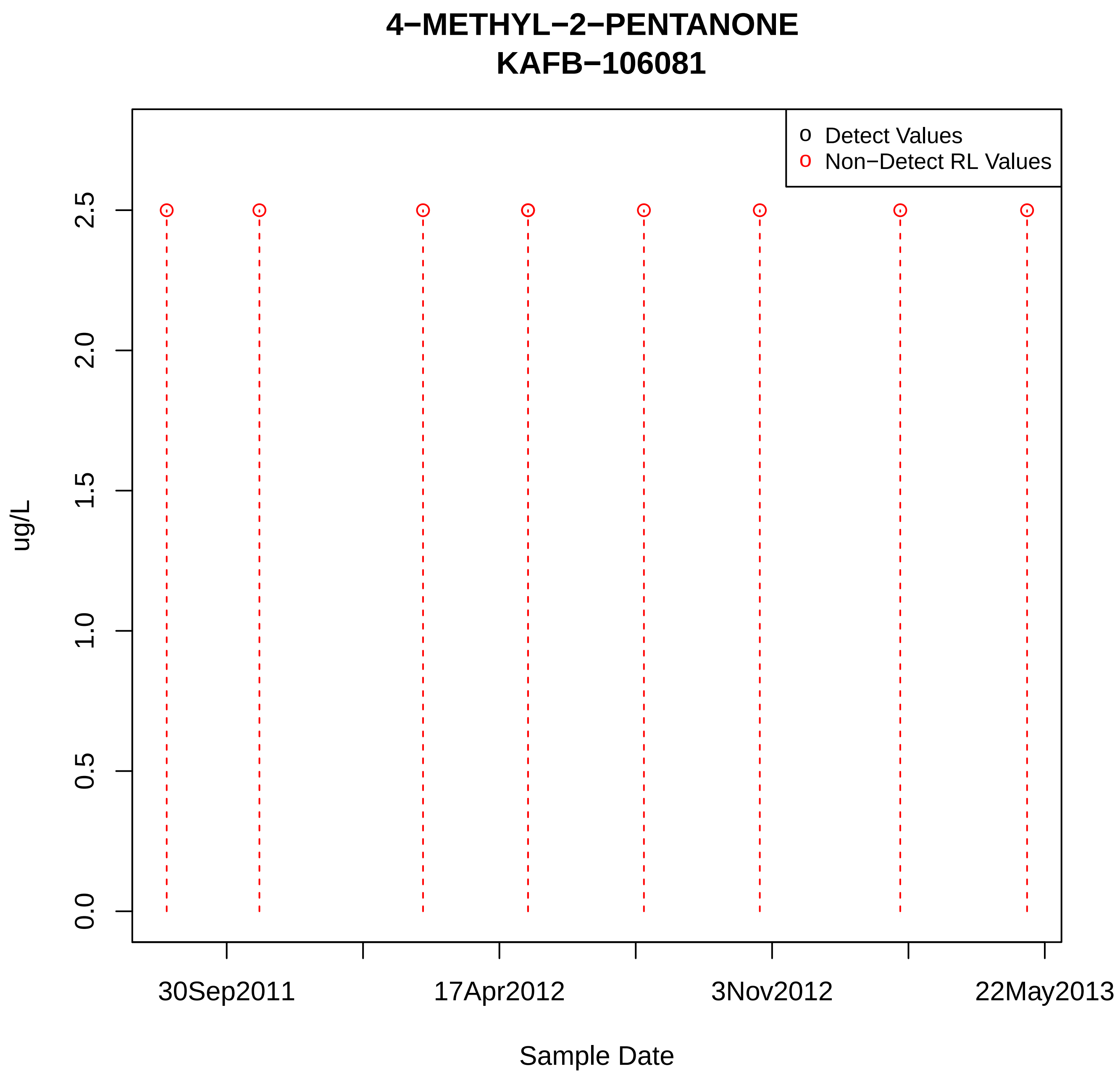

4−METHYL−2−PENTANONE
KAFB−106077
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



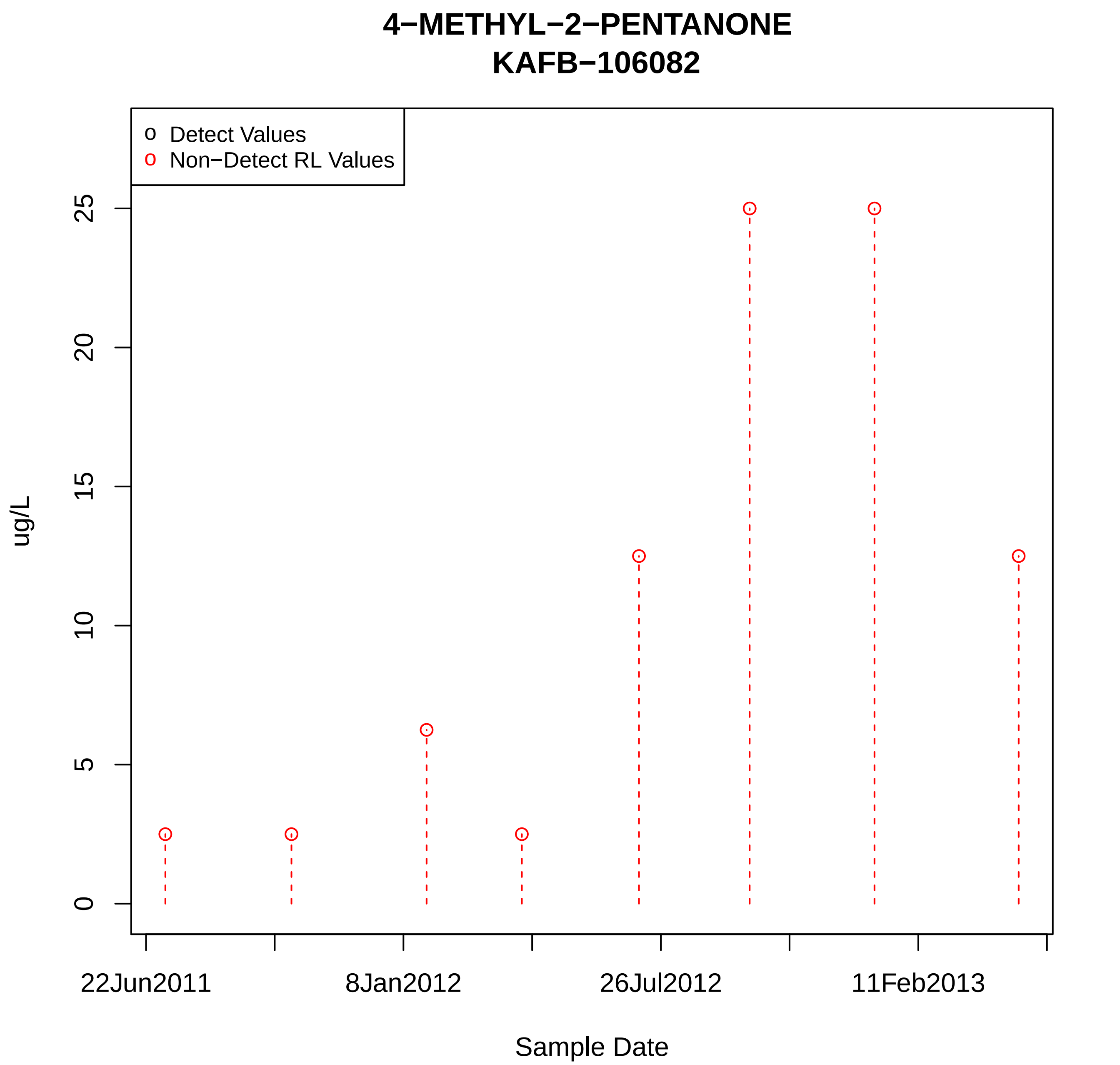
4−METHYL−2−PENTANONE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

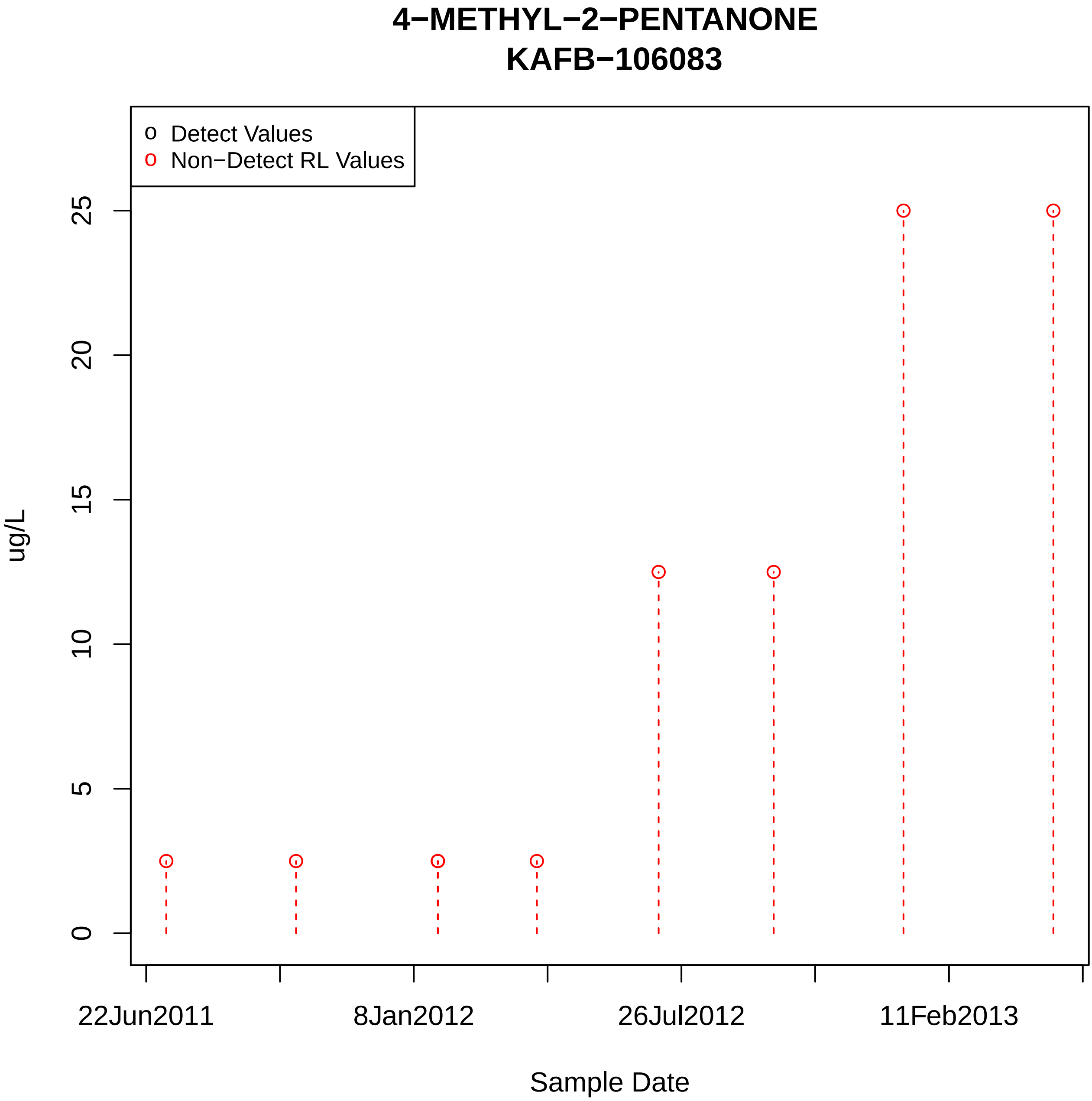

4−METHYL−2−PENTANONE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −1.946E−01
p−value = 0.897
ug/L
0
100
200
300
400
500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

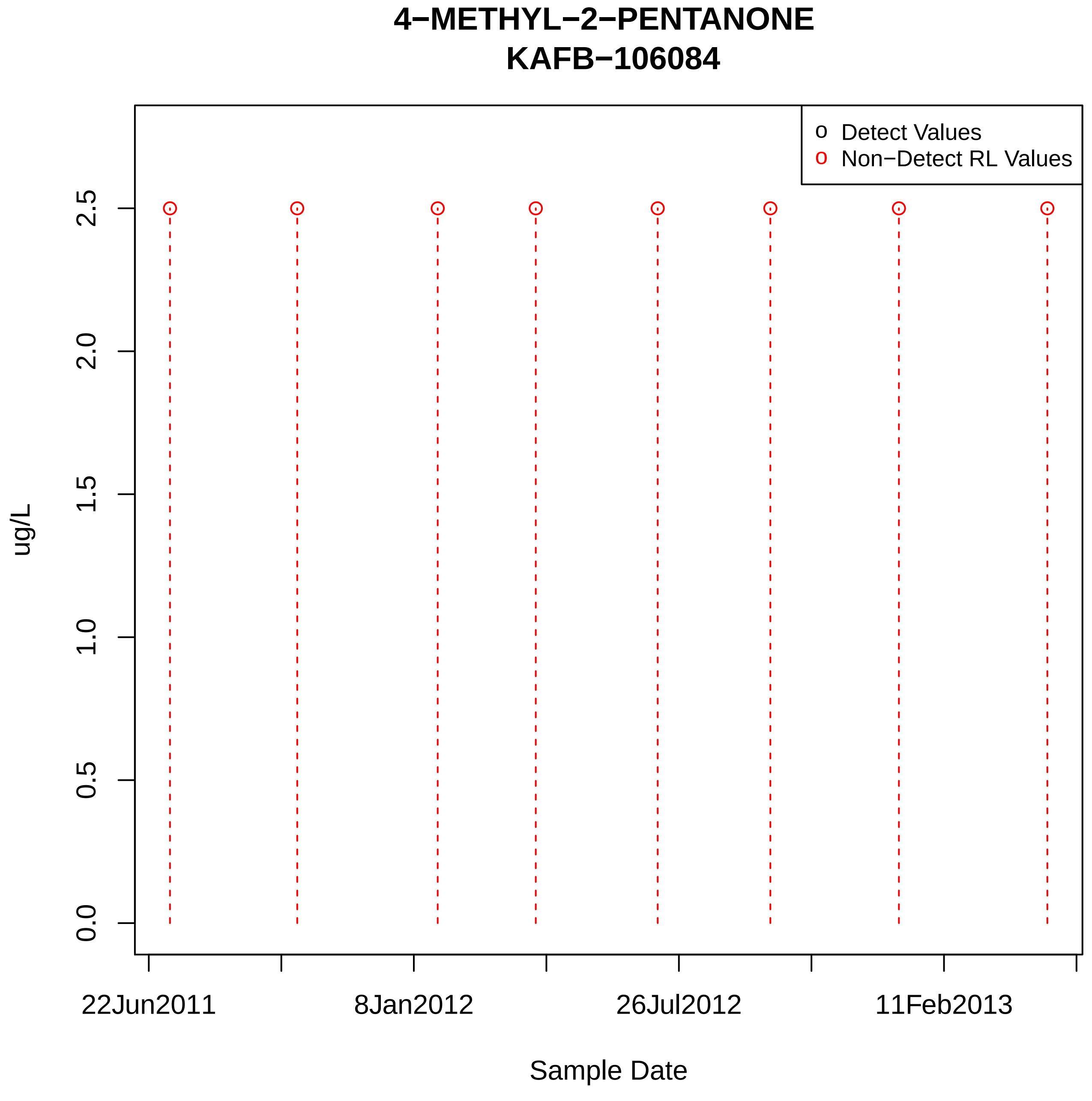

4−METHYL−2−PENTANONE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −2.330E−01
p−value = 0.141
ug/L
0
50
100
150
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

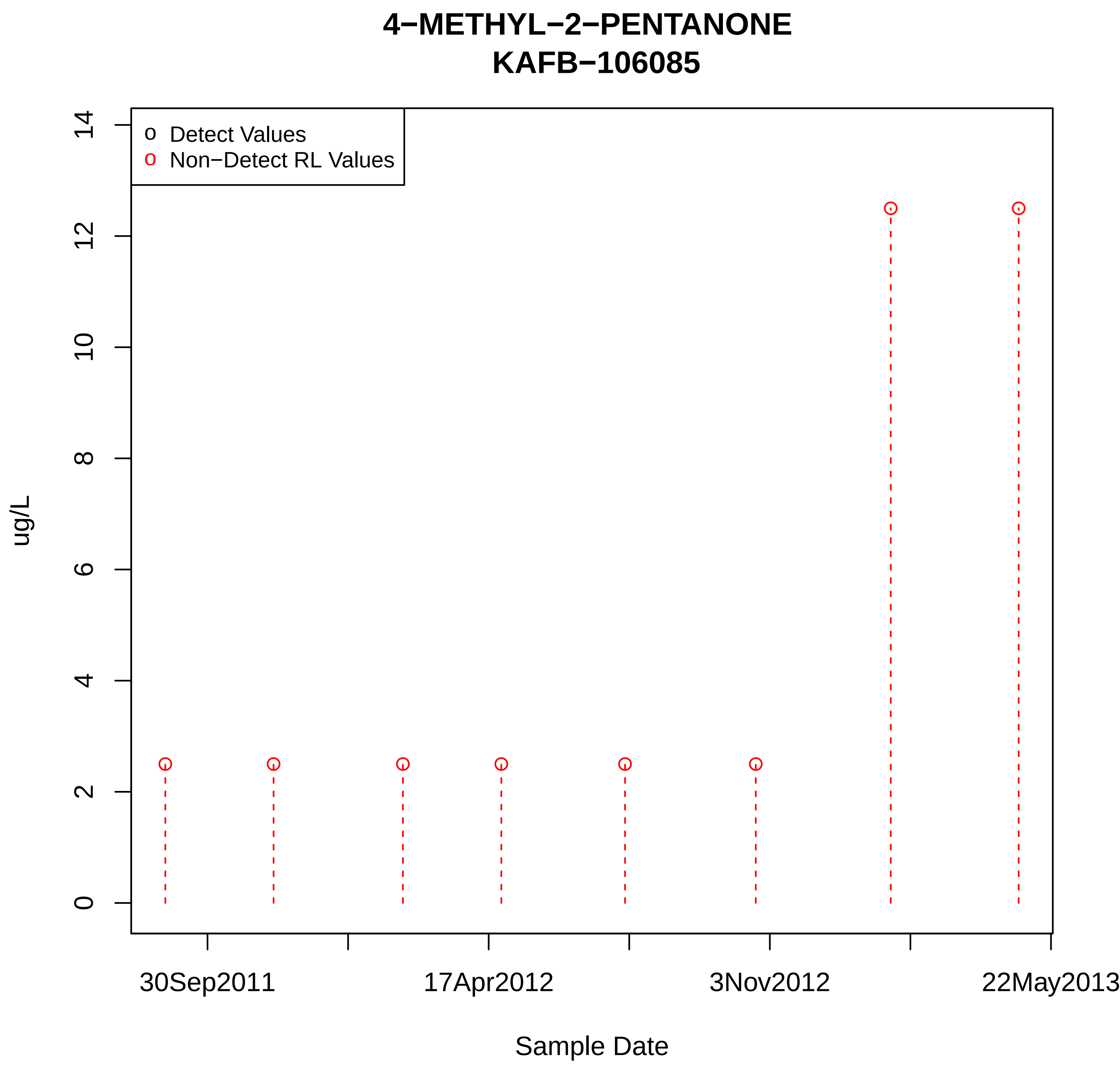


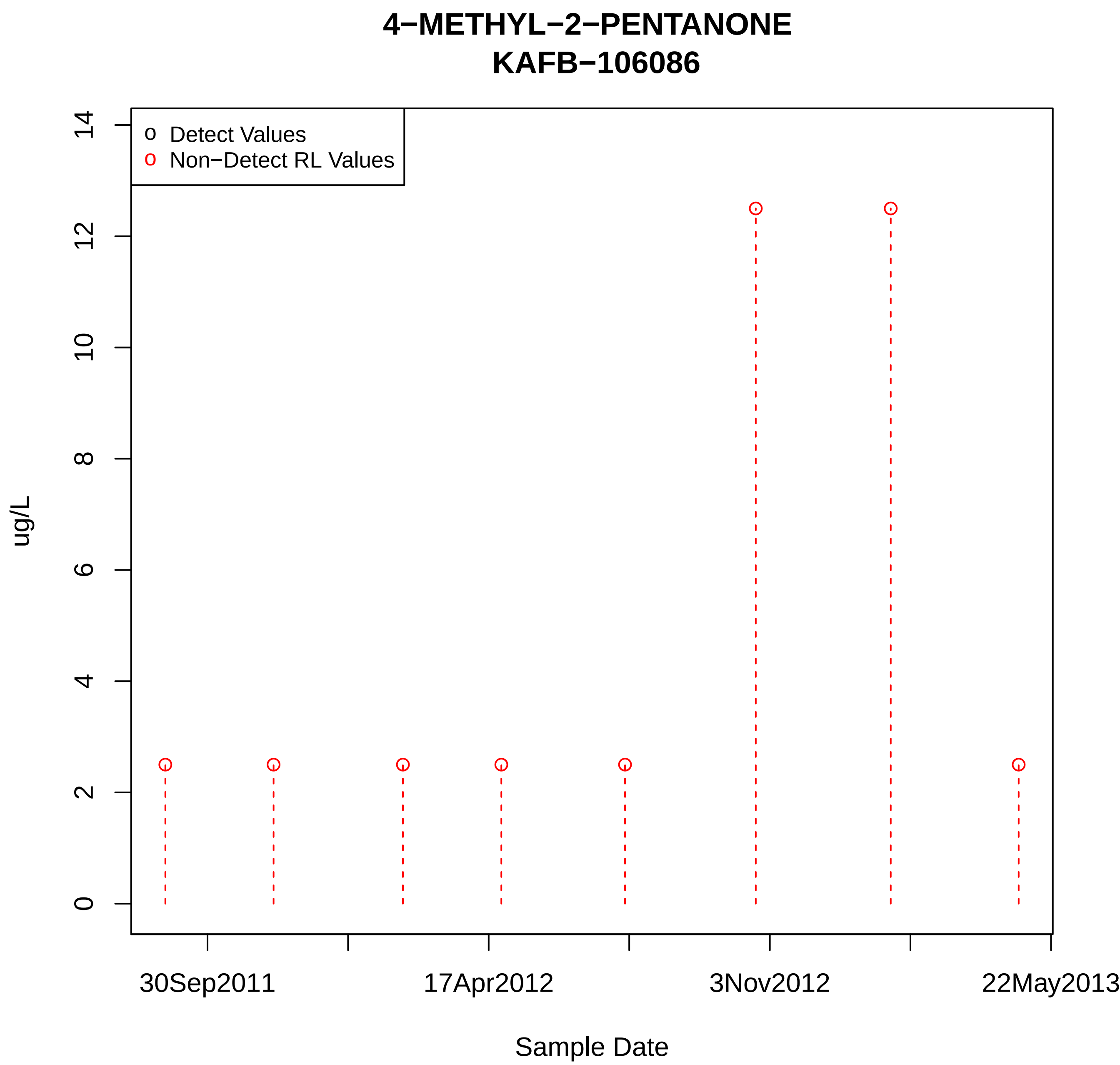
4−METHYL−2−PENTANONE
KAFB−106081
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106082
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

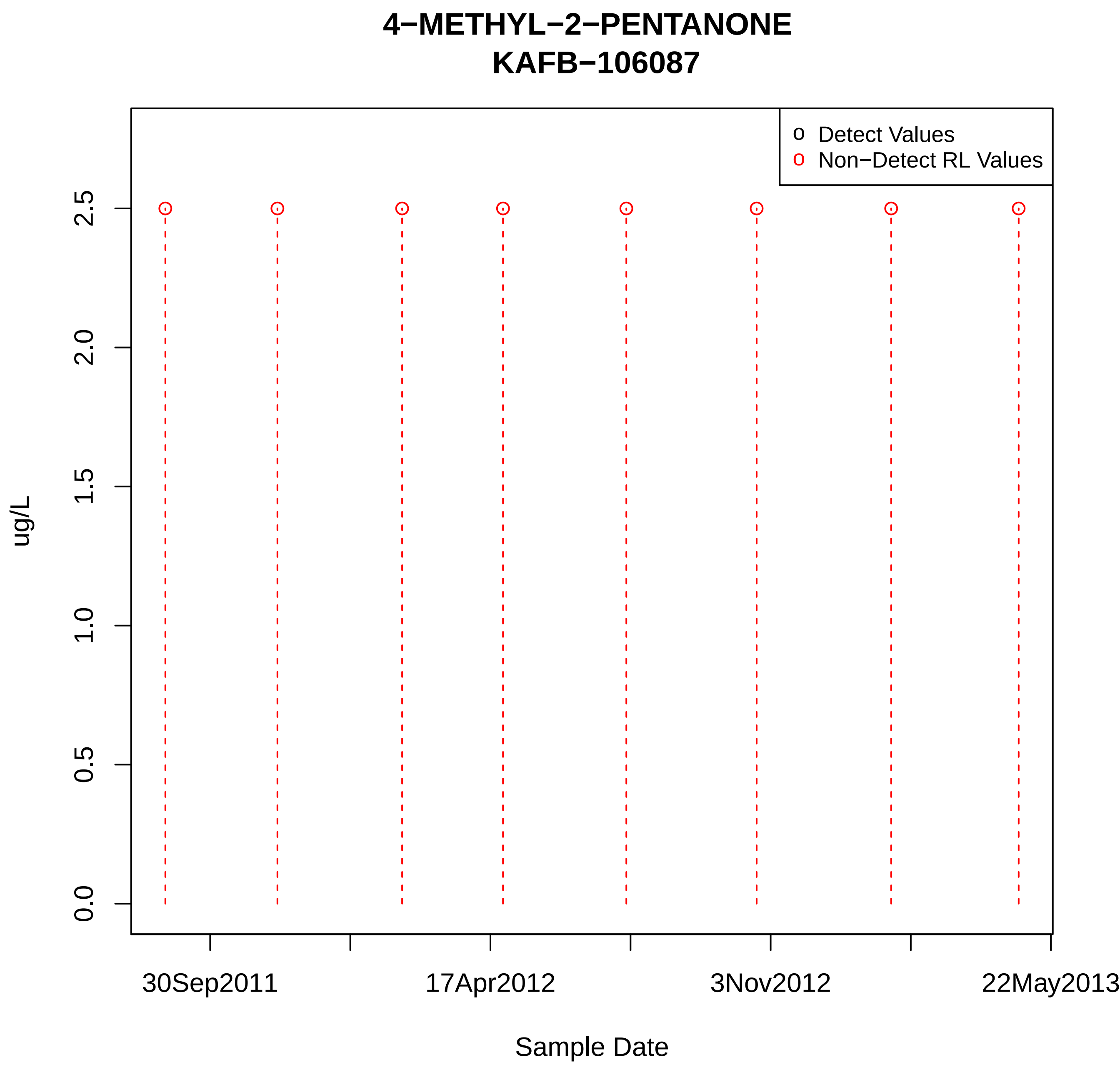

4−METHYL−2−PENTANONE
KAFB−106083
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

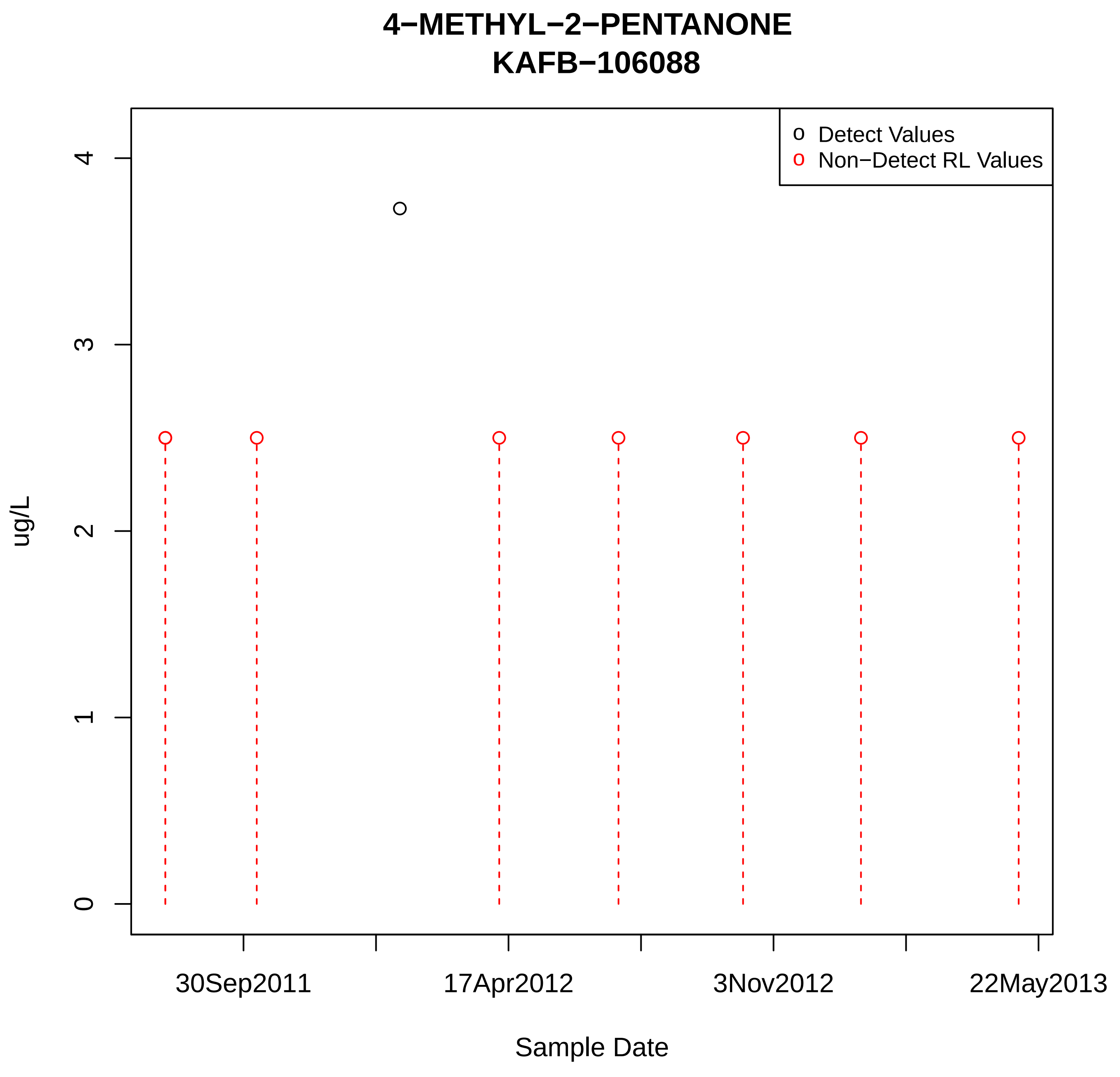

4−METHYL−2−PENTANONE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



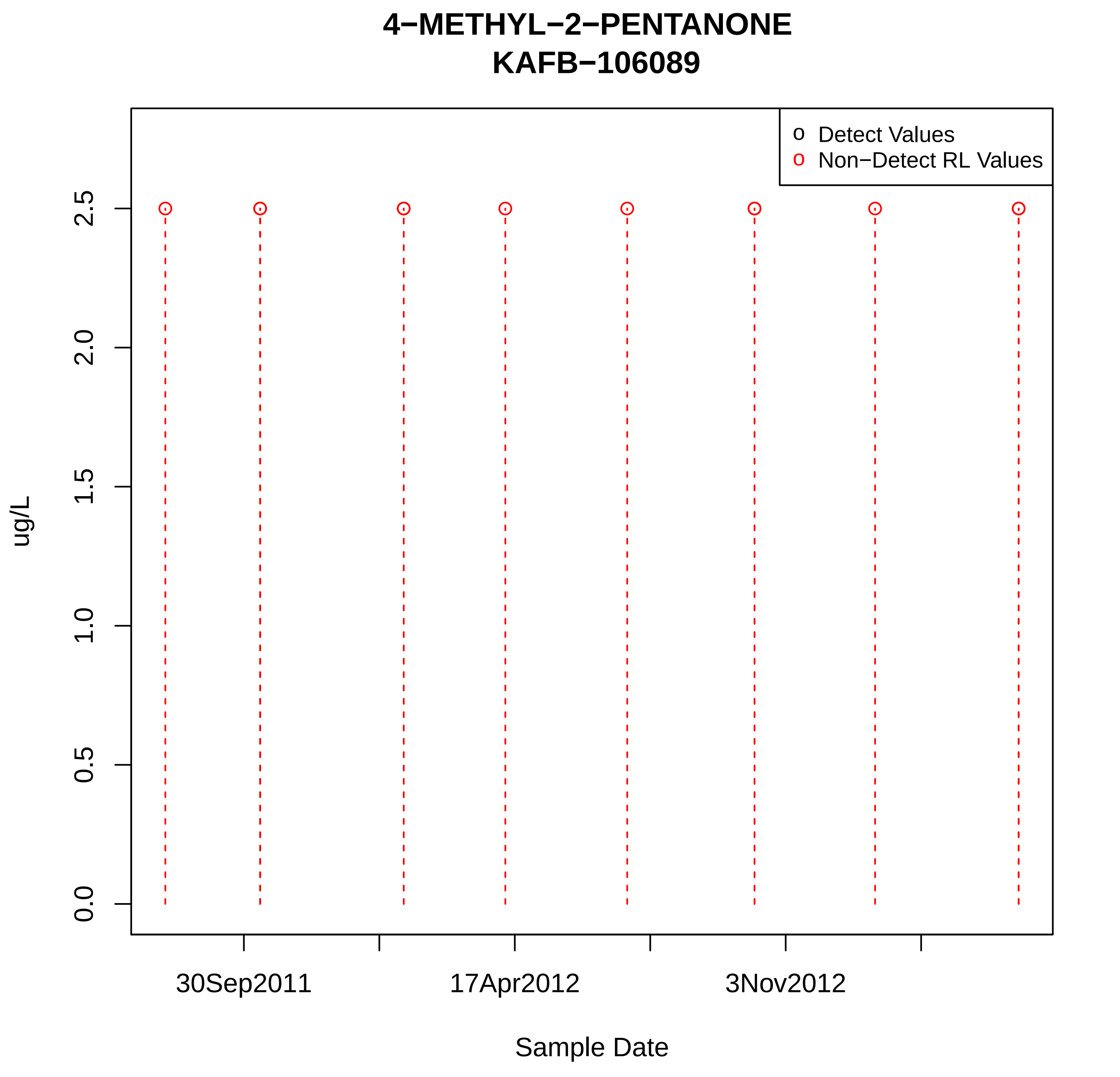
4−METHYL−2−PENTANONE
KAFB−106086
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



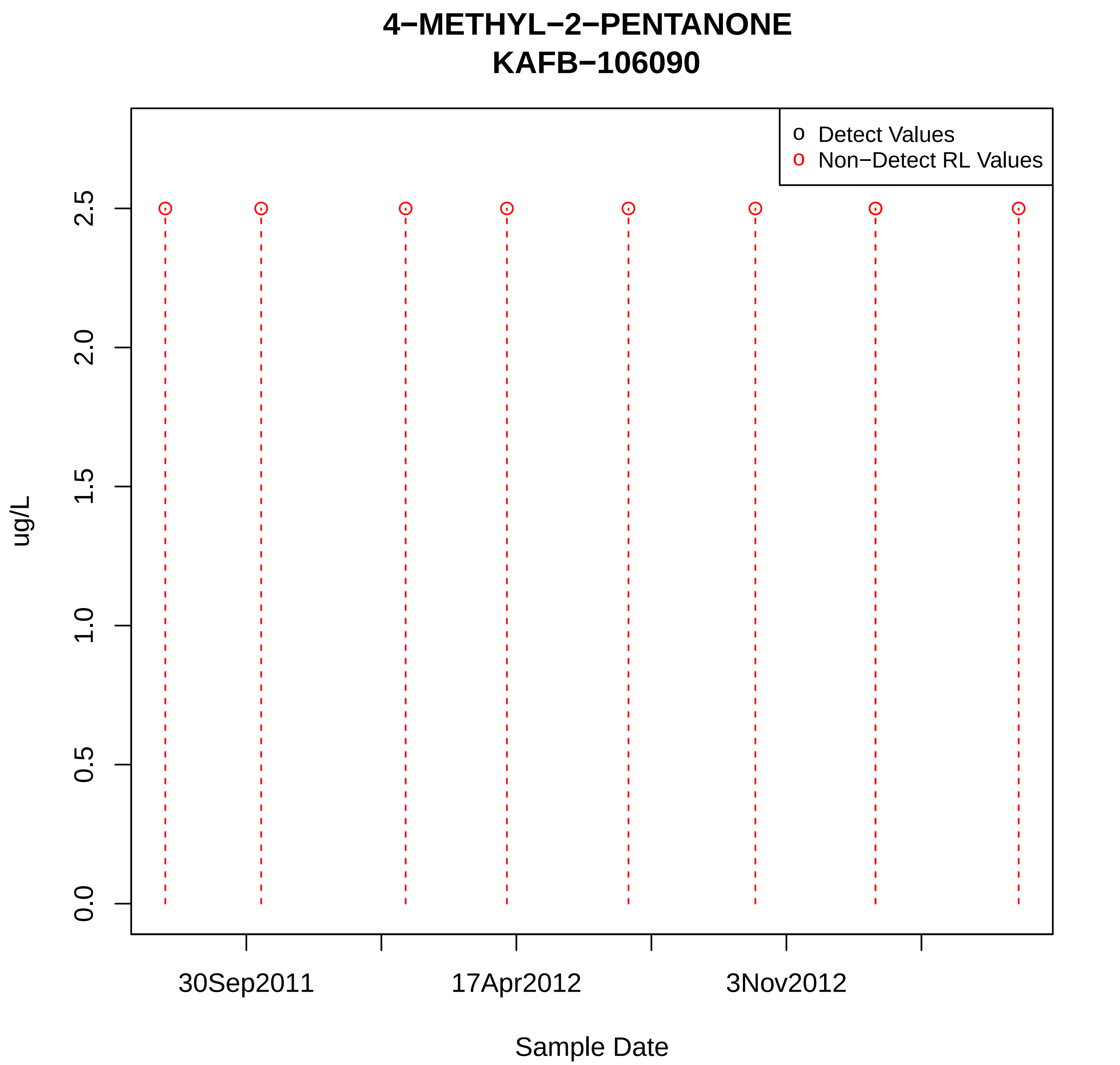
4−METHYL−2−PENTANONE
KAFB−106087
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

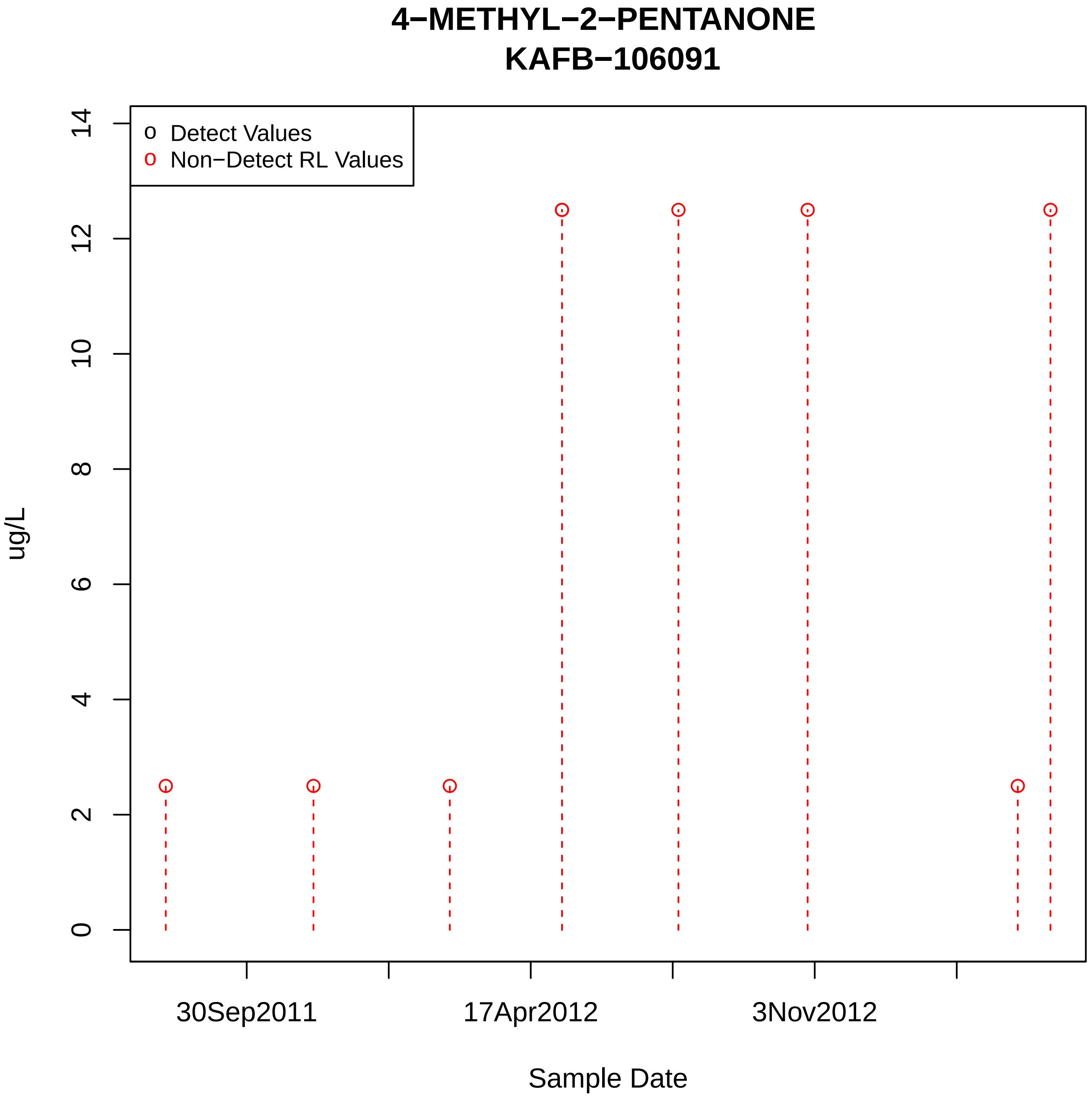


4−METHYL−2−PENTANONE
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

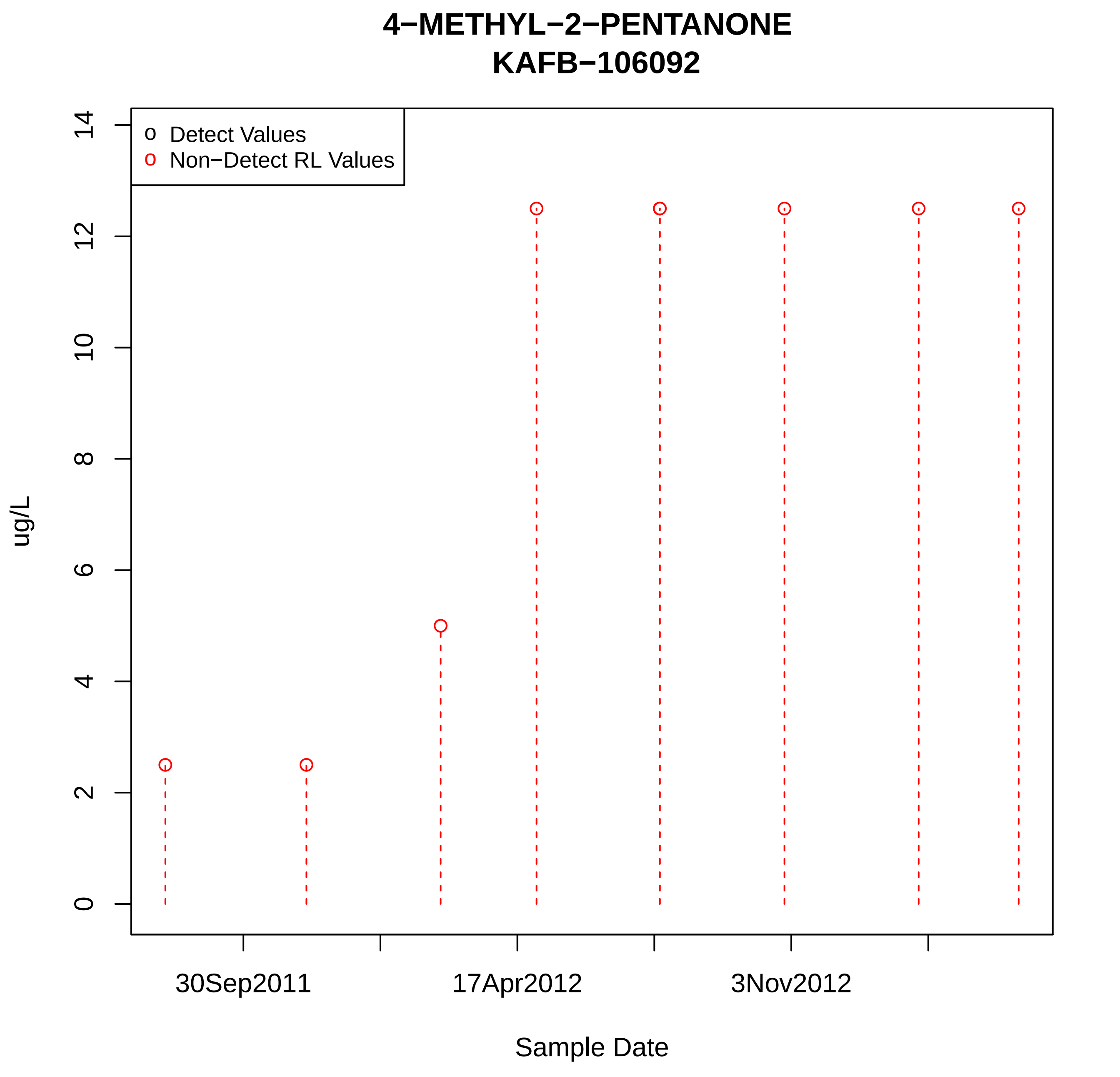


4−METHYL−2−PENTANONE
KAFB−106089
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

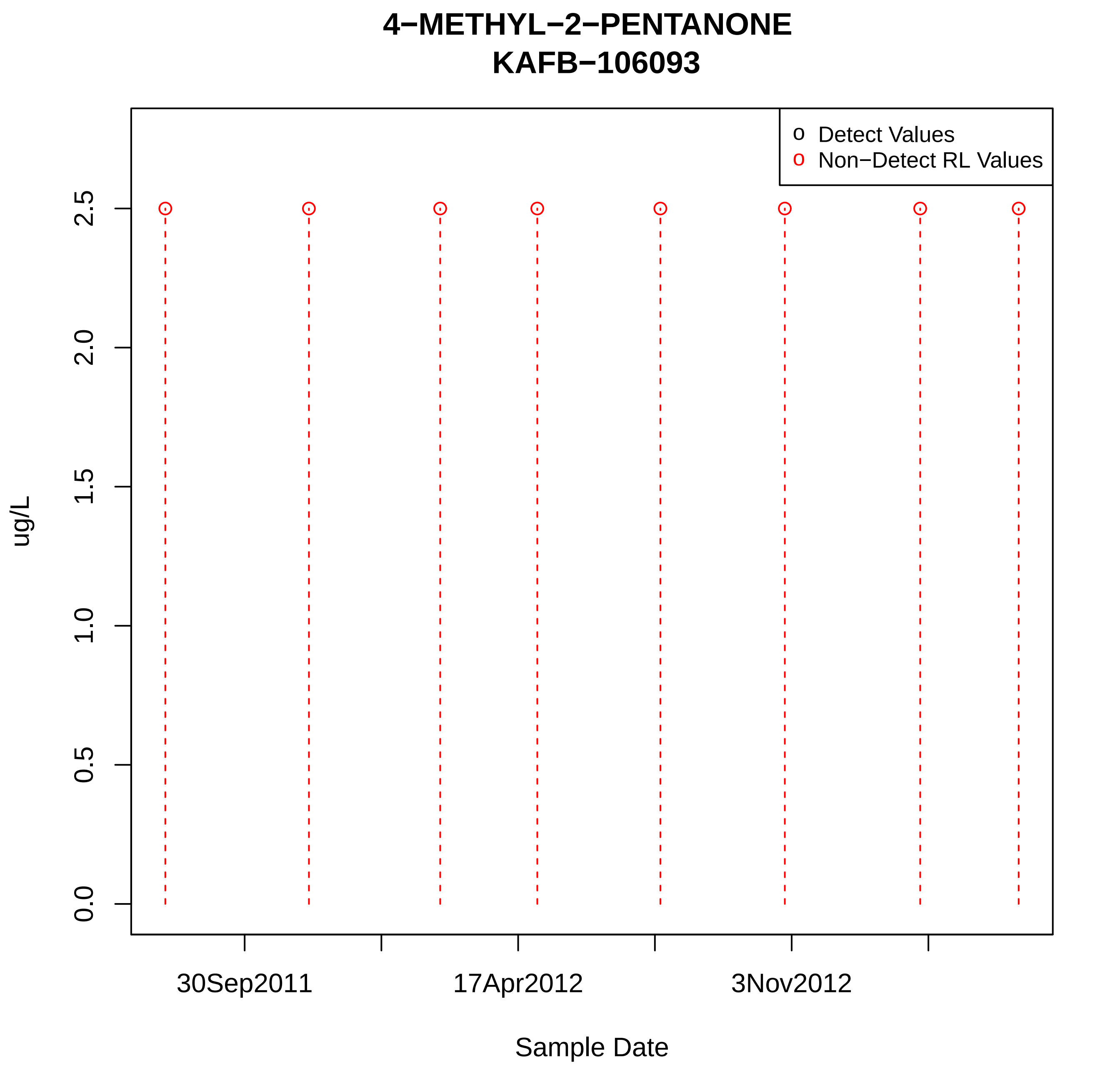

4−METHYL−2−PENTANONE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

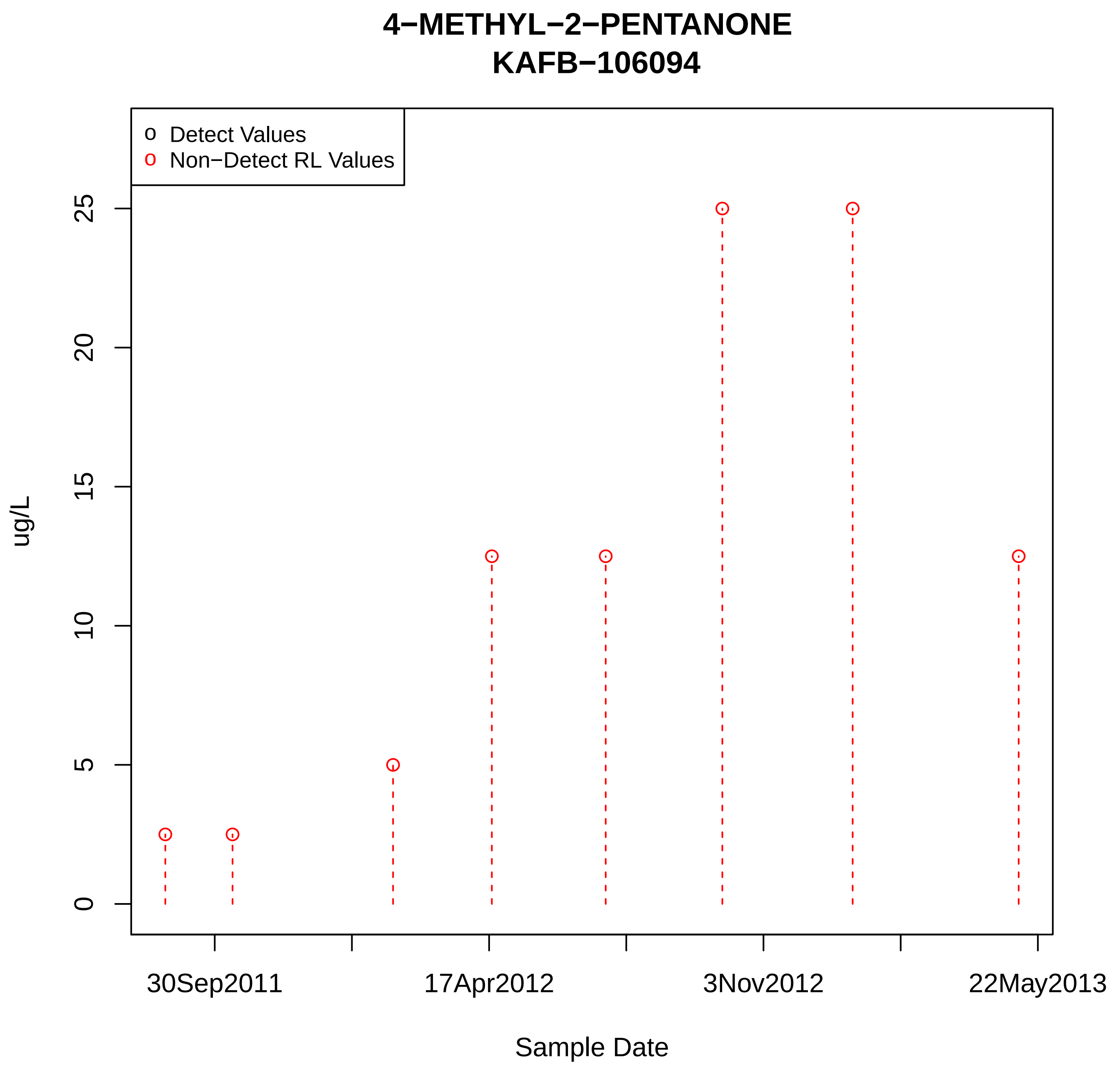


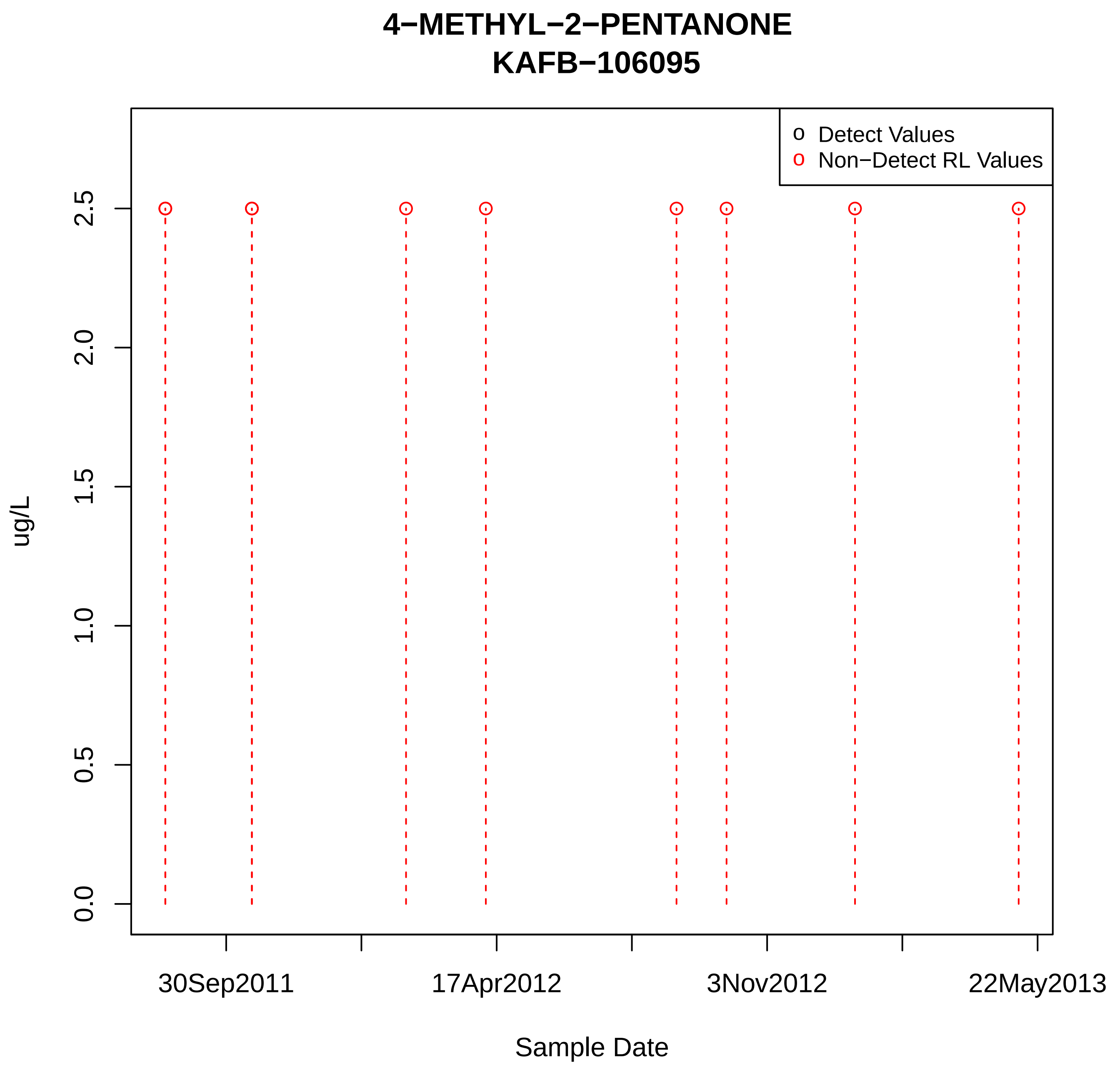
4−METHYL−2−PENTANONE
KAFB−106091
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
Sample Date

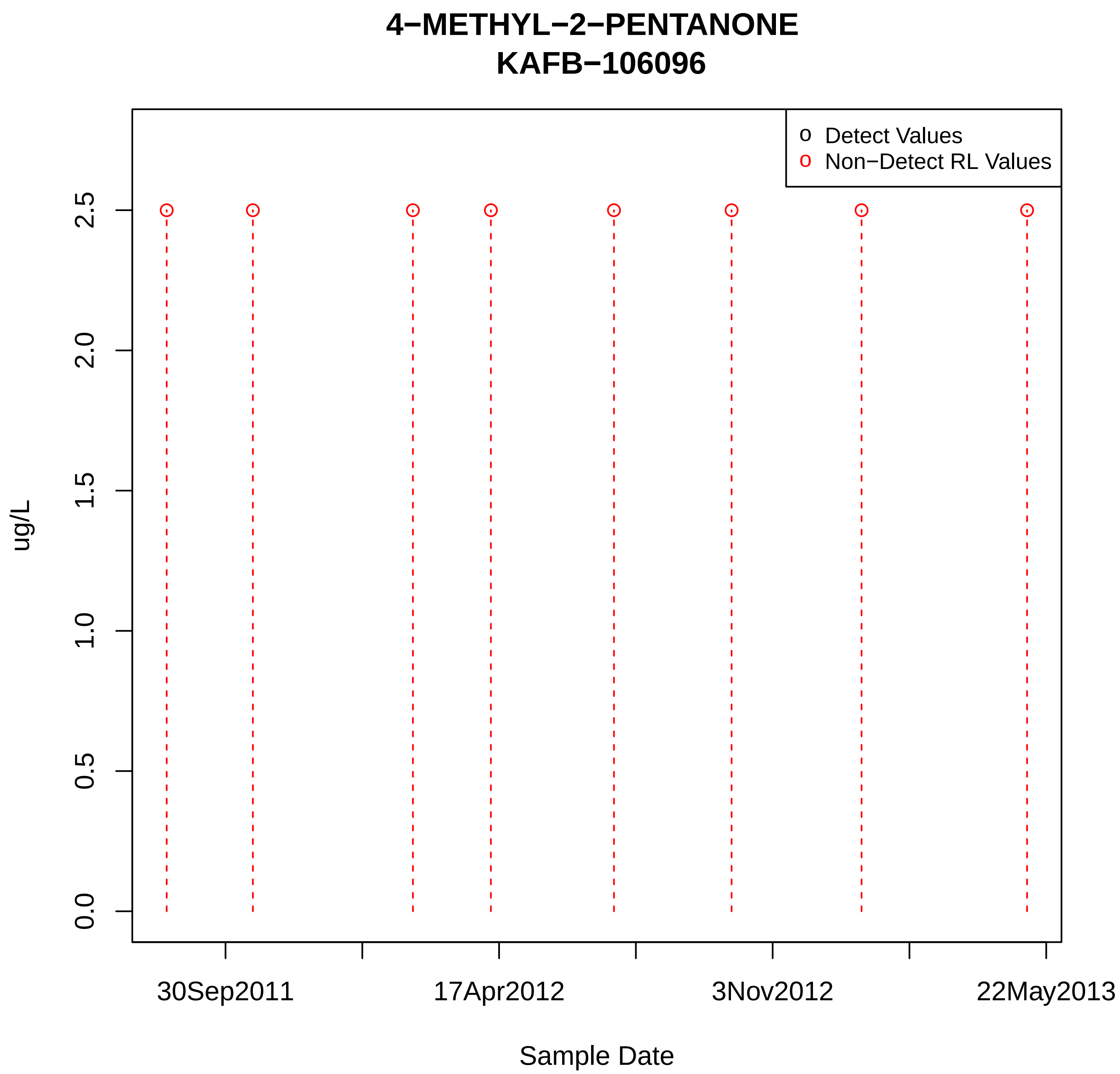


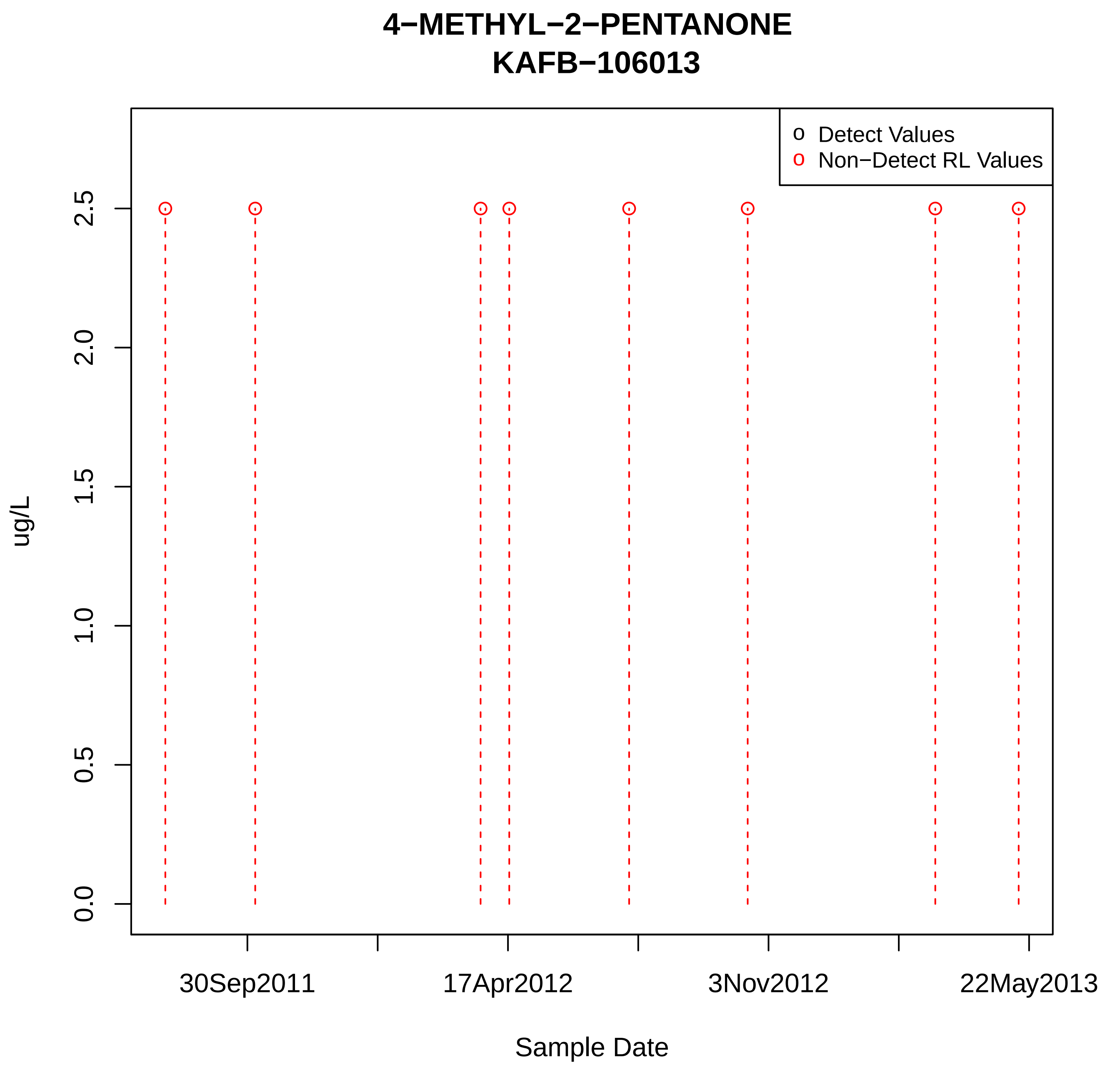
4−METHYL−2−PENTANONE
KAFB−106092
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
Sample Date


4−METHYL−2−PENTANONE
KAFB−106093
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

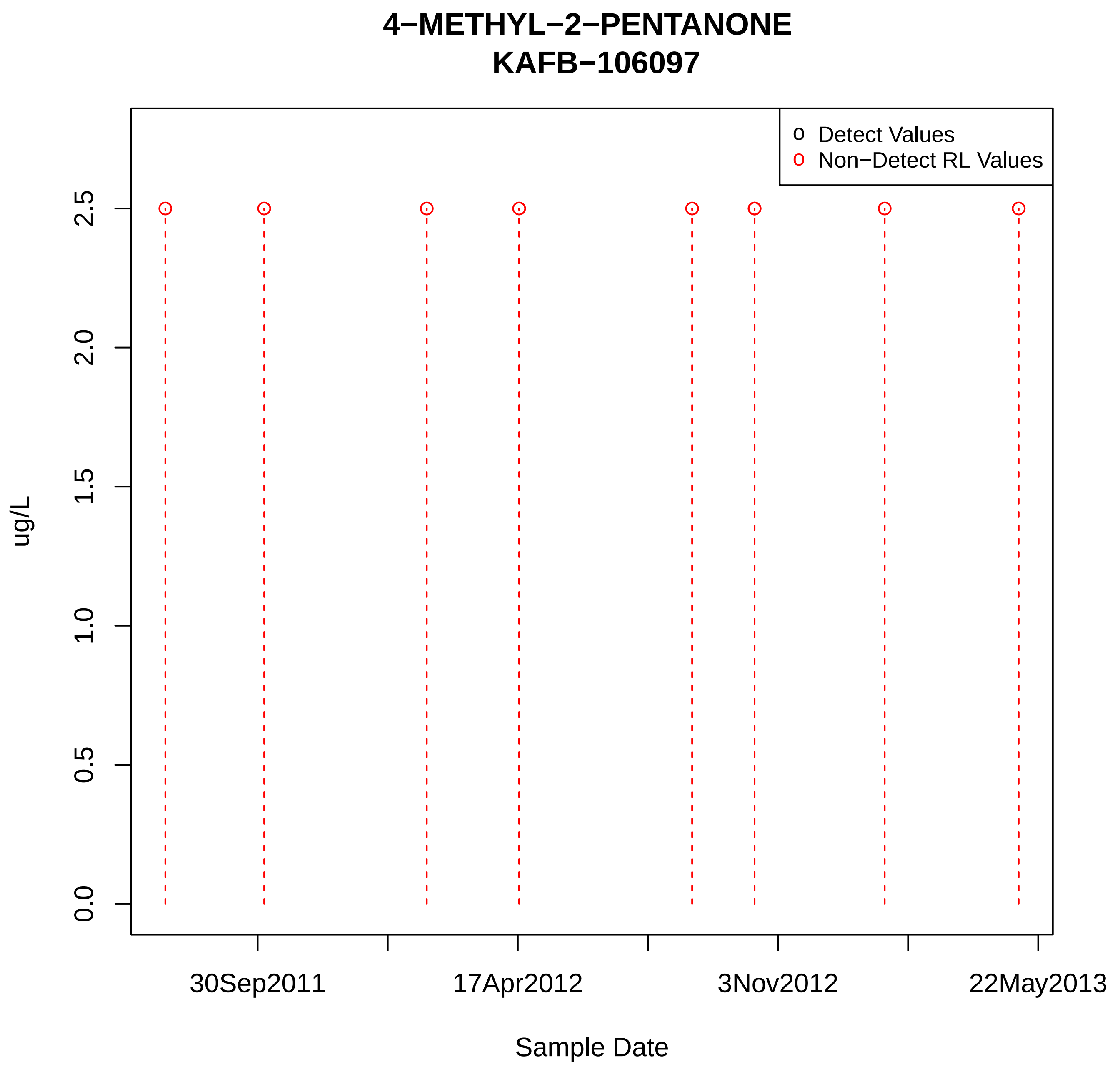

4−METHYL−2−PENTANONE
KAFB−106094
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106095
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

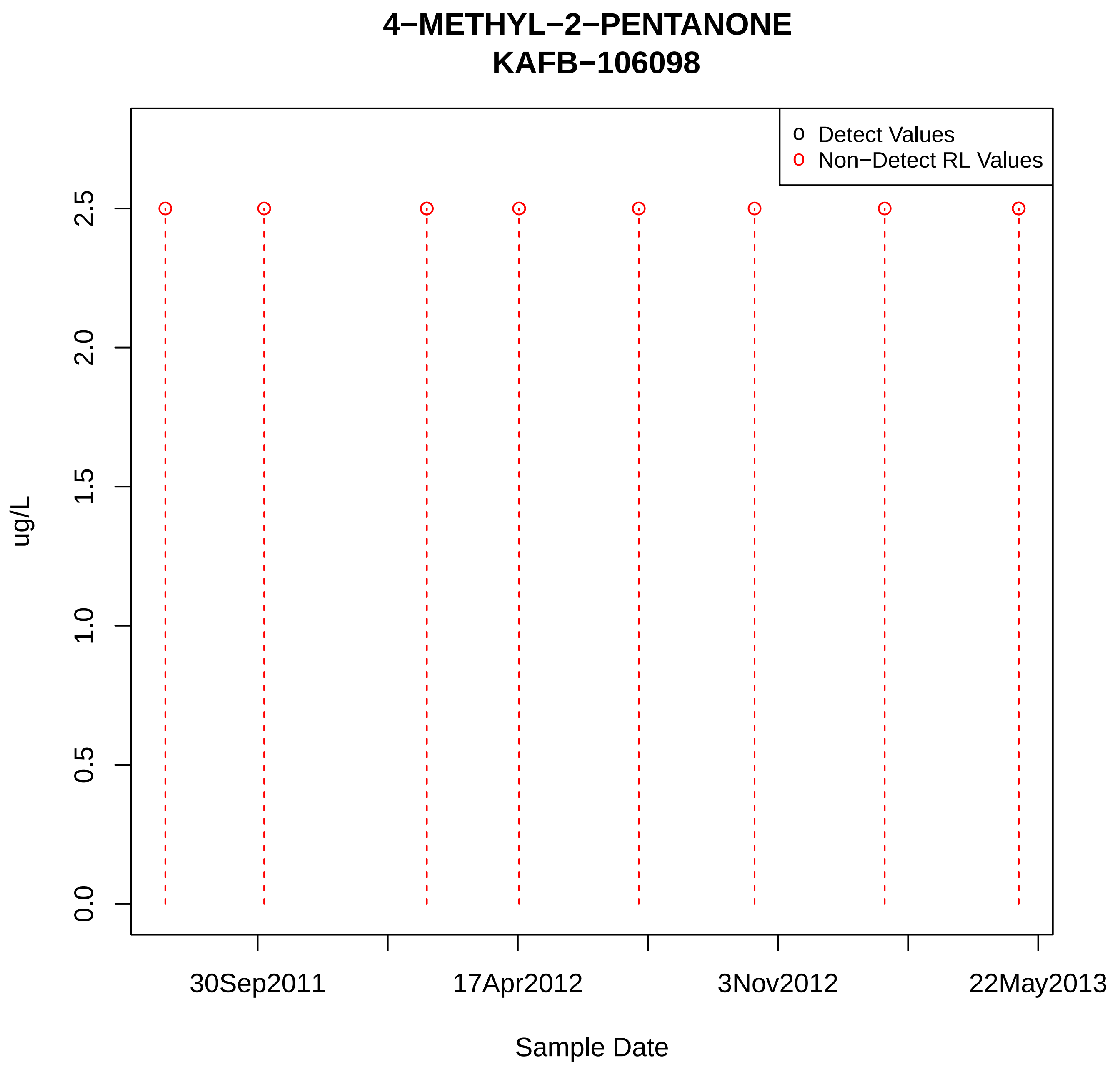

4−METHYL−2−PENTANONE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



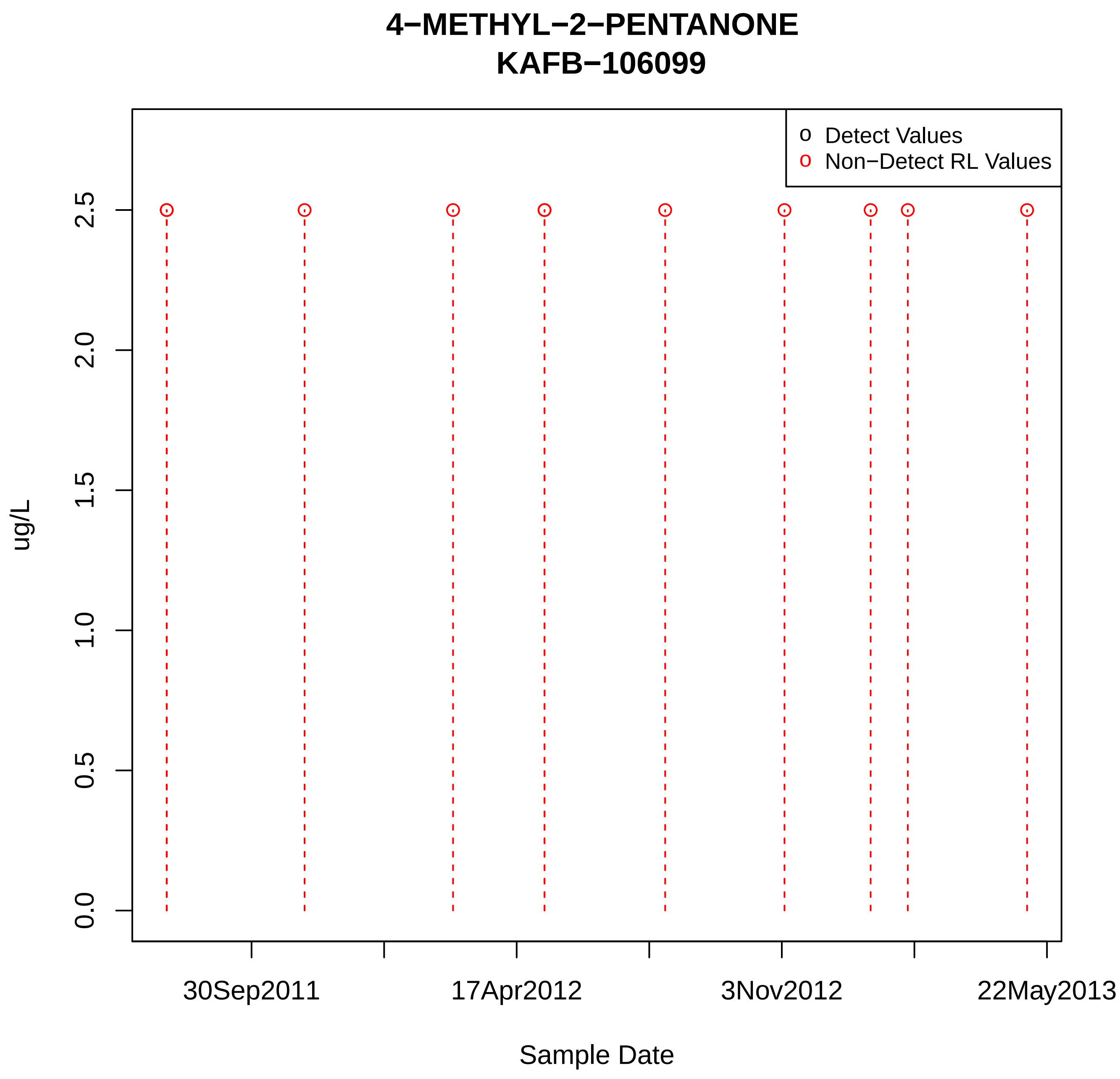
4−METHYL−2−PENTANONE
KAFB−106013
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

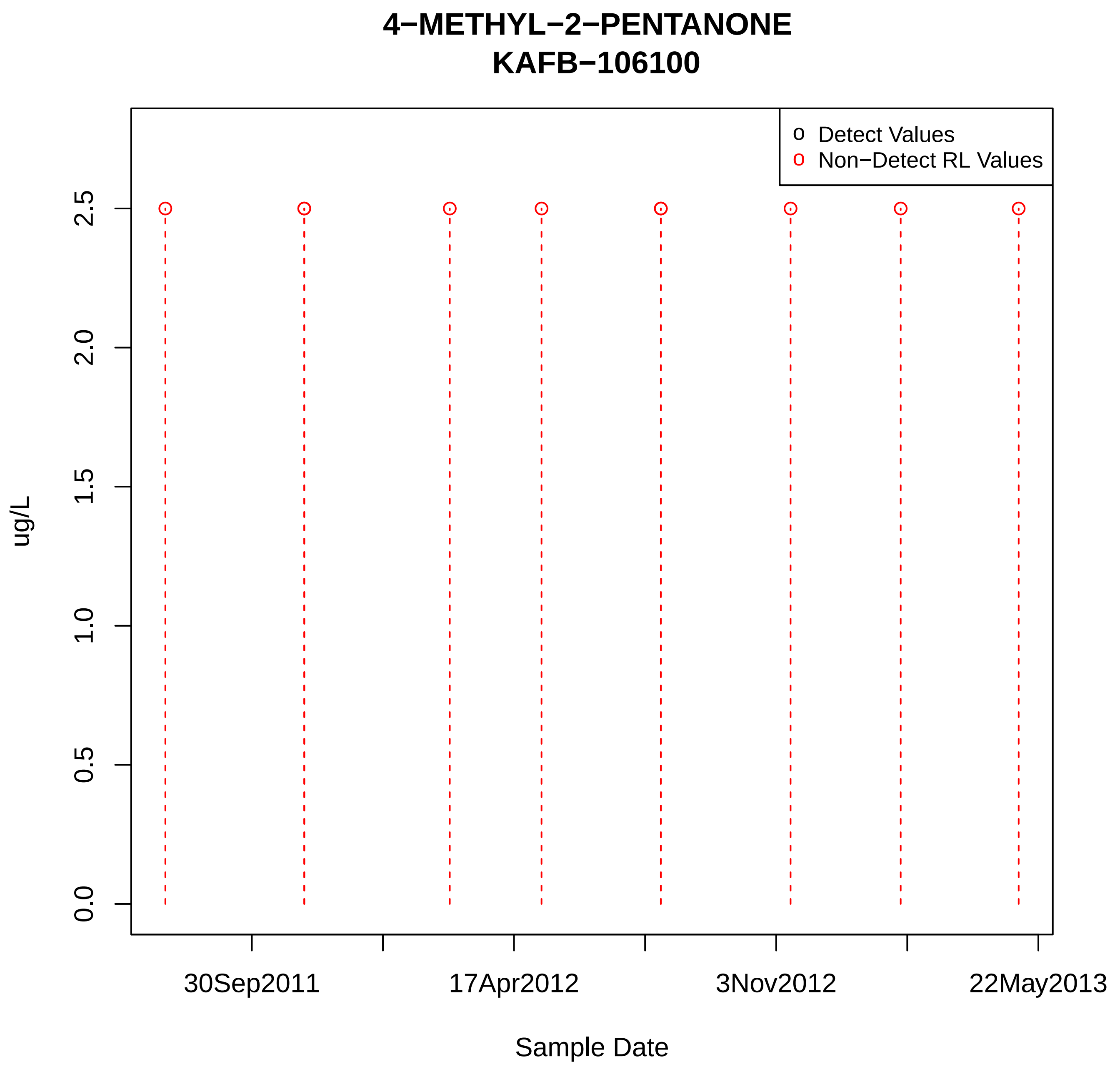


4−METHYL−2−PENTANONE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

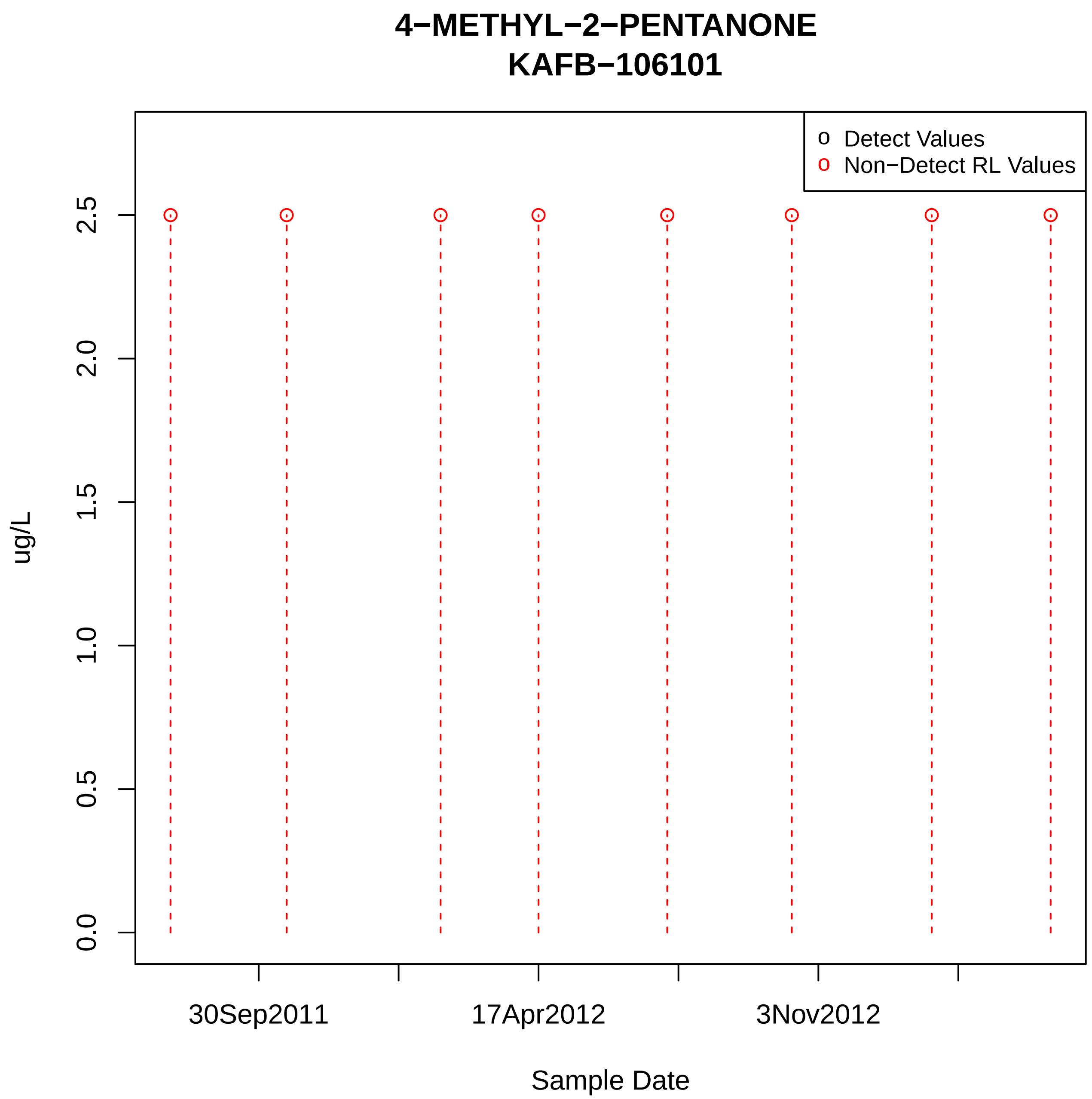


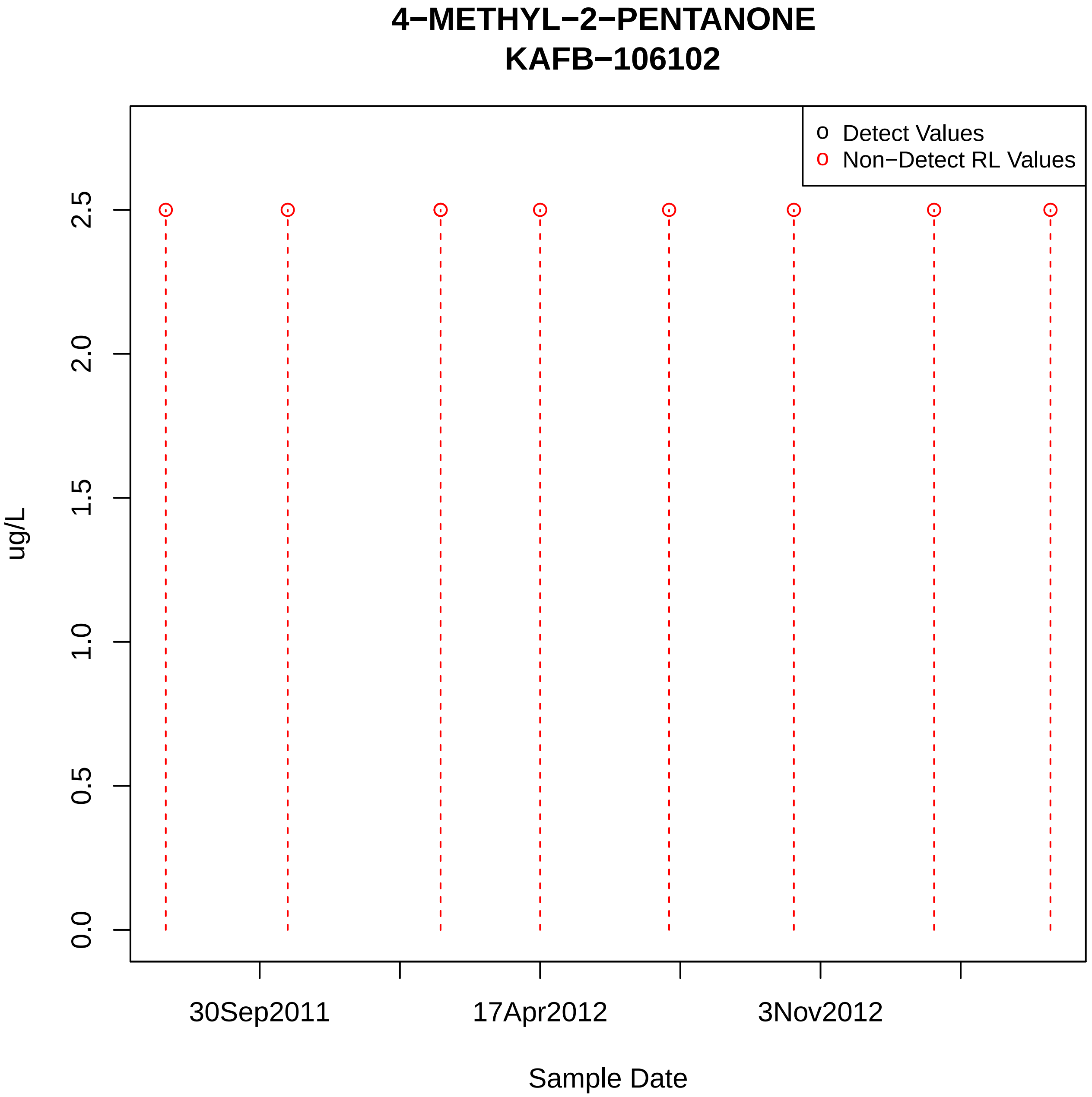
4−METHYL−2−PENTANONE
KAFB−106098
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

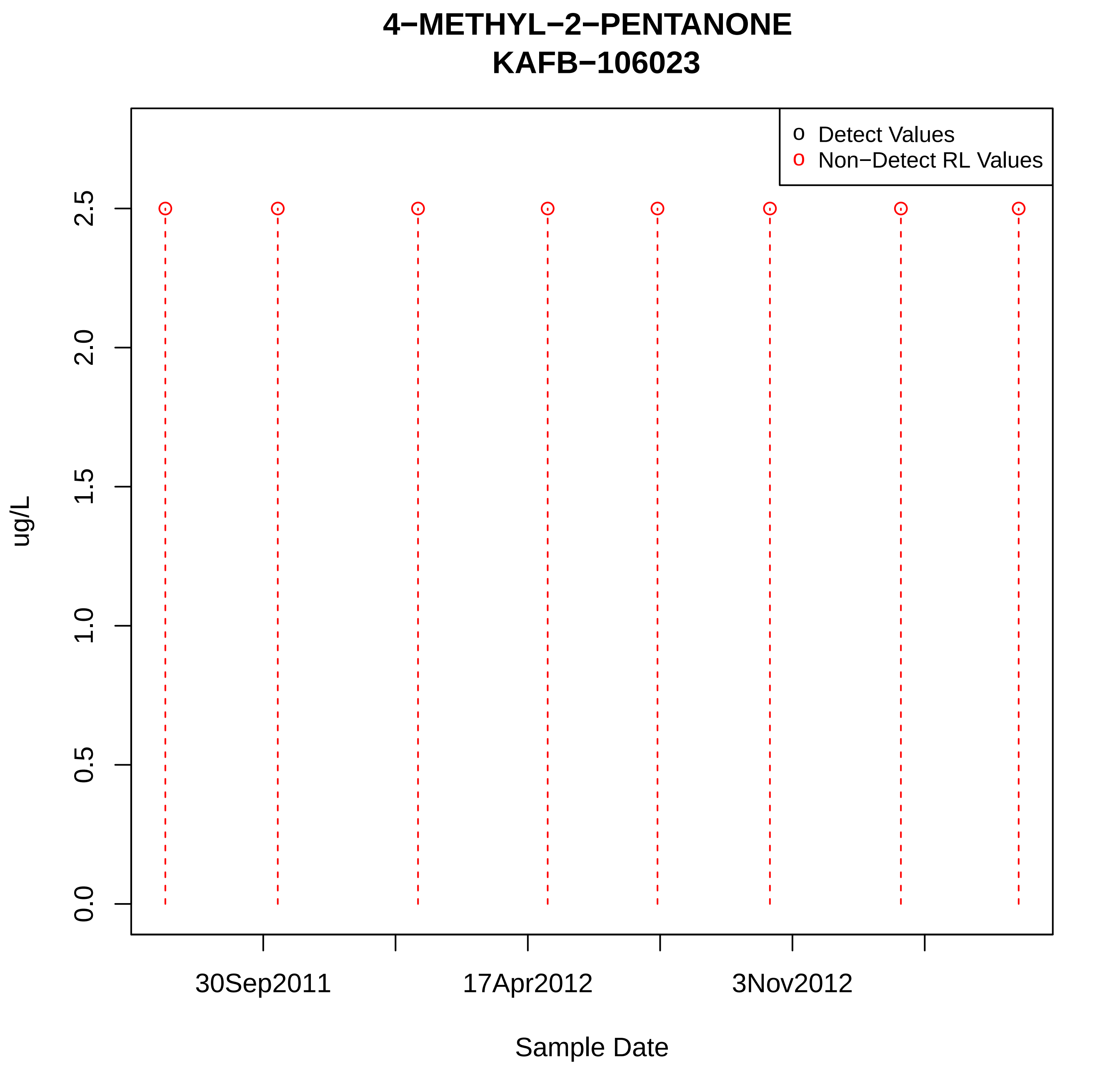

4−METHYL−2−PENTANONE
KAFB−106099
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

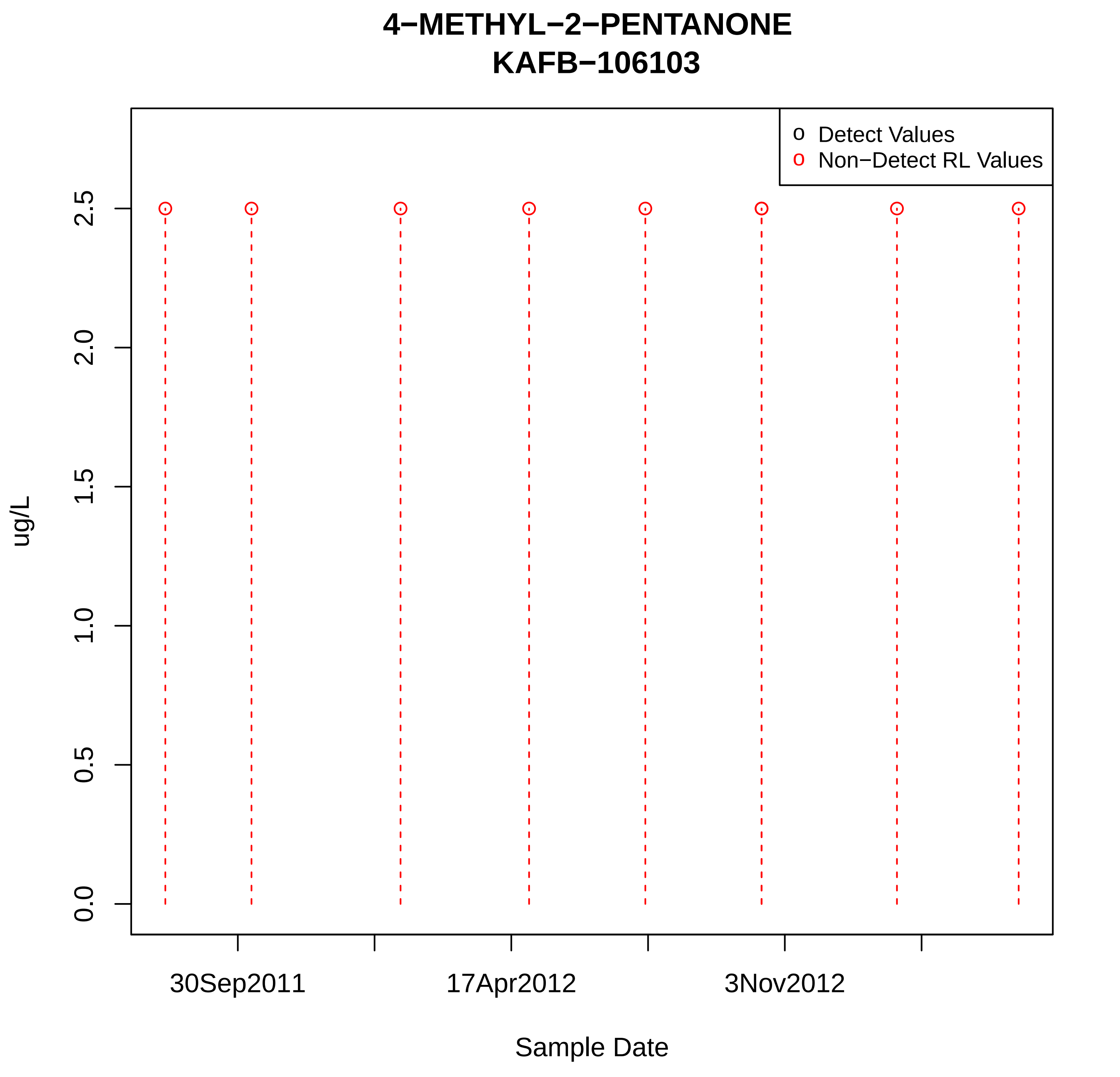


4−METHYL−2−PENTANONE
KAFB−106100
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

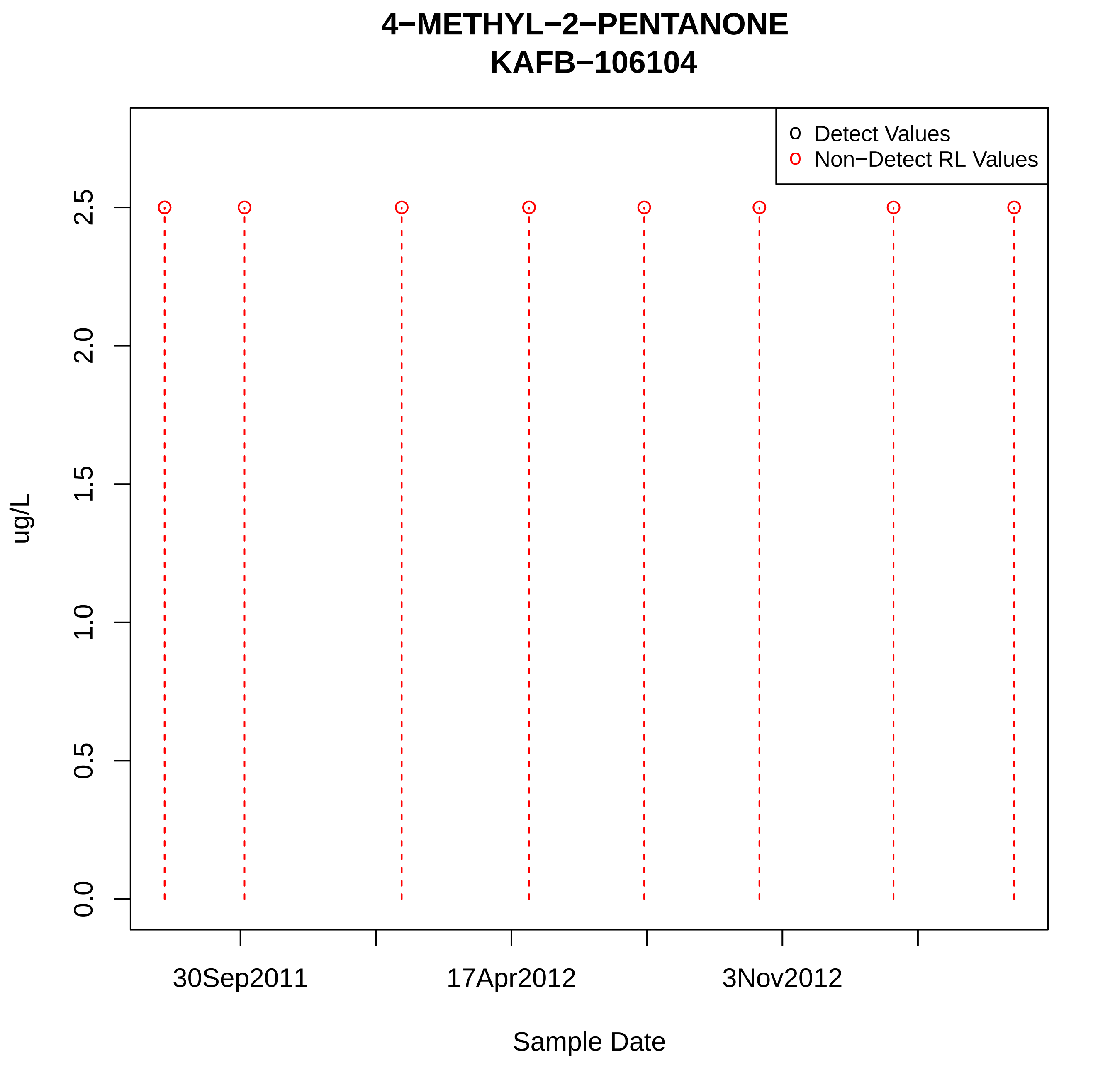

4−METHYL−2−PENTANONE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

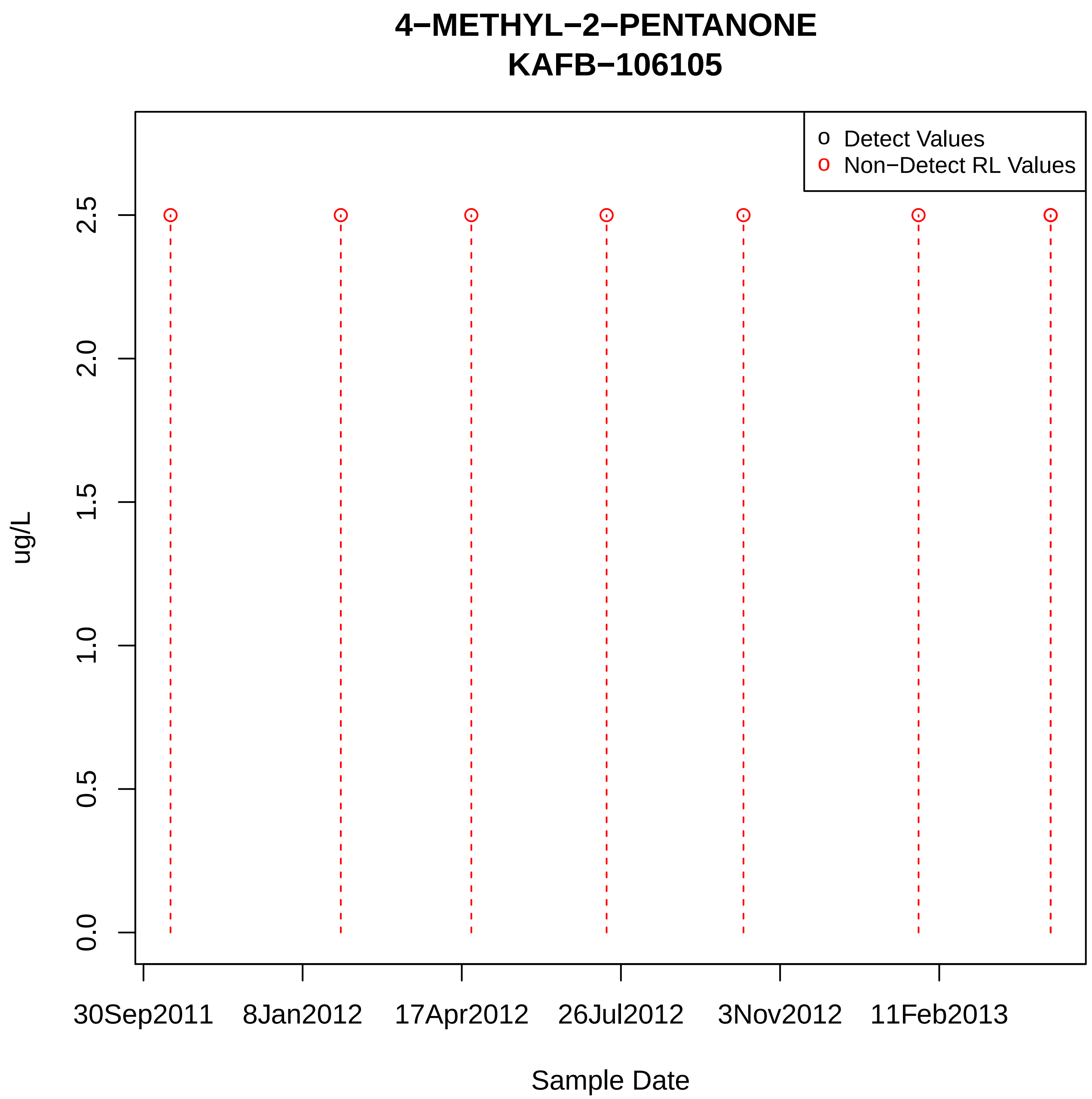

4−METHYL−2−PENTANONE
KAFB−106102
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


4−METHYL−2−PENTANONE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

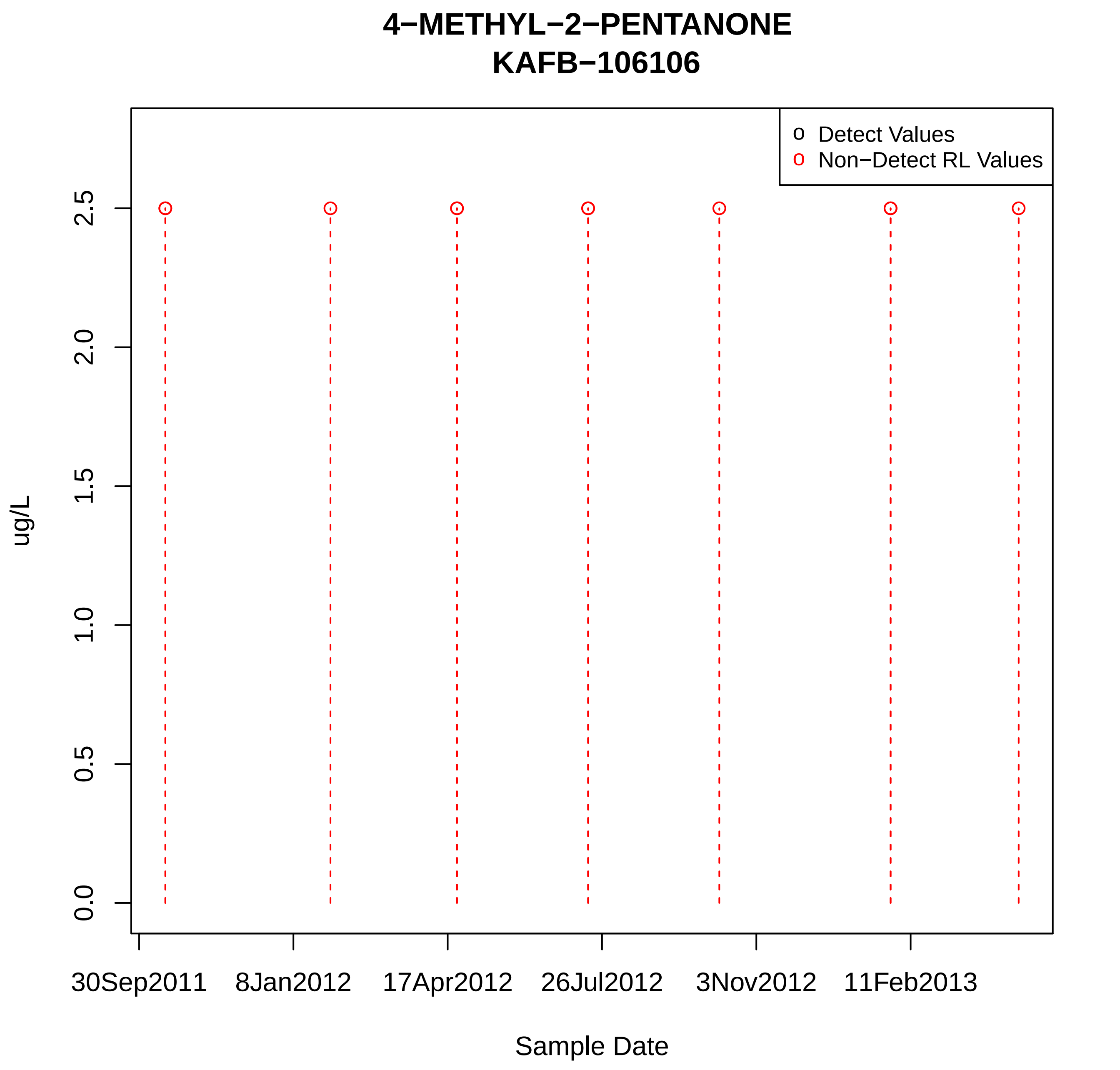


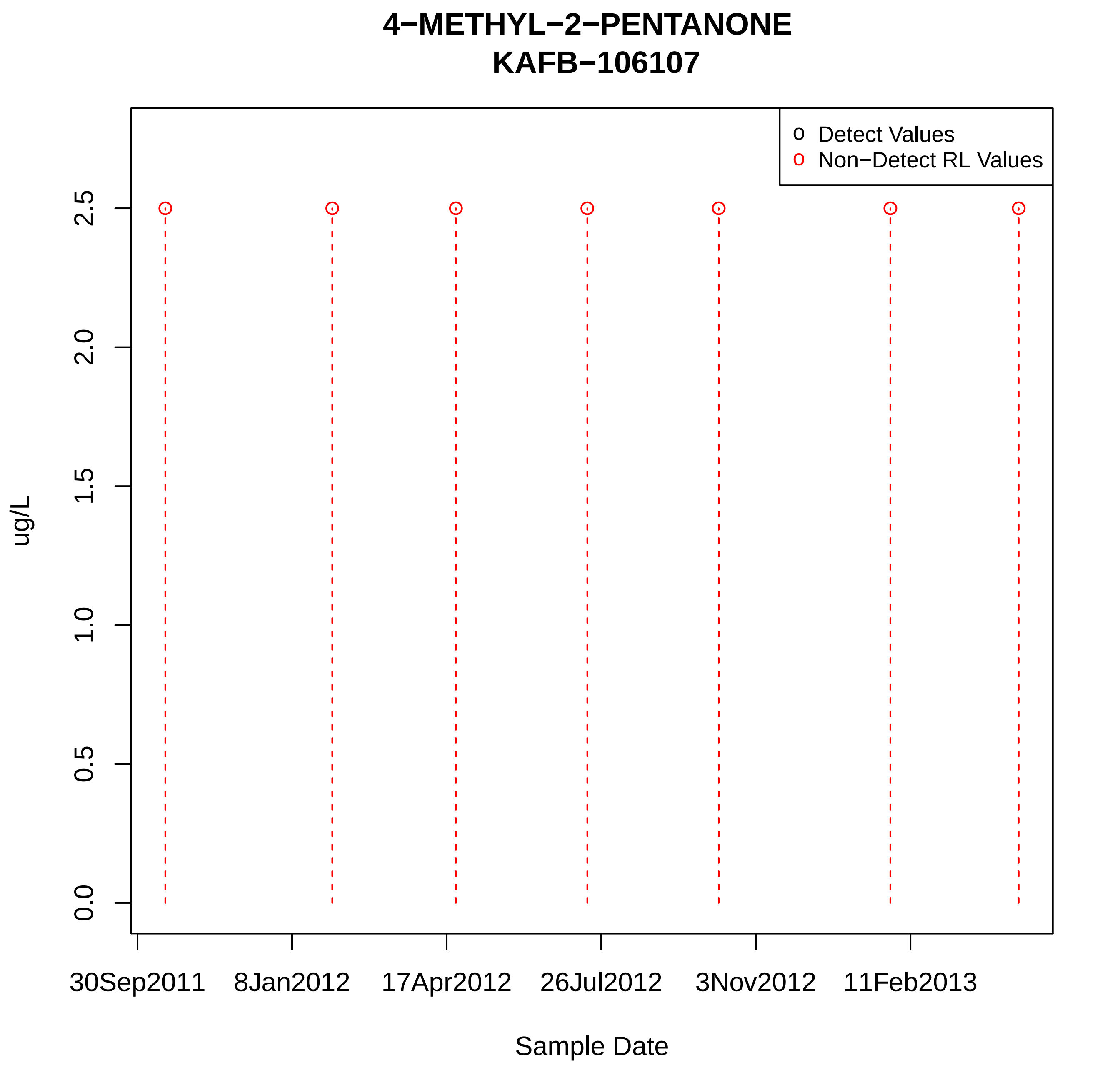
4−METHYL−2−PENTANONE
KAFB−106103
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

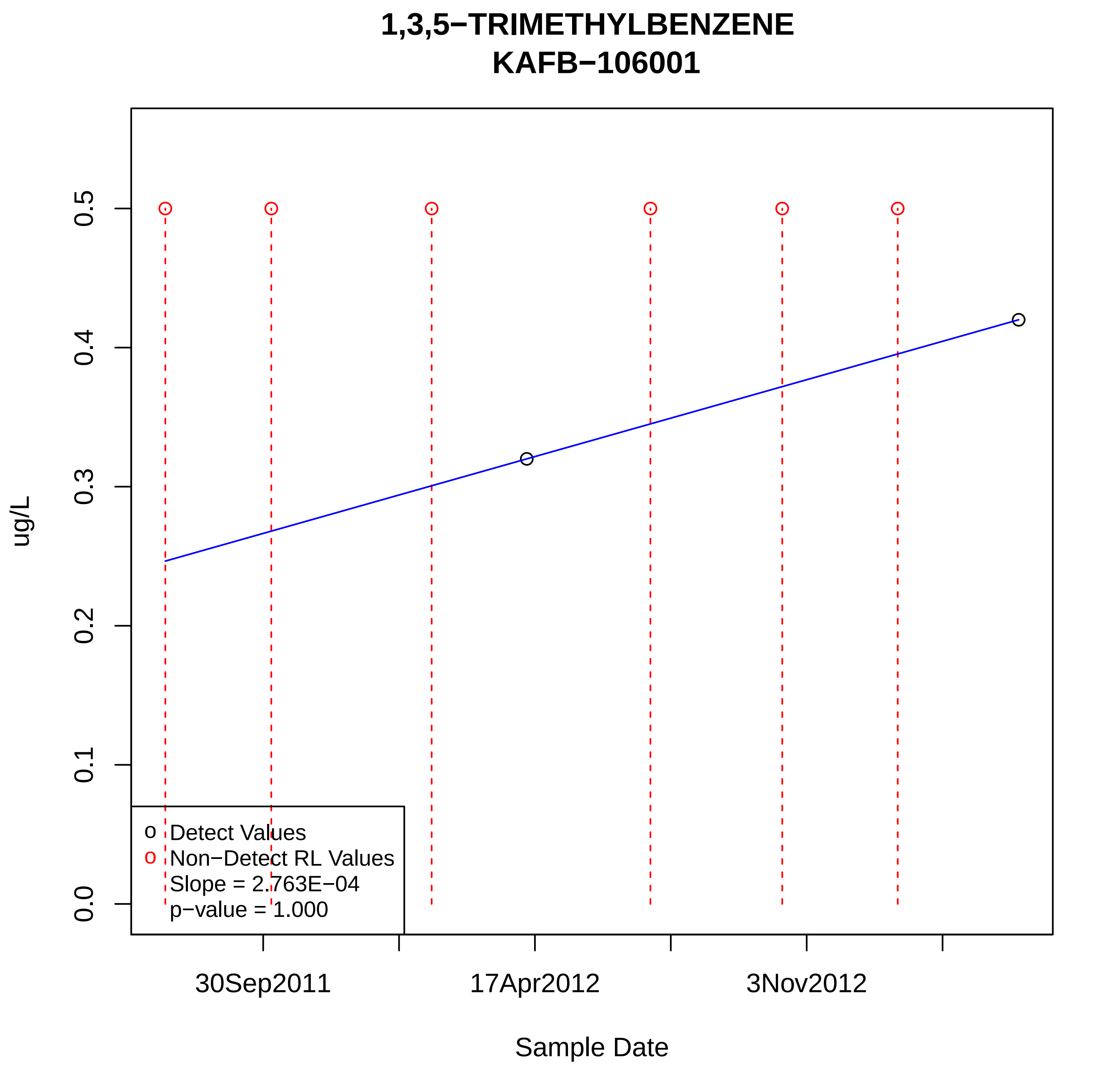

4−METHYL−2−PENTANONE
KAFB−106104
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

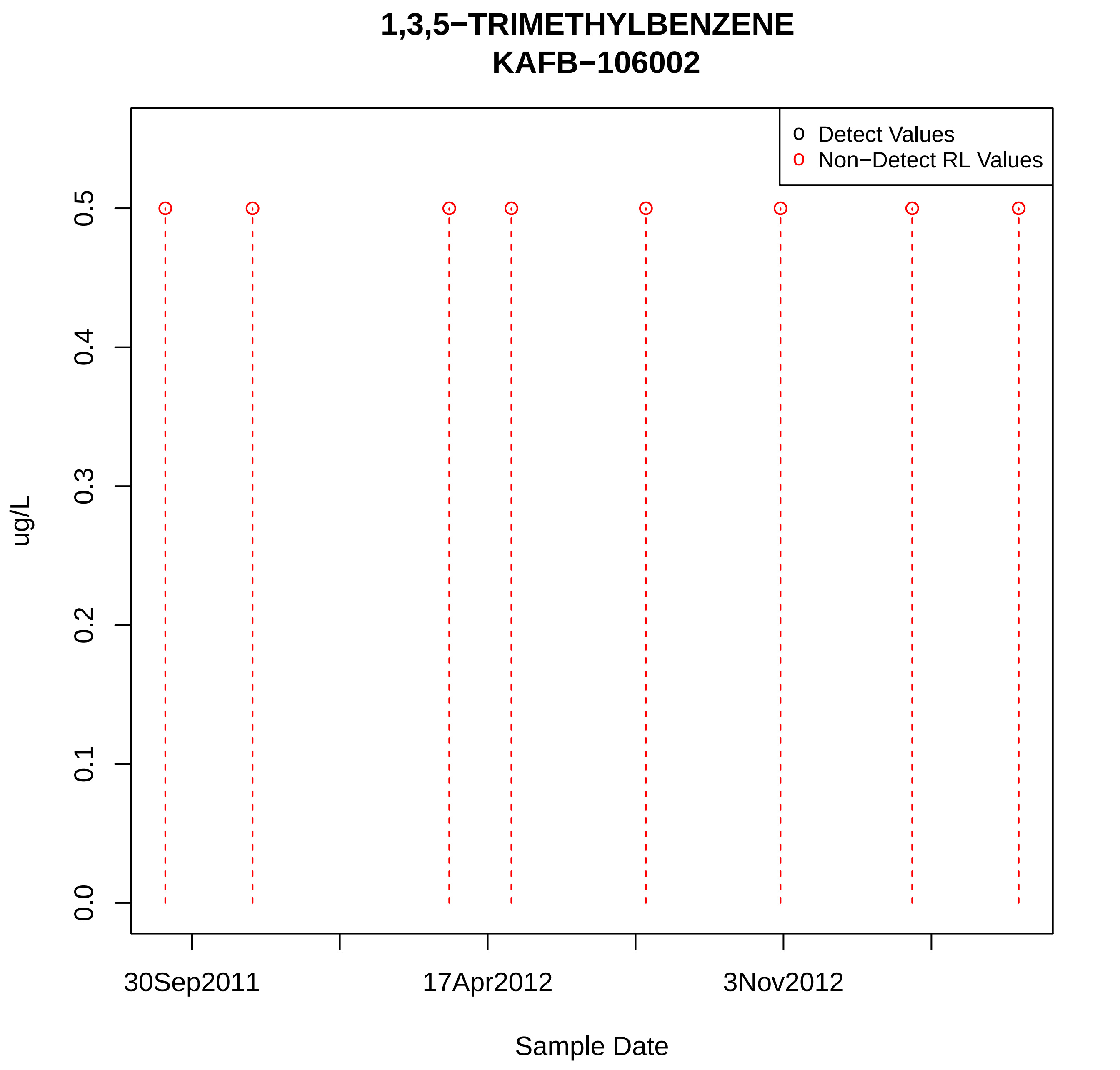


4−METHYL−2−PENTANONE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

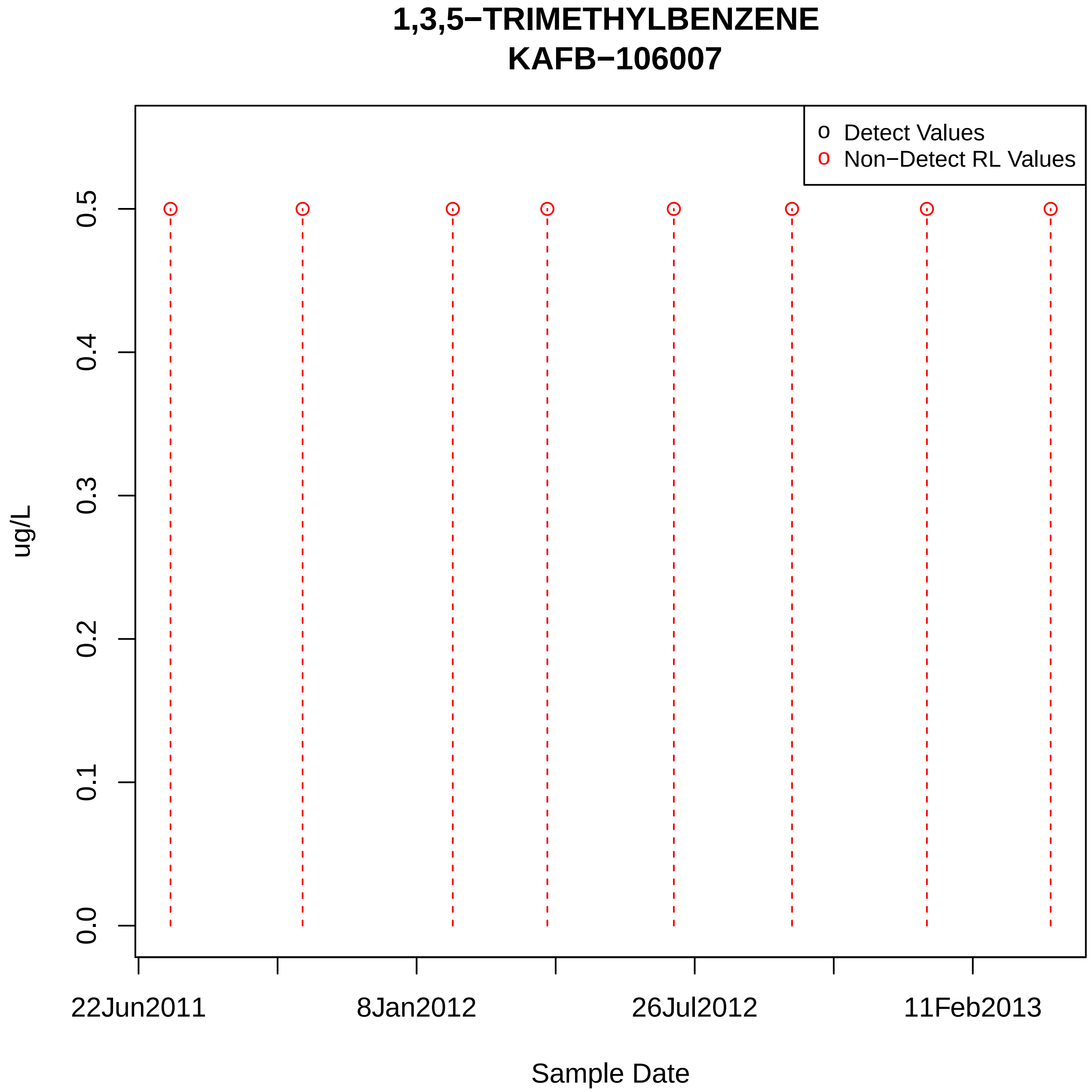

4−METHYL−2−PENTANONE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


4−METHYL−2−PENTANONE
KAFB−106107
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

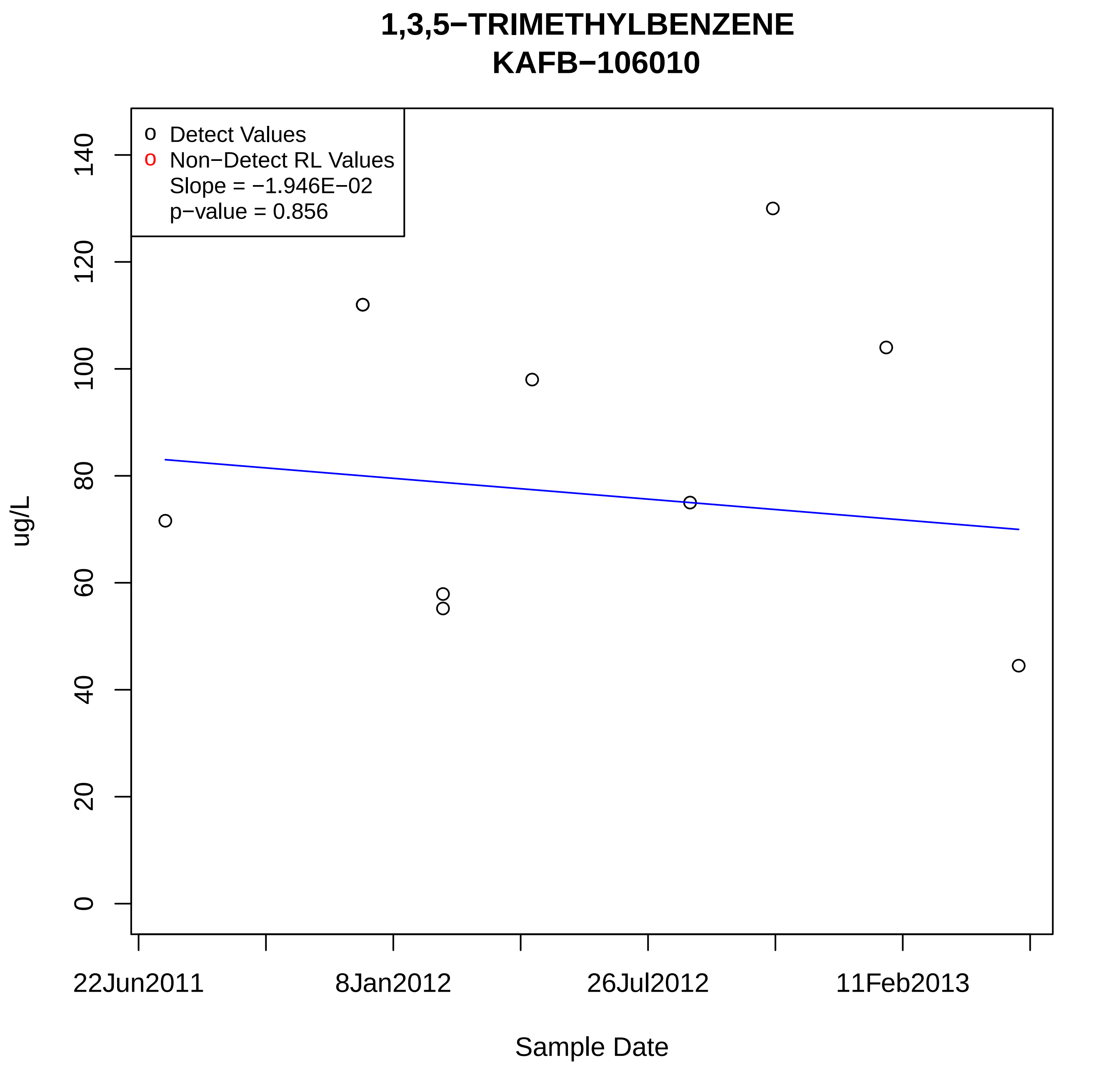

1,3,5−TRIMETHYLBENZENE
KAFB−106001
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 2.763E−04
p−value = 1.000



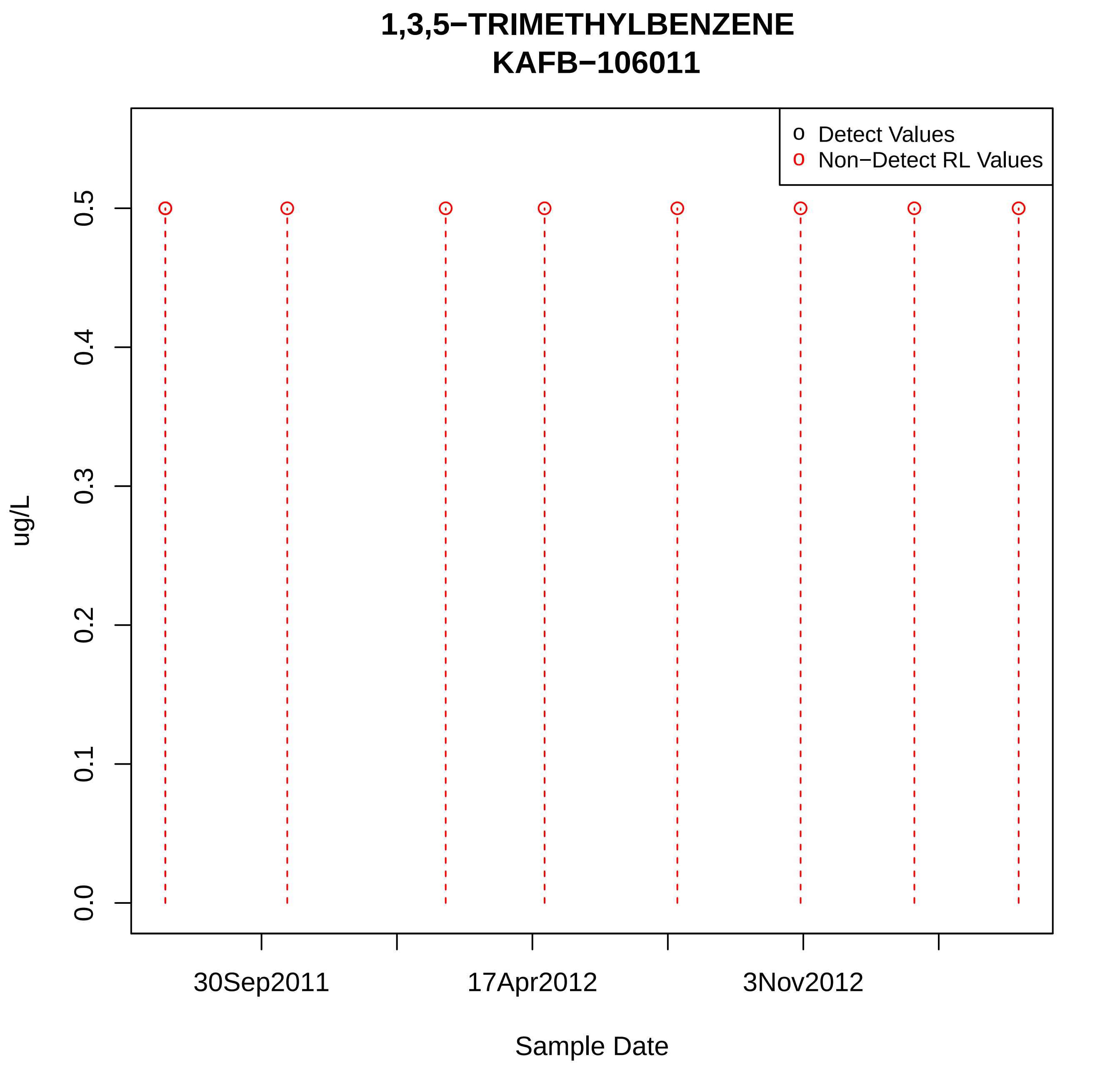
1,3,5−TRIMETHYLBENZENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

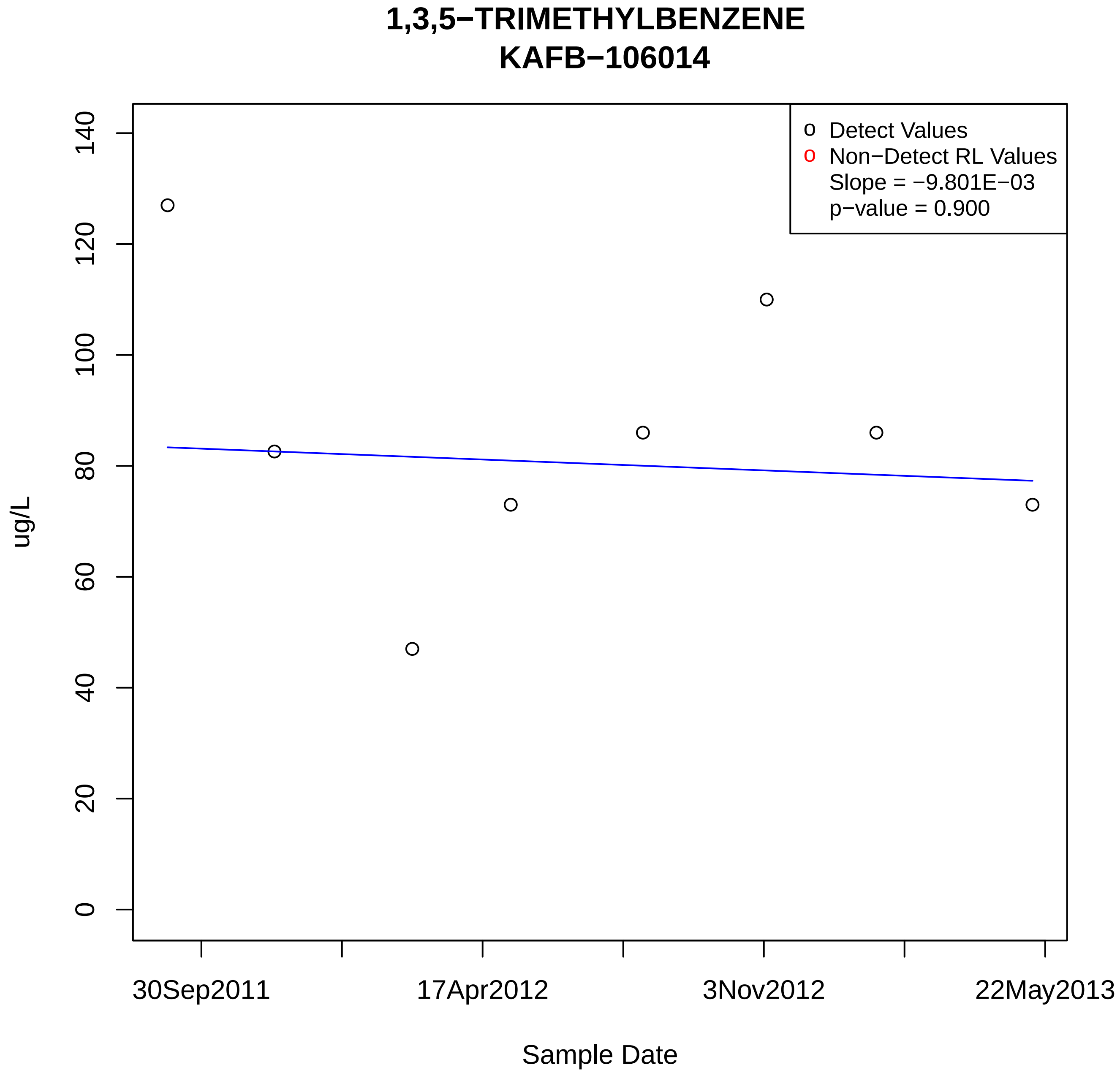


1,3,5−TRIMETHYLBENZENE
KAFB−106007
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

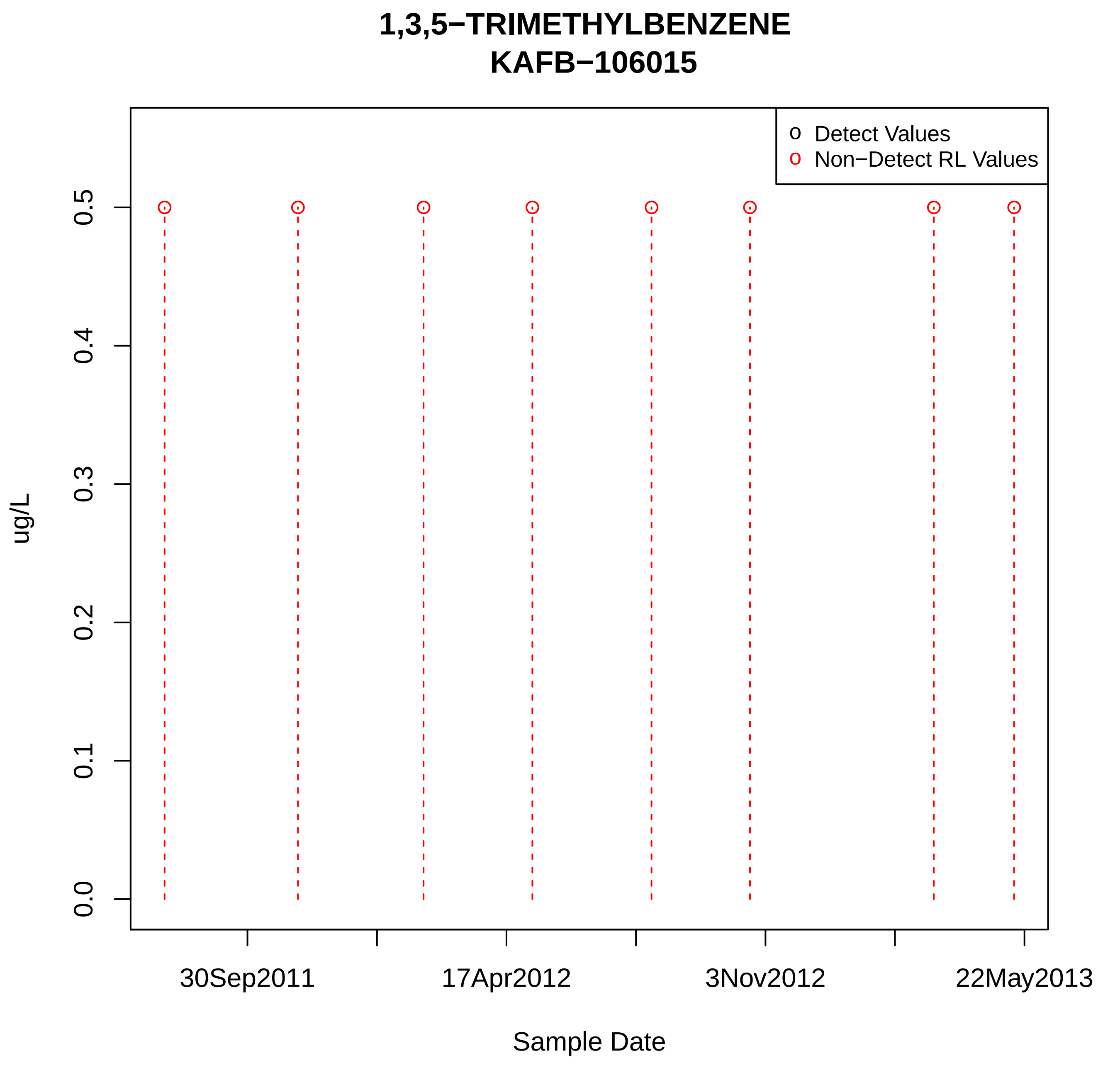


1,3,5−TRIMETHYLBENZENE
KAFB−106010
o Detect Values
o Non−Detect RL Values
Slope = −1.946E−02
p−value = 0.856
ug/L
0
20
40
60
80
100
120
140
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

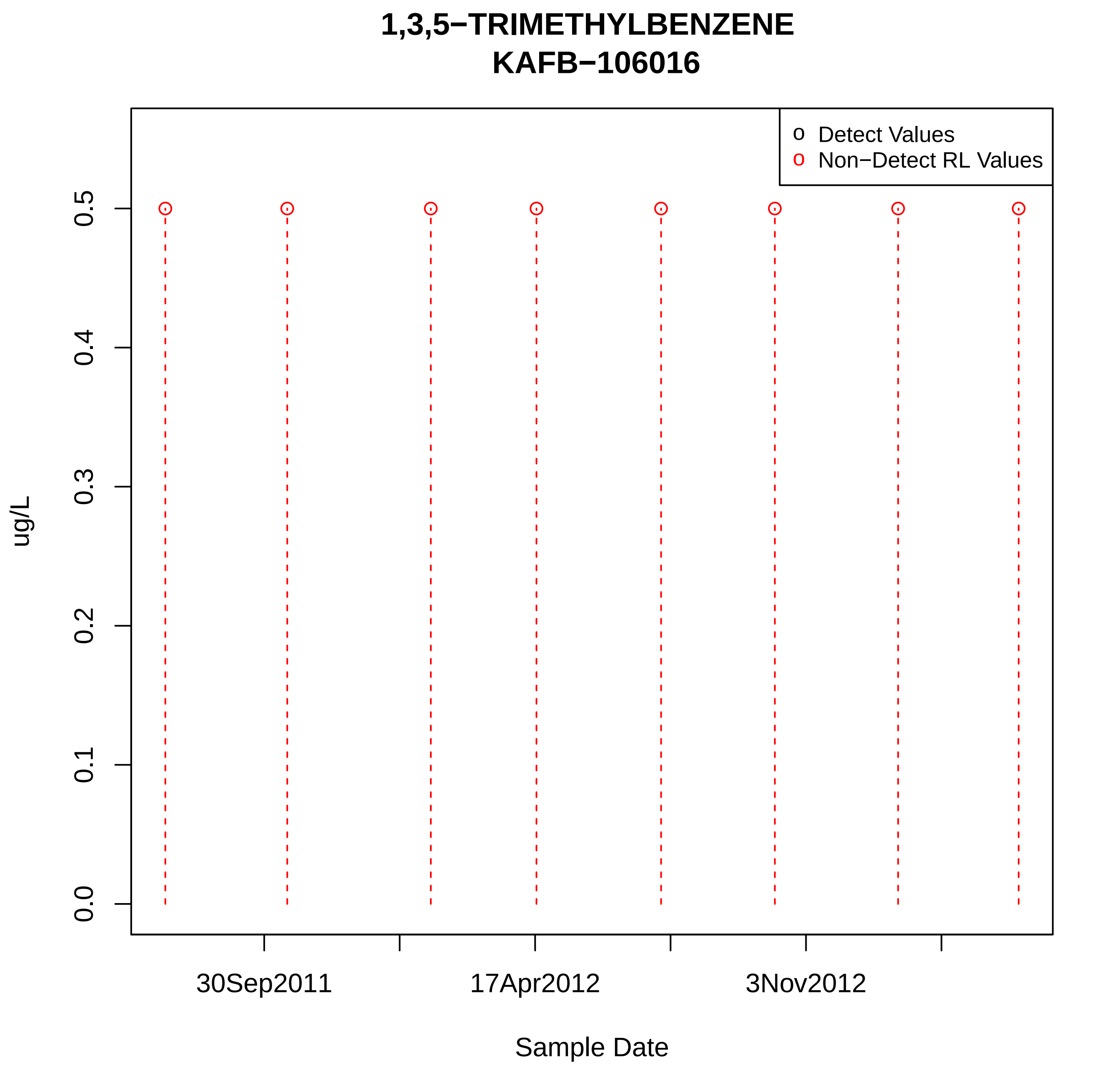

1,3,5−TRIMETHYLBENZENE
KAFB−106011
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

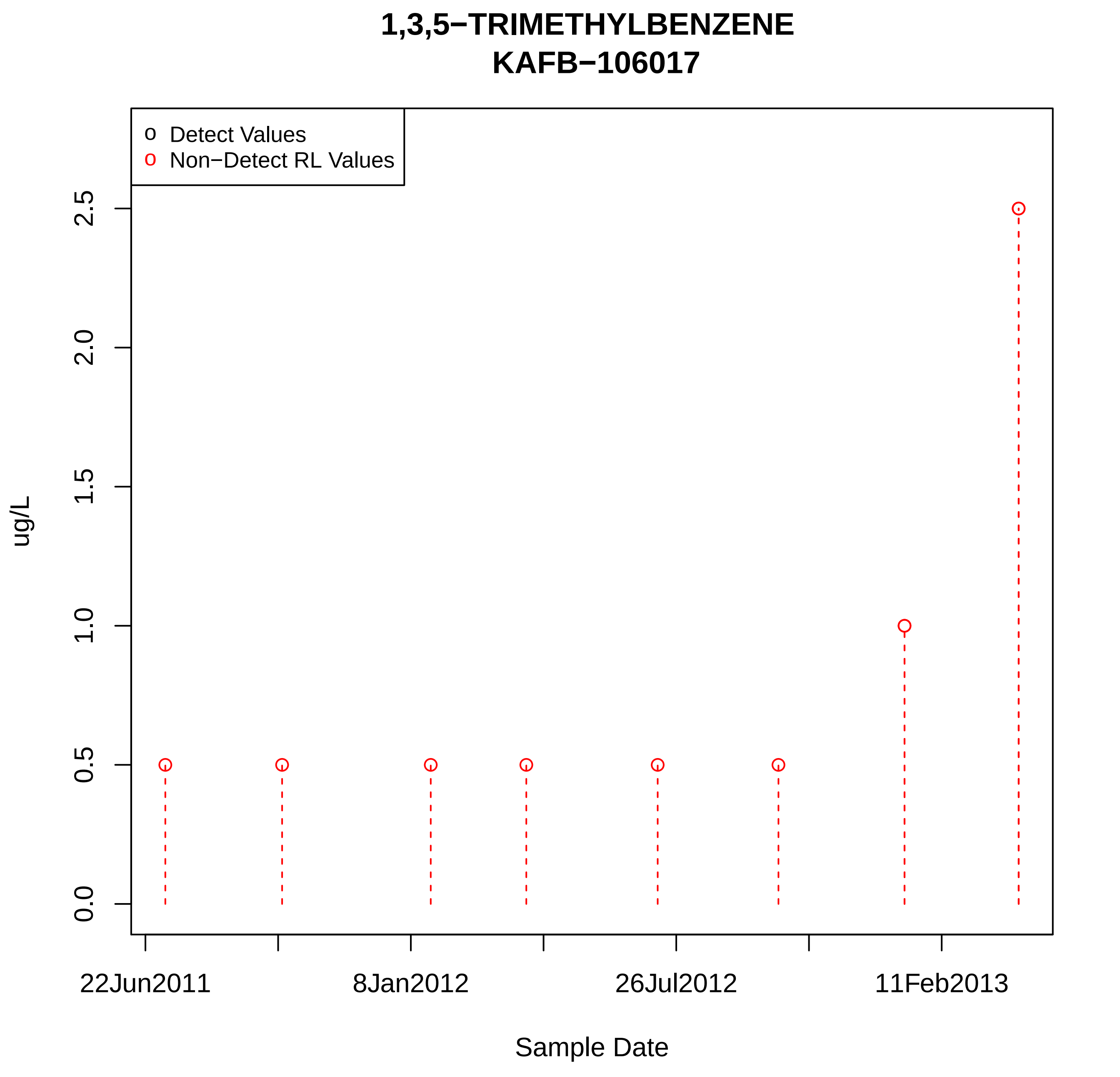


1,3,5−TRIMETHYLBENZENE
KAFB−106014
o Detect Values
o Non−Detect RL Values
Slope = −9.801E−03
p−value = 0.900
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

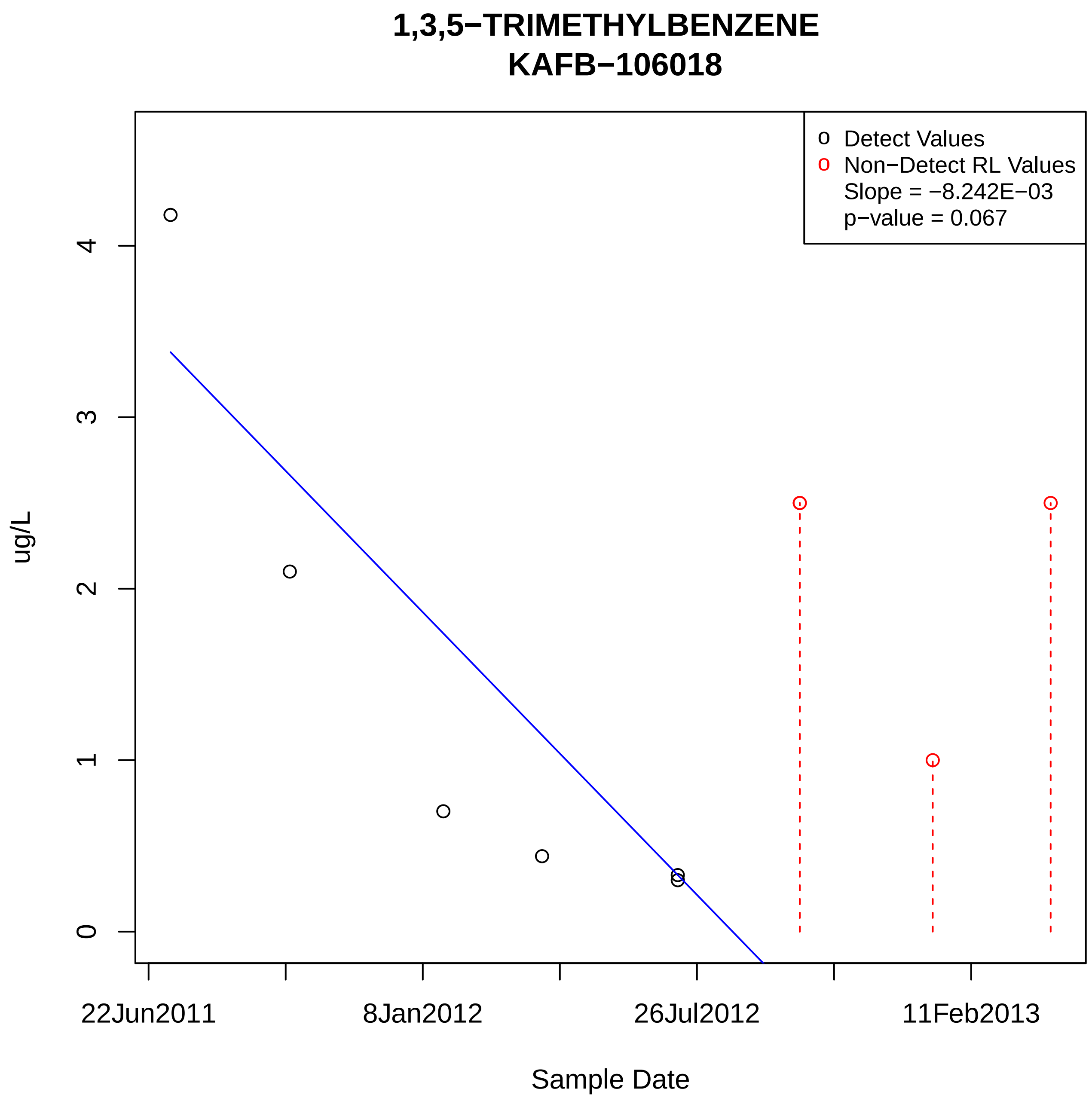


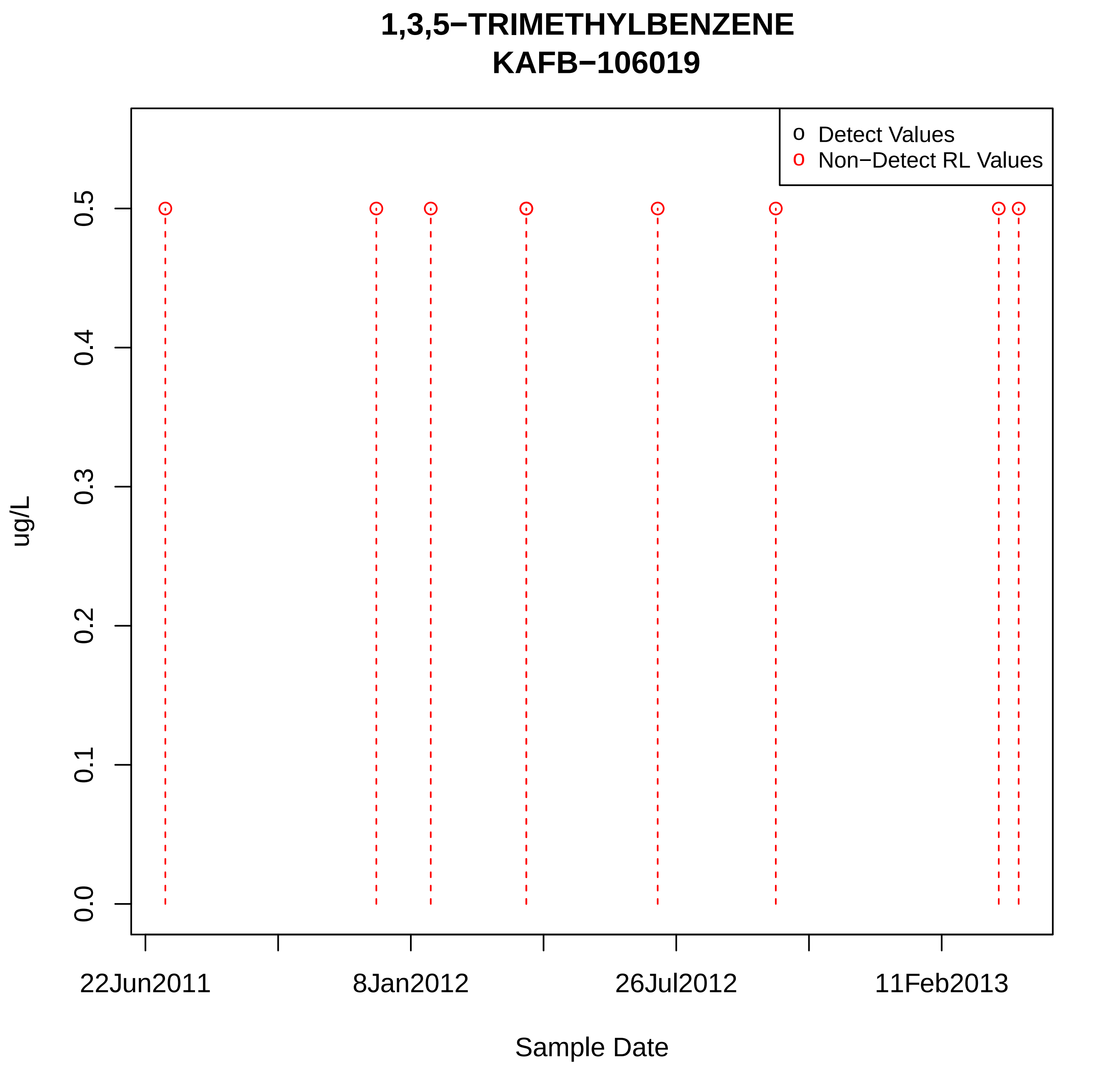
1,3,5−TRIMETHYLBENZENE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

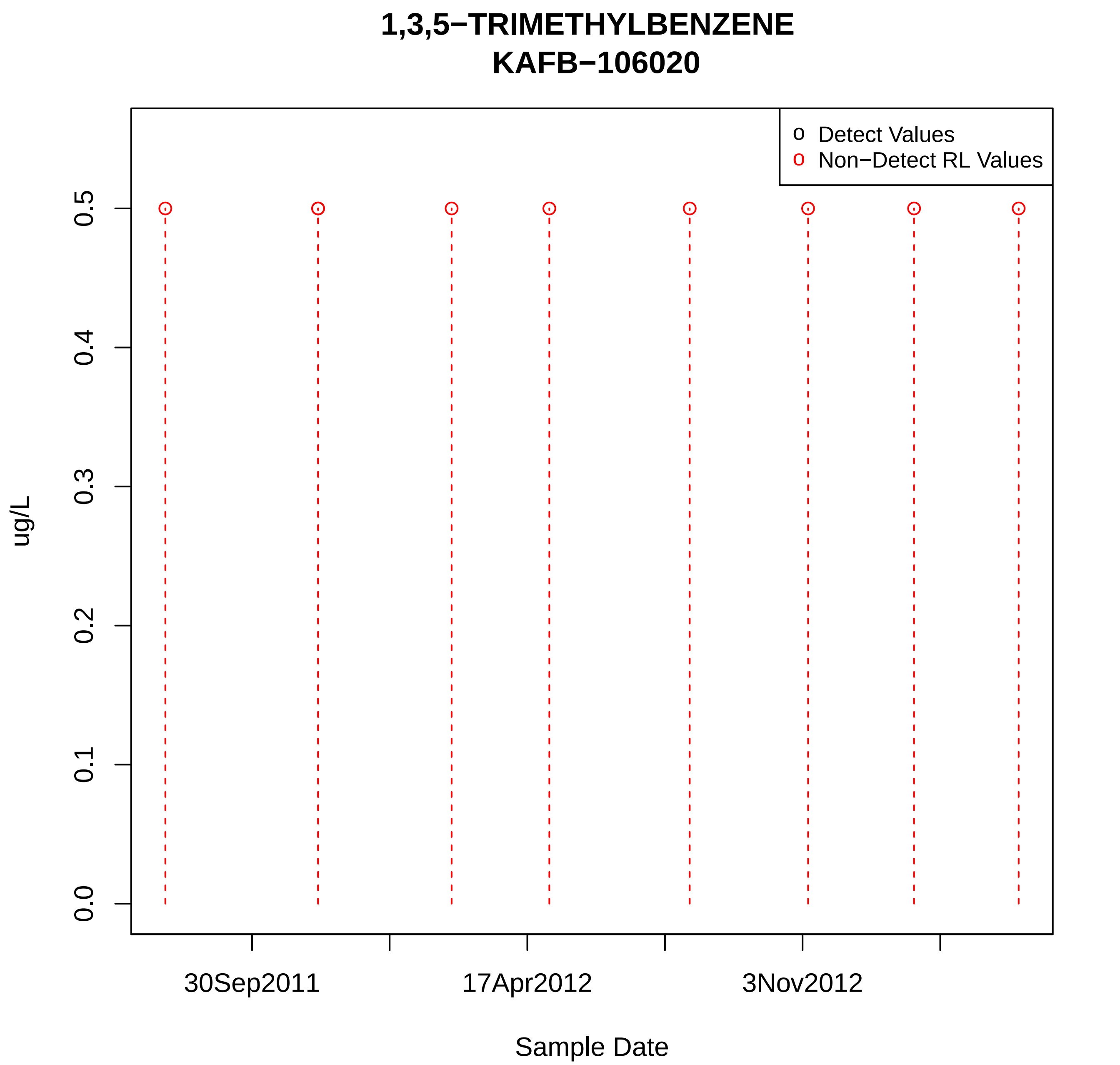

1,3,5−TRIMETHYLBENZENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

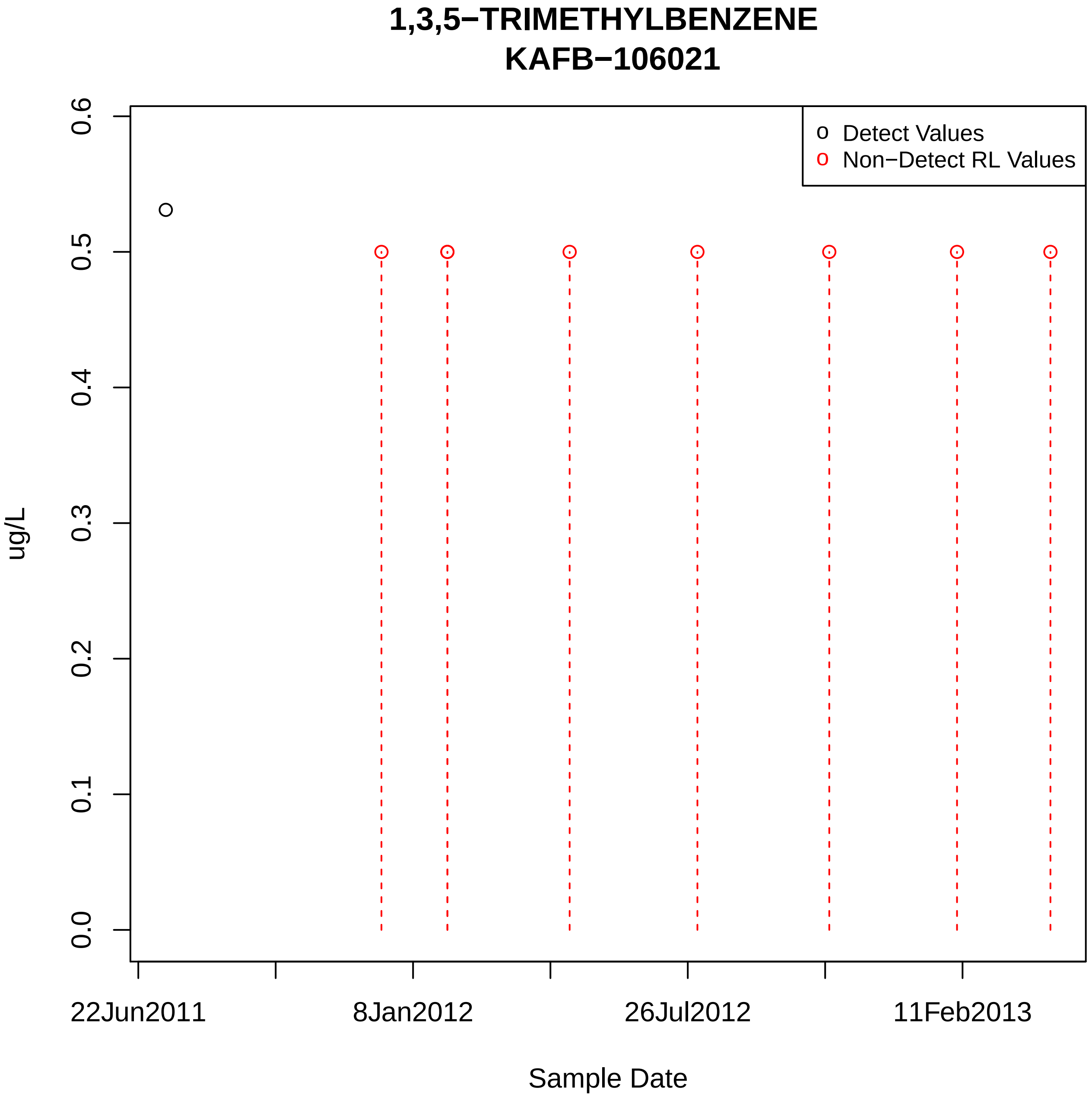


1,3,5−TRIMETHYLBENZENE
KAFB−106017
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

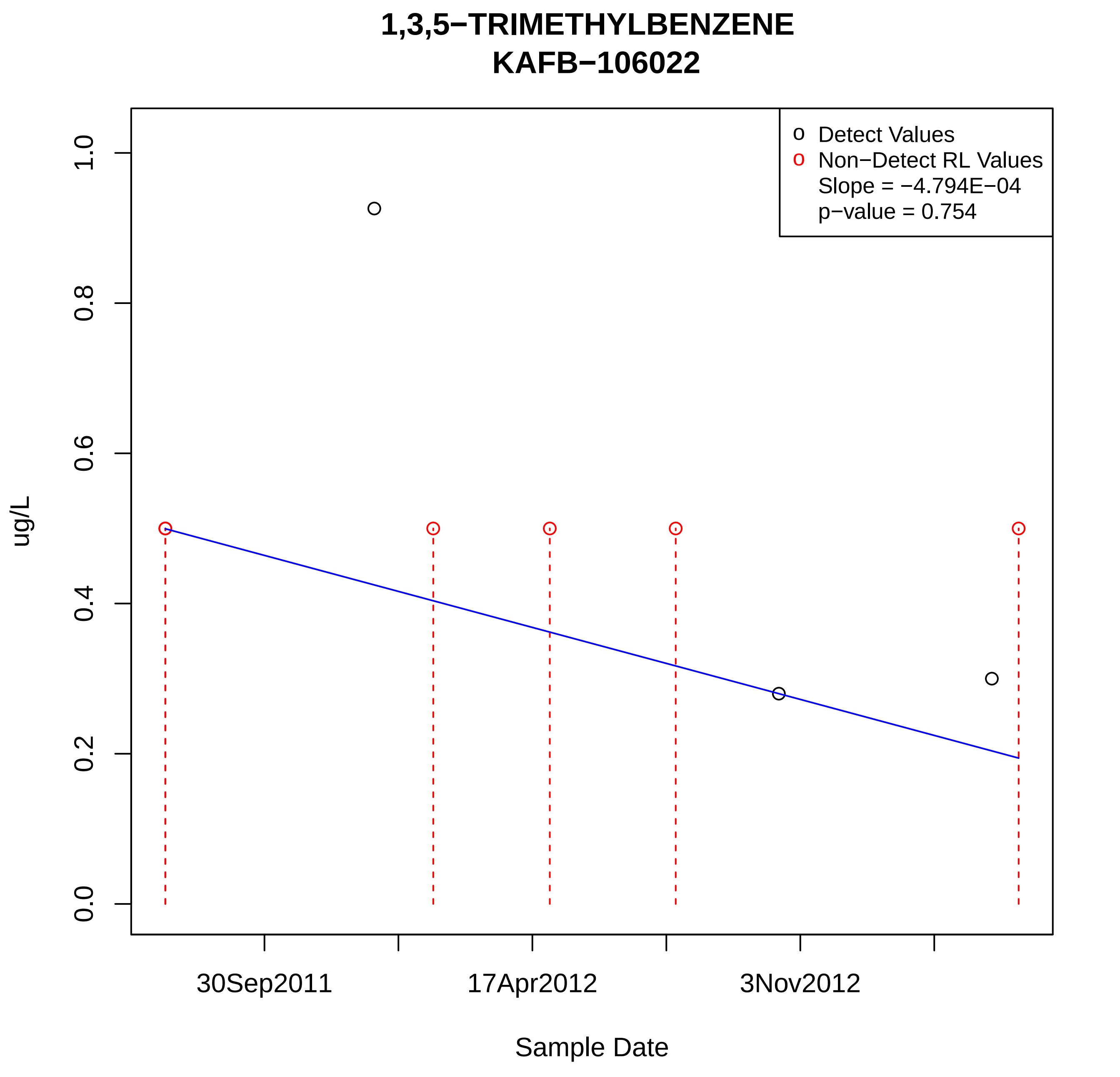

1,3,5−TRIMETHYLBENZENE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −8.242E−03
p−value = 0.067
ug/L
0
1
2
3
4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

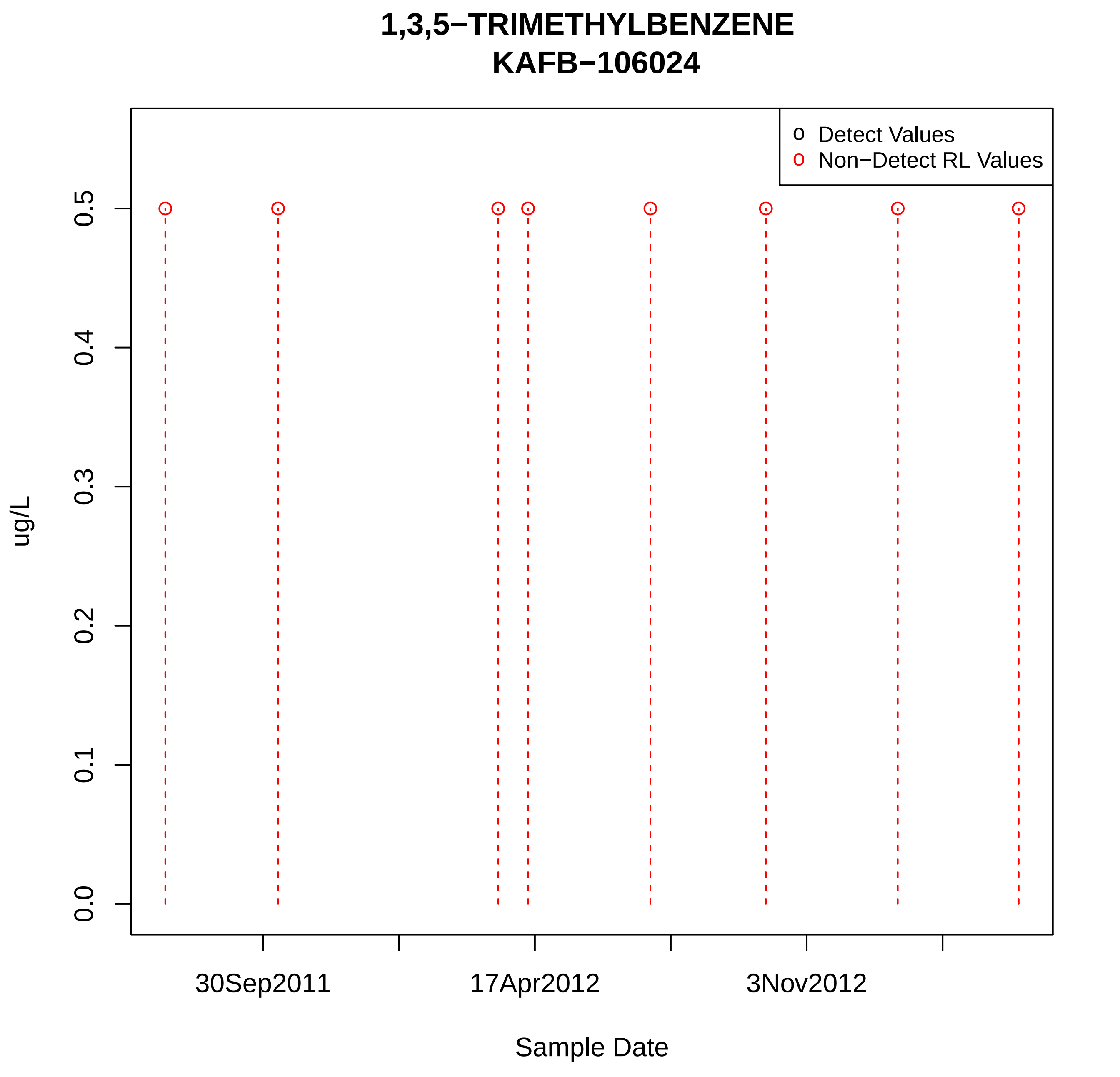

1,3,5−TRIMETHYLBENZENE
KAFB−106019
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

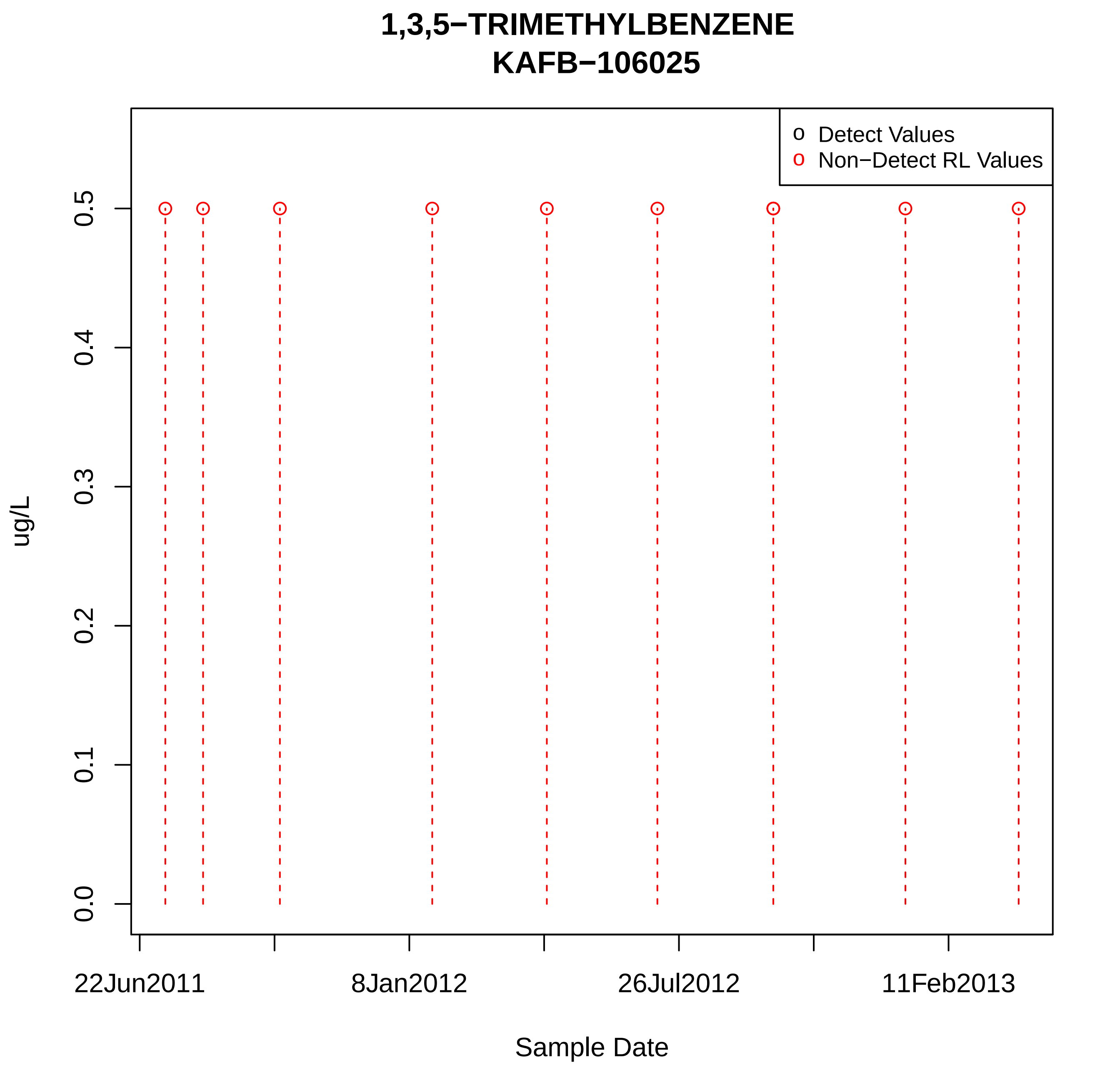

1,3,5−TRIMETHYLBENZENE
KAFB−106020
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

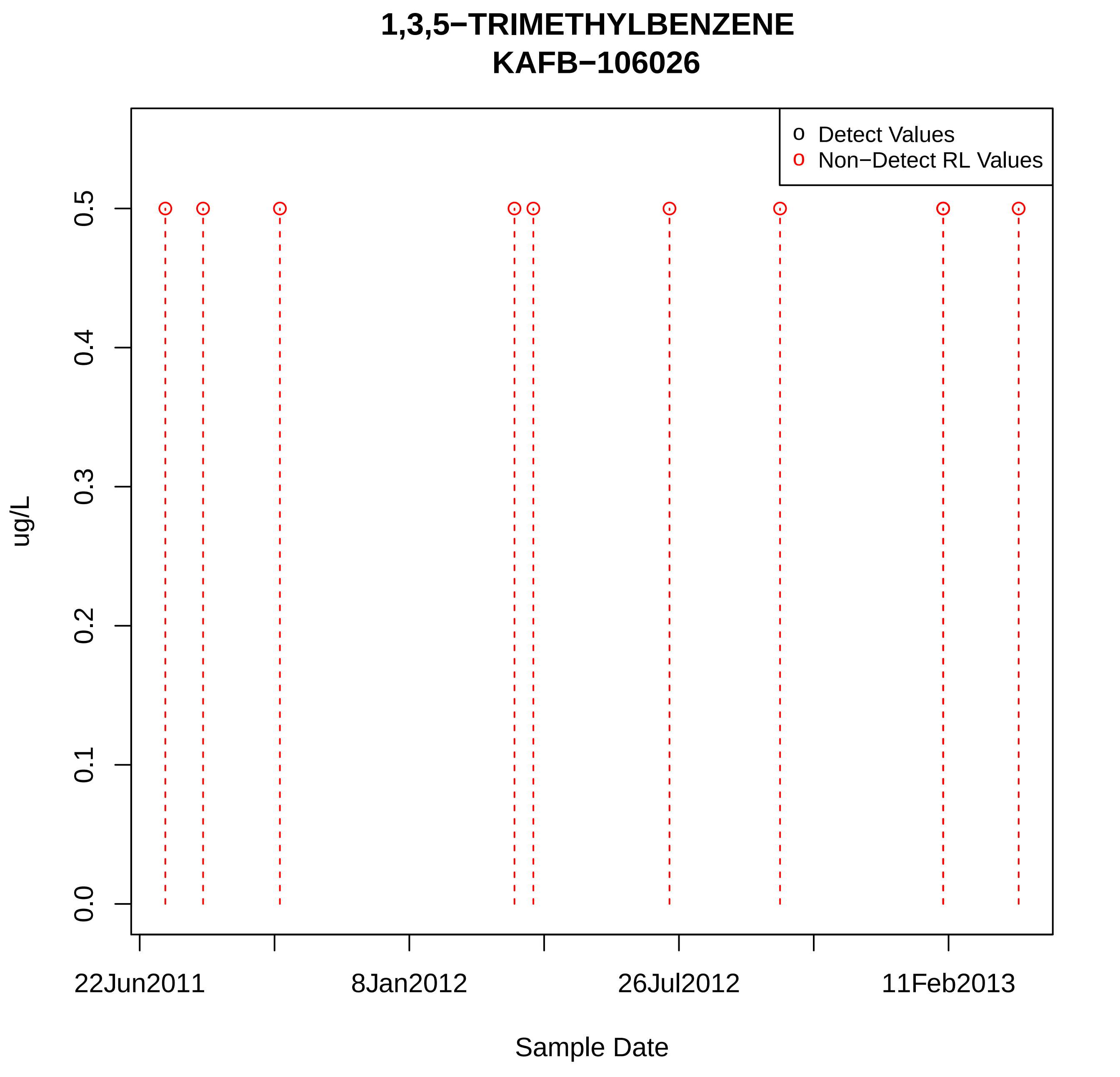


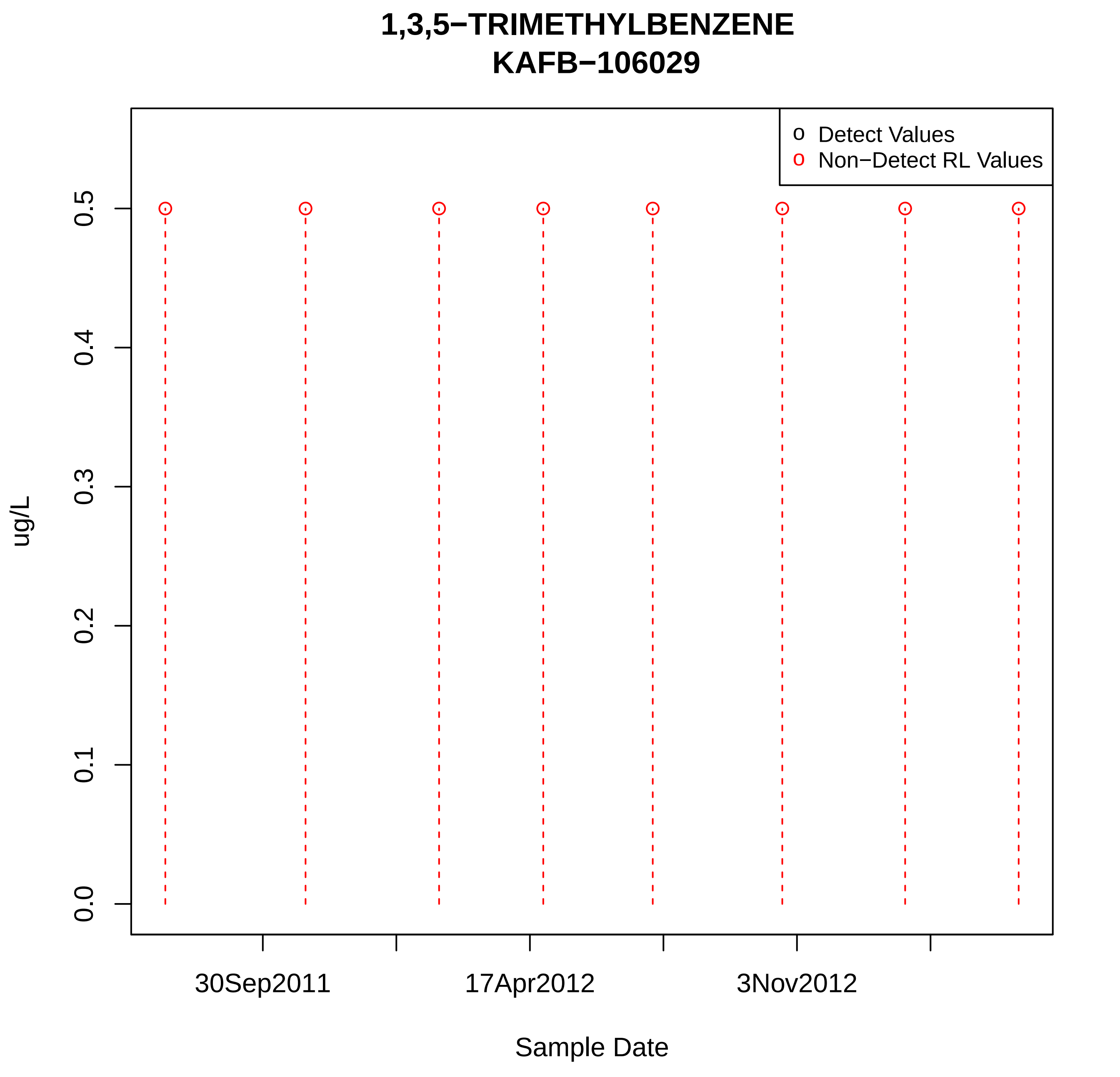
1,3,5−TRIMETHYLBENZENE
KAFB−106021
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −4.794E−04
p−value = 0.754
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

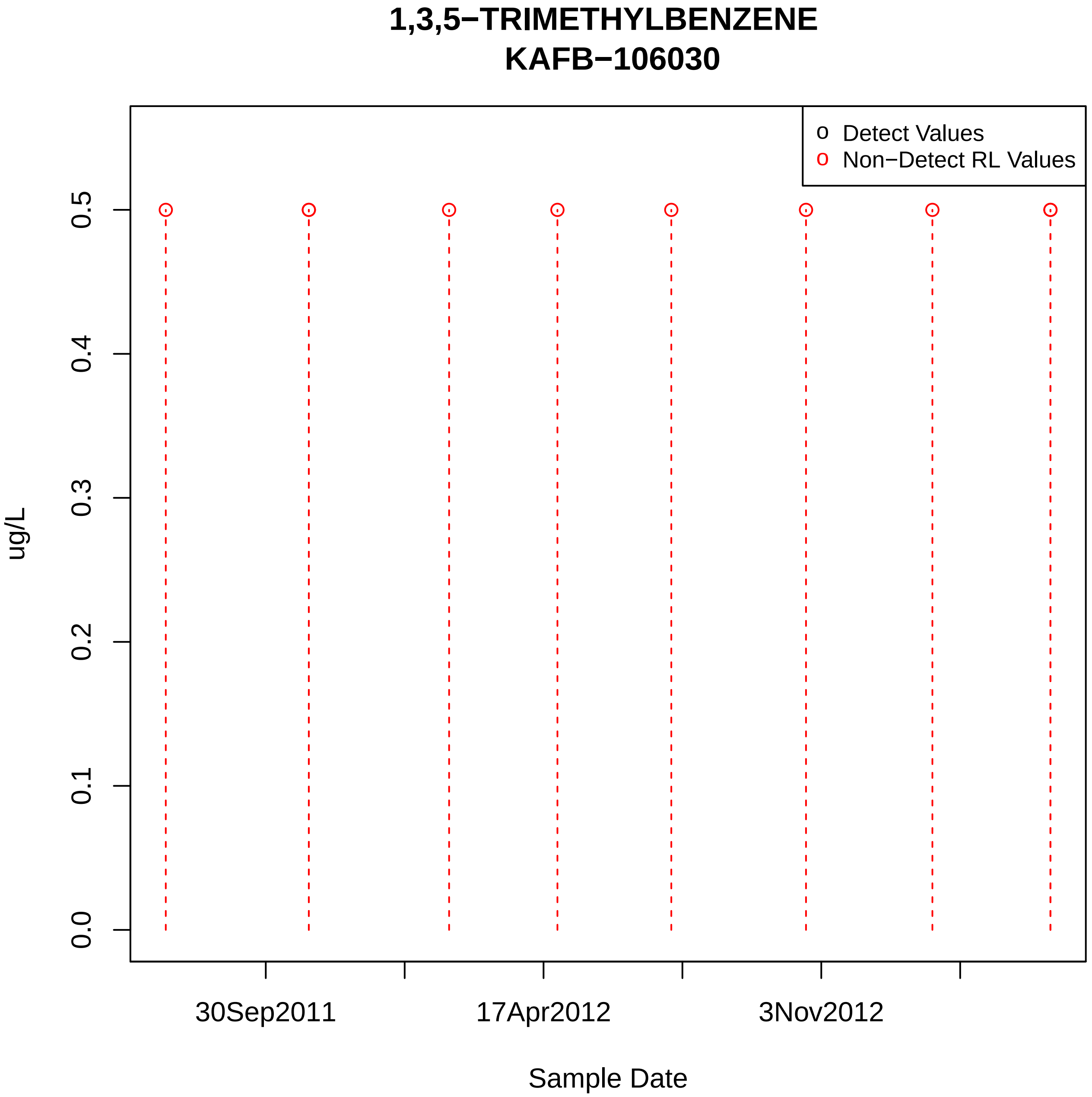

1,3,5−TRIMETHYLBENZENE
KAFB−106024
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

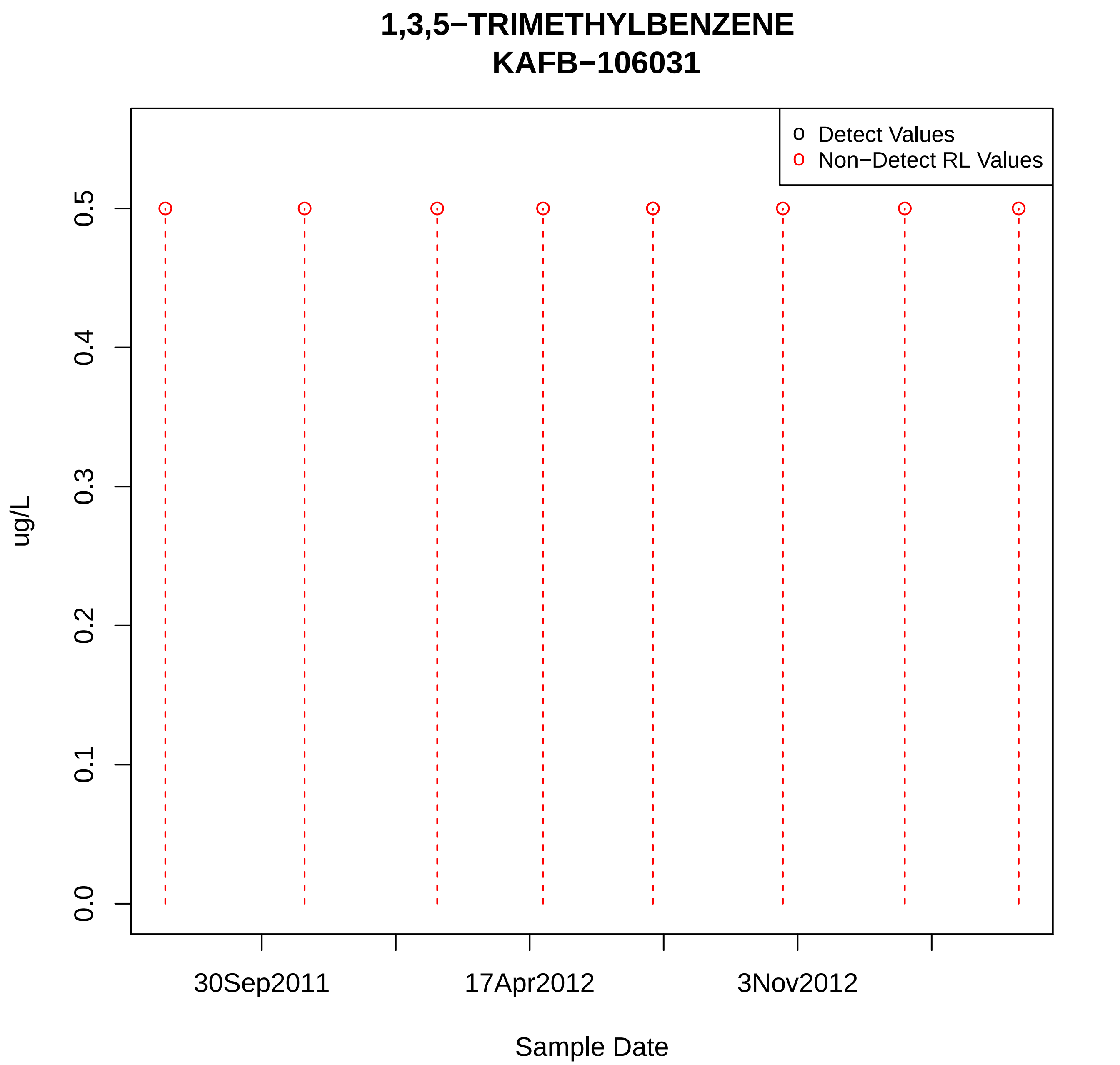

1,3,5−TRIMETHYLBENZENE
KAFB−106026
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



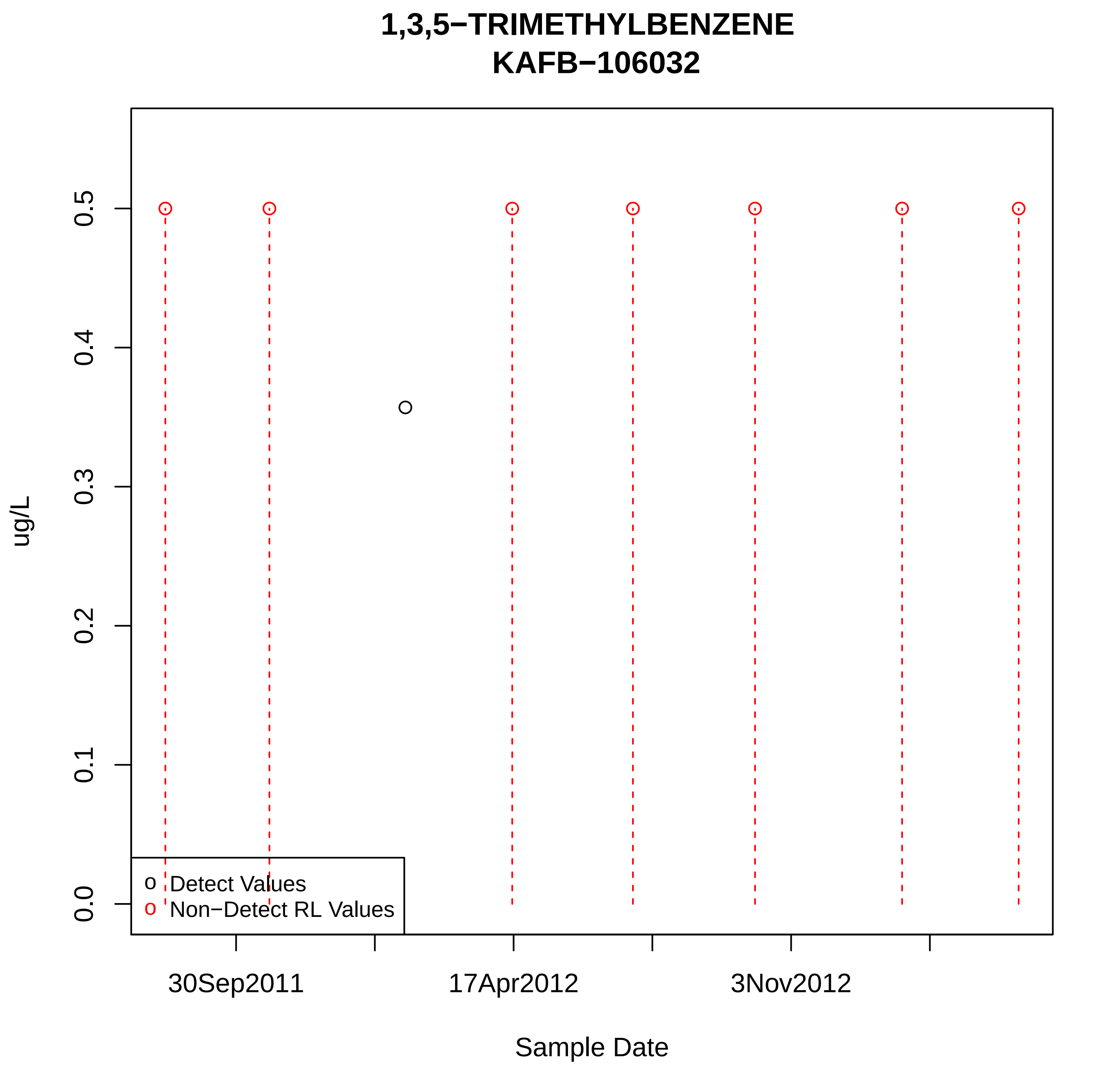
1,3,5−TRIMETHYLBENZENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



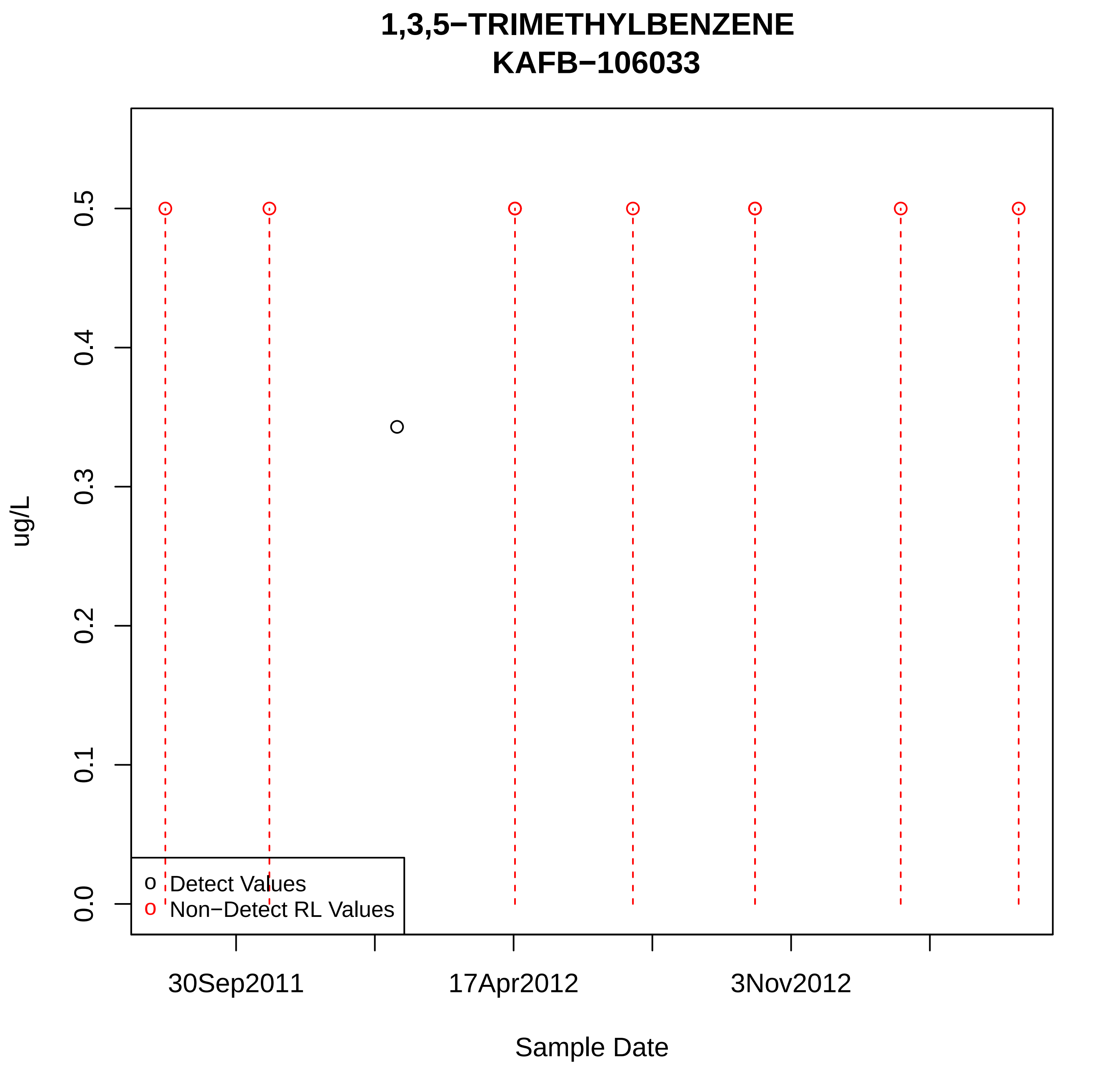
1,3,5−TRIMETHYLBENZENE
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



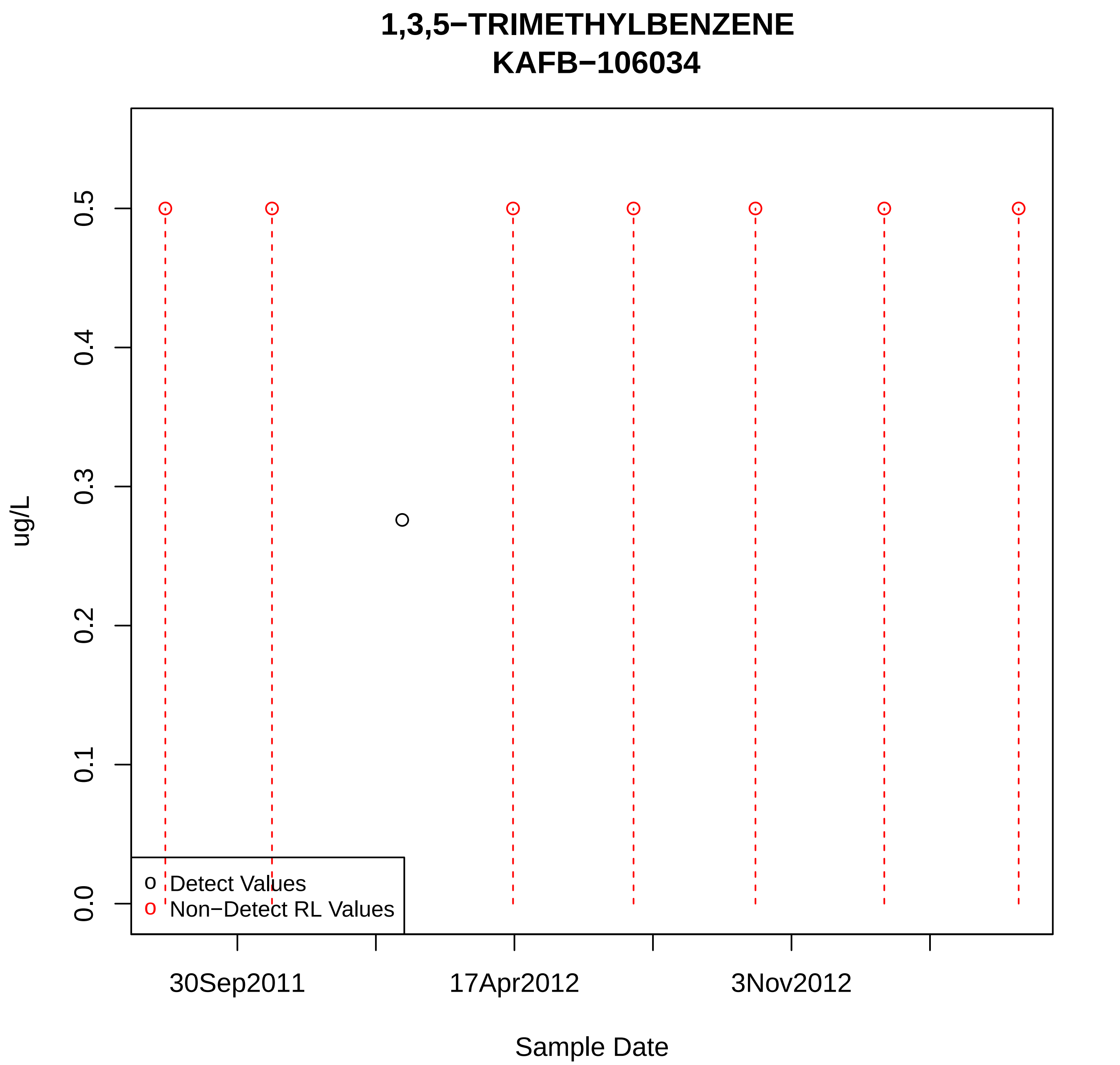
1,3,5−TRIMETHYLBENZENE
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

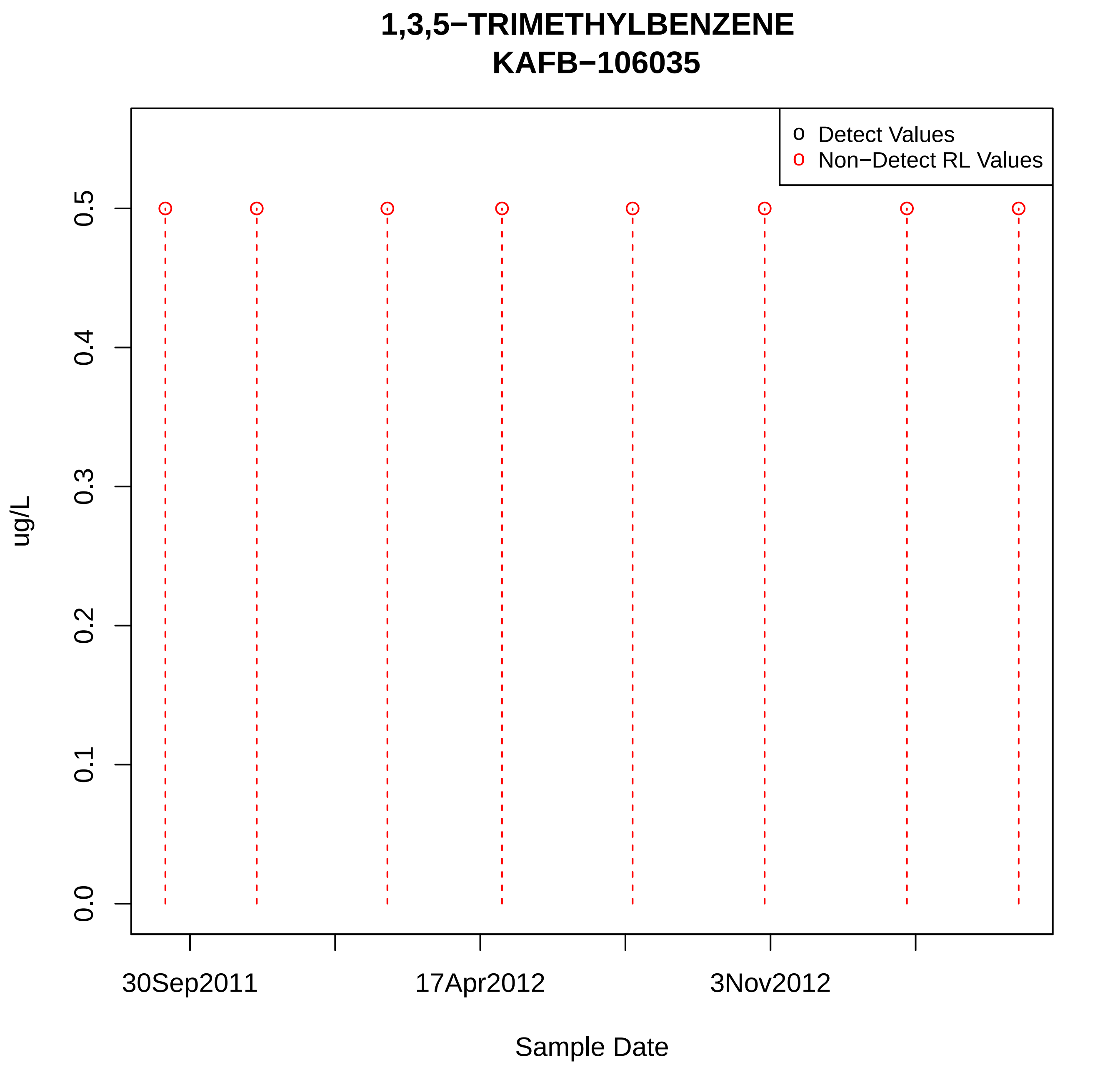


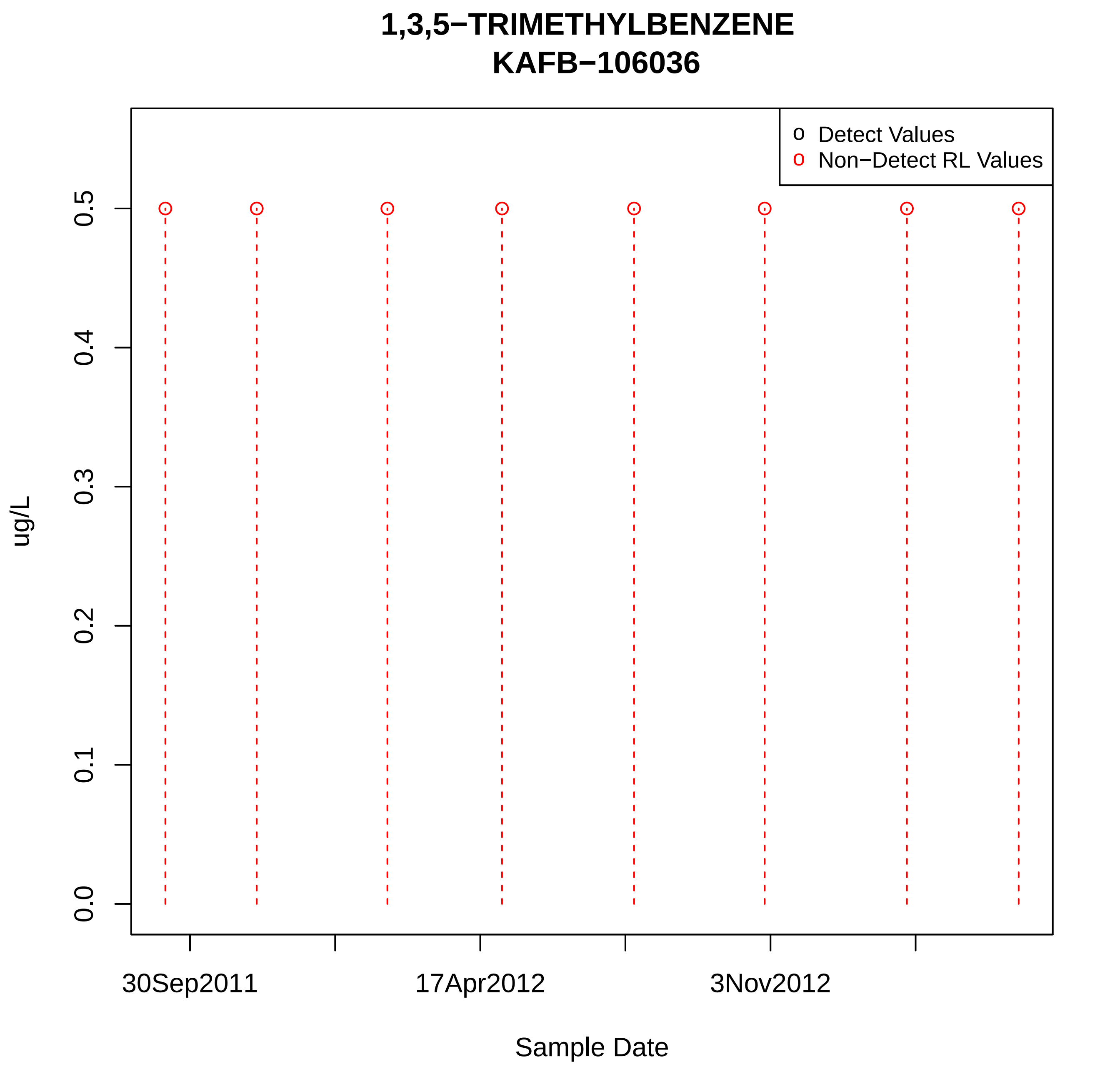
1,3,5−TRIMETHYLBENZENE
KAFB−106032
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

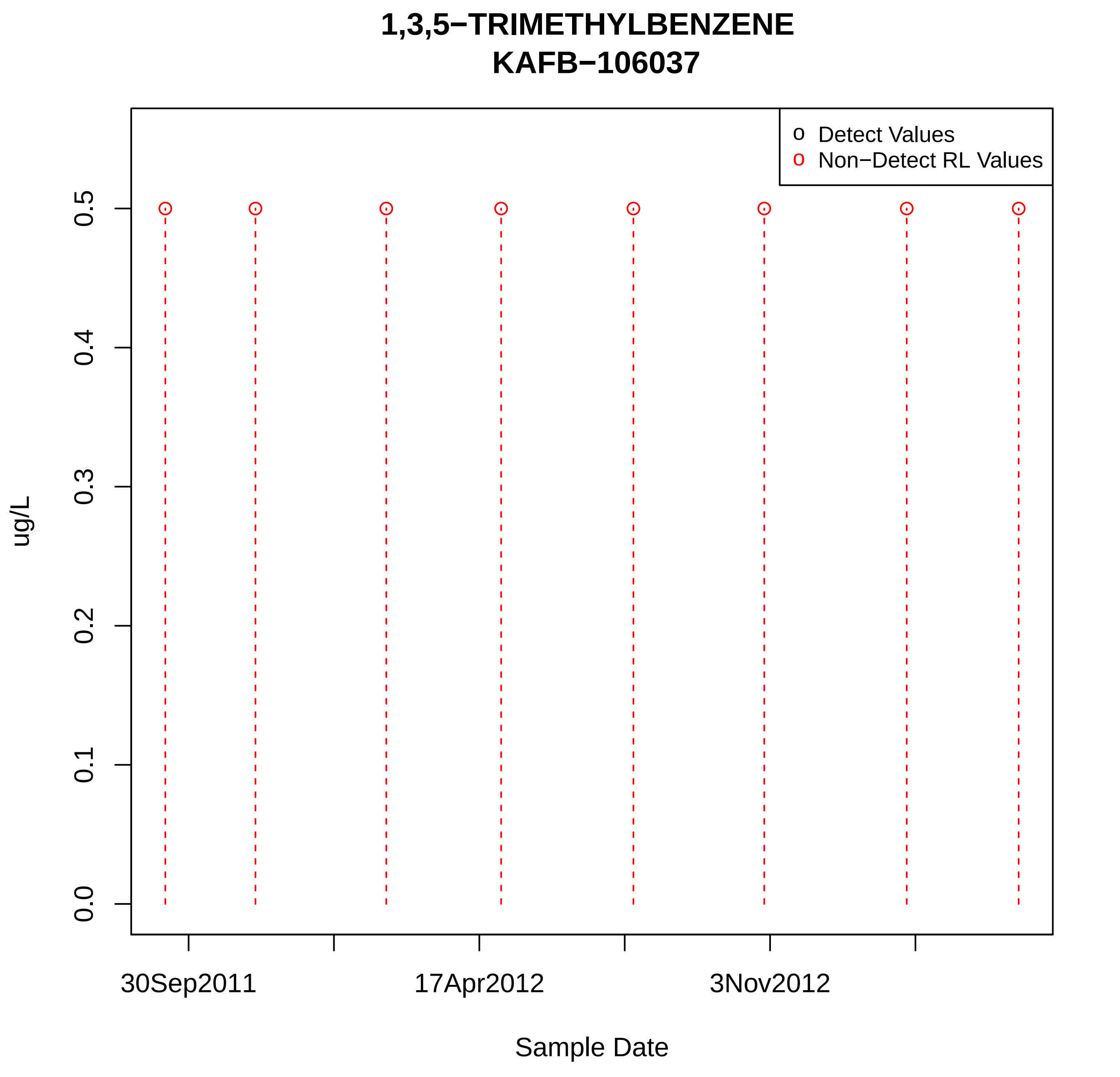


1,3,5−TRIMETHYLBENZENE
KAFB−106033
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

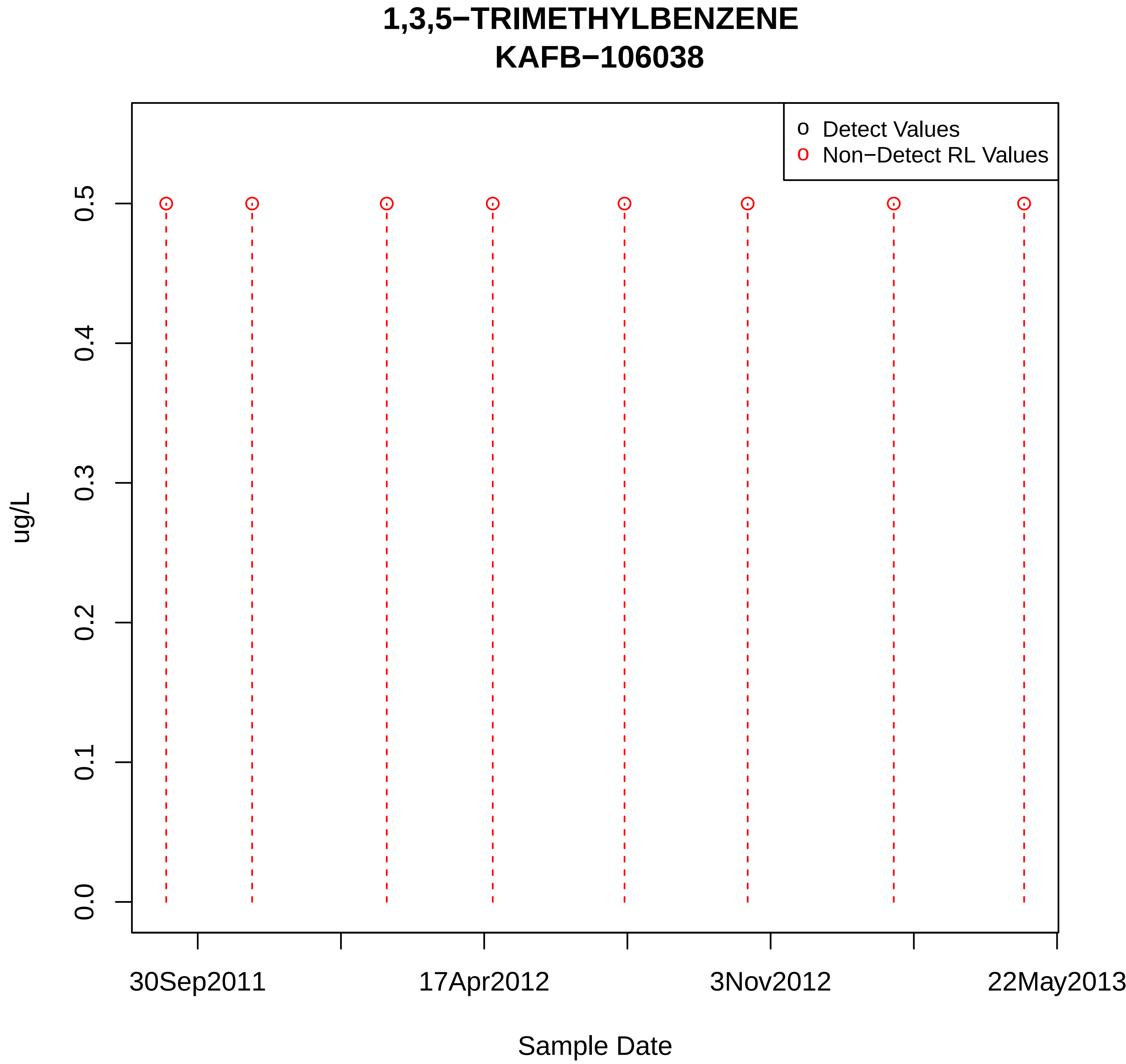

1,3,5−TRIMETHYLBENZENE
KAFB−106034
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

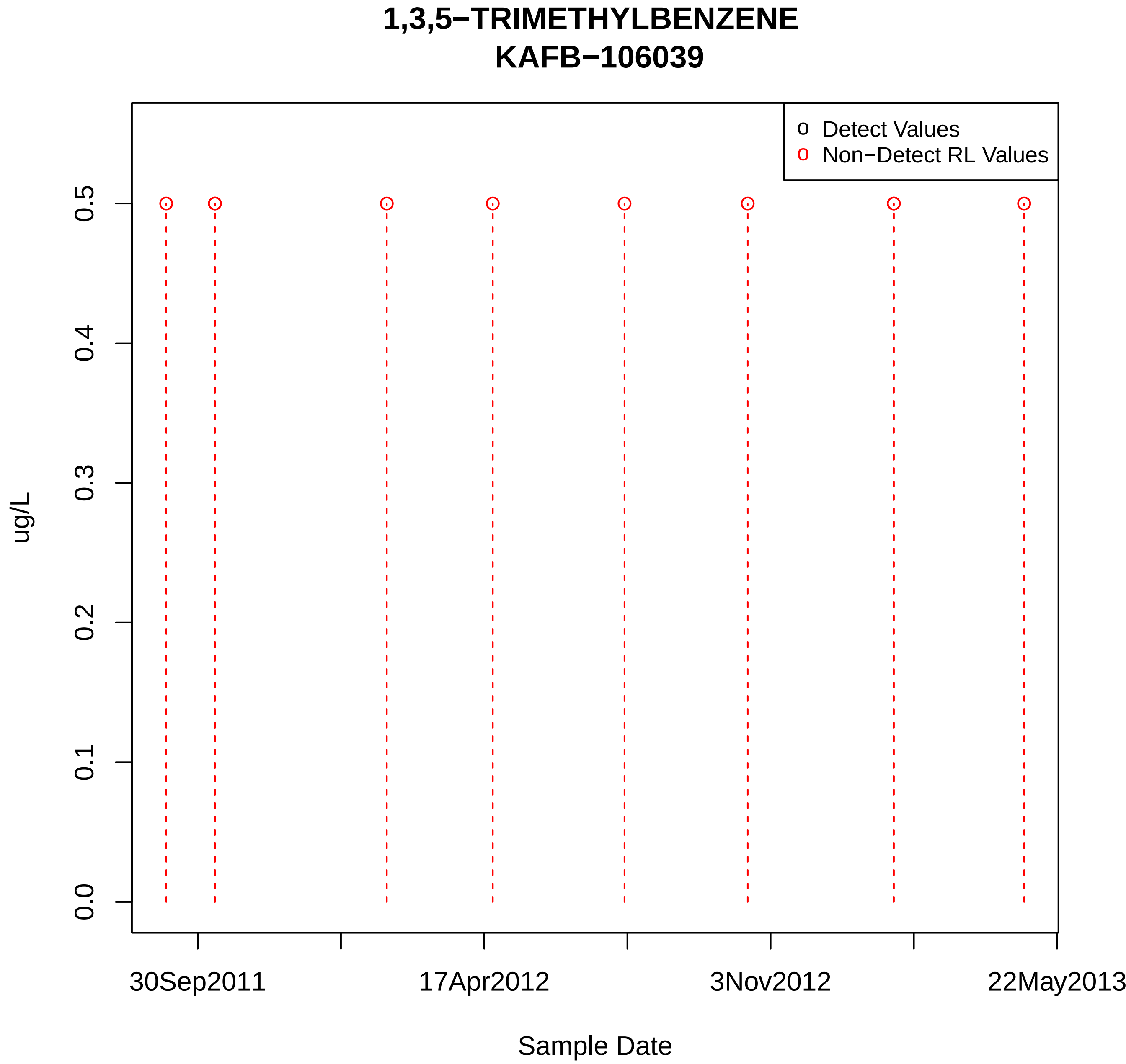

1,3,5−TRIMETHYLBENZENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

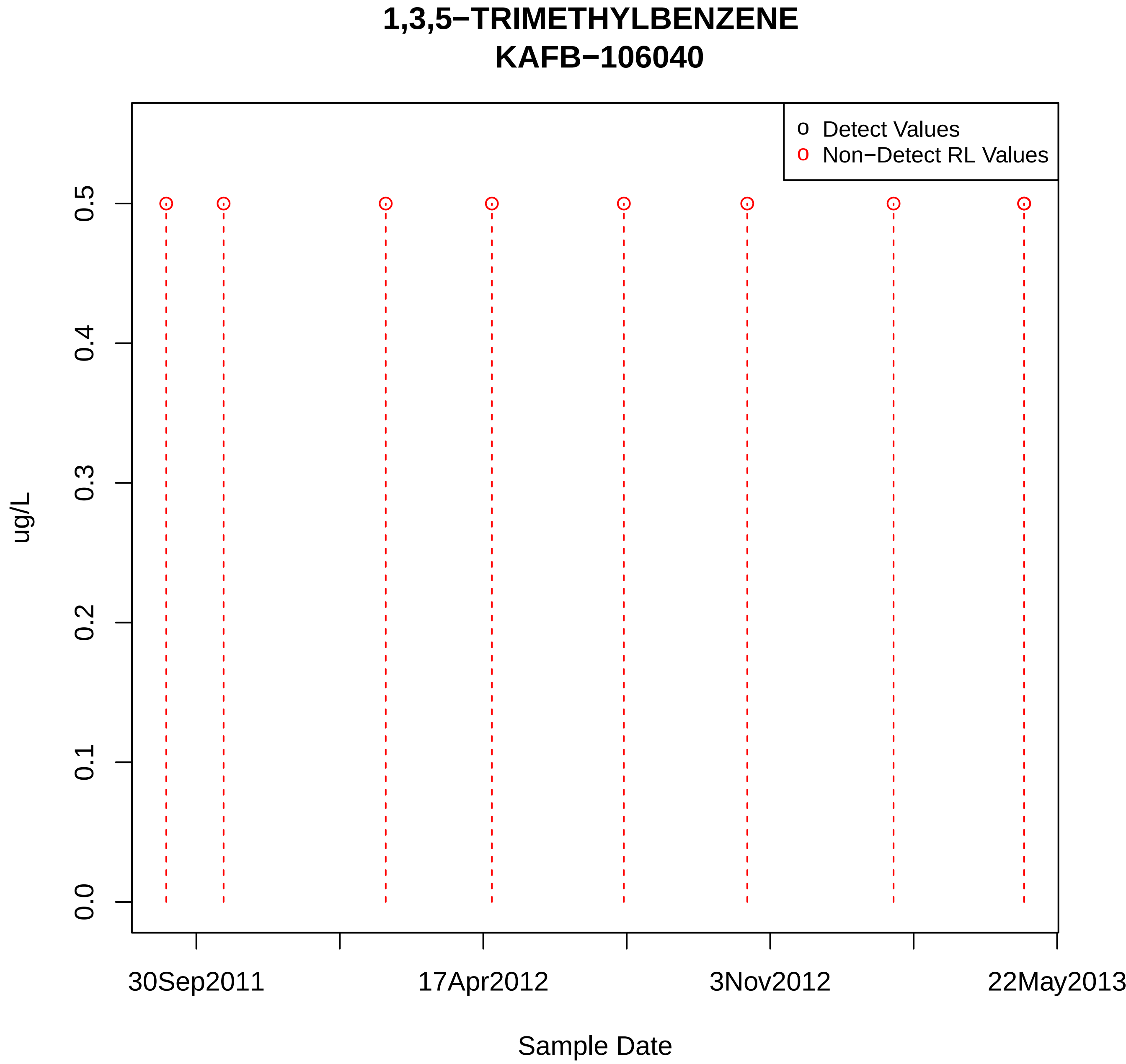

1,3,5−TRIMETHYLBENZENE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



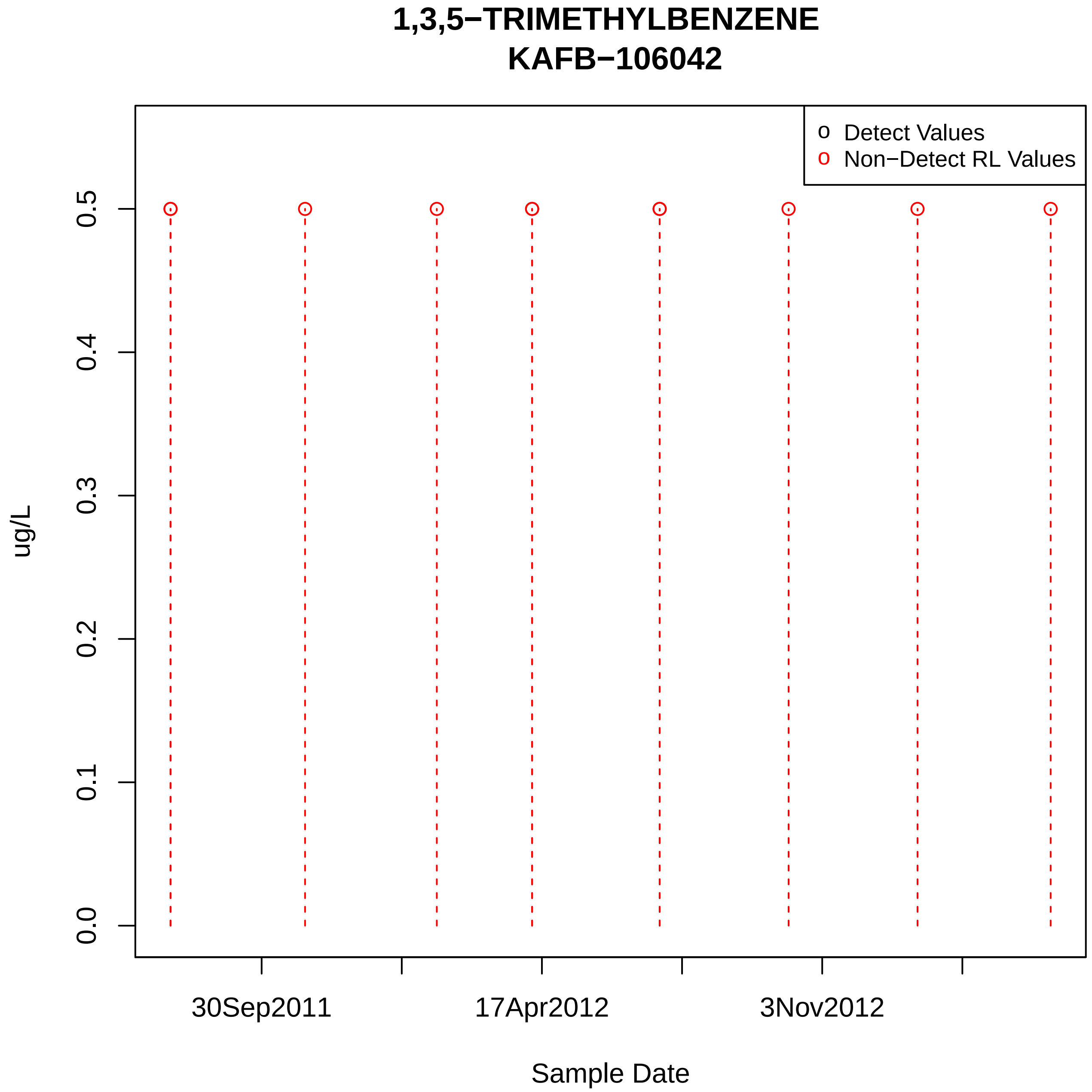
1,3,5−TRIMETHYLBENZENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

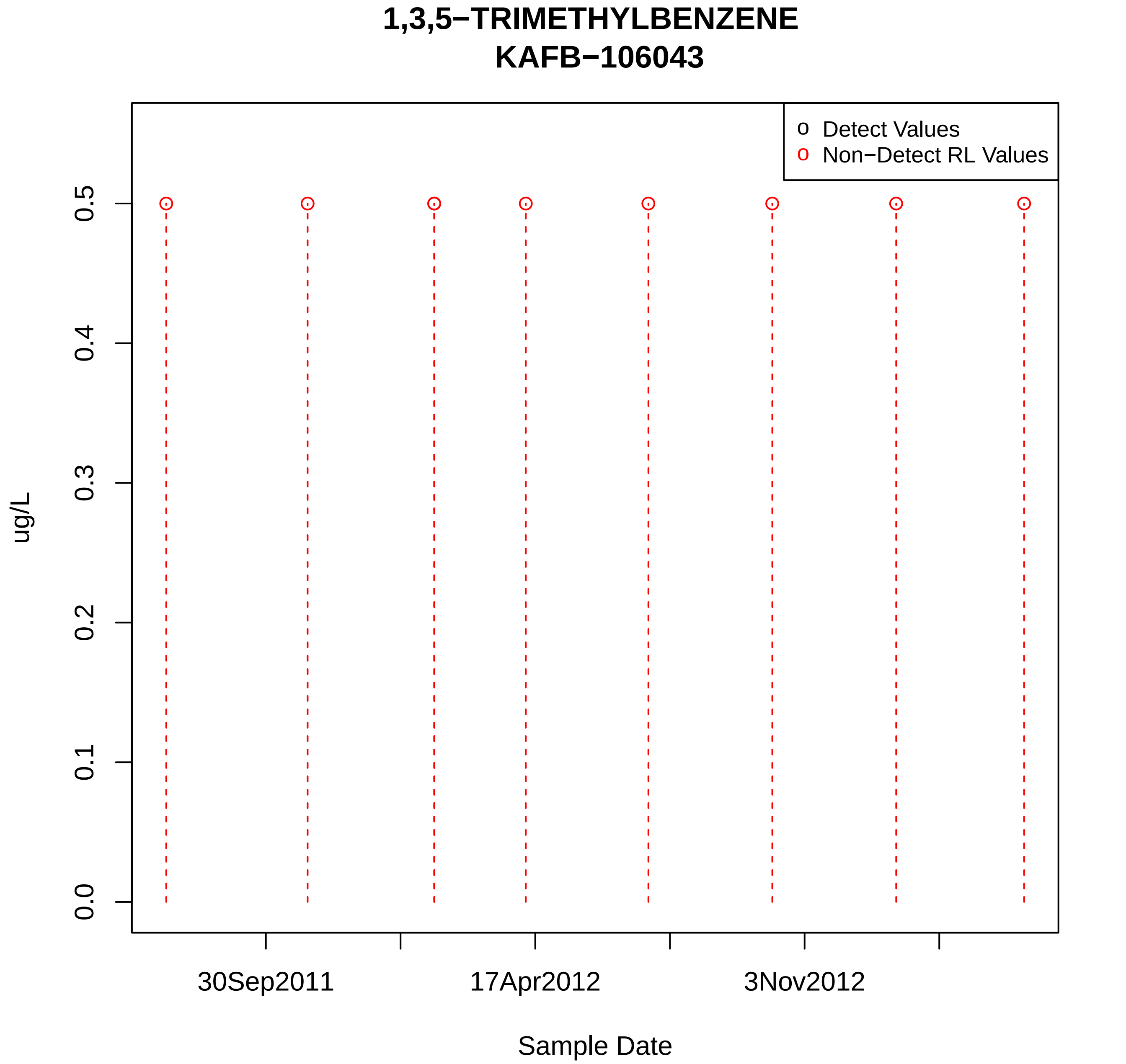

1,3,5−TRIMETHYLBENZENE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



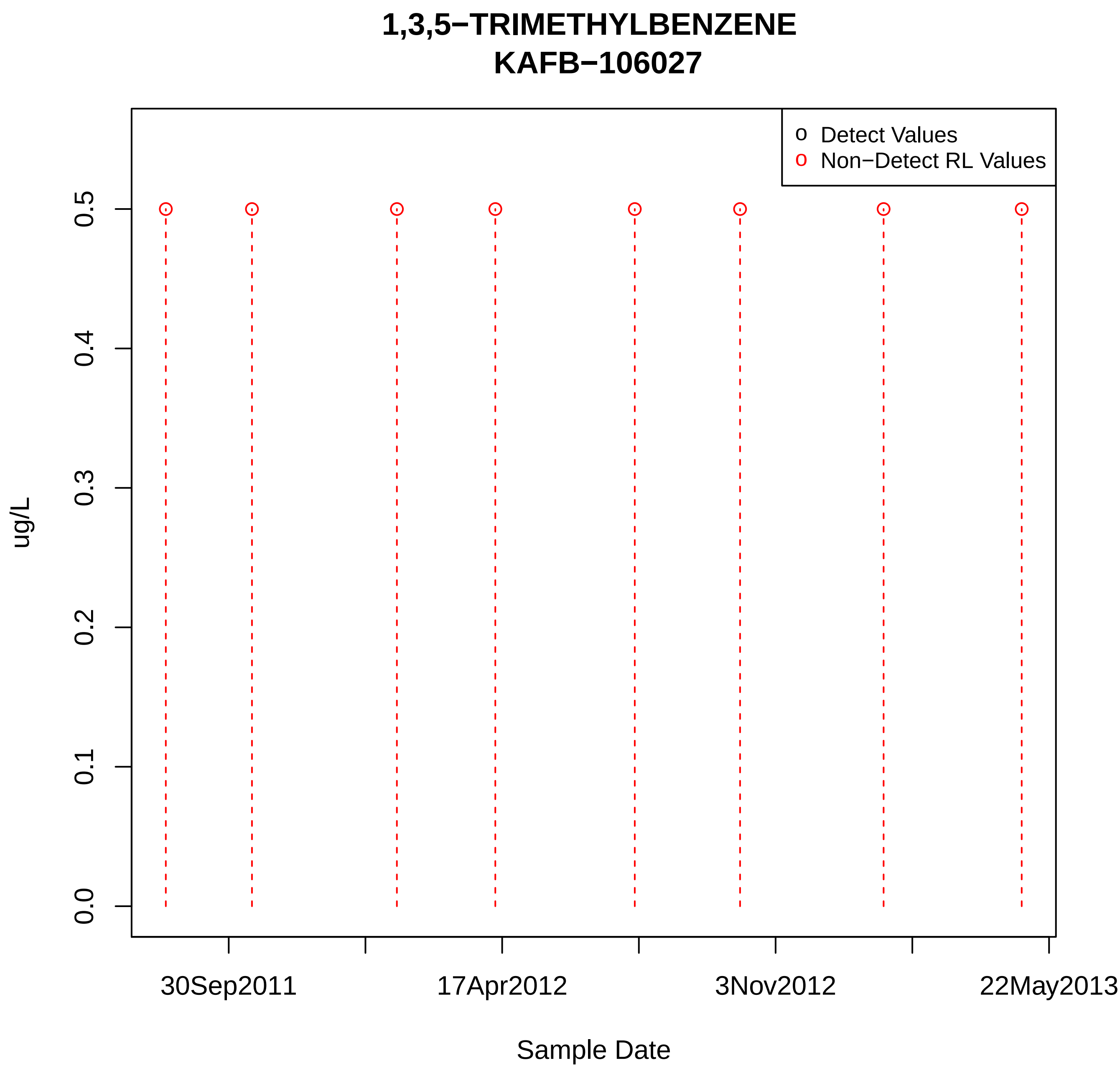
1,3,5−TRIMETHYLBENZENE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



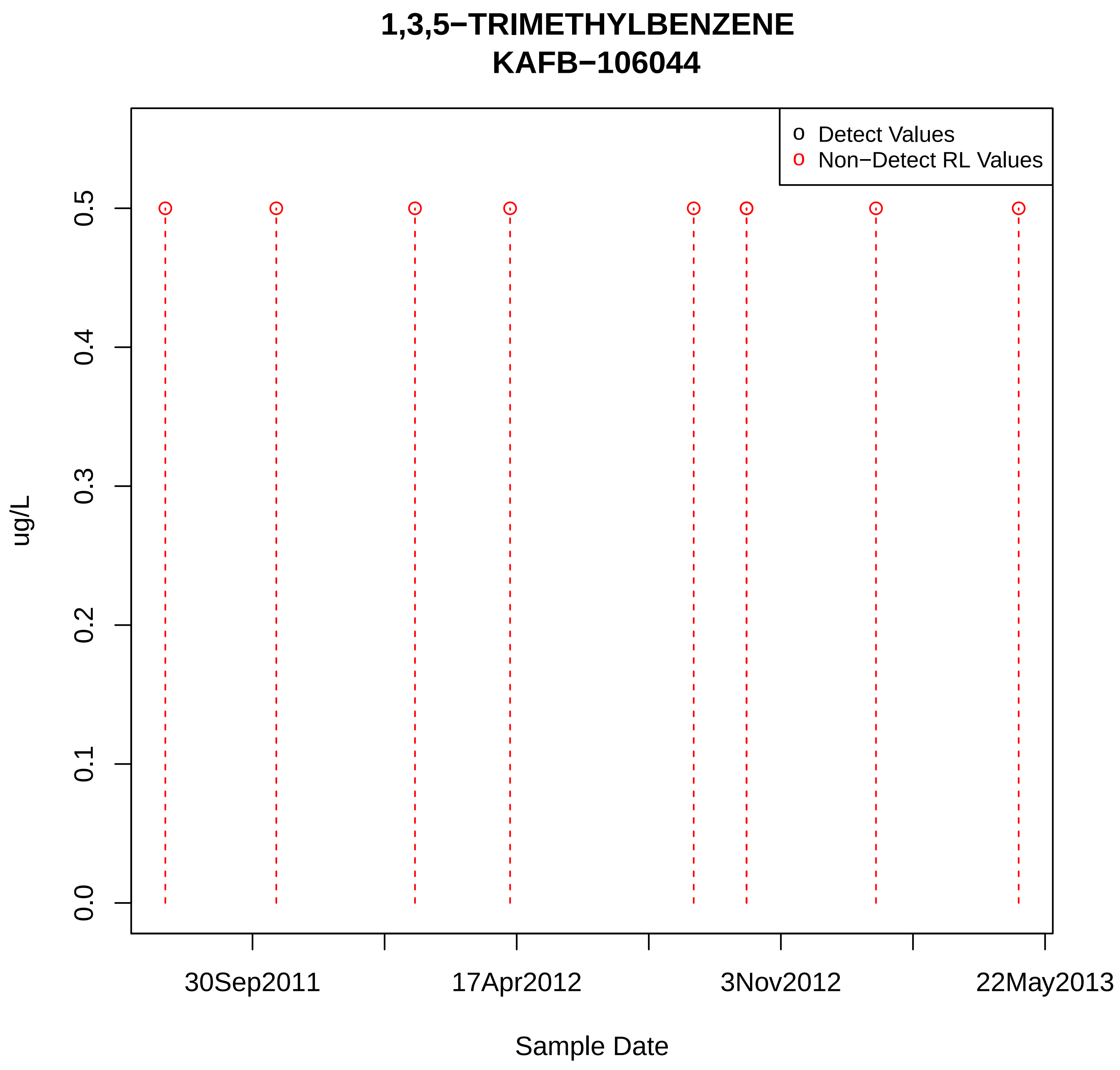
1,3,5−TRIMETHYLBENZENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



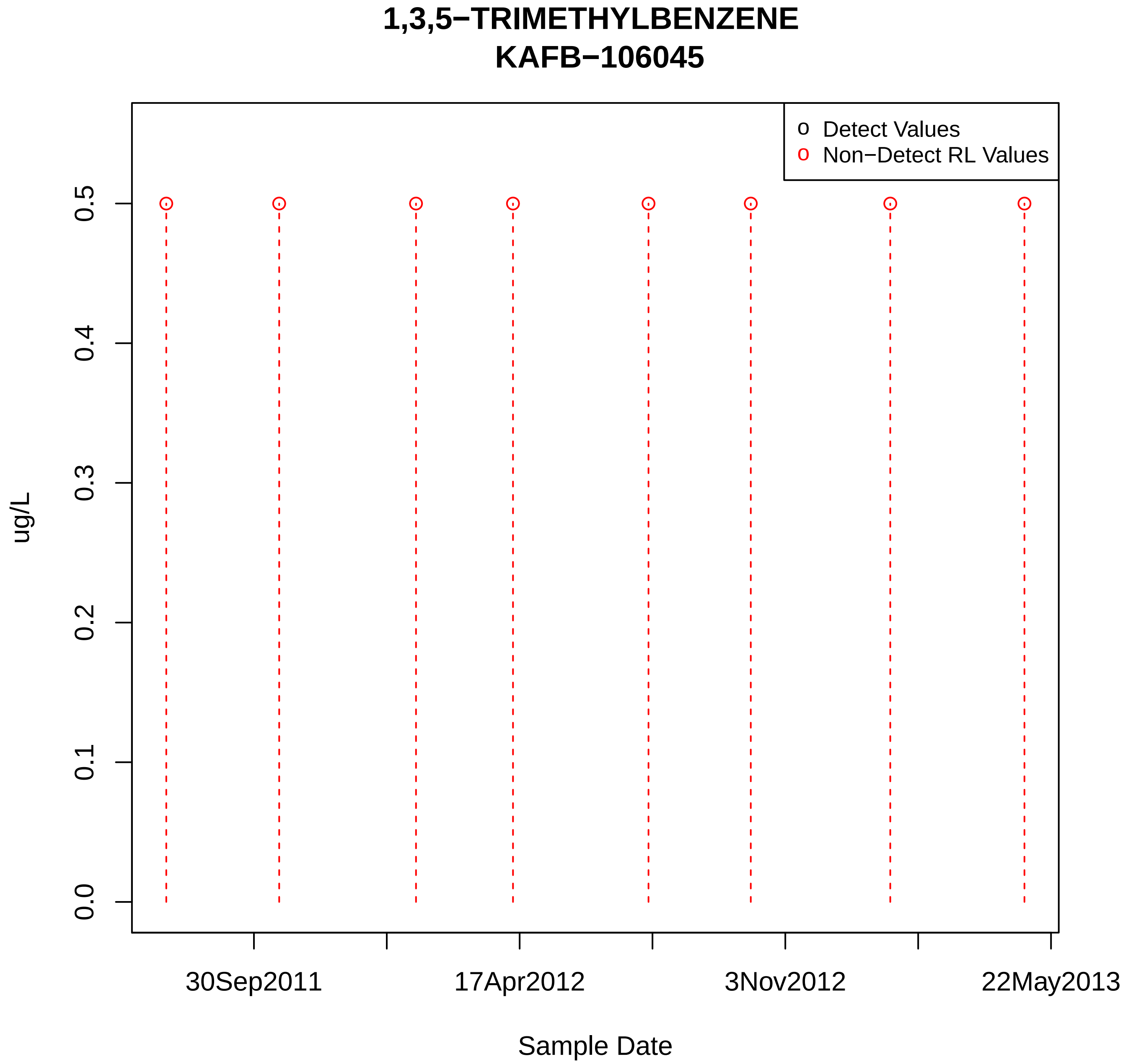
1,3,5−TRIMETHYLBENZENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



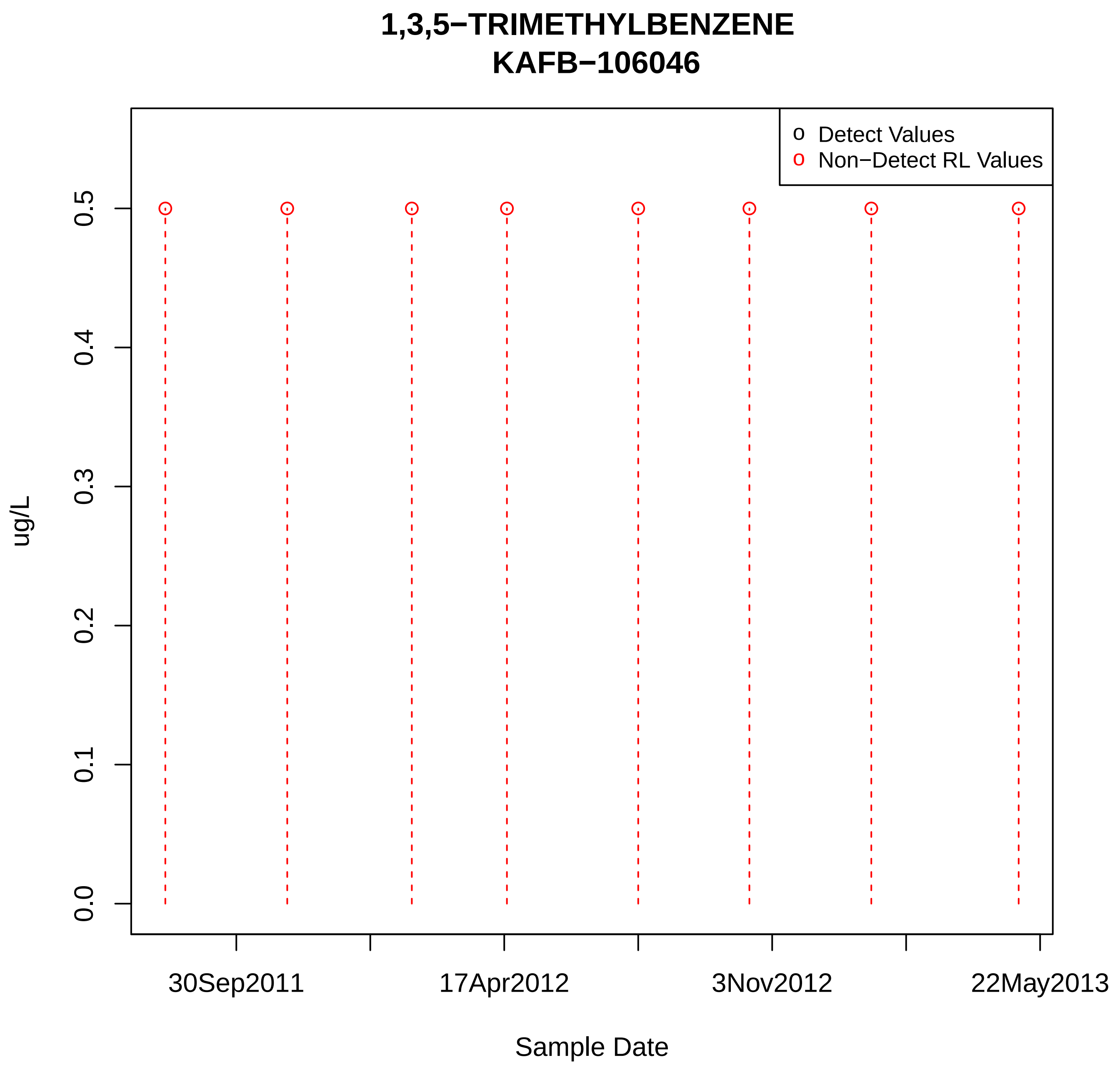
1,3,5−TRIMETHYLBENZENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



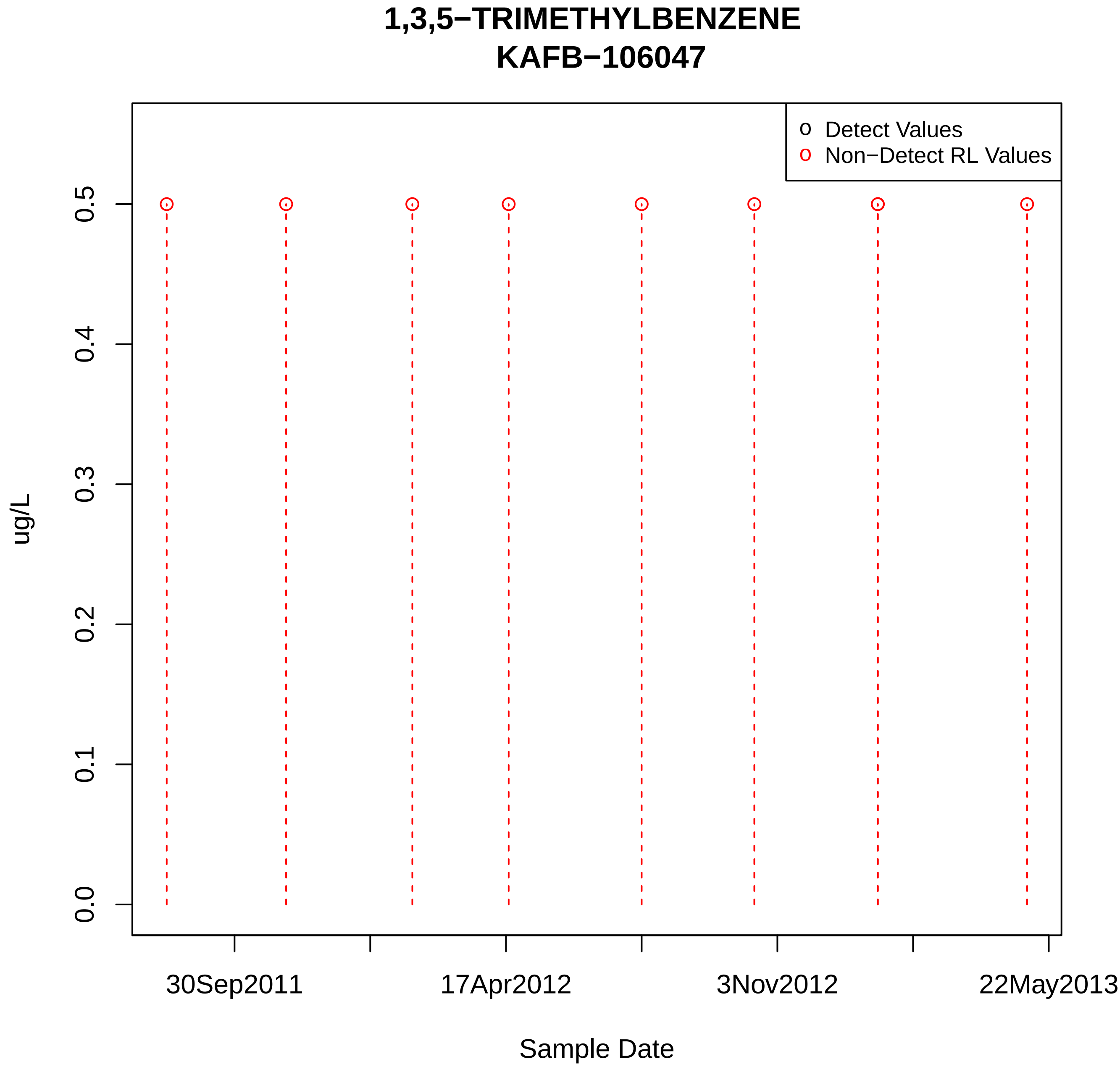
1,3,5−TRIMETHYLBENZENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



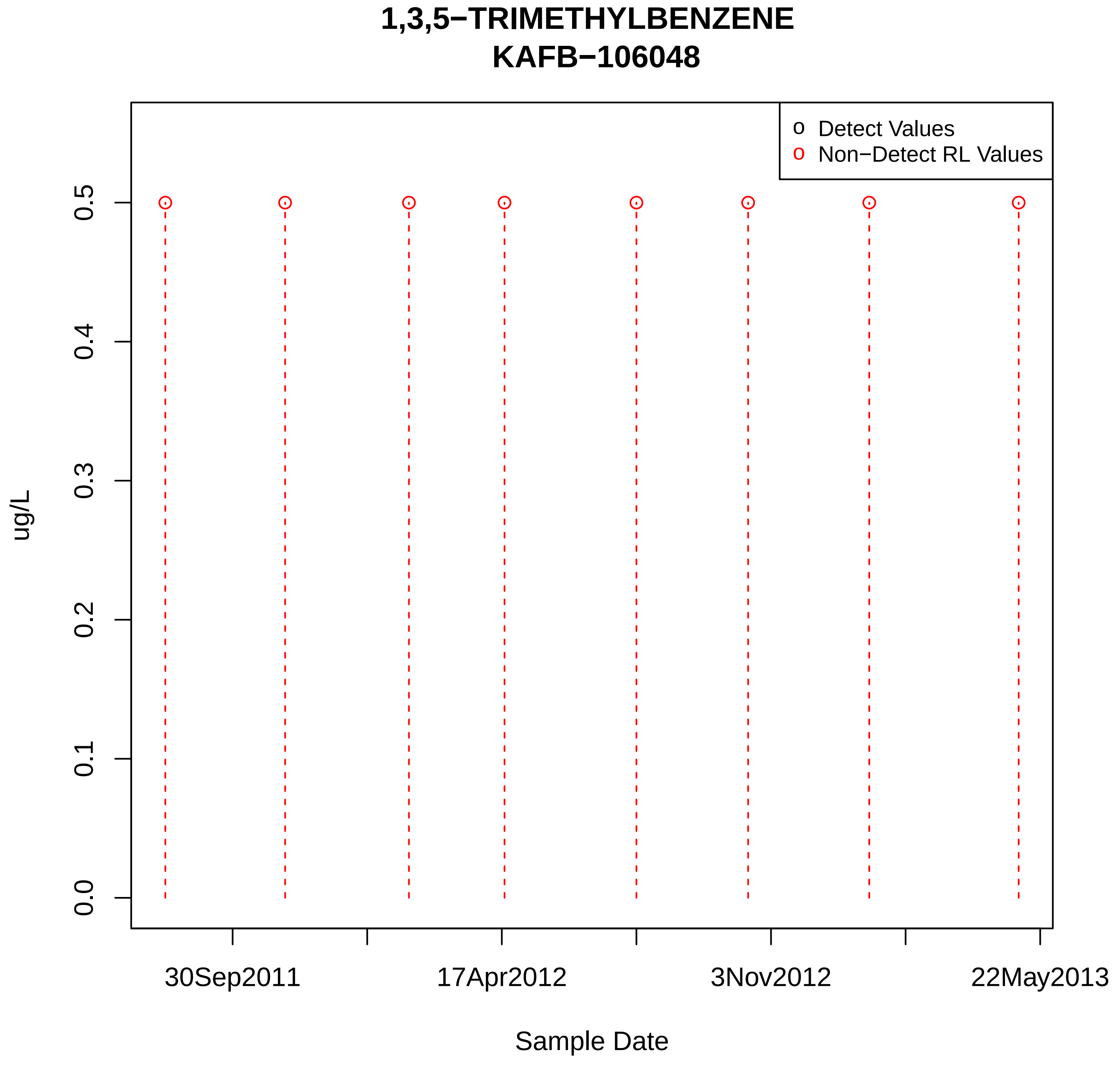
1,3,5−TRIMETHYLBENZENE
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

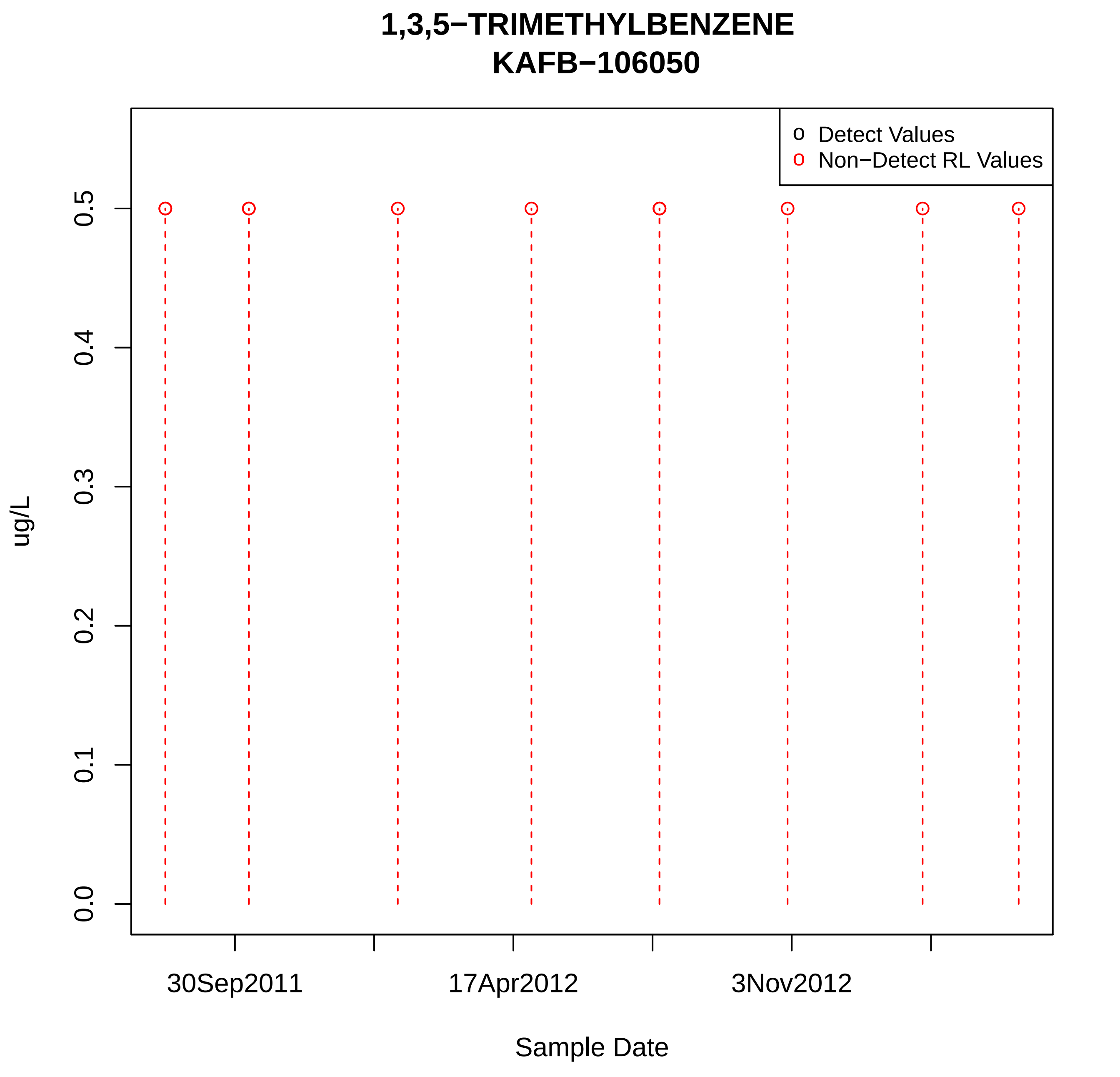


1,3,5−TRIMETHYLBENZENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

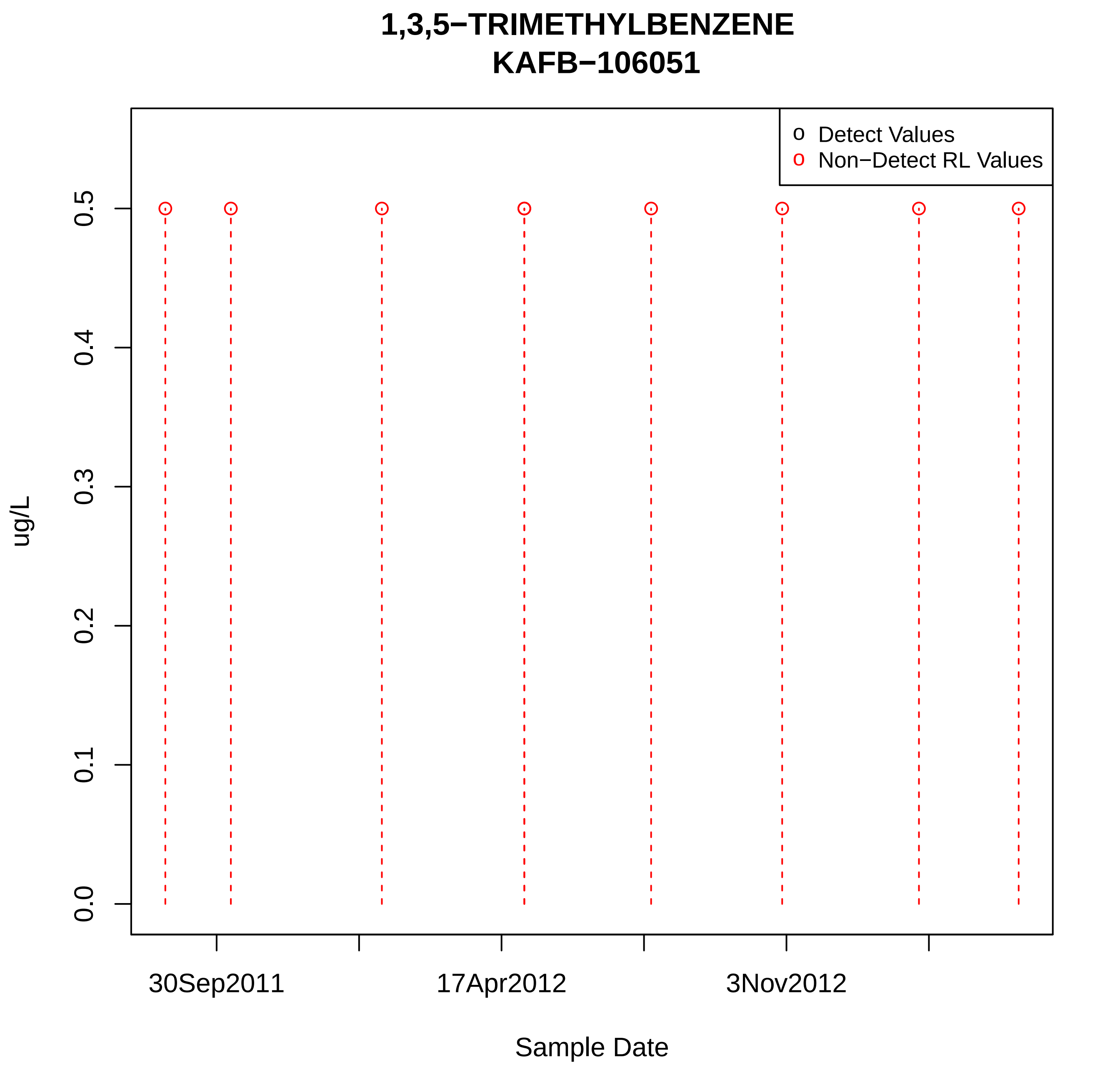


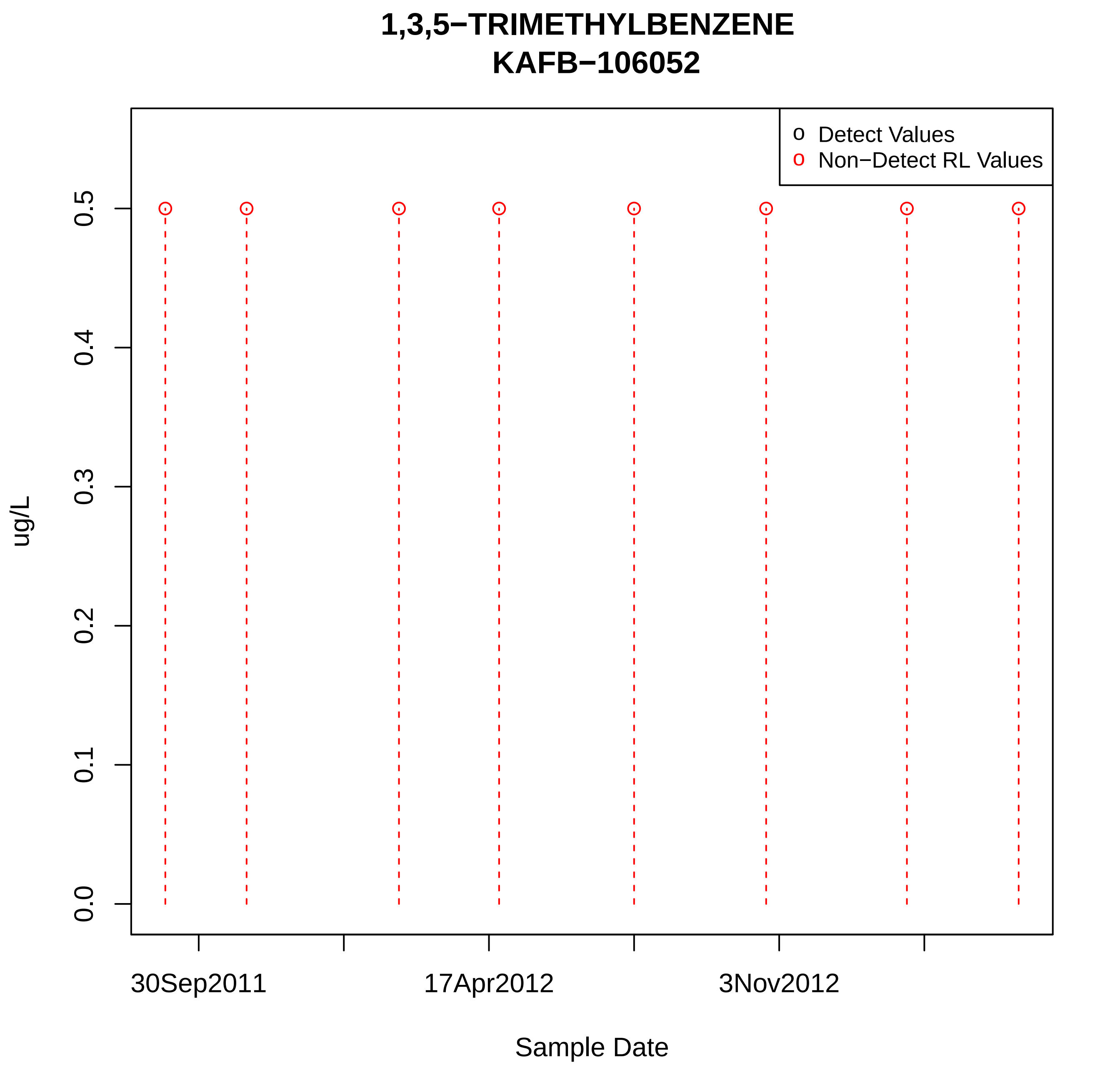
1,3,5−TRIMETHYLBENZENE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

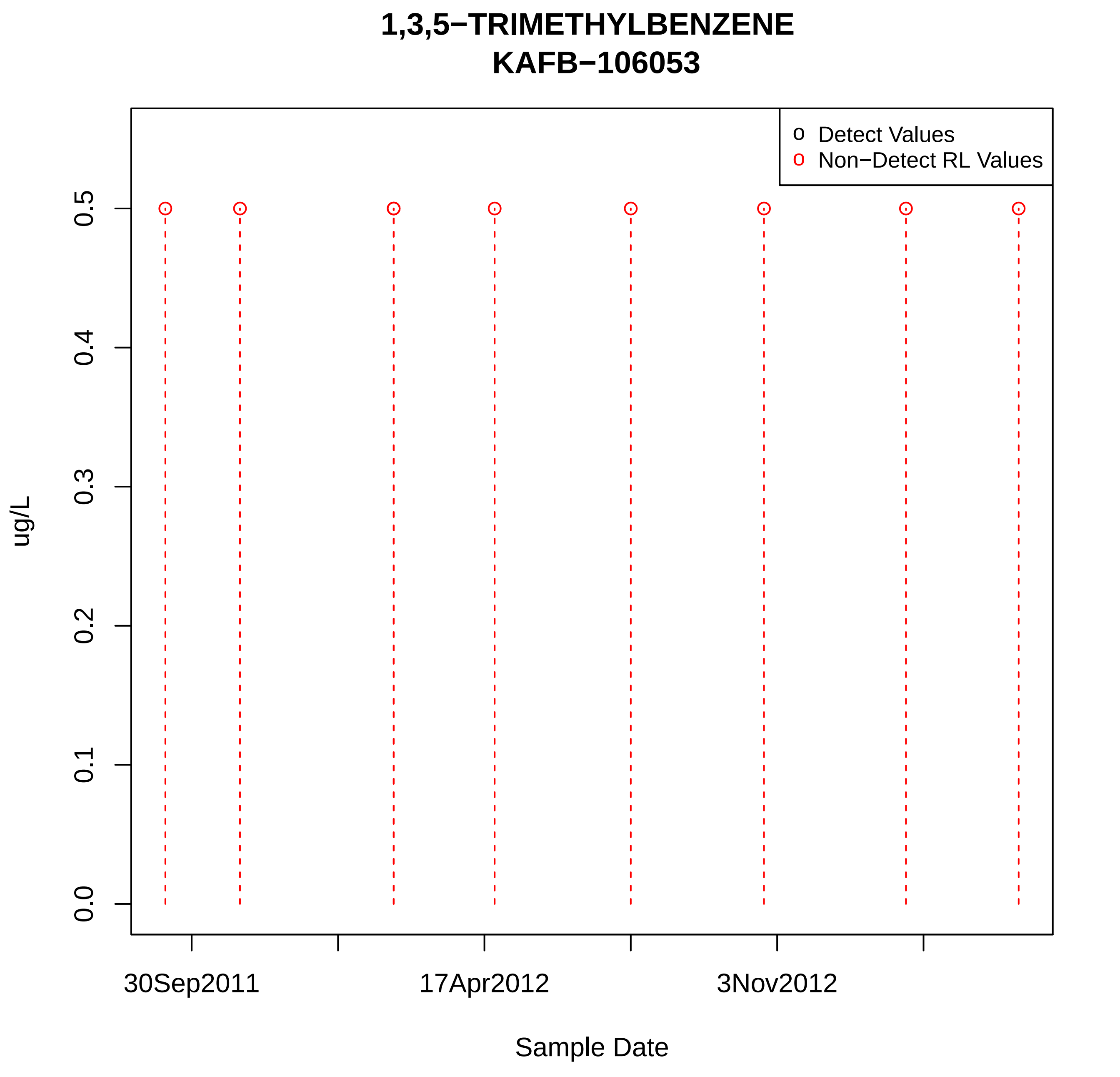

1,3,5−TRIMETHYLBENZENE
KAFB−106048
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



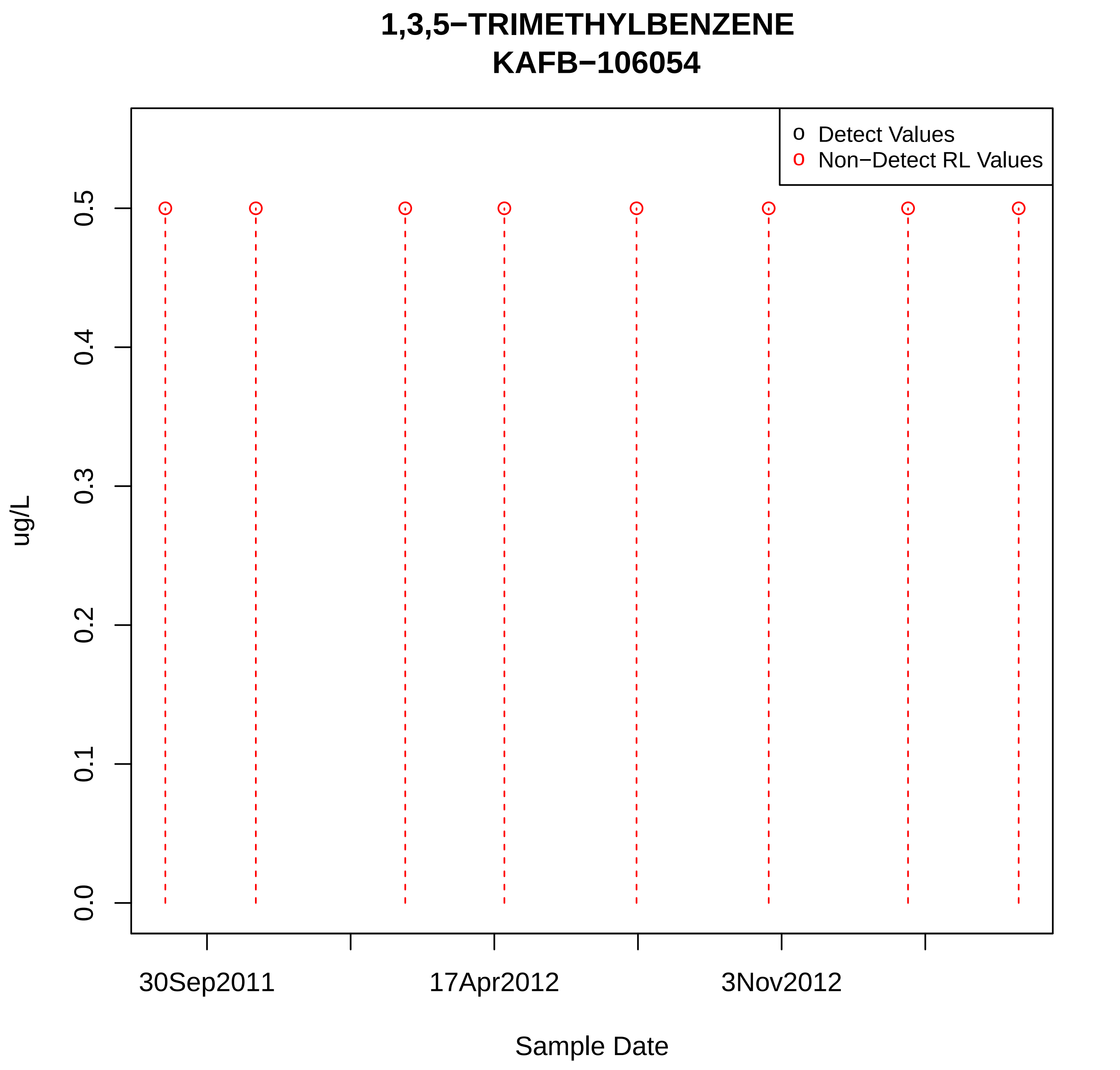
1,3,5−TRIMETHYLBENZENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

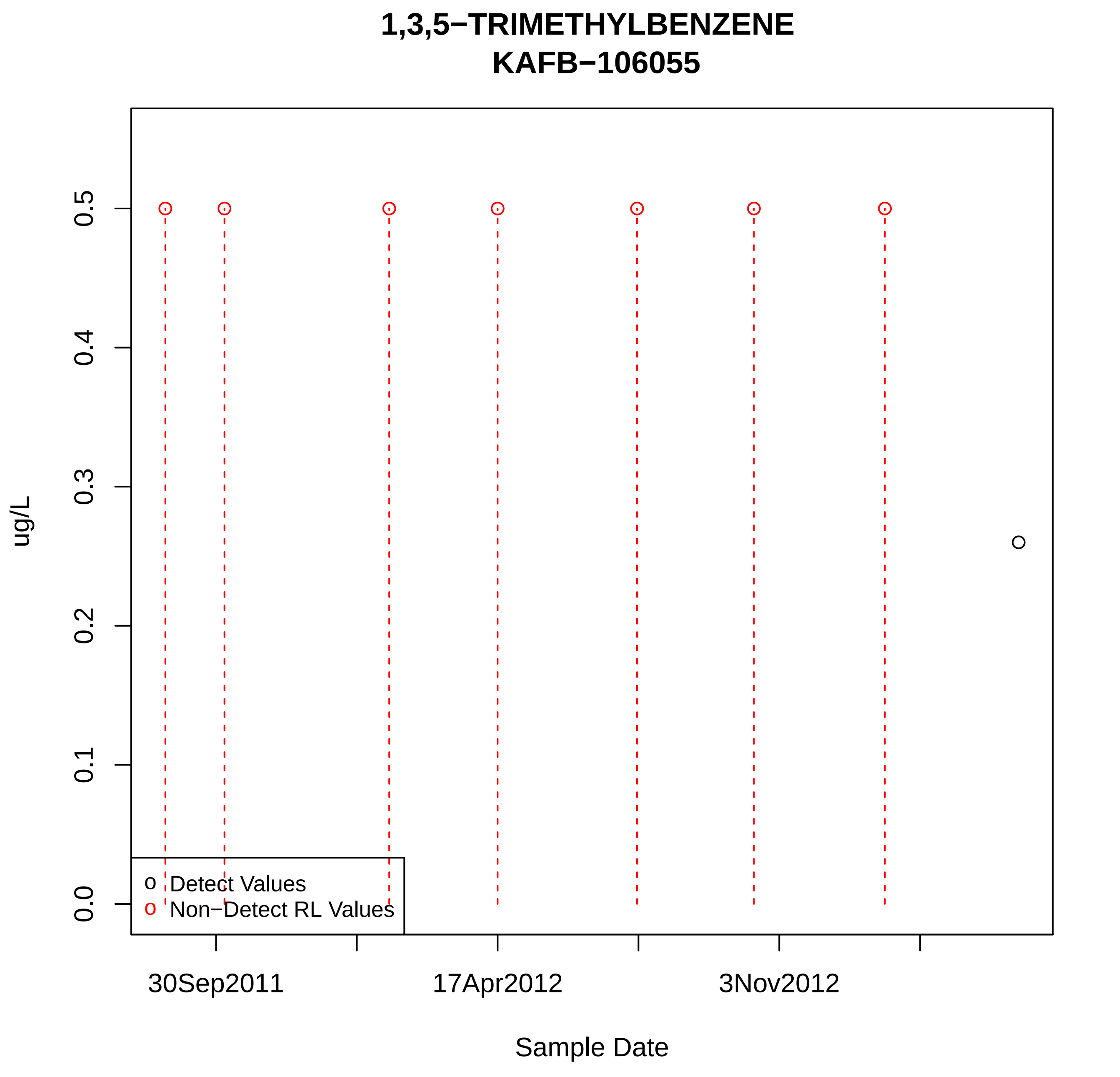

1,3,5−TRIMETHYLBENZENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



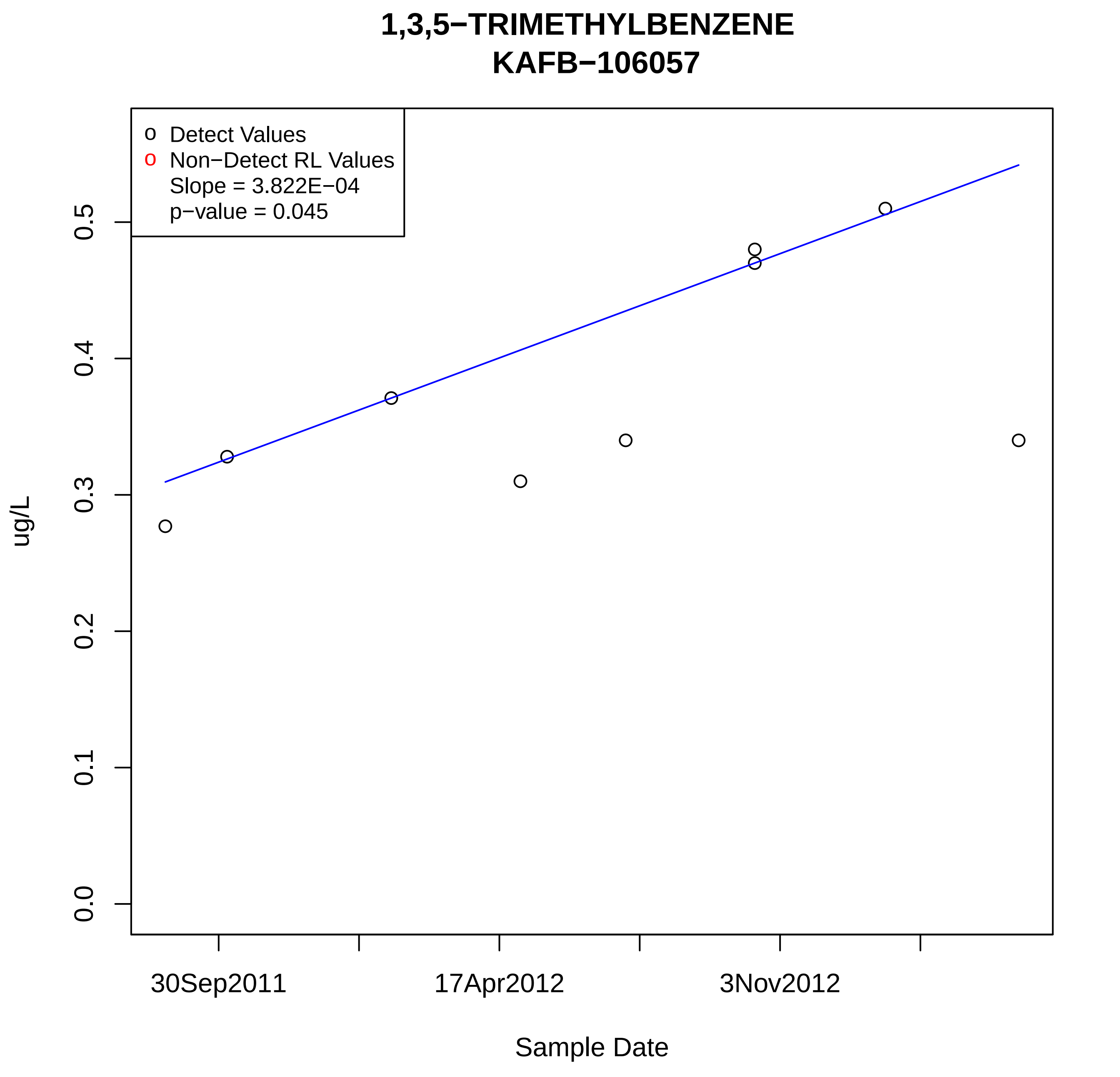
1,3,5−TRIMETHYLBENZENE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



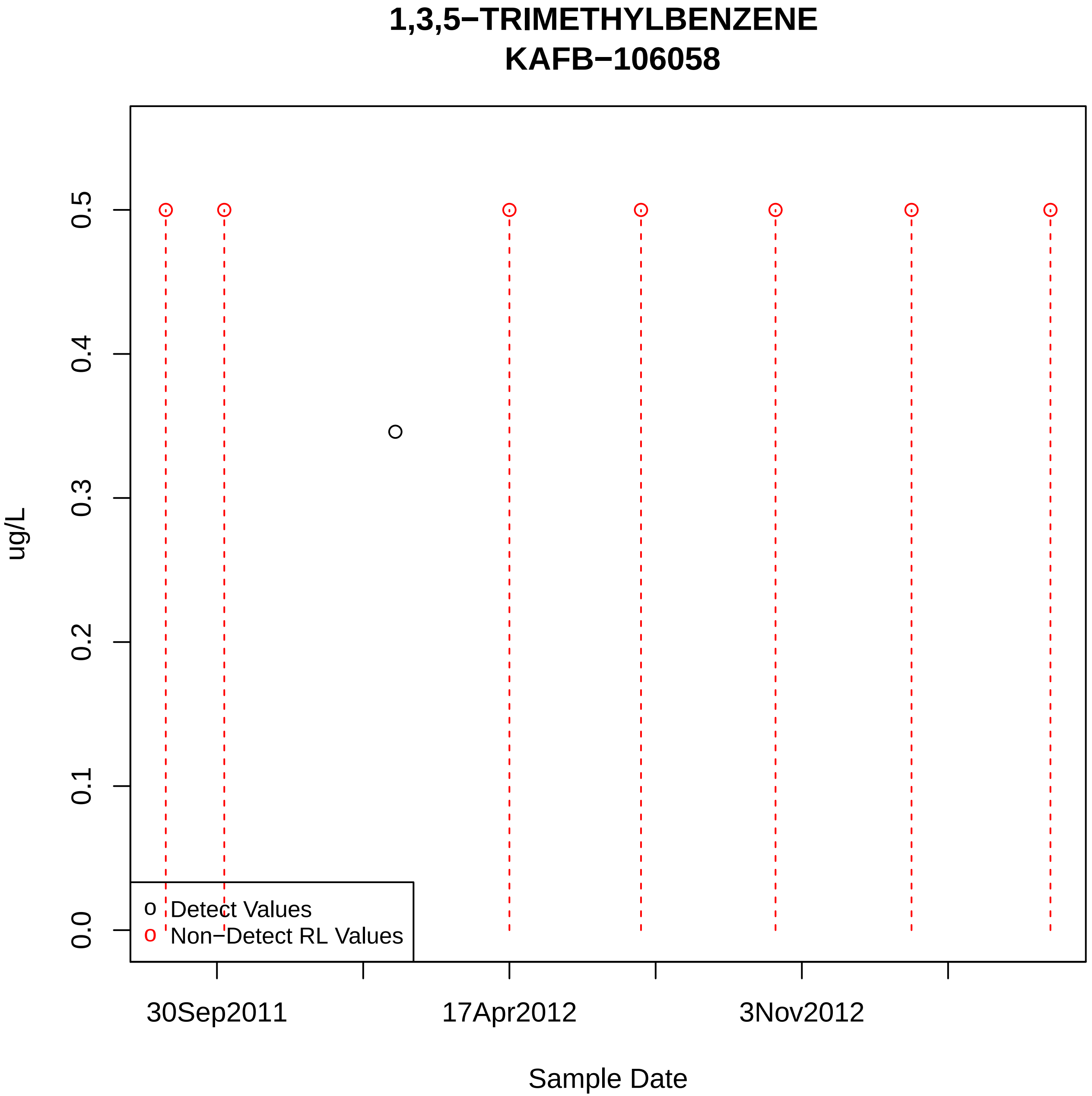
1,3,5−TRIMETHYLBENZENE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

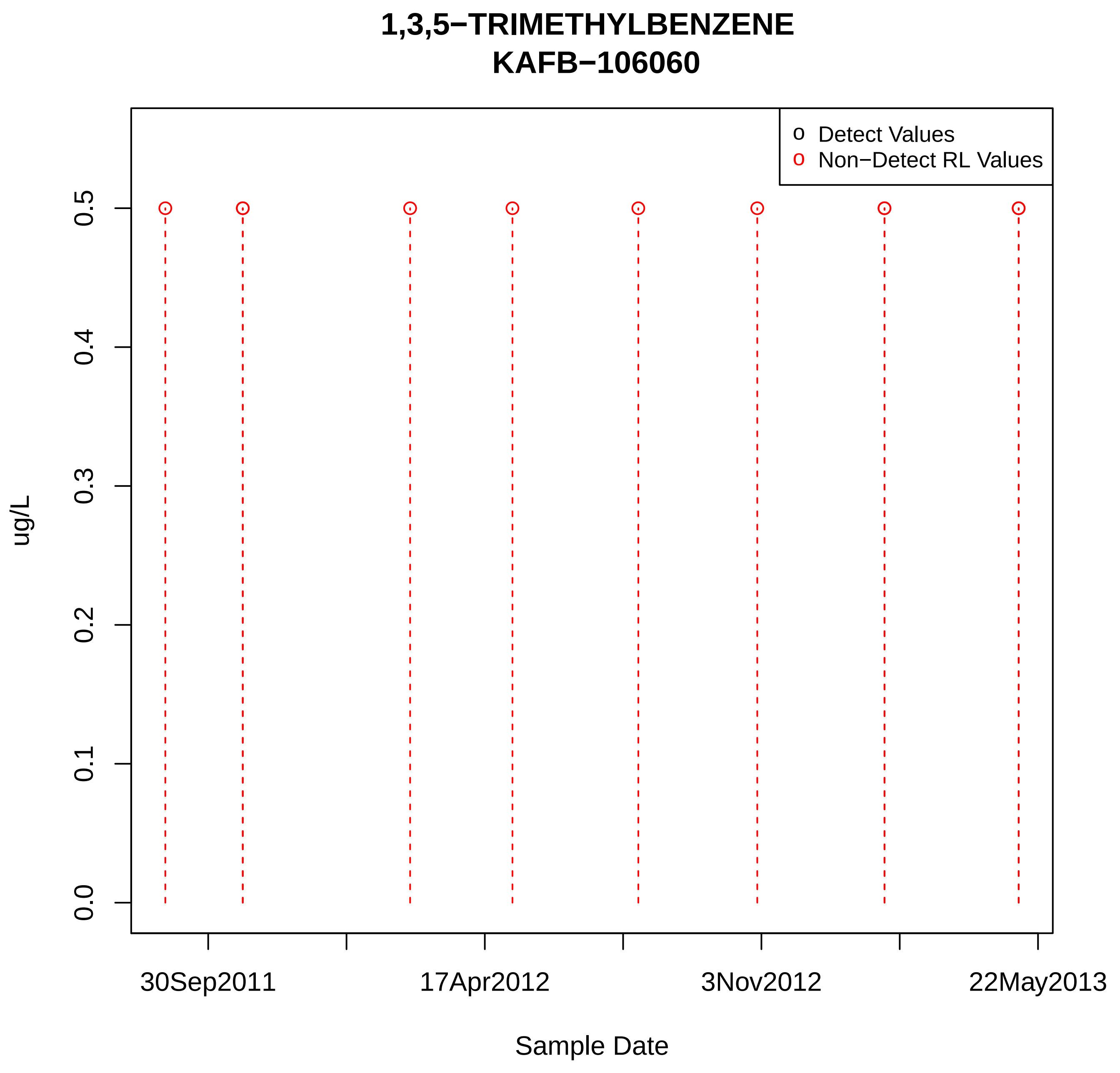


1,3,5−TRIMETHYLBENZENE
KAFB−106055
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

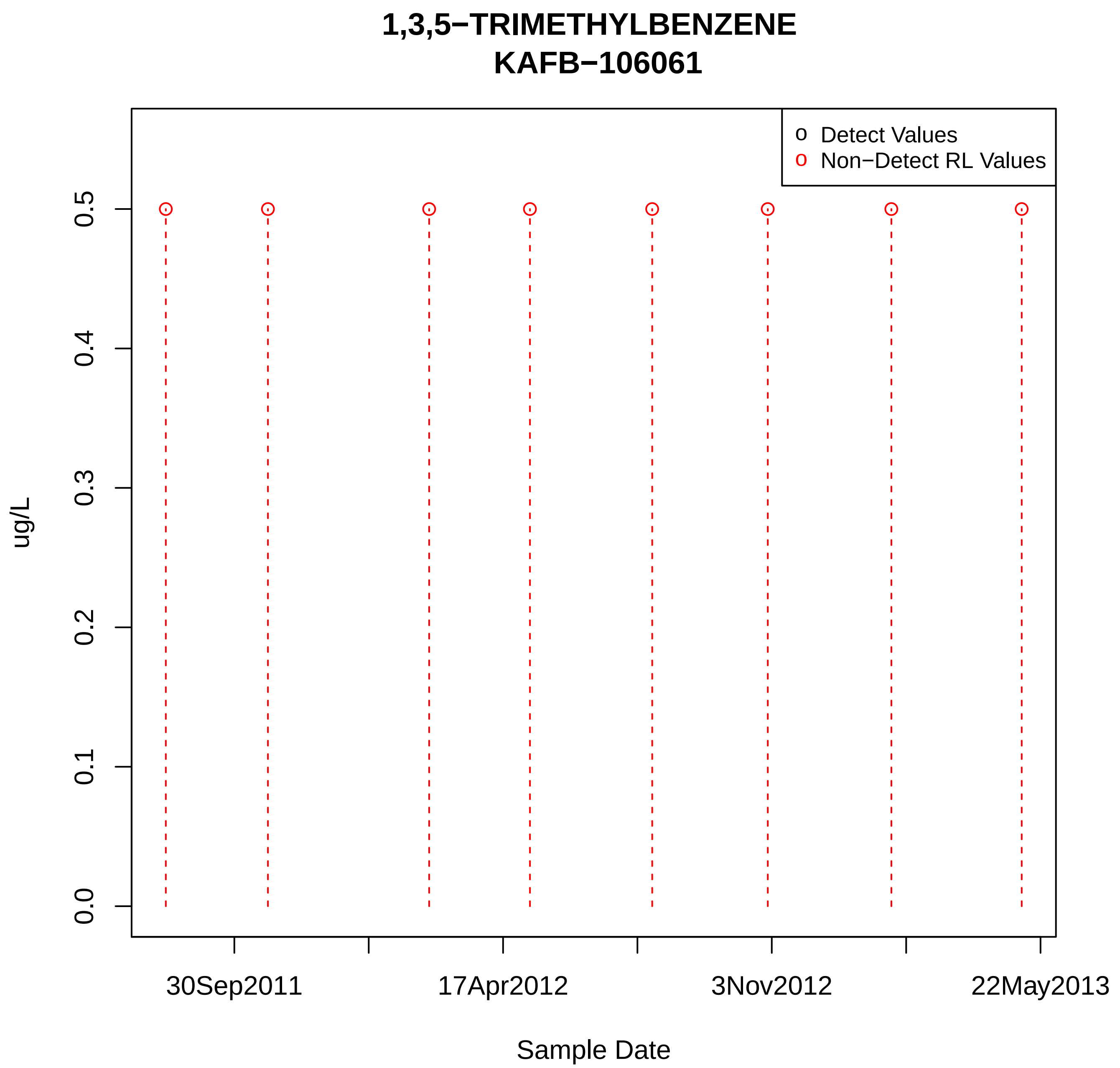


1,3,5−TRIMETHYLBENZENE
KAFB−106057
Detect Values
Non−Detect RL Values
Slope = 3.822E−04
p−value = 0.045
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

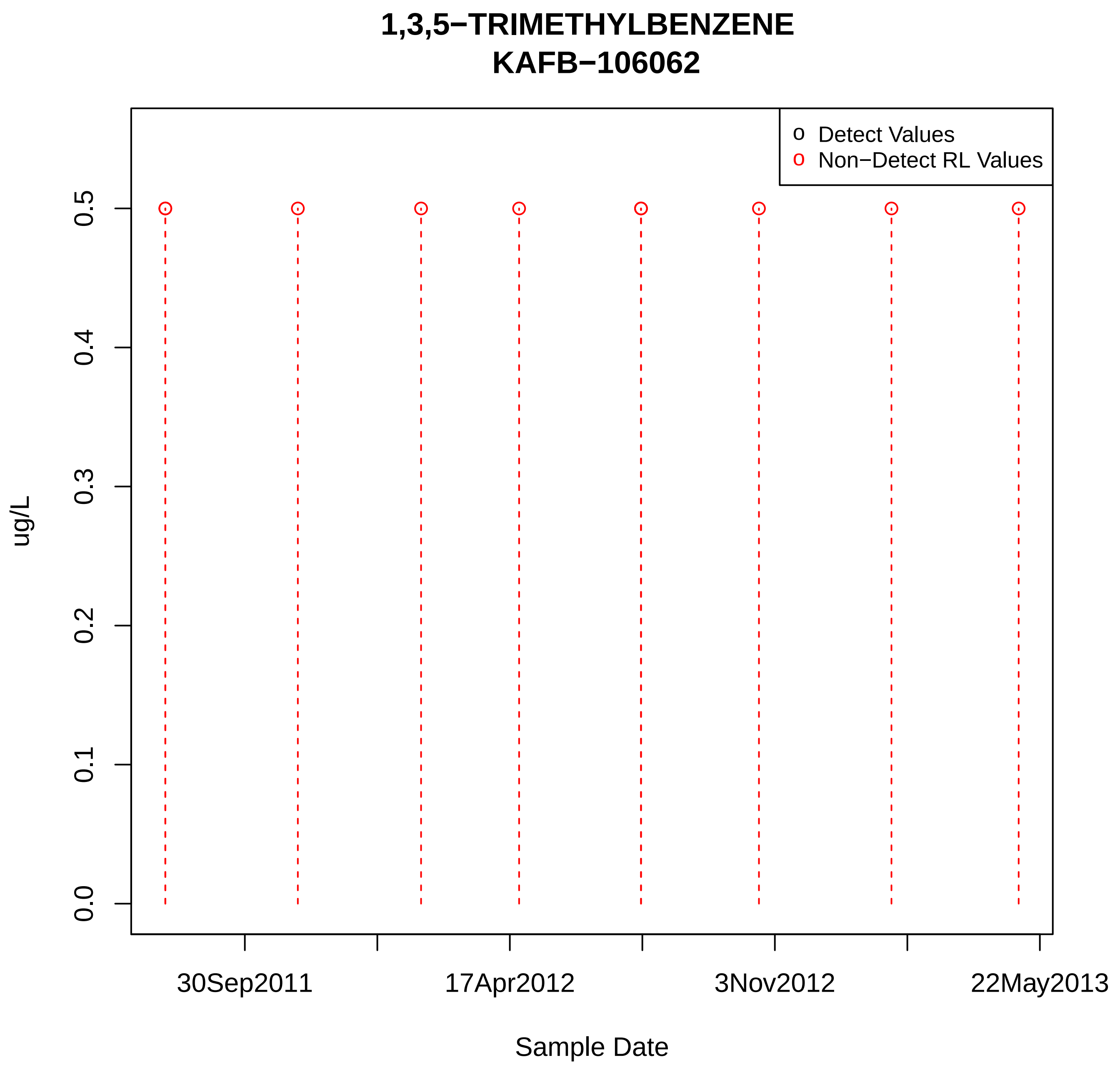

1,3,5−TRIMETHYLBENZENE
KAFB−106058
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

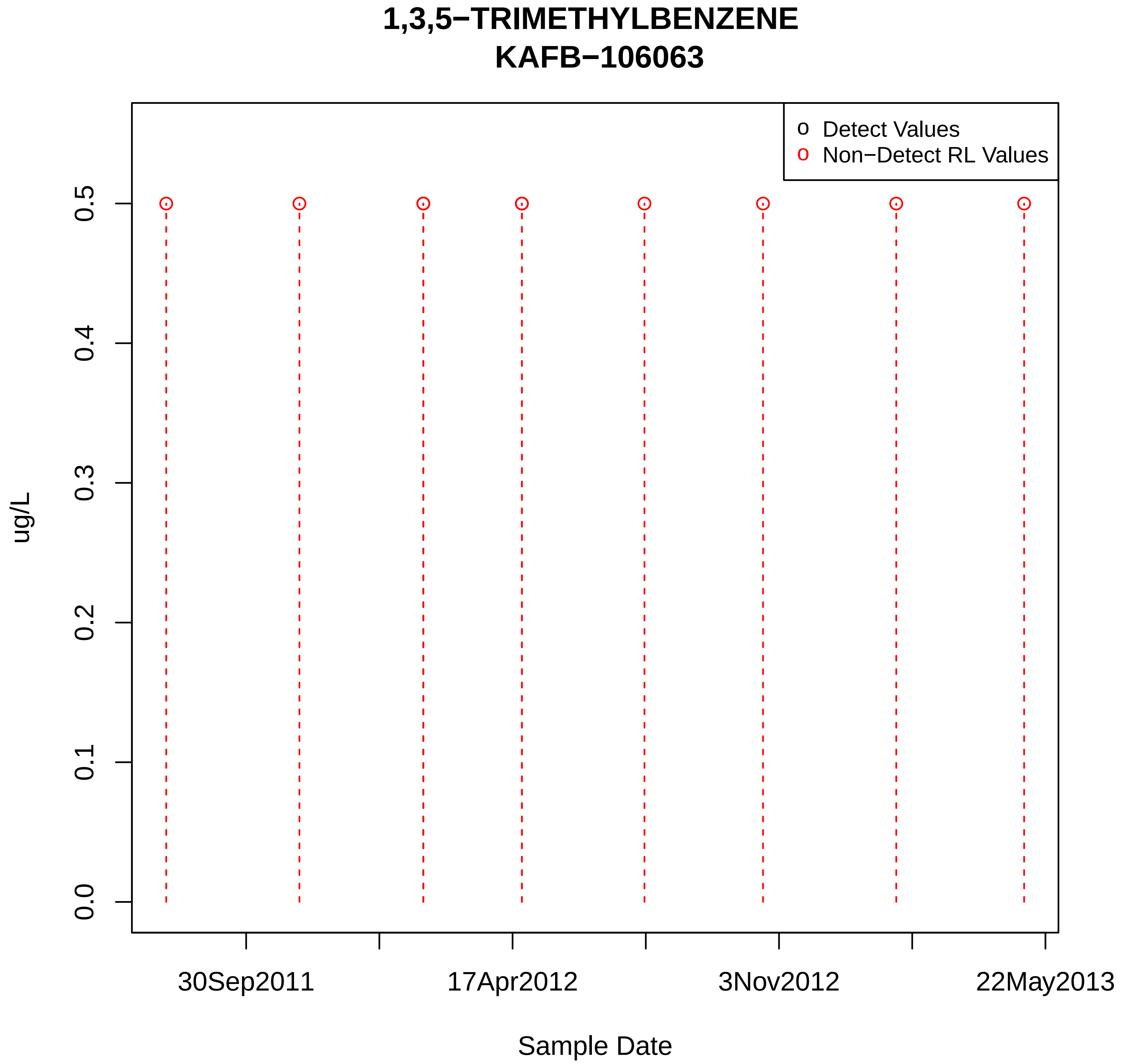


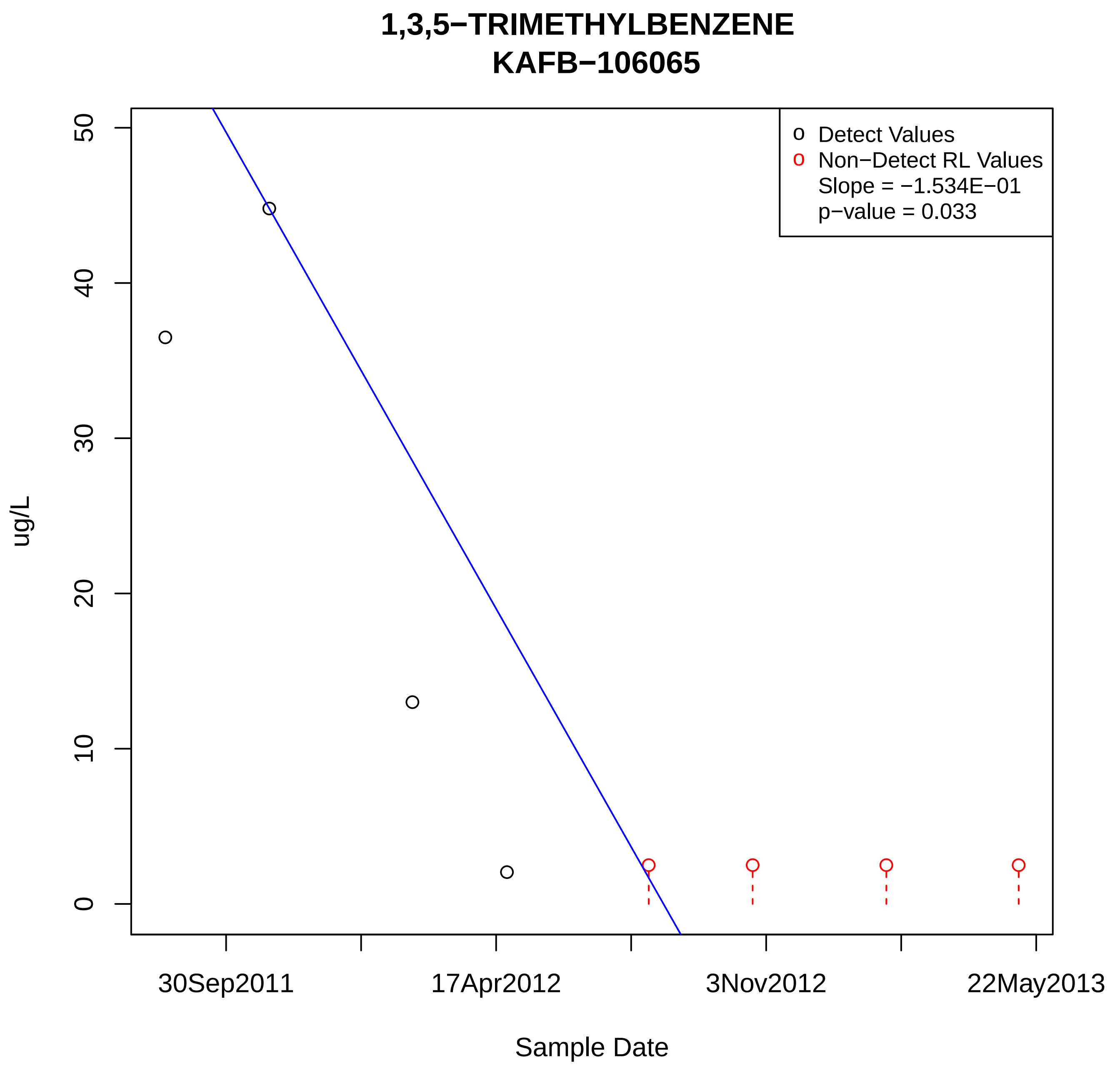
1,3,5−TRIMETHYLBENZENE
KAFB−106060
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



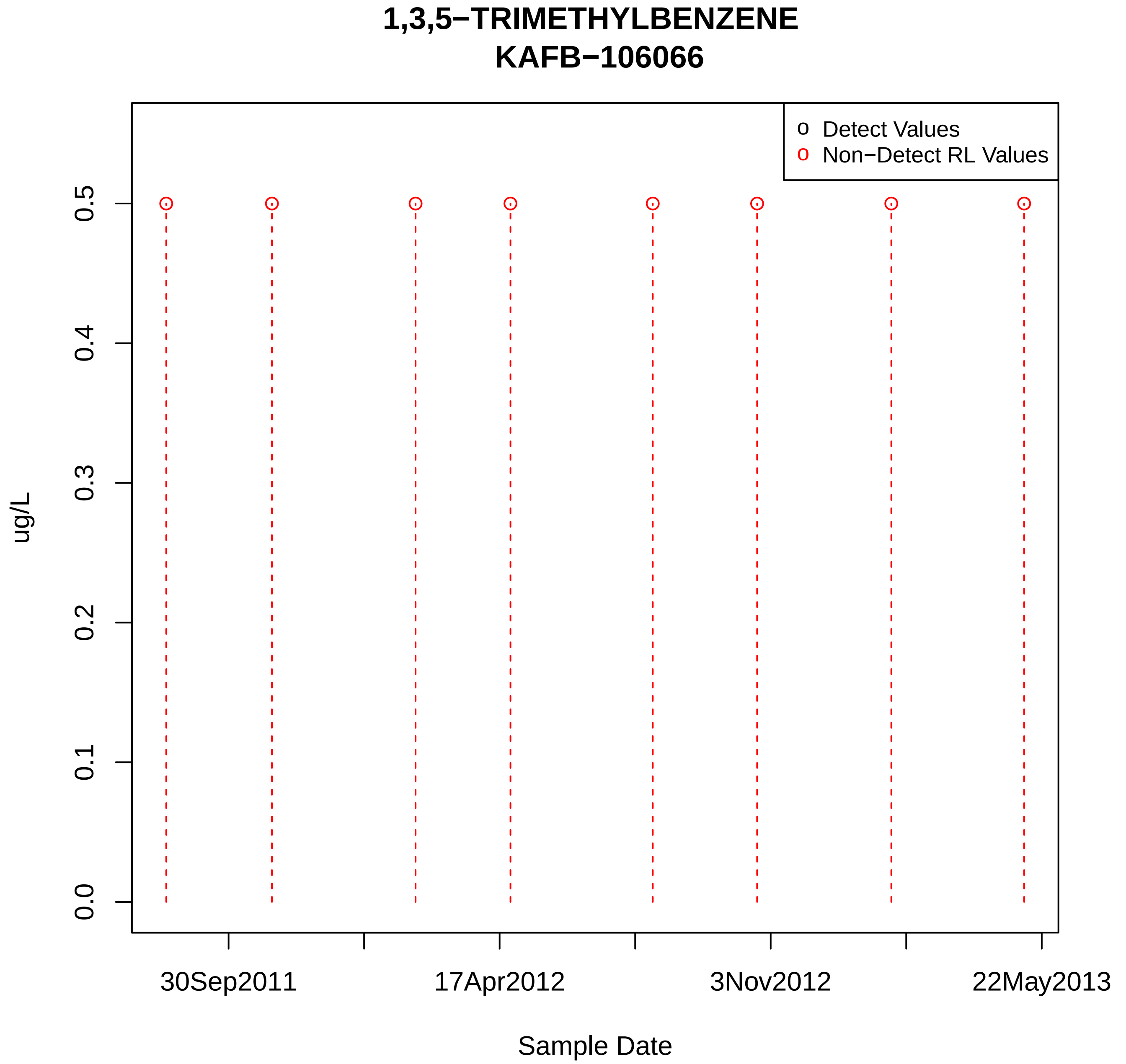
1,3,5−TRIMETHYLBENZENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

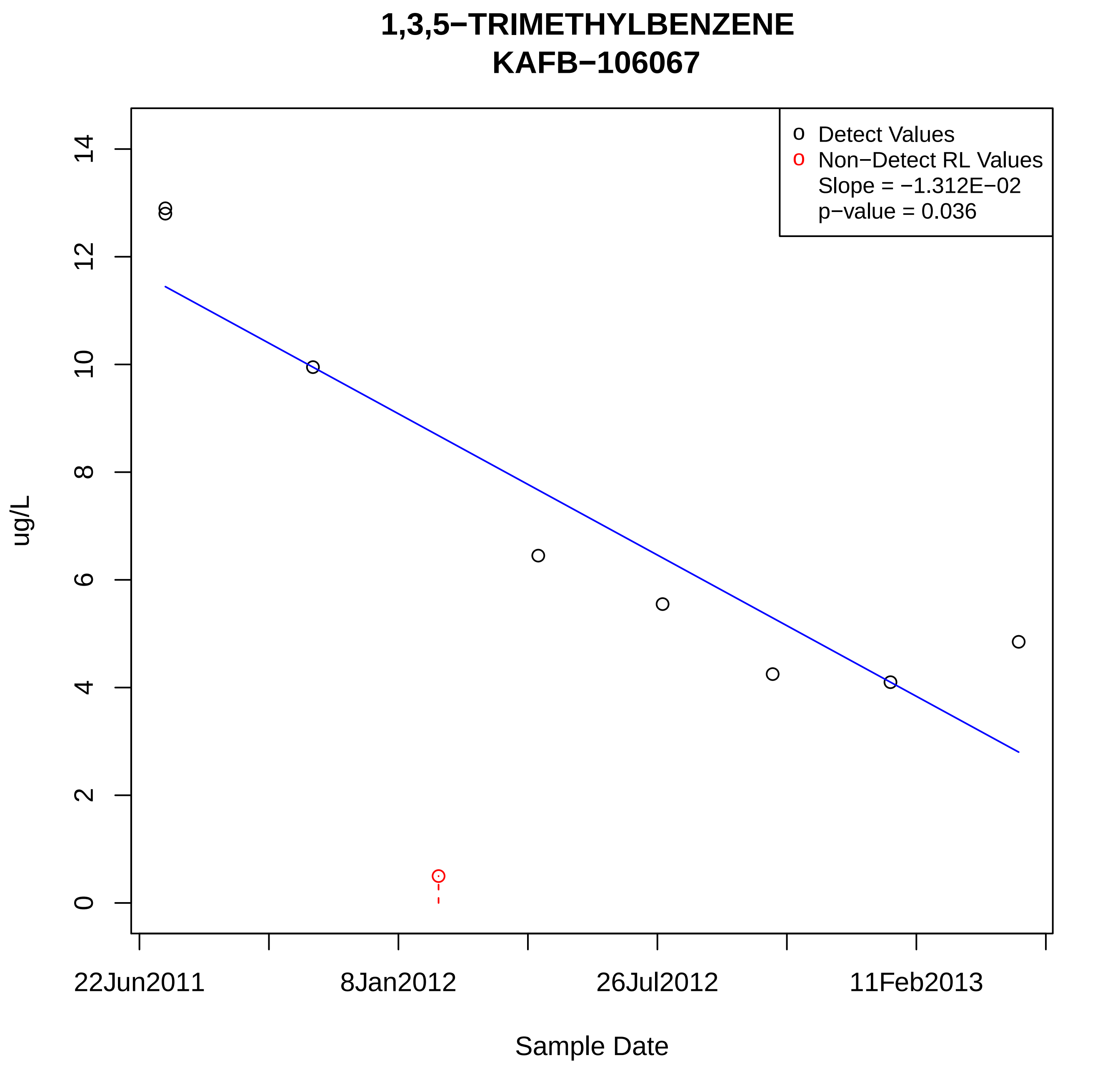

1,3,5−TRIMETHYLBENZENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

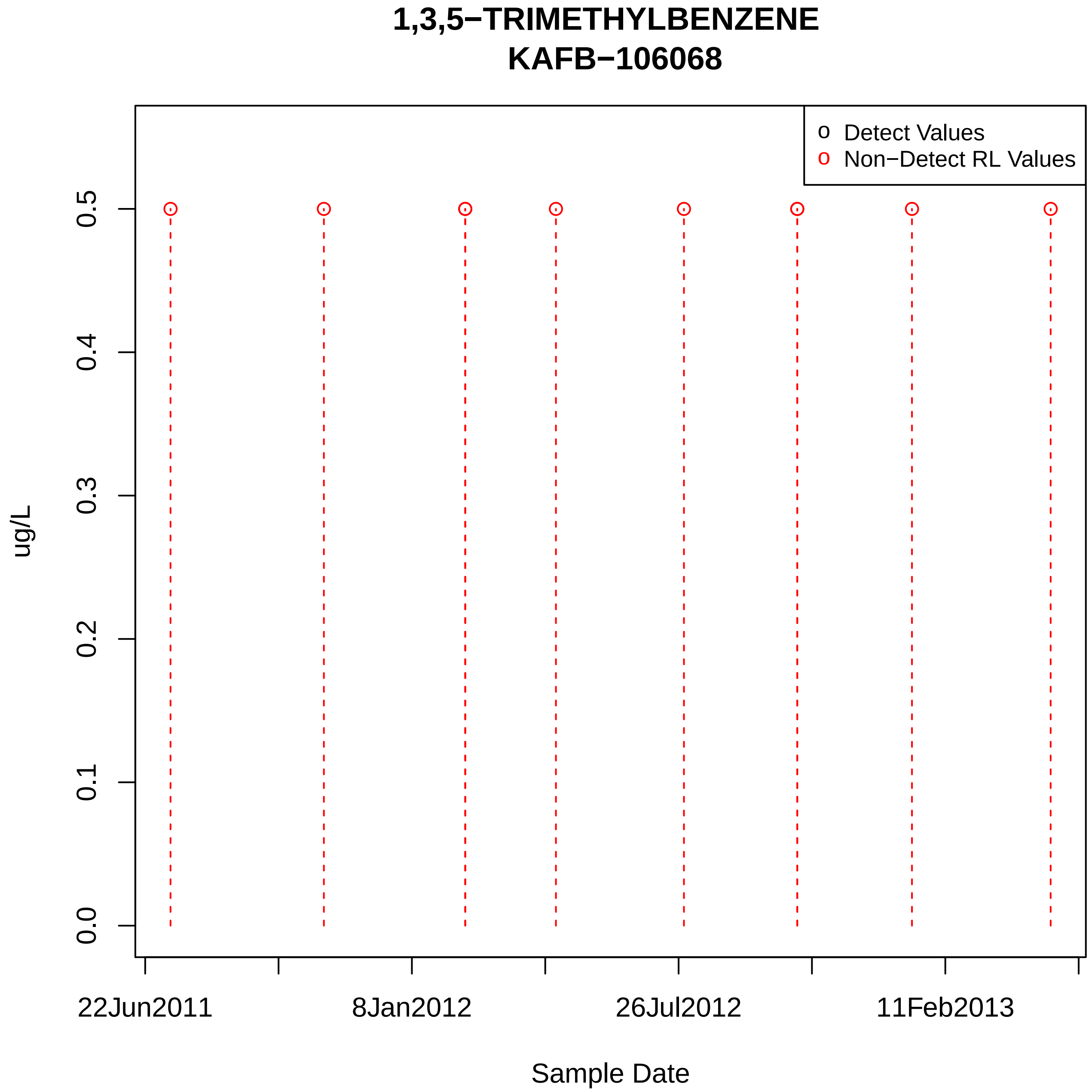


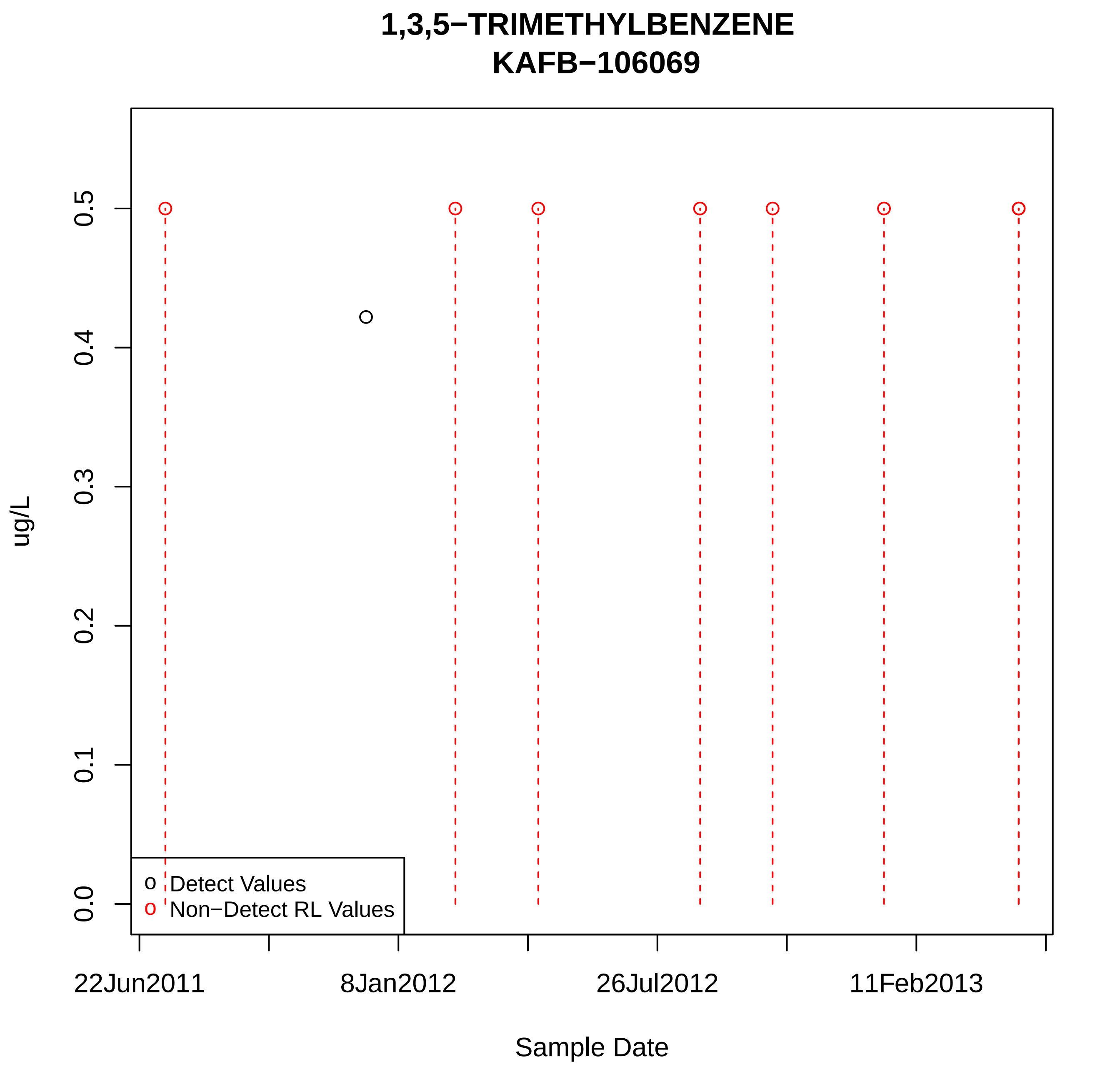
1,3,5−TRIMETHYLBENZENE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −1.534E−01
p−value = 0.033
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



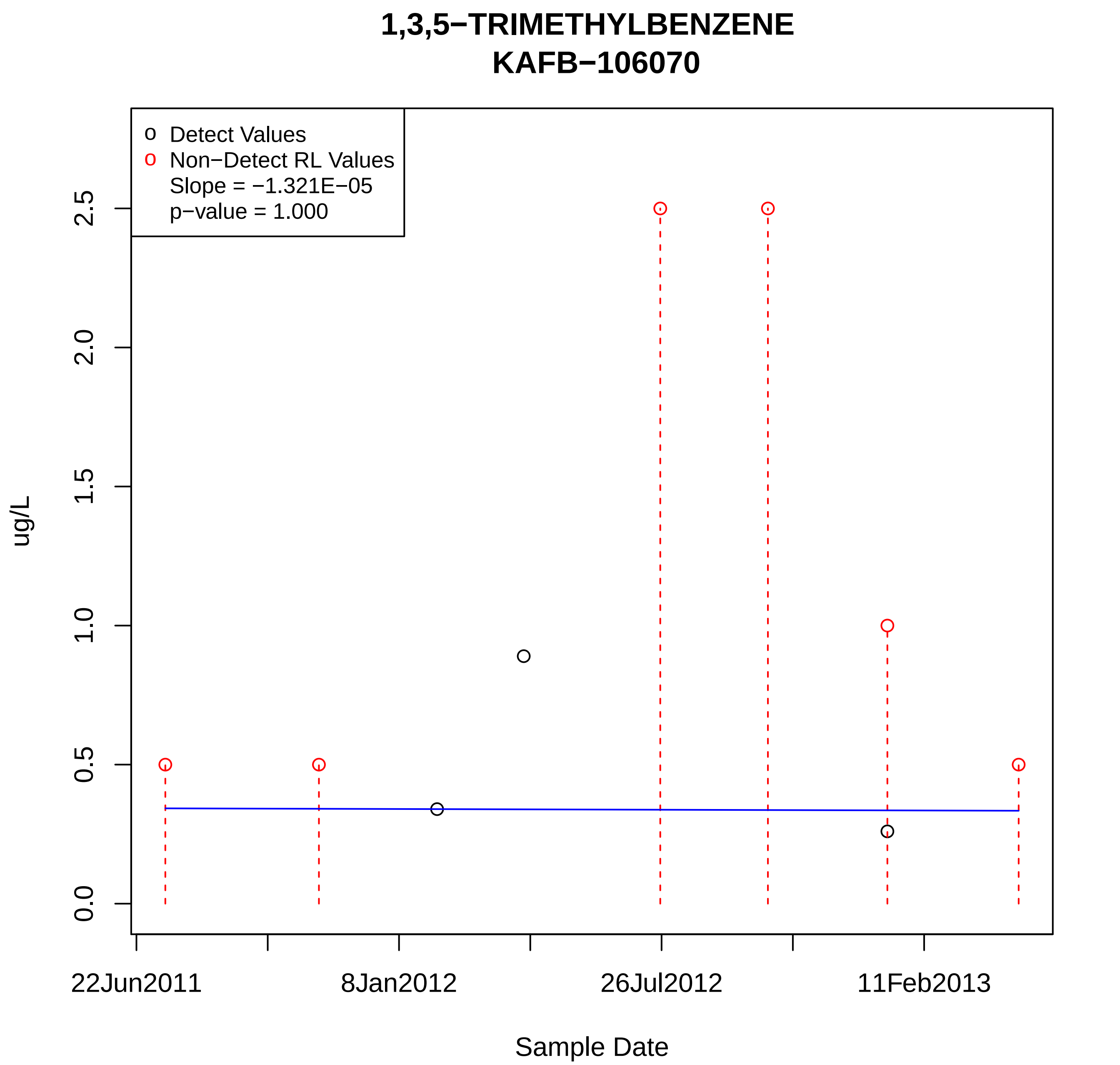
1,3,5−TRIMETHYLBENZENE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

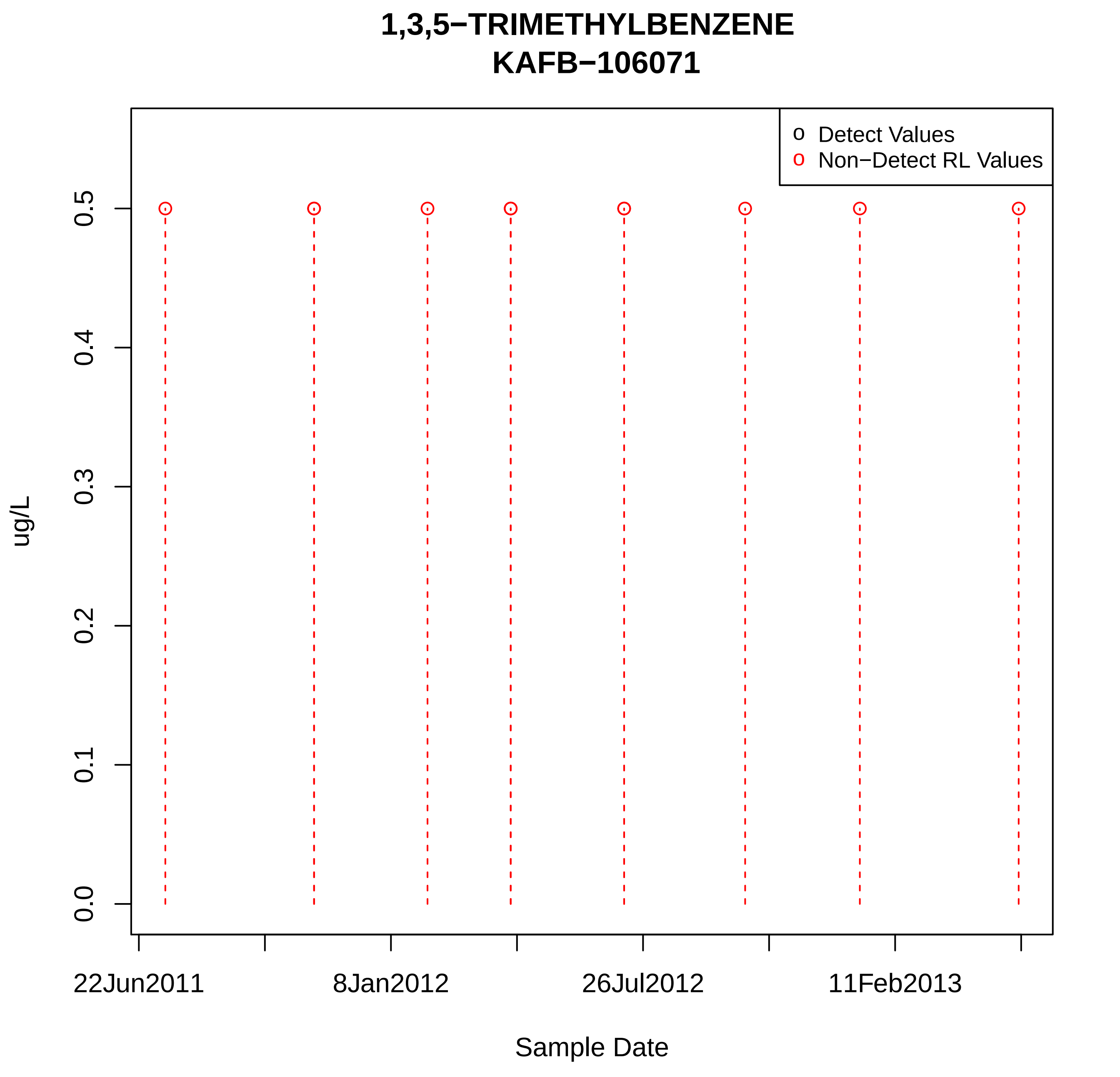

1,3,5−TRIMETHYLBENZENE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = −1.312E−02
p−value = 0.036
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

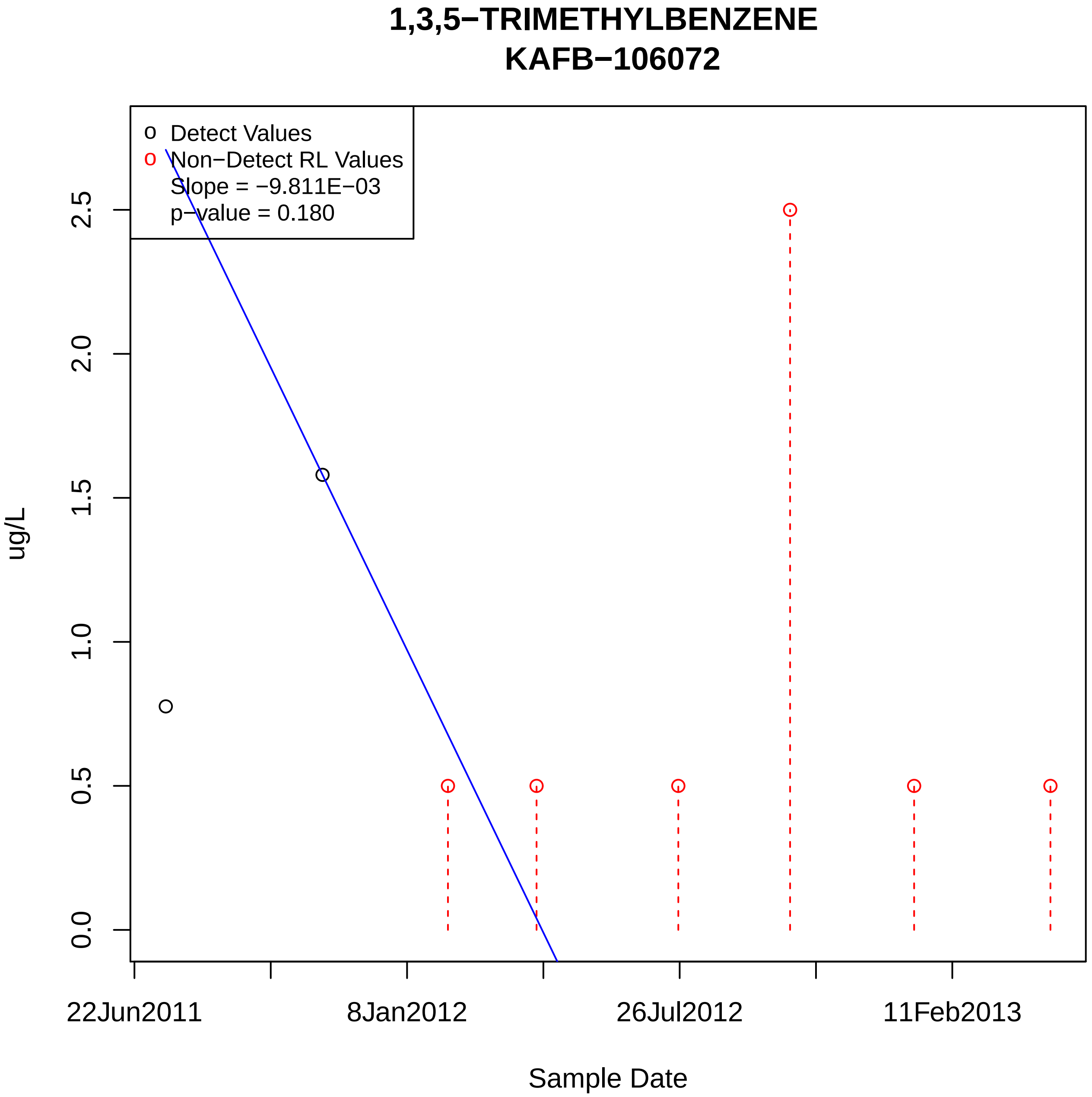

1,3,5−TRIMETHYLBENZENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

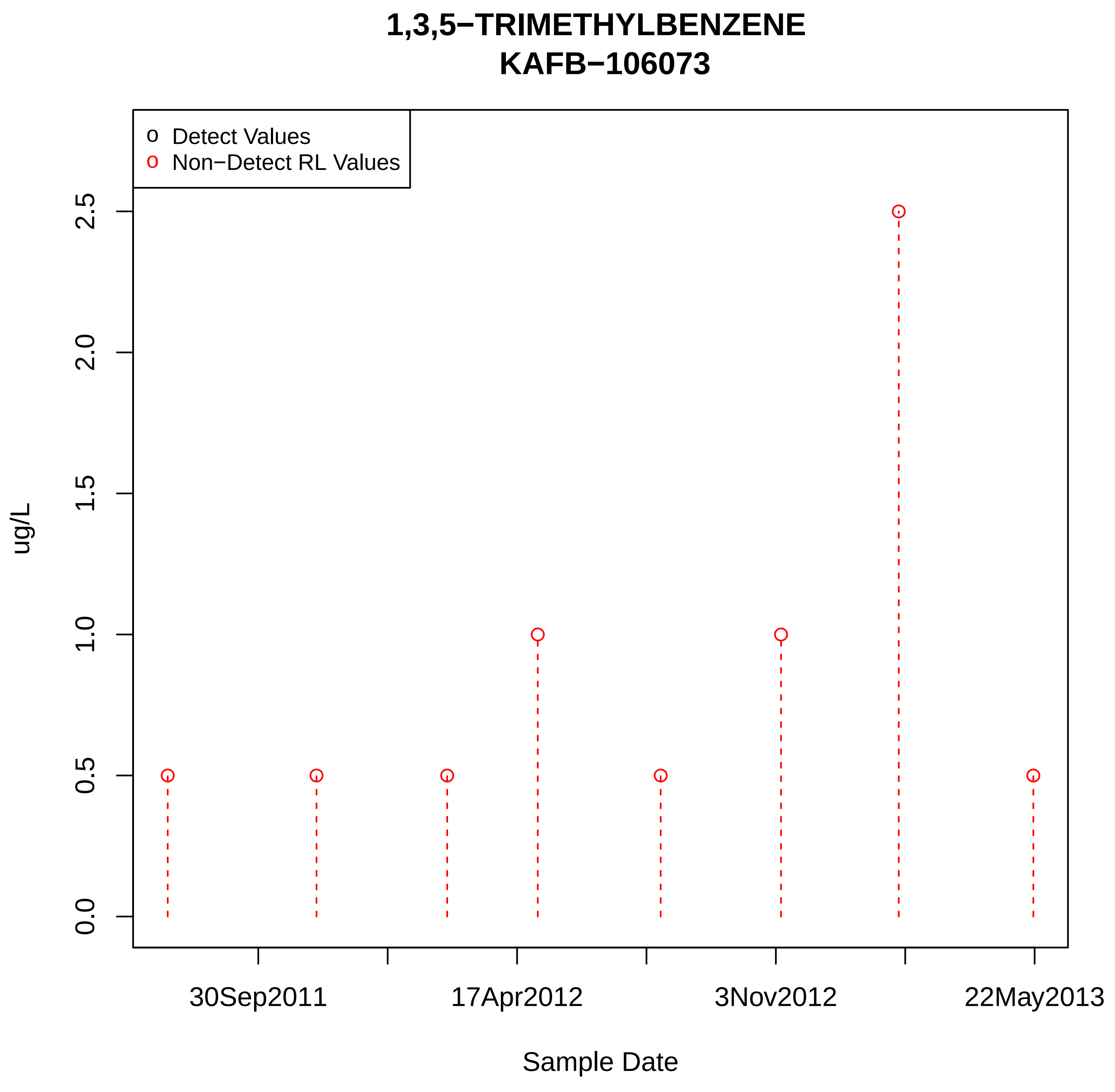


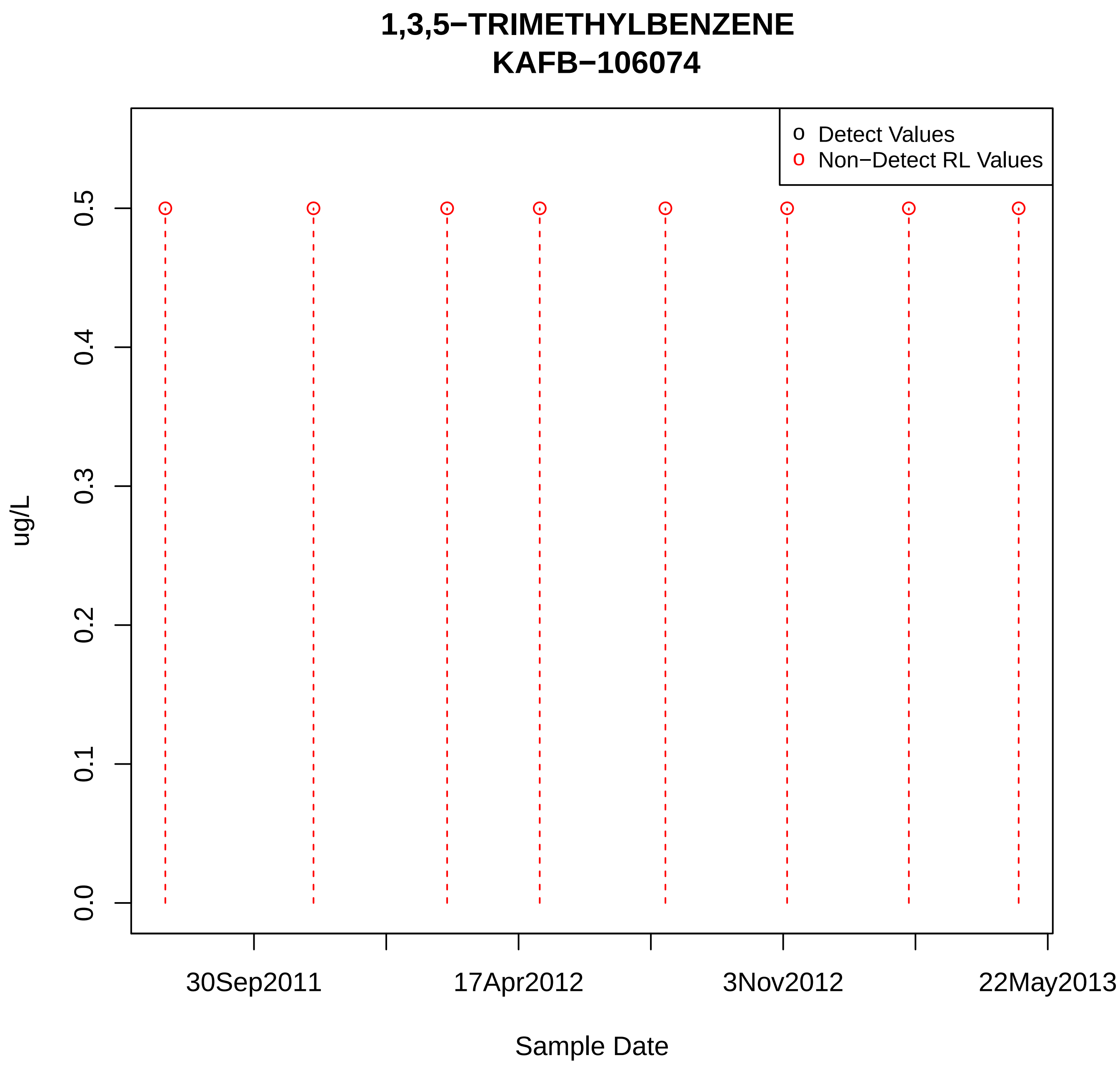
1,3,5−TRIMETHYLBENZENE
KAFB−106069
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values


1,3,5−TRIMETHYLBENZENE
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = −1.321E−05
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

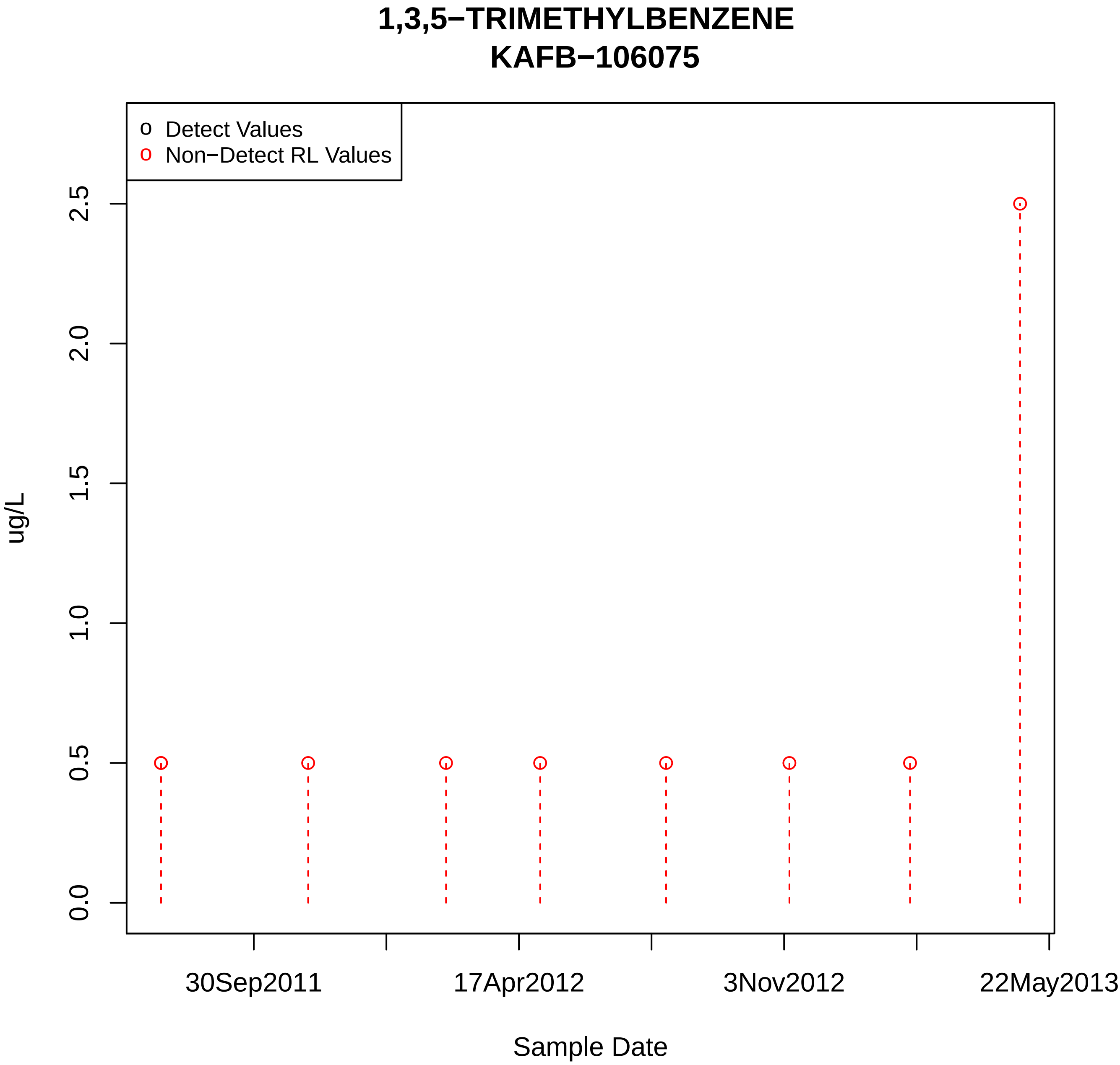

1,3,5−TRIMETHYLBENZENE
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

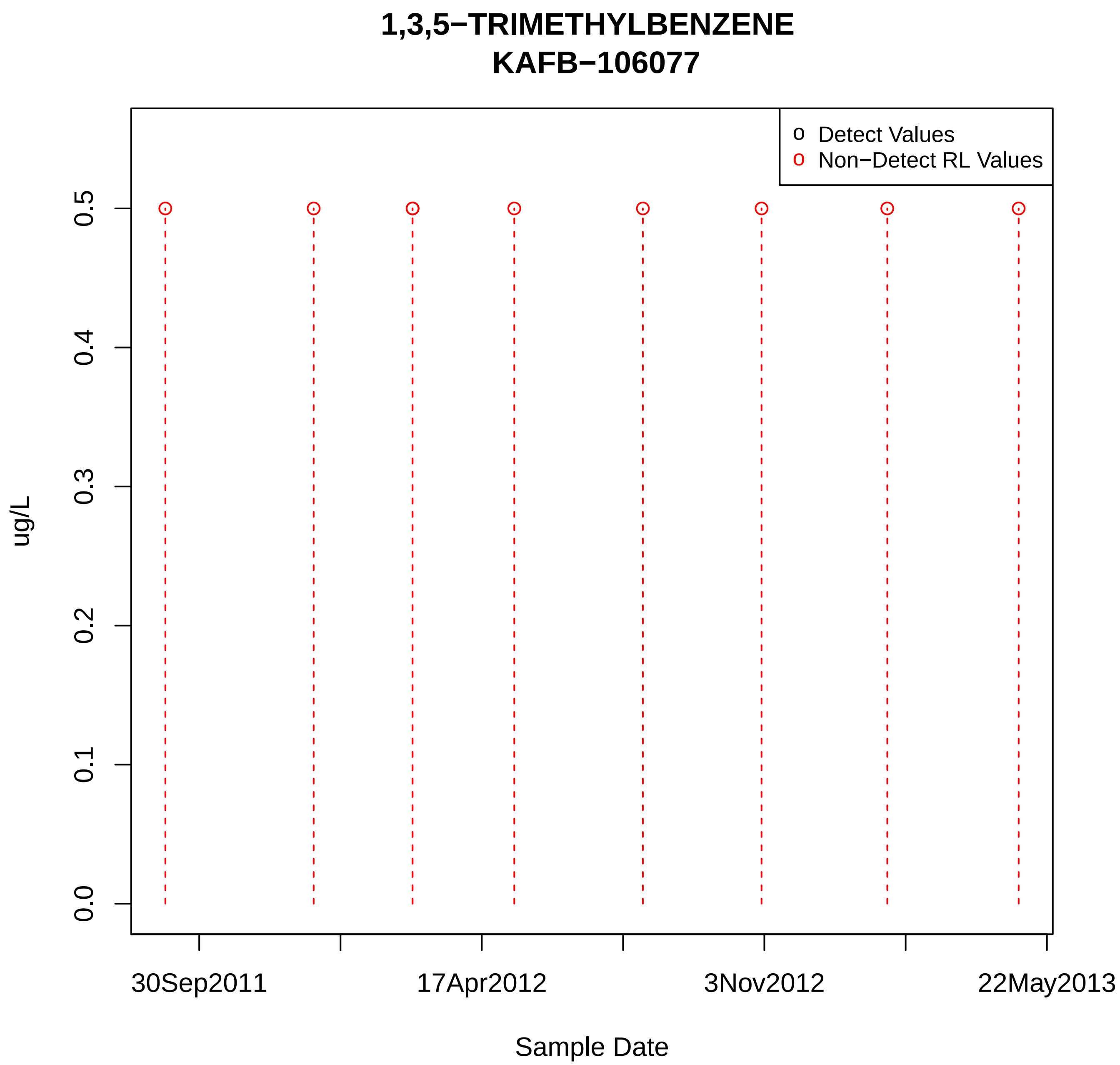

1,3,5−TRIMETHYLBENZENE
KAFB−106072
o Detect Values
o Non−Detect RL Values
Slope = −9.811E−03
p−value = 0.180
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

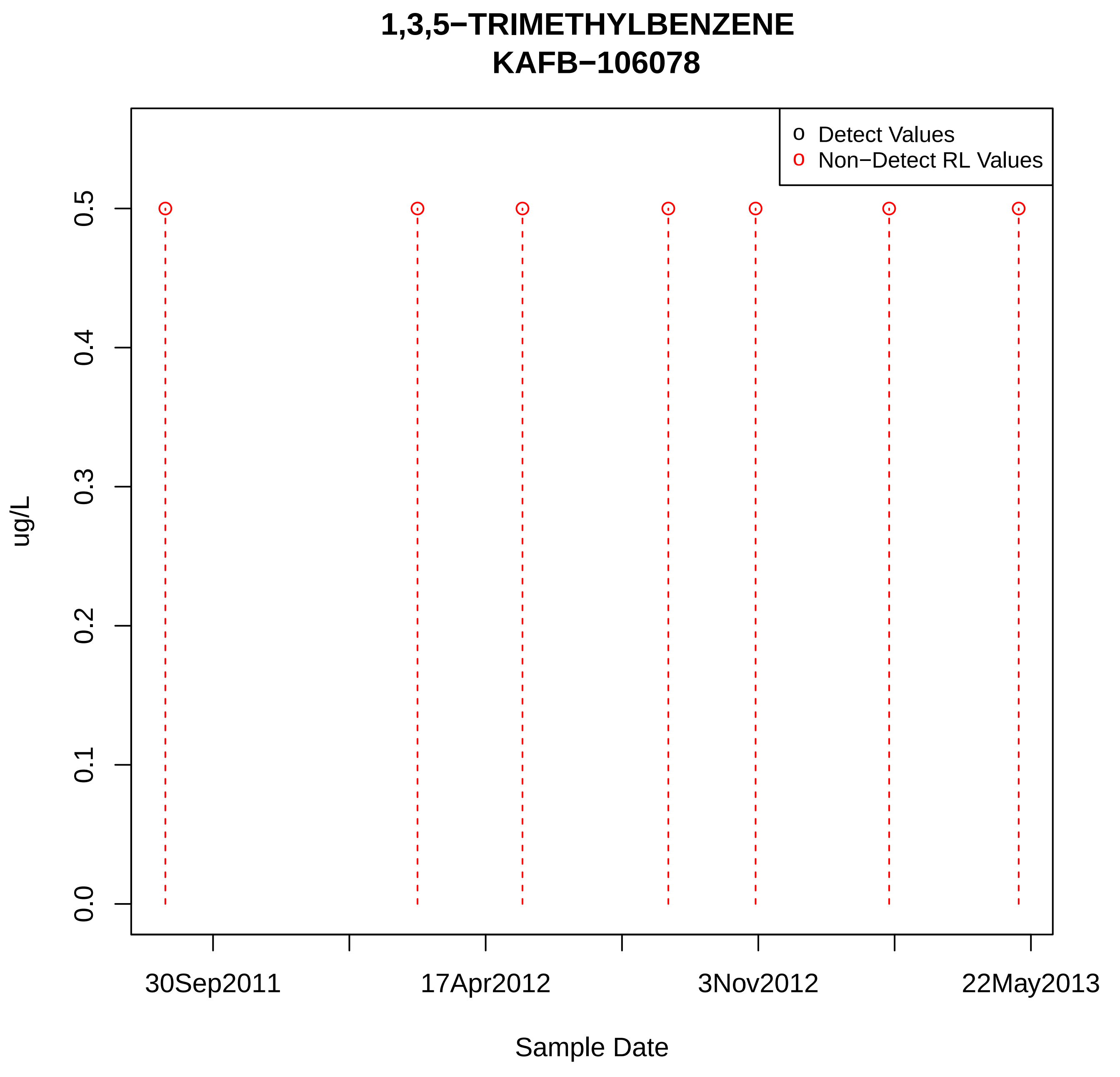


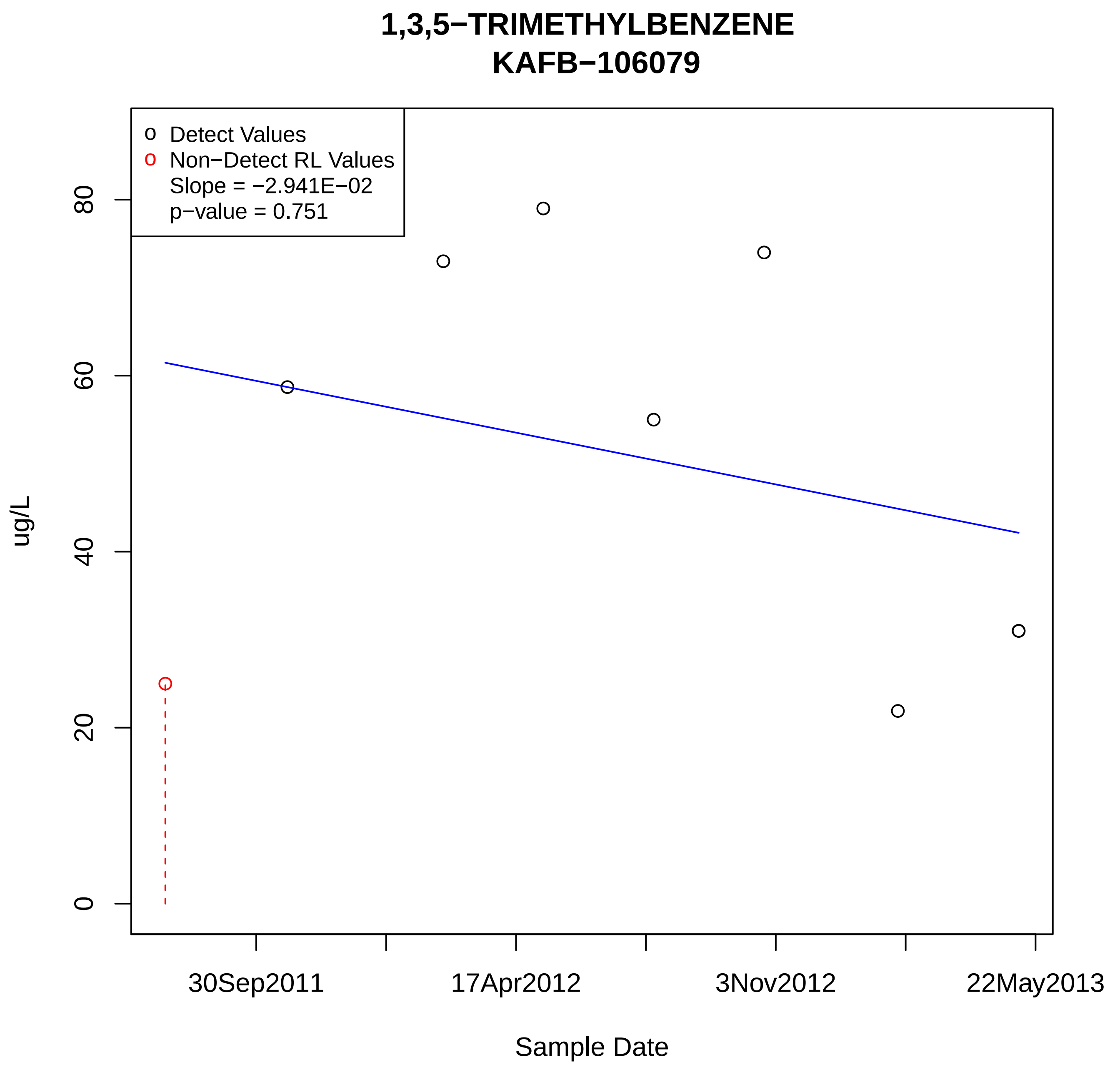
1,3,5−TRIMETHYLBENZENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

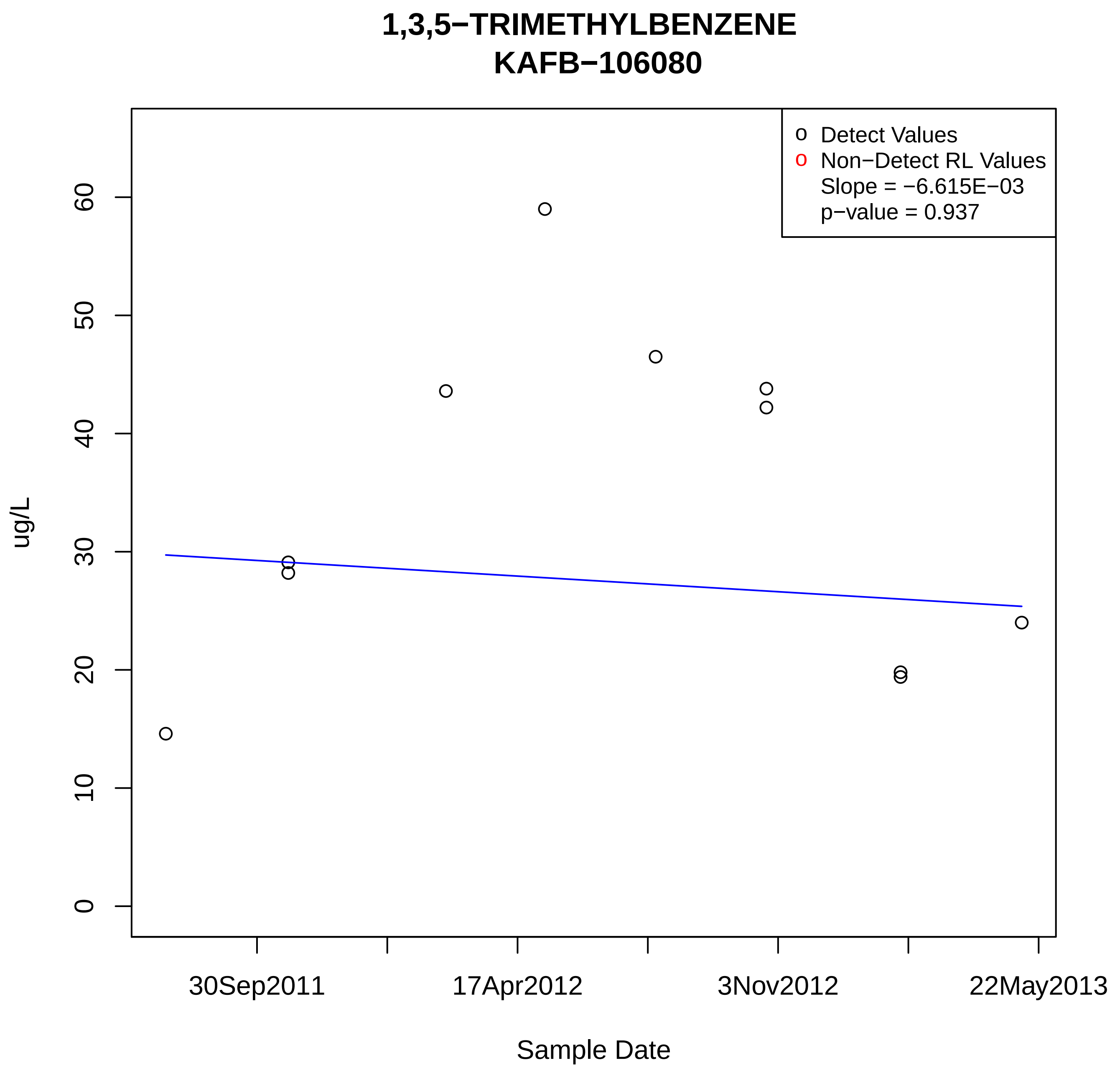


1,3,5−TRIMETHYLBENZENE
KAFB−106077
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

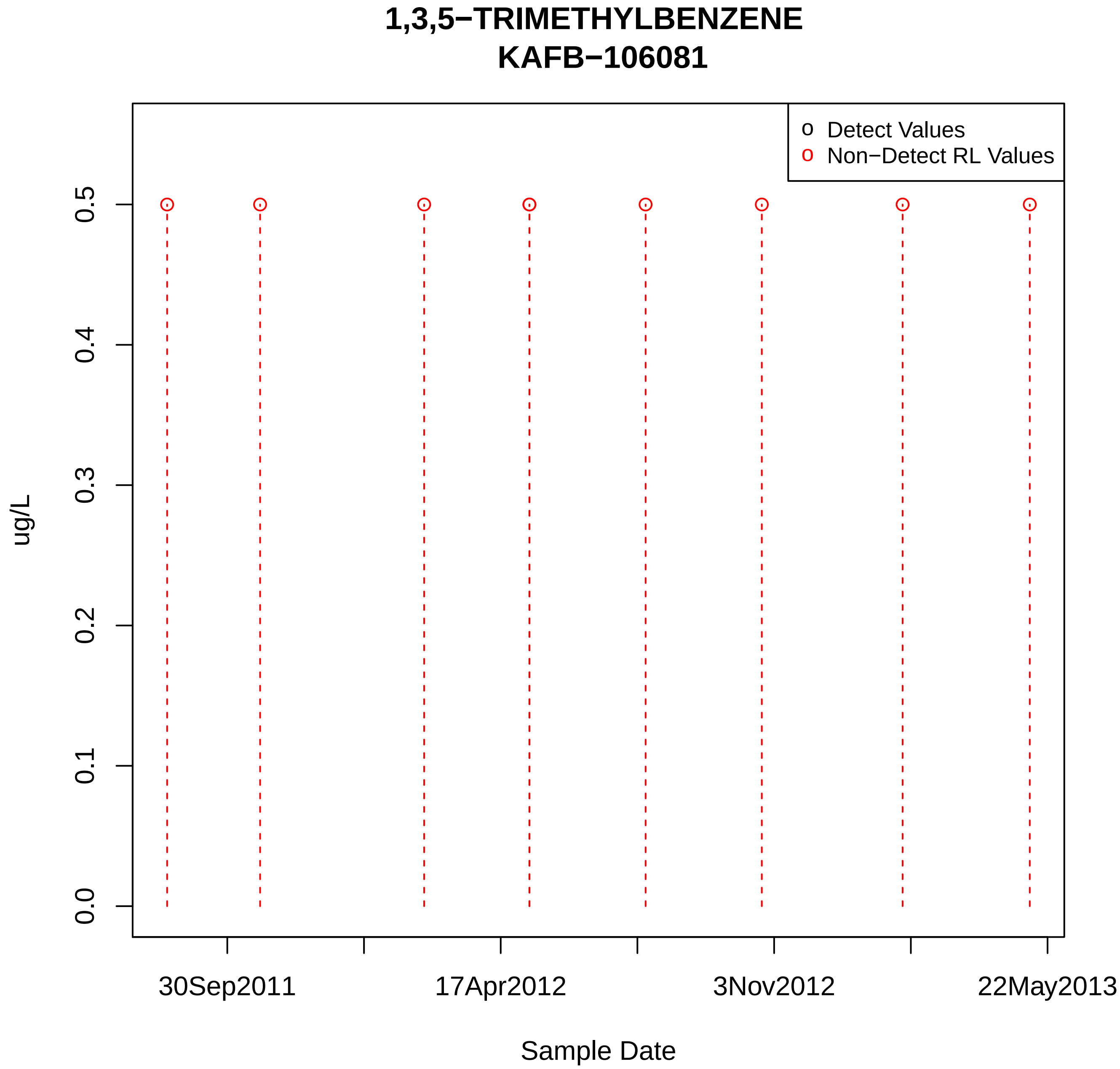

1,3,5−TRIMETHYLBENZENE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

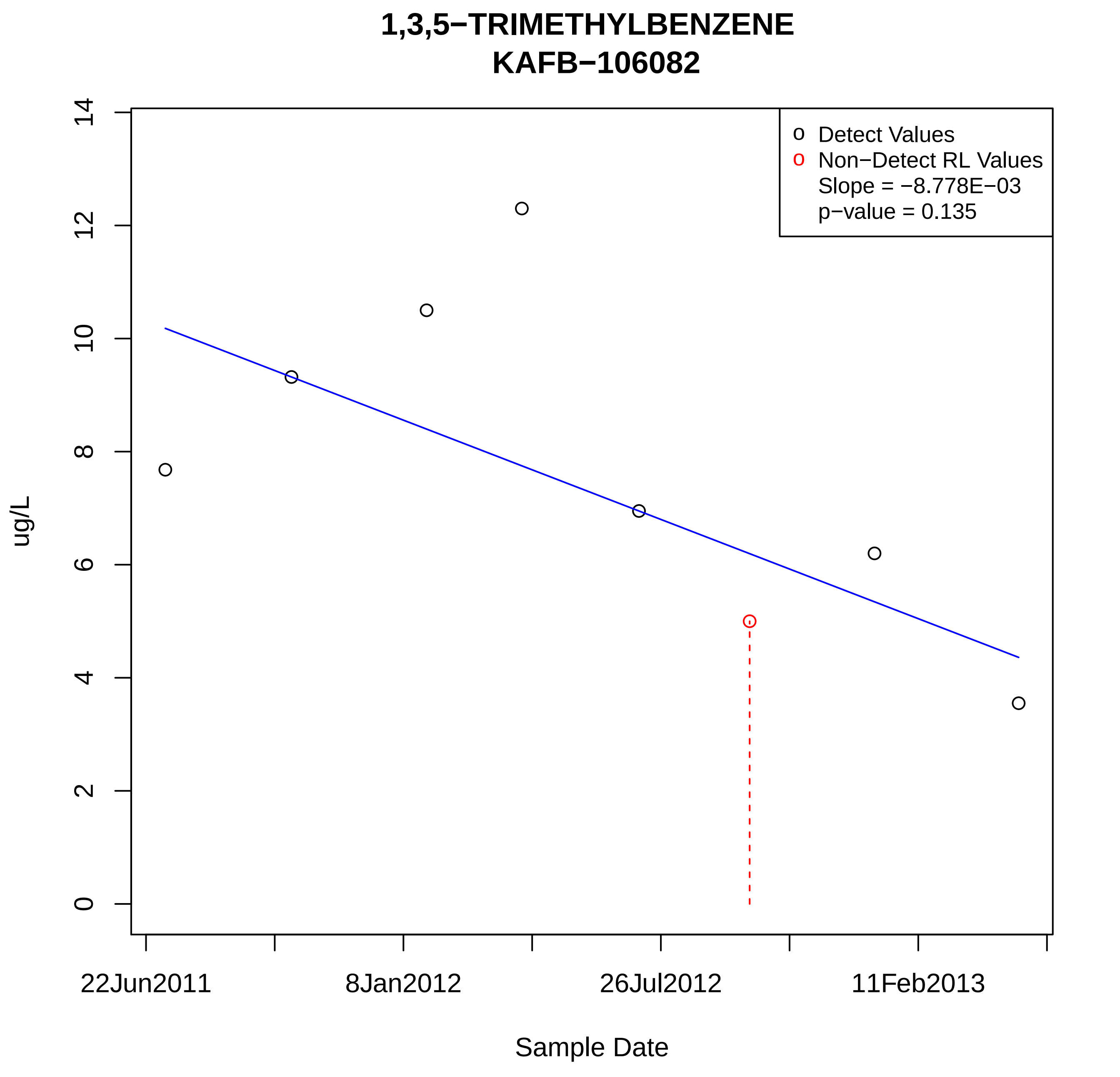


1,3,5−TRIMETHYLBENZENE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −2.941E−02
p−value = 0.751
ug/L
0
20
40
60
80
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

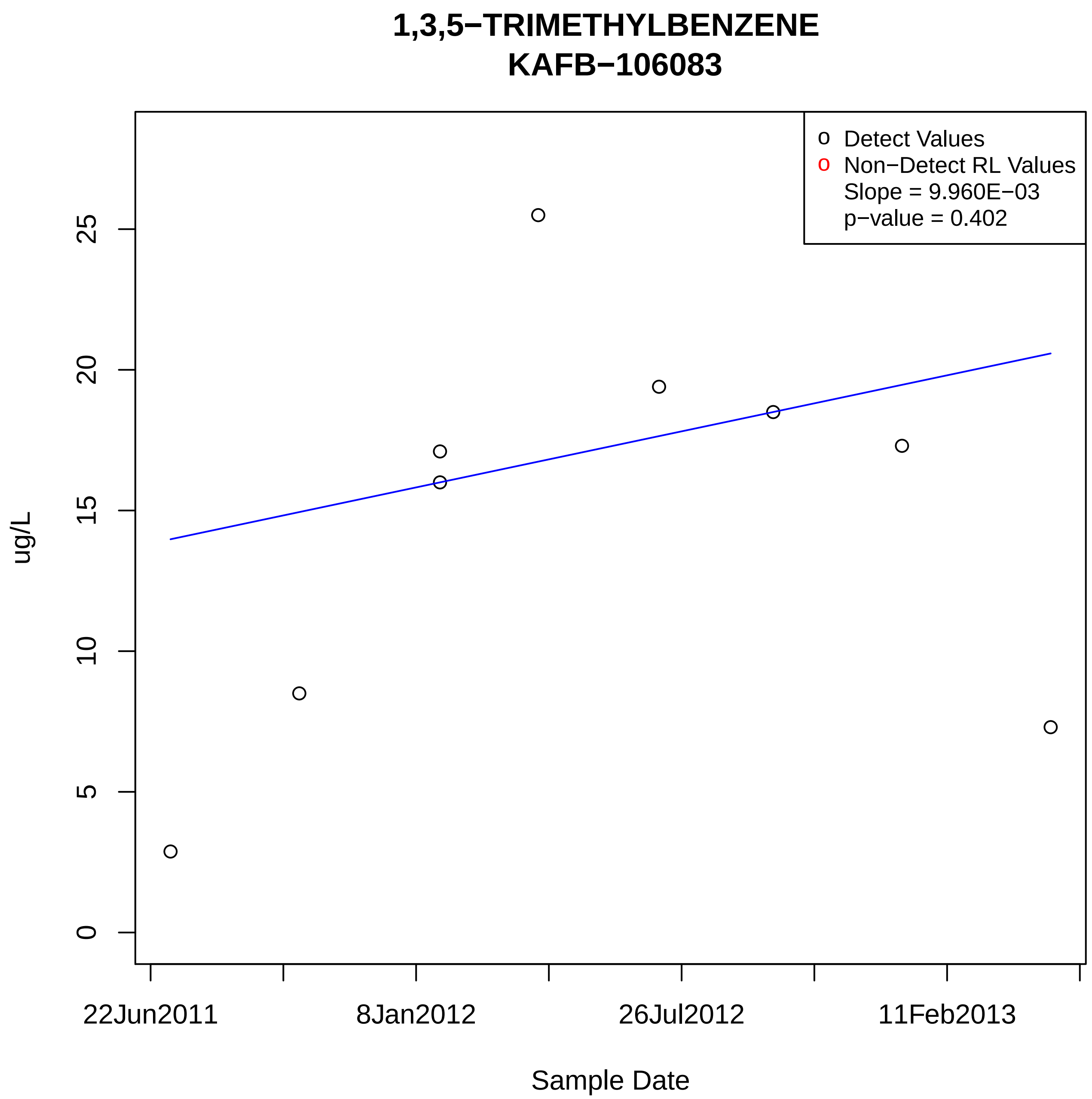


1,3,5−TRIMETHYLBENZENE
KAFB−106080
o Detect Values
o Non−Detect RL Values
Slope = −6.615E−03
p−value = 0.937
ug/L
0
10
20
30
40
50
60
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

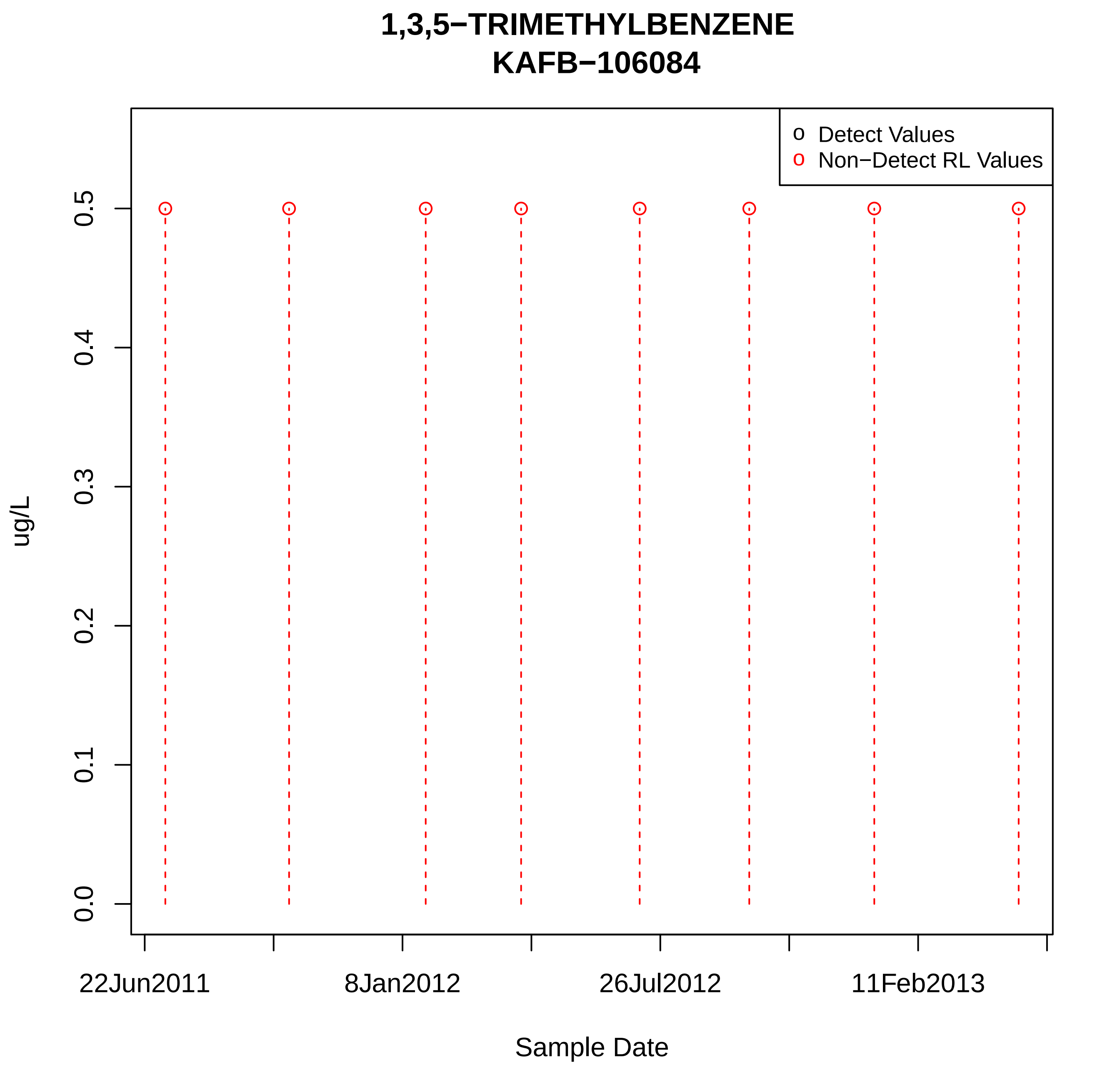

1,3,5−TRIMETHYLBENZENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



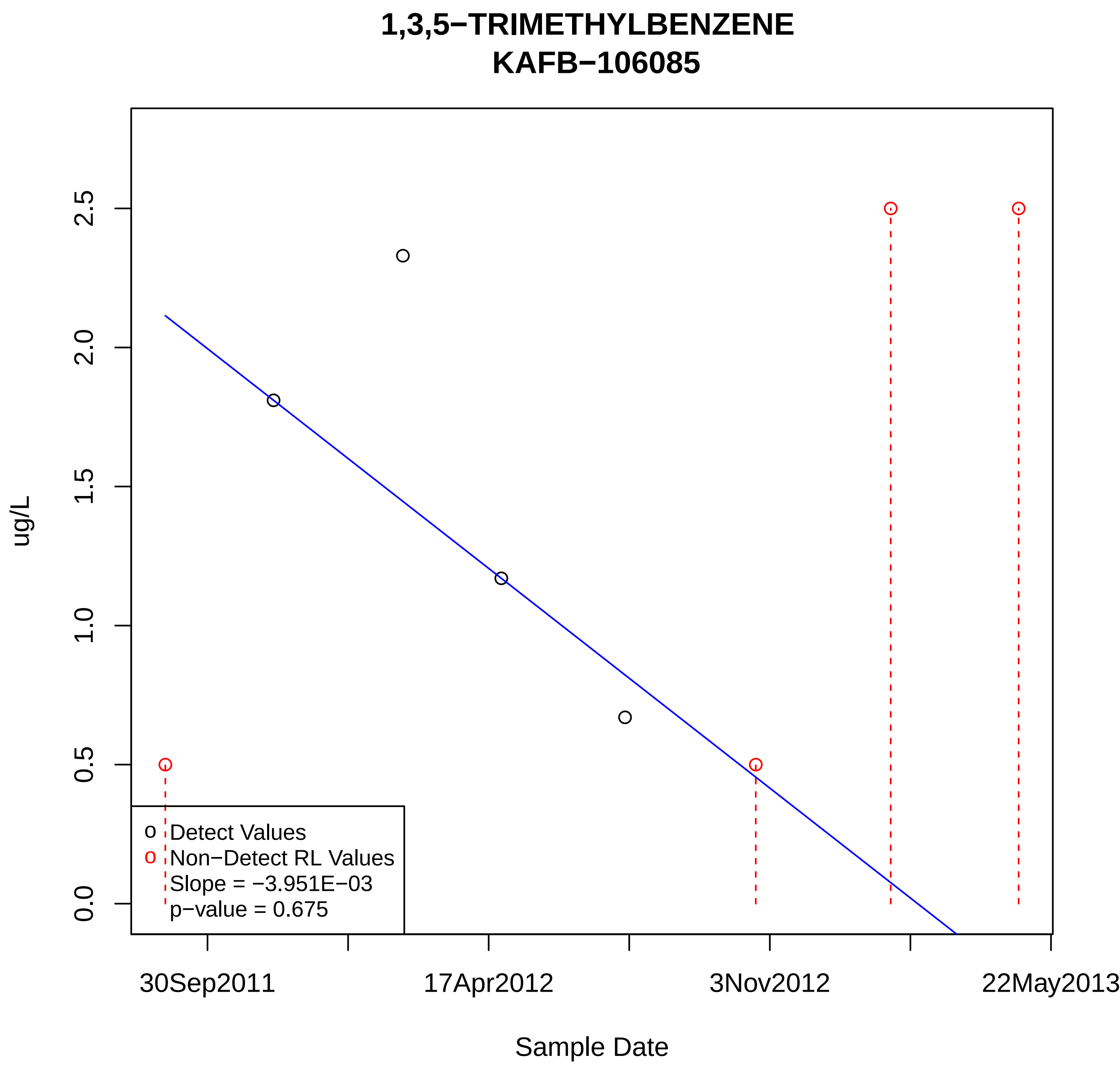
1,3,5−TRIMETHYLBENZENE
KAFB−106082
o Detect Values
o Non−Detect RL Values
Slope = −8.778E−03
p−value = 0.135
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

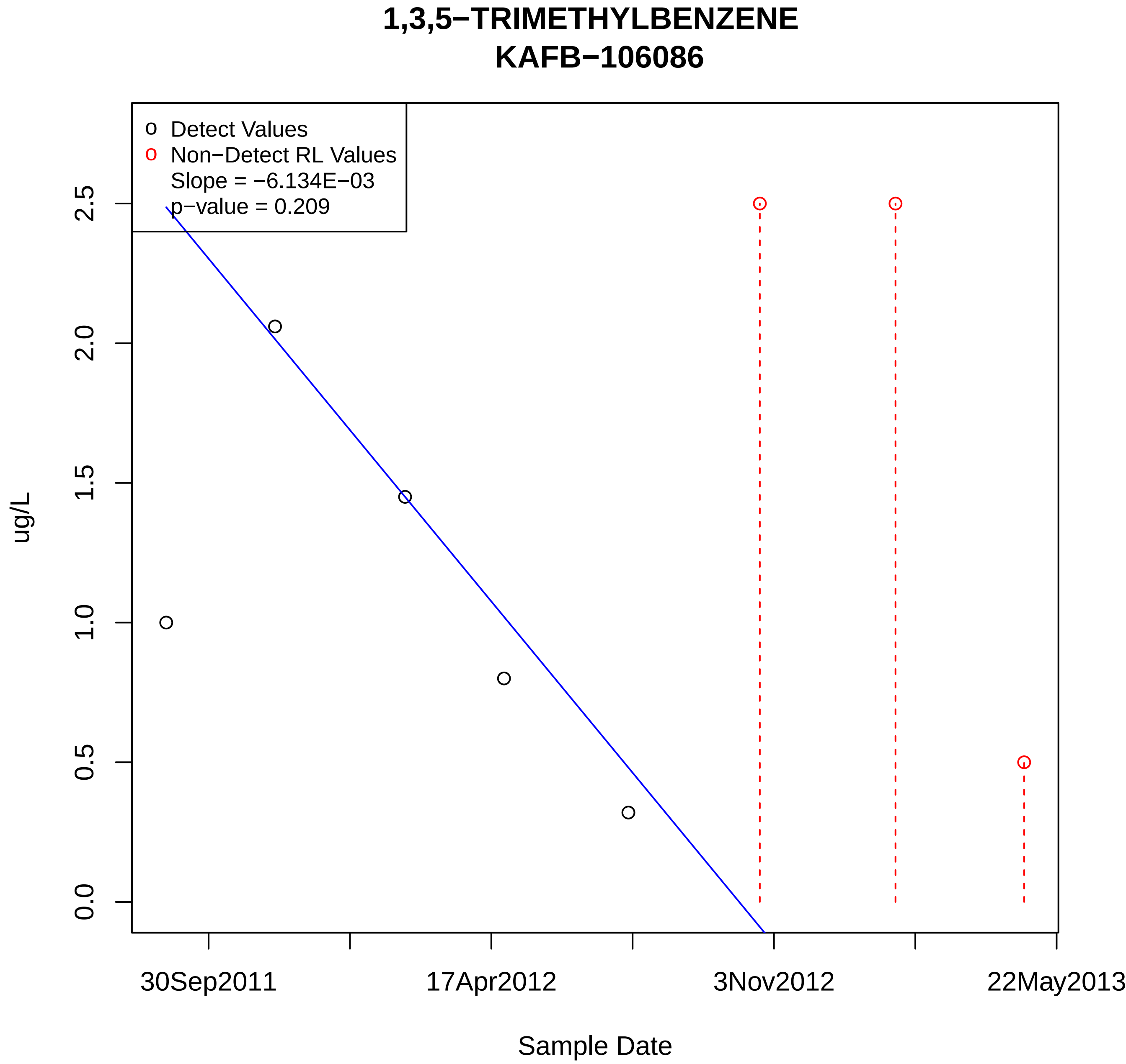


1,3,5−TRIMETHYLBENZENE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 9.960E−03
p−value = 0.402
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

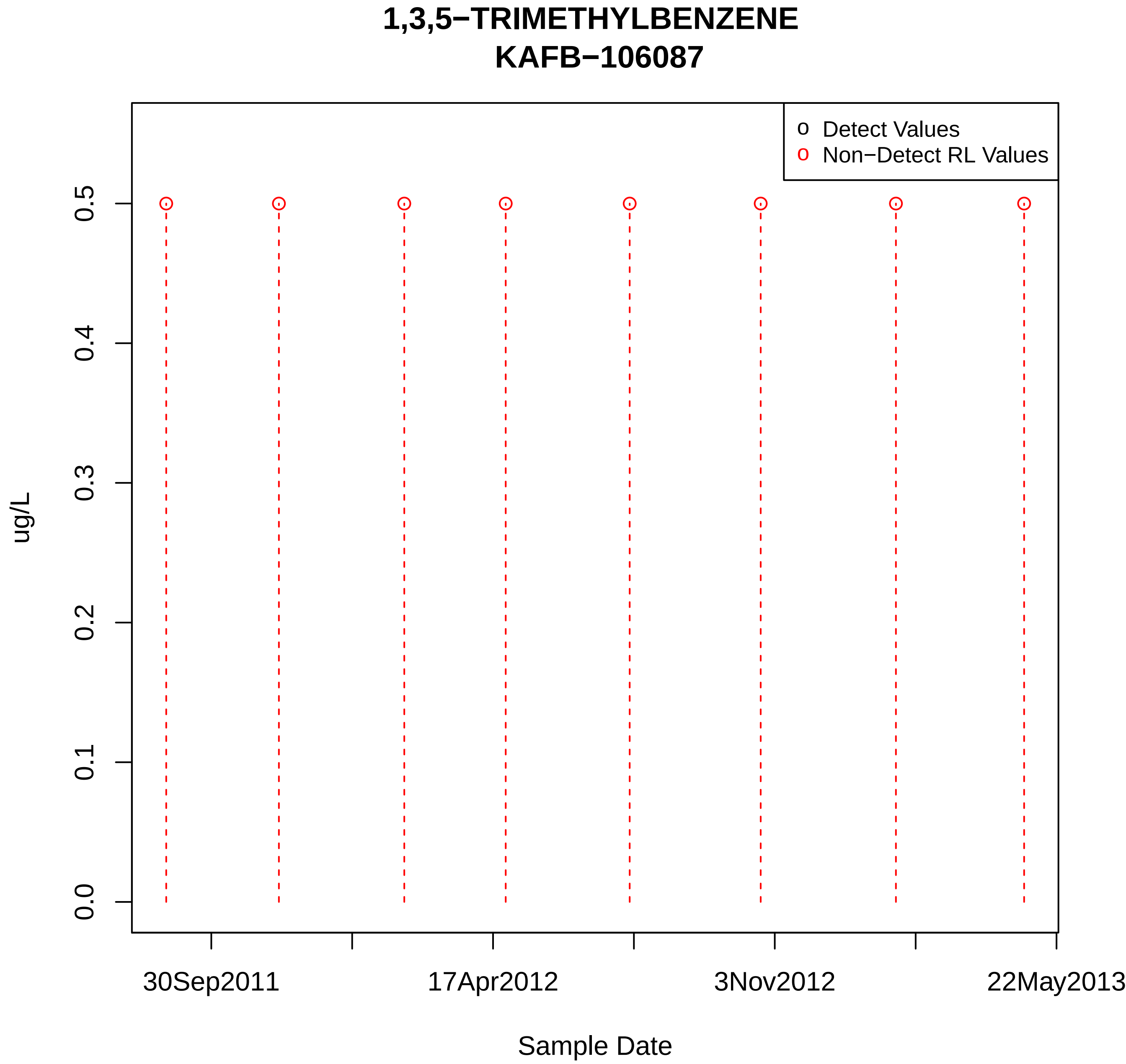


1,3,5−TRIMETHYLBENZENE
KAFB−106084
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

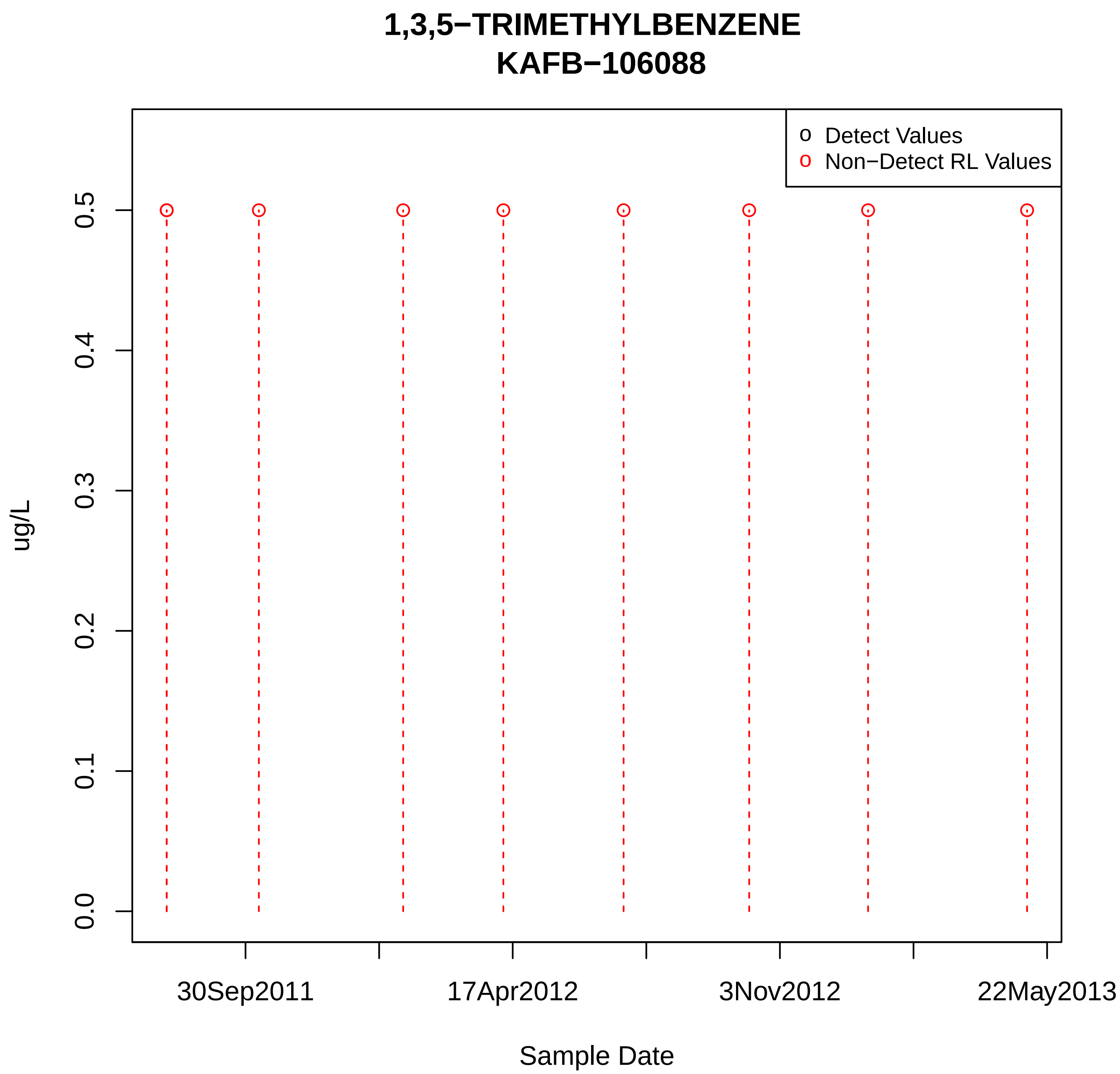

1,3,5−TRIMETHYLBENZENE
KAFB−106085
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = −3.951E−03
p−value = 0.675



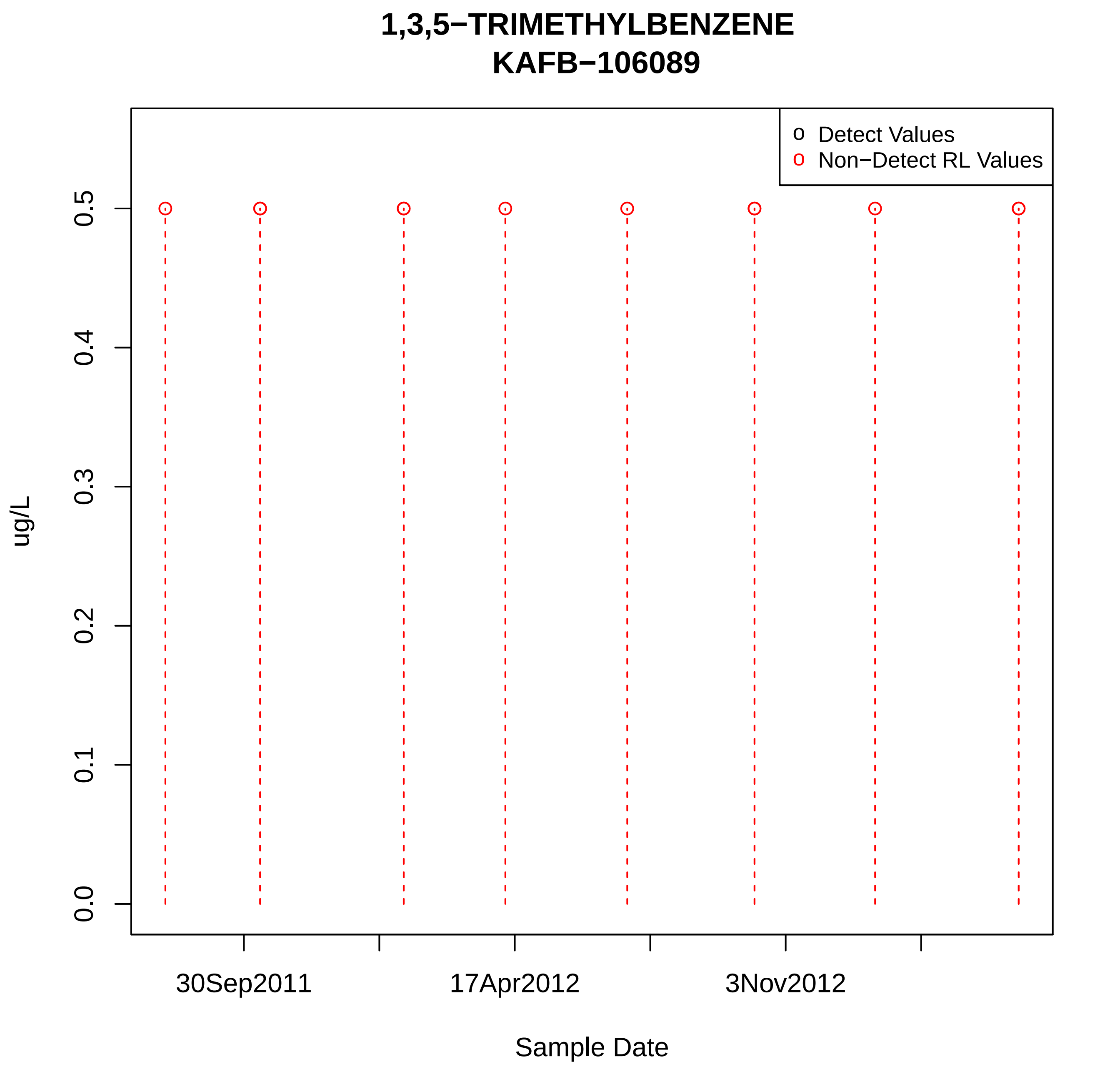
1,3,5−TRIMETHYLBENZENE
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = −6.134E−03
p−value = 0.209
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

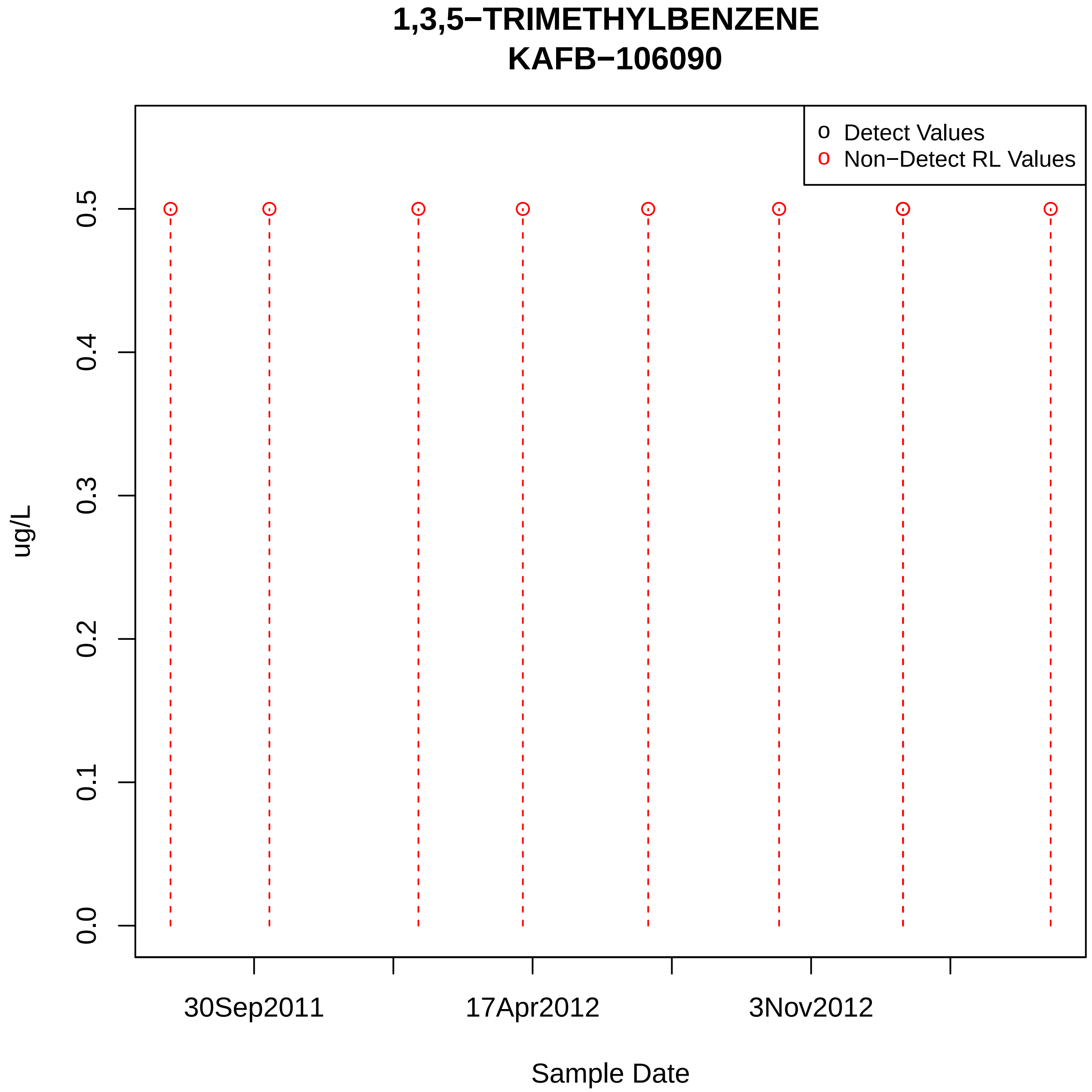


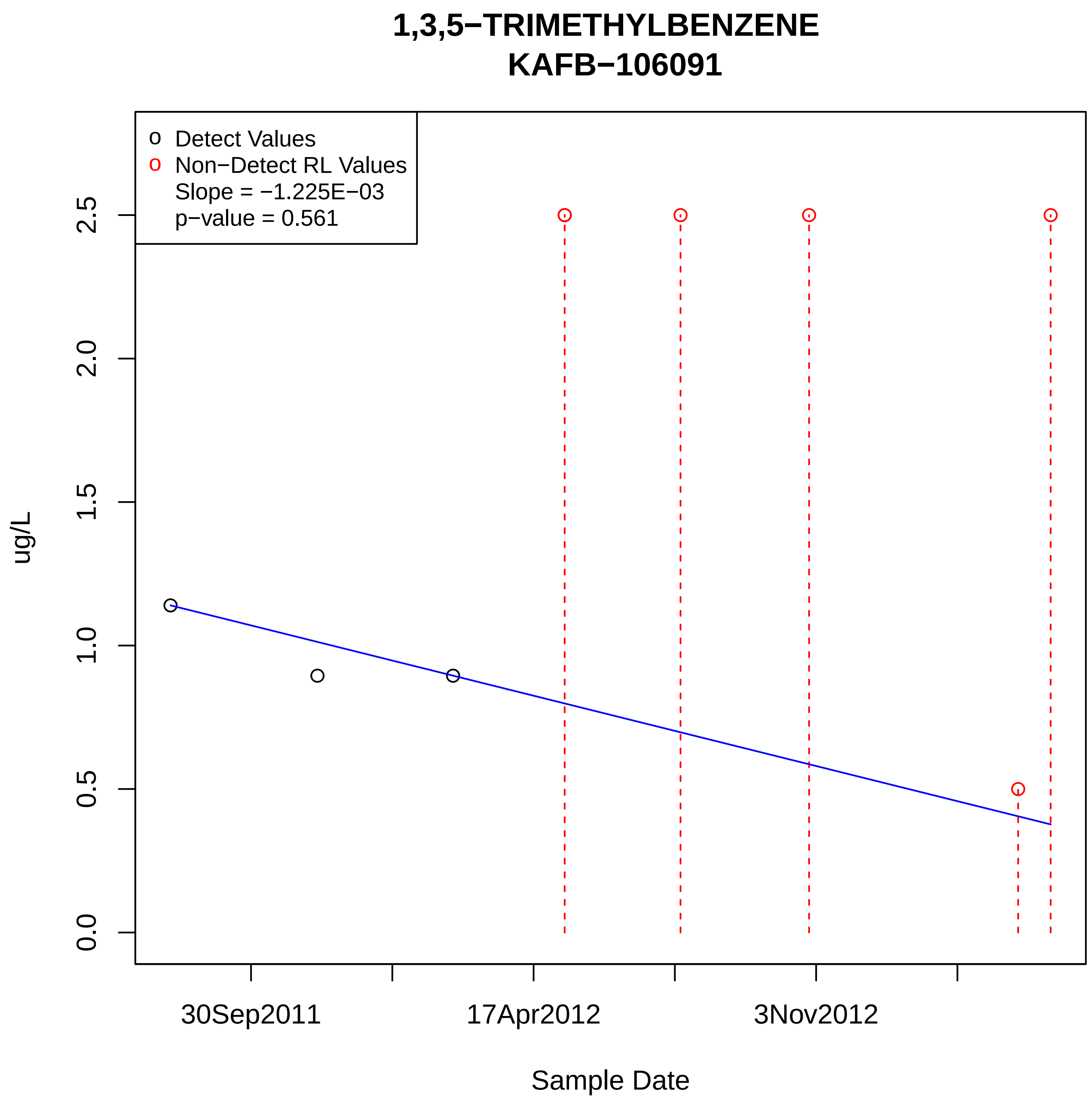
1,3,5−TRIMETHYLBENZENE
KAFB−106087
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



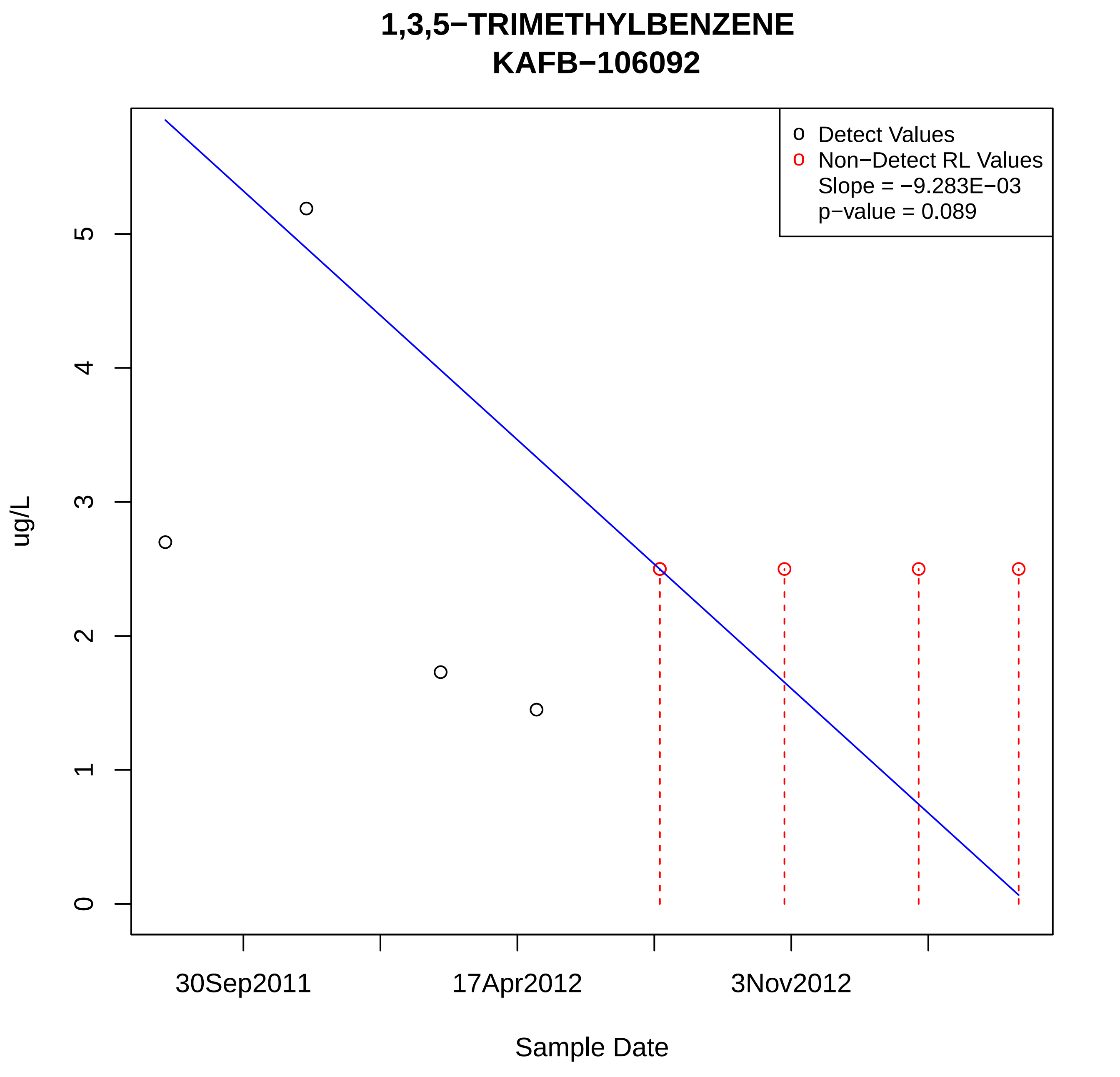
1,3,5−TRIMETHYLBENZENE
KAFB−106088
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

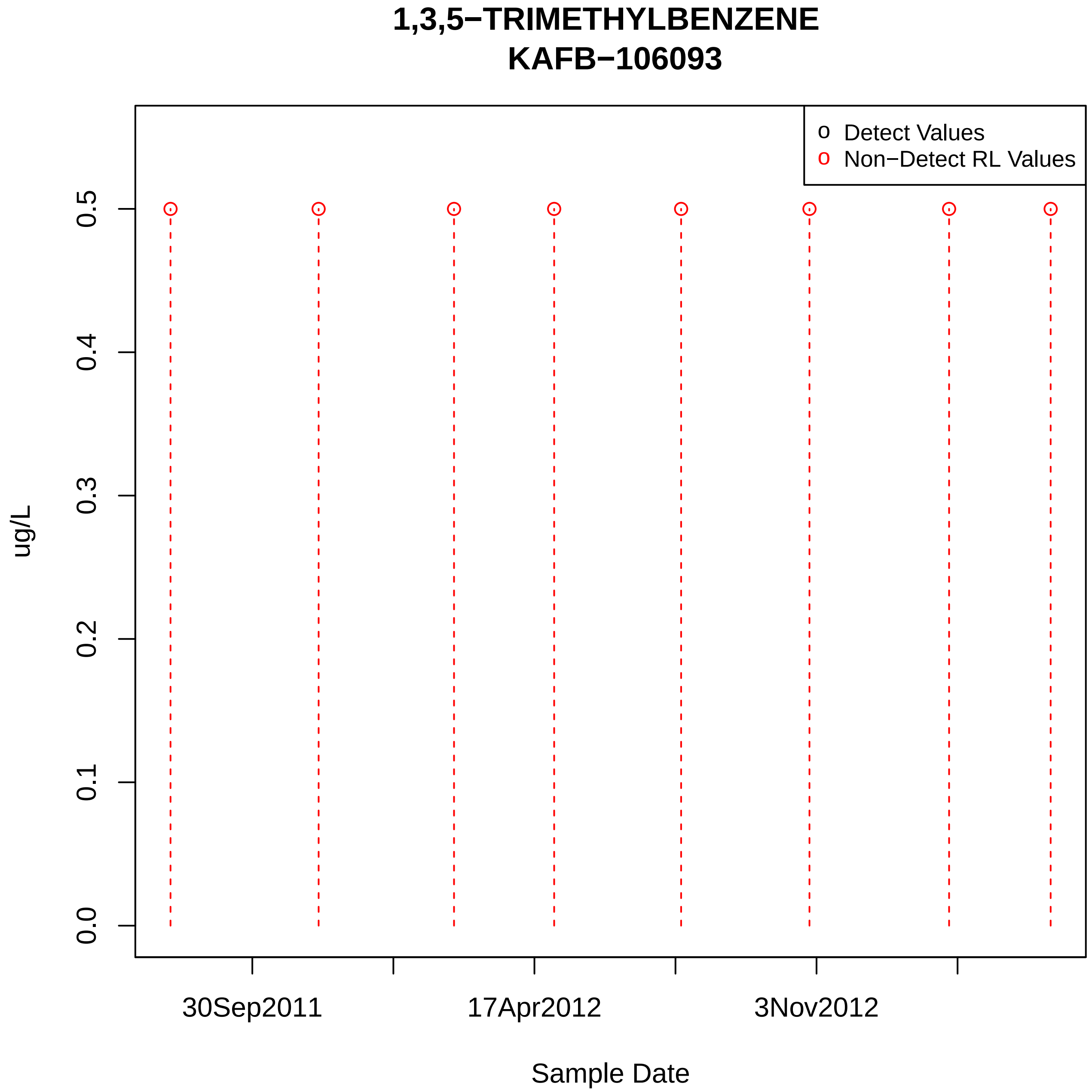

1,3,5−TRIMETHYLBENZENE
KAFB−106089
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

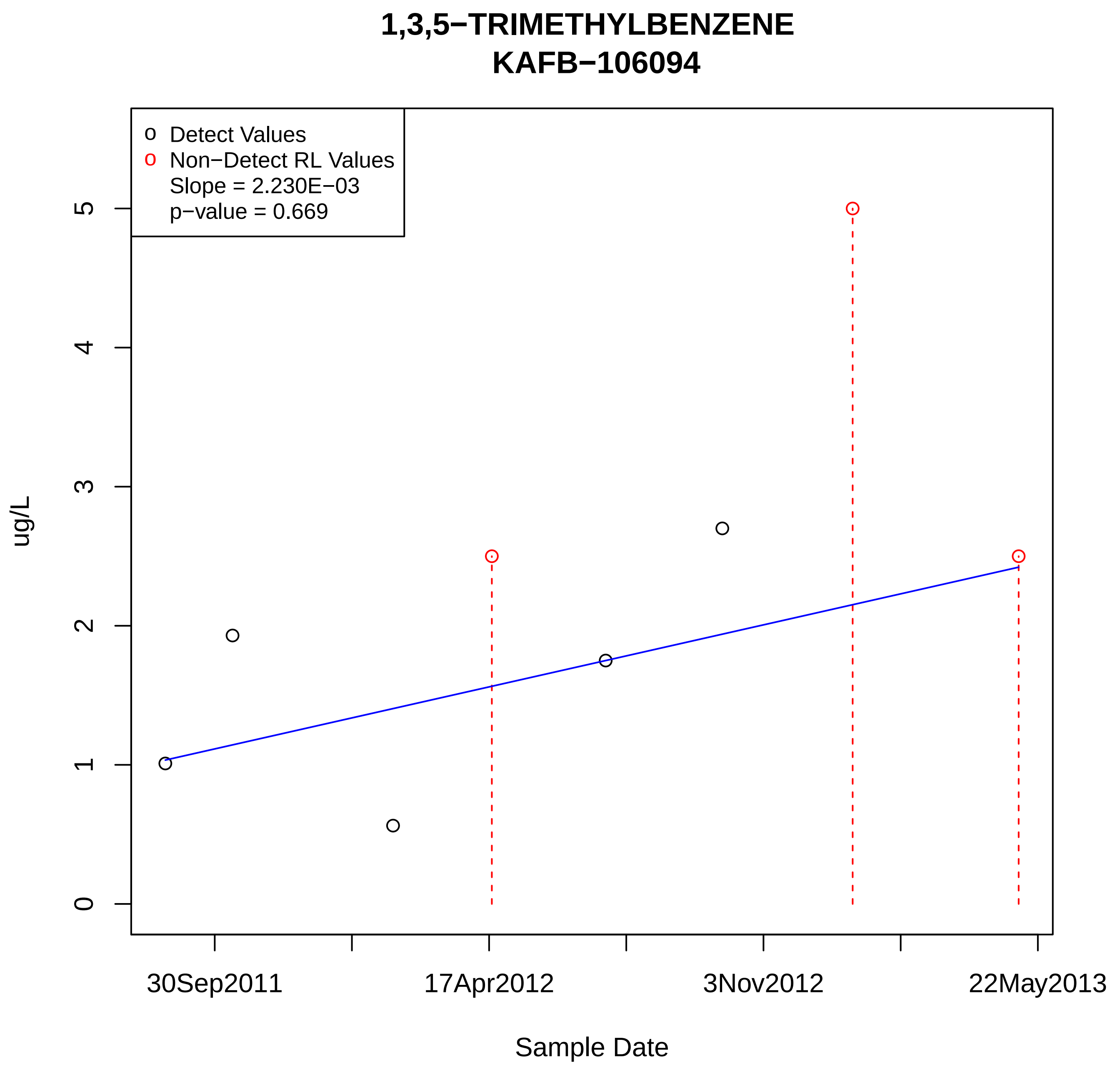

1,3,5−TRIMETHYLBENZENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



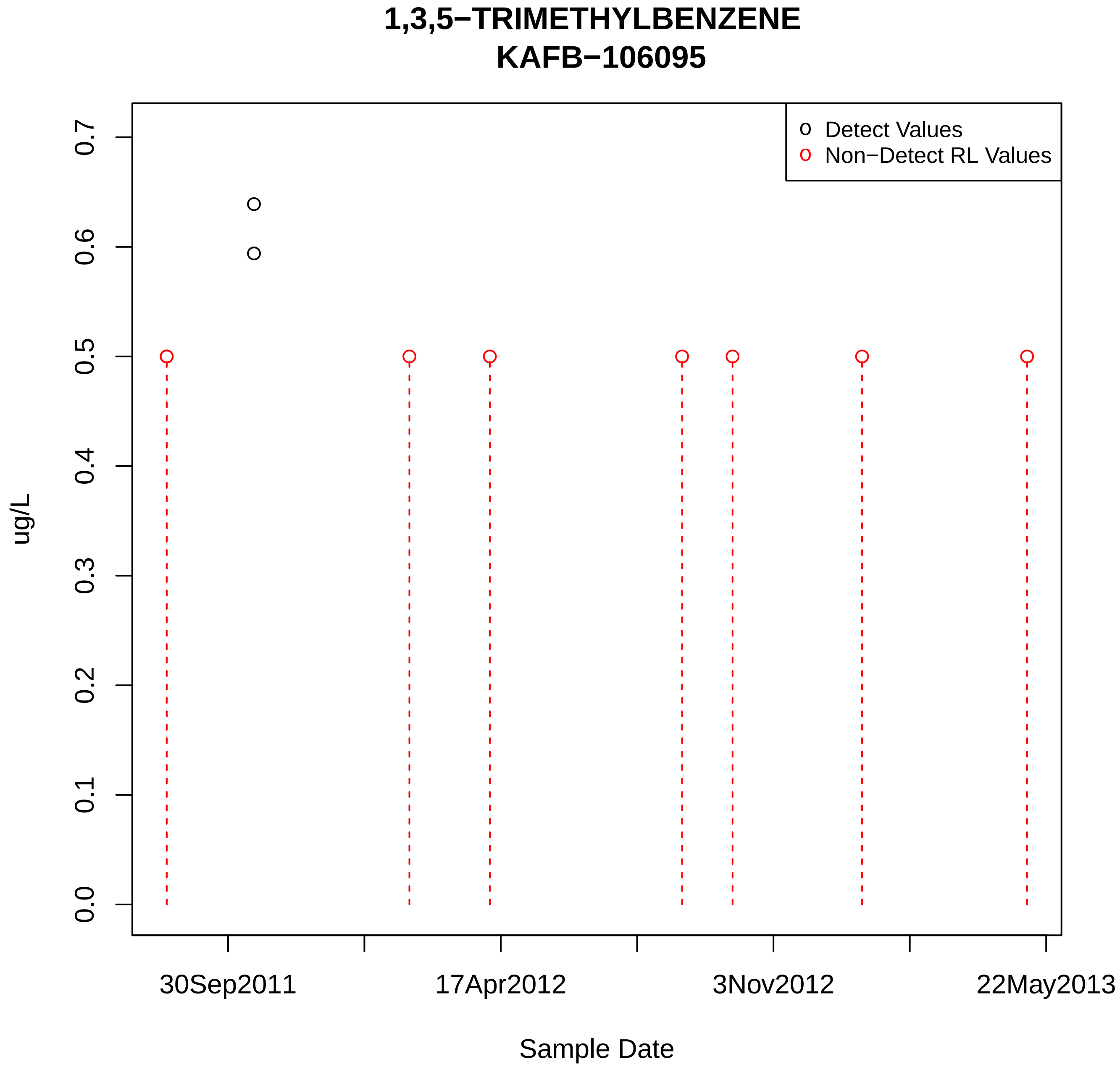
1,3,5−TRIMETHYLBENZENE
KAFB−106091
o Detect Values
o Non−Detect RL Values
Slope = −1.225E−03
p−value = 0.561
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106092
Detect Values
Non−Detect RL Values
Slope = −9.283E−03
p−value = 0.089
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

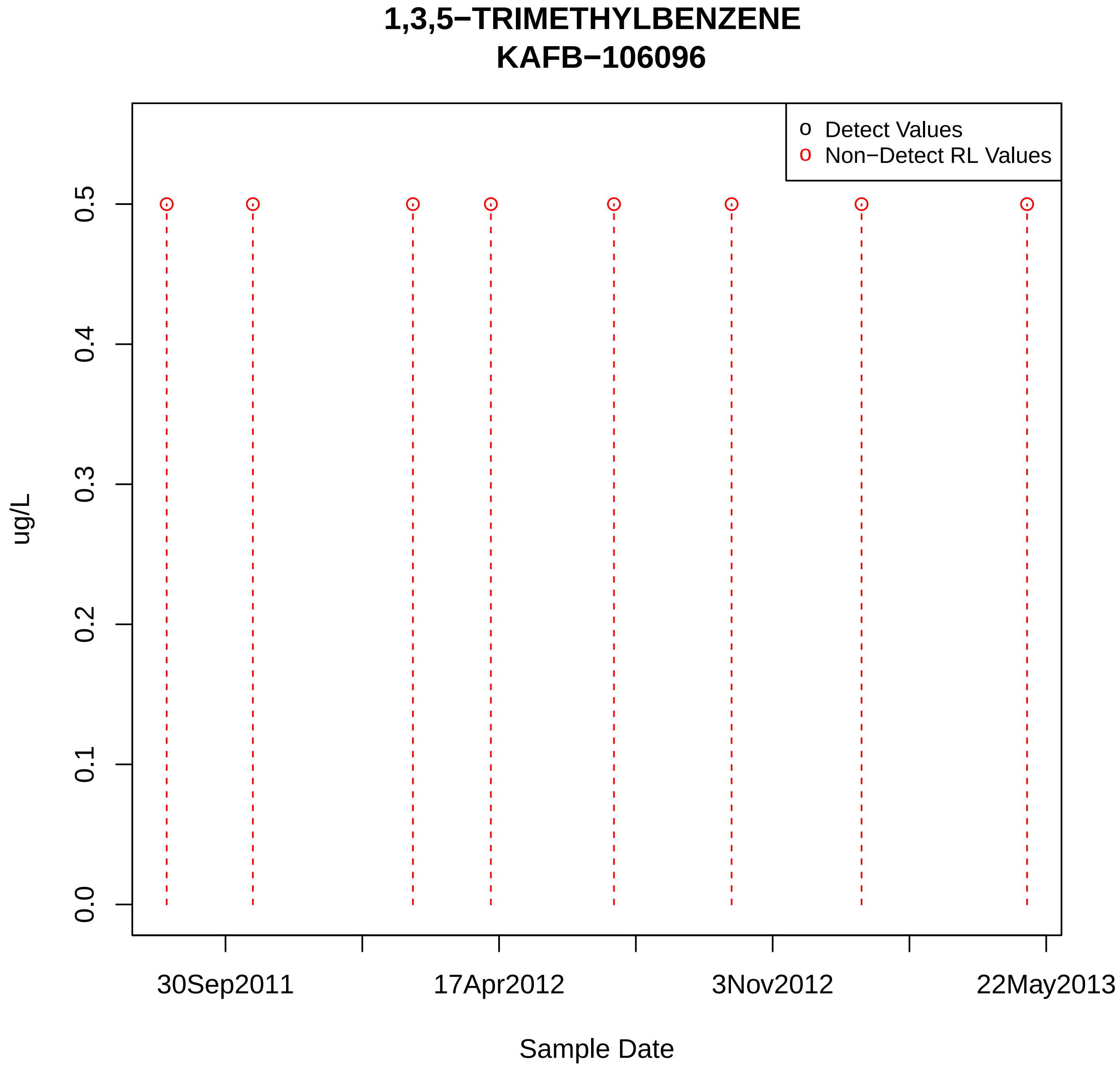

1,3,5−TRIMETHYLBENZENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

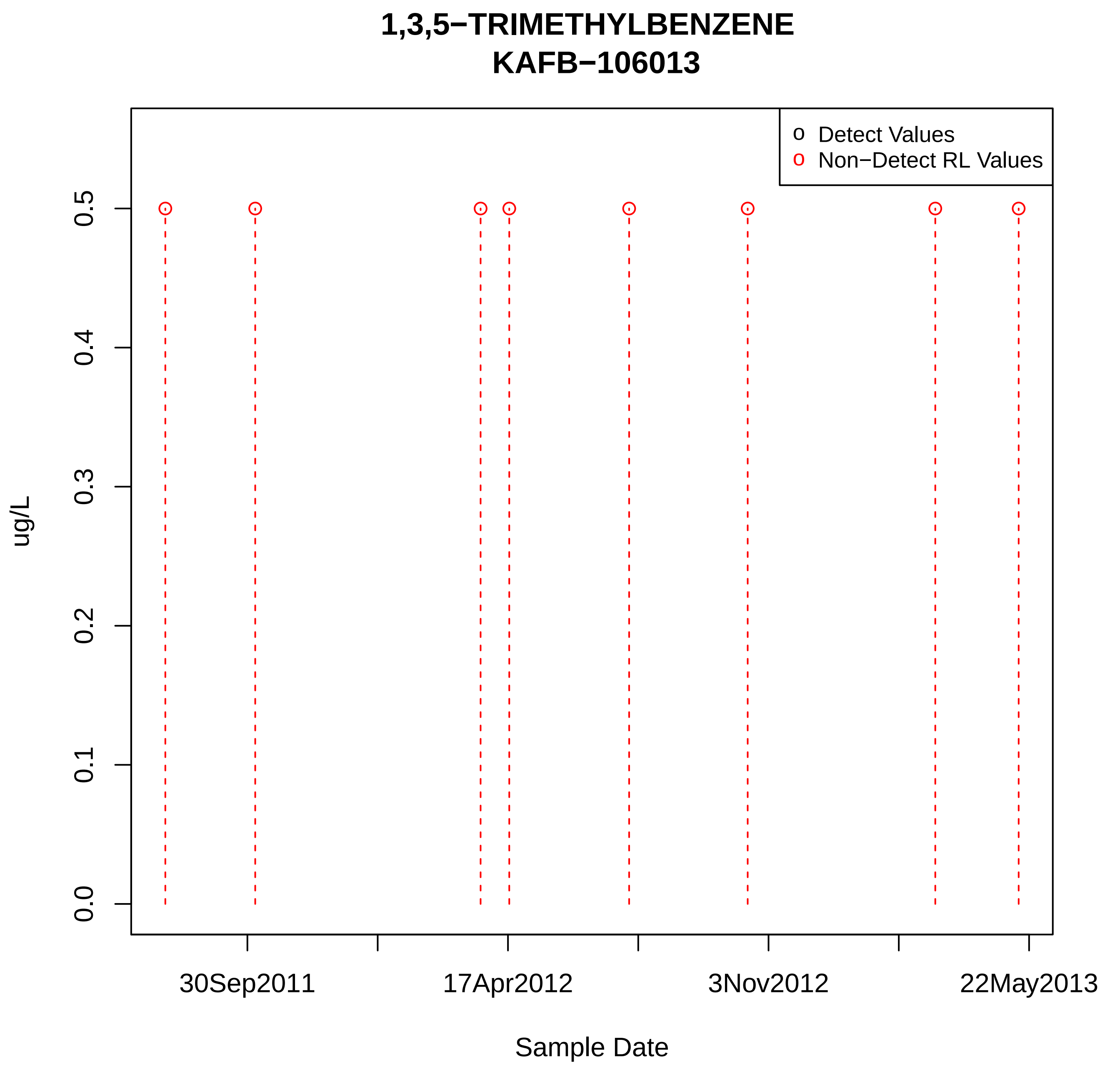


1,3,5−TRIMETHYLBENZENE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = 2.230E−03
p−value = 0.669
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

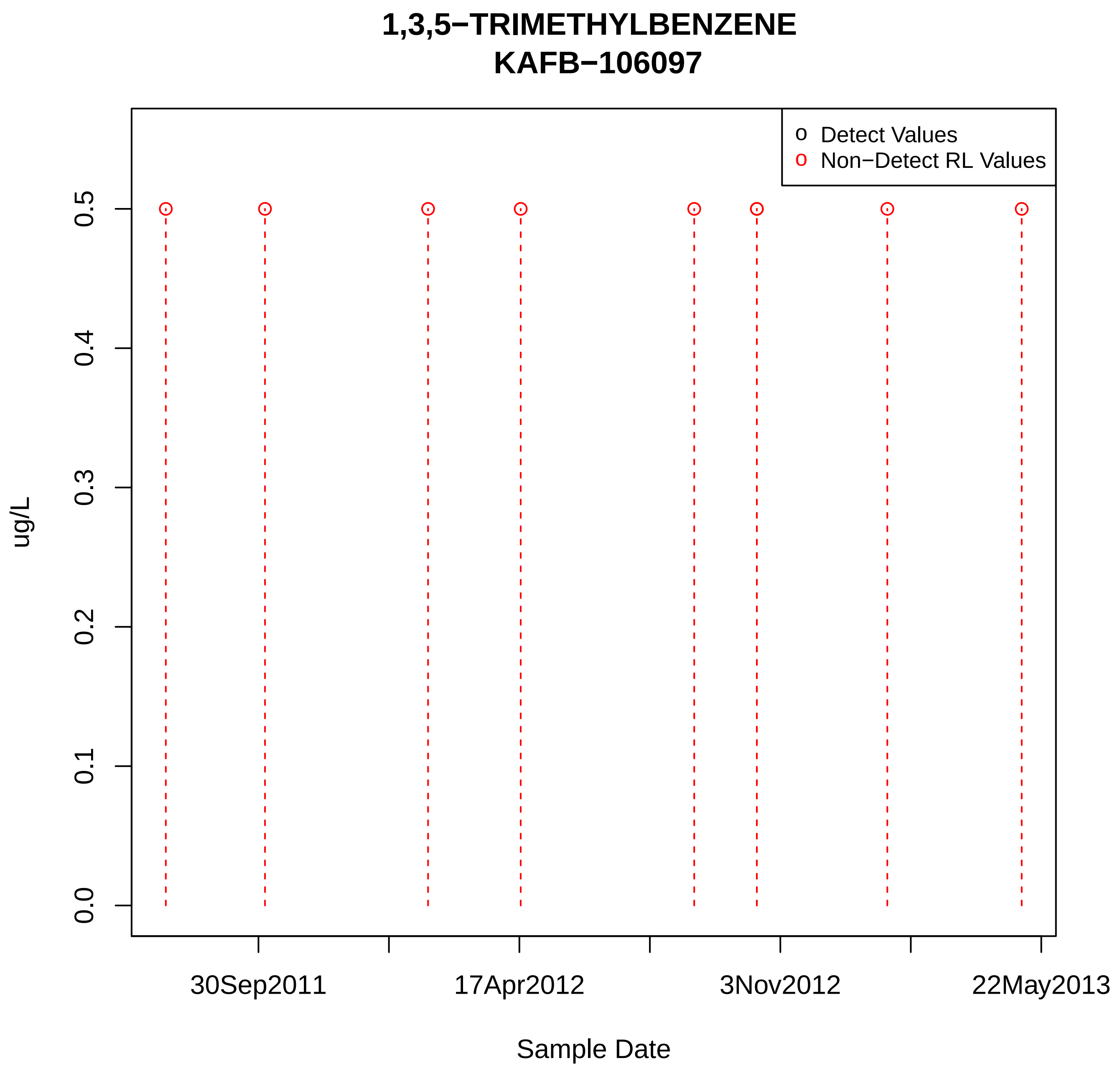


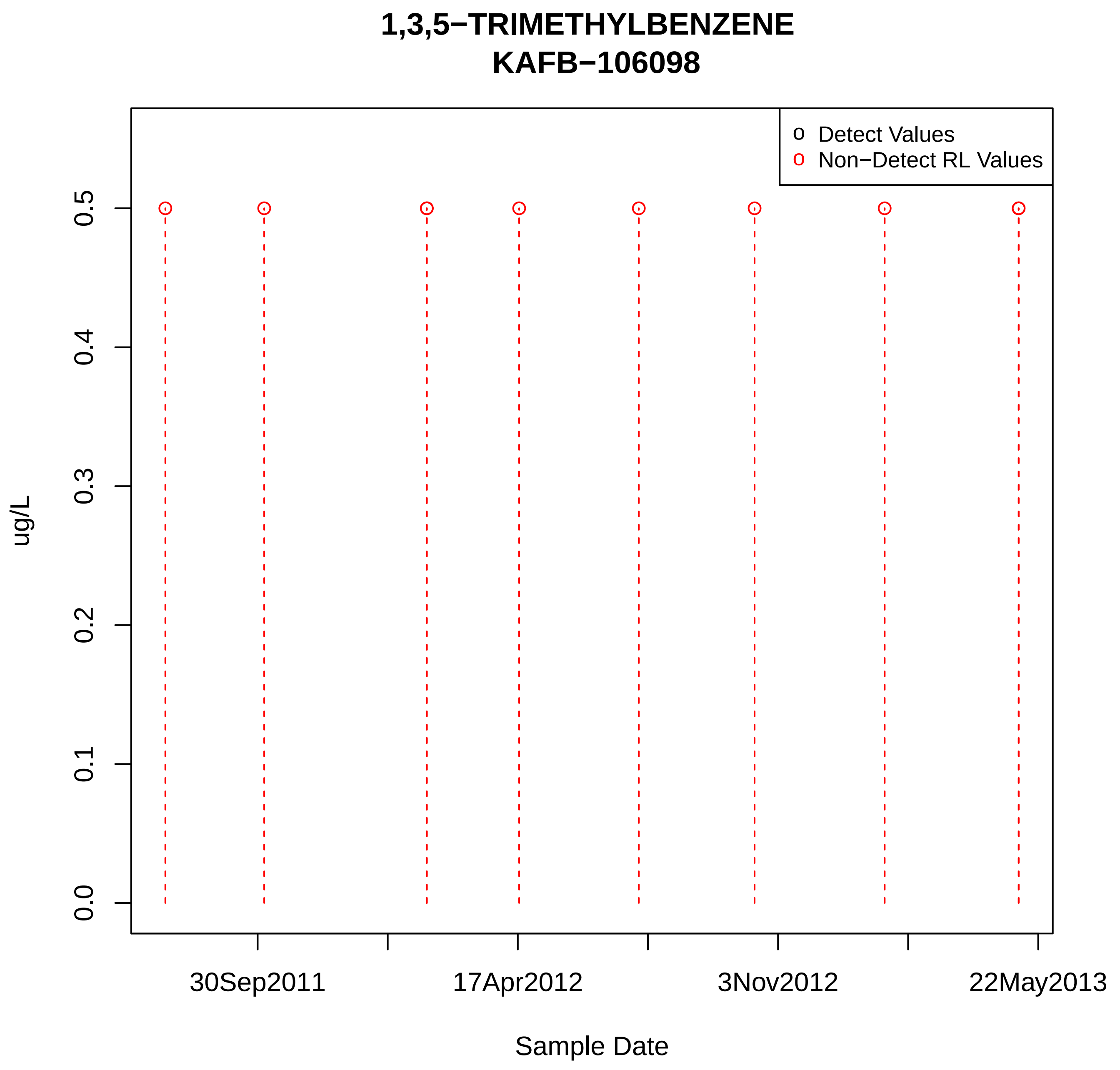
1,3,5−TRIMETHYLBENZENE
KAFB−106095
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

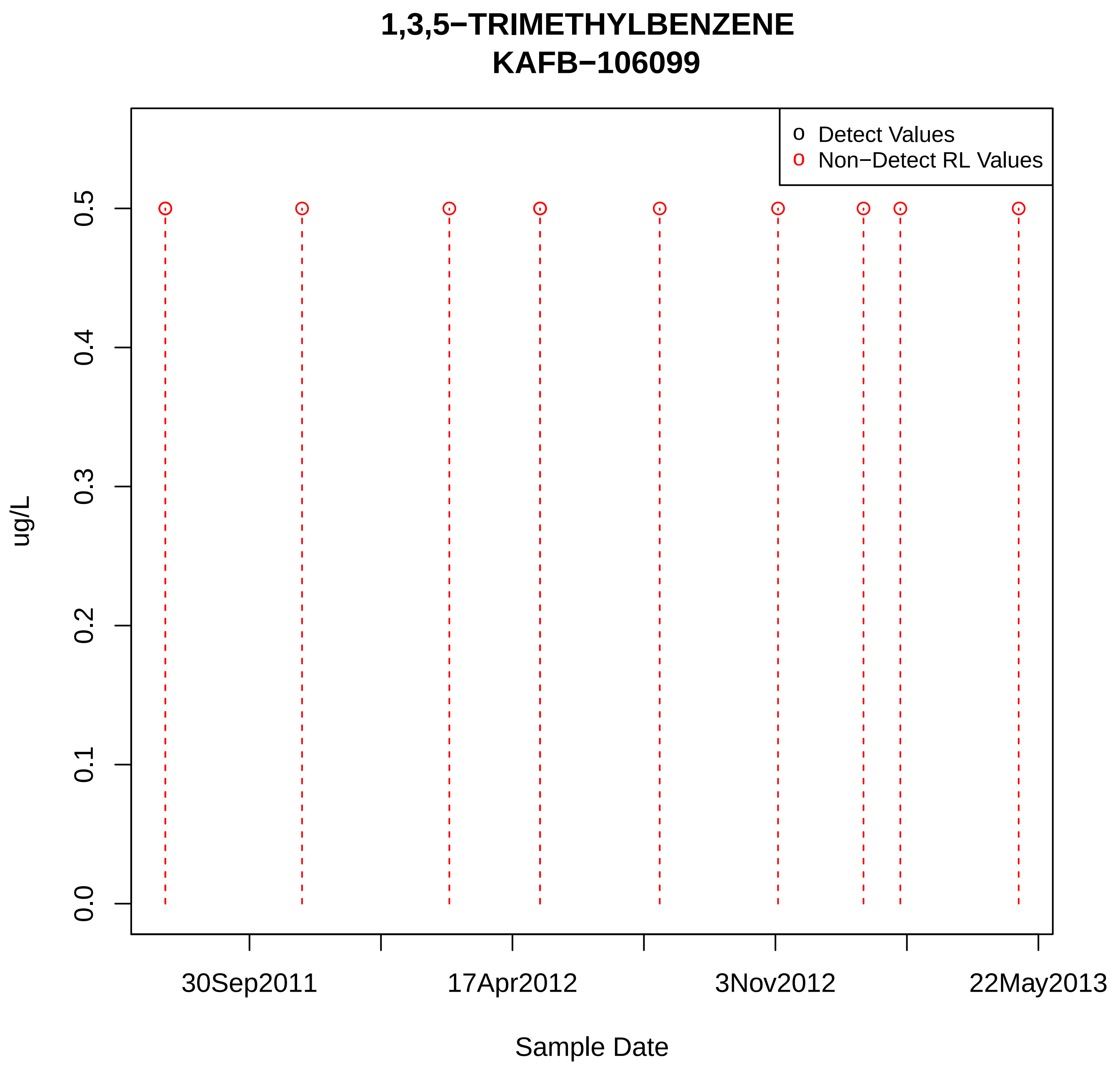

1,3,5−TRIMETHYLBENZENE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



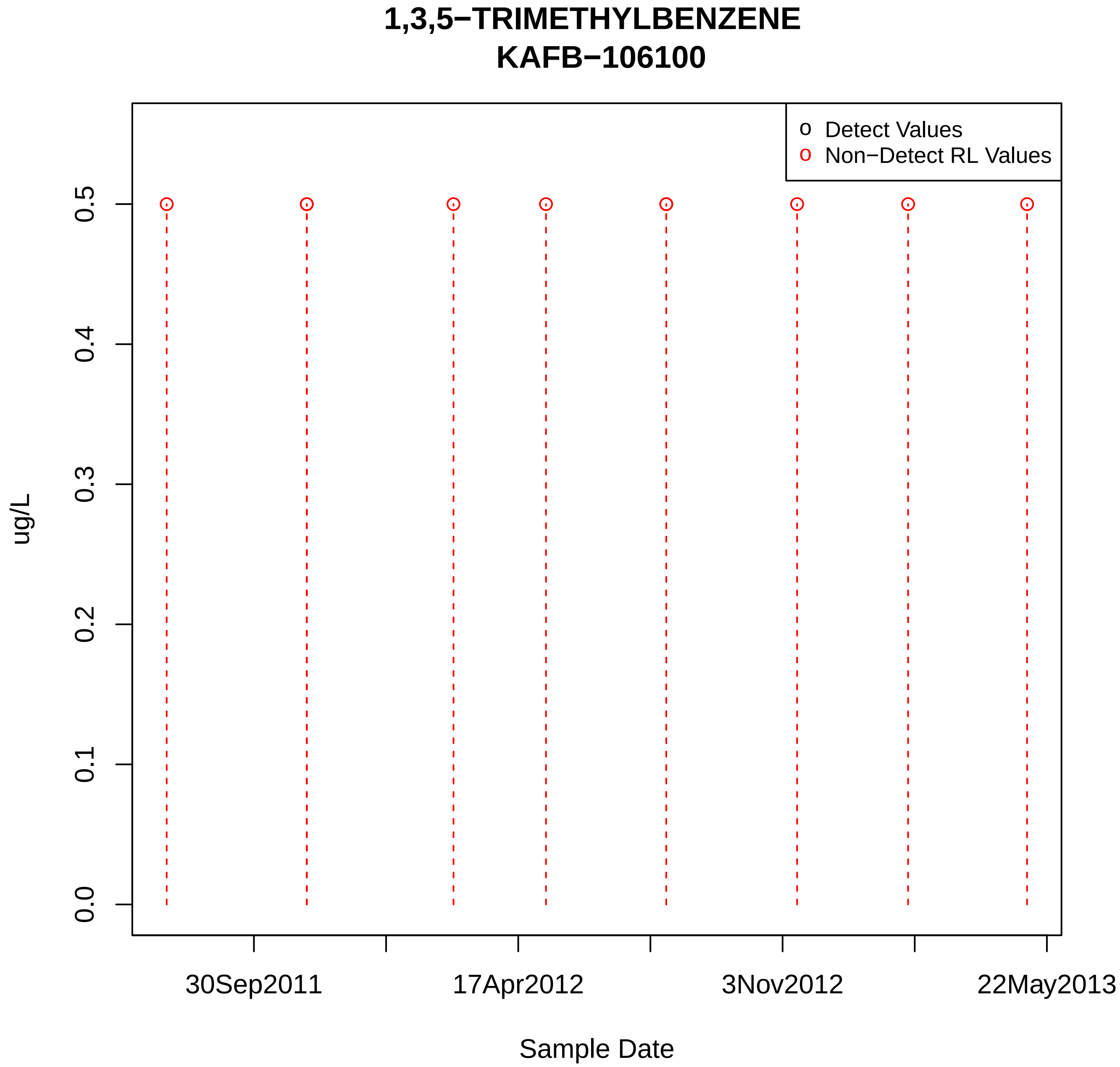
1,3,5−TRIMETHYLBENZENE
KAFB−106013
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

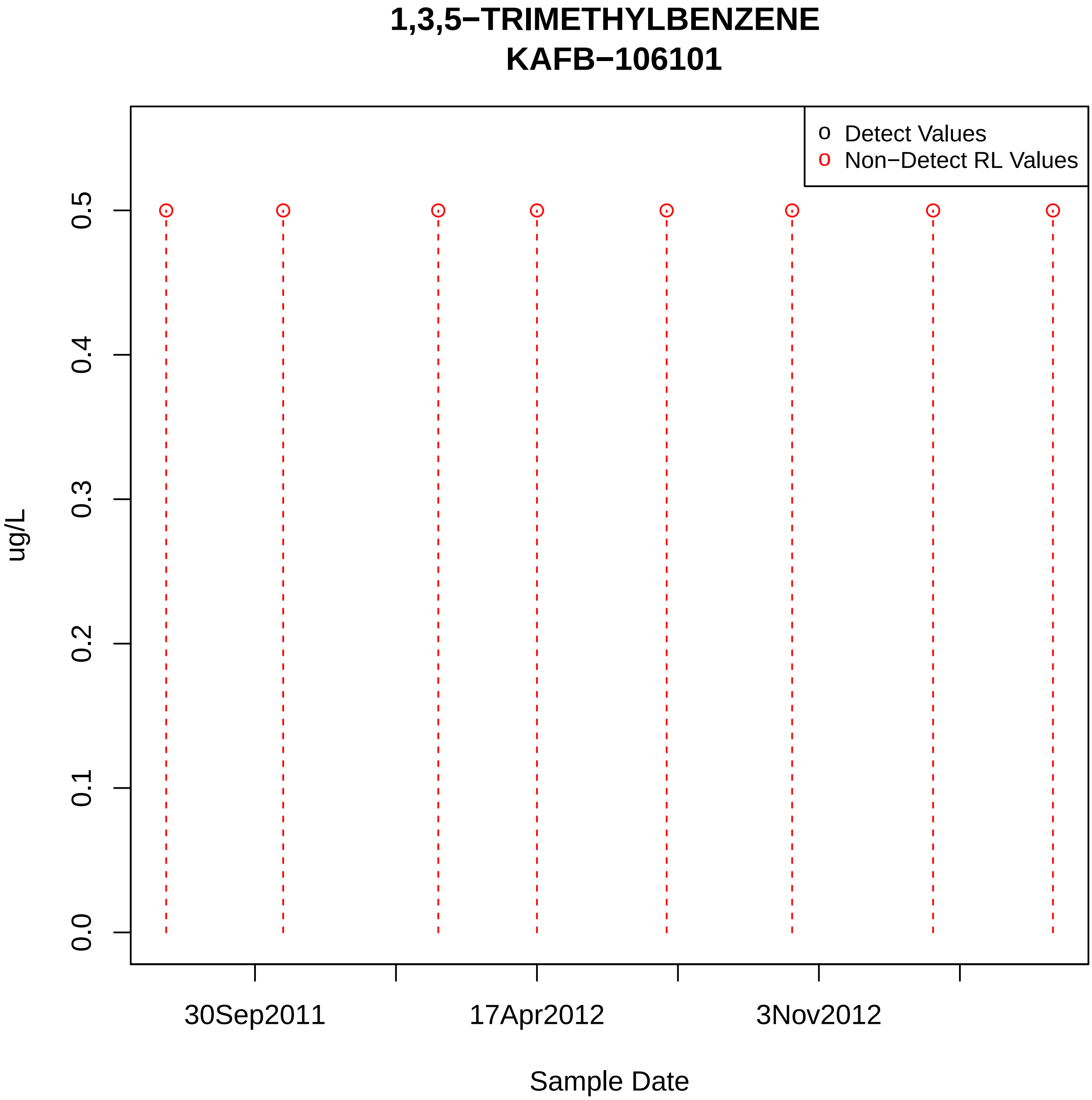

1,3,5−TRIMETHYLBENZENE
KAFB−106097
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

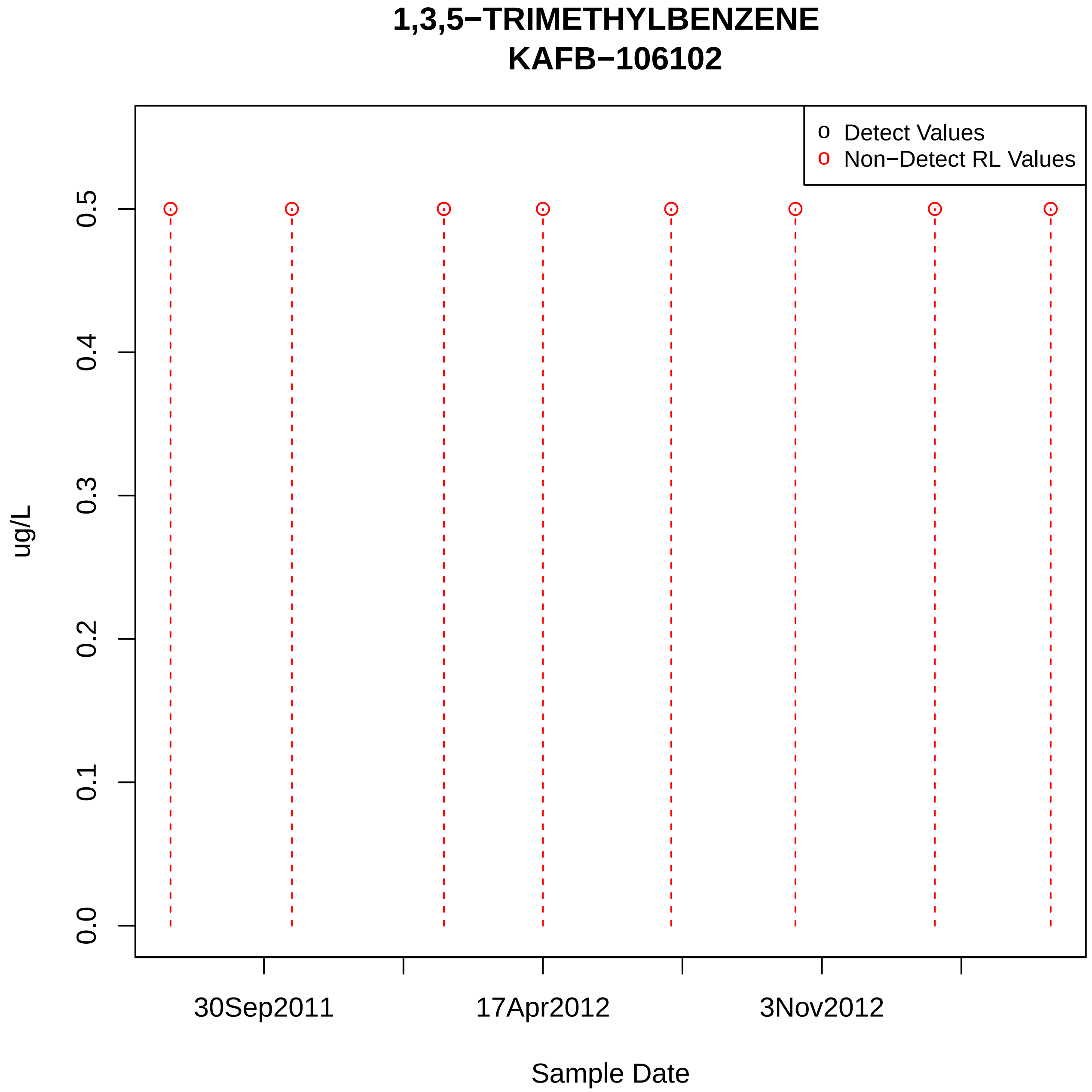

1,3,5−TRIMETHYLBENZENE
KAFB−106098
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



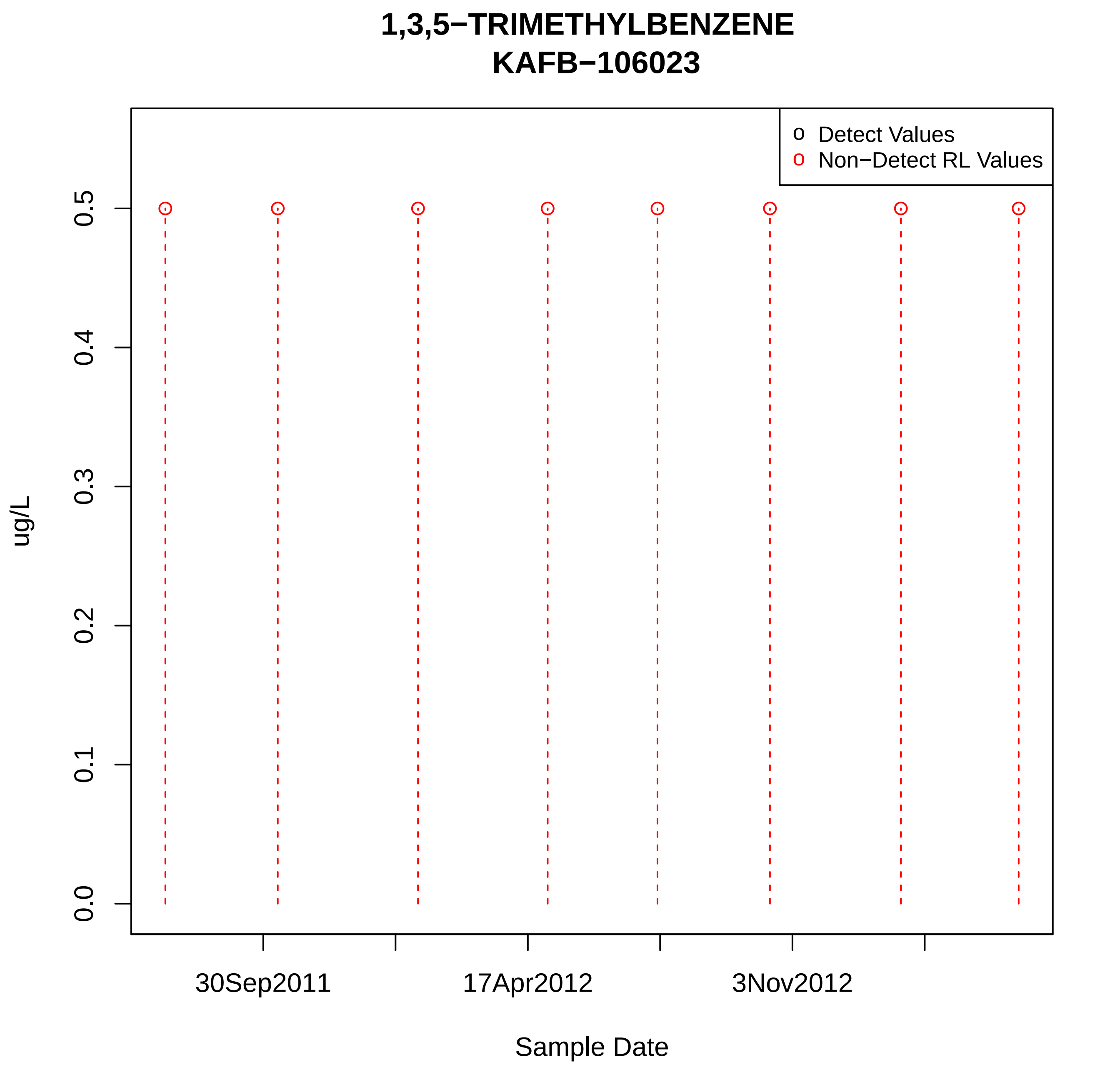
1,3,5−TRIMETHYLBENZENE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

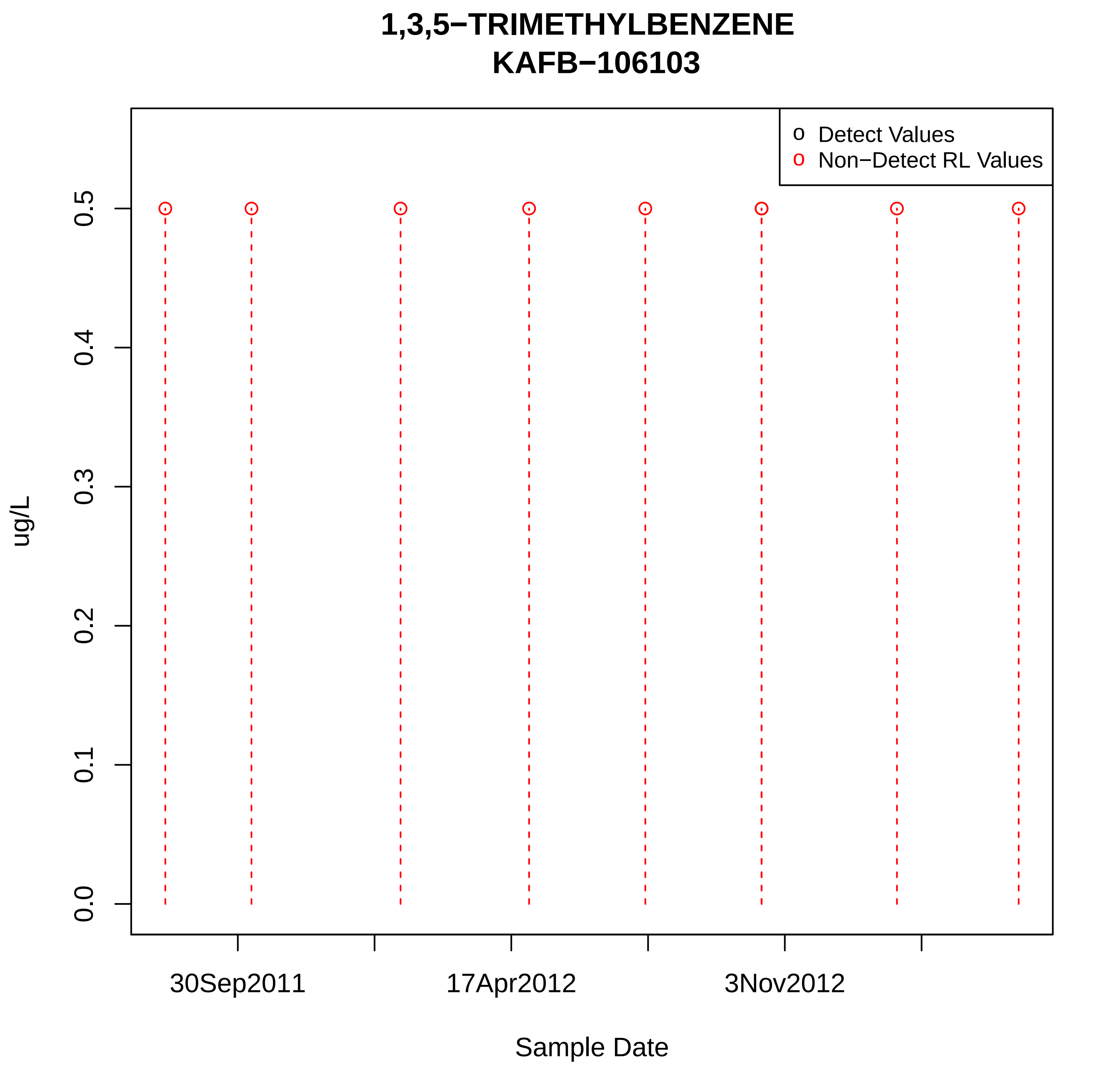

1,3,5−TRIMETHYLBENZENE
KAFB−106100
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

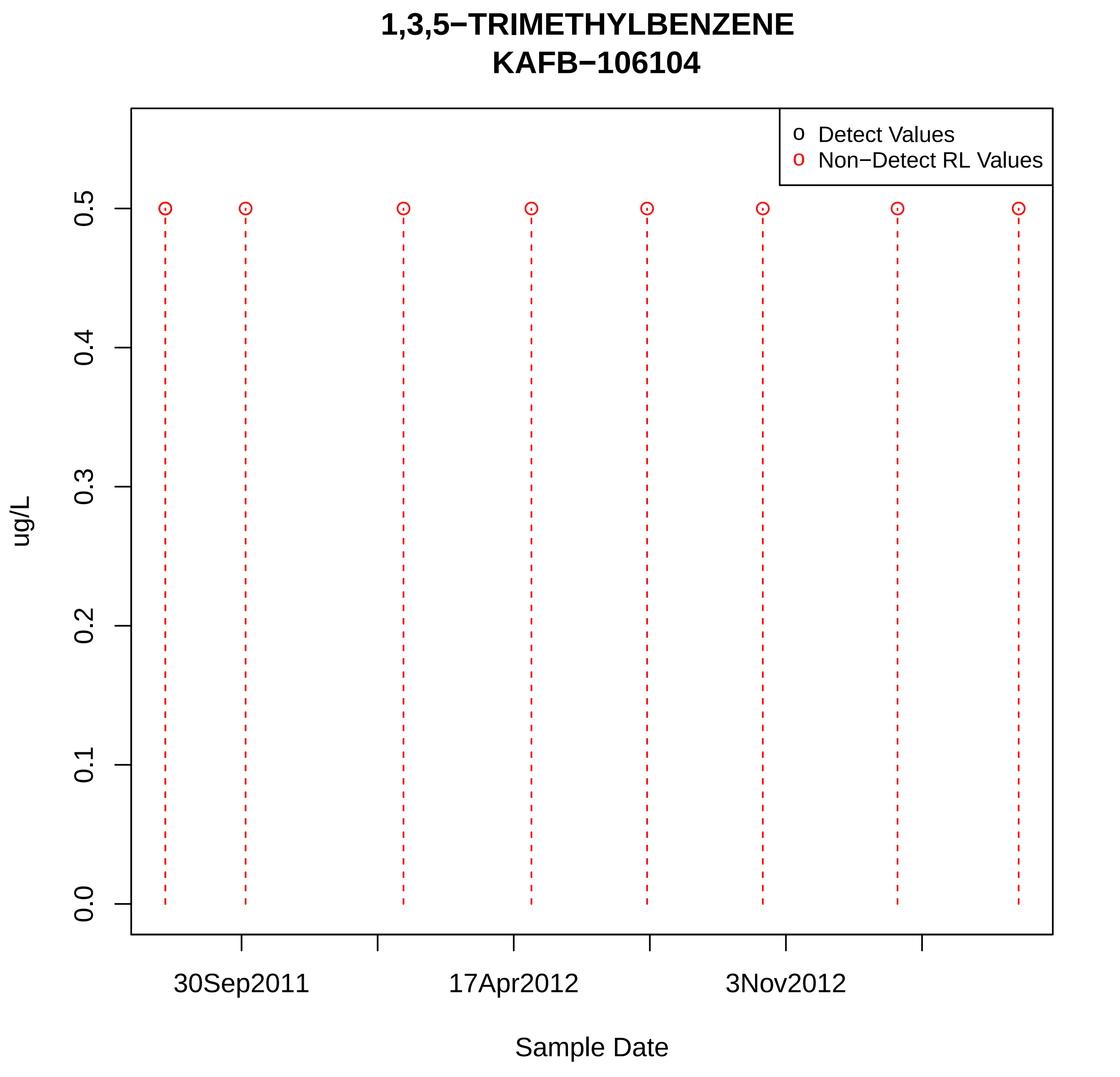

1,3,5−TRIMETHYLBENZENE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



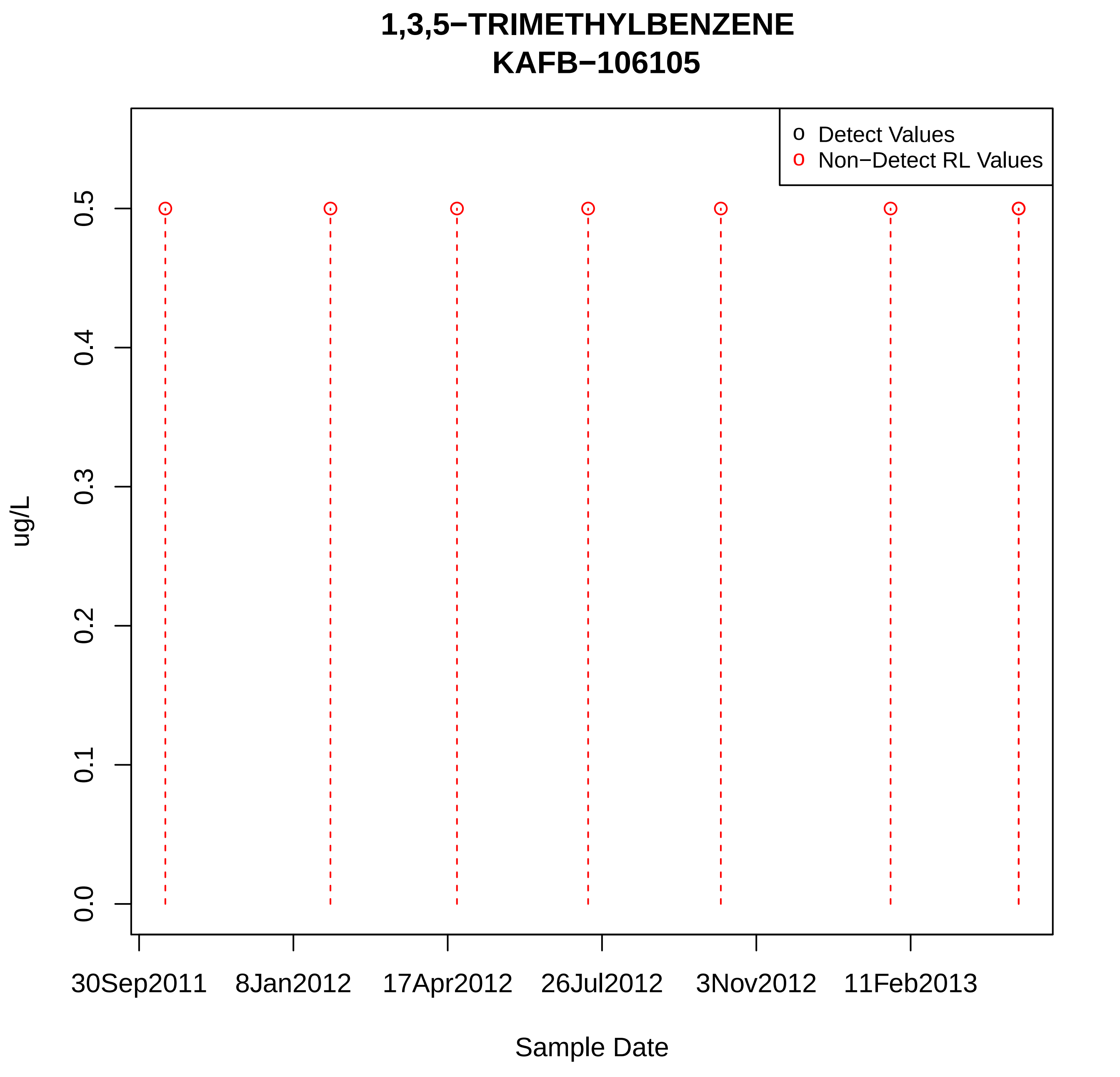
1,3,5−TRIMETHYLBENZENE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

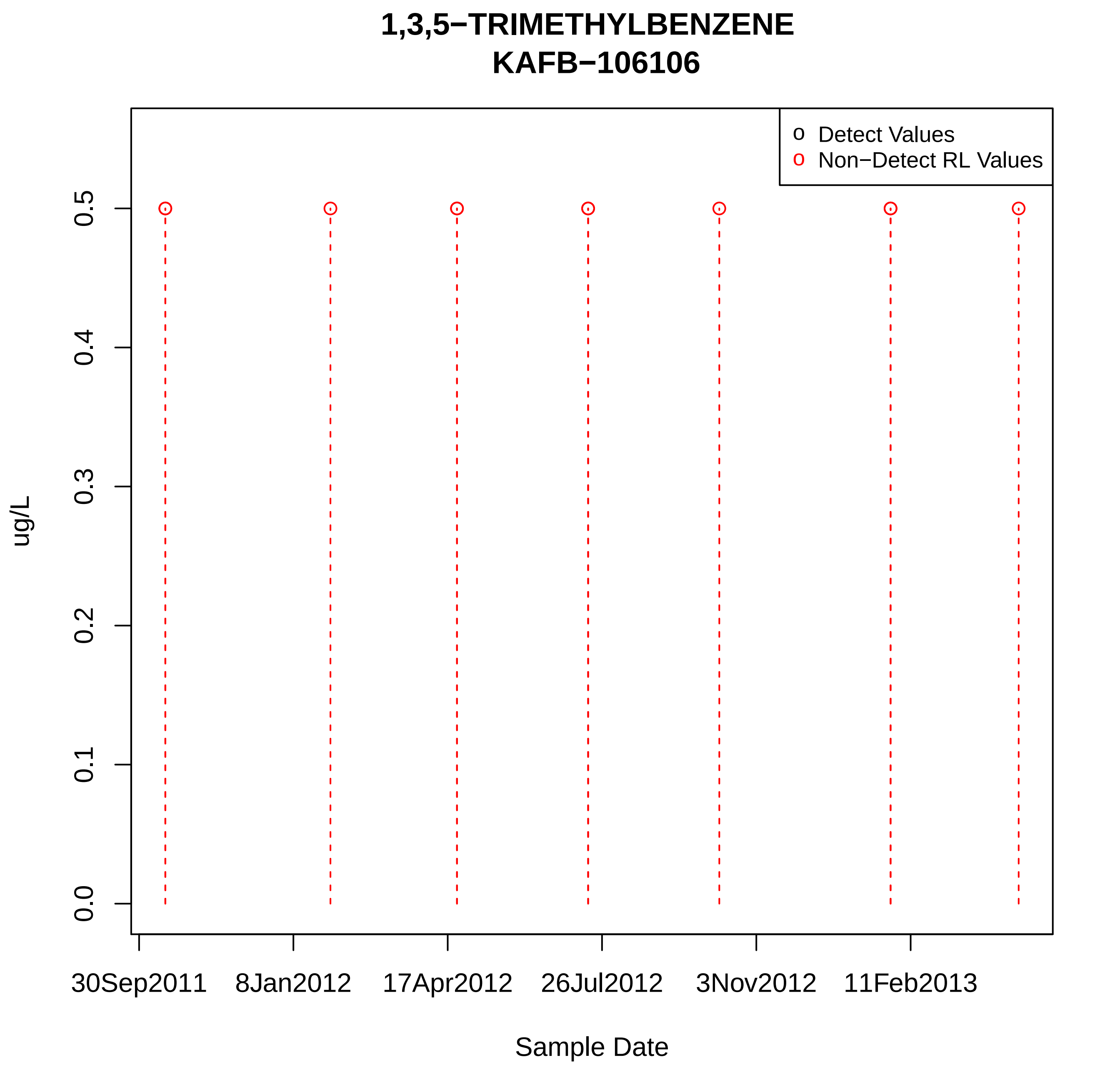

1,3,5−TRIMETHYLBENZENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

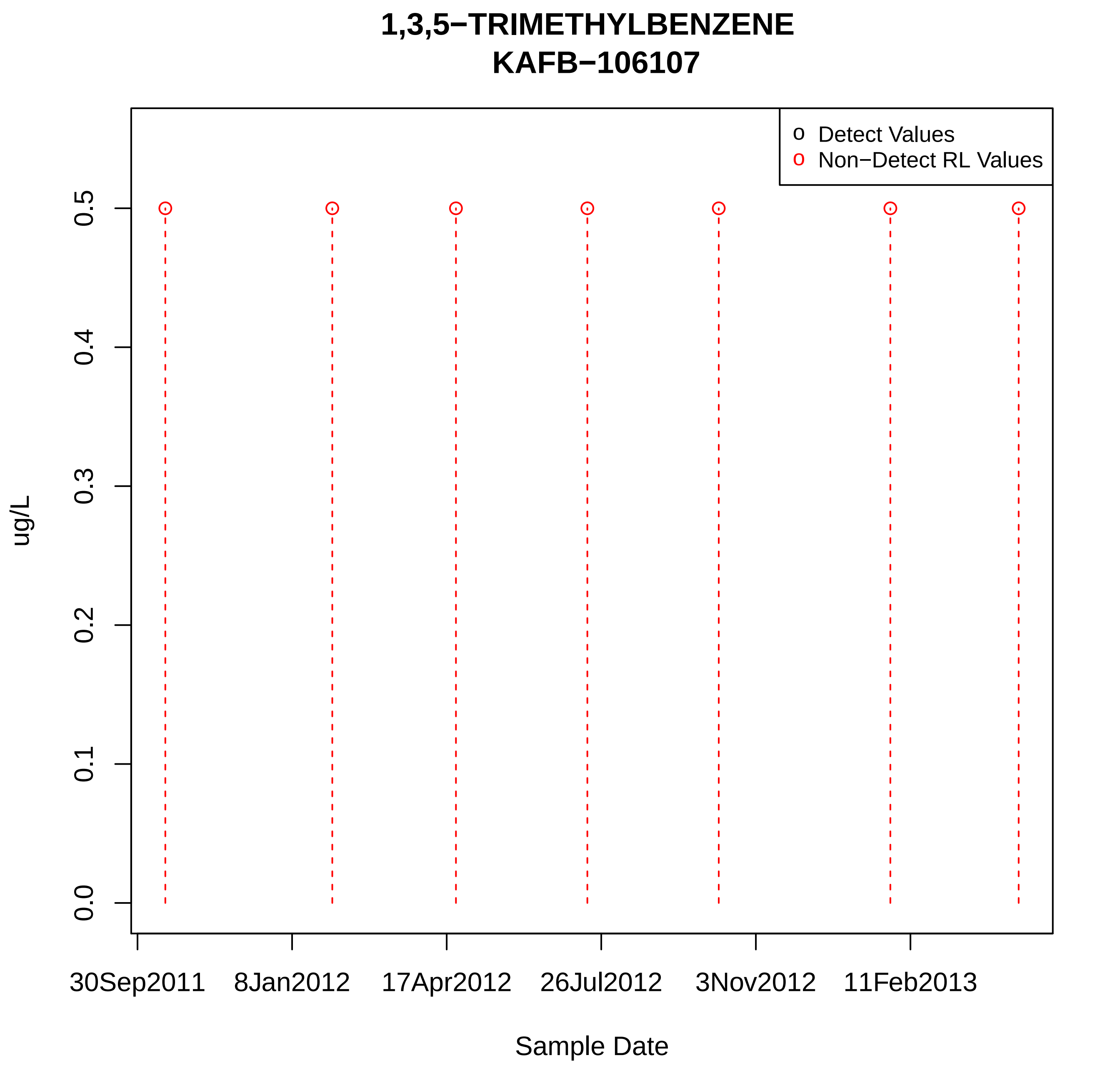

1,3,5−TRIMETHYLBENZENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

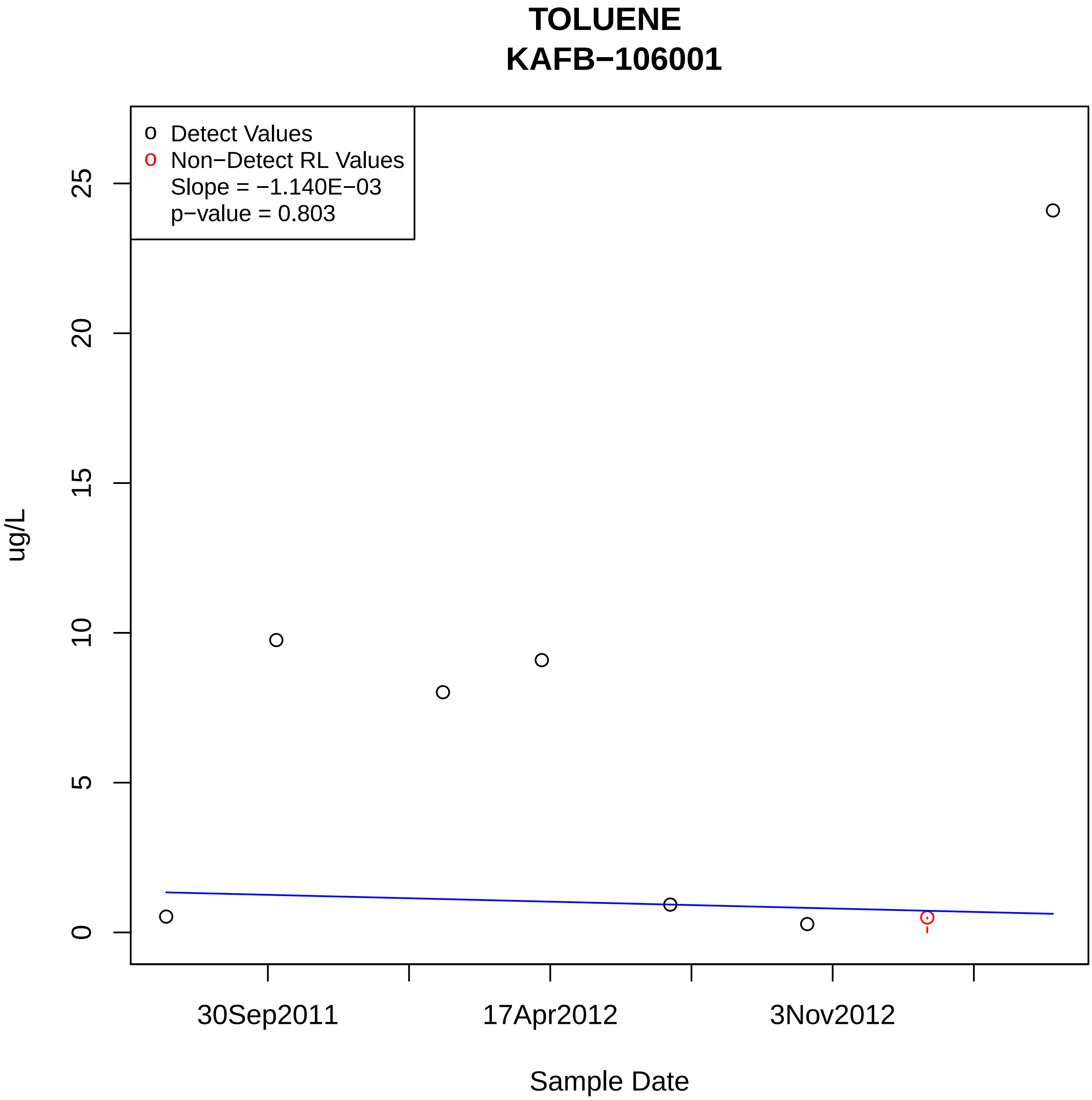


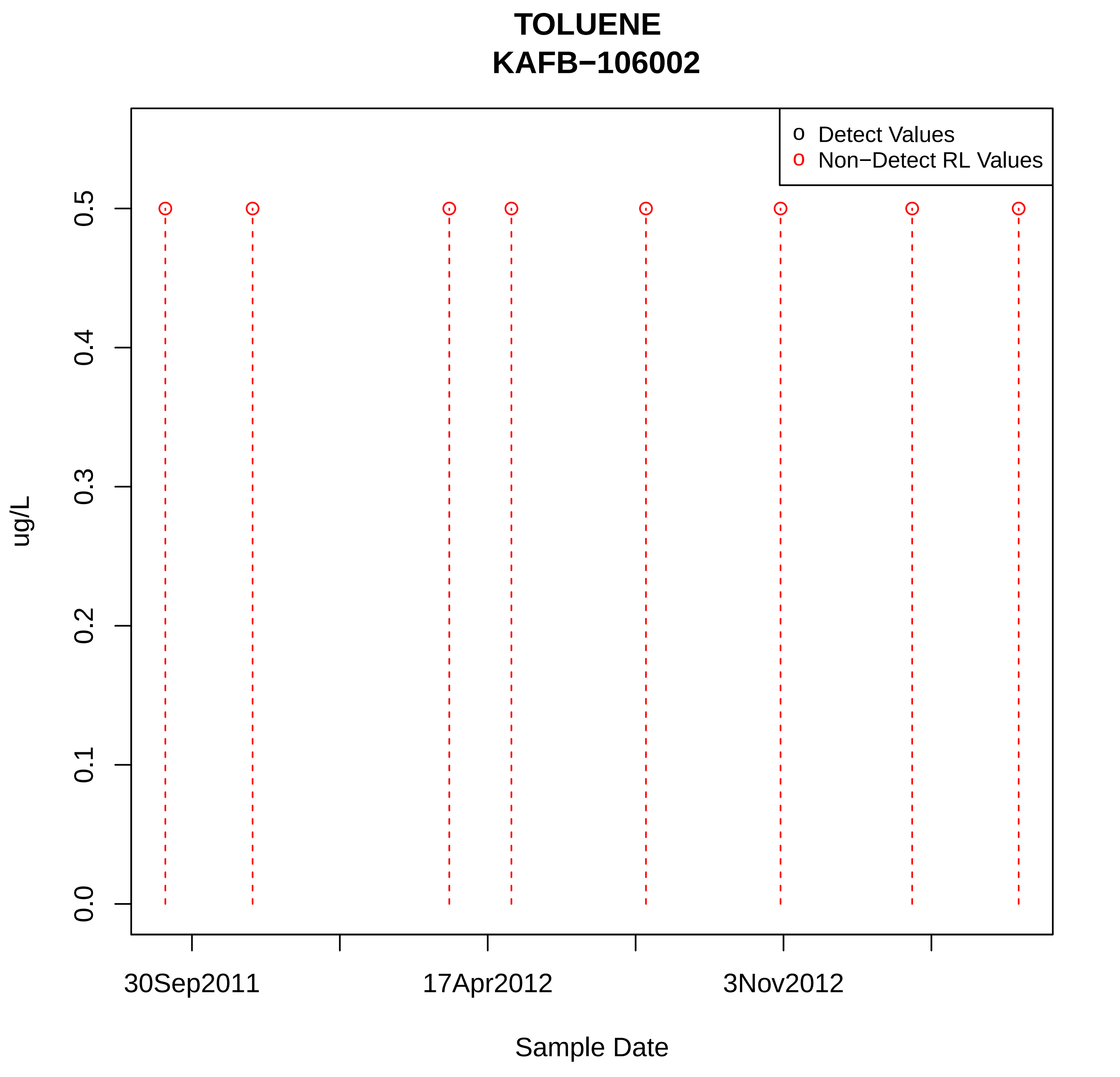
1,3,5−TRIMETHYLBENZENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

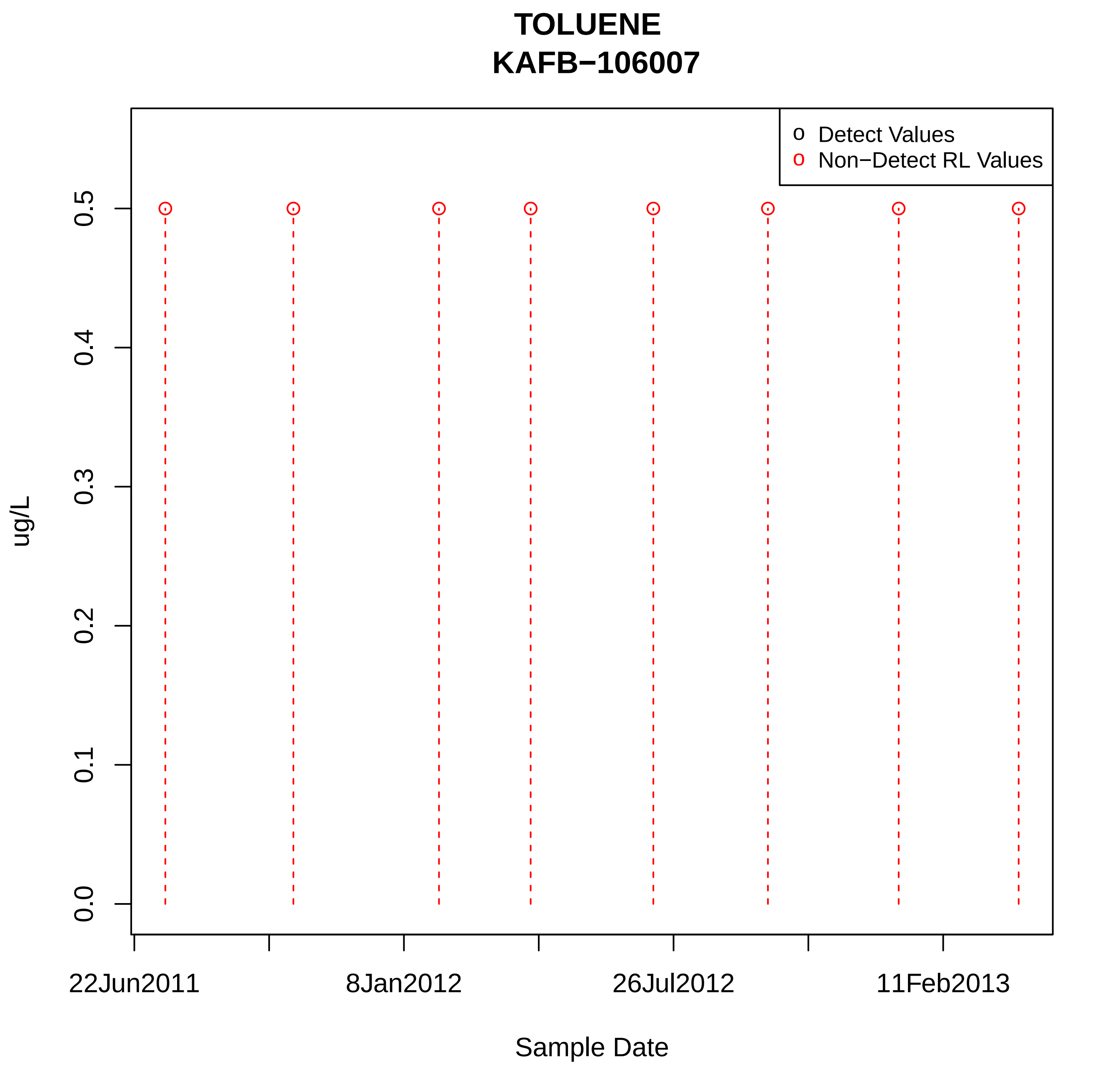

1,3,5−TRIMETHYLBENZENE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


1,3,5−TRIMETHYLBENZENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

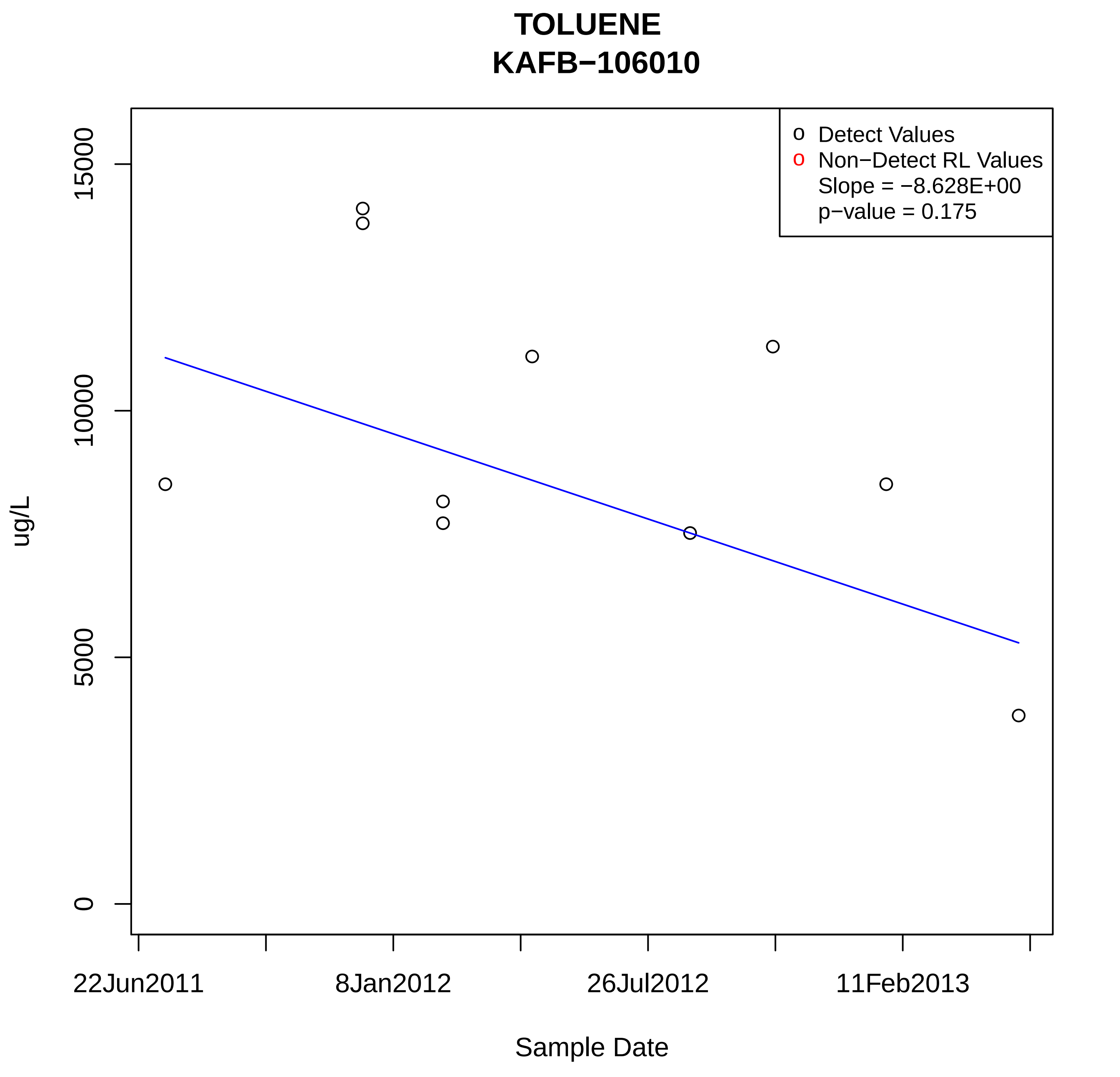

TOLUENE
KAFB−106001
Detect Values
Non−Detect RL Values
Slope = −1.140E−03
p−value = 0.803
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
Sample Date

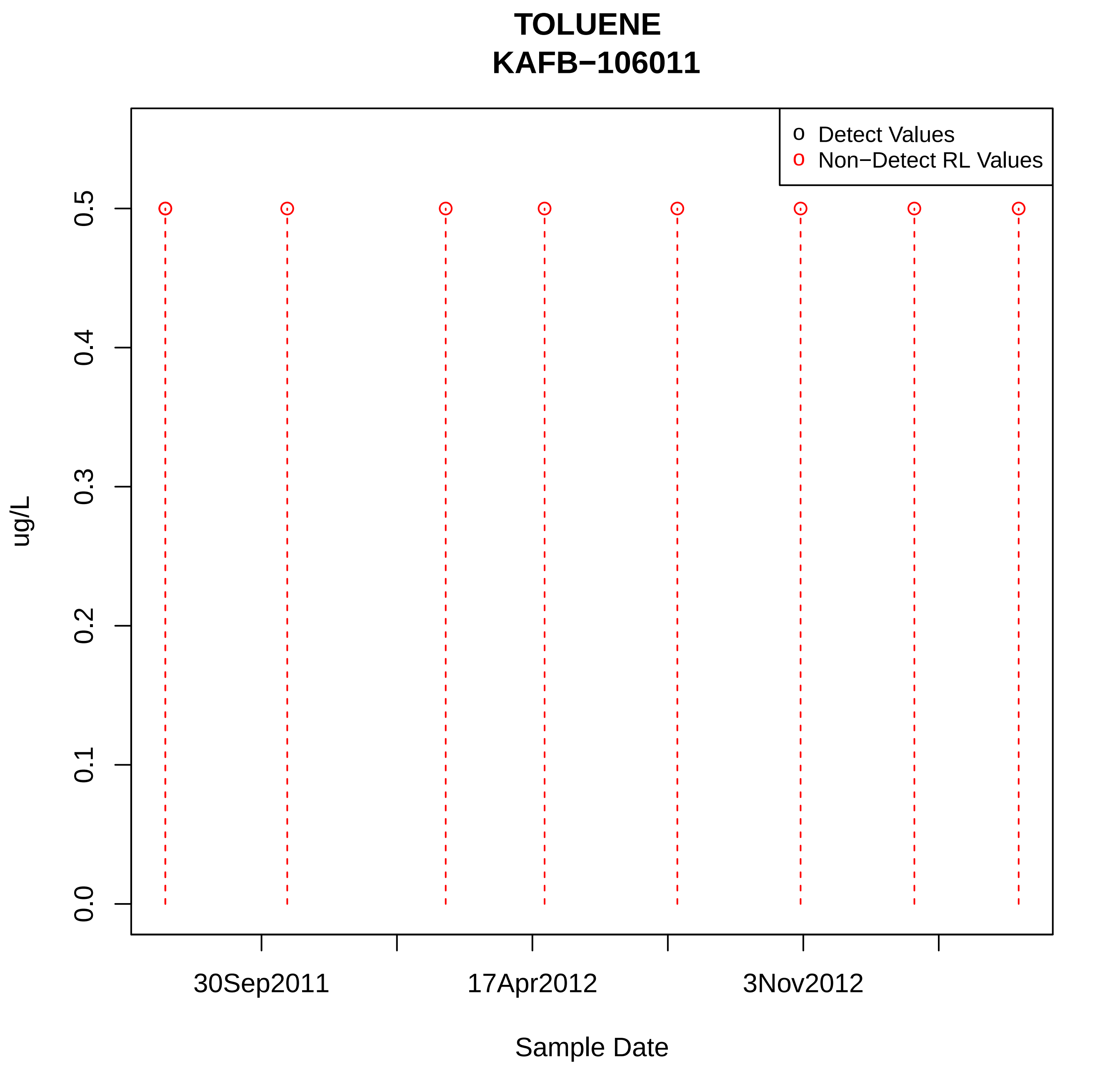


TOLUENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

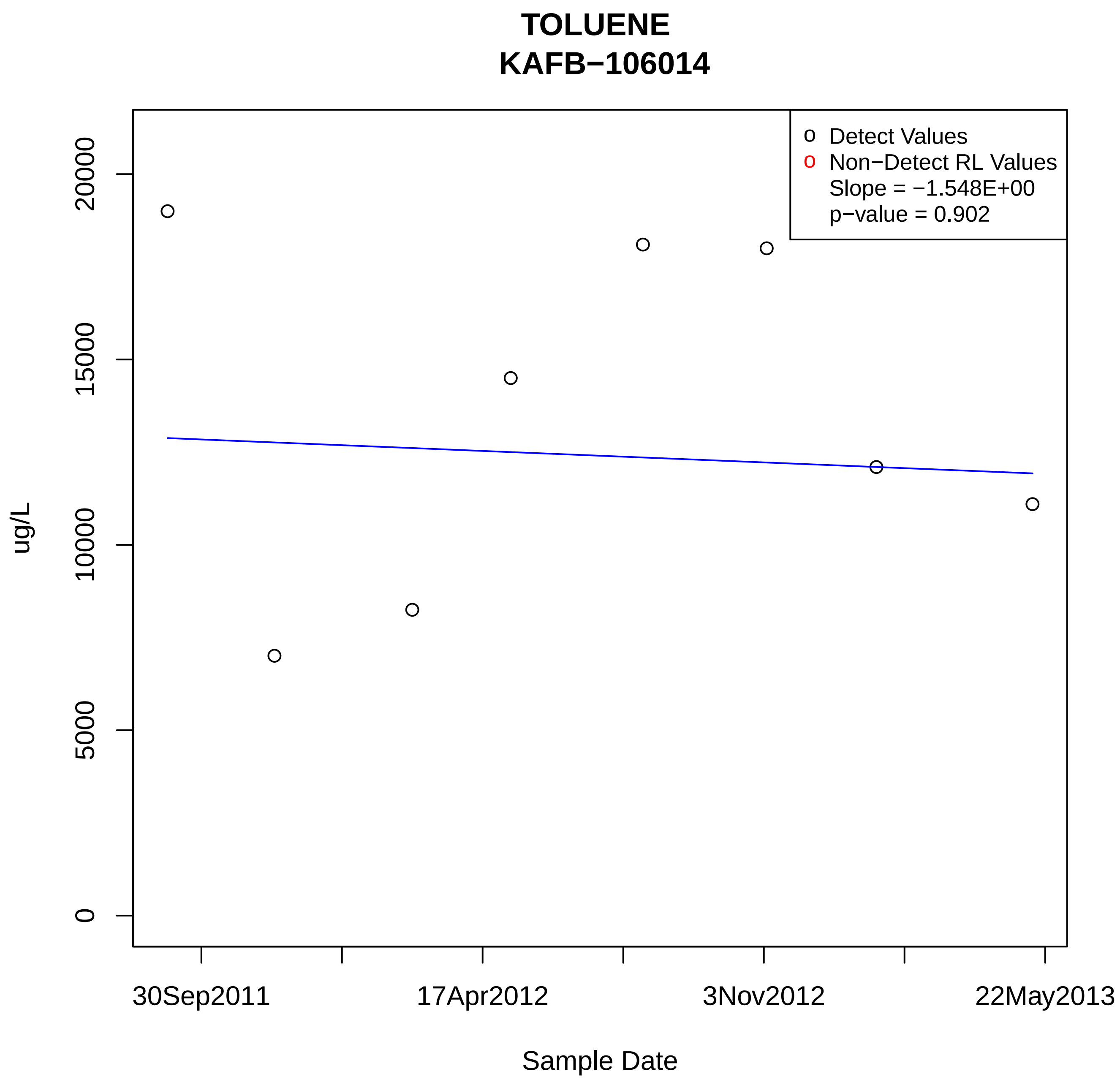


TOLUENE
KAFB−106007
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

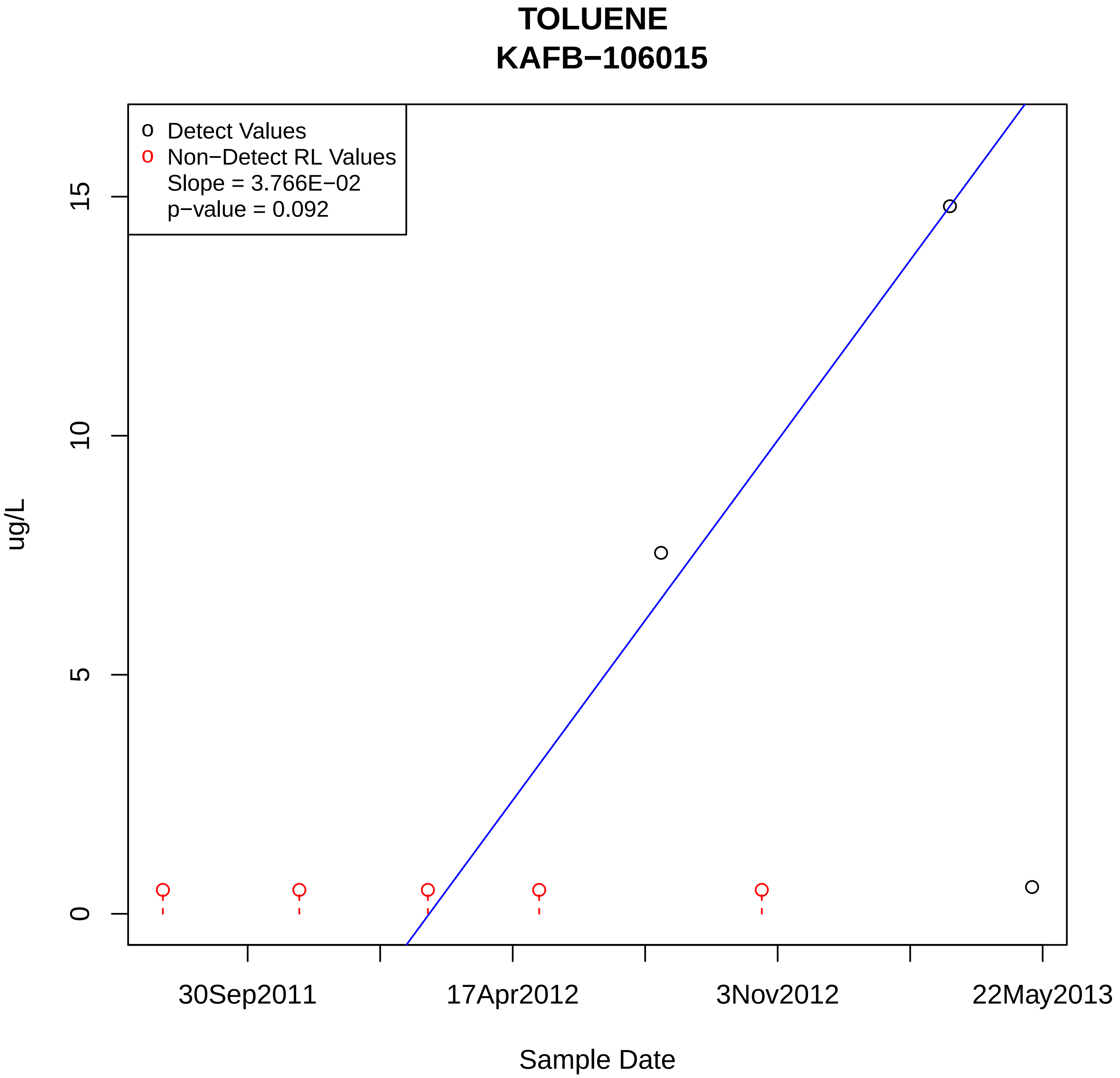

TOLUENE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = −8.628E+00
p−value = 0.175
15000
10000
5000
0
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



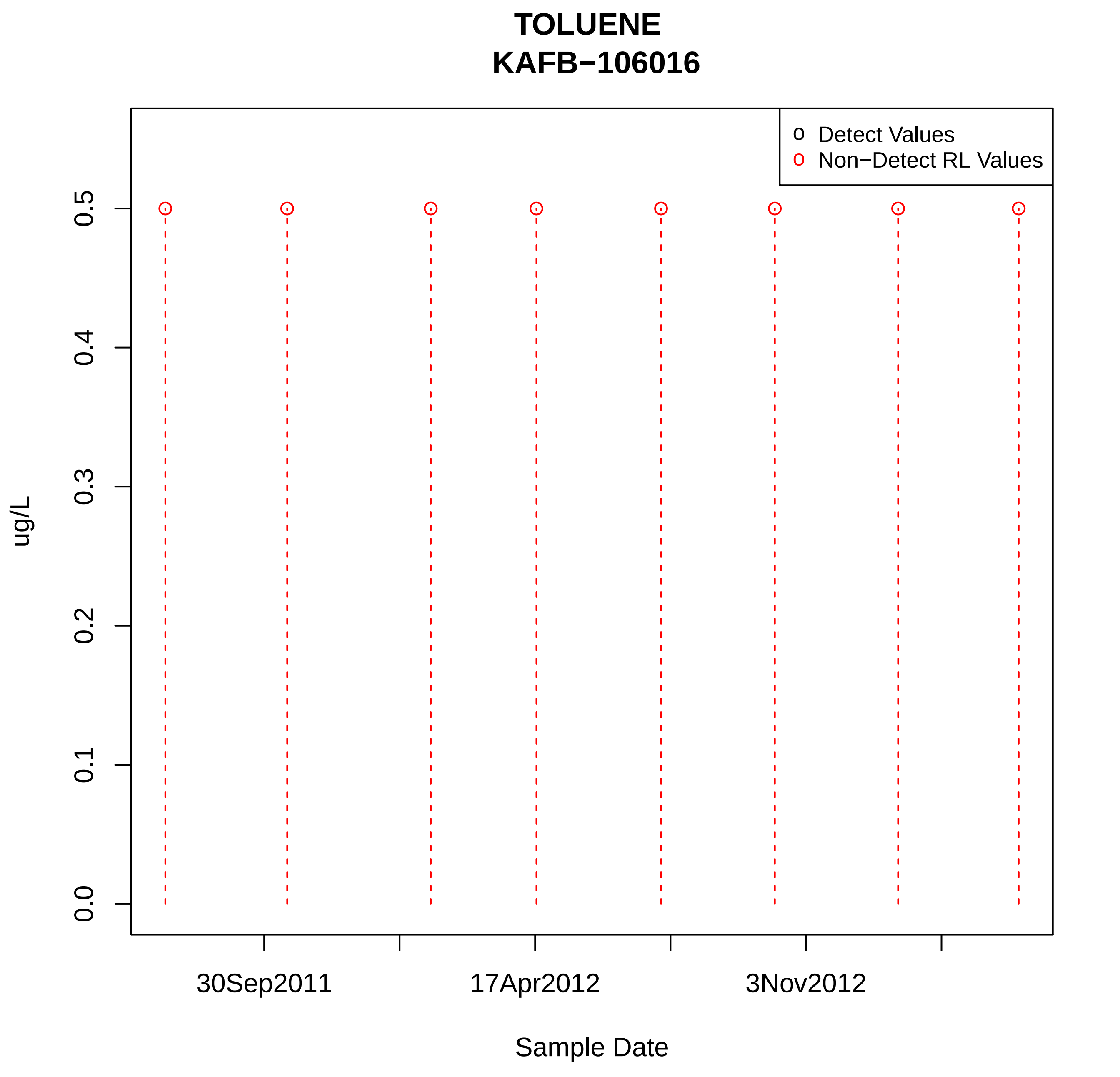
TOLUENE
KAFB−106011
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



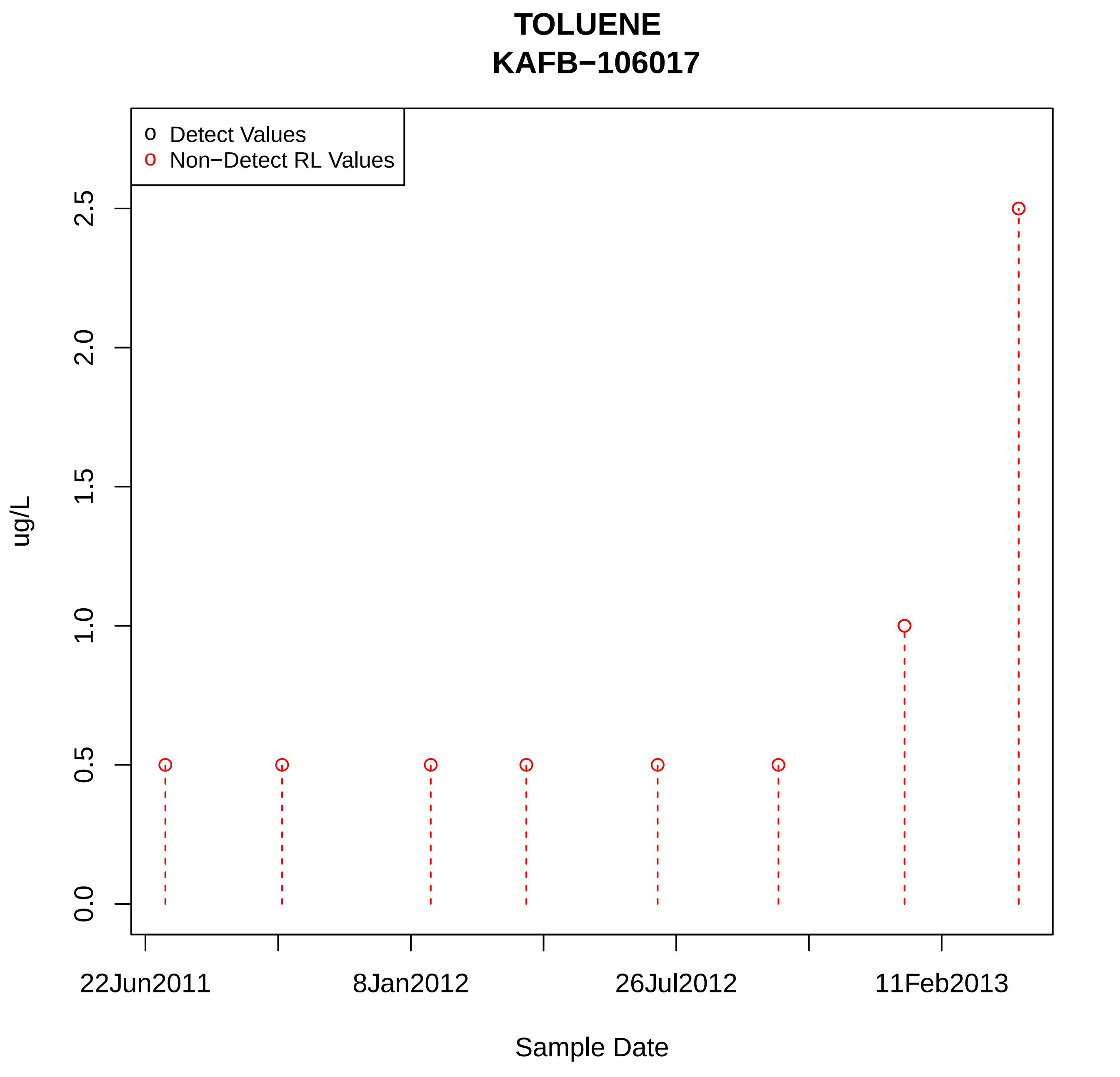
TOLUENE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −1.548E+00
p−value = 0.902
ug/L
0
5000
10000
15000
20000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



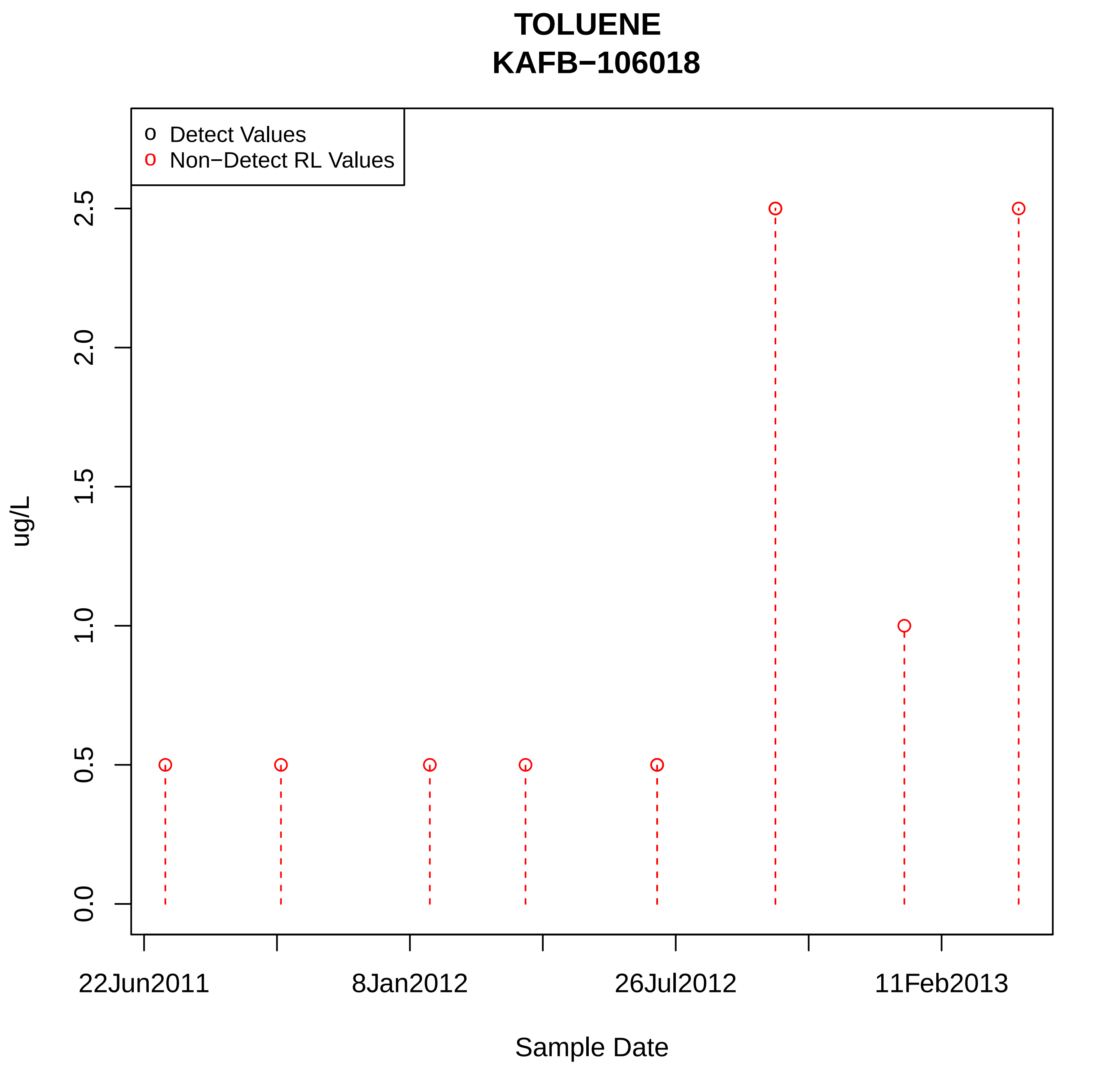
TOLUENE
KAFB−106015
Detect Values
Non−Detect RL Values
Slope = 3.766E−02
p−value = 0.092
0
5
10
15
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

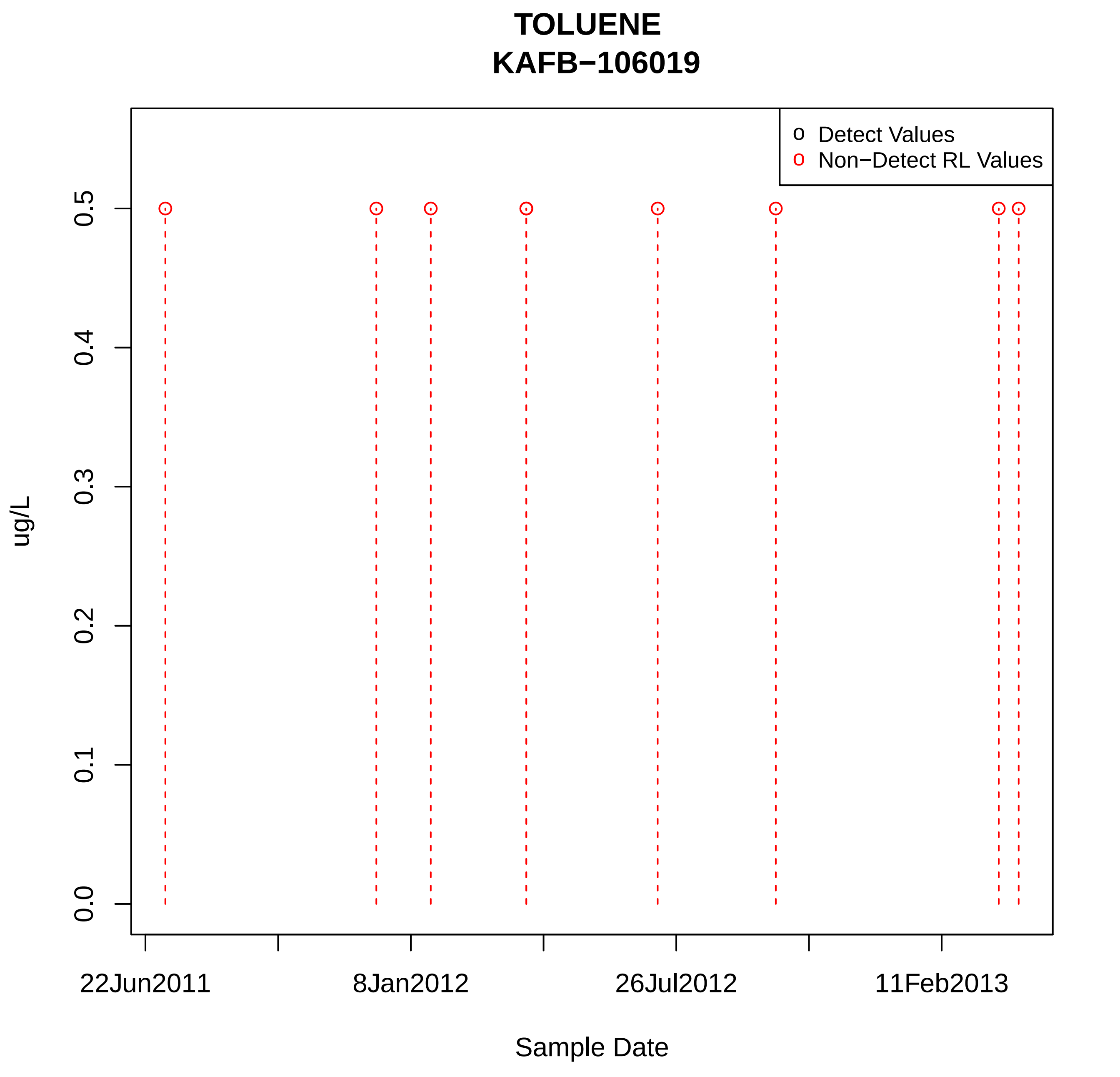


TOLUENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

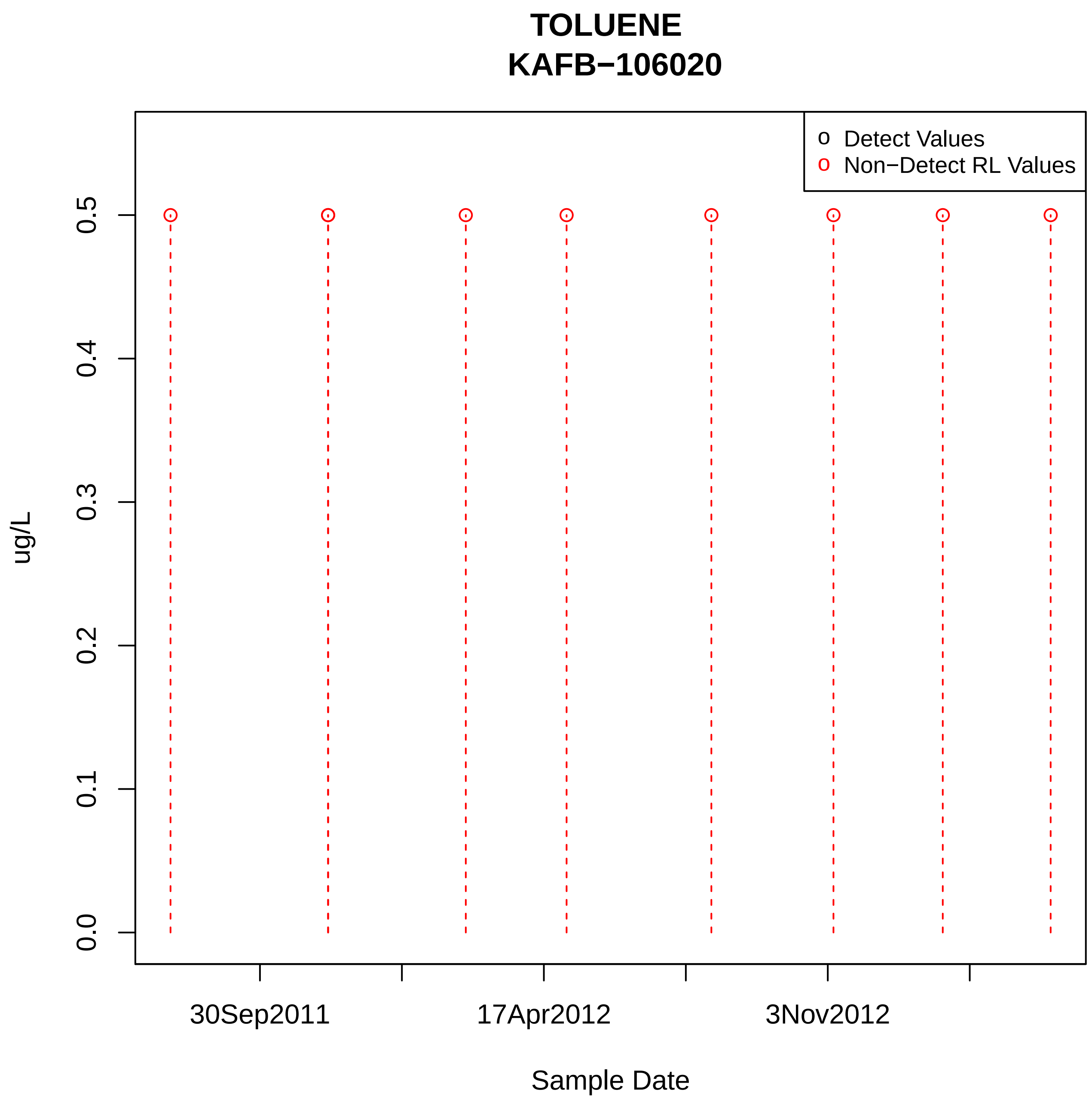


TOLUENE
KAFB−106017
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

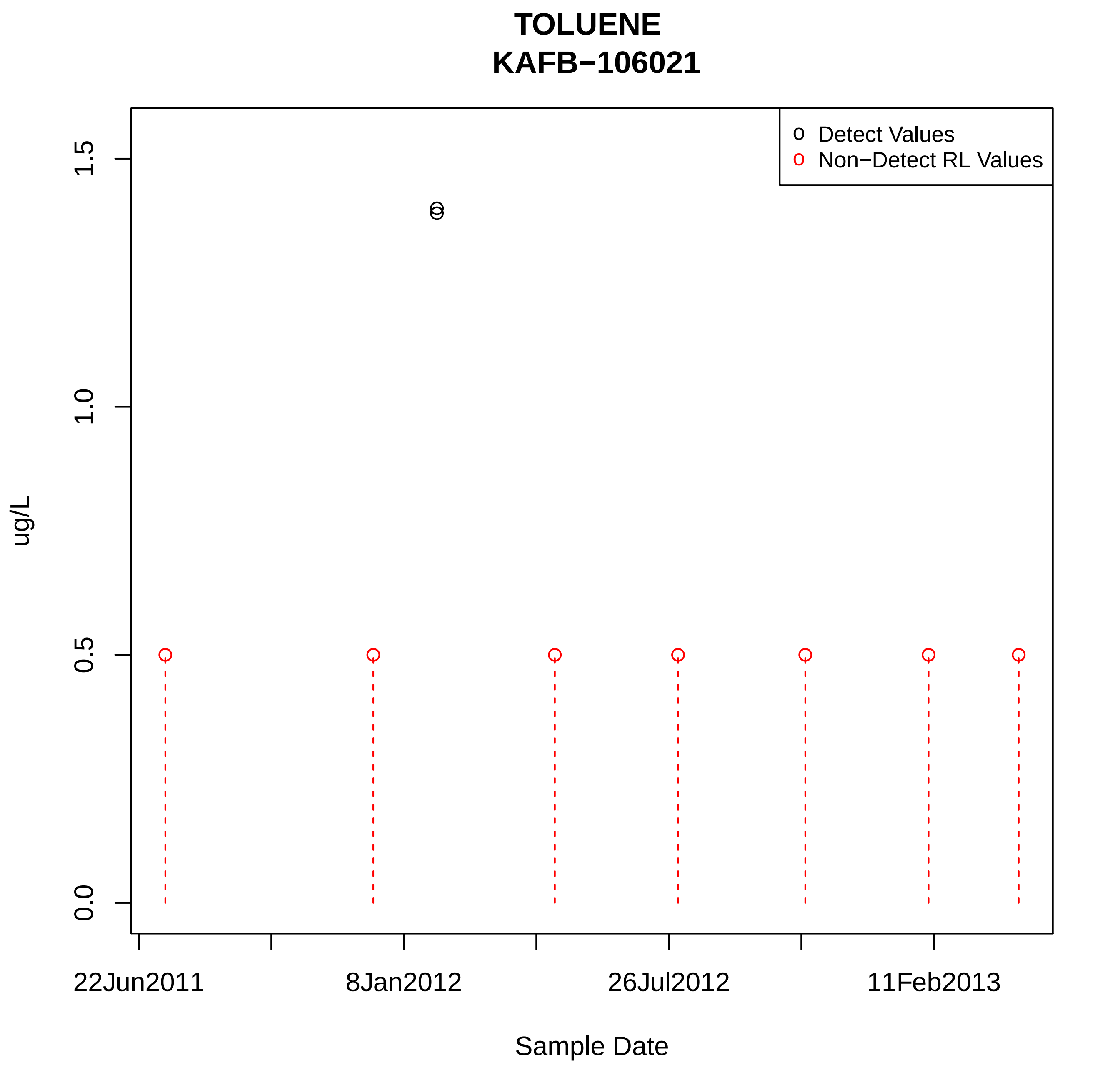

TOLUENE
KAFB−106018
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

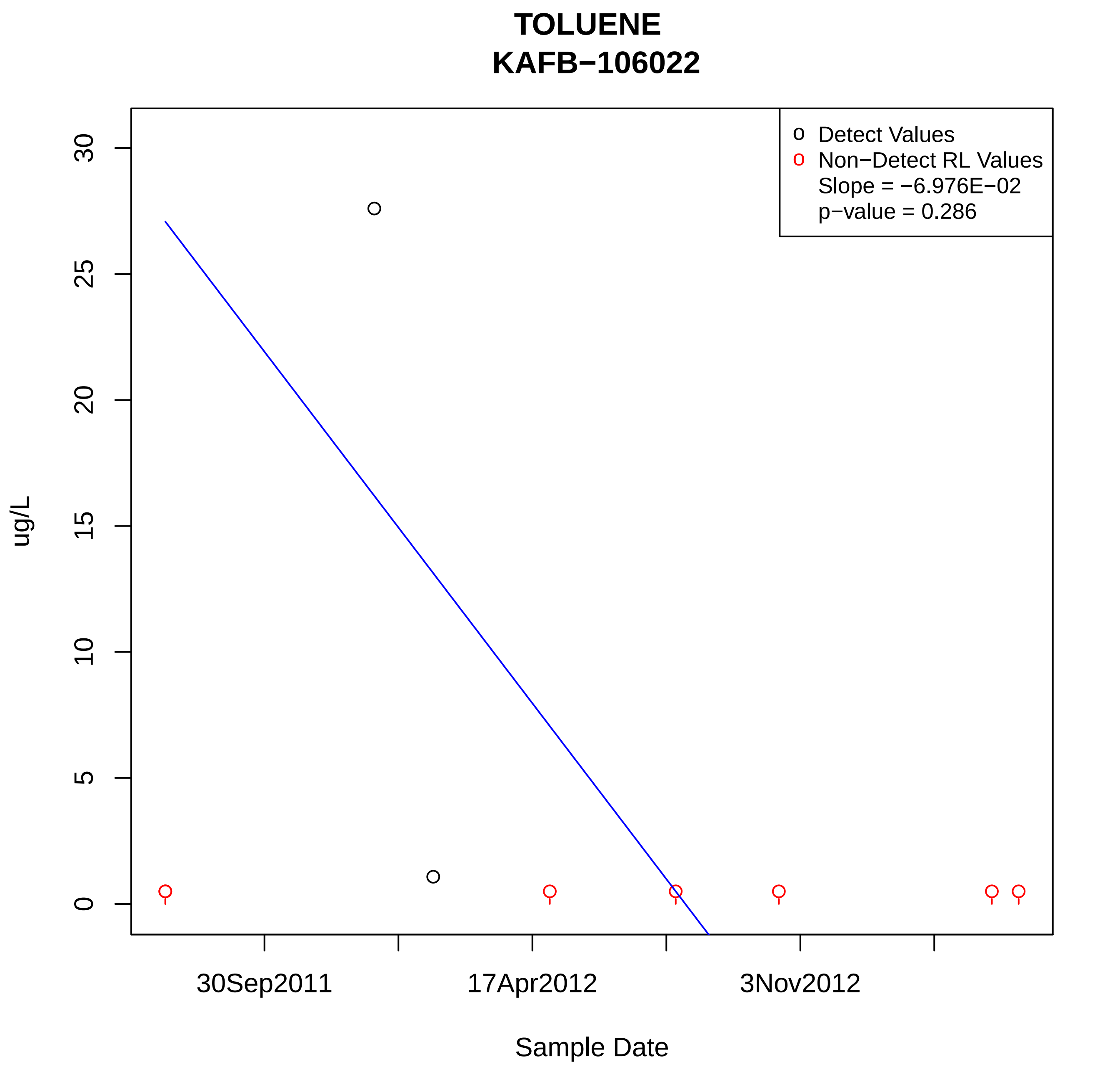


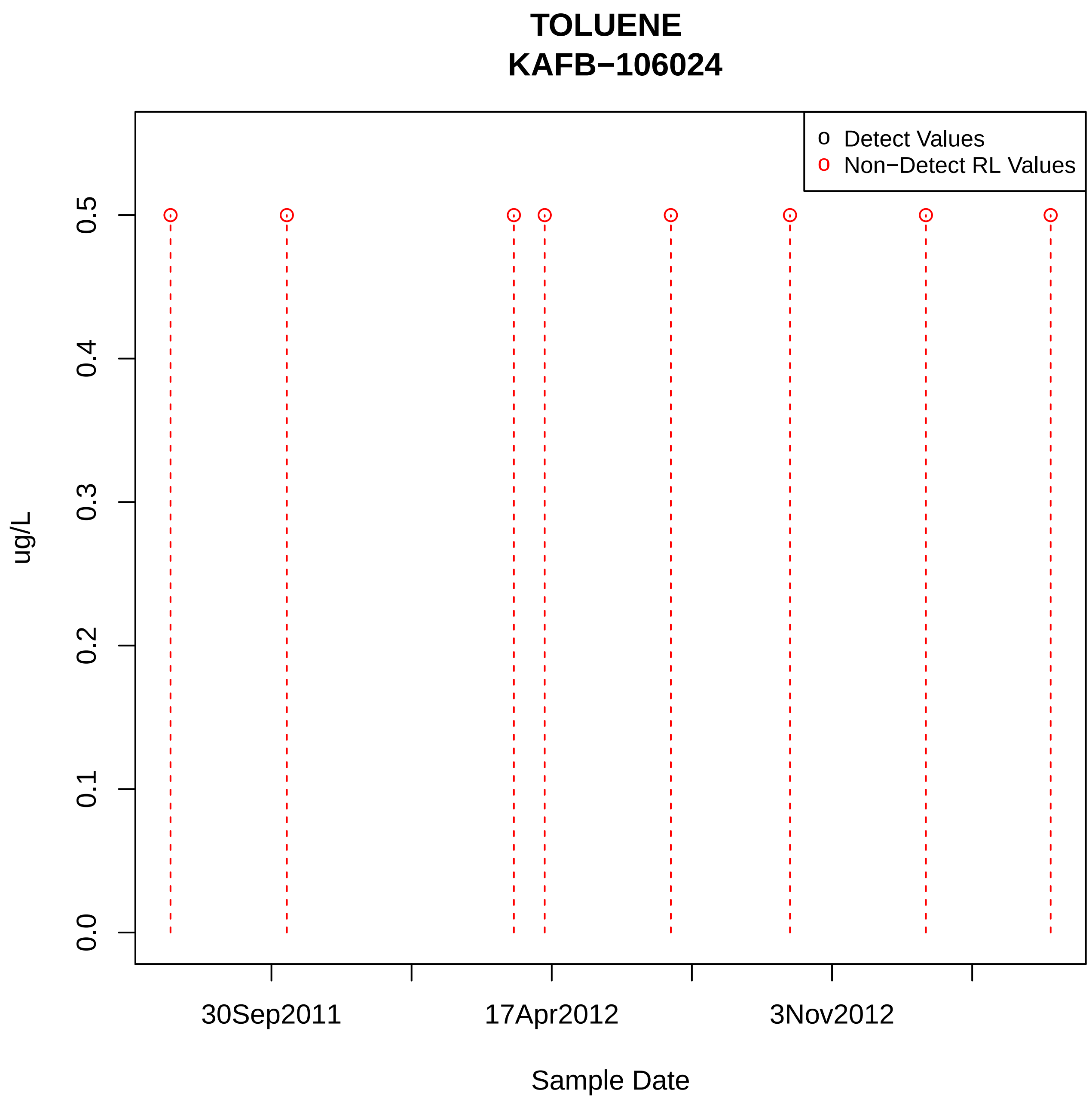
TOLUENE
KAFB−106019
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

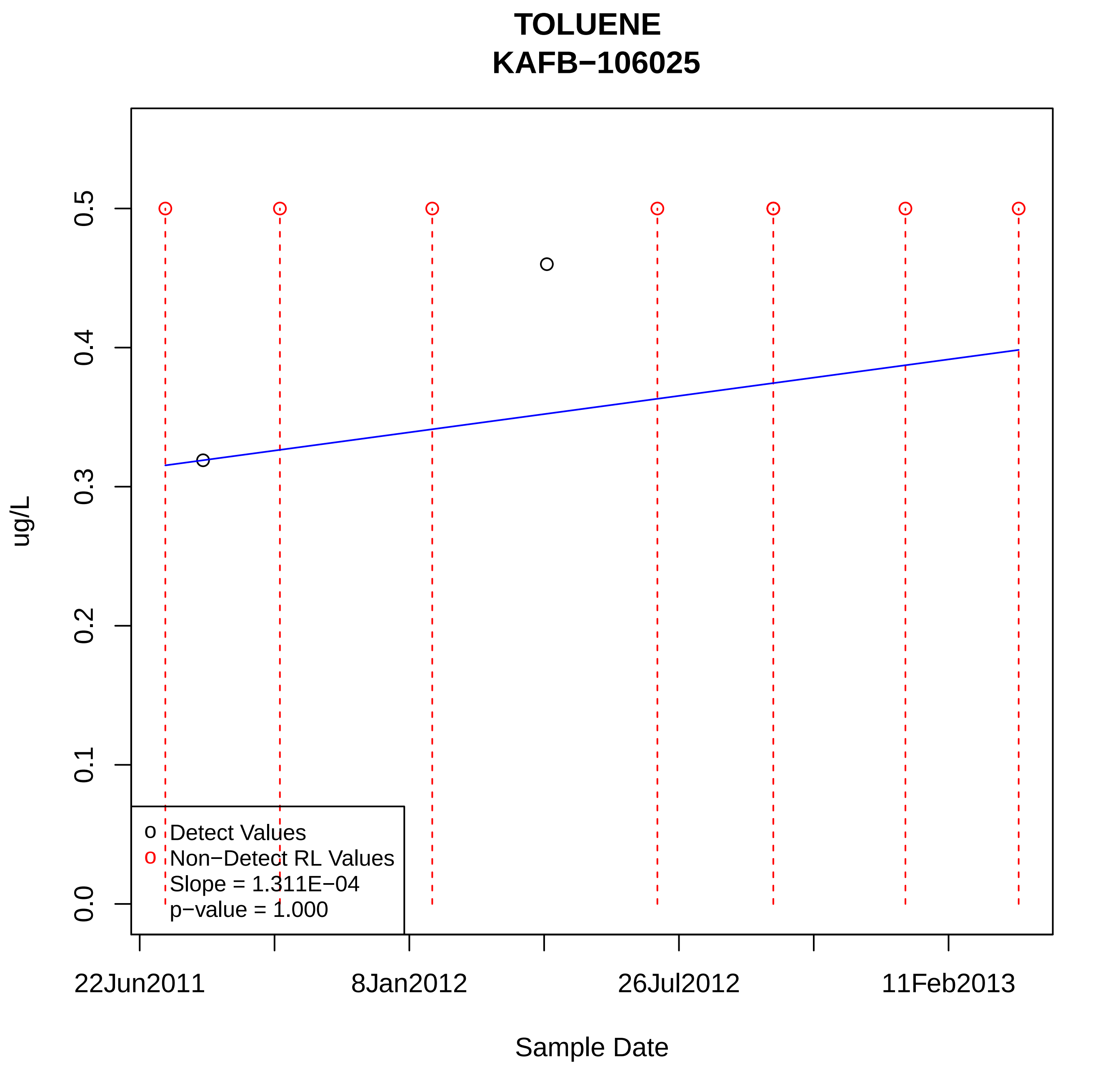


TOLUENE
KAFB−106020
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

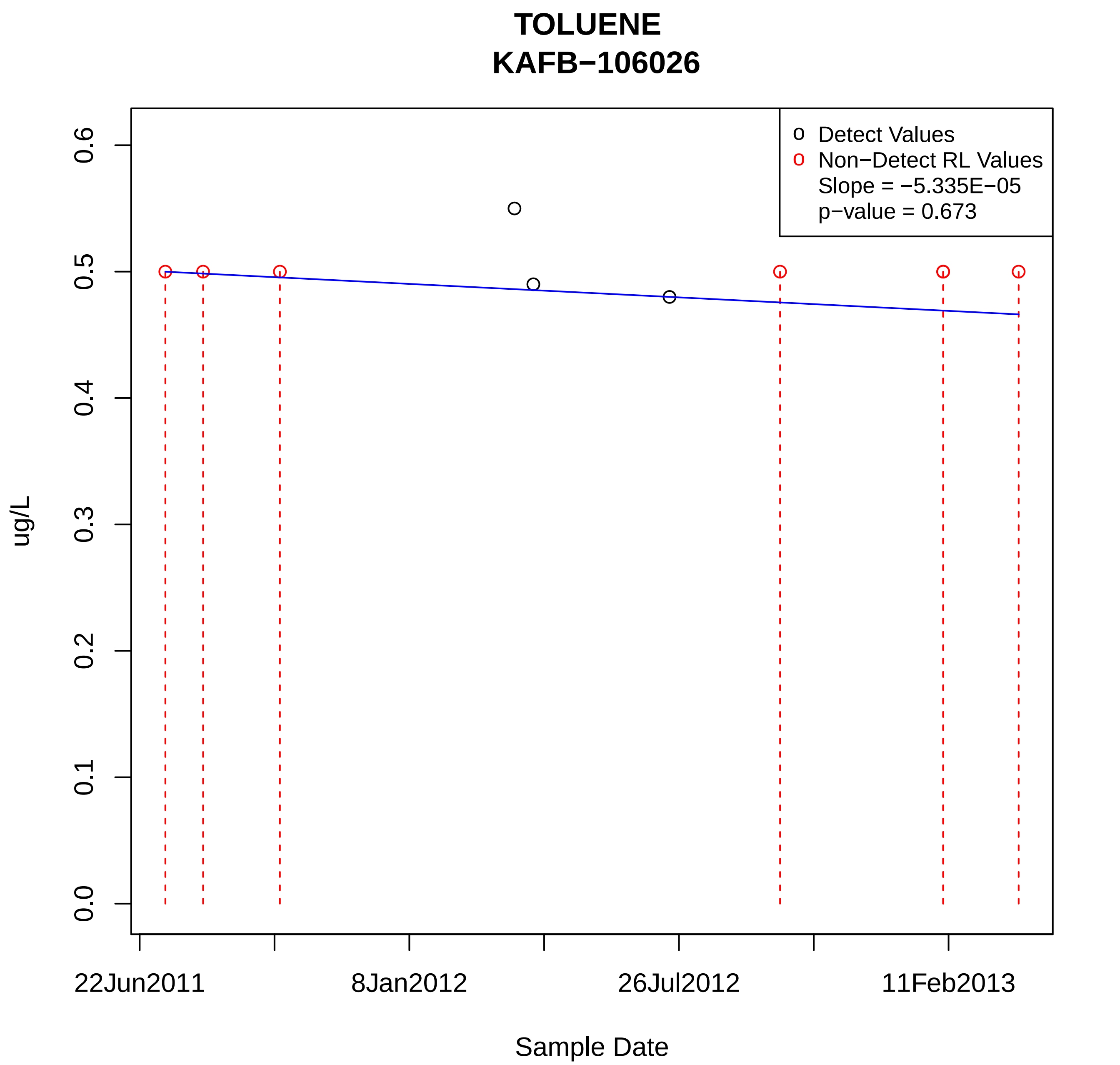

TOLUENE
KAFB−106021
Detect Values
Non−Detect RL Values
1.5
1.0
0.5
0.0
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


TOLUENE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −6.976E−02
p−value = 0.286
ug/L
0
5
10
15
20
25
30
30Sep2011
17Apr2012
3Nov2012
Sample Date

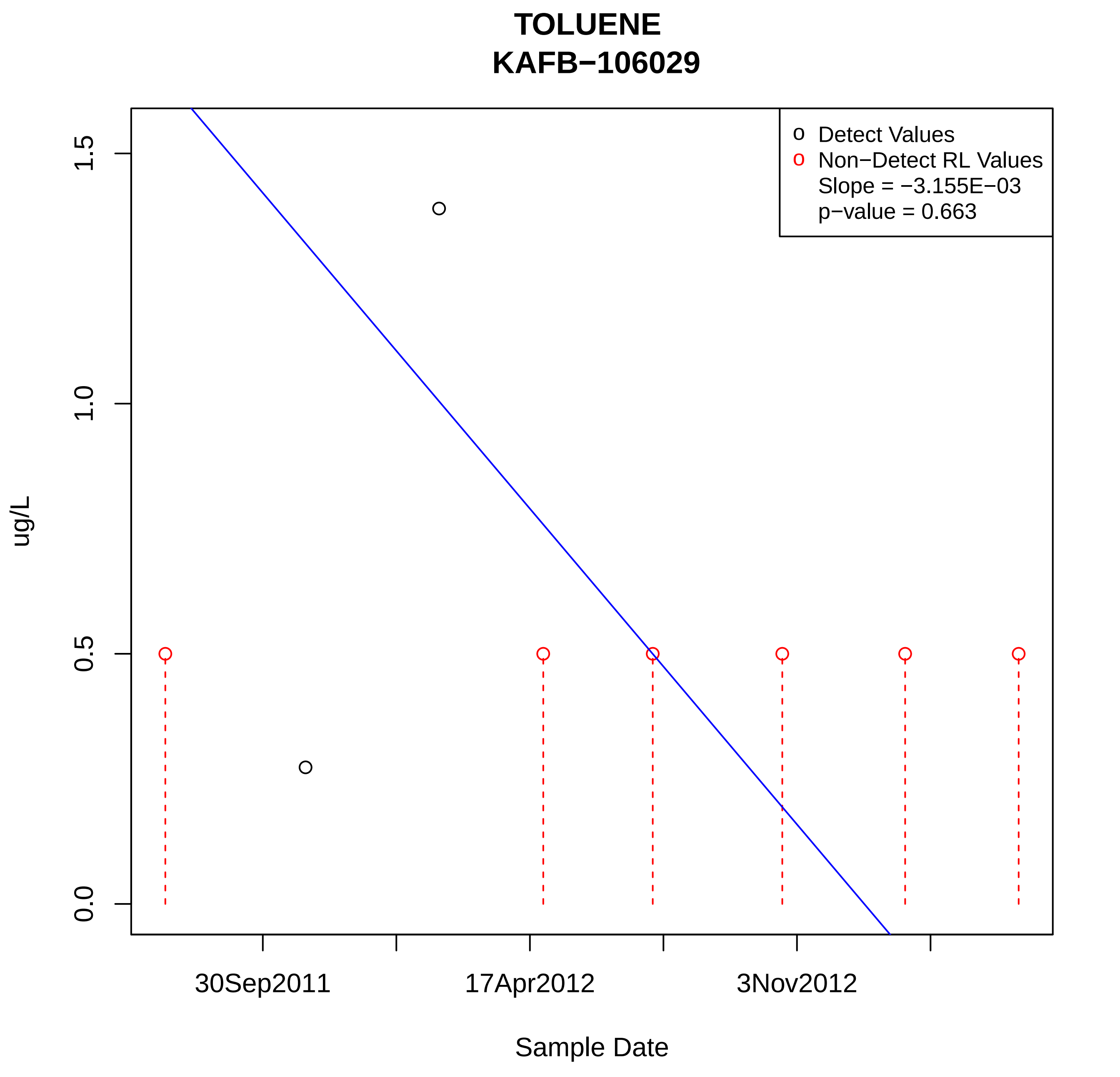

TOLUENE
KAFB−106024
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

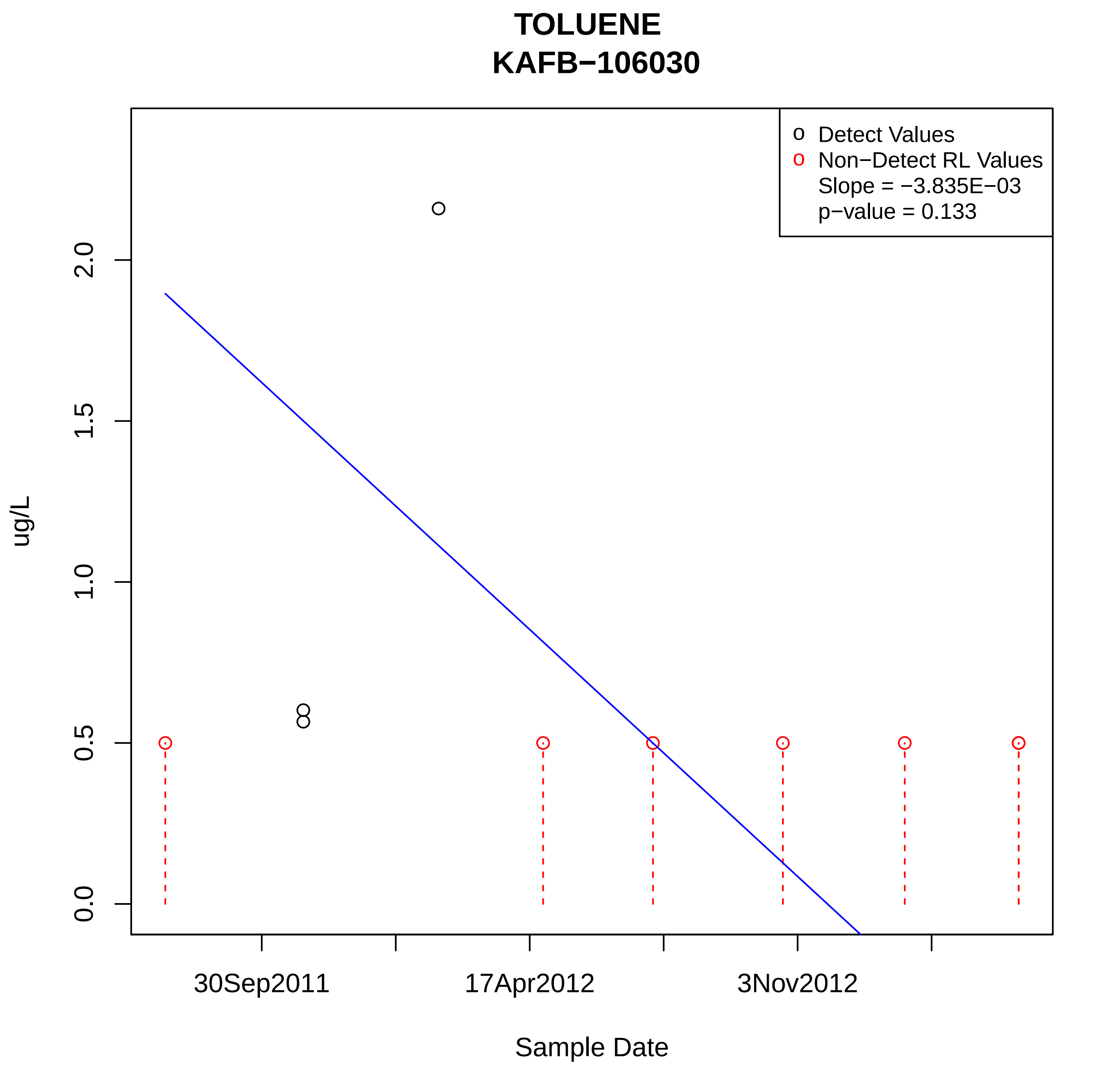


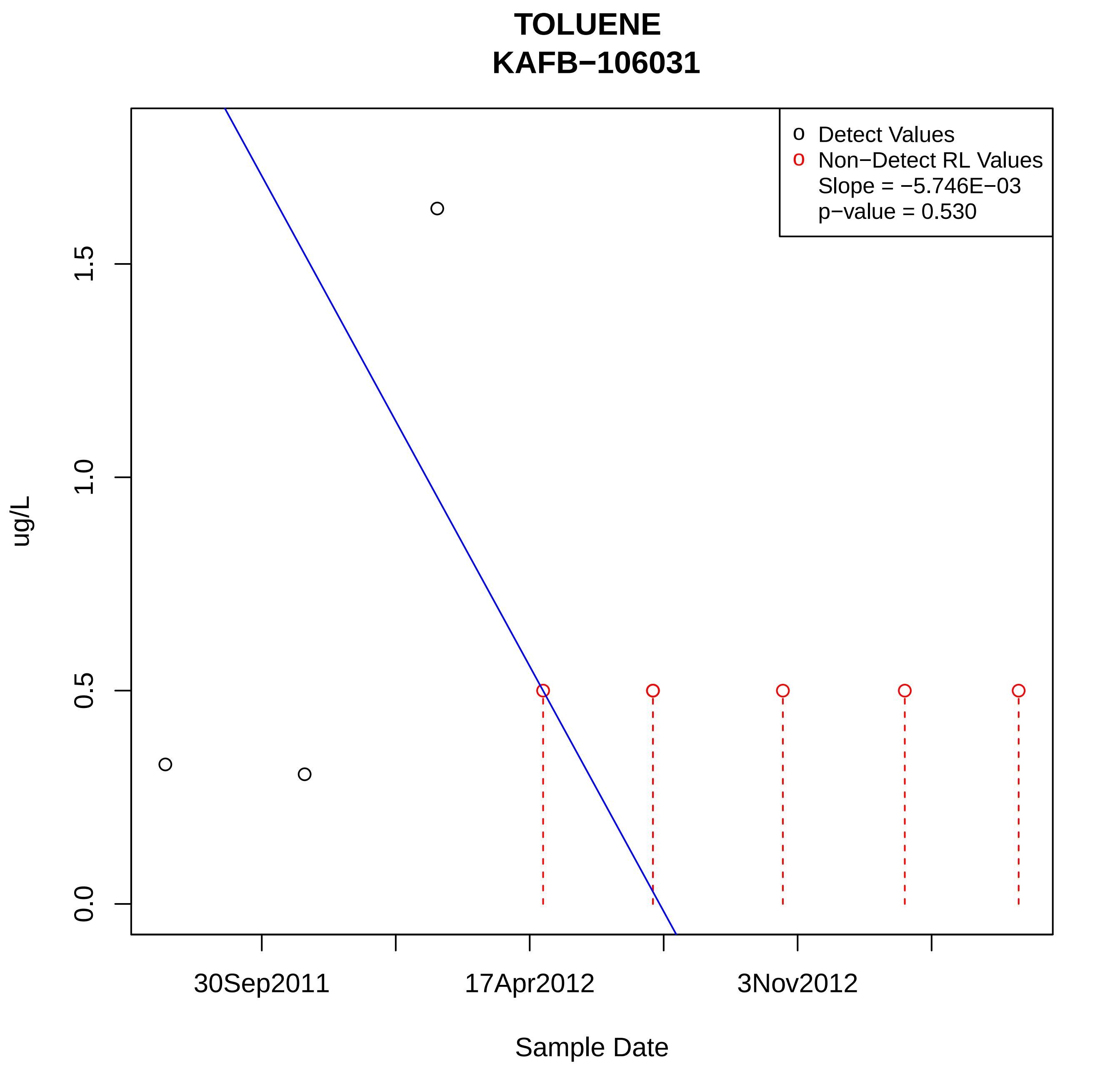
TOLUENE
KAFB−106025
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.311E−04
p−value = 1.000



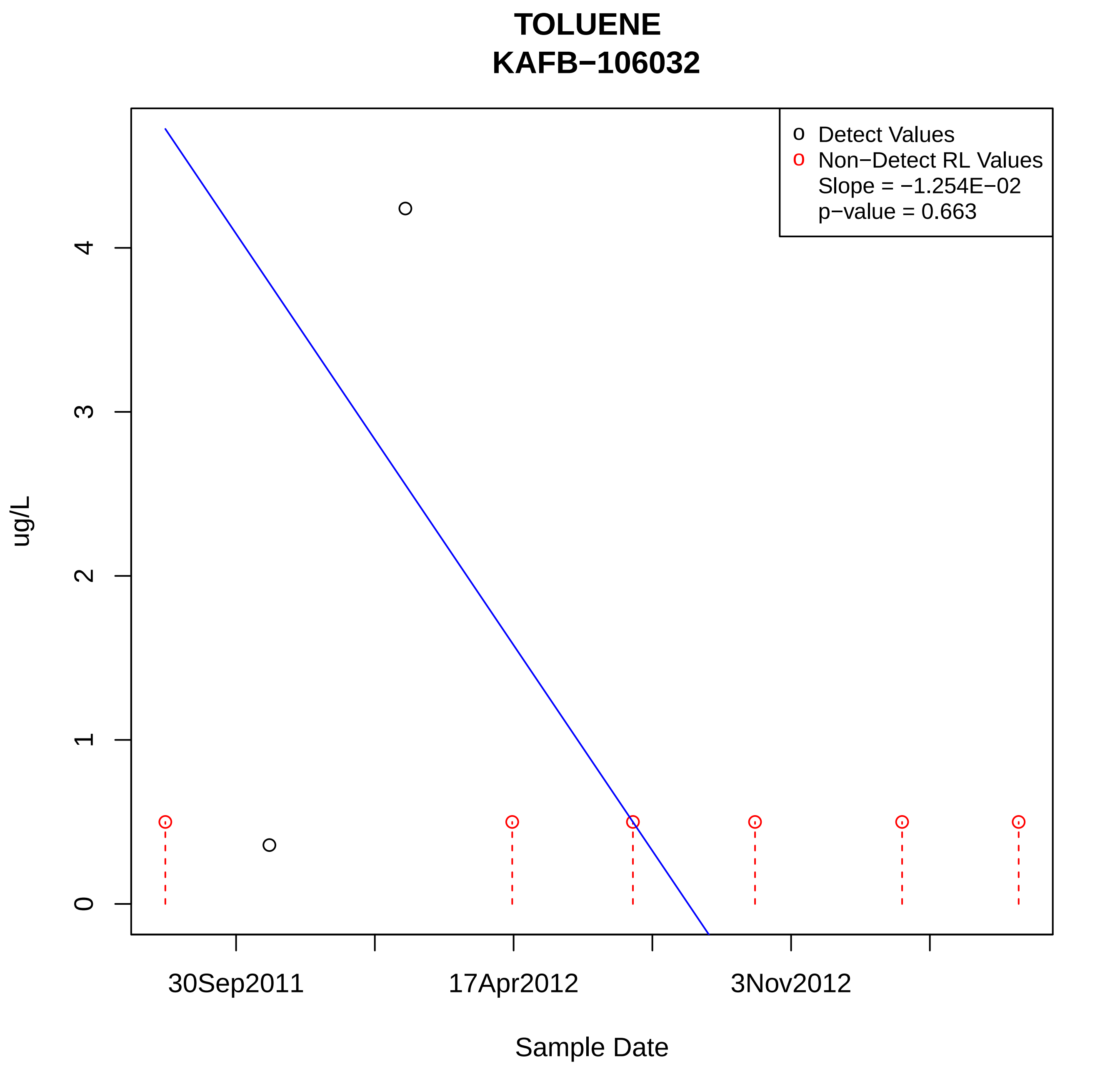
TOLUENE
KAFB−106026
Detect Values
Non−Detect RL Values
Slope = −5.335E−05
p−value = 0.673
0.0
0.1
0.2
0.3
0.4
0.5
0.6
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


TOLUENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
Slope = −3.155E−03
p−value = 0.663
ug/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

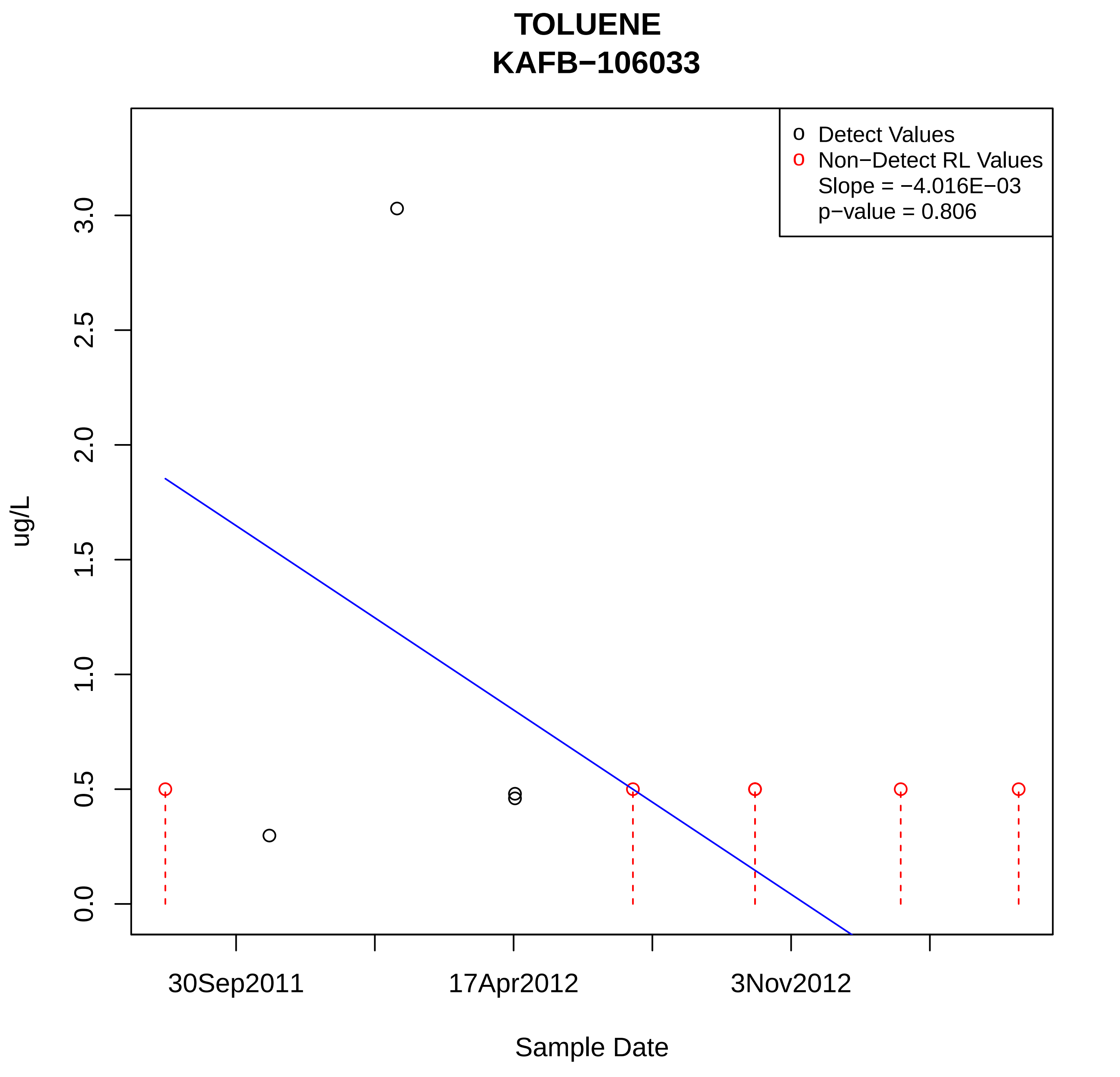

TOLUENE
KAFB−106030
Detect Values
Non−Detect RL Values
Slope = −3.835E−03
p−value = 0.133
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

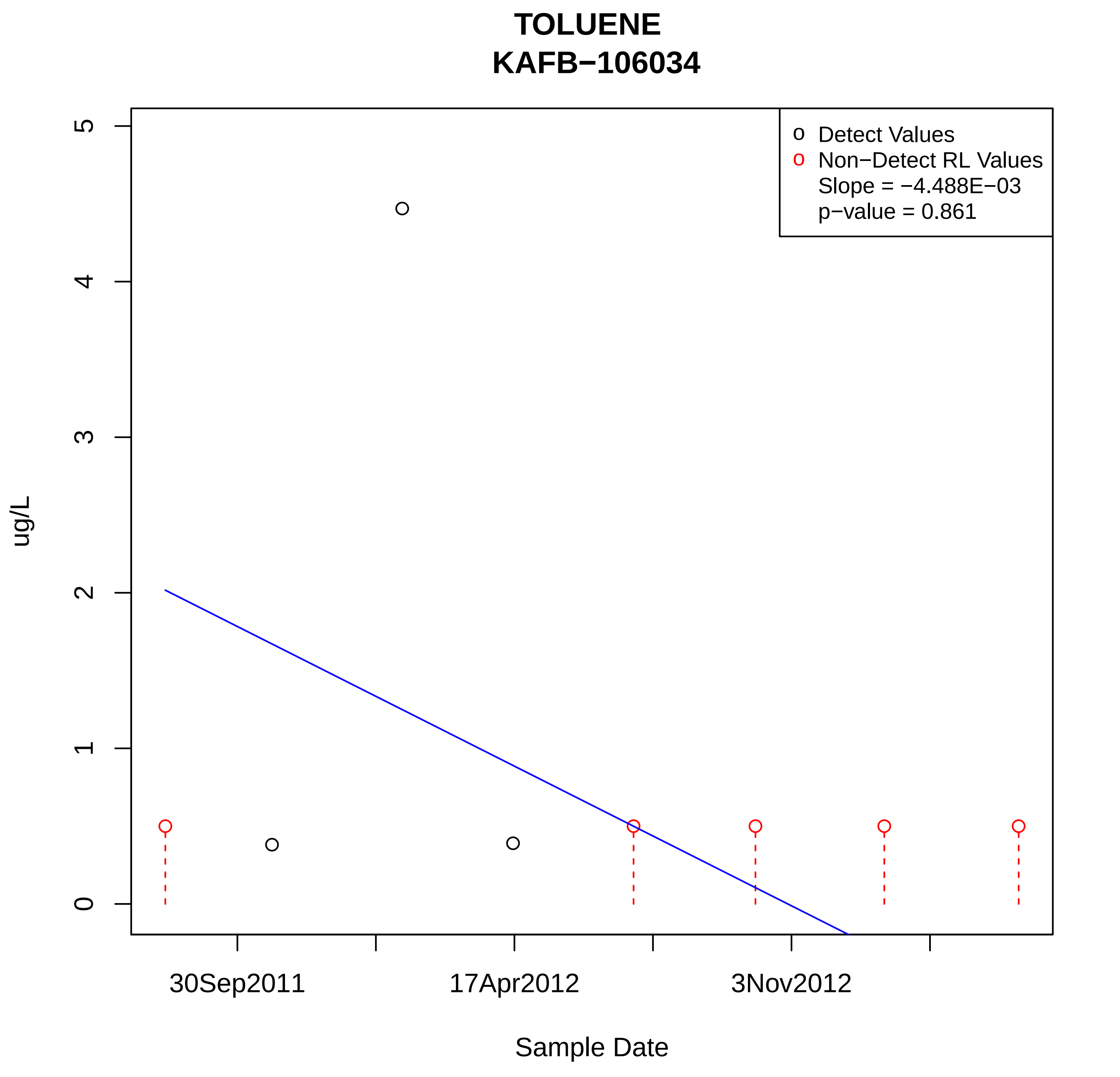


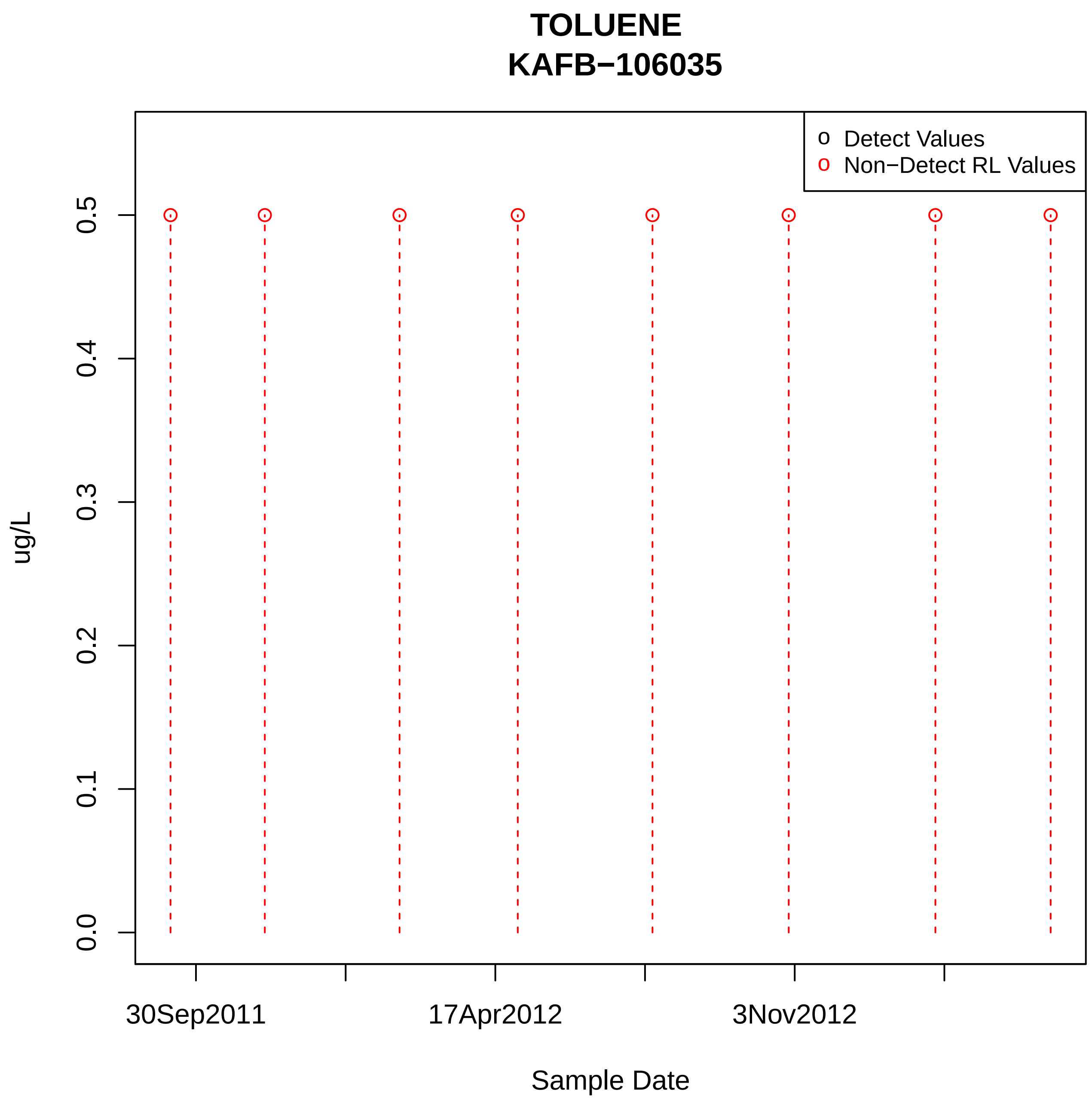
TOLUENE
KAFB−106031
o Detect Values
o Non−Detect RL Values
Slope = −5.746E−03
p−value = 0.530
ug/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

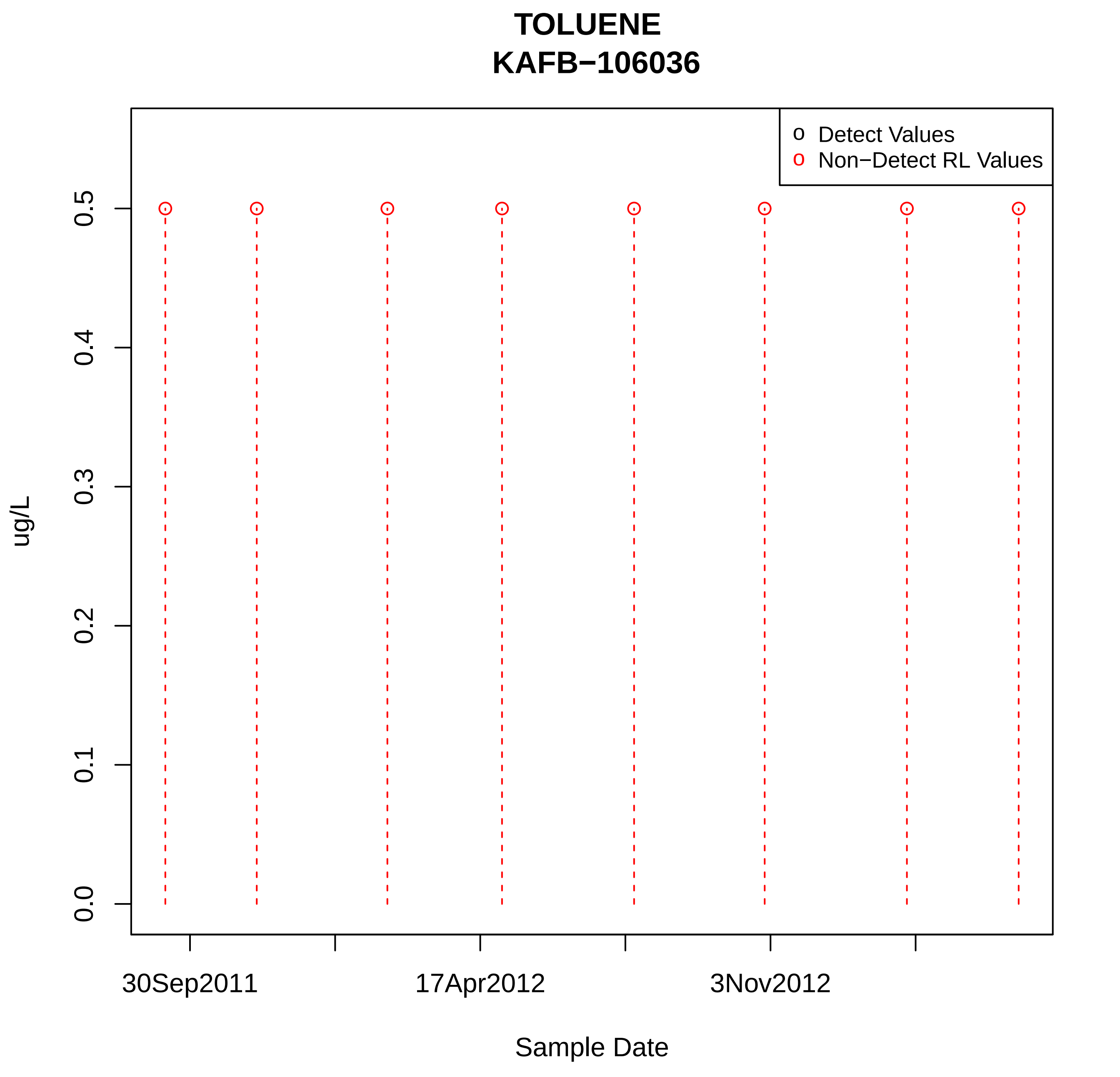


TOLUENE
KAFB−106032
Detect Values
Non−Detect RL Values
Slope = −1.254E−02
p−value = 0.663
ug/L
0
1
2
3
4
30Sep2011
17Apr2012
3Nov2012
Sample Date

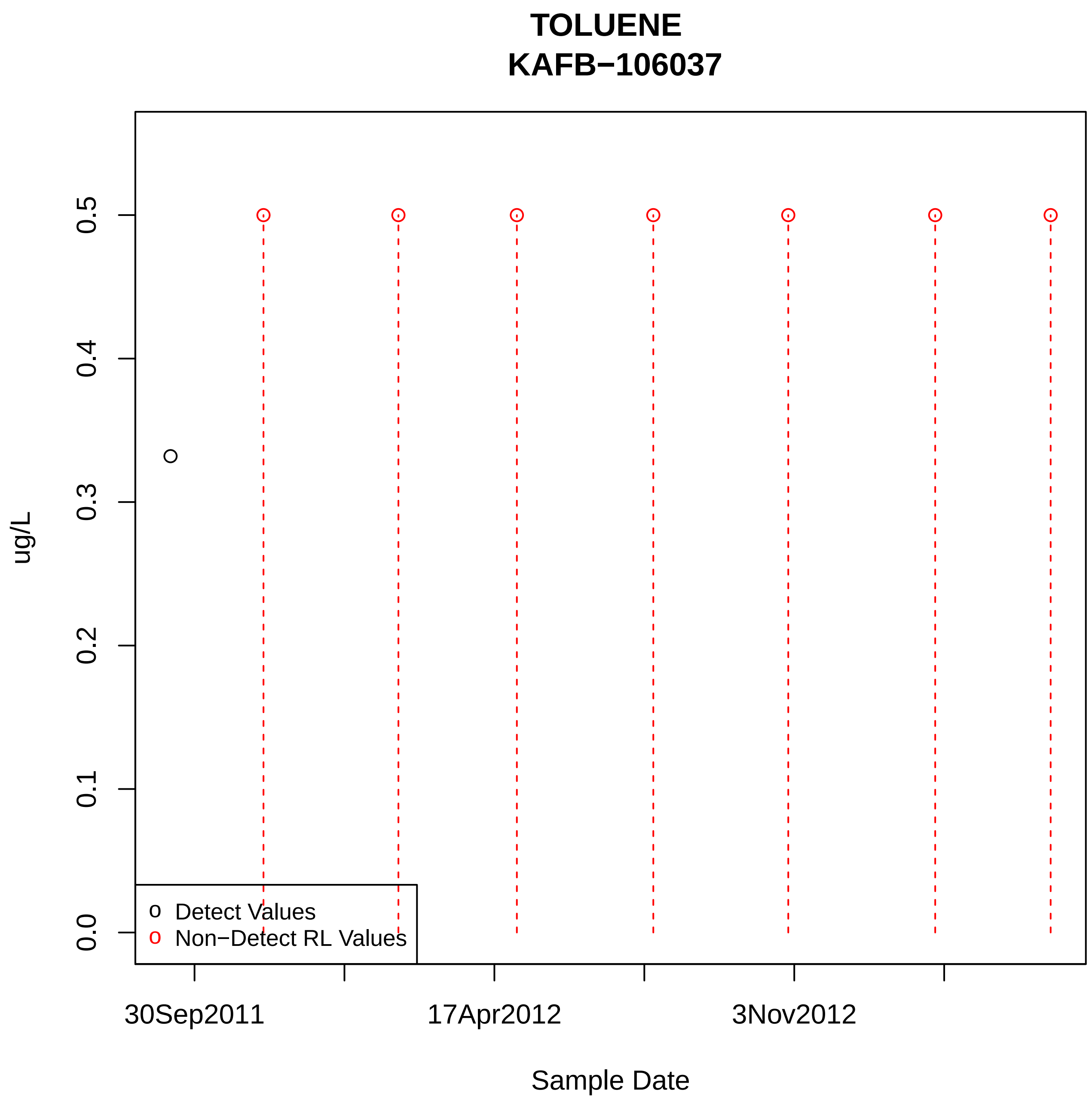

TOLUENE
KAFB−106033
o Detect Values
o Non−Detect RL Values
Slope = −4.016E−03
p−value = 0.806
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date


TOLUENE
KAFB−106034
Detect Values
Non−Detect RL Values
Slope = −4.488E−03
p−value = 0.861
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

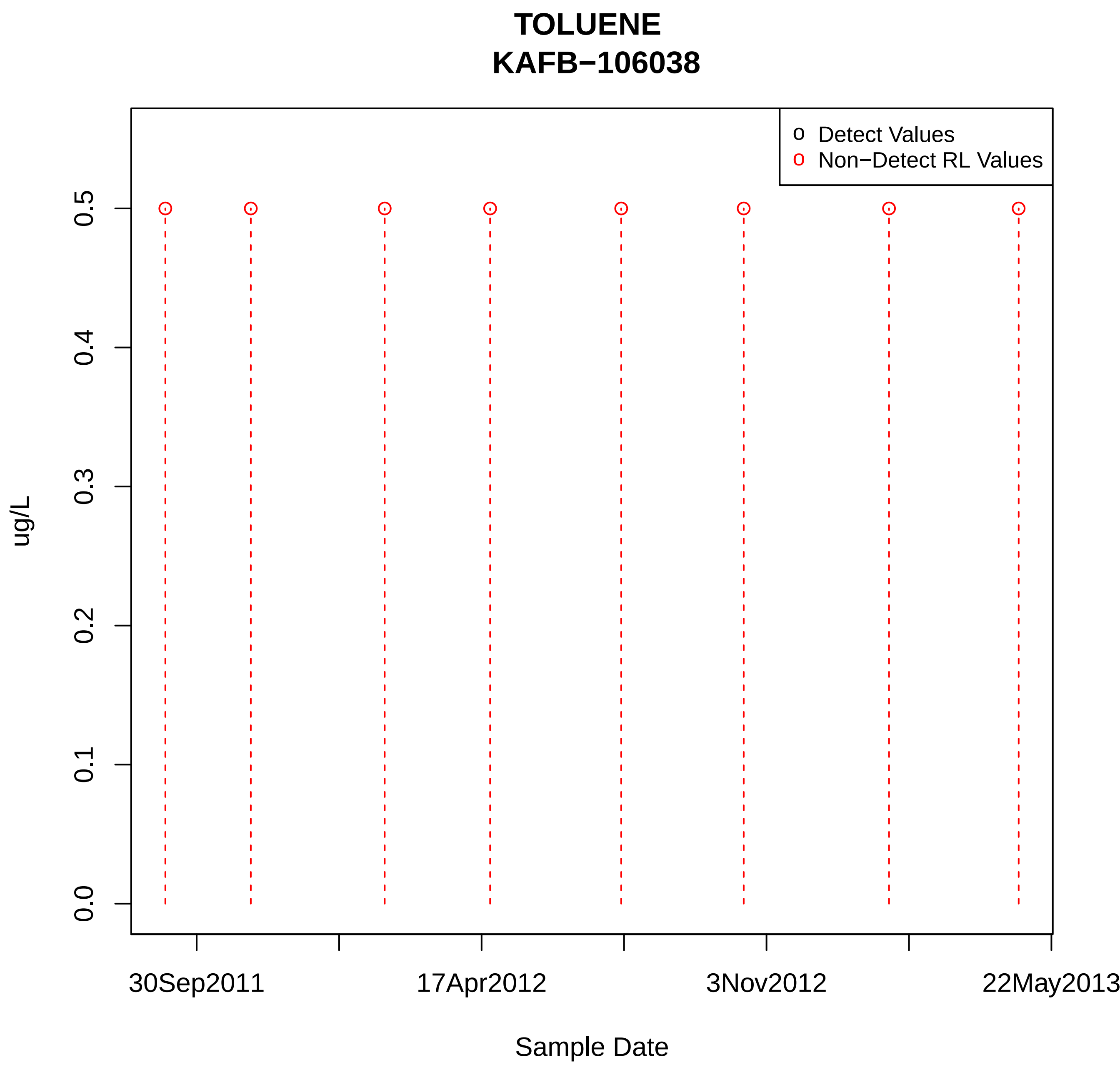

TOLUENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

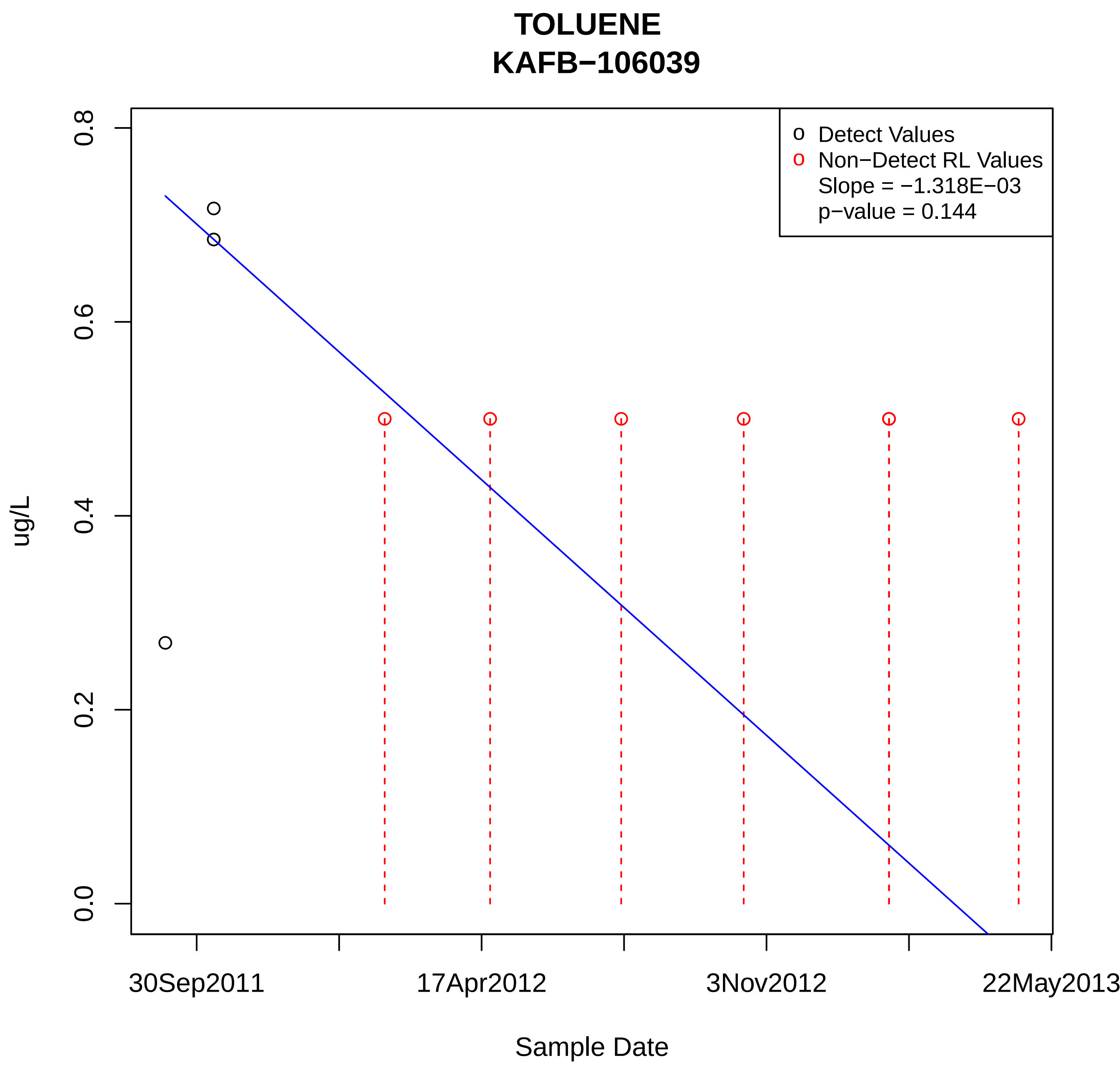


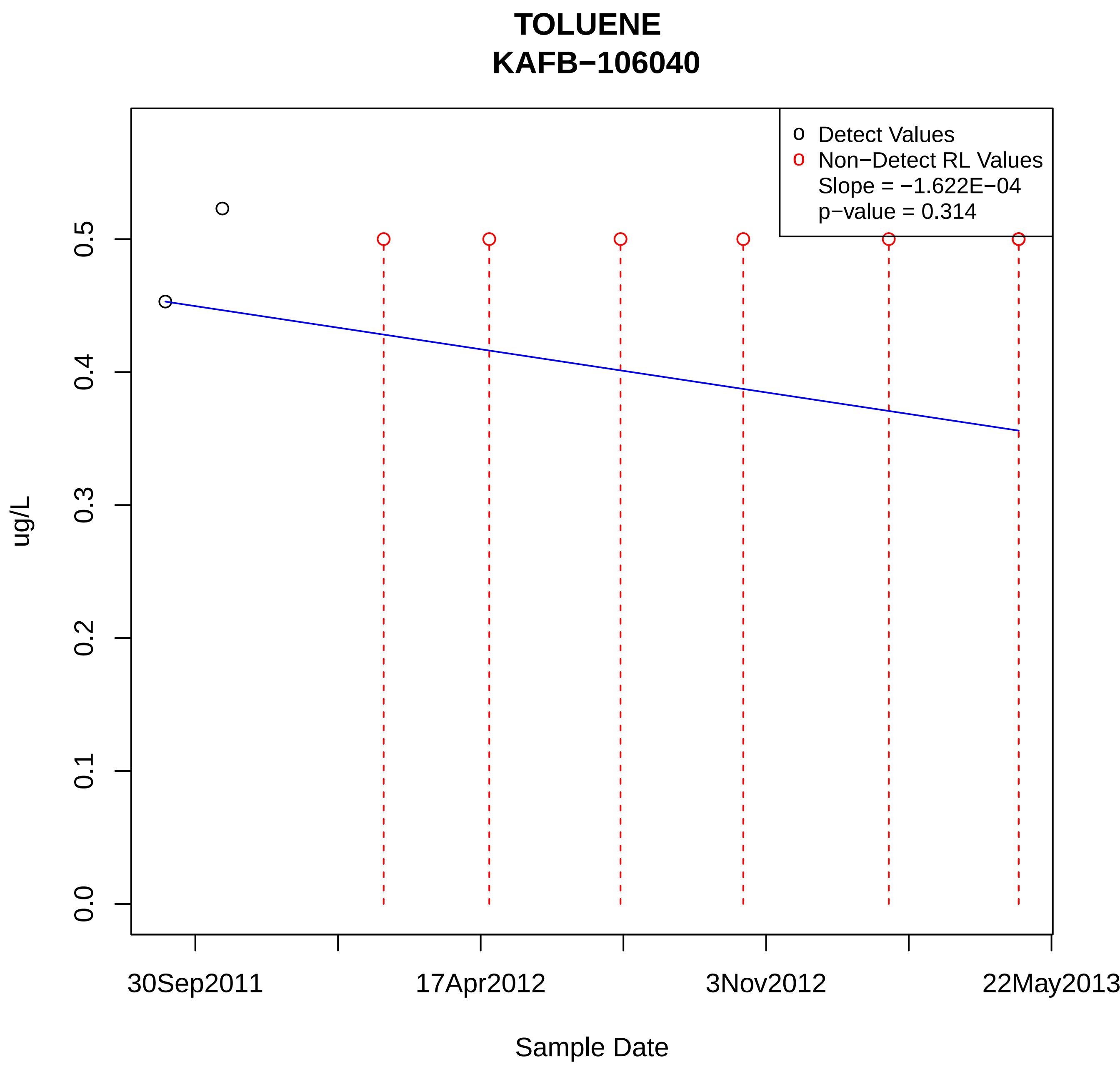
TOLUENE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



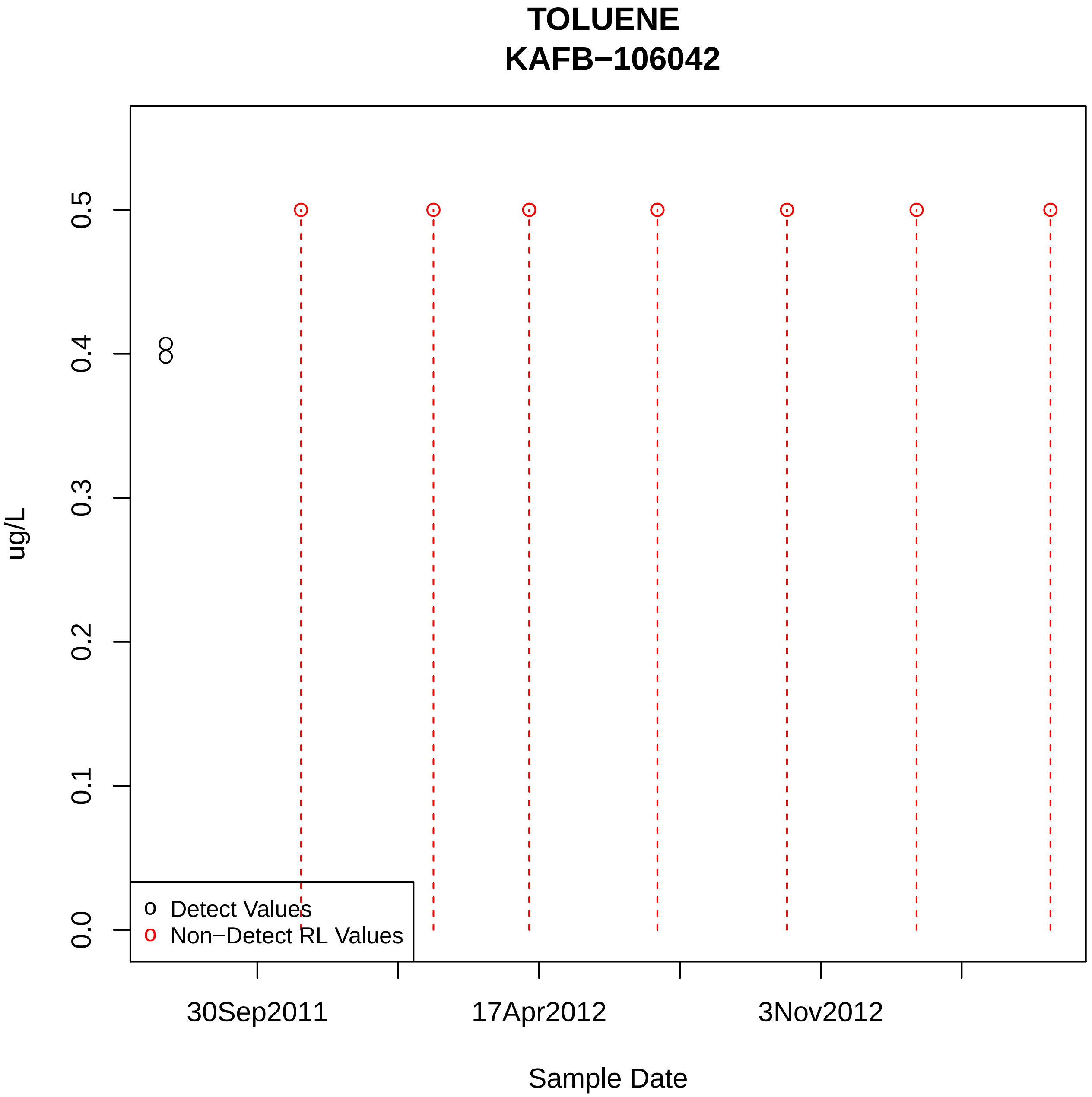
TOLUENE
KAFB−106037
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values


TOLUENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

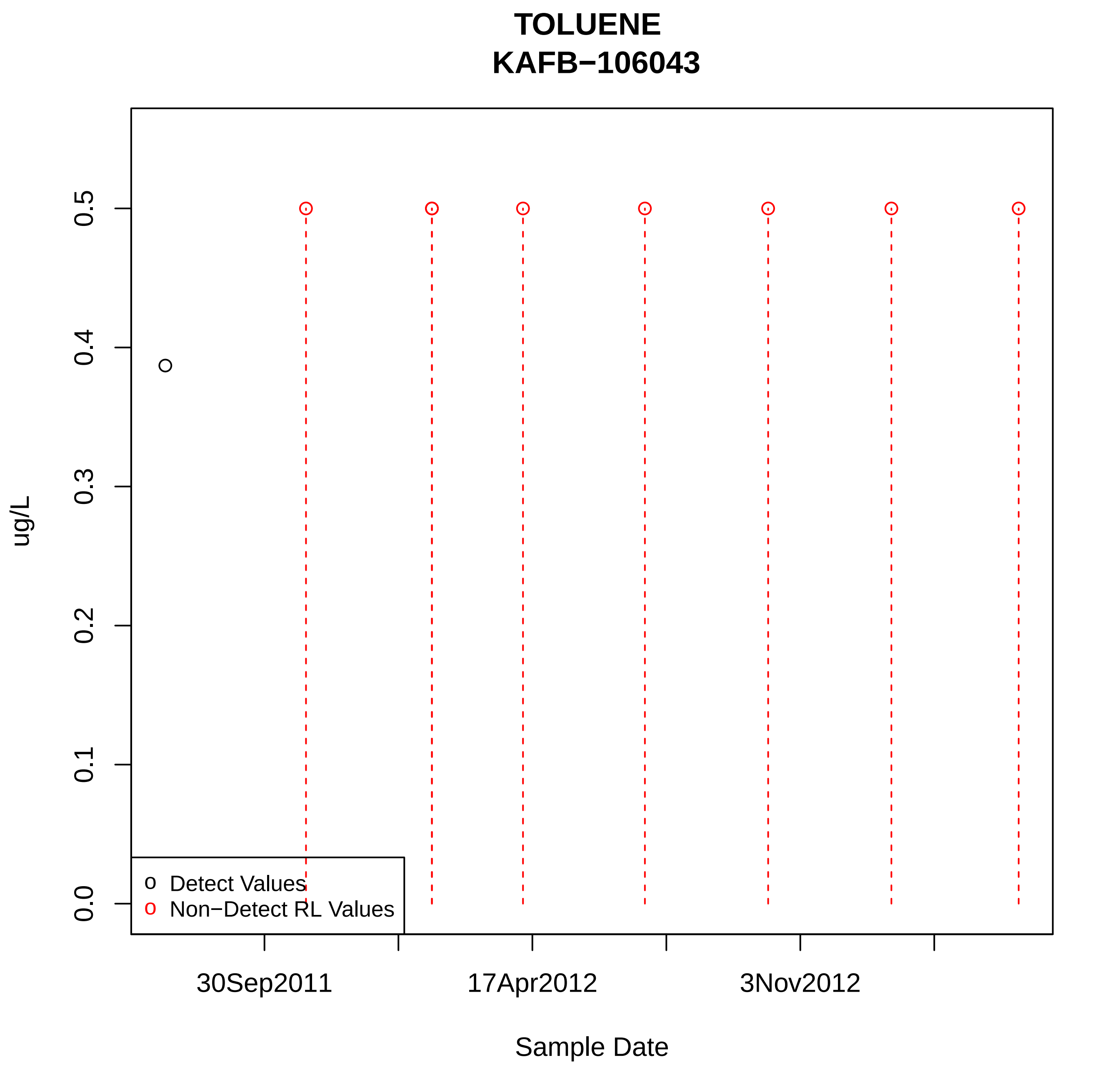

TOLUENE
KAFB−106039
Detect Values
Non−Detect RL Values
Slope = −1.318E−03
p−value = 0.144
0.0
0.2
0.4
0.6
0.8
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



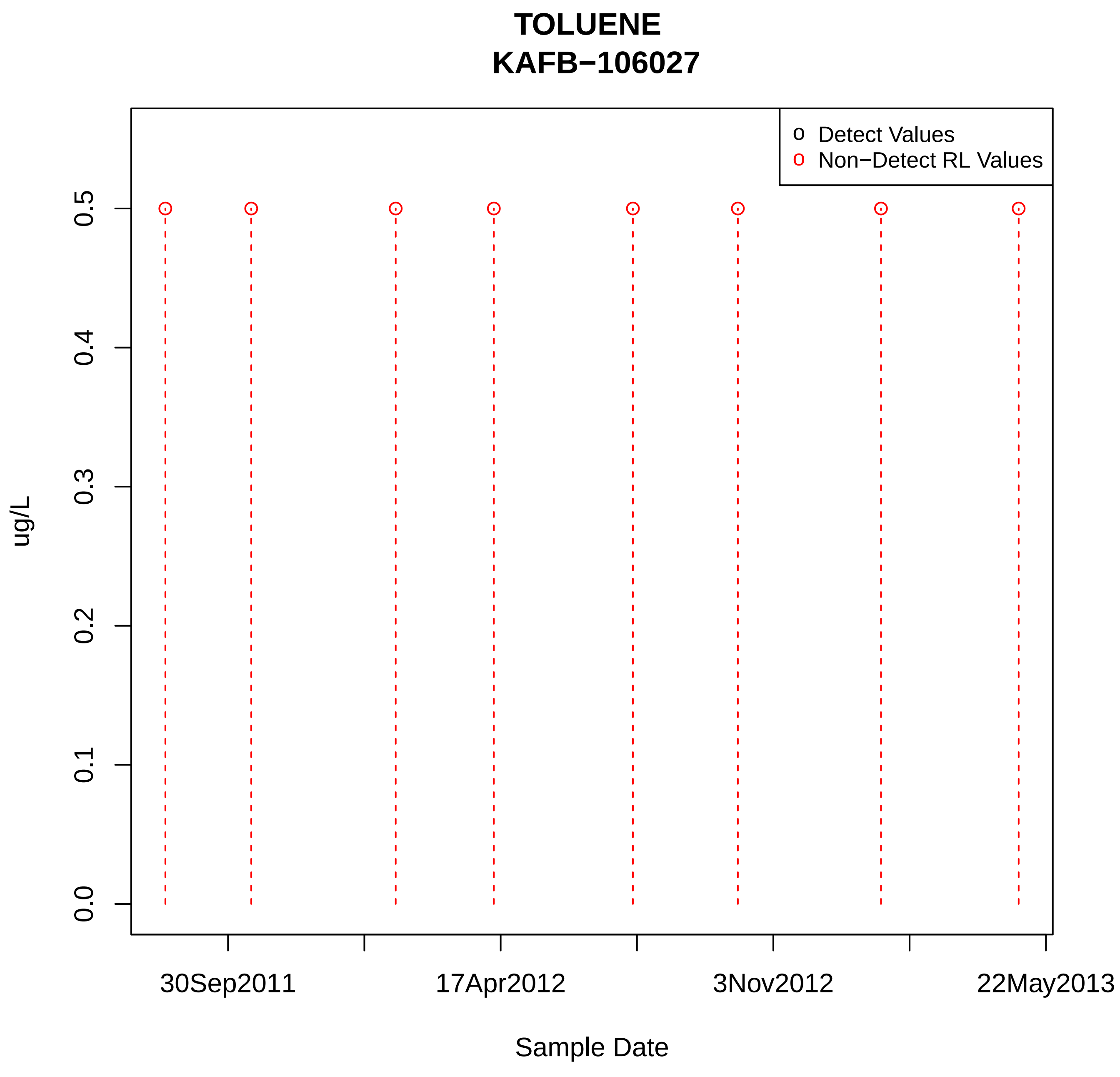
TOLUENE
KAFB−106040
Detect Values
Non−Detect RL Values
Slope = −1.622E−04
p−value = 0.314
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



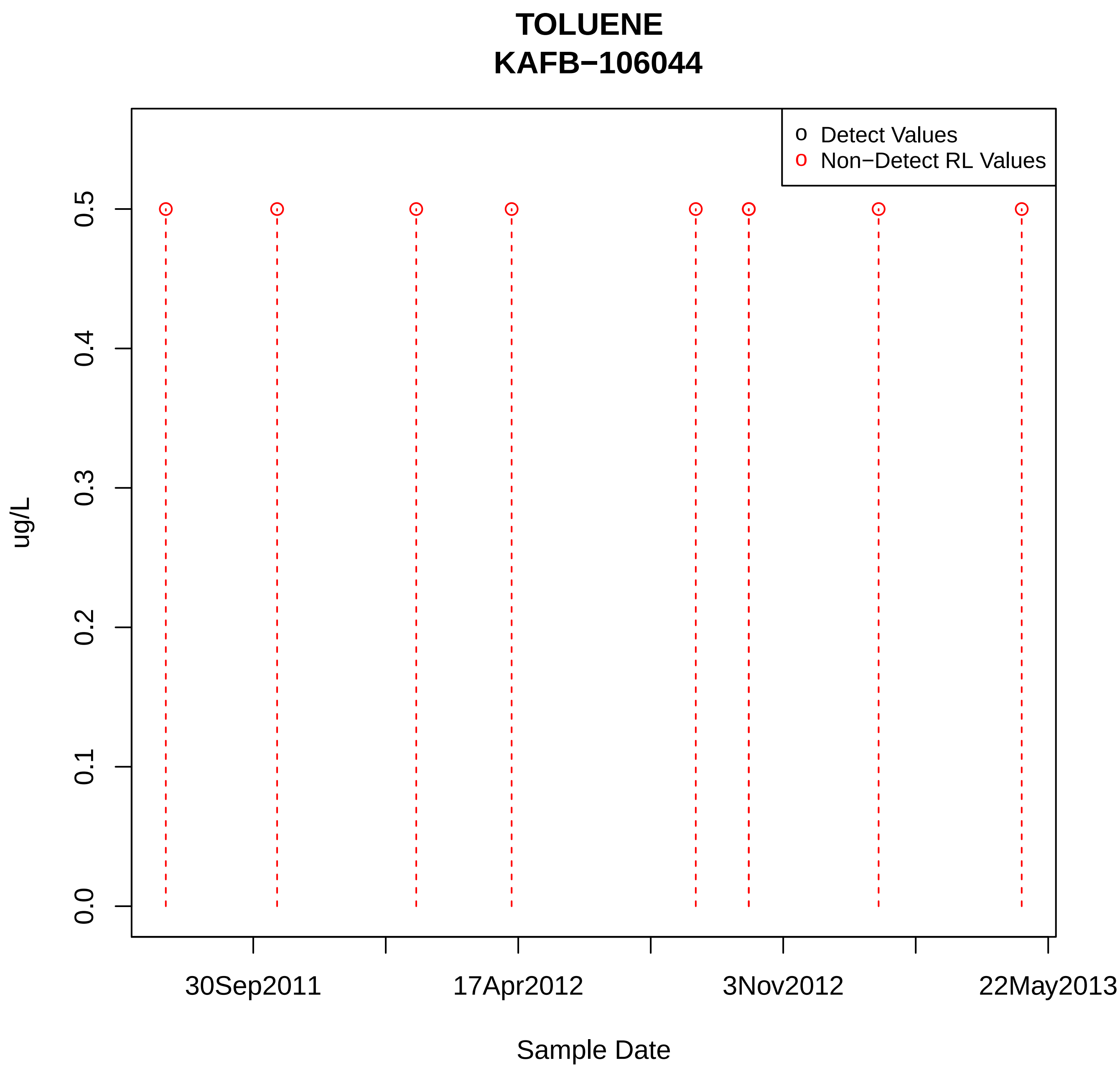
TOLUENE
KAFB−106042
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values



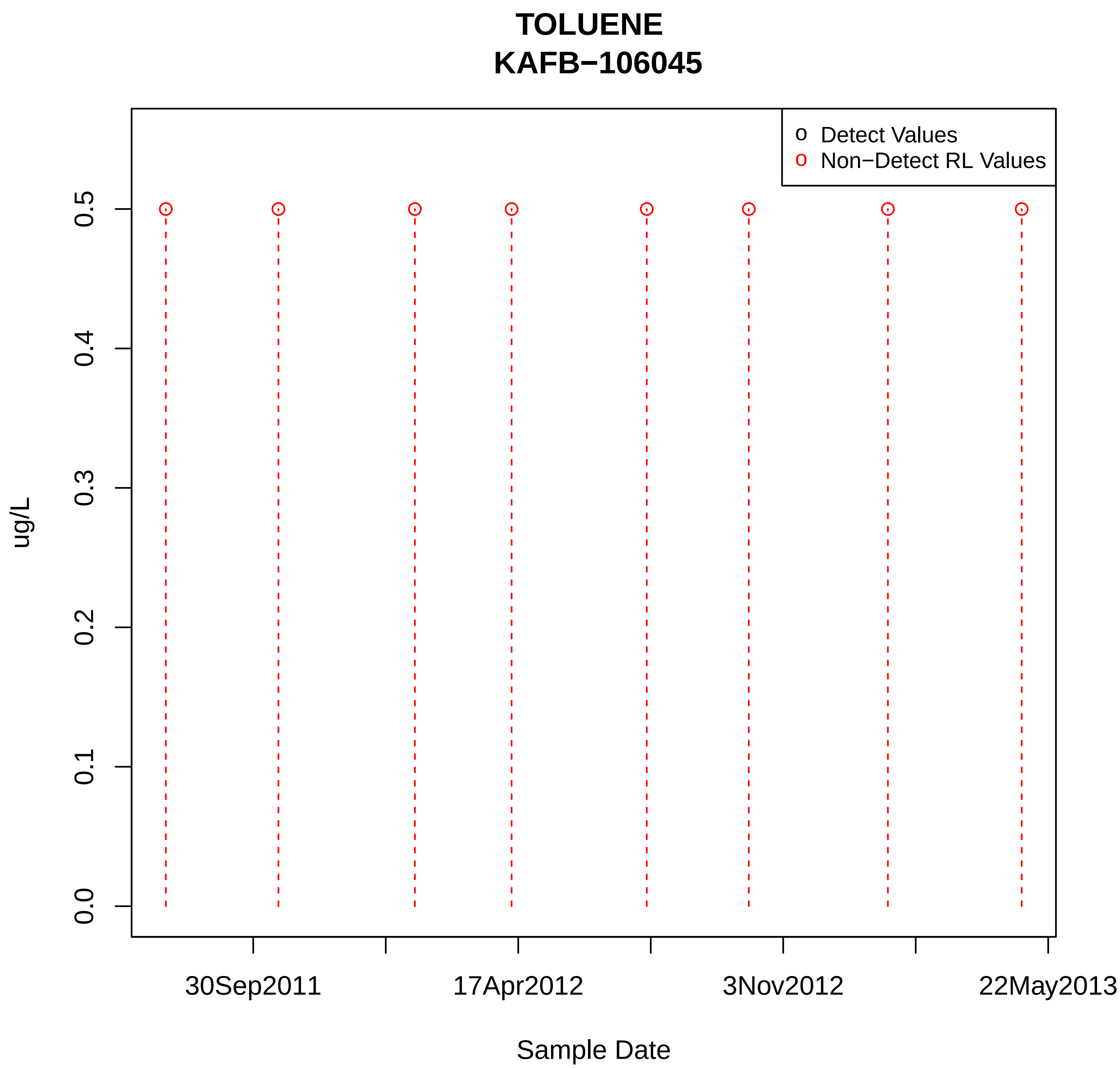
TOLUENE
KAFB−106043
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values



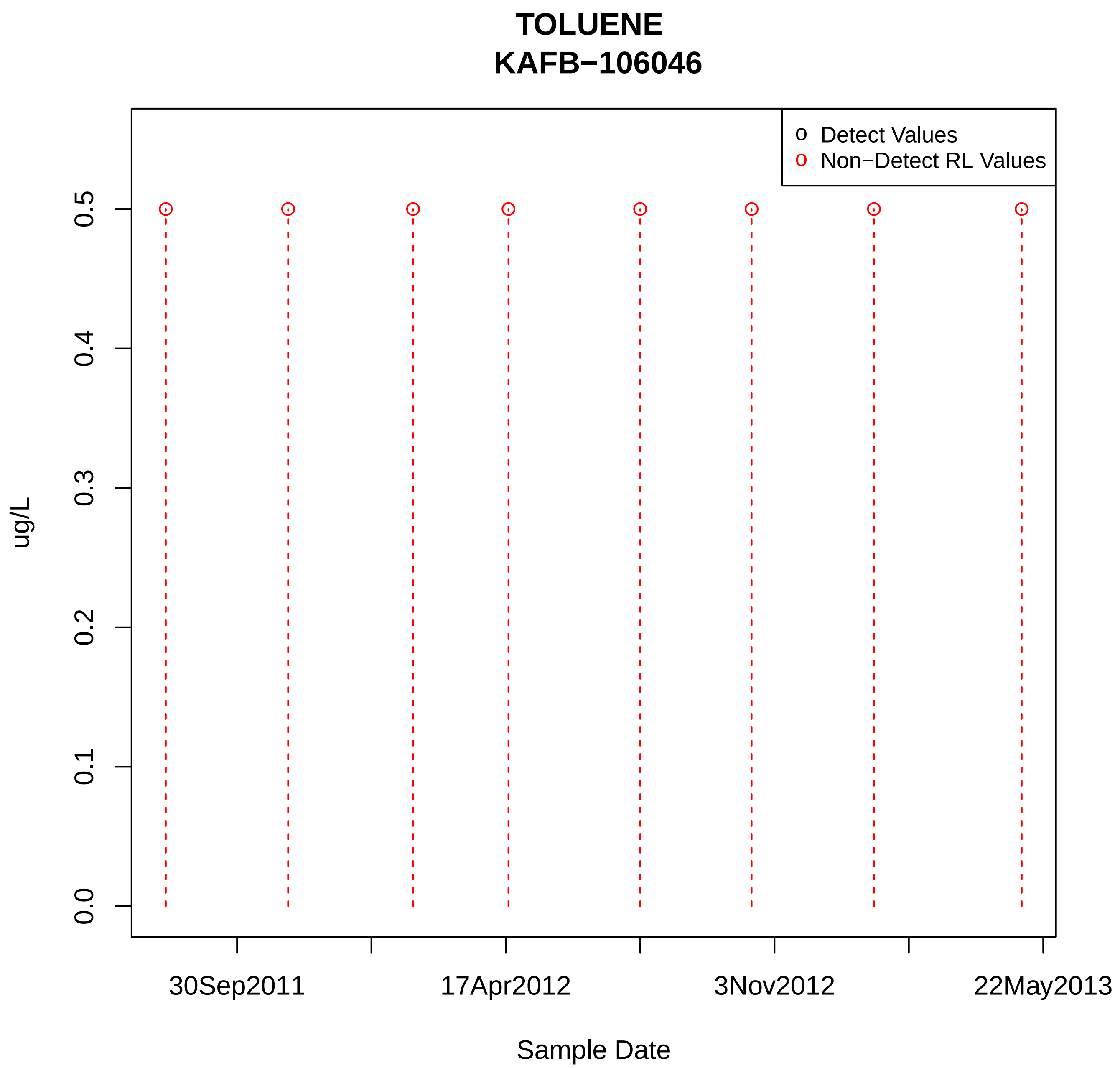
TOLUENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

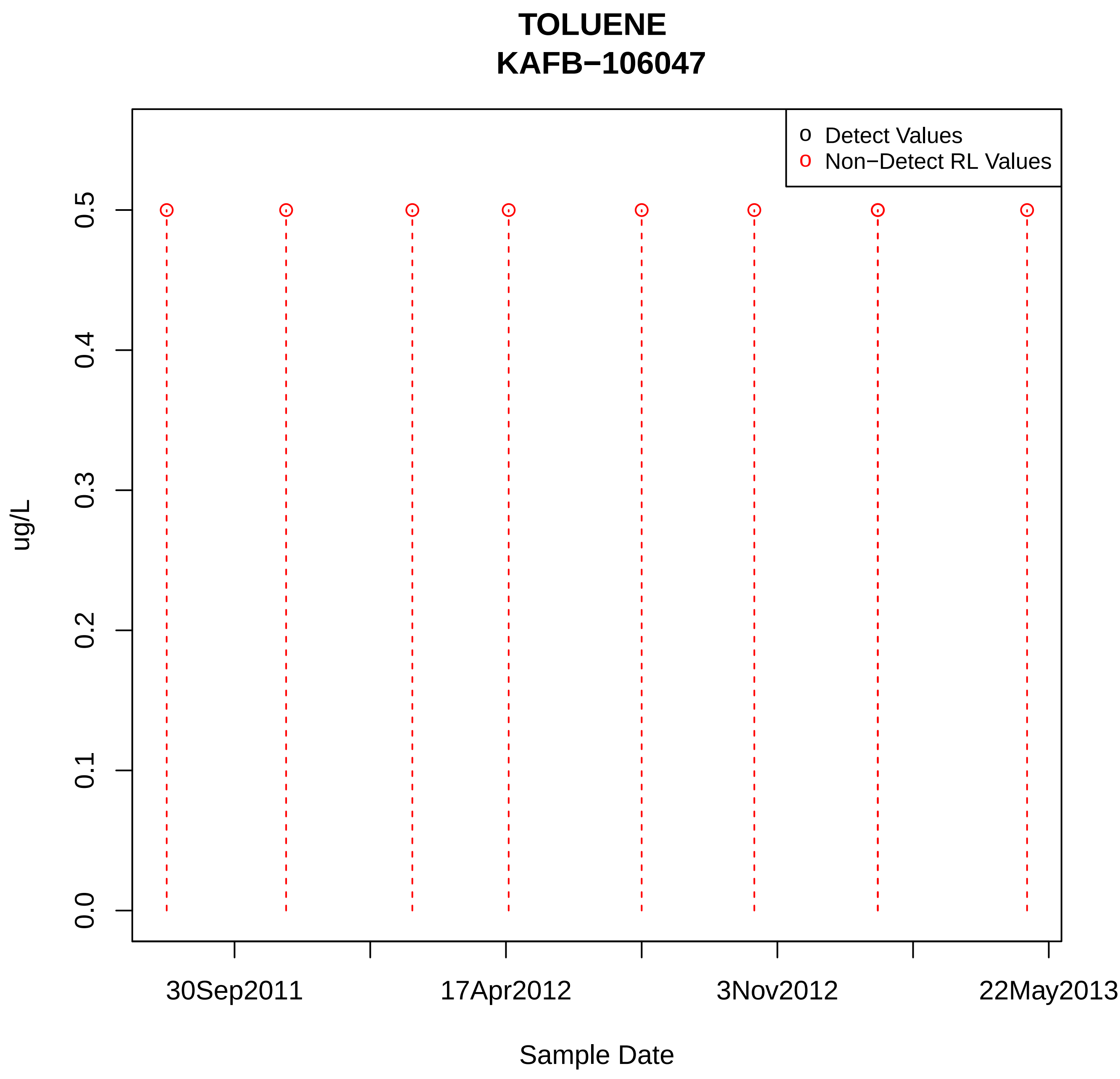


TOLUENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

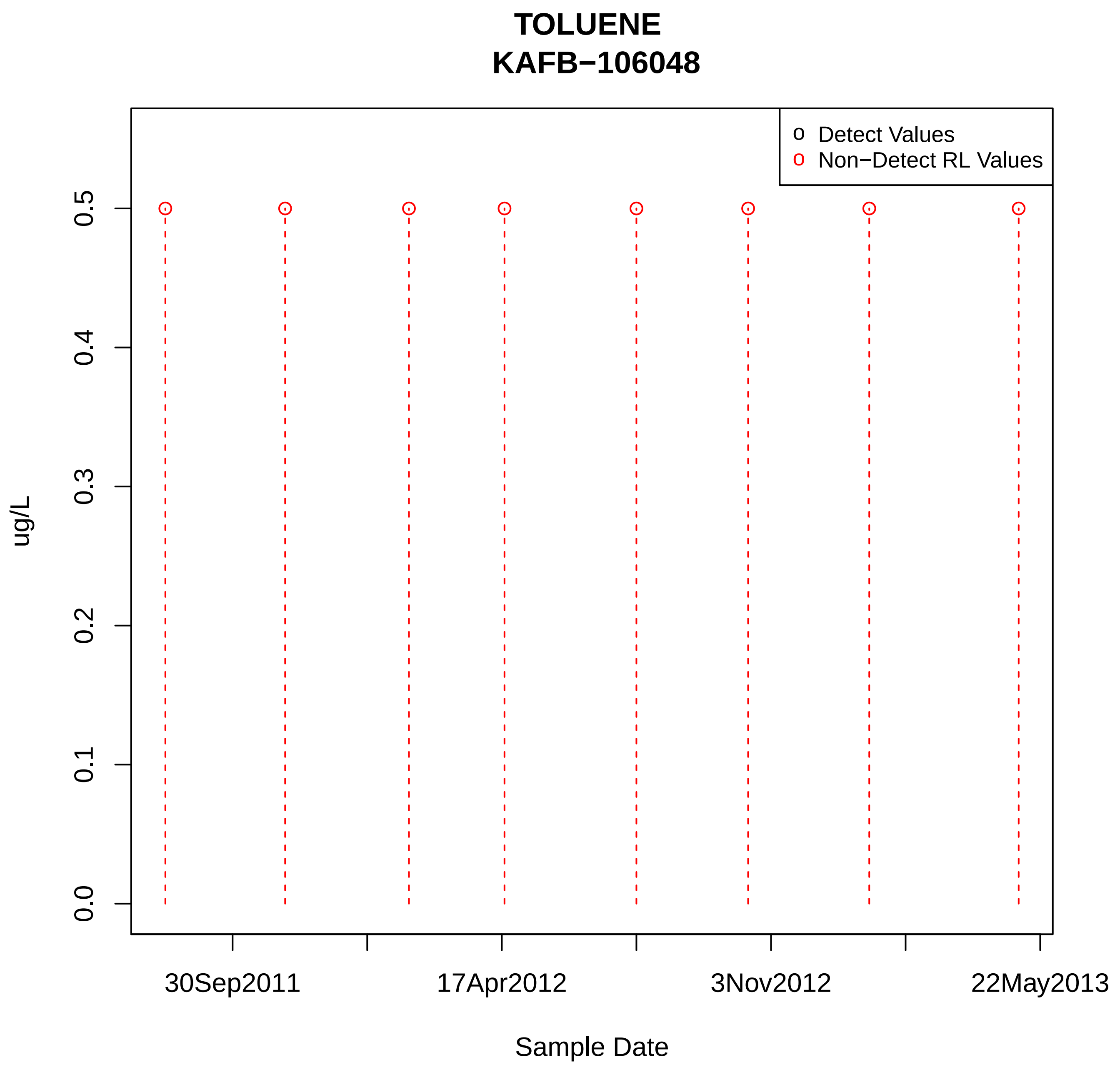


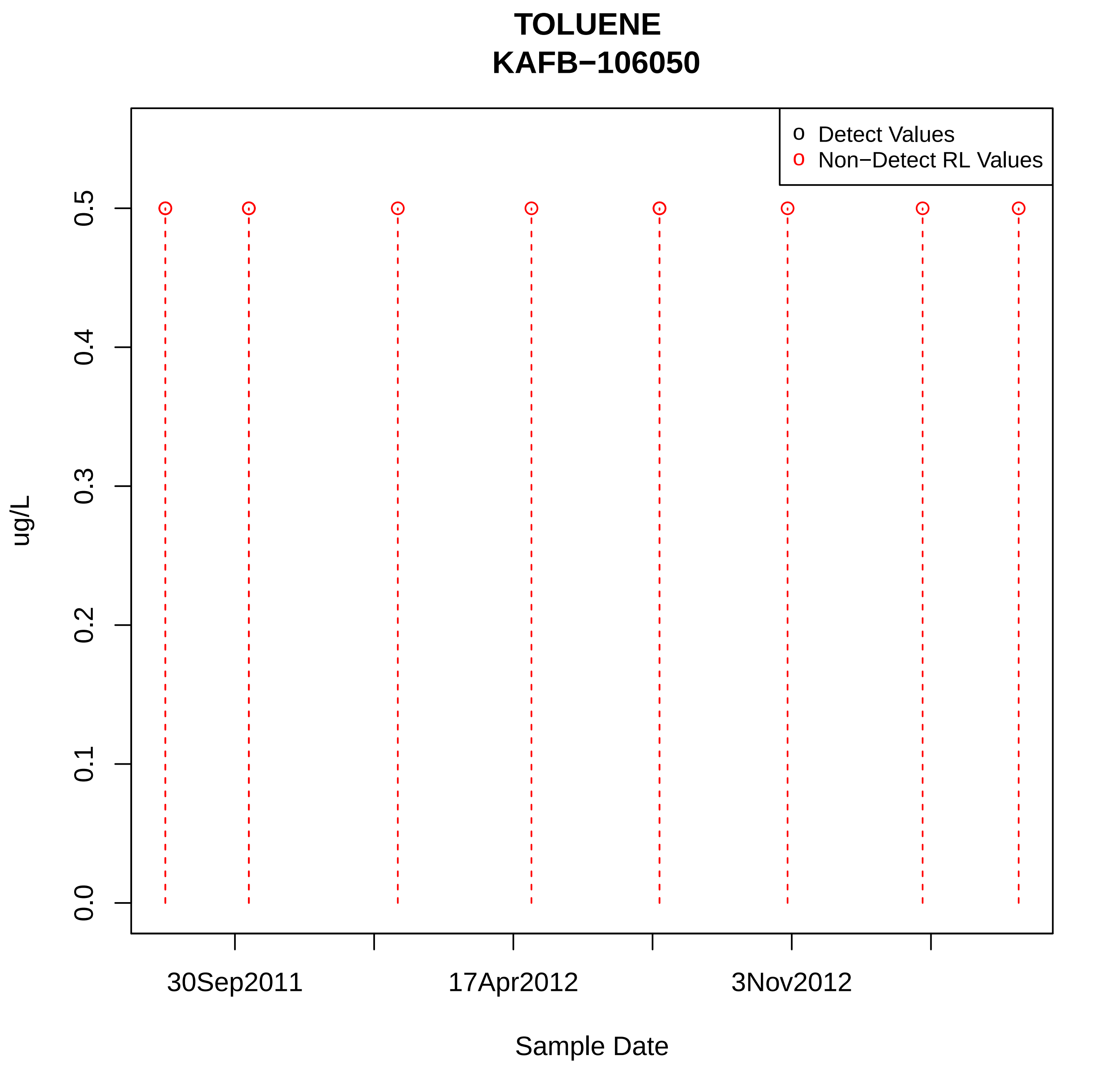
TOLUENE
KAFB−106045
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


TOLUENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

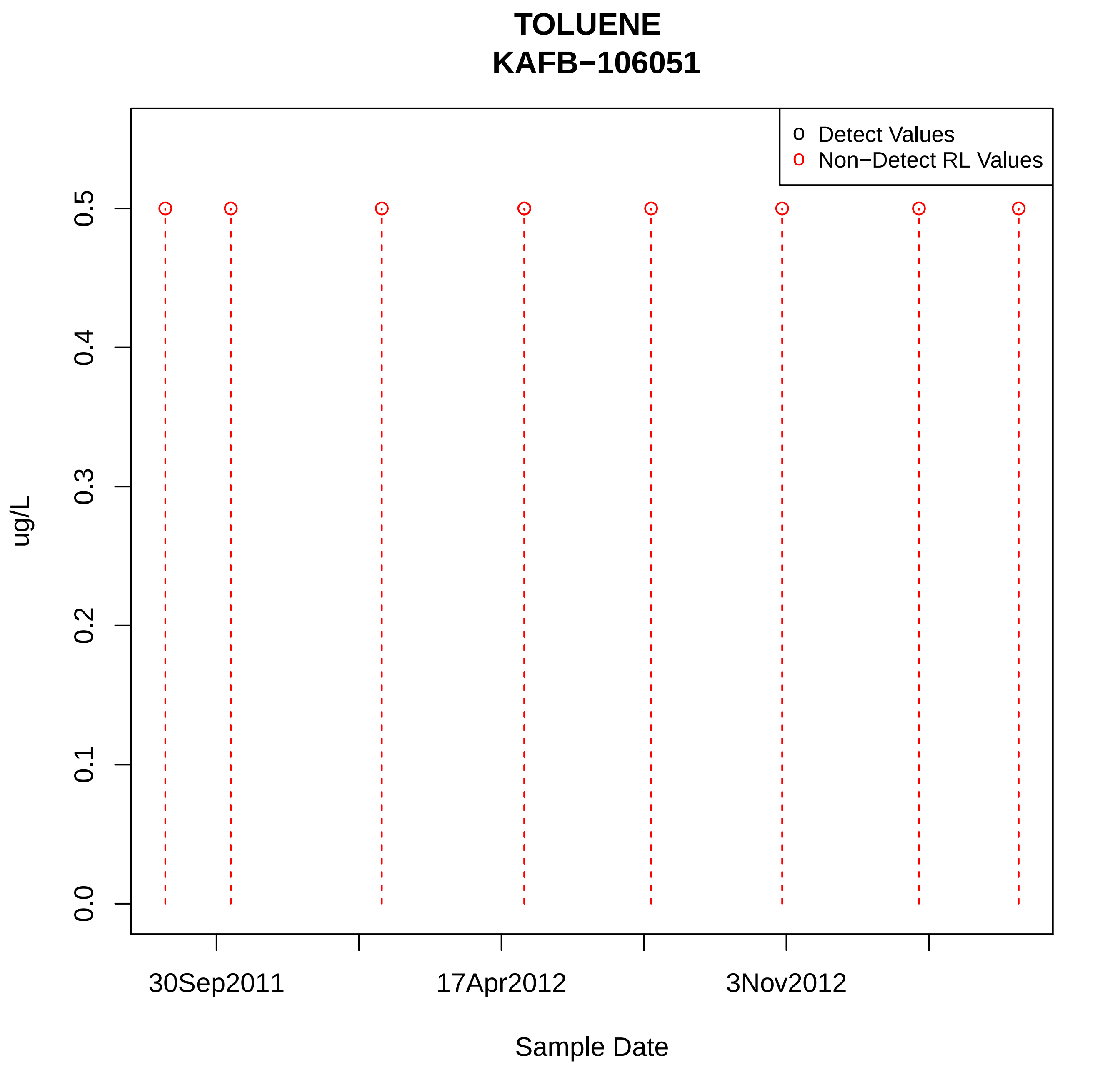


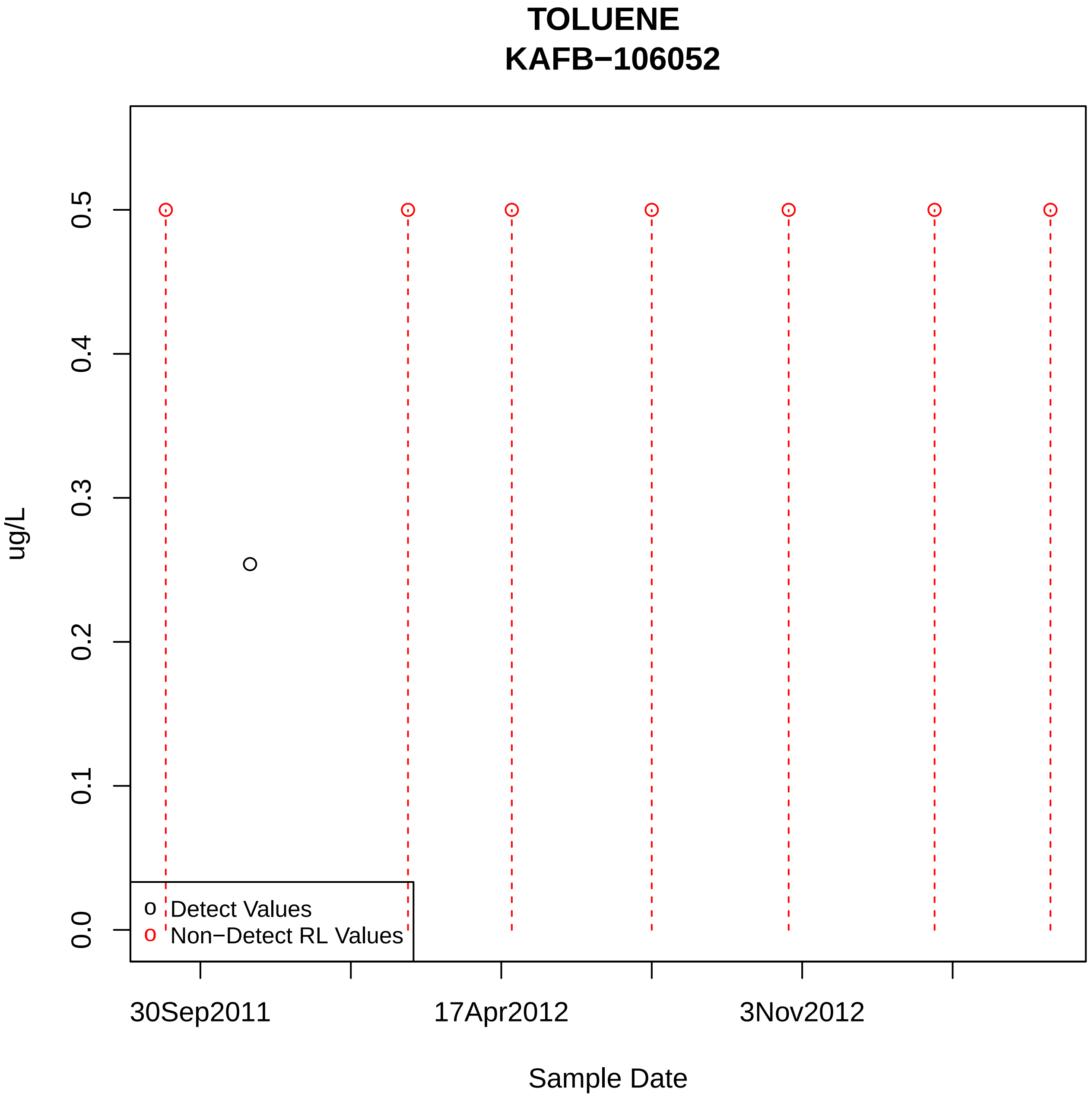
TOLUENE
KAFB−106047
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

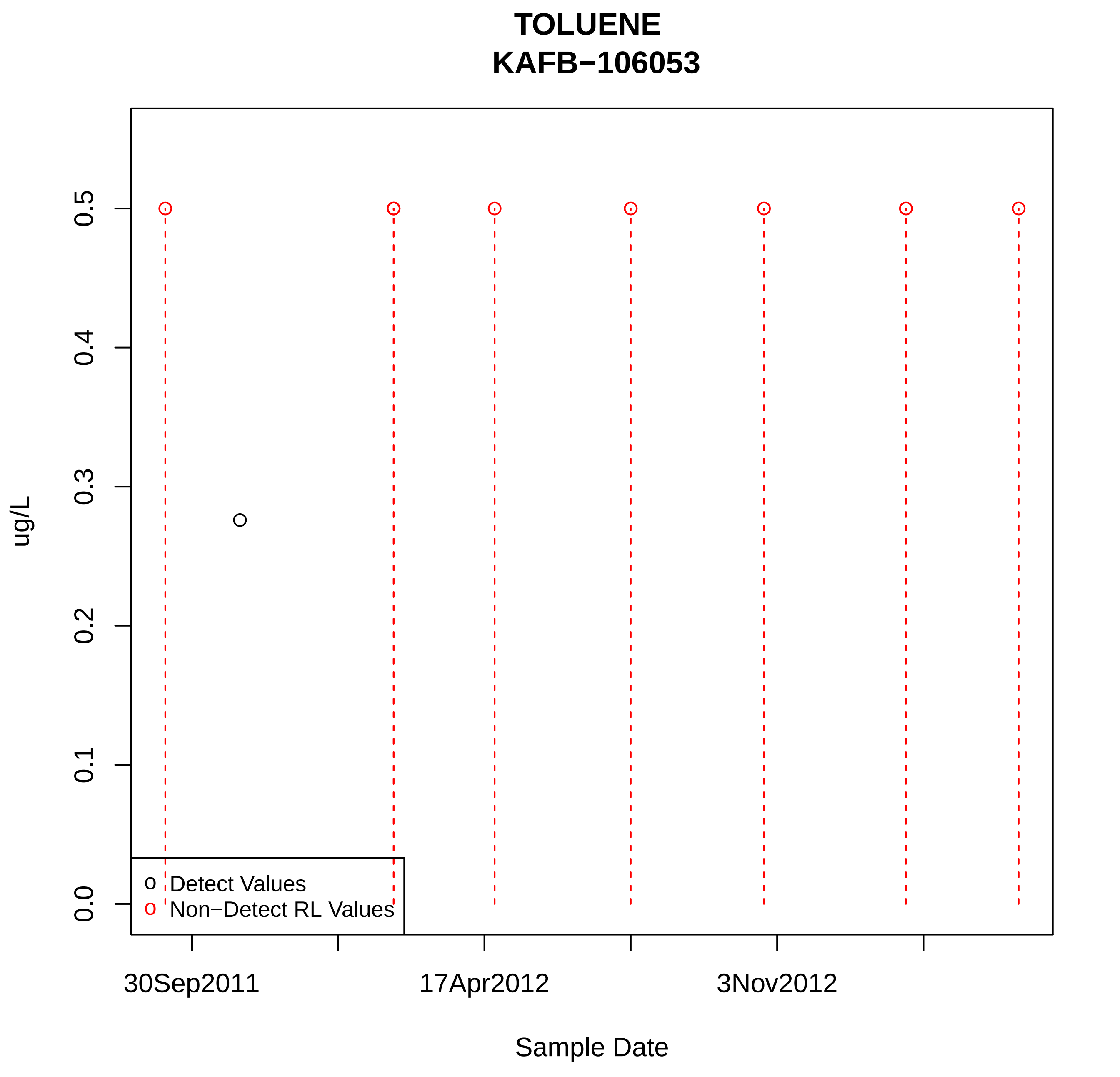

TOLUENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



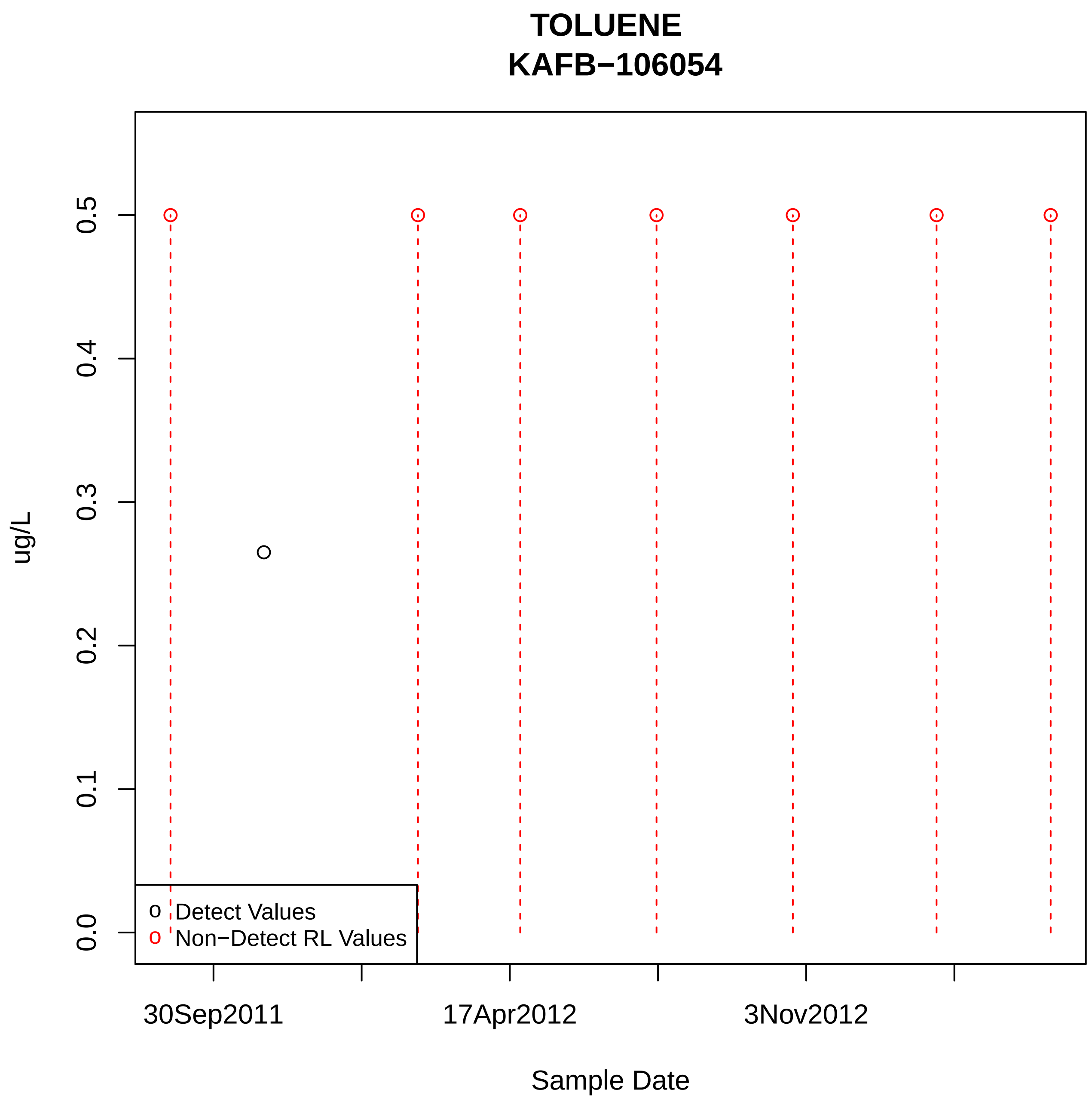
TOLUENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


TOLUENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

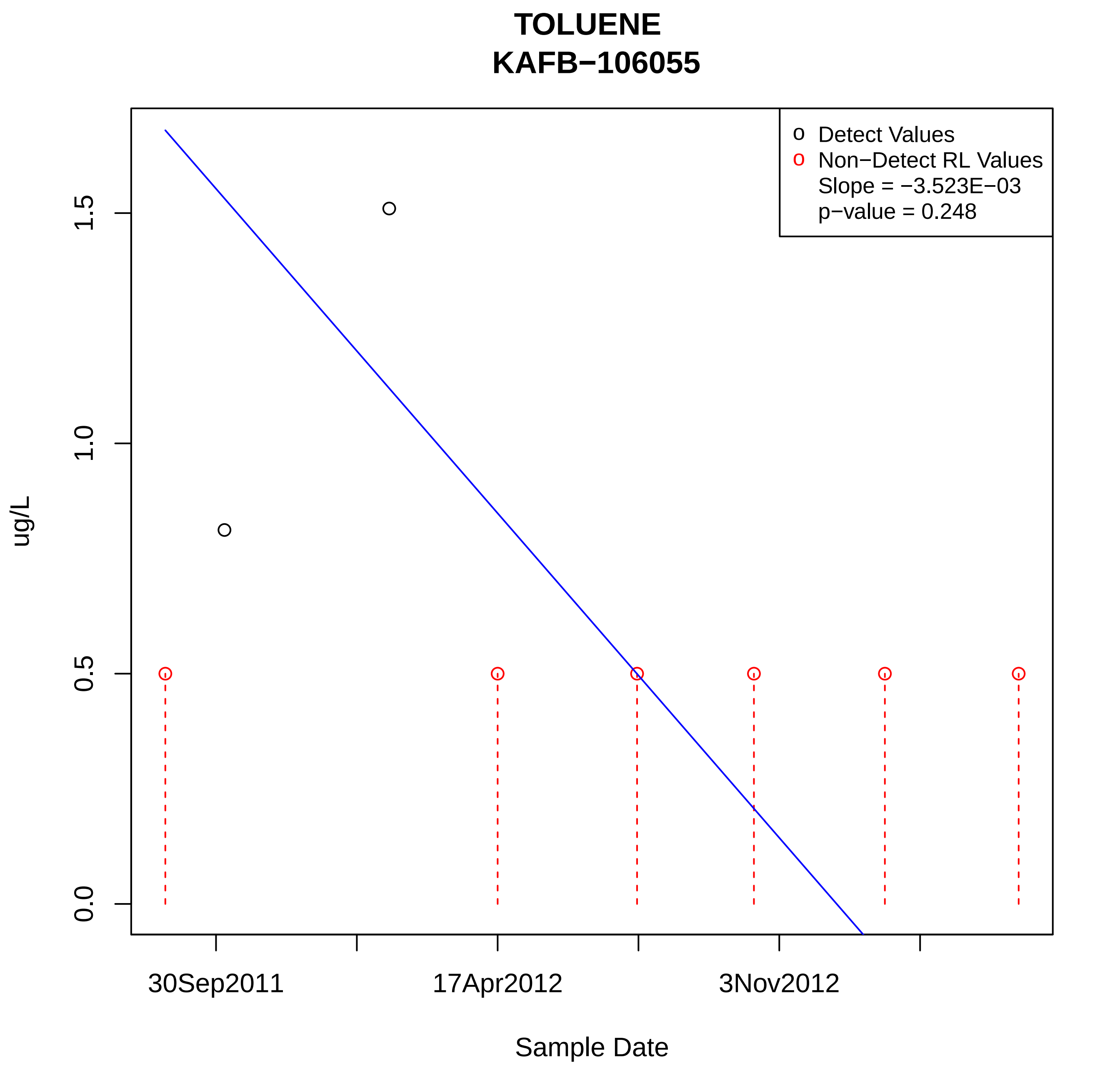

TOLUENE
KAFB−106052
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

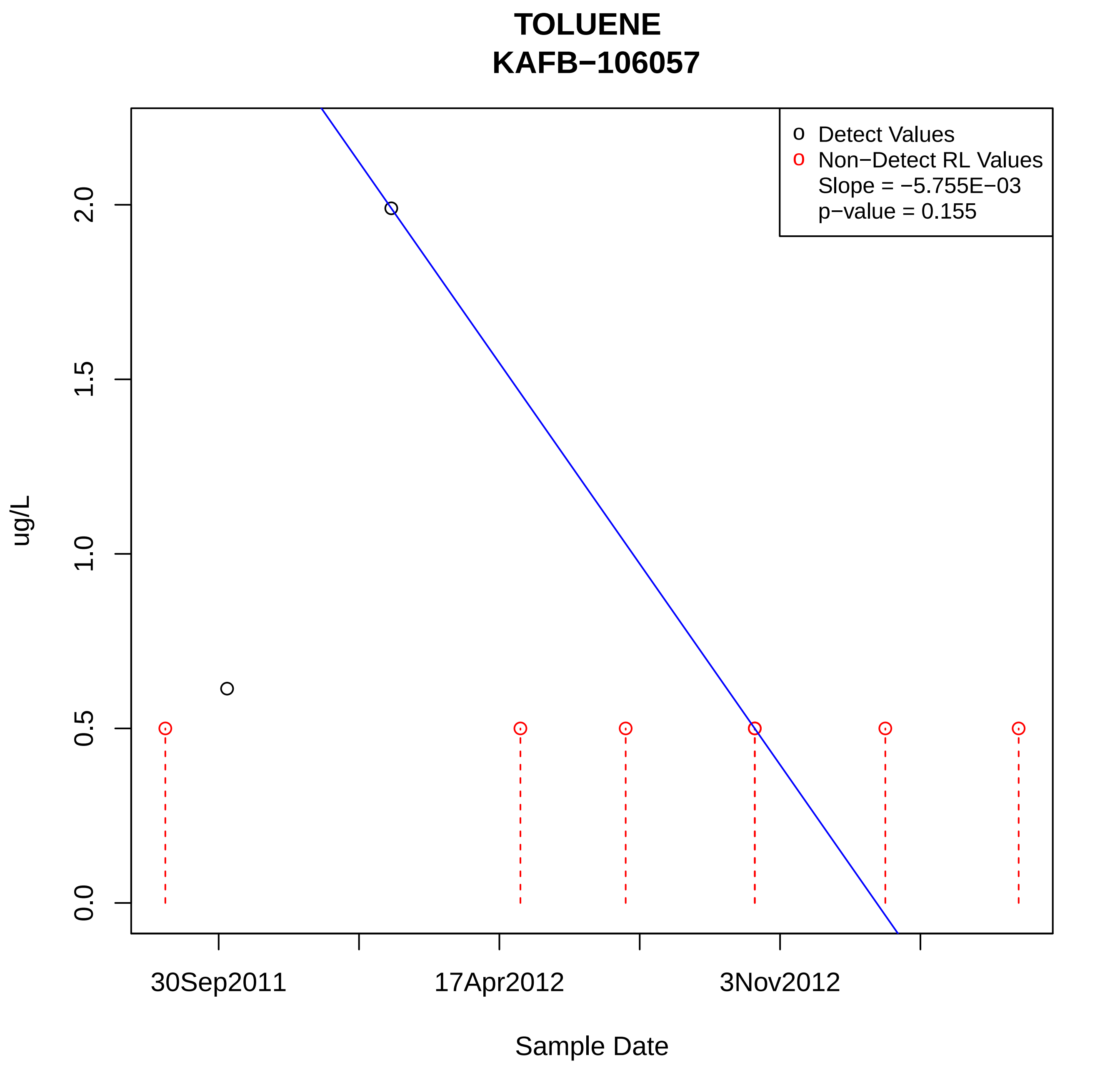


TOLUENE
KAFB−106053
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

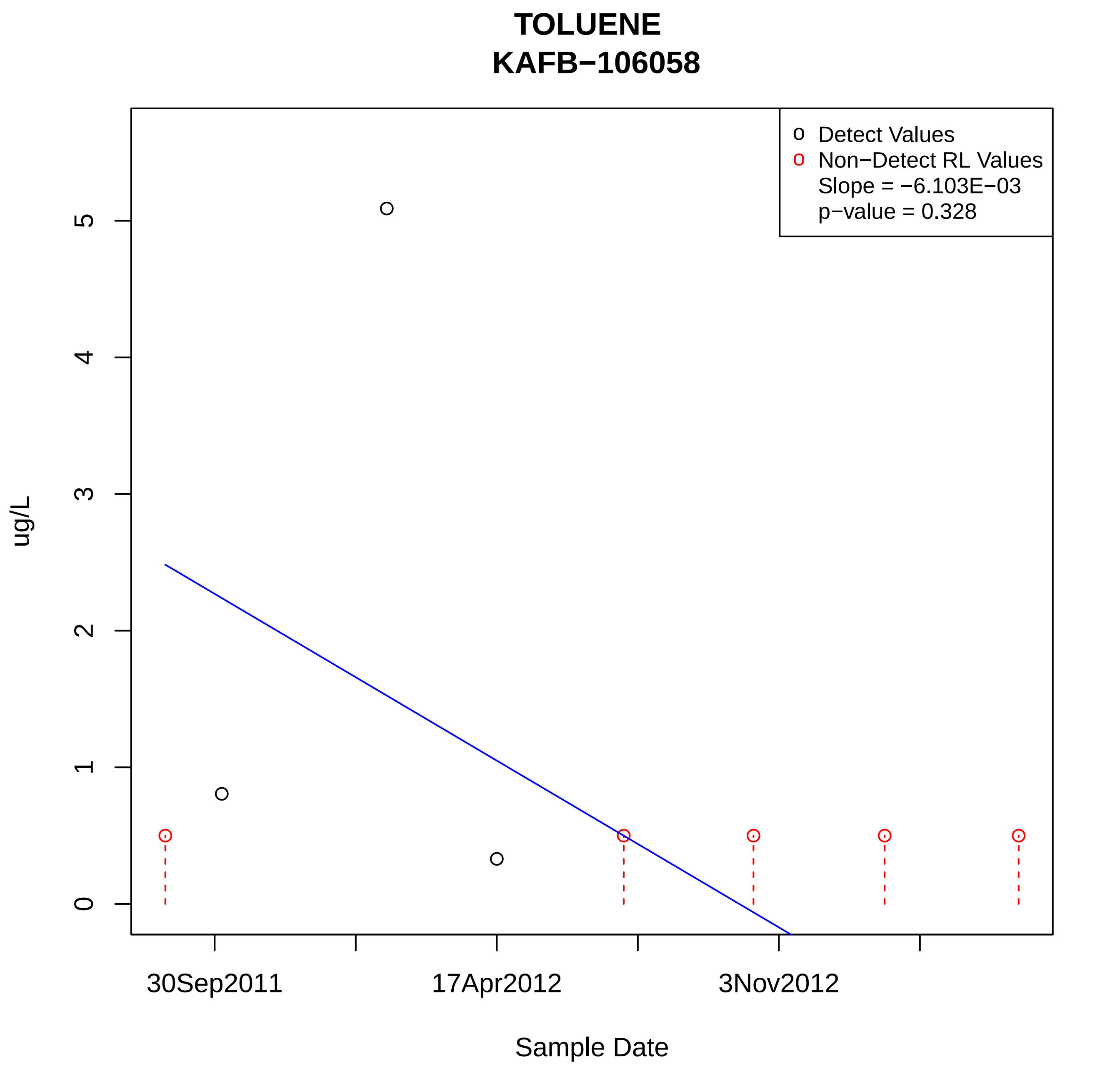


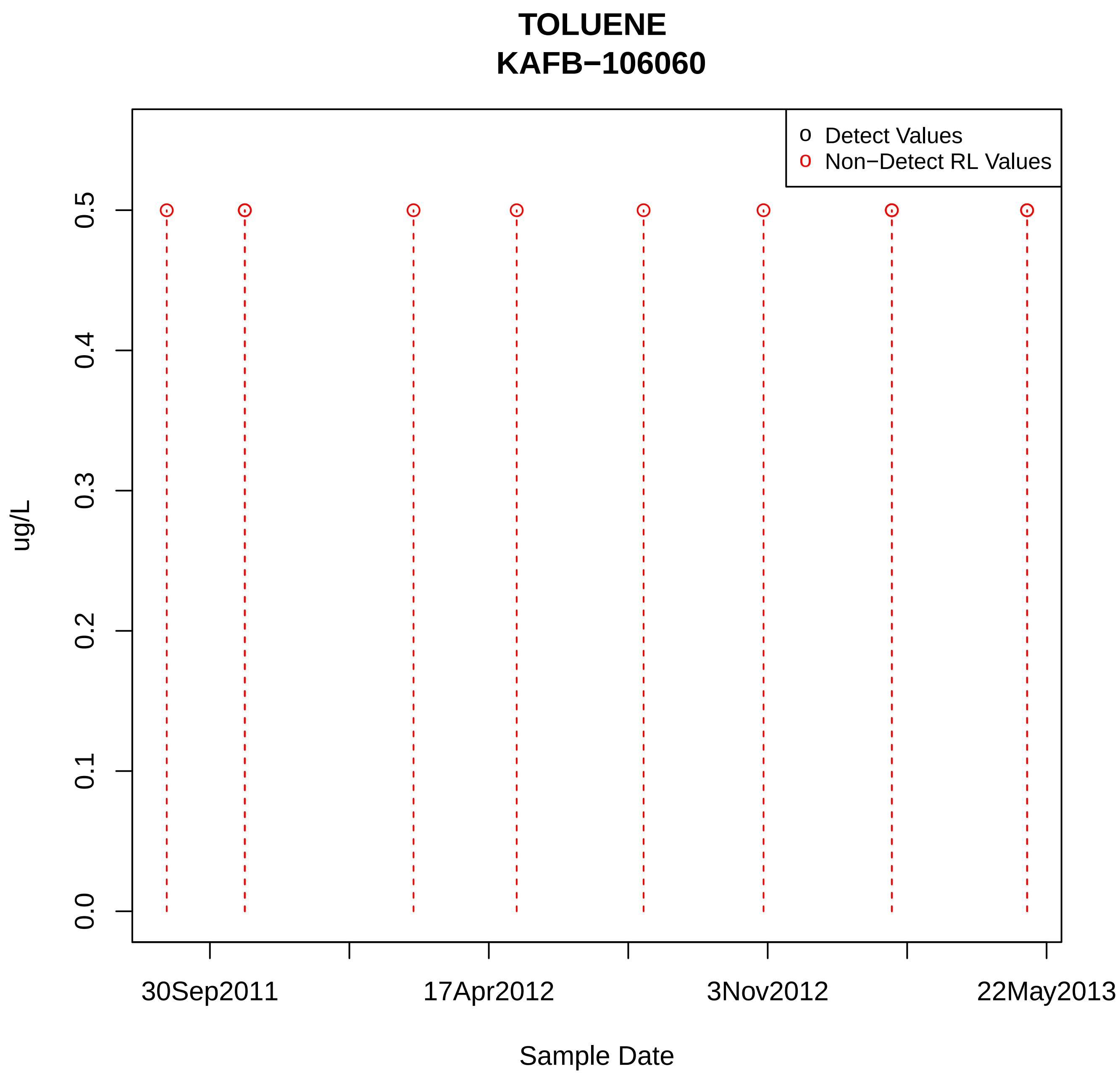
TOLUENE
KAFB−106054
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values


TOLUENE
KAFB−106055
Detect Values
Non−Detect RL Values
Slope = −3.523E−03
p−value = 0.248
ug/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

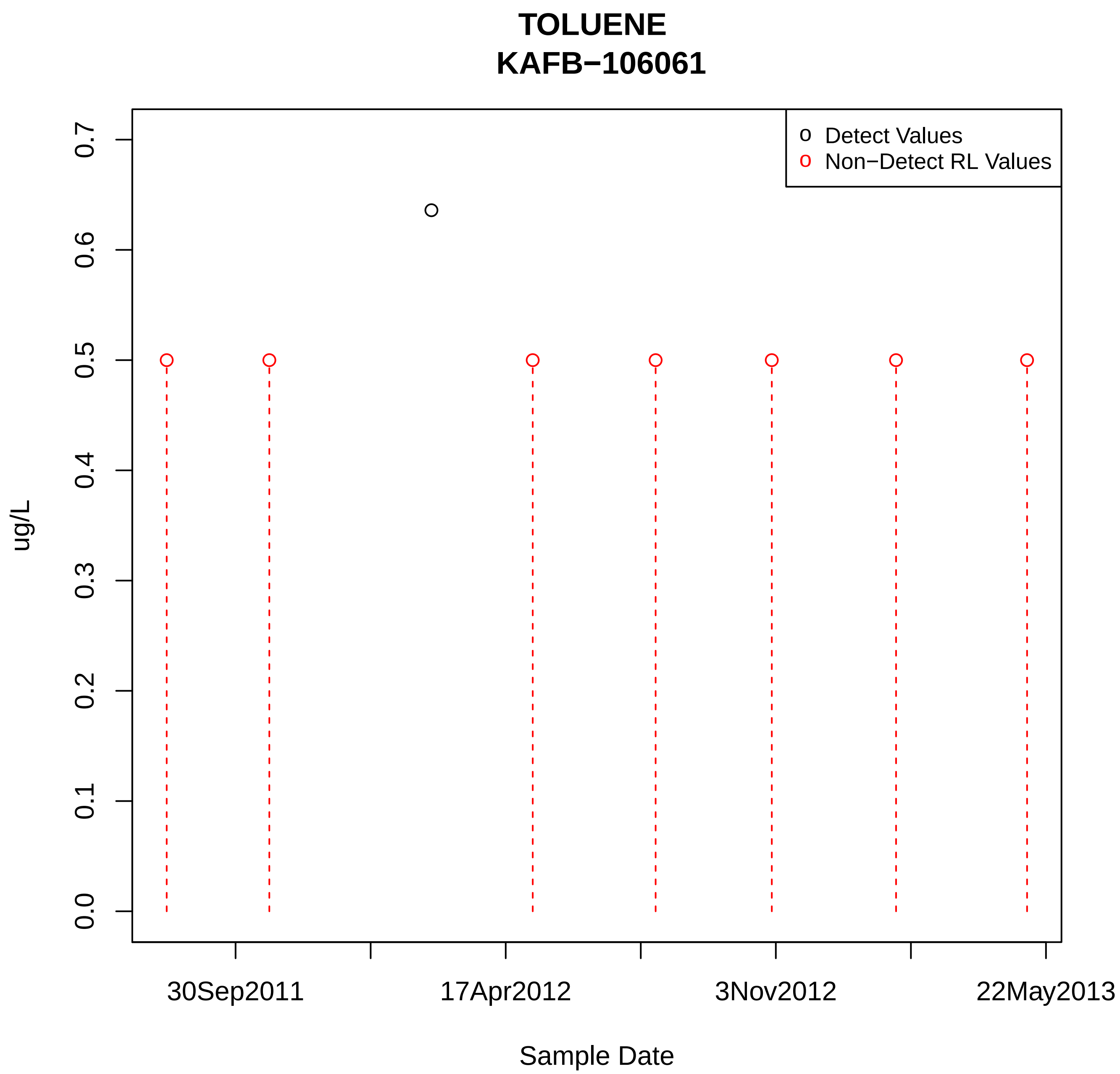


TOLUENE
KAFB−106057
o Detect Values
o Non−Detect RL Values
Slope = −5.755E−03
p−value = 0.155
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

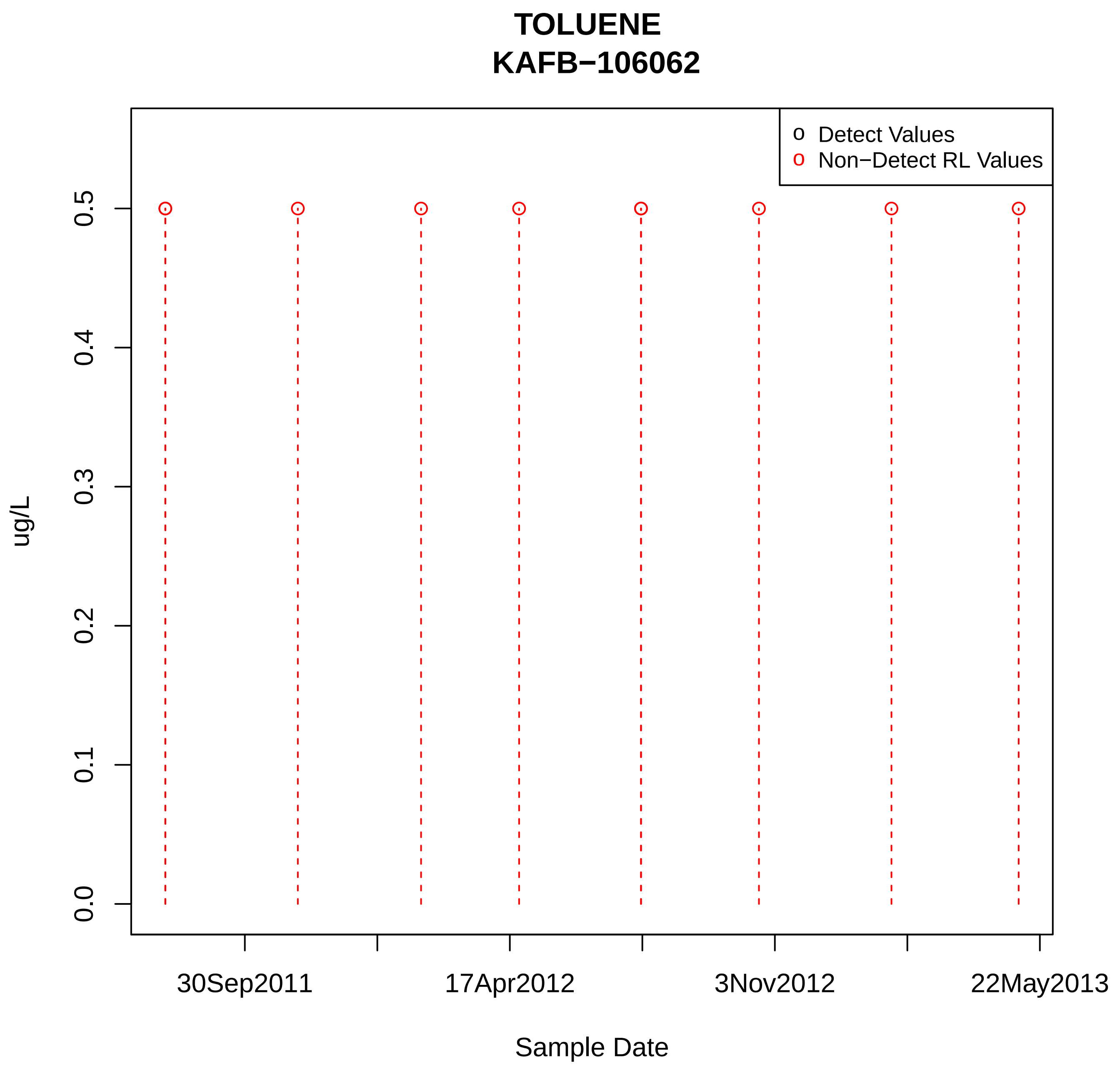

TOLUENE
KAFB−106058
Detect Values
Non−Detect RL Values
Slope = −6.103E−03
p−value = 0.328
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



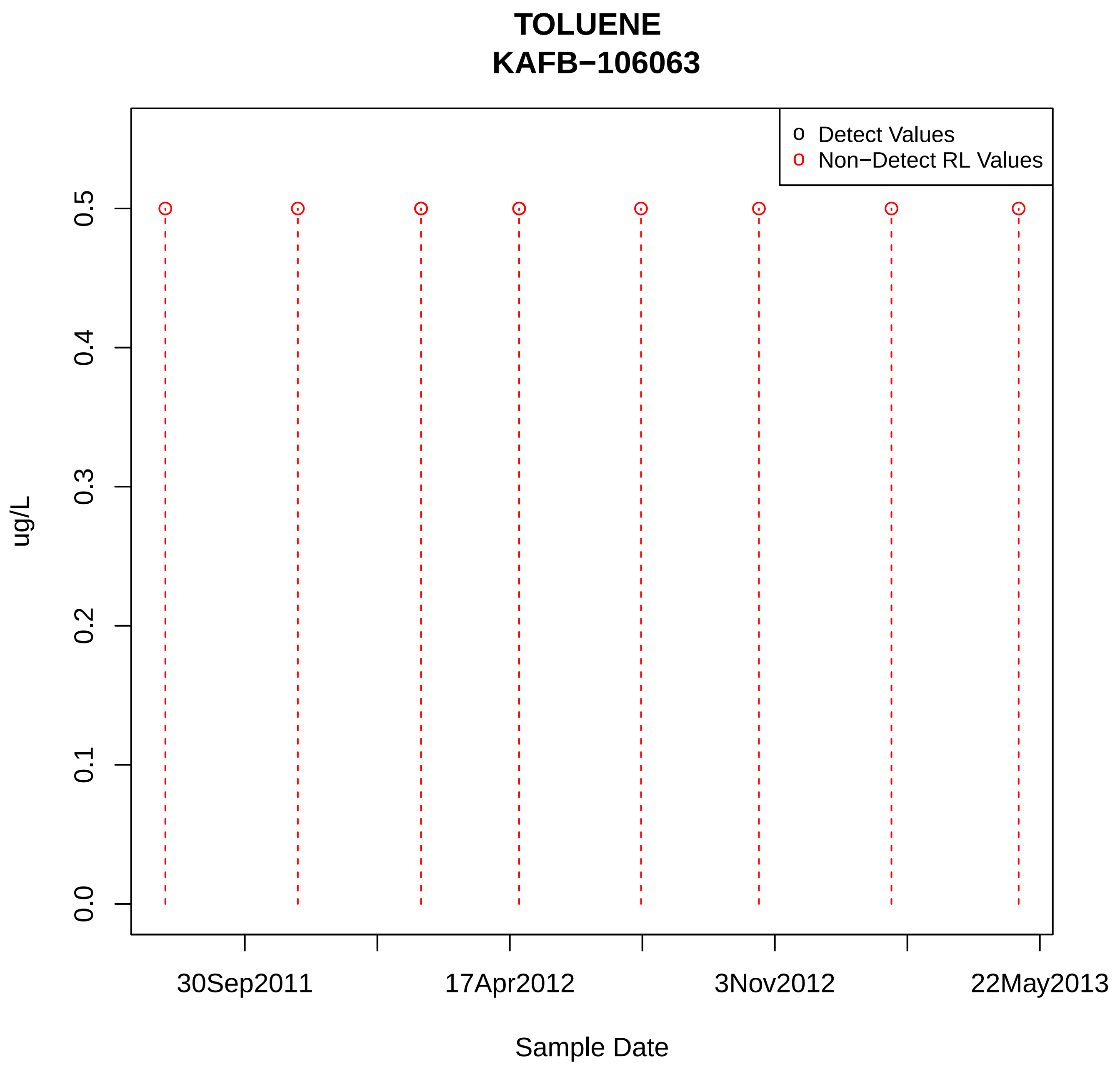
TOLUENE
KAFB−106060
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

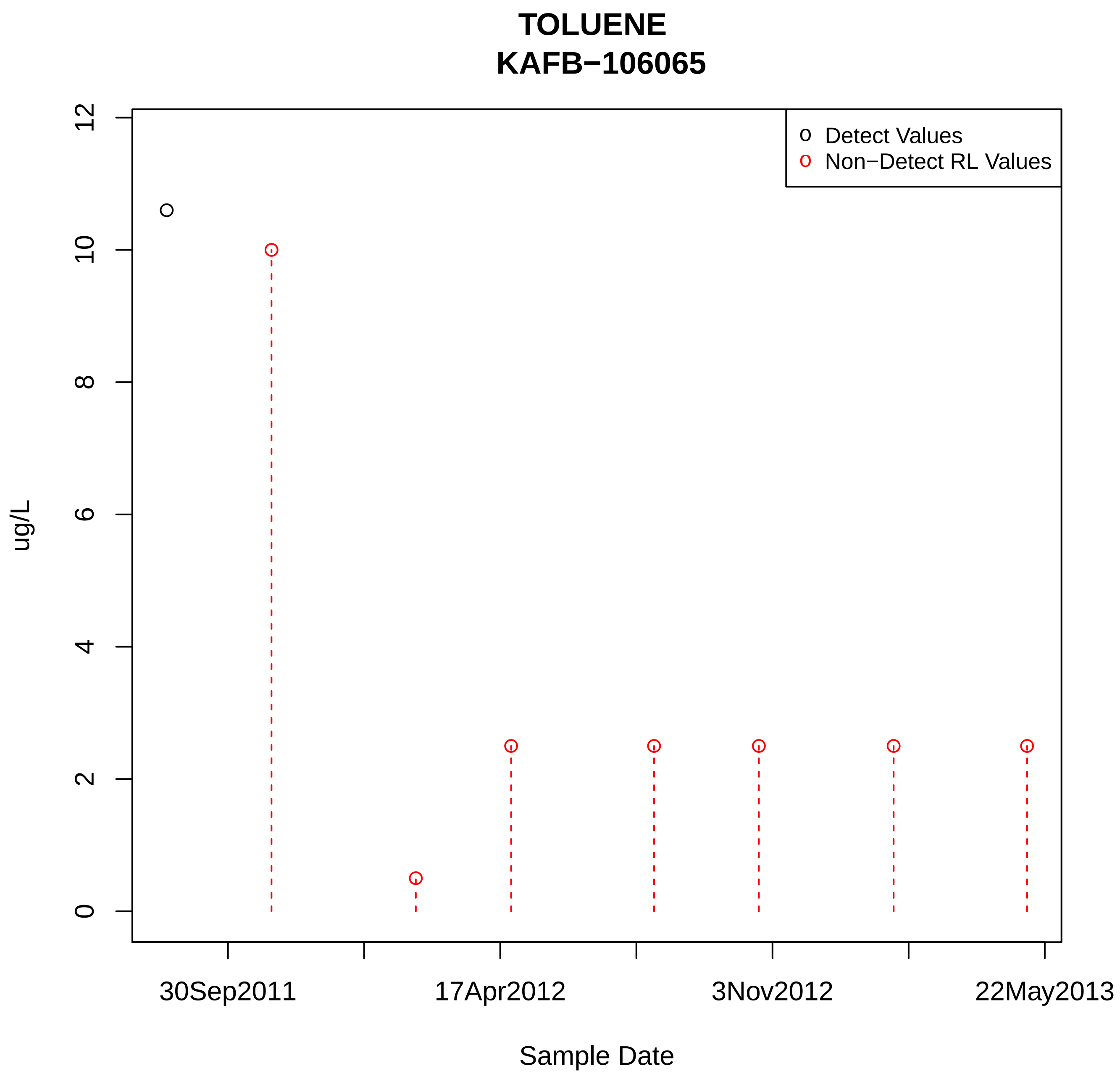


TOLUENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

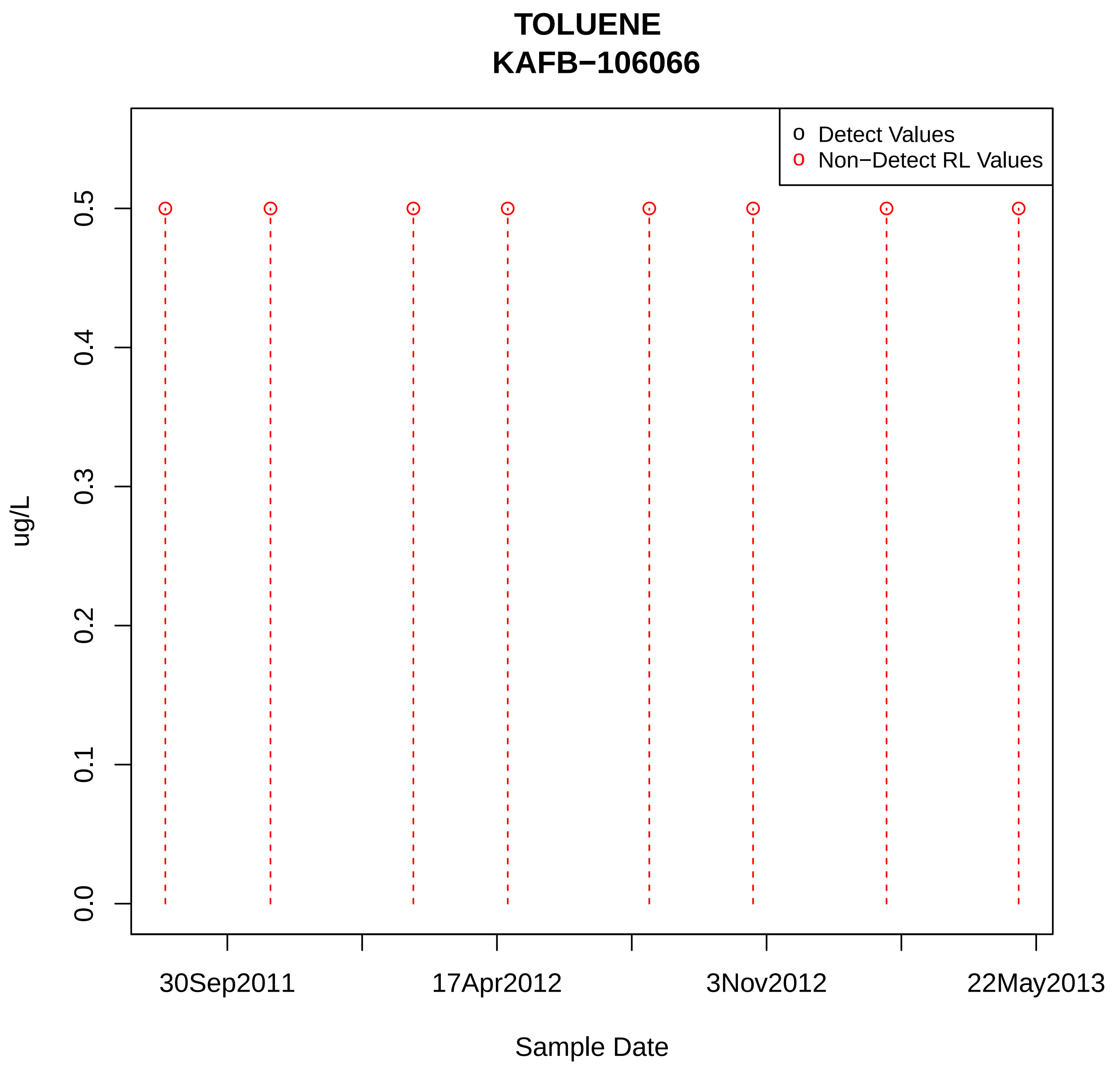


TOLUENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

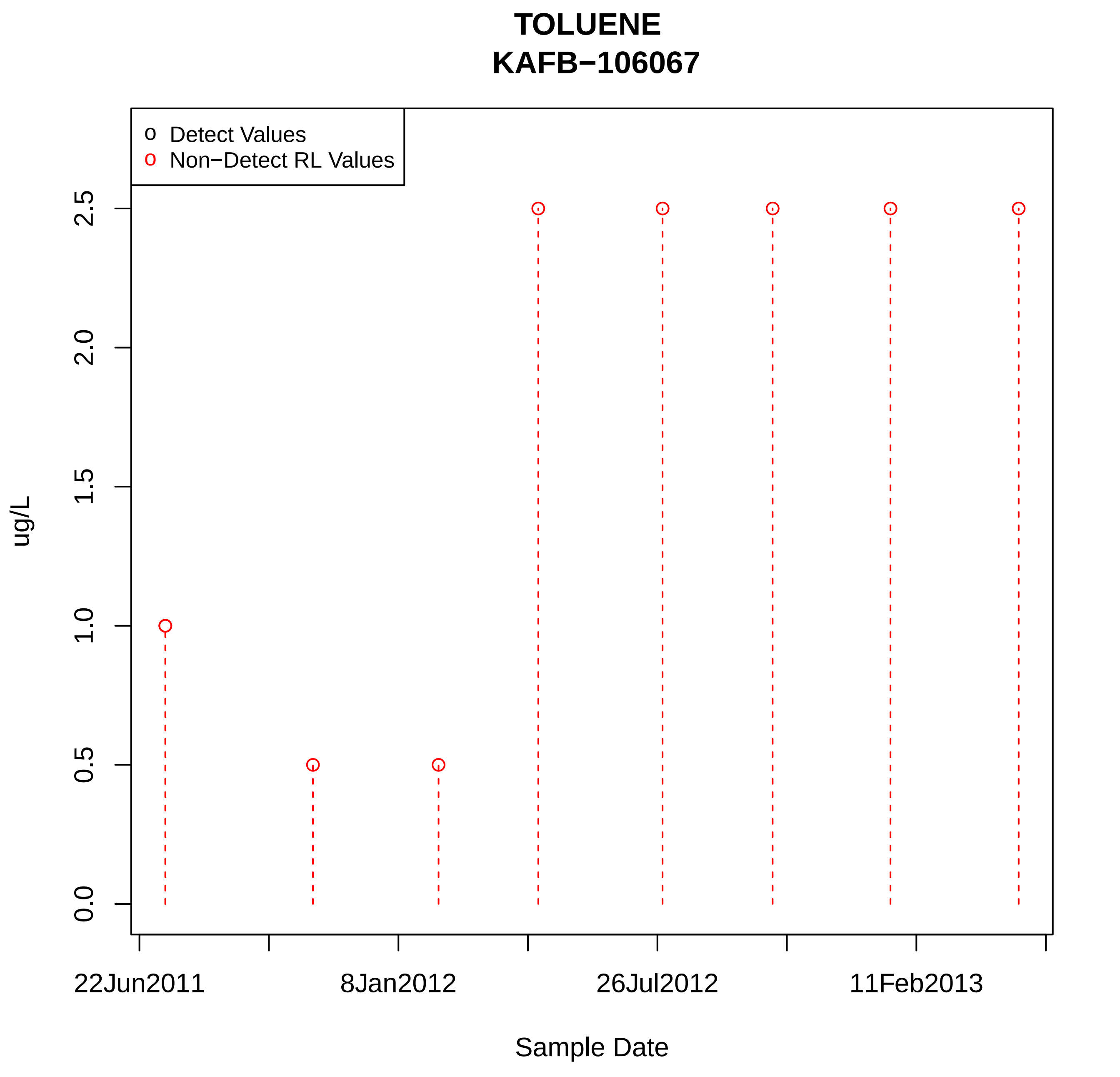

TOLUENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



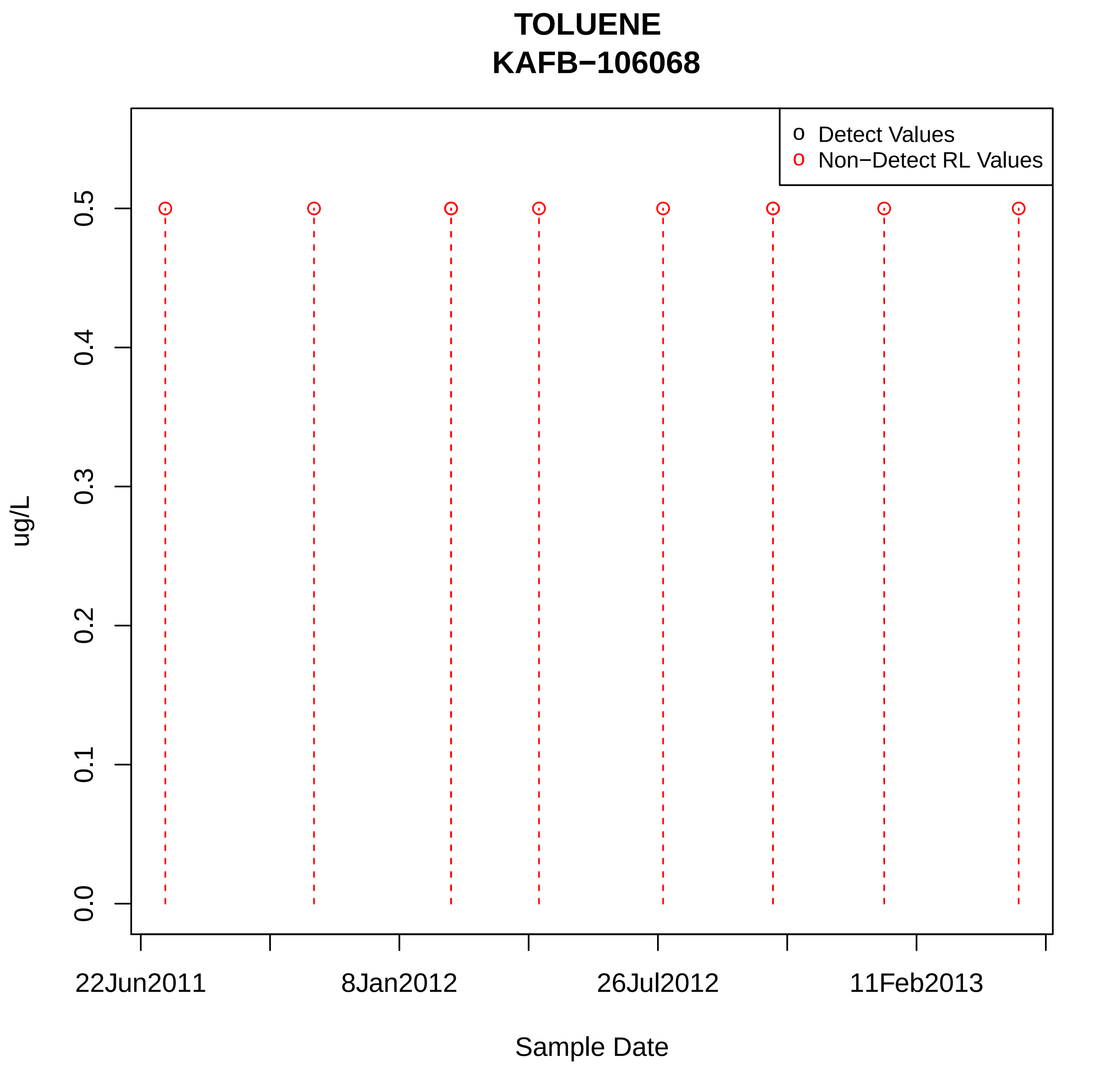
TOLUENE
KAFB−106065
ug/L
0
2
4
6
8
10
12
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



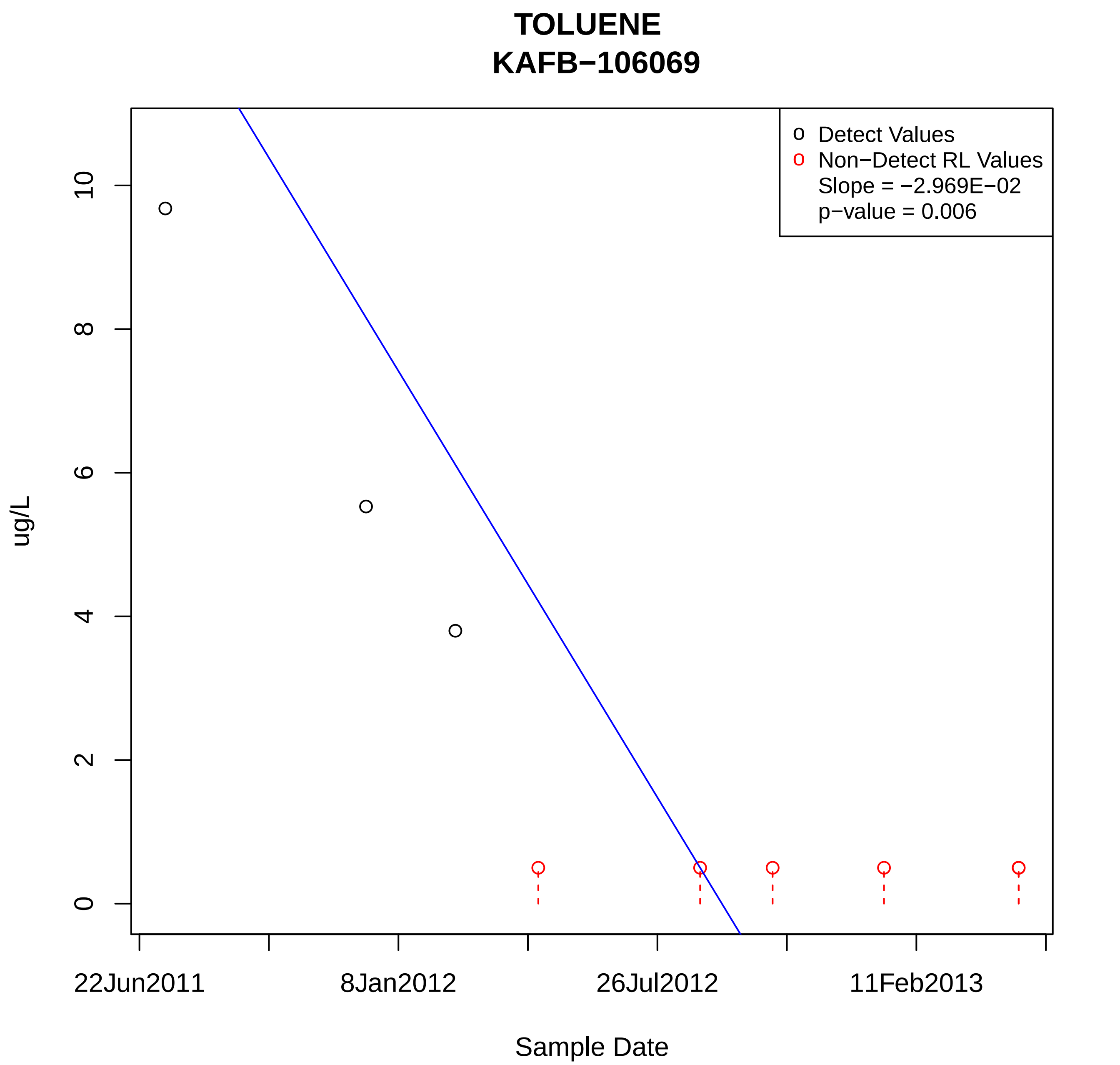
TOLUENE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

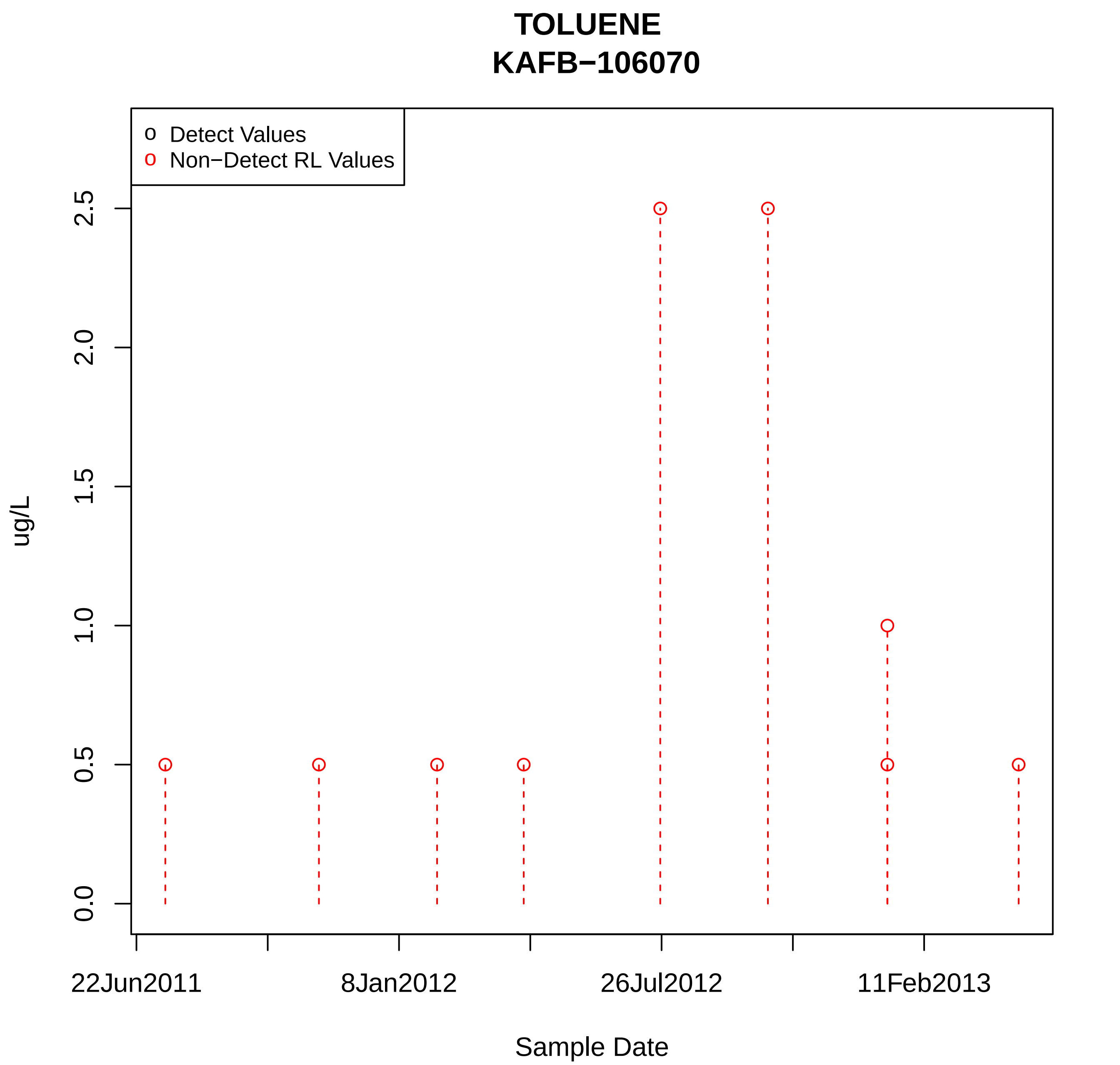


TOLUENE
KAFB−106067
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

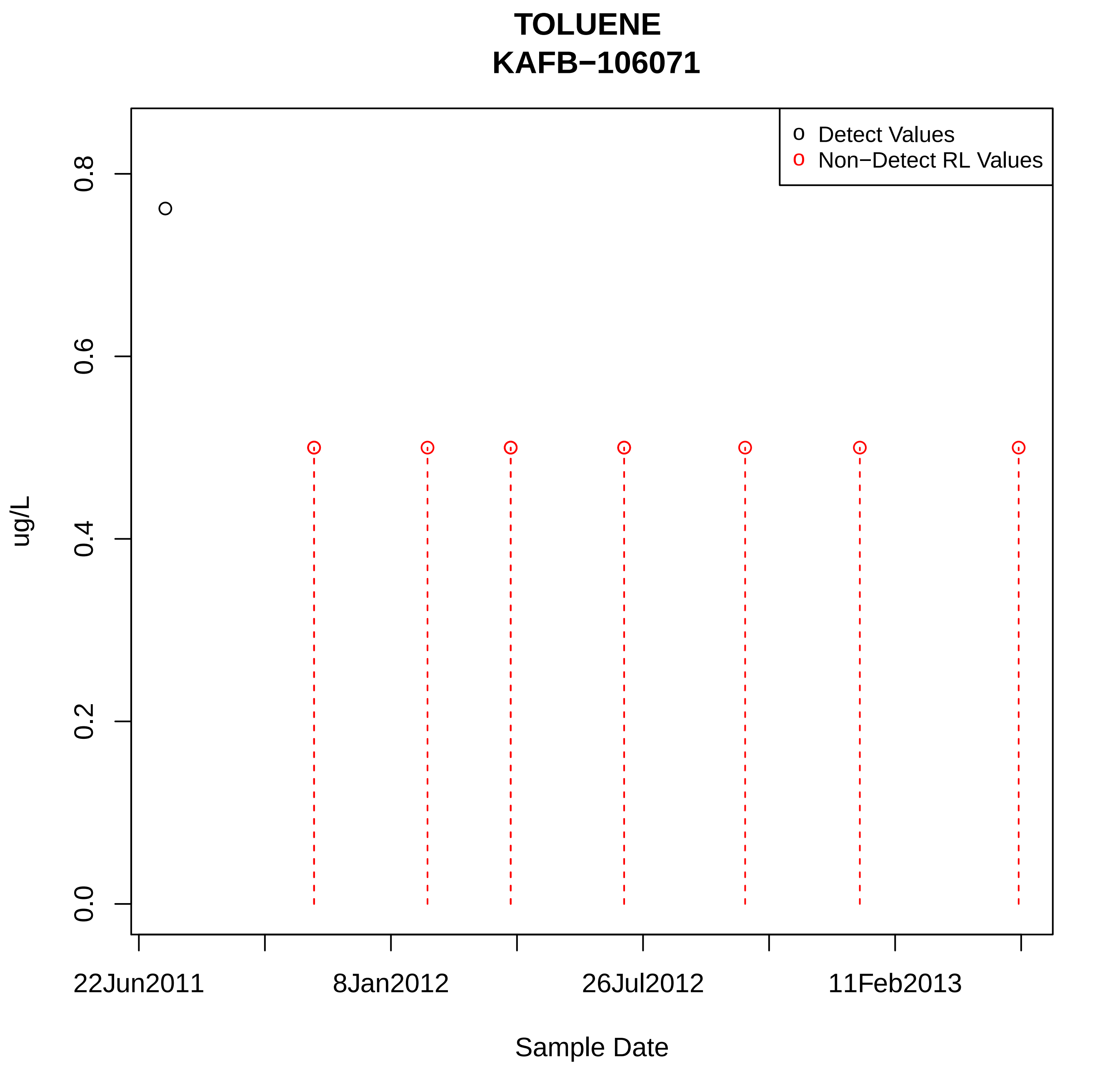


TOLUENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

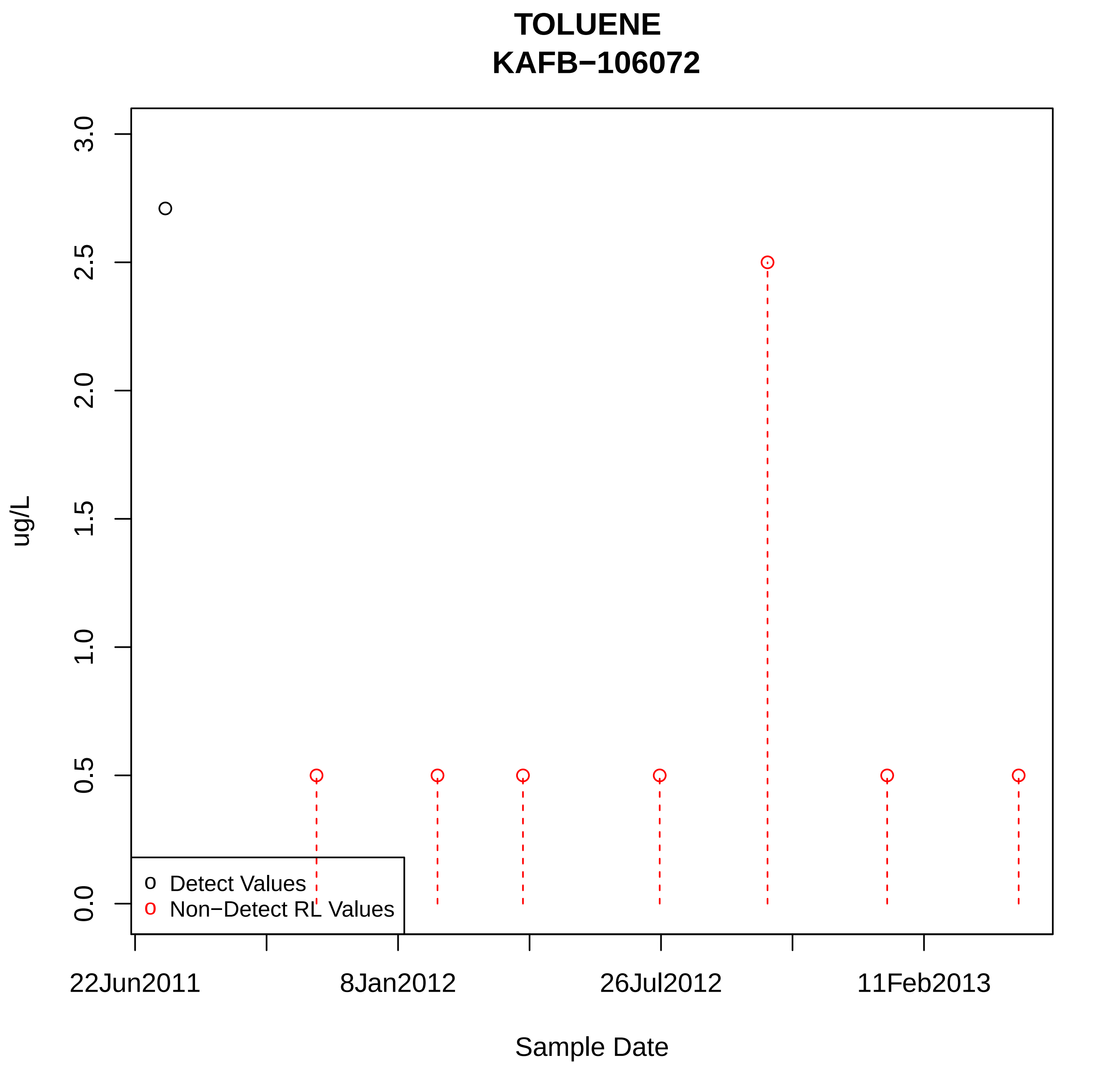

TOLUENE
KAFB−106069
o Detect Values
o Non−Detect RL Values
Slope = −2.969E−02
p−value = 0.006
ug/L
0
2
4
6
8
10
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

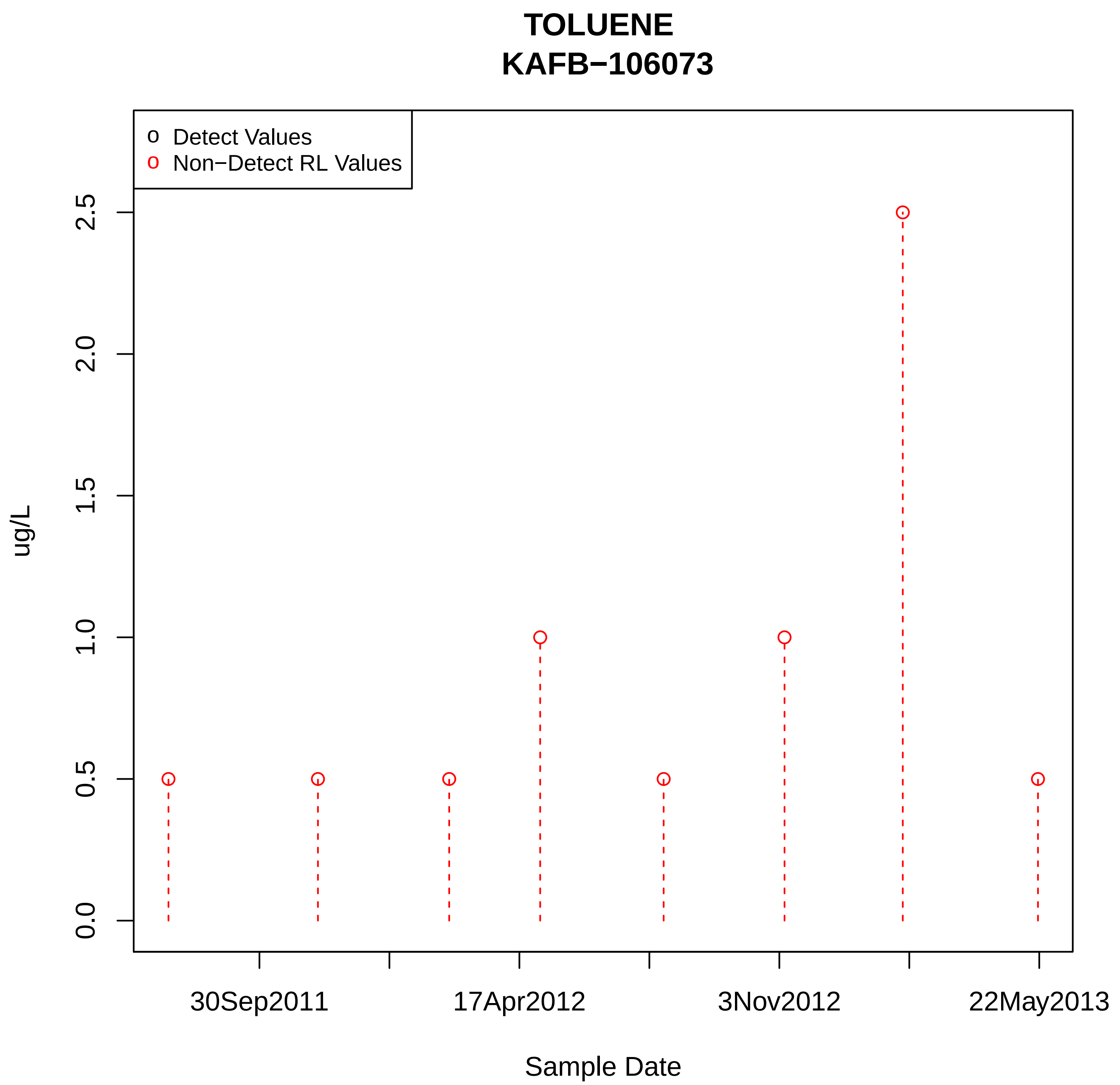


TOLUENE
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

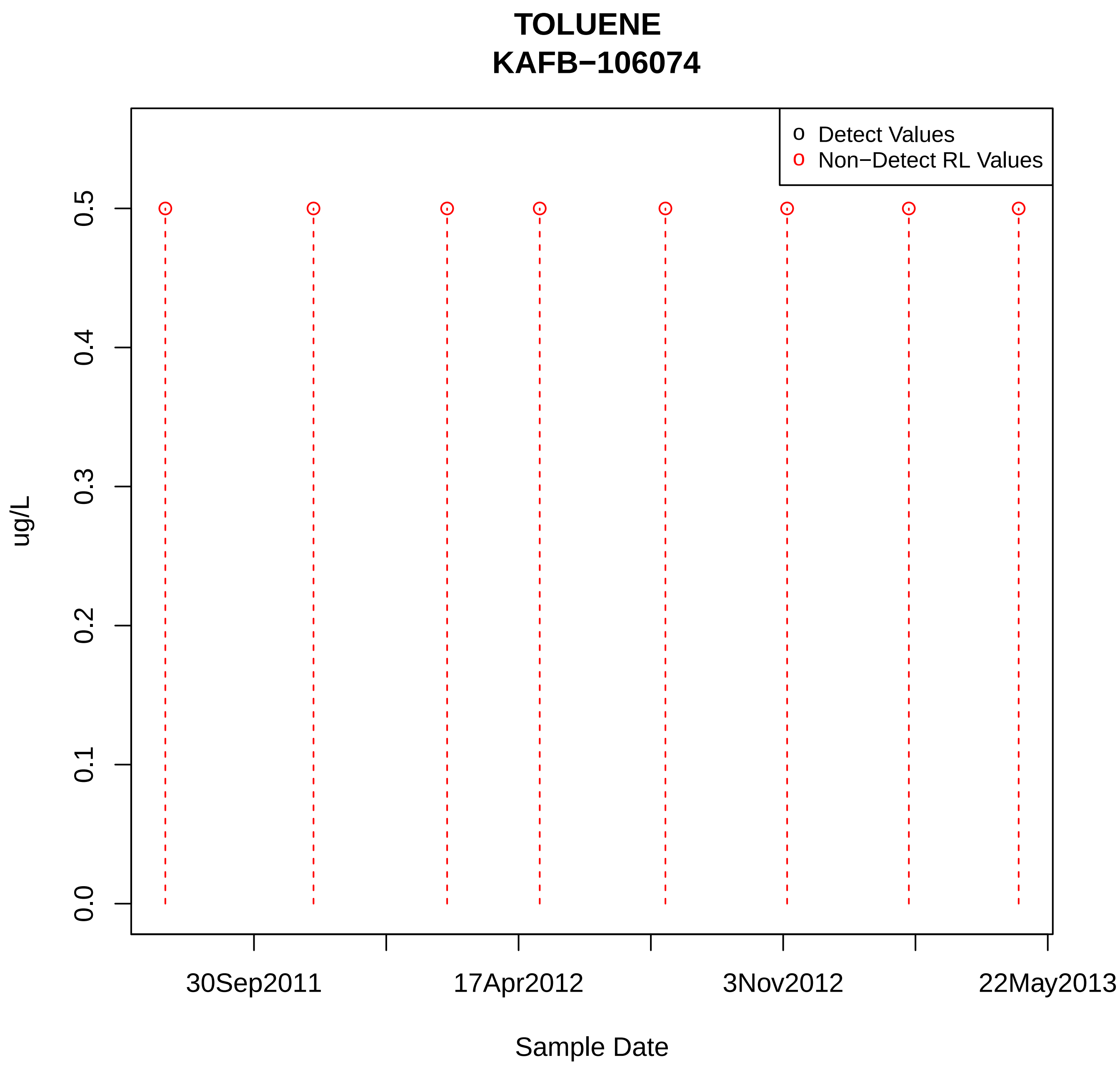


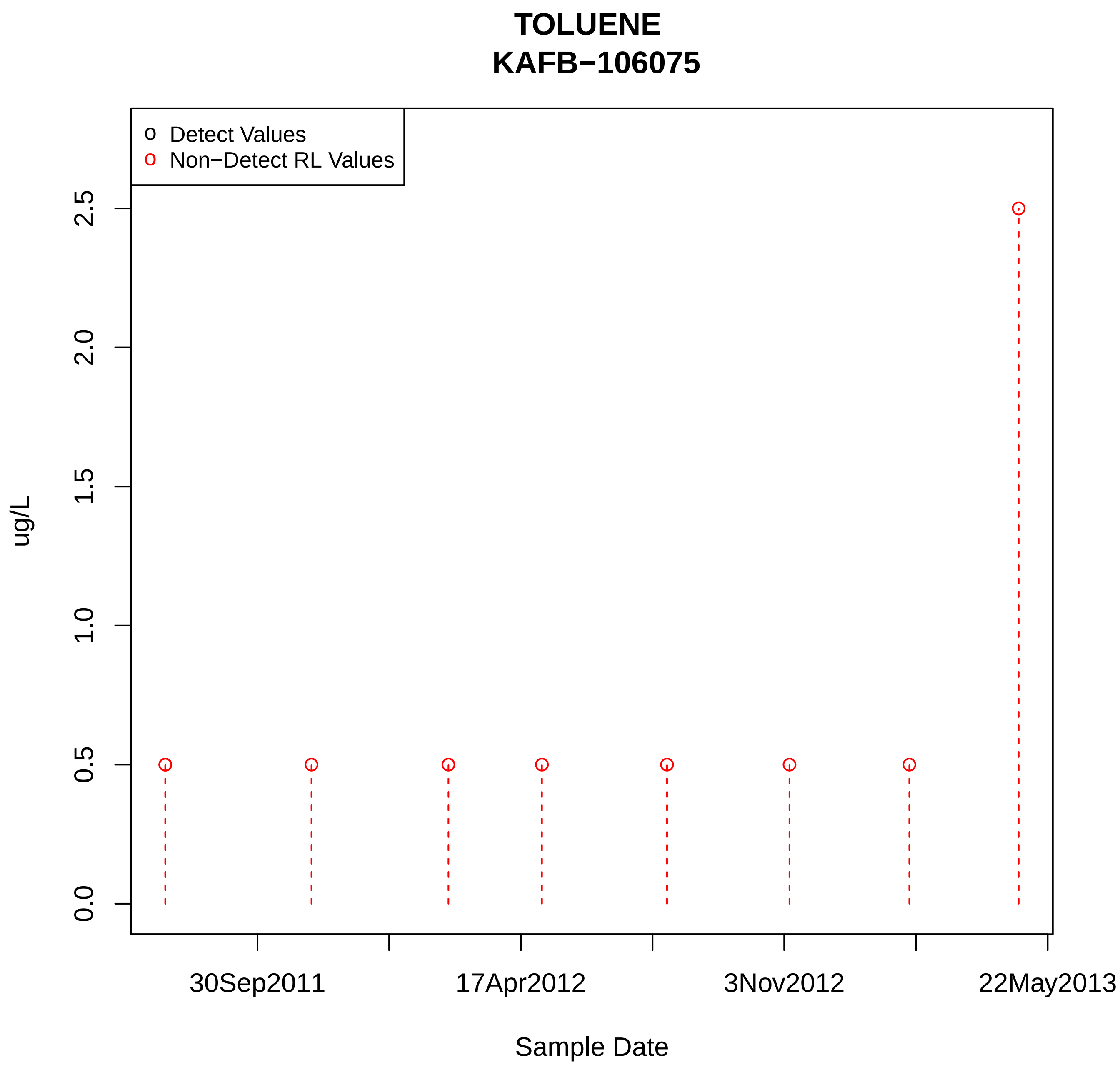
TOLUENE
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

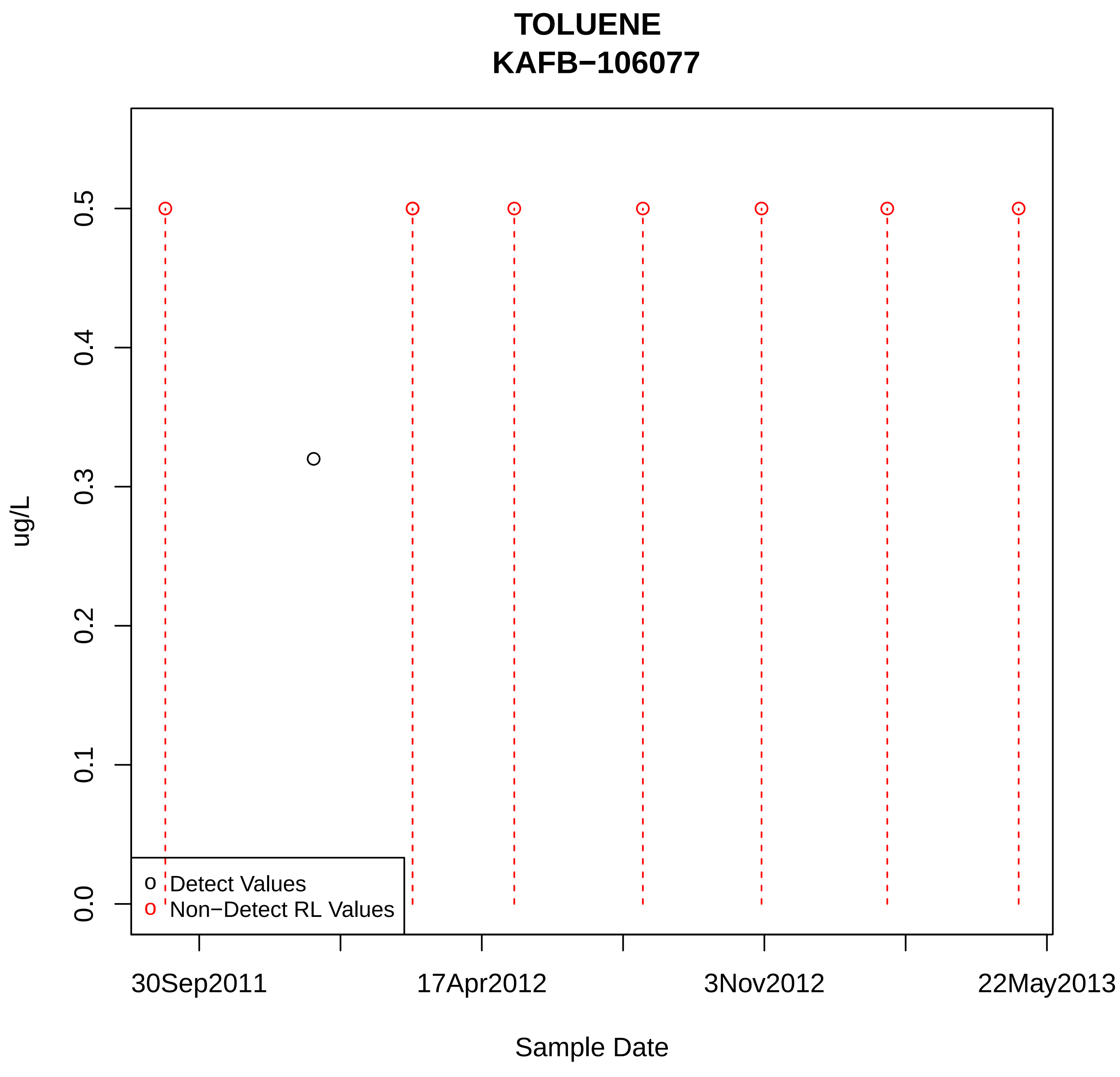

TOLUENE
KAFB−106072
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Detect Values
Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



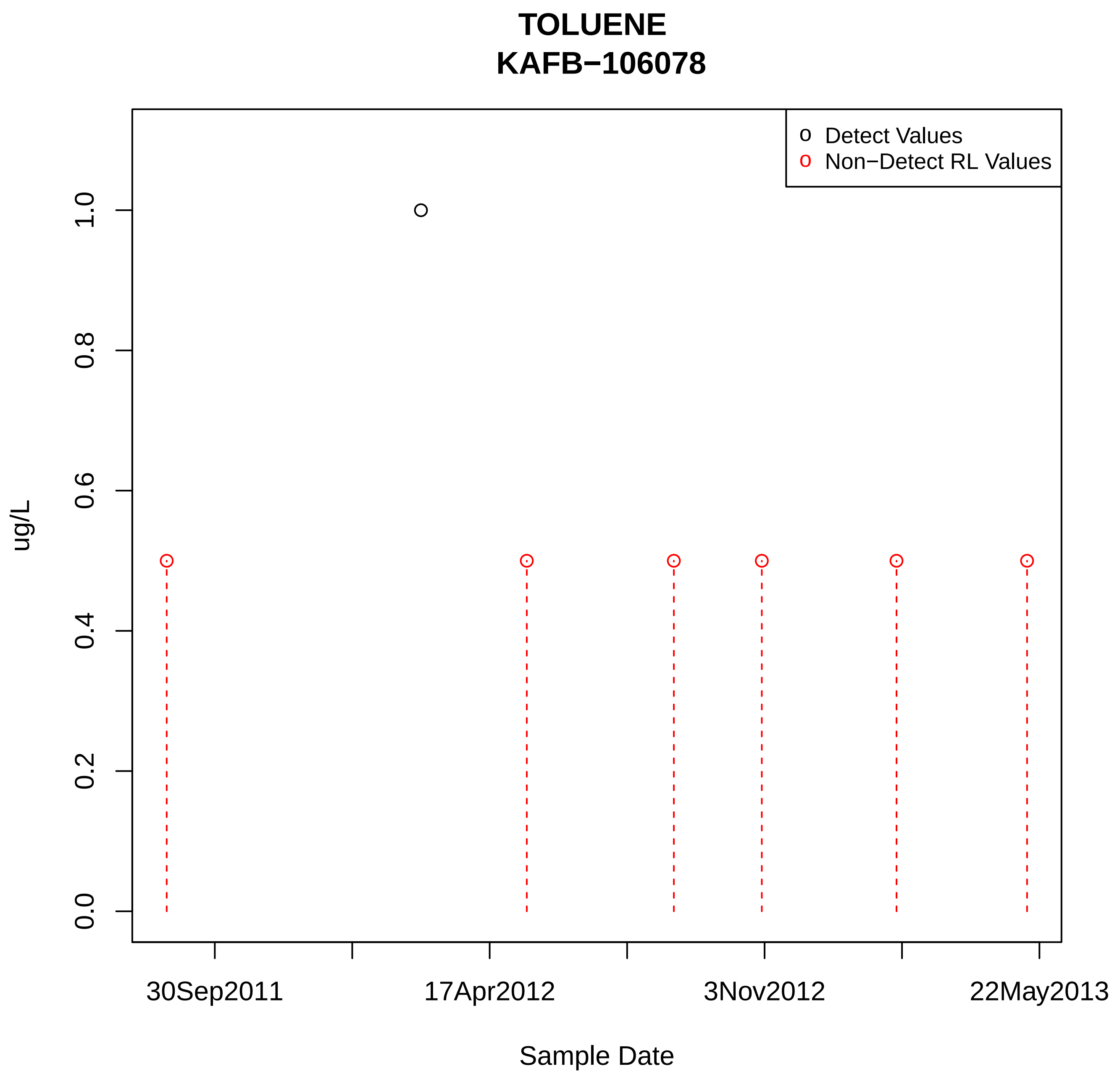
TOLUENE
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


TOLUENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

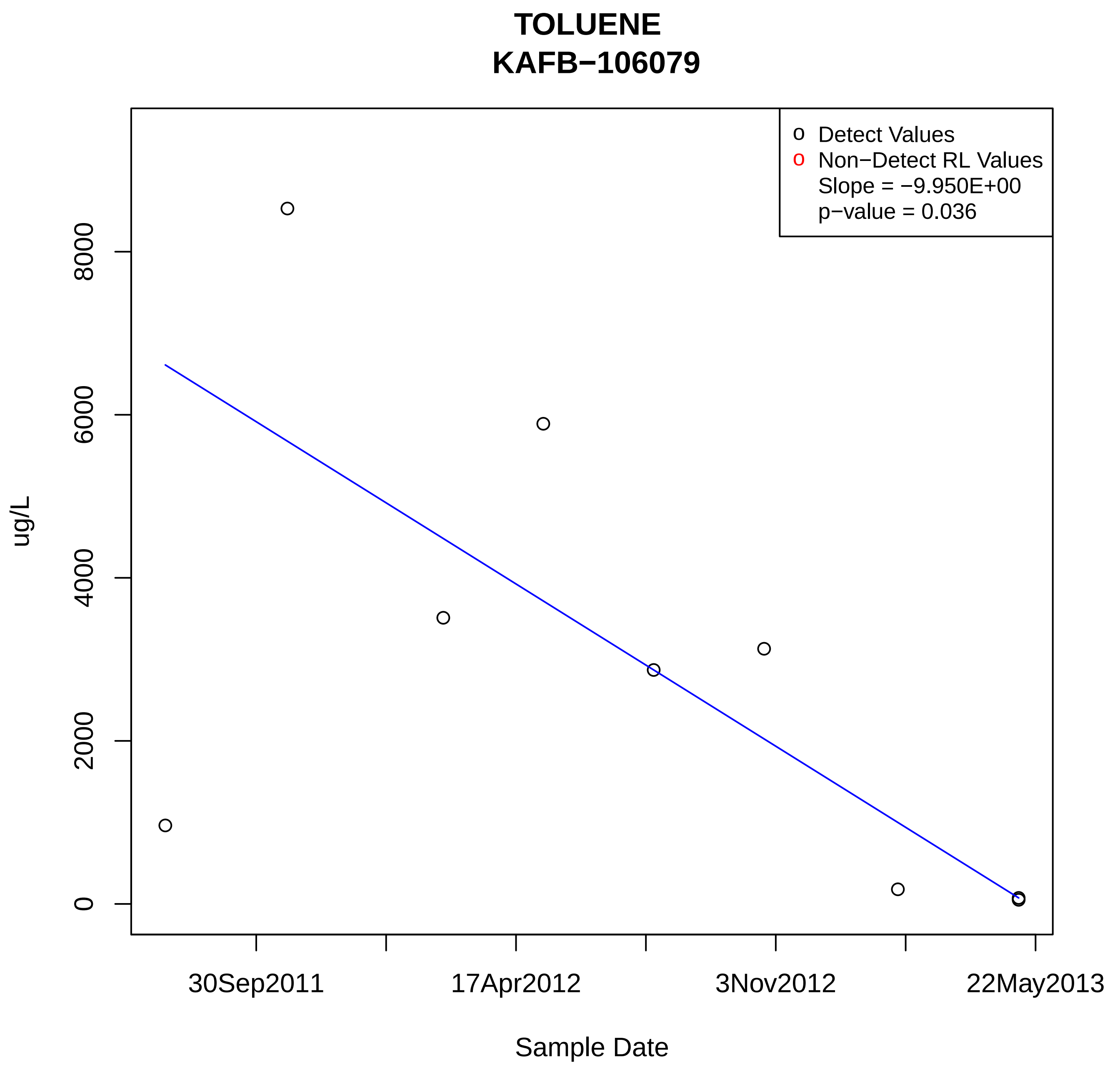

TOLUENE
KAFB−106075
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

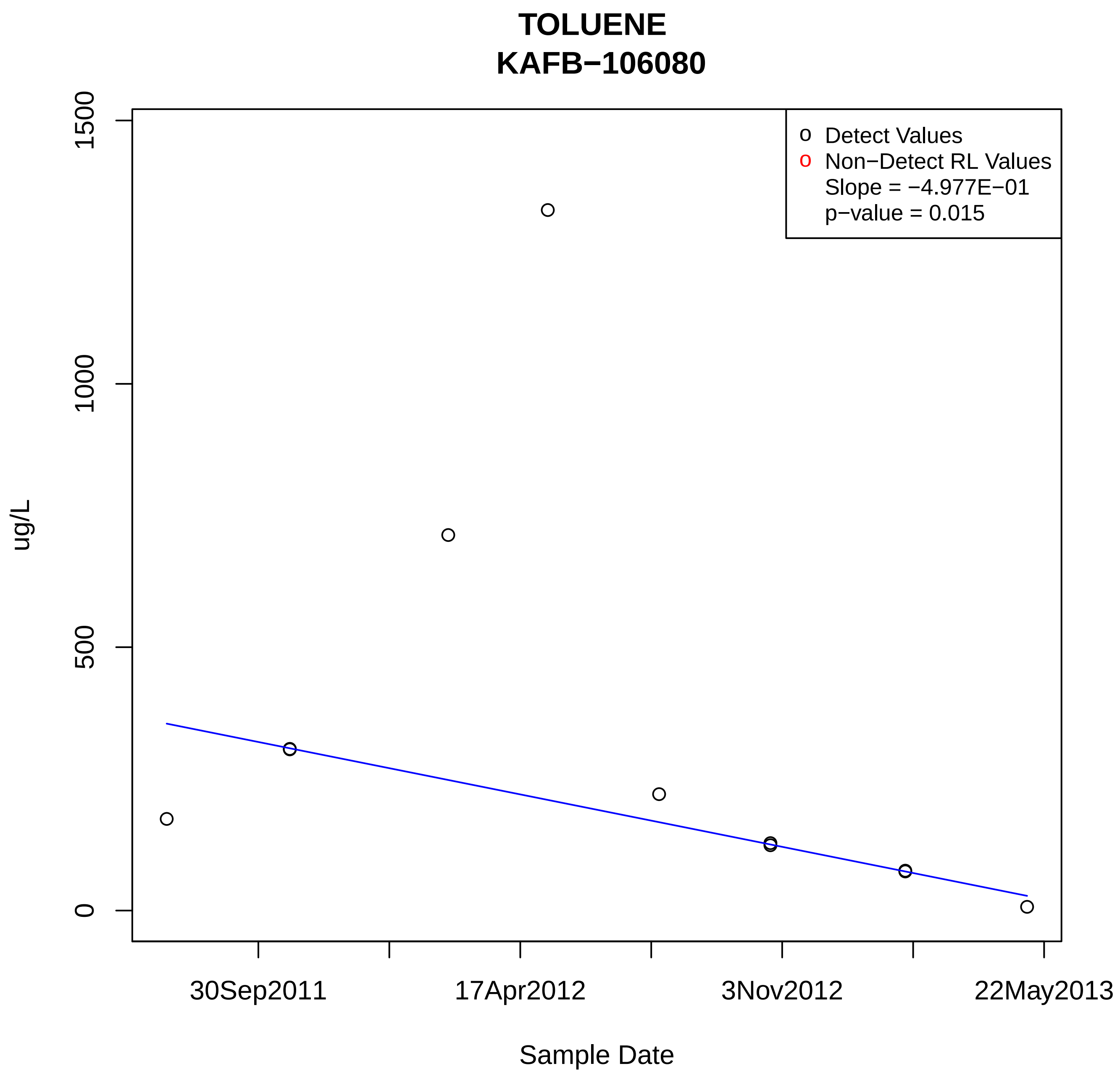


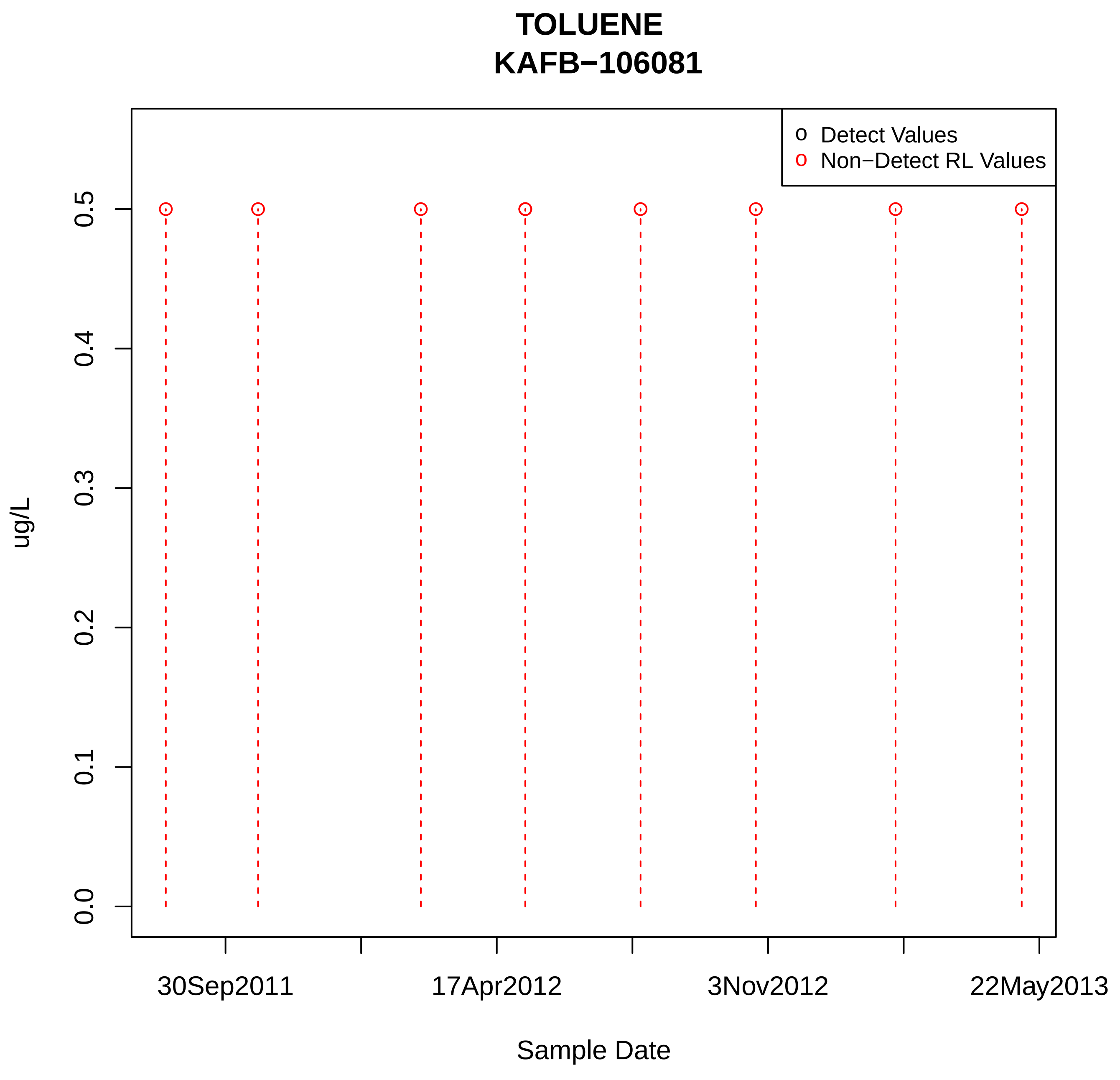
TOLUENE
KAFB−106077
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values



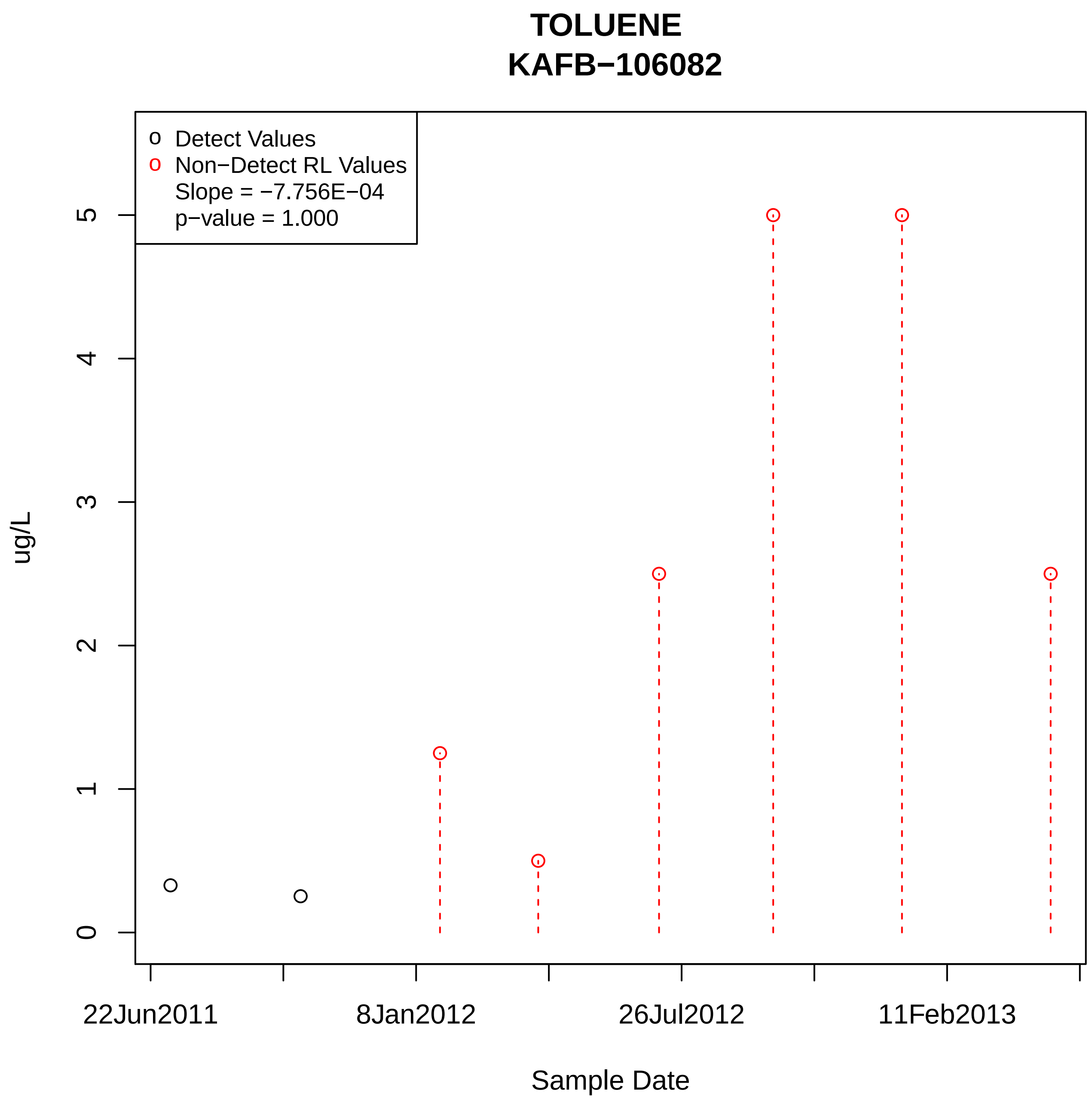
TOLUENE
KAFB−106078
Detect Values
Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

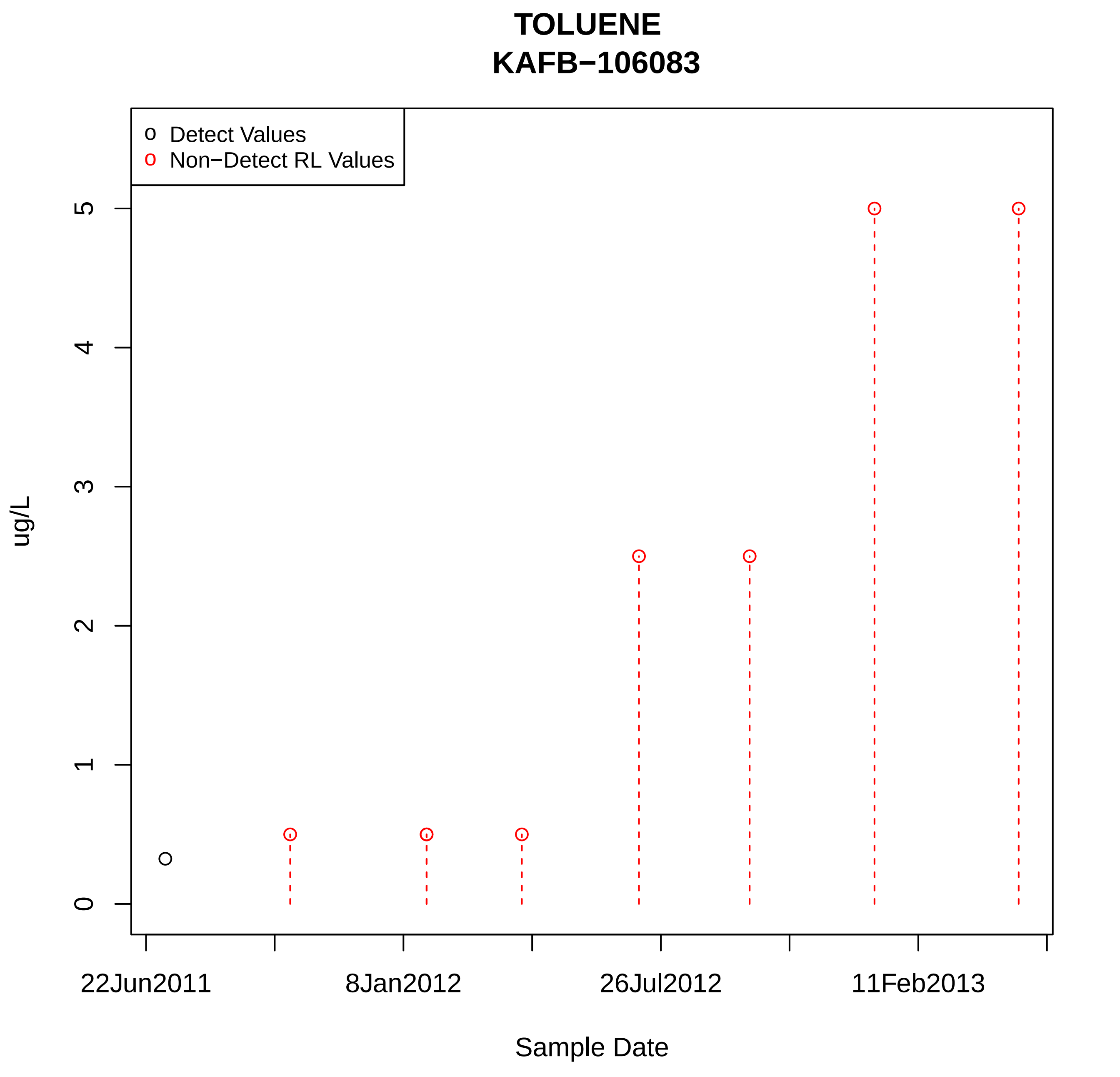

TOLUENE
KAFB−106079
o Detect Values
o Non−Detect RL Values
Slope = −9.950E+00
p−value = 0.036
ug/L
0
2000
4000
6000
8000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

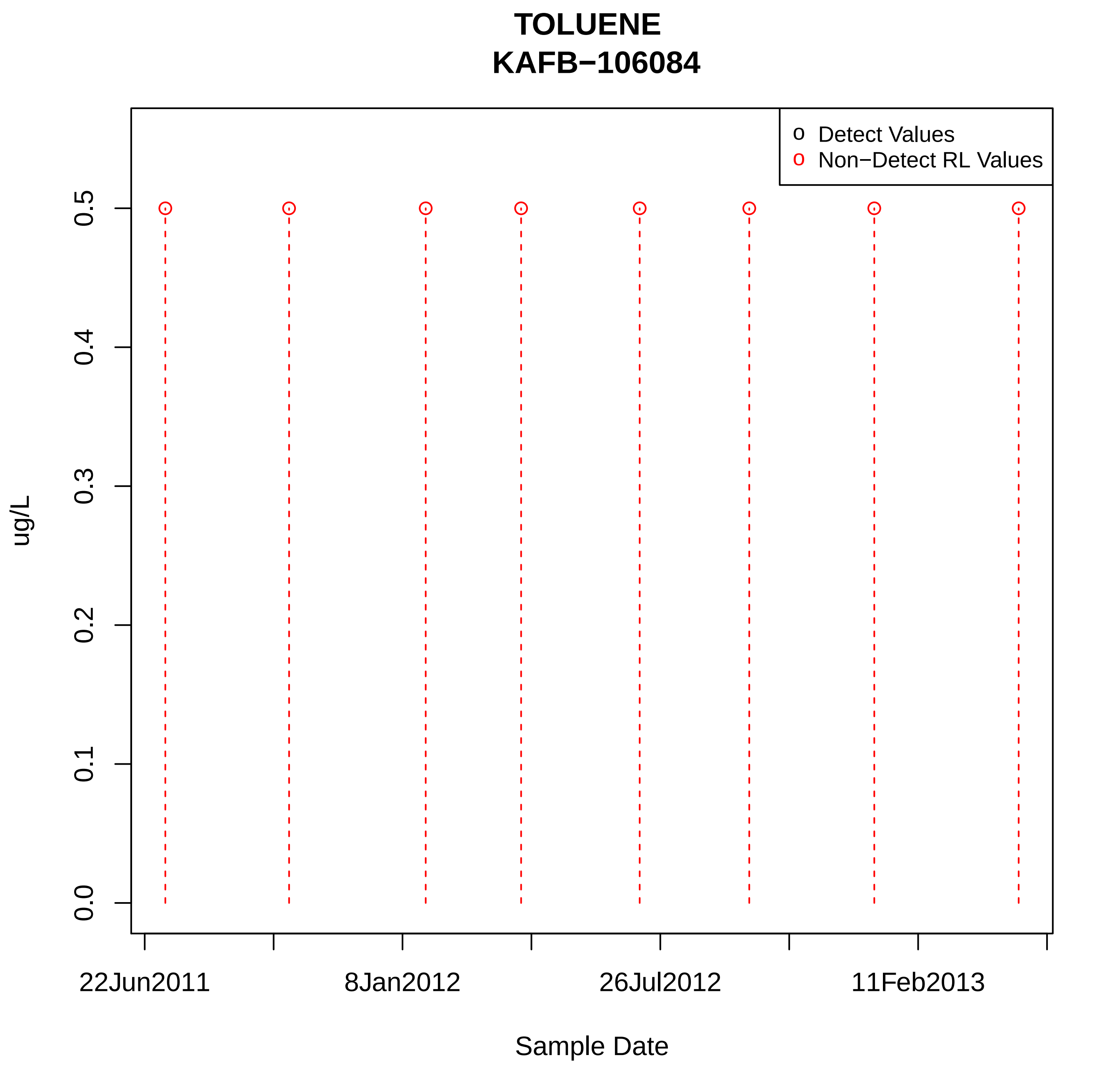

TOLUENE
KAFB−106080
o Detect Values
o Non−Detect RL Values
Slope = −4.977E−01
p−value = 0.015
1500
1000
500
0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

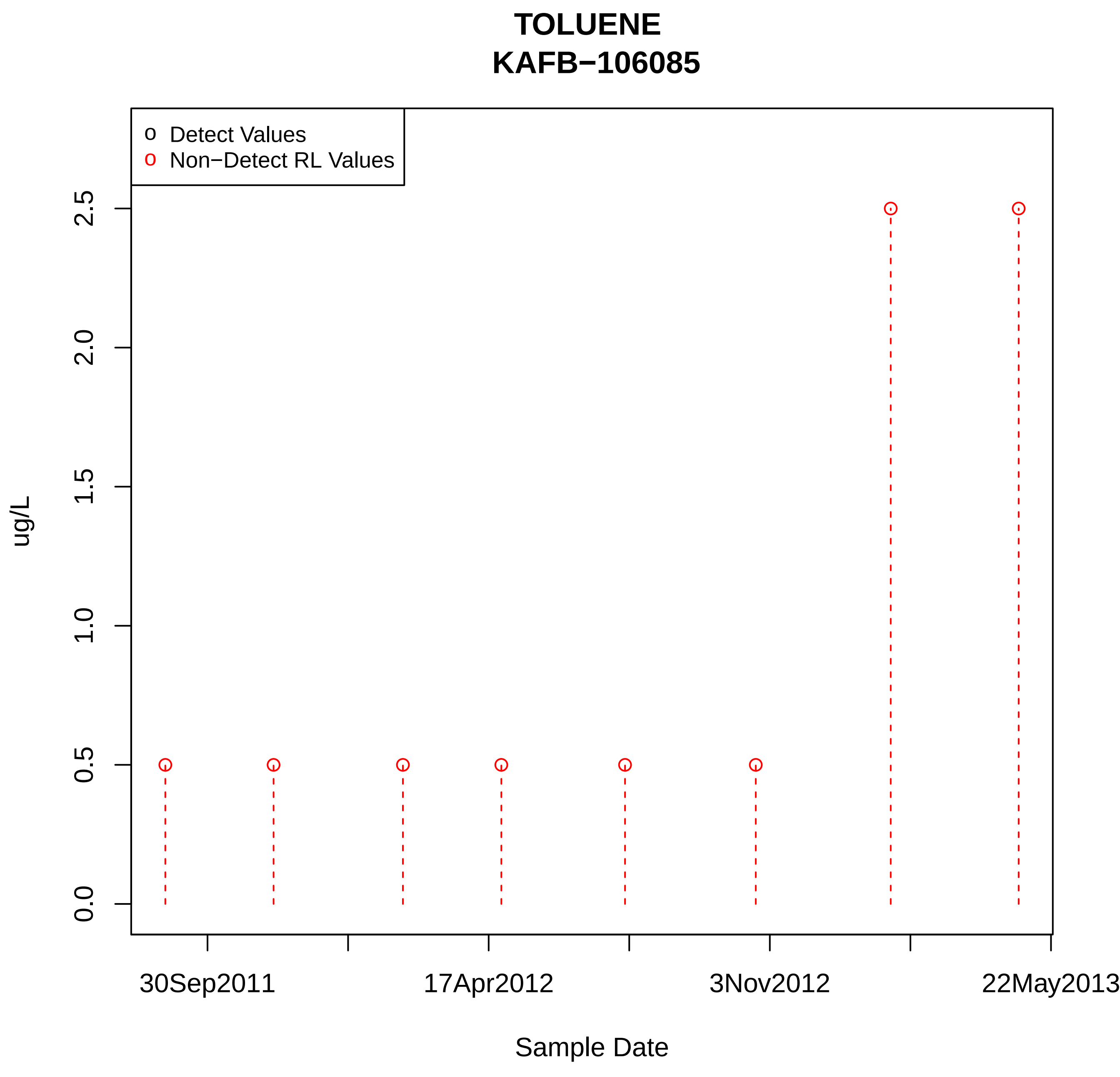


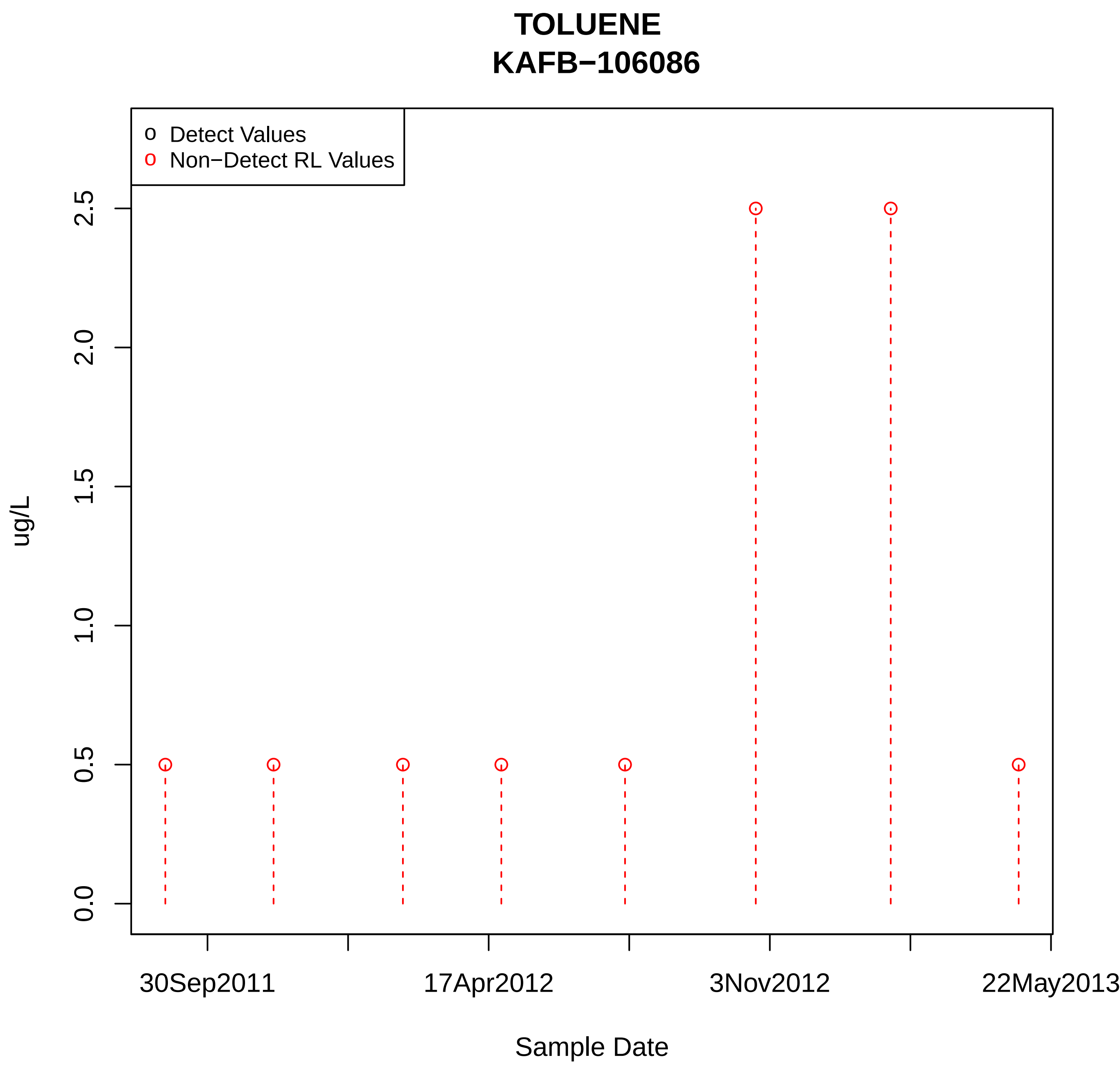
TOLUENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


TOLUENE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −7.756E−04
p−value = 1.000
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

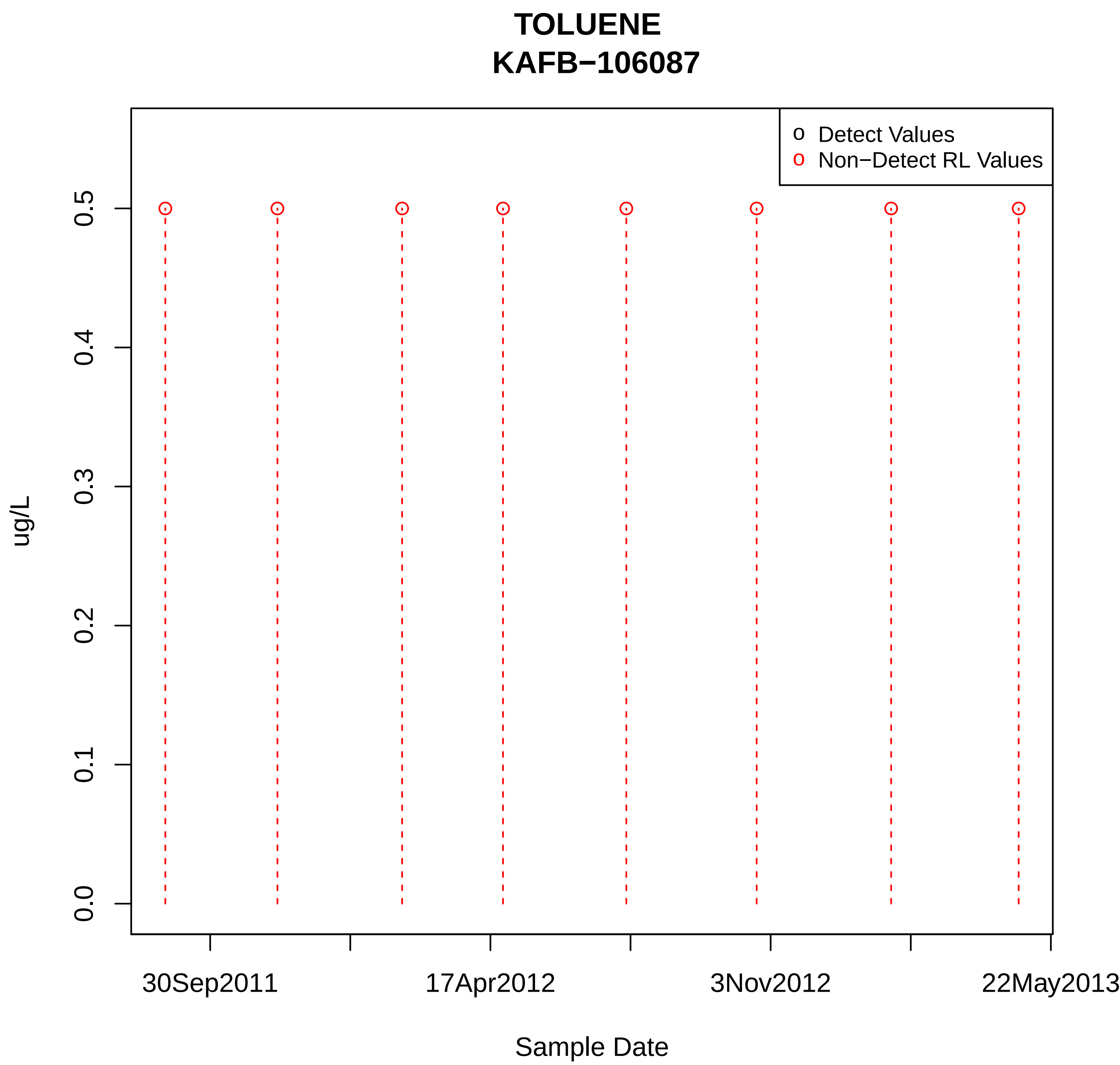

TOLUENE
KAFB−106083
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


TOLUENE
KAFB−106084
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

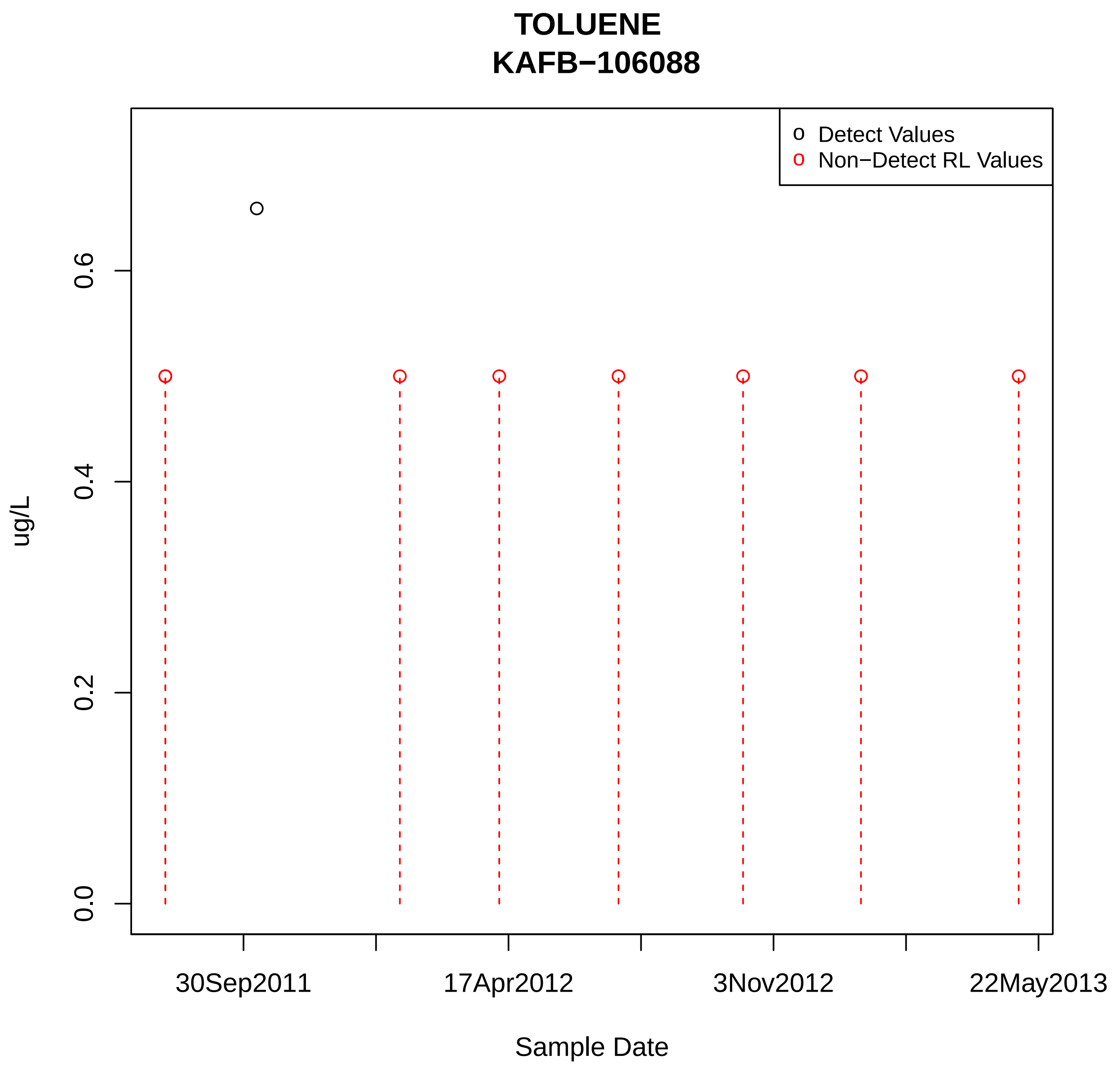

TOLUENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

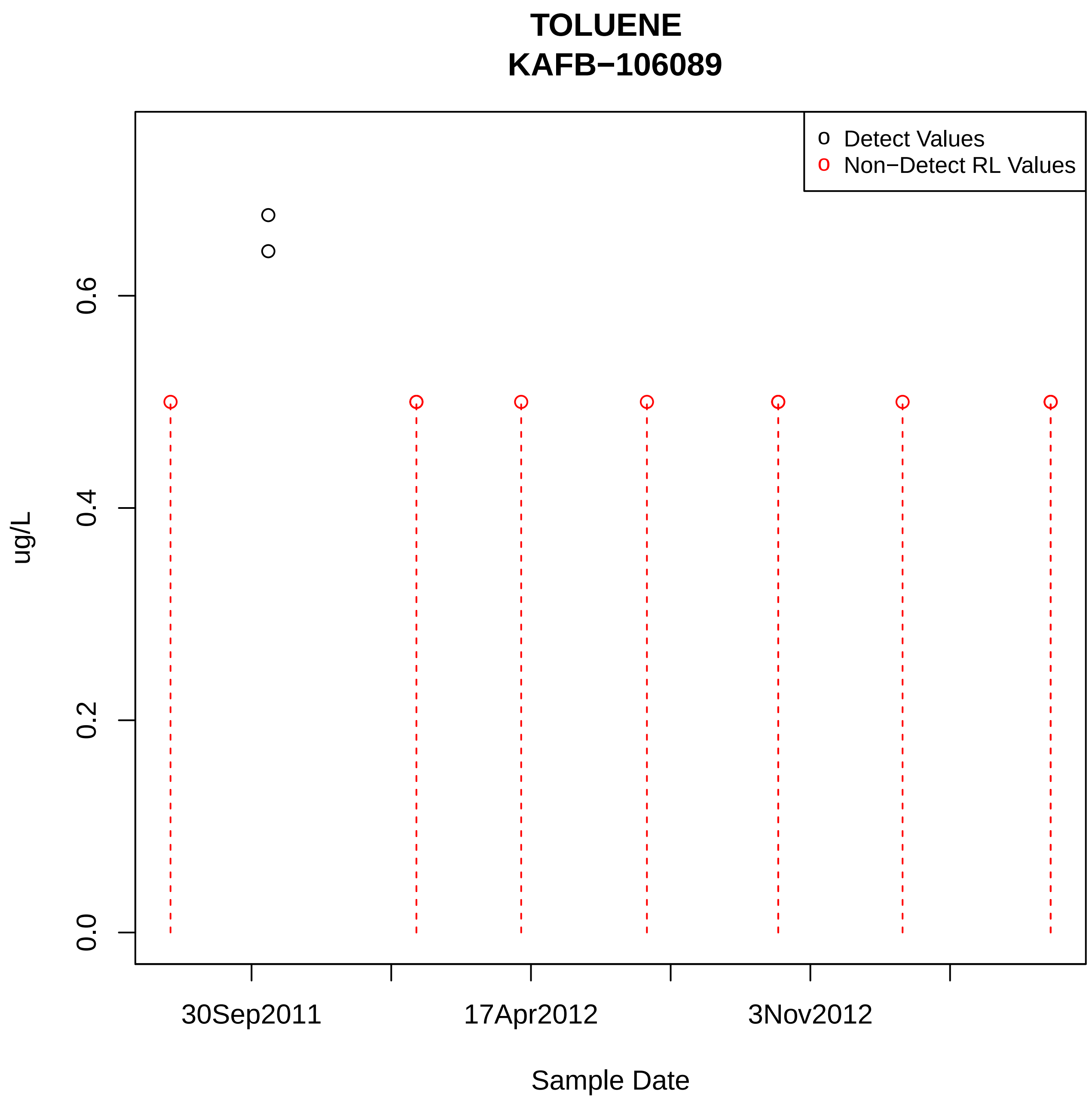


TOLUENE
KAFB−106086
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

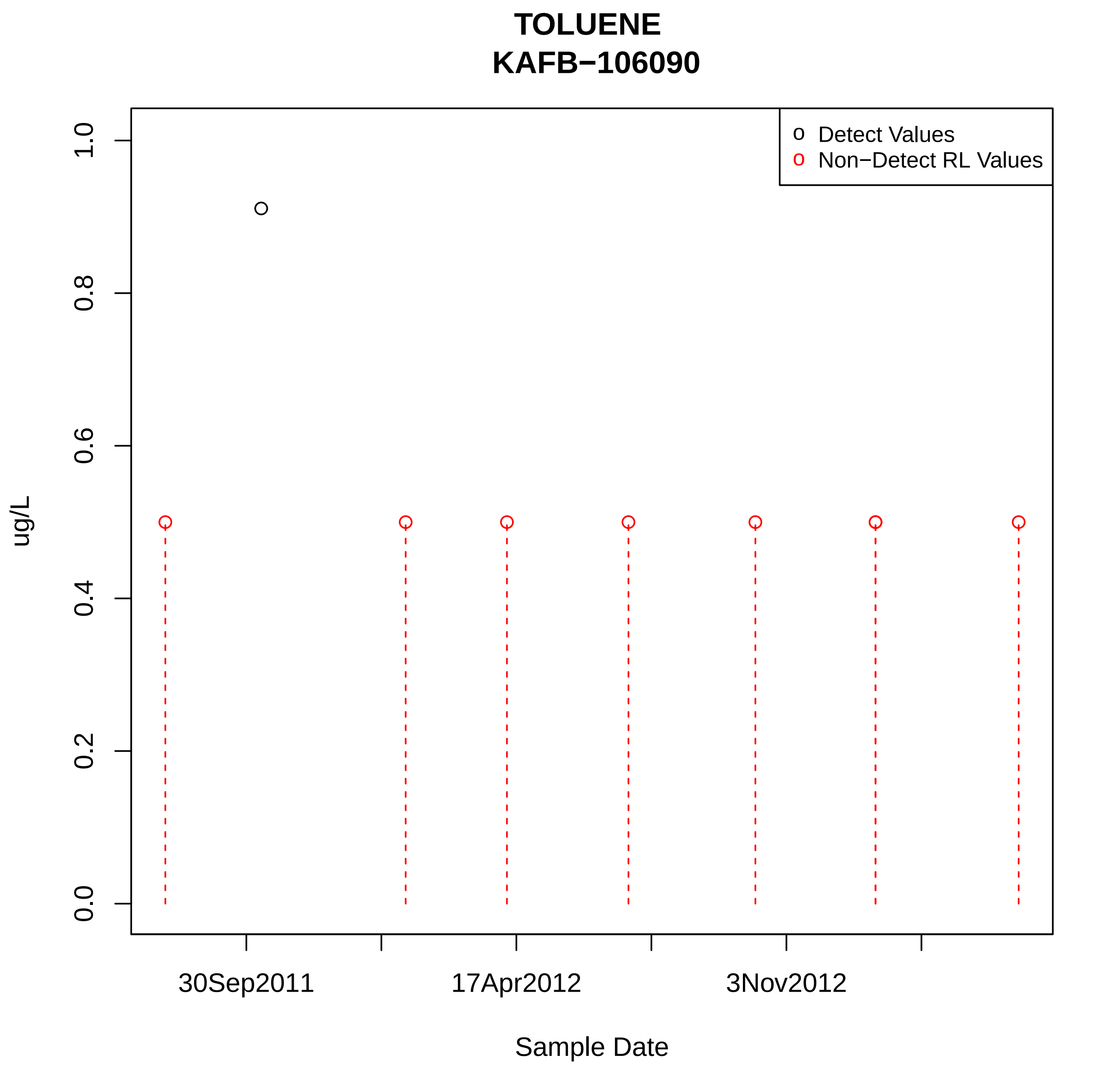


TOLUENE
KAFB−106087
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

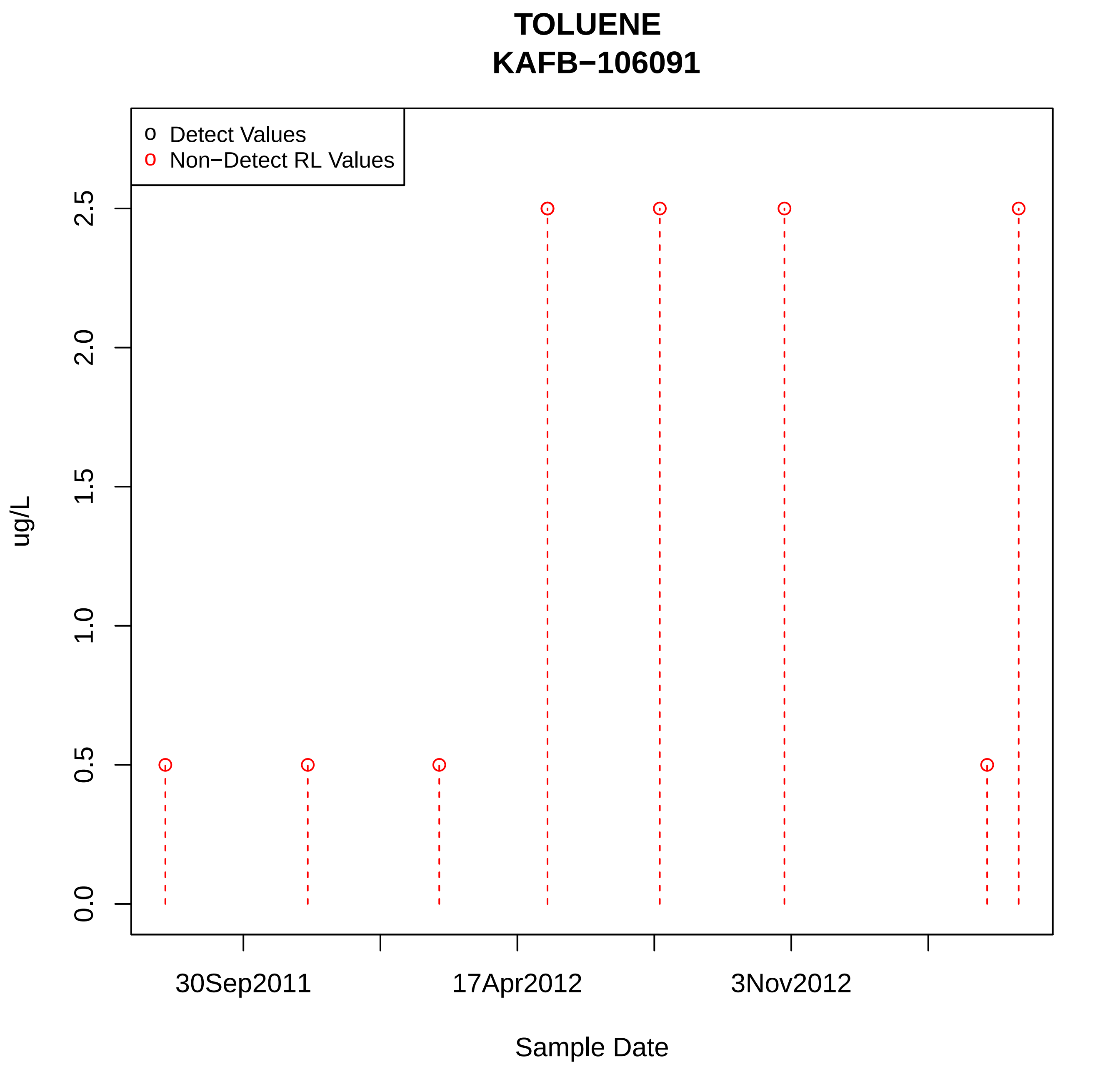

TOLUENE
KAFB−106088
o Detect Values
o Non−Detect RL Values
0.0
0.2
0.4
0.6
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

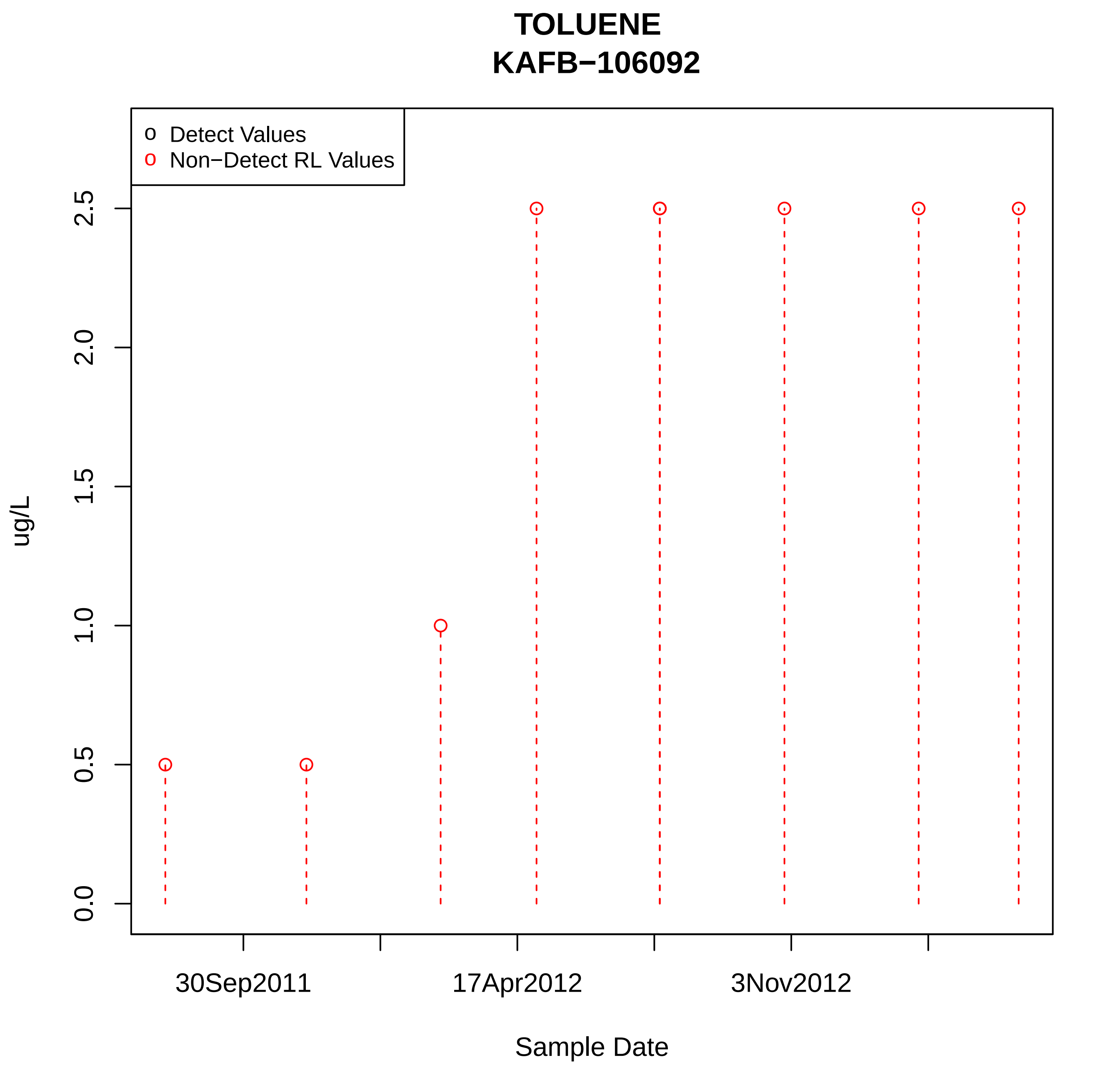


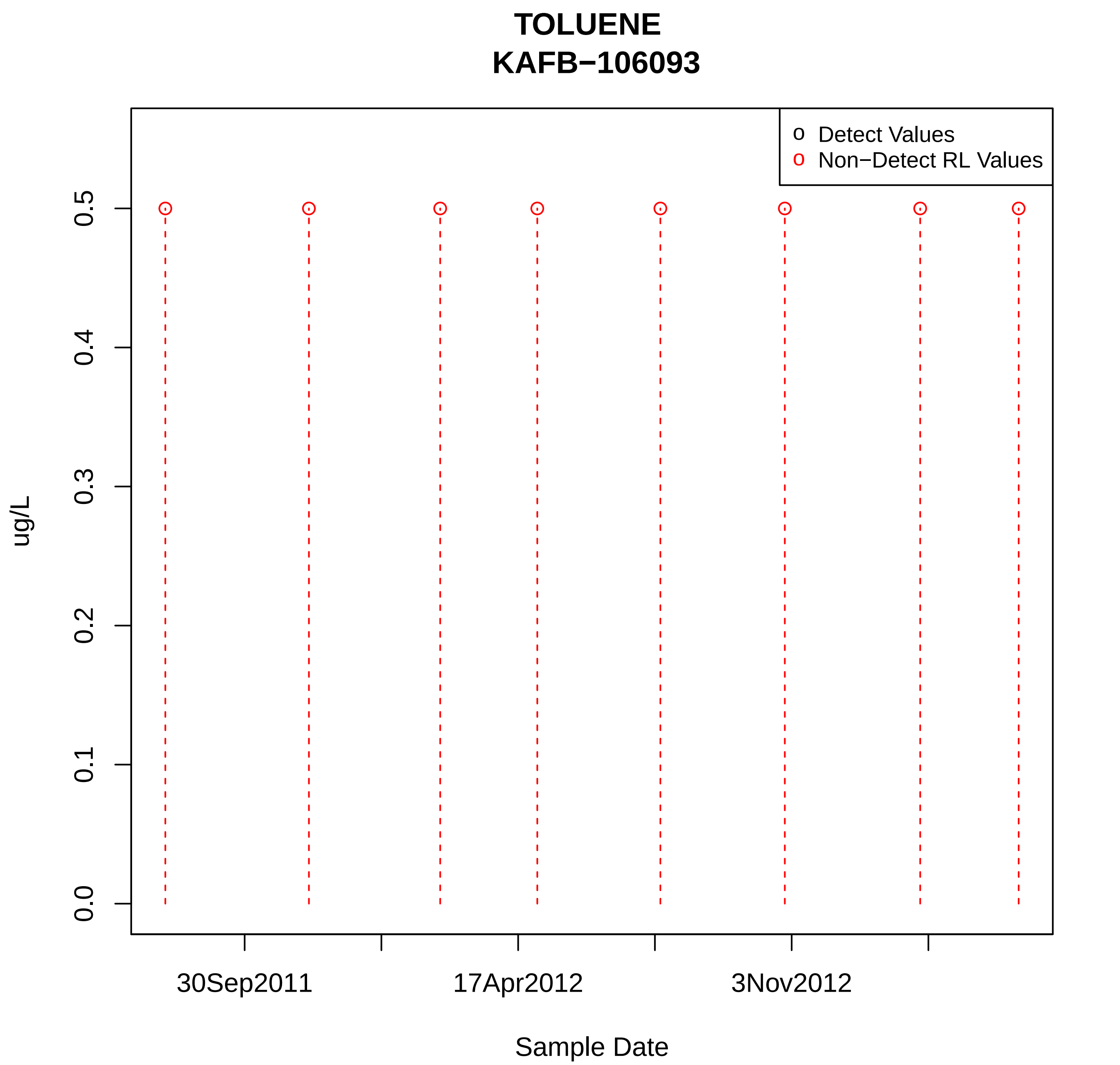
TOLUENE
KAFB−106089
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
30Sep2011
17Apr2012
3Nov2012
Sample Date

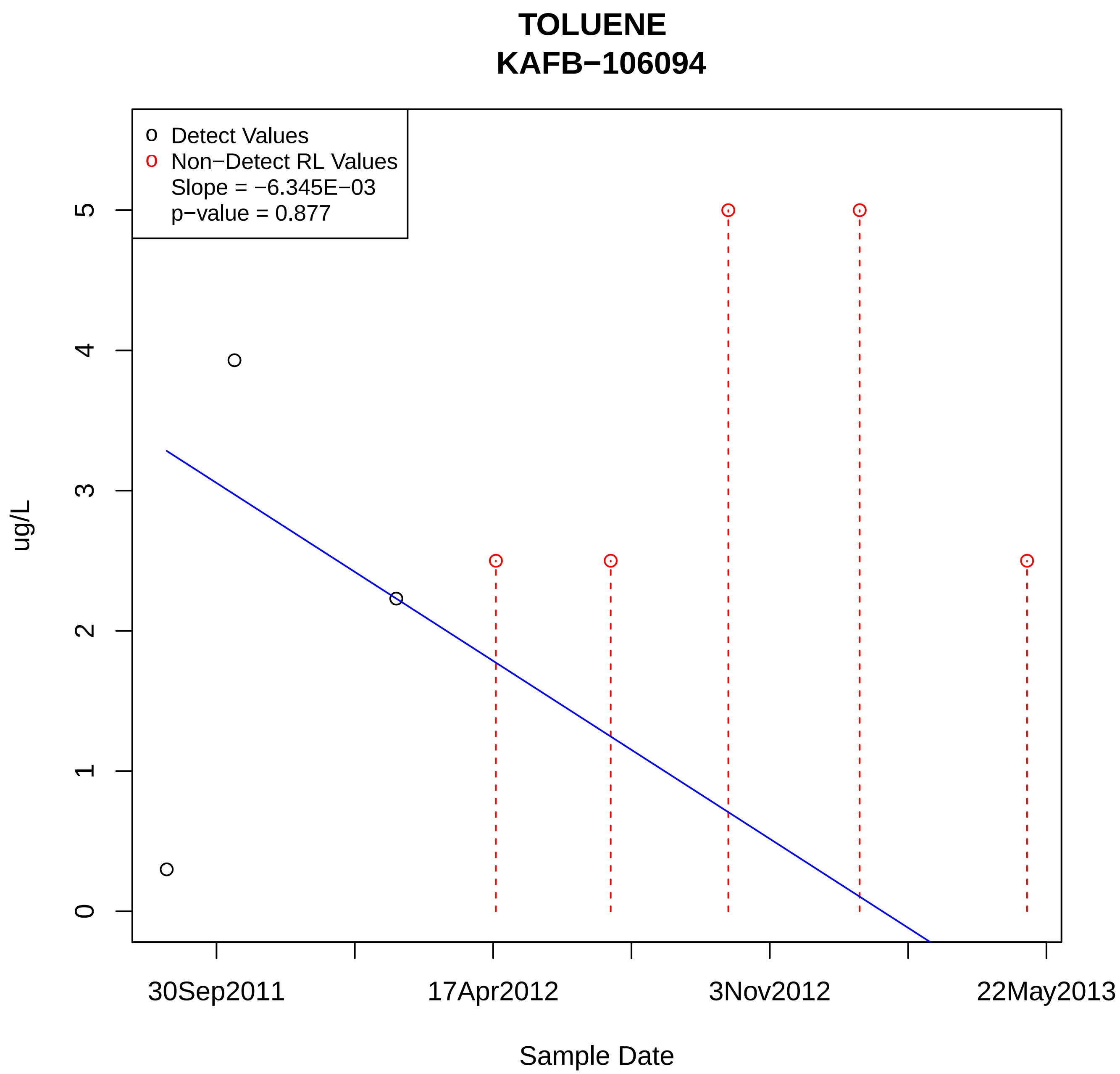


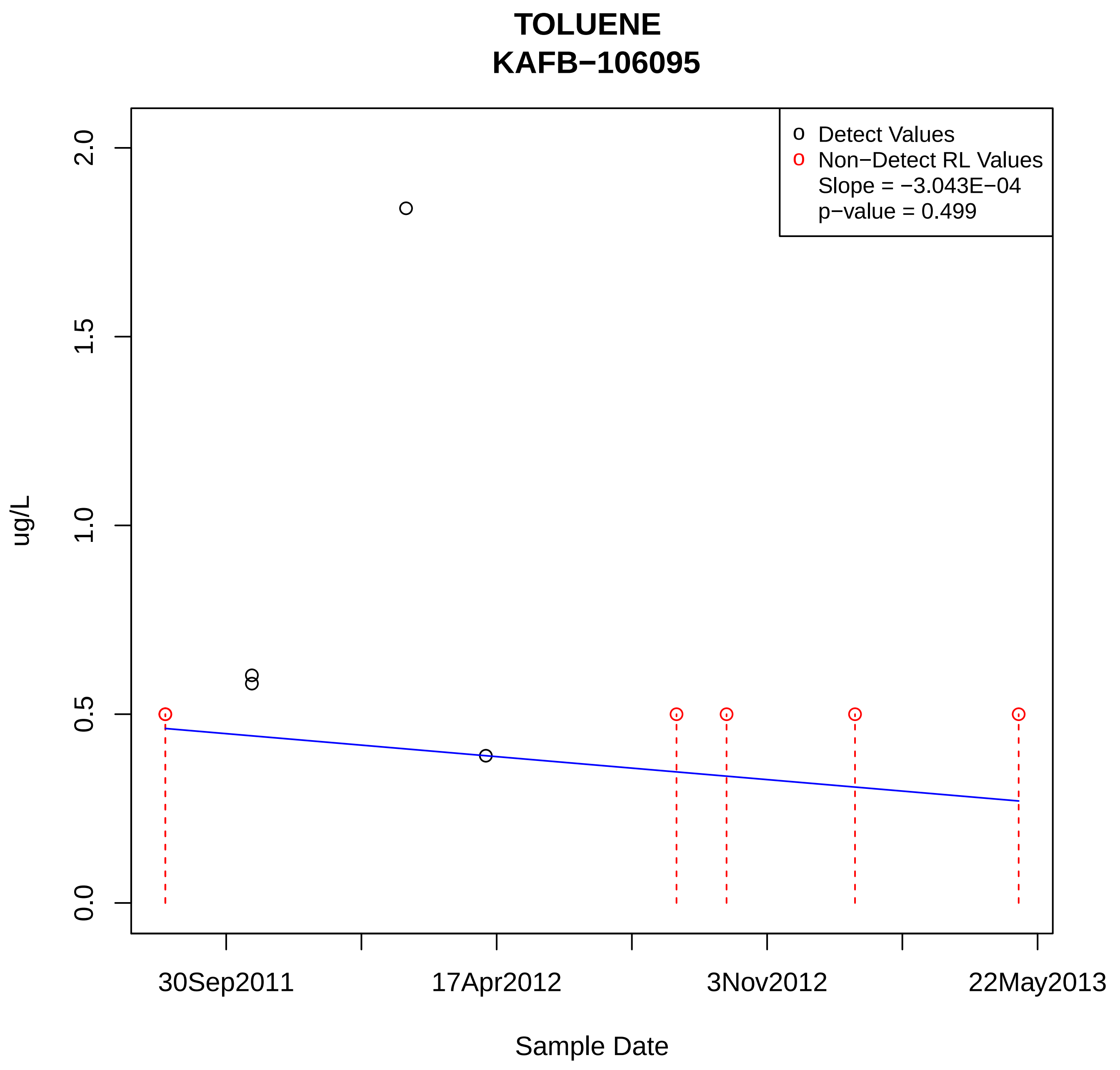
TOLUENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

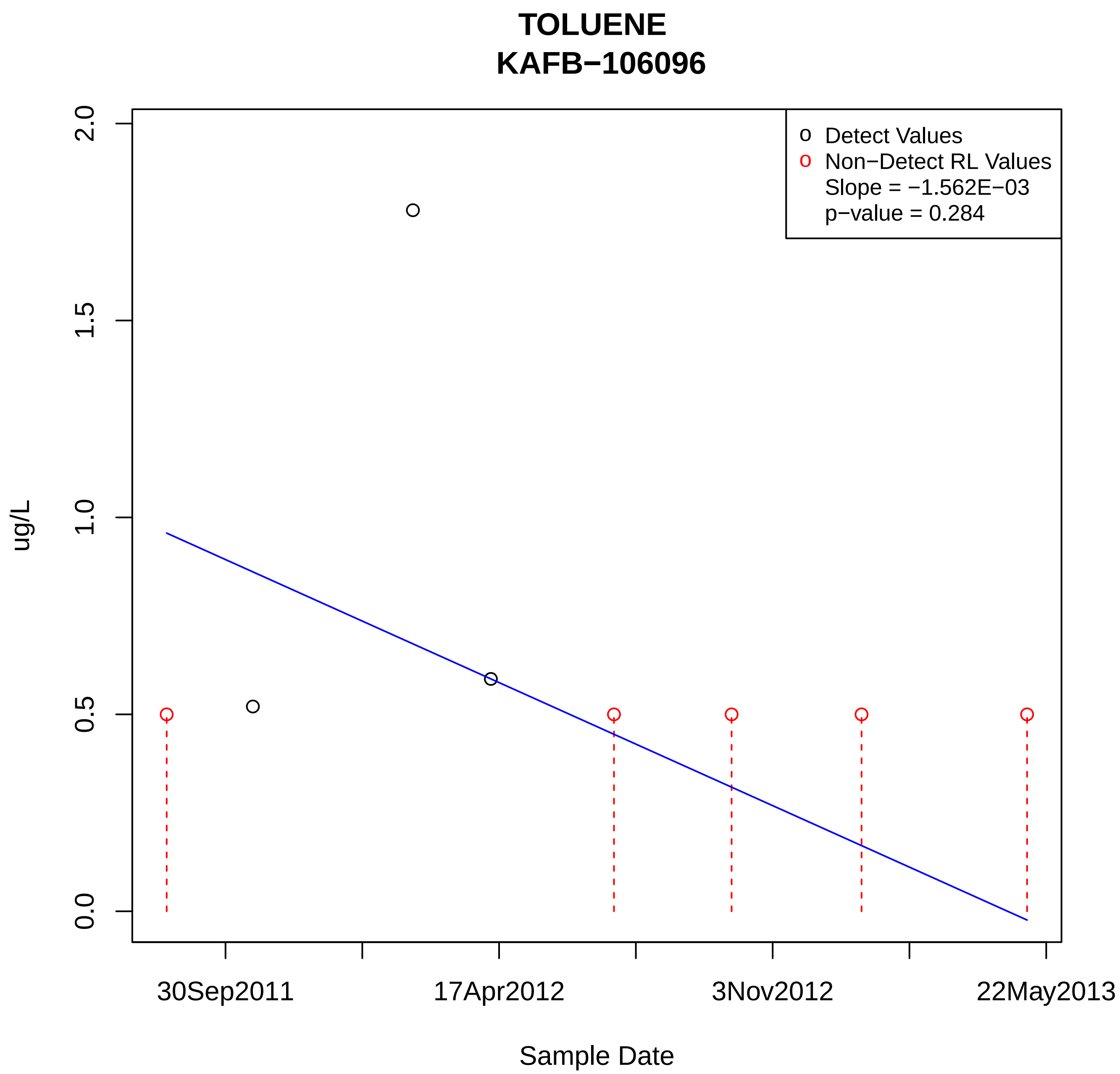

TOLUENE
KAFB−106091
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


TOLUENE
KAFB−106092
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

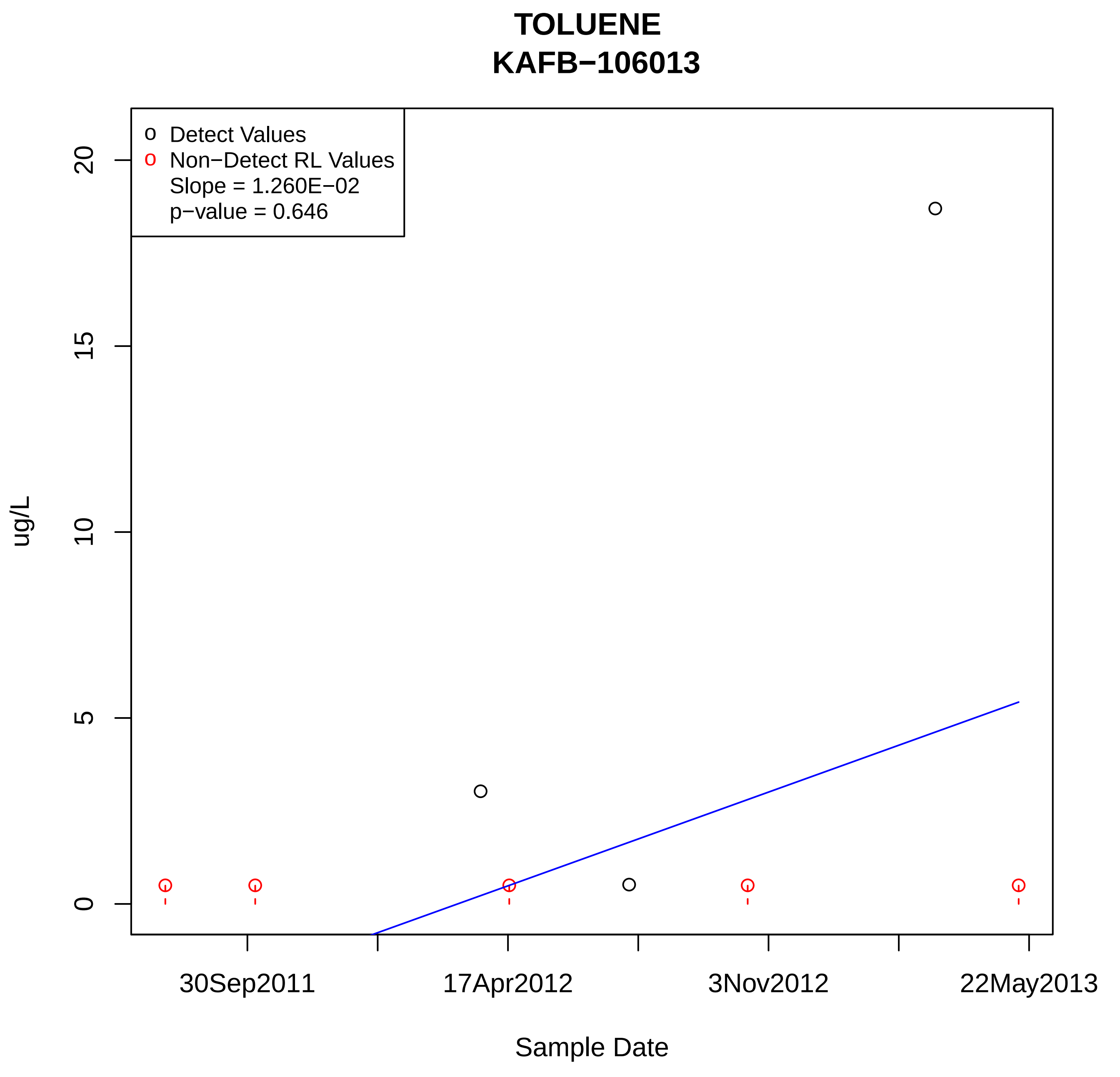

TOLUENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


TOLUENE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = −6.345E−03
p−value = 0.877
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

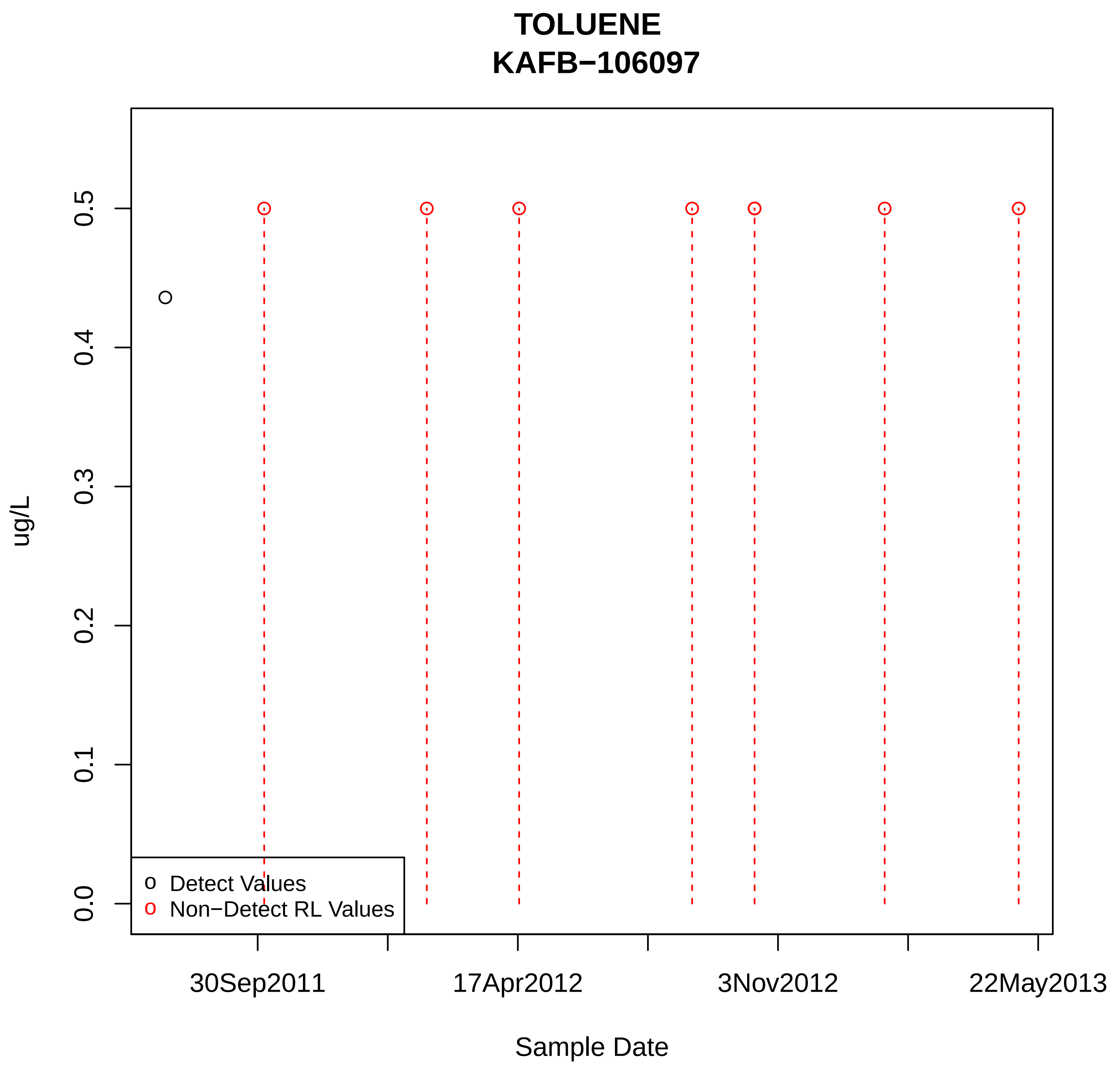

TOLUENE
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −3.043E−04
p−value = 0.499
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

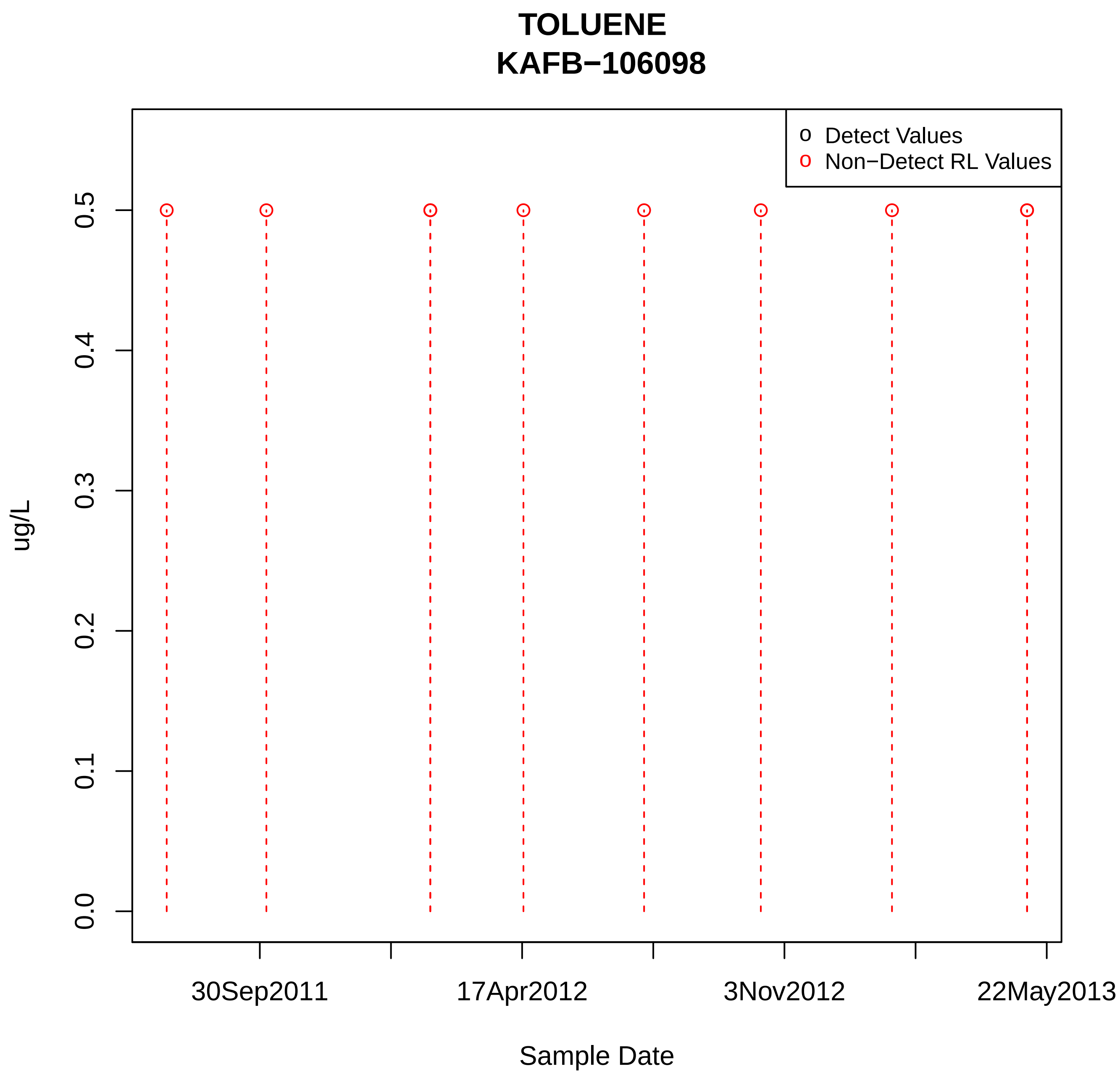


TOLUENE
KAFB−106096
Detect Values
Non−Detect RL Values
Slope = −1.562E−03
p−value = 0.284
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

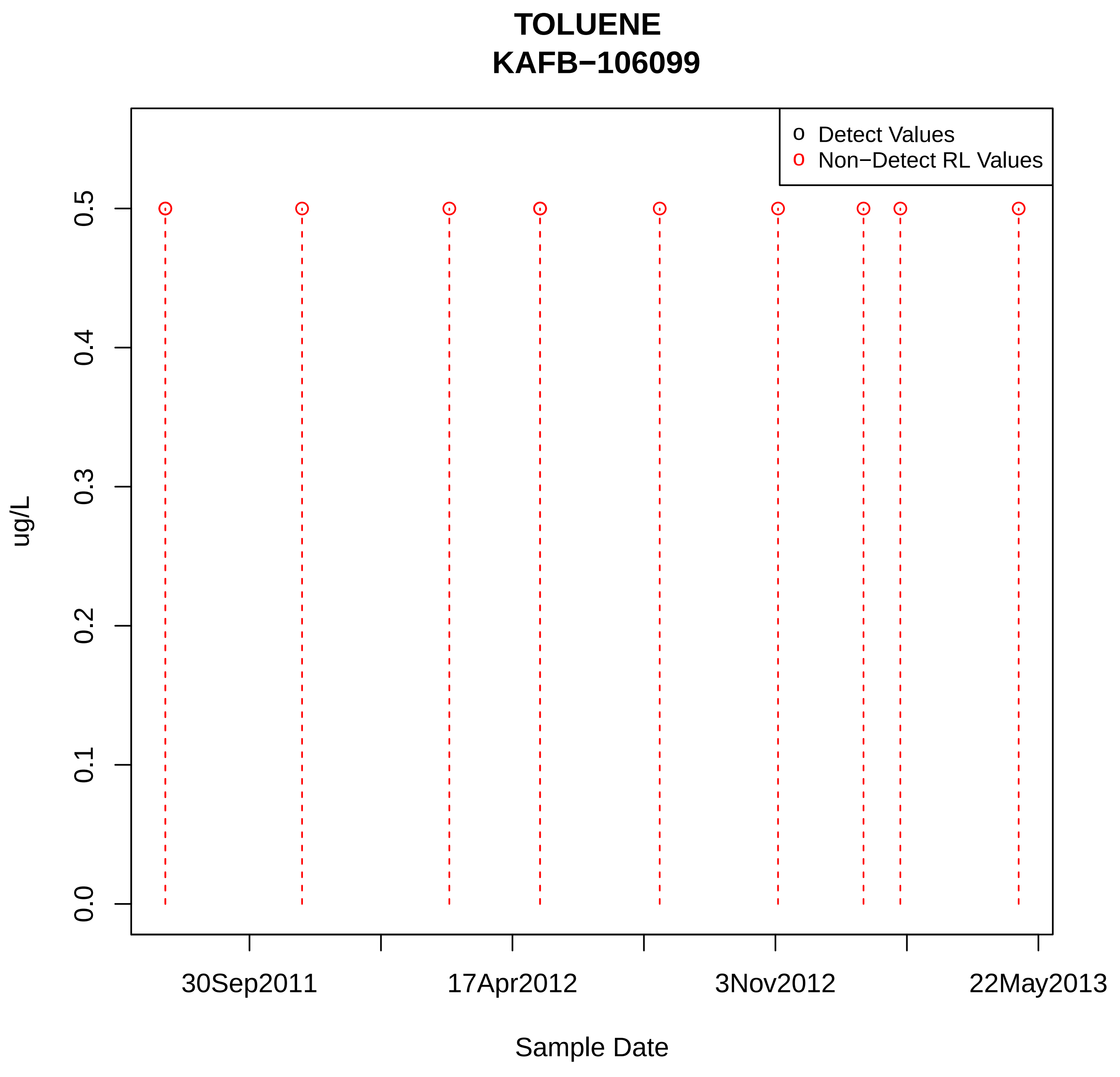


TOLUENE
KAFB−106013
Detect Values
Non−Detect RL Values
Slope = 1.260E−02
p−value = 0.646
ug/L
0
5
10
15
20
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

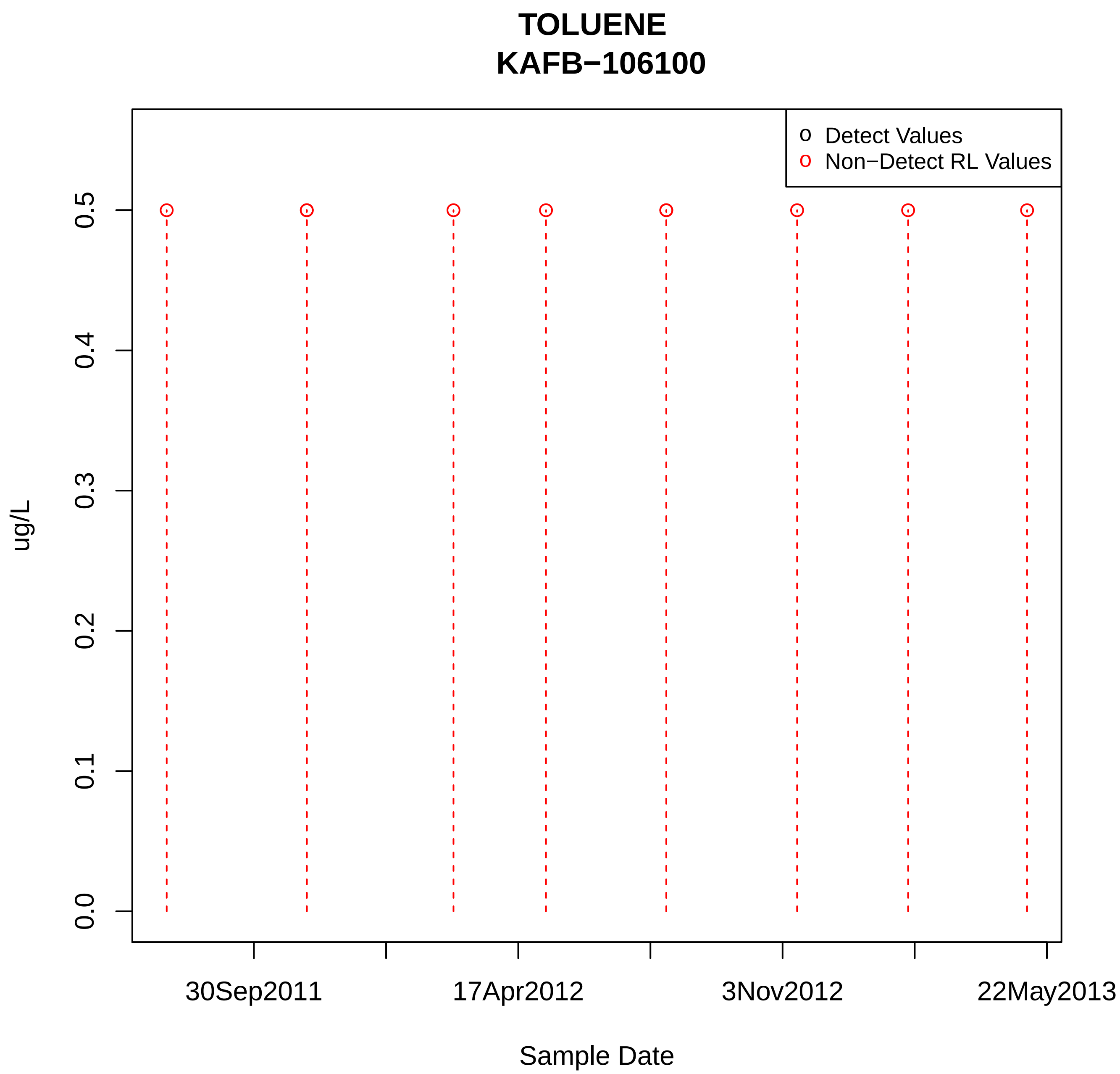

TOLUENE
KAFB−106097
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

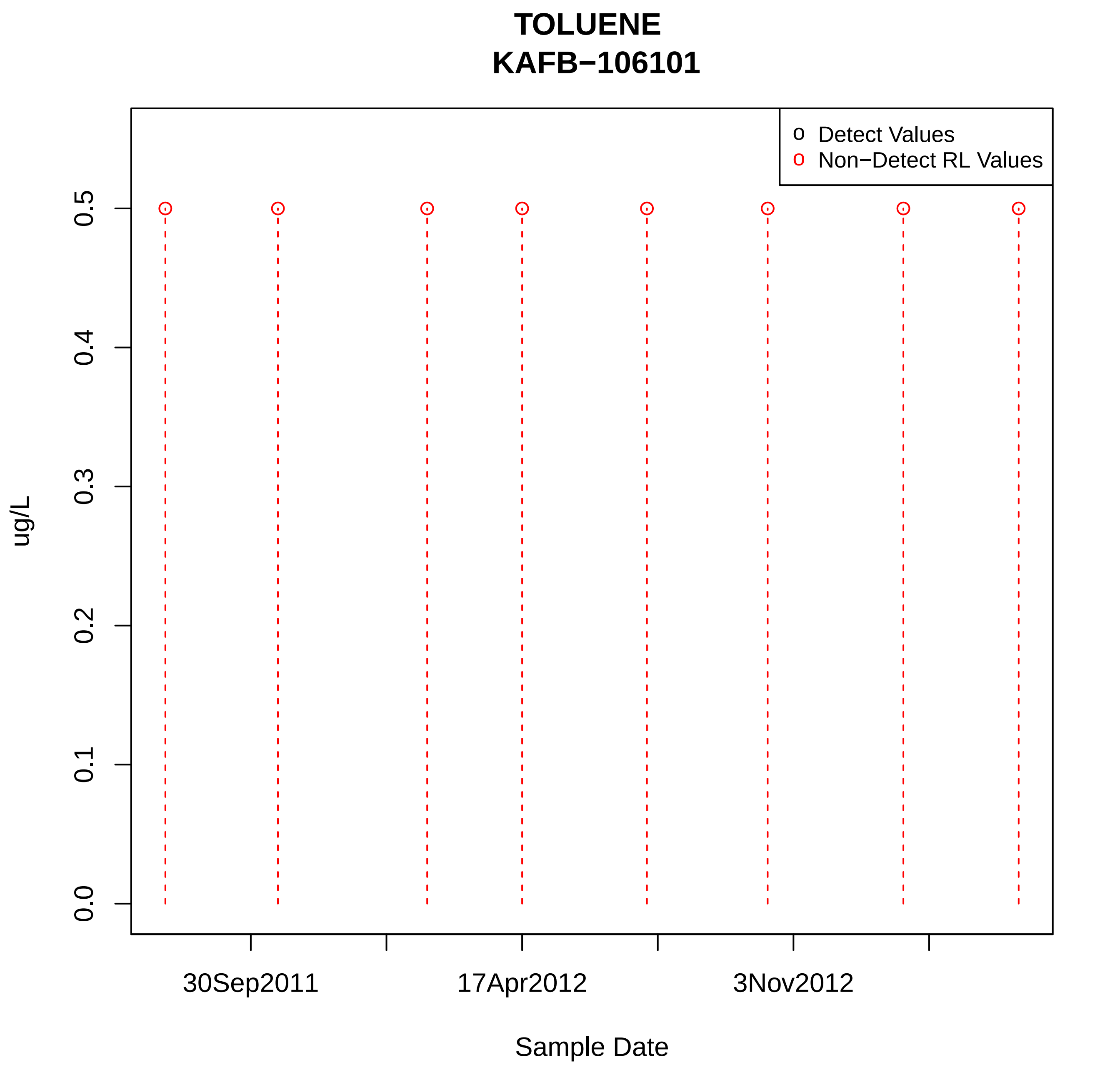


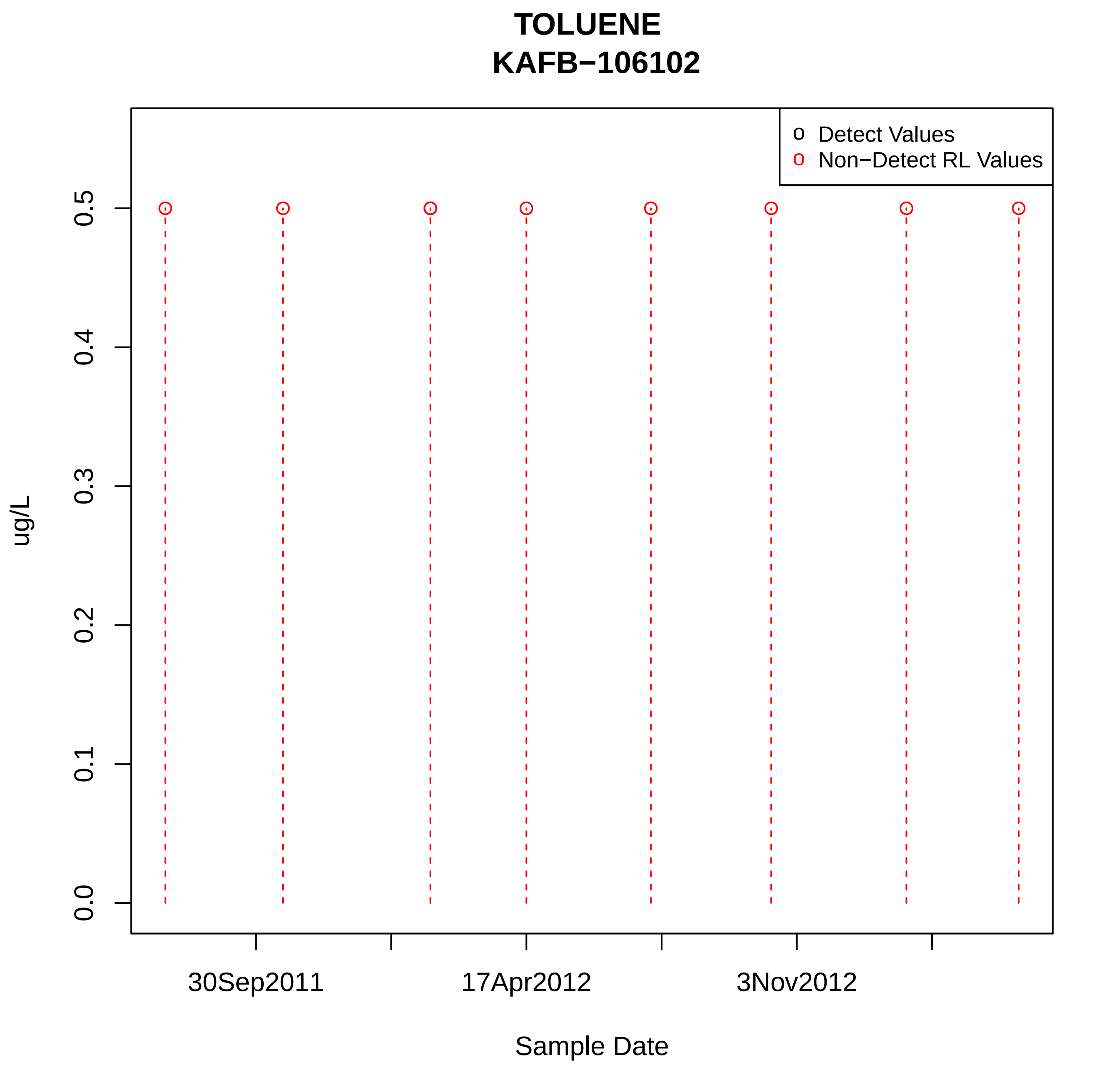
TOLUENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



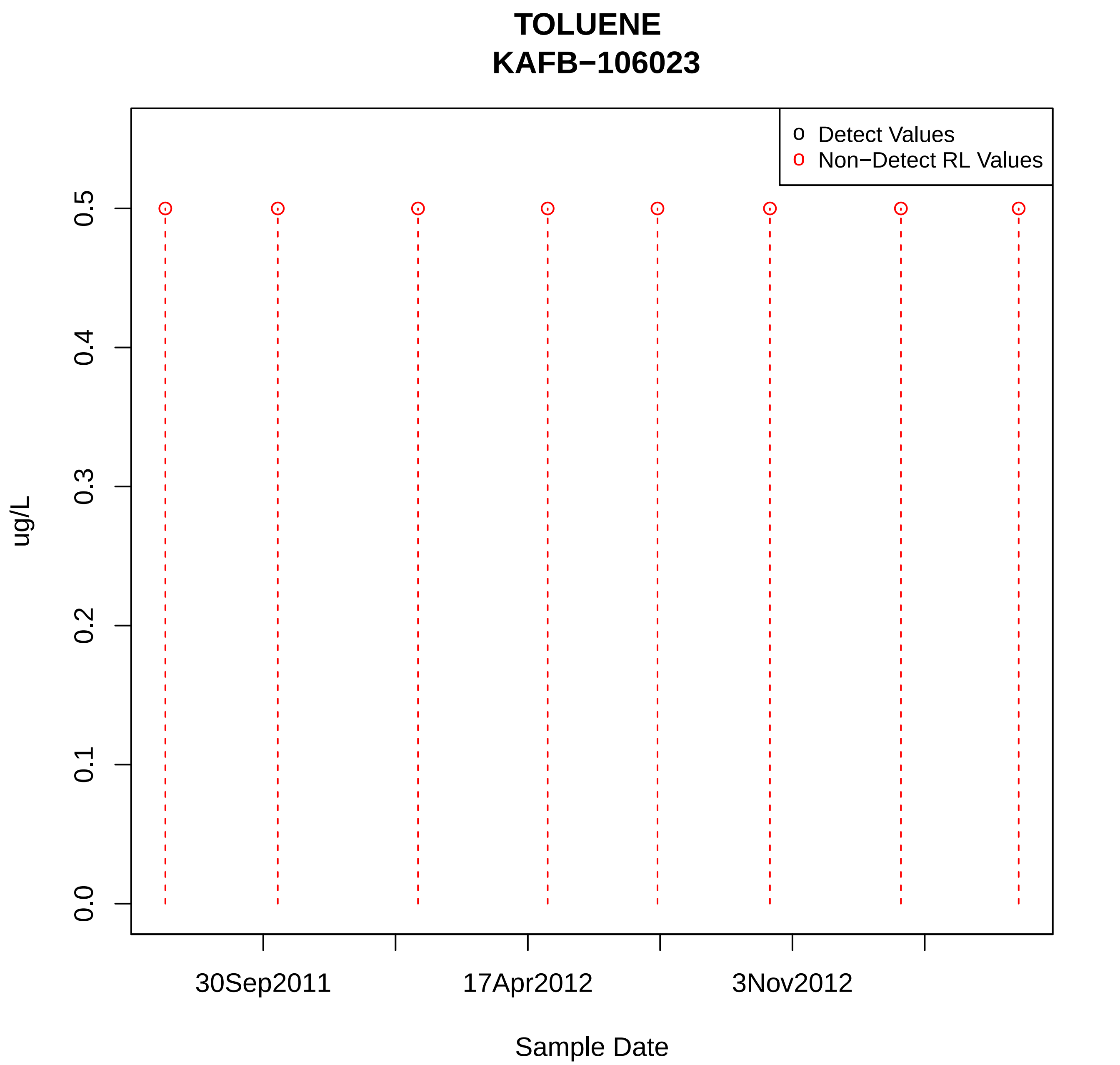
TOLUENE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


TOLUENE
KAFB−106100
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

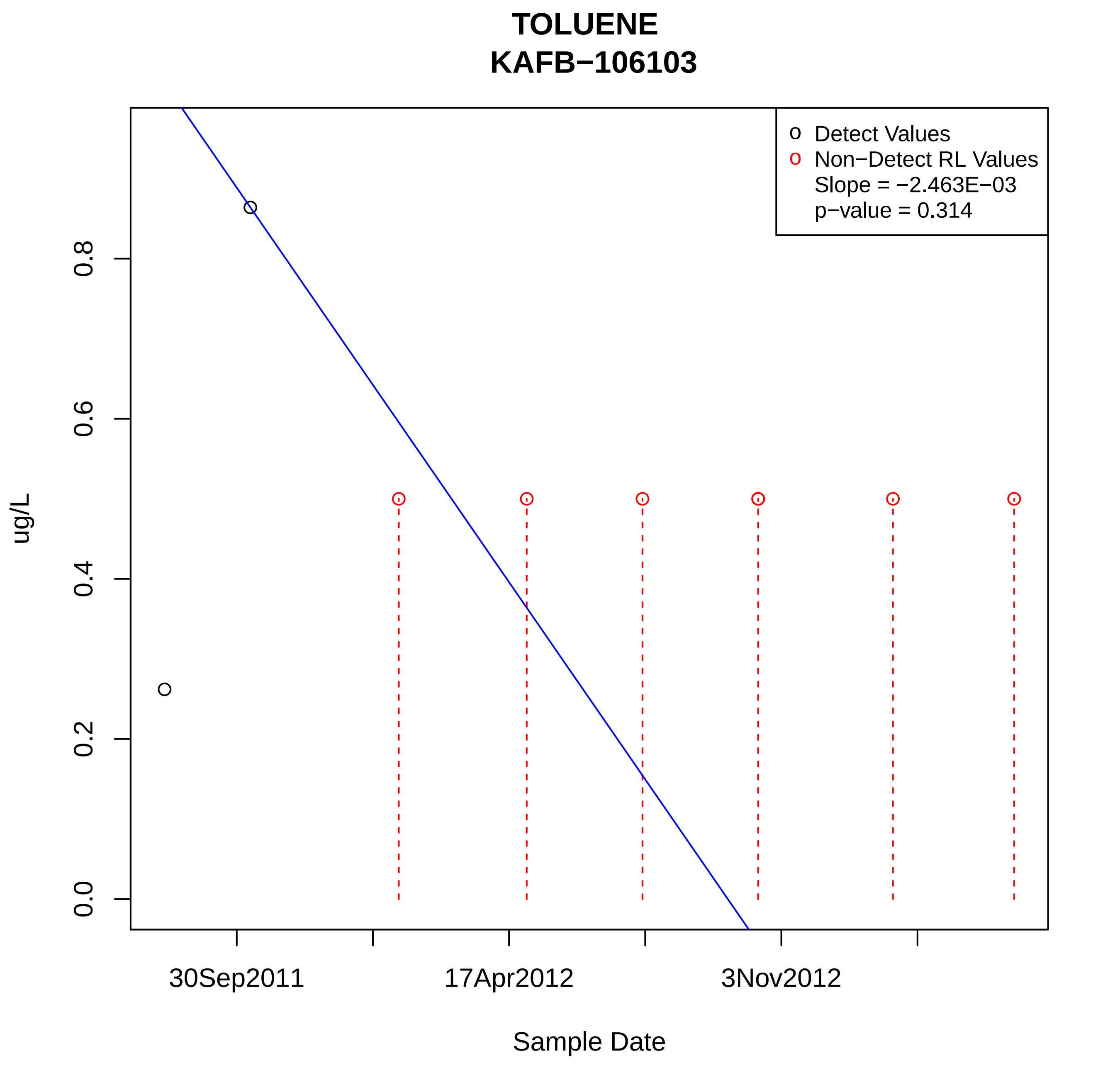

TOLUENE
KAFB−106101
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

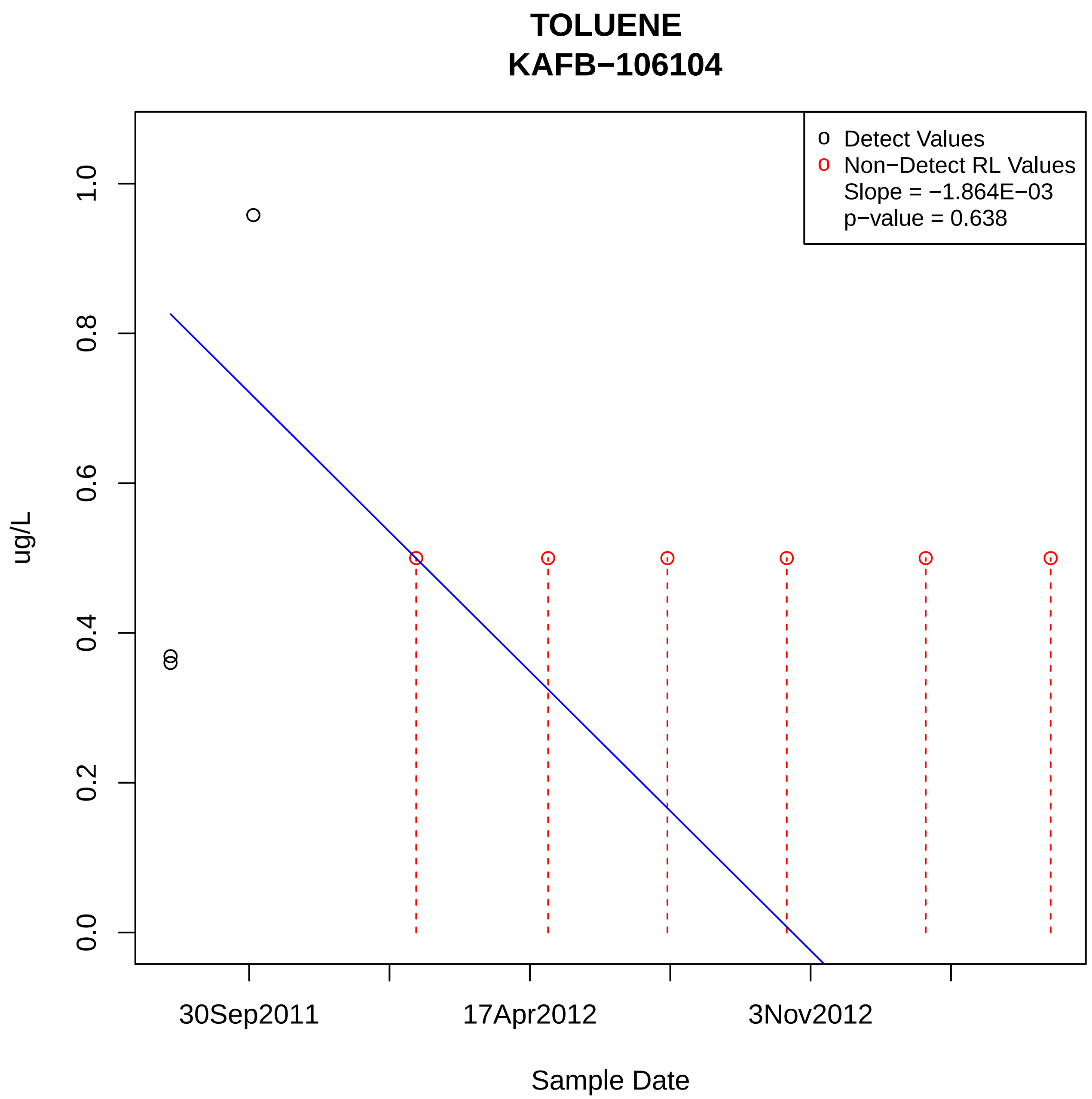


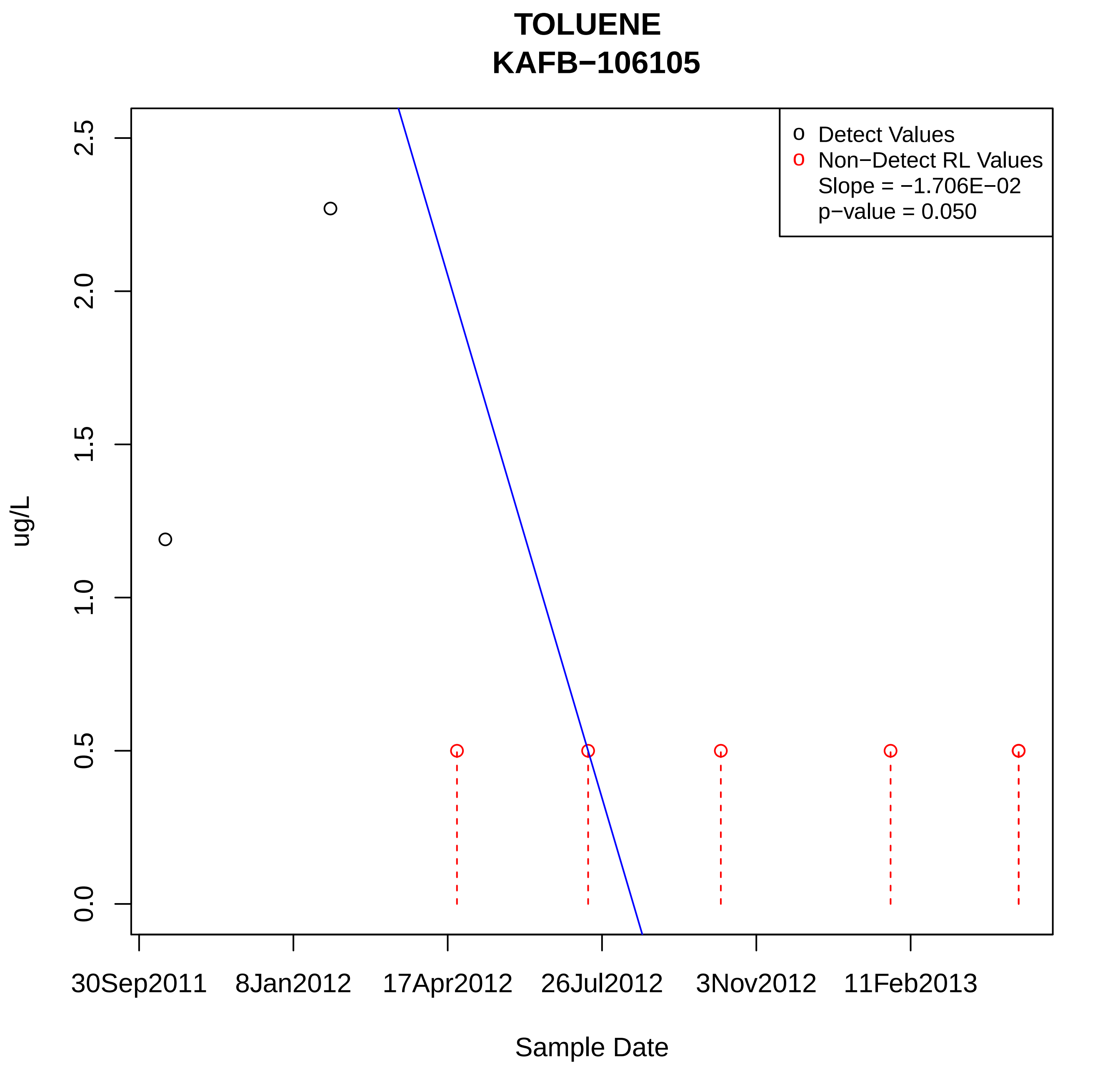
TOLUENE
KAFB−106102
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



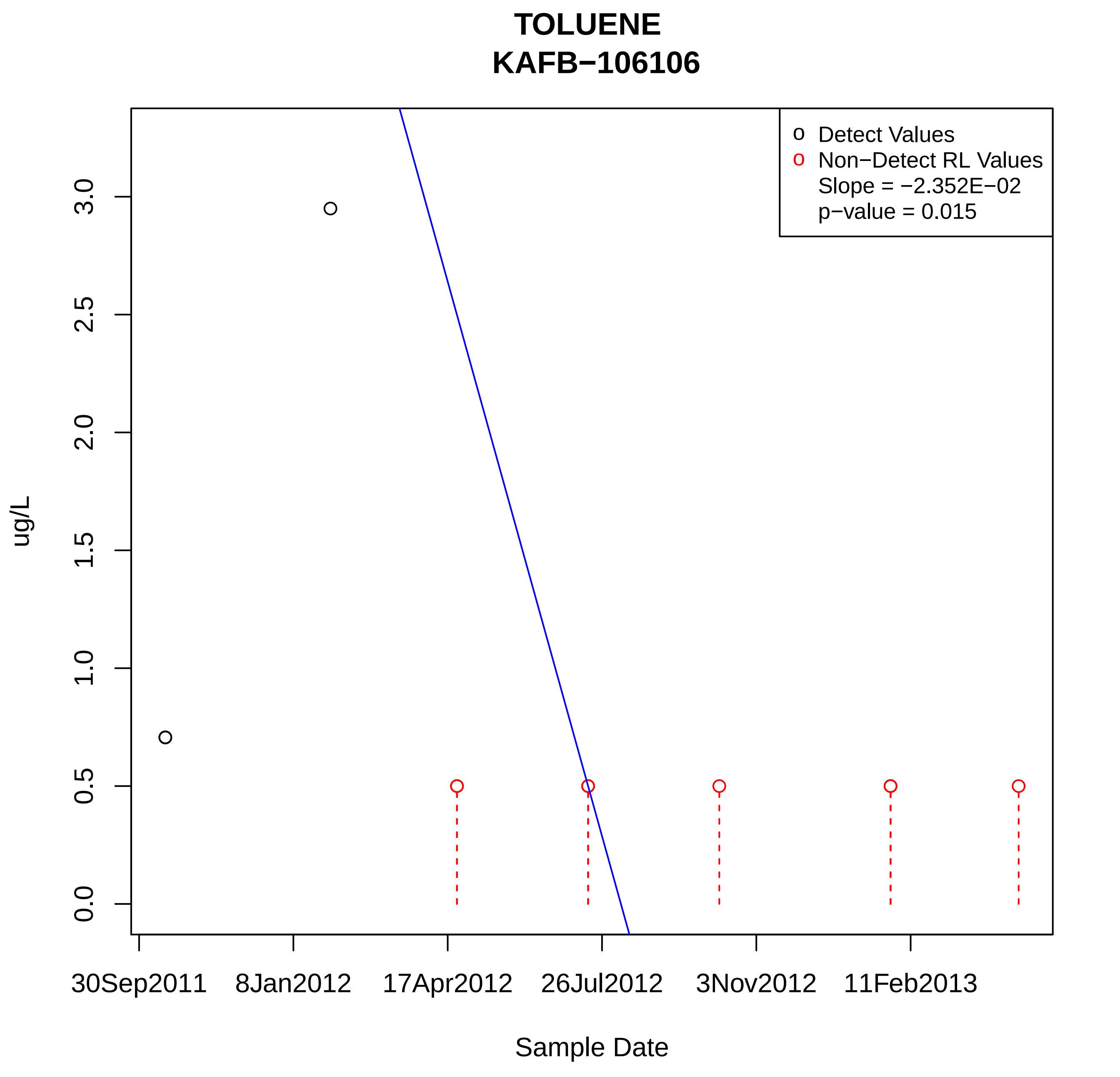
TOLUENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

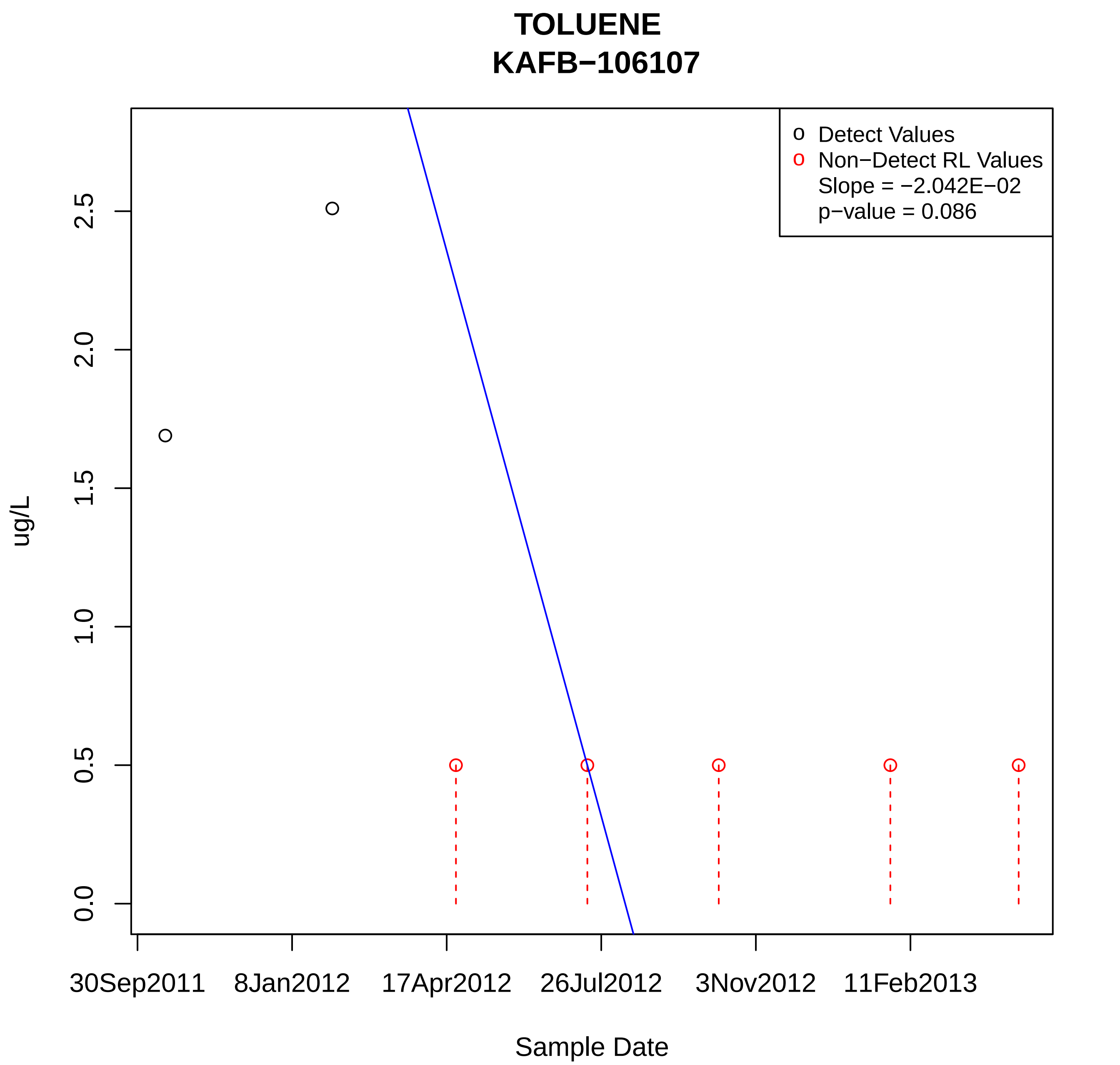

TOLUENE
KAFB−106103
Detect Values
Non−Detect RL Values
Slope = −2.463E−03
p−value = 0.314
ug/L
0.0
0.2
0.4
0.6
0.8
30Sep2011
17Apr2012
3Nov2012
Sample Date


TOLUENE
KAFB−106104
Detect Values
Non−Detect RL Values
Slope = −1.864E−03
p−value = 0.638
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

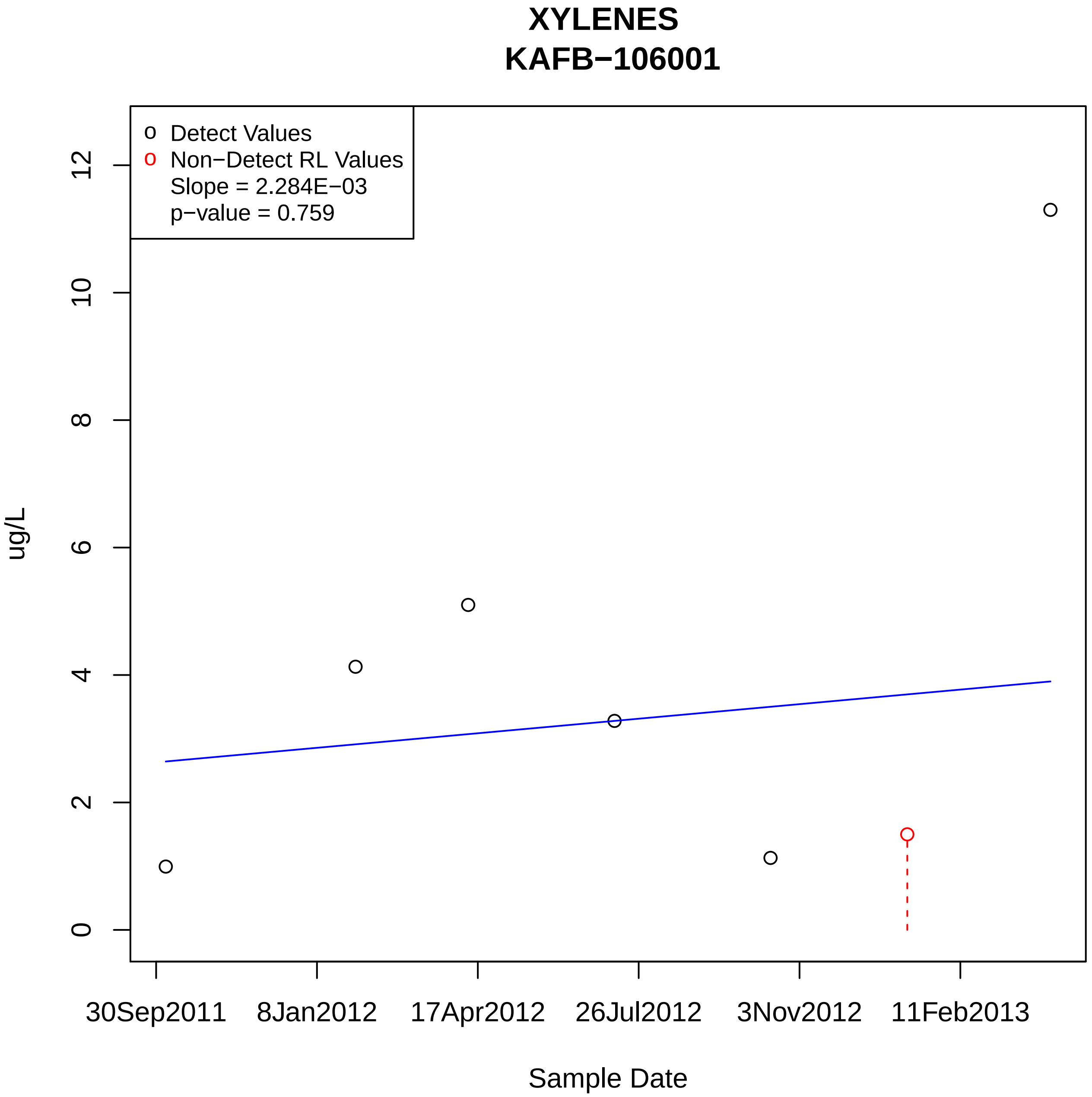


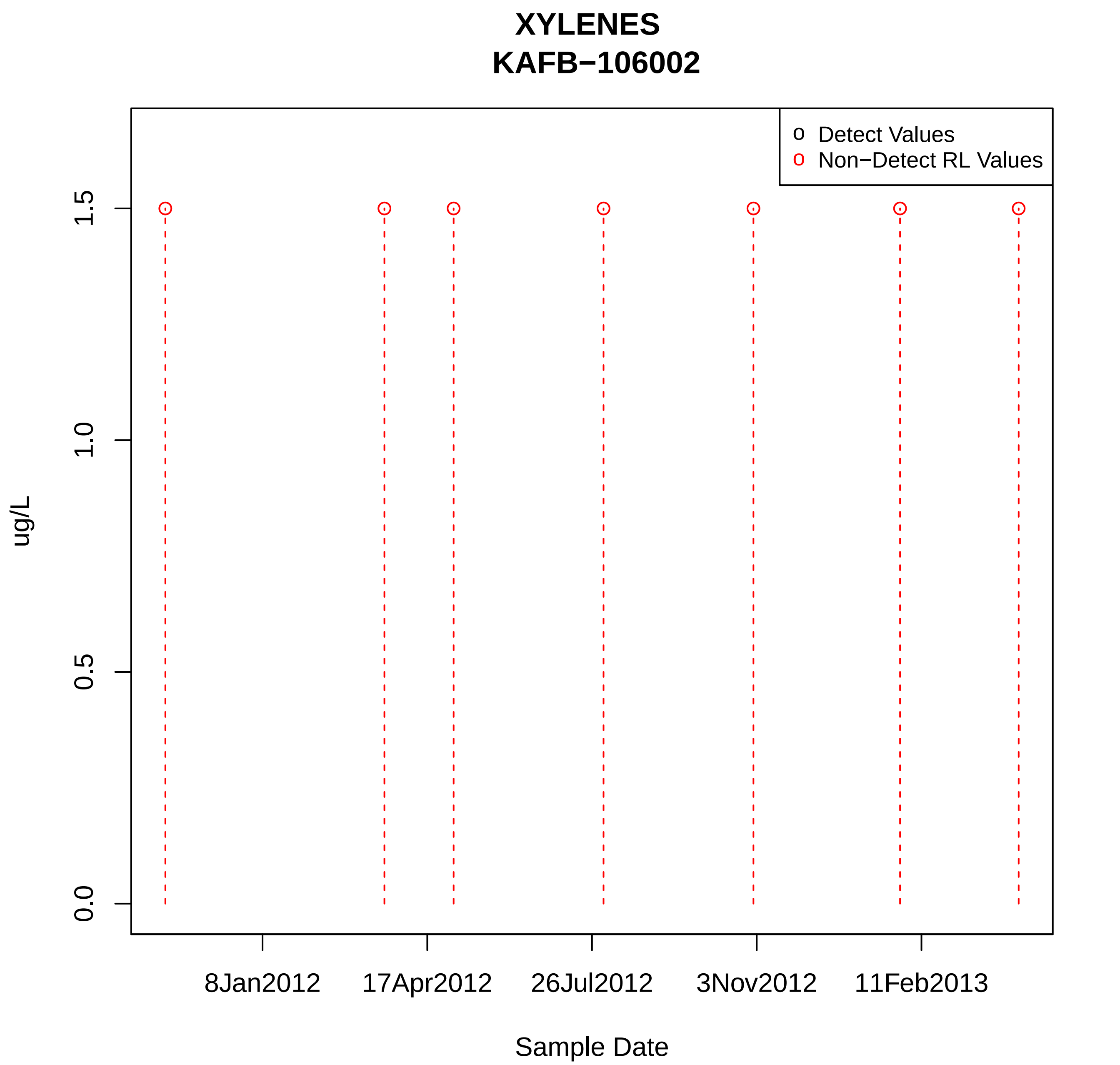
TOLUENE
KAFB−106105
Detect Values
Non−Detect RL Values
Slope = −1.706E−02
p−value = 0.050
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

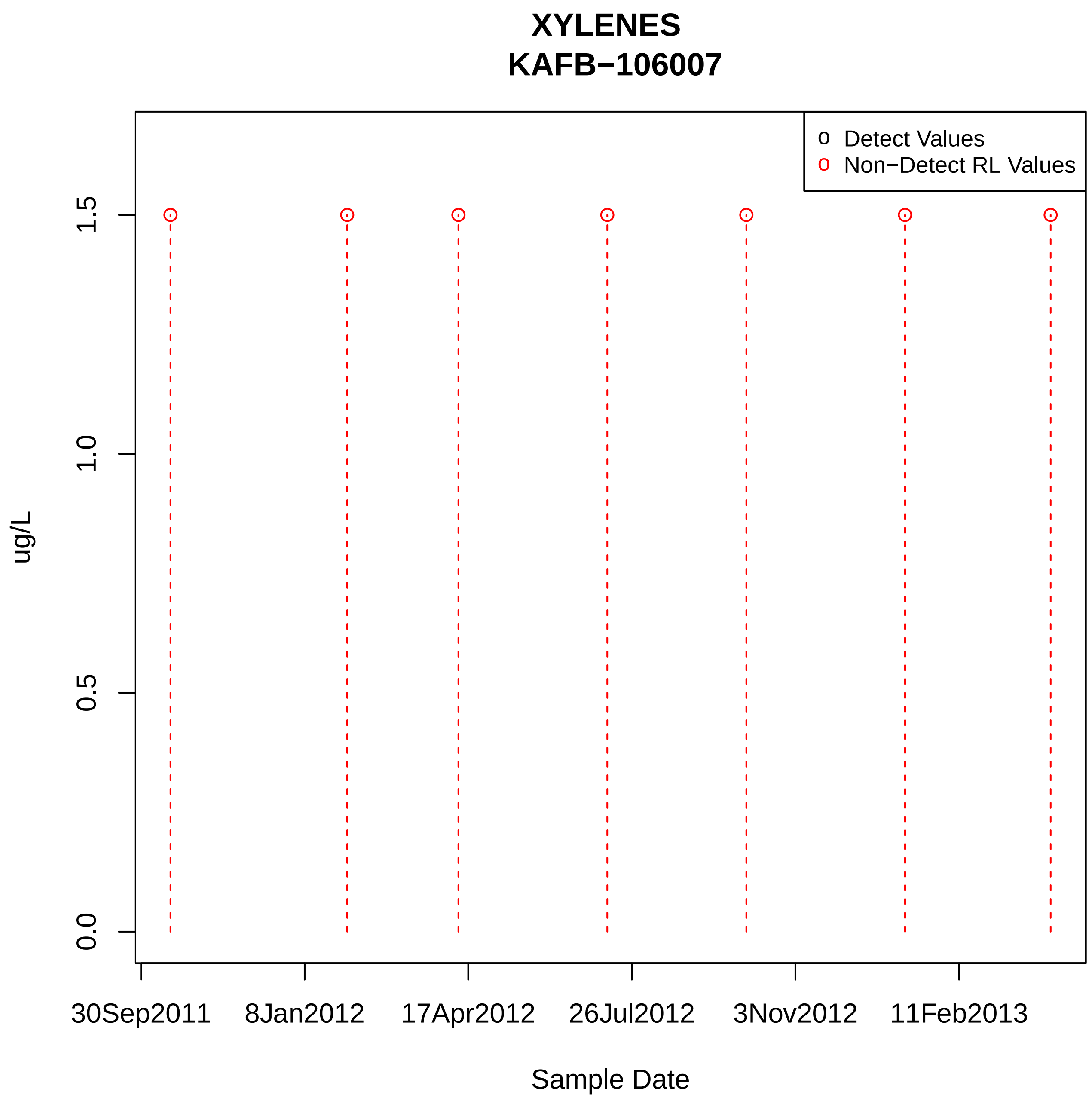

TOLUENE
KAFB−106106
o Detect Values
o Non−Detect RL Values
Slope = −2.352E−02
p−value = 0.015
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



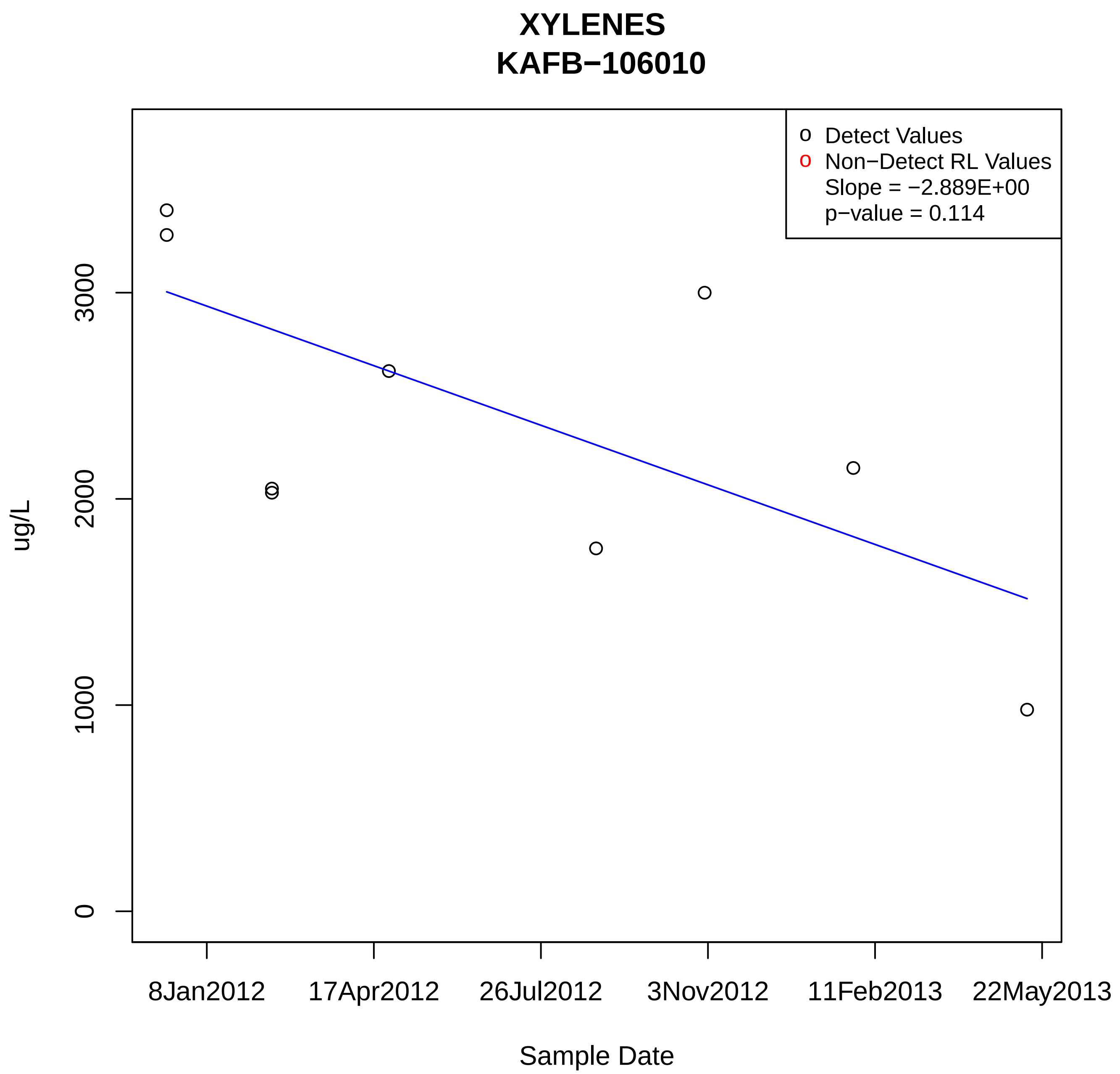
TOLUENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
Slope = −2.042E−02
p−value = 0.086
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

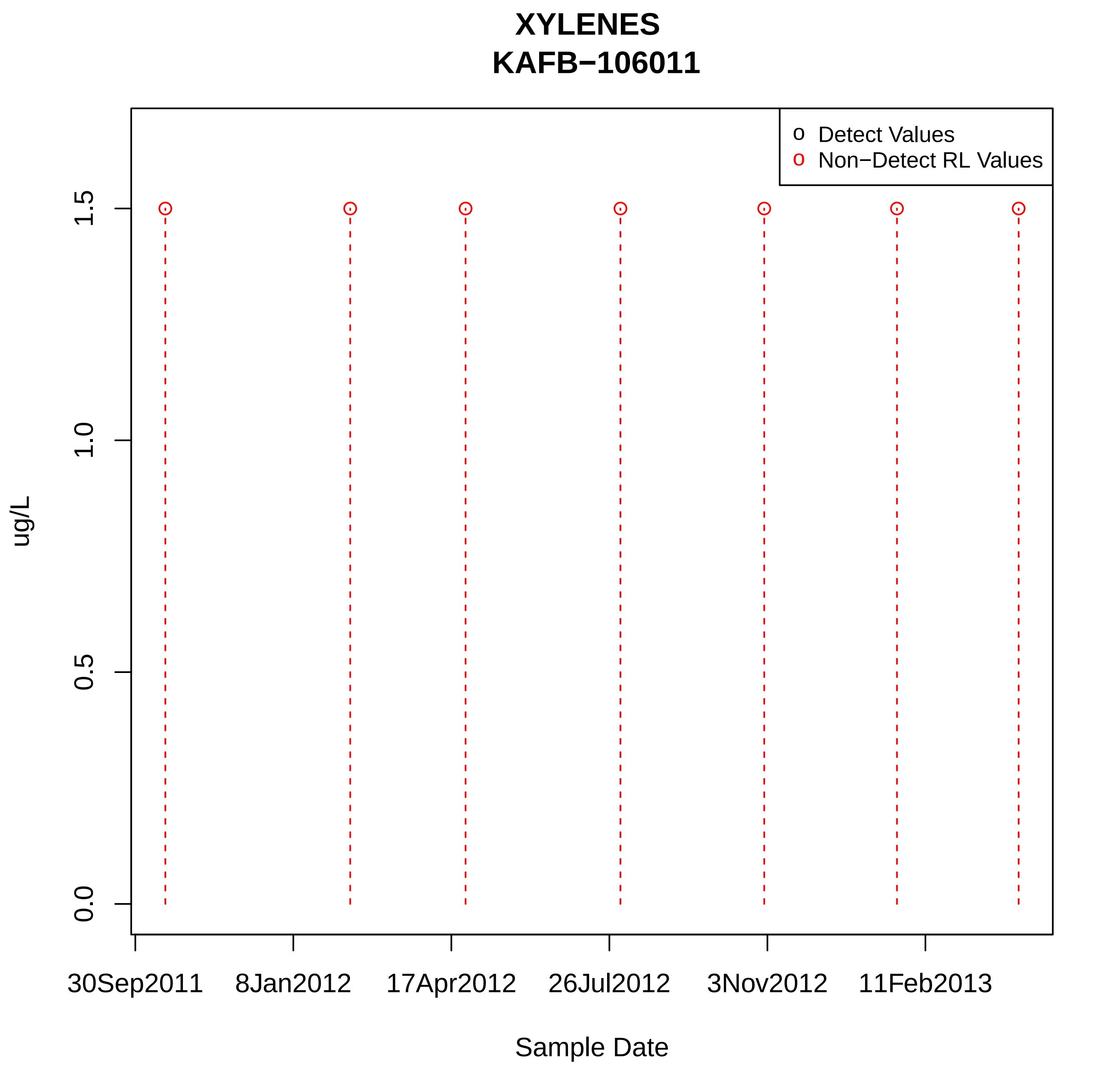

XYLENES
KAFB−106001
o Detect Values
o Non−Detect RL Values
Slope = 2.284E−03
p−value = 0.759
ug/L
0
2
4
6
8
10
12
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

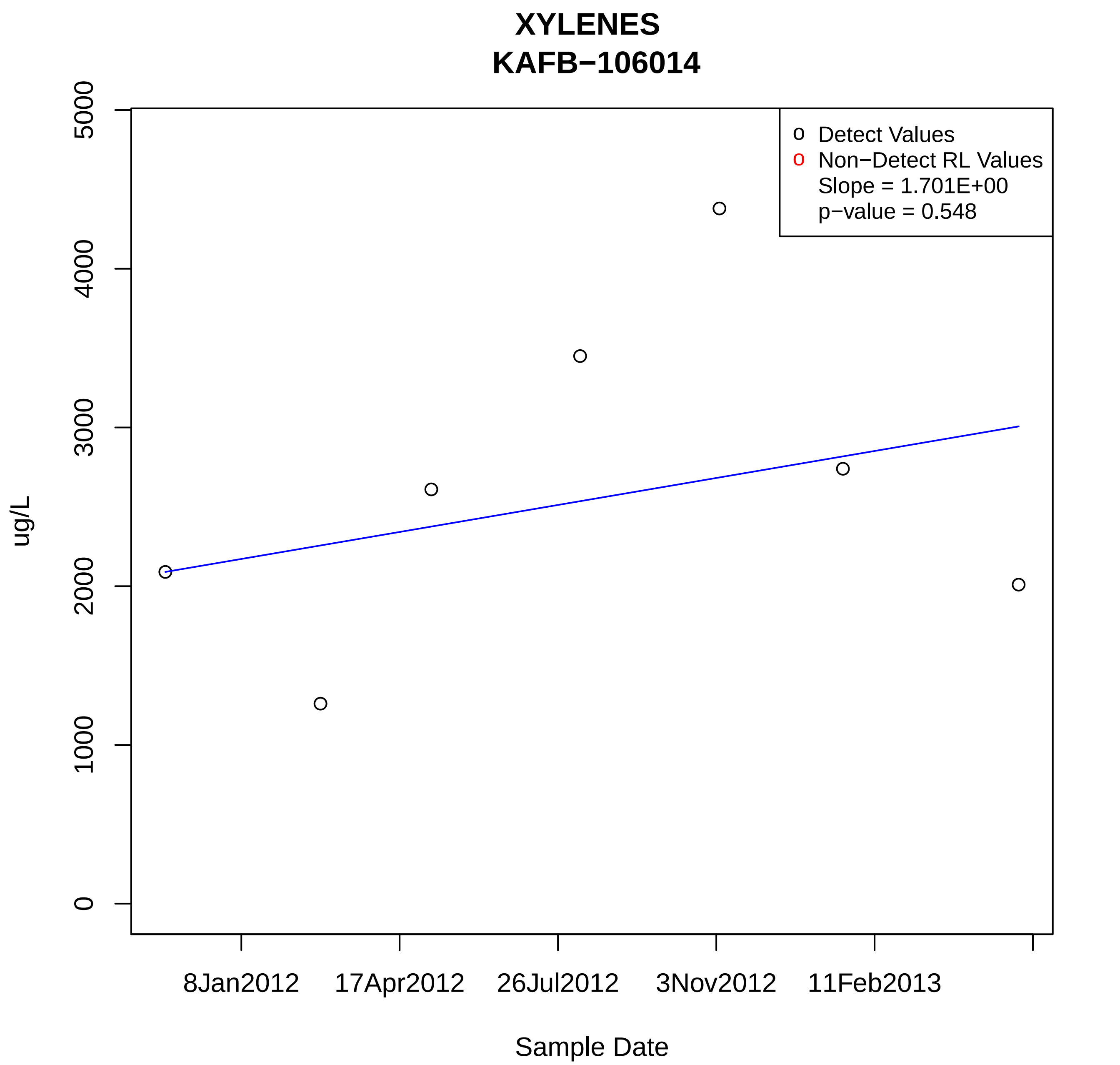

XYLENES
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

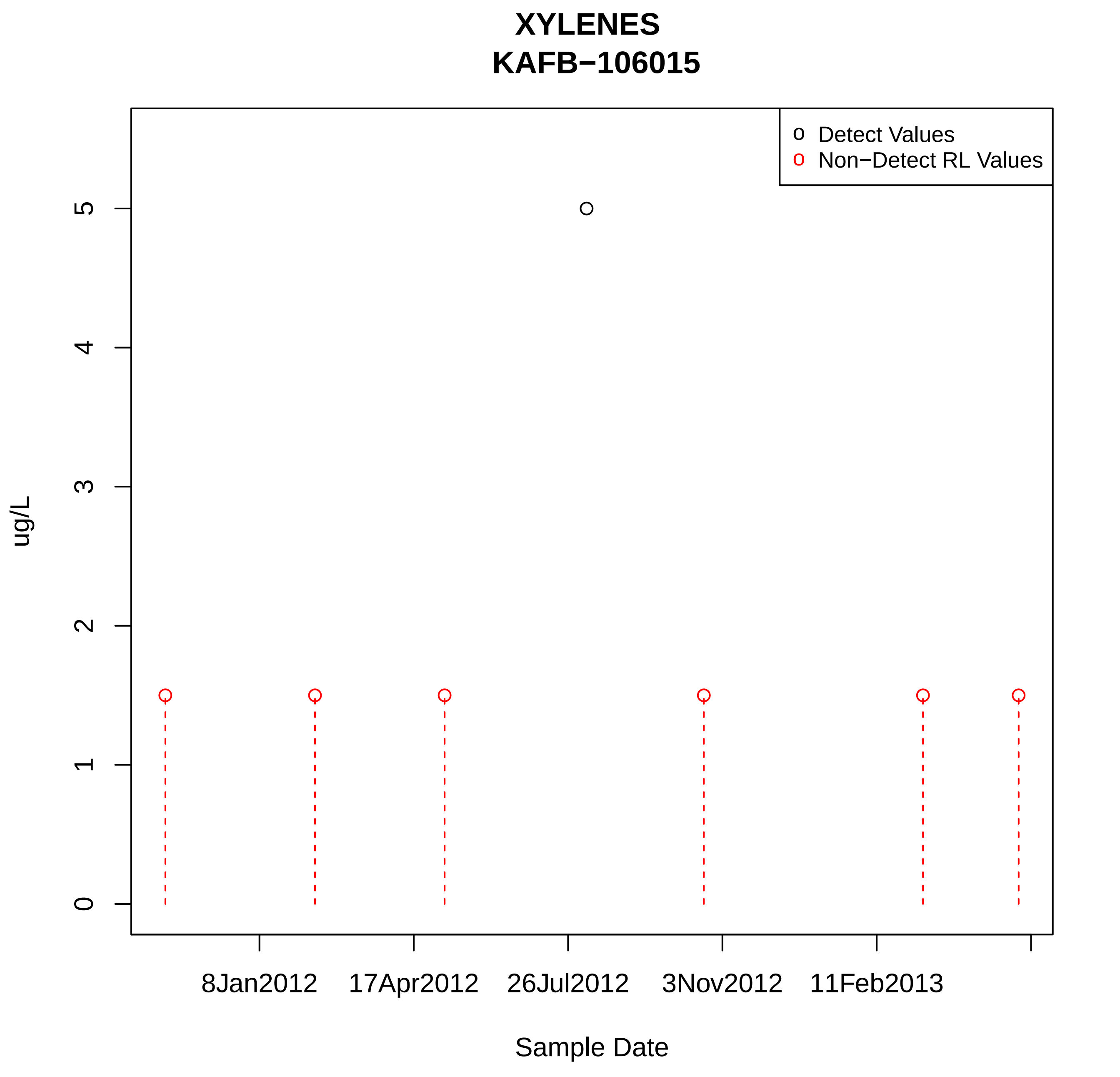


XYLENES
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

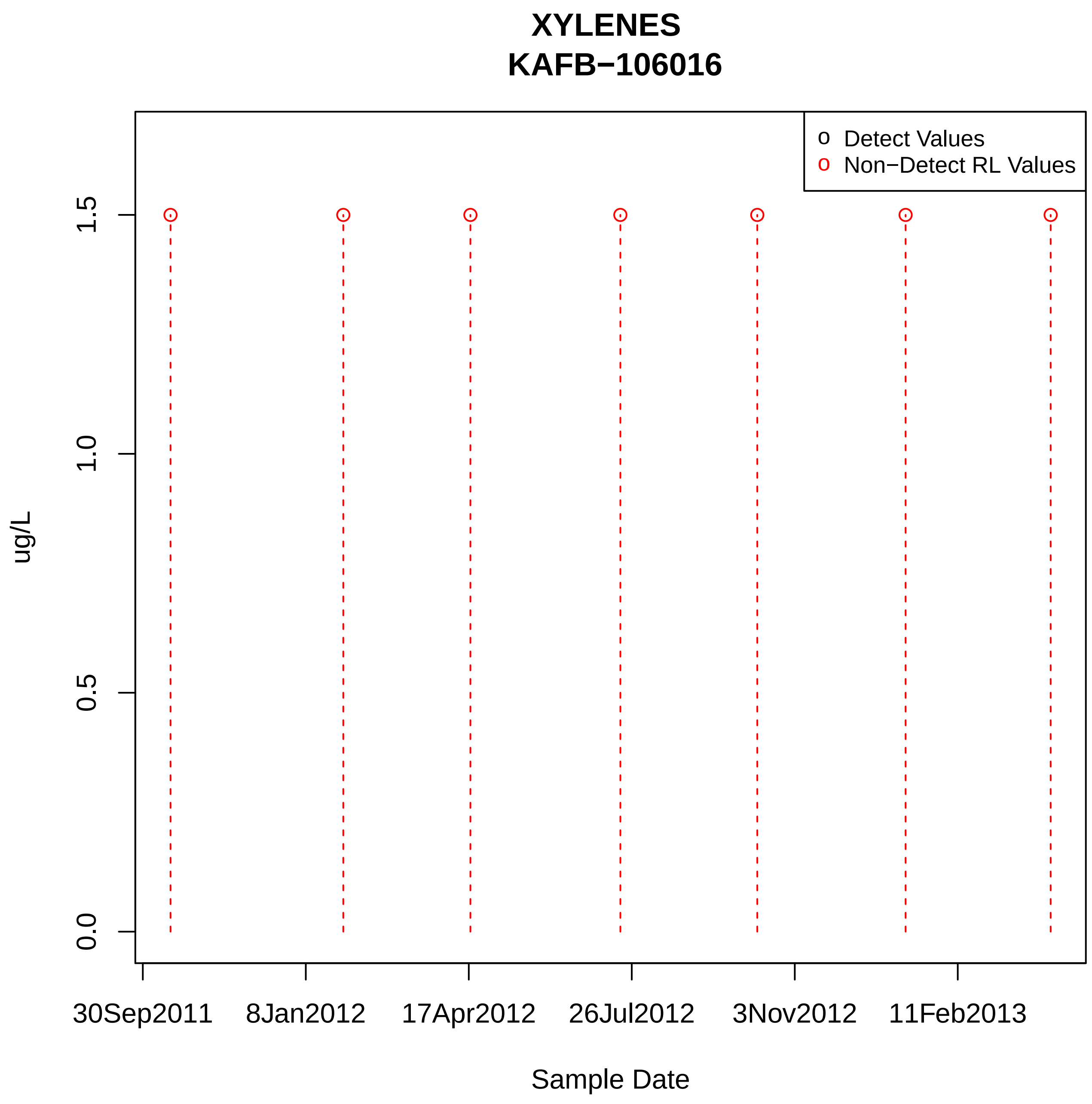

XYLENES
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = −2.889E+00
p−value = 0.114
ug/L
0
1000
2000
3000
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
22May2013
Sample Date


XYLENES
KAFB−106011
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

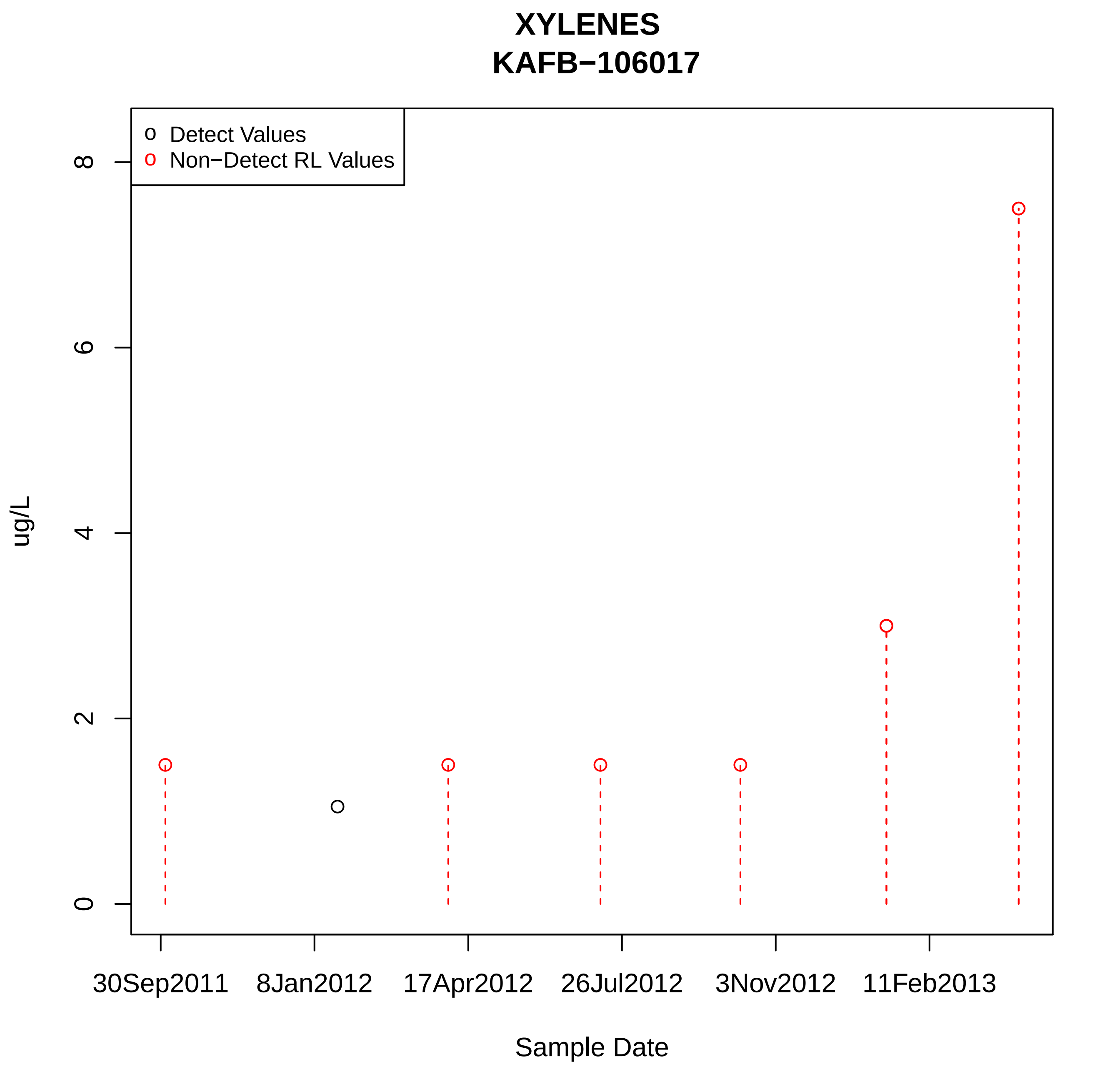

XYLENES
KAFB−106014
0
1000
2000
3000
4000
5000
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
Detect Values
Non−Detect RL Values
Slope = 1.701E+00
p−value = 0.548



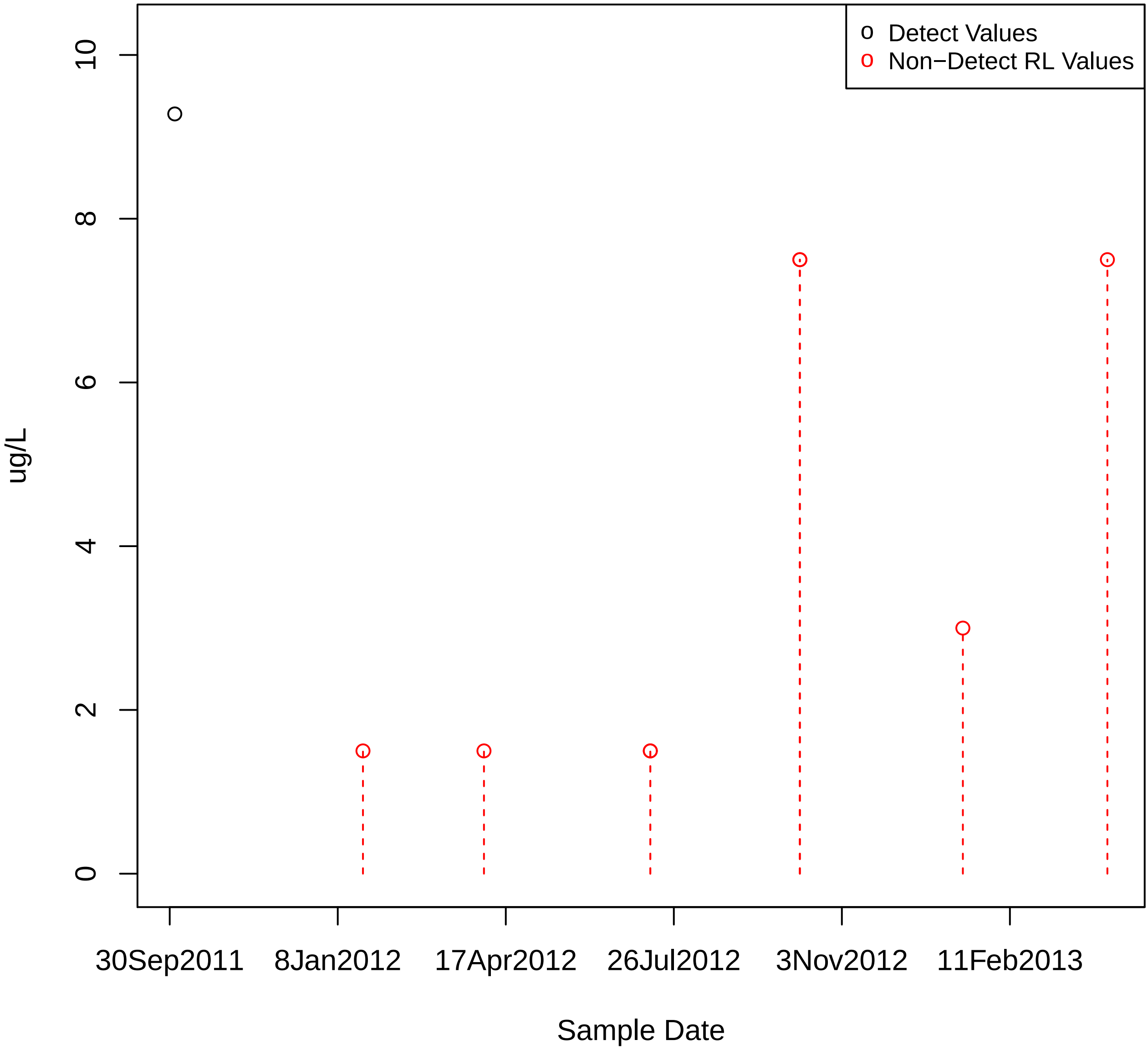
XYLENES
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

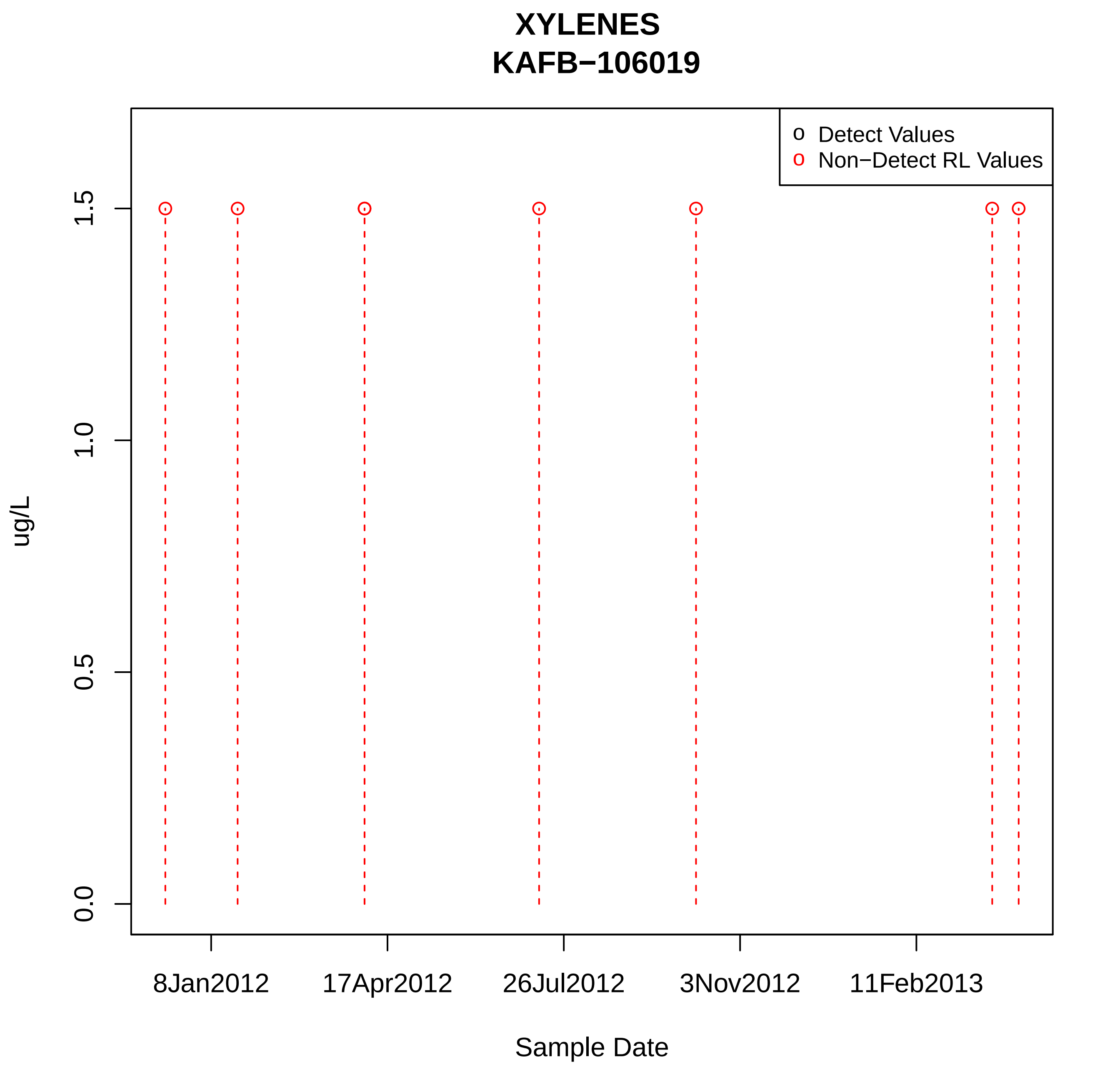


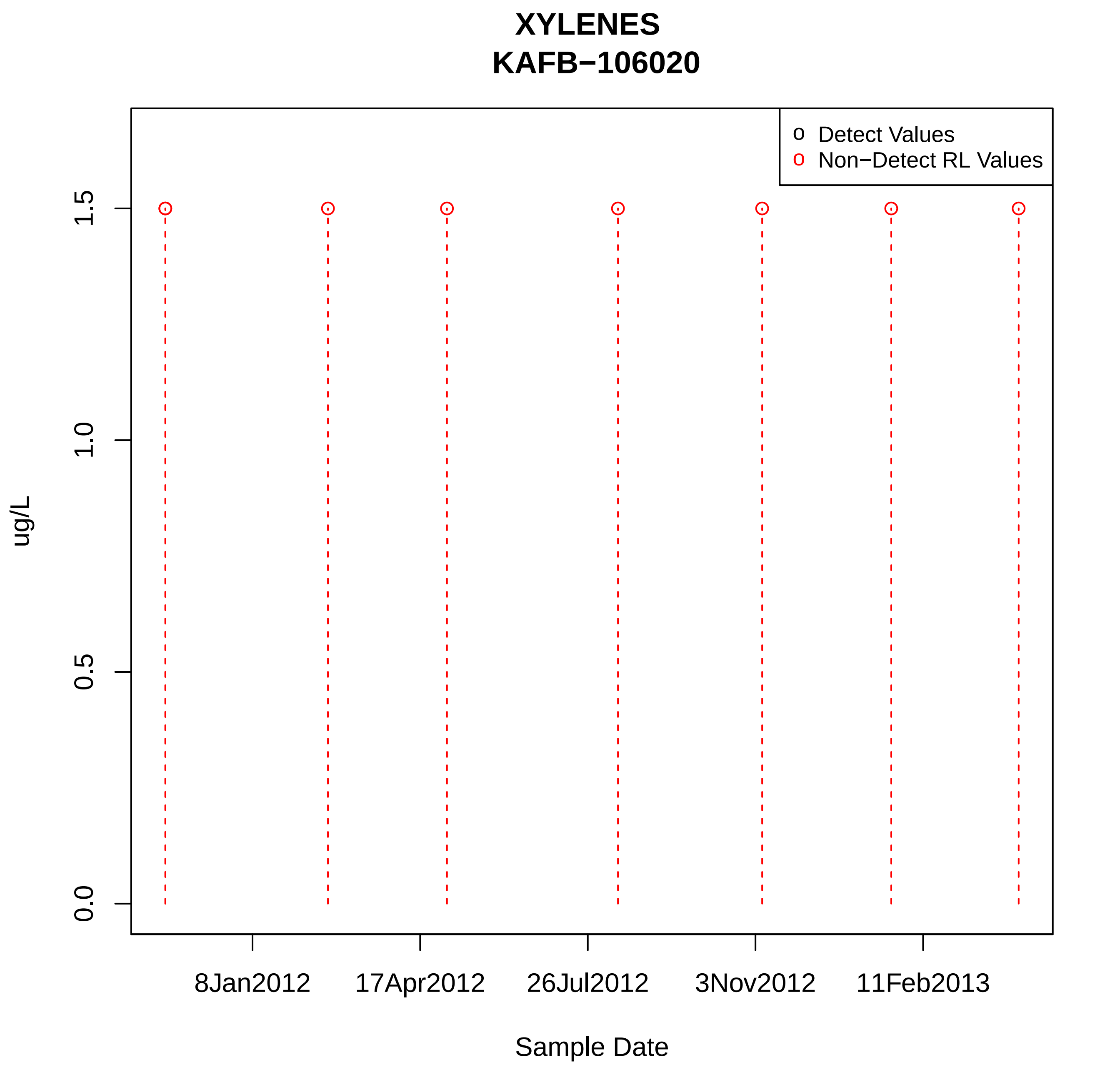
XYLENES
KAFB−106016
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106017
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

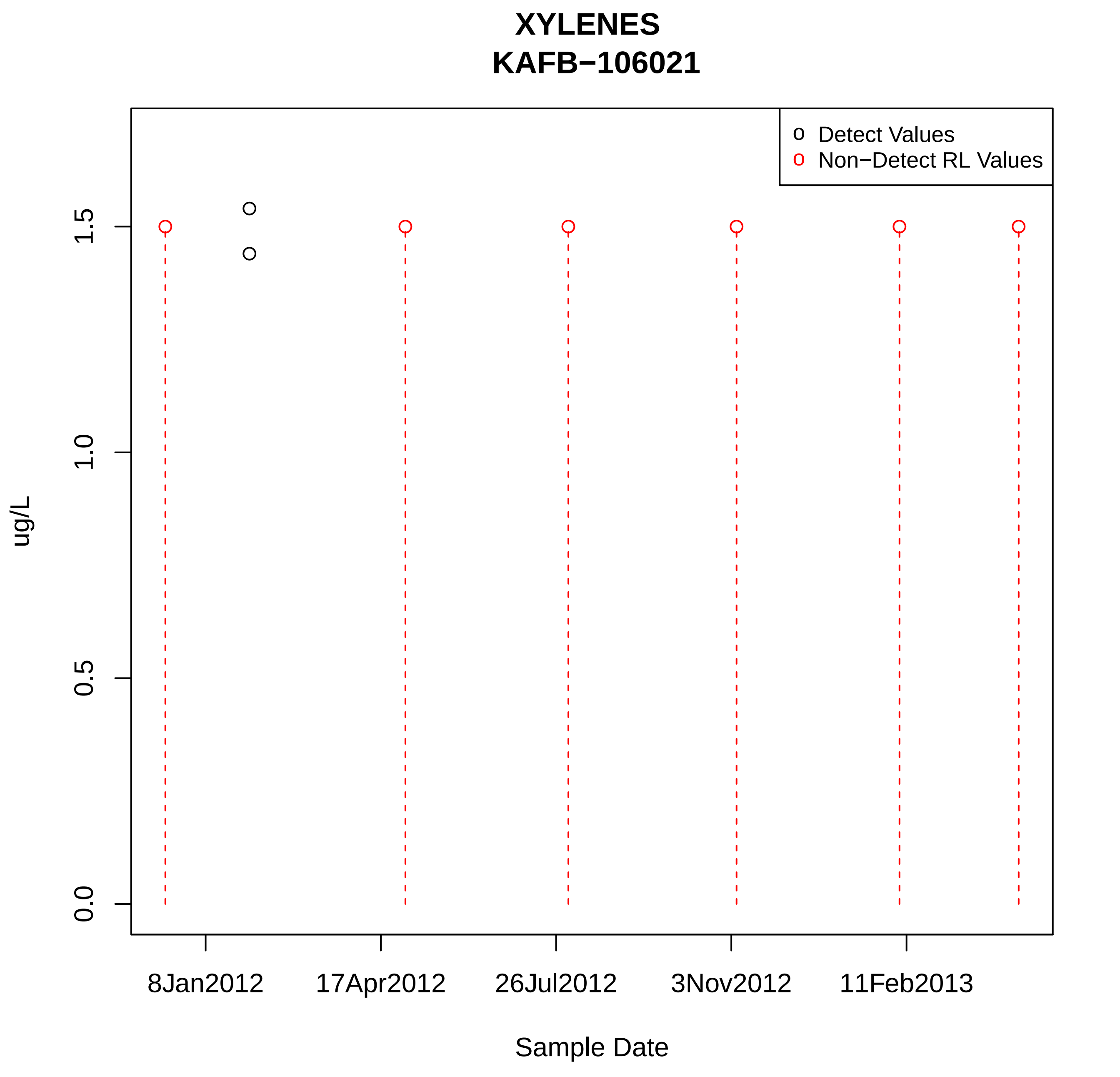
XYLENES
KAFB−106018

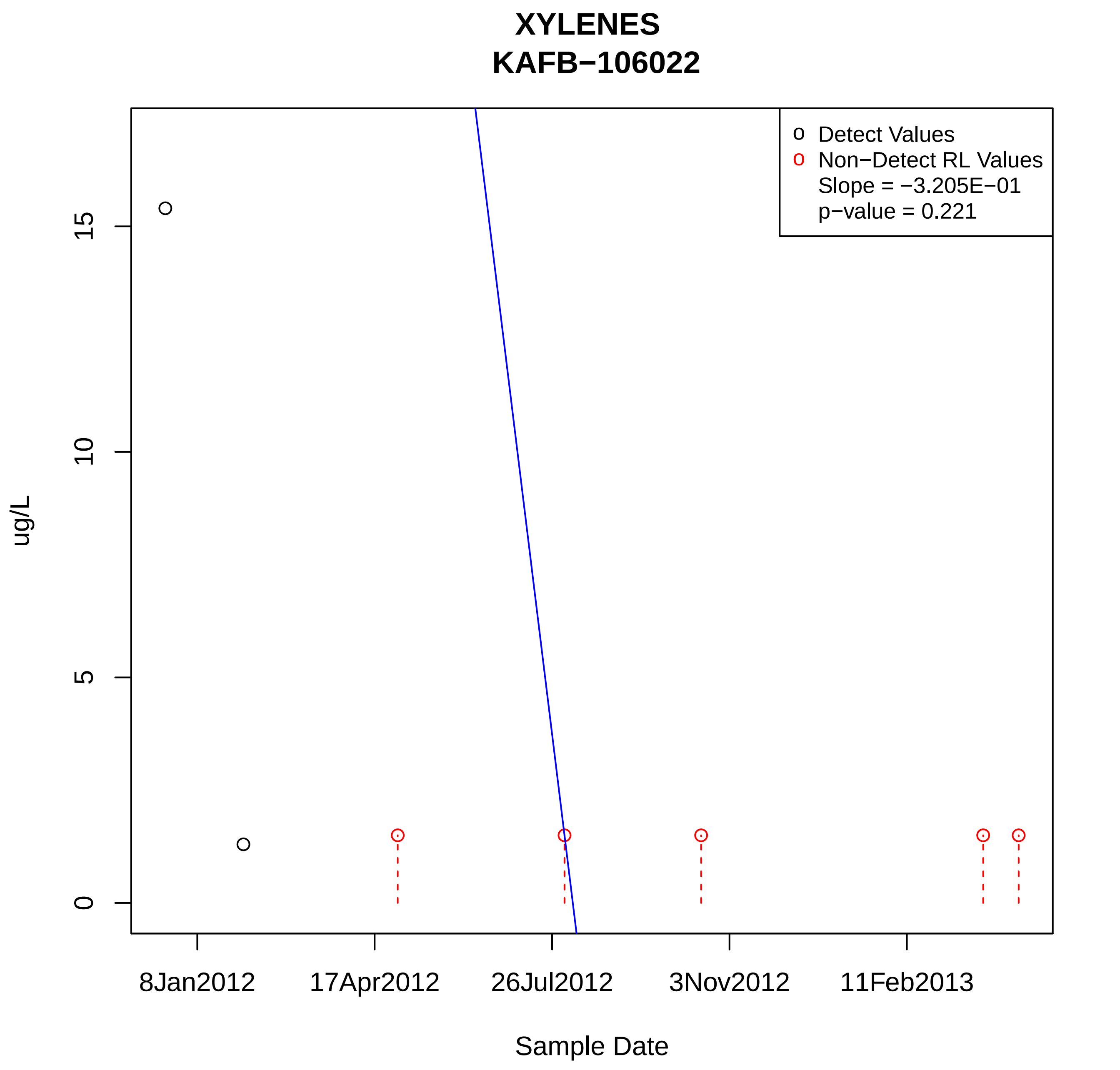



XYLENES
KAFB−106019
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

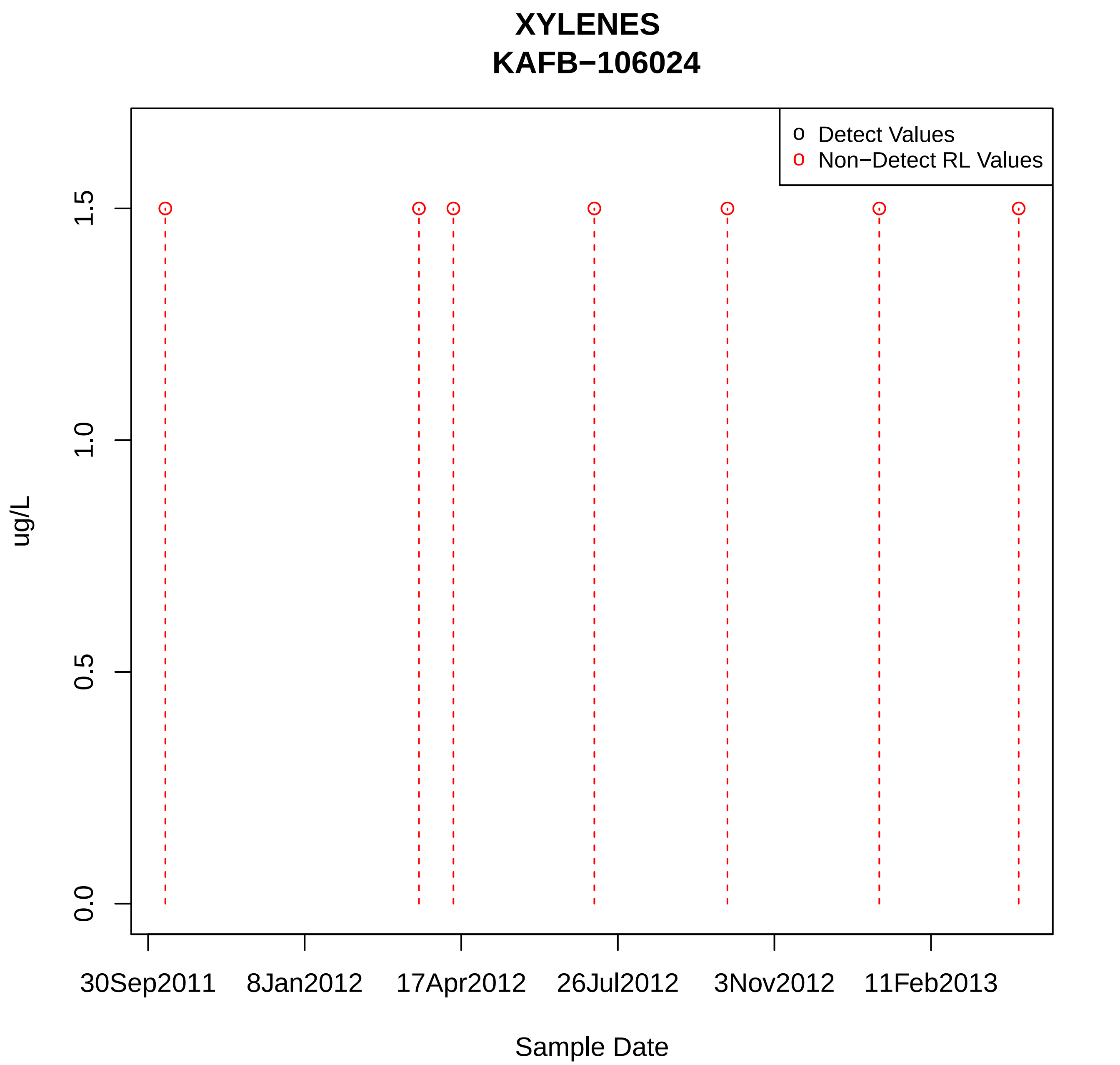


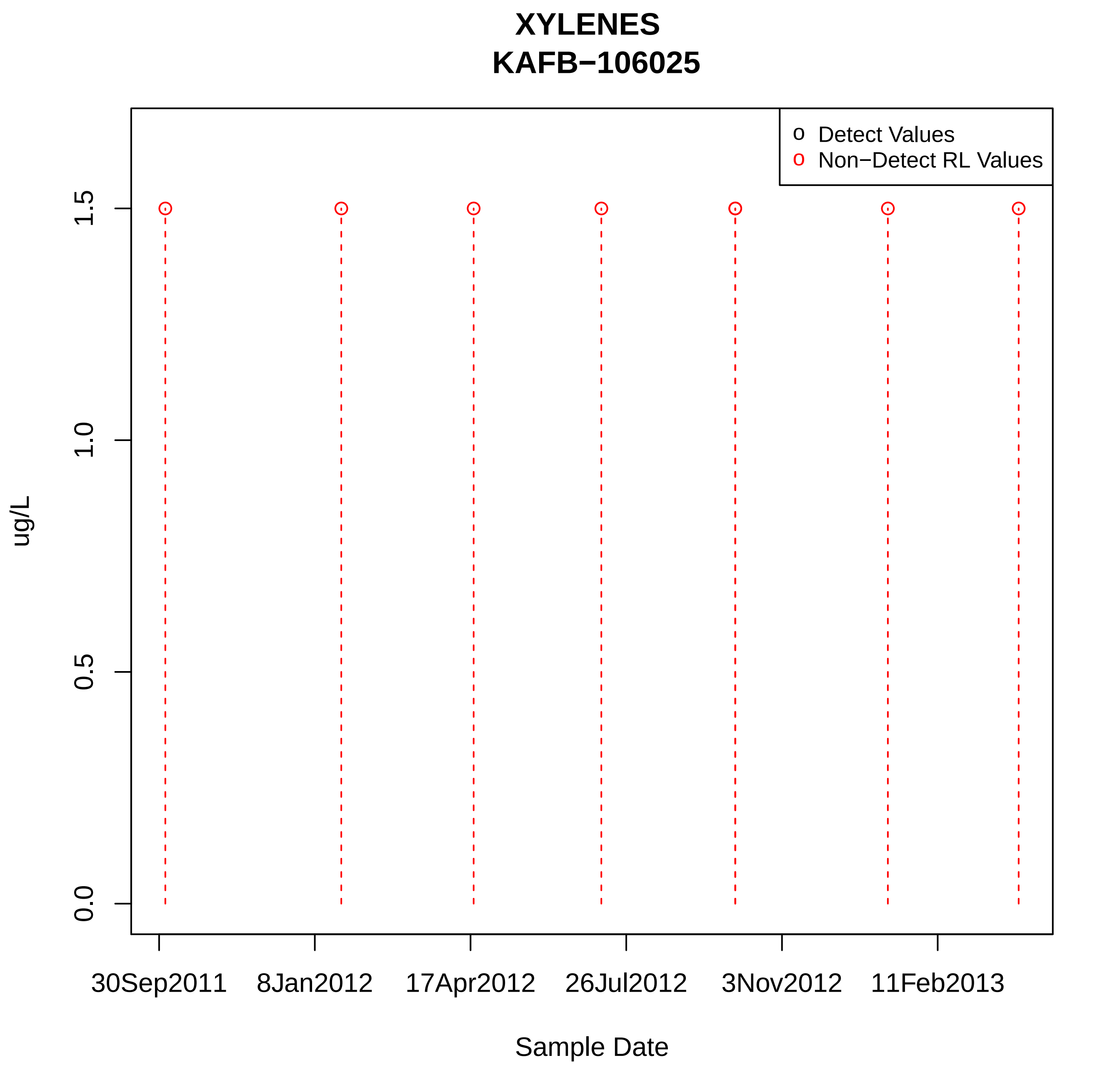
XYLENES
KAFB−106020
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106021
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

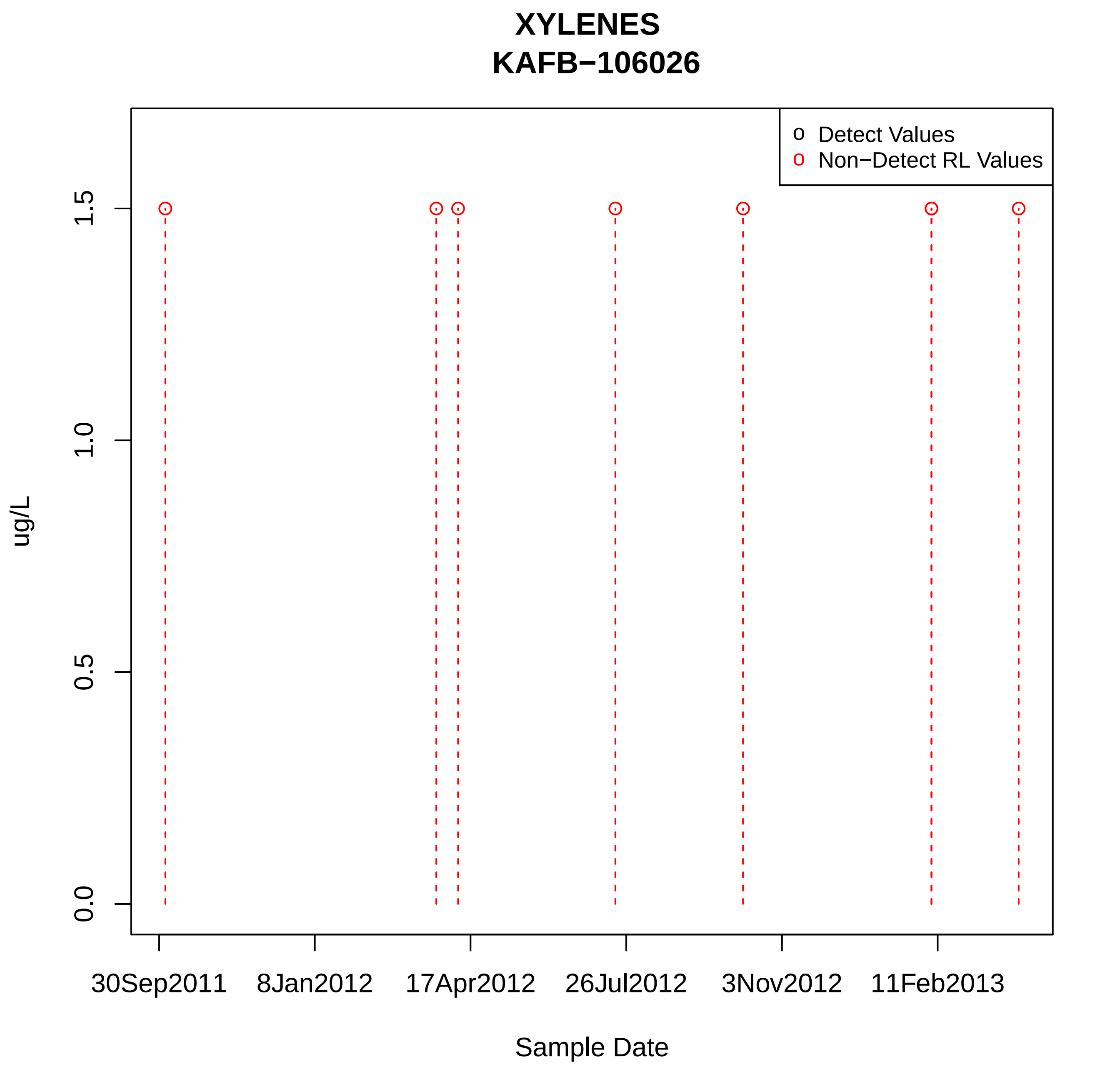


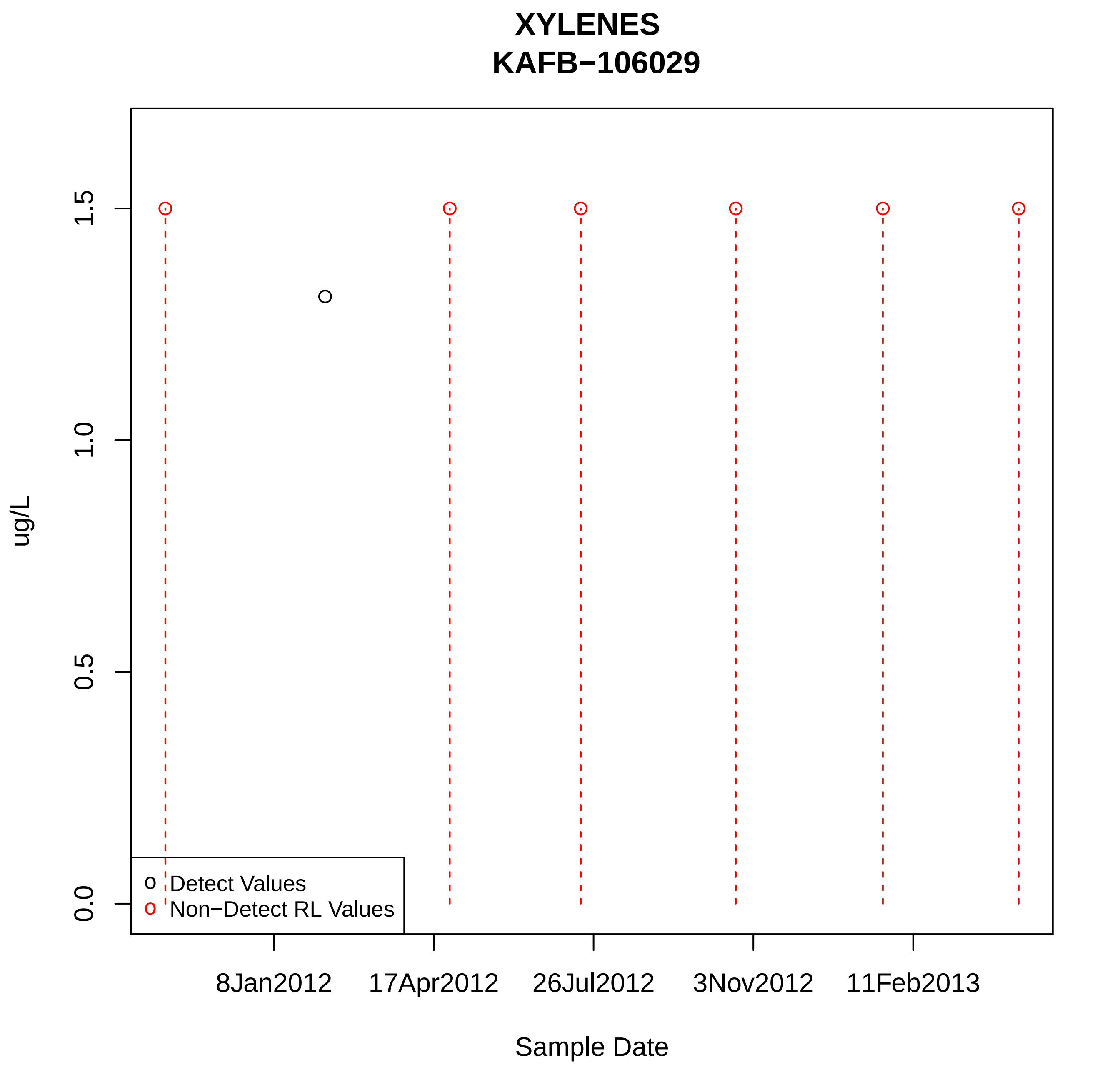
XYLENES
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −3.205E−01
p−value = 0.221
ug/L
0
5
10
15
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

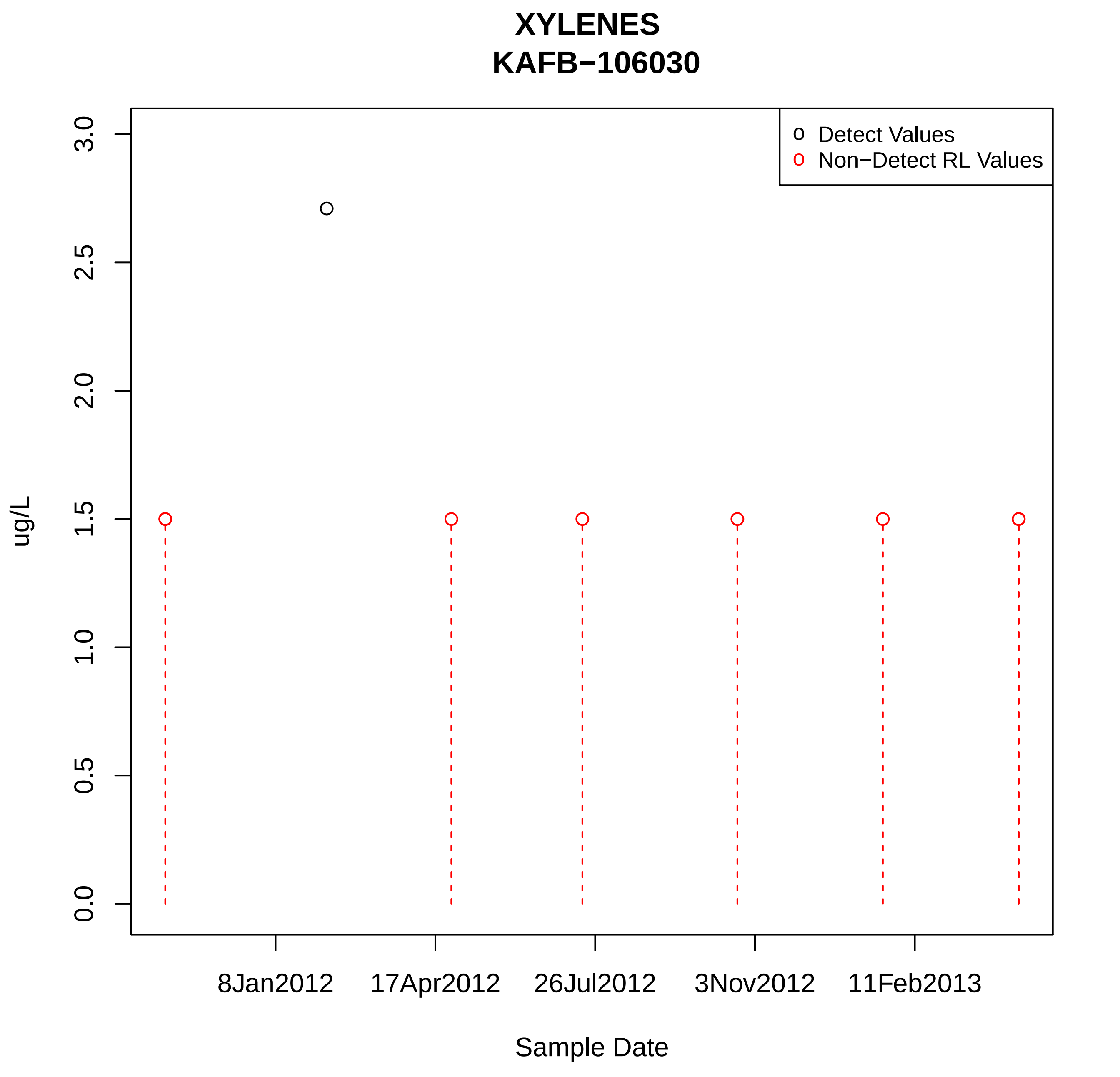

XYLENES
KAFB−106024
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



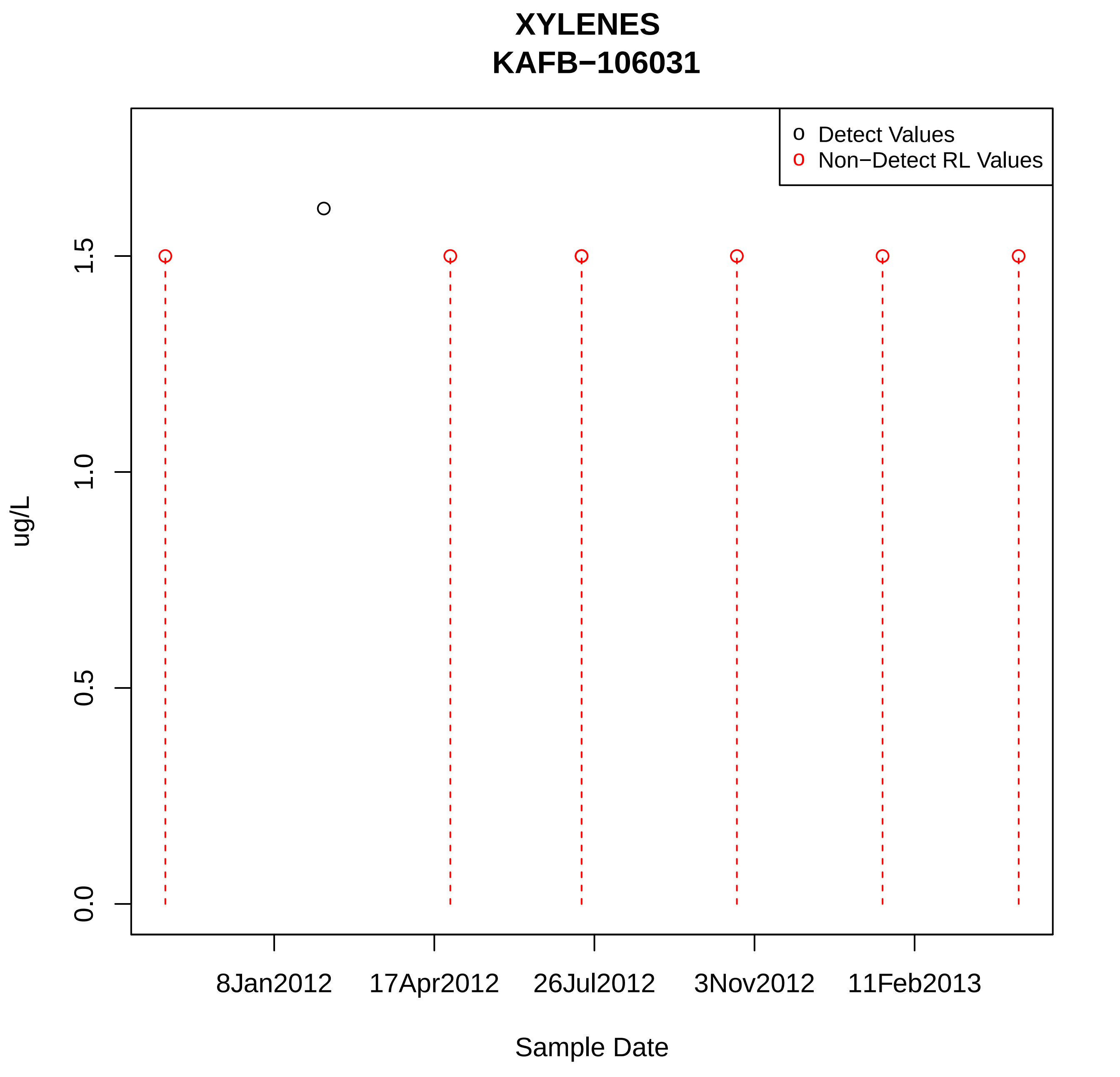
XYLENES
KAFB−106025
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106026
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

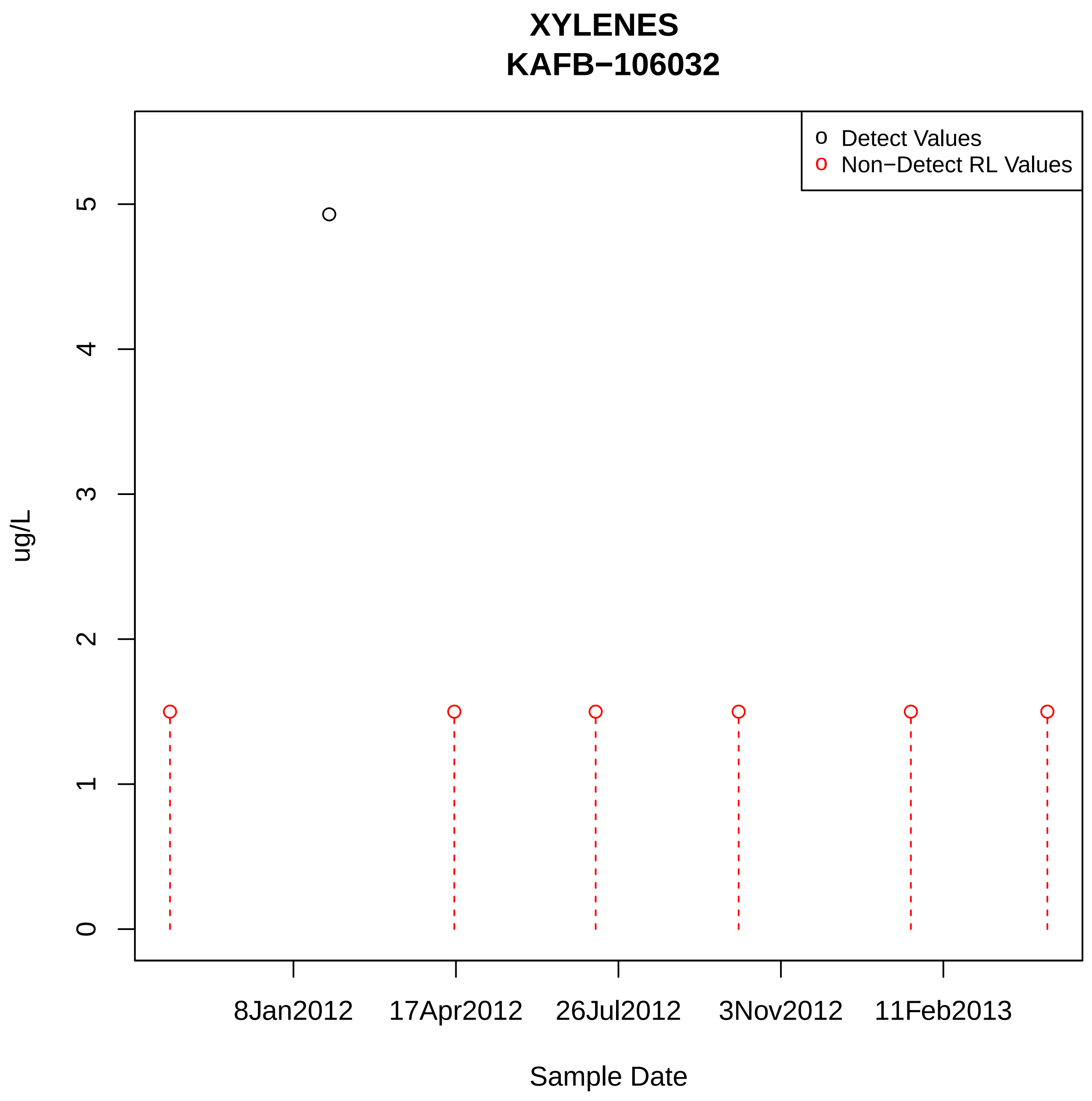

XYLENES
KAFB−106029
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values



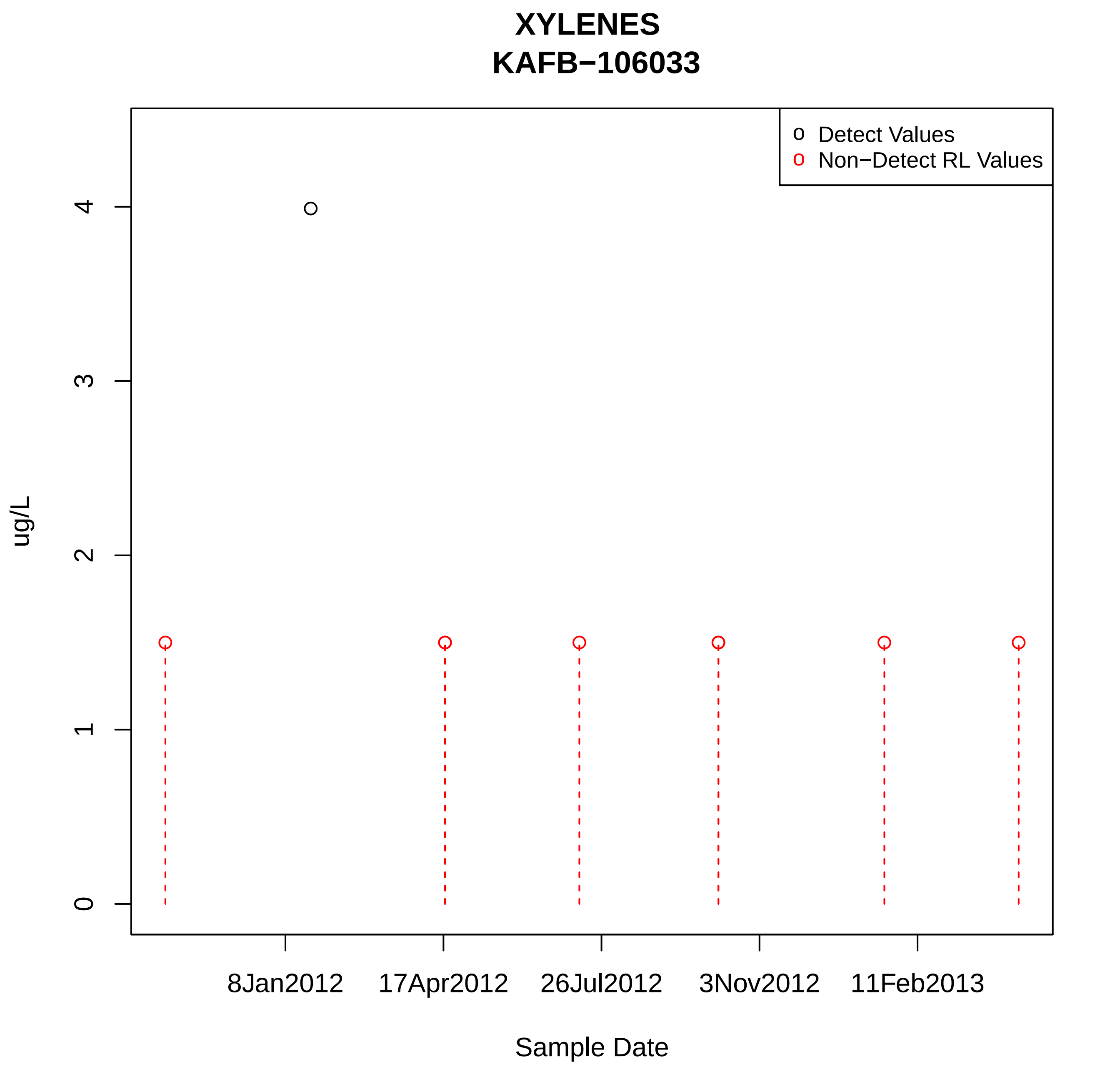
XYLENES
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

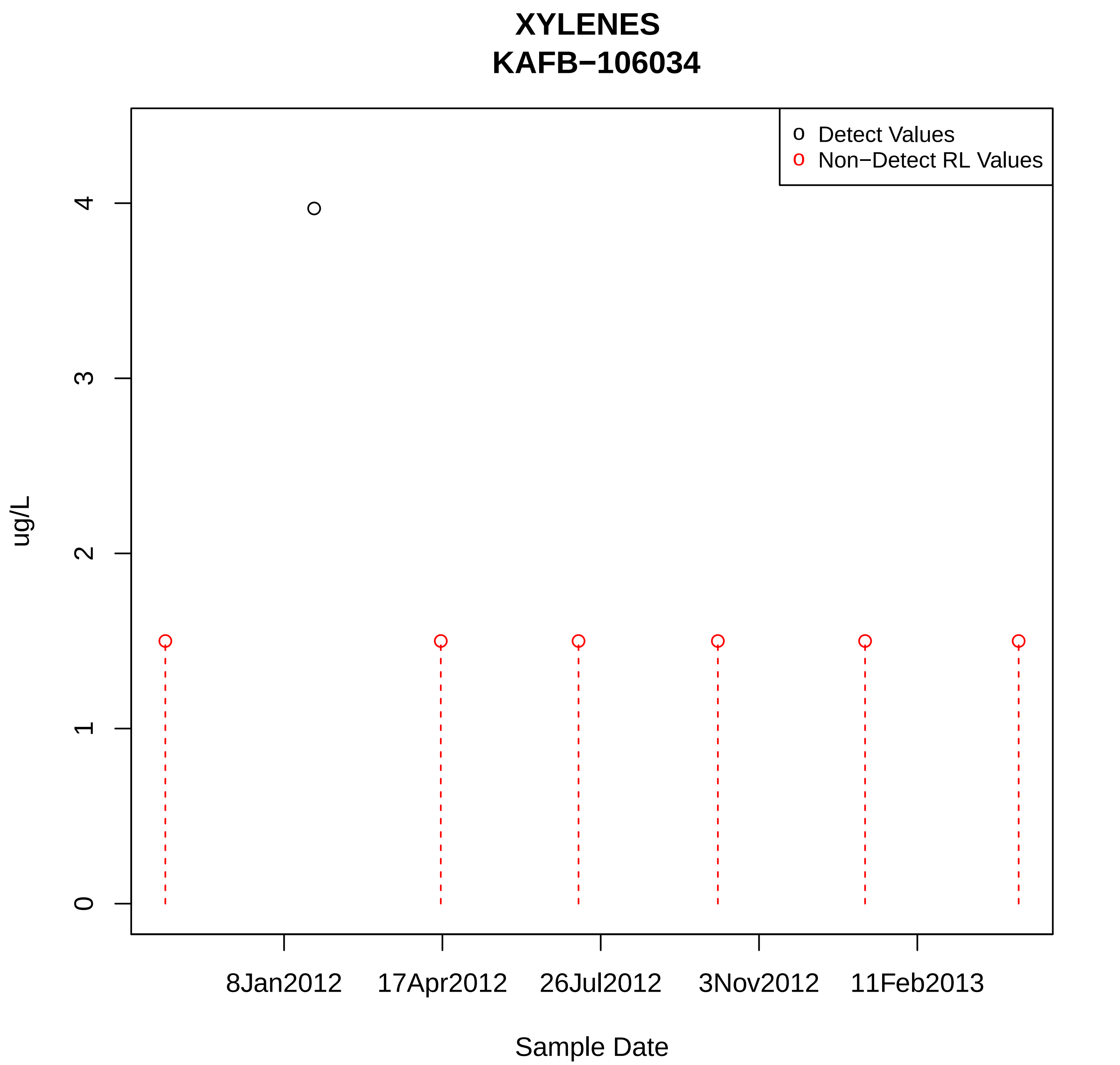


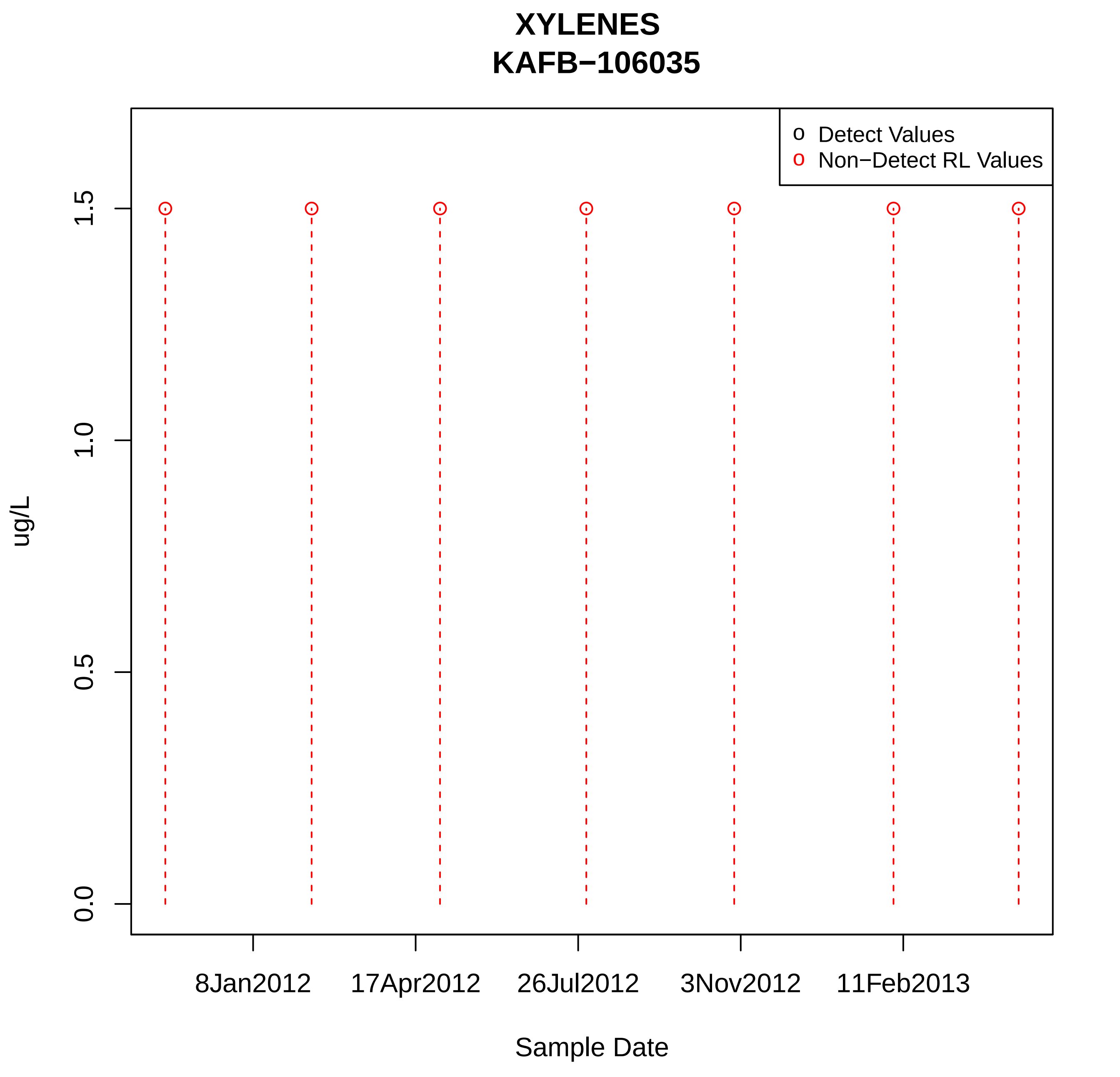
XYLENES
KAFB−106031
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

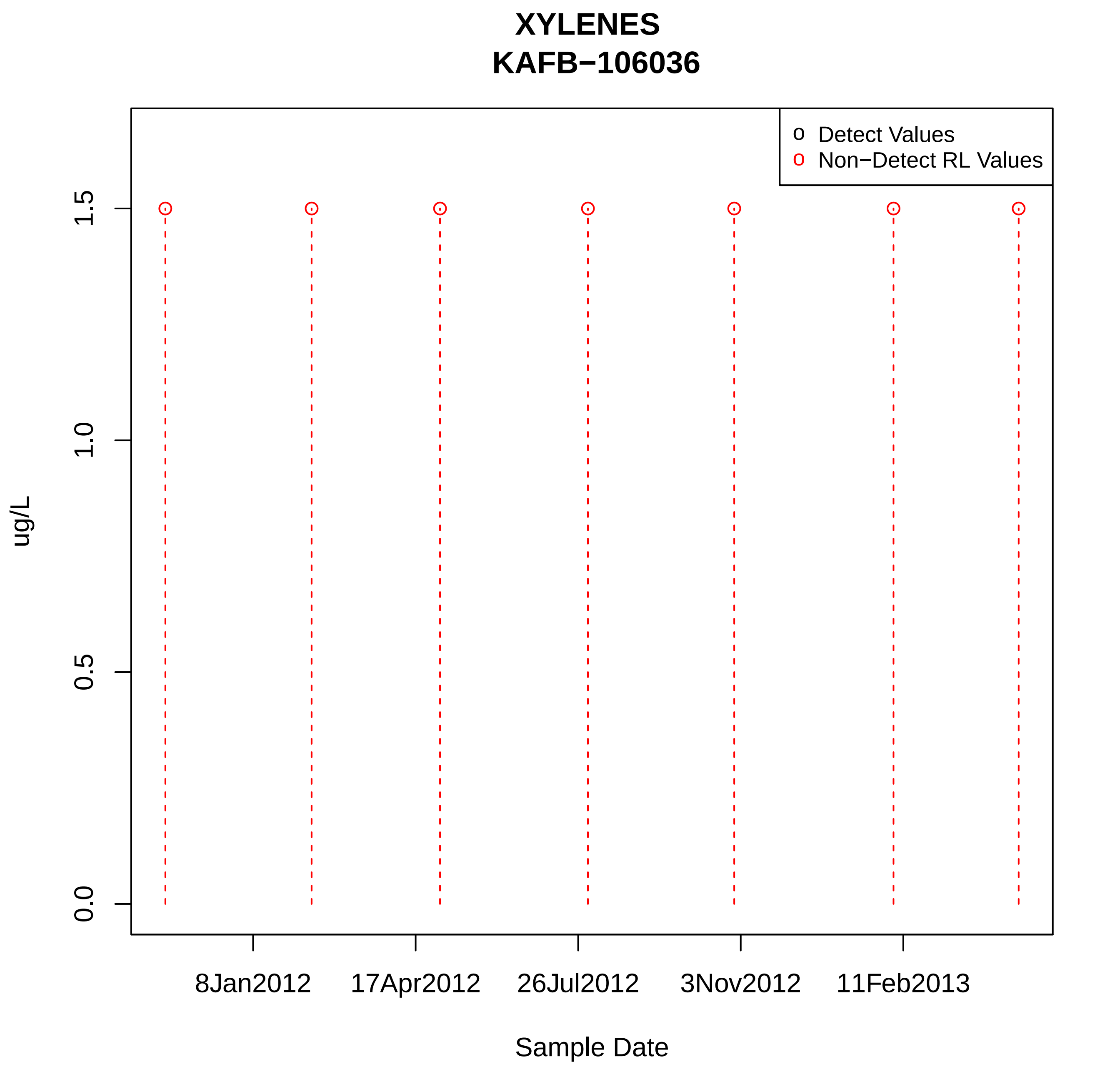


XYLENES
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

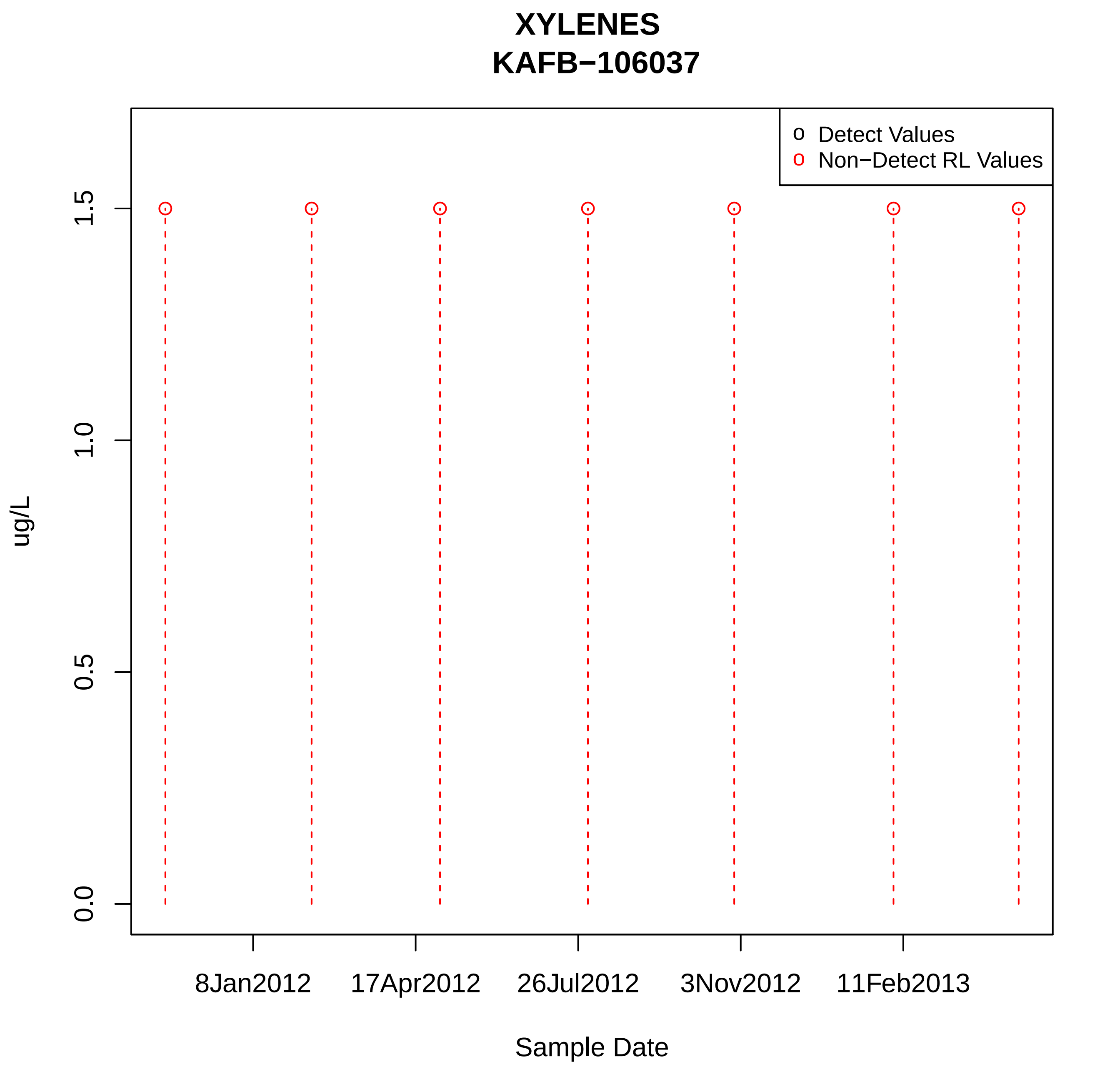

XYLENES
KAFB−106033
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

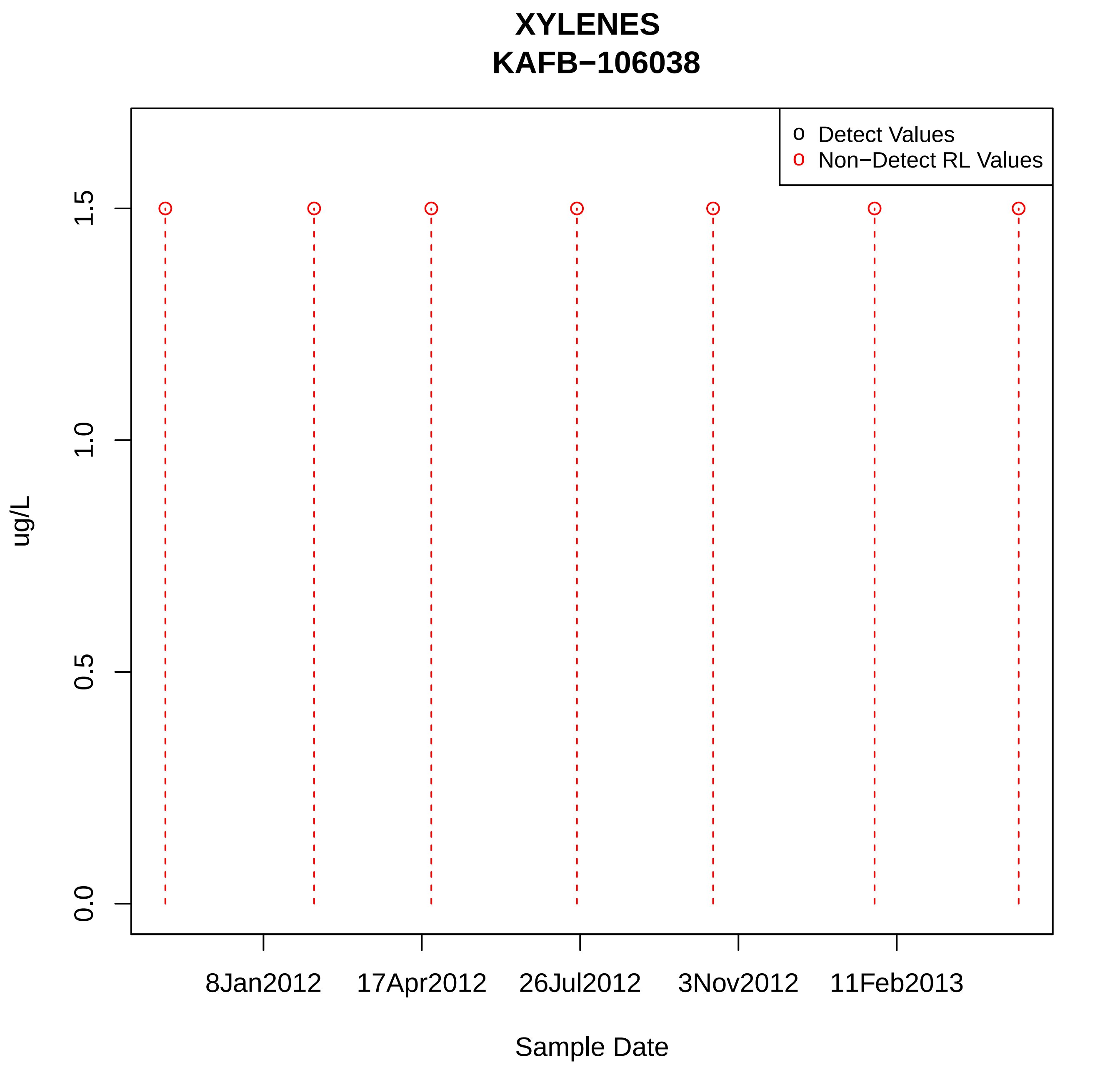

XYLENES
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106035
o Detect Values
o Non−Detect RL Values
1.5
1.0
0.5
0.0
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

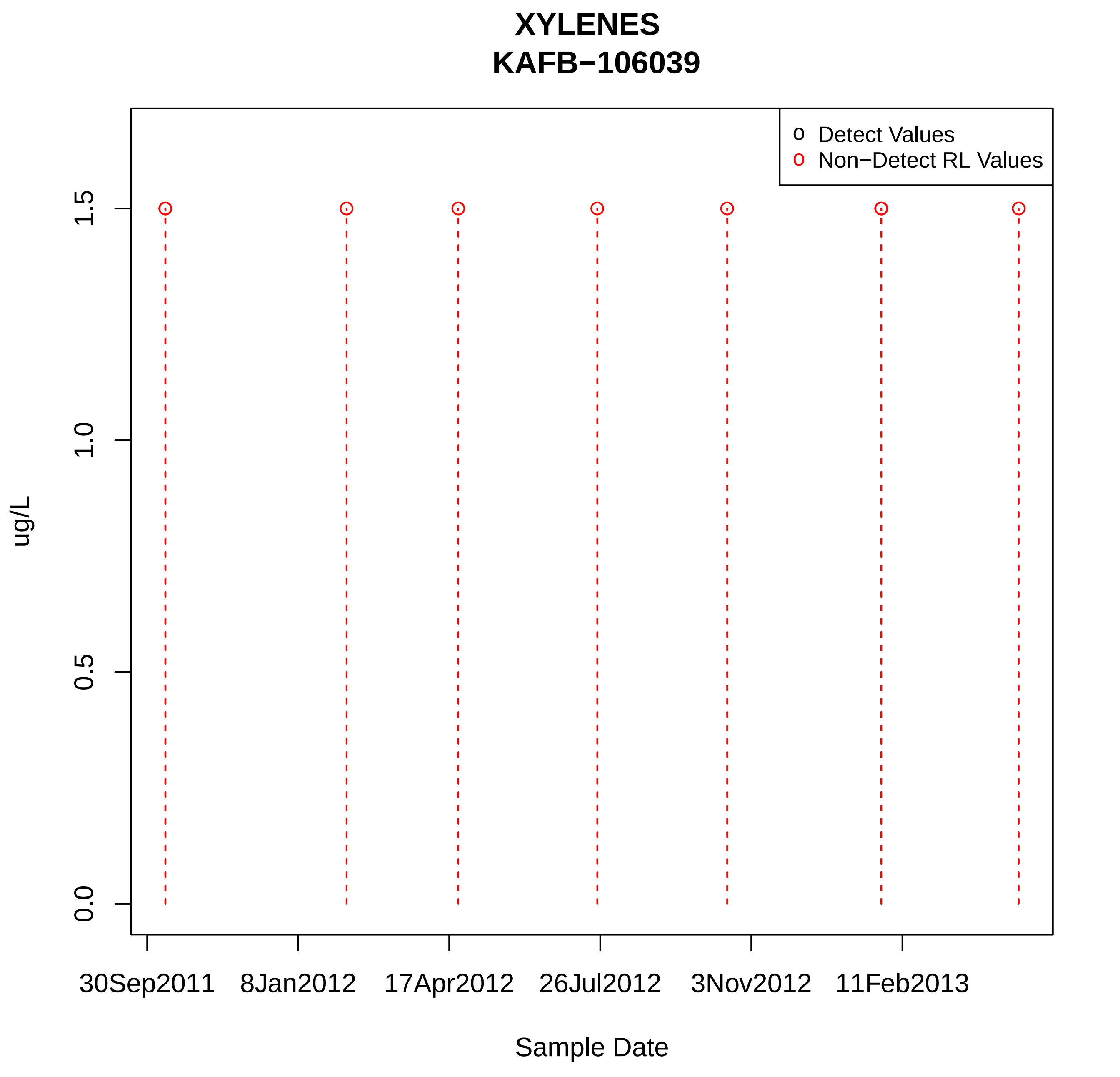


XYLENES
KAFB−106036
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

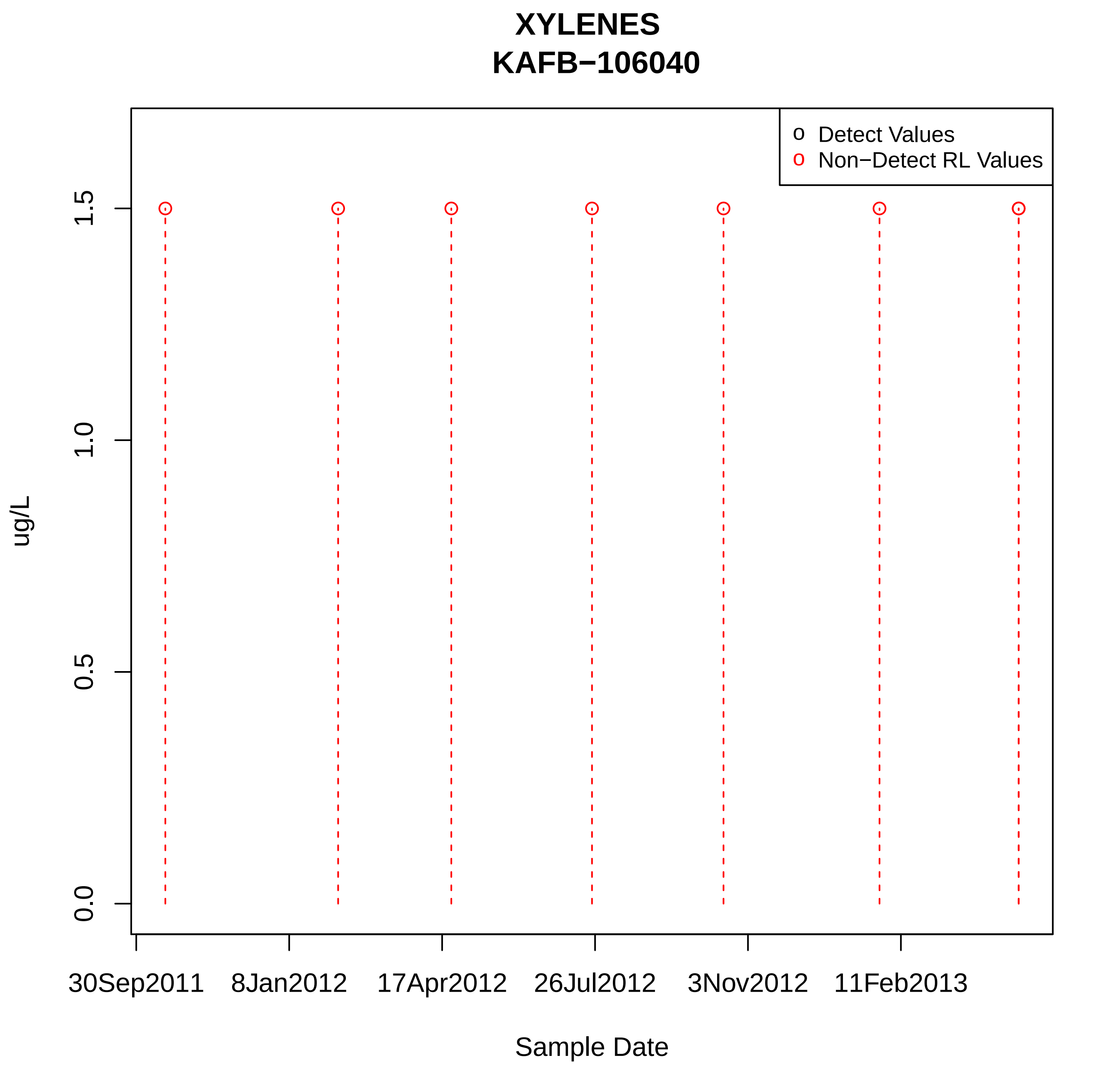

XYLENES
KAFB−106037
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

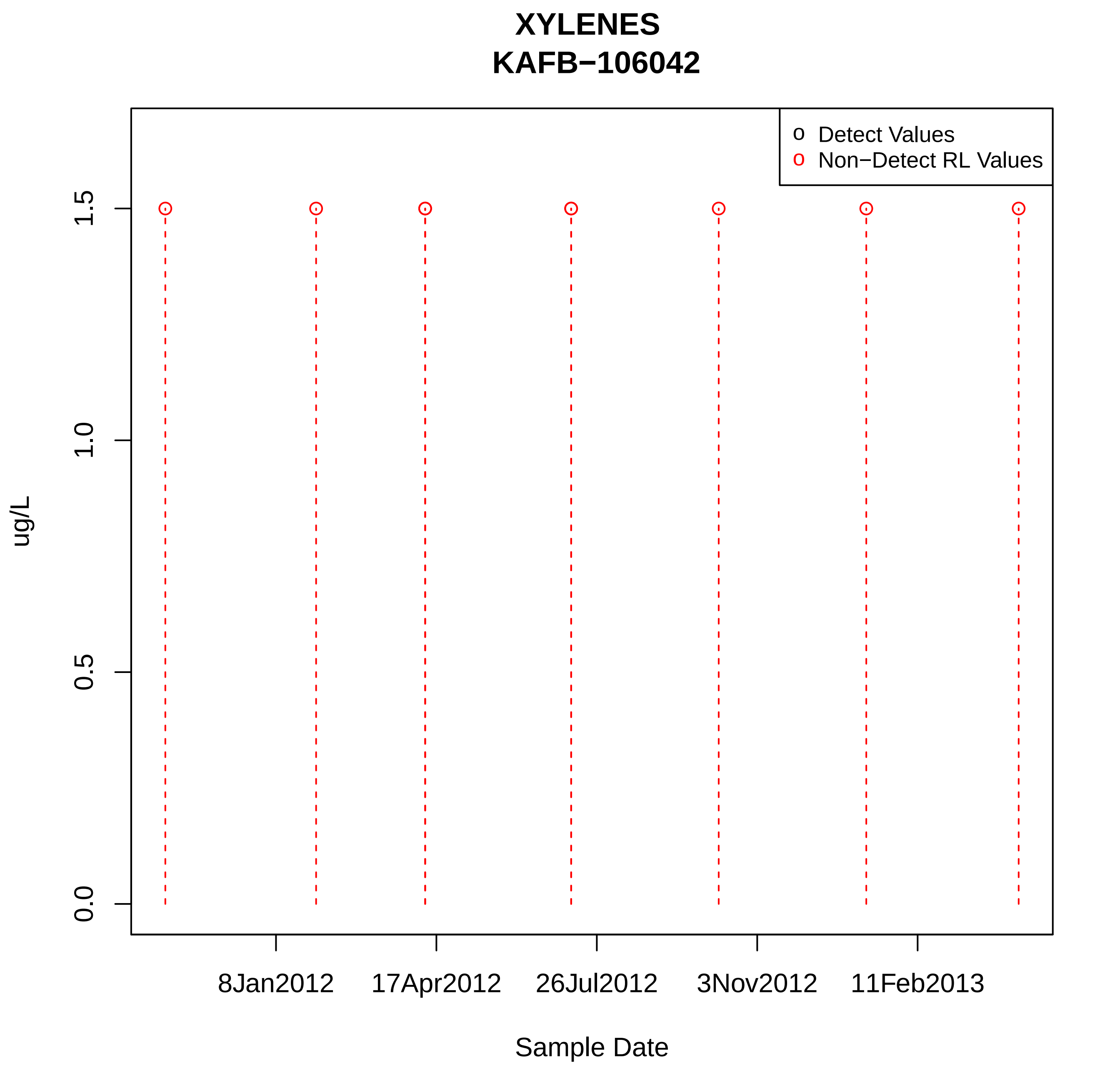


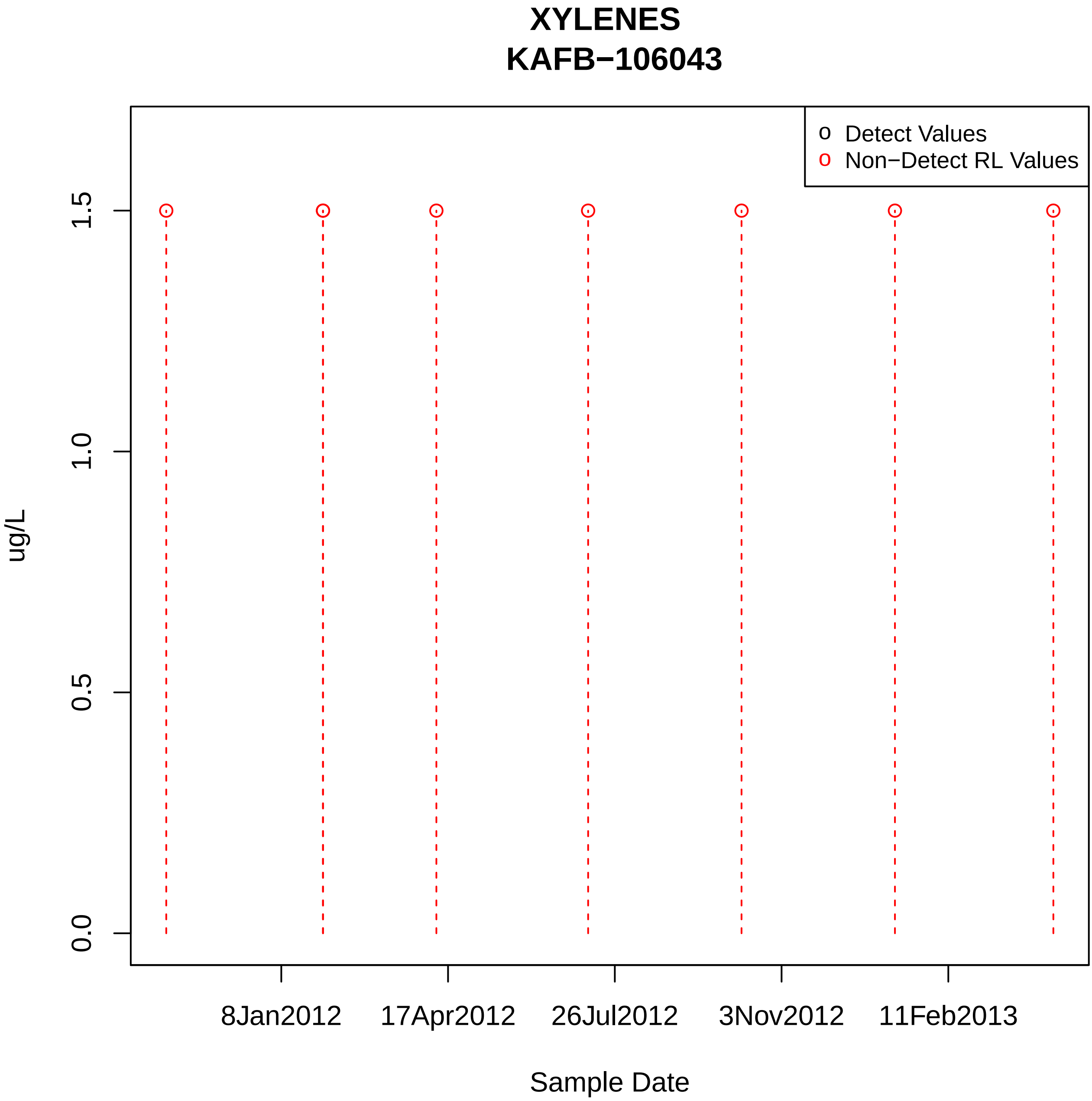
XYLENES
KAFB−106038
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

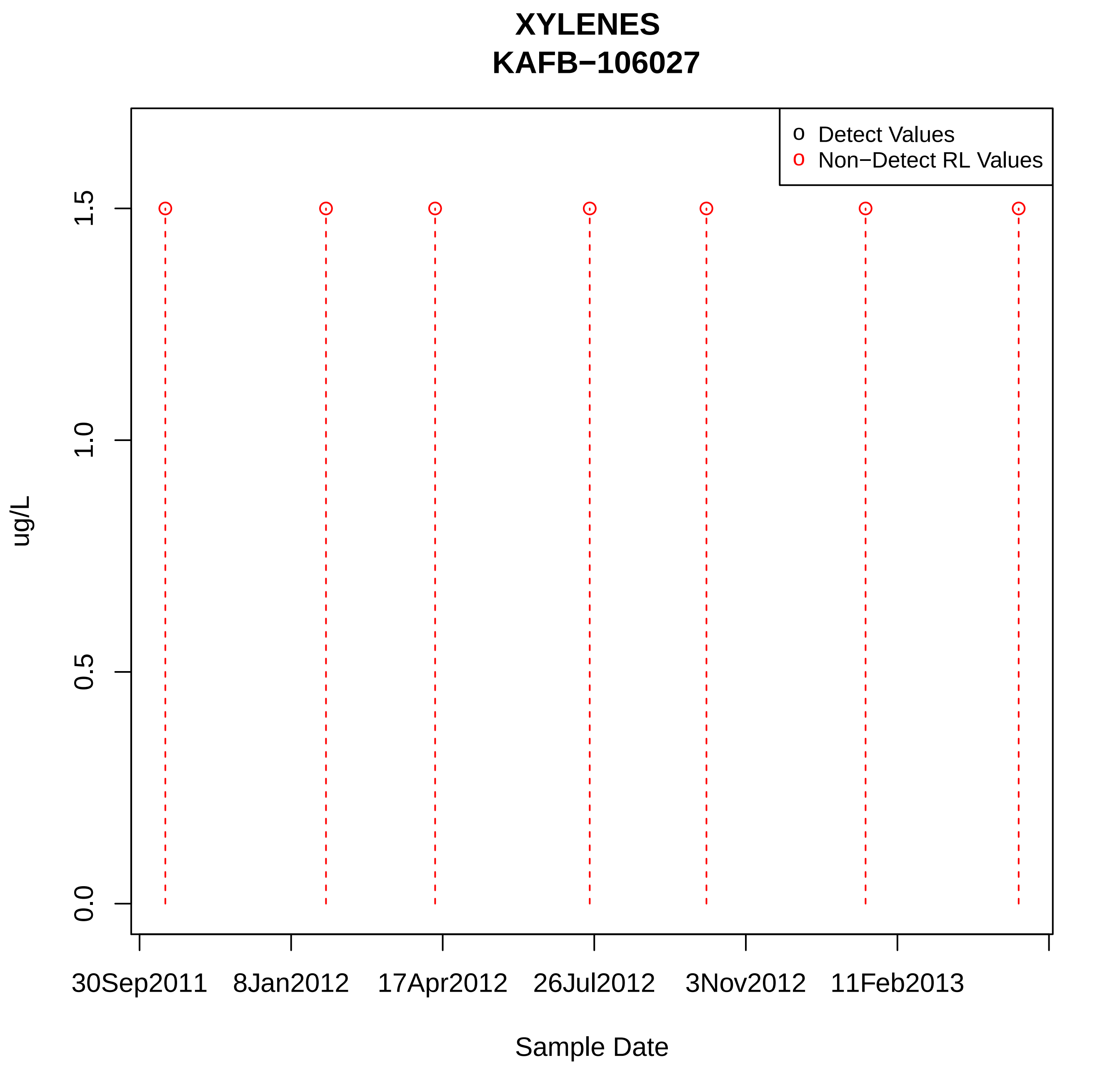


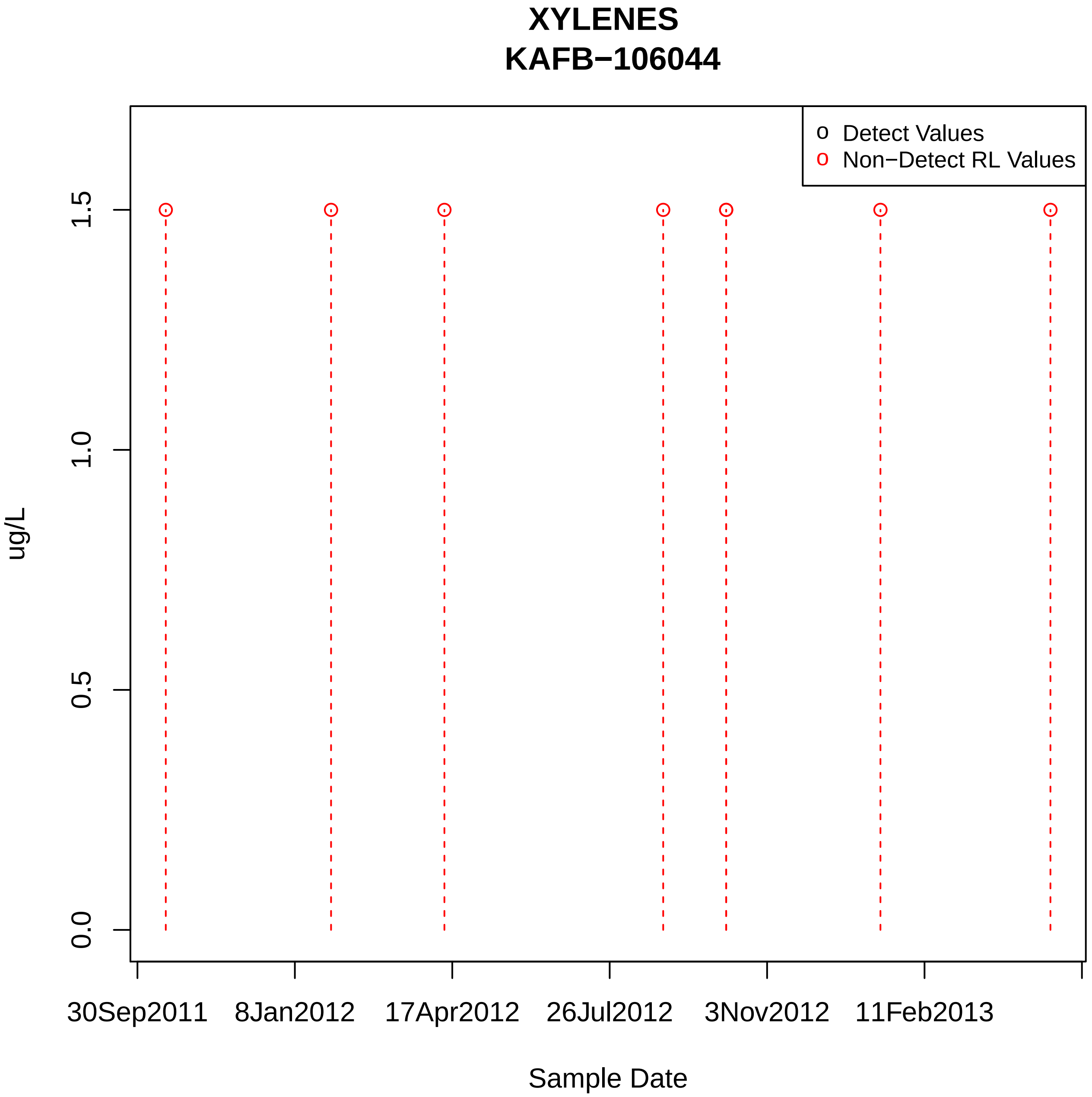
XYLENES
KAFB−106039
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

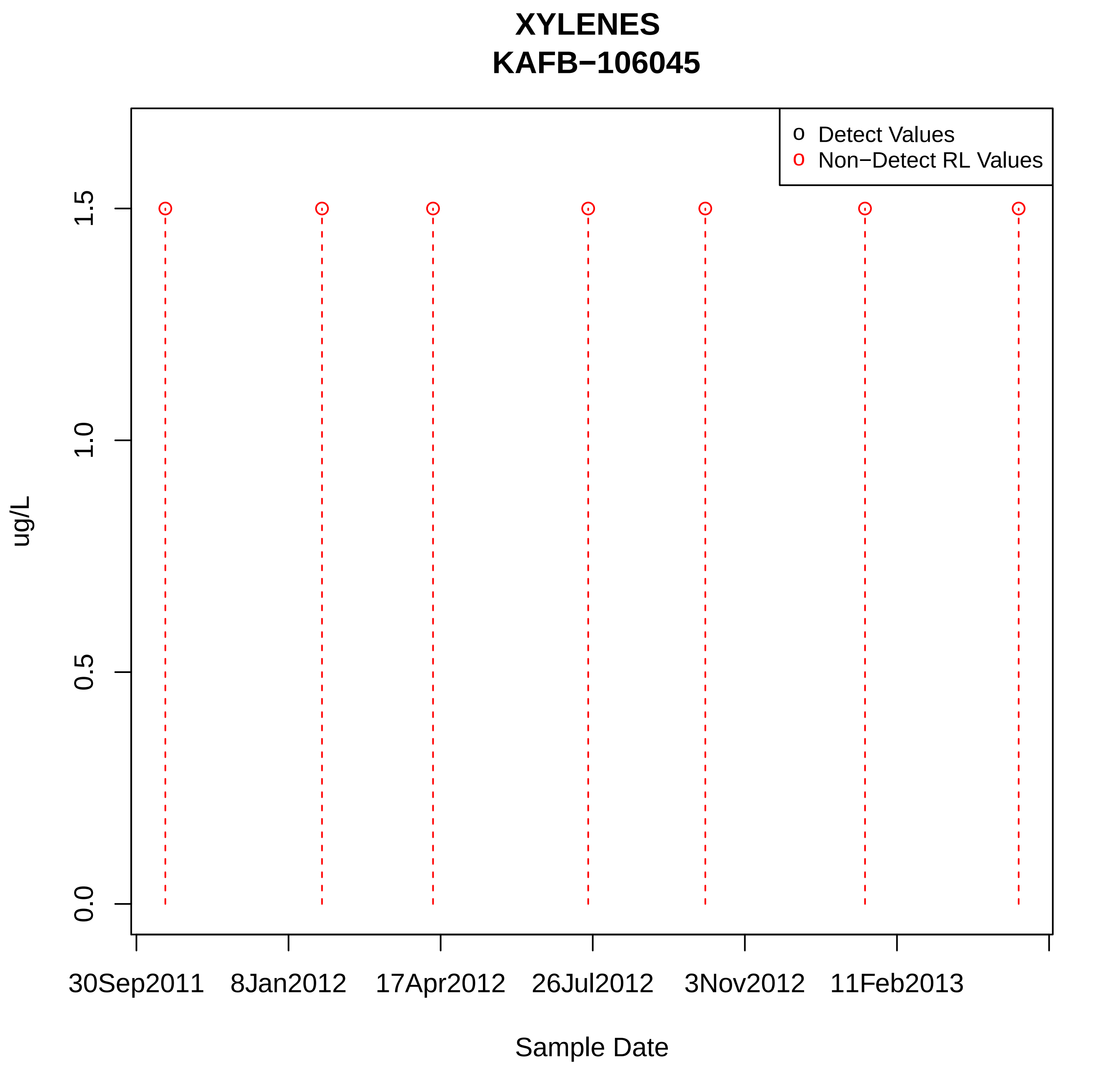

XYLENES
KAFB−106040
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

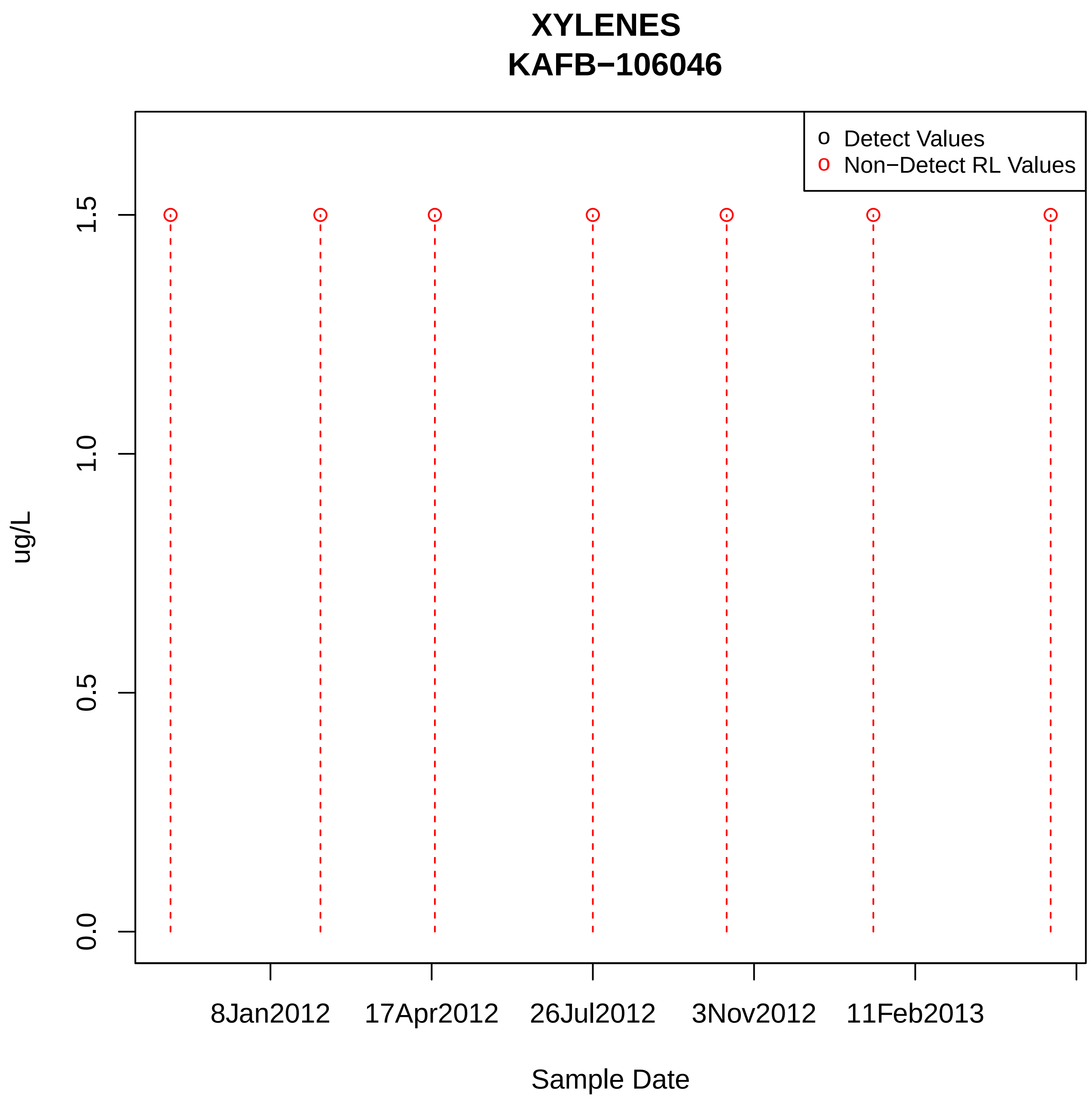

XYLENES
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

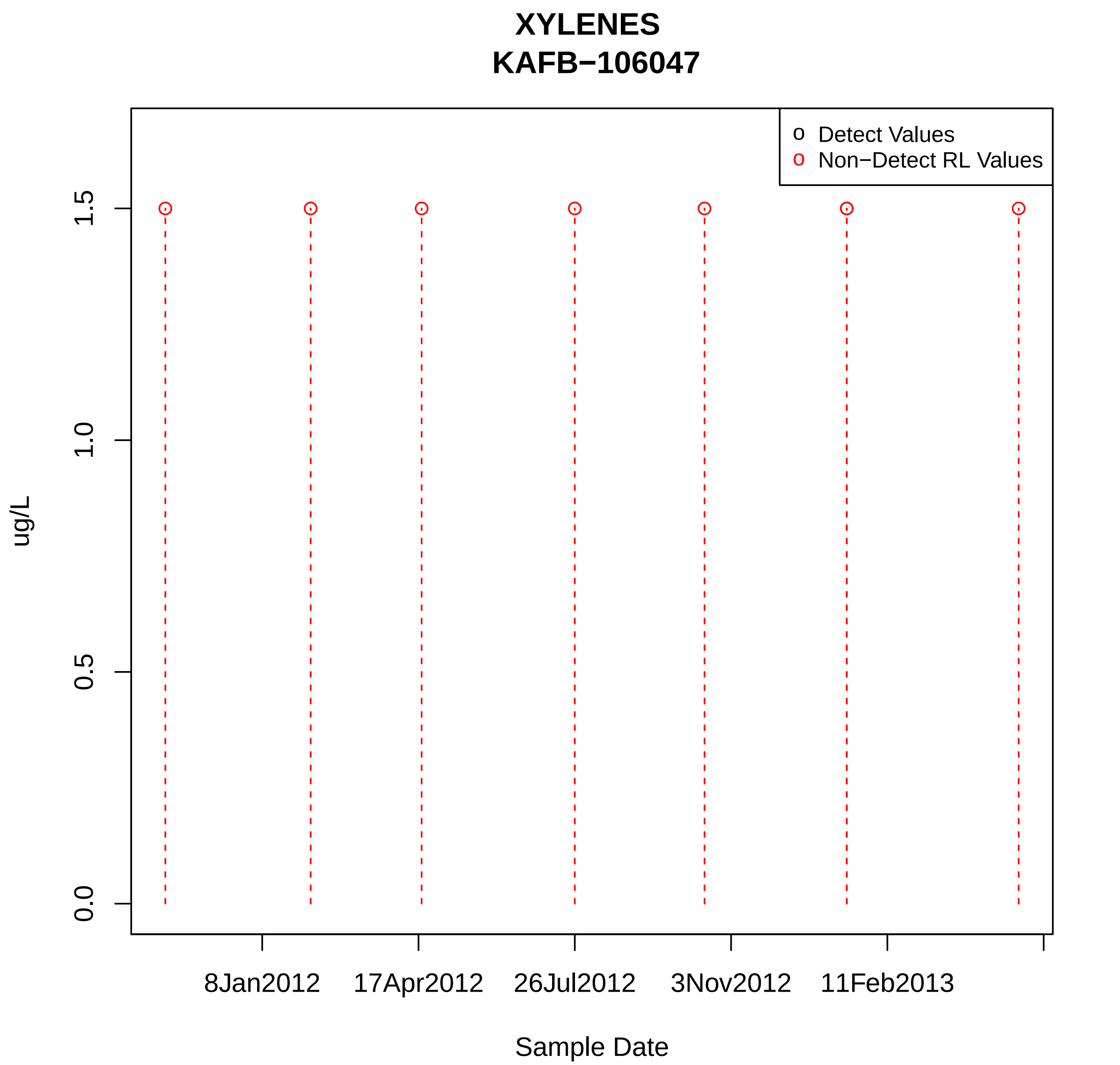

XYLENES
KAFB−106043
o Detect Values
o Non−Detect RL Values
1.5
1.0
0.5
0.0
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106027
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

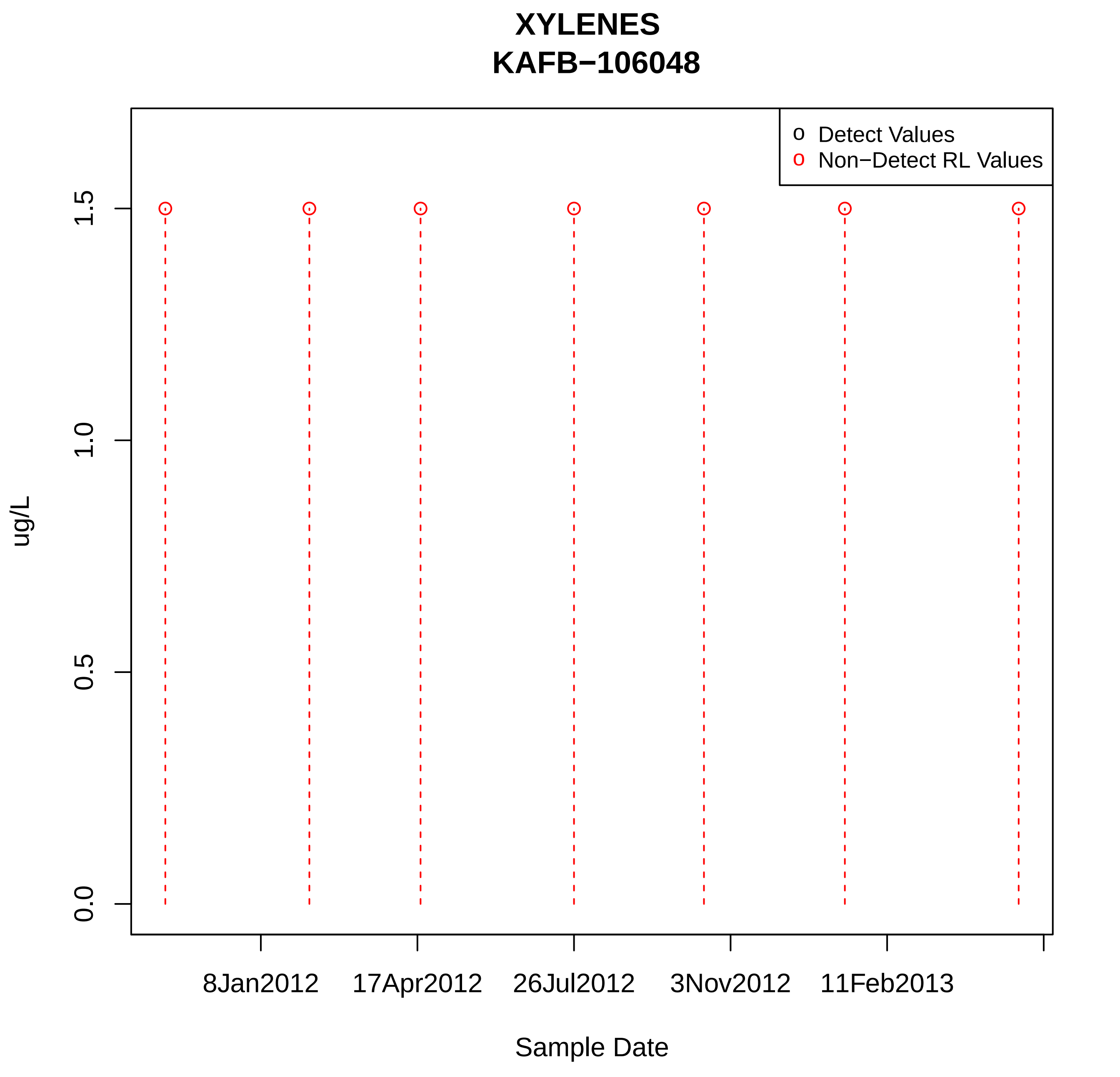

XYLENES
KAFB−106044
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

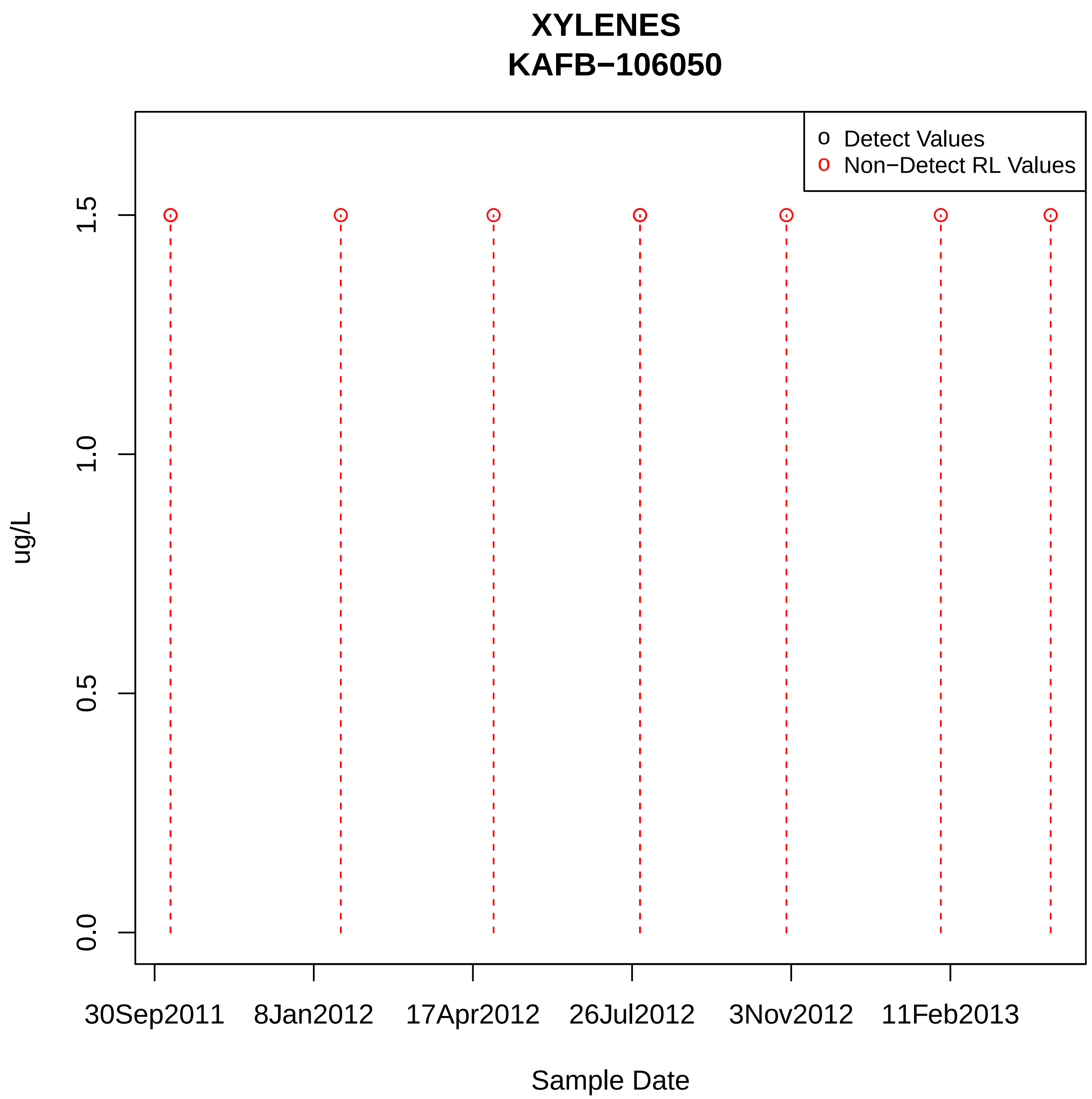

XYLENES
KAFB−106045
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

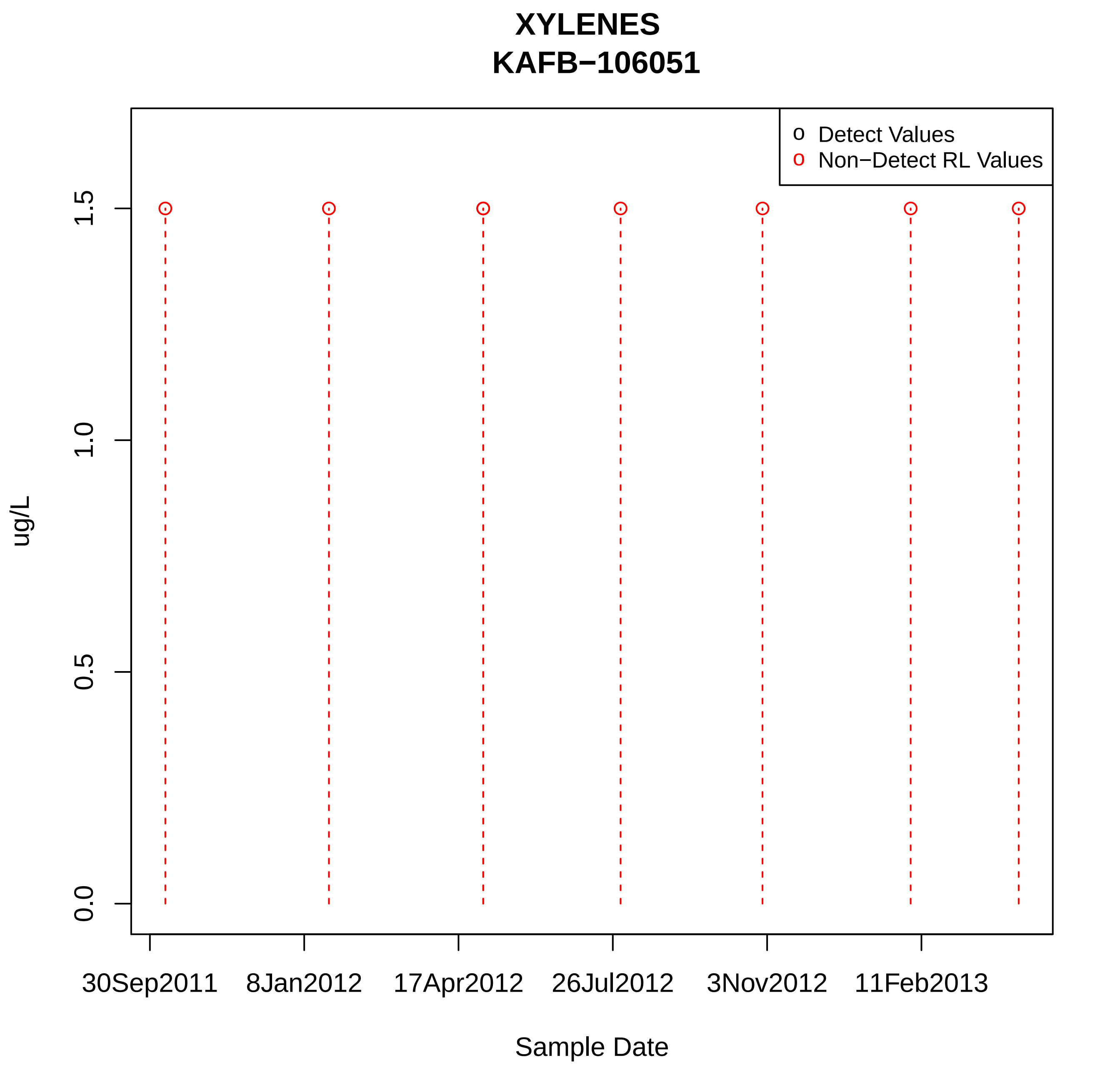

XYLENES
KAFB−106046
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

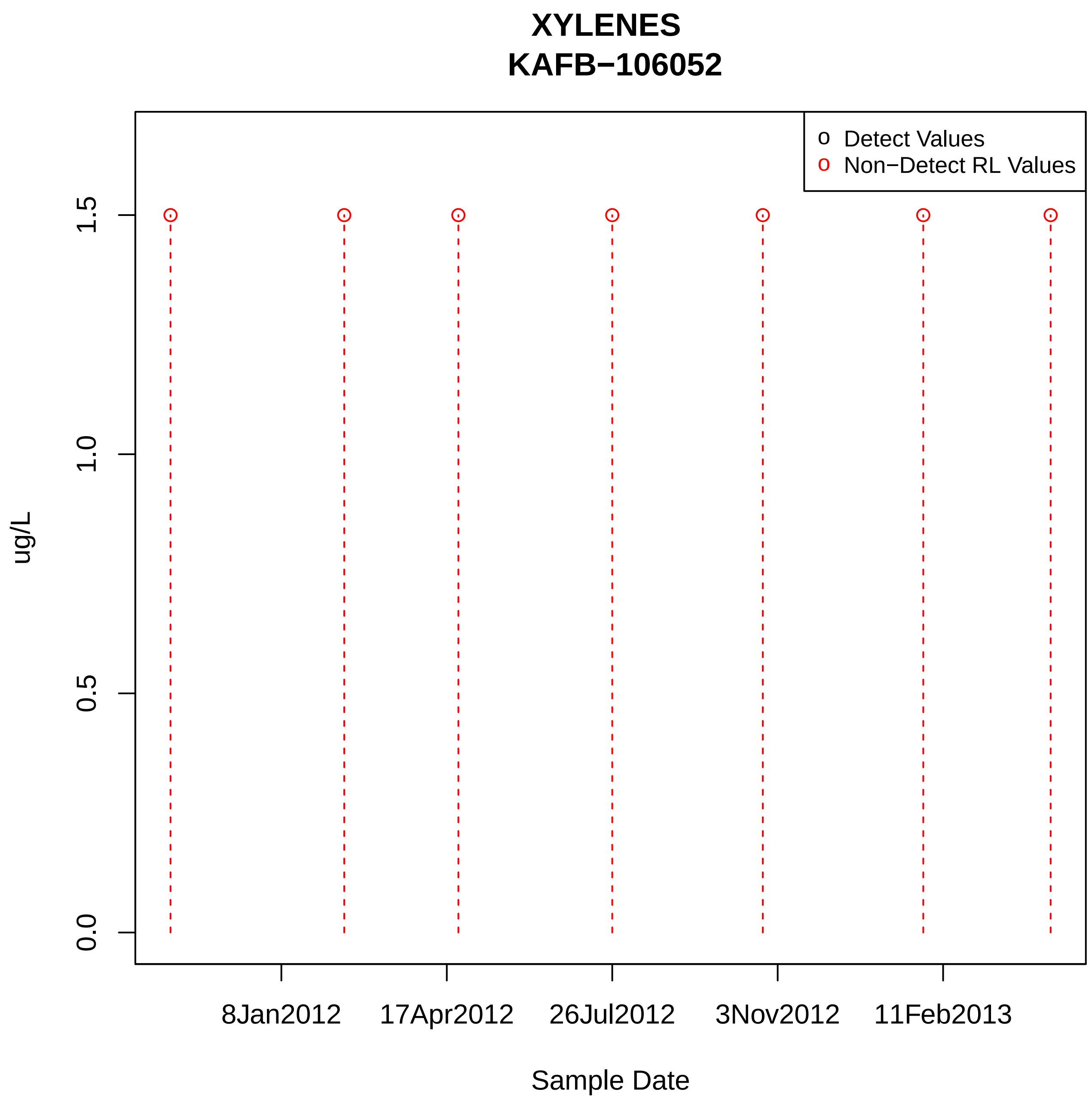


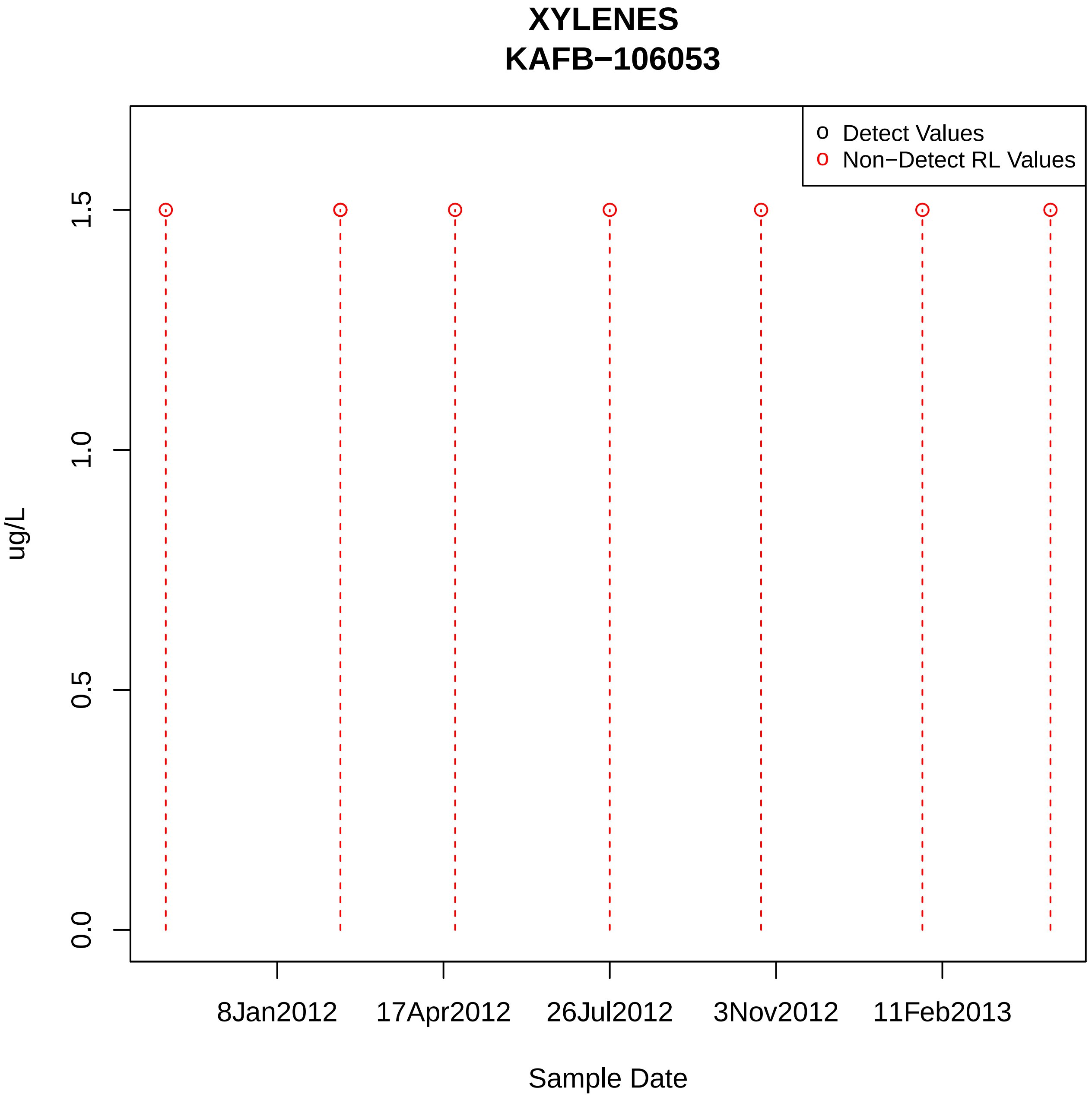
XYLENES
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106048
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

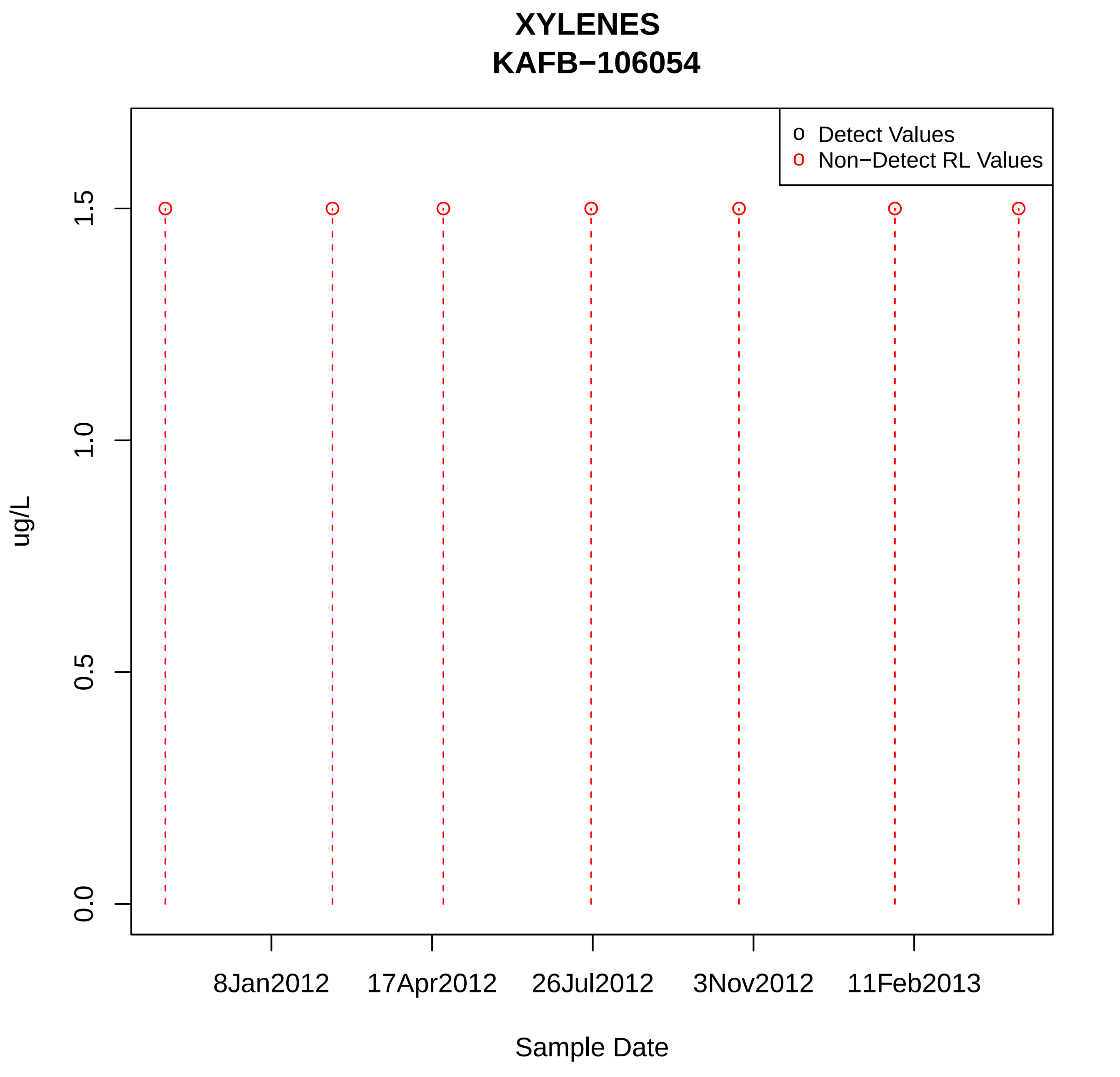

XYLENES
KAFB−106050
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

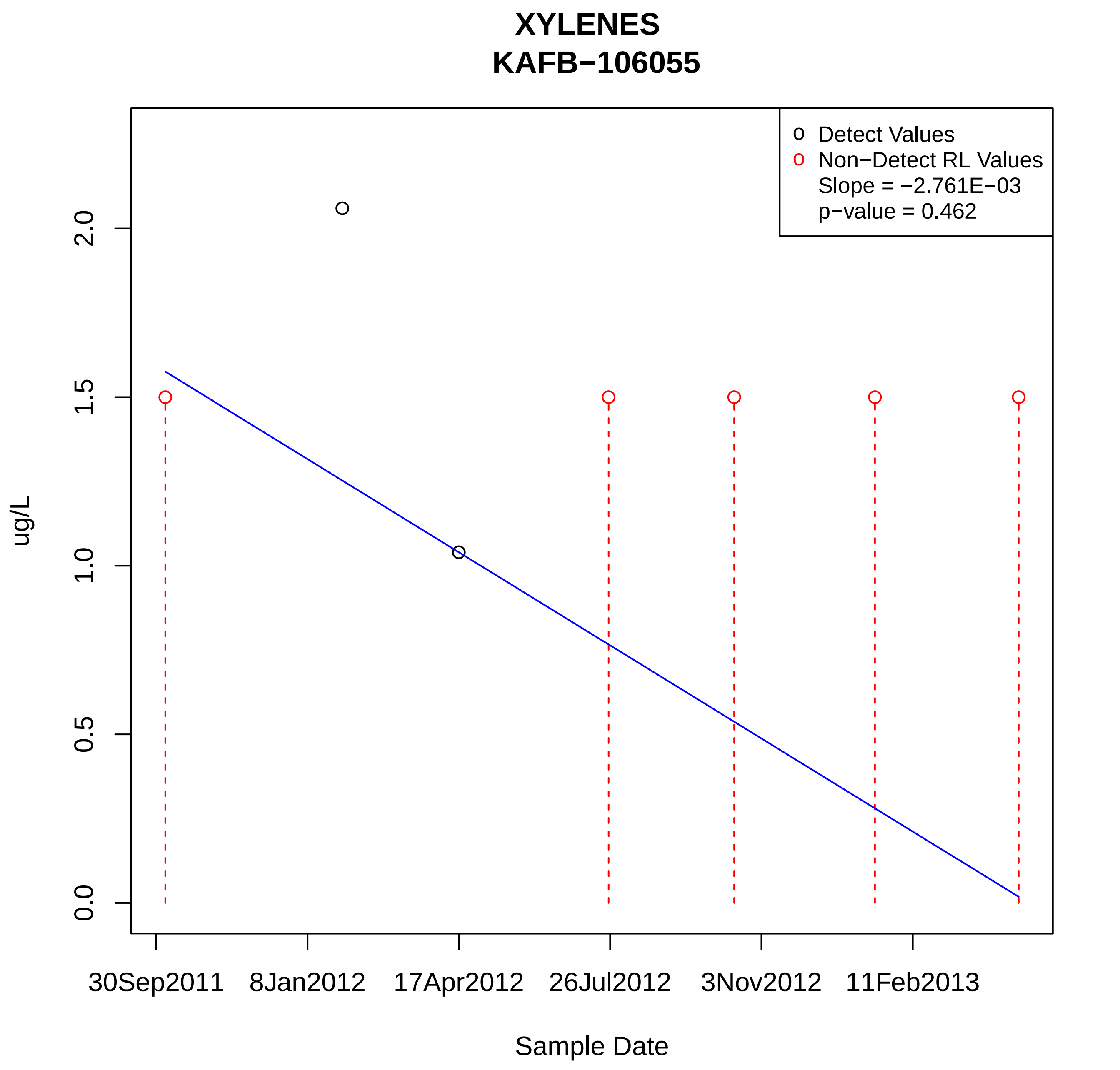

XYLENES
KAFB−106051
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

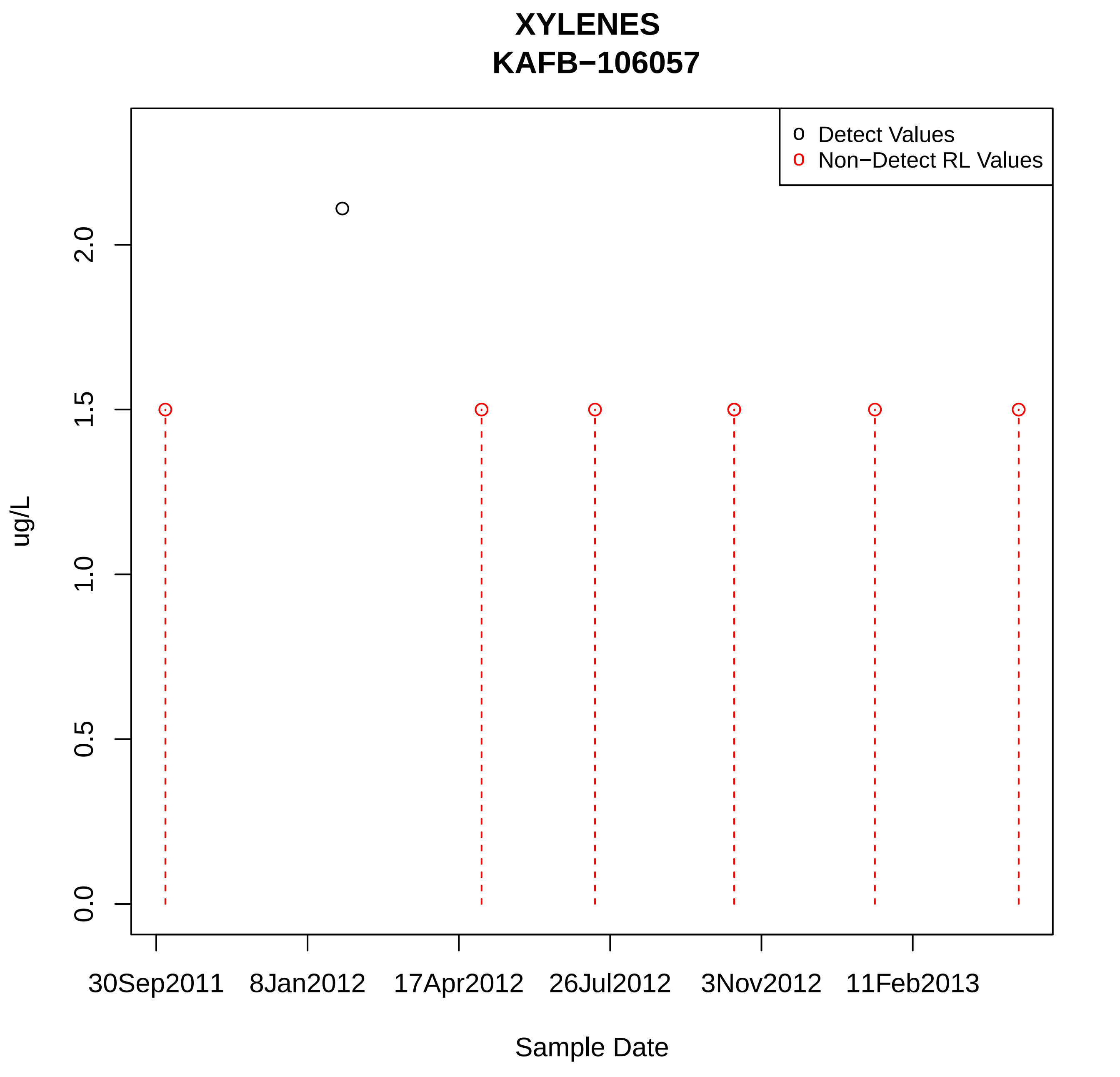

XYLENES
KAFB−106052
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

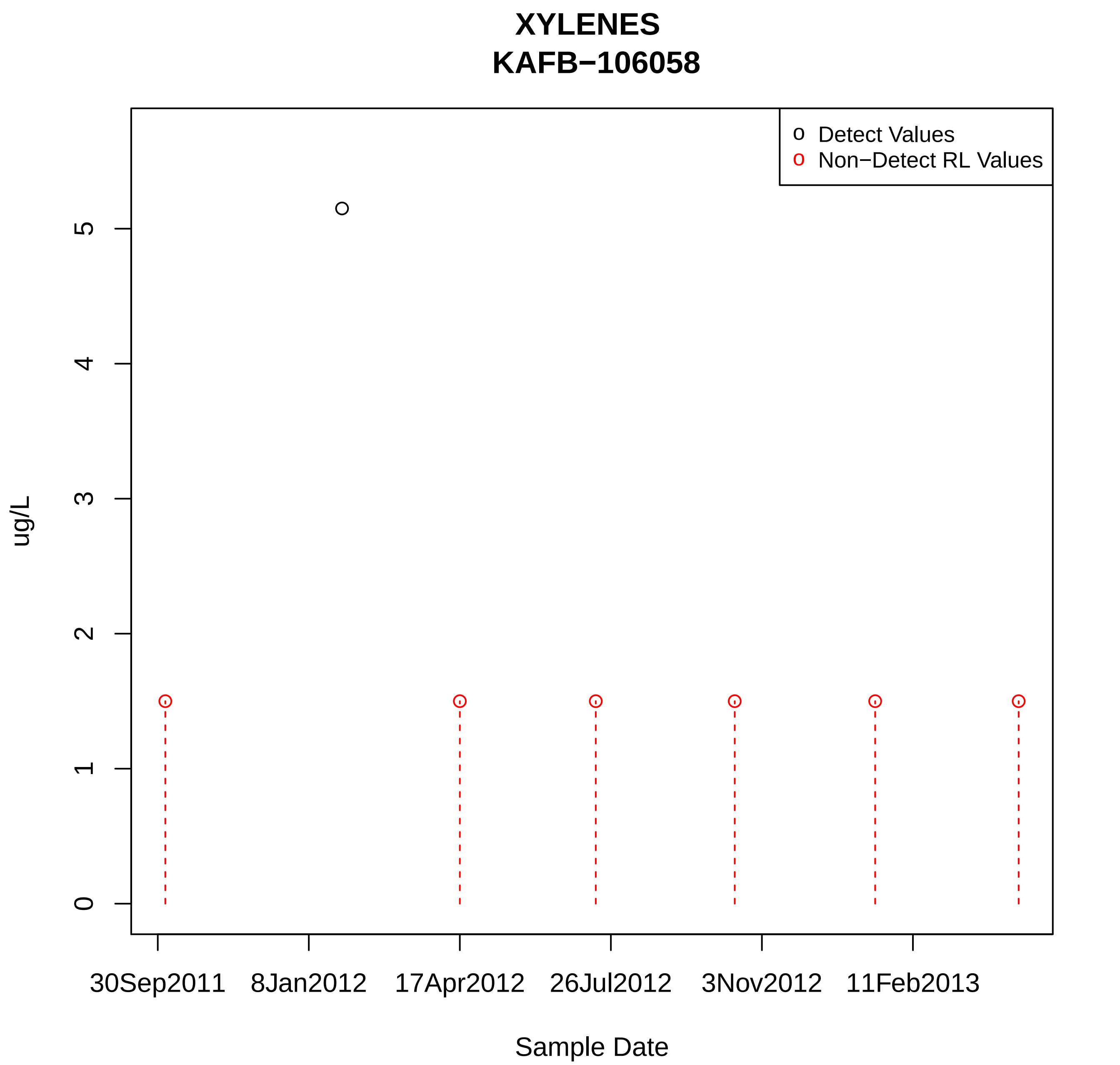


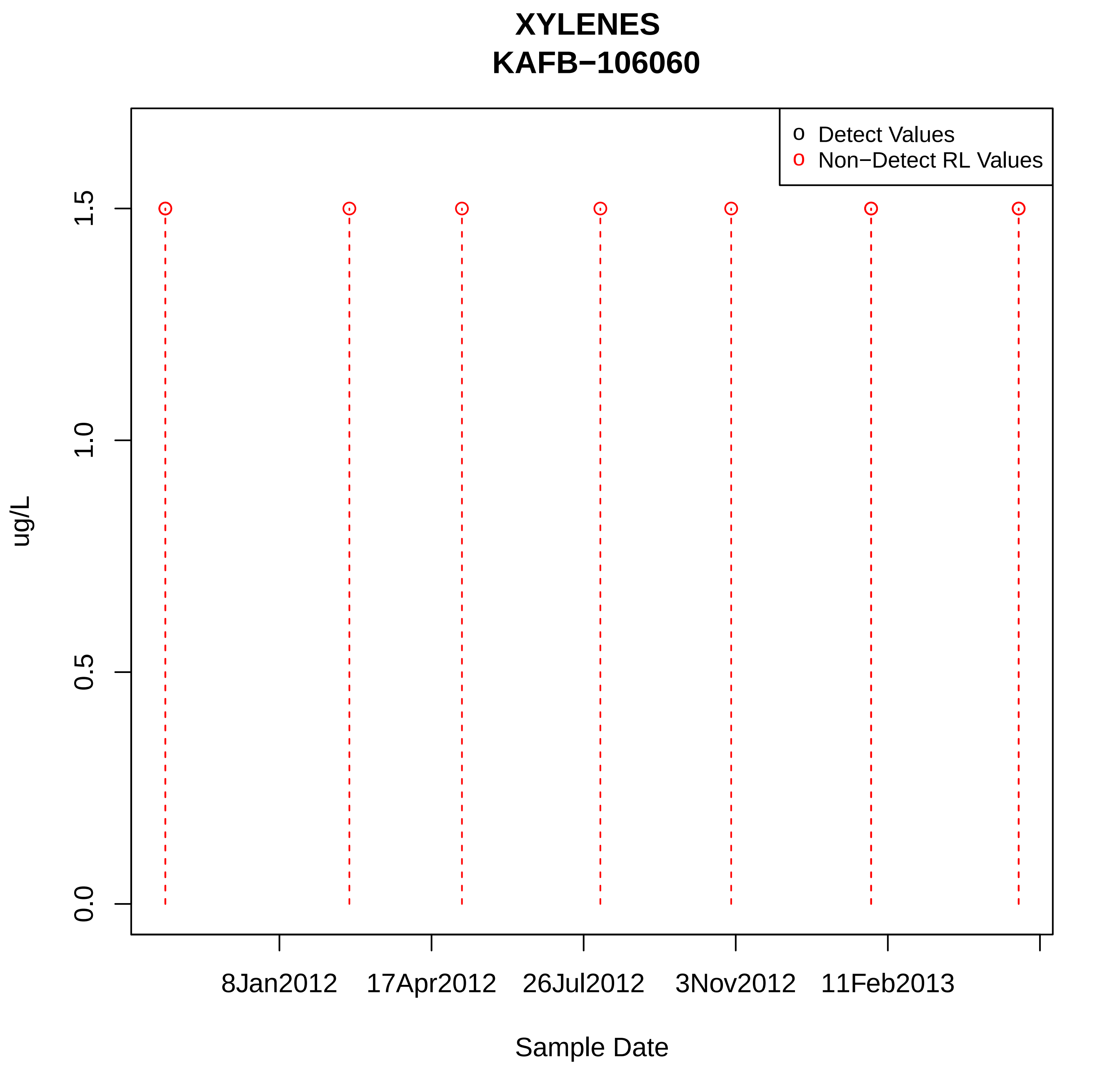
XYLENES
KAFB−106053
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106054
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

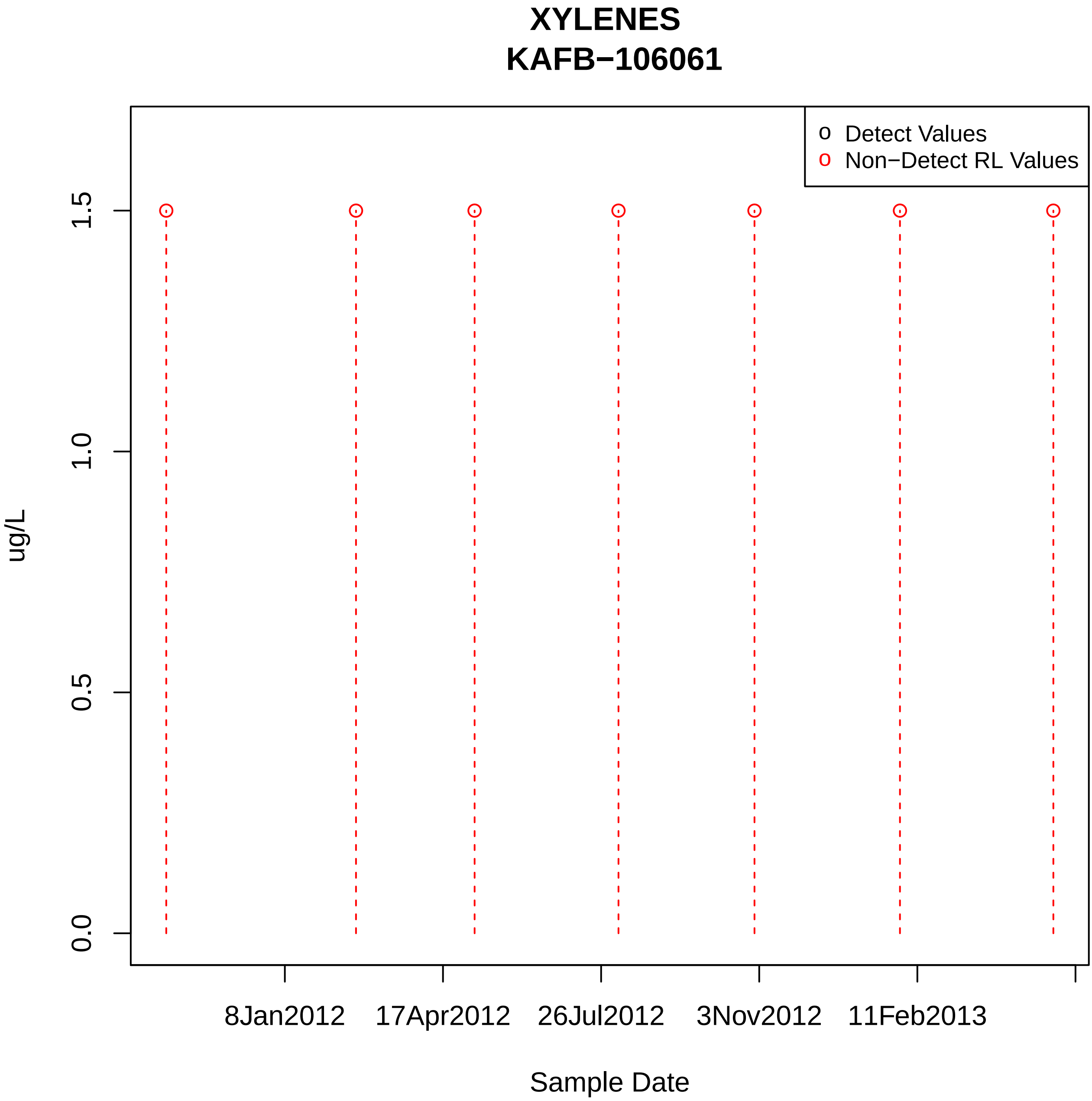

XYLENES
KAFB−106055
Detect Values
Non−Detect RL Values
Slope = −2.761E−03
p−value = 0.462
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106057
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

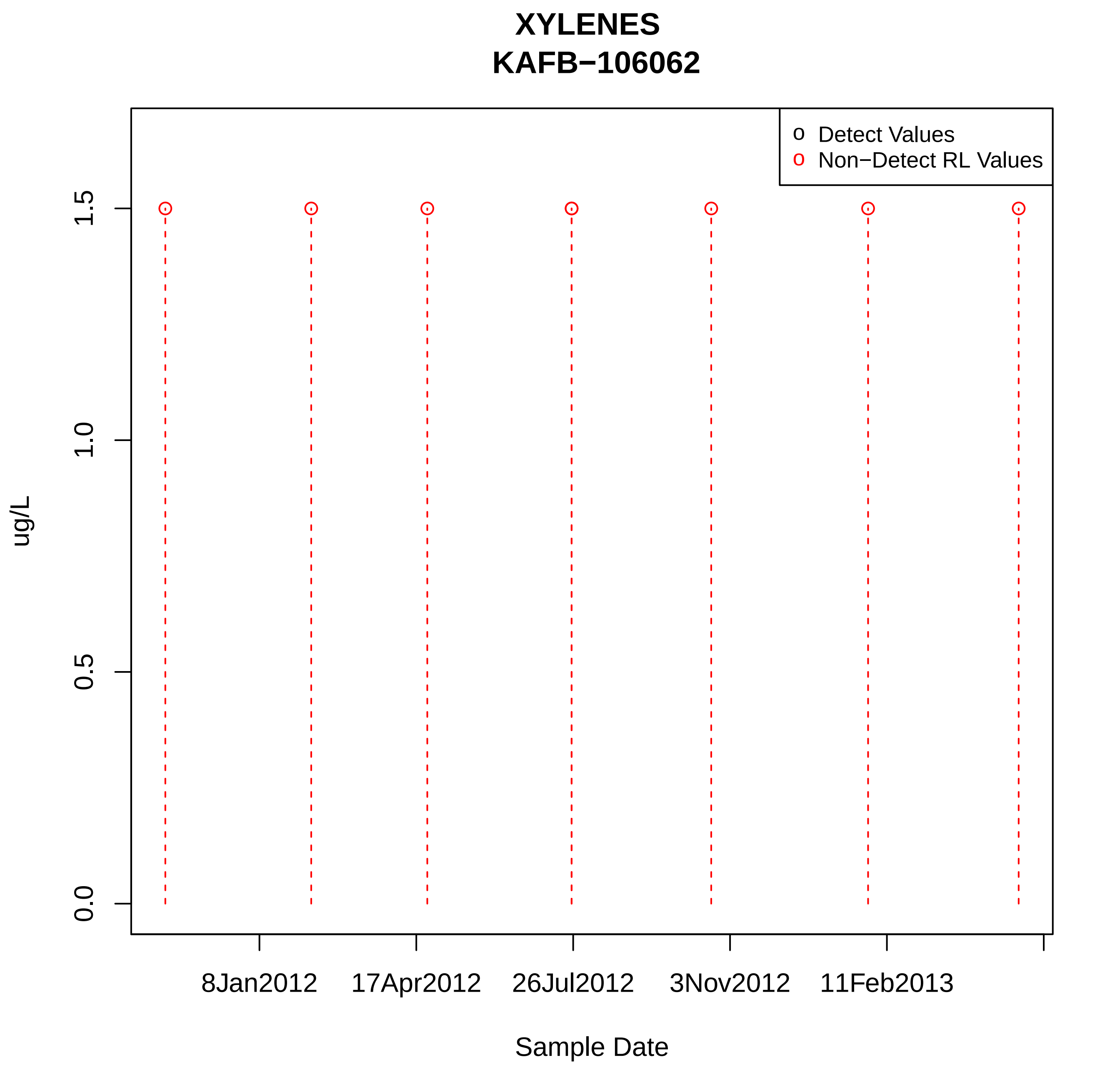

XYLENES
KAFB−106058
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

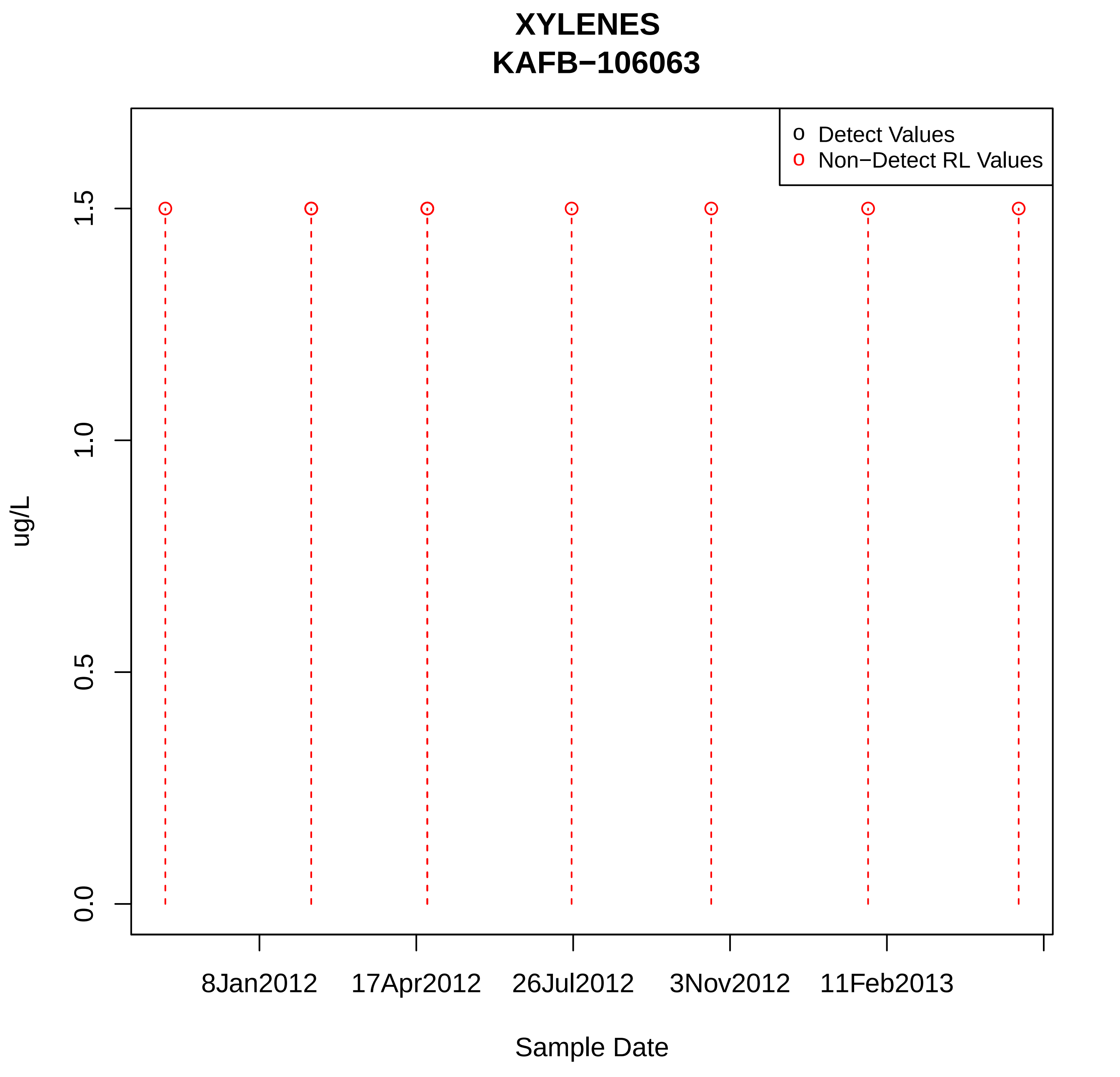


XYLENES
KAFB−106060
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

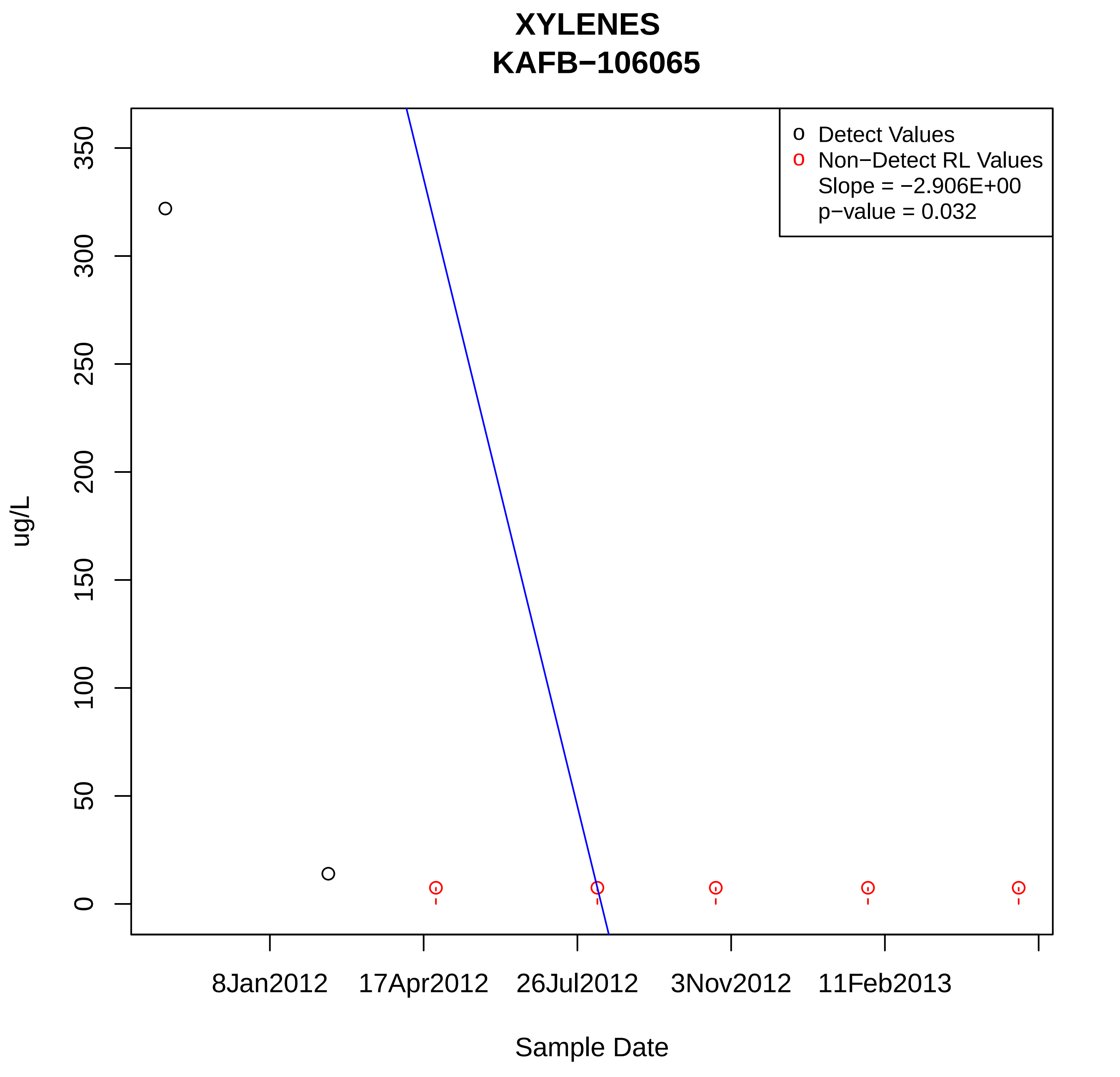


XYLENES
KAFB−106061
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

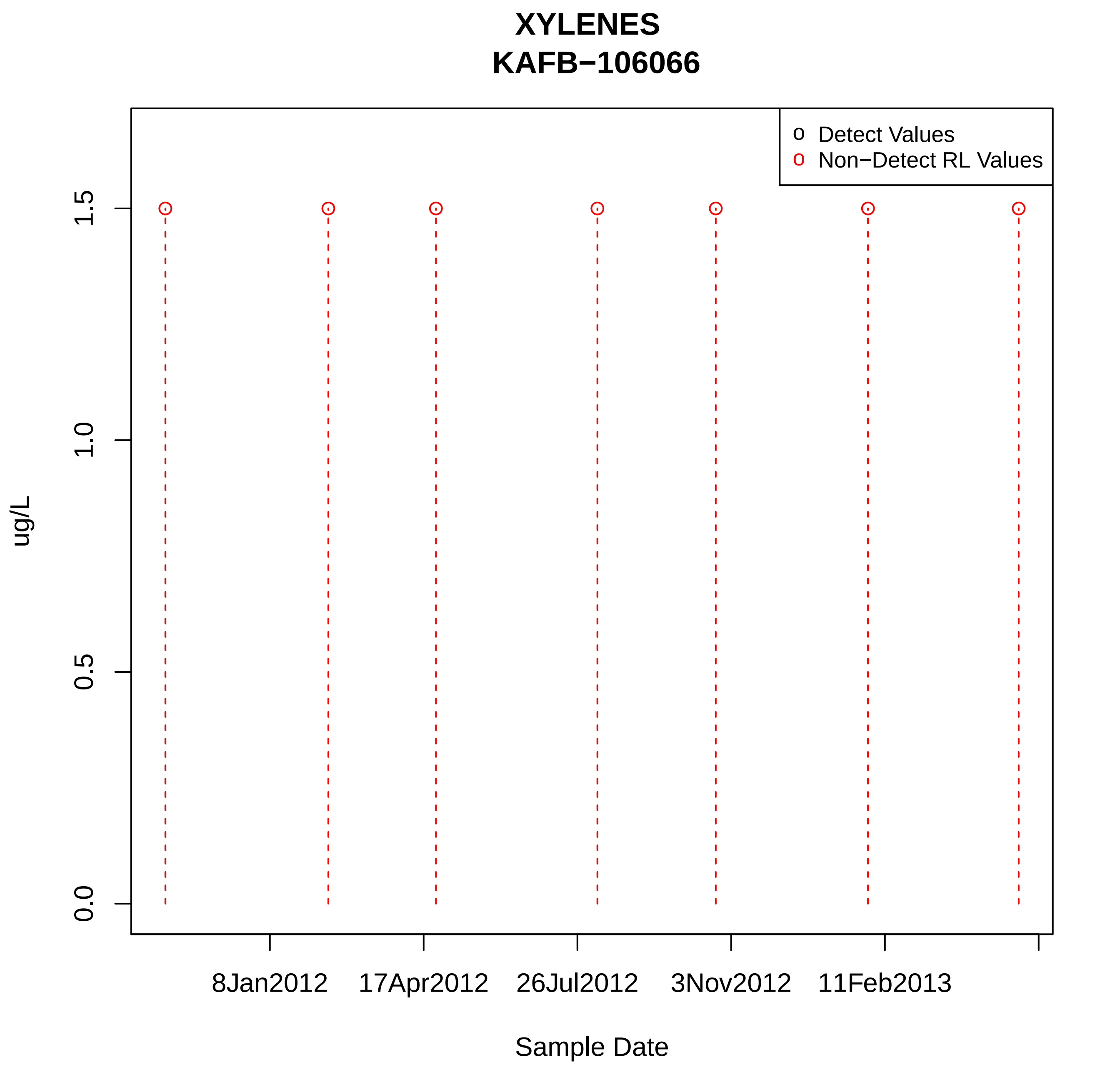

XYLENES
KAFB−106062
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

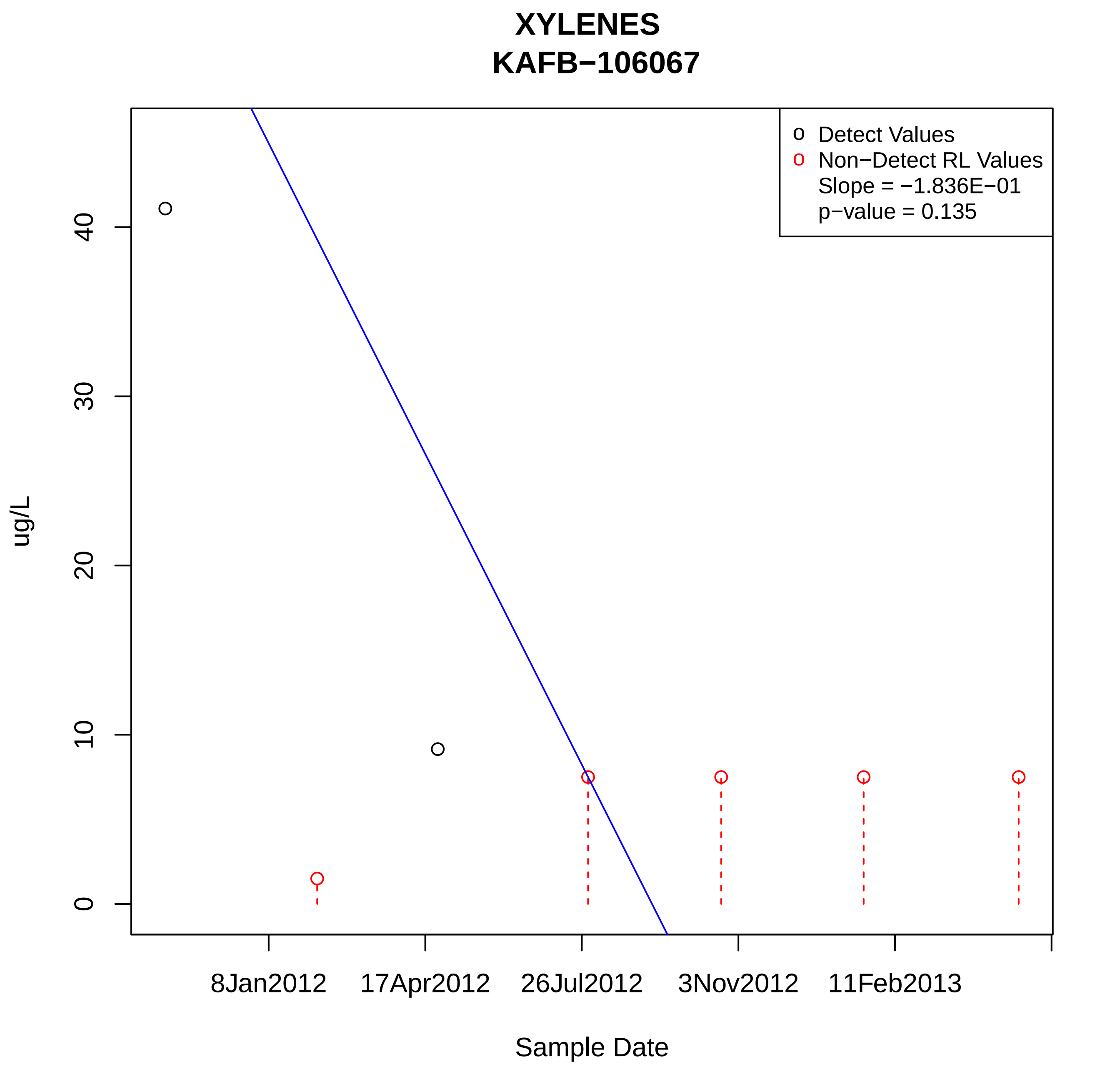


XYLENES
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

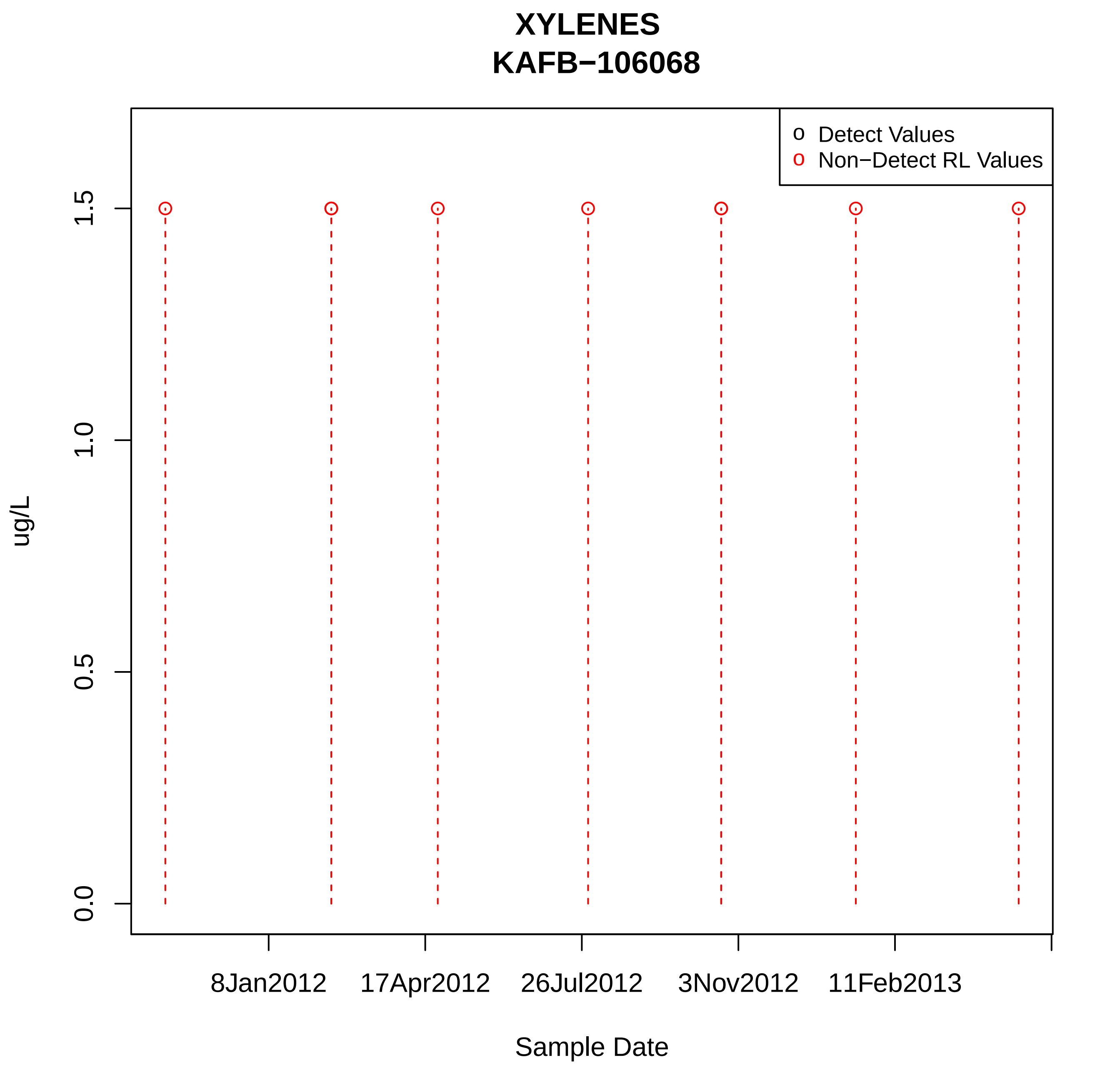


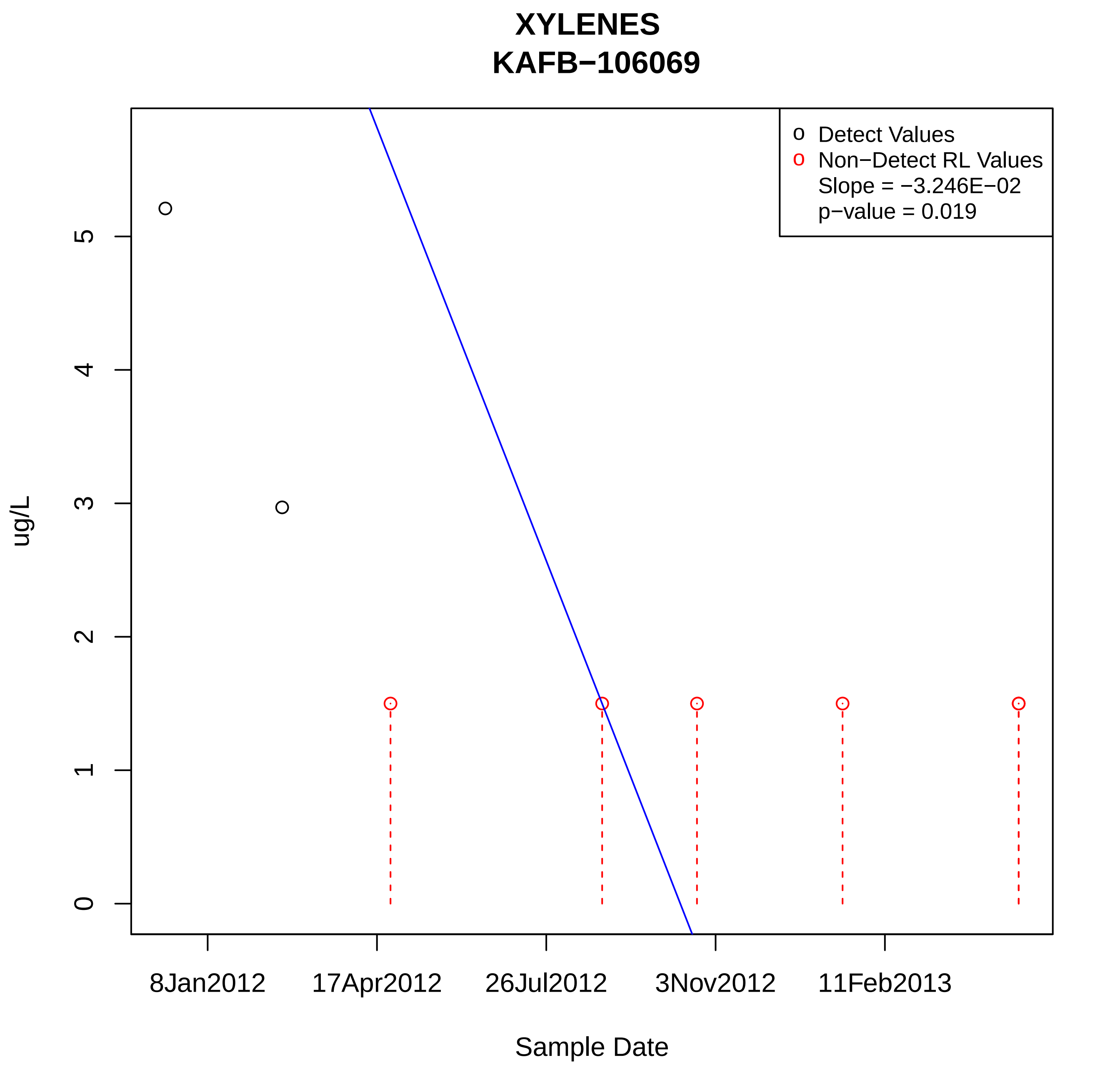
XYLENES
KAFB−106065
o Detect Values
o Non−Detect RL Values
Slope = −2.906E+00
p−value = 0.032
ug/L
0
50
100
150
200
250
300
350
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

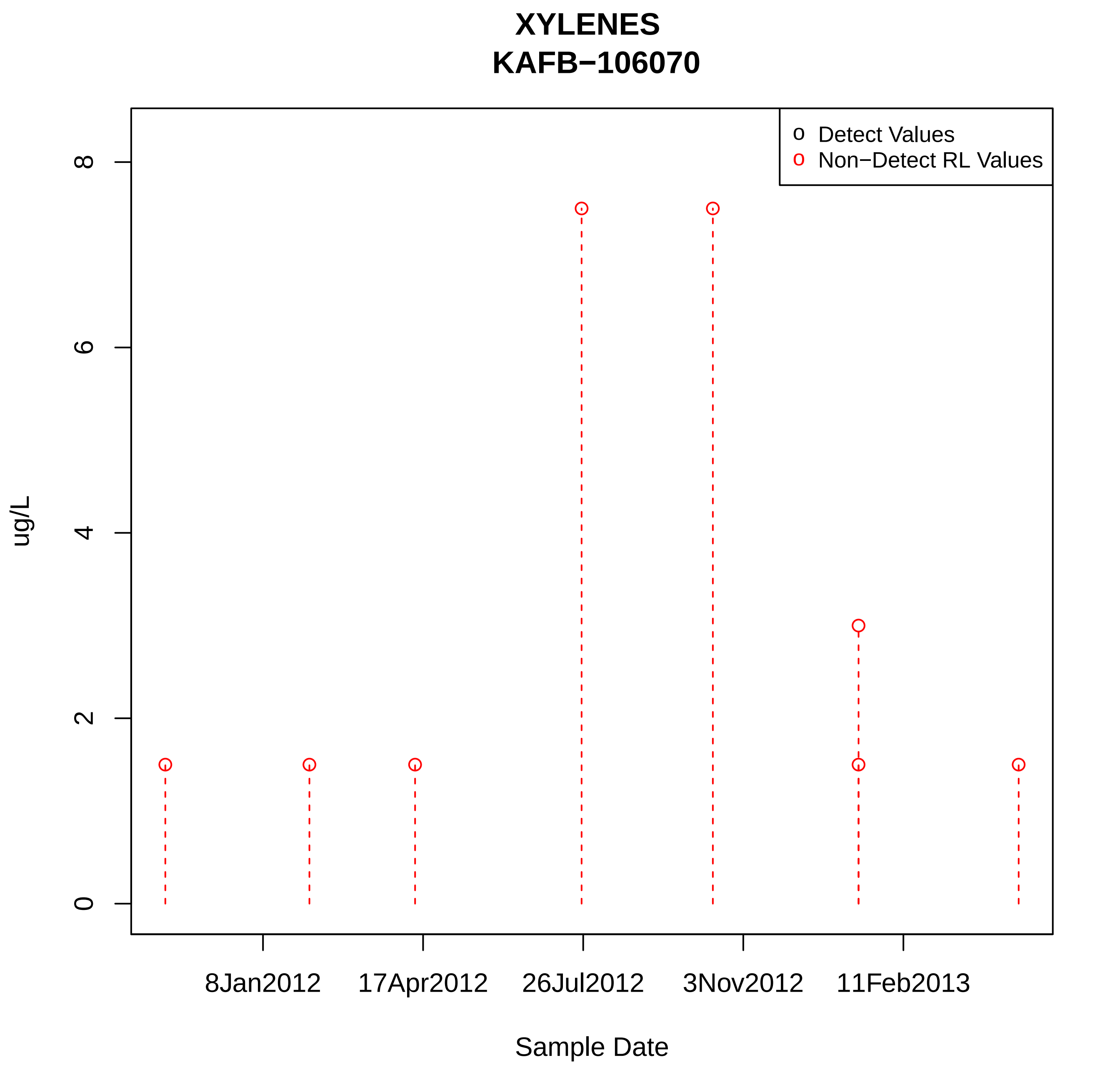


XYLENES
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = −1.836E−01
p−value = 0.135
ug/L
0
10
20
30
40
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

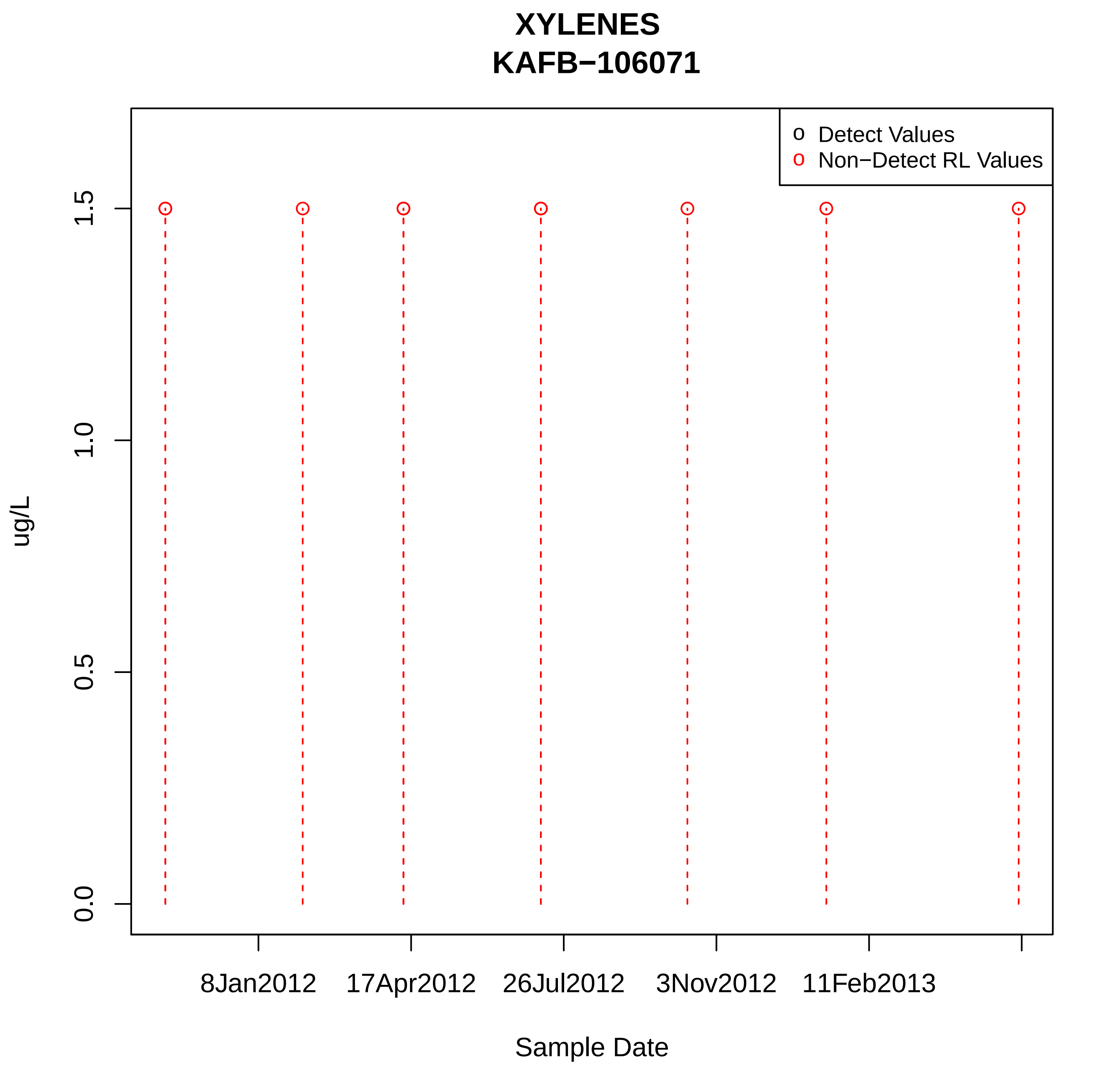

XYLENES
KAFB−106068
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

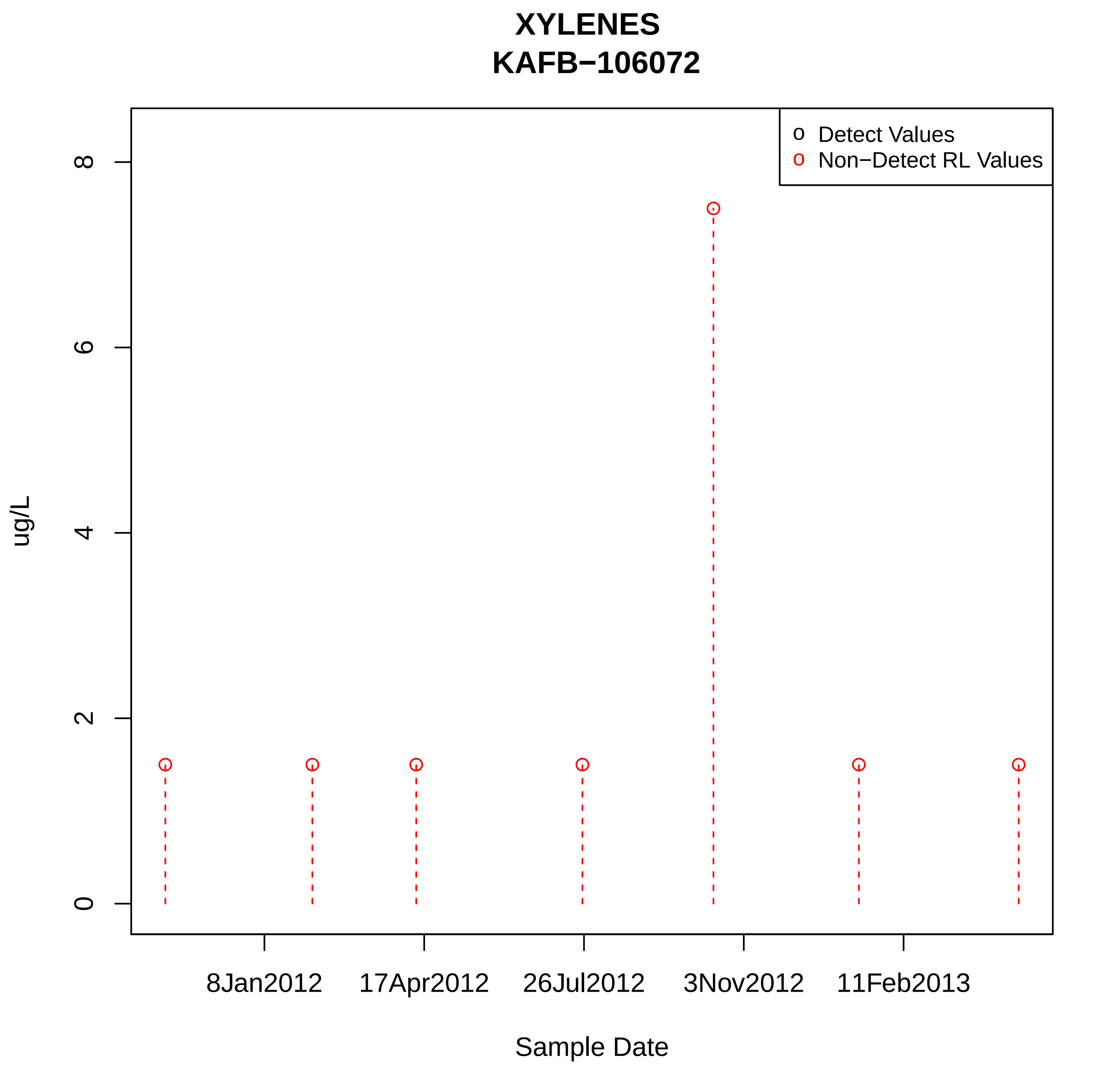


XYLENES
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = −3.246E−02
p−value = 0.019
ug/L
0
1
2
3
4
5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

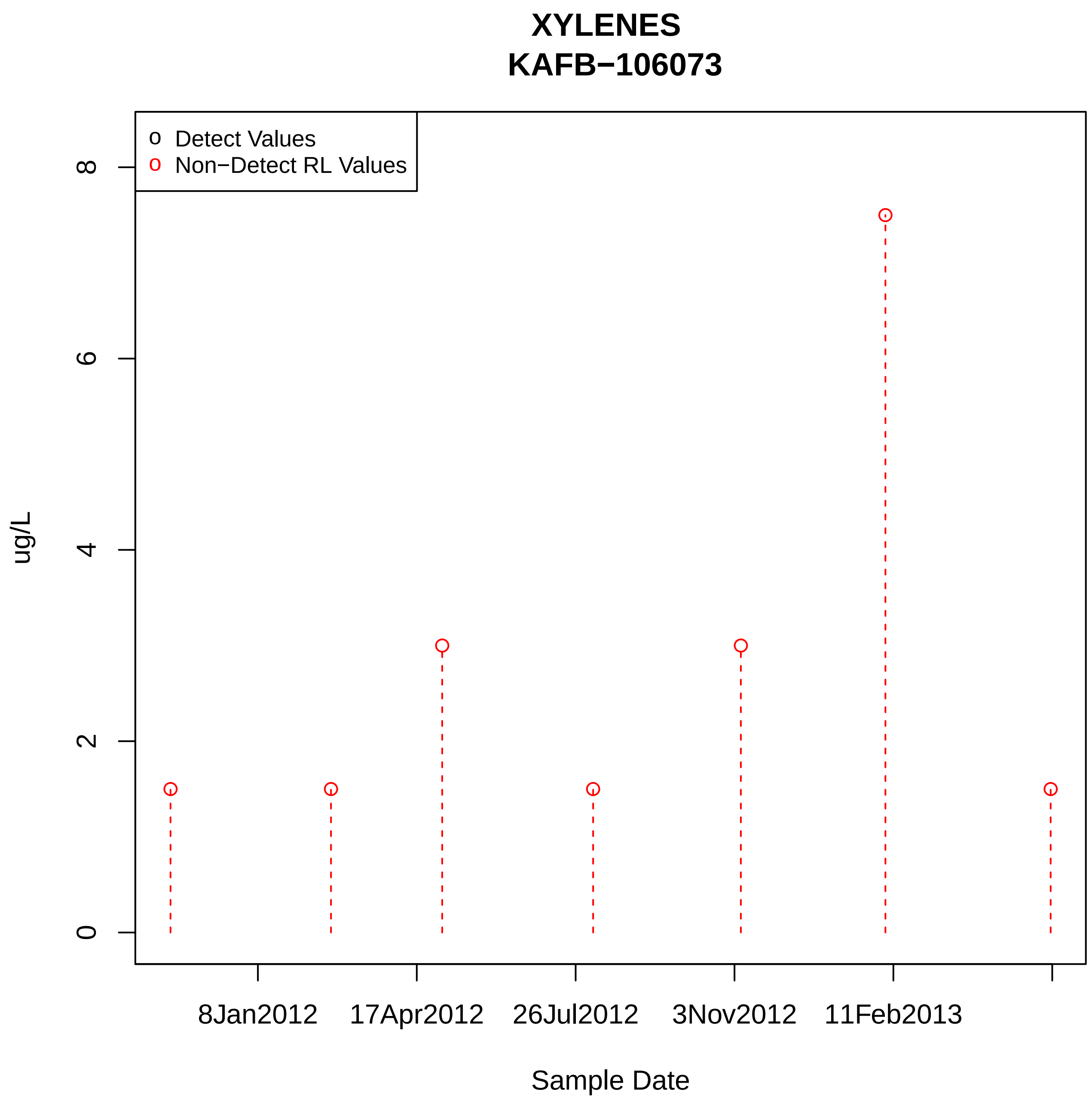


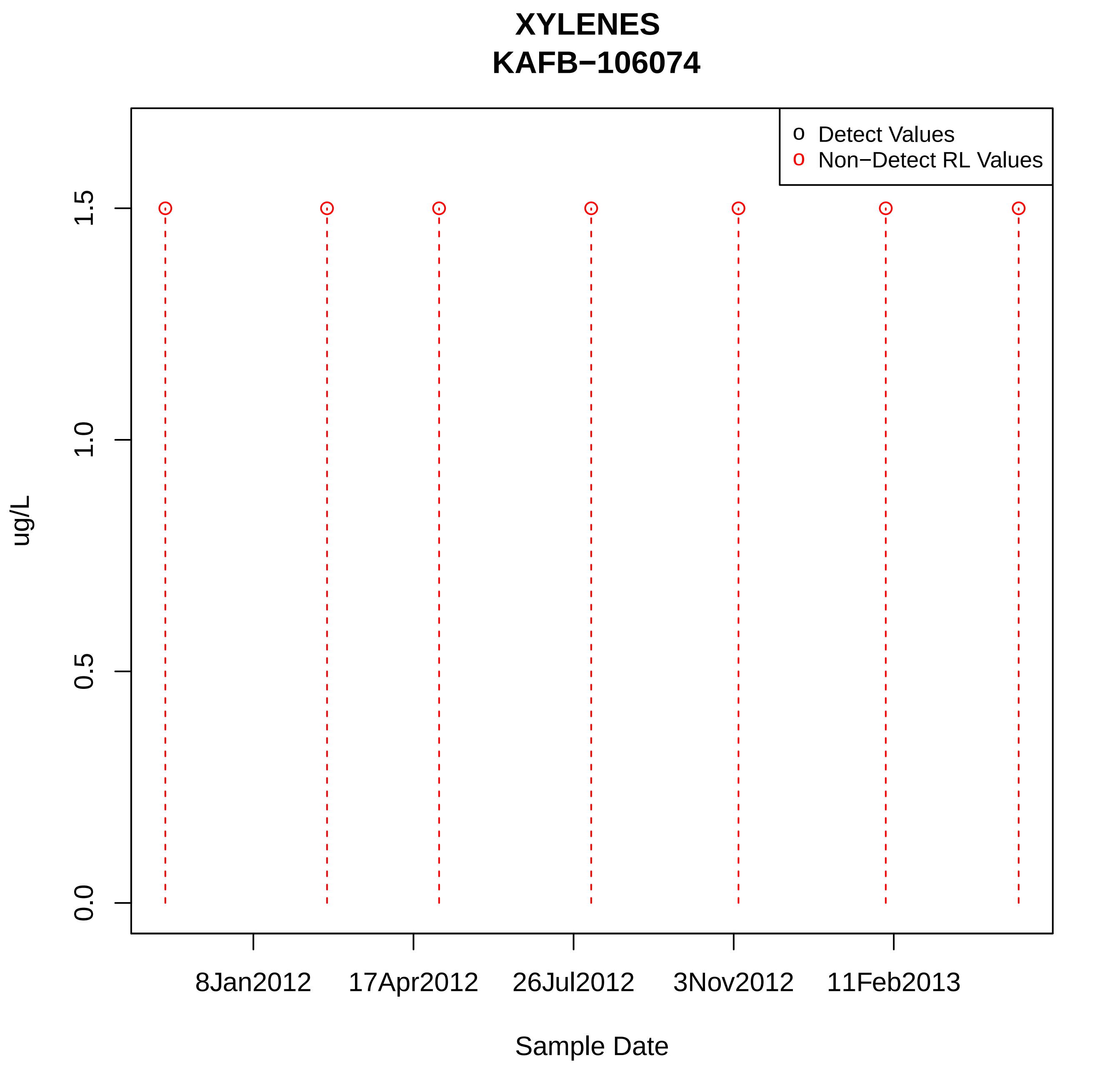
XYLENES
KAFB−106070
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

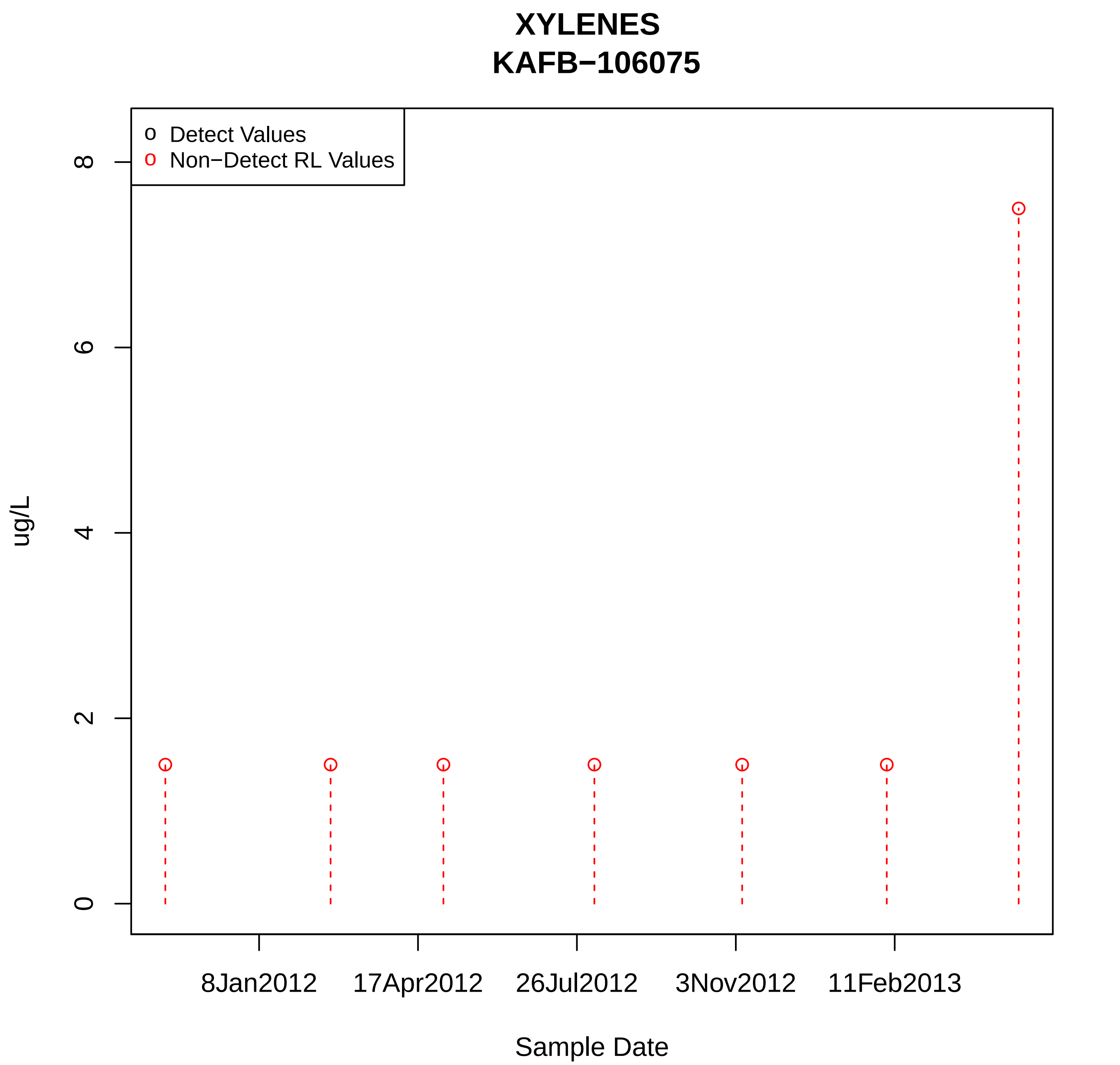

XYLENES
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



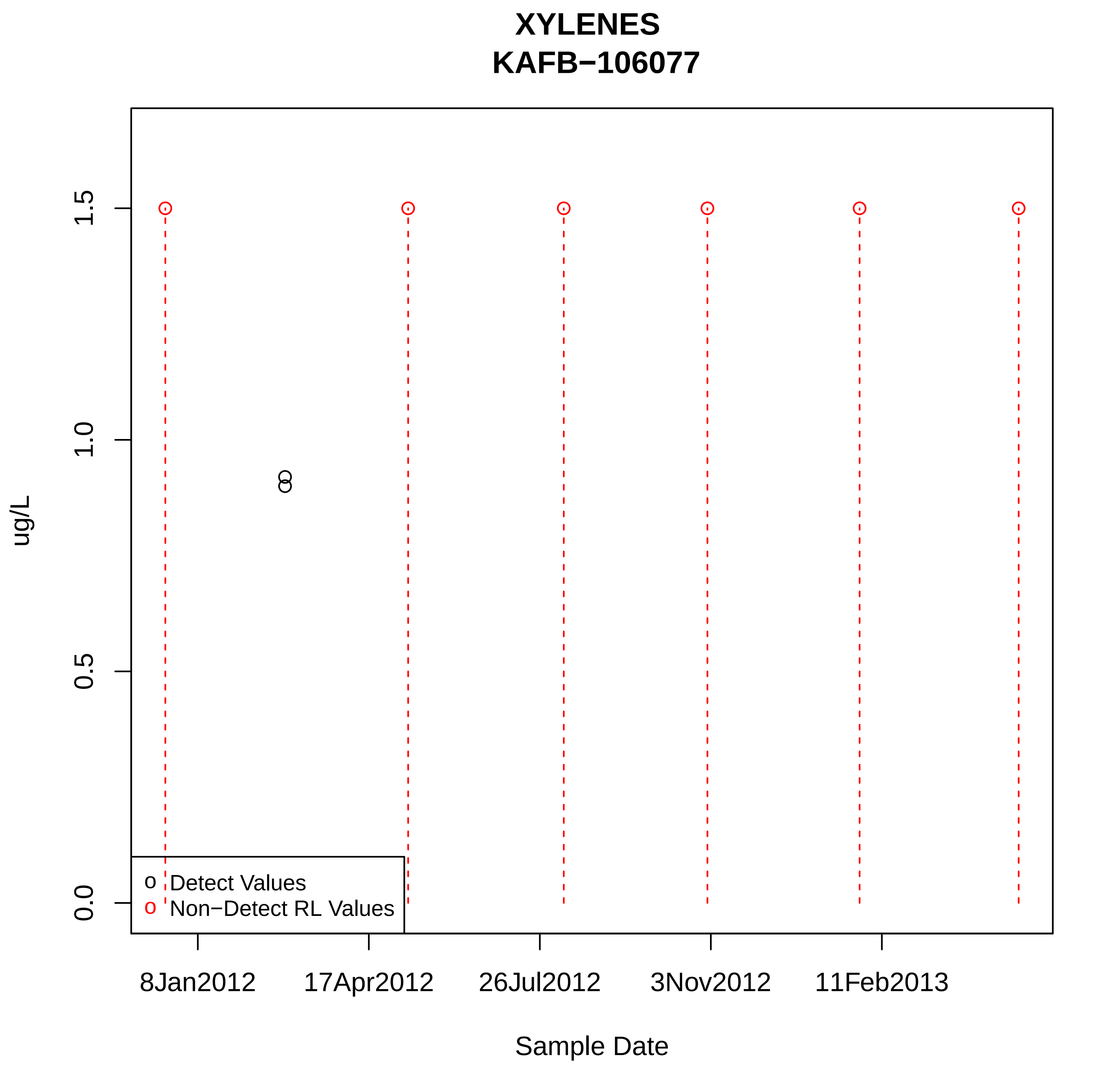
XYLENES
KAFB−106072
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106073
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

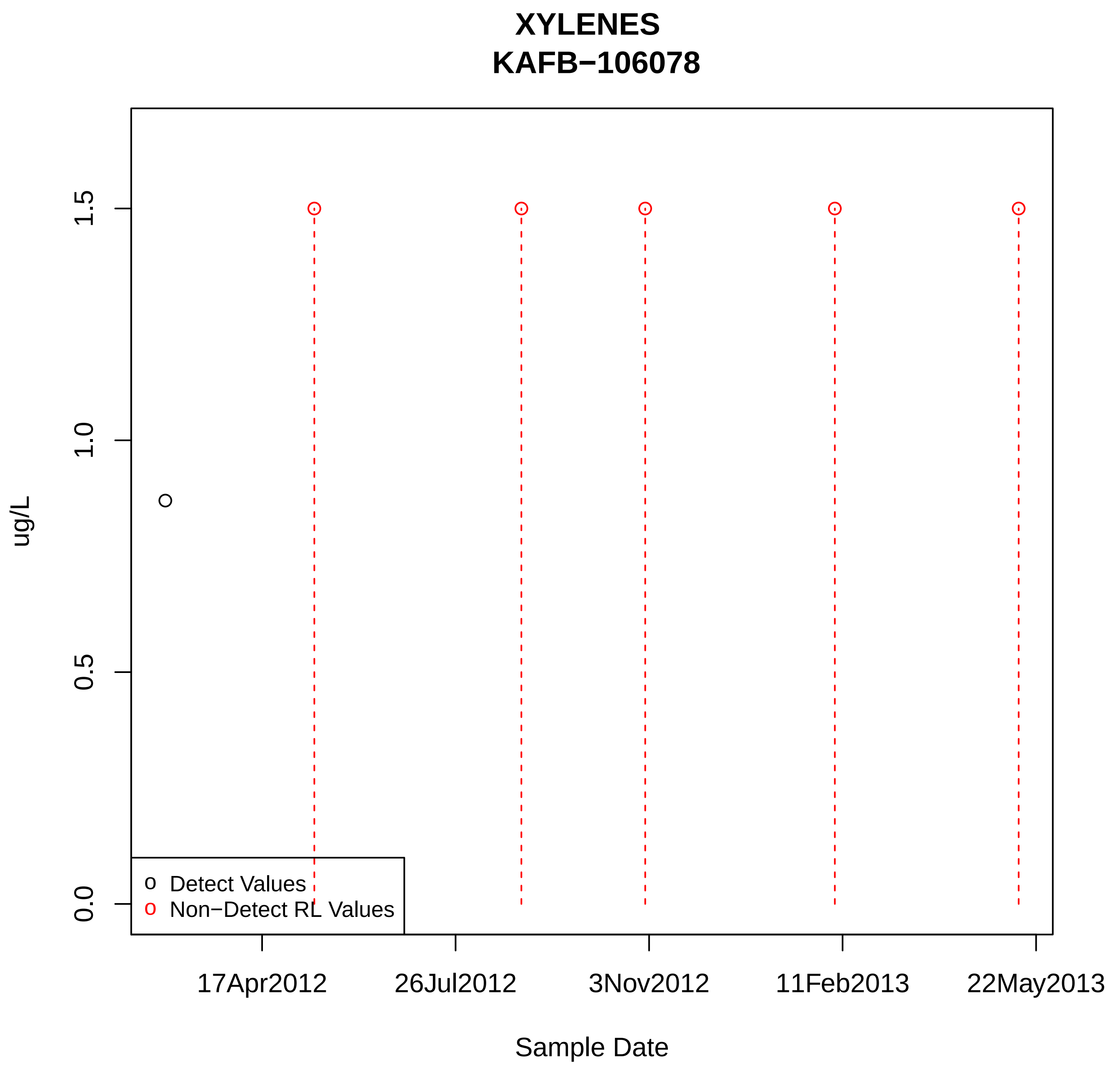

XYLENES
KAFB−106074
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

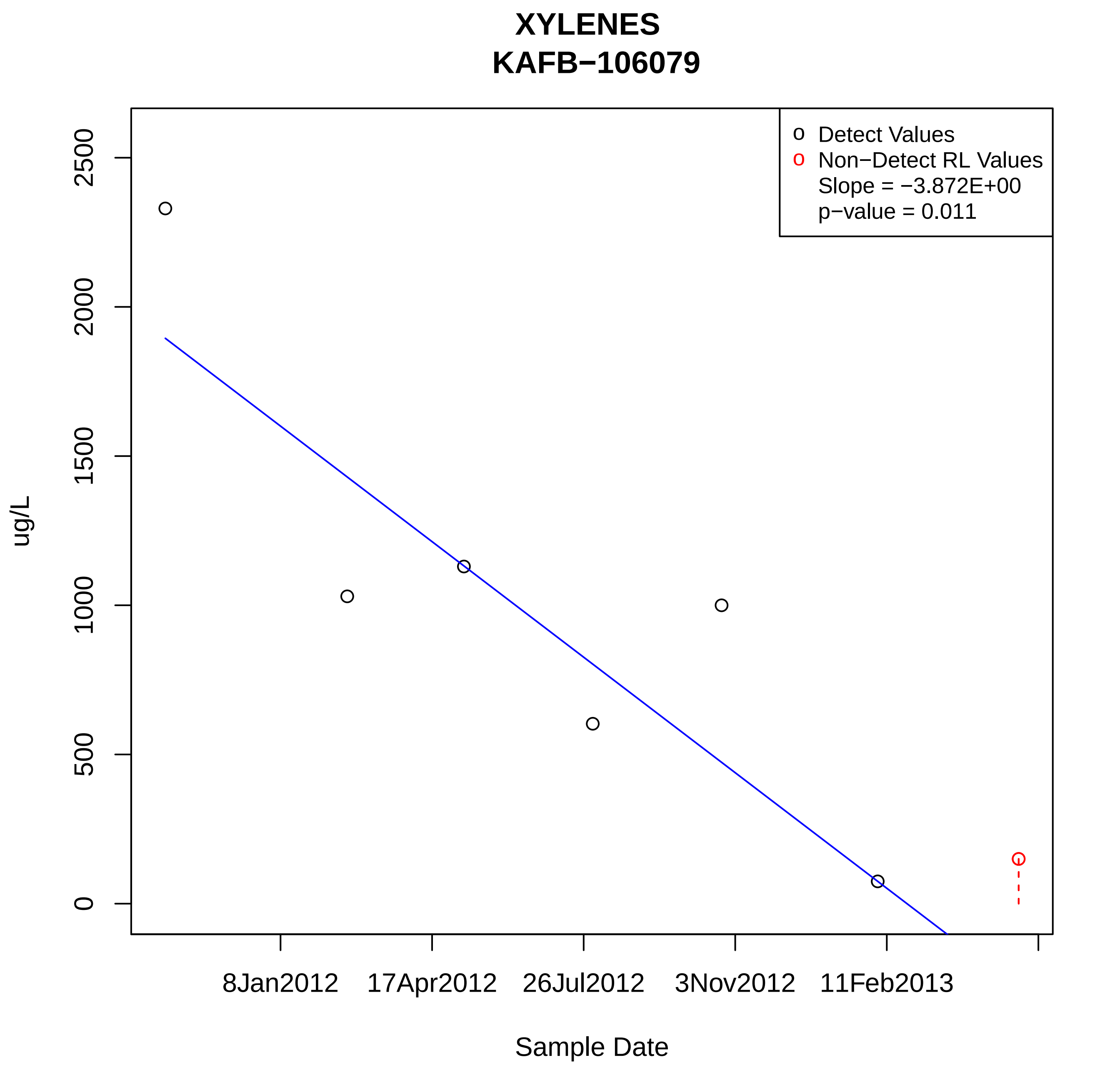


XYLENES
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

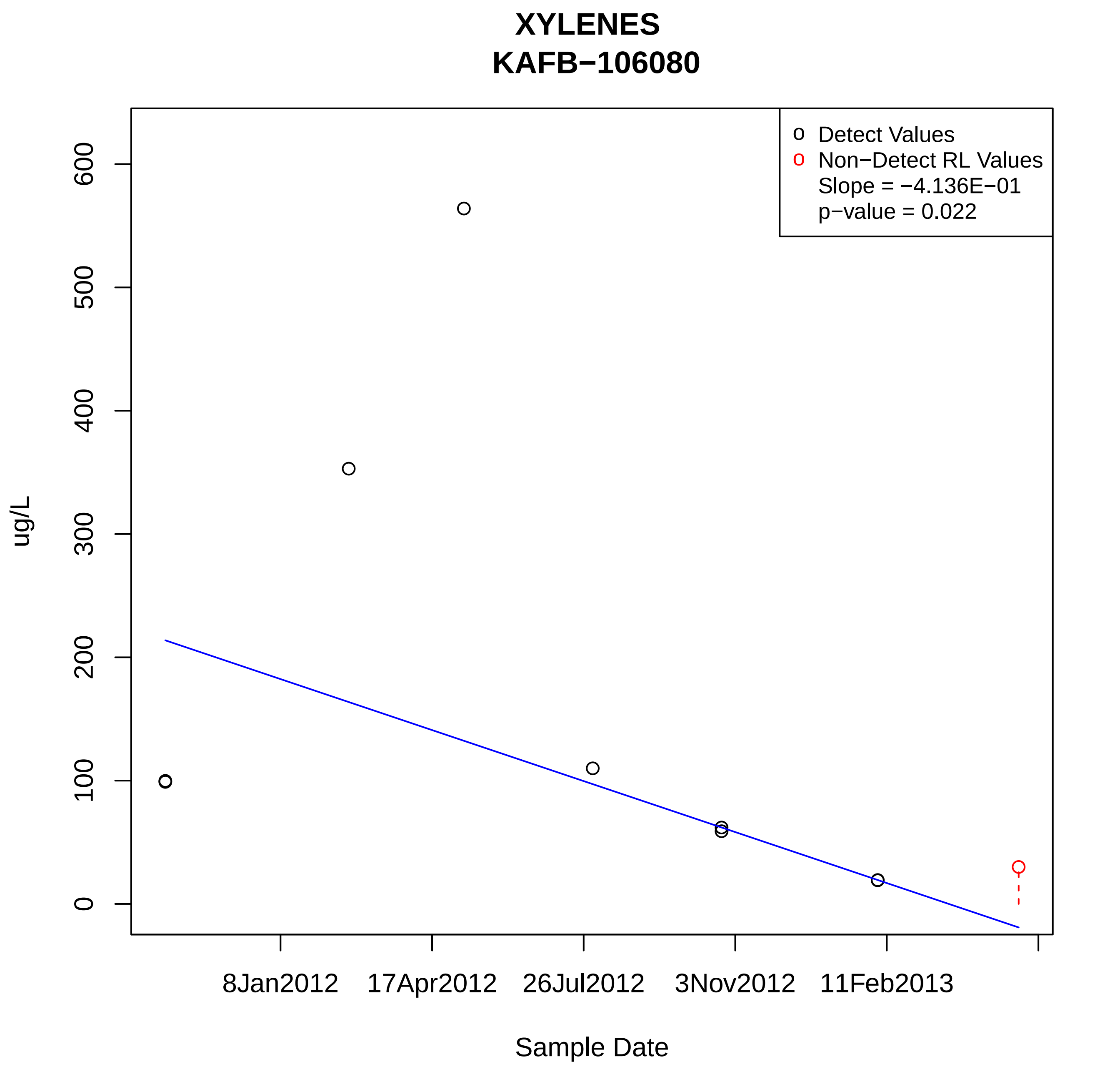


XYLENES
KAFB−106077
1.5
1.0
0.5
0.0
ug/L
o Detect Values
o Non−Detect RL Values
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

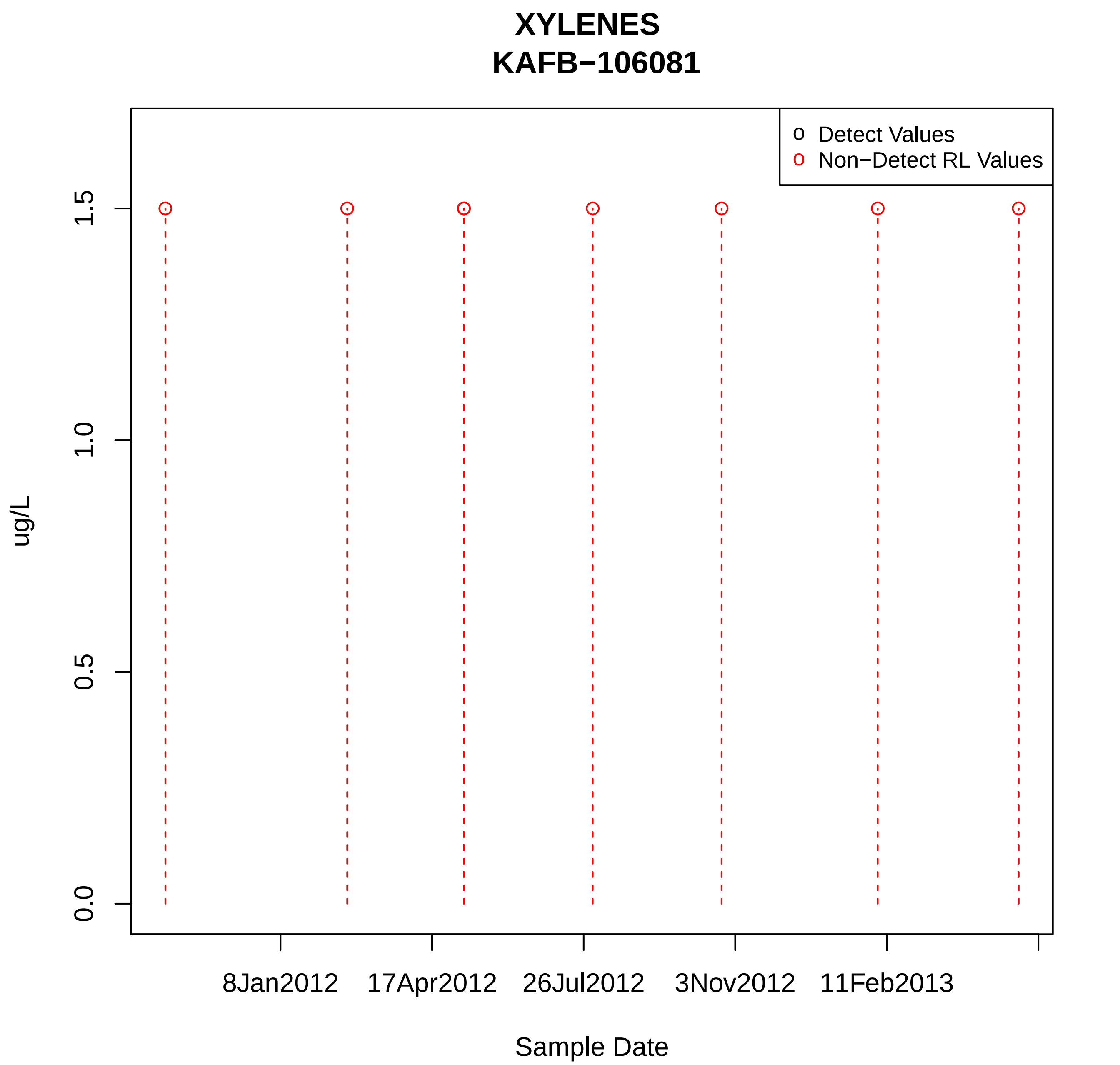

XYLENES
KAFB−106078
ug/L
0.0
0.5
1.0
1.5
17Apr2012
26Jul2012
3Nov2012
11Feb2013
22May2013
Sample Date
Detect Values
Non−Detect RL Values



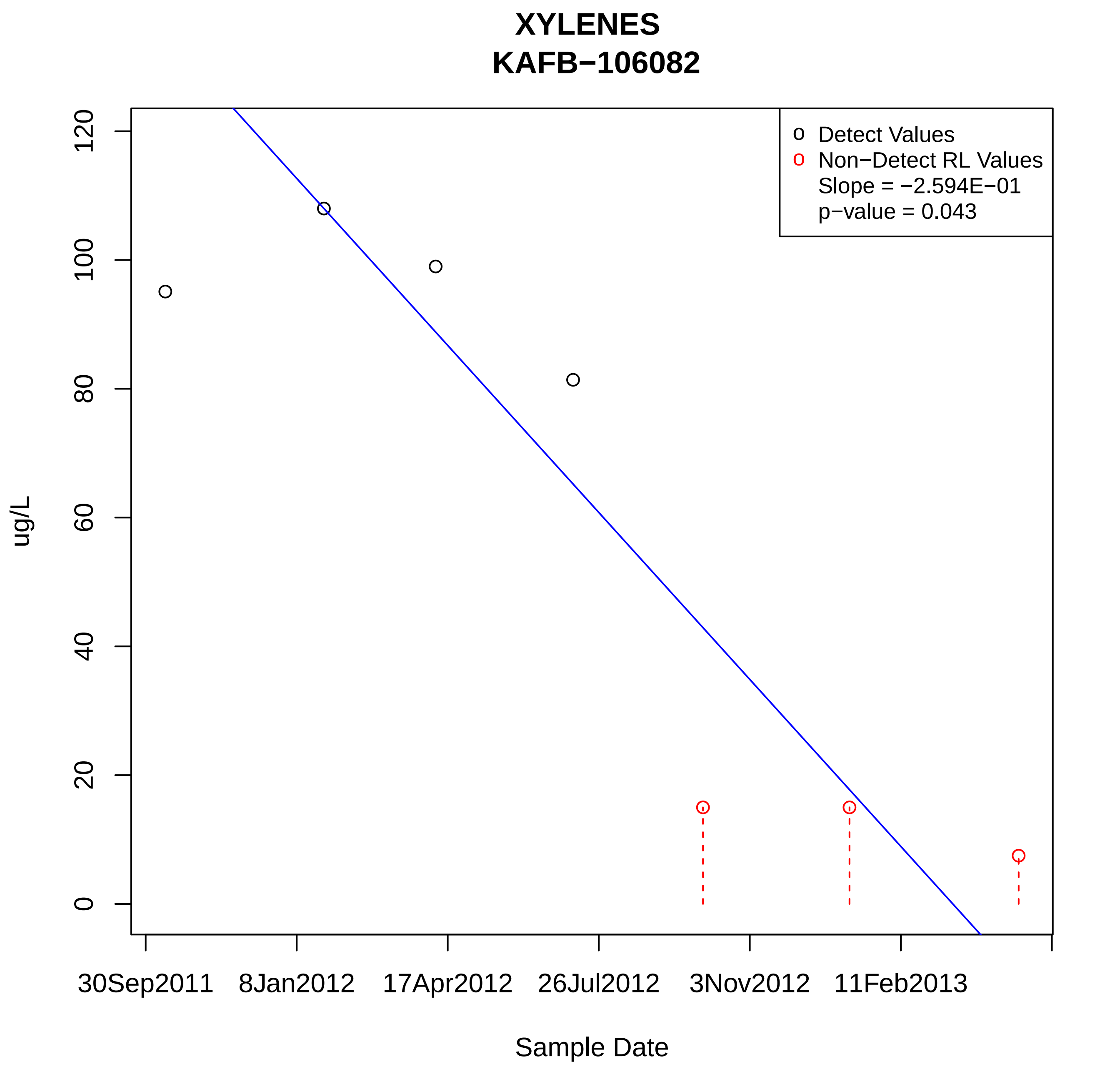
XYLENES
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −3.872E+00
p−value = 0.011
ug/L
0
500
1000
1500
2000
2500
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



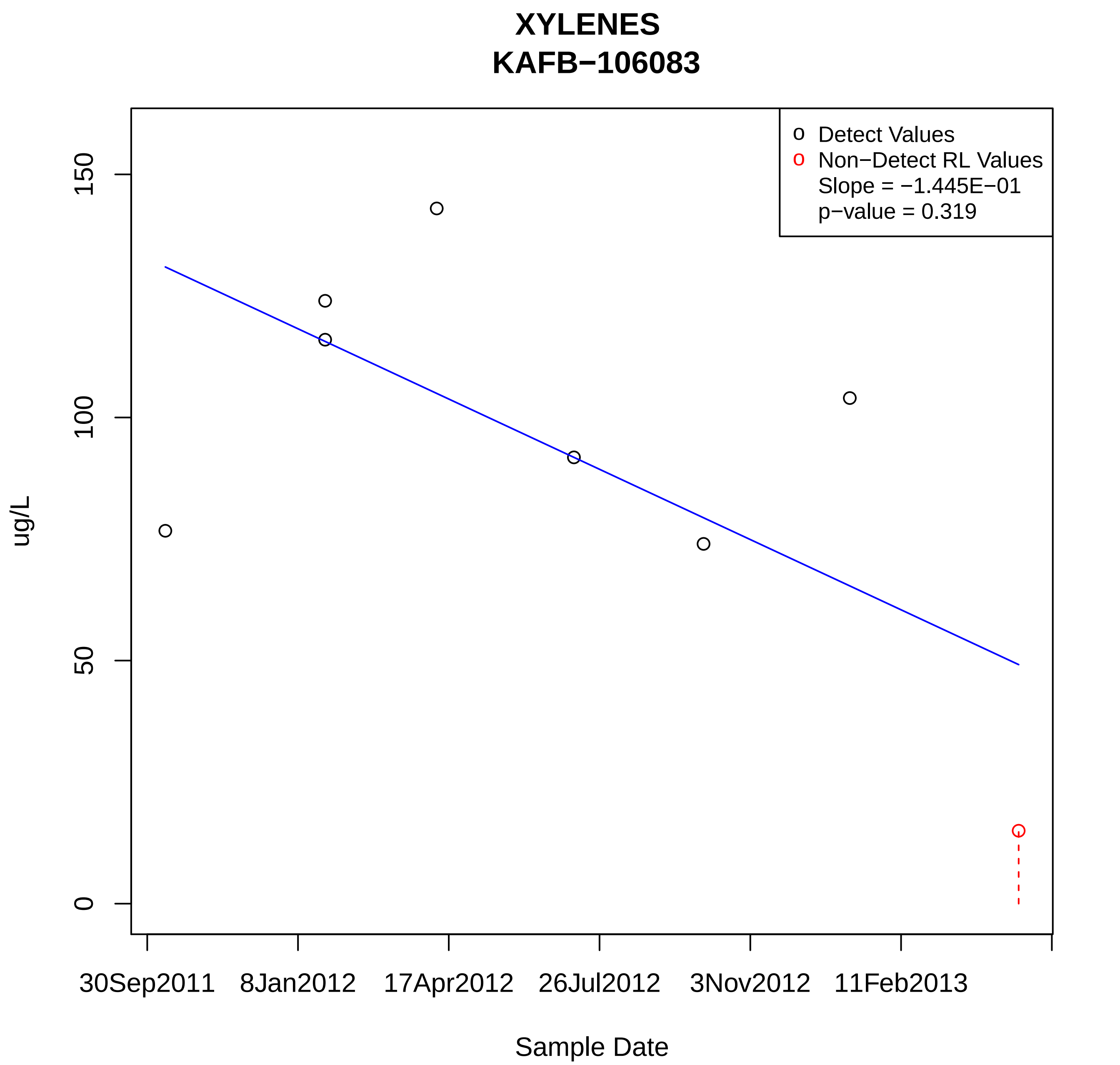
XYLENES
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −4.136E−01
p−value = 0.022
ug/L
0
100
200
300
400
500
600
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

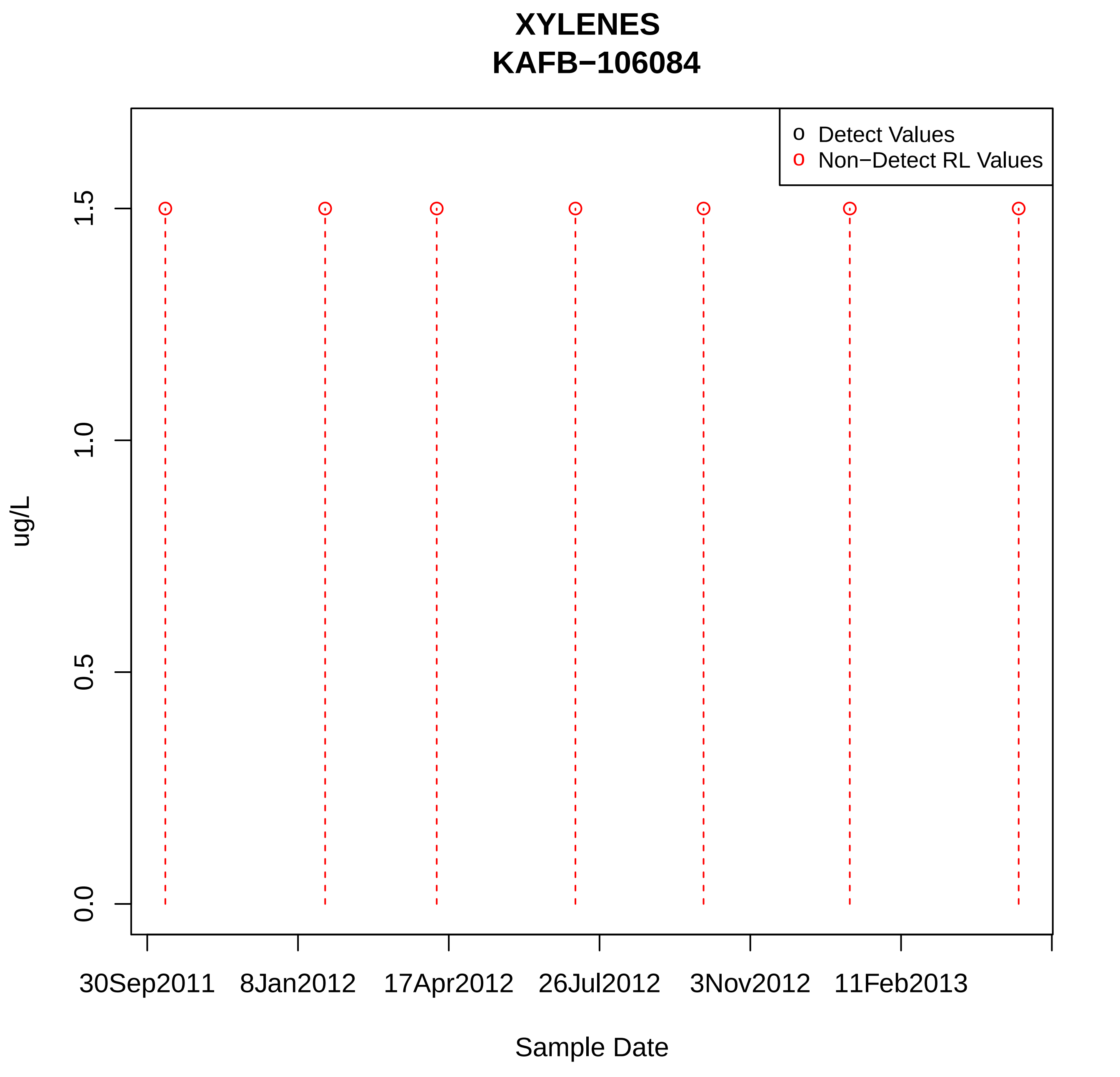


XYLENES
KAFB−106081
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

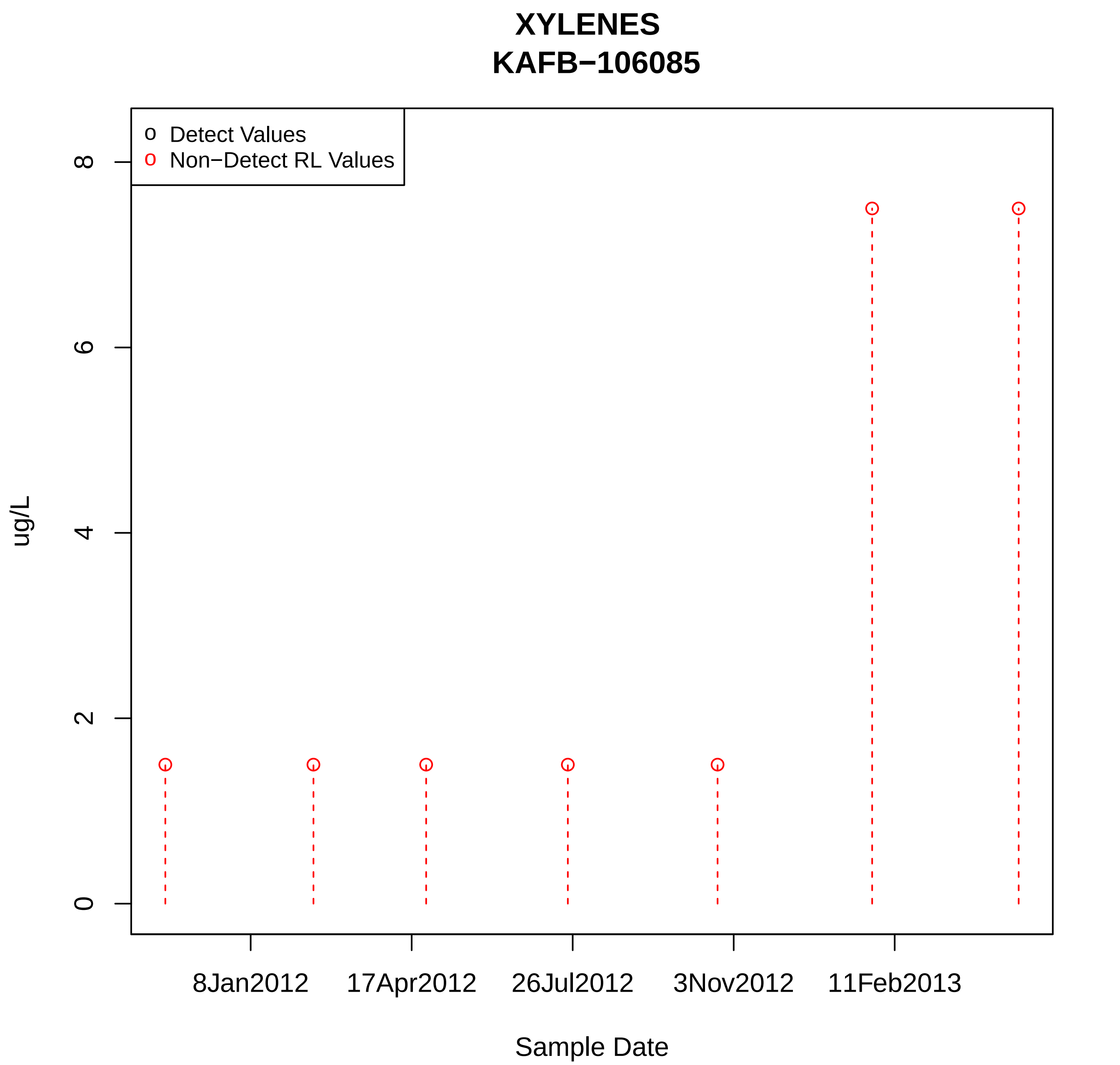


XYLENES
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −2.594E−01
p−value = 0.043
ug/L
0
20
40
60
80
100
120
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

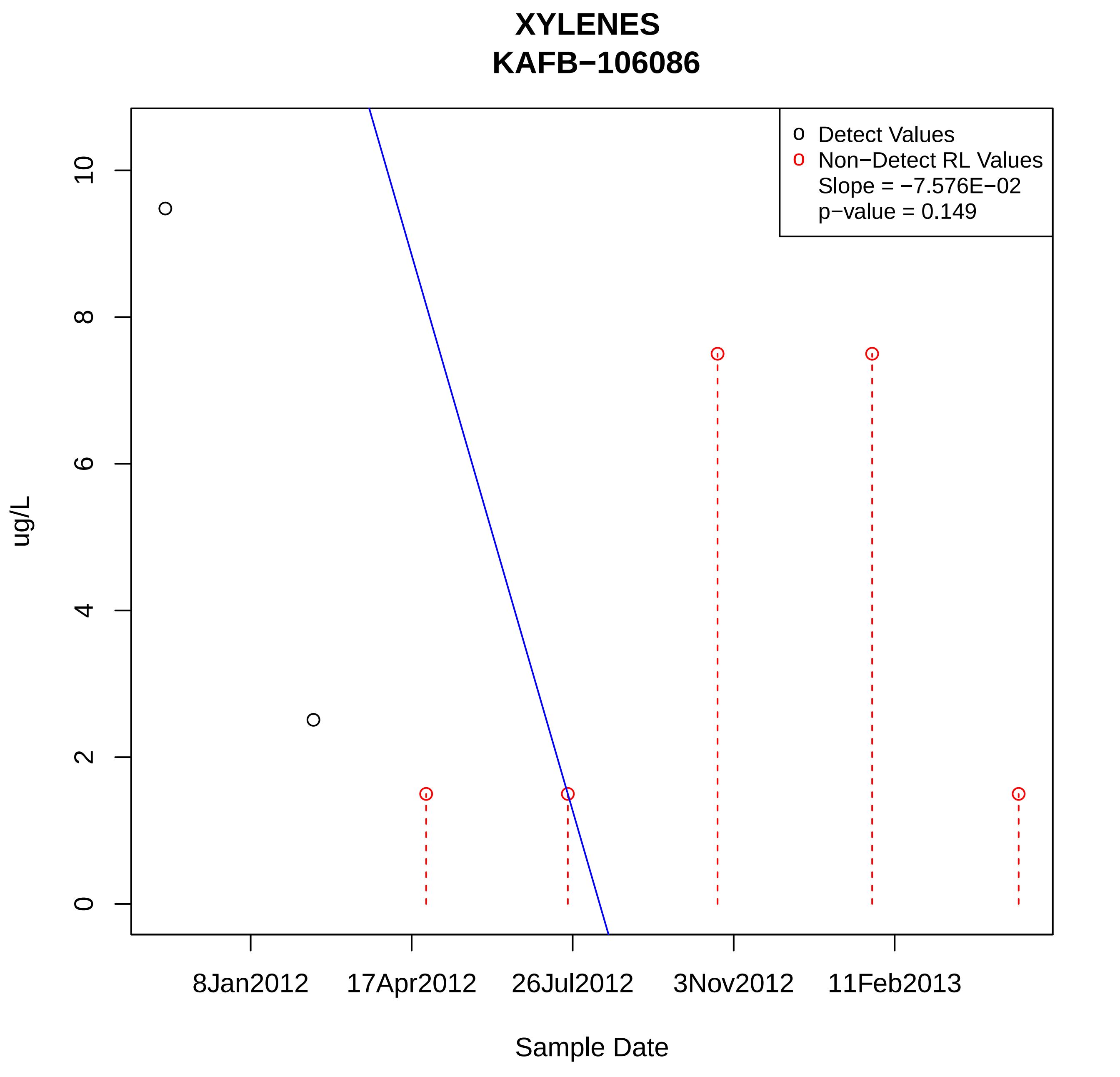

XYLENES
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = −1.445E−01
p−value = 0.319
ug/L
0
50
100
150
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

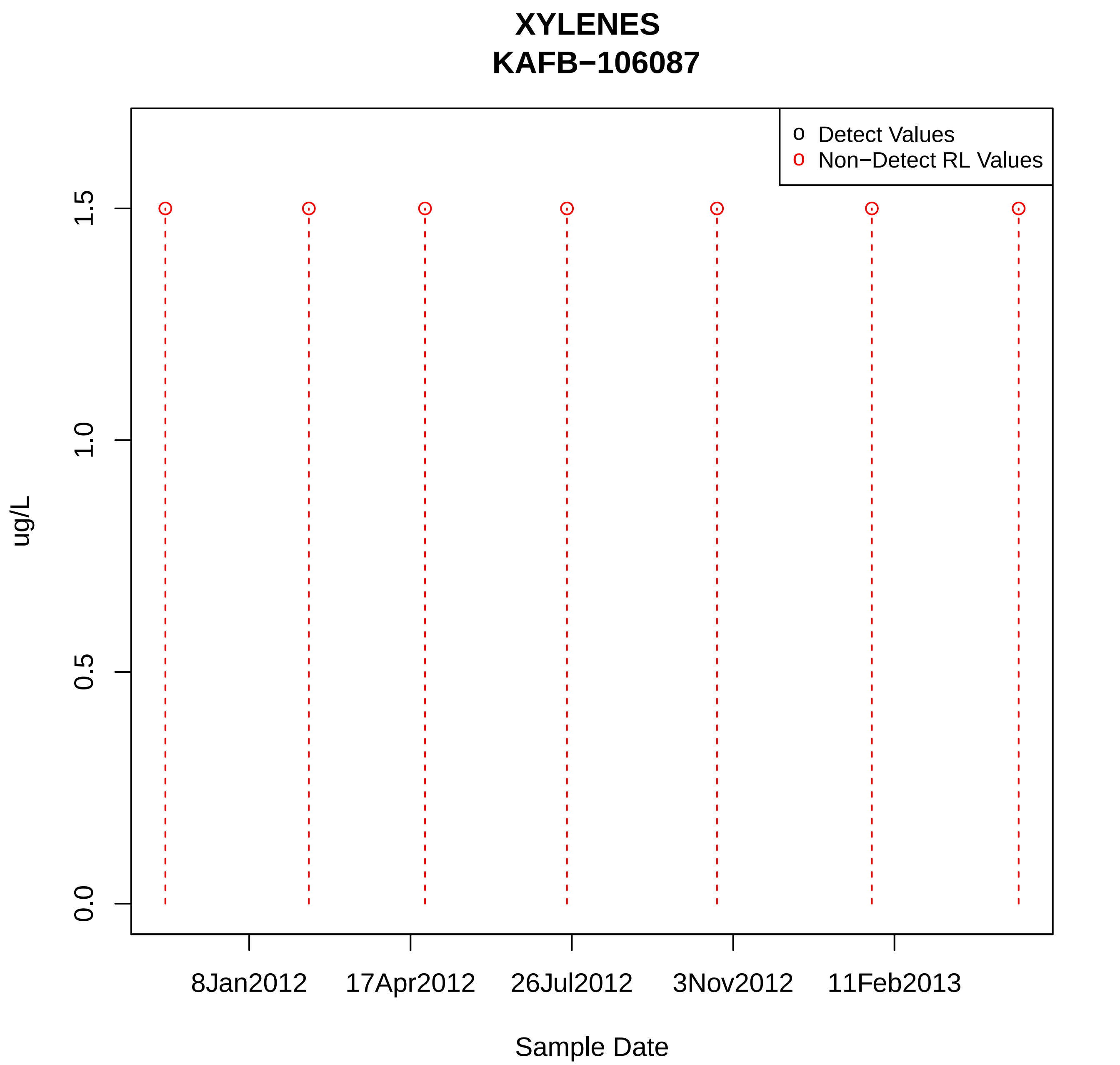


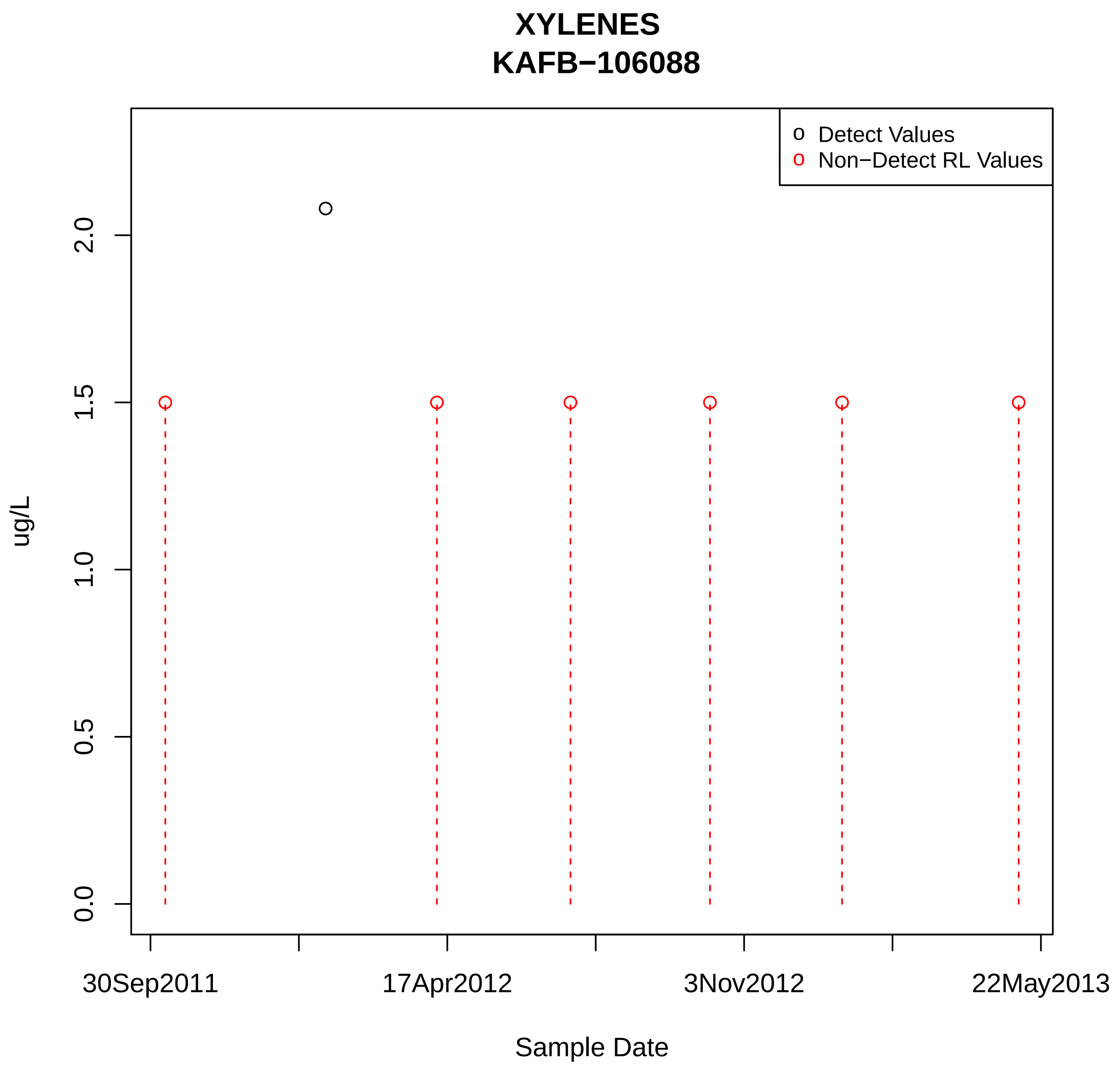
XYLENES
KAFB−106084
o Detect Values
o Non−Detect RL Values
1.5
1.0
0.5
0.0
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

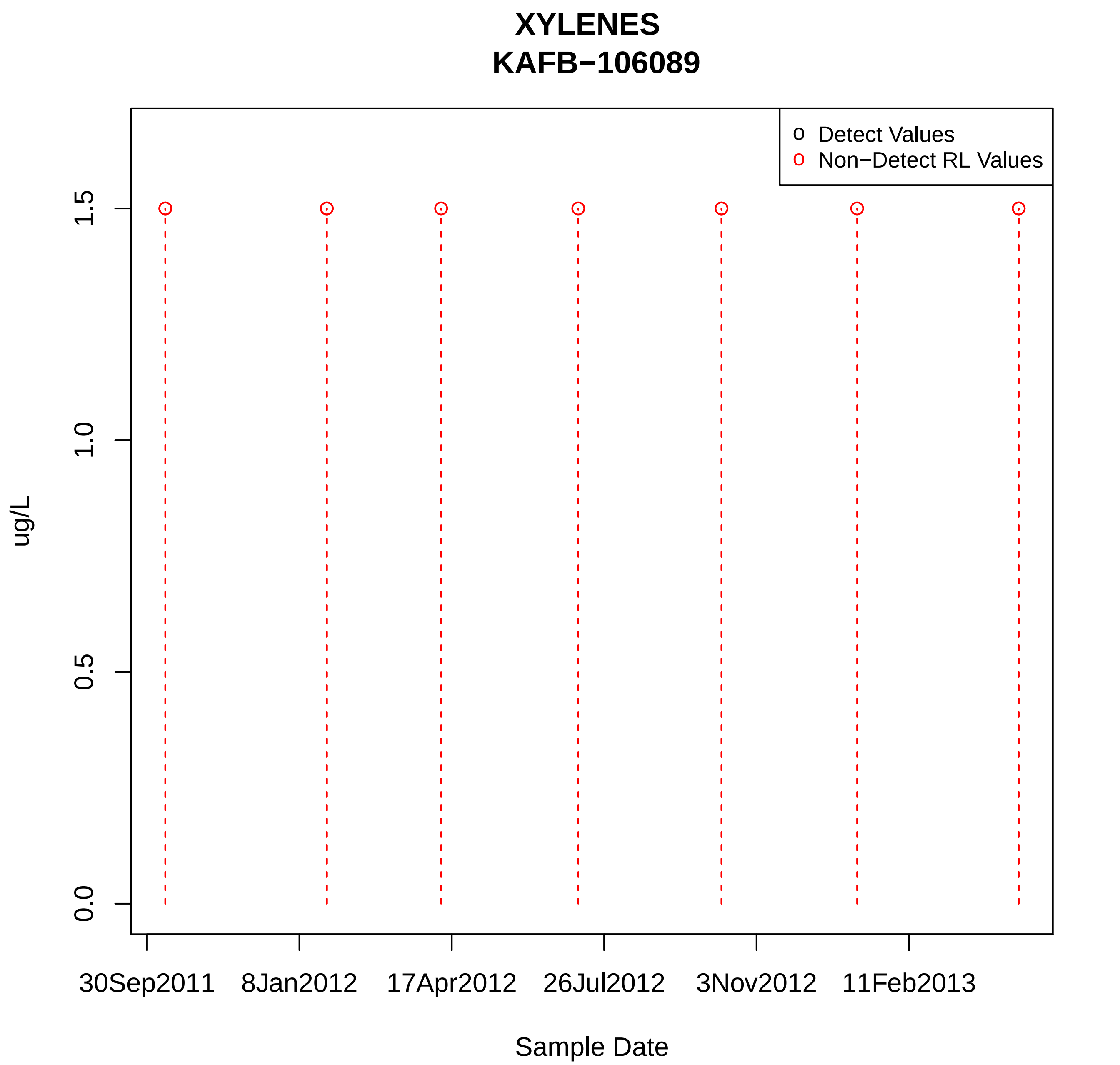


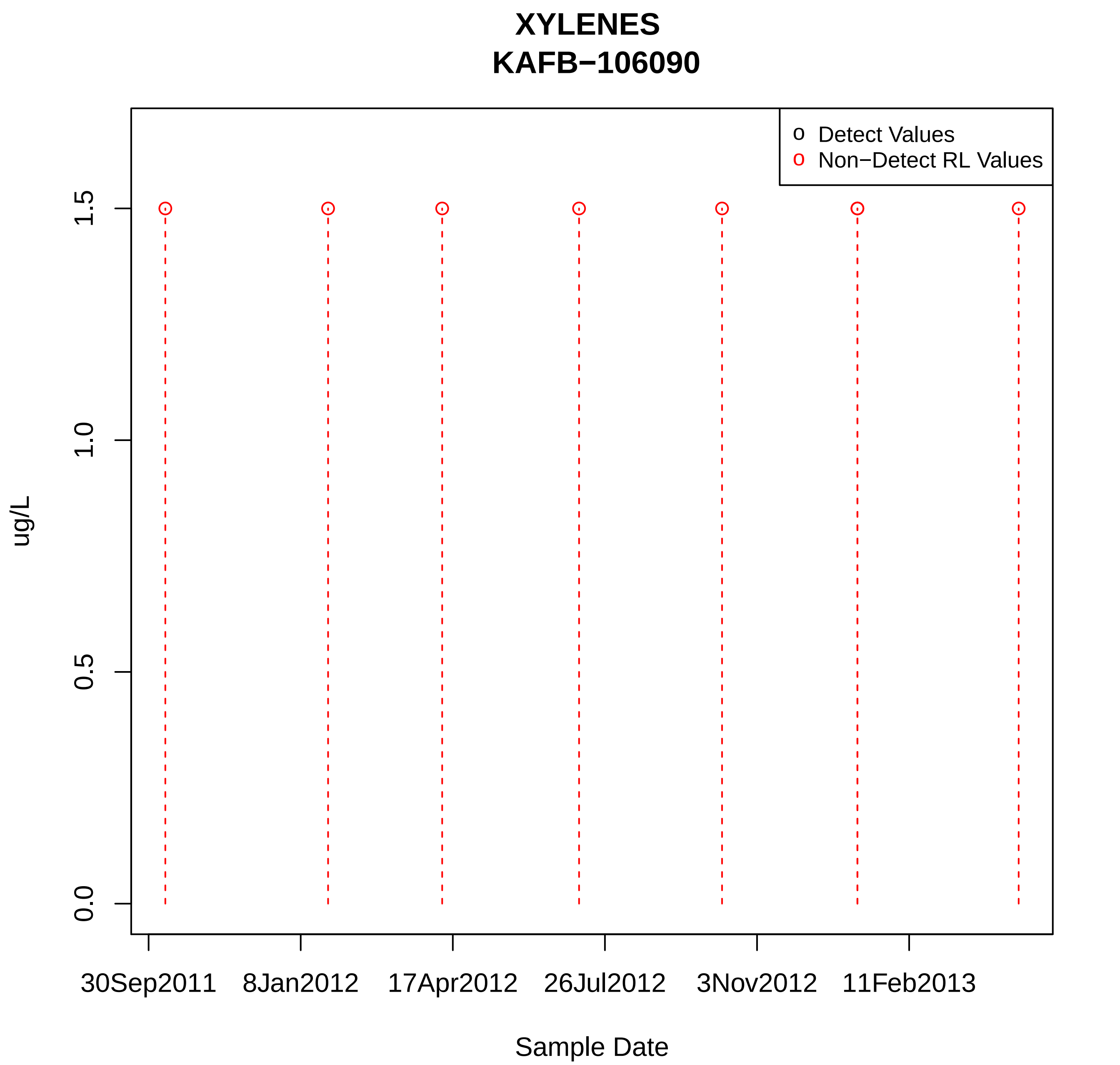
XYLENES
KAFB−106085
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = −7.576E−02
p−value = 0.149
ug/L
0
2
4
6
8
10
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

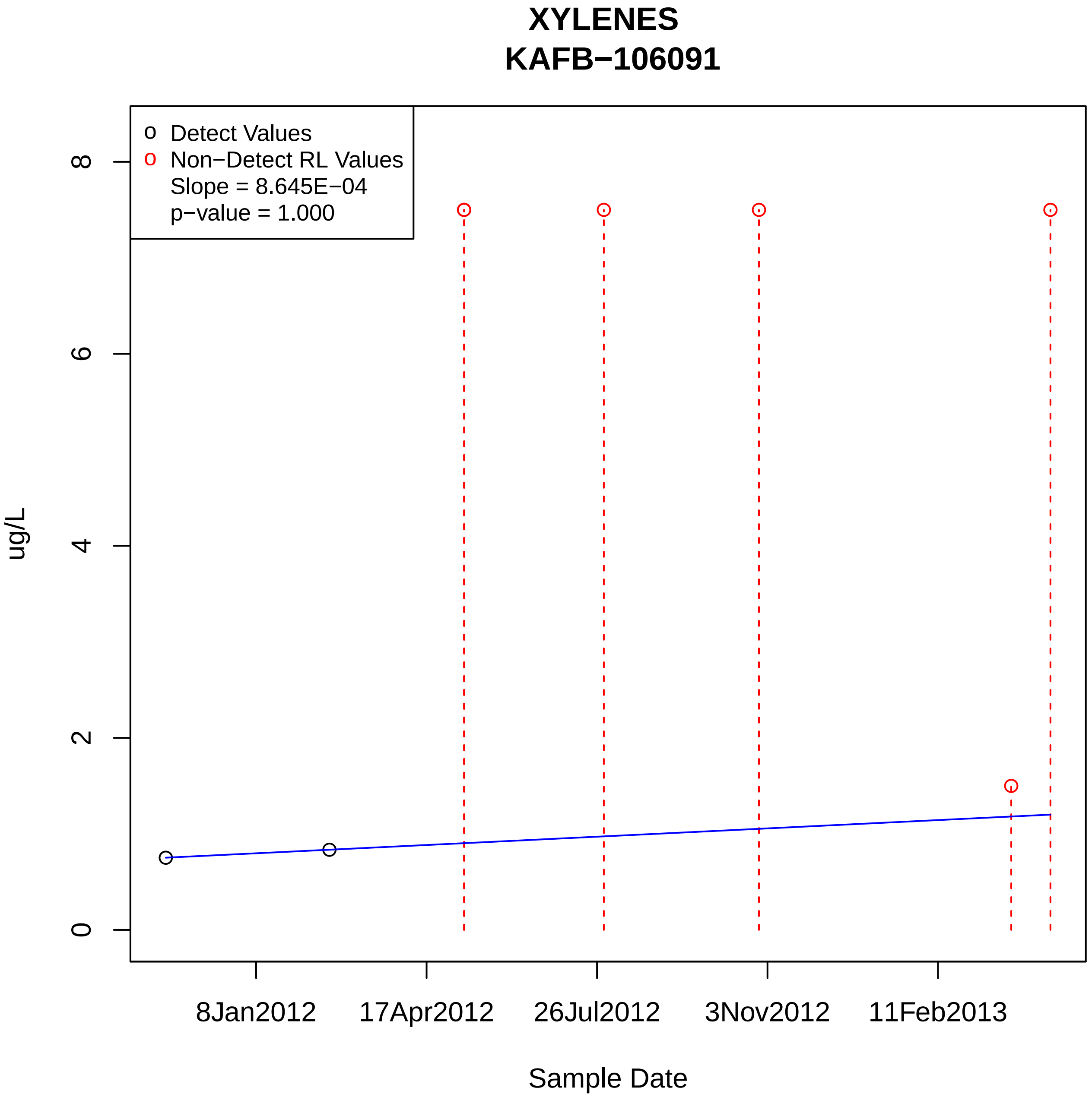

XYLENES
KAFB−106087
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

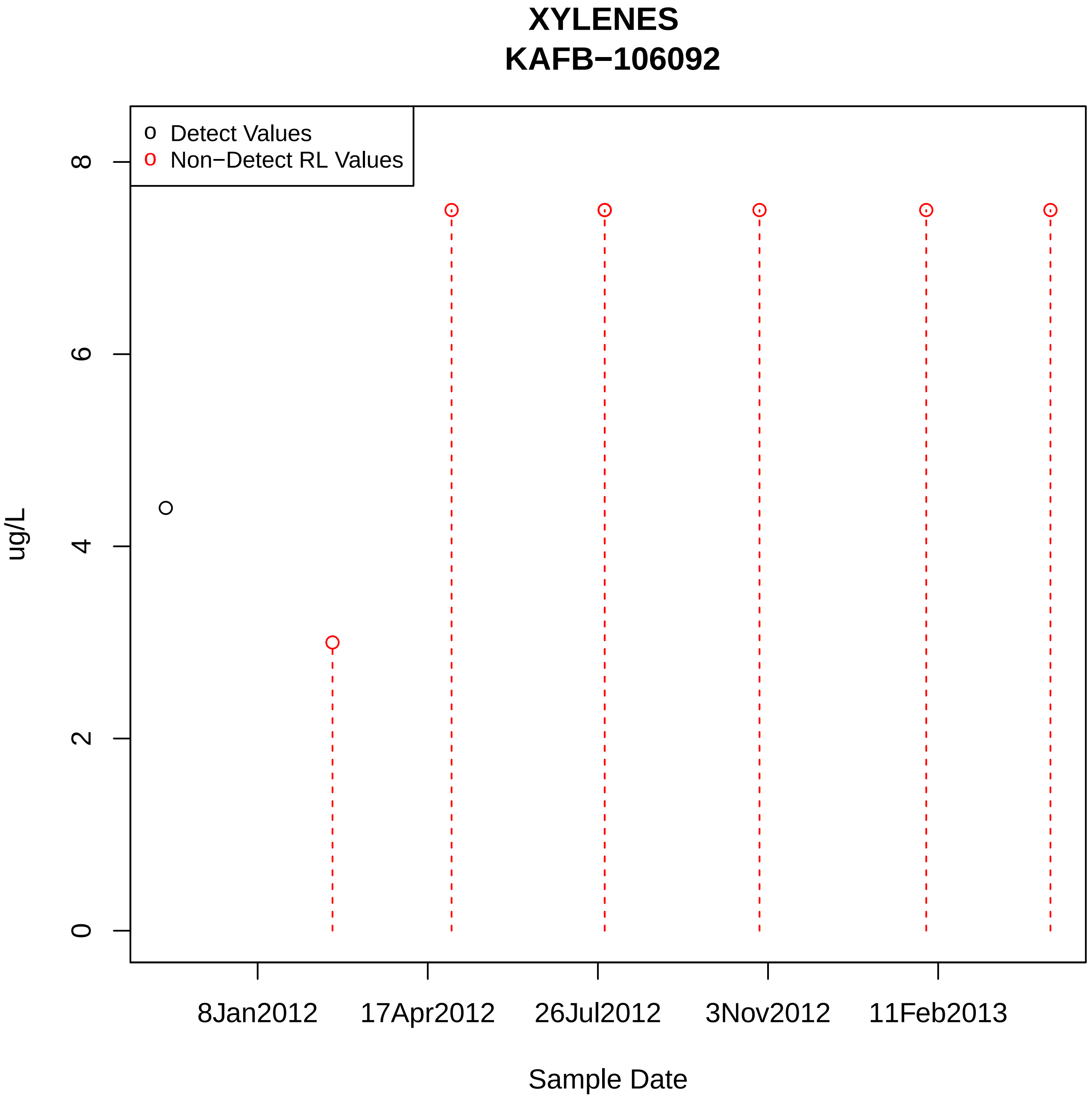

XYLENES
KAFB−106089
o Detect Values
o Non−Detect RL Values
1.5
1.0
0.5
0.0
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

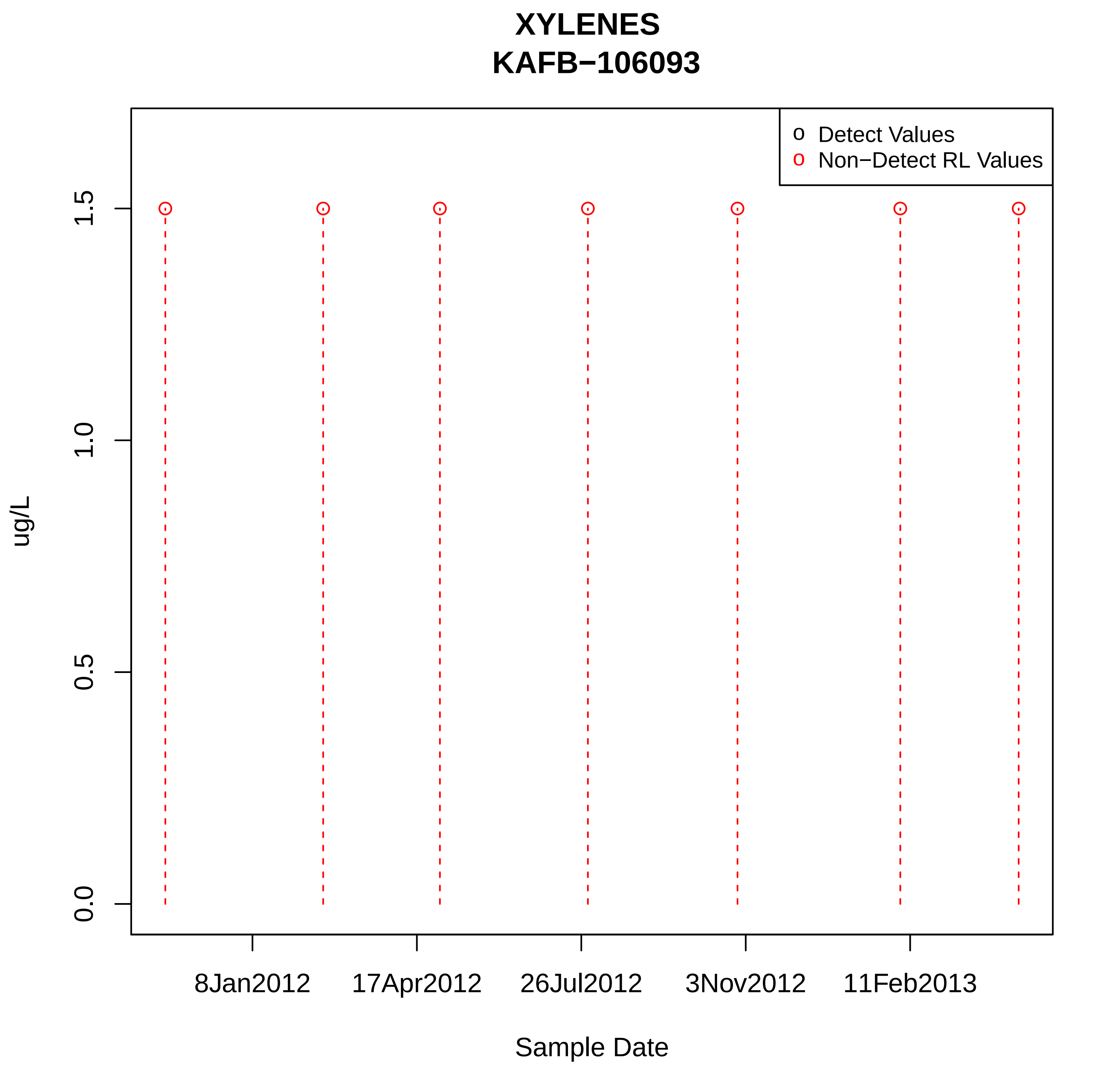


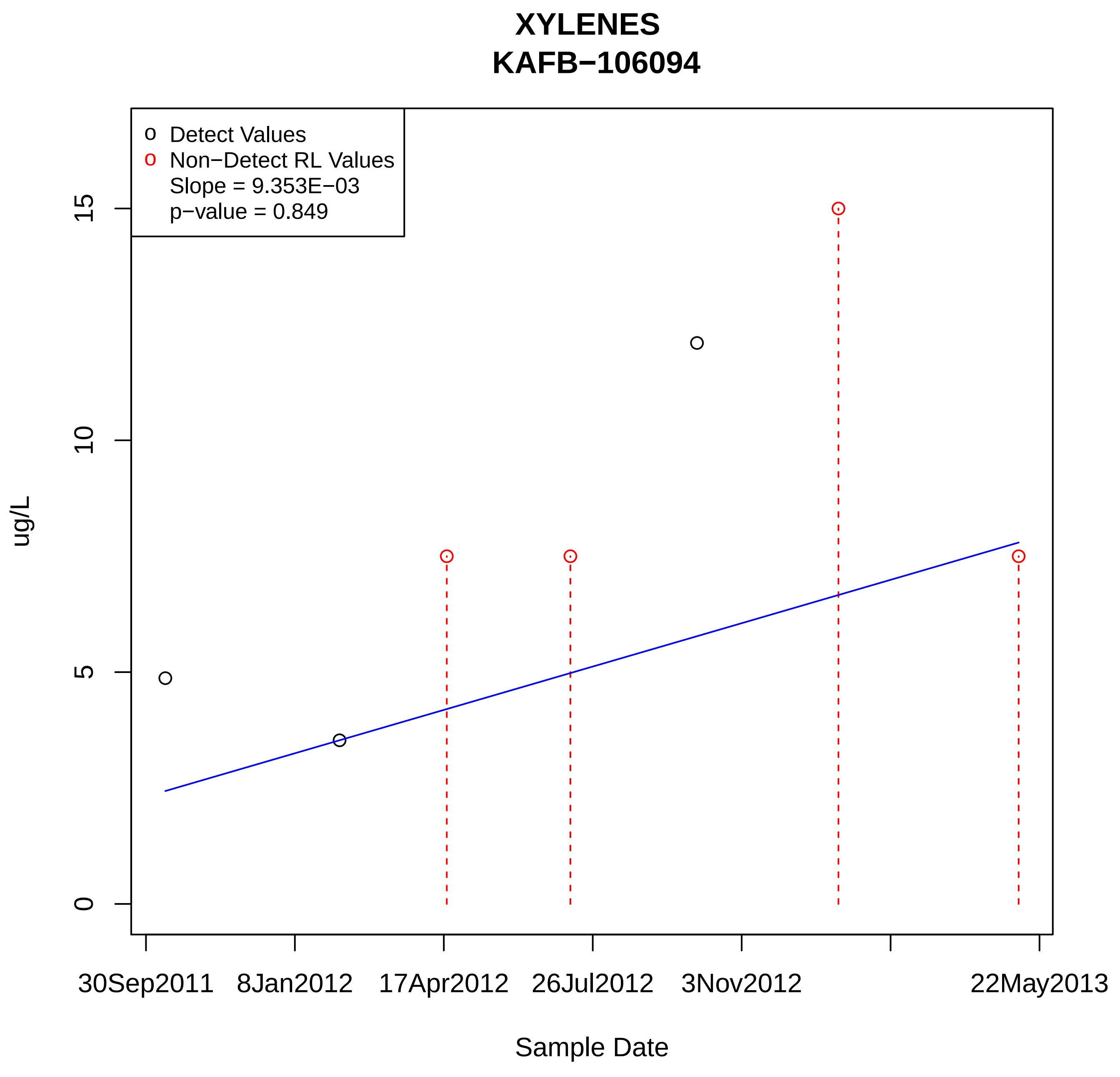
XYLENES
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

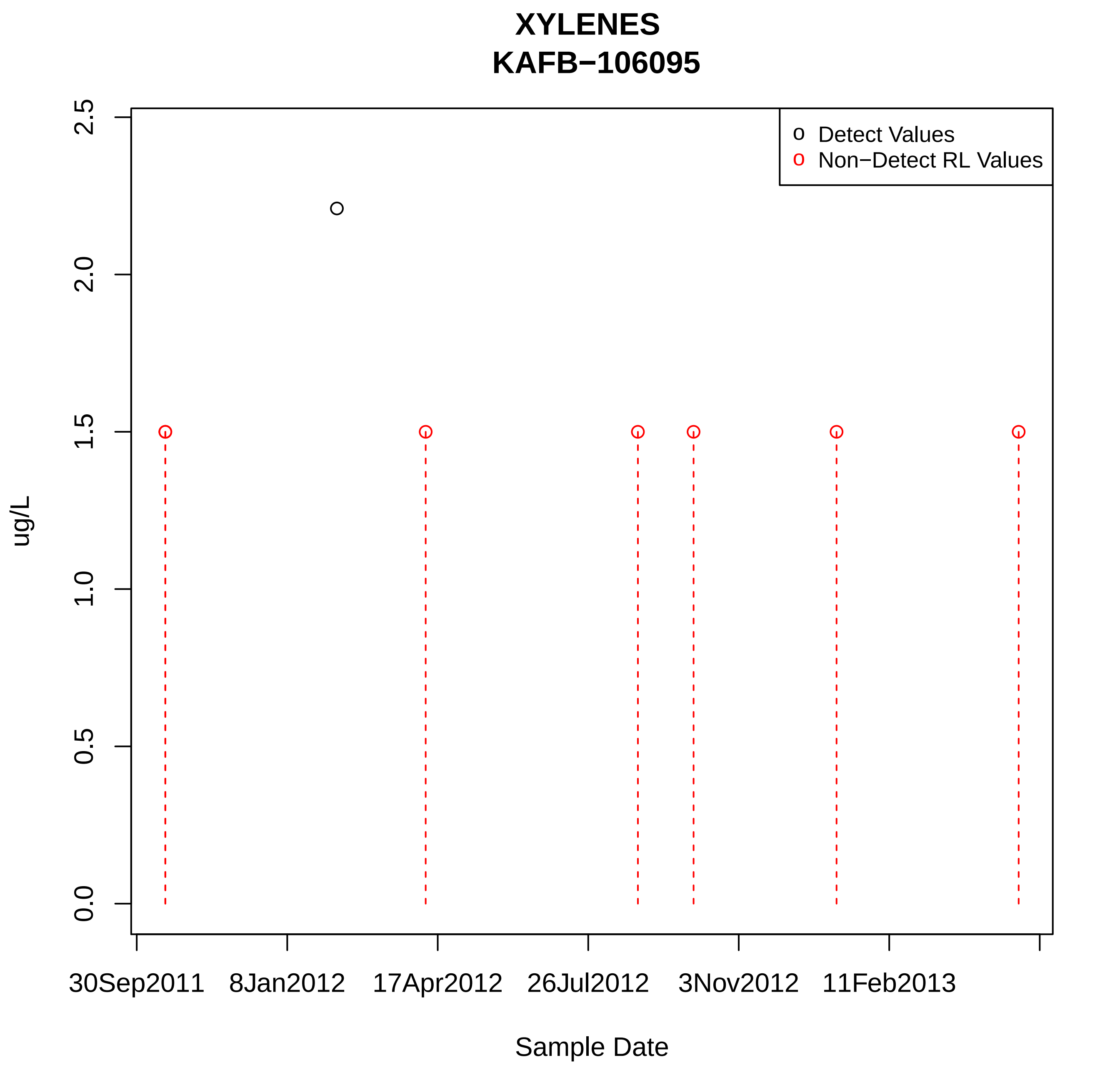


XYLENES
KAFB−106091
o Detect Values
o Non−Detect RL Values
Slope = 8.645E−04
p−value = 1.000
ug/L
0
2
4
6
8
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

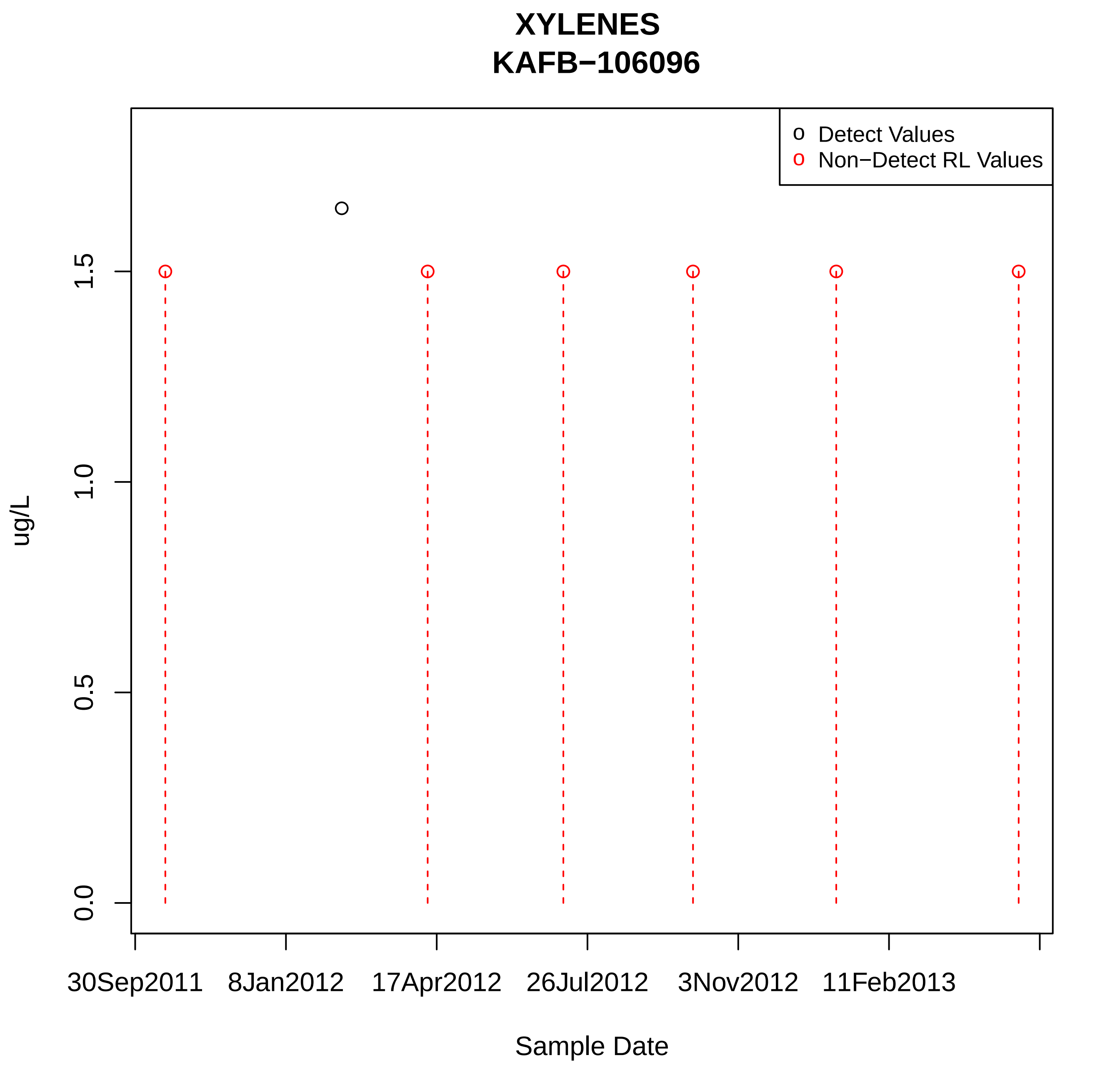

XYLENES
KAFB−106092
Detect Values
Non−Detect RL Values
0
2
4
6
8
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

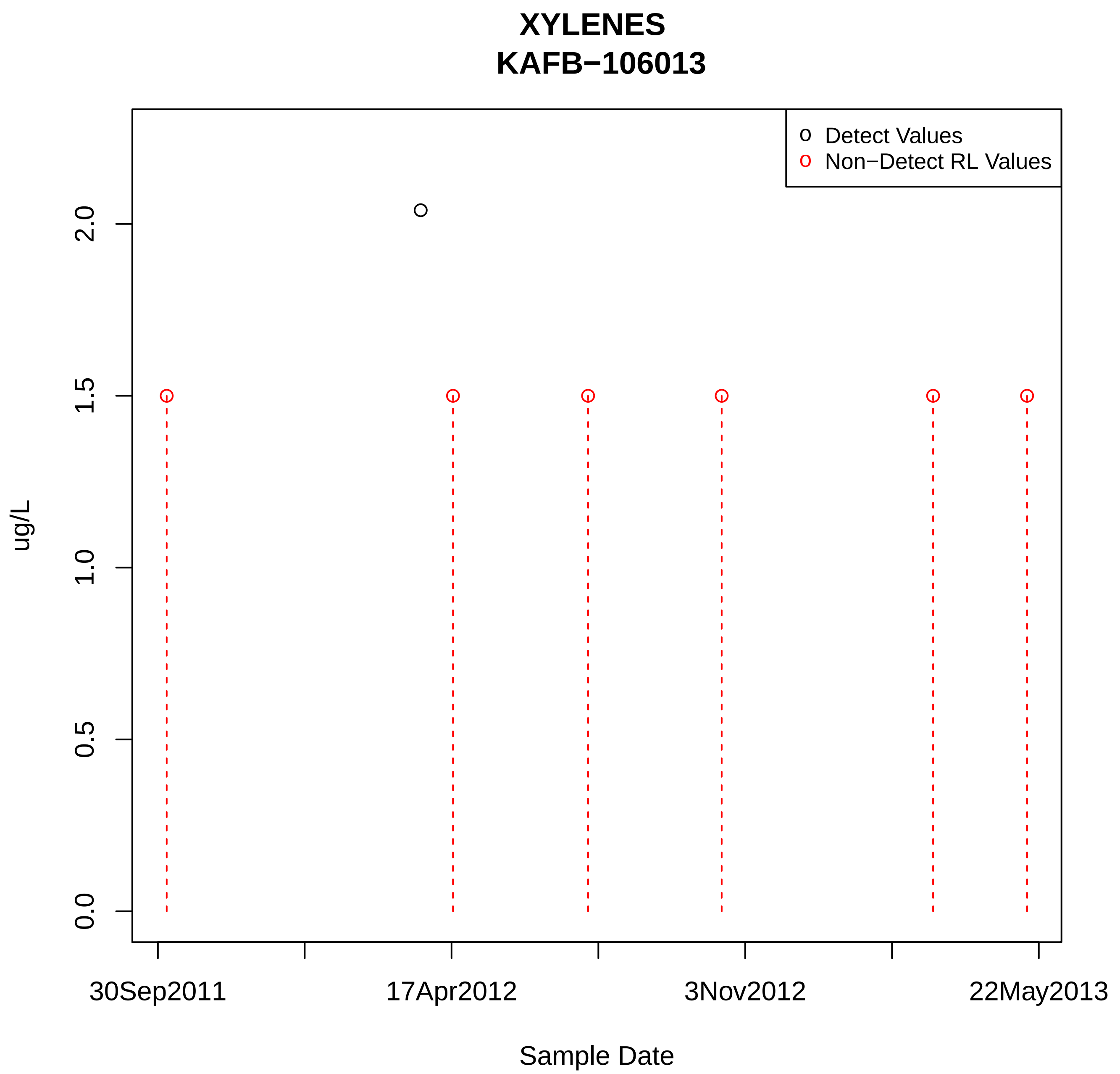

XYLENES
KAFB−106093
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106094
o Detect Values
o Non−Detect RL Values
Slope = 9.353E−03
p−value = 0.849
ug/L
0
5
10
15
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
22May2013
Sample Date

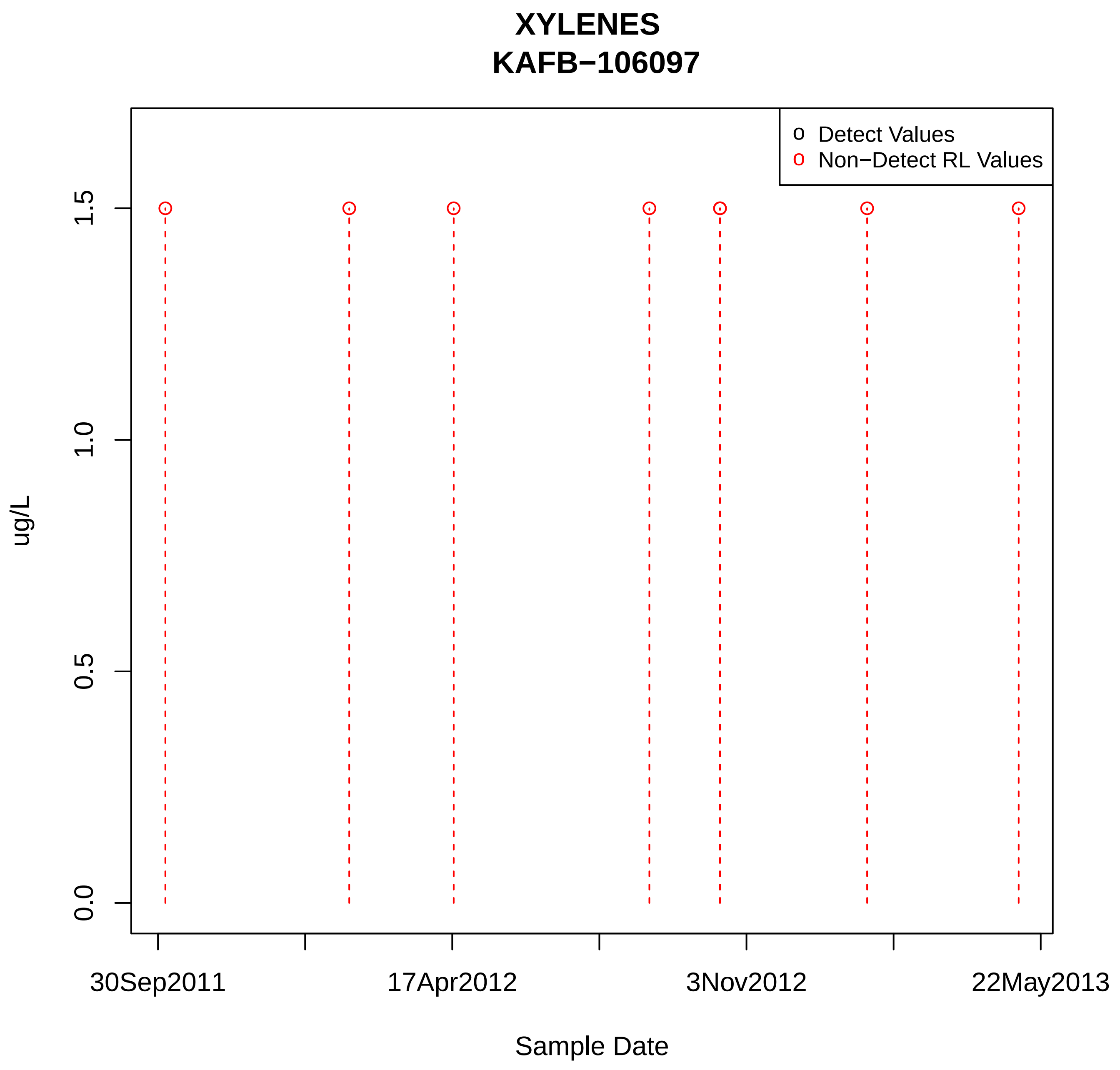


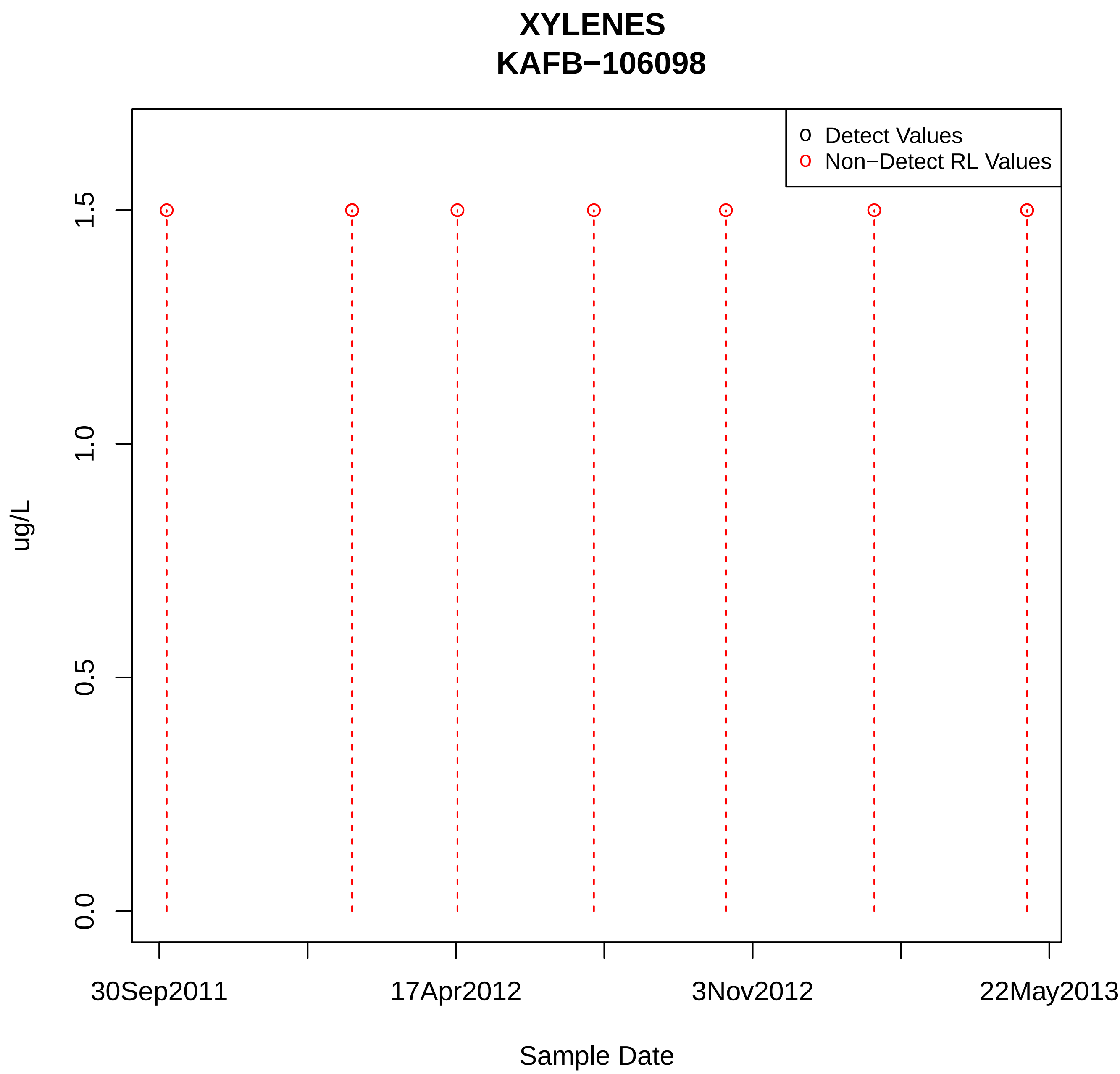
XYLENES
KAFB−106095
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

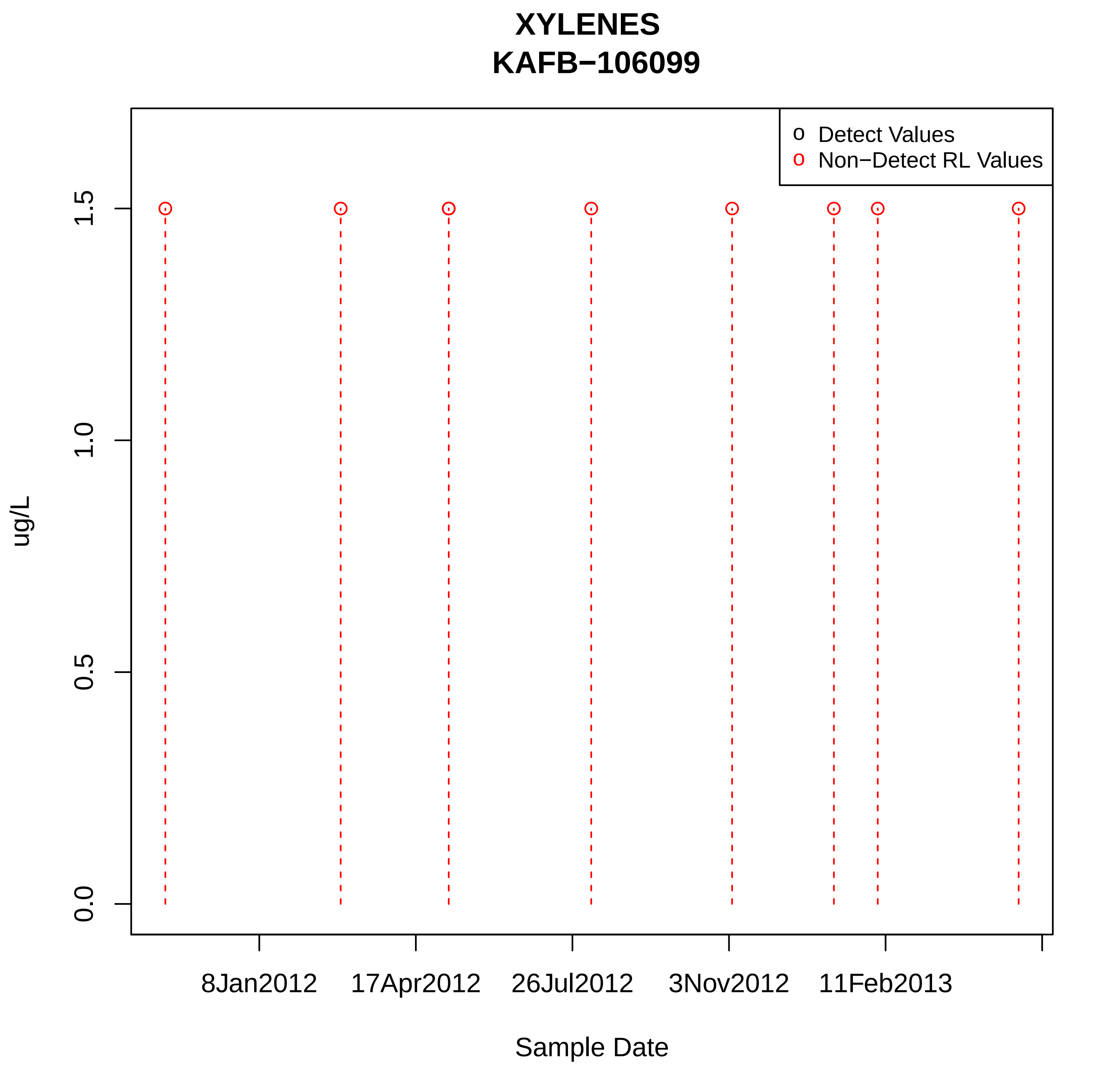

XYLENES
KAFB−106096
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



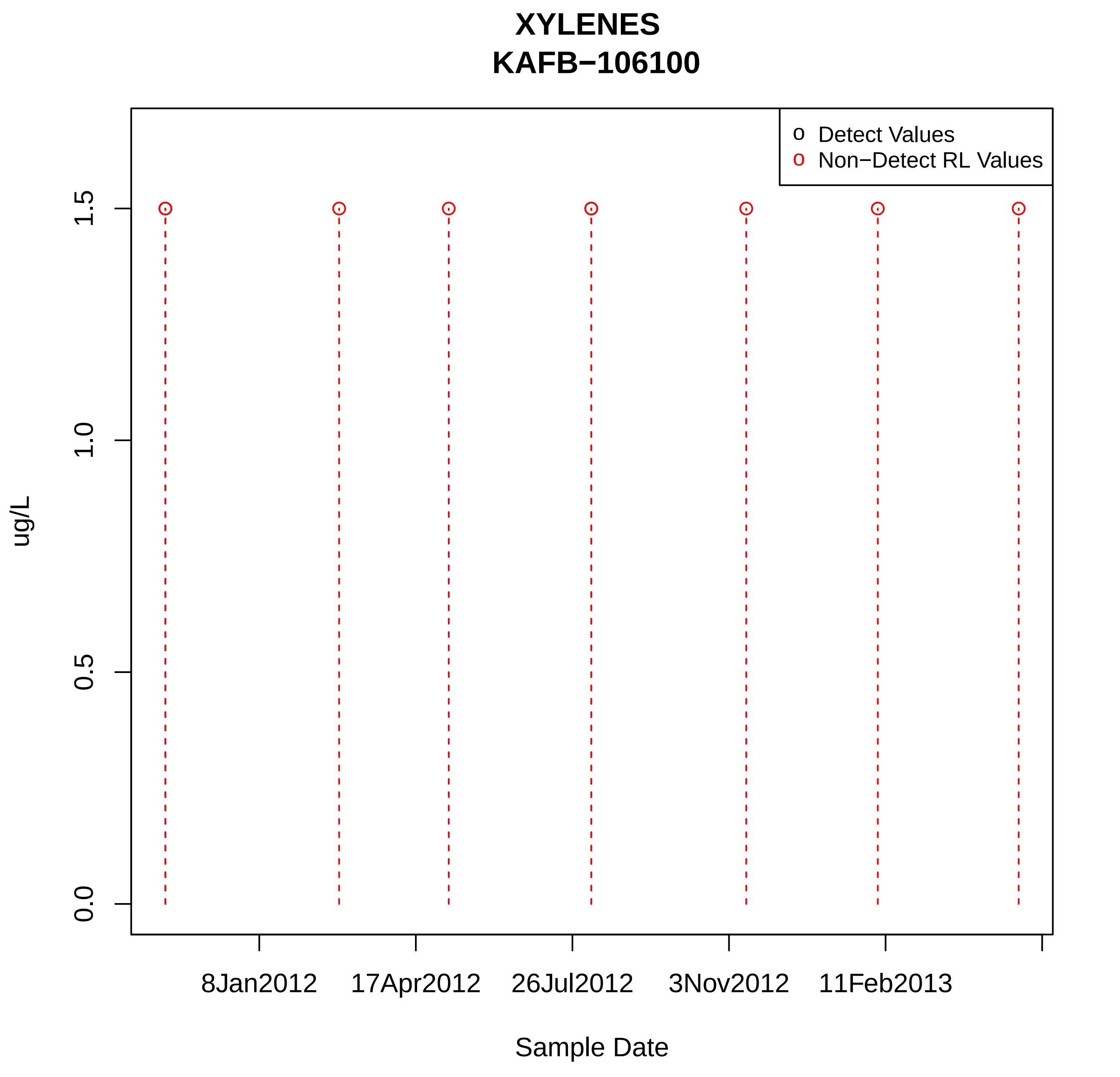
XYLENES
KAFB−106013
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

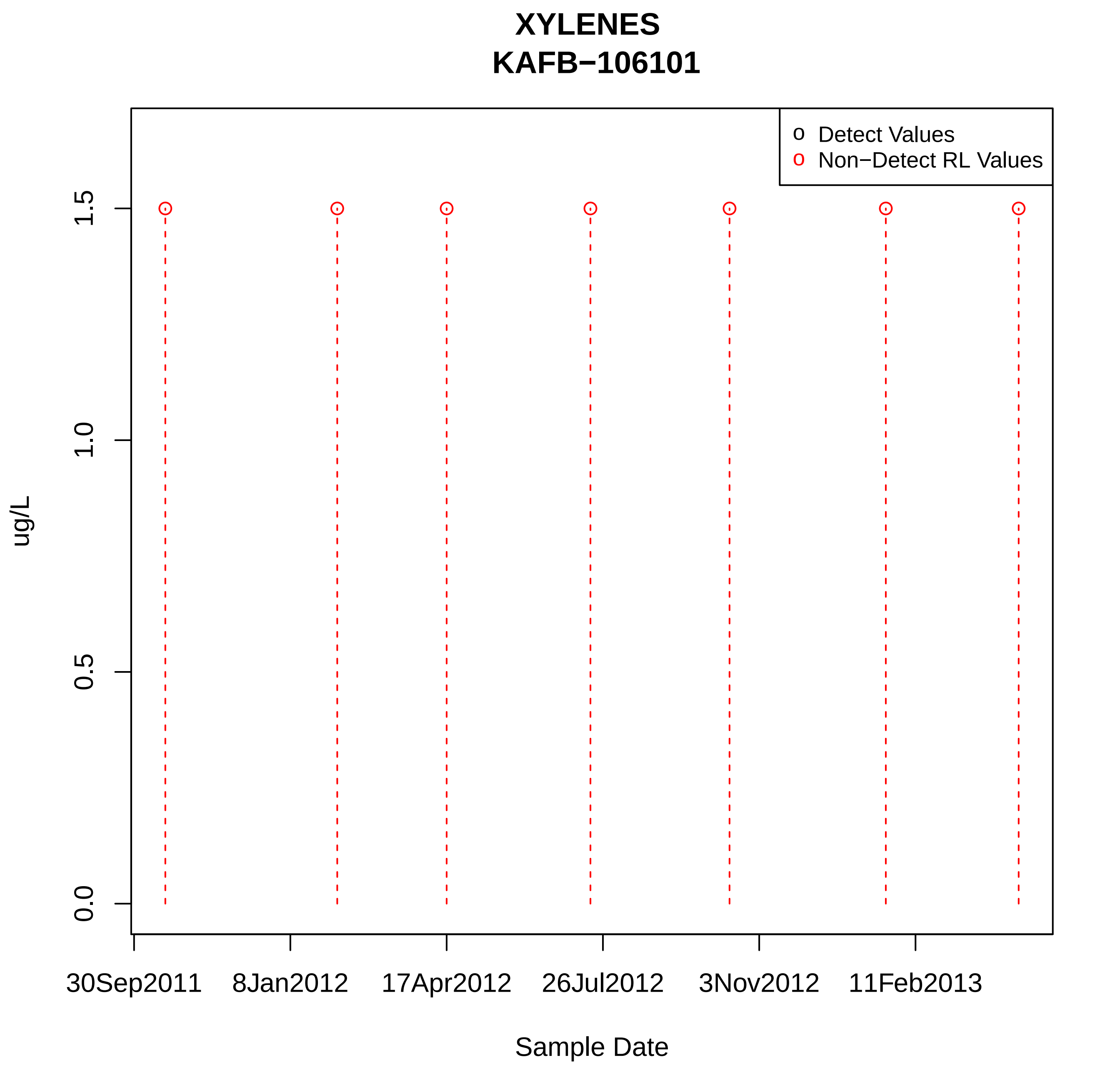

XYLENES
KAFB−106097
o Detect Values
o Non−Detect RL Values
1.5
1.0
0.5
0.0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


XYLENES
KAFB−106098
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

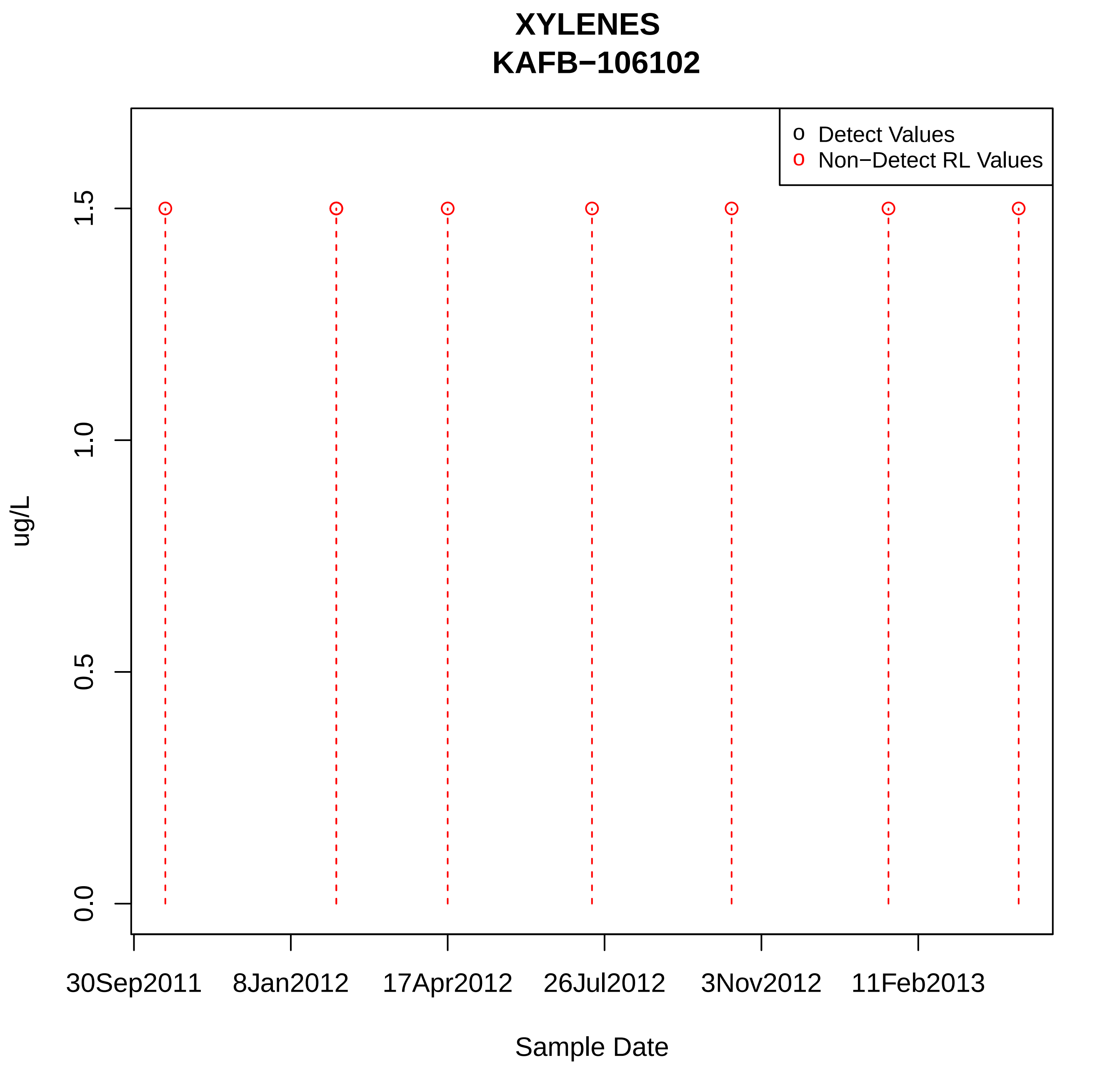


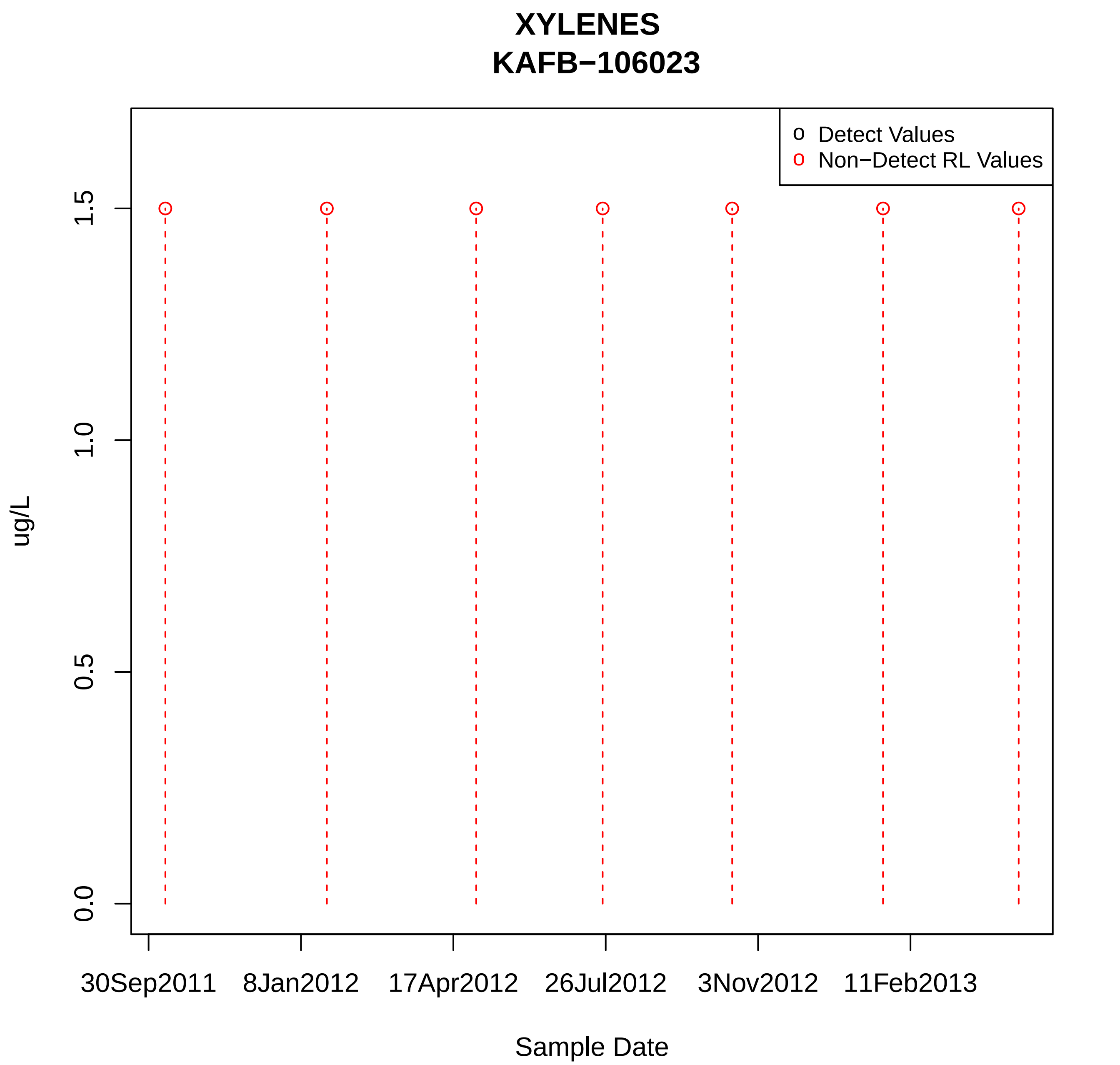
XYLENES
KAFB−106099
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

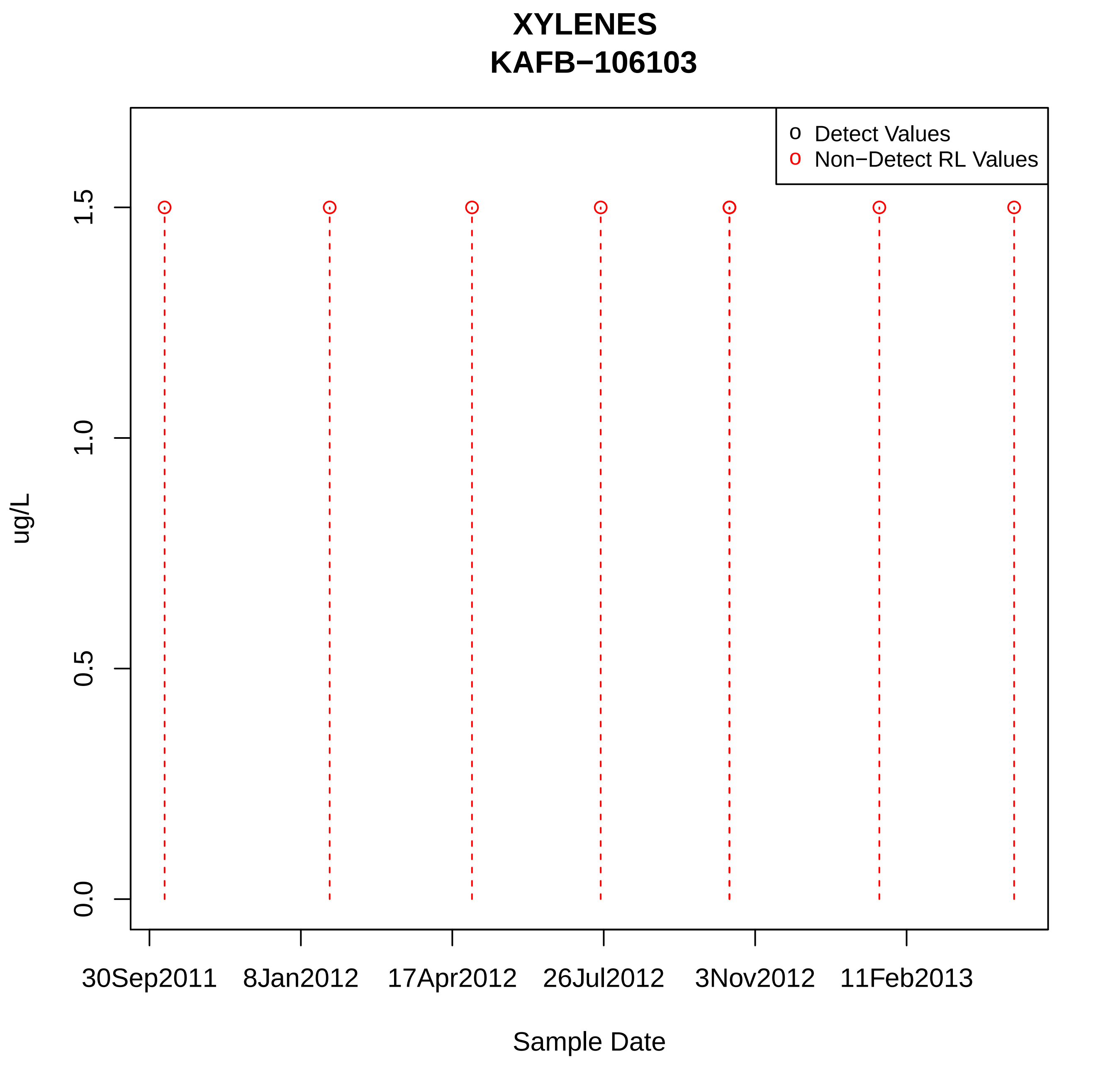

XYLENES
KAFB−106100
o Detect Values
o Non−Detect RL Values
1.5
1.0
0.5
0.0
ug/L
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



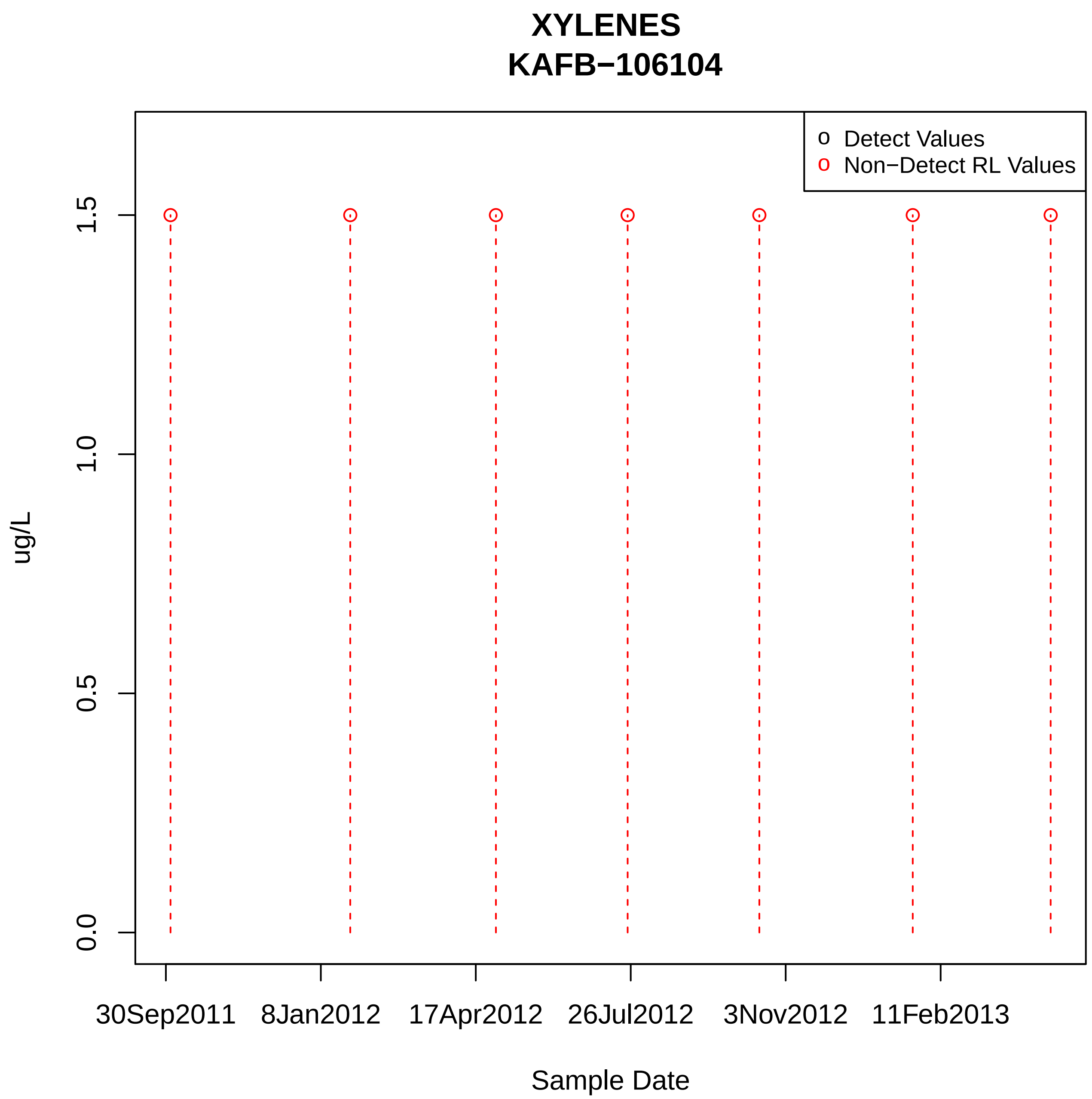
XYLENES
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

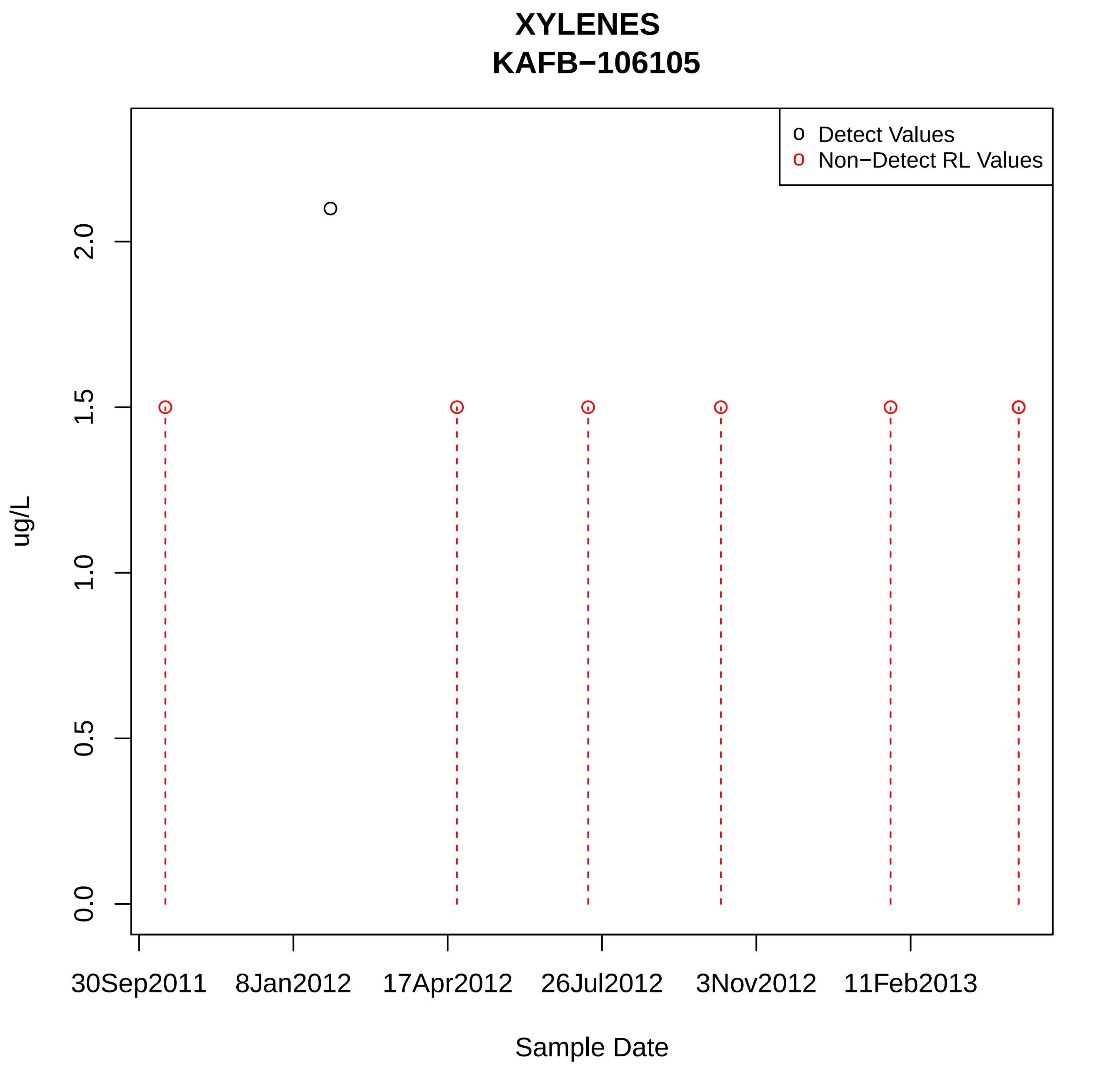

XYLENES
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106023
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

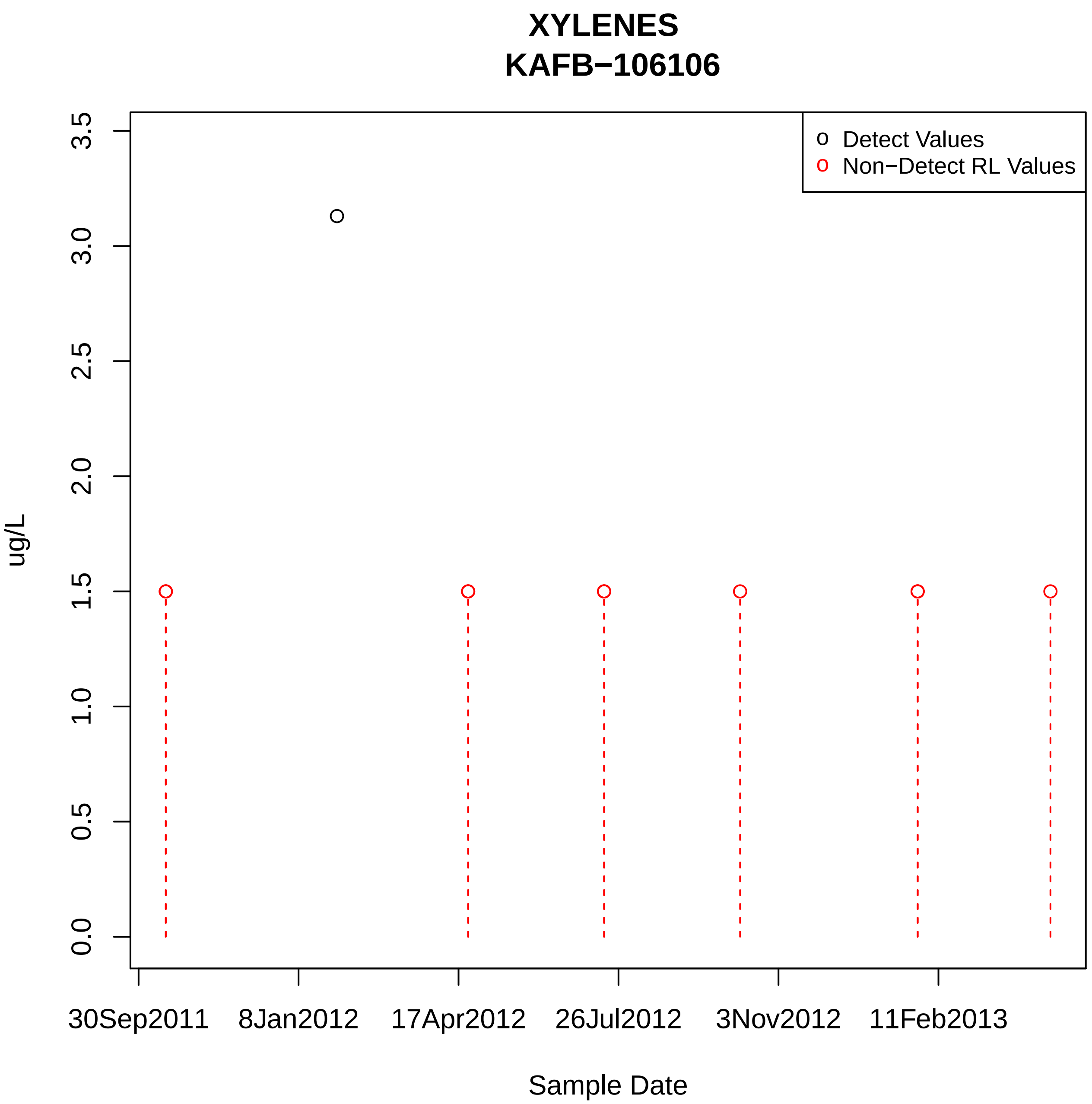


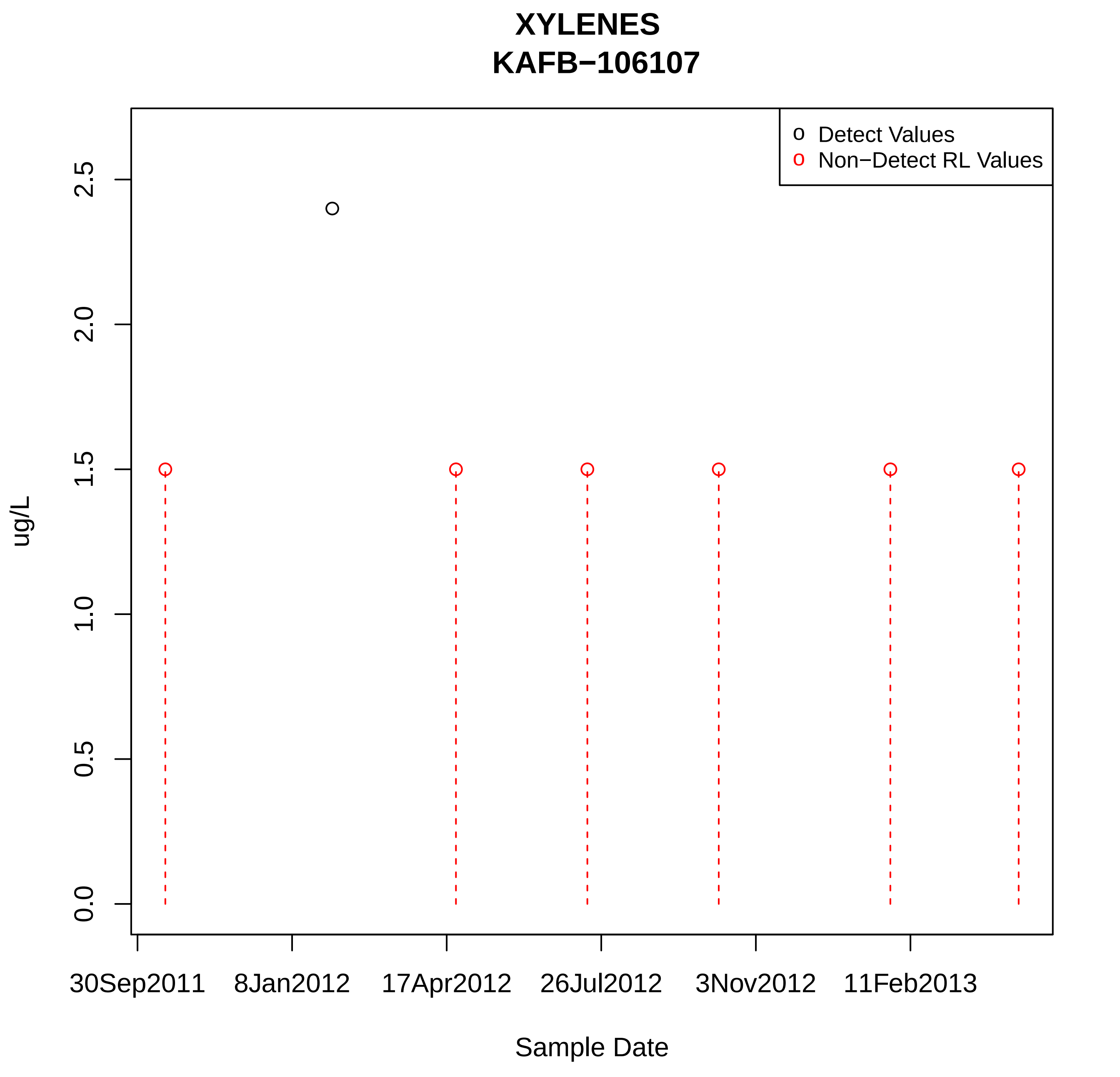
XYLENES
KAFB−106103
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


XYLENES
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

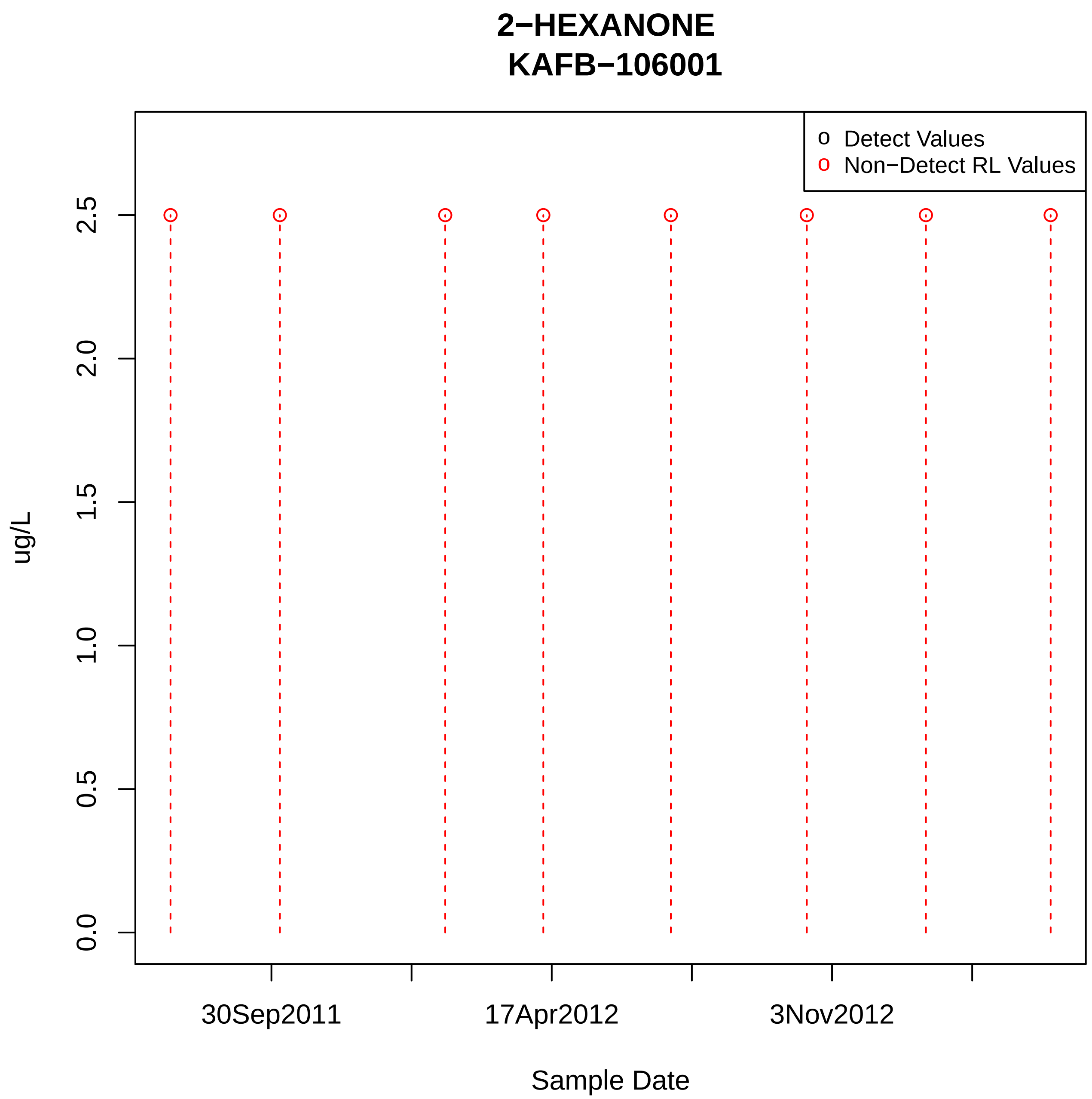


XYLENES
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

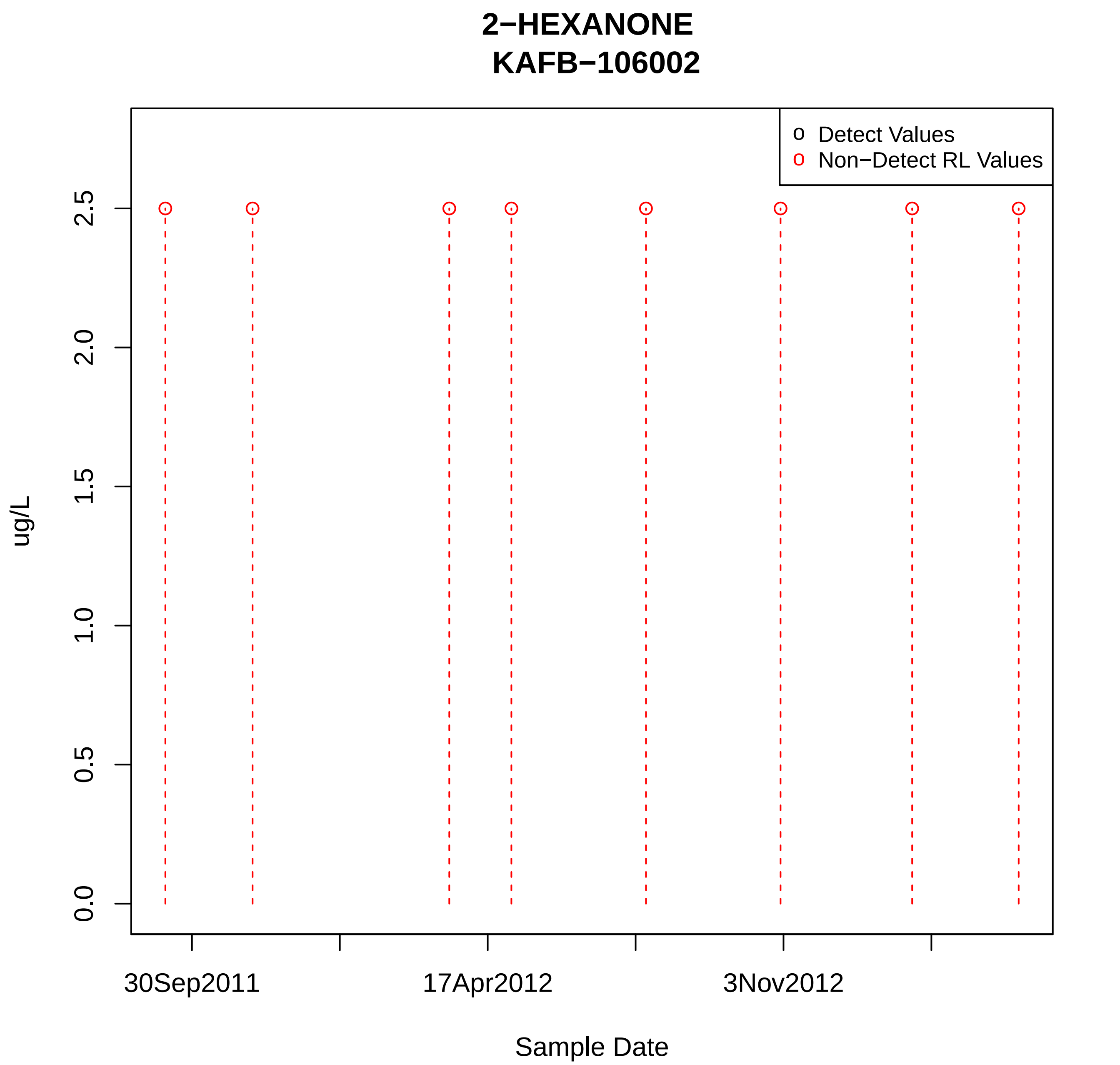

XYLENES
KAFB−106106
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



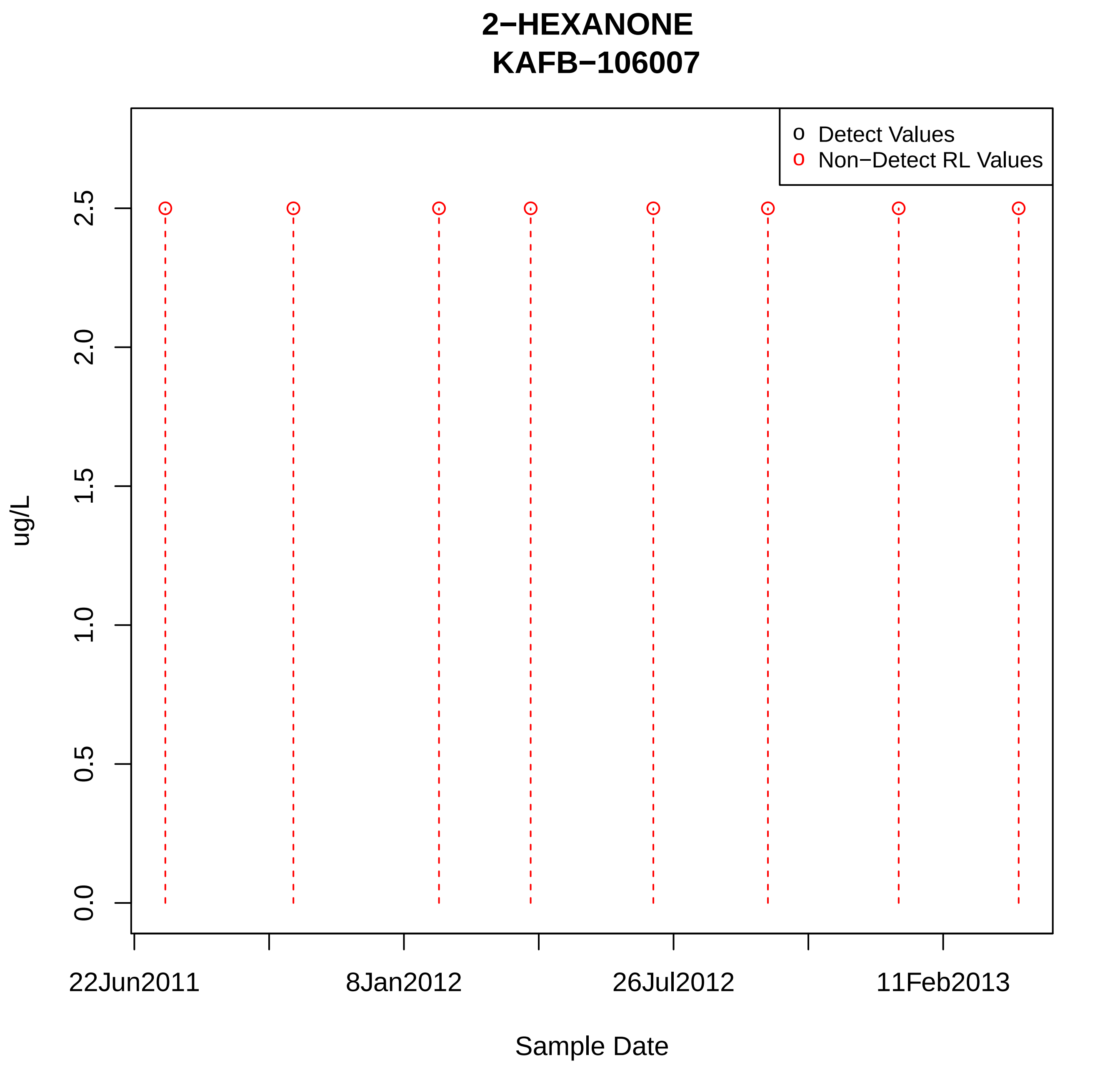
XYLENES
KAFB−106107
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

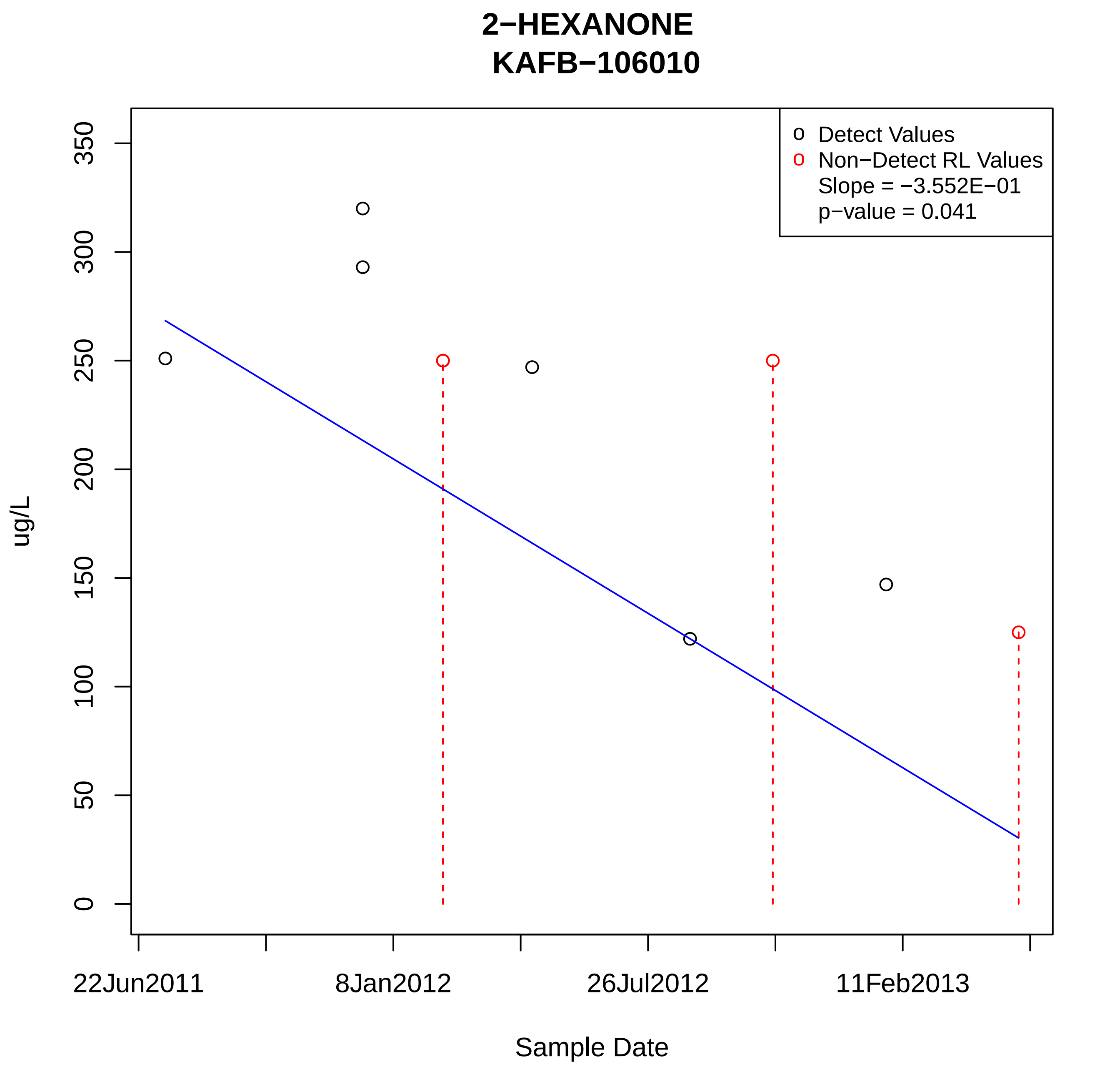


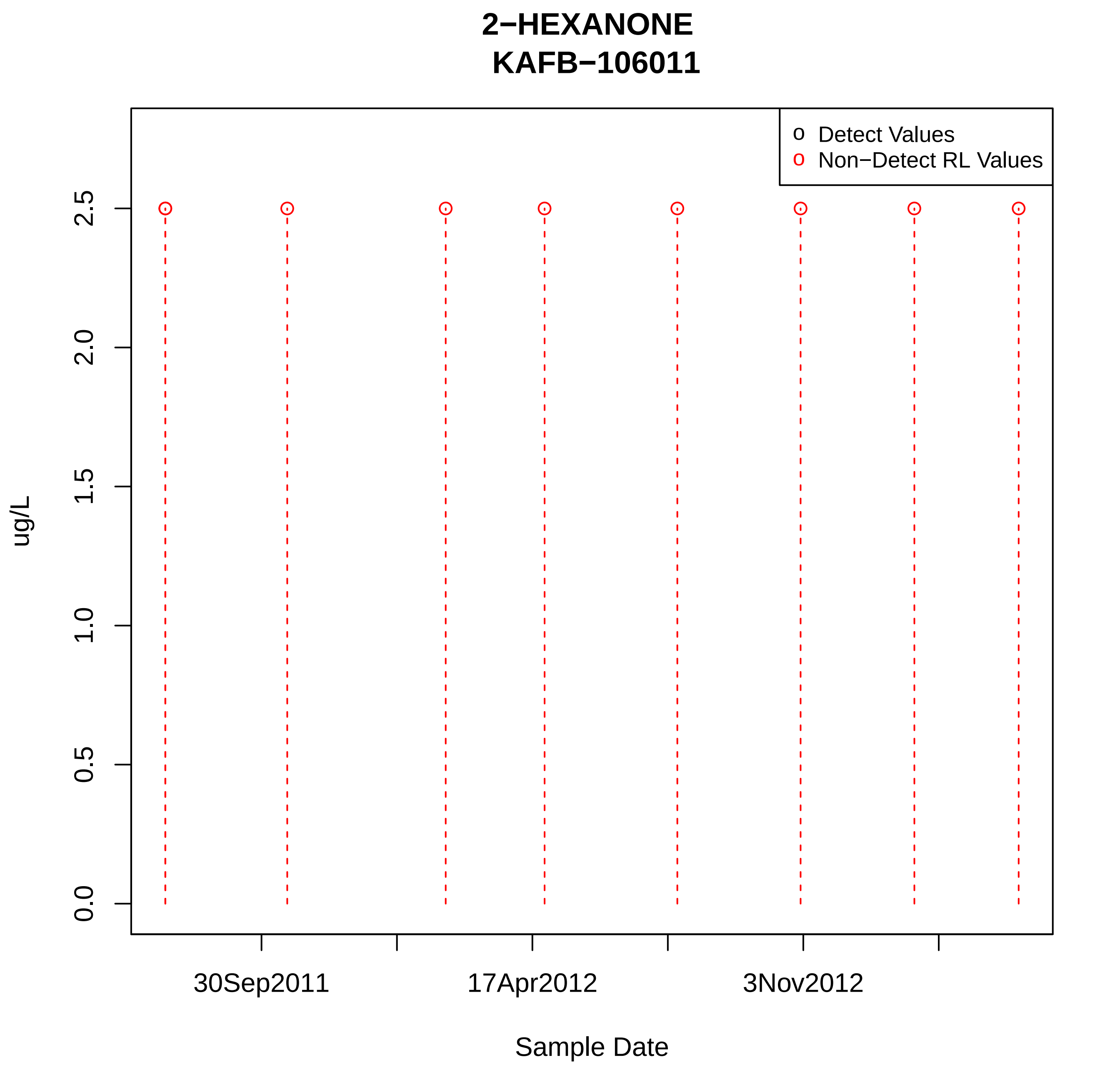
2−HEXANONE
KAFB−106001
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

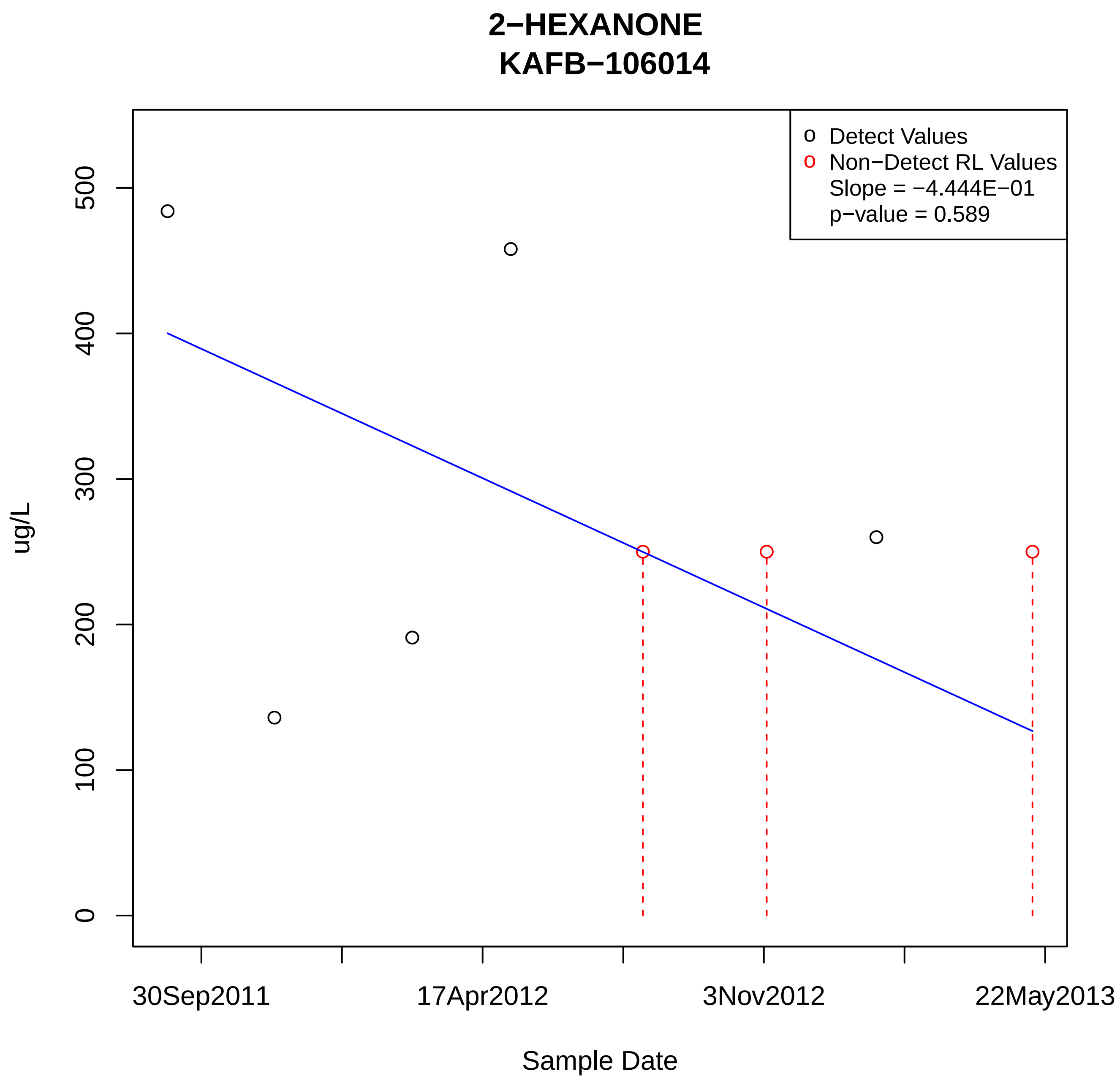


2−HEXANONE
KAFB−106002
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

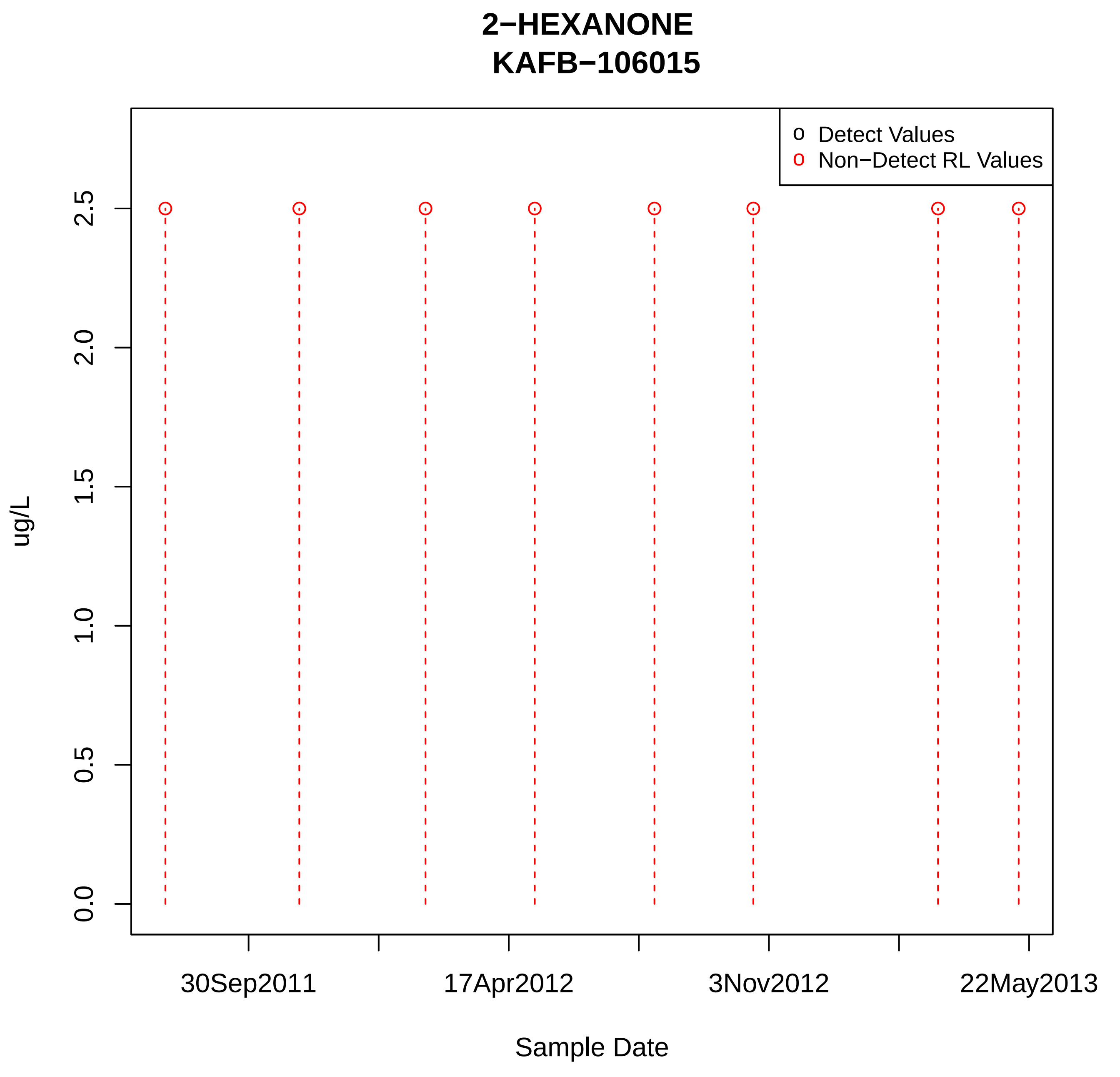

2−HEXANONE
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

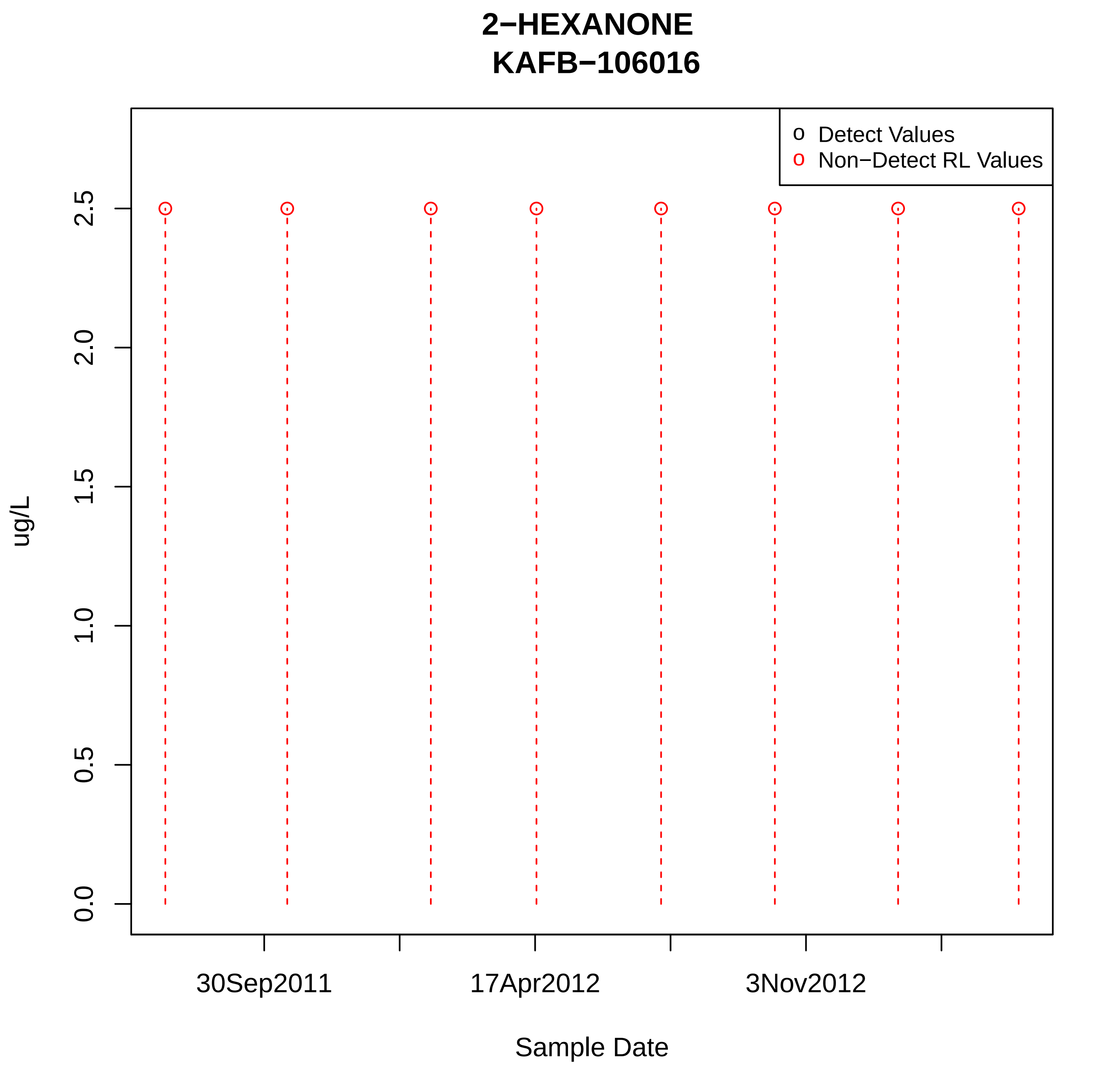

2−HEXANONE
KAFB−106010
o Detect Values
o Non−Detect RL Values
Slope = −3.552E−01
p−value = 0.041
ug/L
0
50
100
150
200
250
300
350
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


2−HEXANONE
KAFB−106011
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

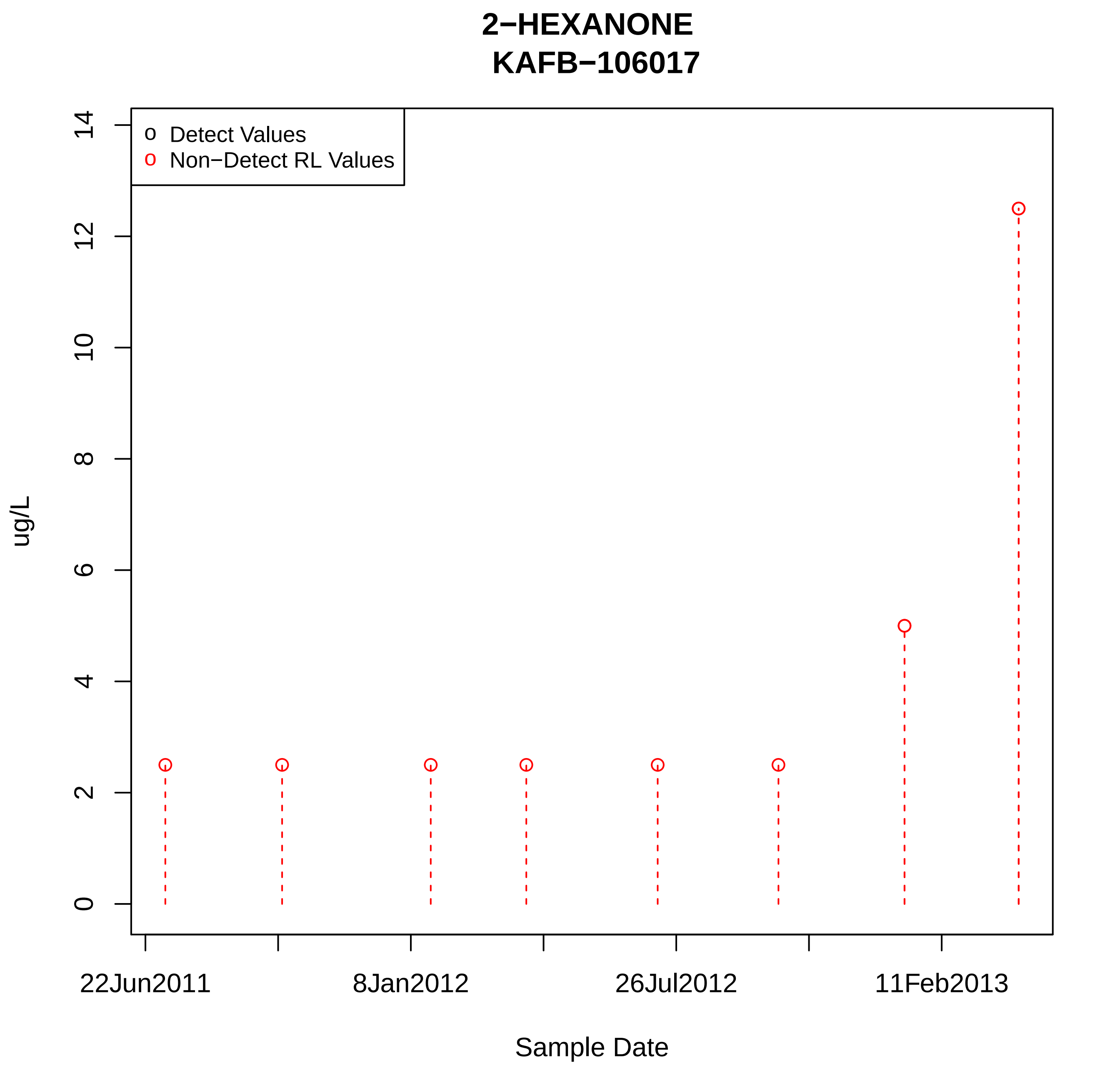


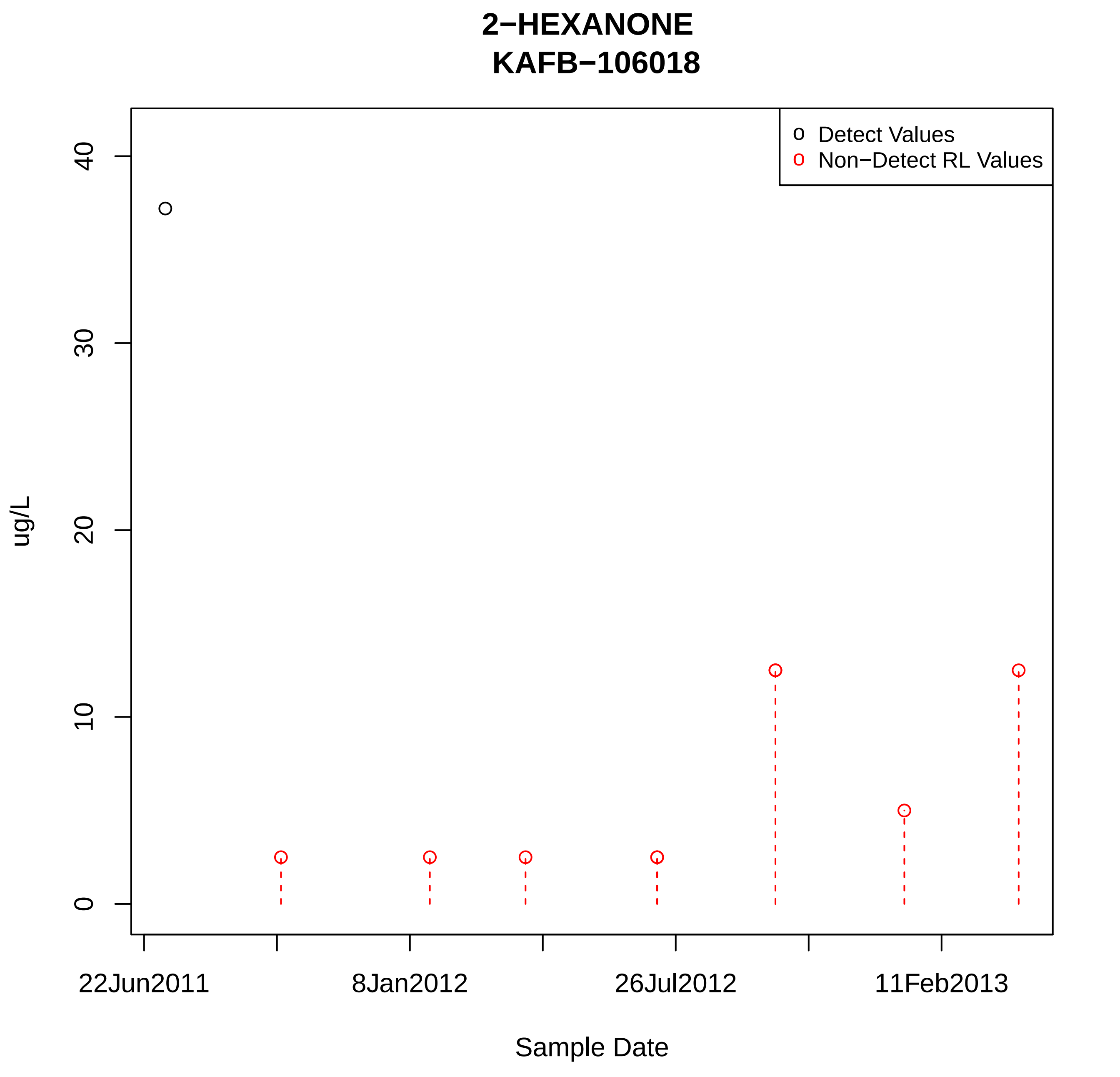
2−HEXANONE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −4.444E−01
p−value = 0.589
ug/L
0
100
200
300
400
500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

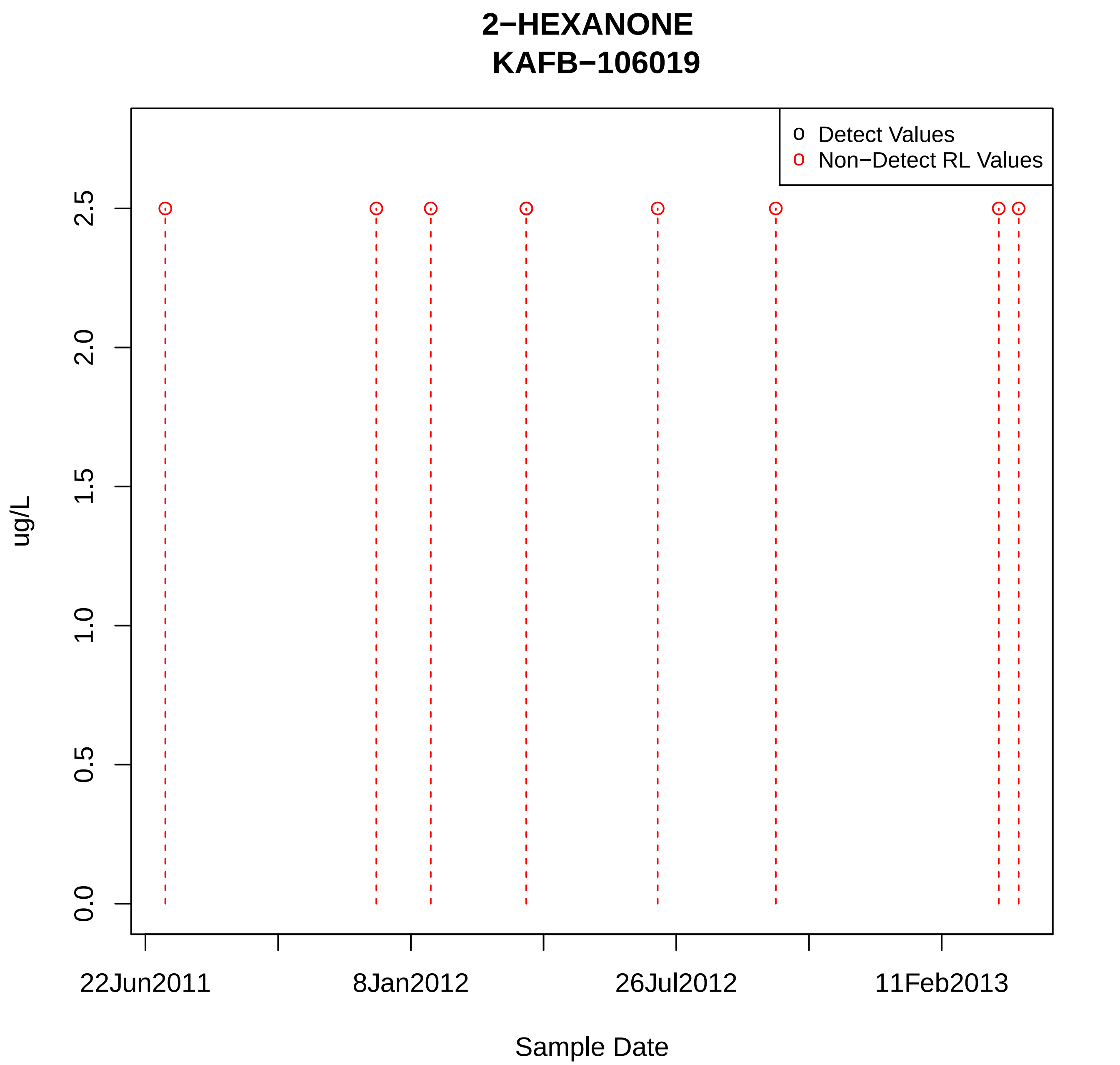

2−HEXANONE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



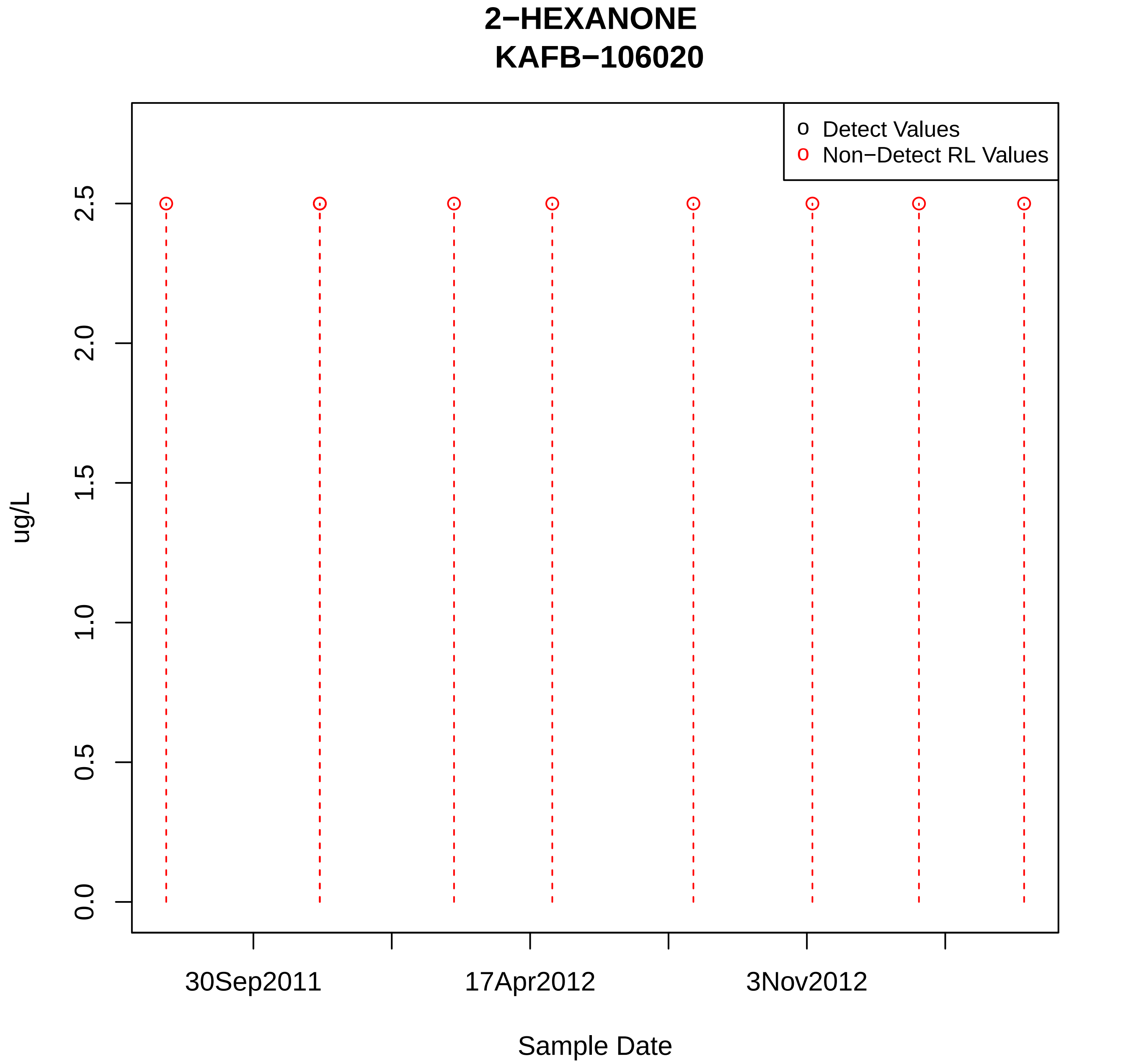
2−HEXANONE
KAFB−106016
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

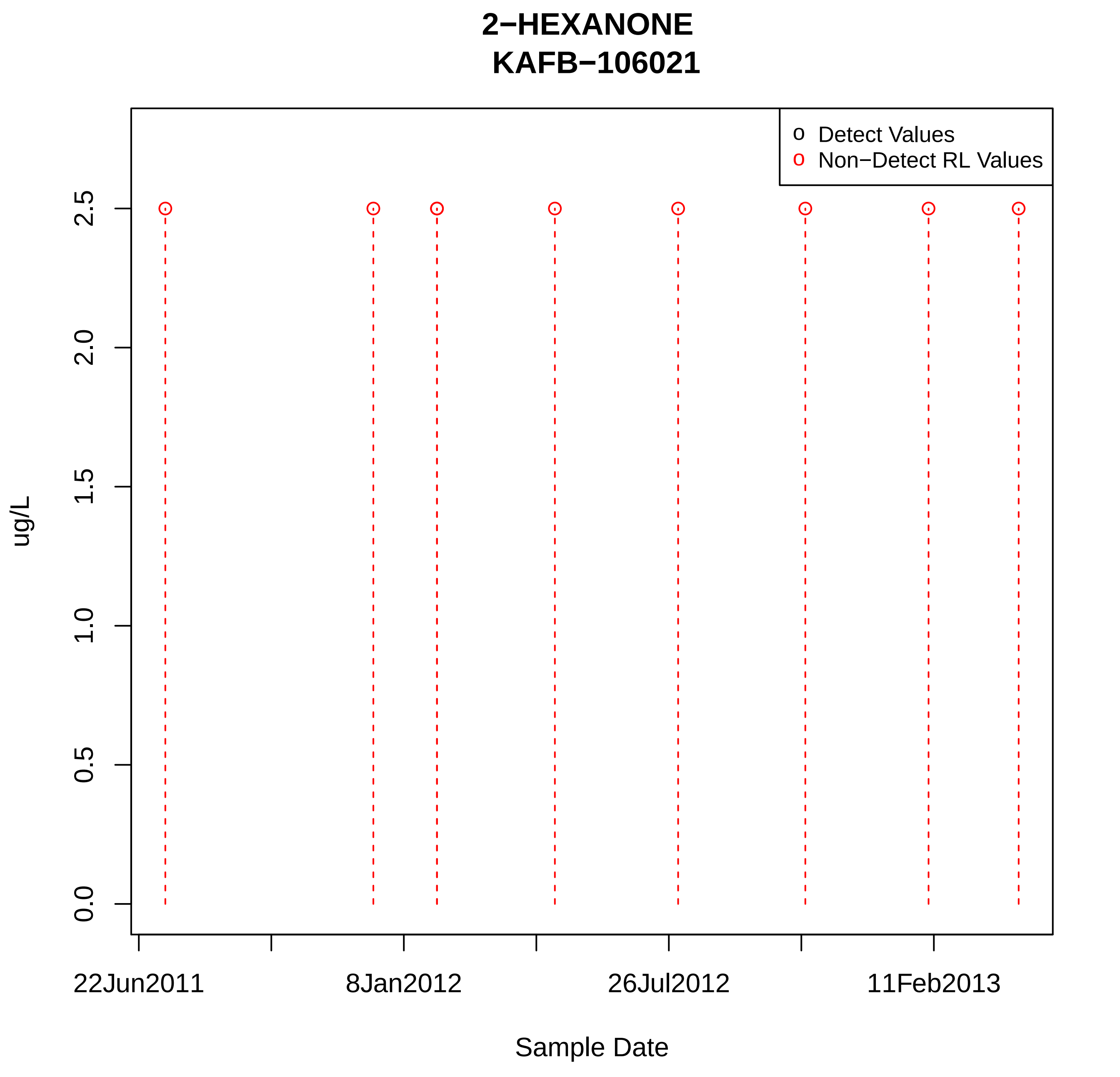

2−HEXANONE
KAFB−106017
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

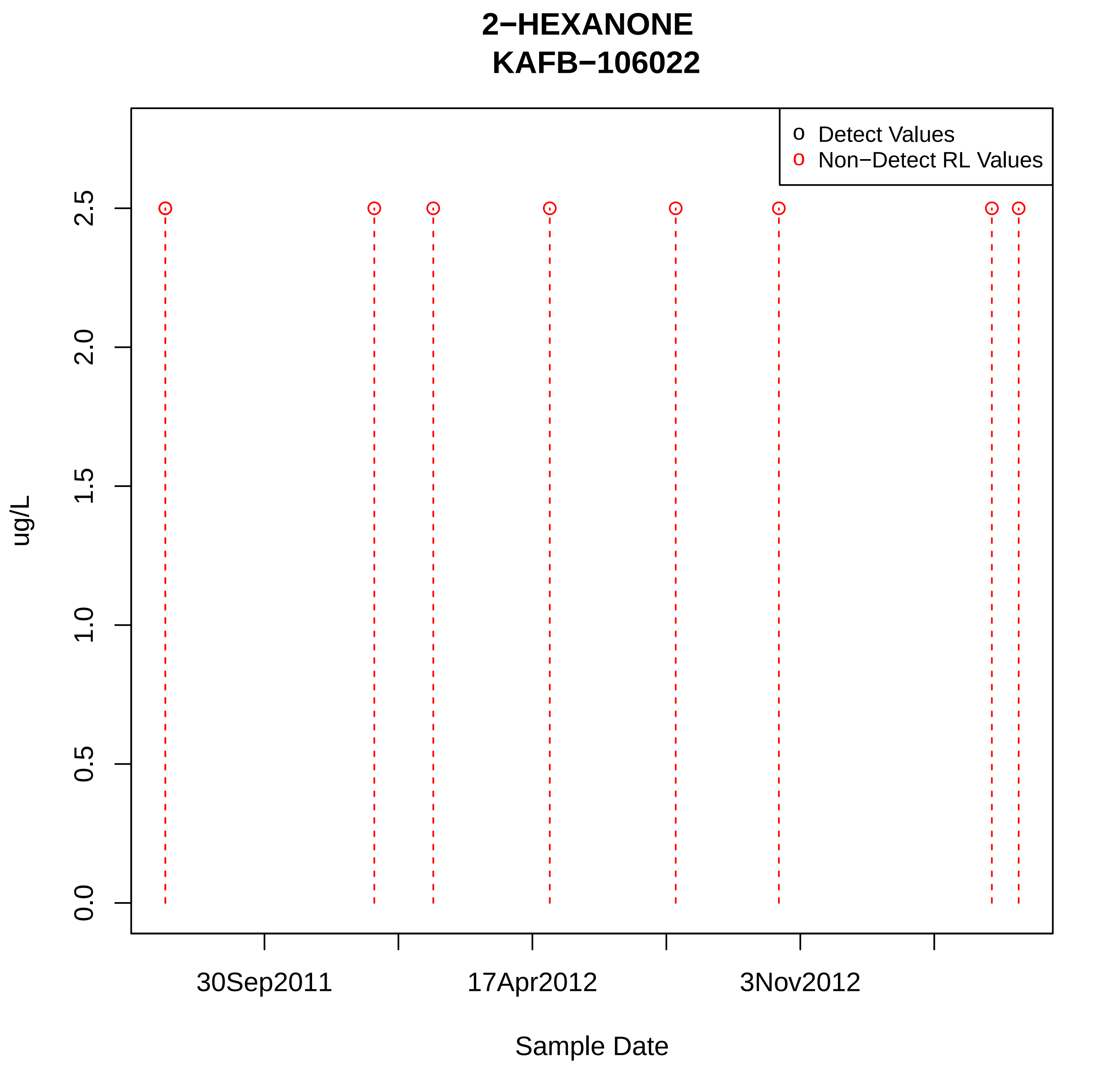

2−HEXANONE
KAFB−106018
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

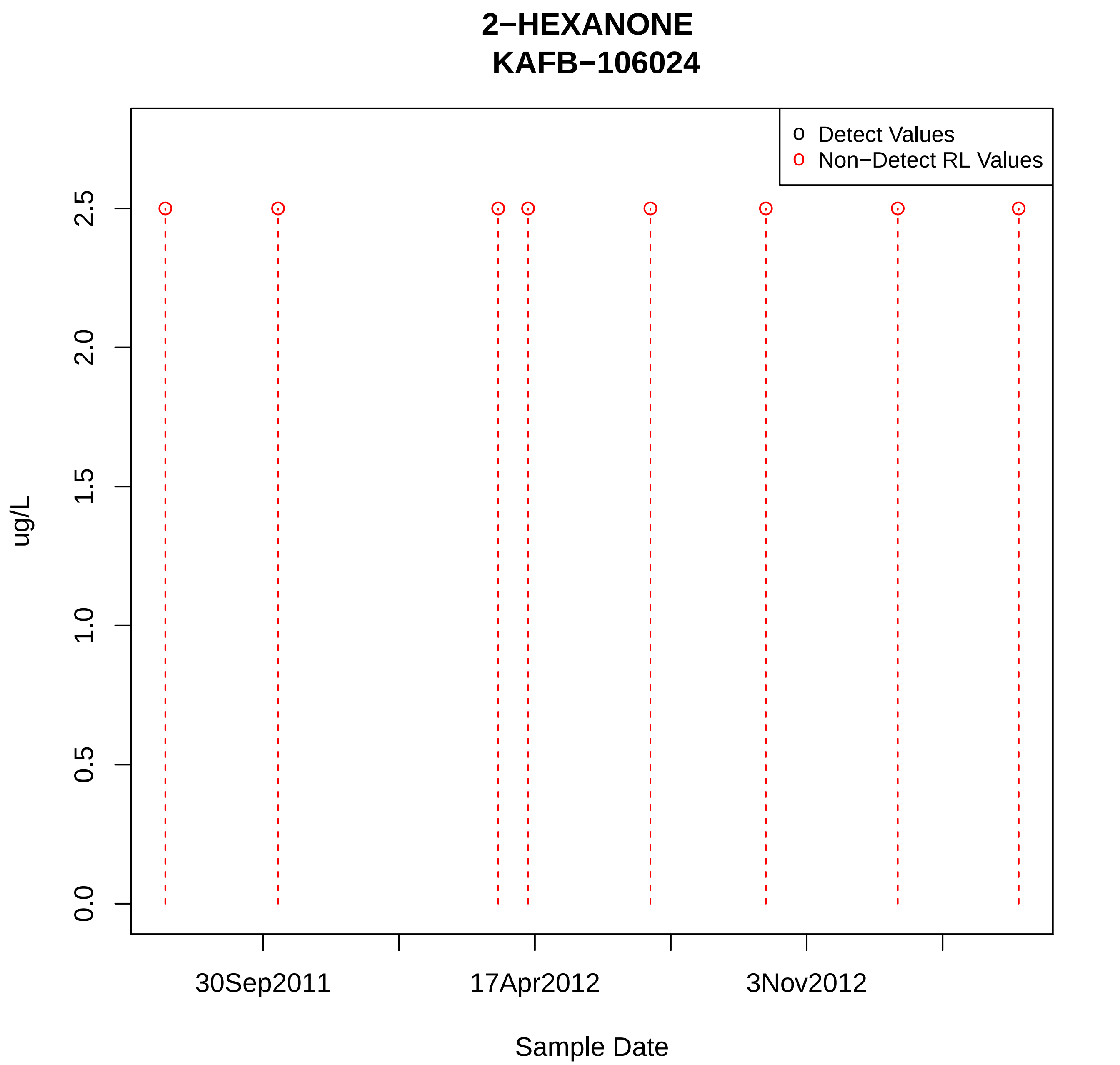


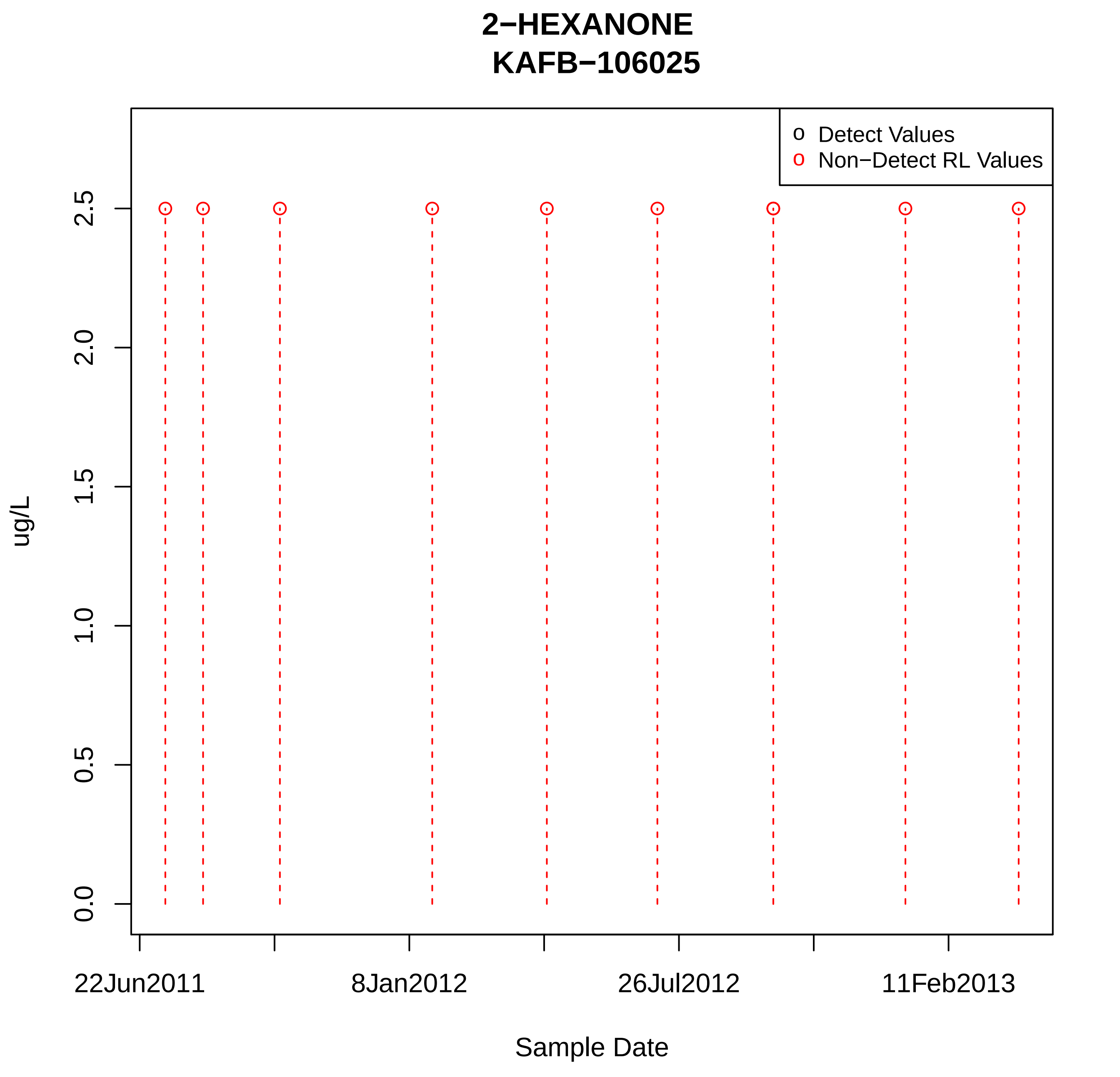
2−HEXANONE
KAFB−106019
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

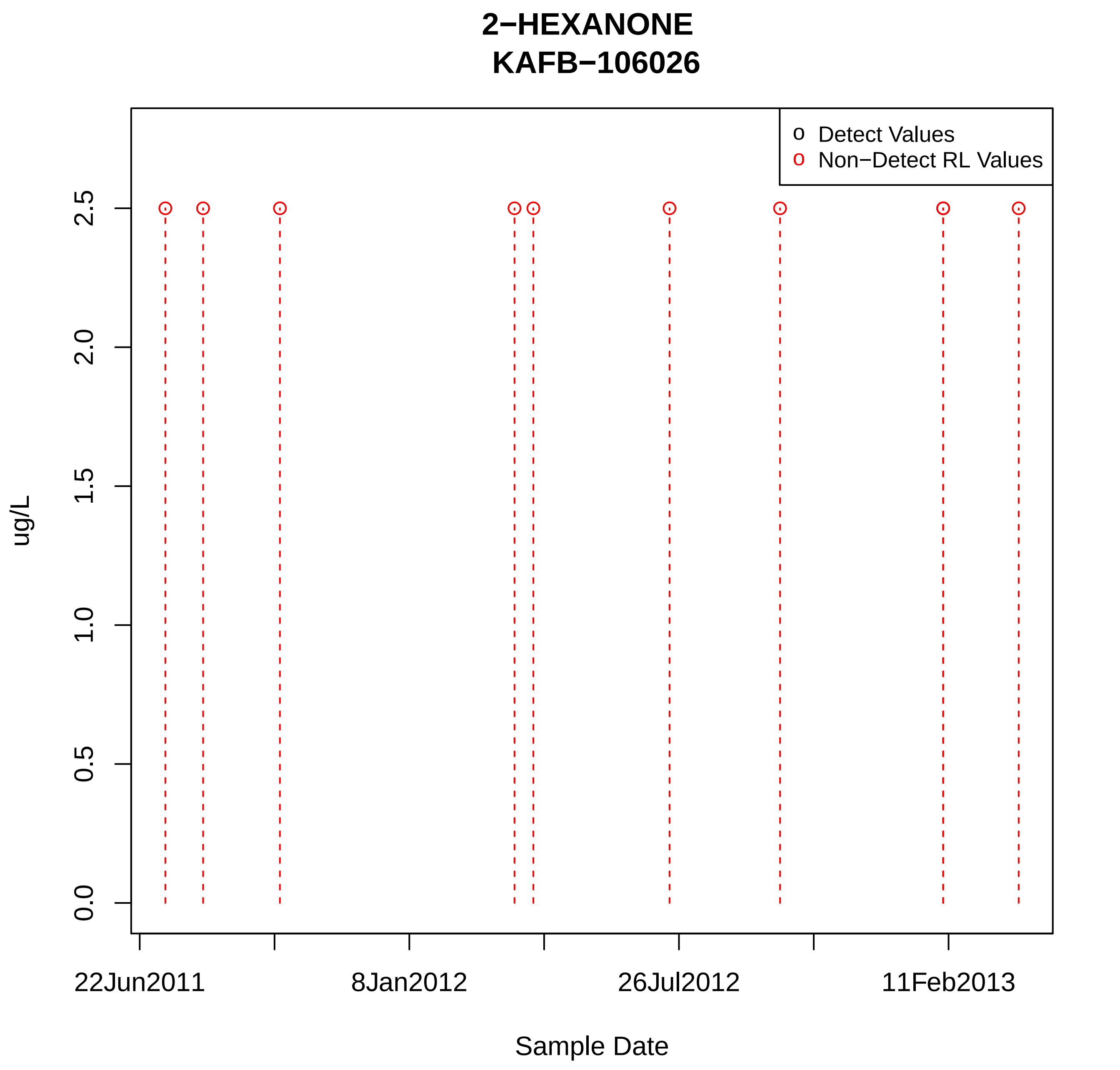

2−HEXANONE
KAFB−106020
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106021
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

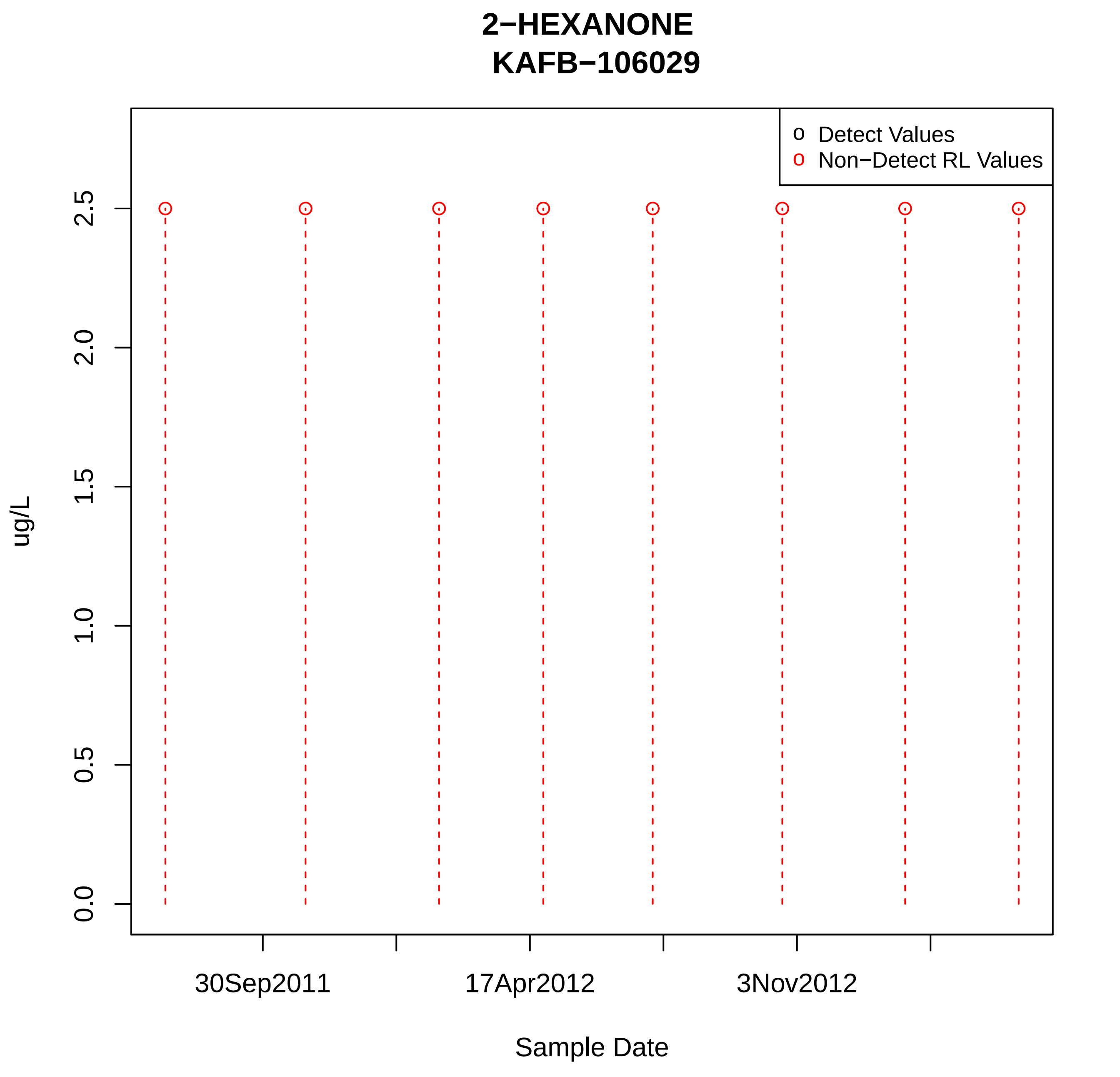

2−HEXANONE
KAFB−106022
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106024
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

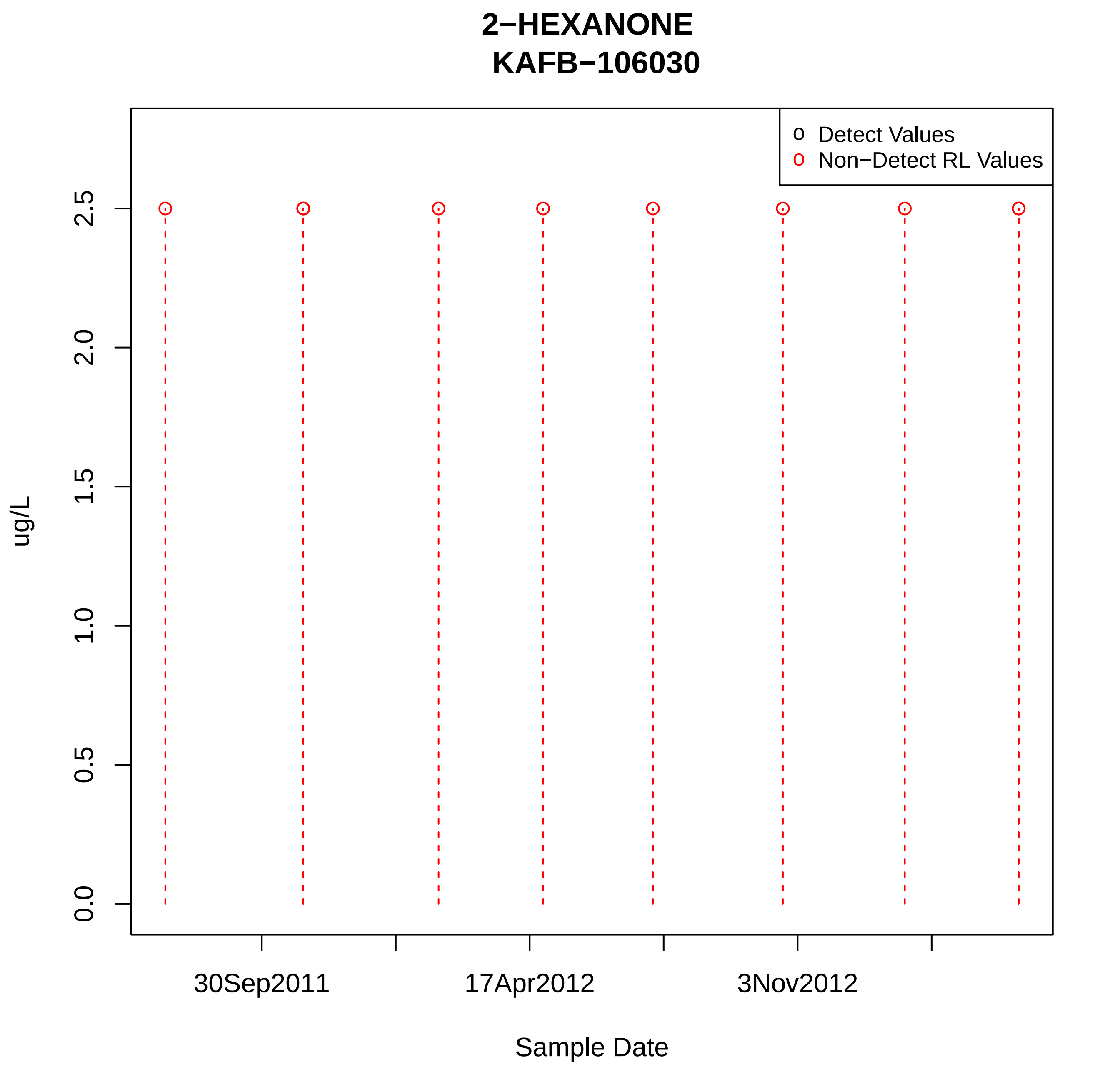

2−HEXANONE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

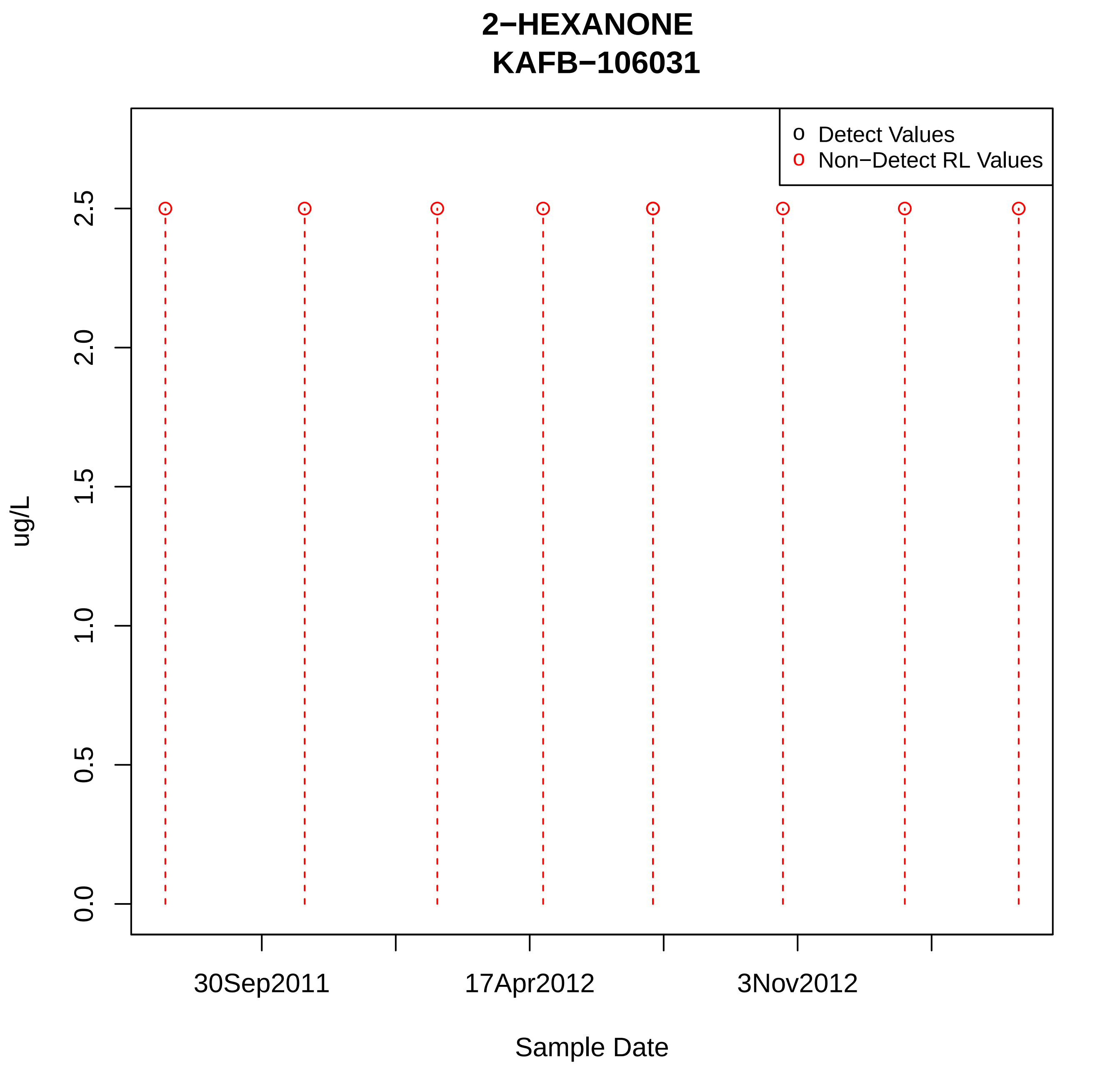


2−HEXANONE
KAFB−106026
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

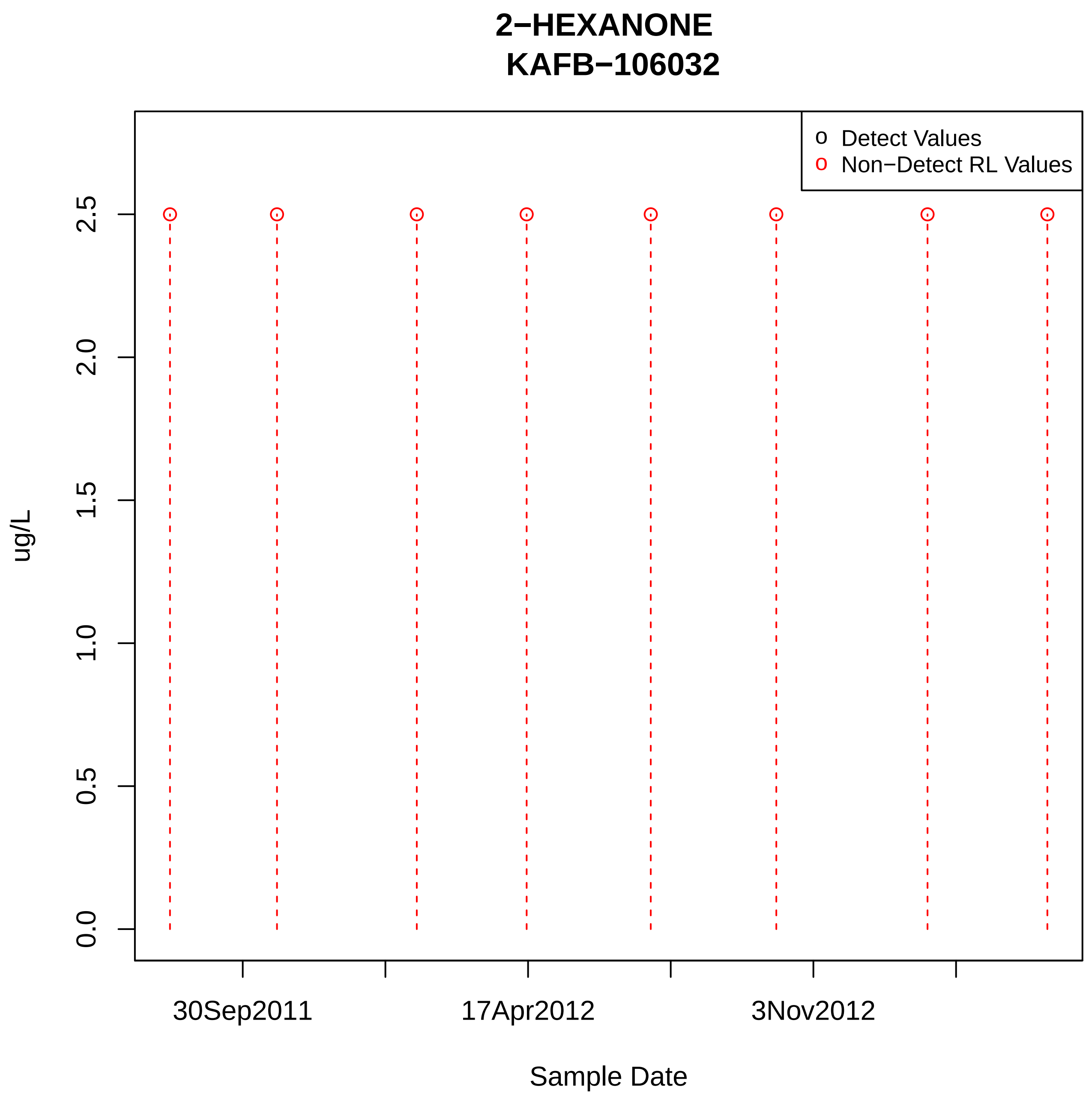


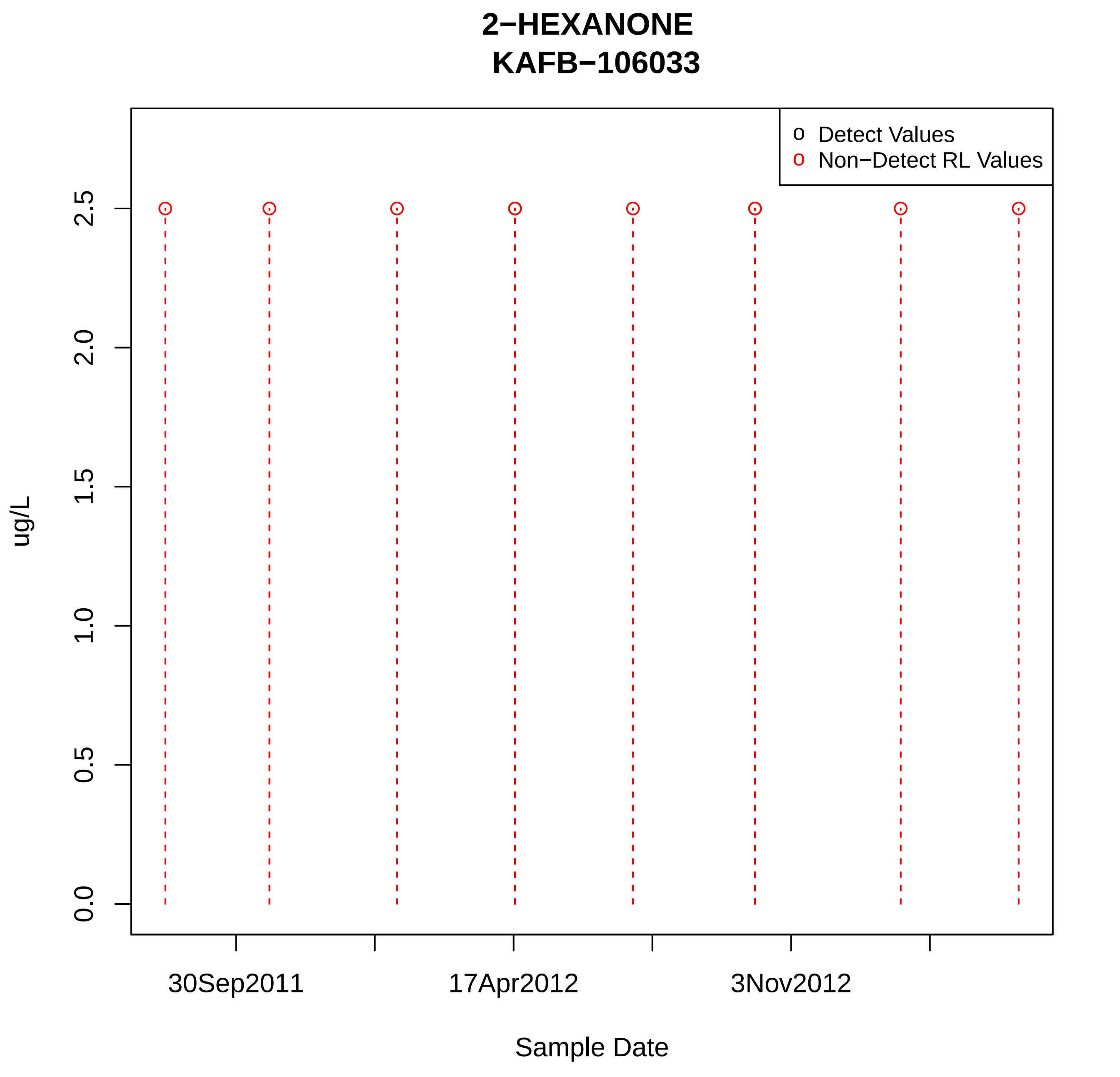
2−HEXANONE
KAFB−106029
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

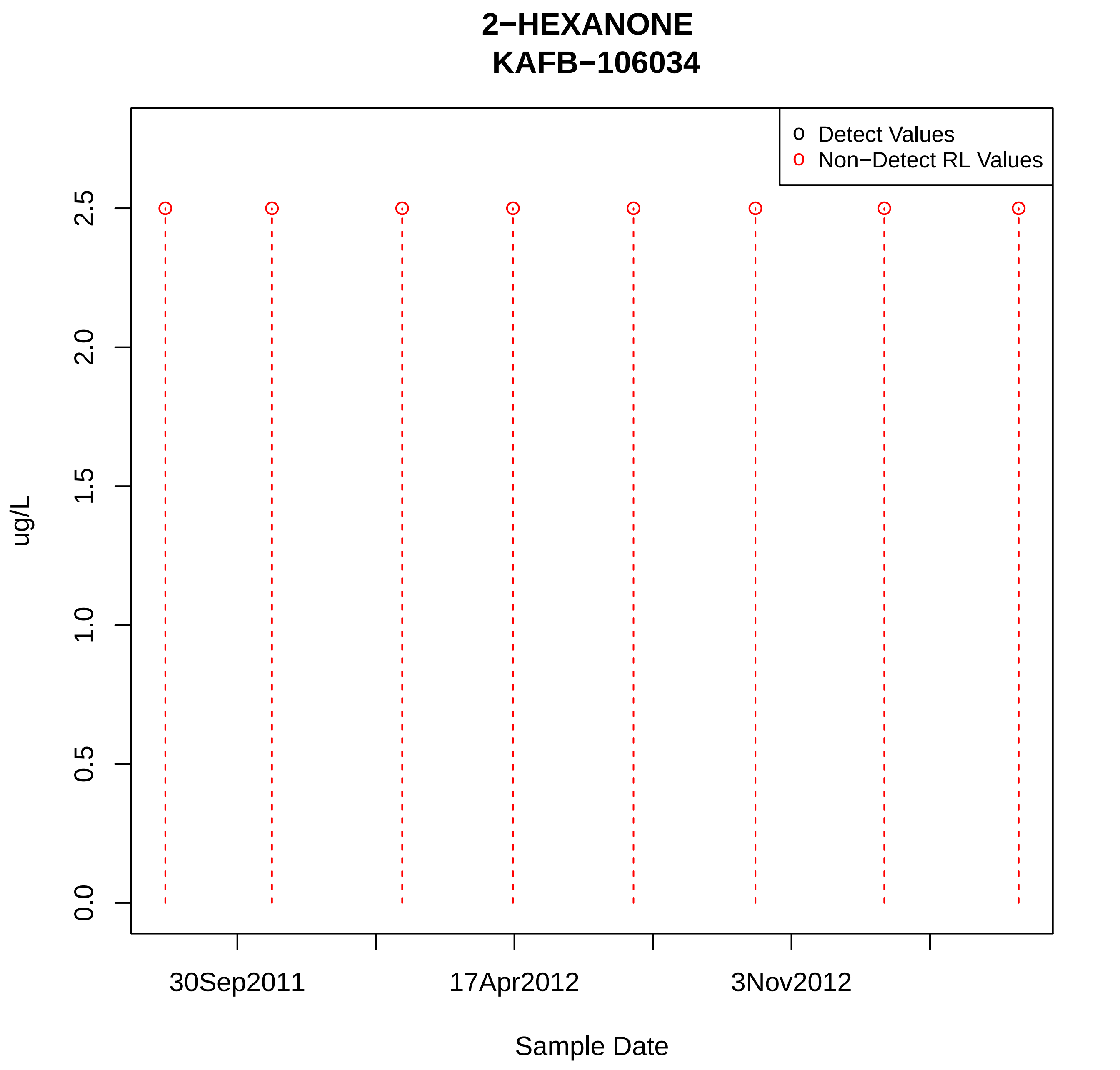

2−HEXANONE
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



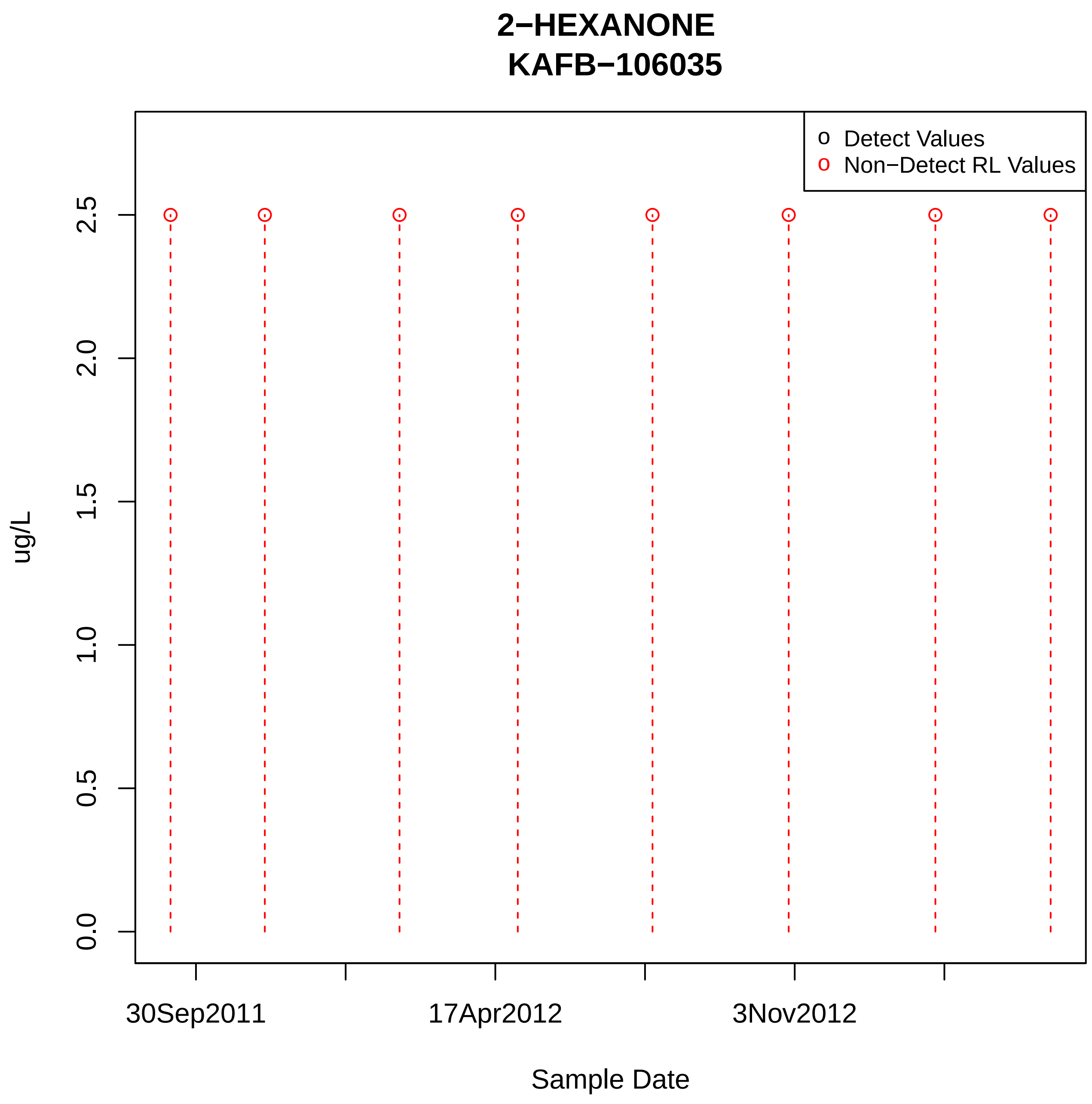
2−HEXANONE
KAFB−106031
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

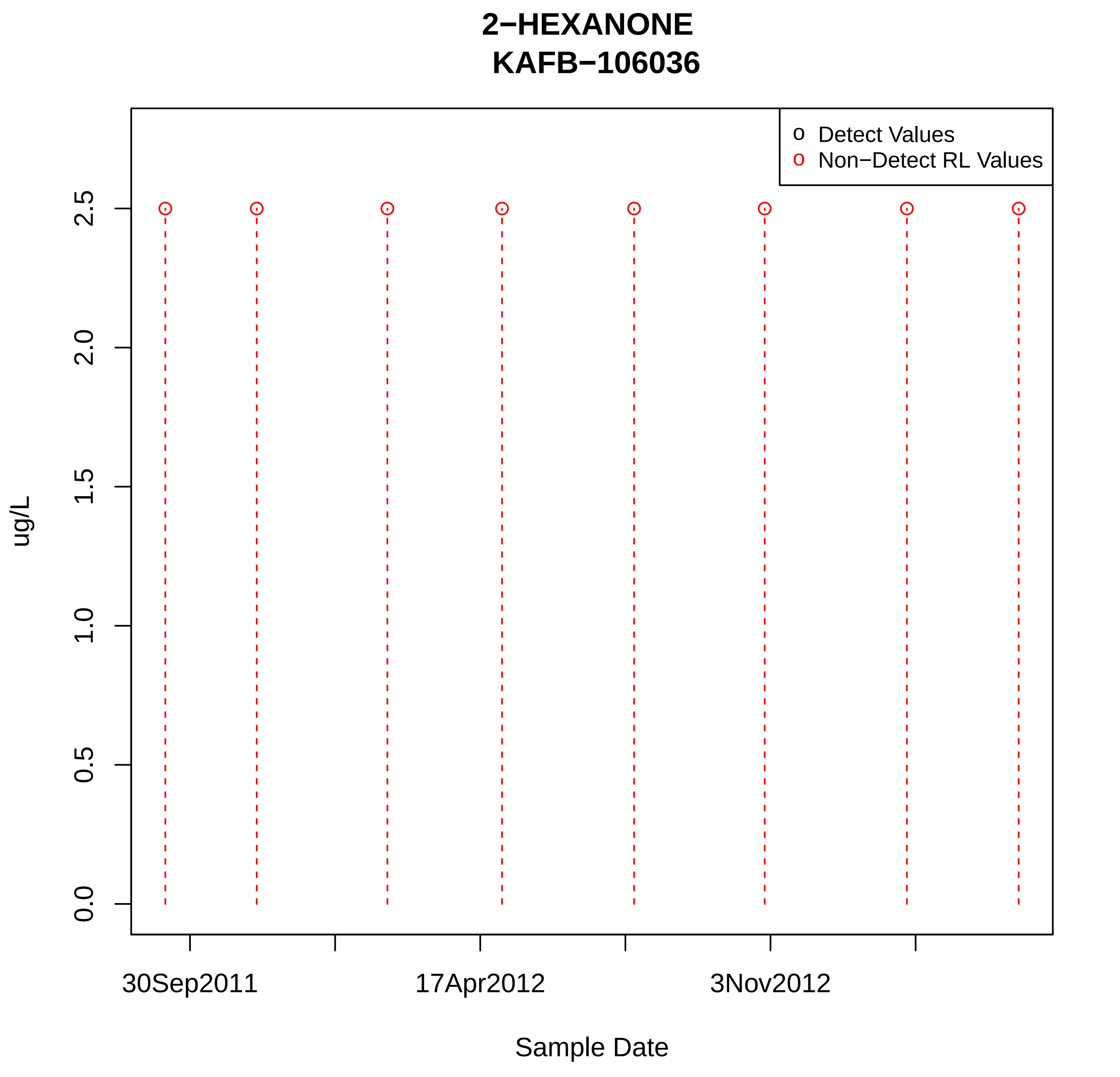

2−HEXANONE
KAFB−106033
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



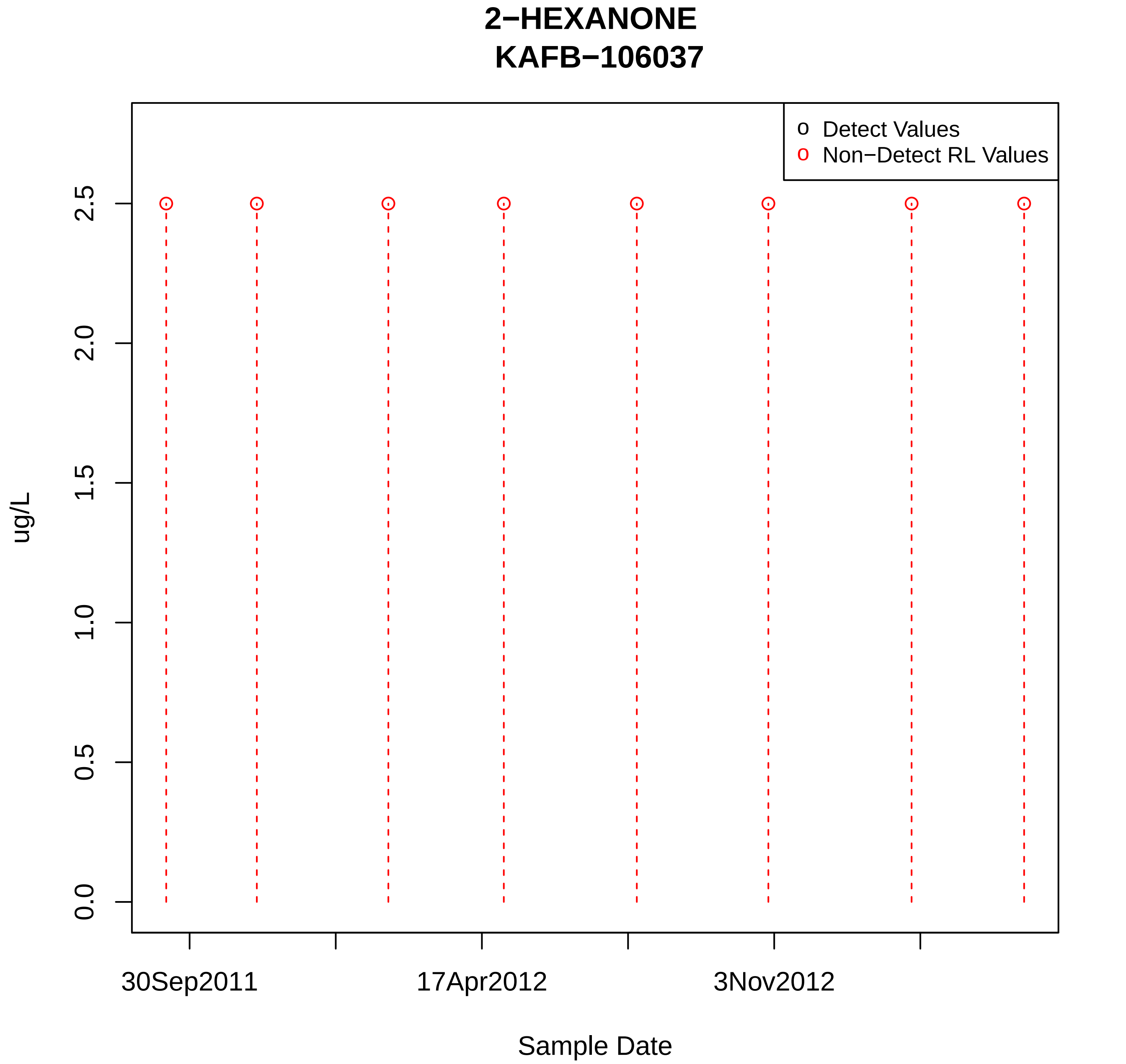
2−HEXANONE
KAFB−106034
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

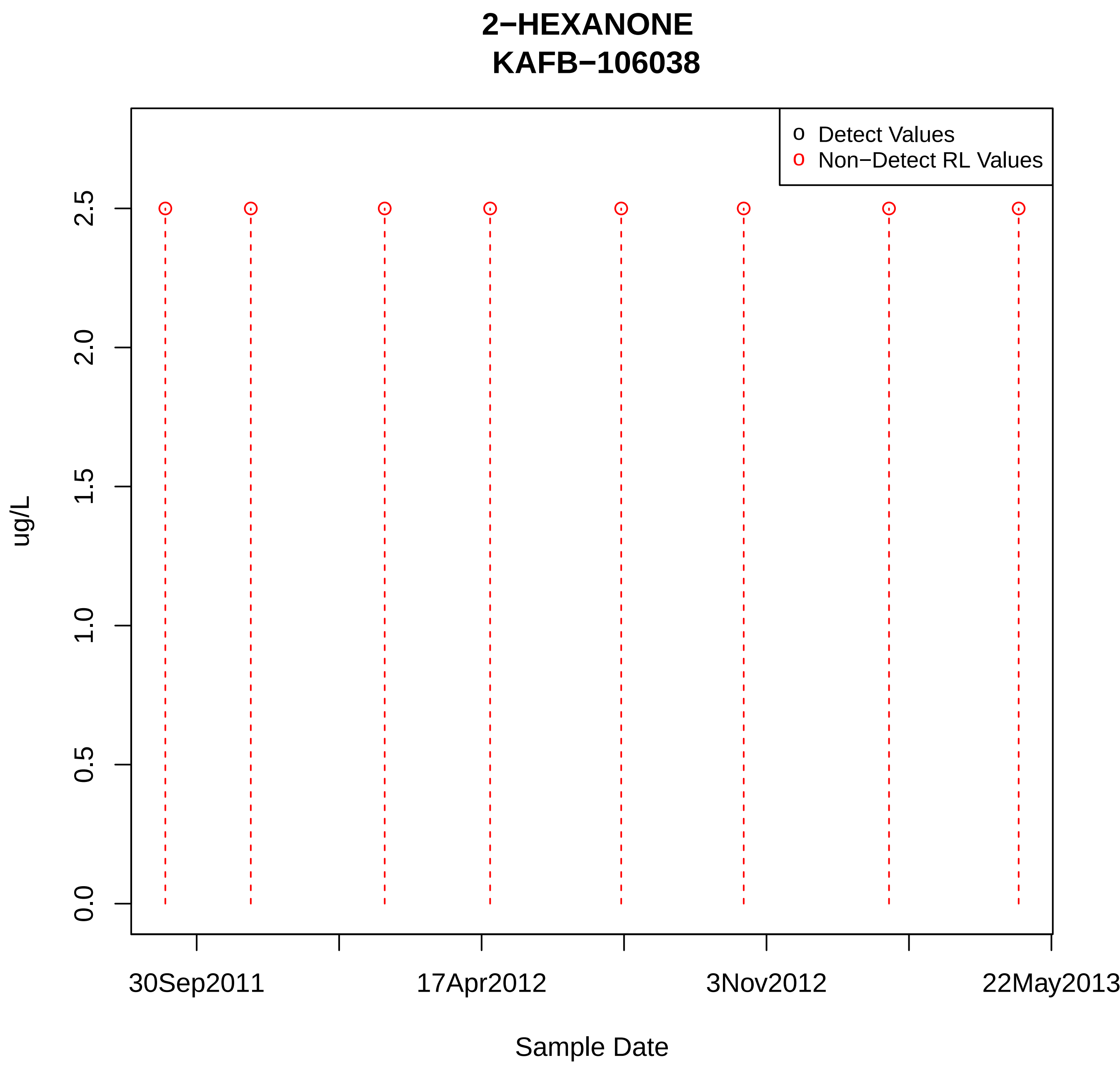


2−HEXANONE
KAFB−106035
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

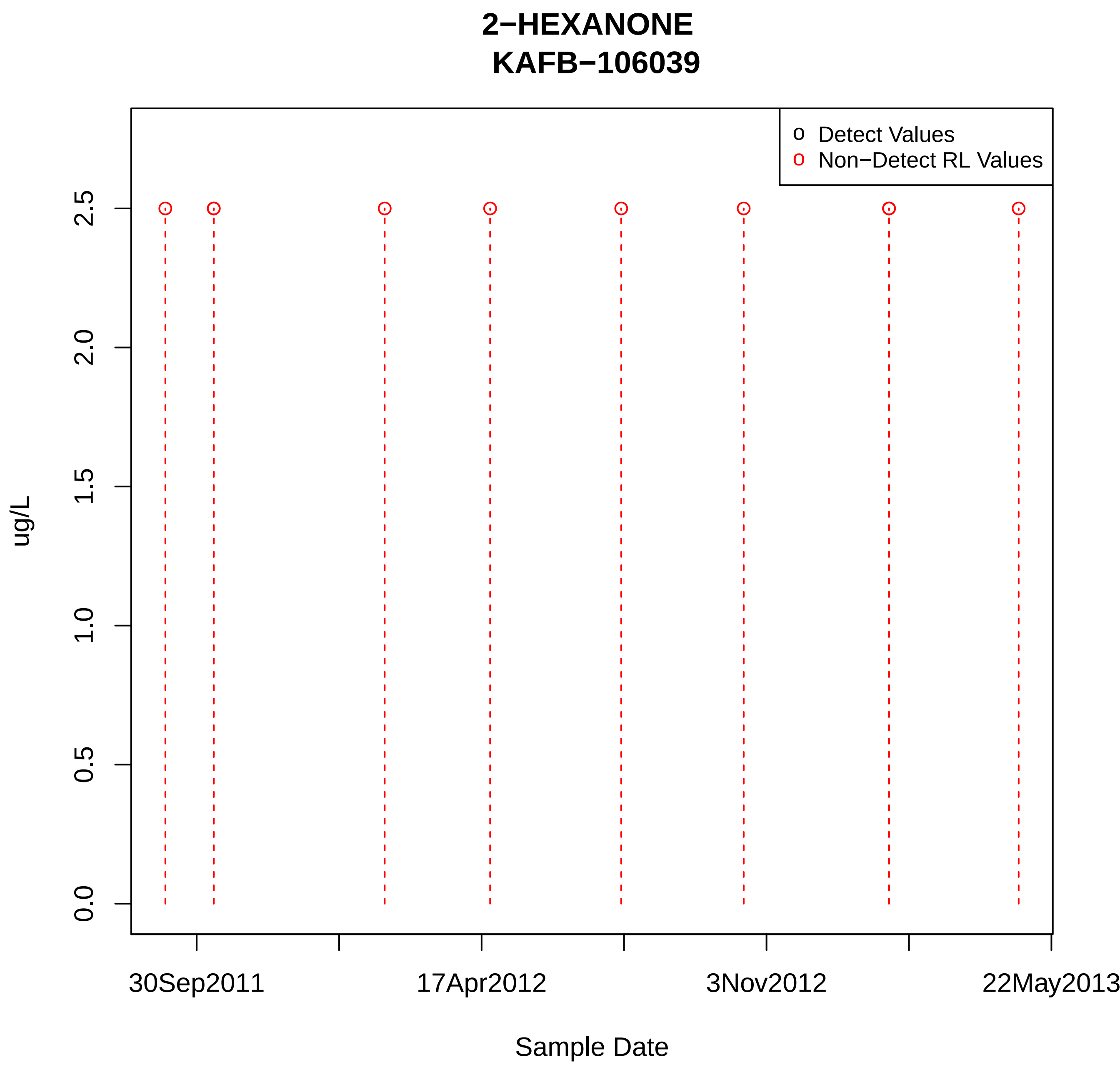


2−HEXANONE
KAFB−106036
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

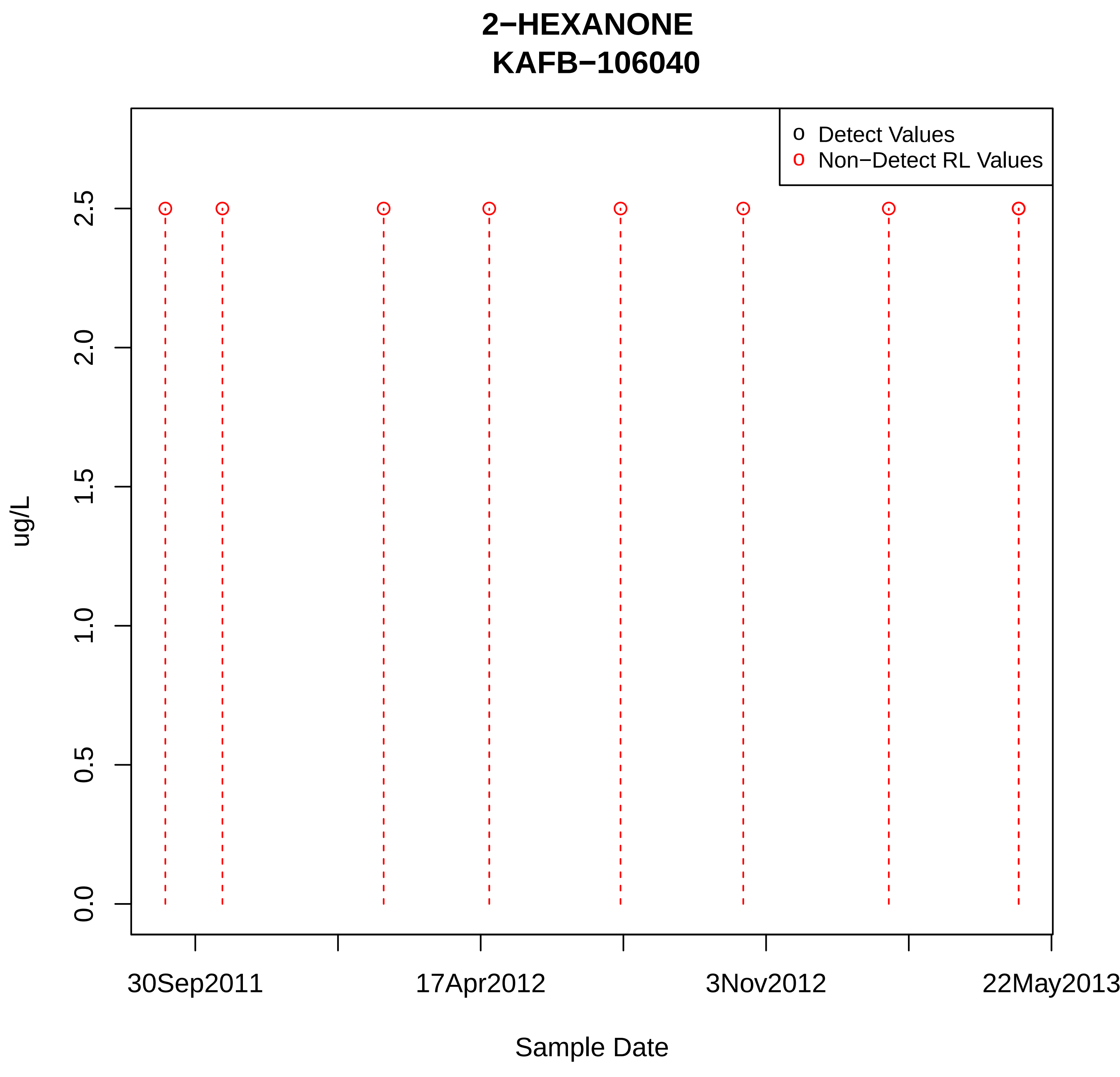

2−HEXANONE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

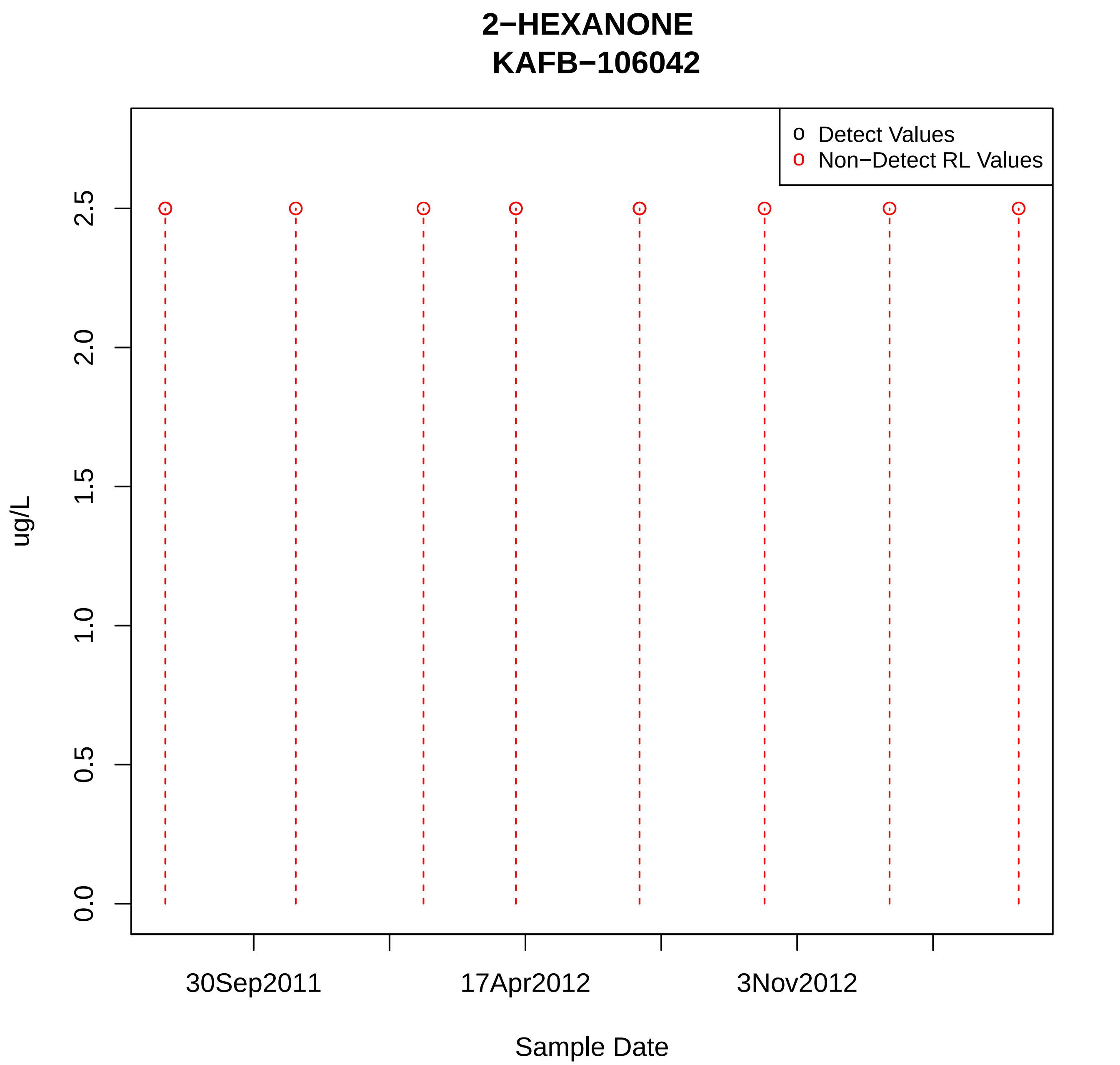


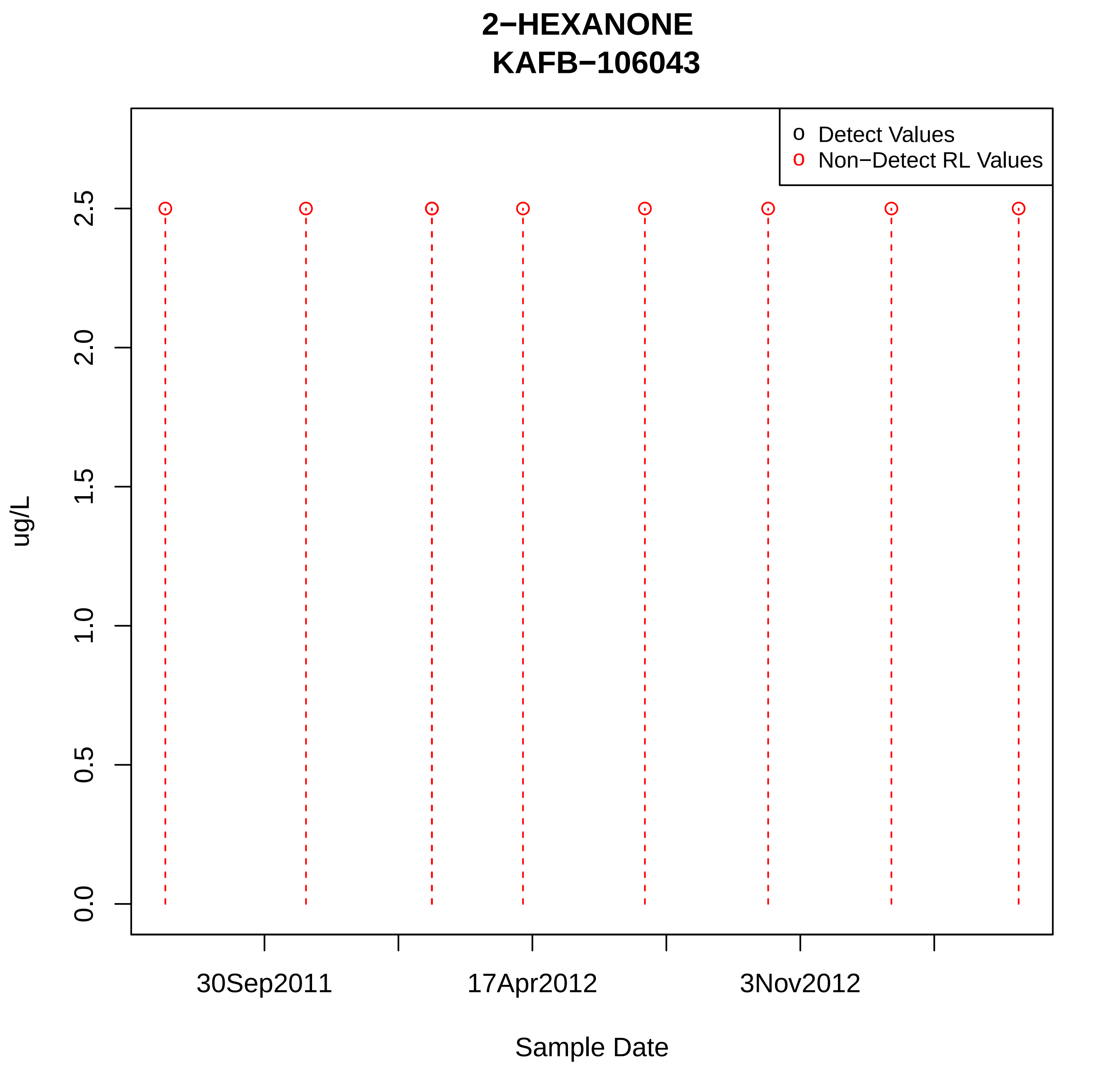
2−HEXANONE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

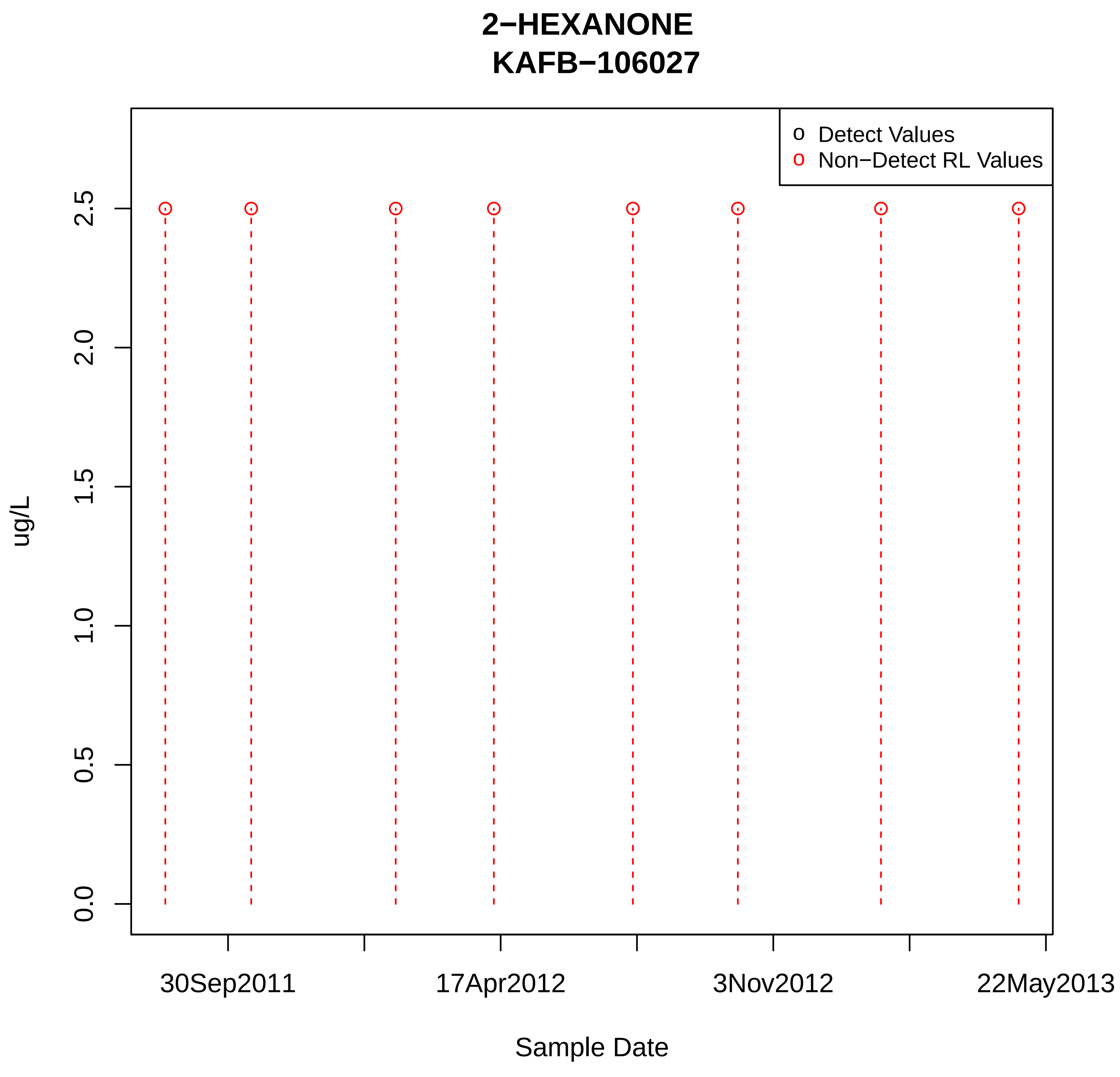


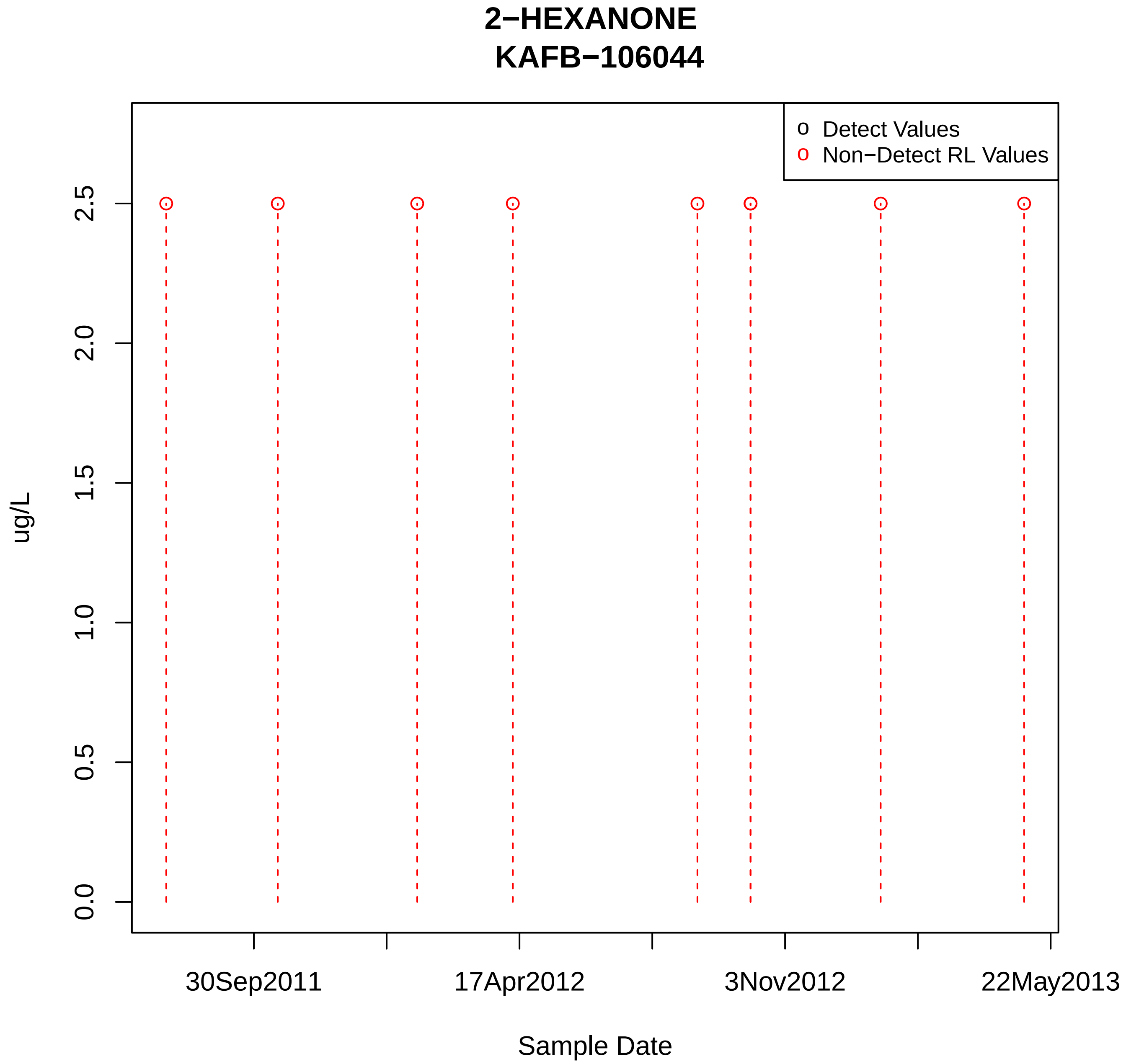
2−HEXANONE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−HEXANONE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

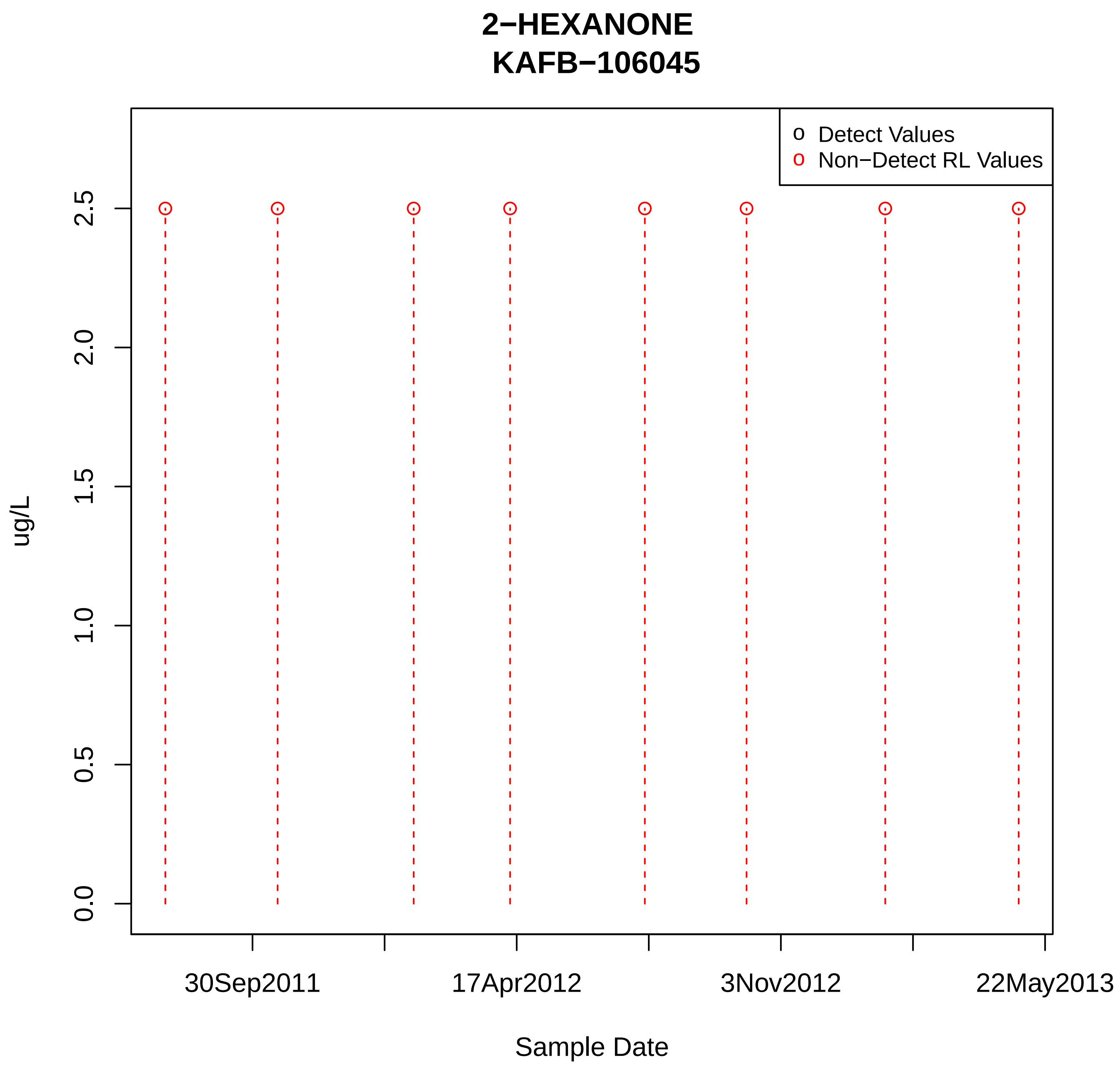

2−HEXANONE
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

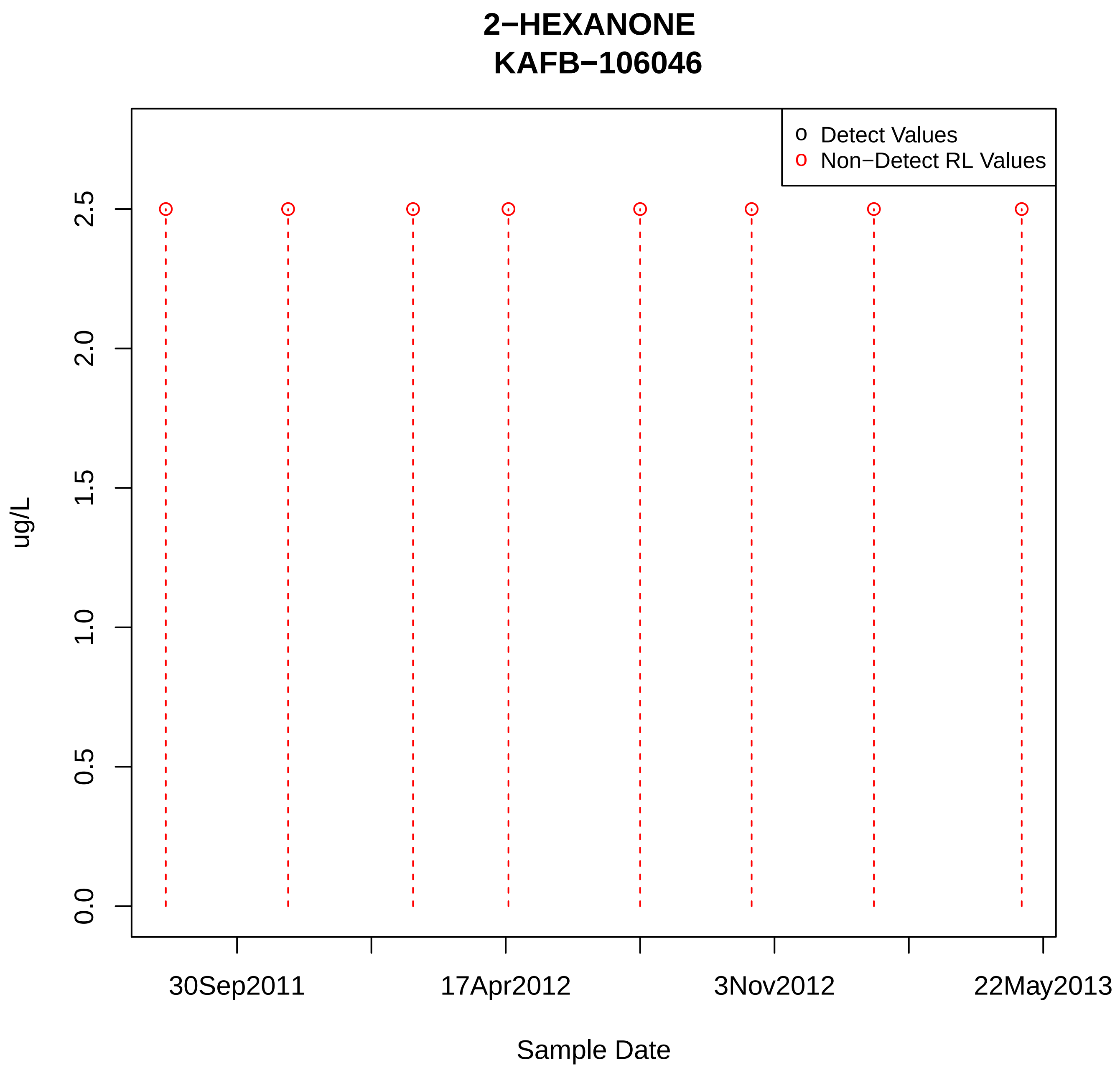

2−HEXANONE
KAFB−106027
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

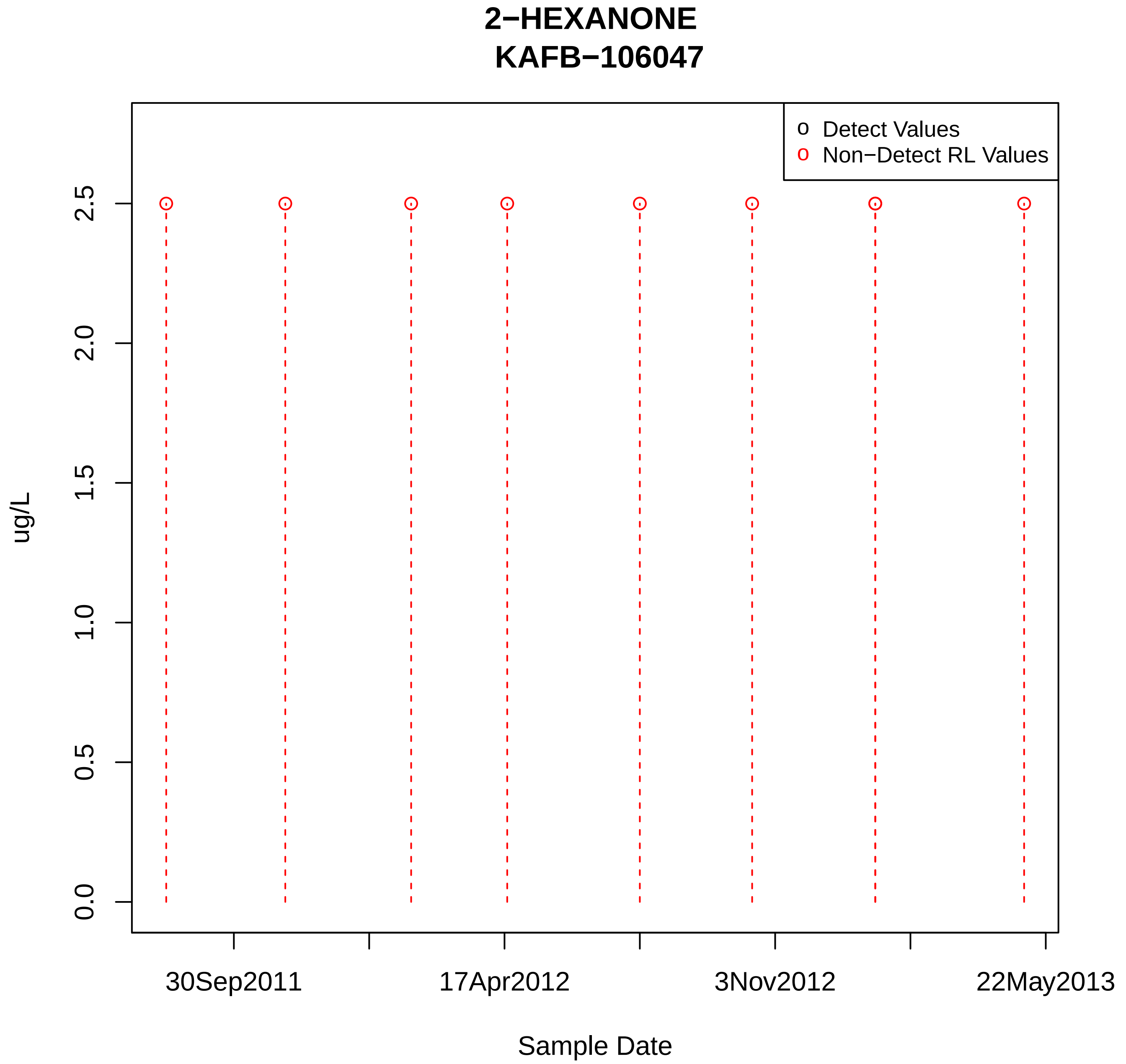


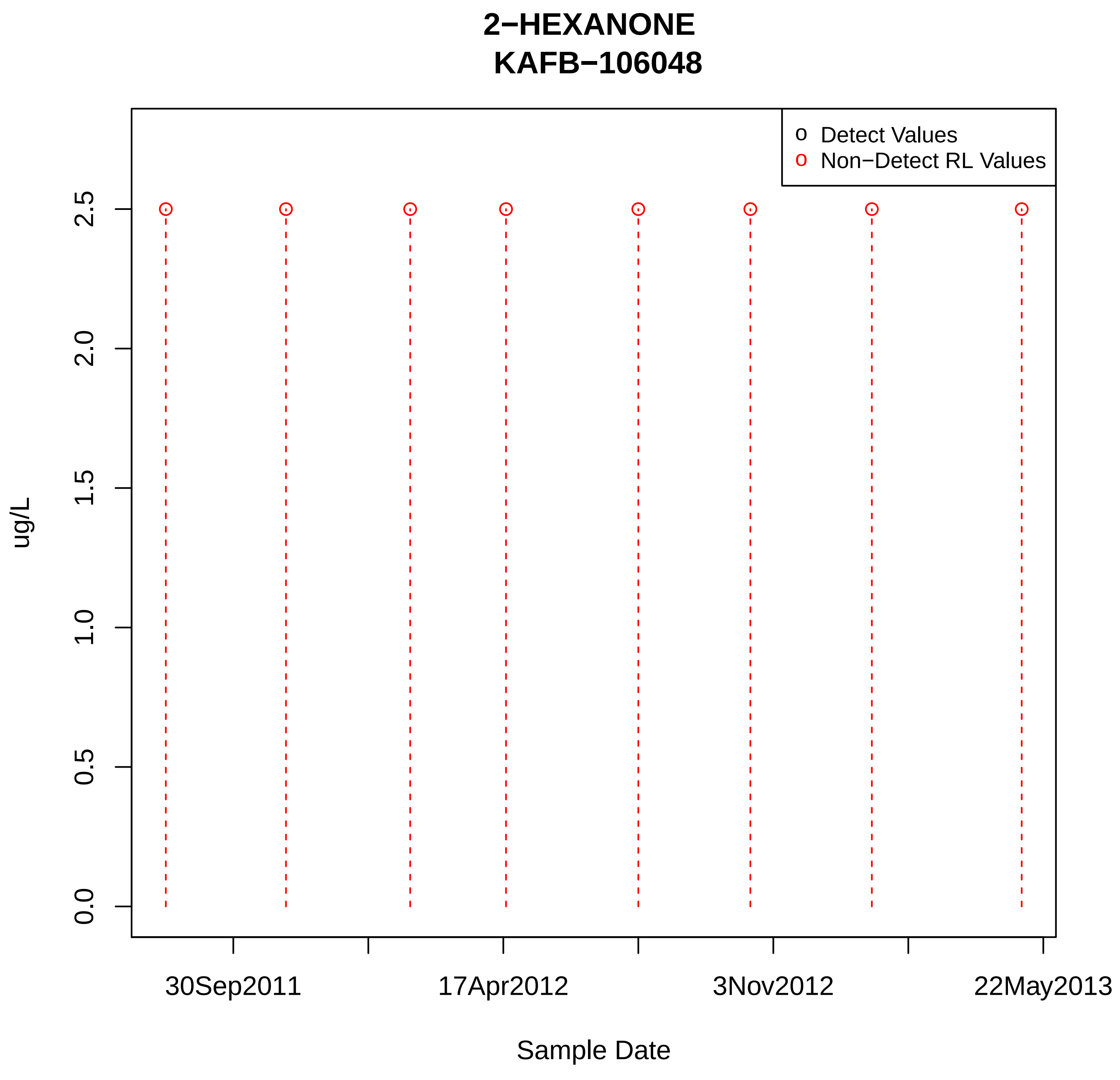
2−HEXANONE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

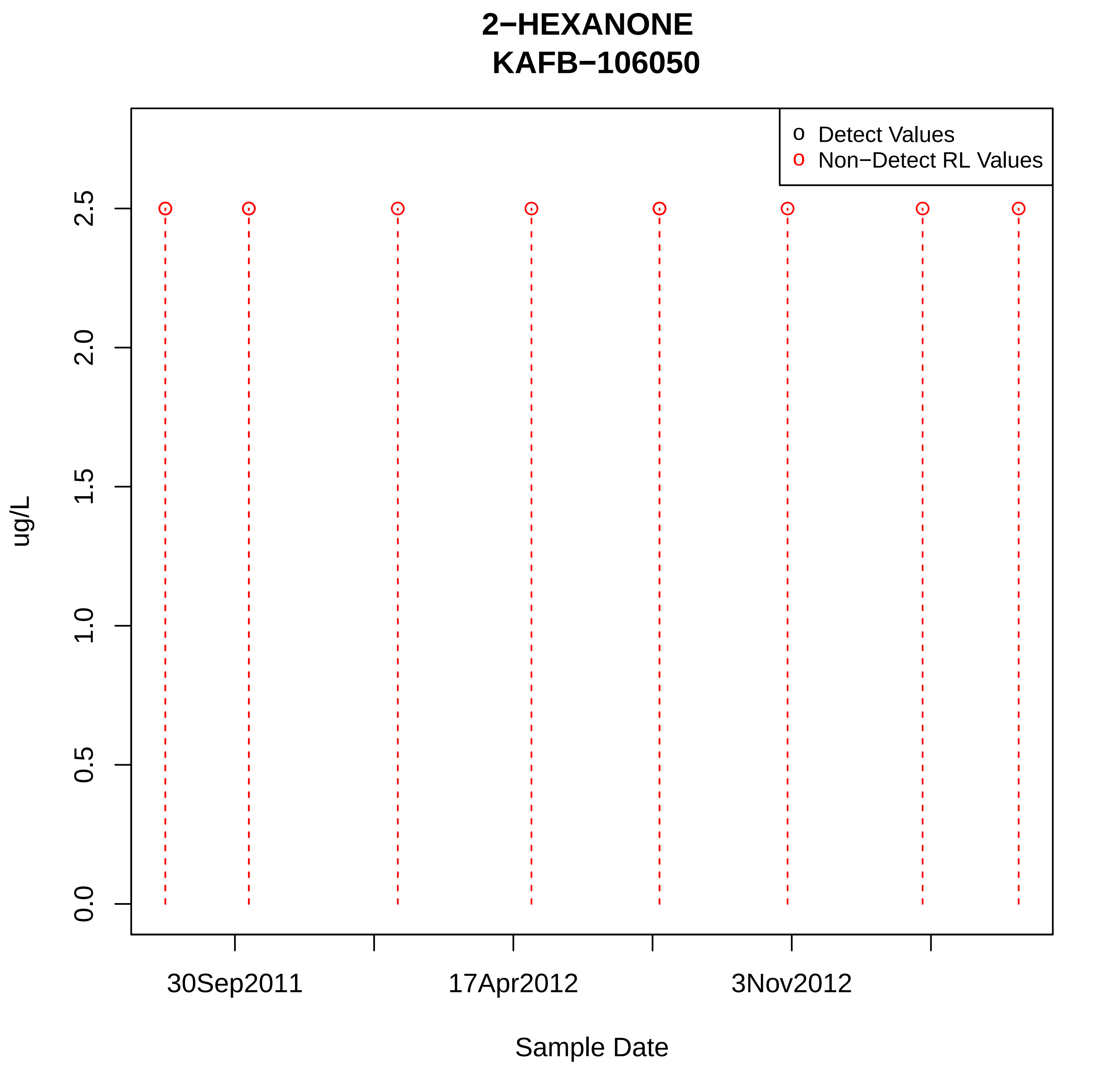


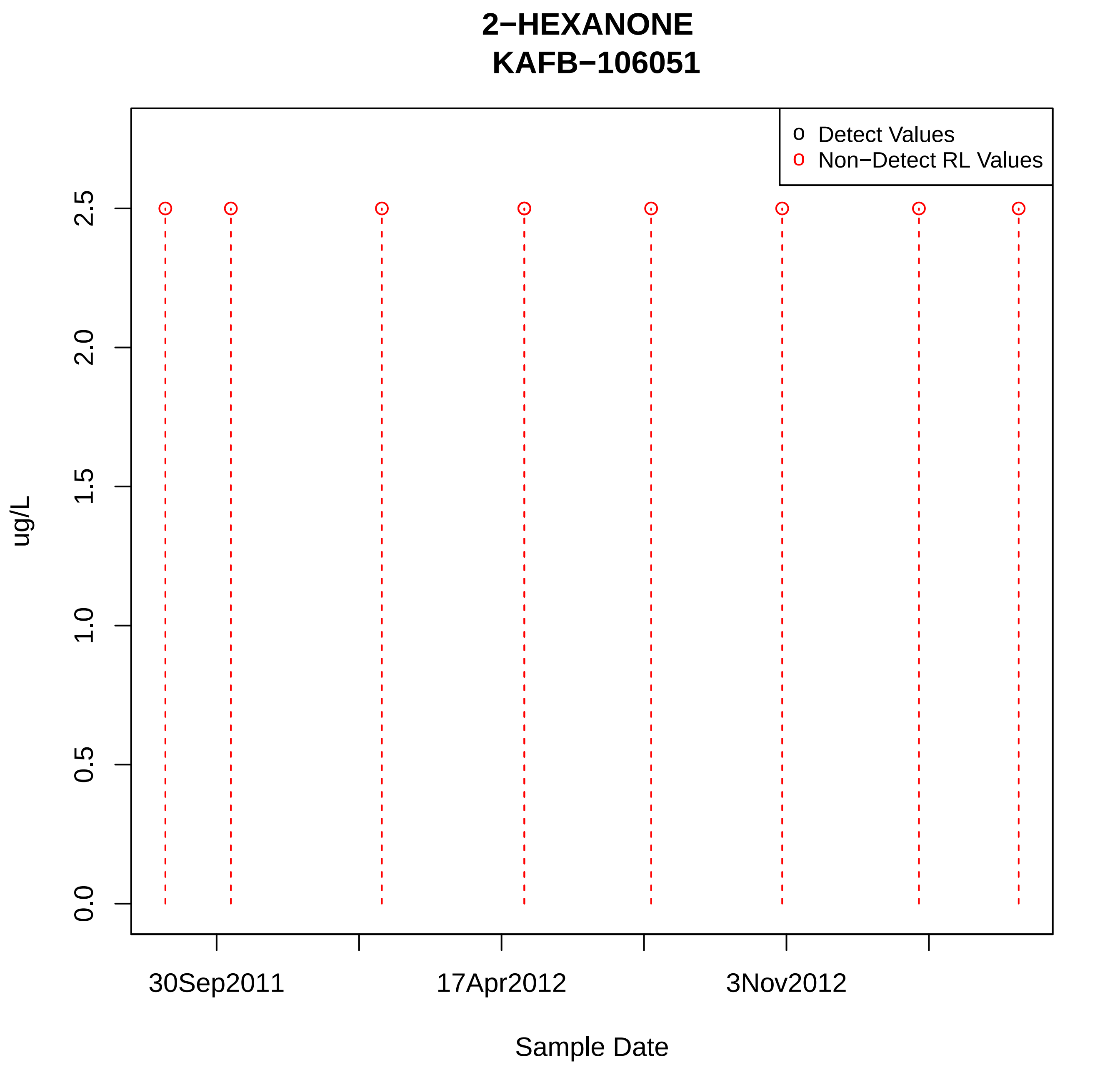
2−HEXANONE
KAFB−106045
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

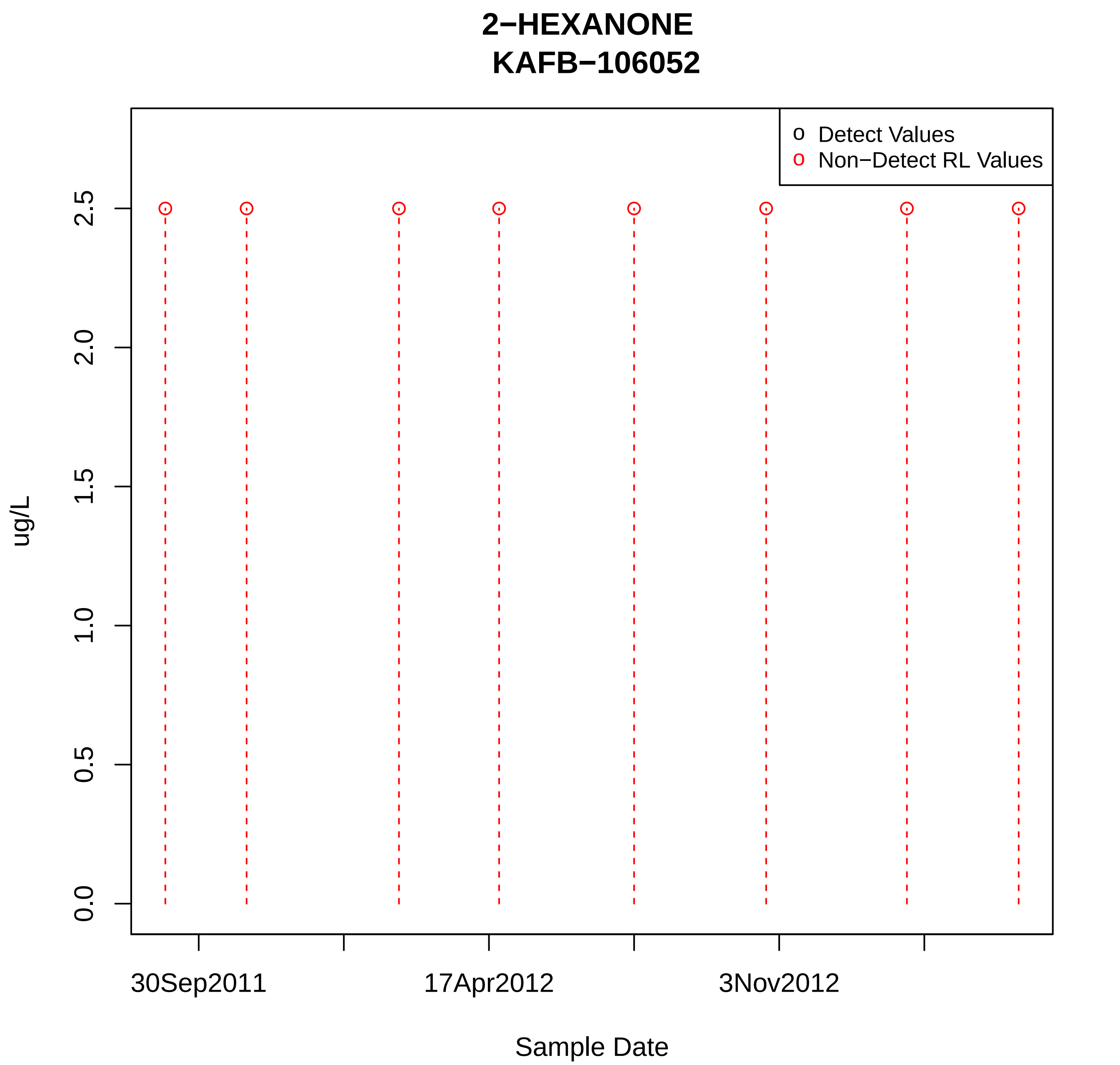

2−HEXANONE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−HEXANONE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

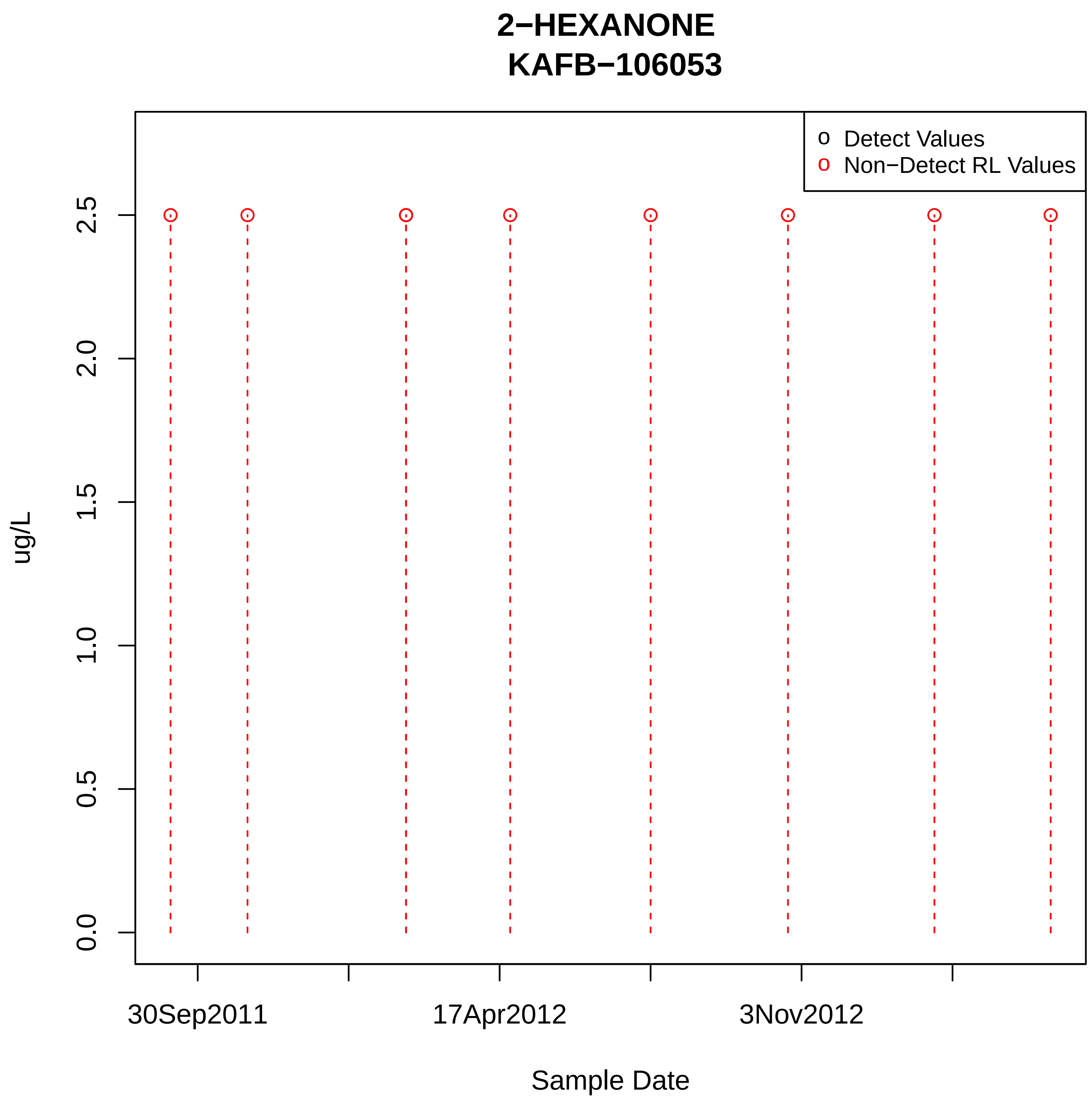

2−HEXANONE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

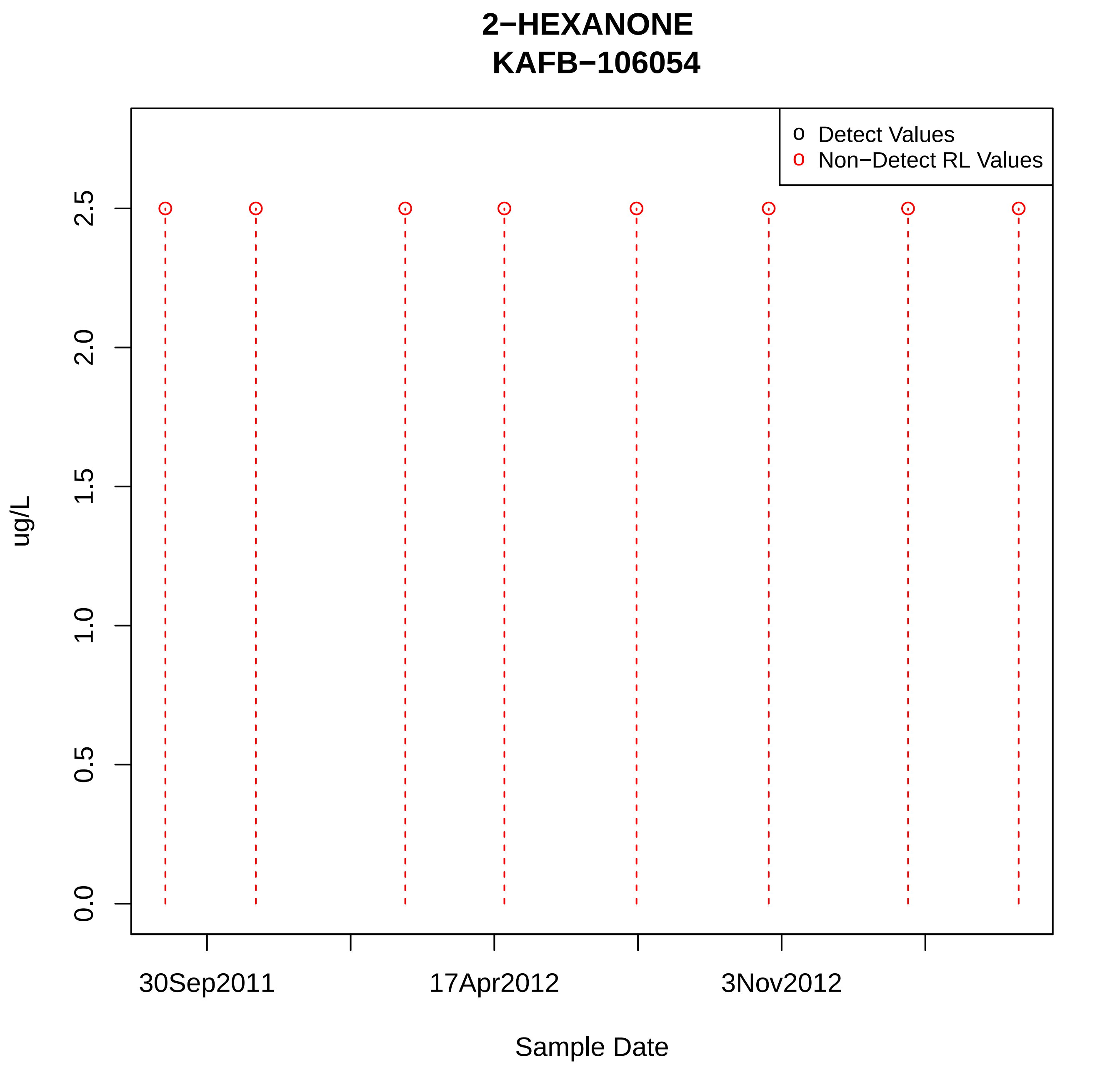

2−HEXANONE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

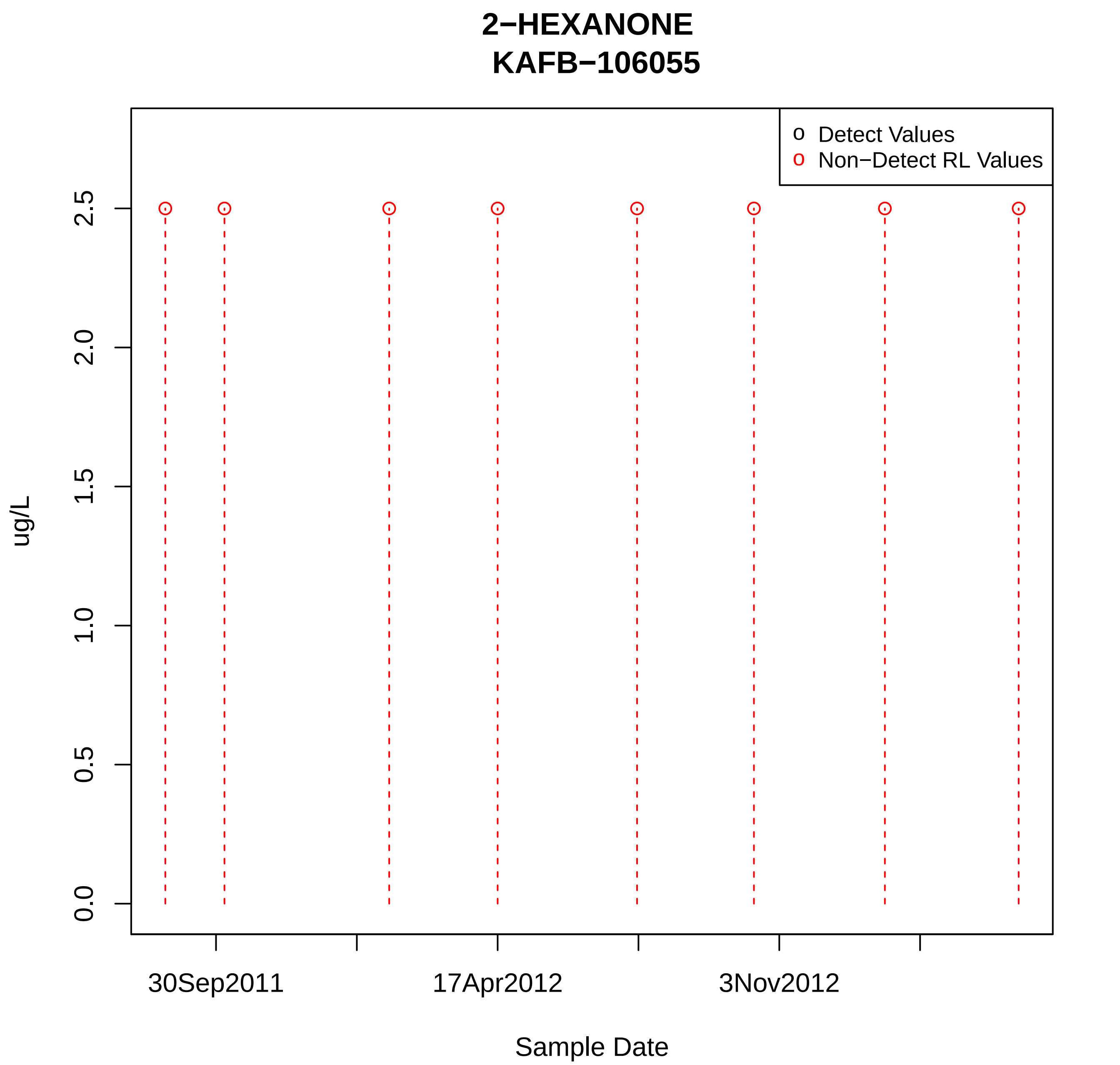


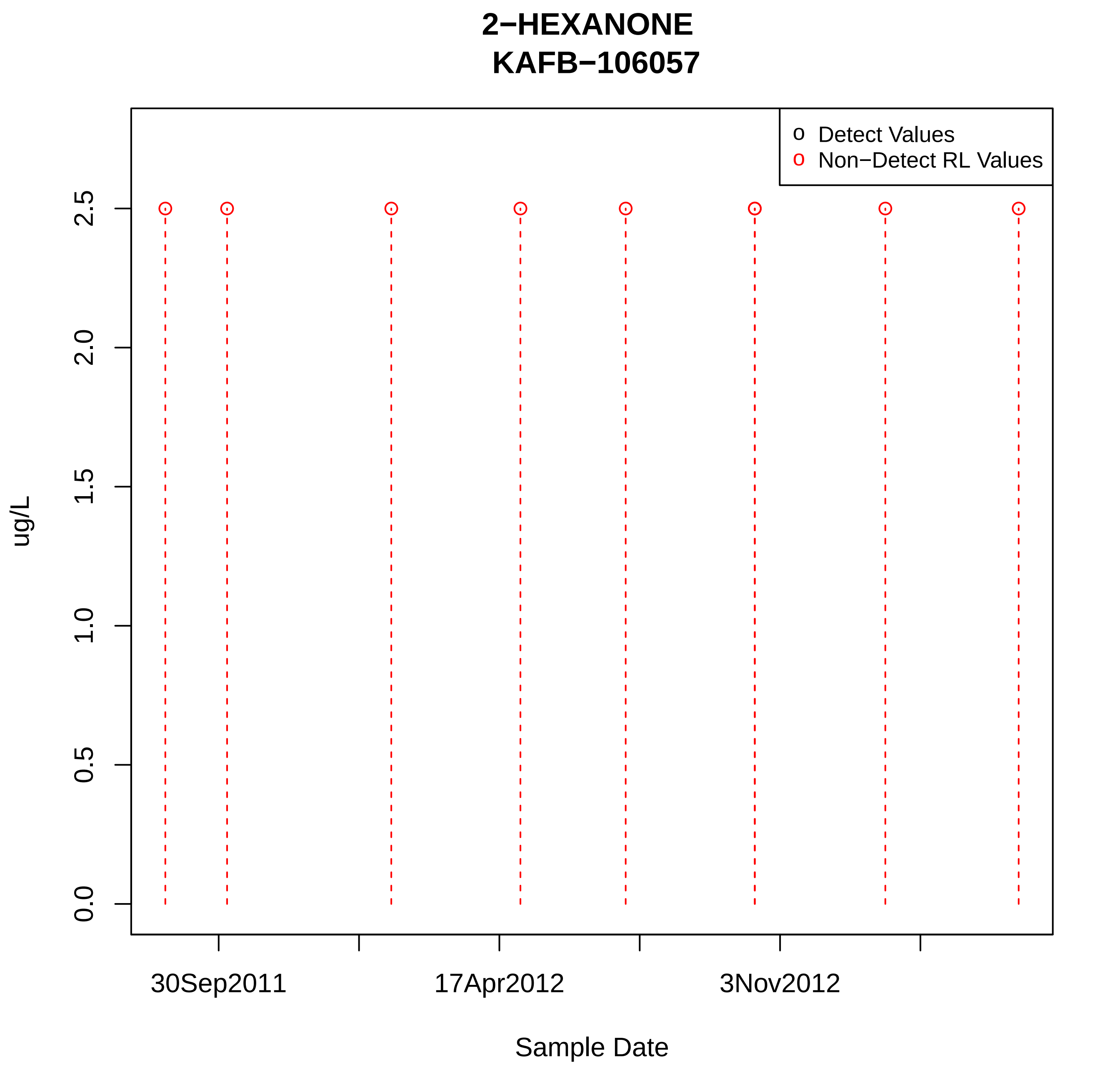
2−HEXANONE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

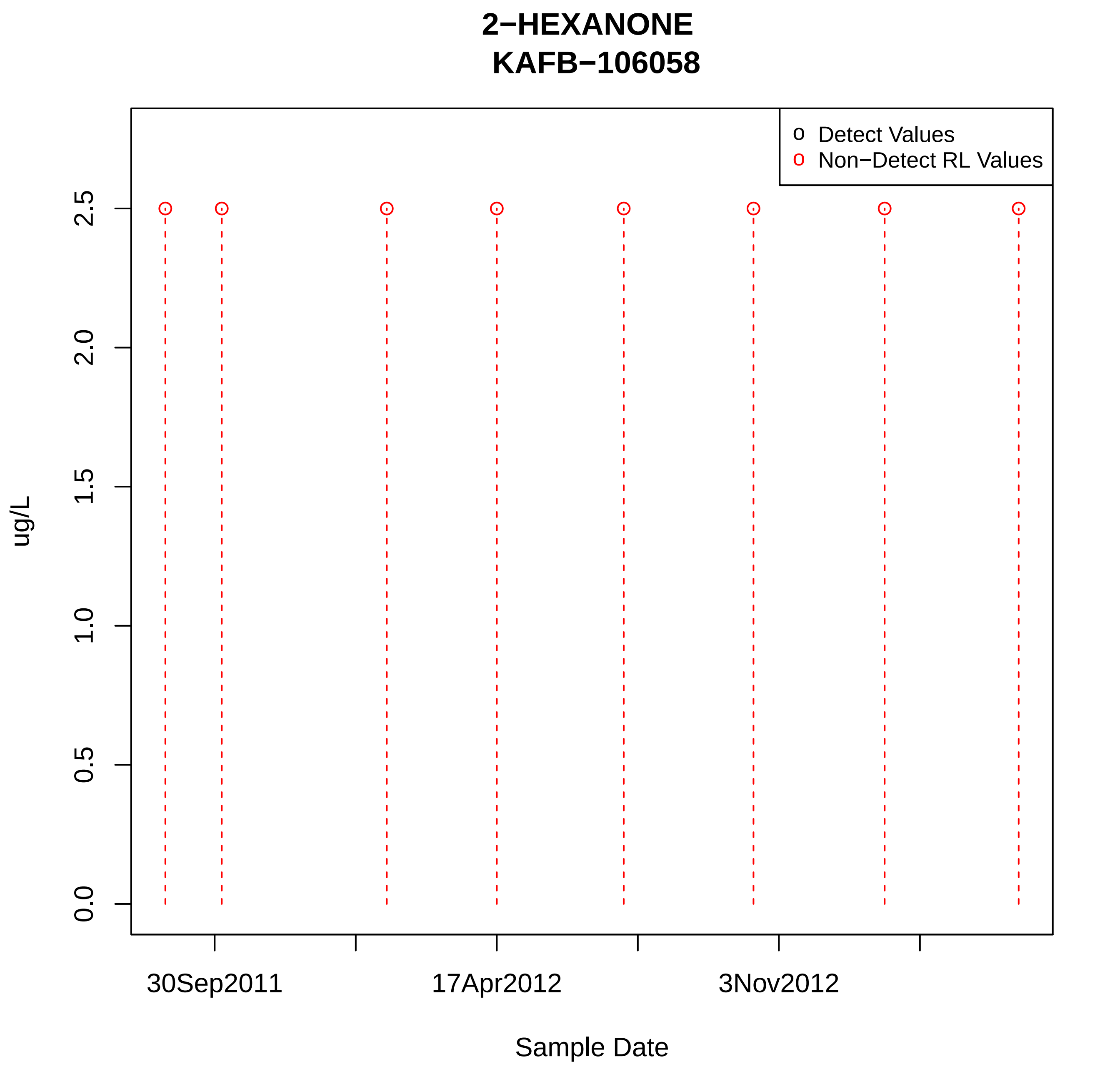


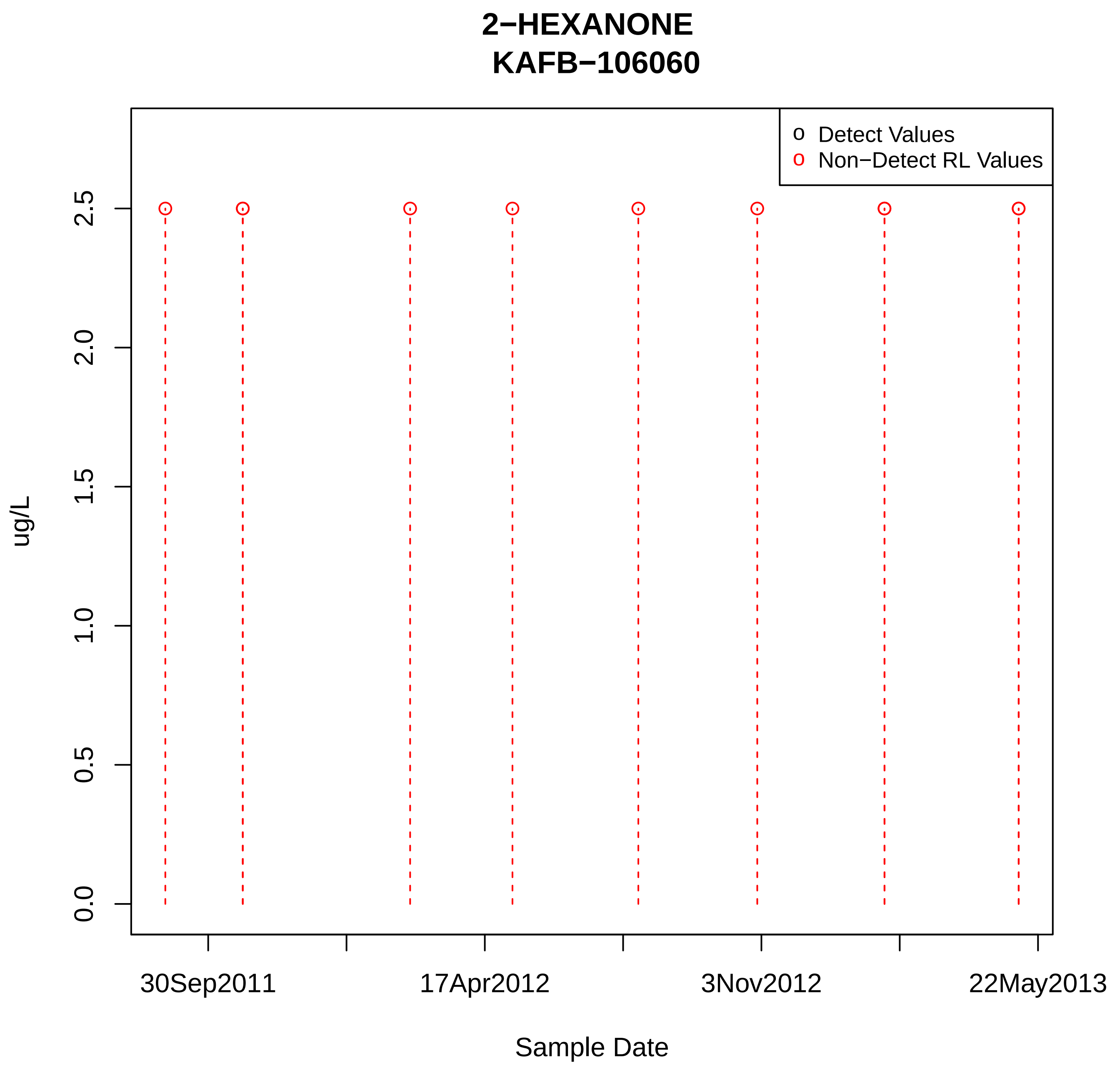
2−HEXANONE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106055
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

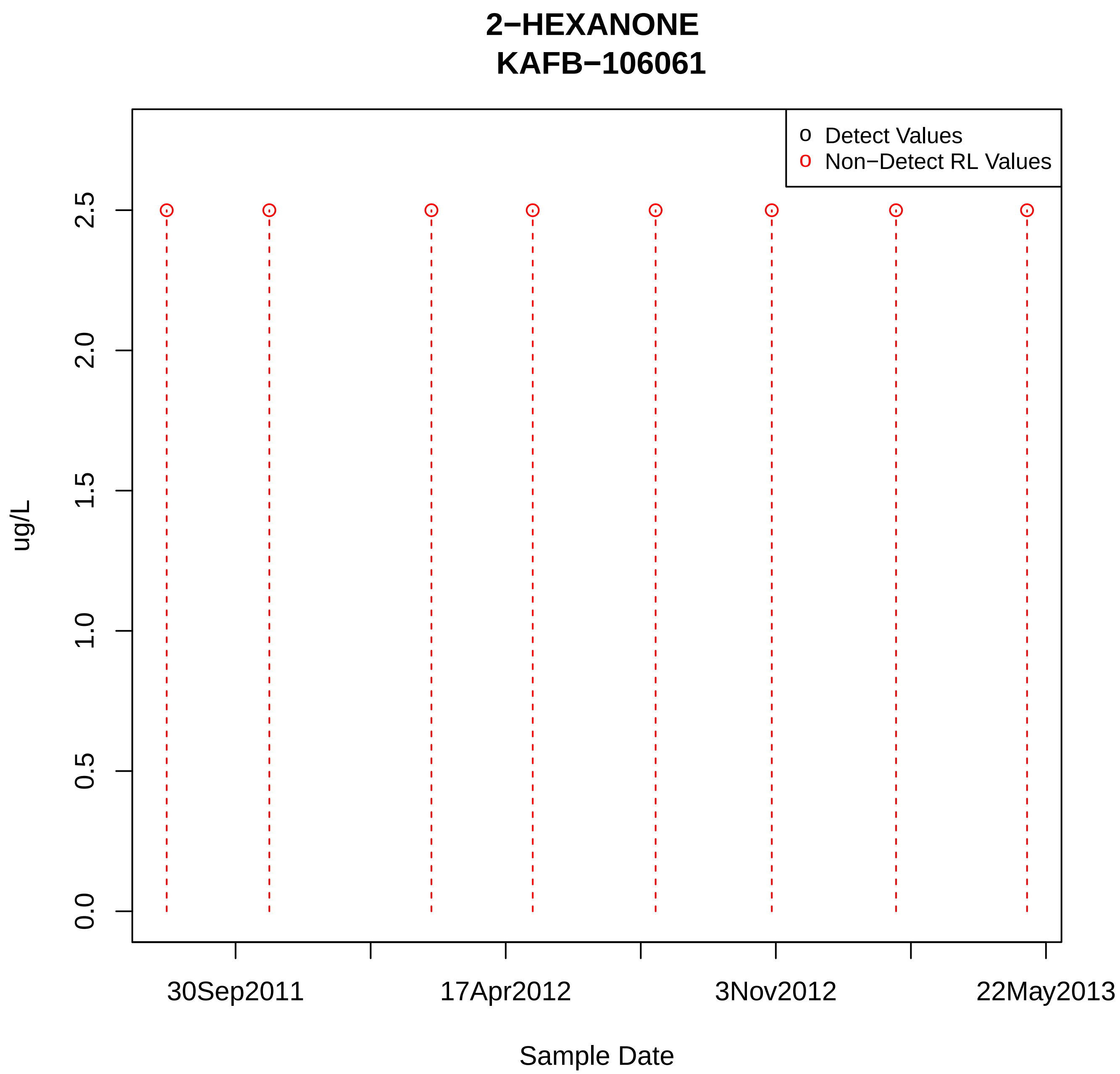


2−HEXANONE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

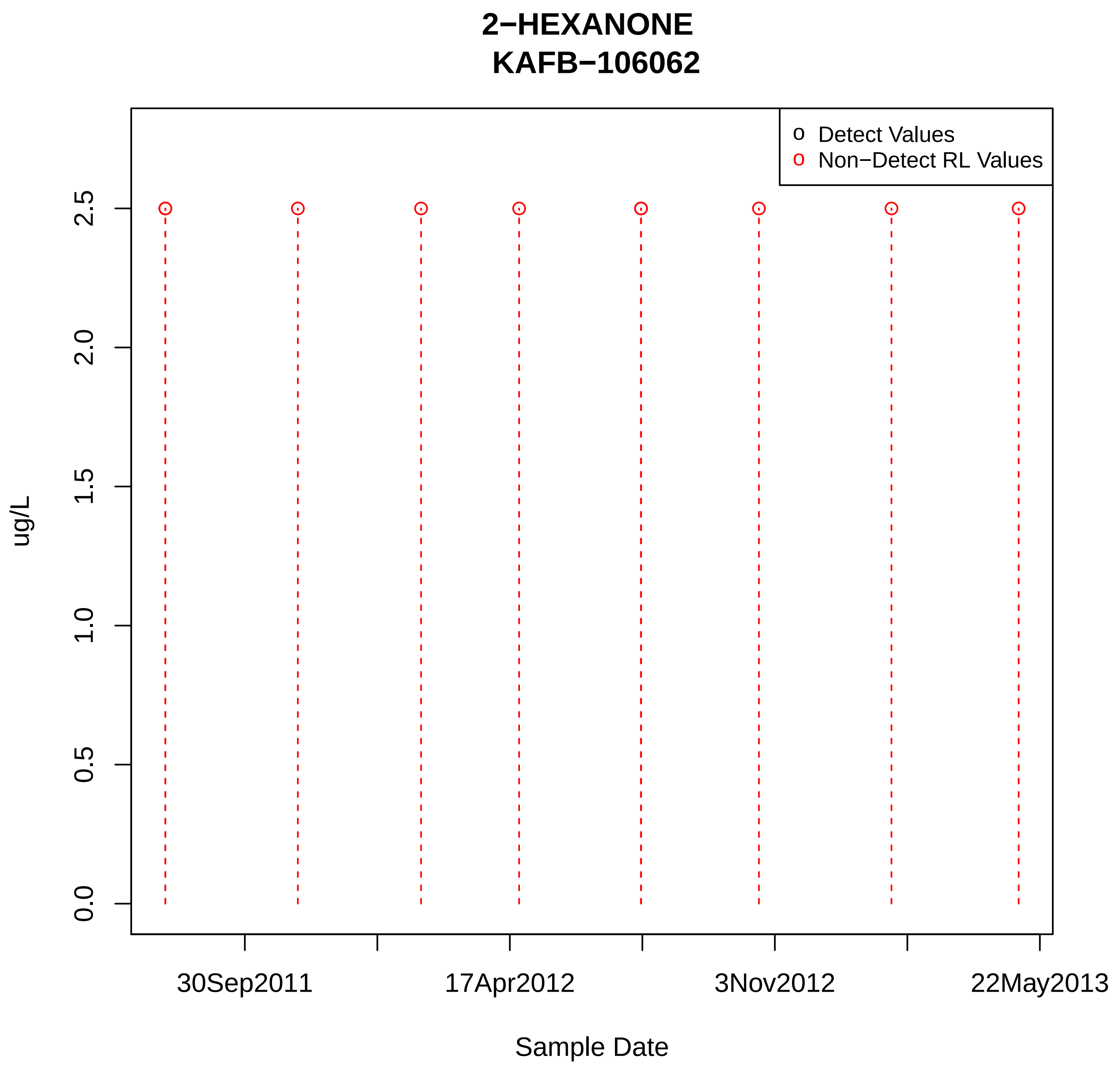

2−HEXANONE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



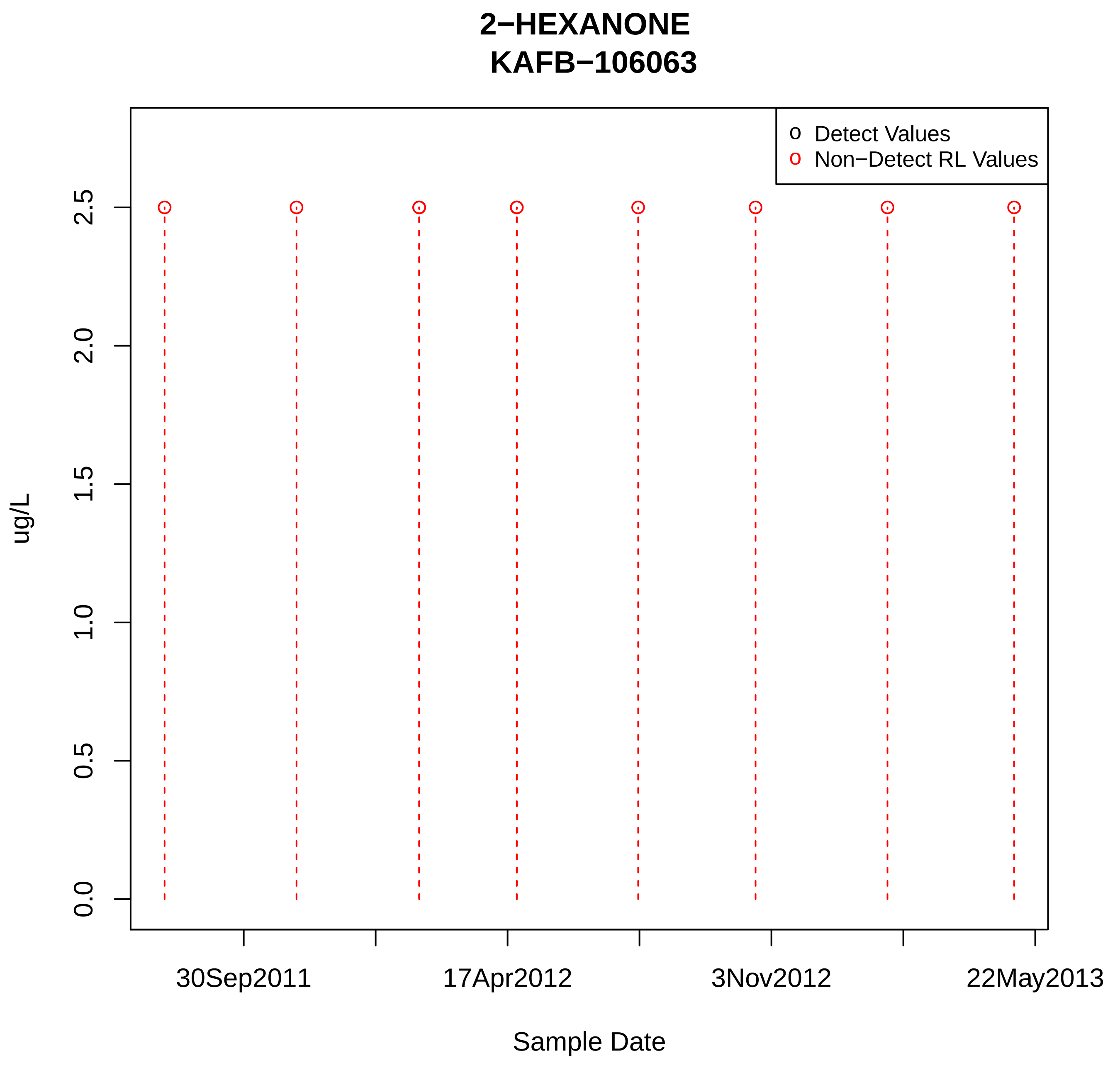
2−HEXANONE
KAFB−106060
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

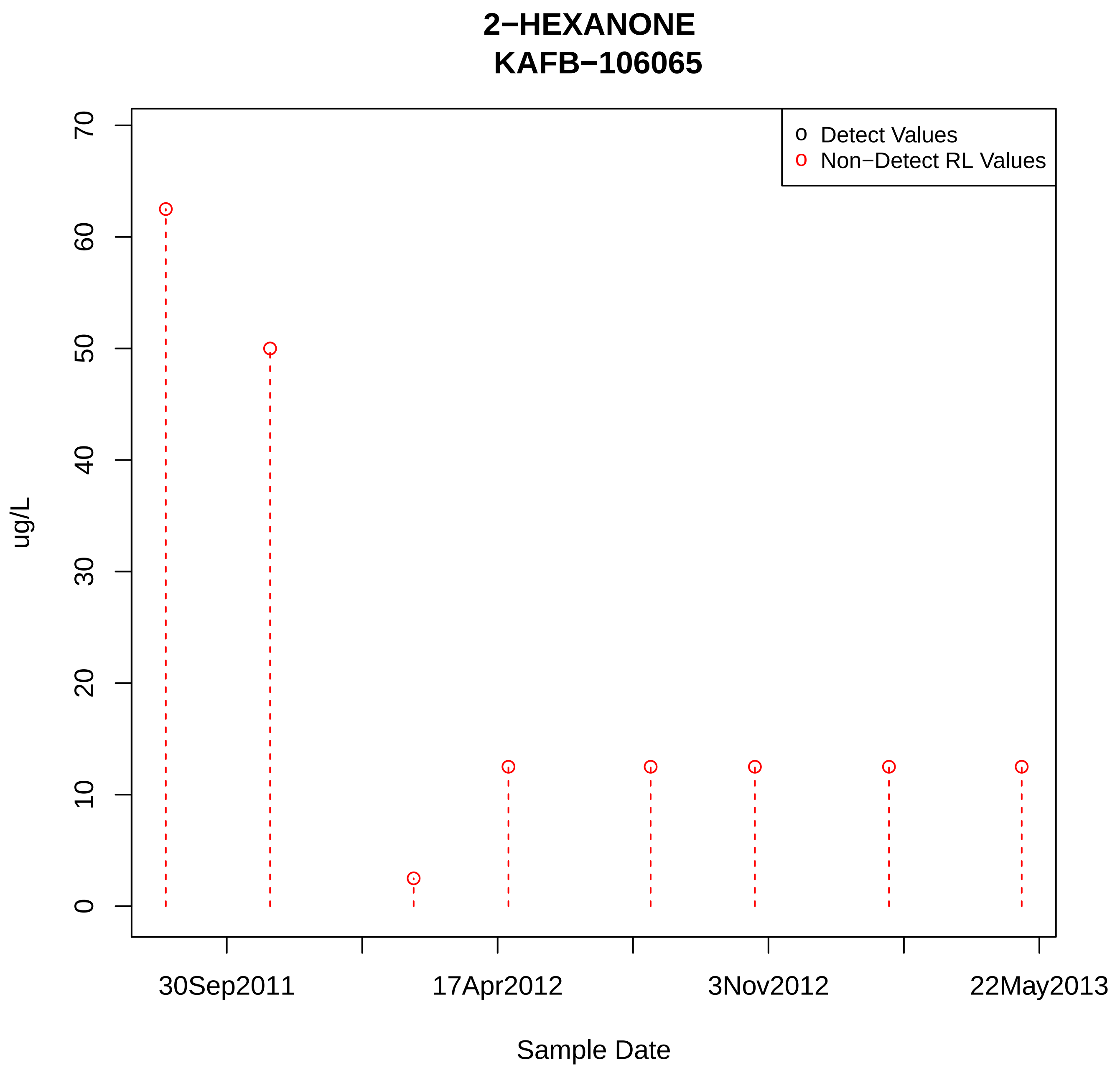


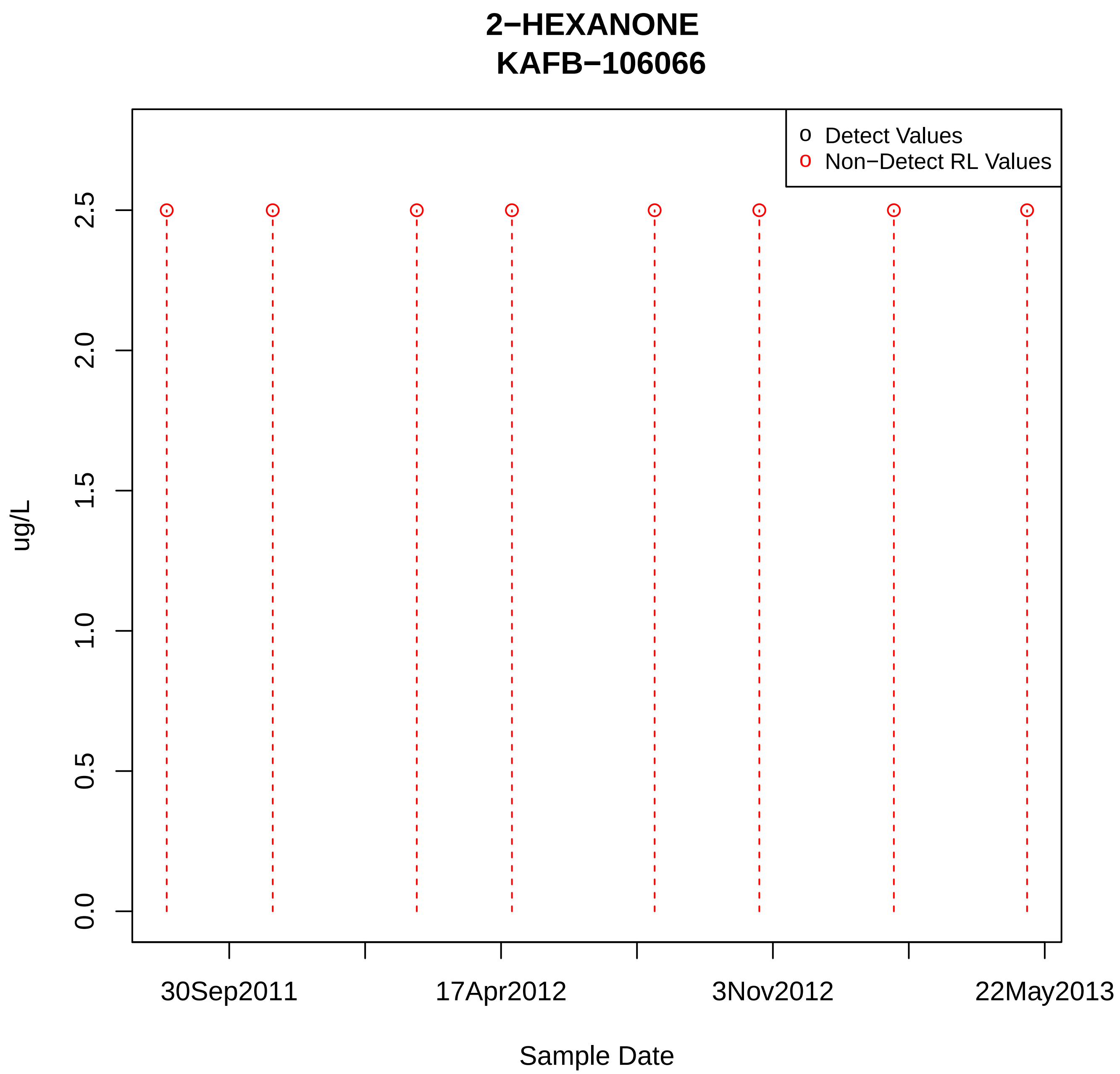
2−HEXANONE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



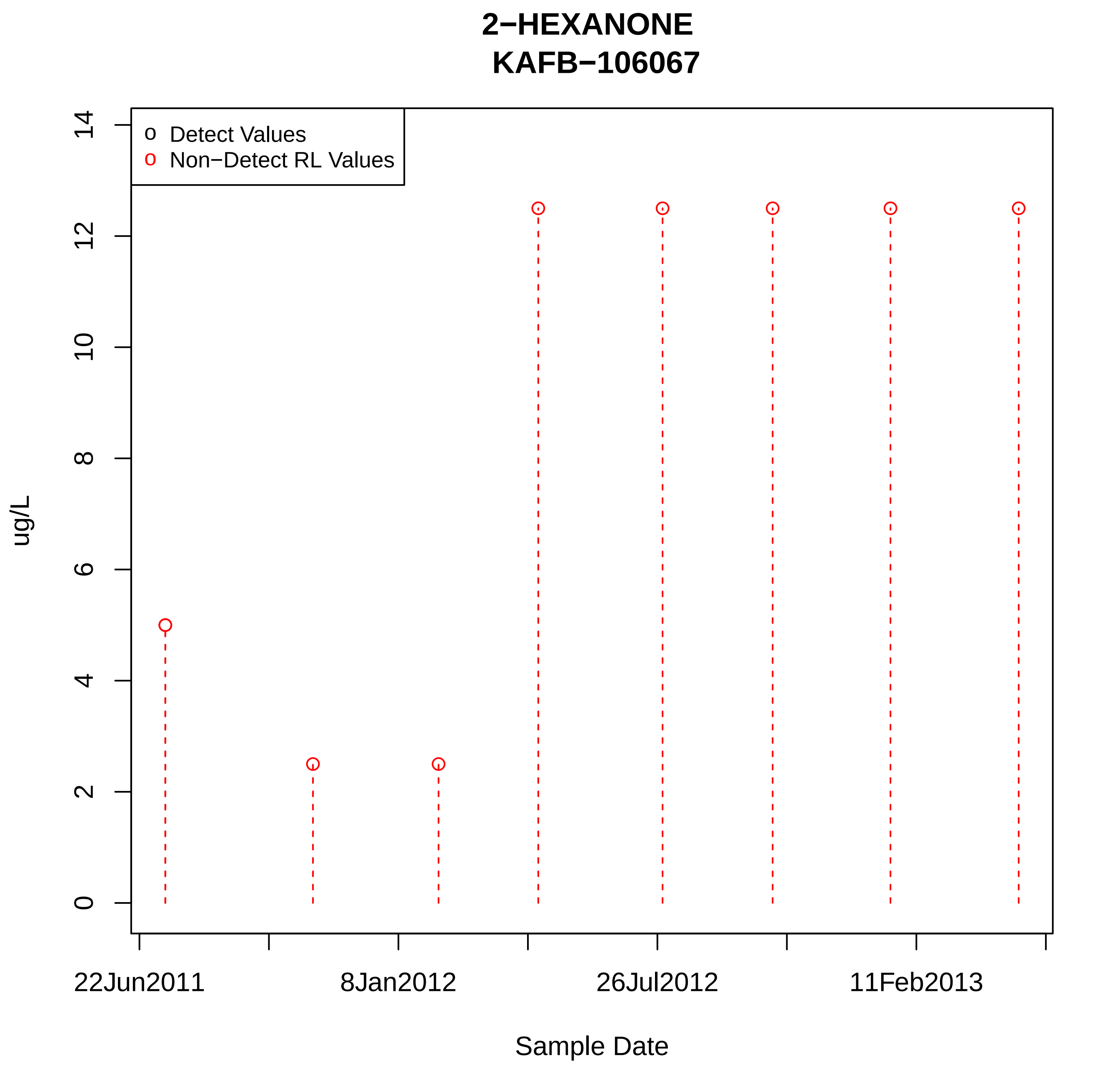
2−HEXANONE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

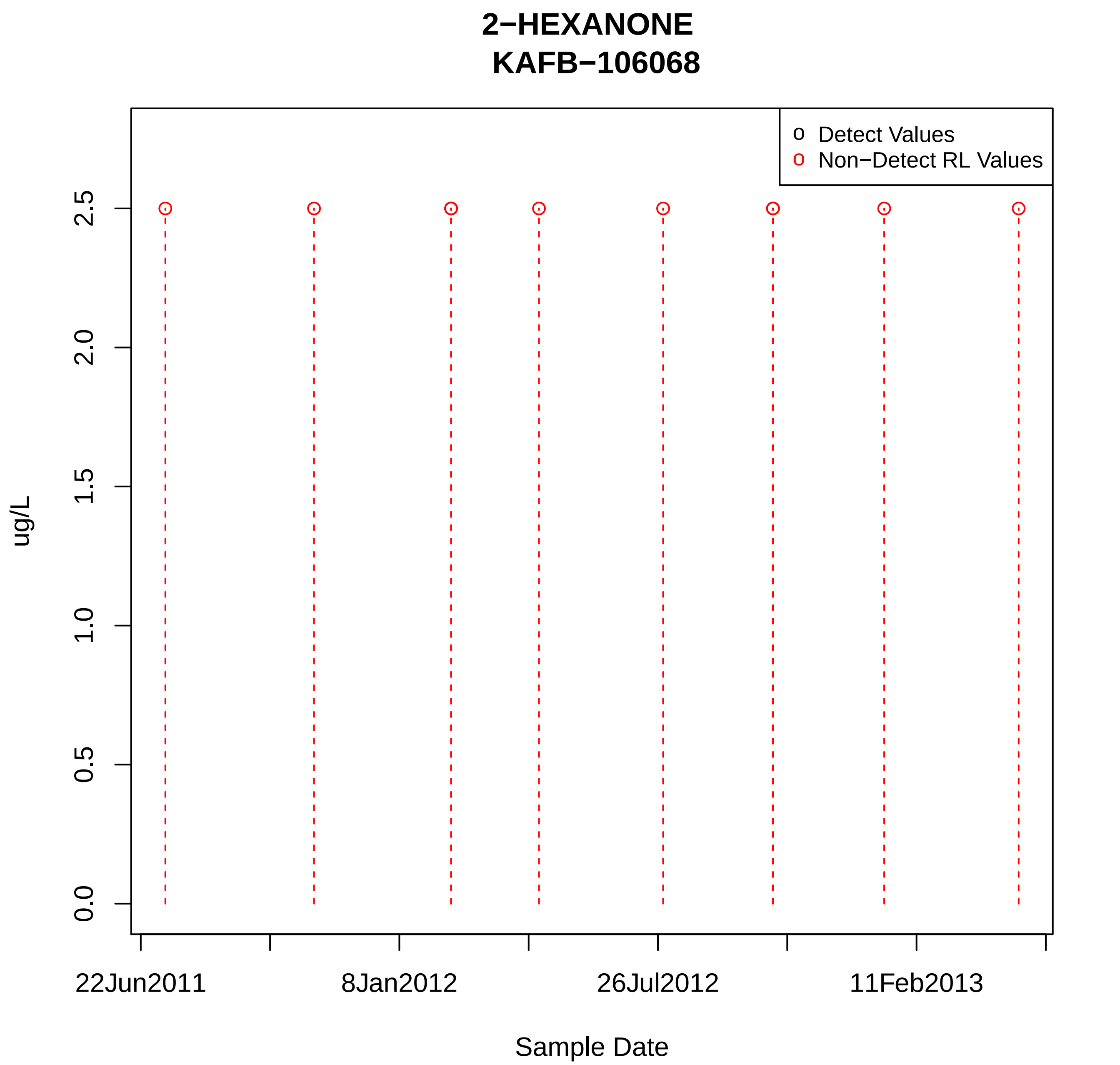

2−HEXANONE
KAFB−106063
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

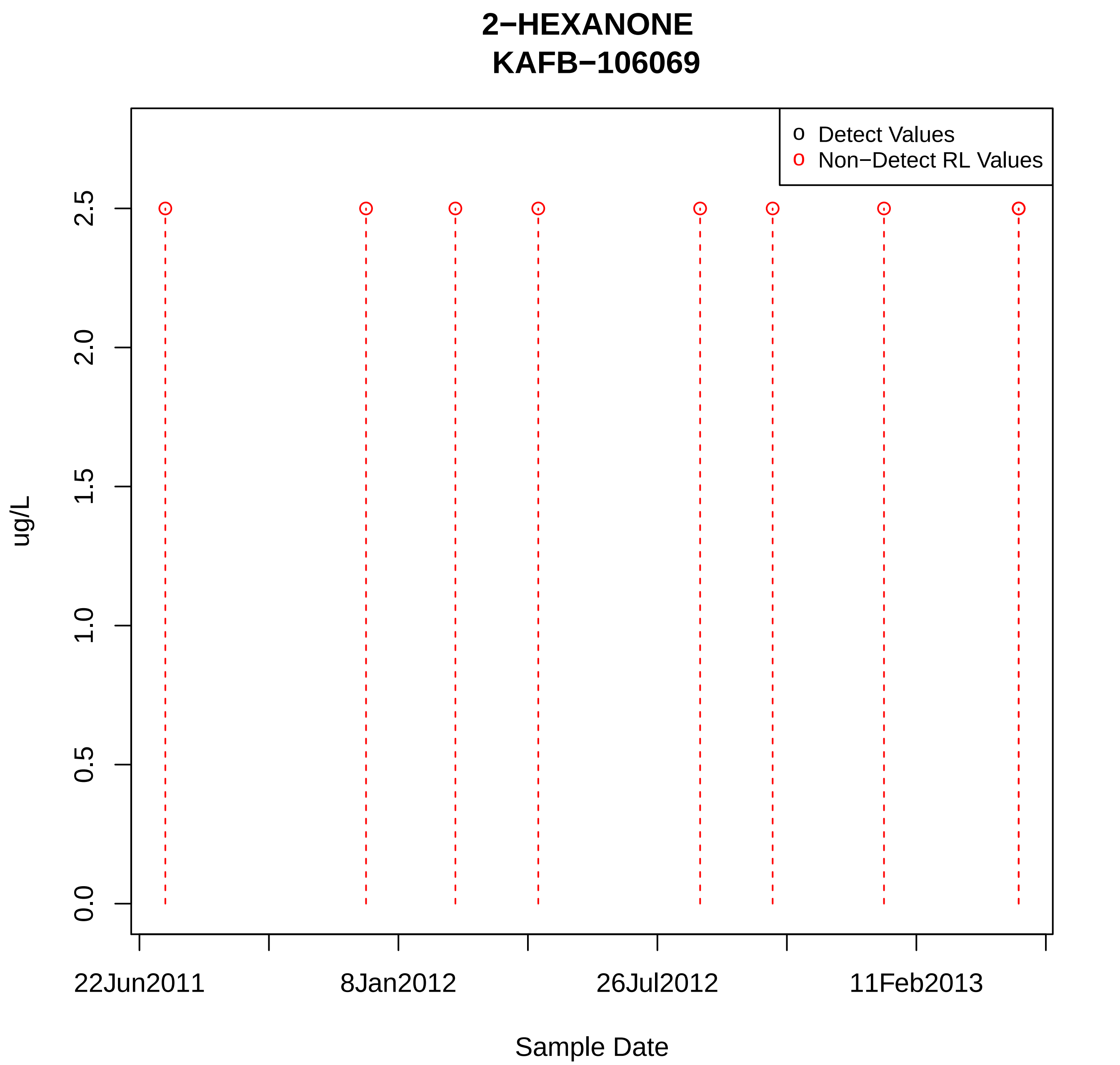

2−HEXANONE
KAFB−106065
Detect Values
Non−Detect RL Values
ug/L
0
10
20
30
40
50
60
70
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



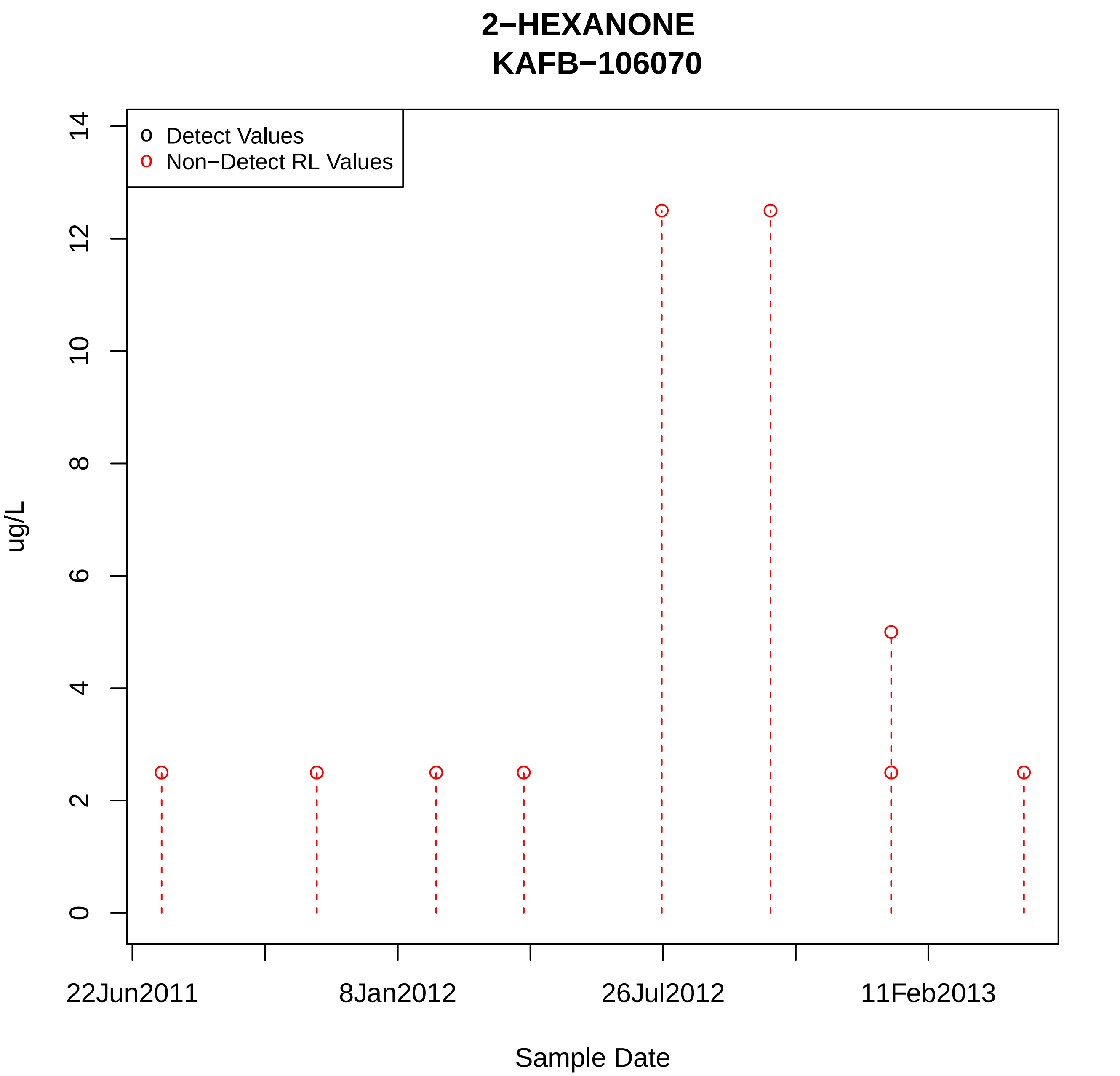
2−HEXANONE
KAFB−106066
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−HEXANONE
KAFB−106067
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

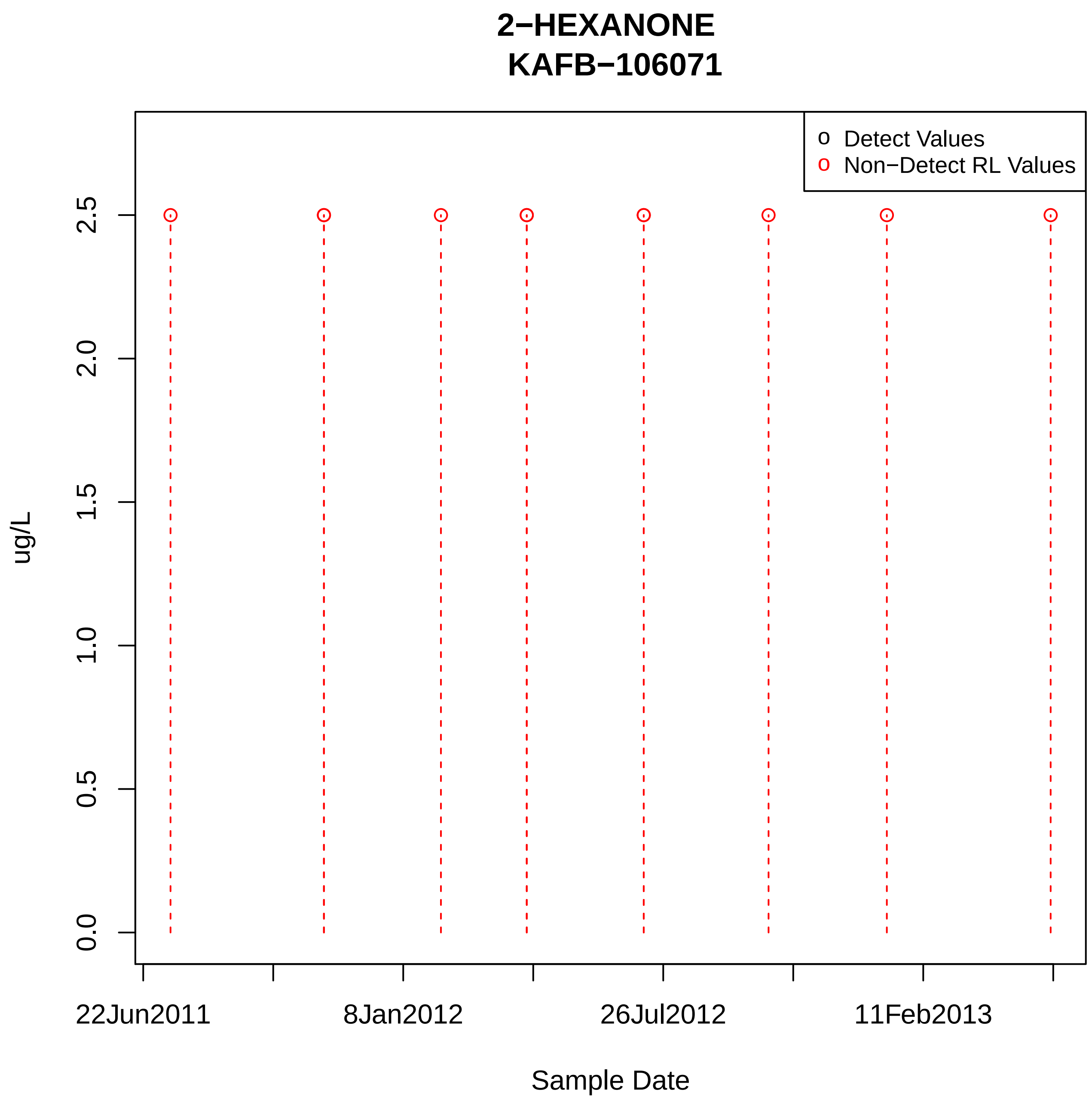

2−HEXANONE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



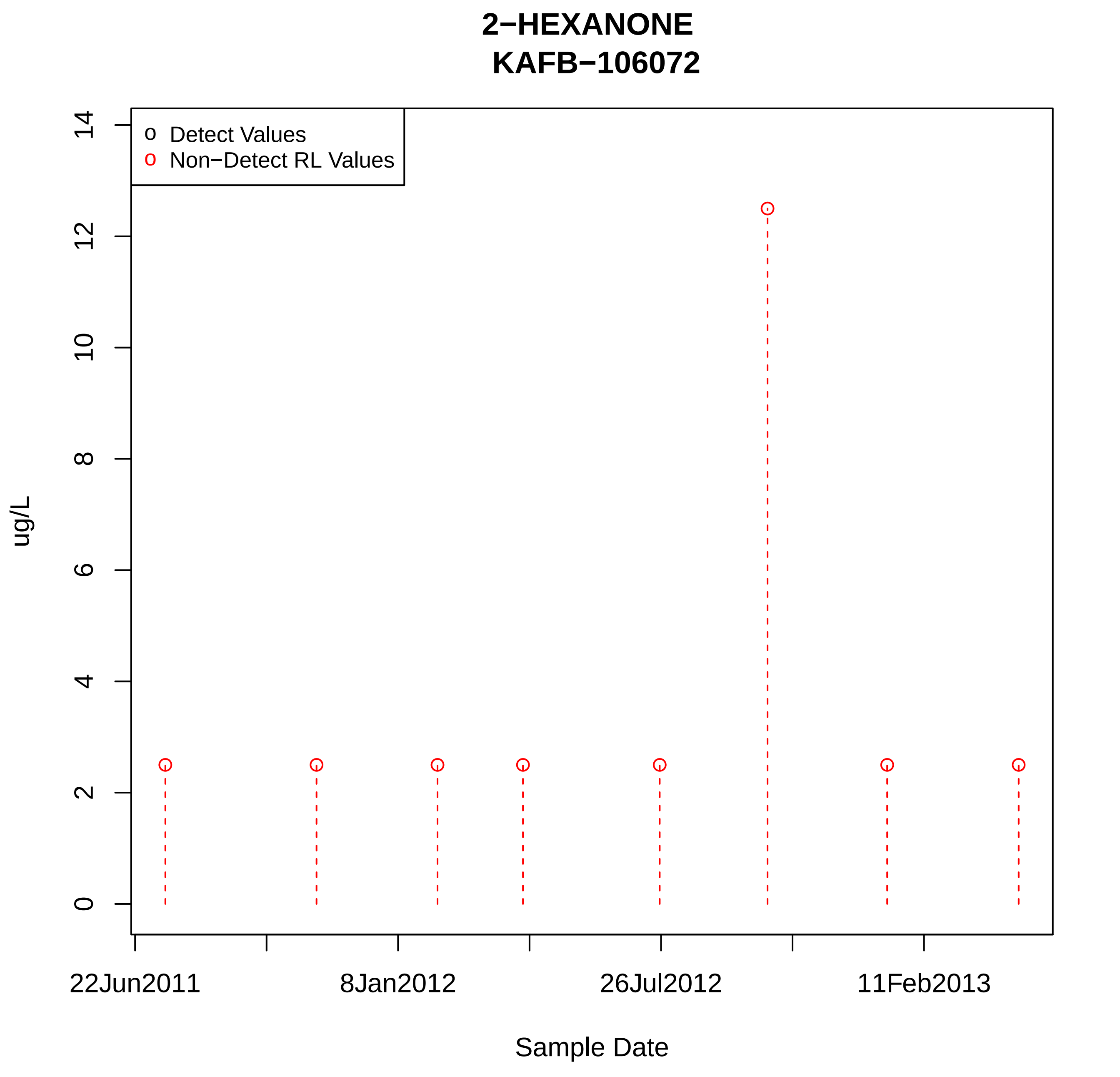
2−HEXANONE
KAFB−106069
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



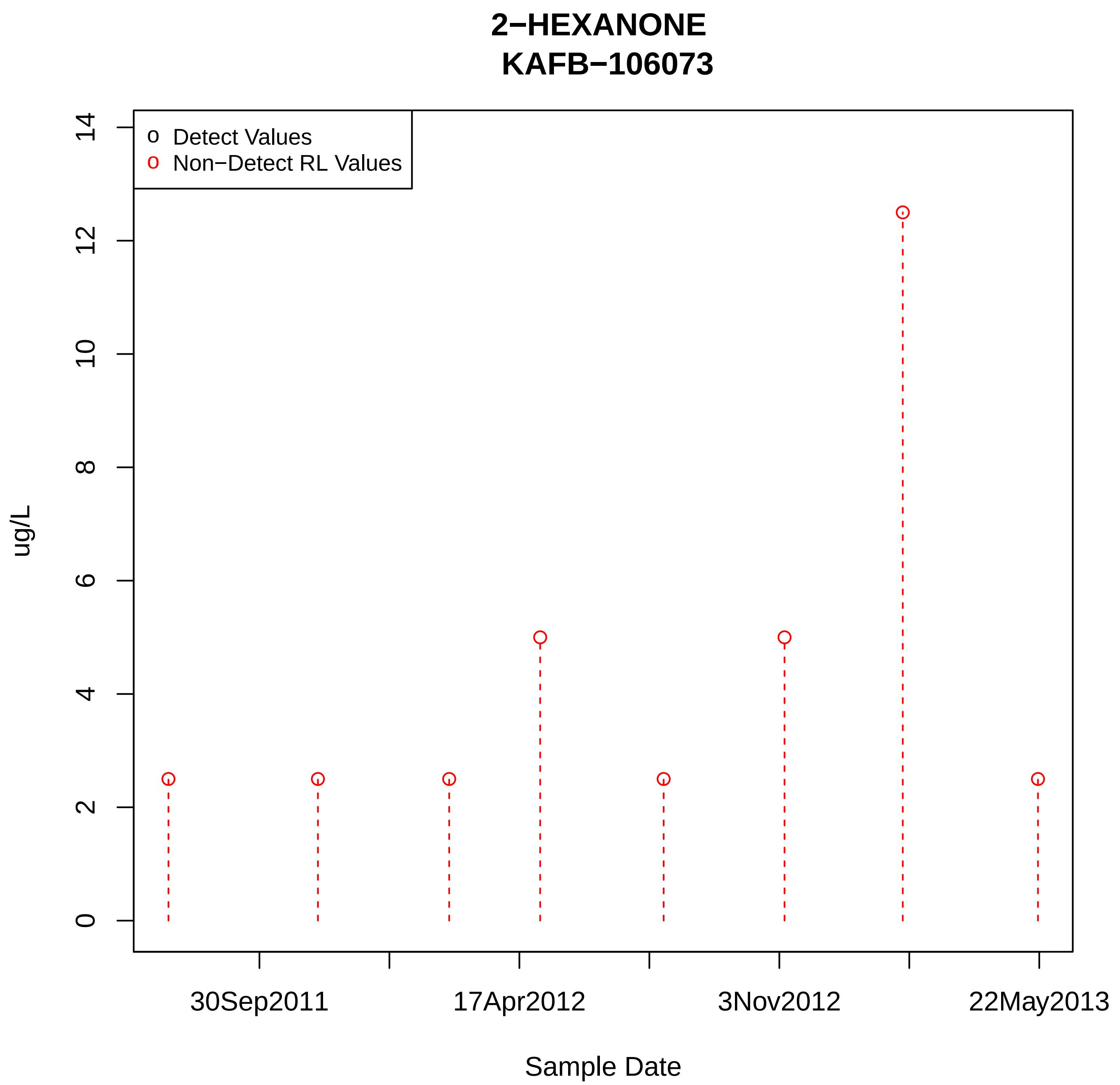
2−HEXANONE
KAFB−106070
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

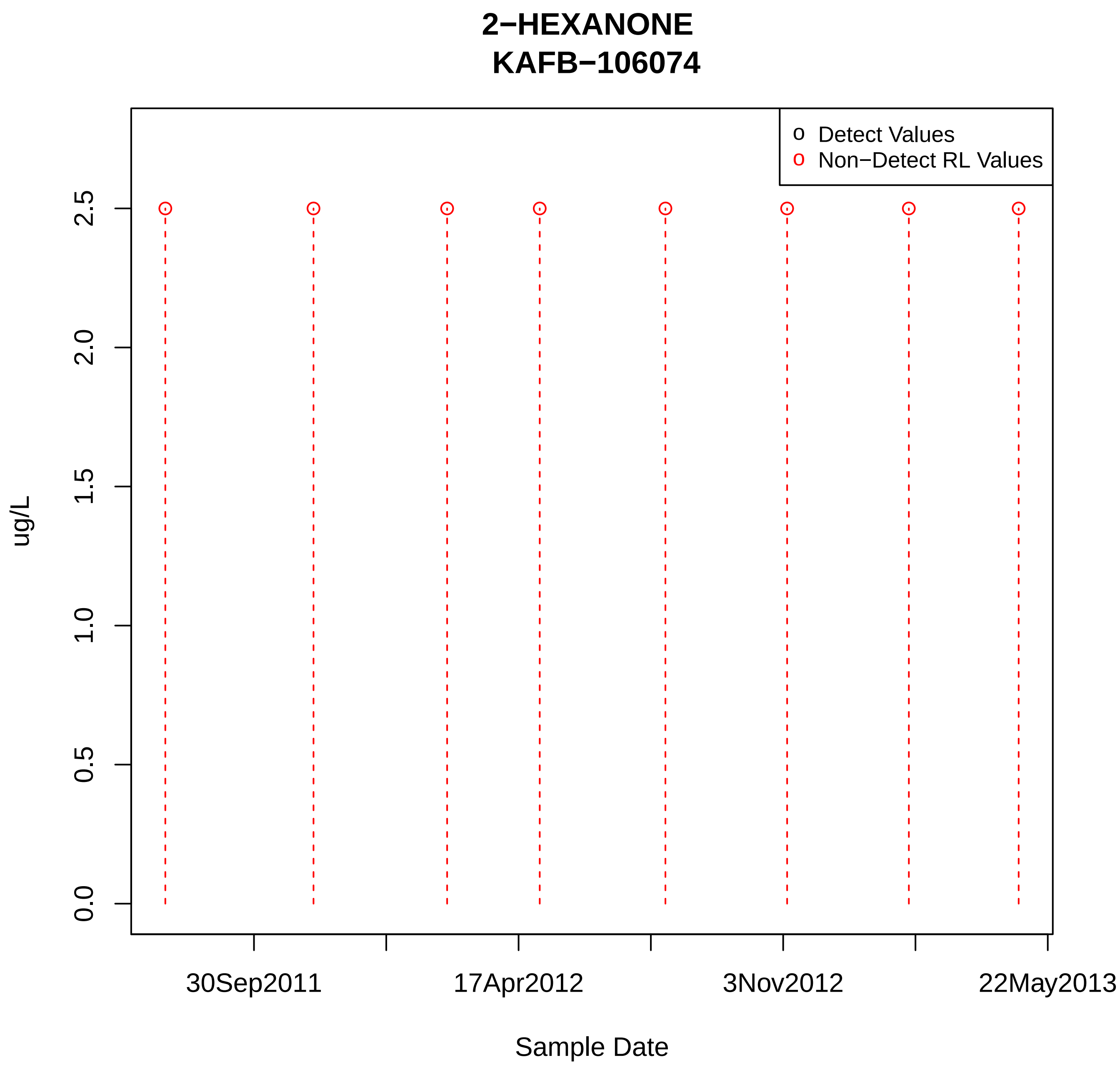


2−HEXANONE
KAFB−106071
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

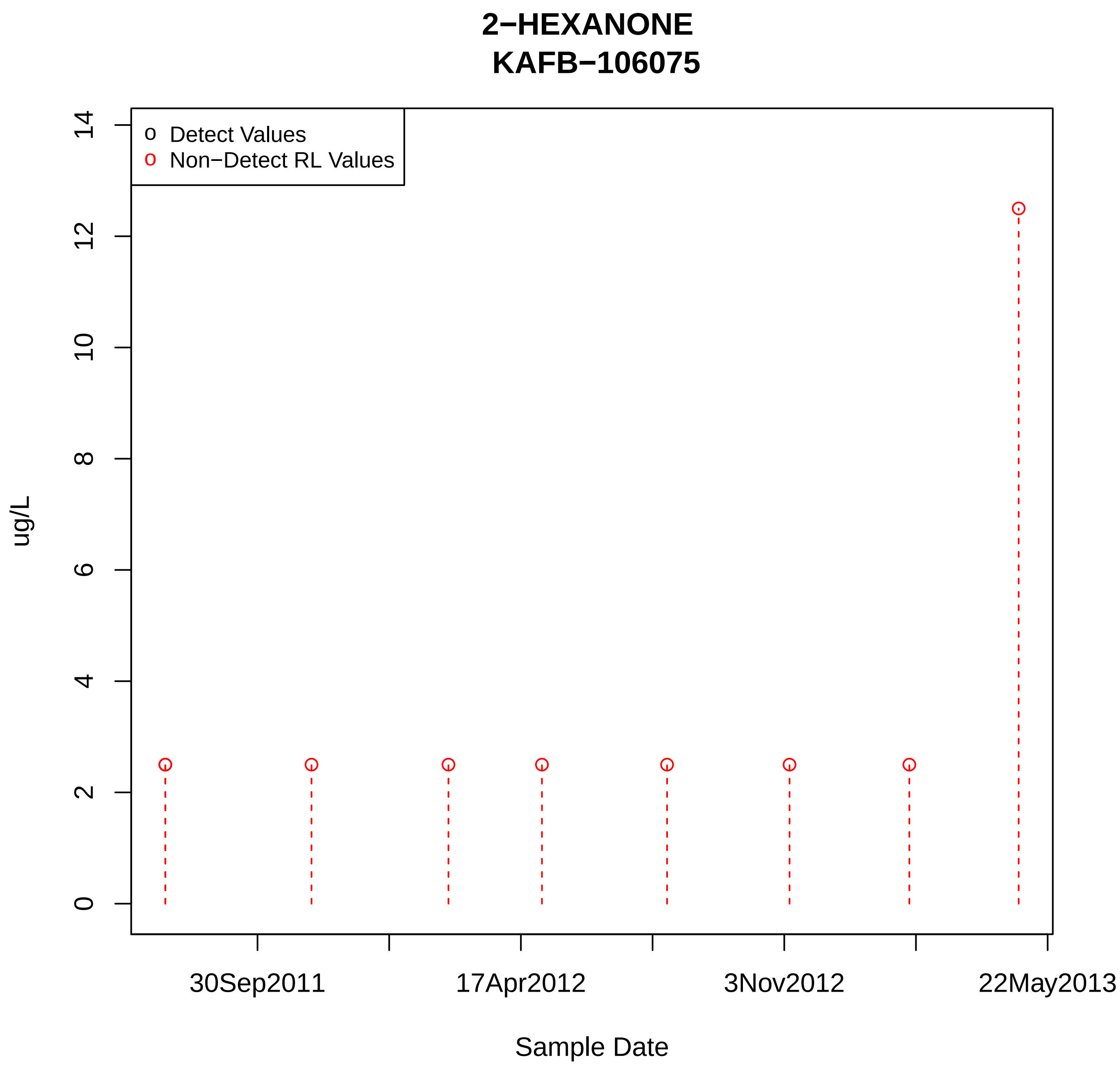


2−HEXANONE
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

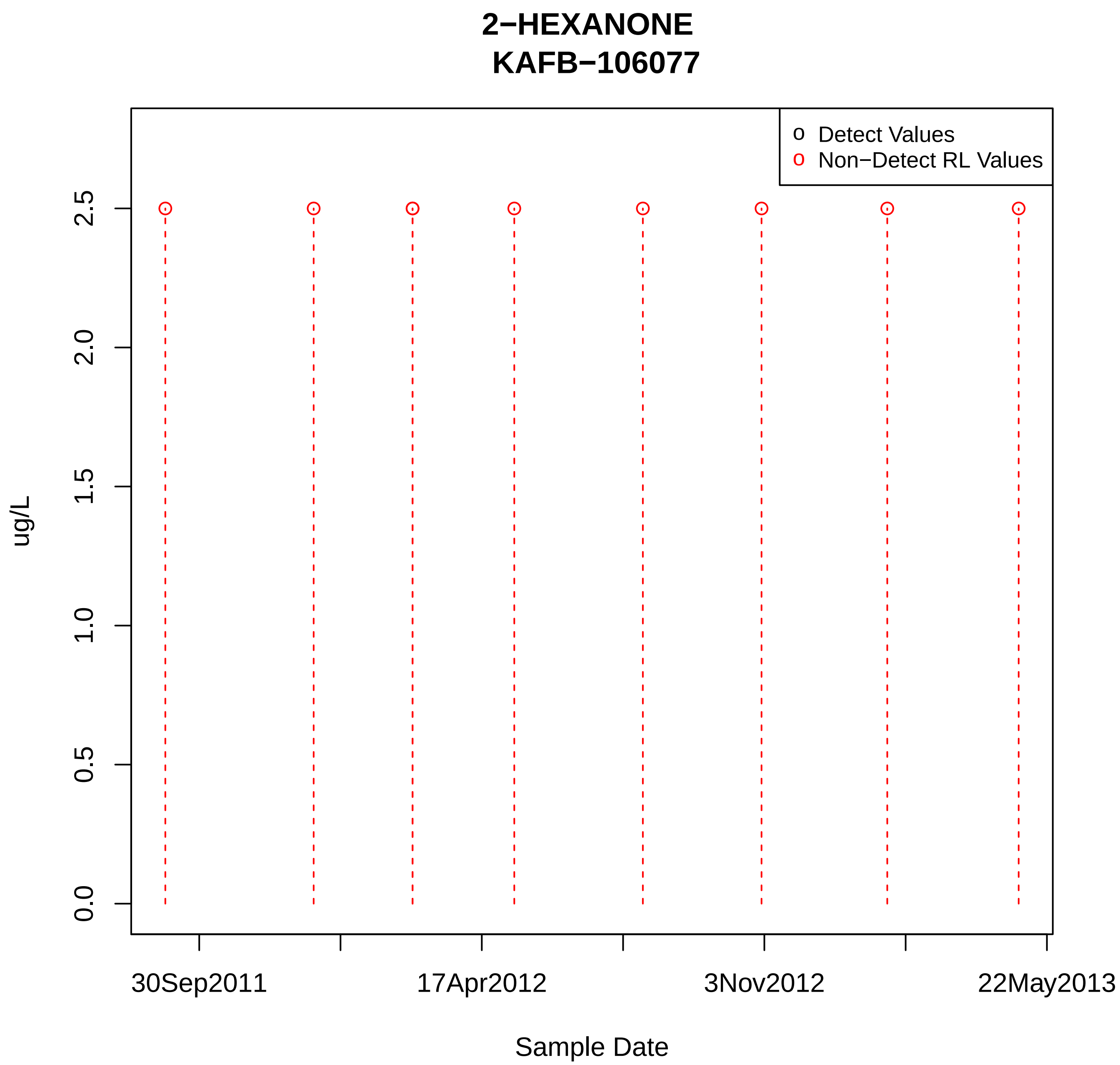

2−HEXANONE
KAFB−106073
o Detect Values
o Non−Detect RL Values
0
2
4
6
8
10
12
14
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



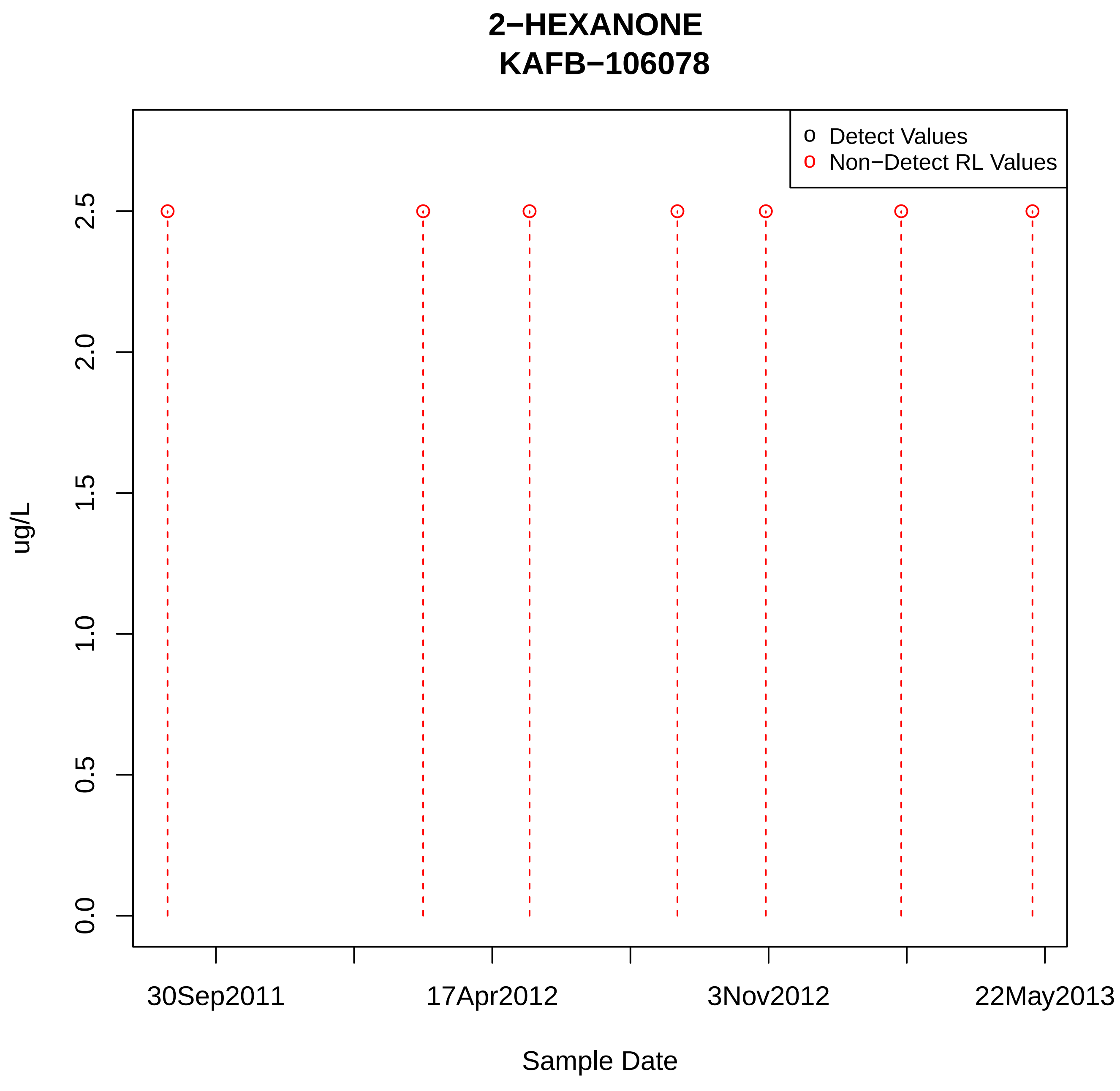
2−HEXANONE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

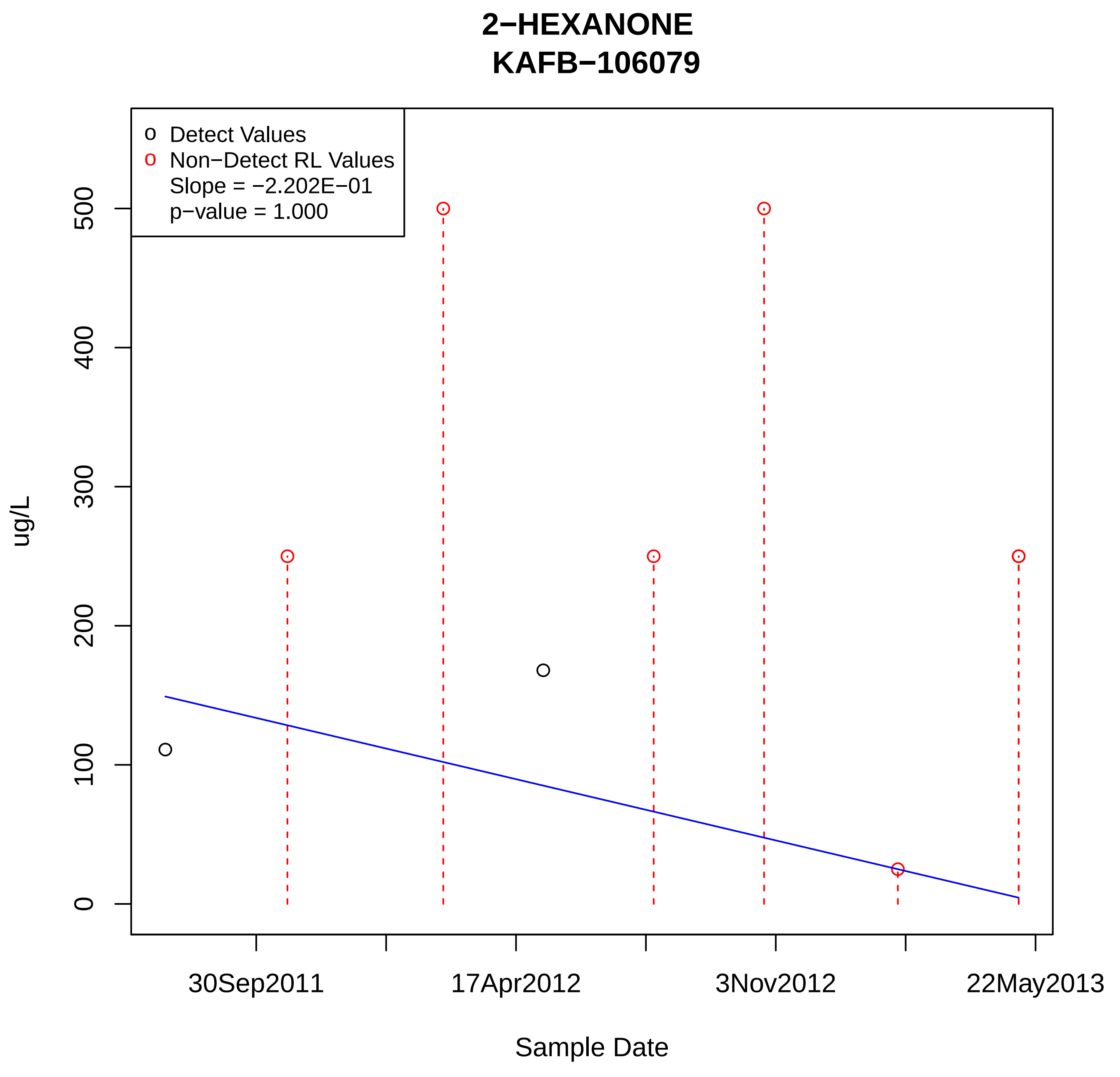


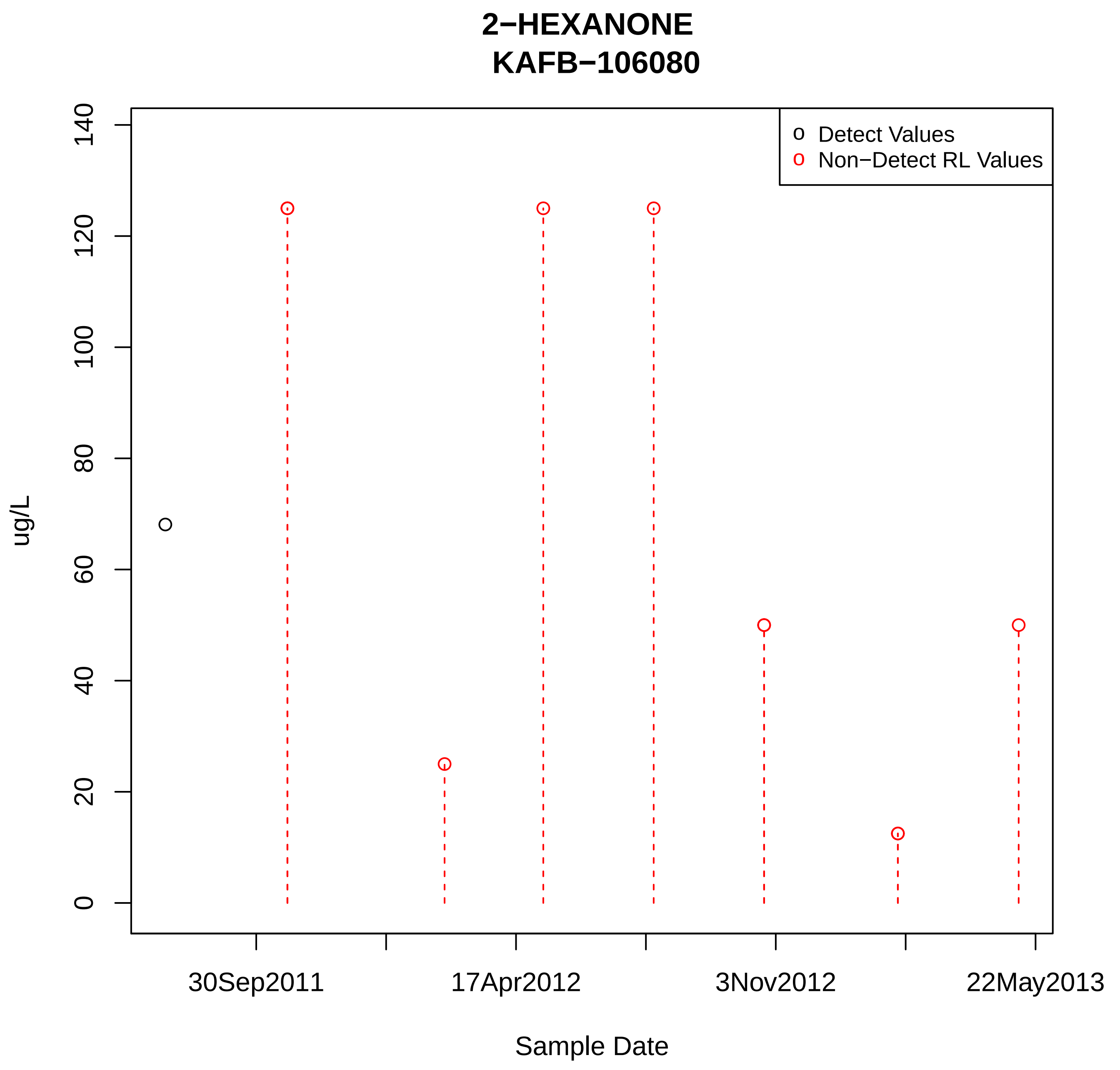
2−HEXANONE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



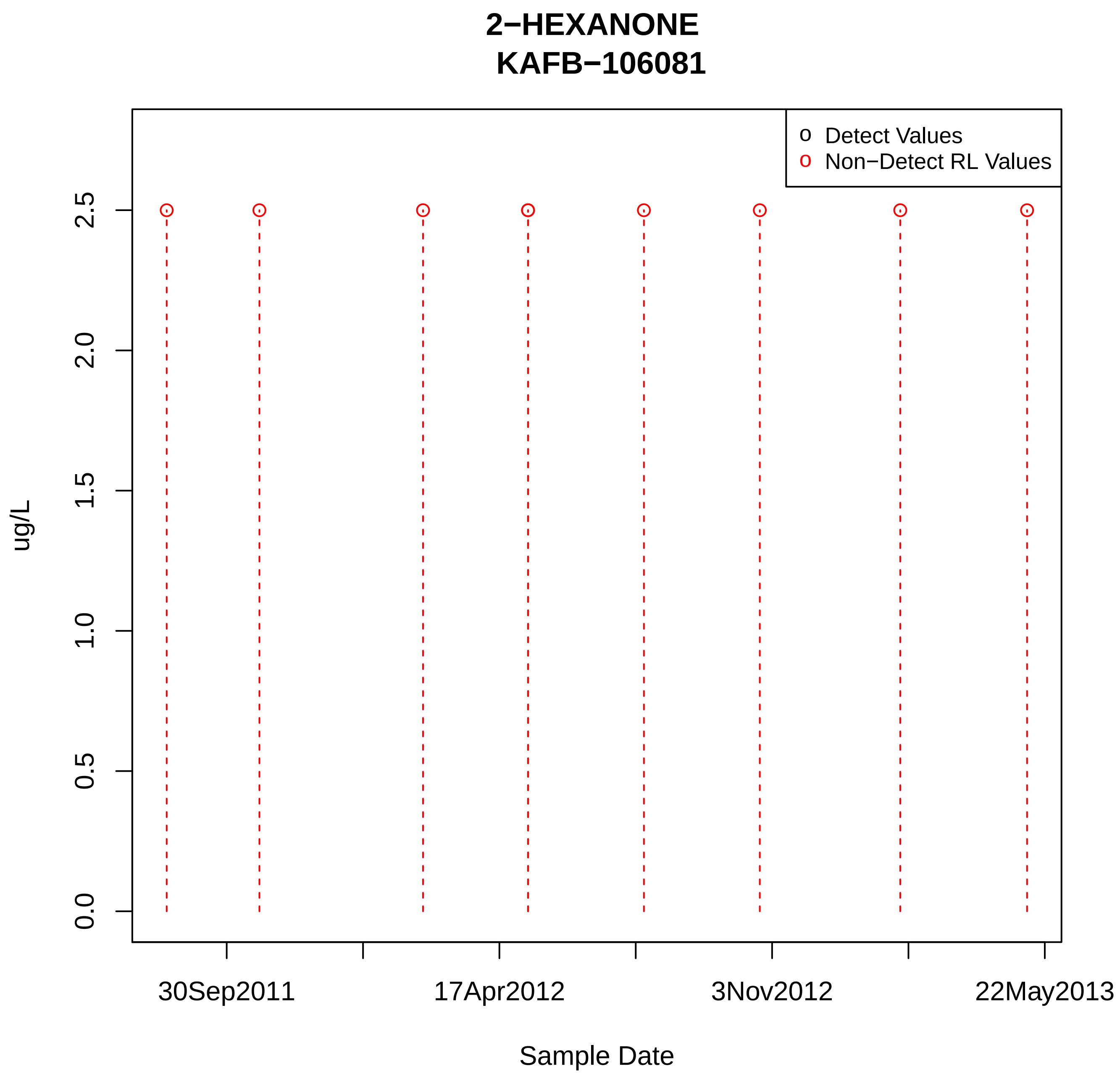
2−HEXANONE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

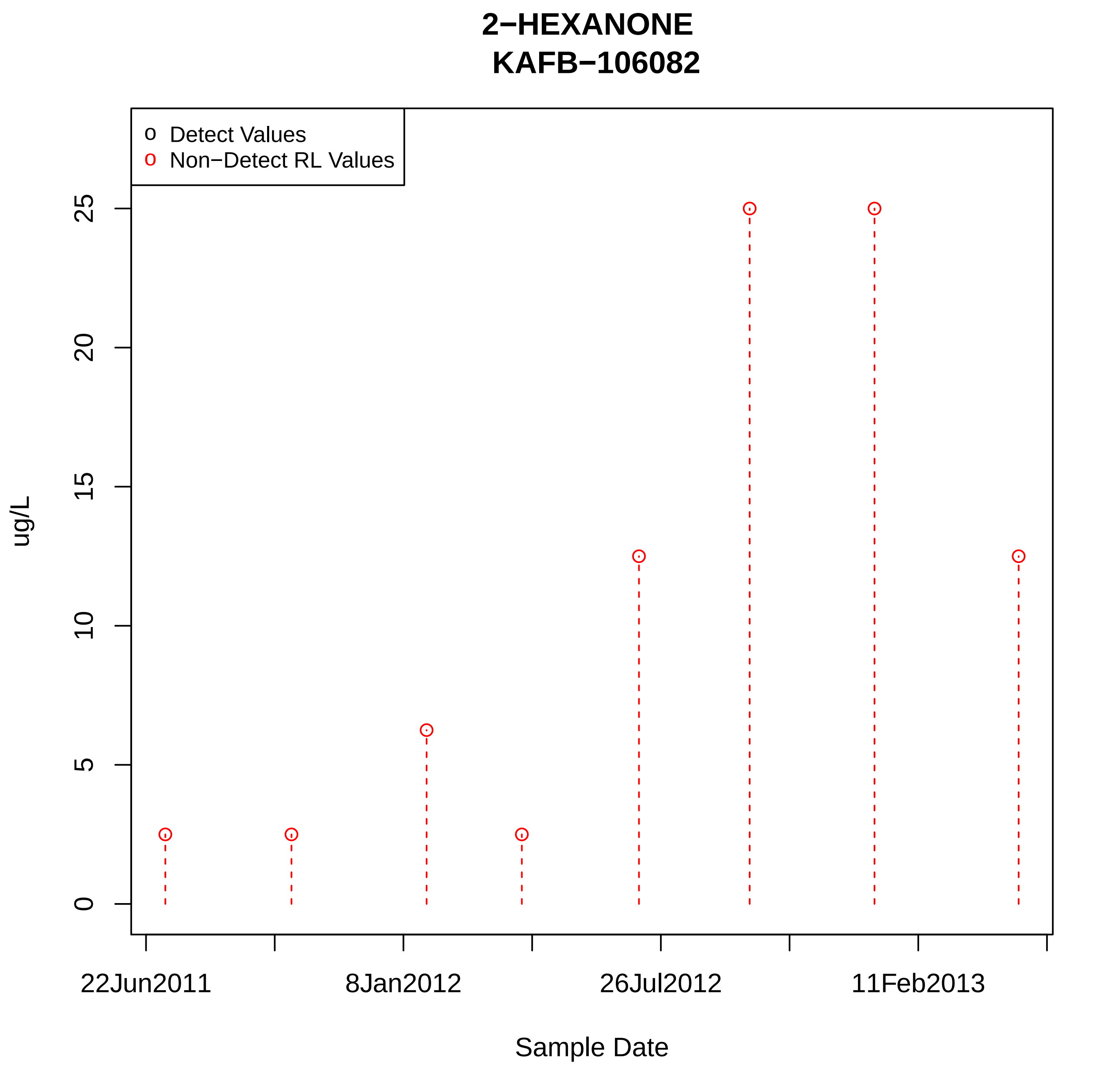

2−HEXANONE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−HEXANONE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −2.202E−01
p−value = 1.000
ug/L
0
100
200
300
400
500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

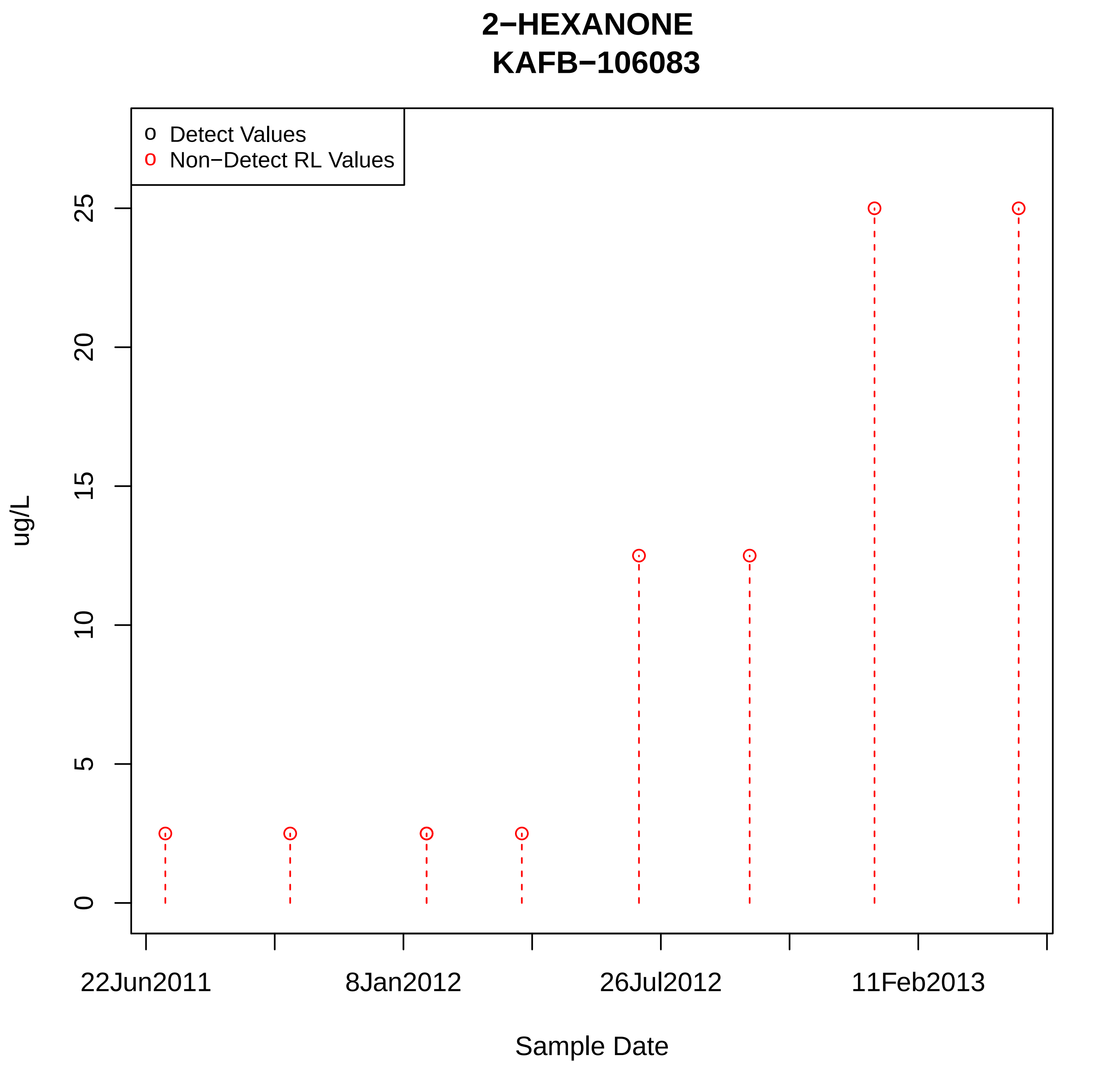


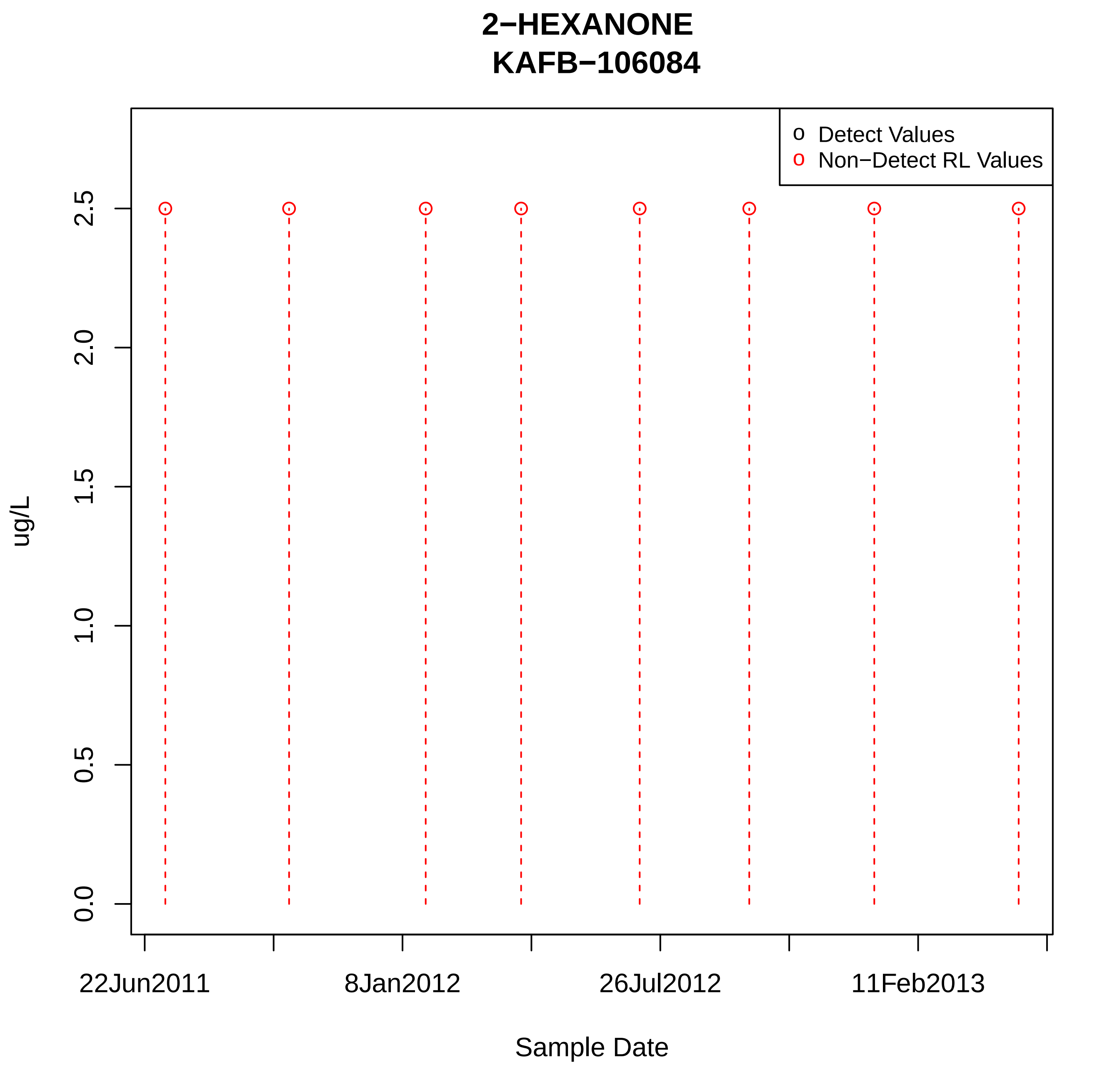
2−HEXANONE
KAFB−106080
Detect Values
Non−Detect RL Values
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−HEXANONE
KAFB−106081
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

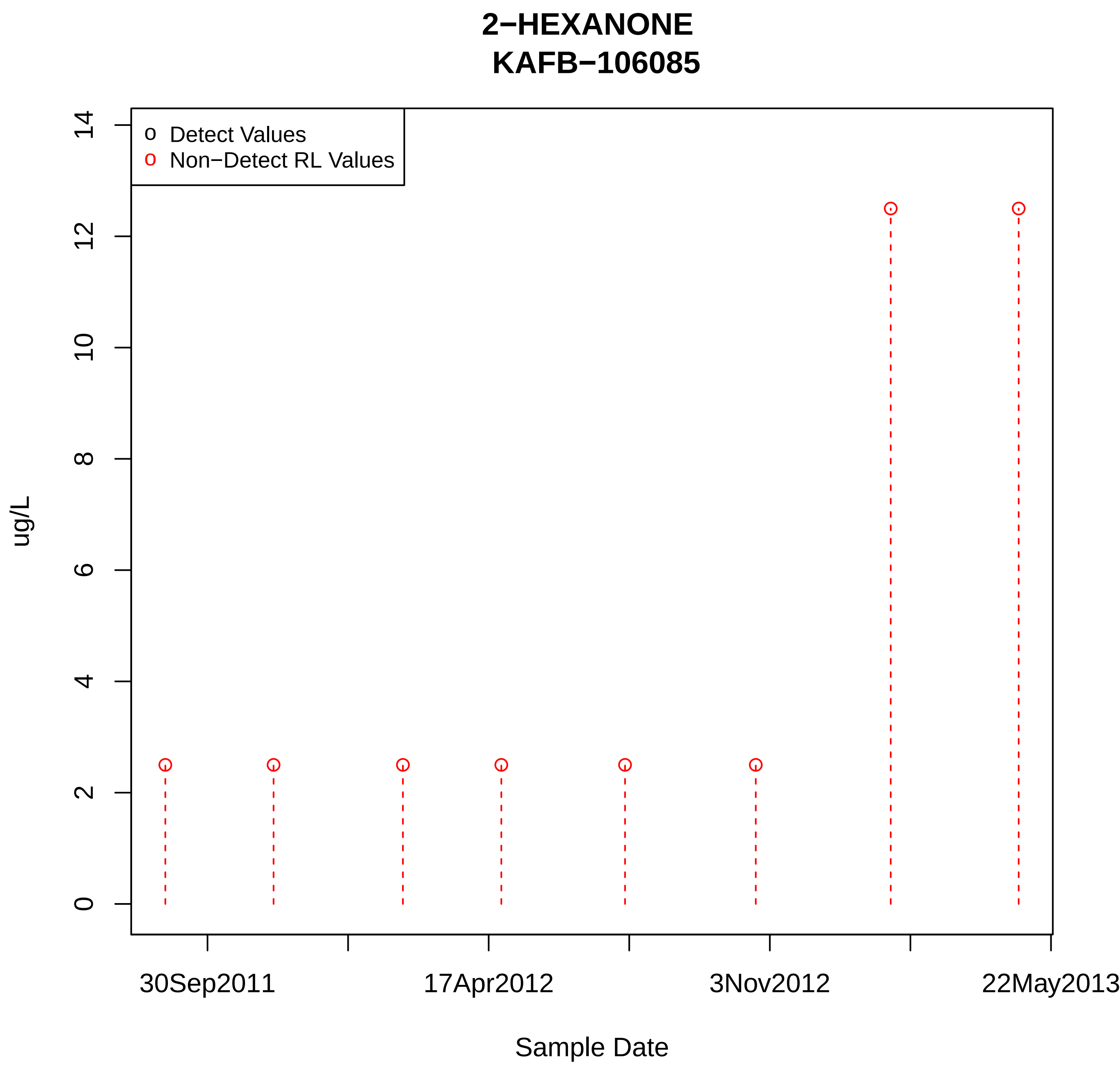


2−HEXANONE
KAFB−106082
o Detect Values
o Non−Detect RL Values
0
5
10
15
20
25
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

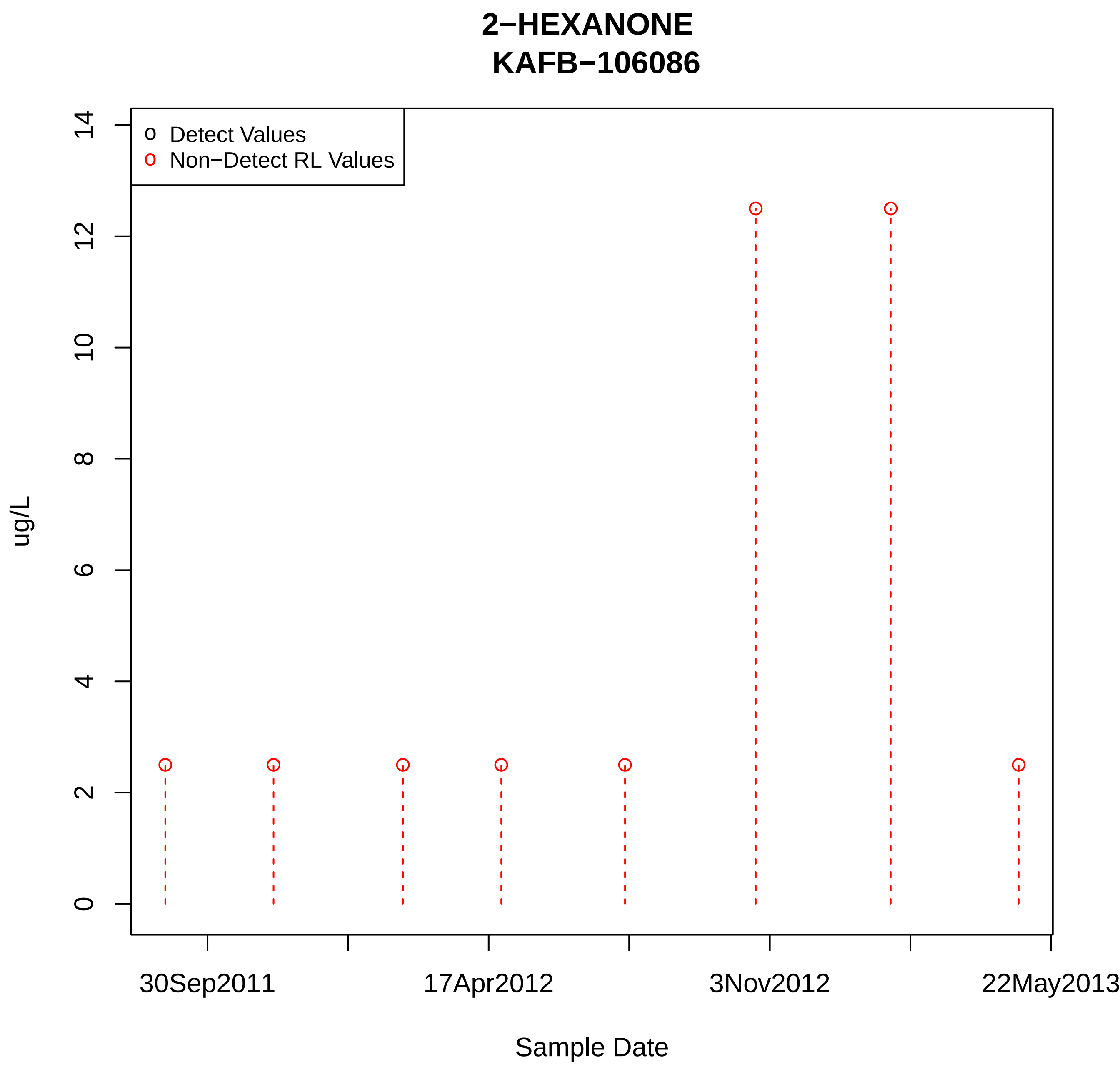

2−HEXANONE
KAFB−106083
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



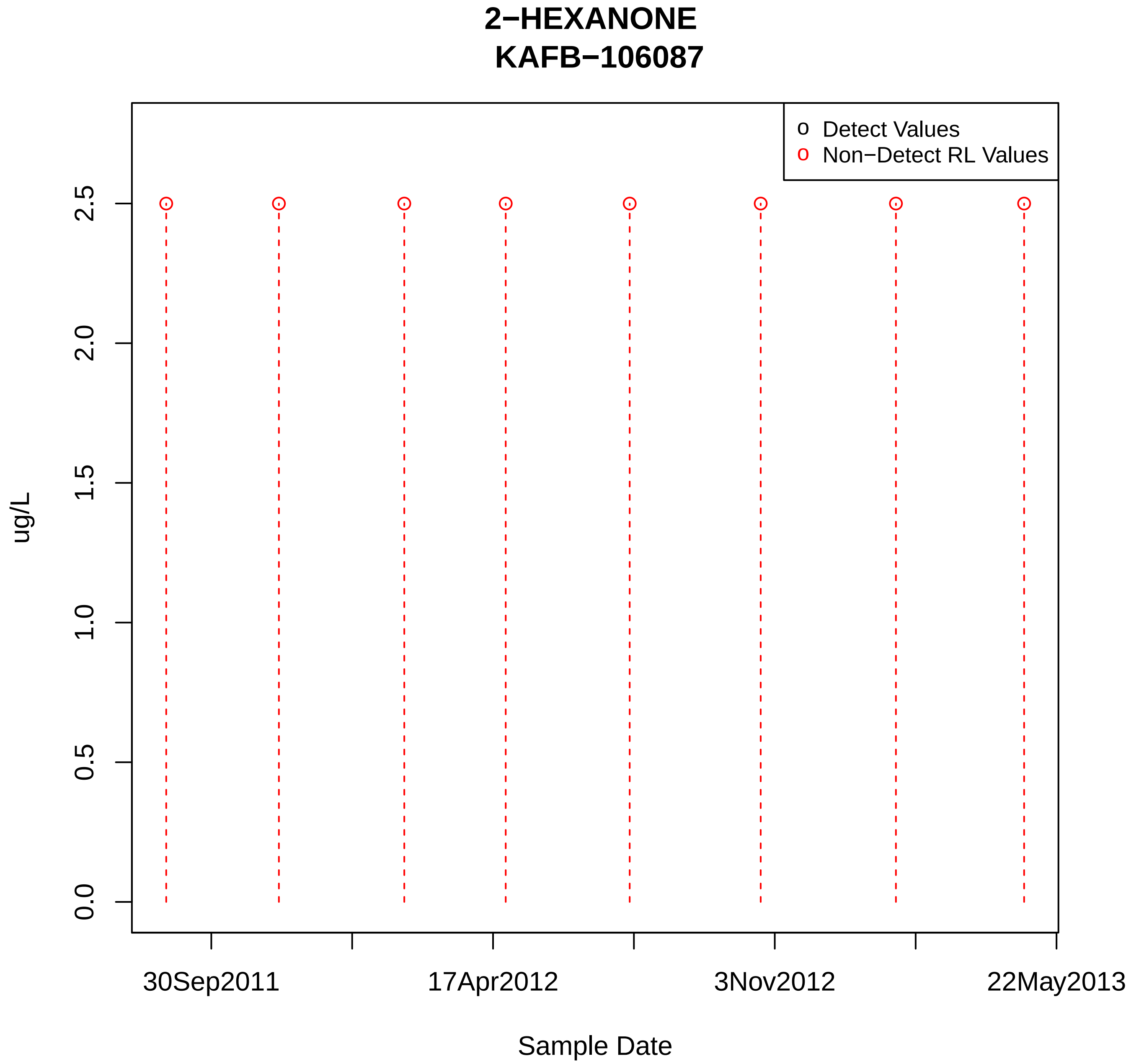
2−HEXANONE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



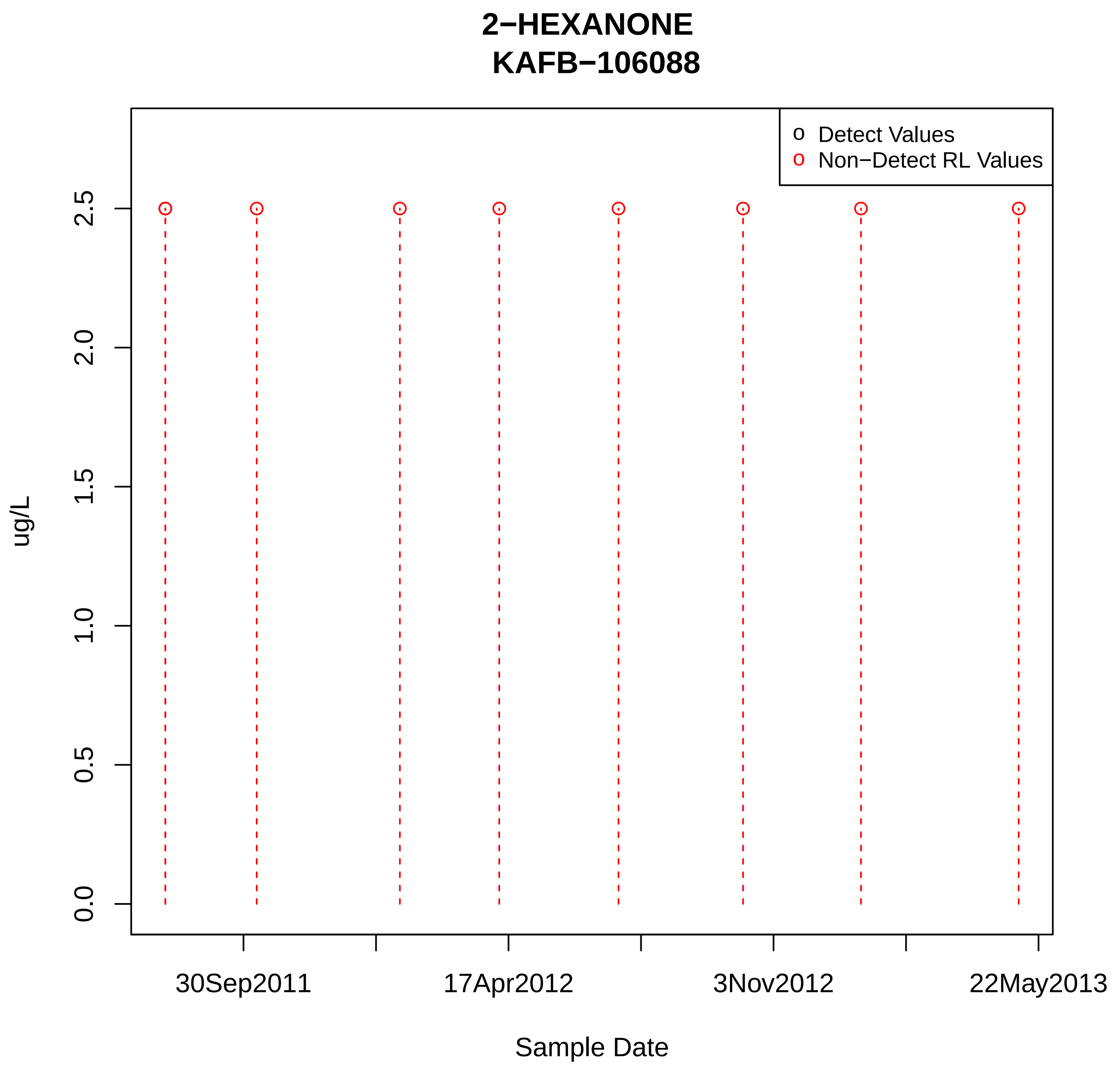
2−HEXANONE
KAFB−106085
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

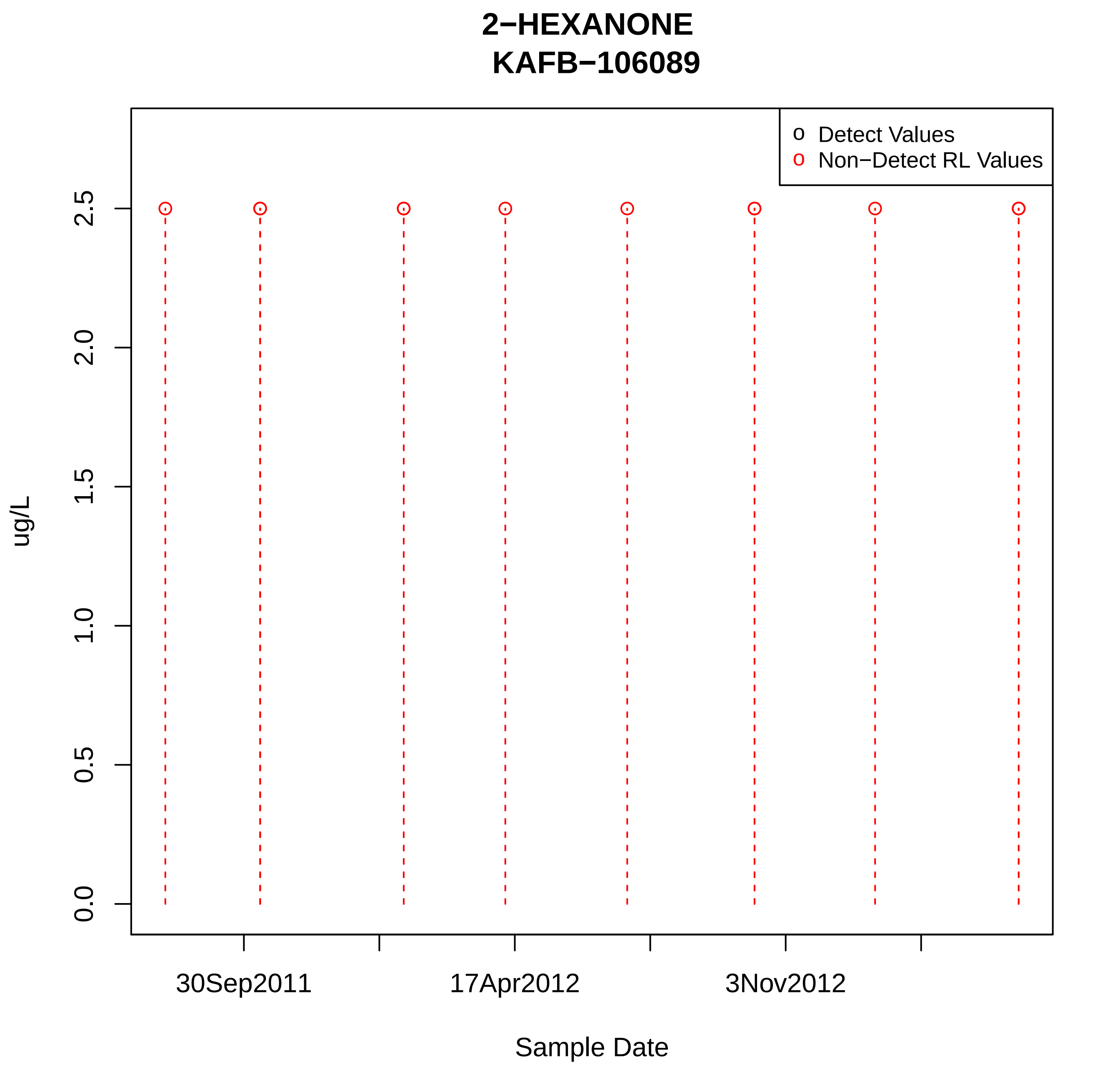


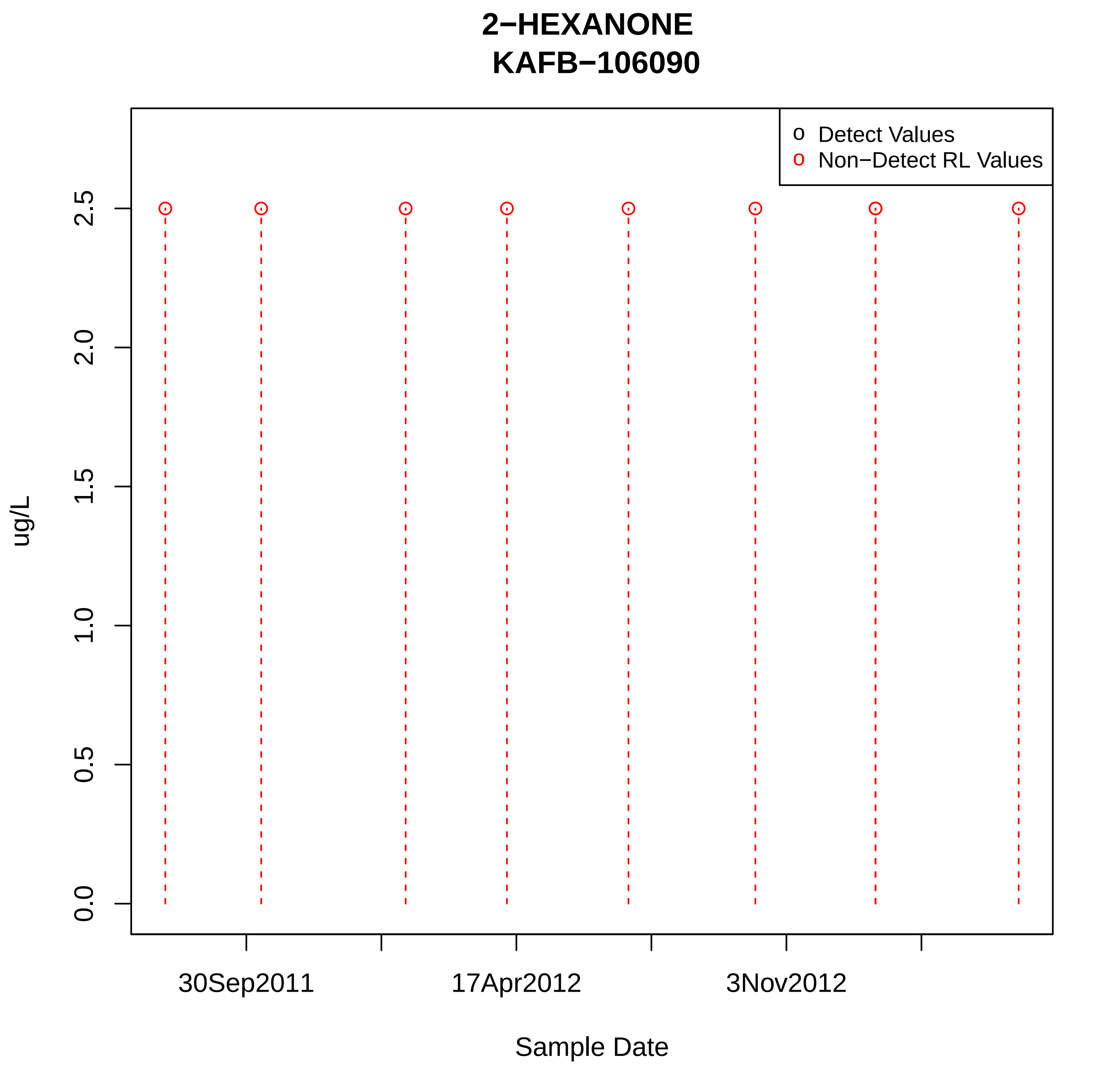
2−HEXANONE
KAFB−106086
o Detect Values
o Non−Detect RL Values
0
2
4
6
8
10
12
14
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



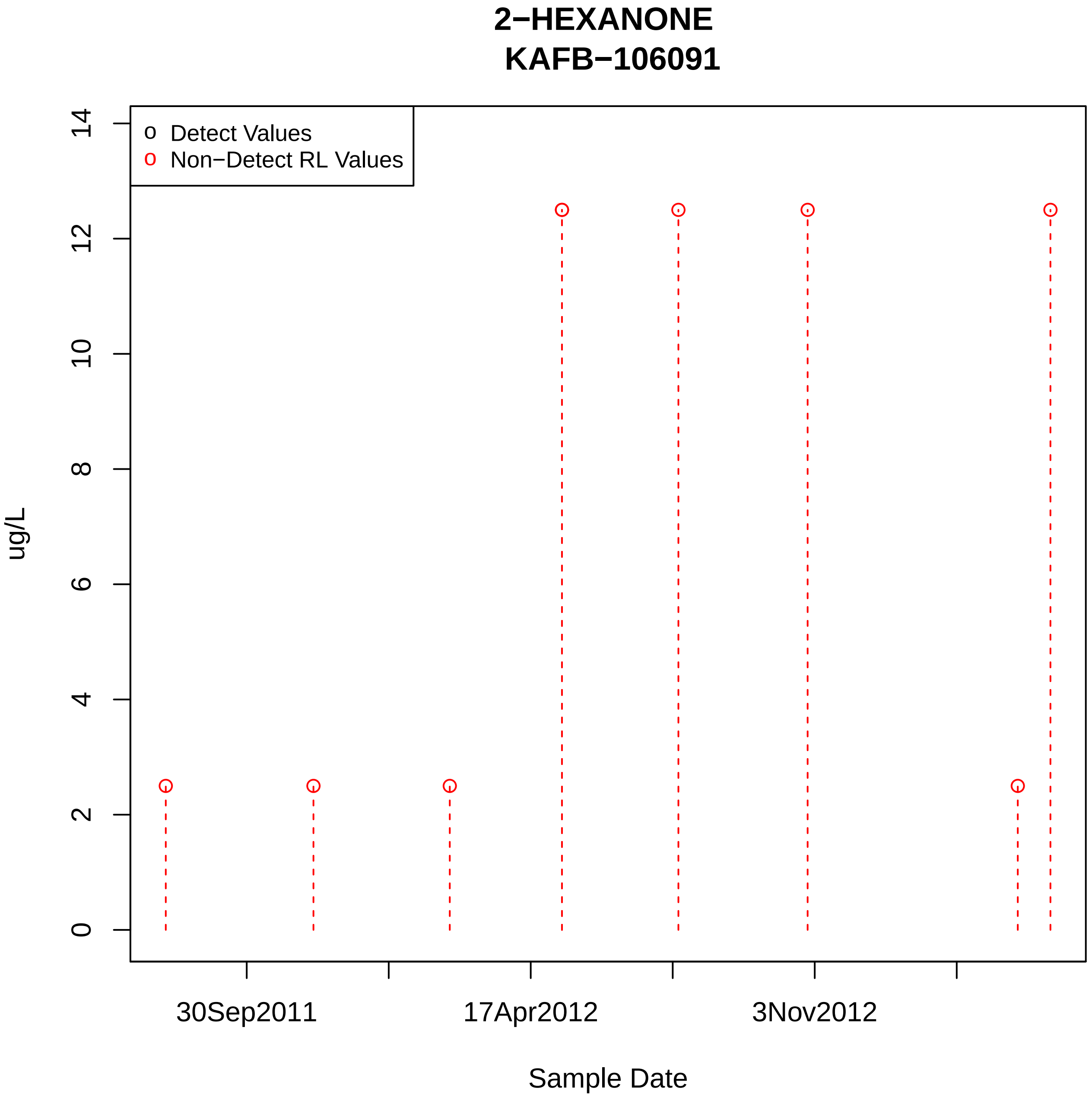
2−HEXANONE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

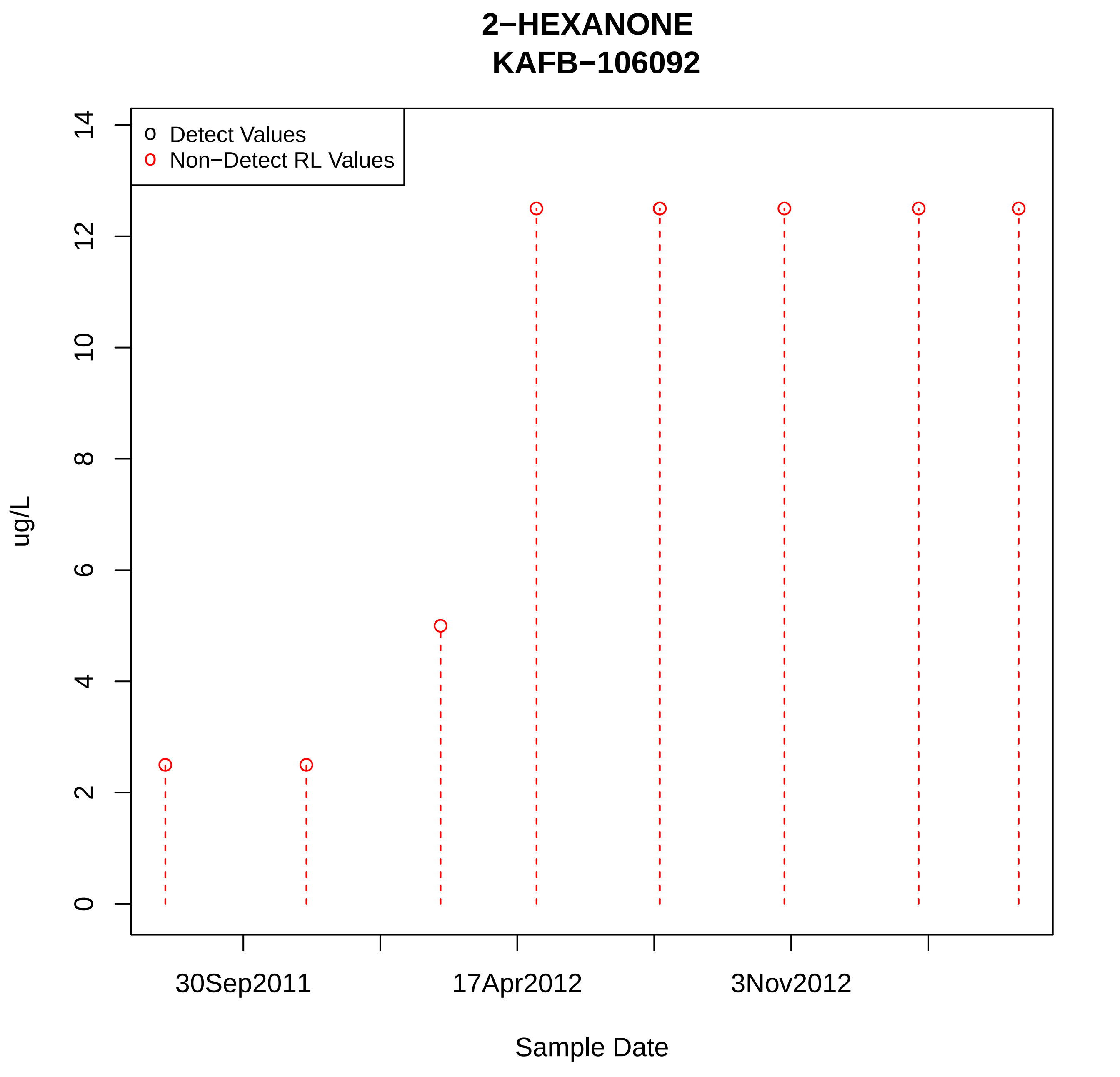

2−HEXANONE
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

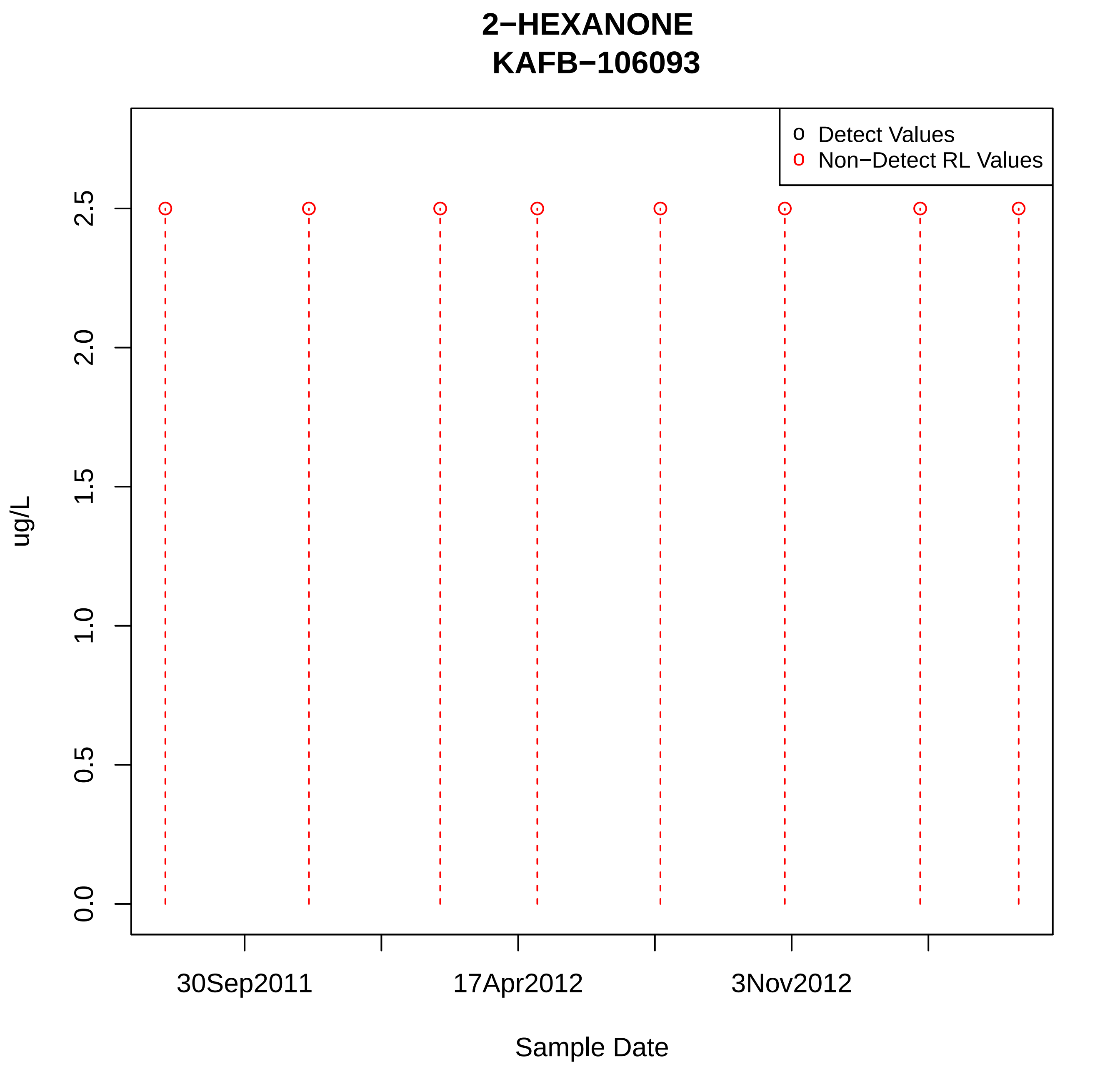

2−HEXANONE
KAFB−106089
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

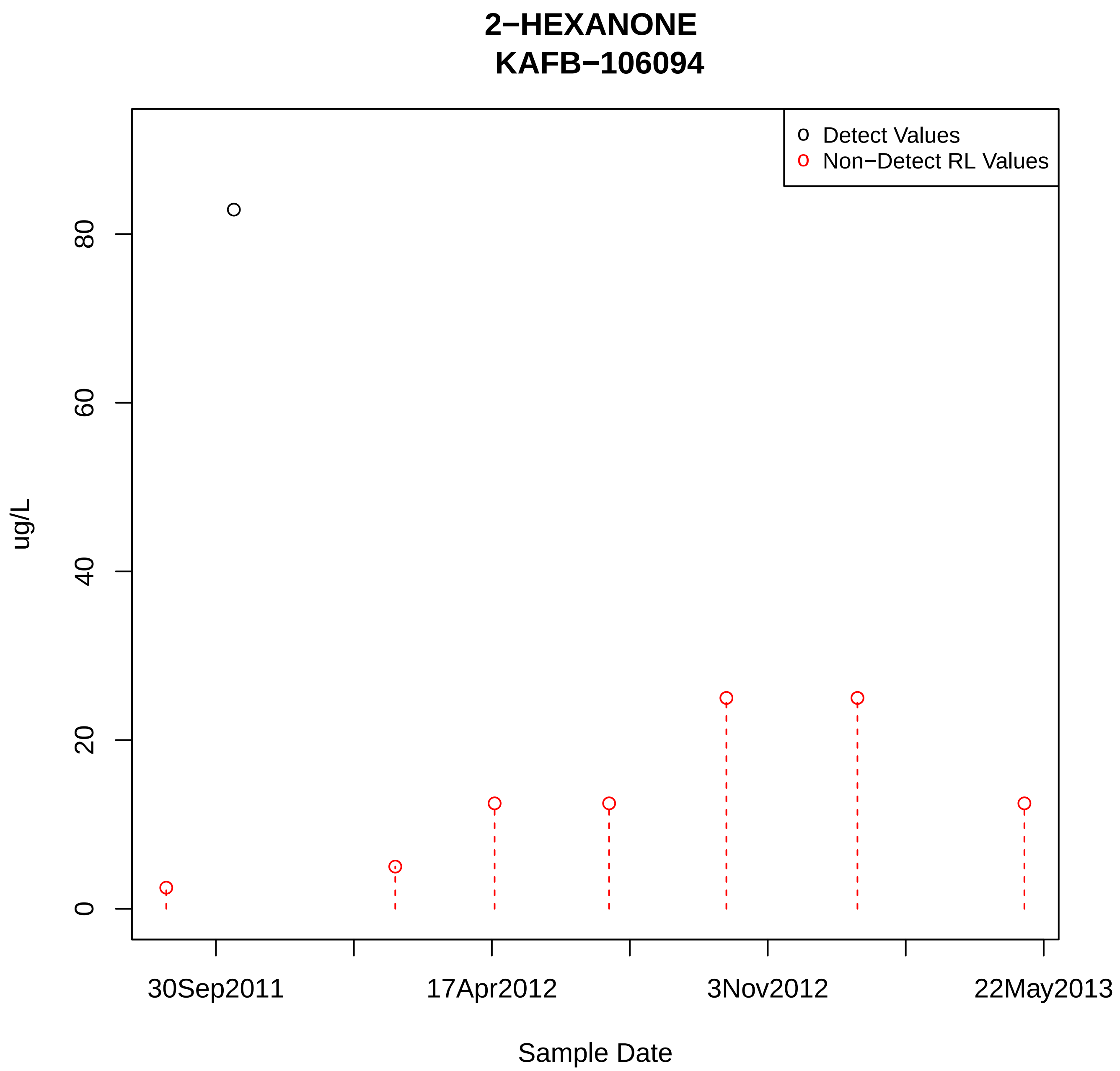


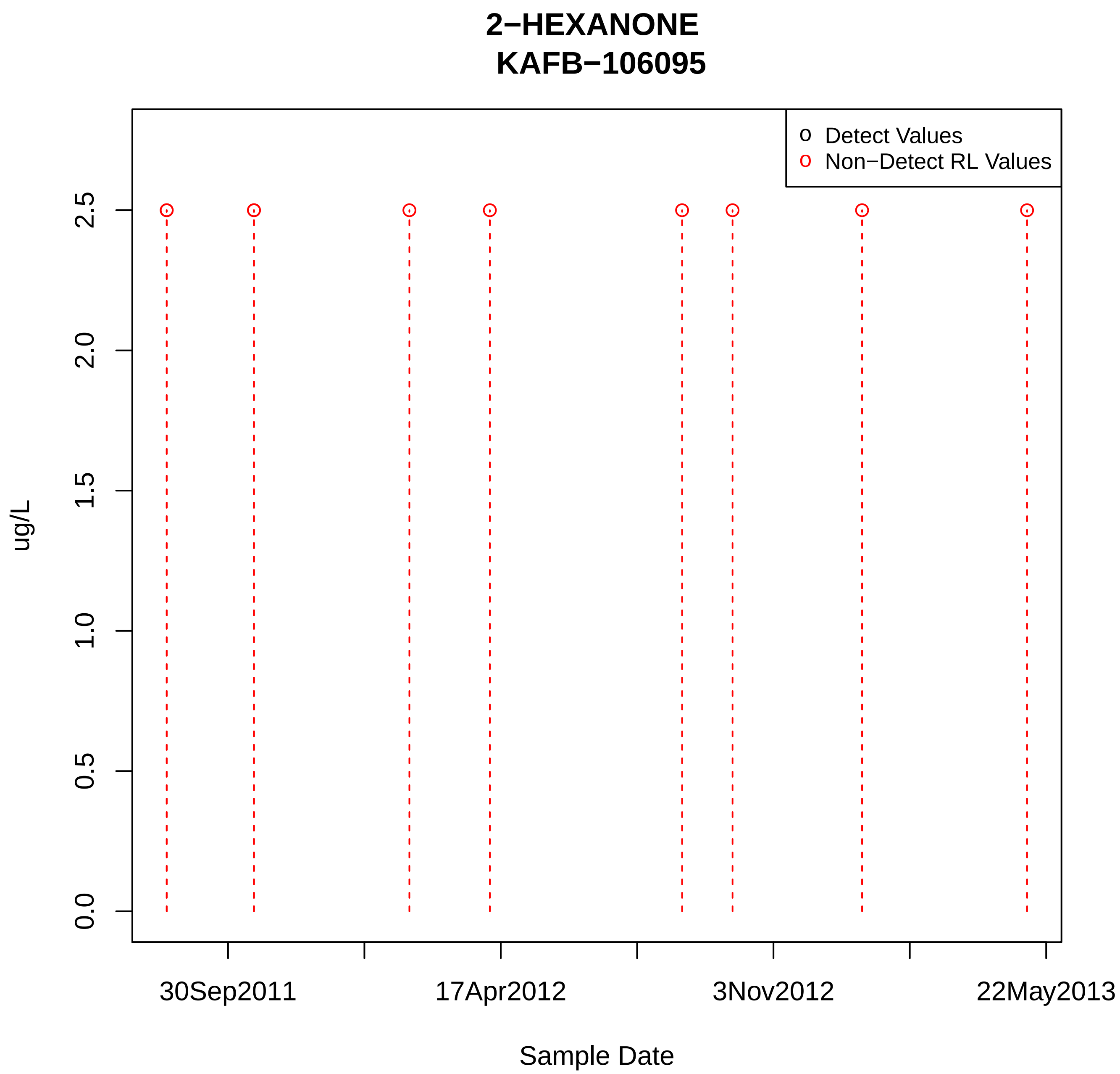
2−HEXANONE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

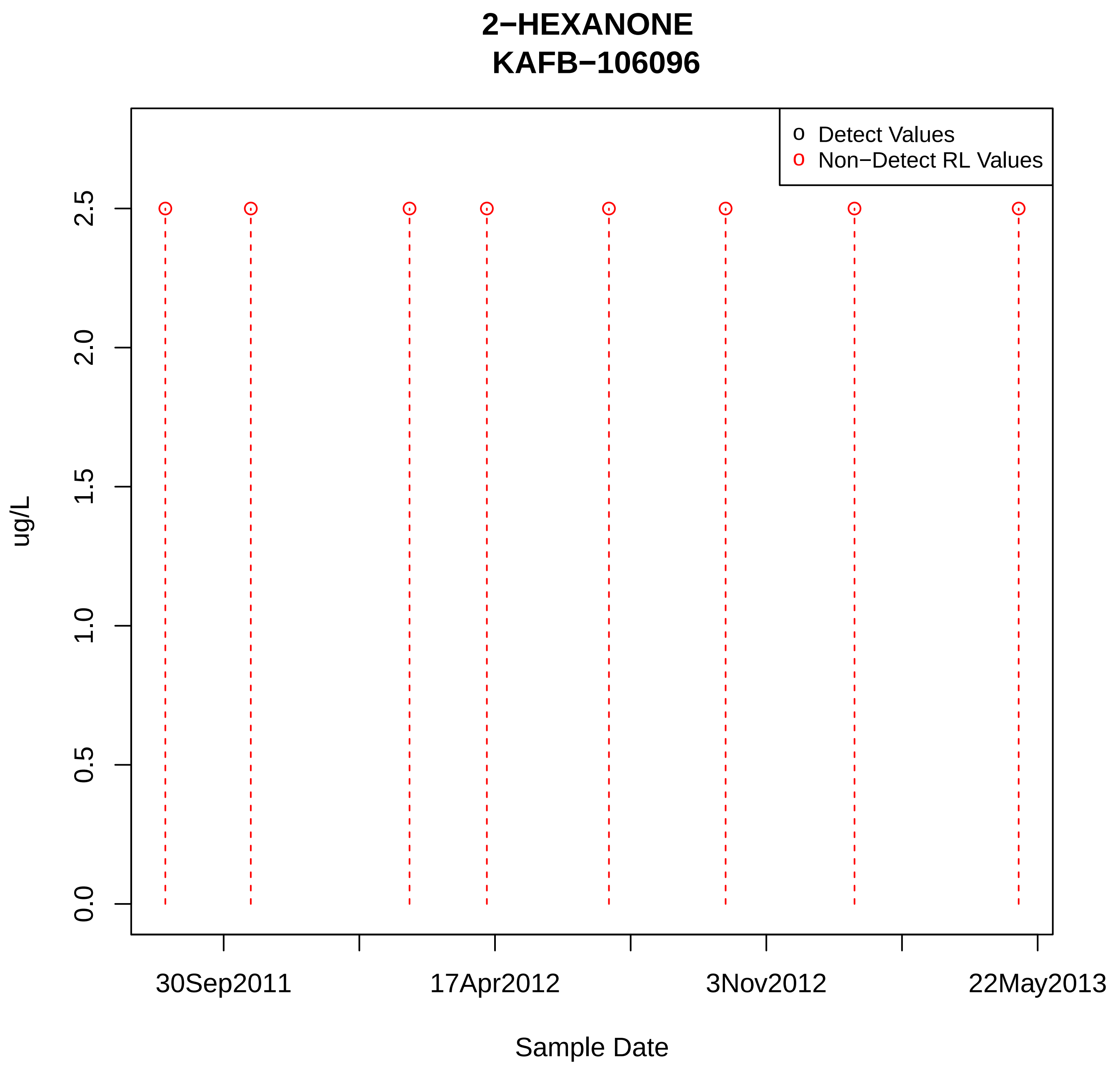

2−HEXANONE
KAFB−106091
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106092
Detect Values
Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
Sample Date

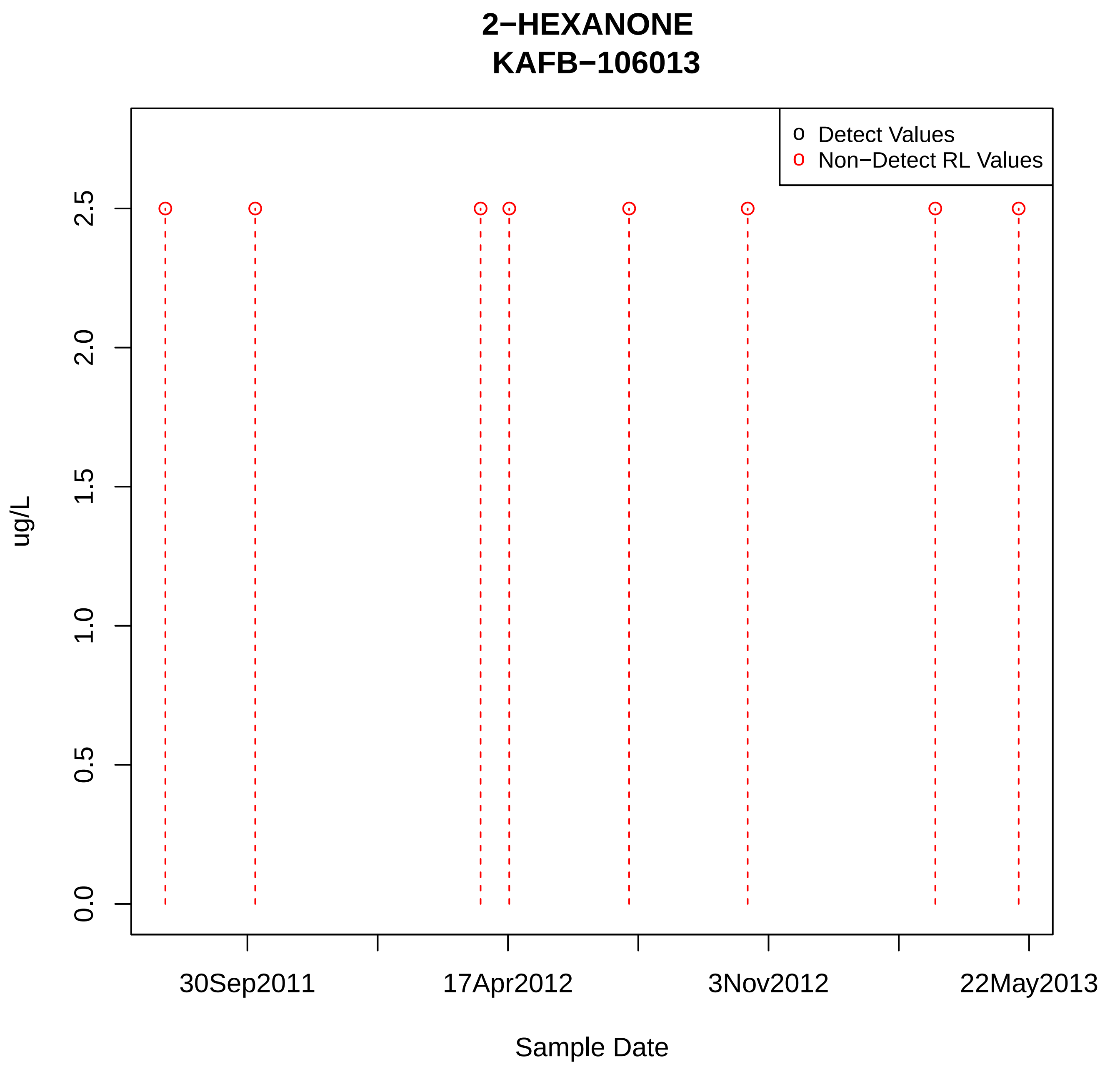

2−HEXANONE
KAFB−106093
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−HEXANONE
KAFB−106094
o Detect Values
o Non−Detect RL Values
ug/L
0
20
40
60
80
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

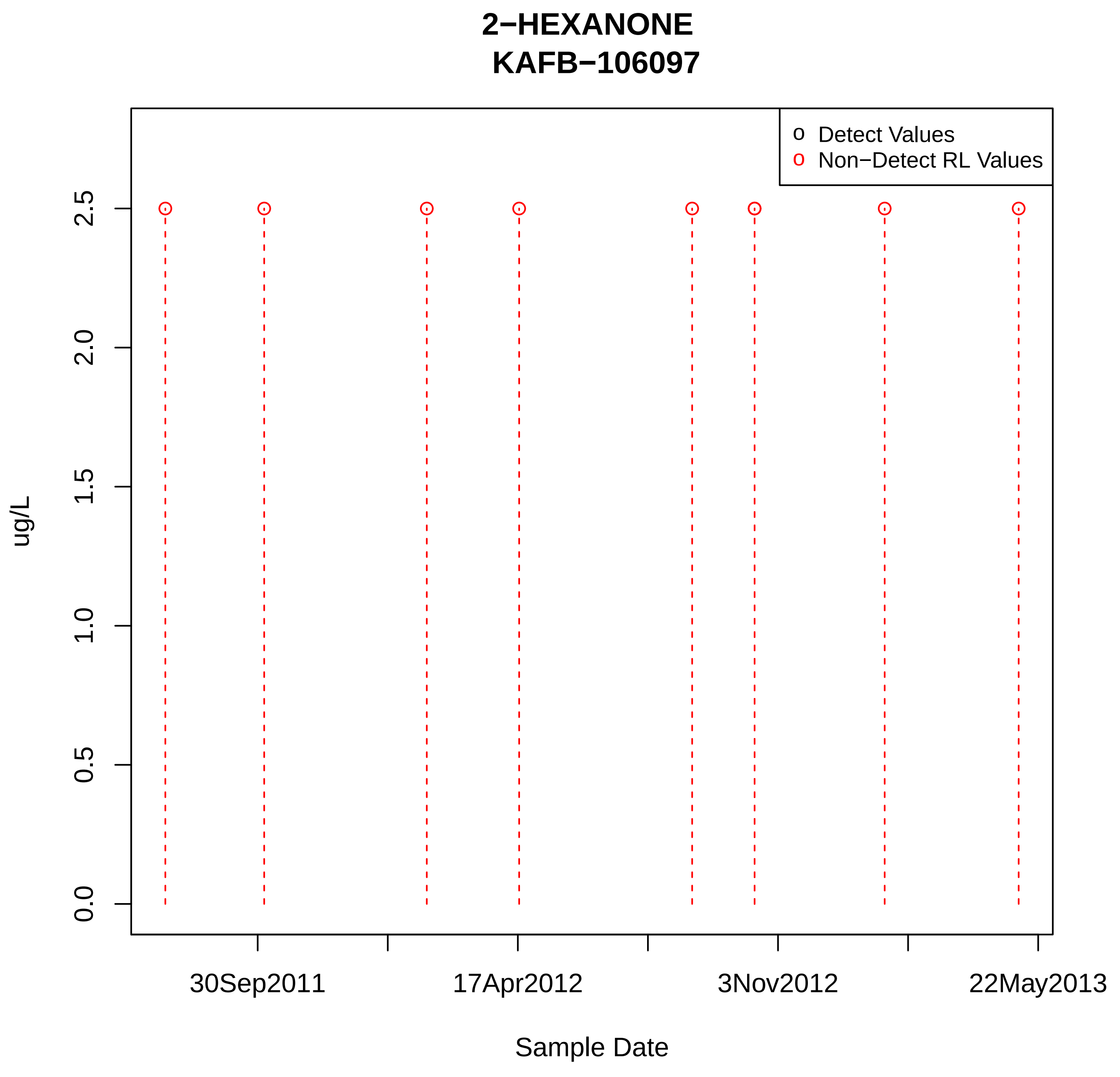

2−HEXANONE
KAFB−106095
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



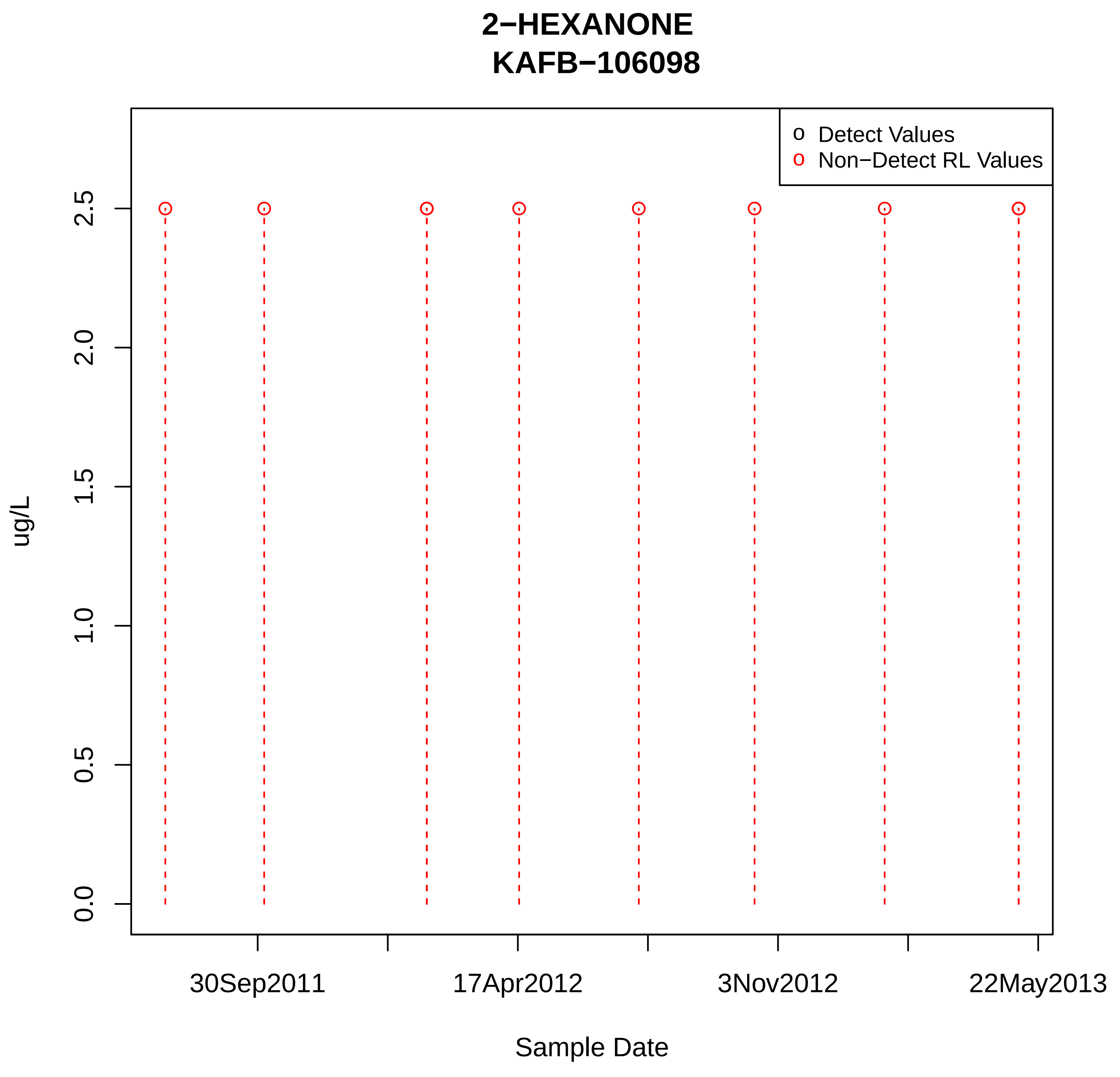
2−HEXANONE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



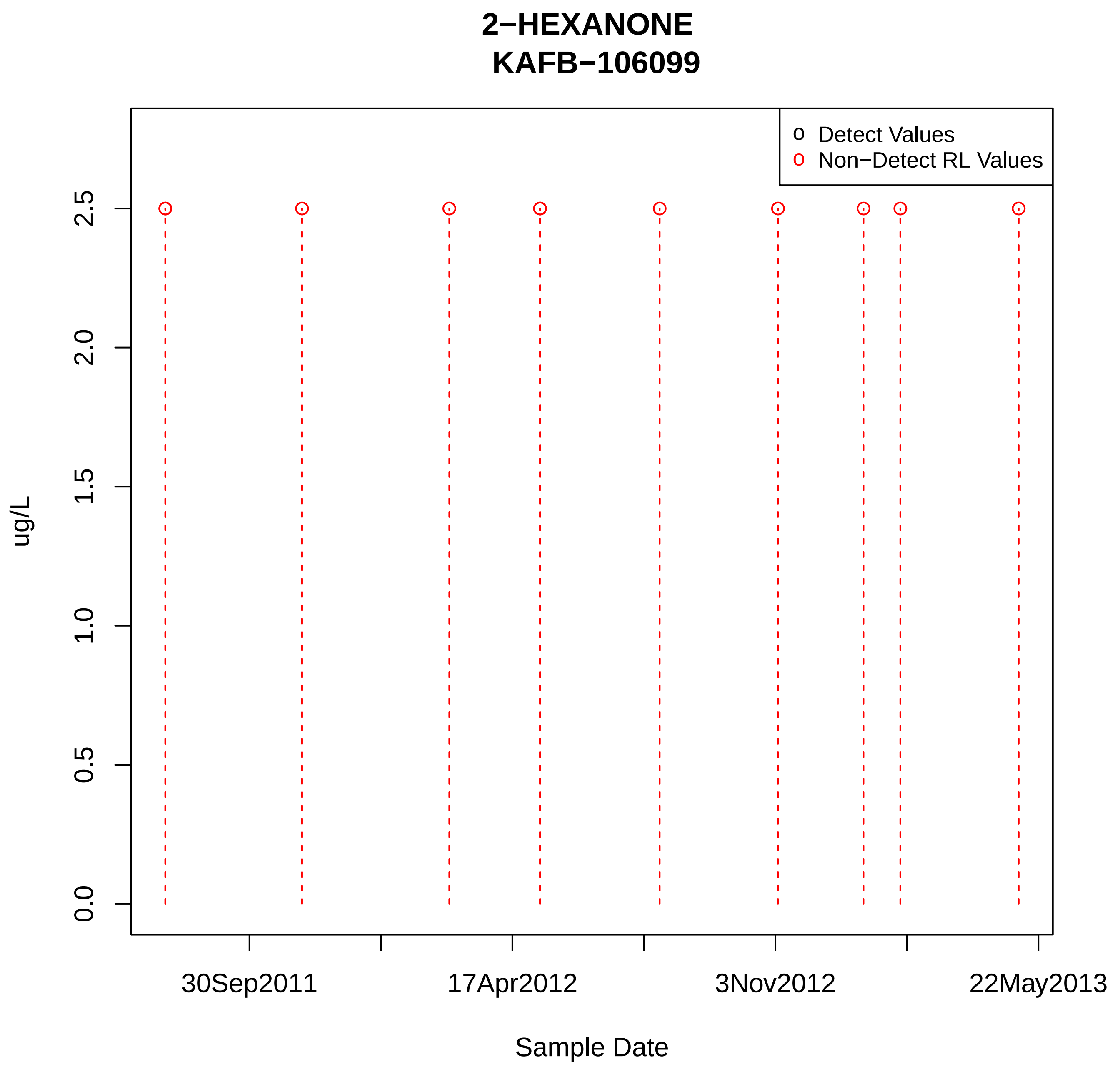
2−HEXANONE
KAFB−106013
o Detect Values
o Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

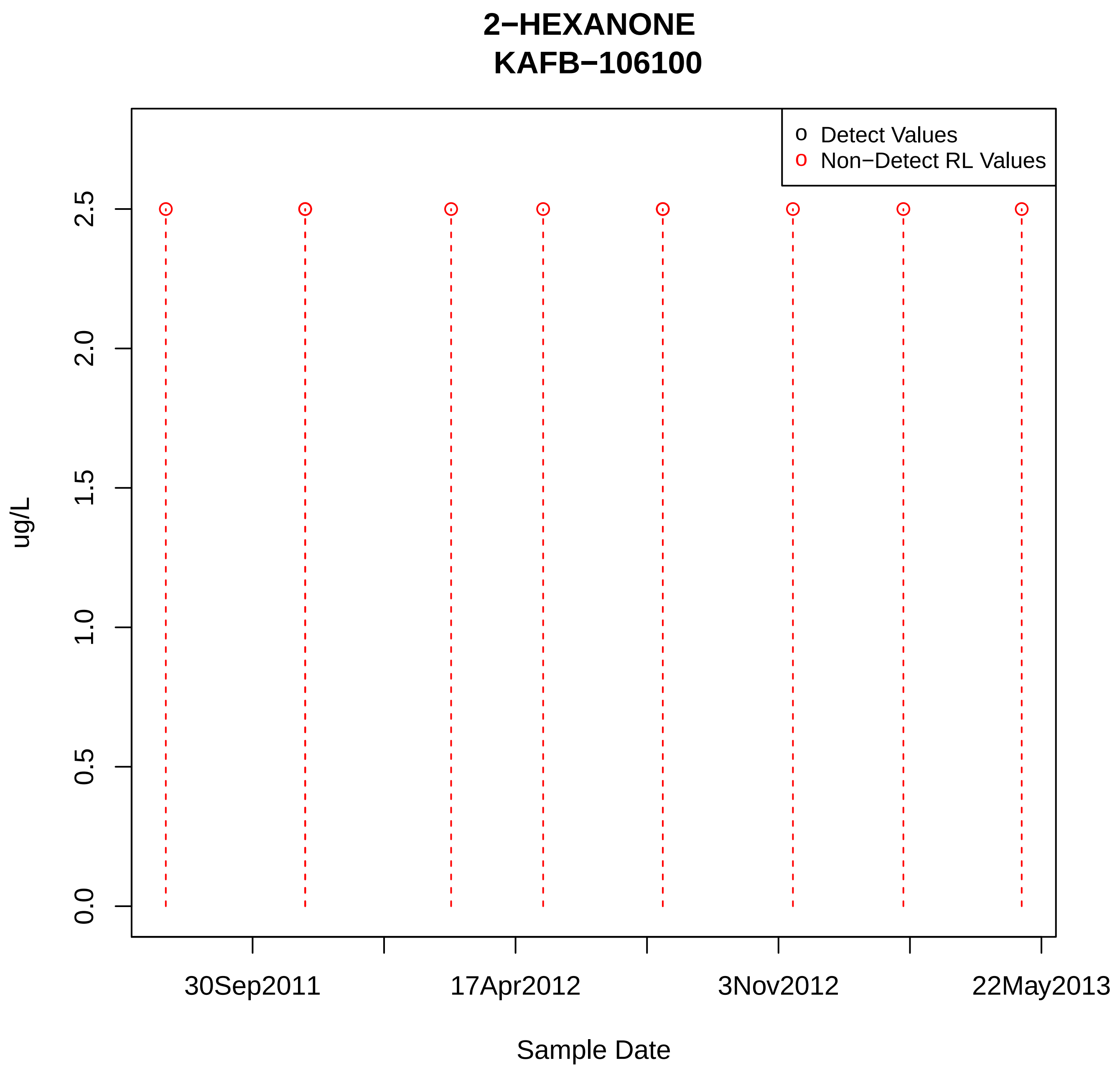


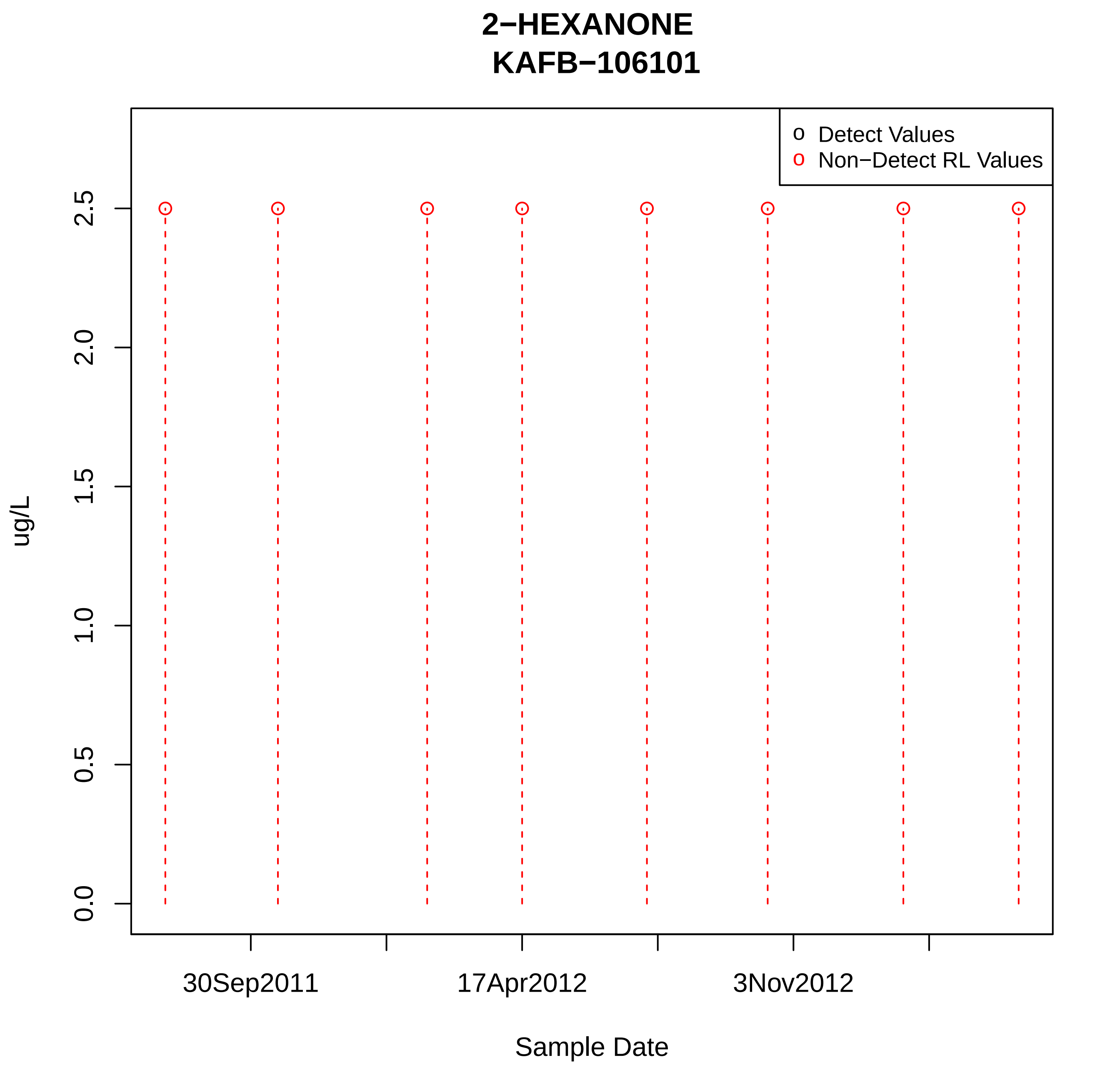
2−HEXANONE
KAFB−106097
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



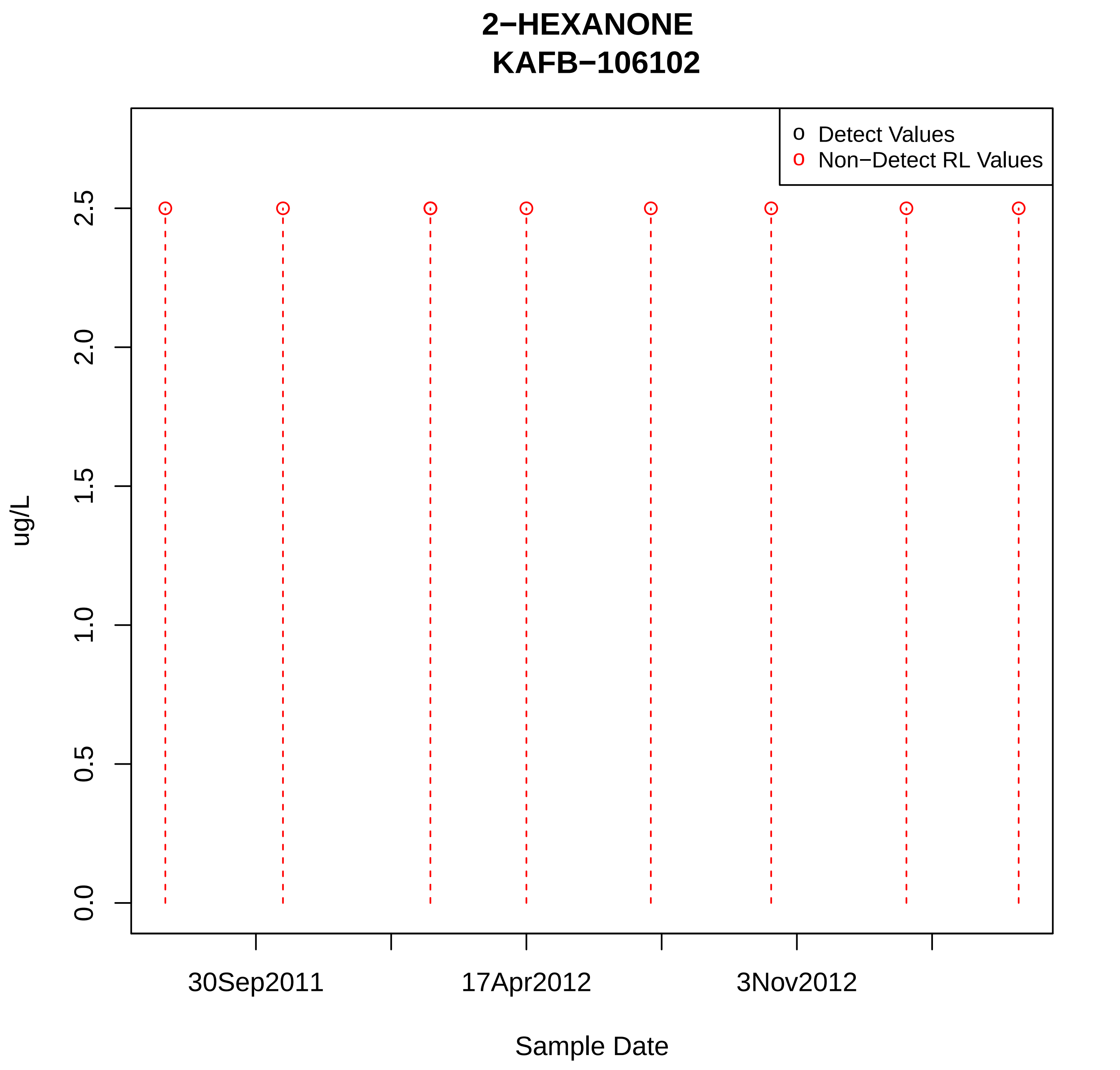
2−HEXANONE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−HEXANONE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

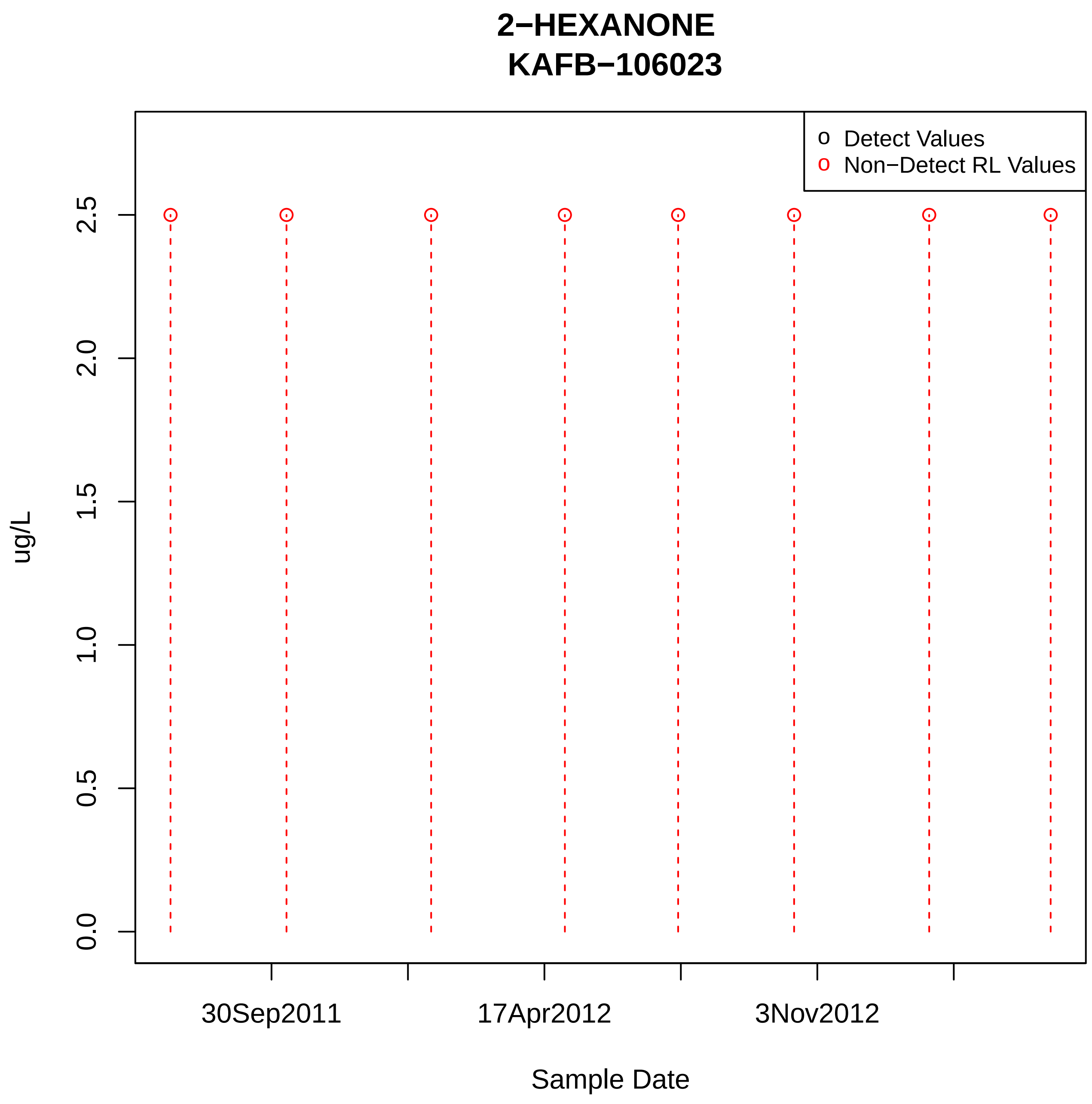

2−HEXANONE
KAFB−106100
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

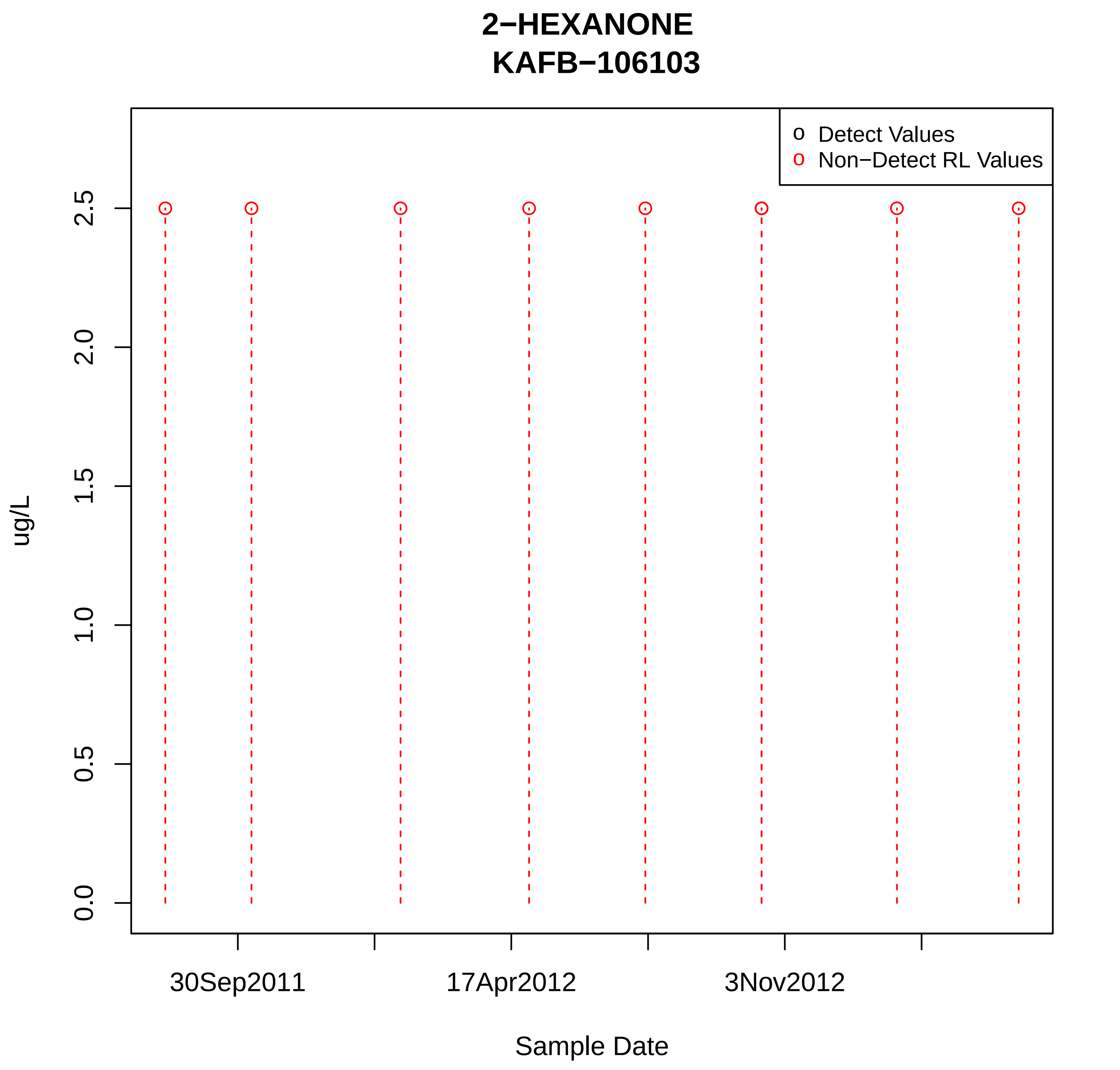


2−HEXANONE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



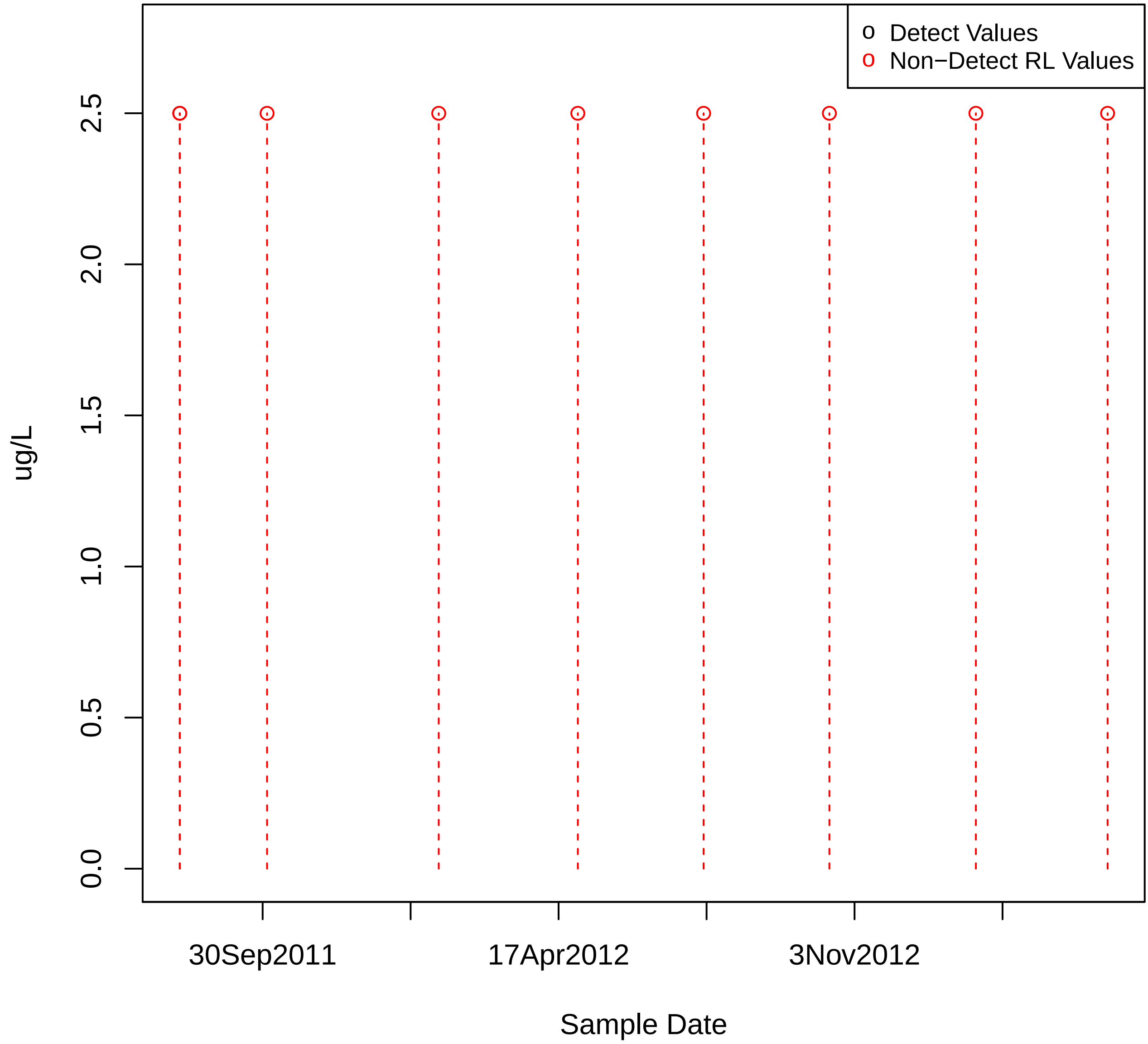
2−HEXANONE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

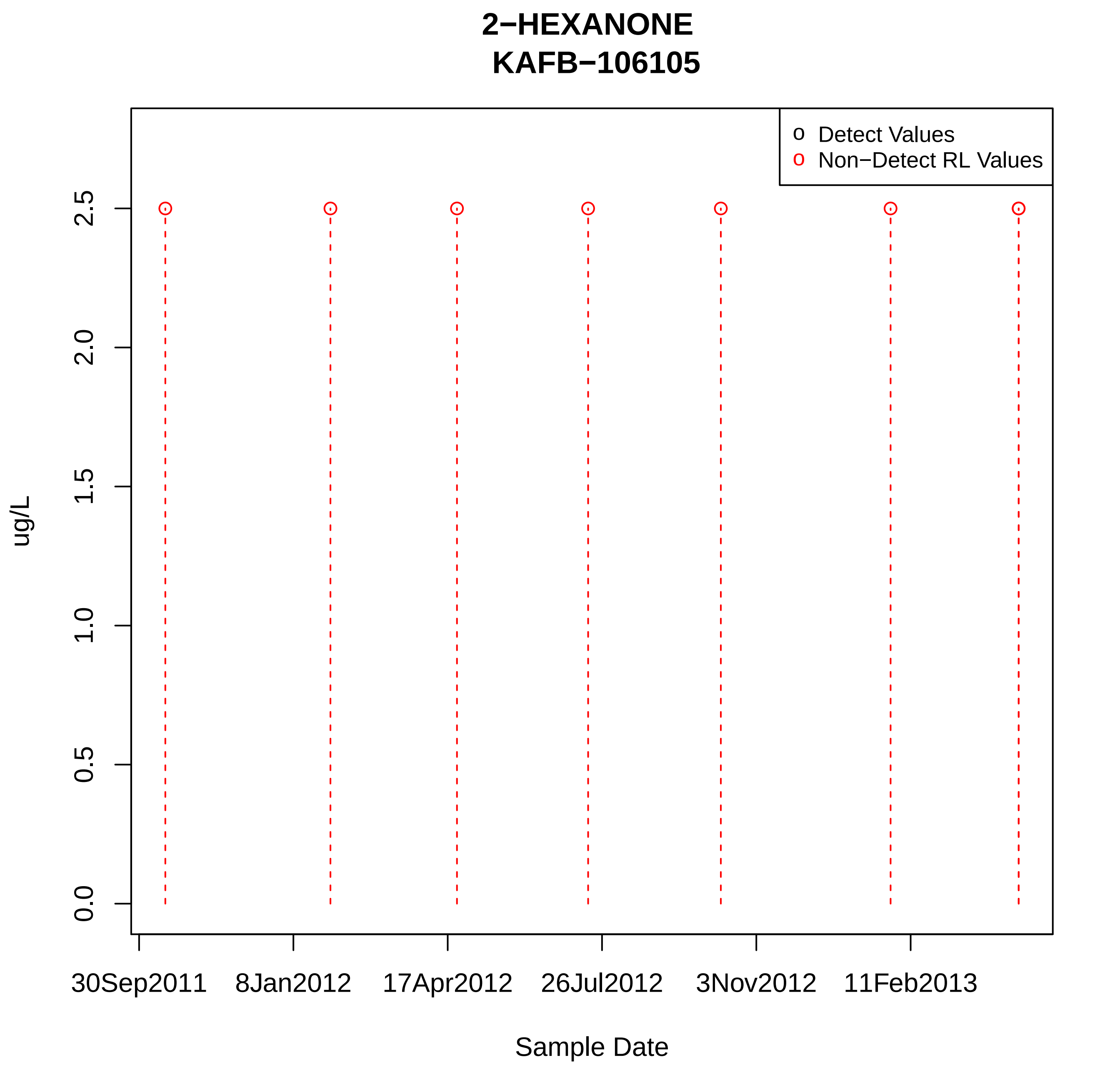

2−HEXANONE
KAFB−106023
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

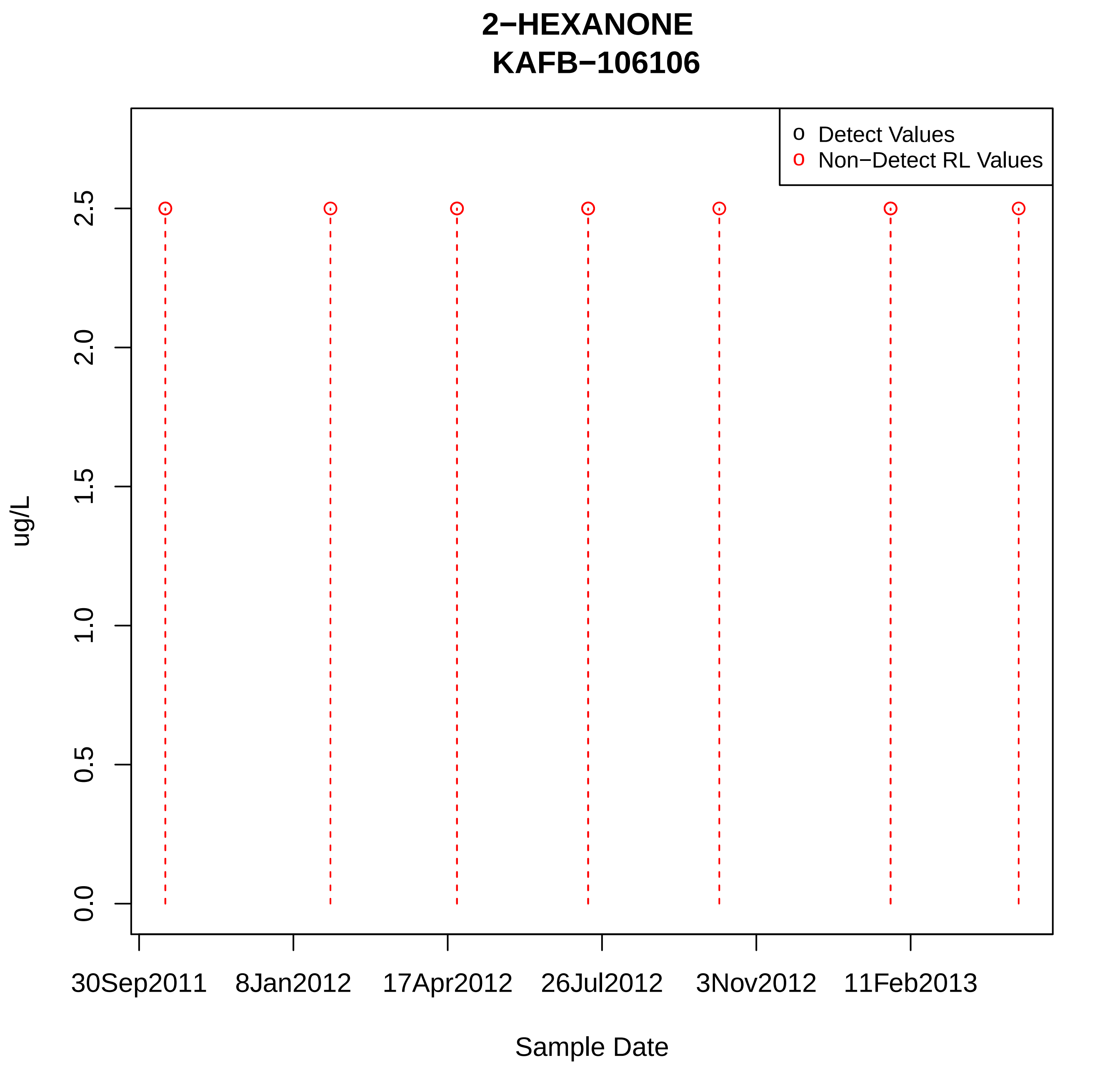


2−HEXANONE
KAFB−106103
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

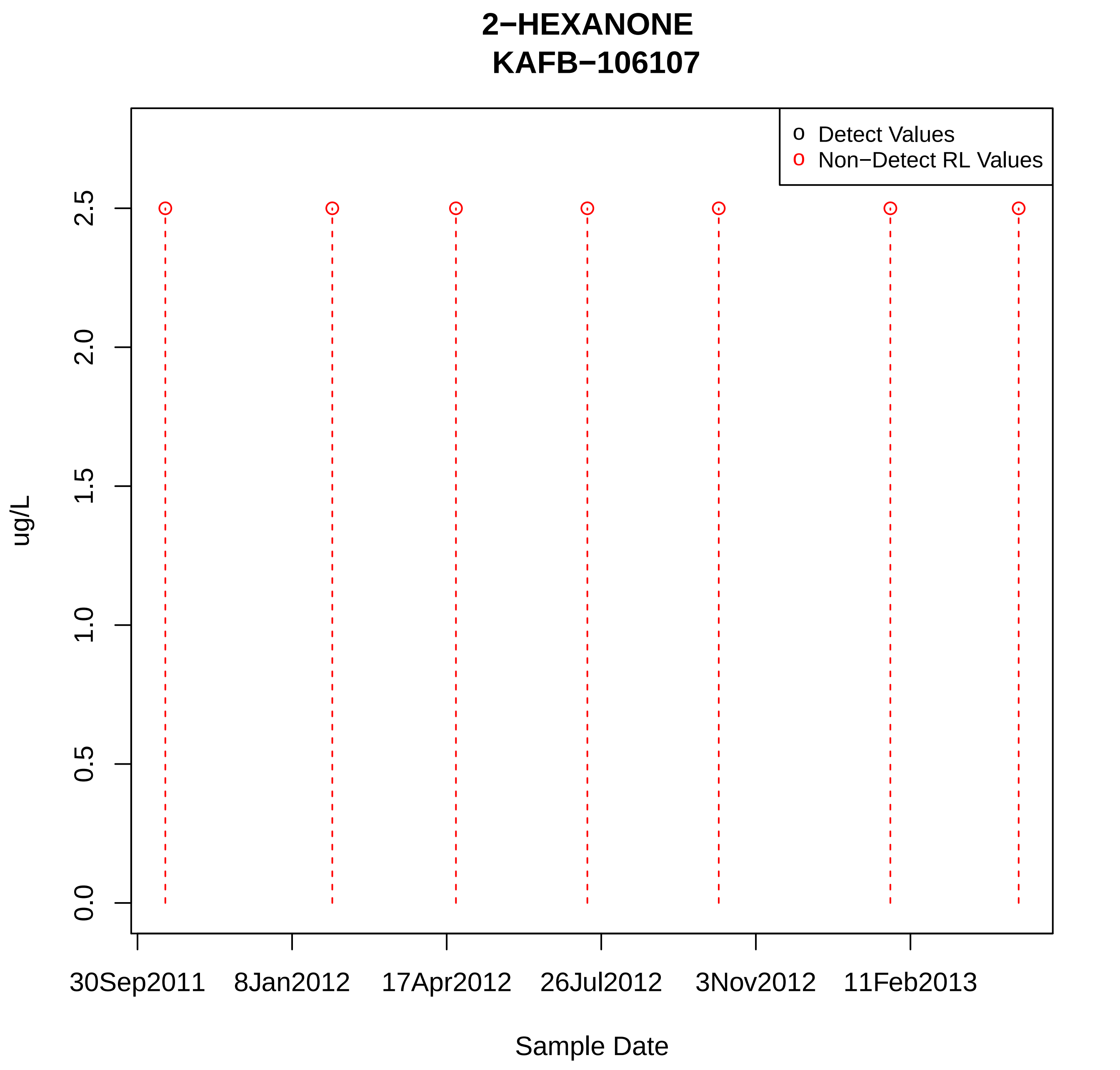
2−HEXANONE
KAFB−106104



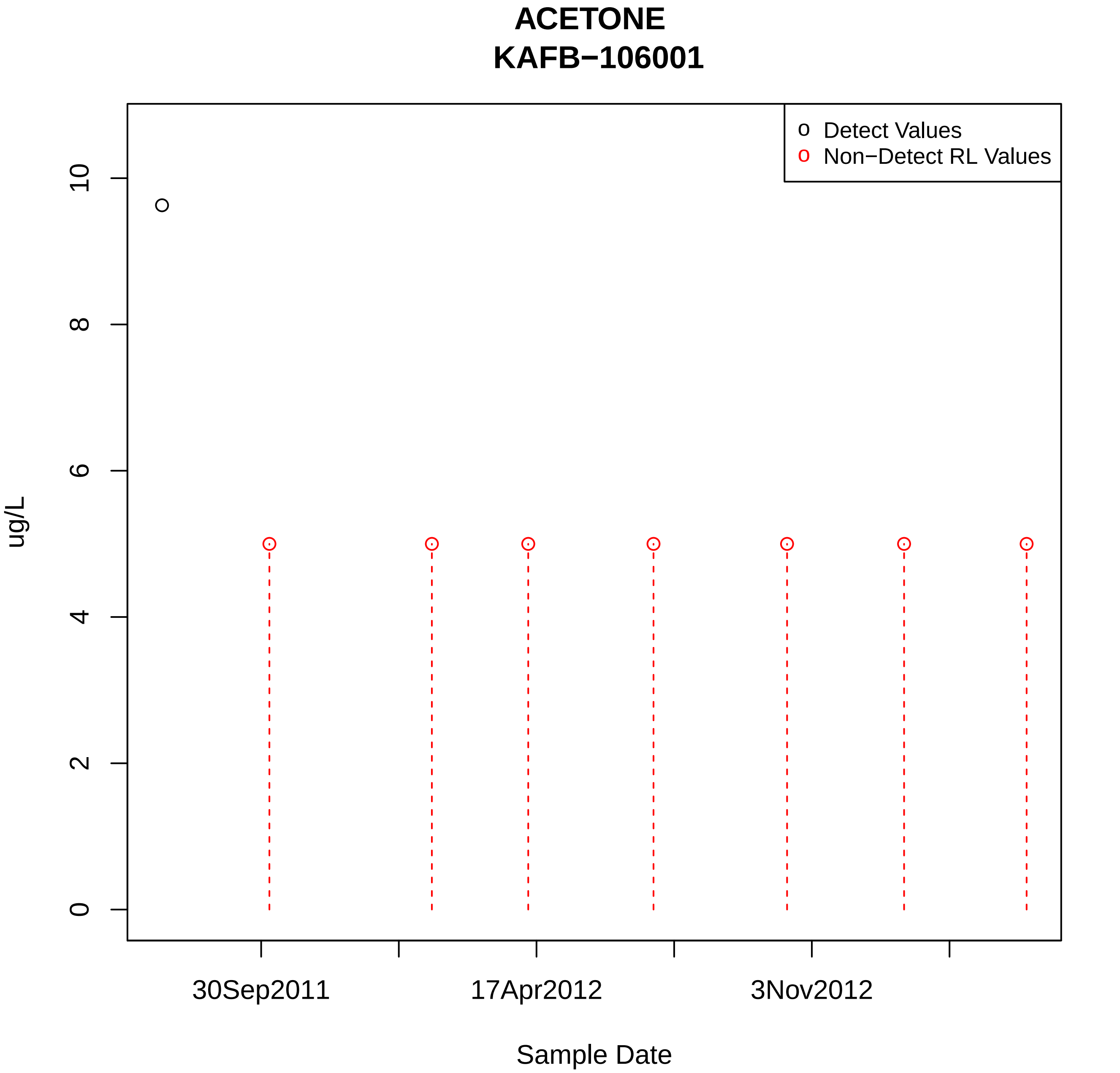

2−HEXANONE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



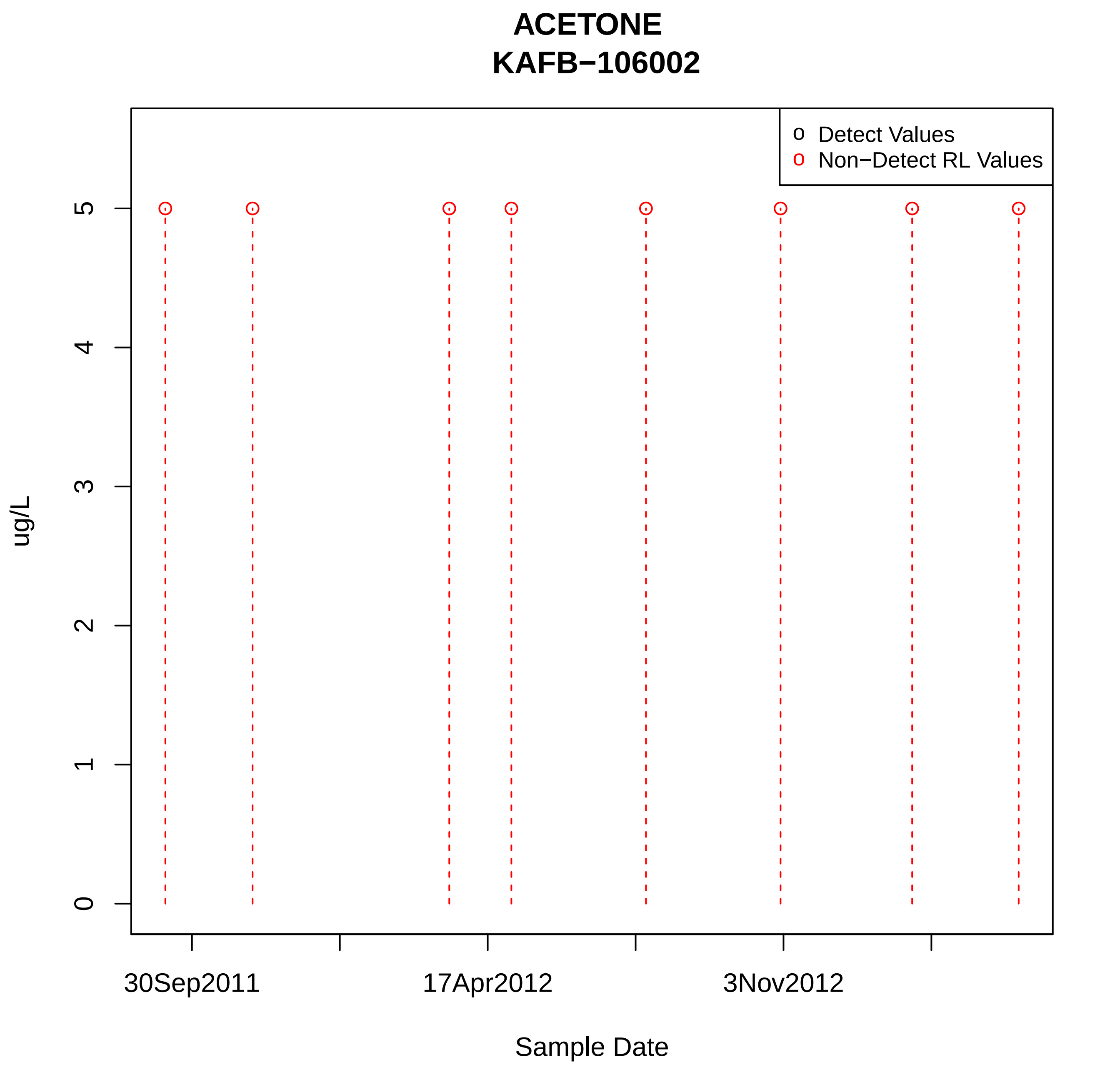
2−HEXANONE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

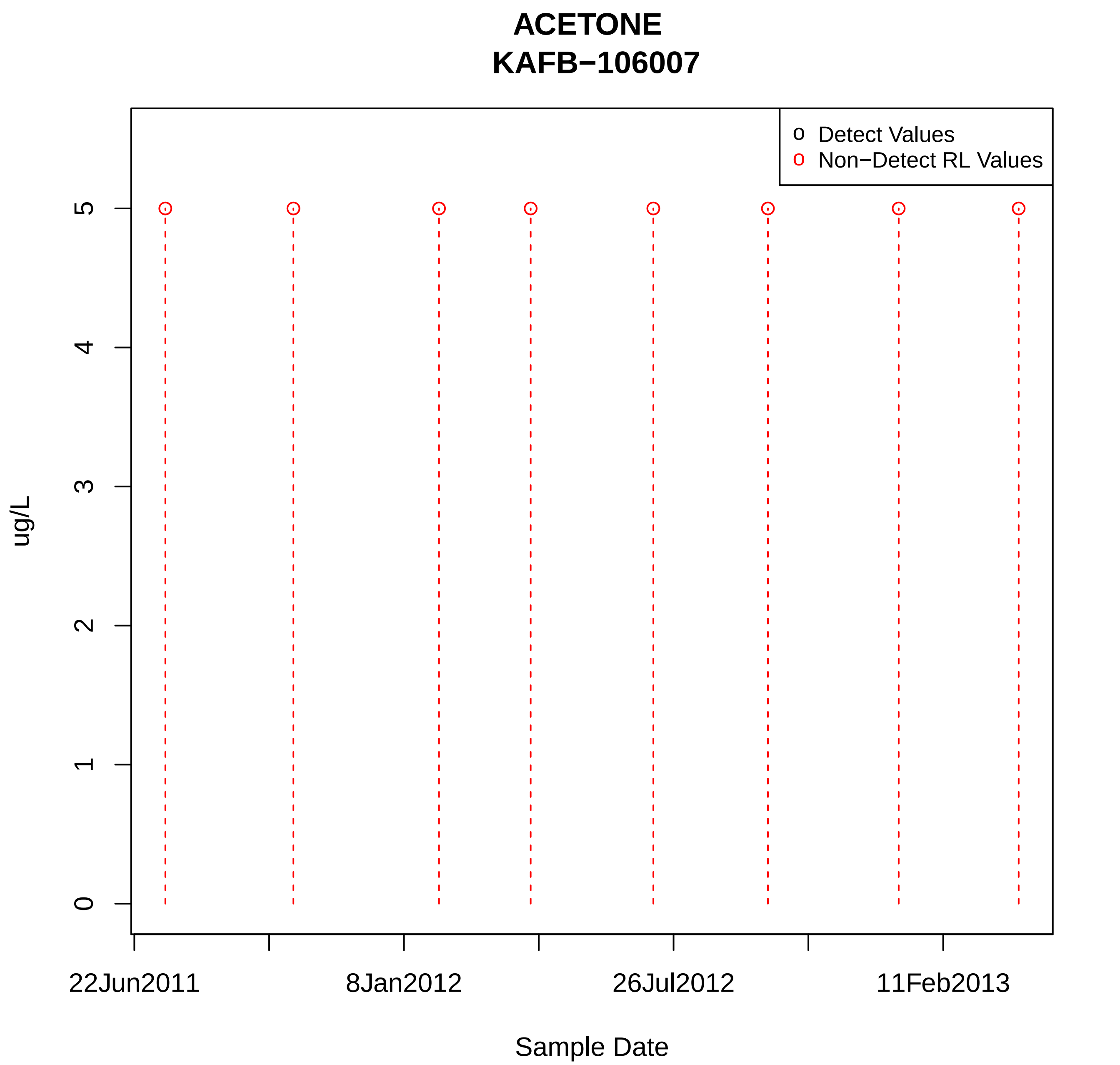


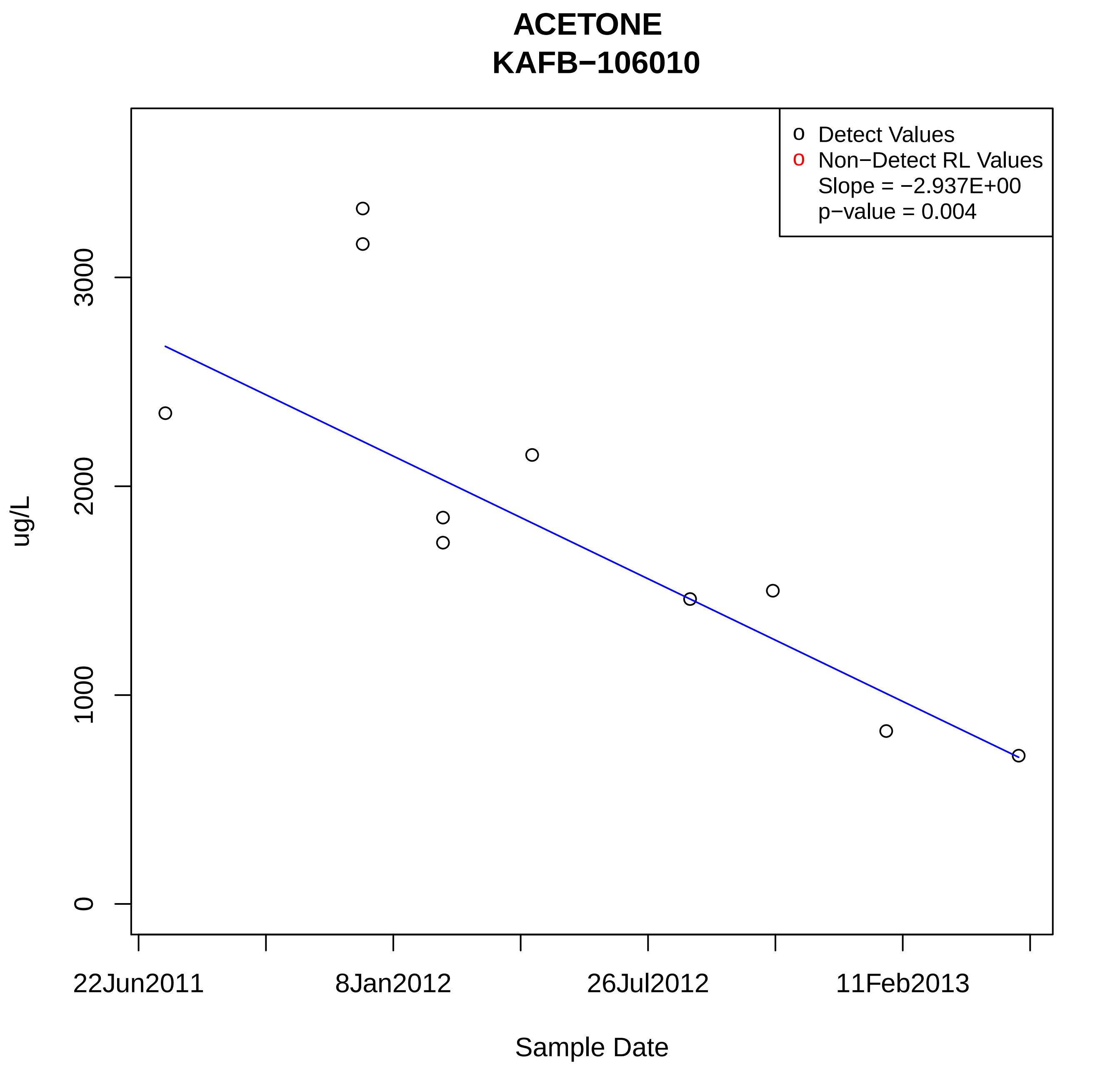
2−HEXANONE
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



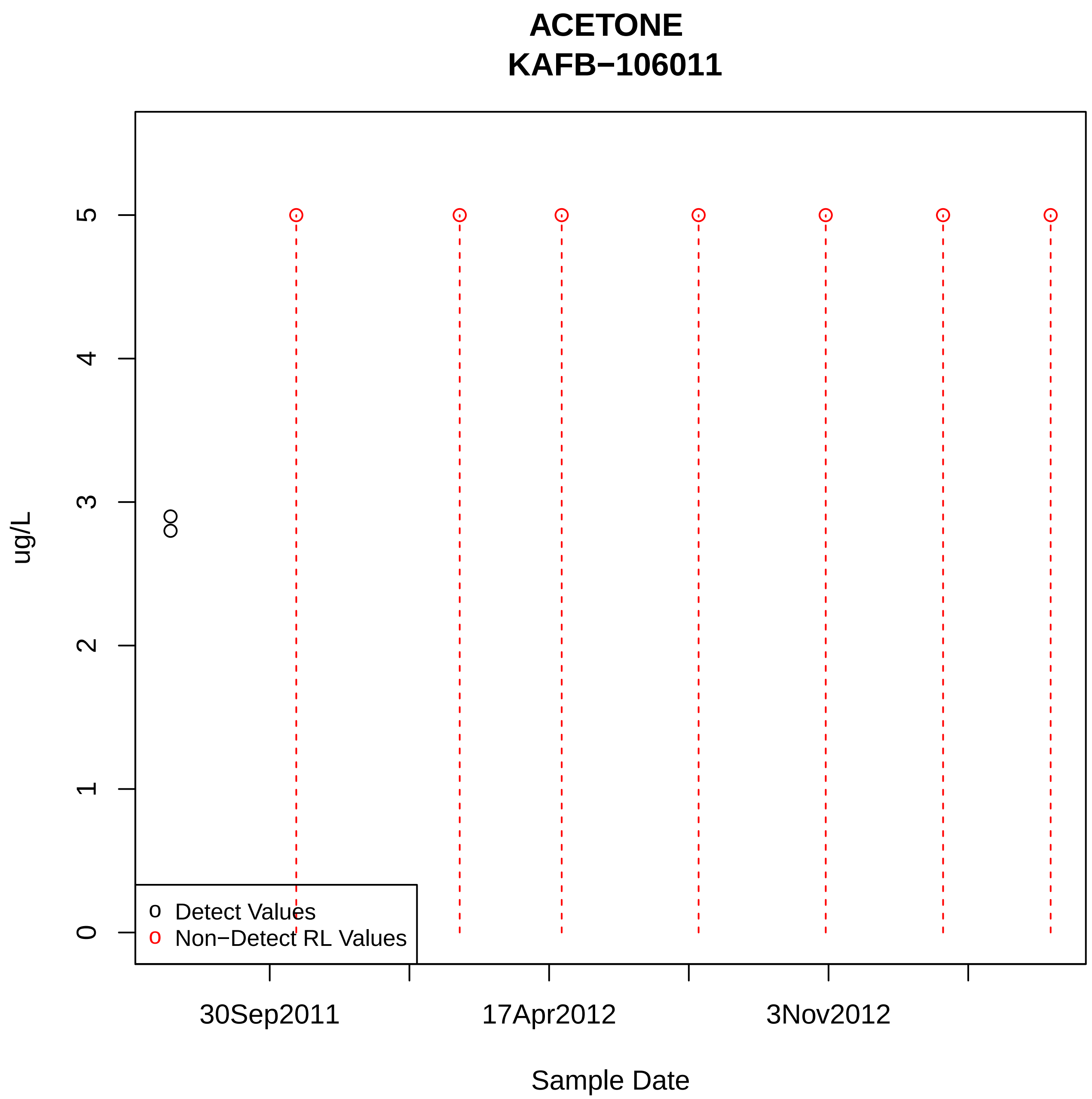
ACETONE
KAFB−106001
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
10
30Sep2011
17Apr2012
3Nov2012
Sample Date

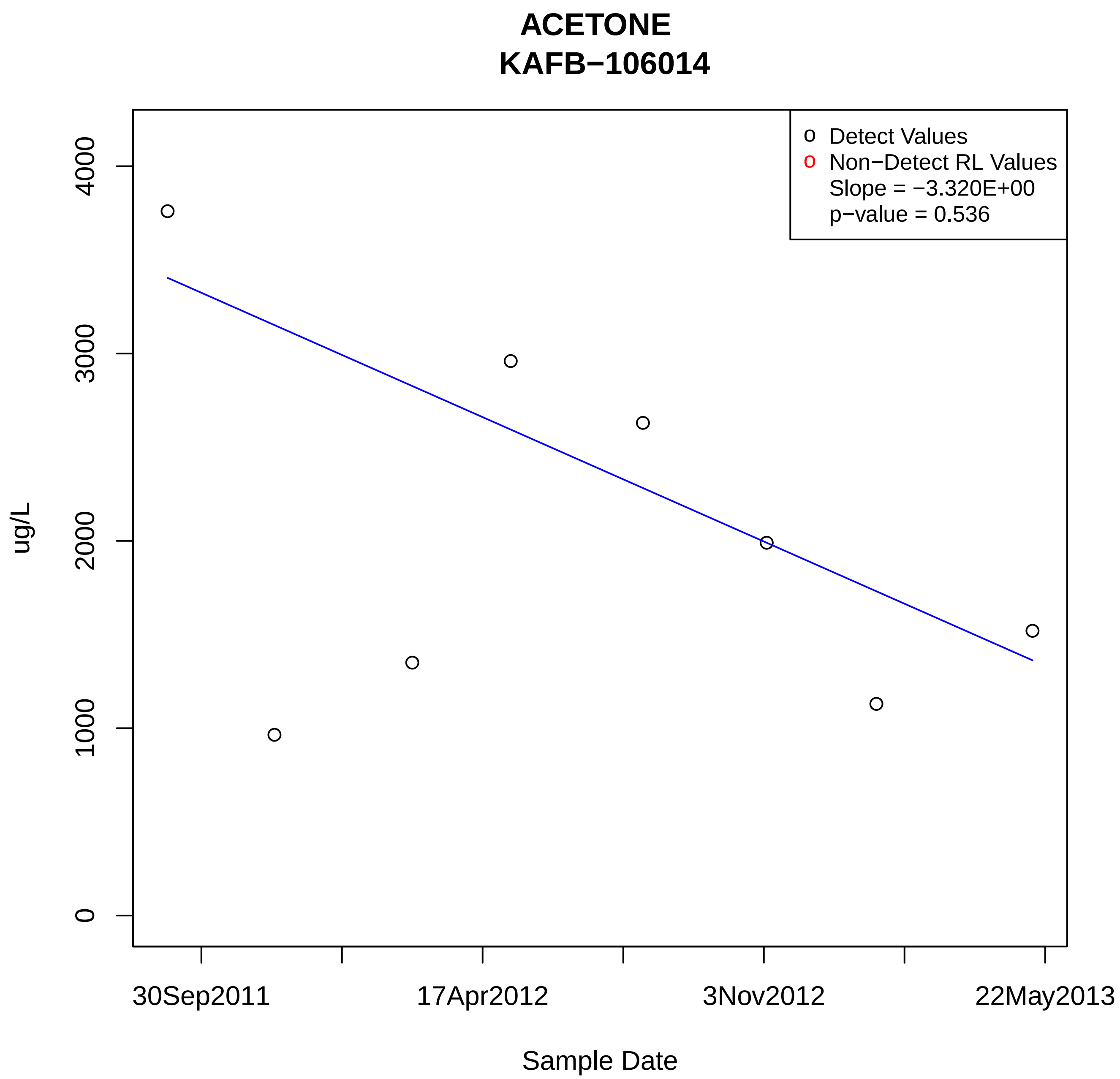

ACETONE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

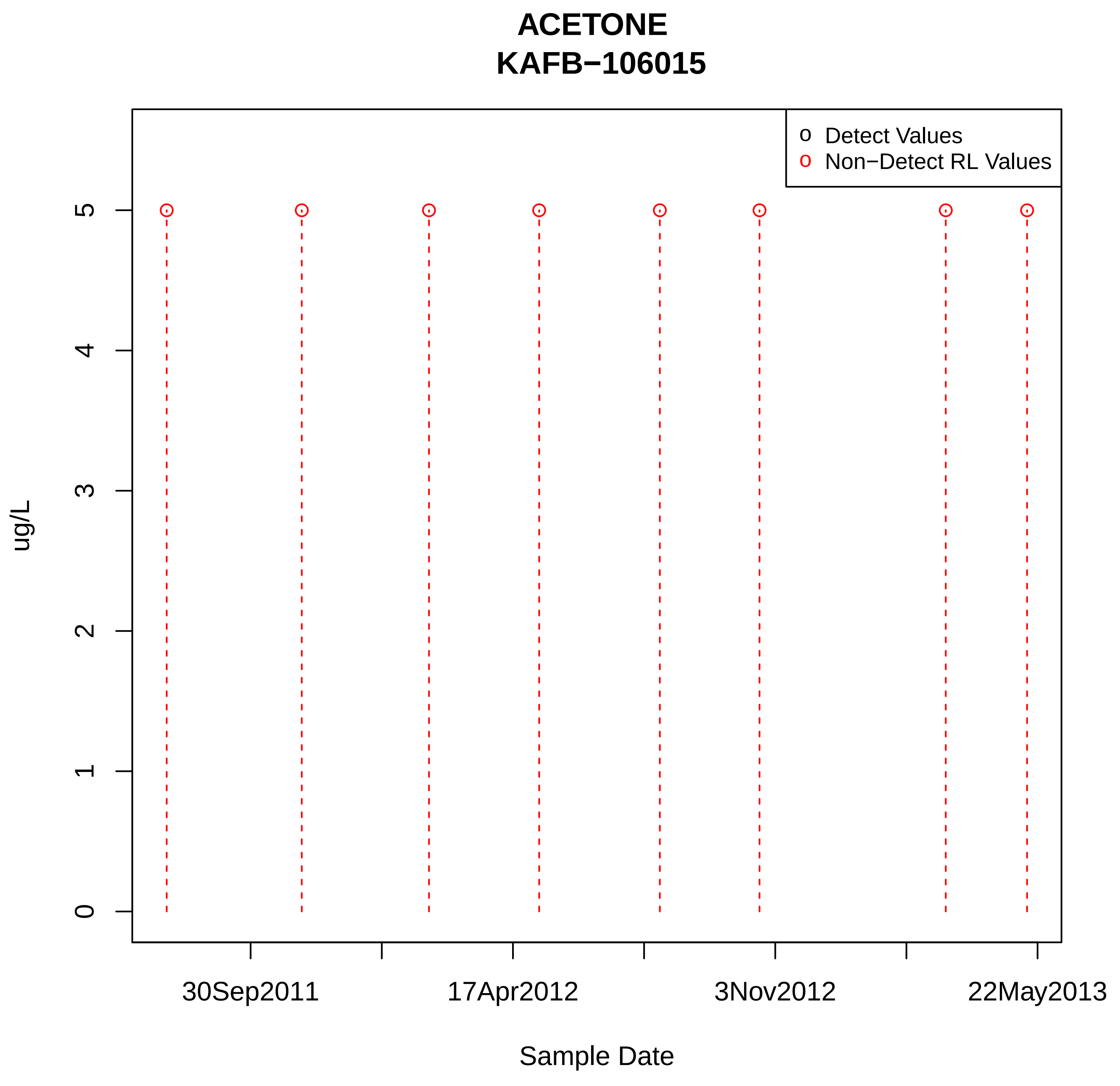

ACETONE
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

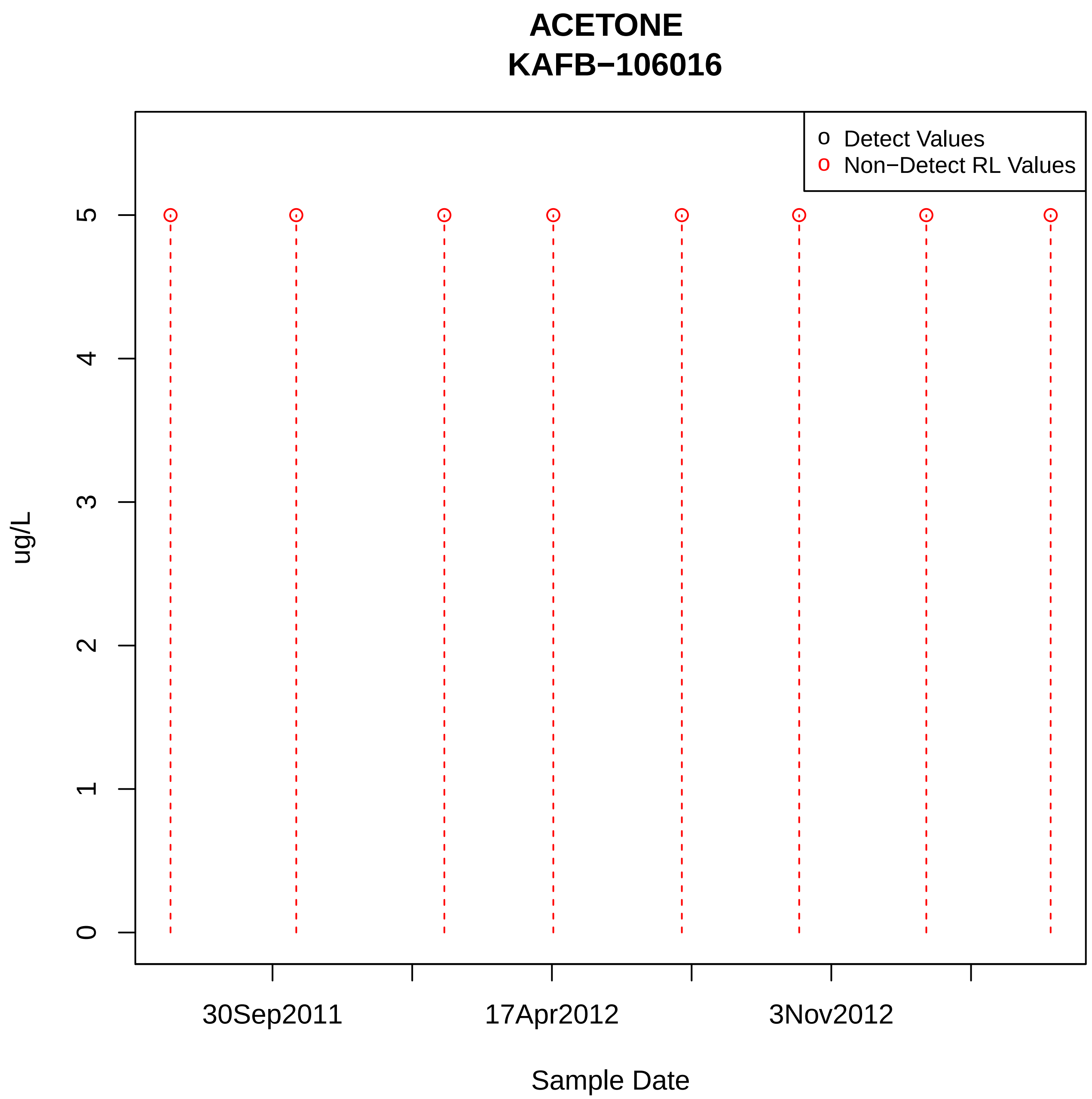


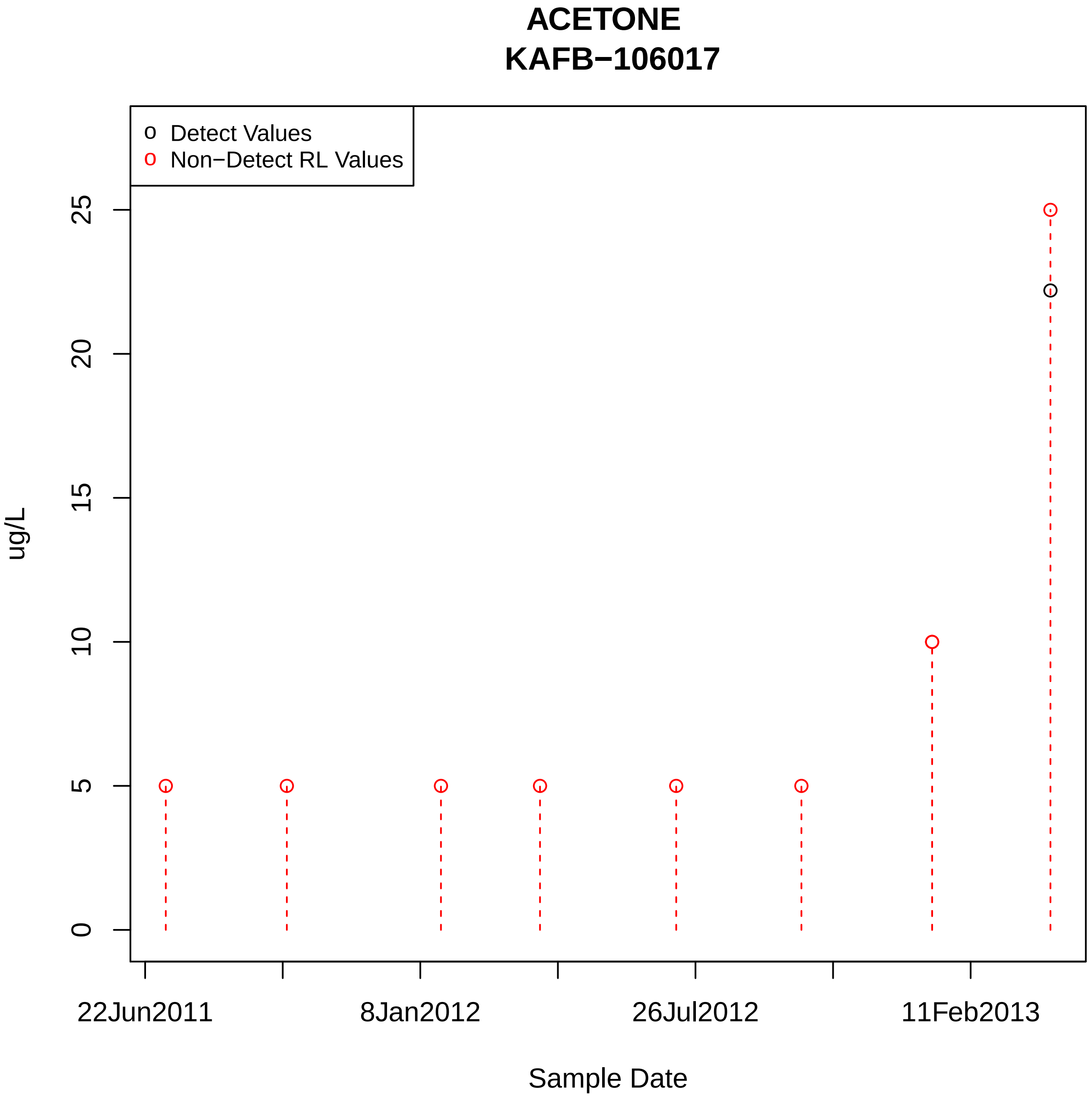
ACETONE
KAFB−106010
o Detect Values
o Non−Detect RL Values
Slope = −2.937E+00
p−value = 0.004
ug/L
0
1000
2000
3000
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

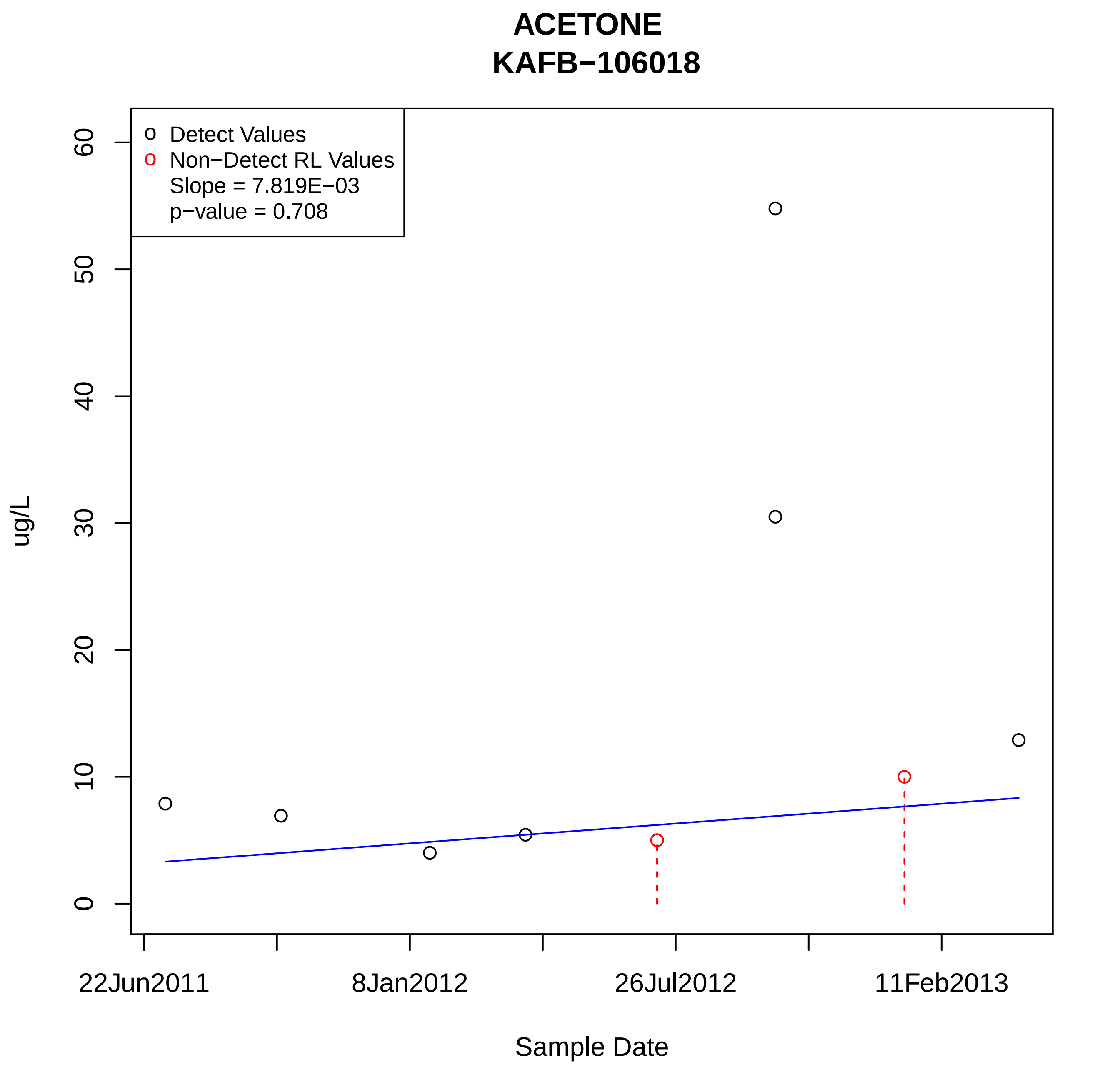

ACETONE
KAFB−106011
ug/L
0
1
2
3
4
5
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

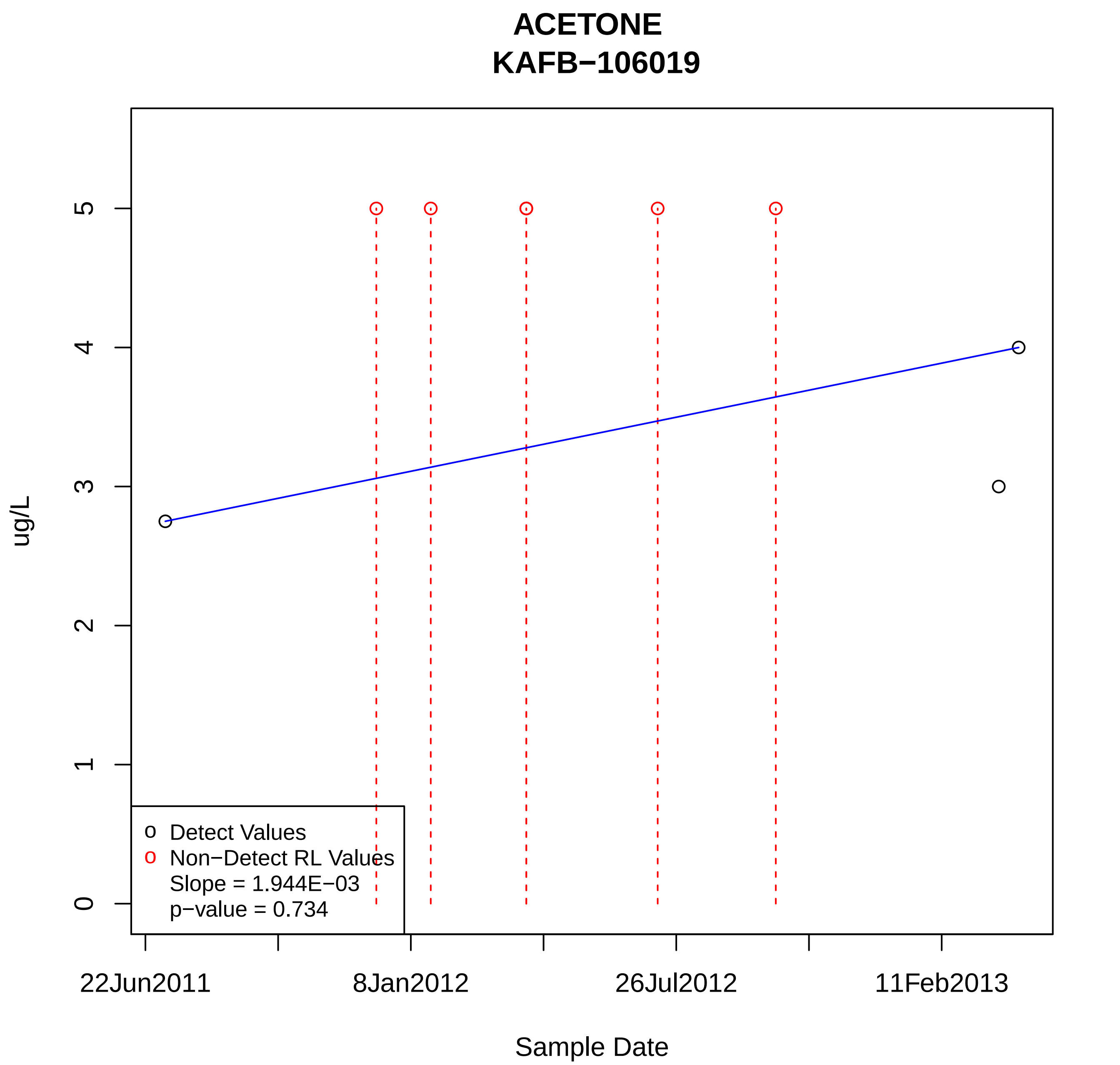

ACETONE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −3.320E+00
p−value = 0.536
ug/L
0
1000
2000
3000
4000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

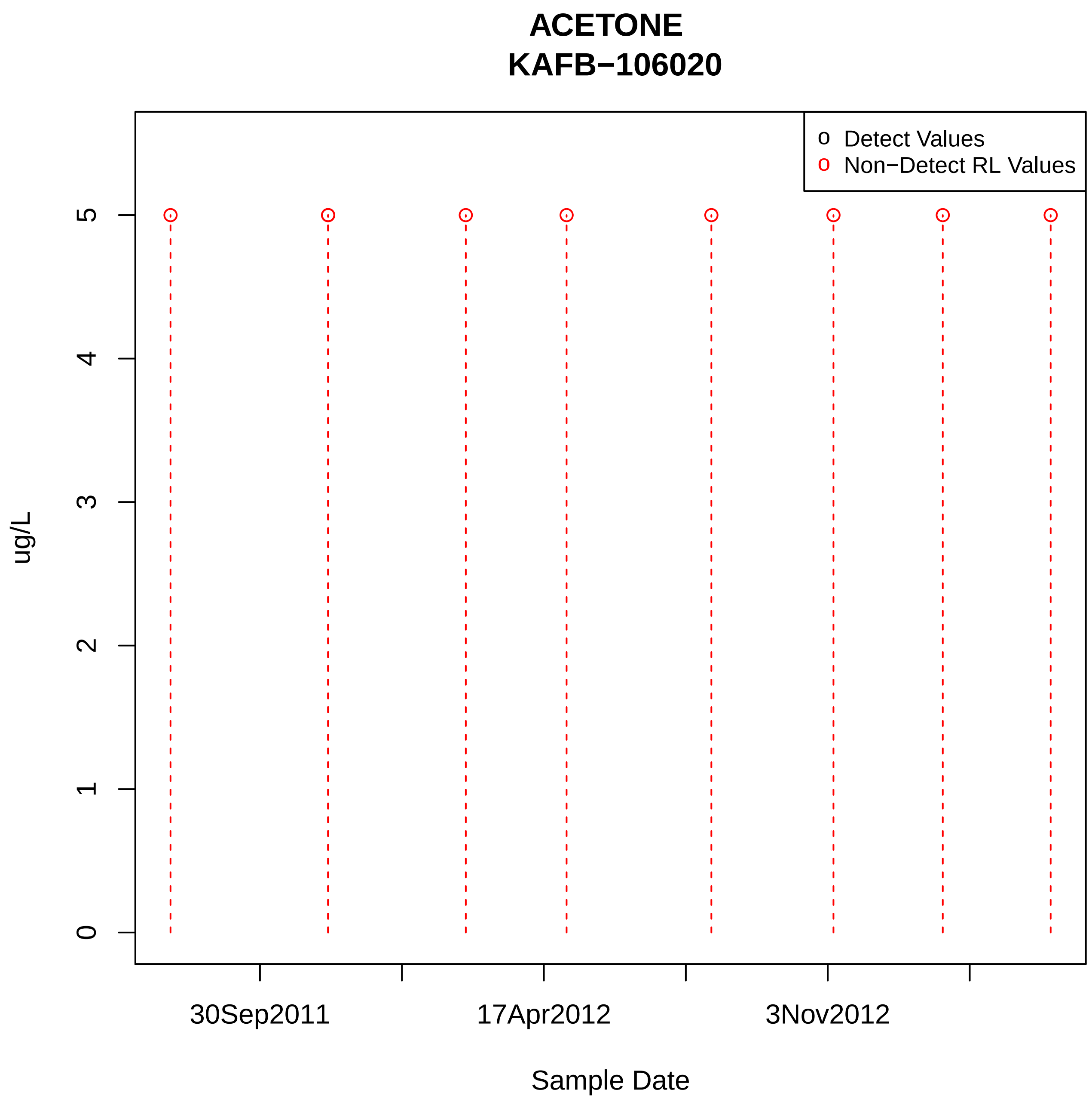

ACETONE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106016
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

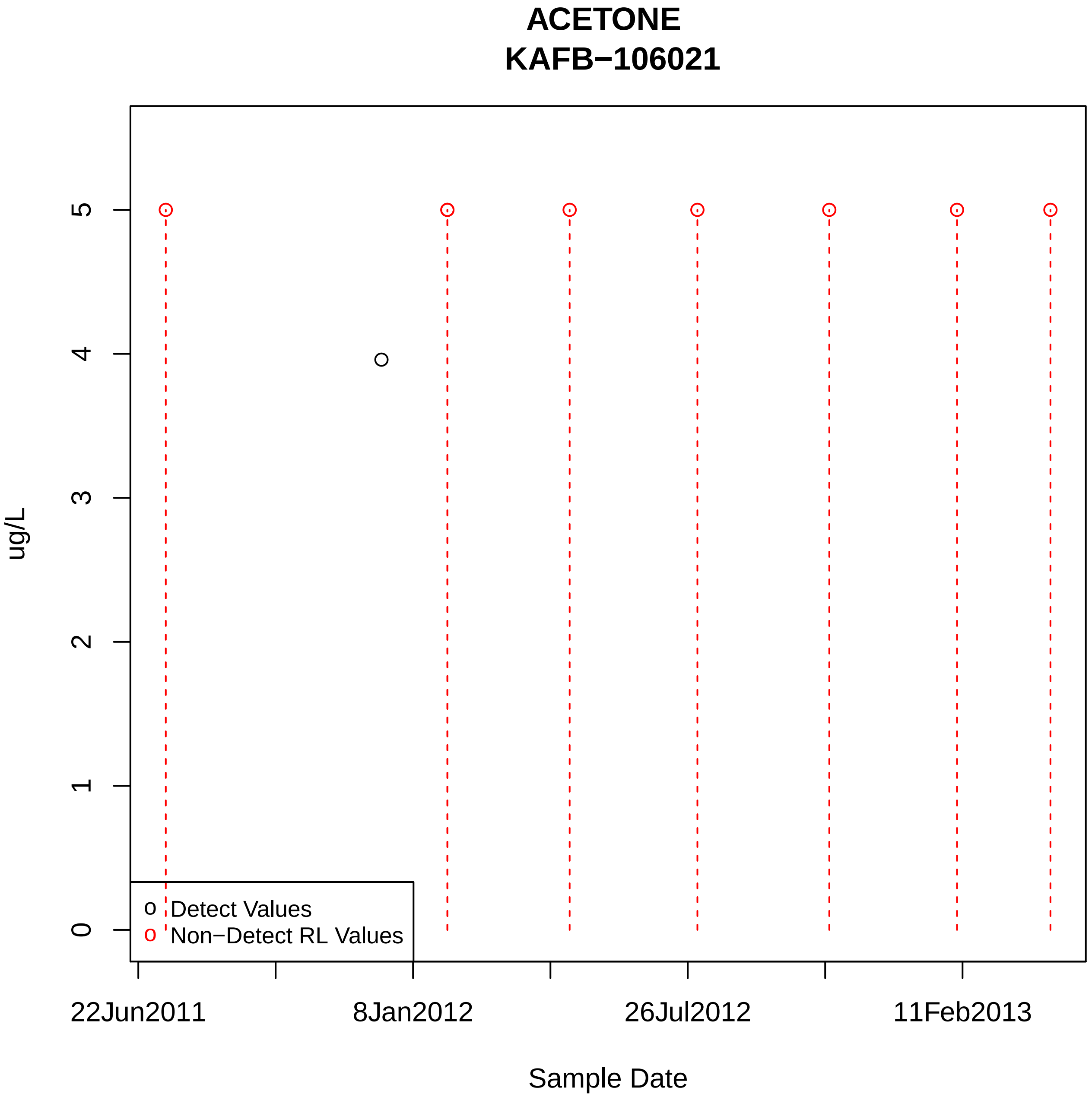

ACETONE
KAFB−106017
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ACETONE
KAFB−106018
o Detect Values
o Non−Detect RL Values
Slope = 7.819E−03
p−value = 0.708
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

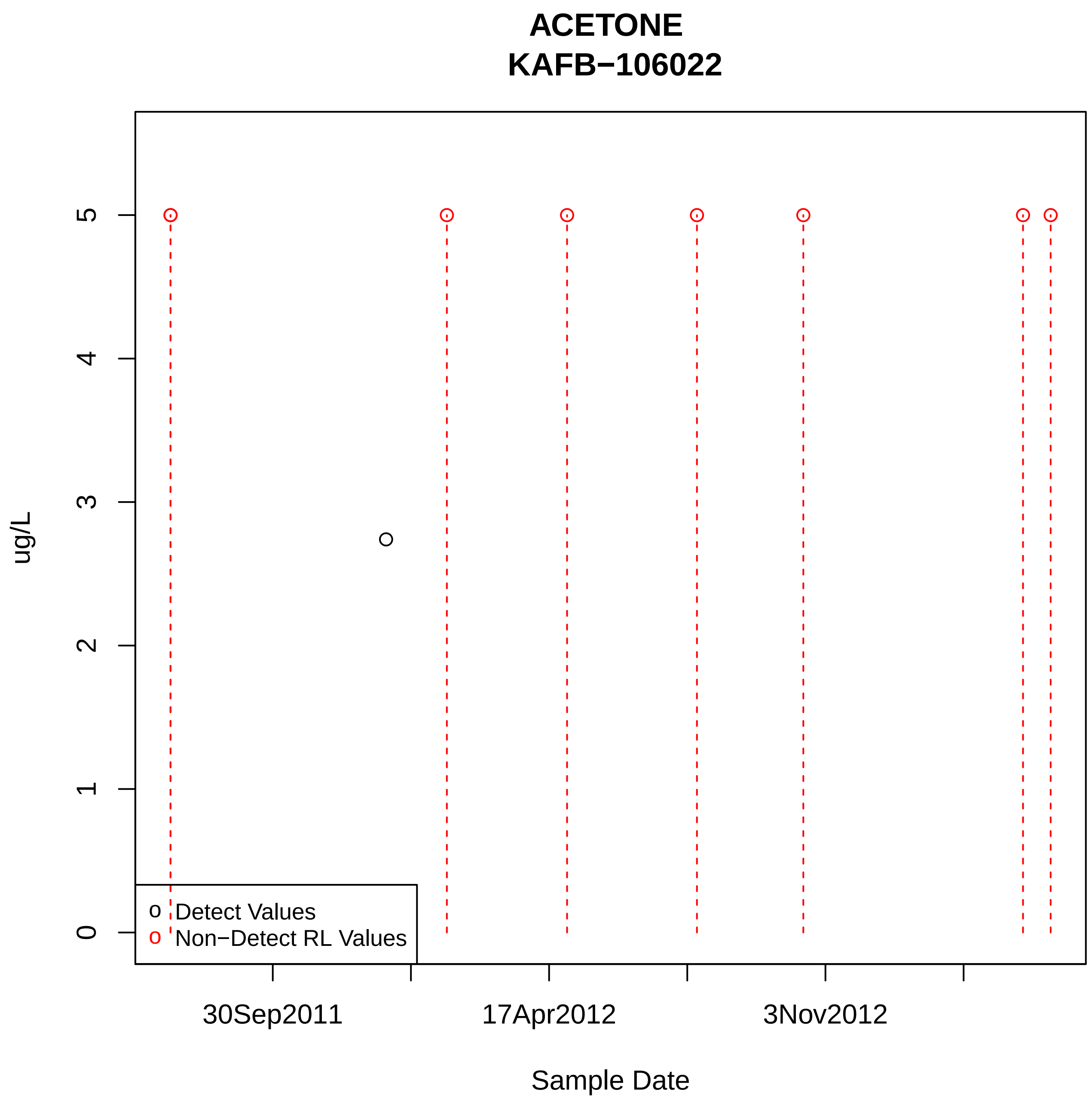

ACETONE
KAFB−106019
ug/L
0
1
2
3
4
5
Detect Values
Non−Detect RL Values
Slope = 1.944E−03
p−value = 0.734
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

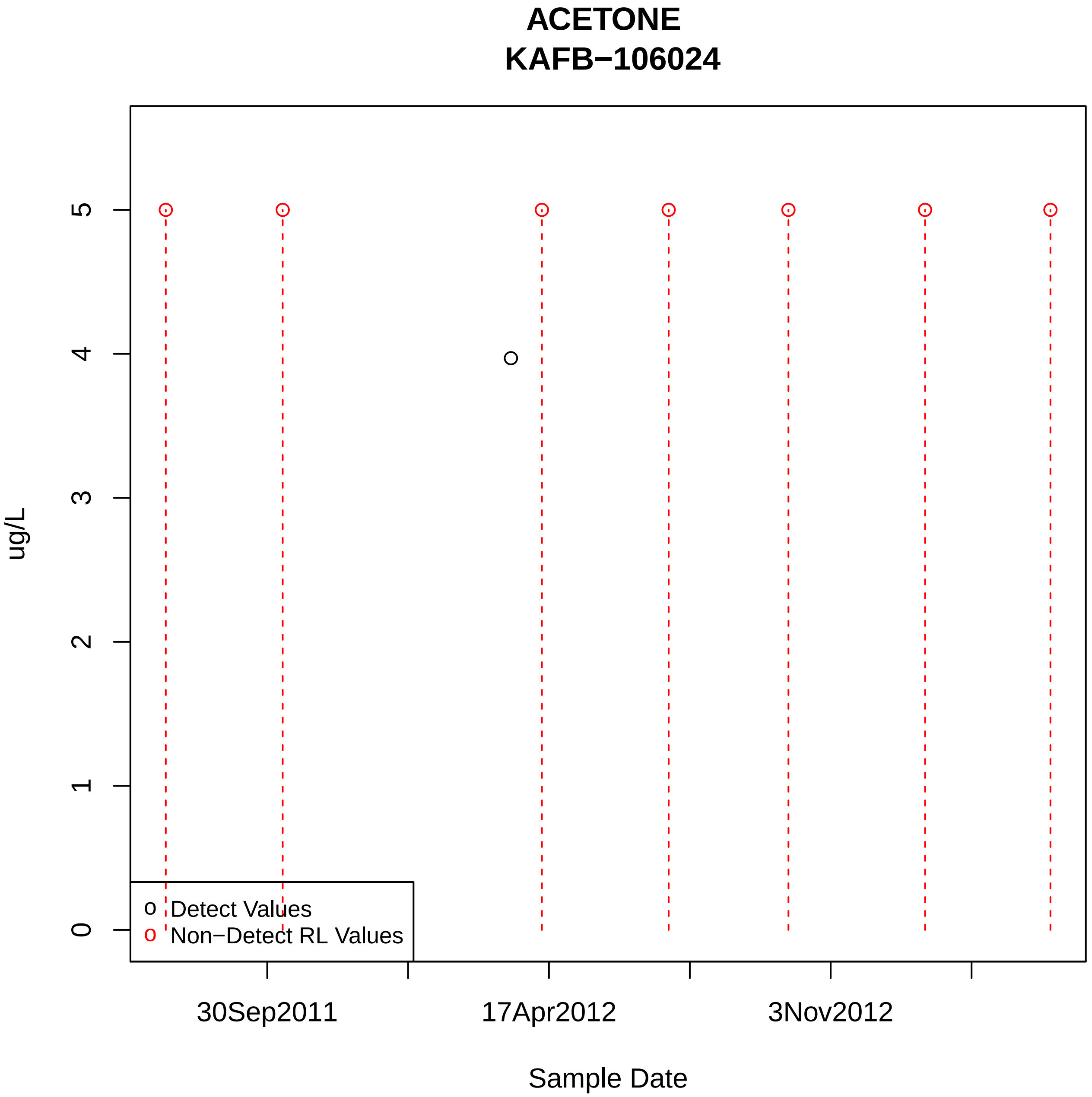


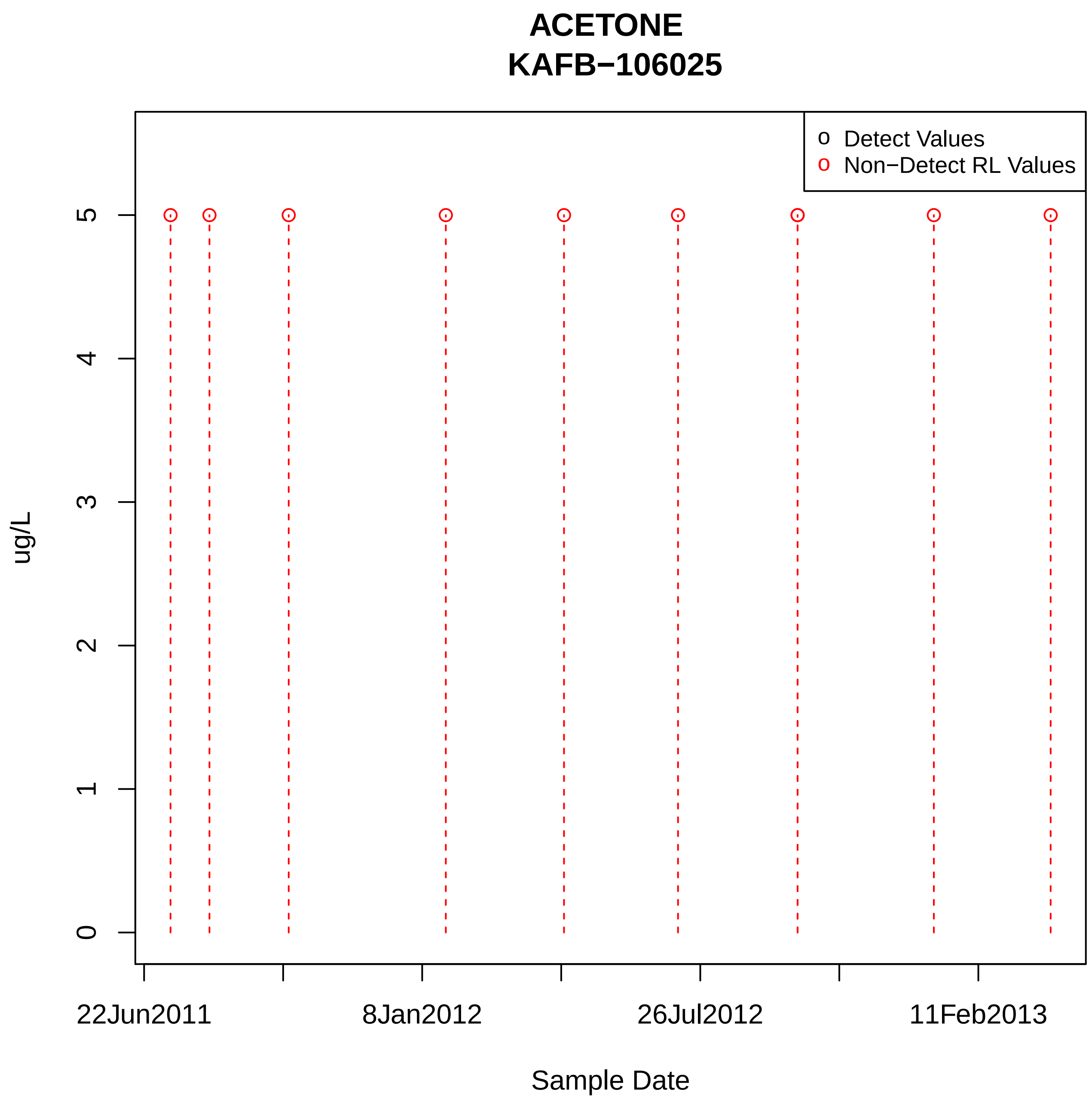
ACETONE
KAFB−106020
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



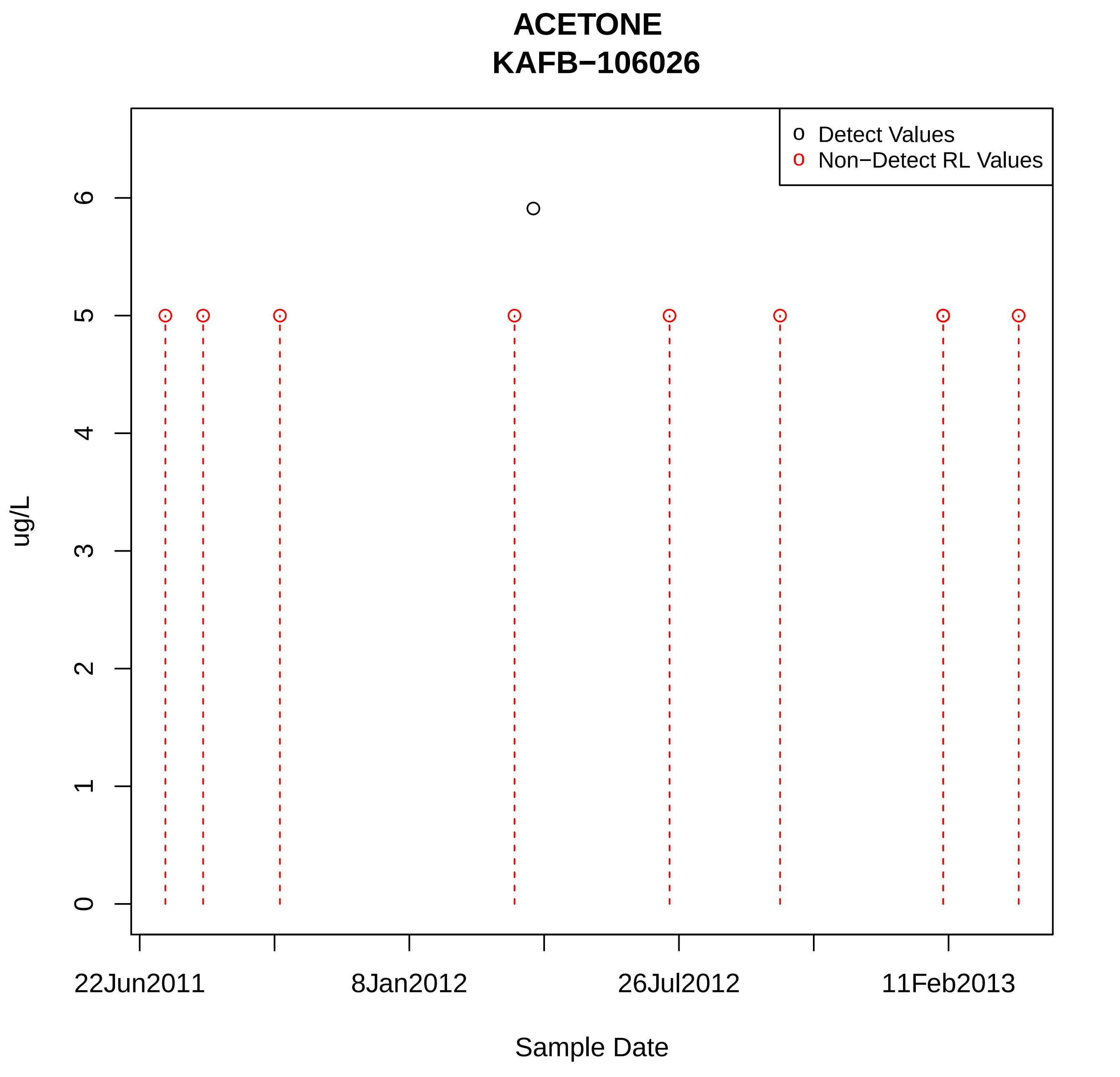
ACETONE
KAFB−106021
ug/L
0
1
2
3
4
5
o Detect Values
o Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ACETONE
KAFB−106022
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

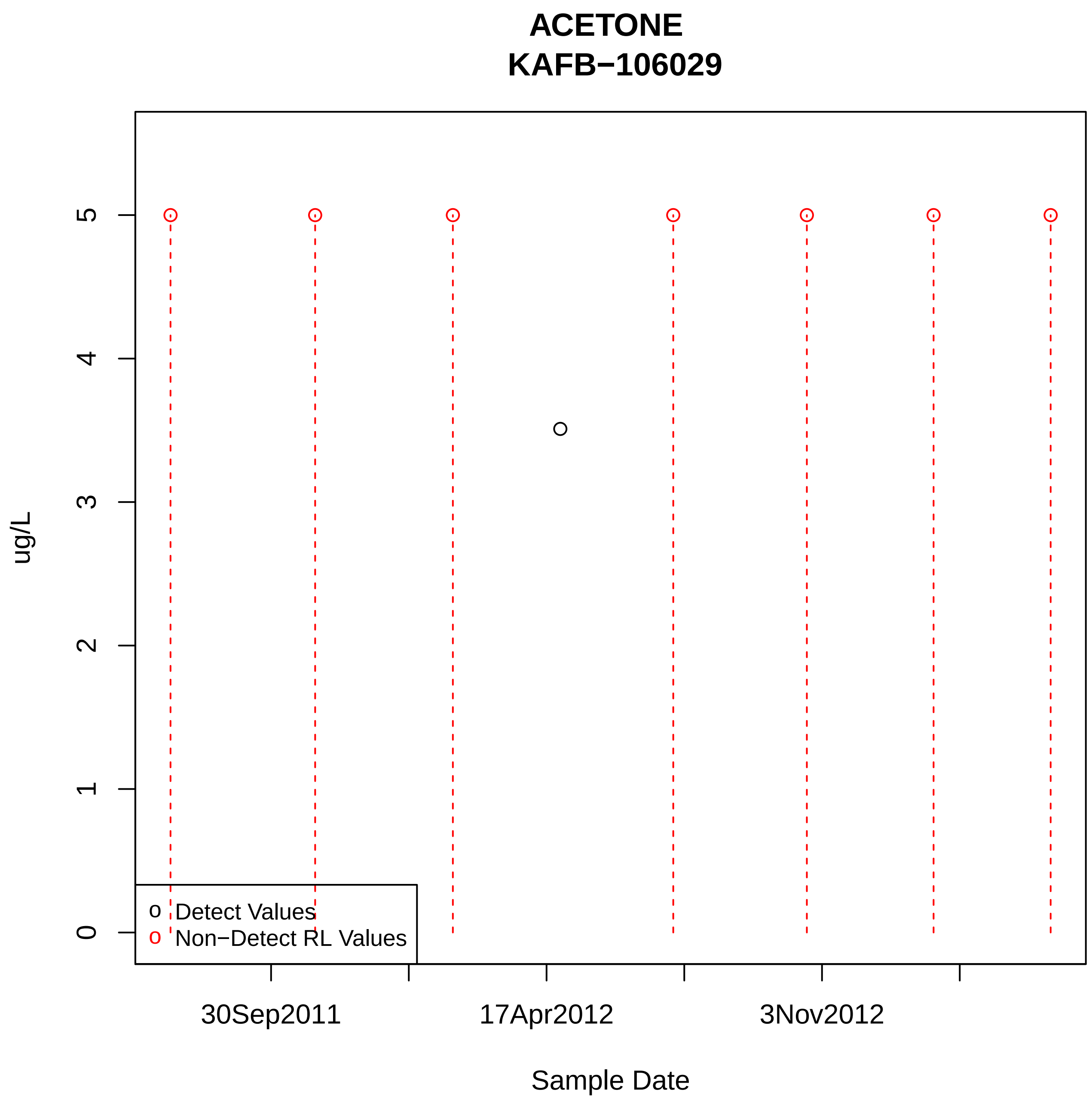

ACETONE
KAFB−106024
ug/L
0
1
2
3
4
5
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date



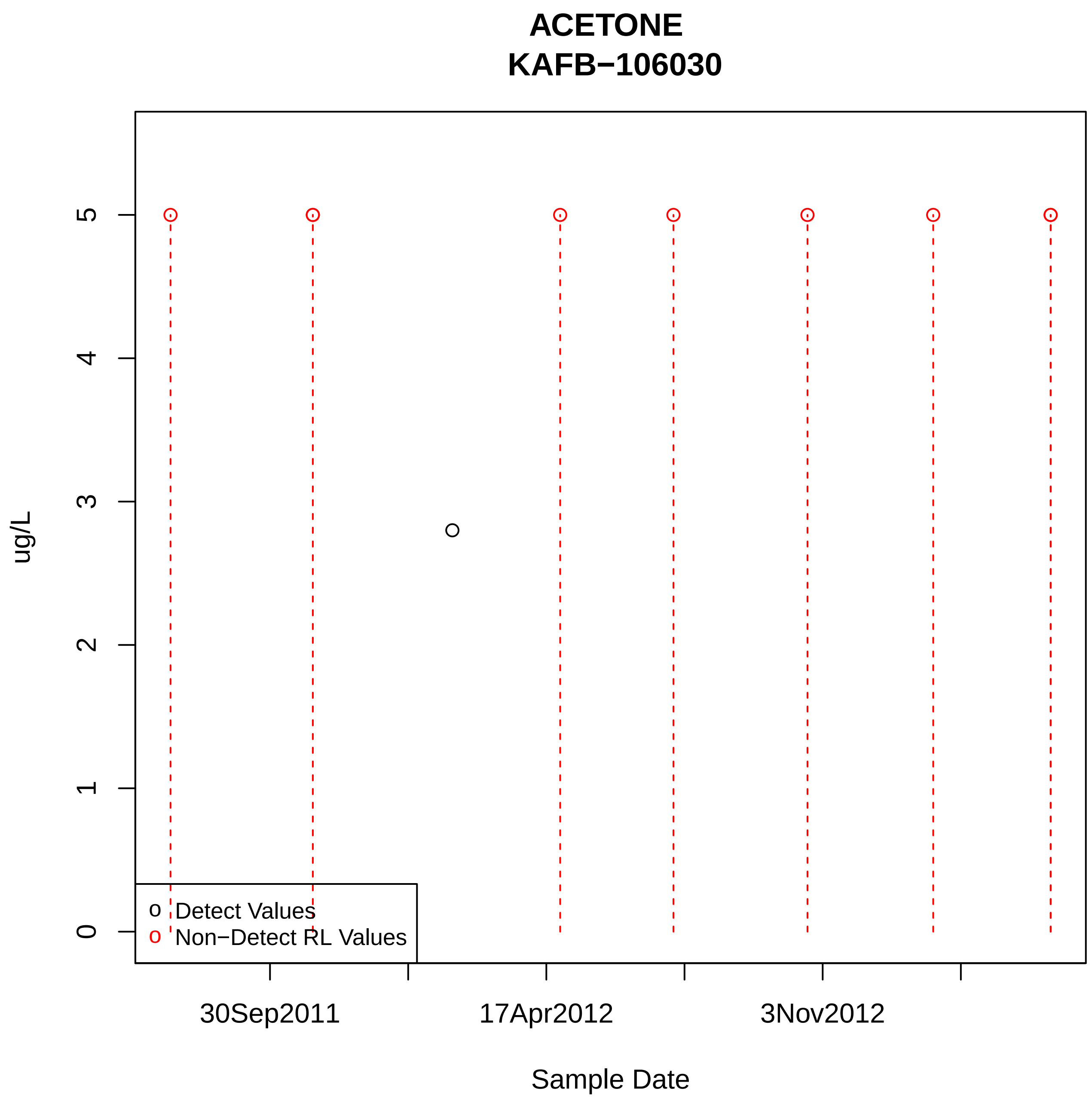
ACETONE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



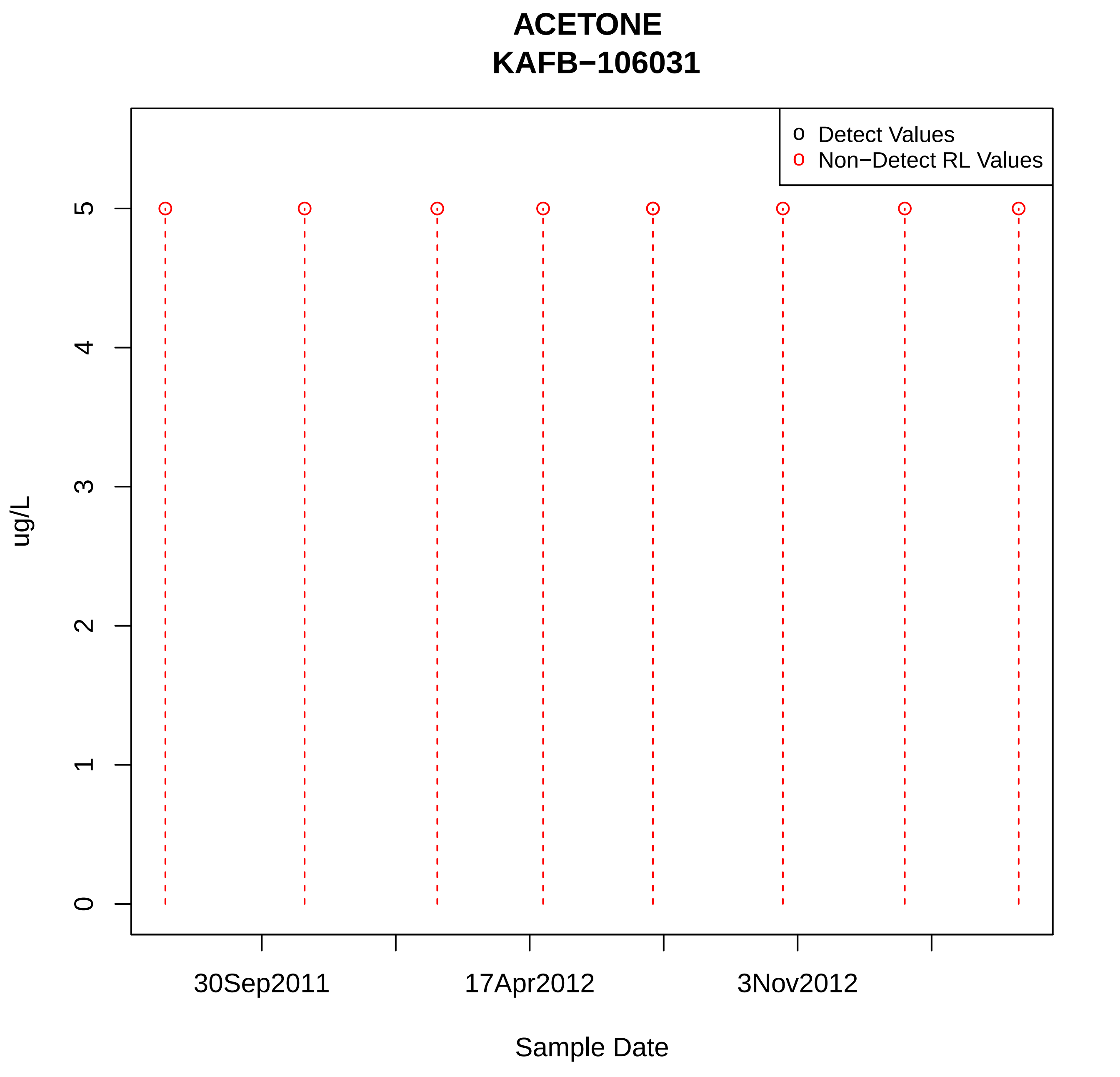
ACETONE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

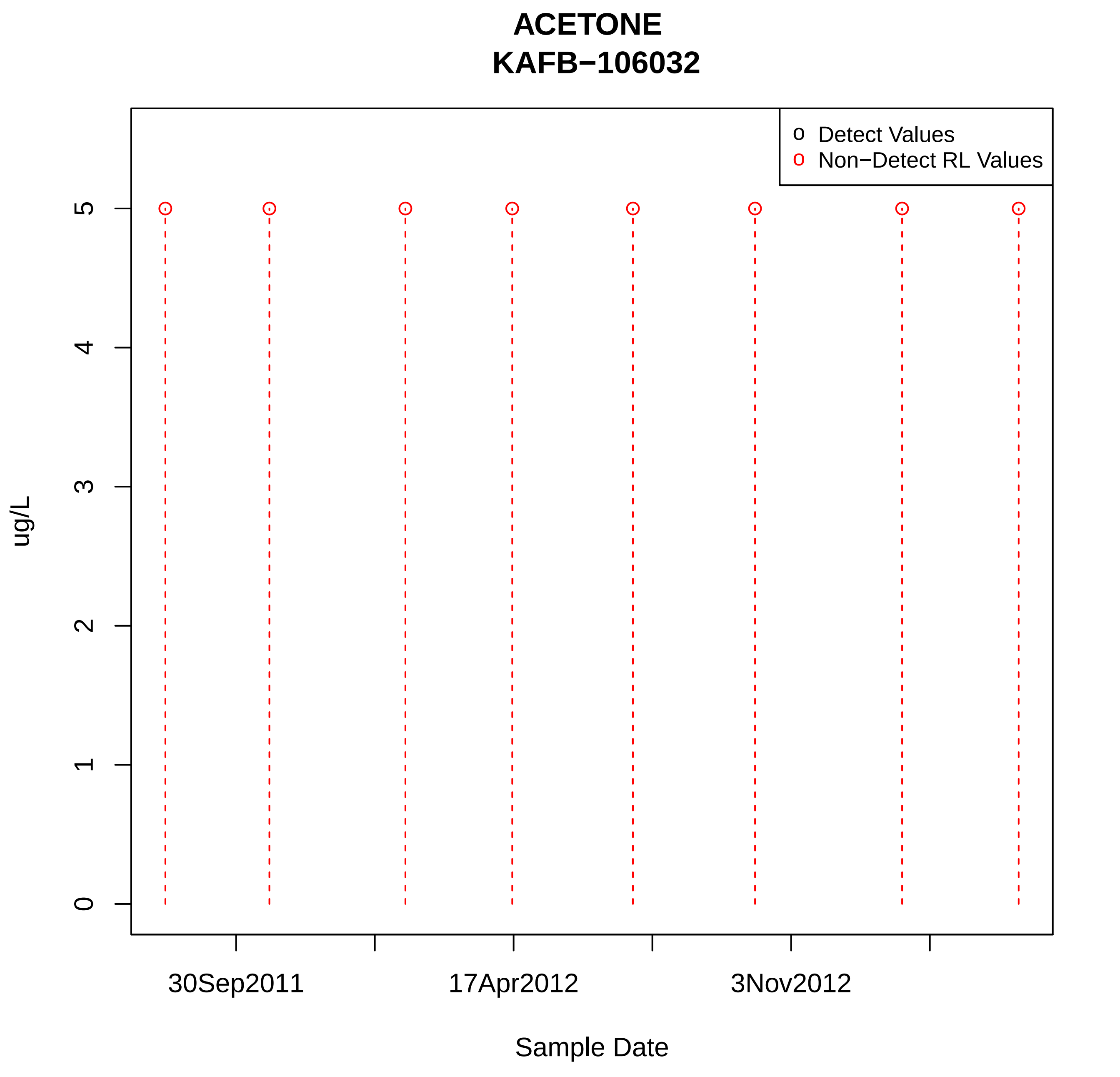


ACETONE
KAFB−106029
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

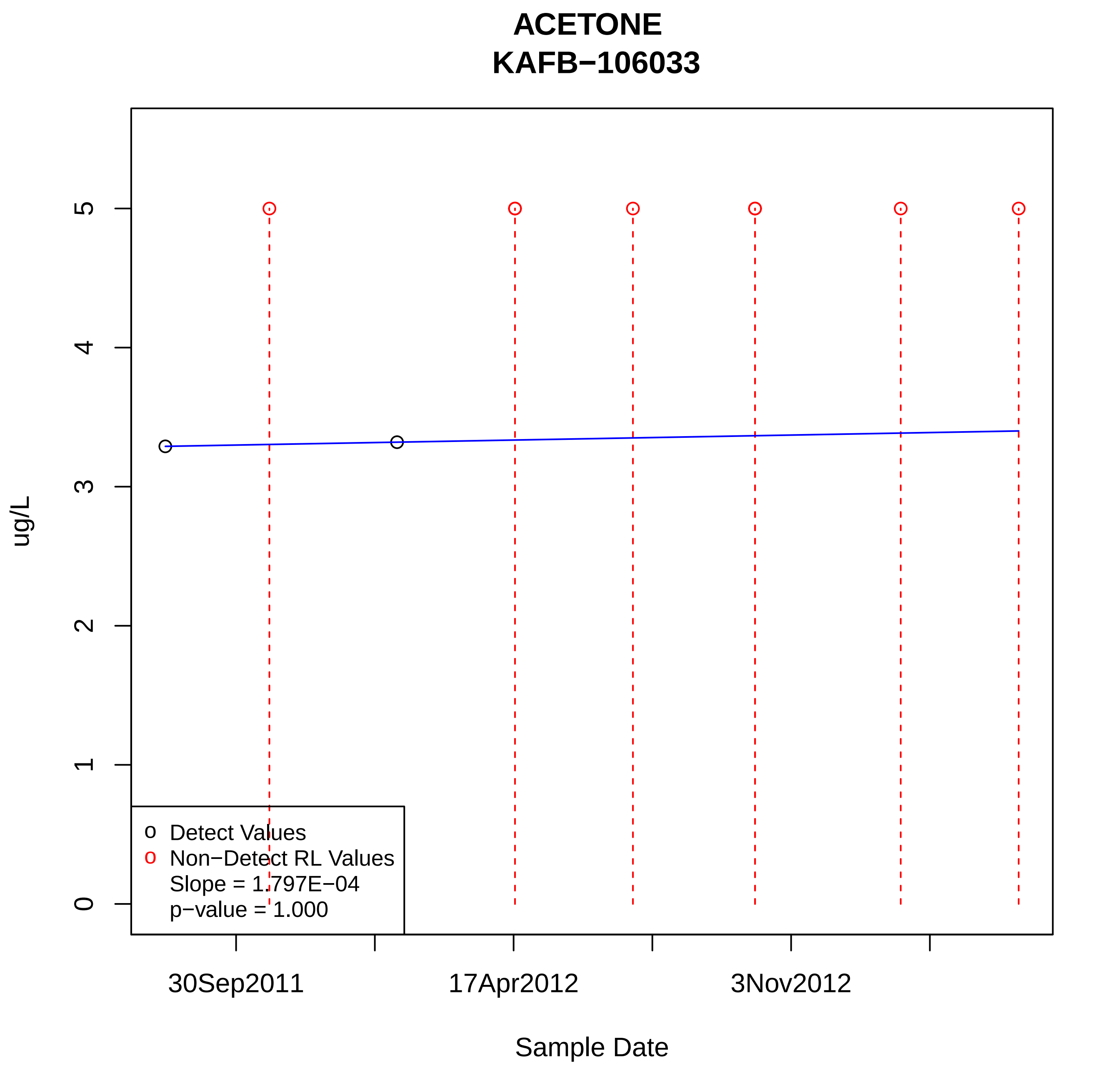


ACETONE
KAFB−106030
ug/L
0
1
2
3
4
5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

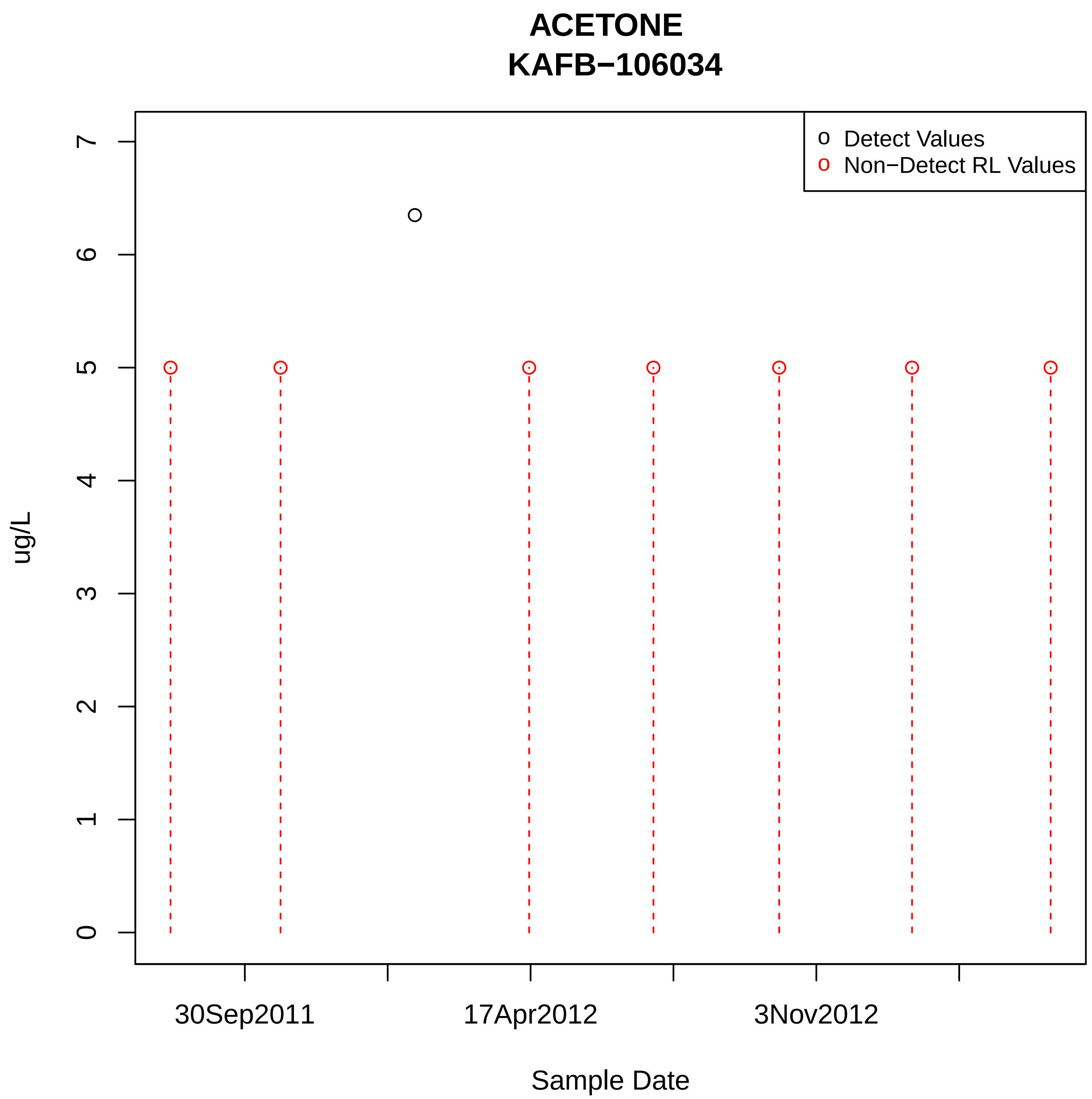

ACETONE
KAFB−106031
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

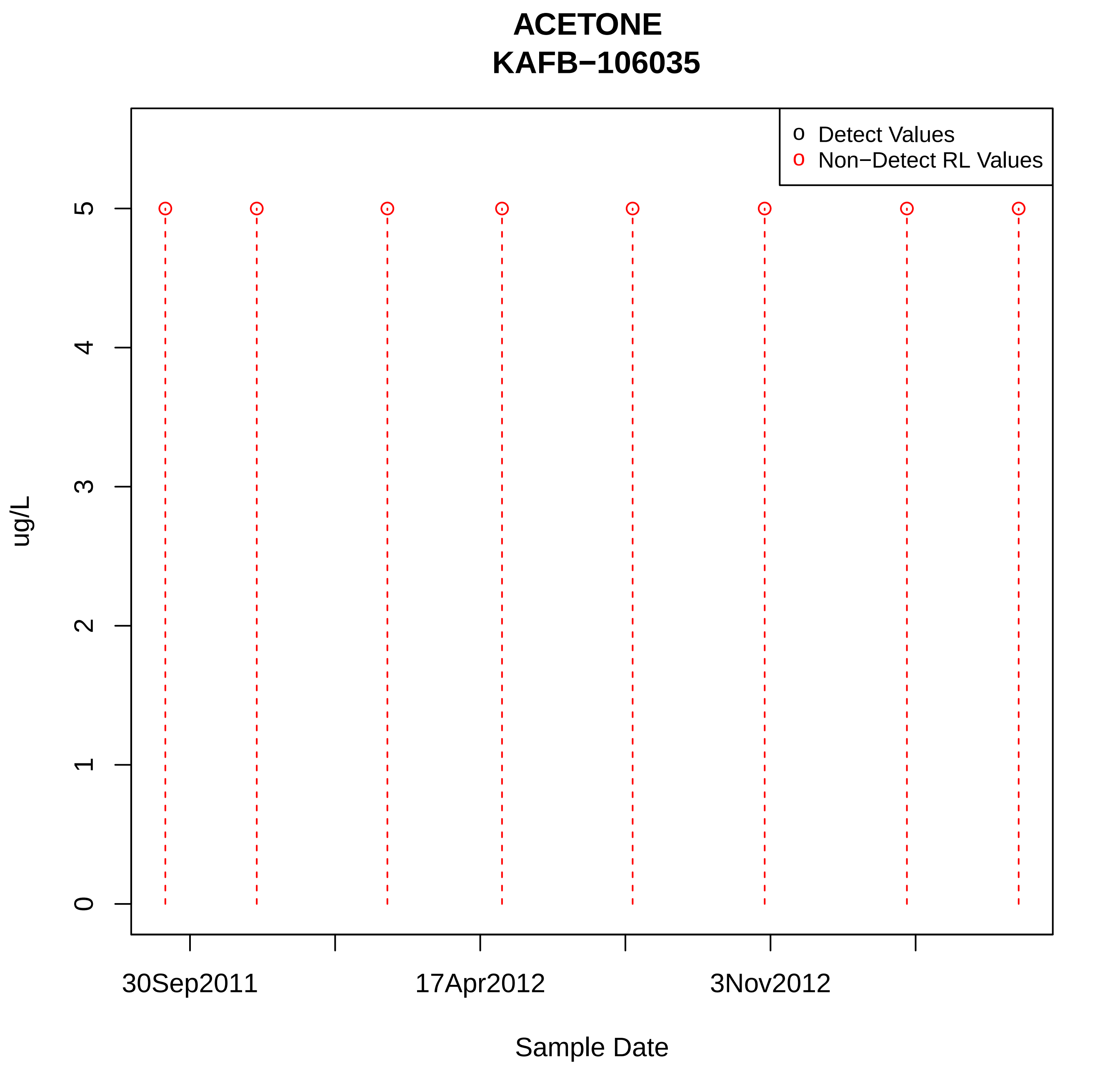


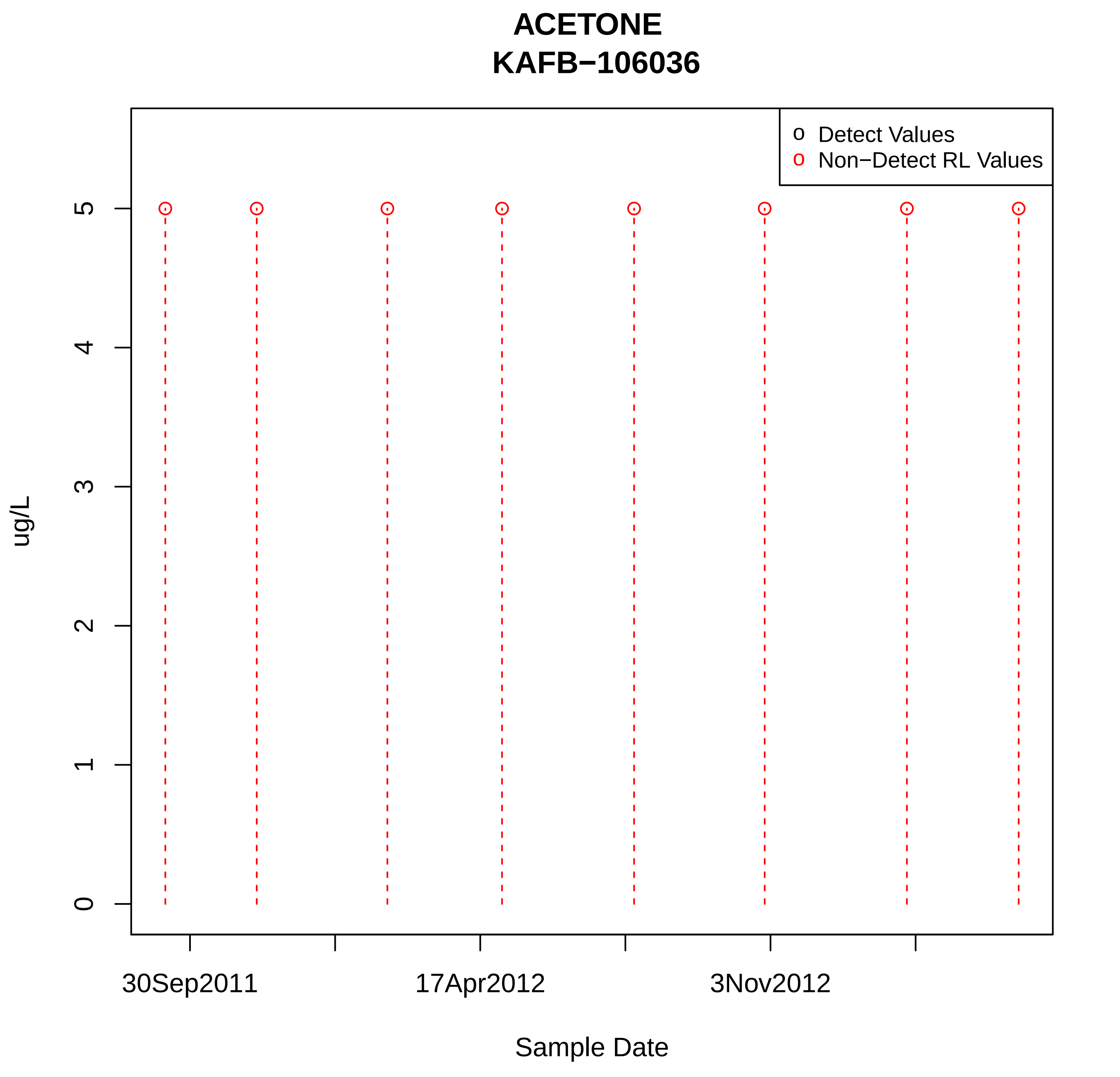
ACETONE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



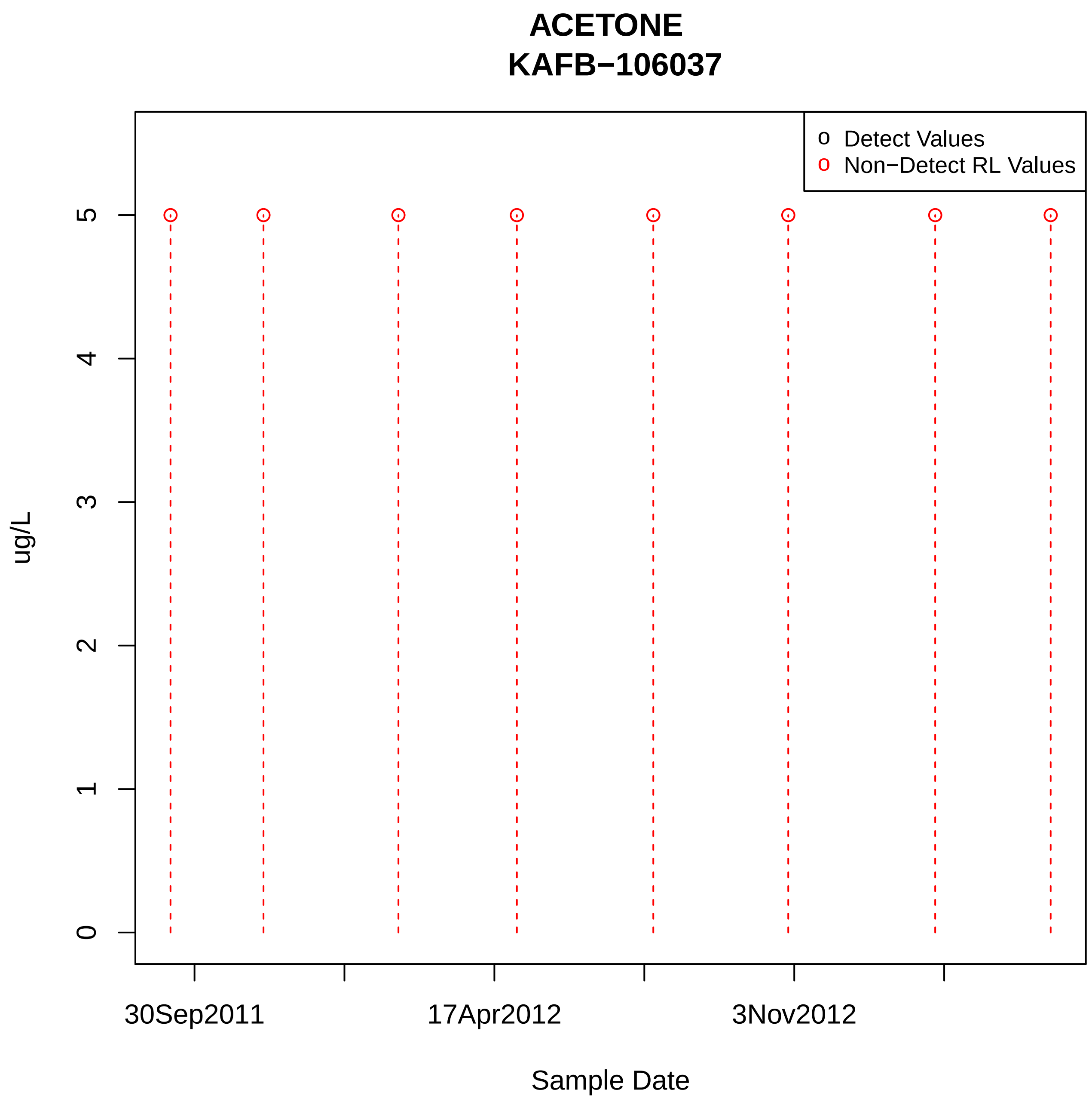
ACETONE
KAFB−106033
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = 1.797E−04
p−value = 1.000


ACETONE
KAFB−106034
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
7
30Sep2011
17Apr2012
3Nov2012
Sample Date

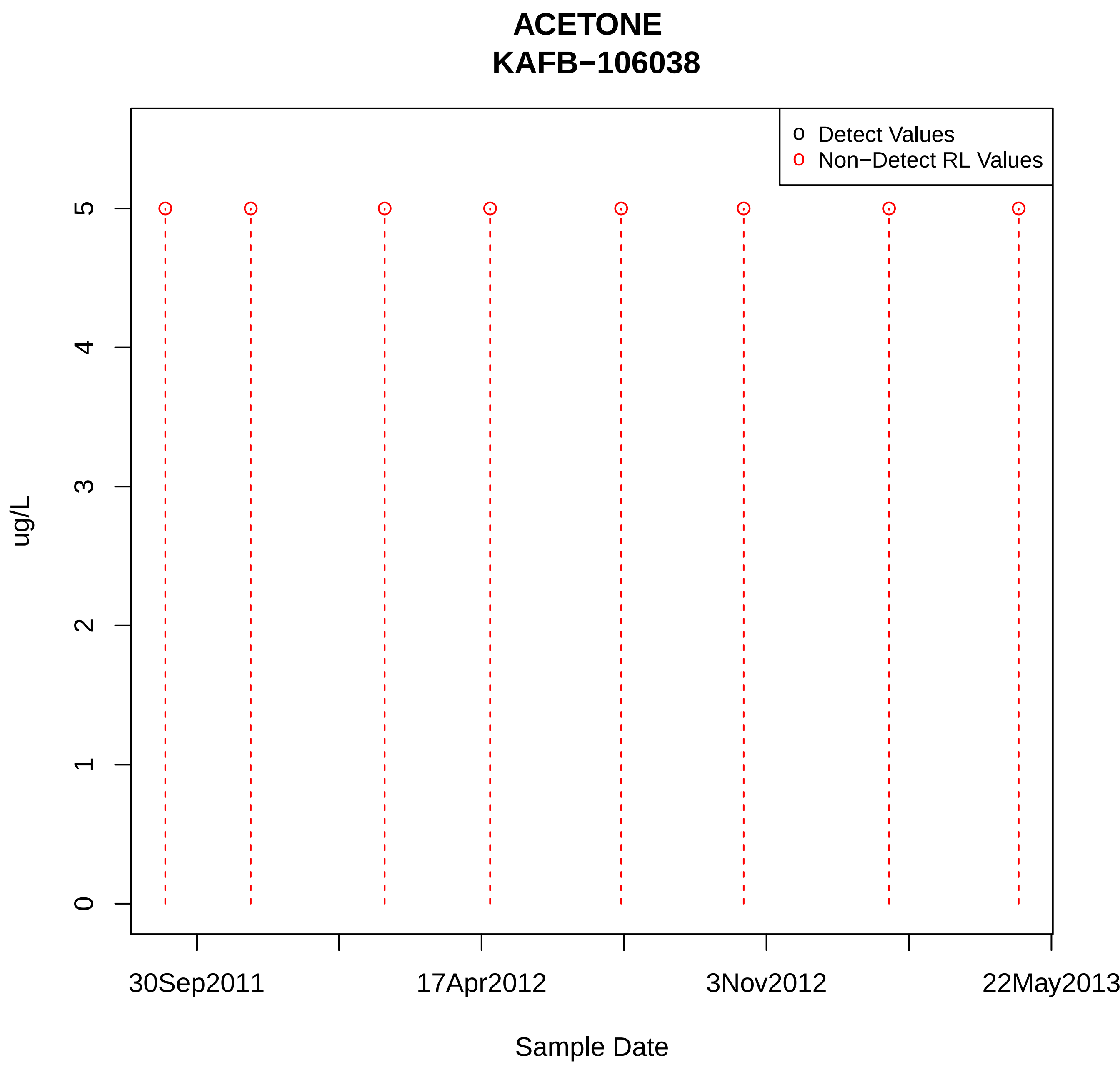

ACETONE
KAFB−106035
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



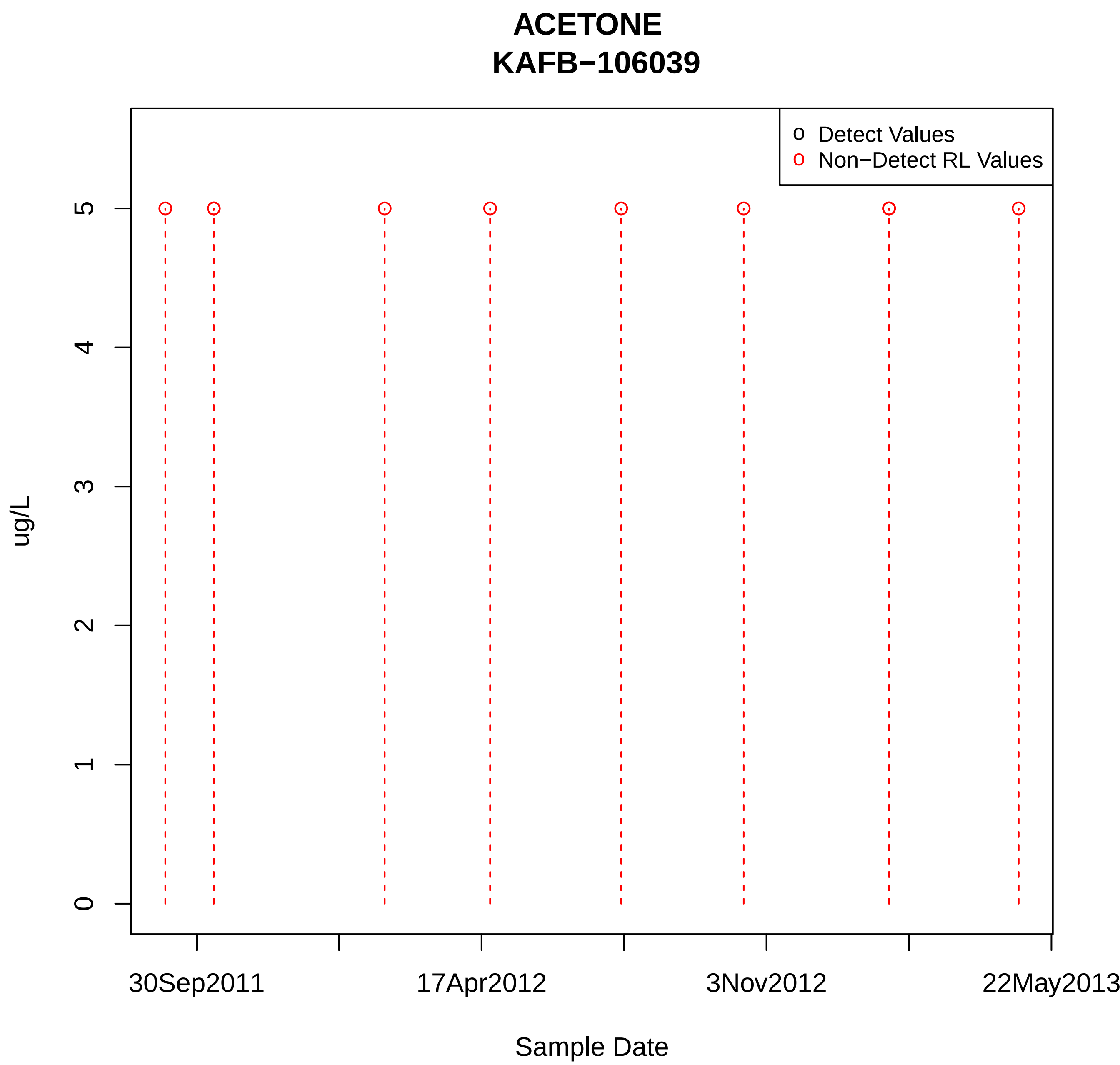
ACETONE
KAFB−106036
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

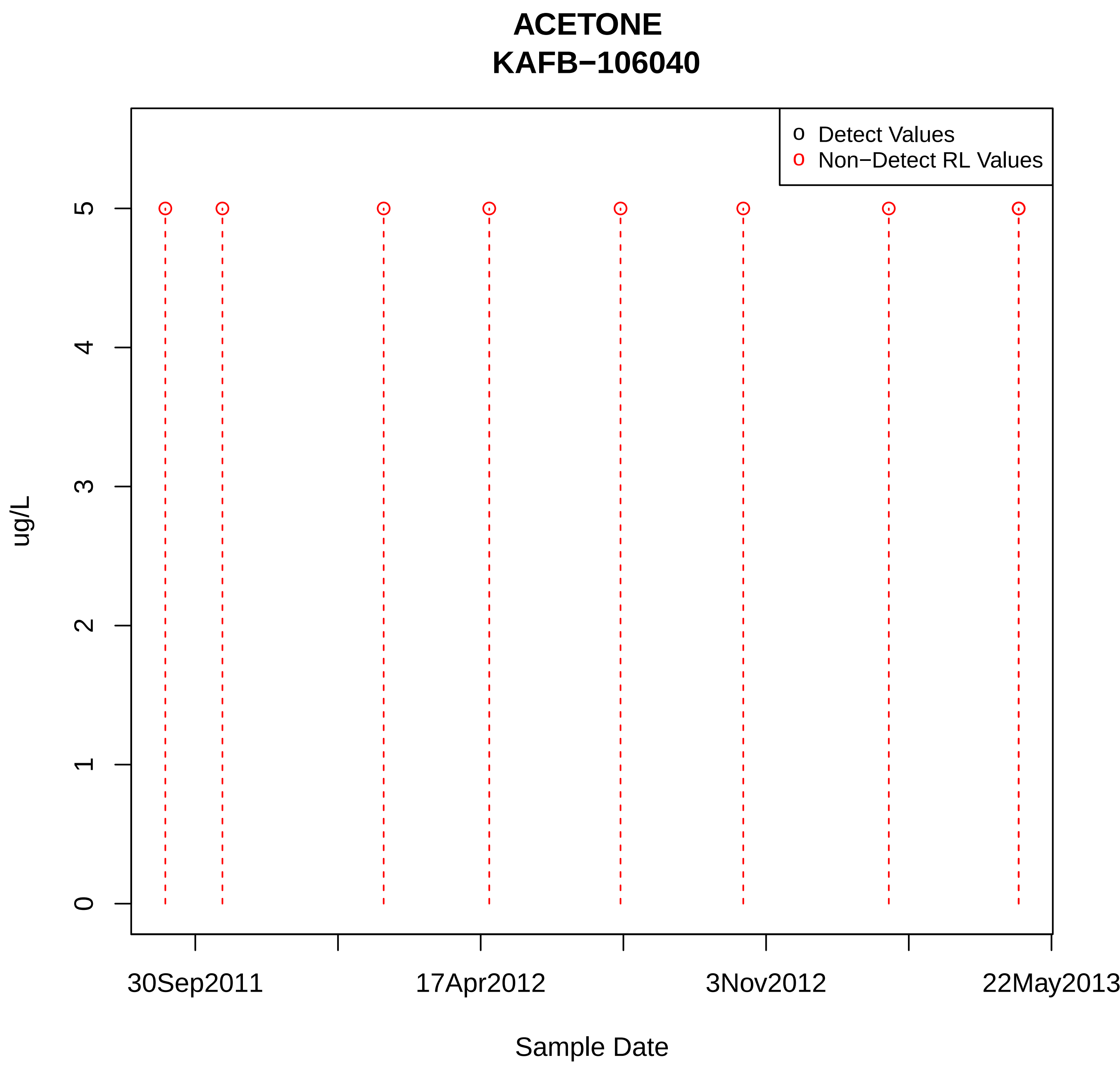


ACETONE
KAFB−106037
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

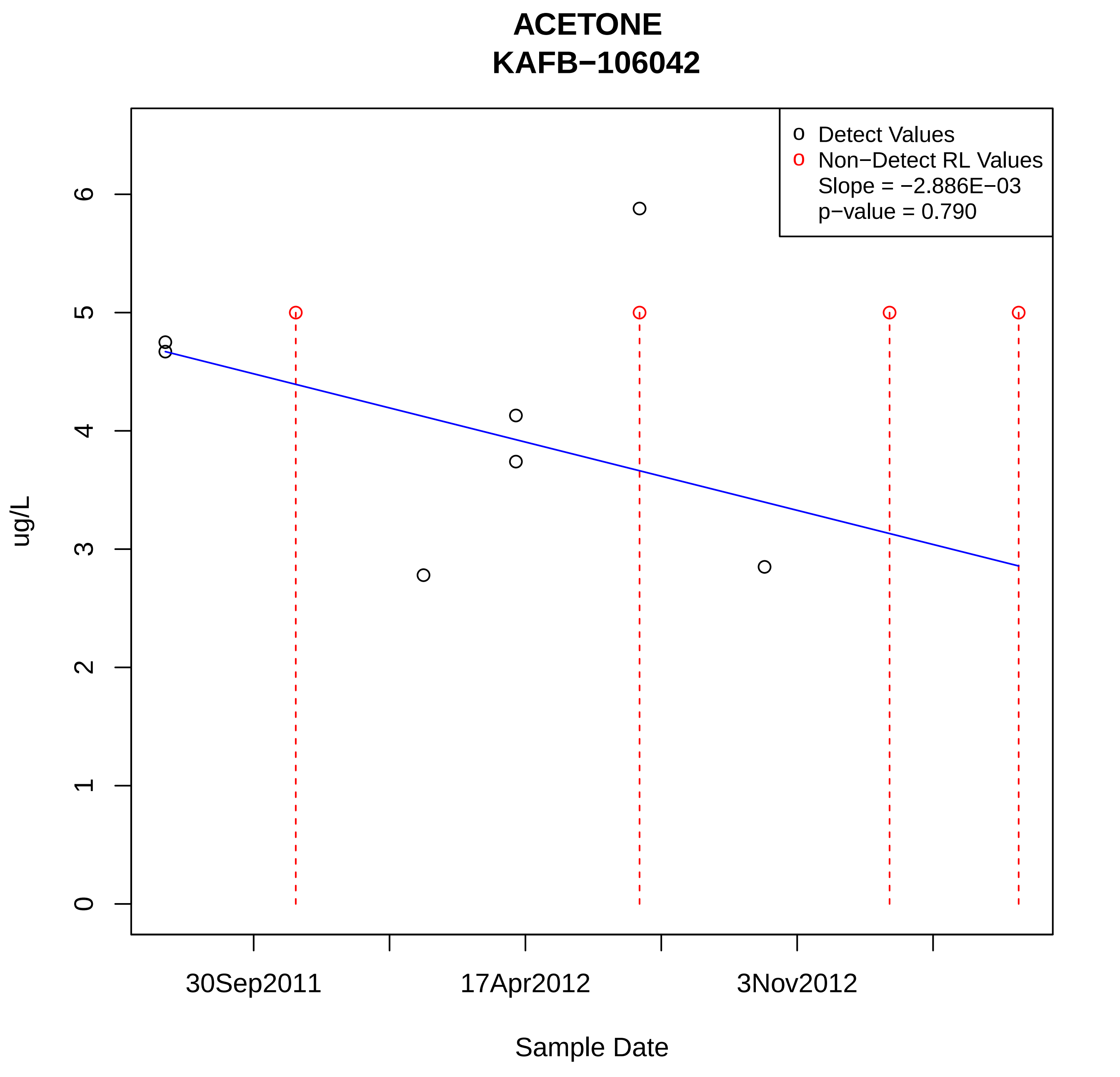


ACETONE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

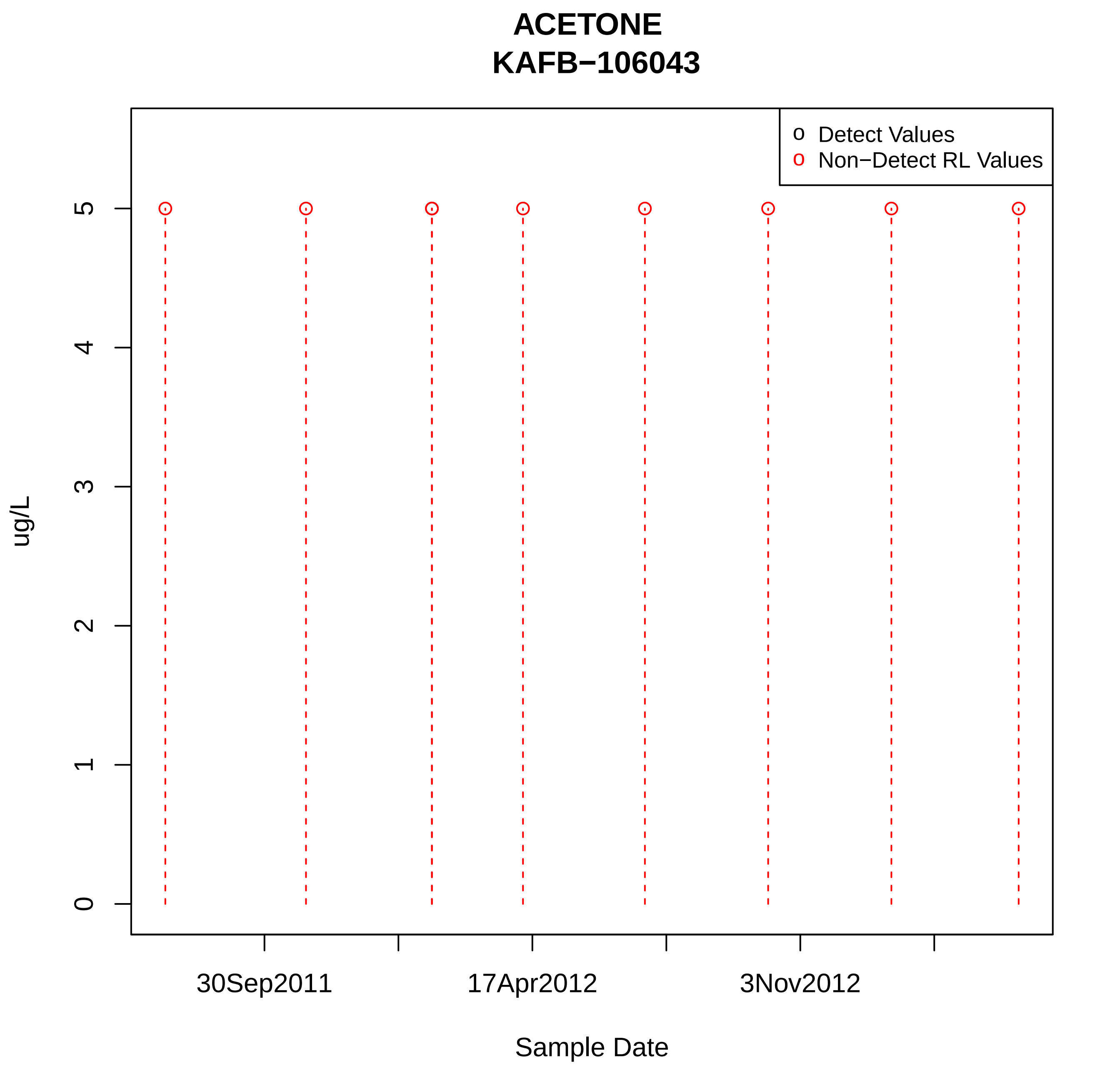

ACETONE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



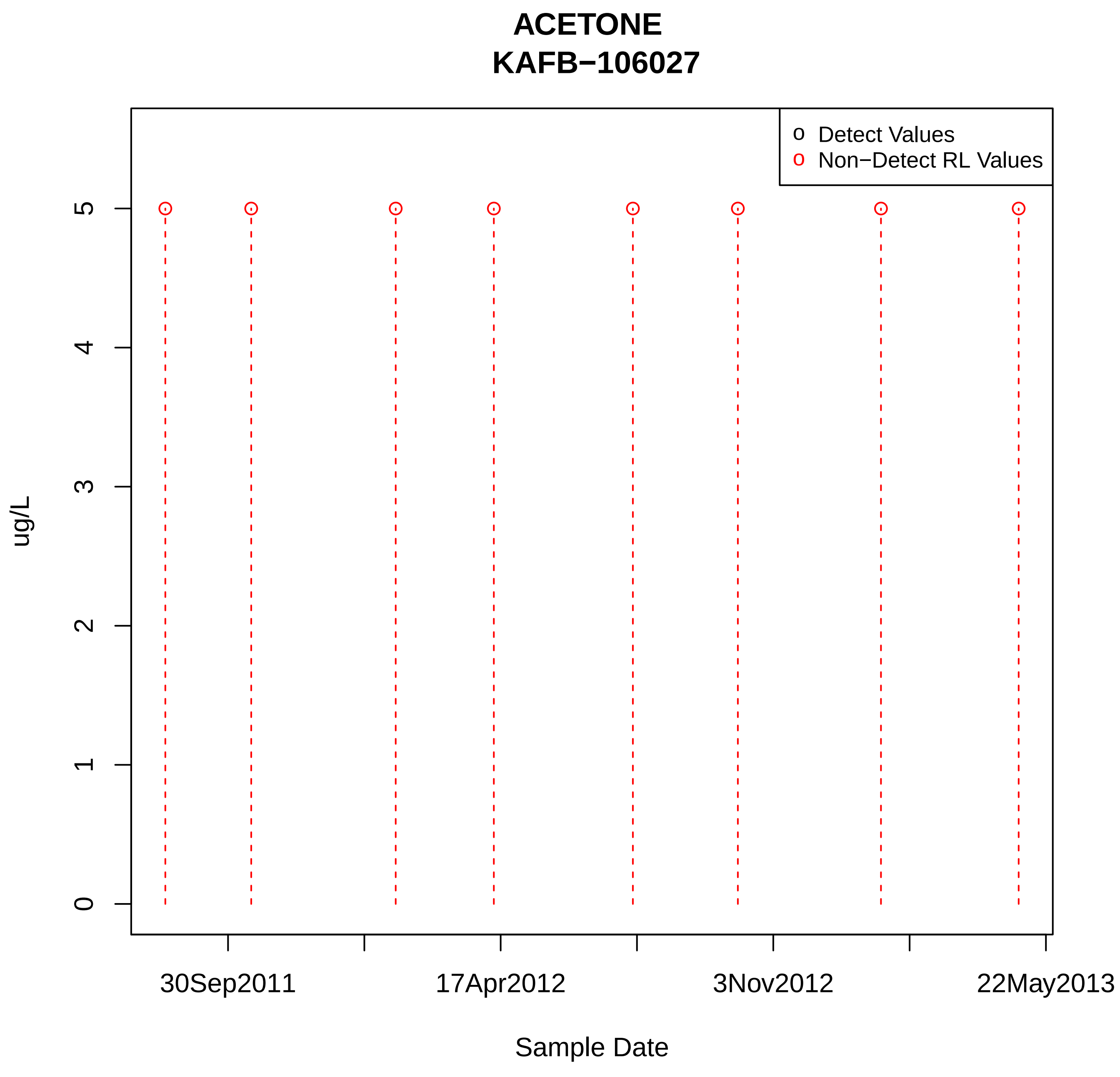
ACETONE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



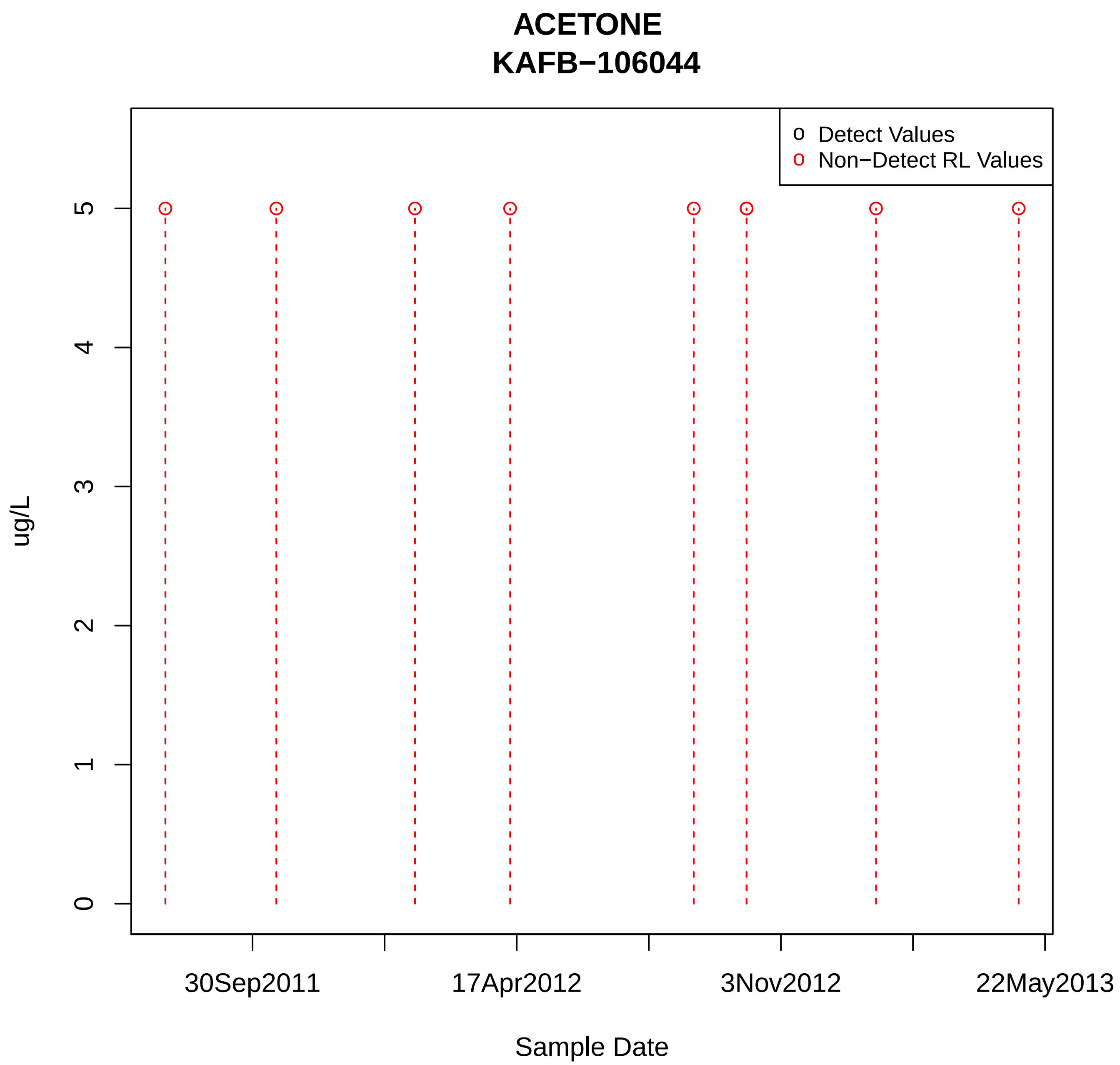
ACETONE
KAFB−106042
Detect Values
Non−Detect RL Values
Slope = −2.886E−03
p−value = 0.790
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date

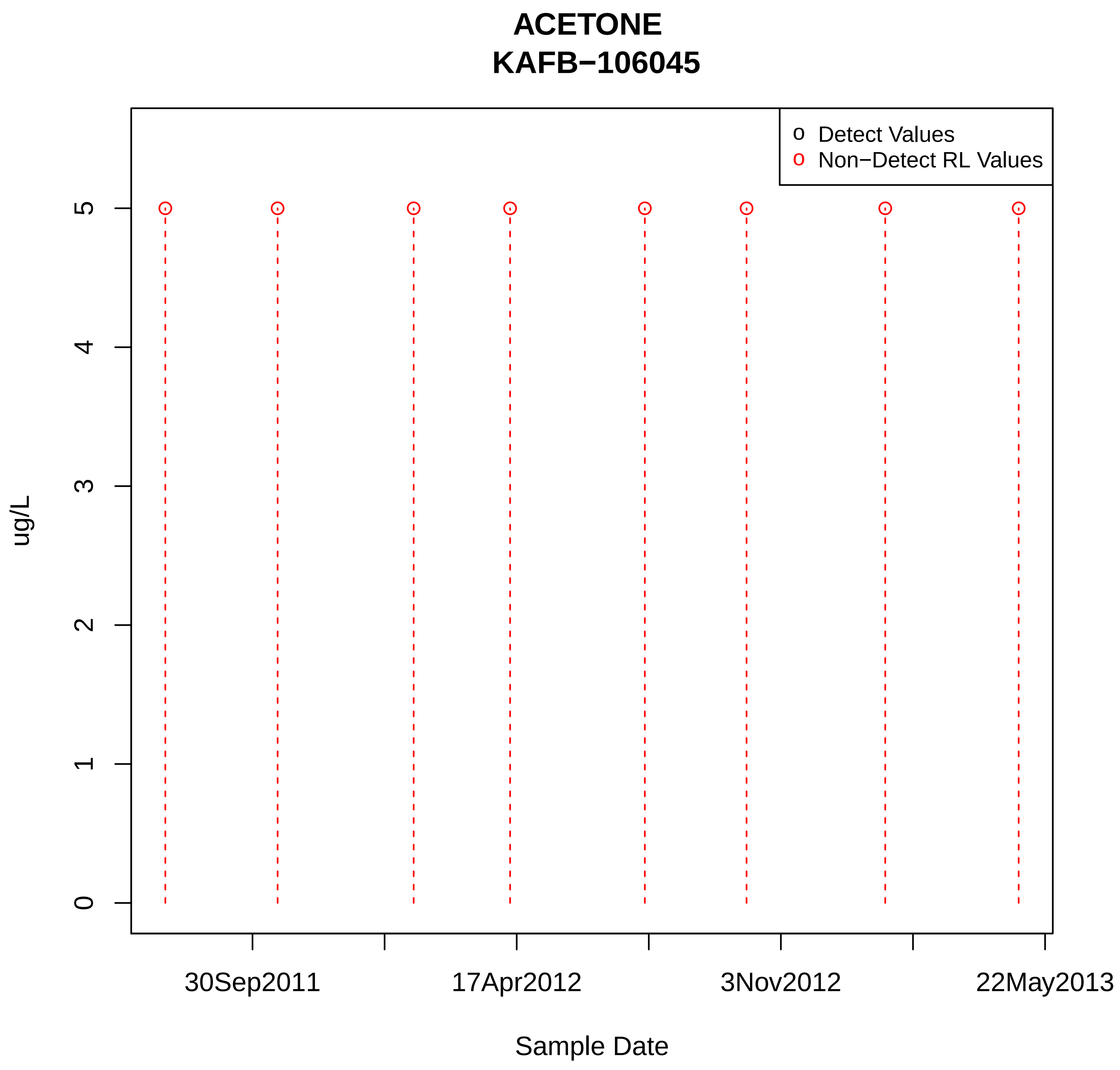


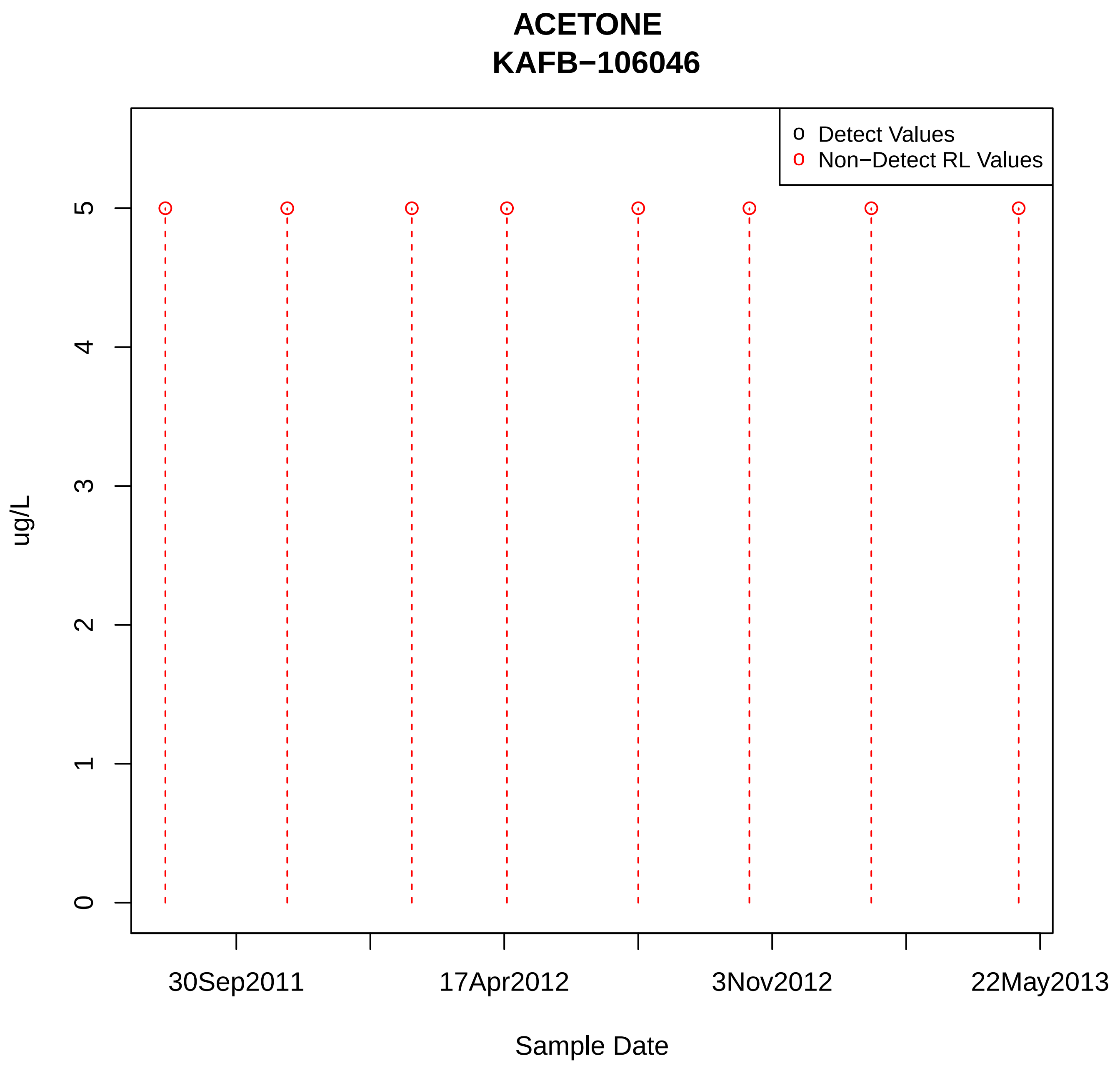
ACETONE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

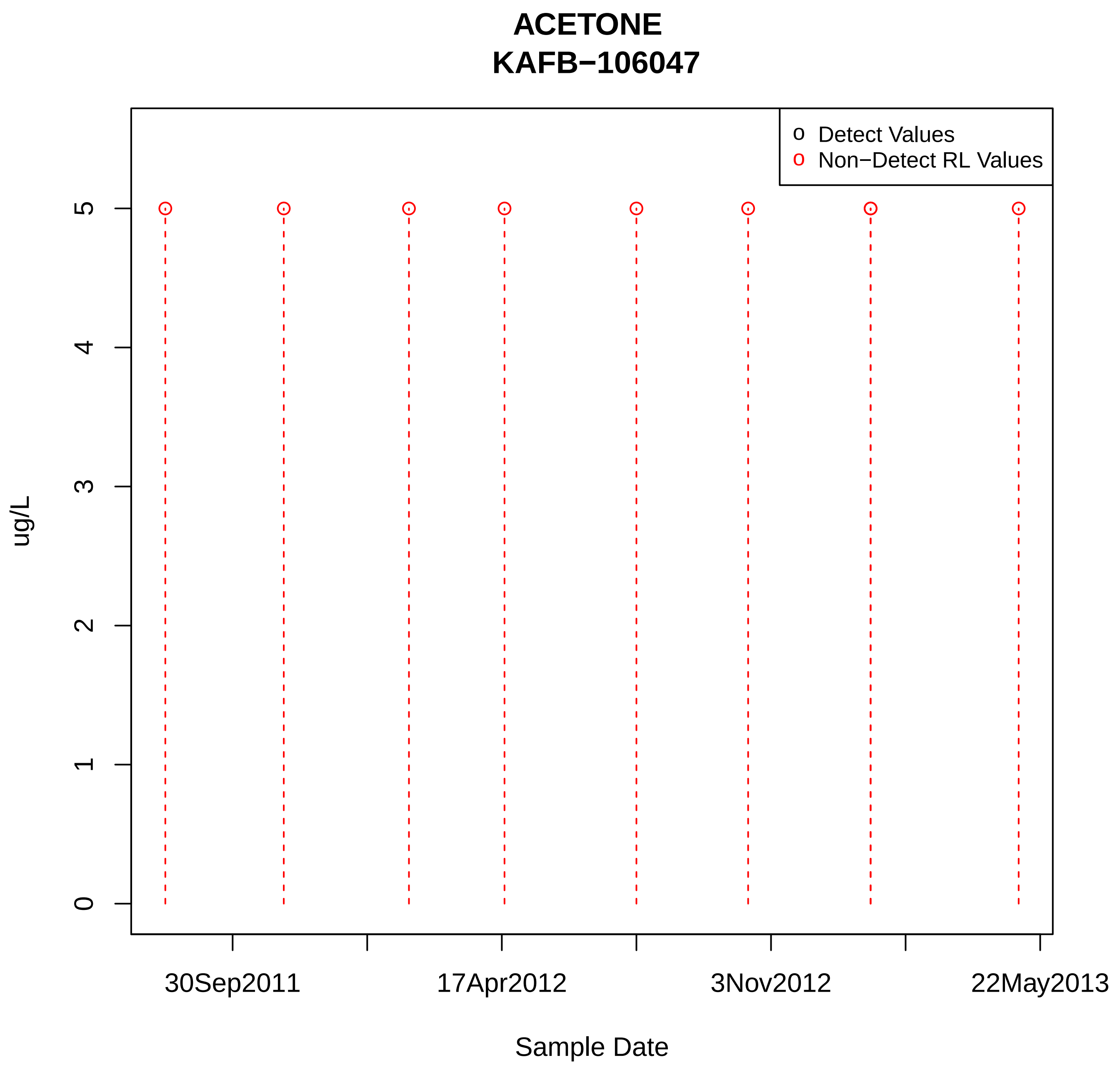


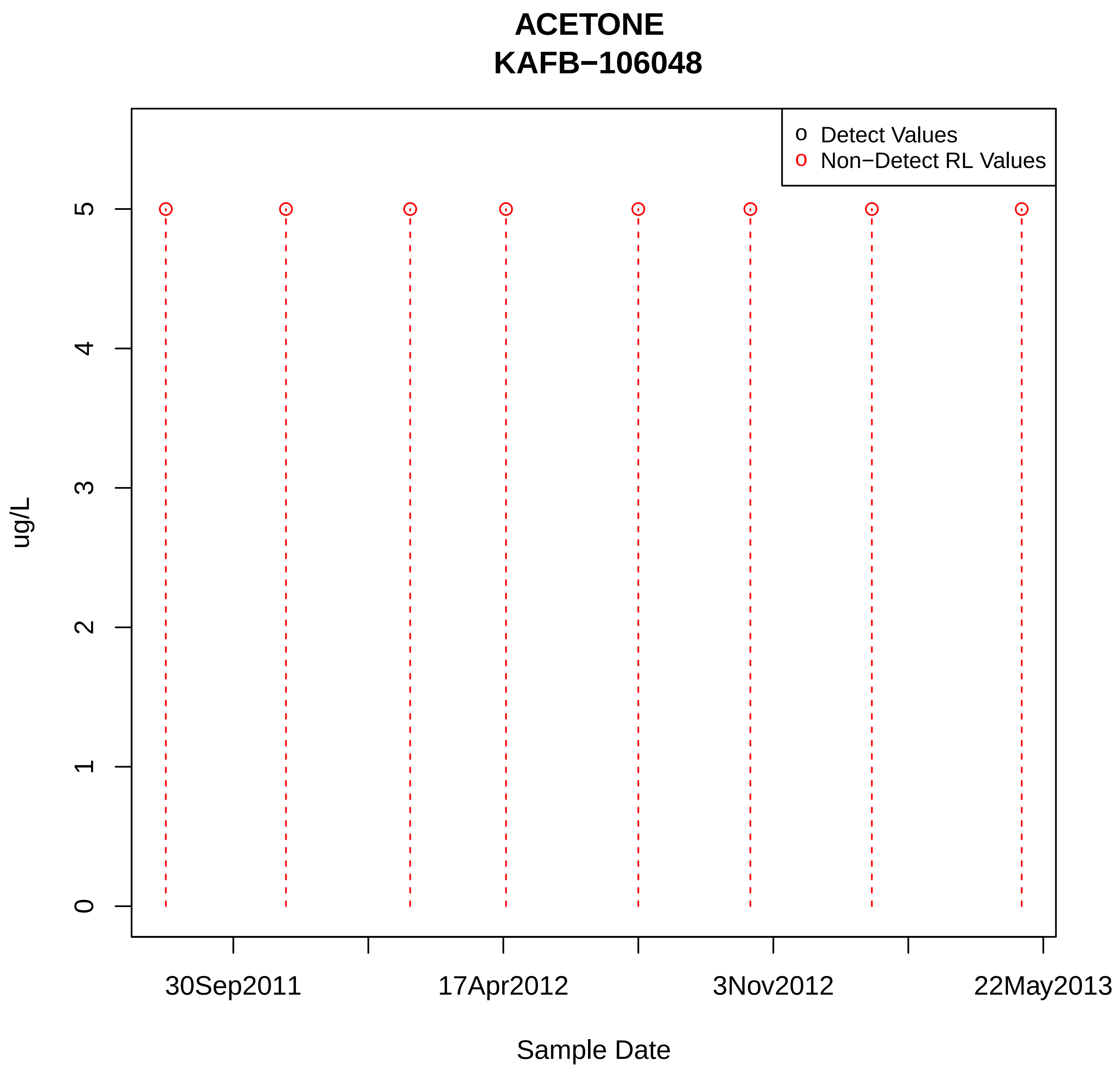
ACETONE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106044
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

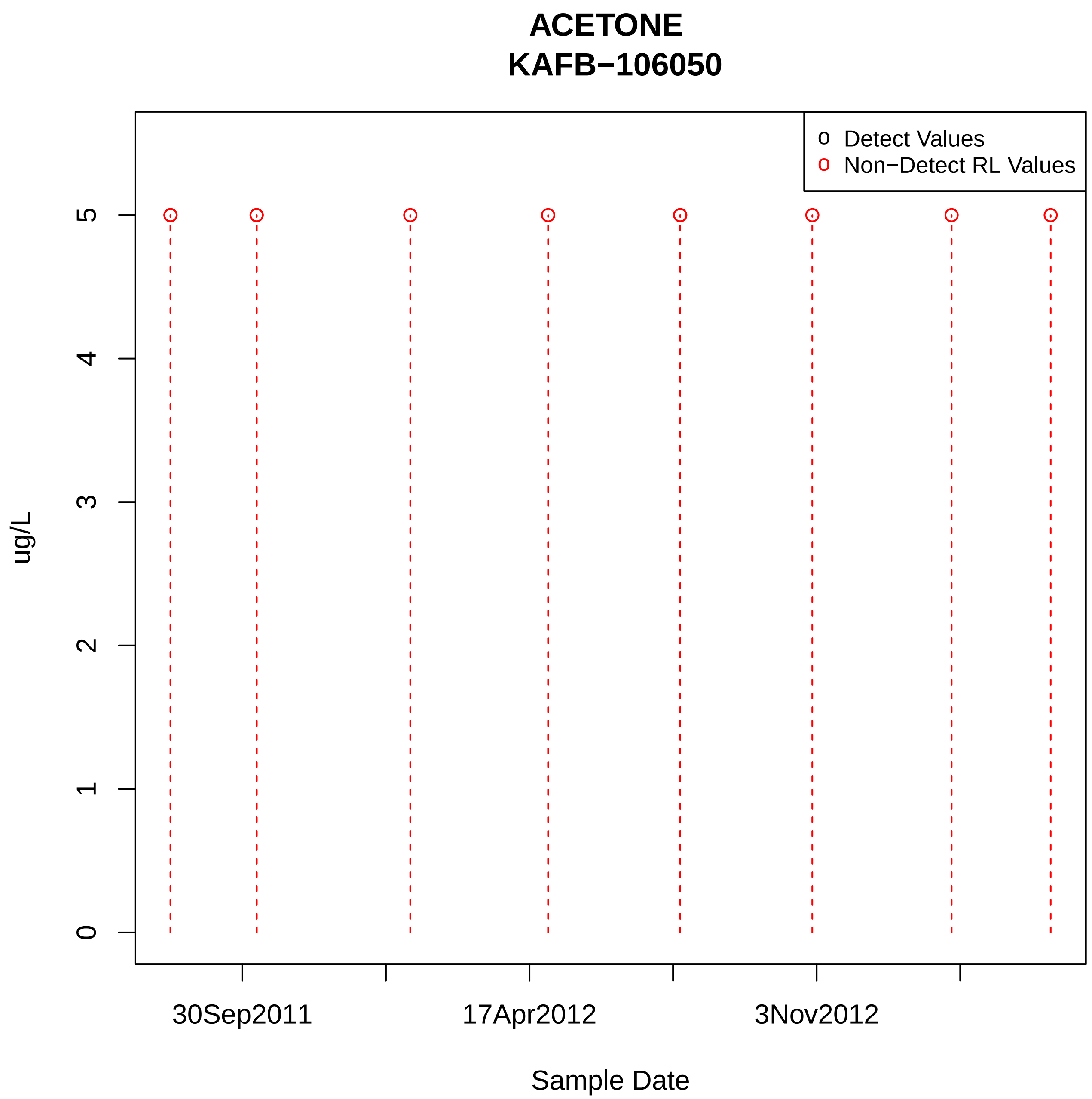

ACETONE
KAFB−106045
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

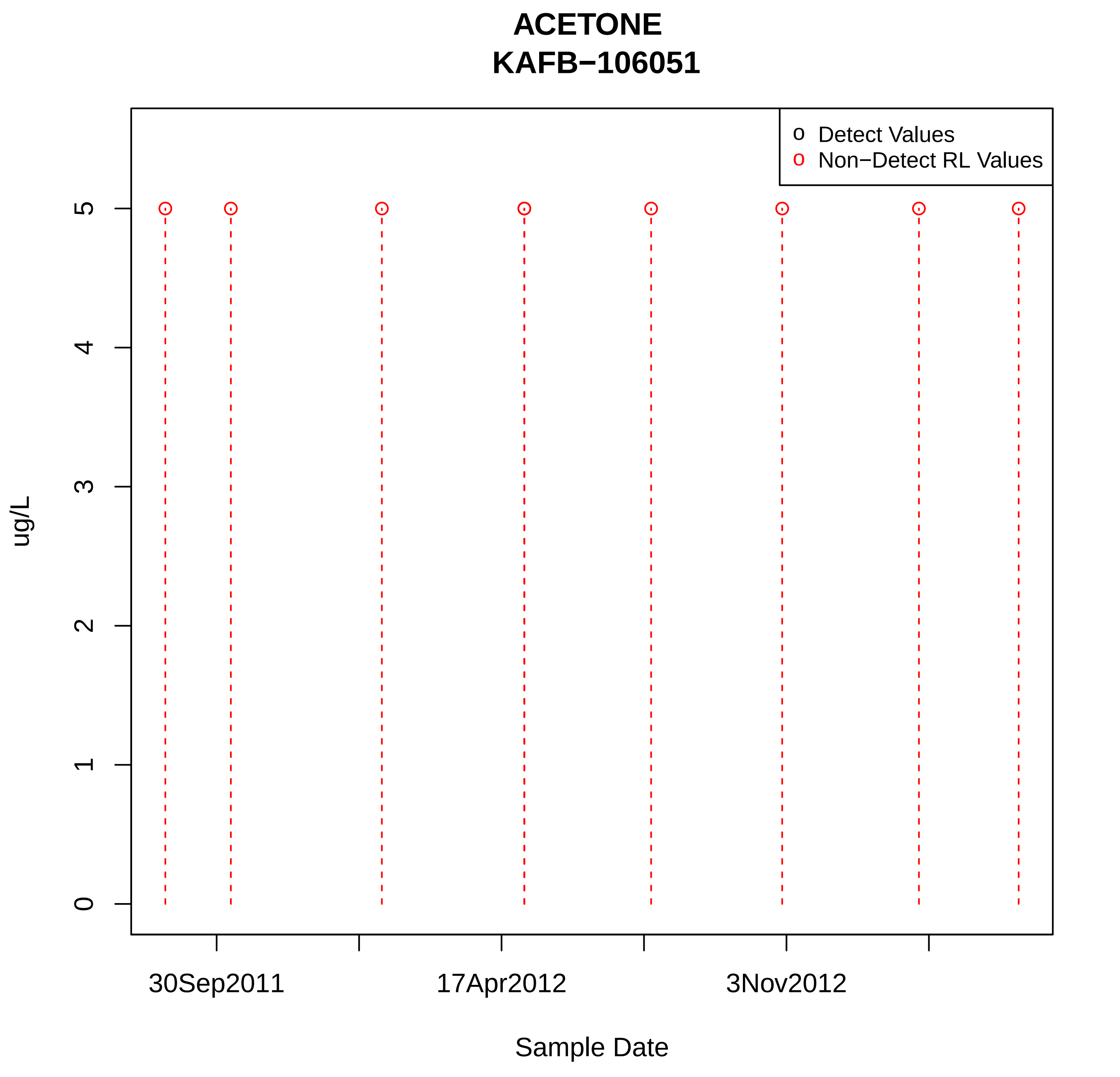

ACETONE
KAFB−106046
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106047
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

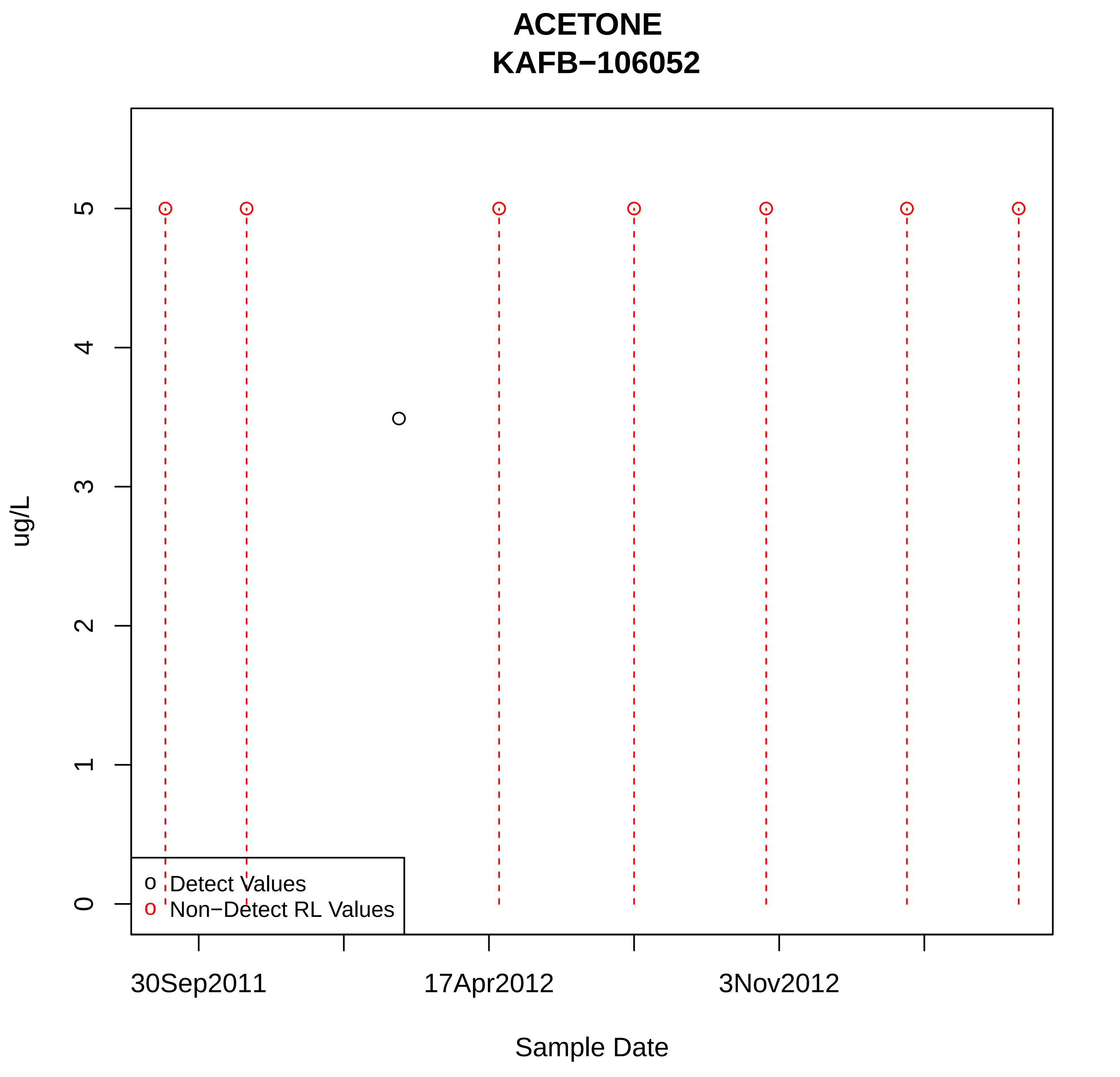


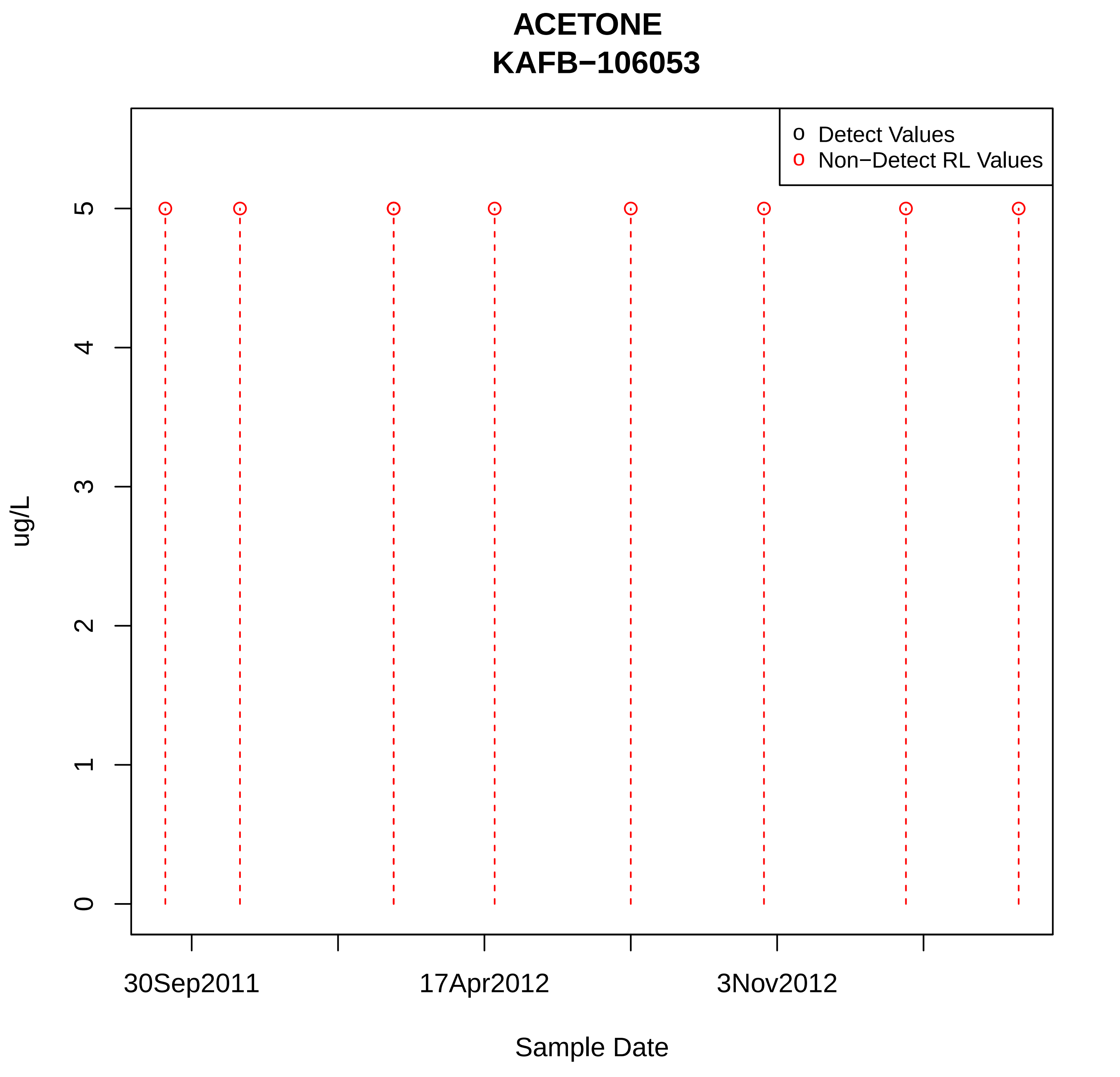
ACETONE
KAFB−106048
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

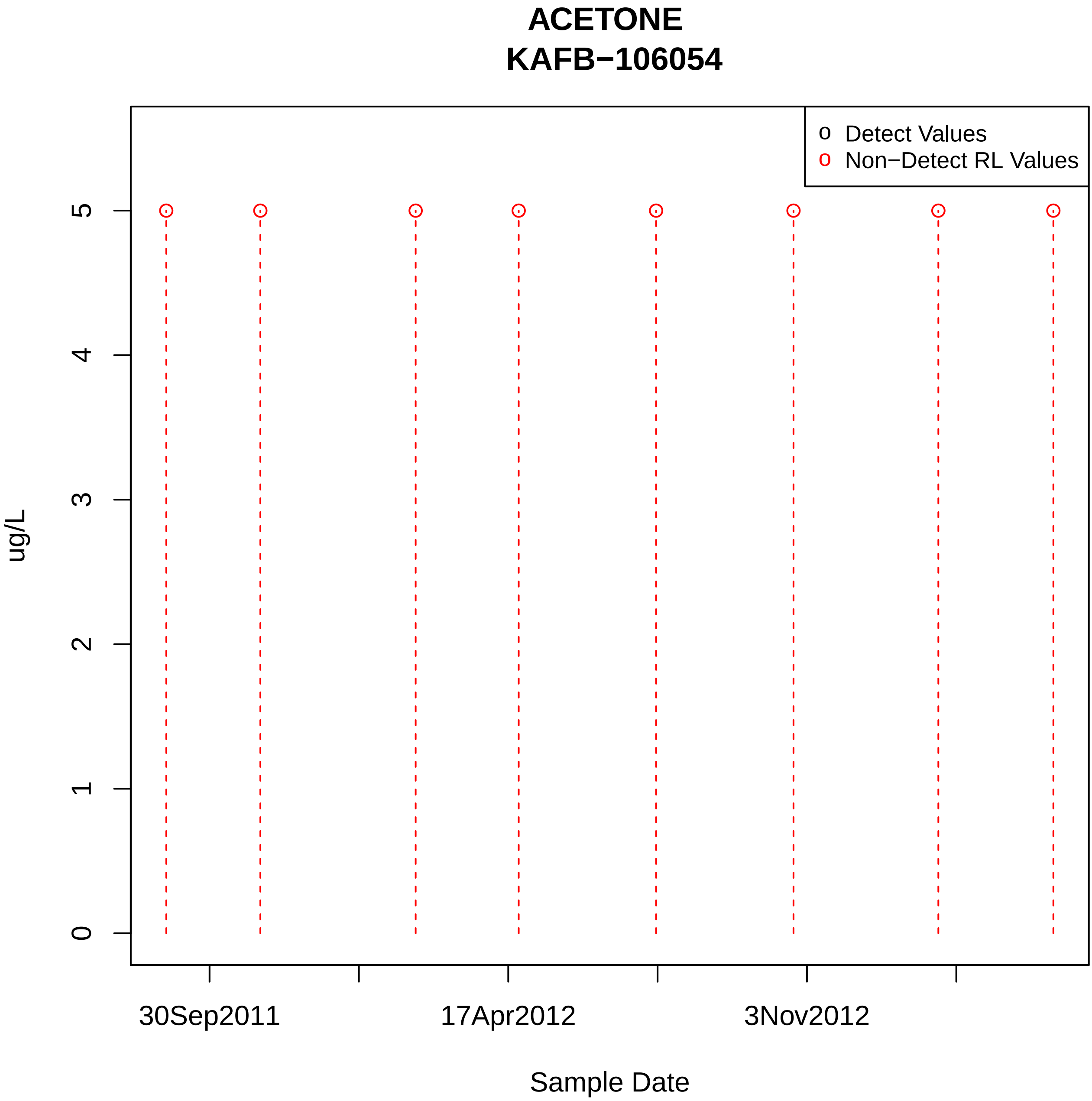

ACETONE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



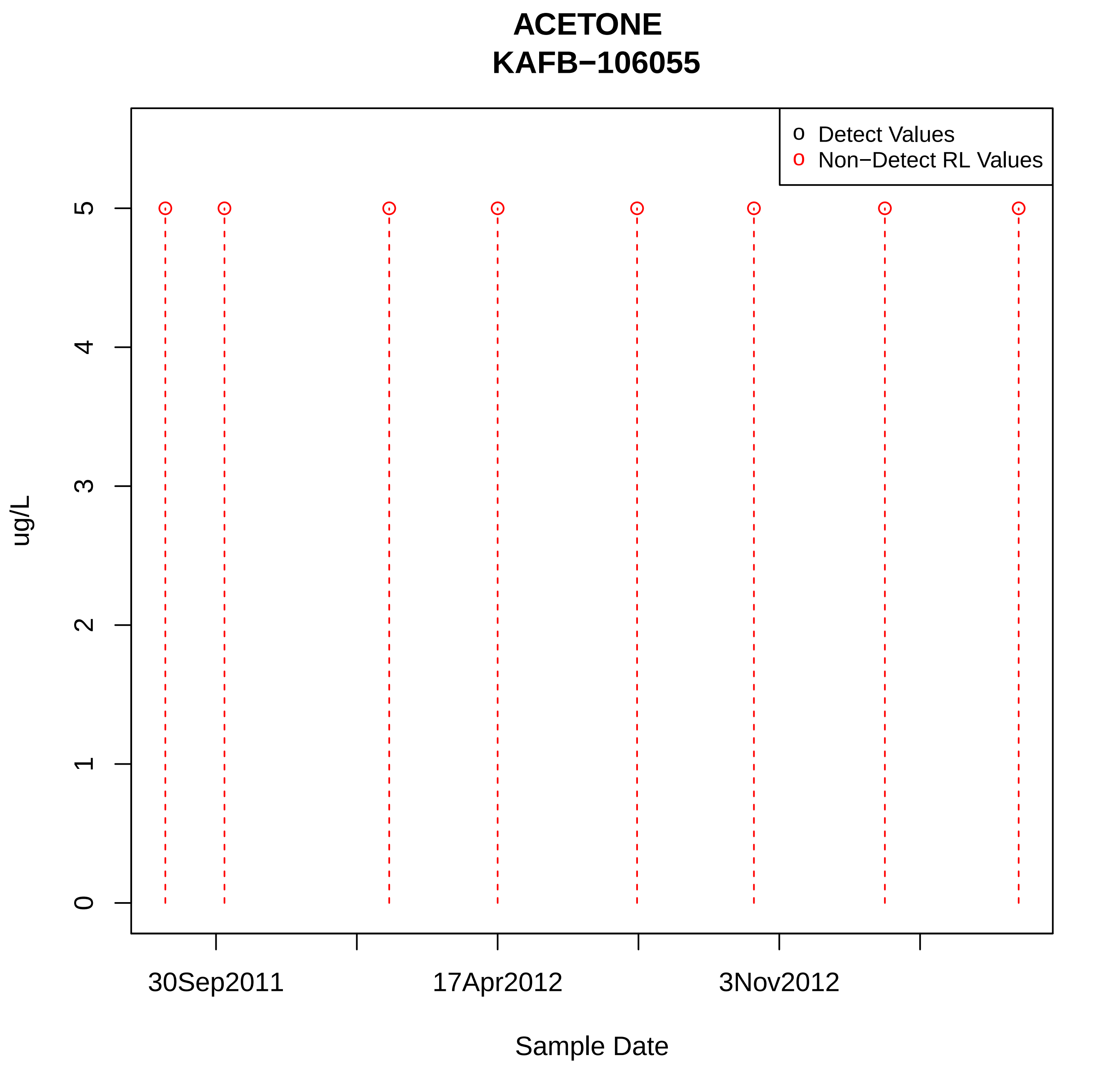
ACETONE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ACETONE
KAFB−106052
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

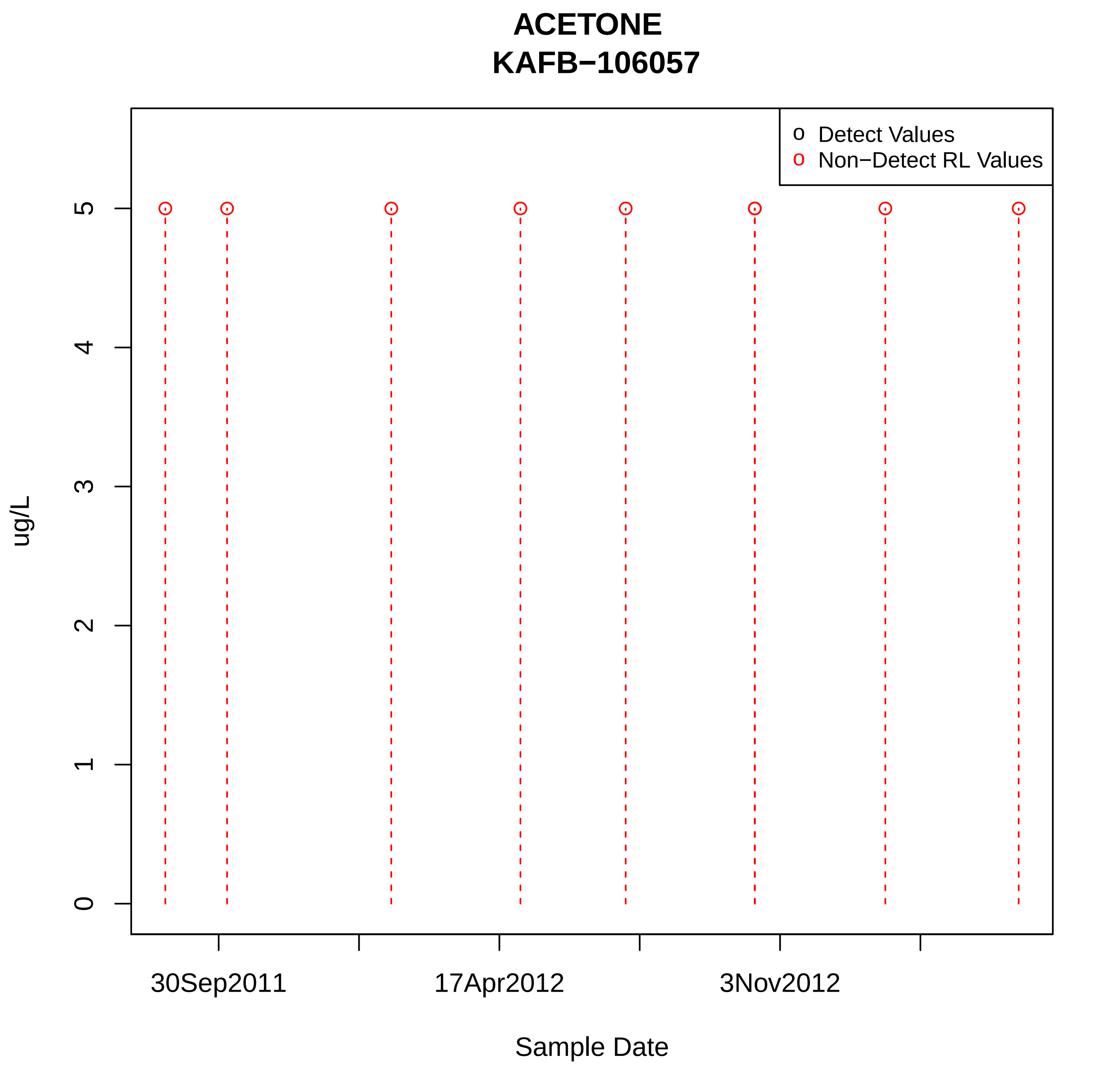

ACETONE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



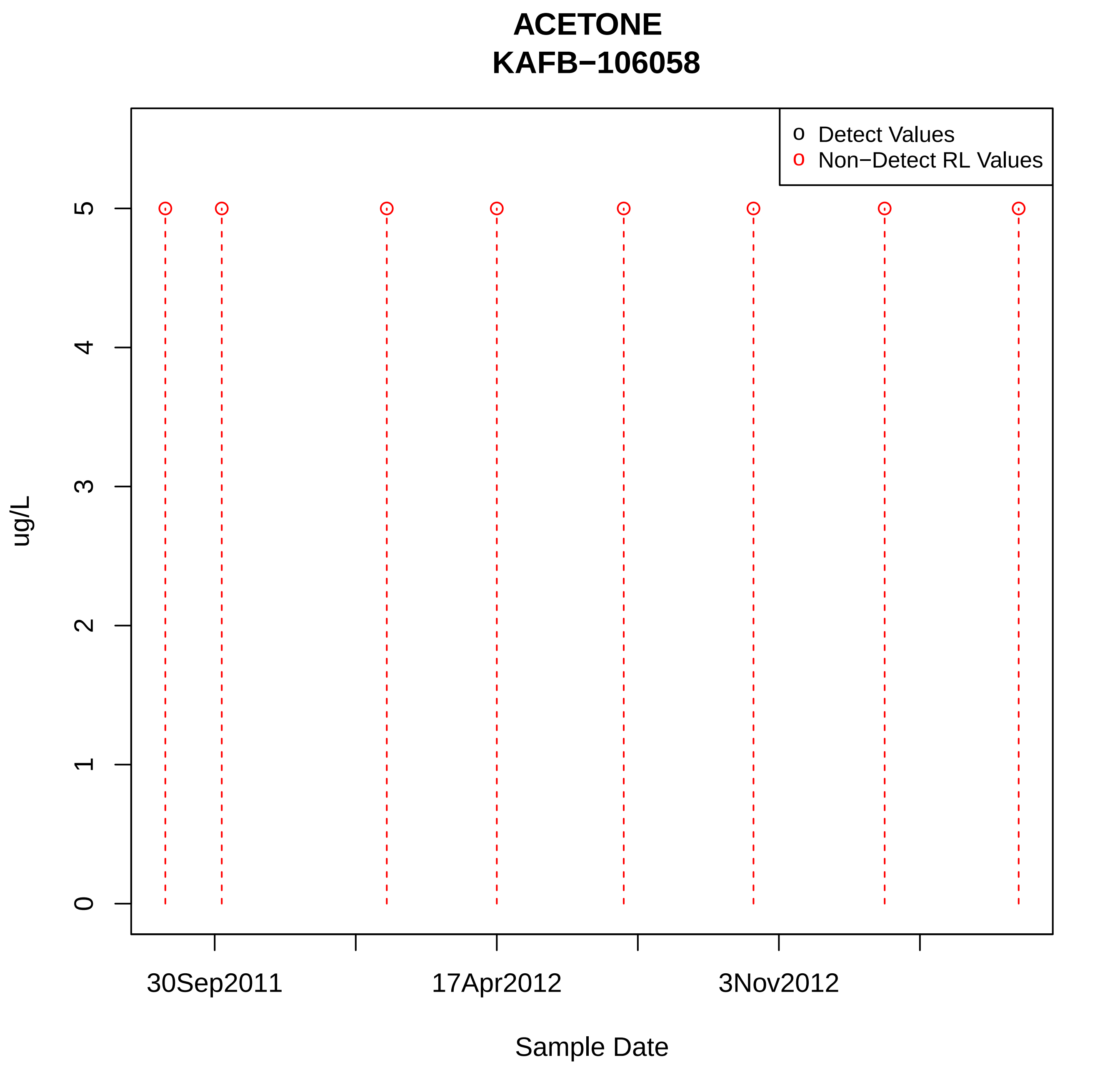
ACETONE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



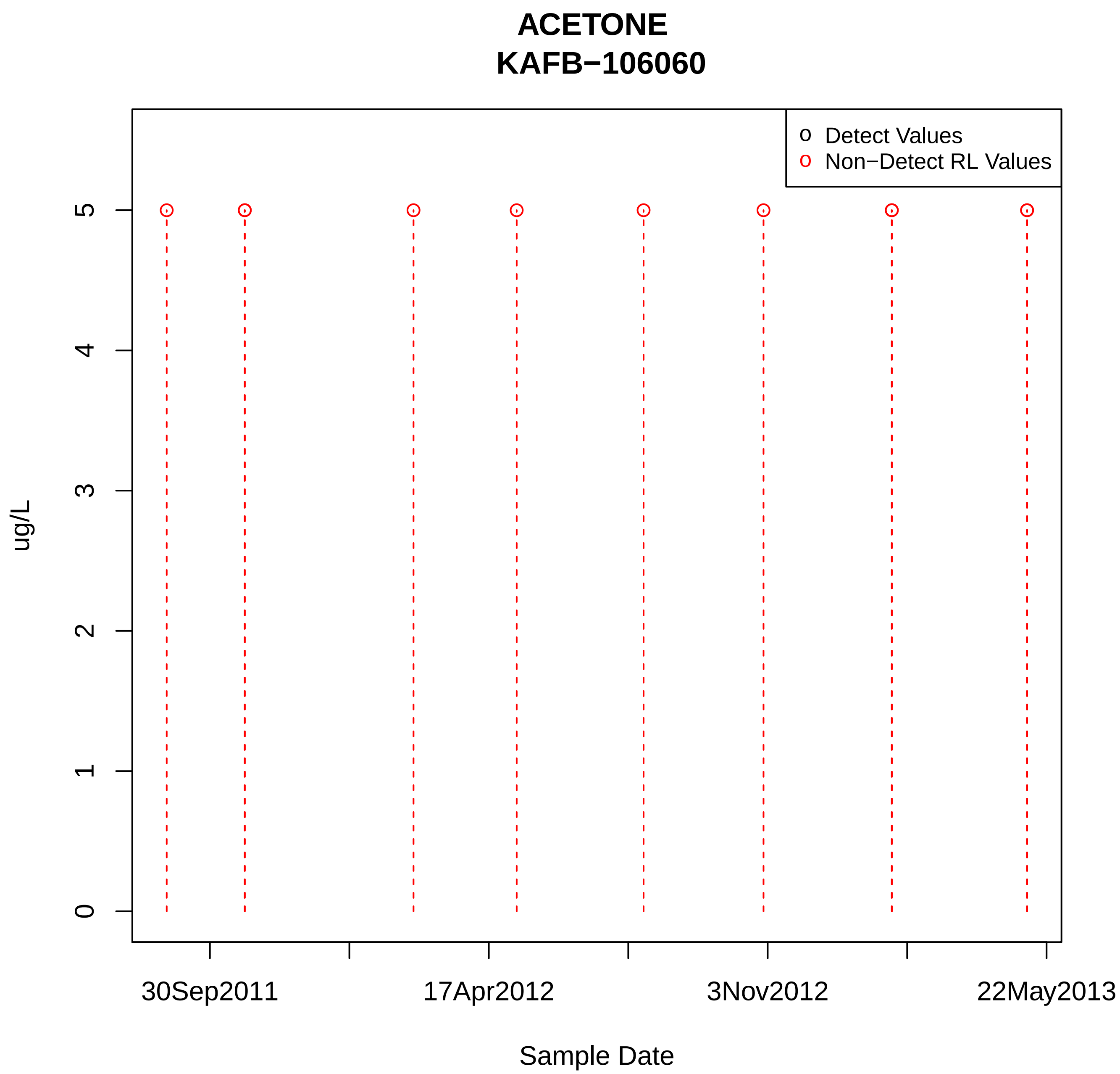
ACETONE
KAFB−106055
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



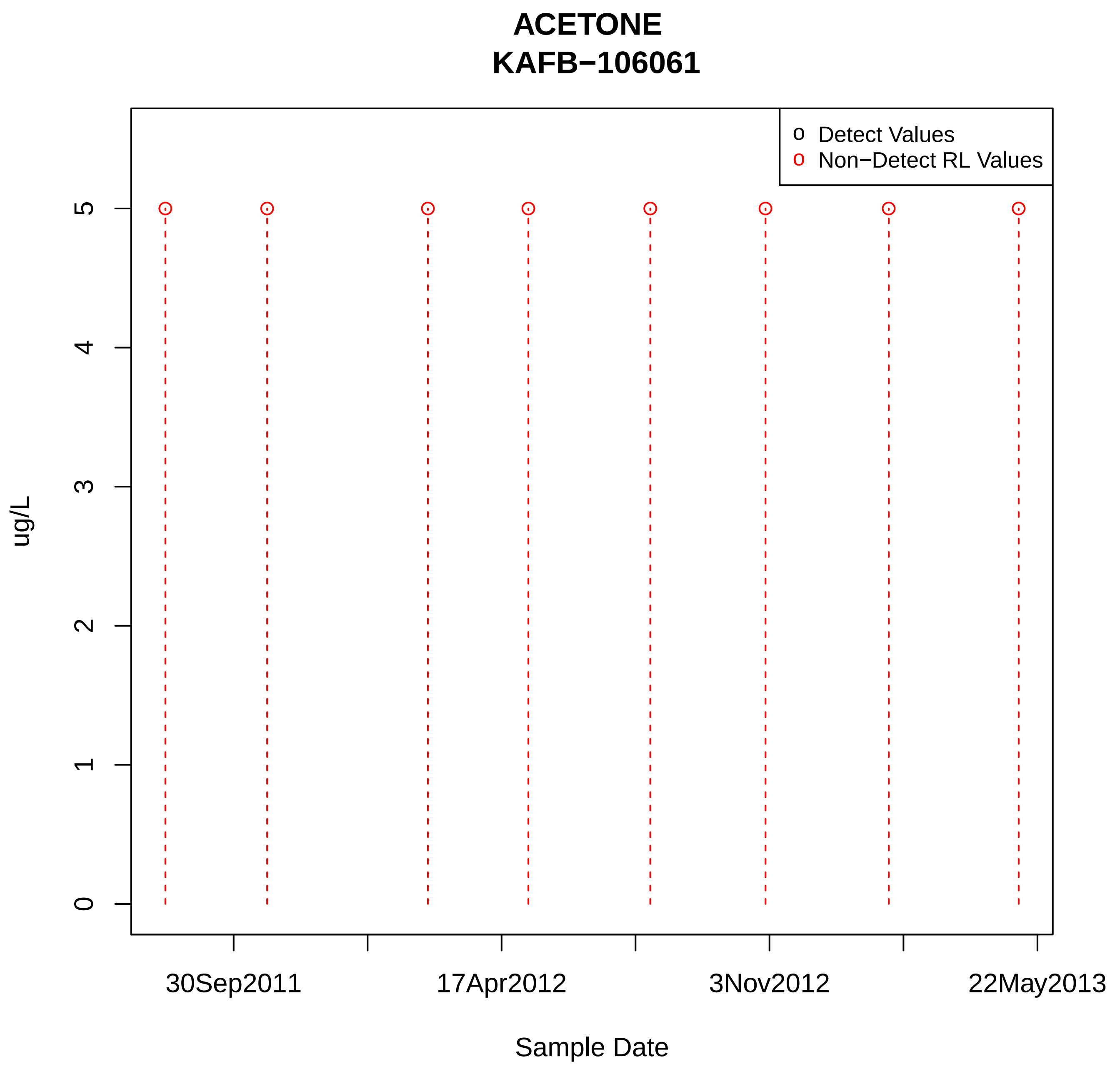
ACETONE
KAFB−106057
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

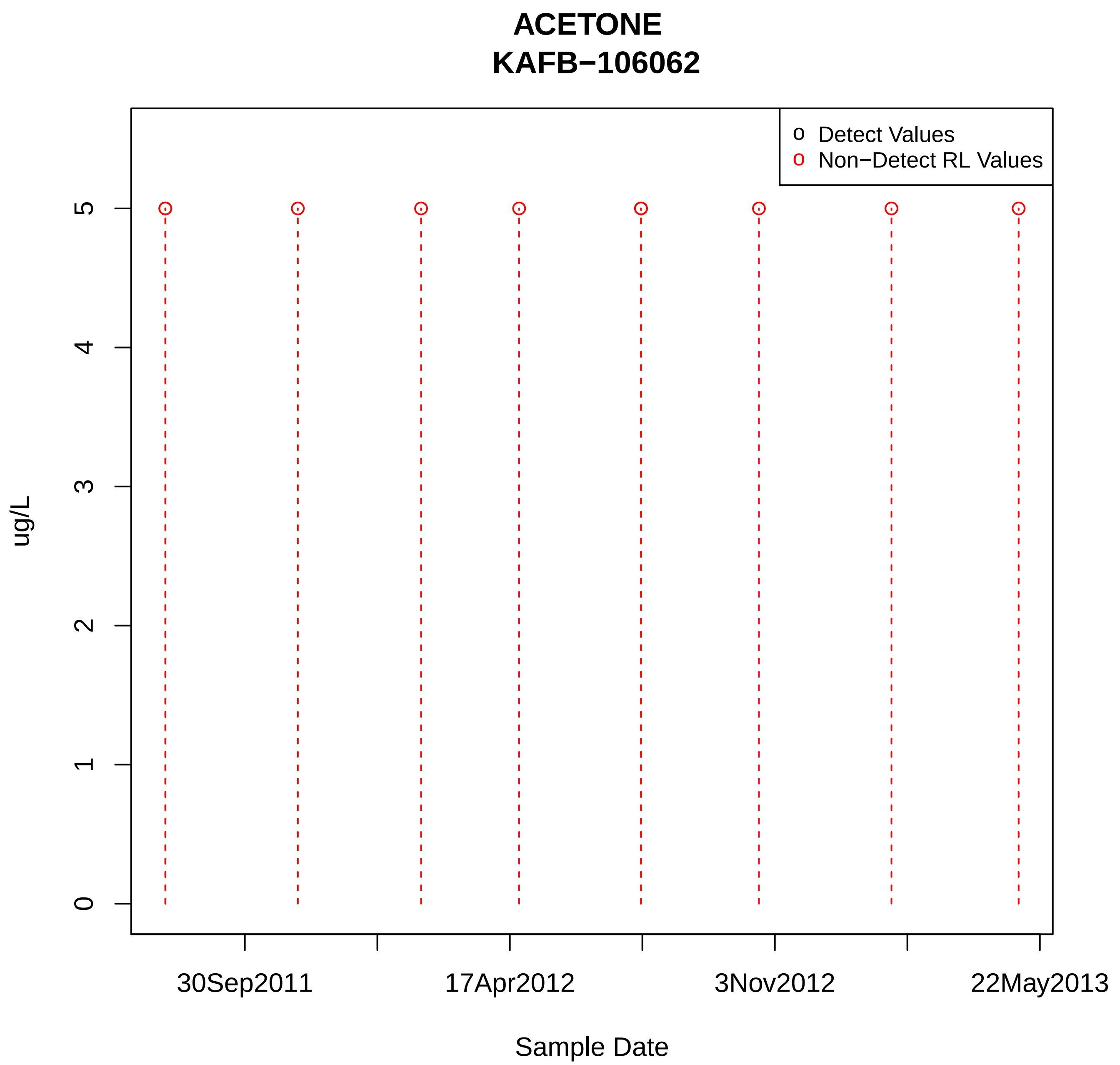


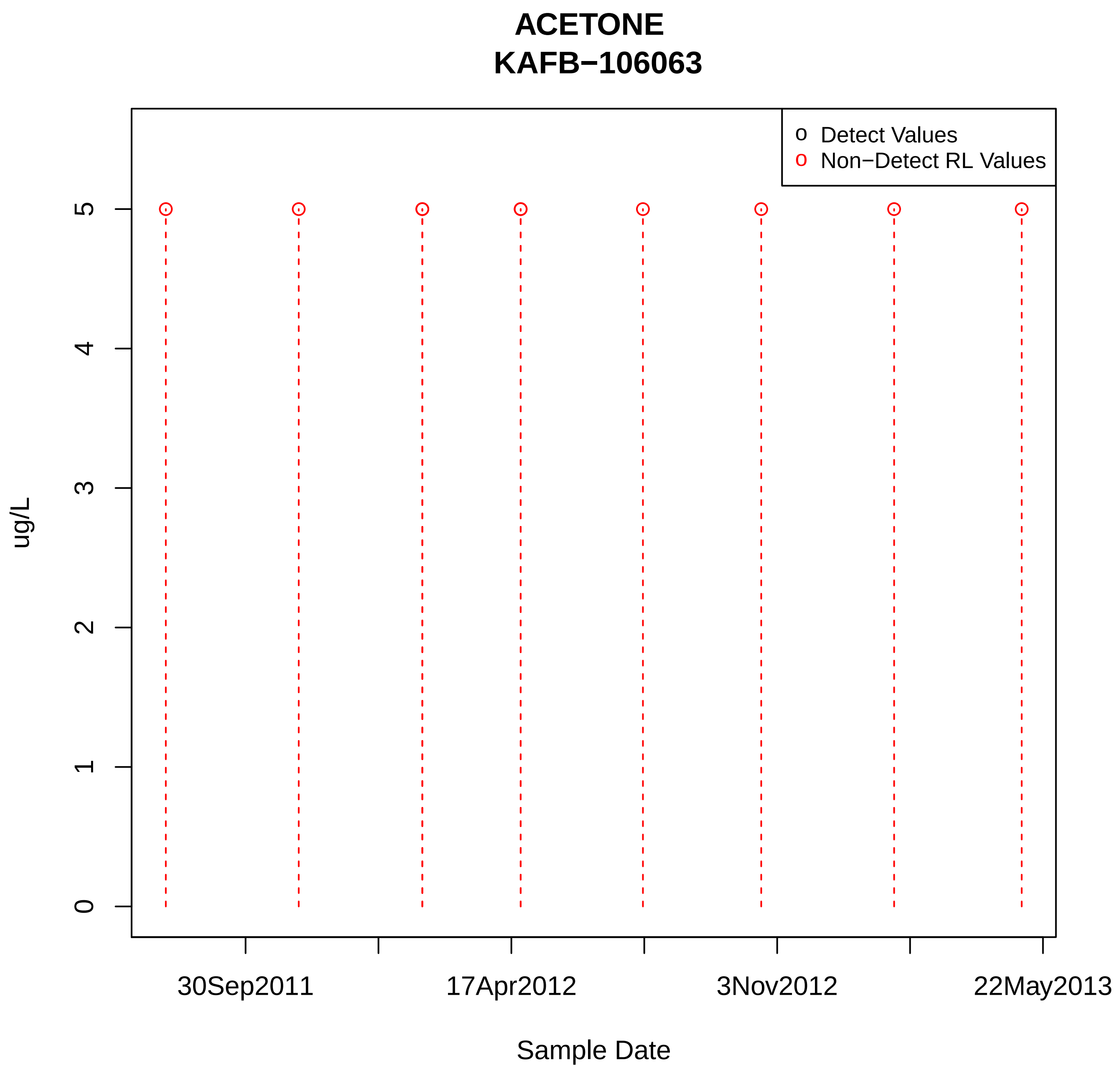
ACETONE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



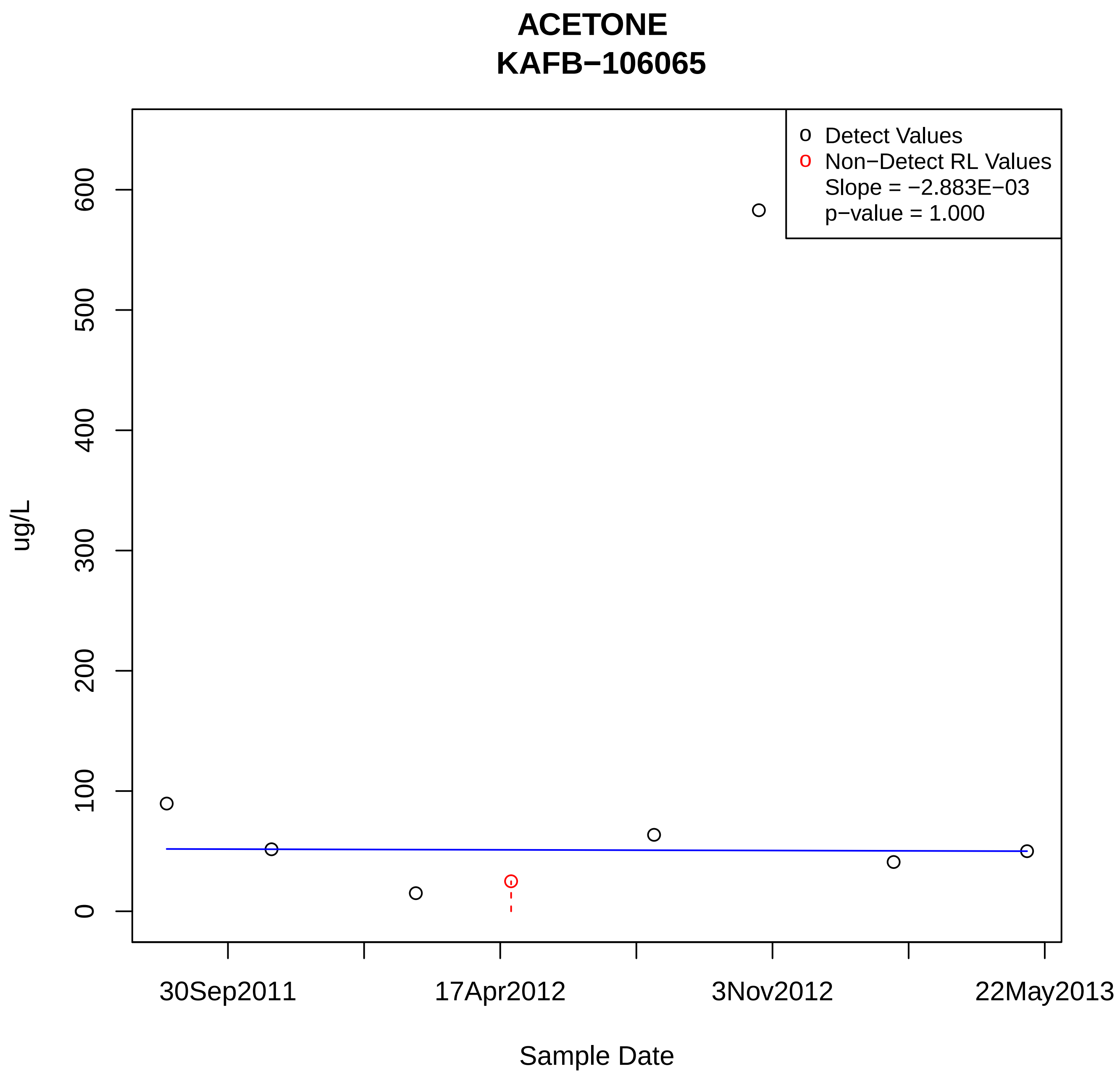
ACETONE
KAFB−106060
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106061
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

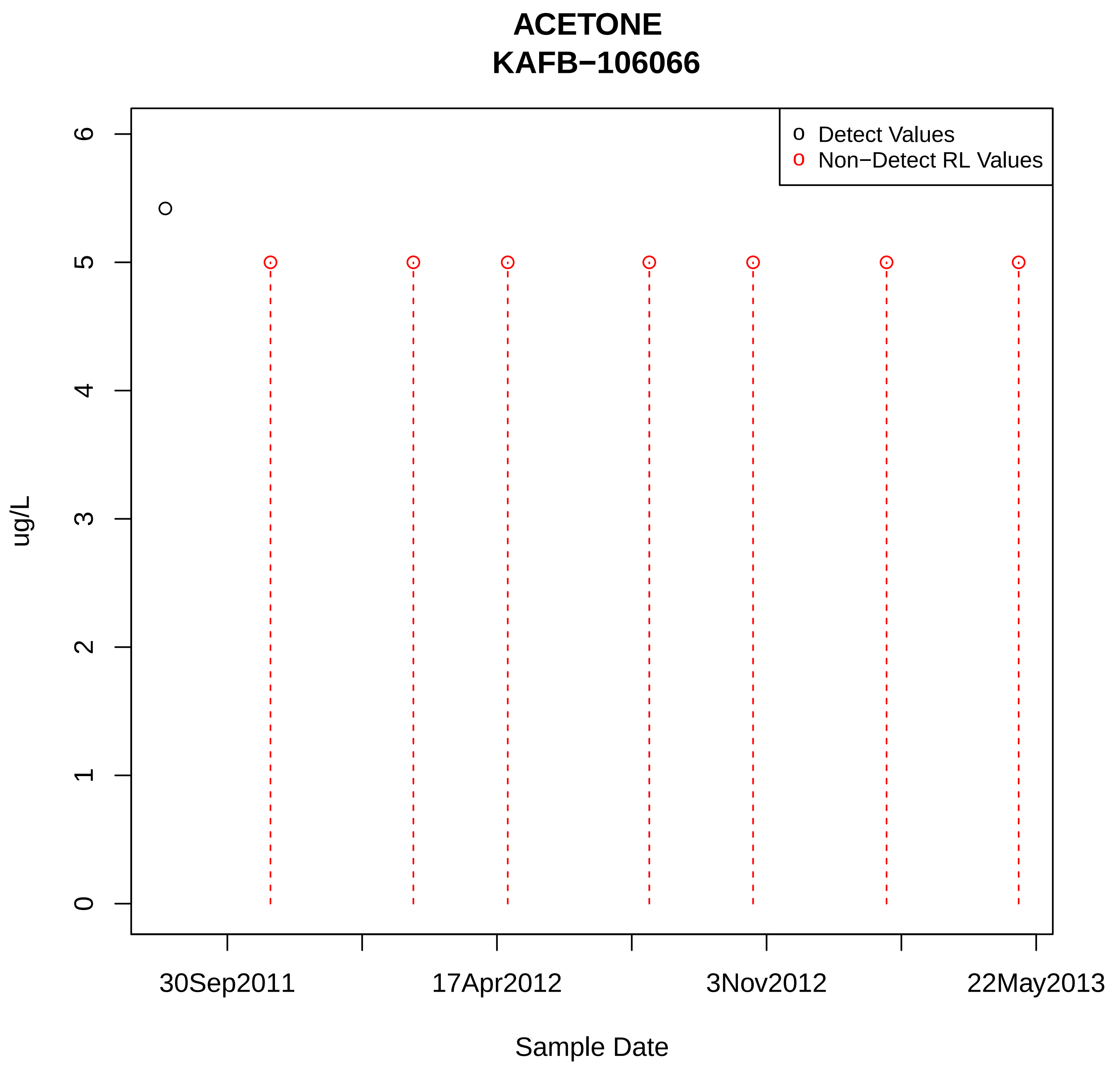

ACETONE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



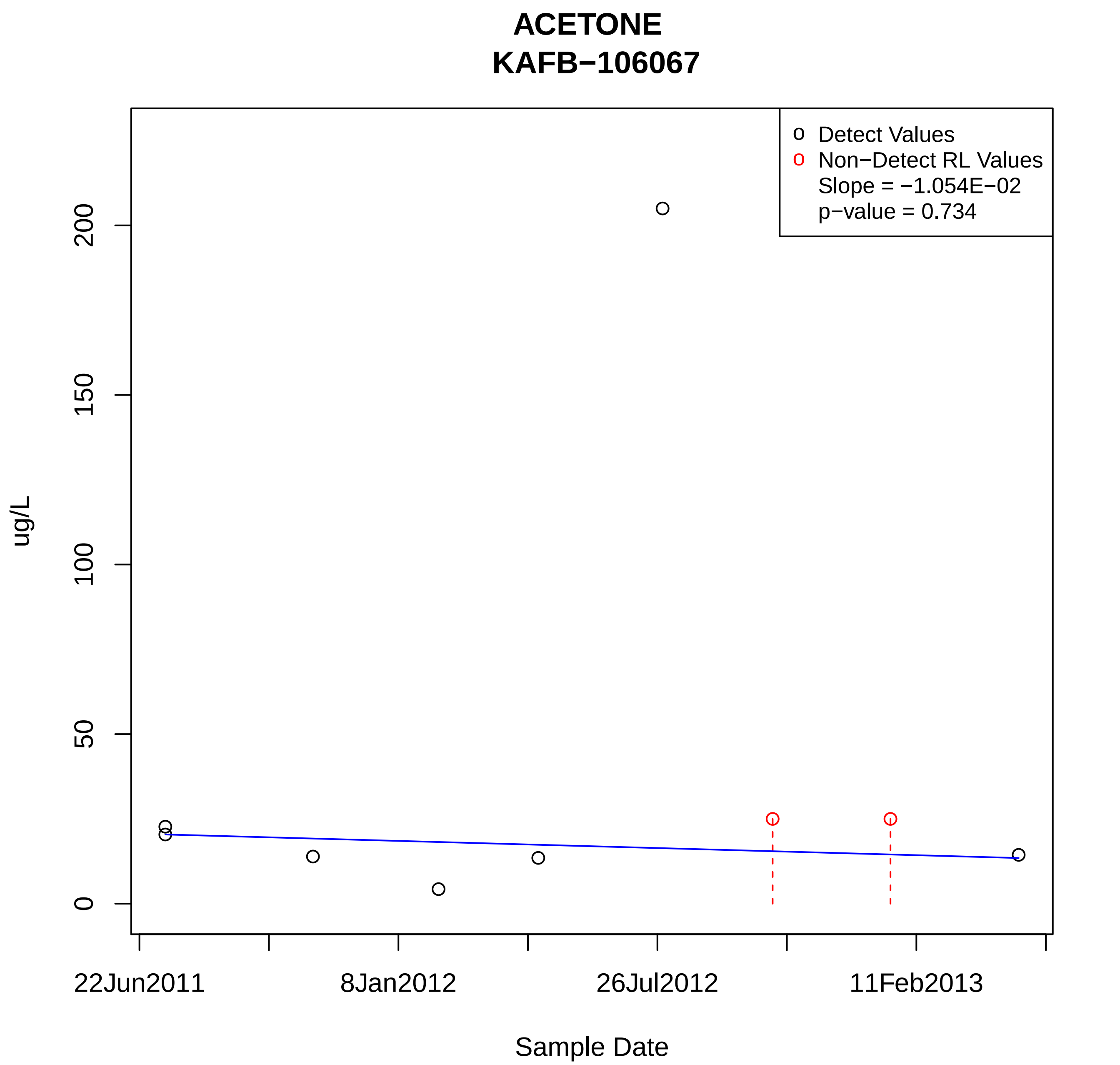
ACETONE
KAFB−106063
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



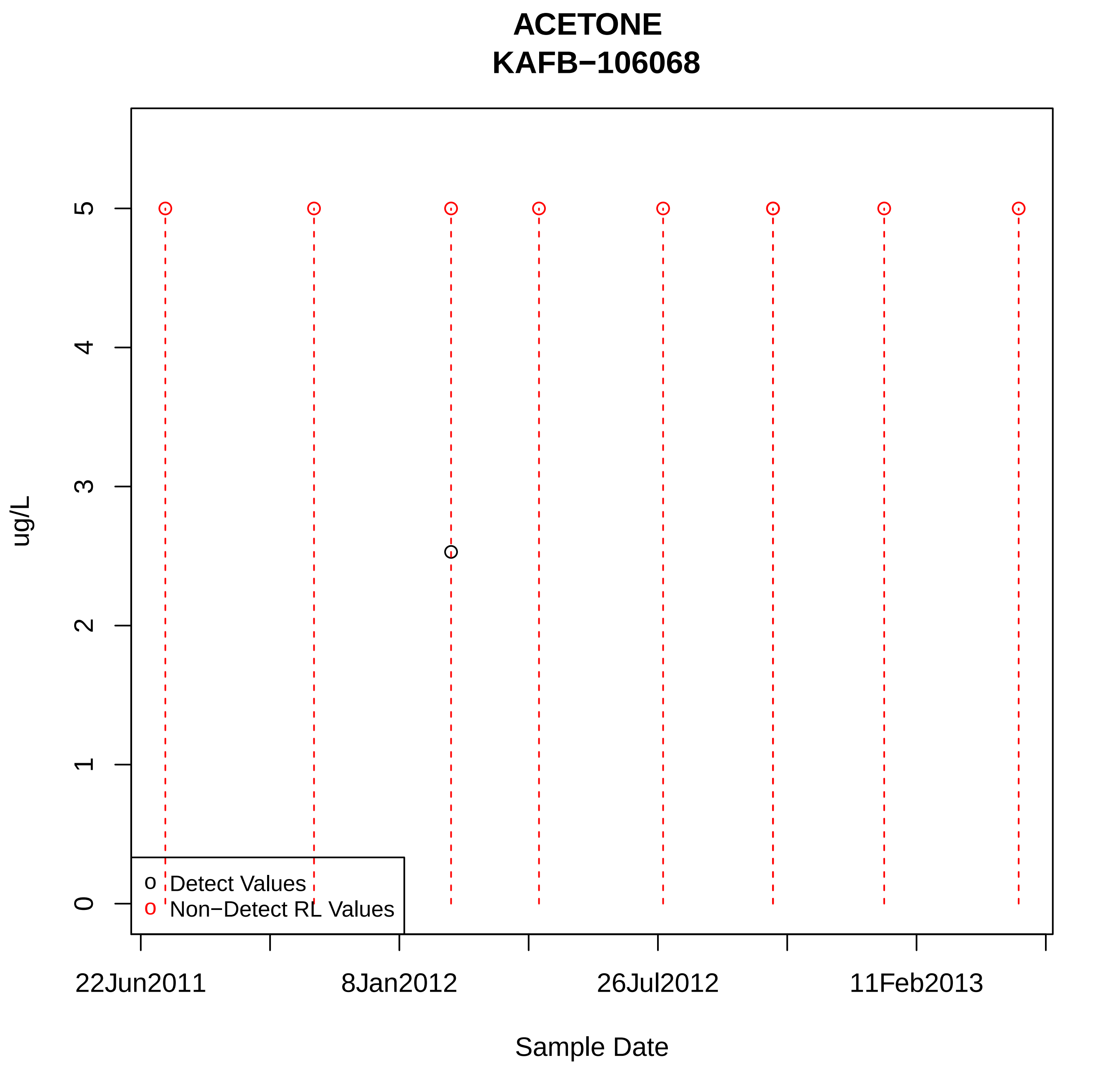
ACETONE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −2.883E−03
p−value = 1.000
ug/L
0
100
200
300
400
500
600
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

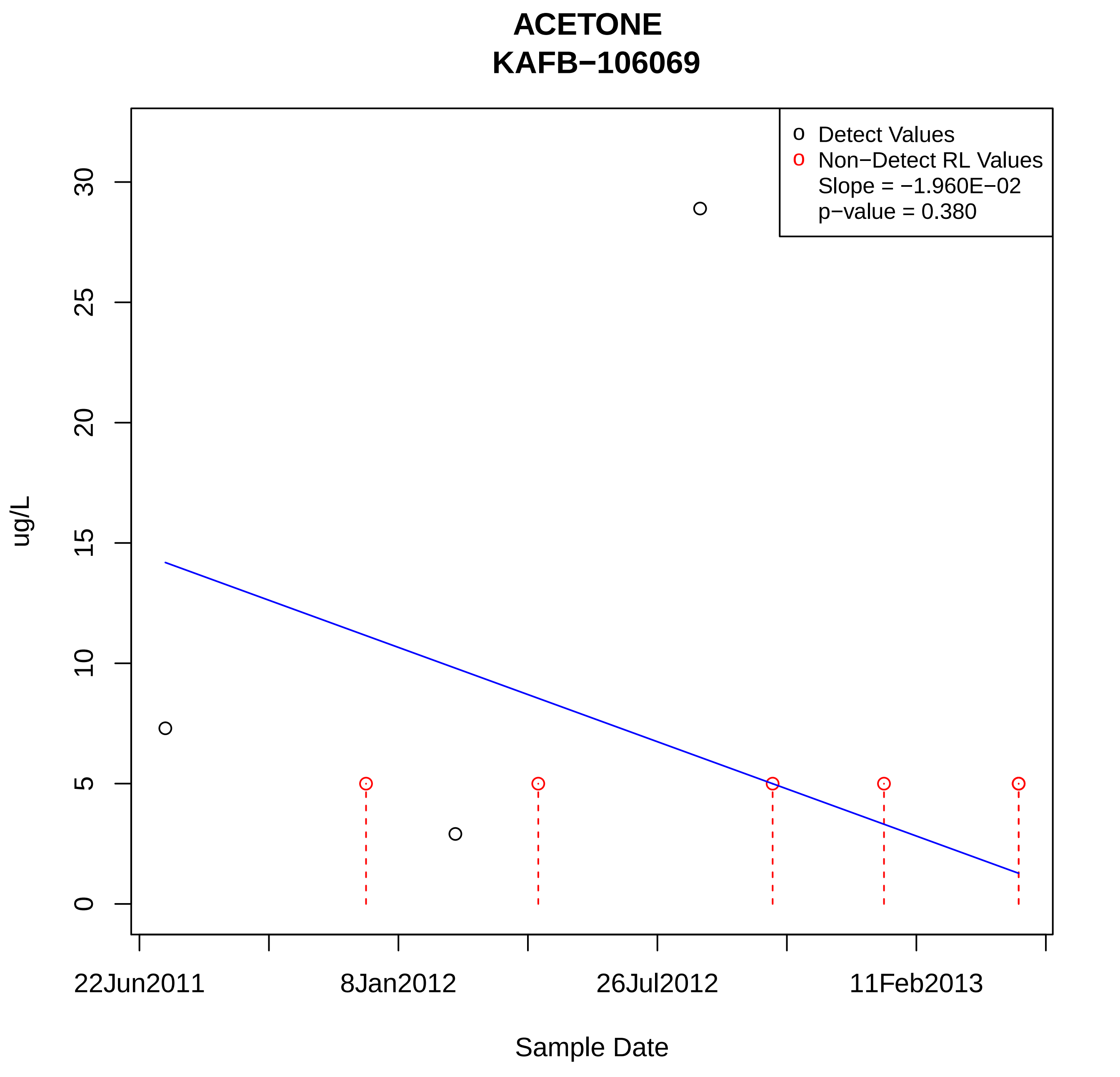


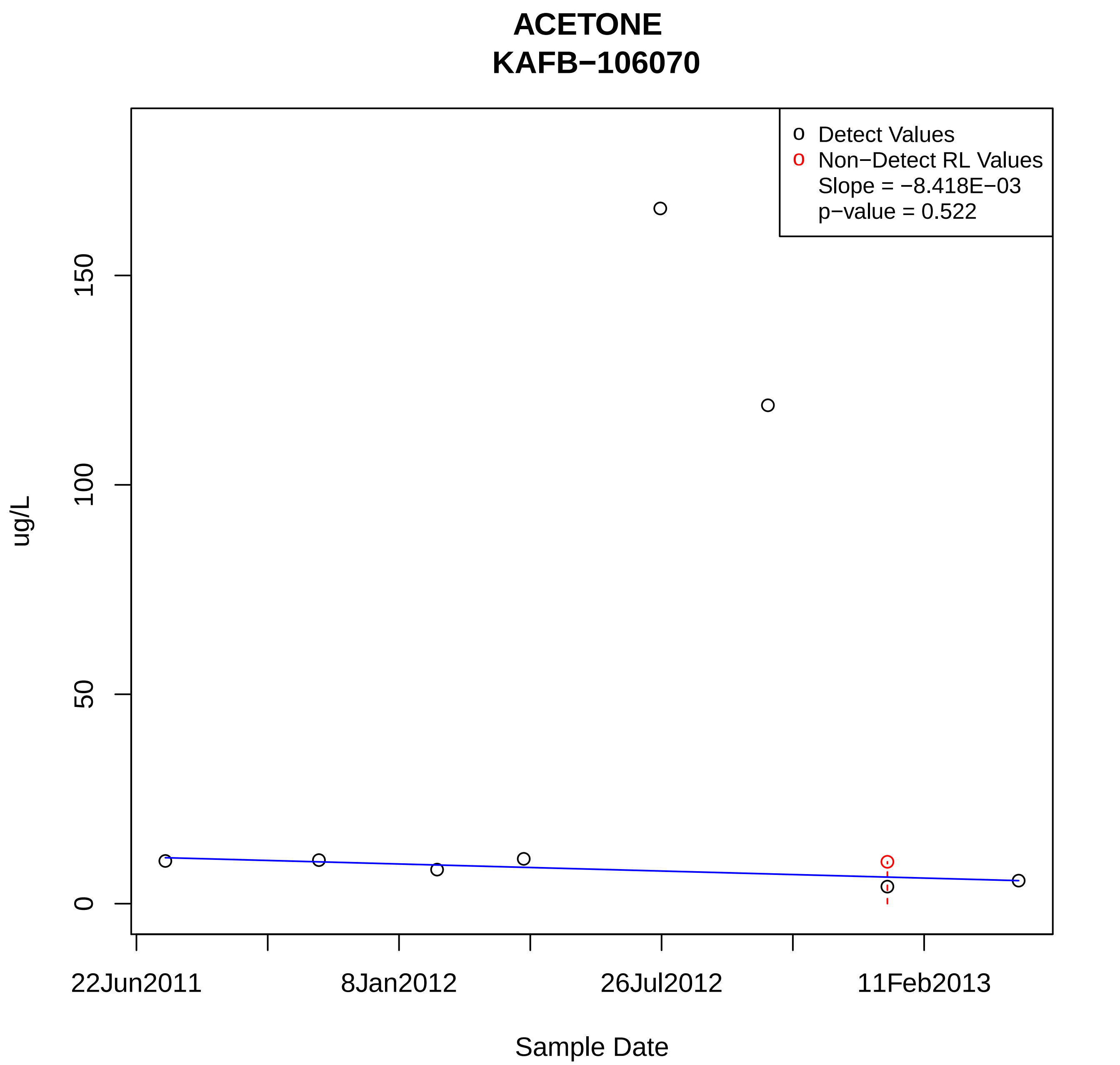
ACETONE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

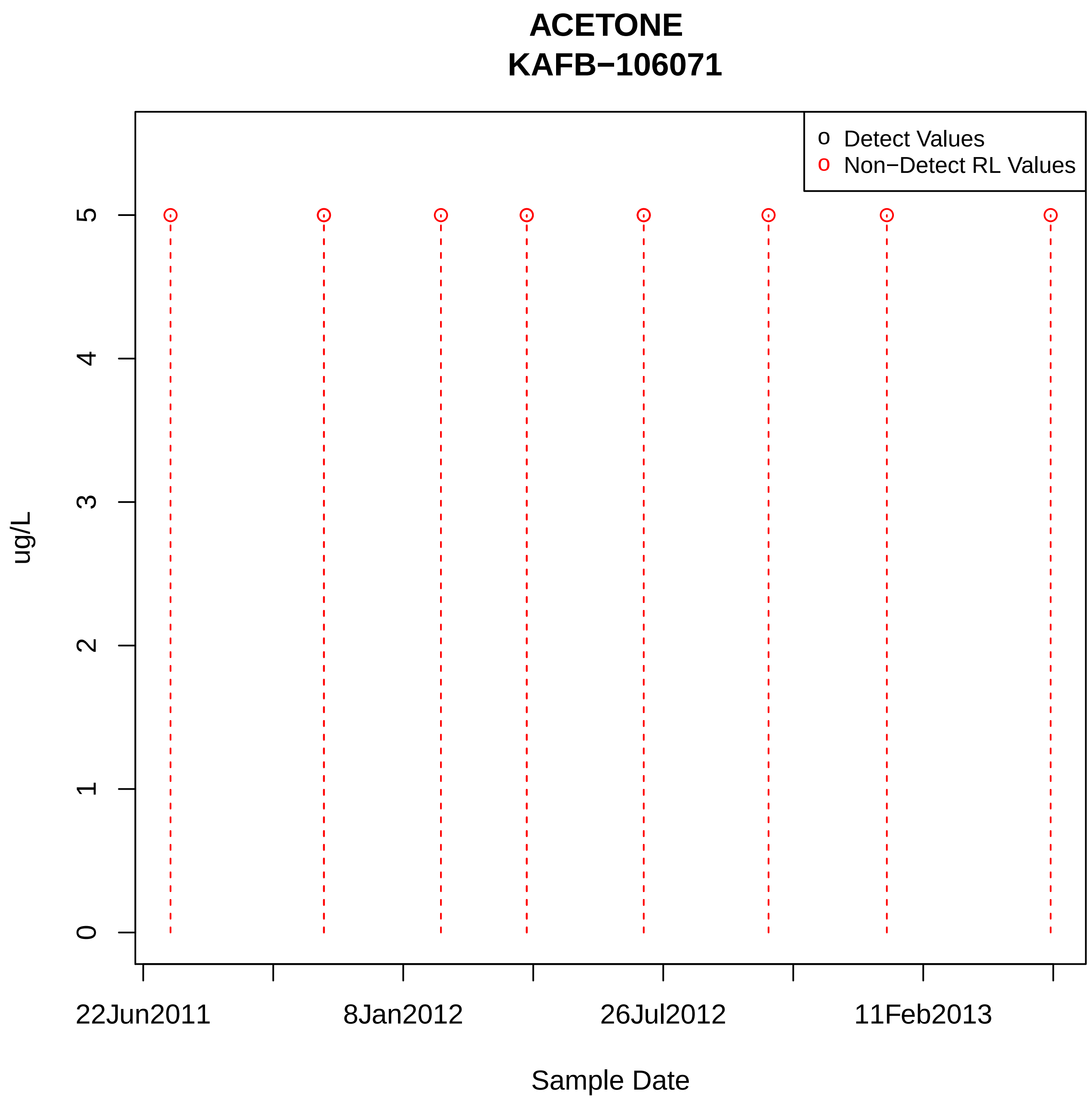


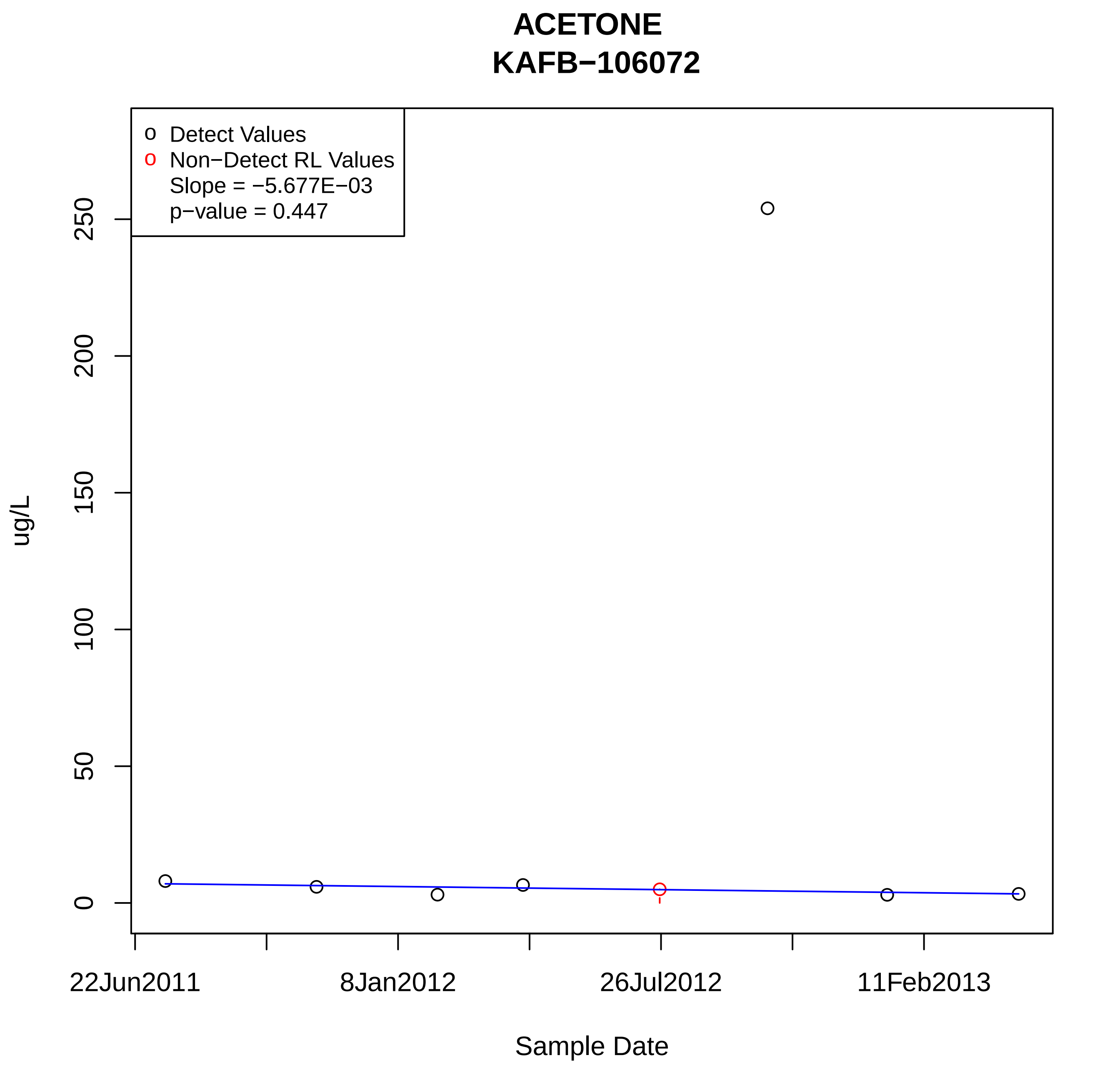
ACETONE
KAFB−106067
o Detect Values
o Non−Detect RL Values
Slope = −1.054E−02
p−value = 0.734
ug/L
0
50
100
150
200
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ACETONE
KAFB−106068
ug/L
0
1
2
3
4
5
Detect Values
Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

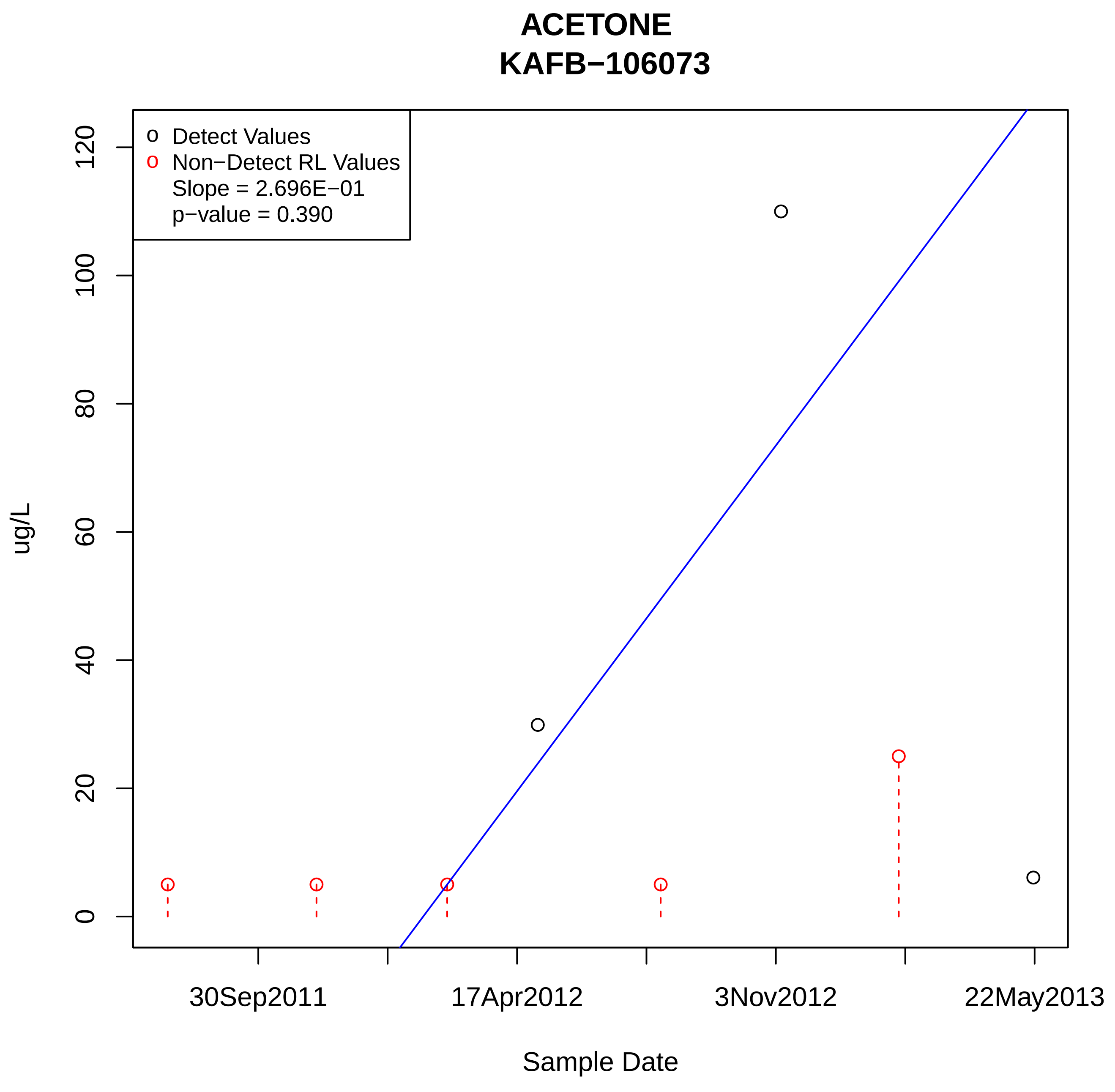

ACETONE
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = −1.960E−02
p−value = 0.380
ug/L
0
5
10
15
20
25
30
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ACETONE
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = −8.418E−03
p−value = 0.522
ug/L
0
50
100
150
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

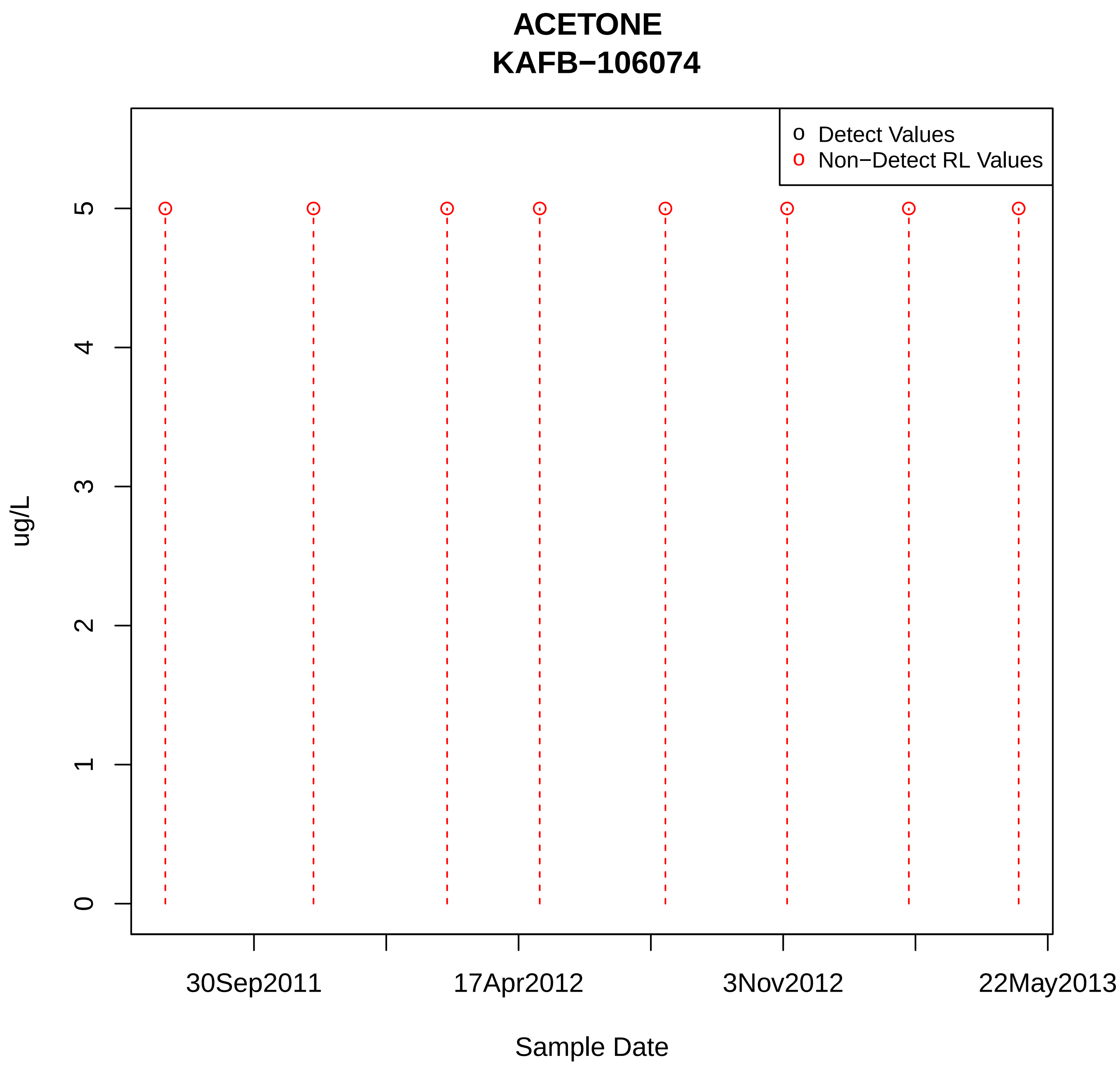

ACETONE
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

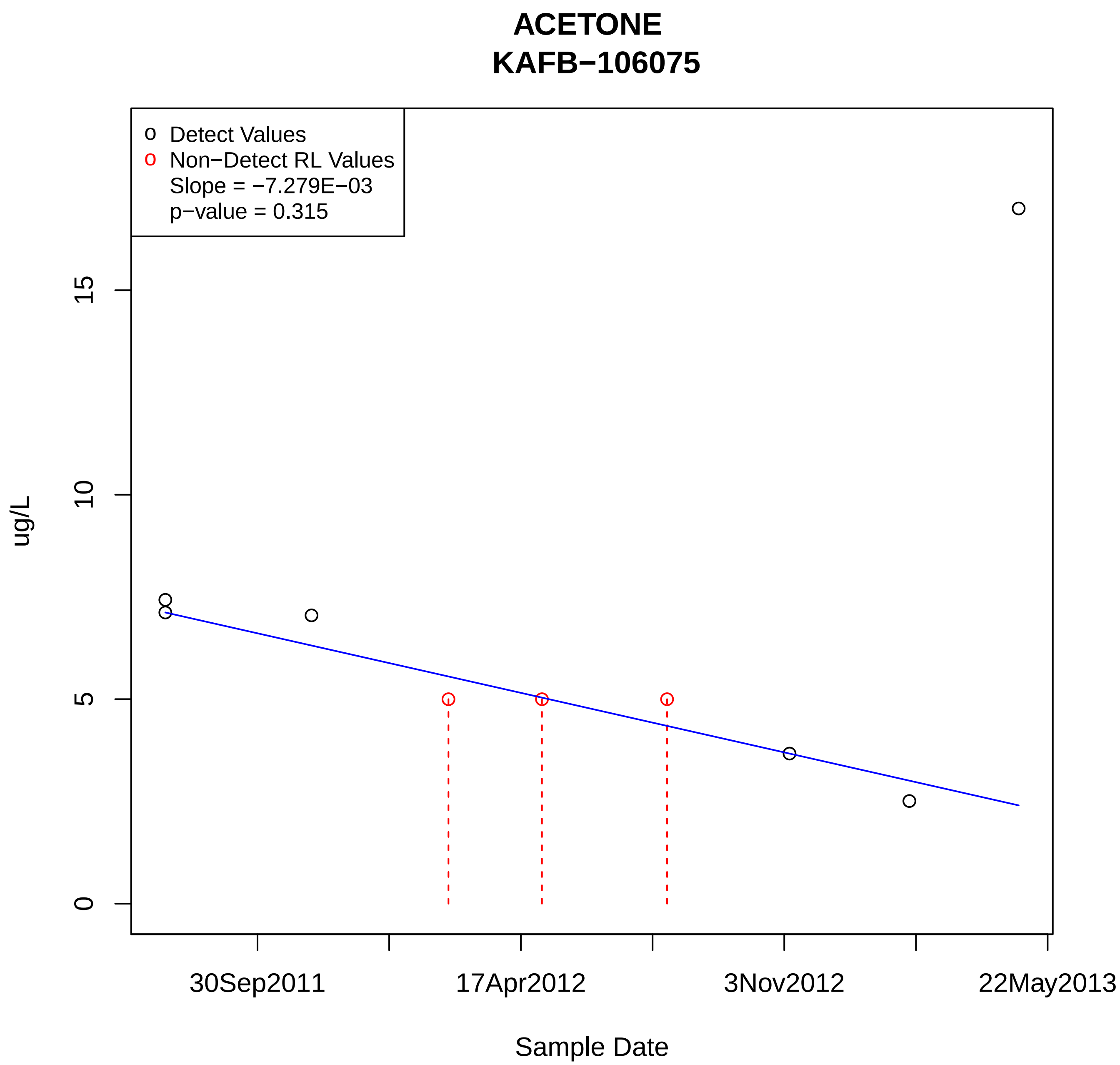


ACETONE
KAFB−106072
Detect Values
Non−Detect RL Values
Slope = −5.677E−03
p−value = 0.447
ug/L
0
50
100
150
200
250
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

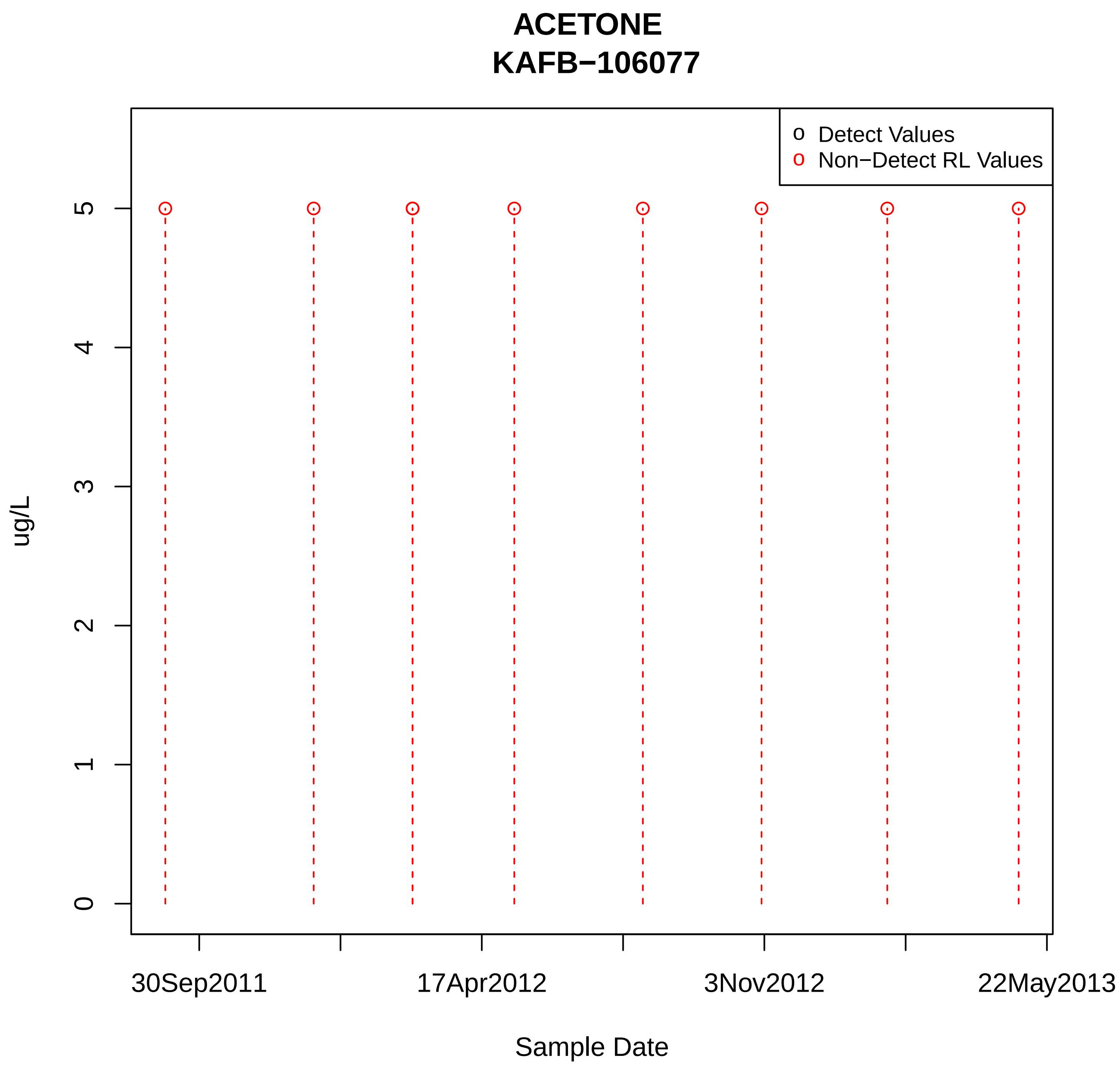


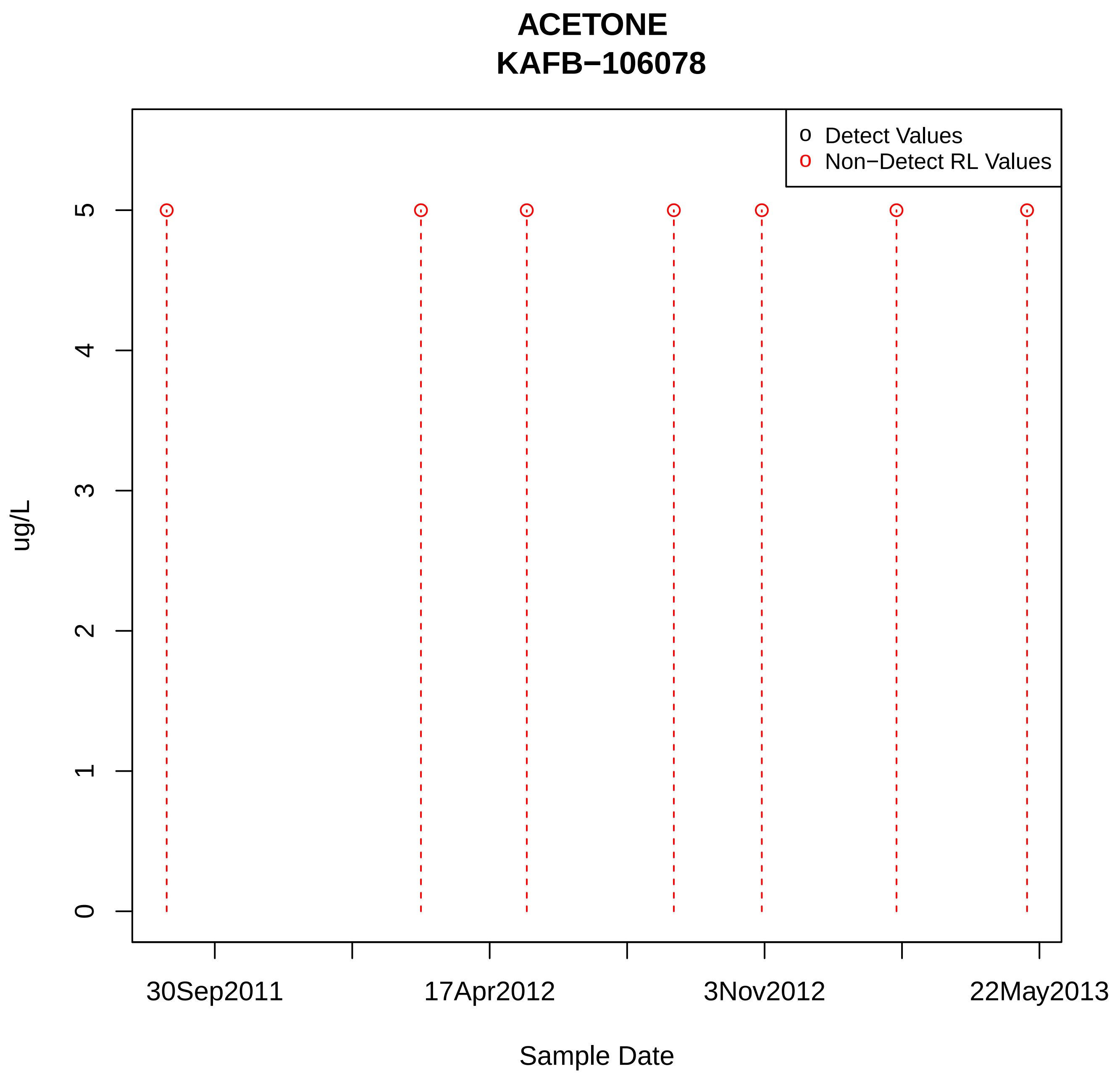
ACETONE
KAFB−106073
Detect Values
Non−Detect RL Values
Slope = 2.696E−01
p−value = 0.390
0
20
40
60
80
100
120
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

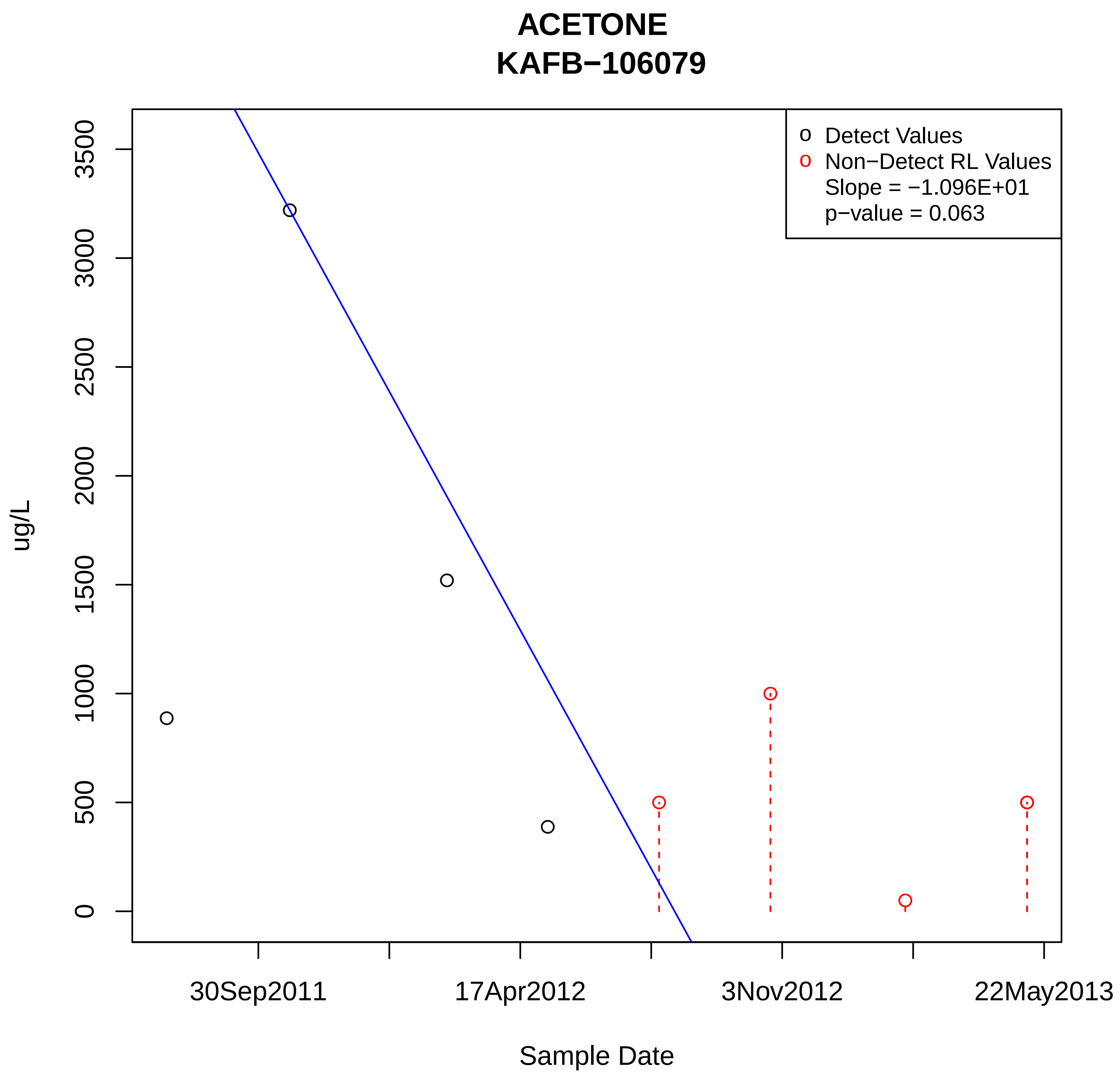

ACETONE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



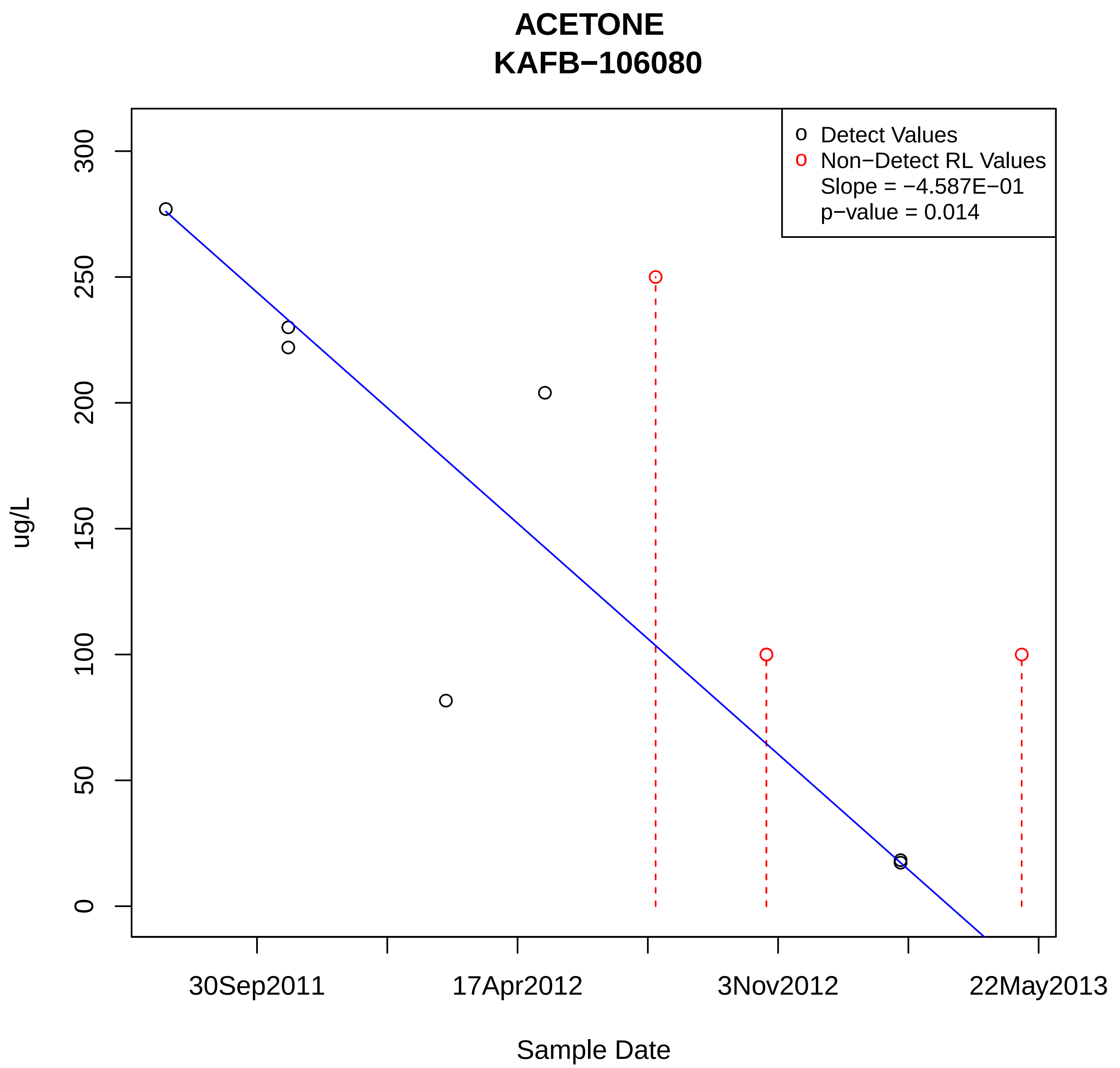
ACETONE
KAFB−106075
o Detect Values
o Non−Detect RL Values
Slope = −7.279E−03
p−value = 0.315
ug/L
0
5
10
15
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

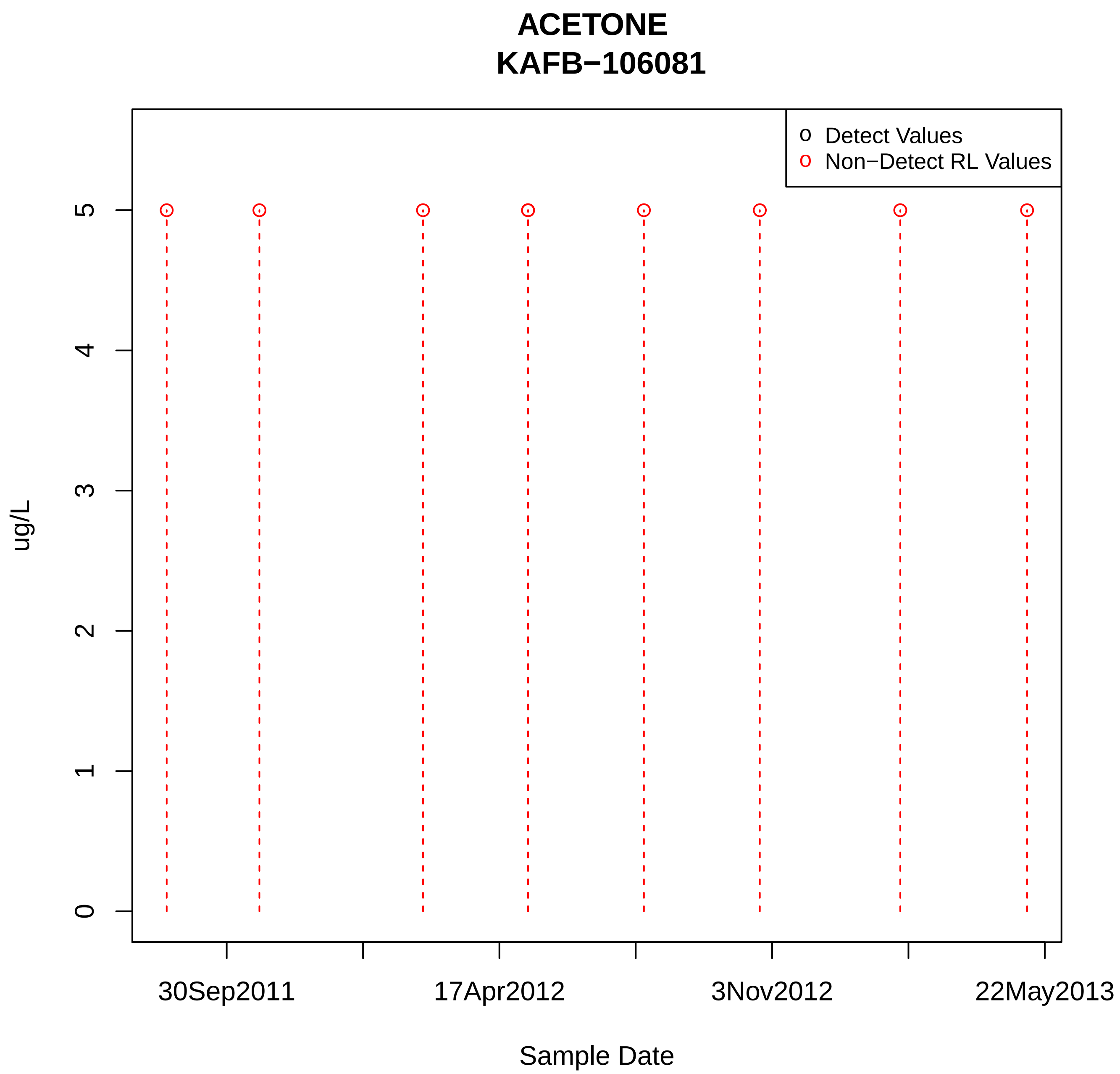

ACETONE
KAFB−106077
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

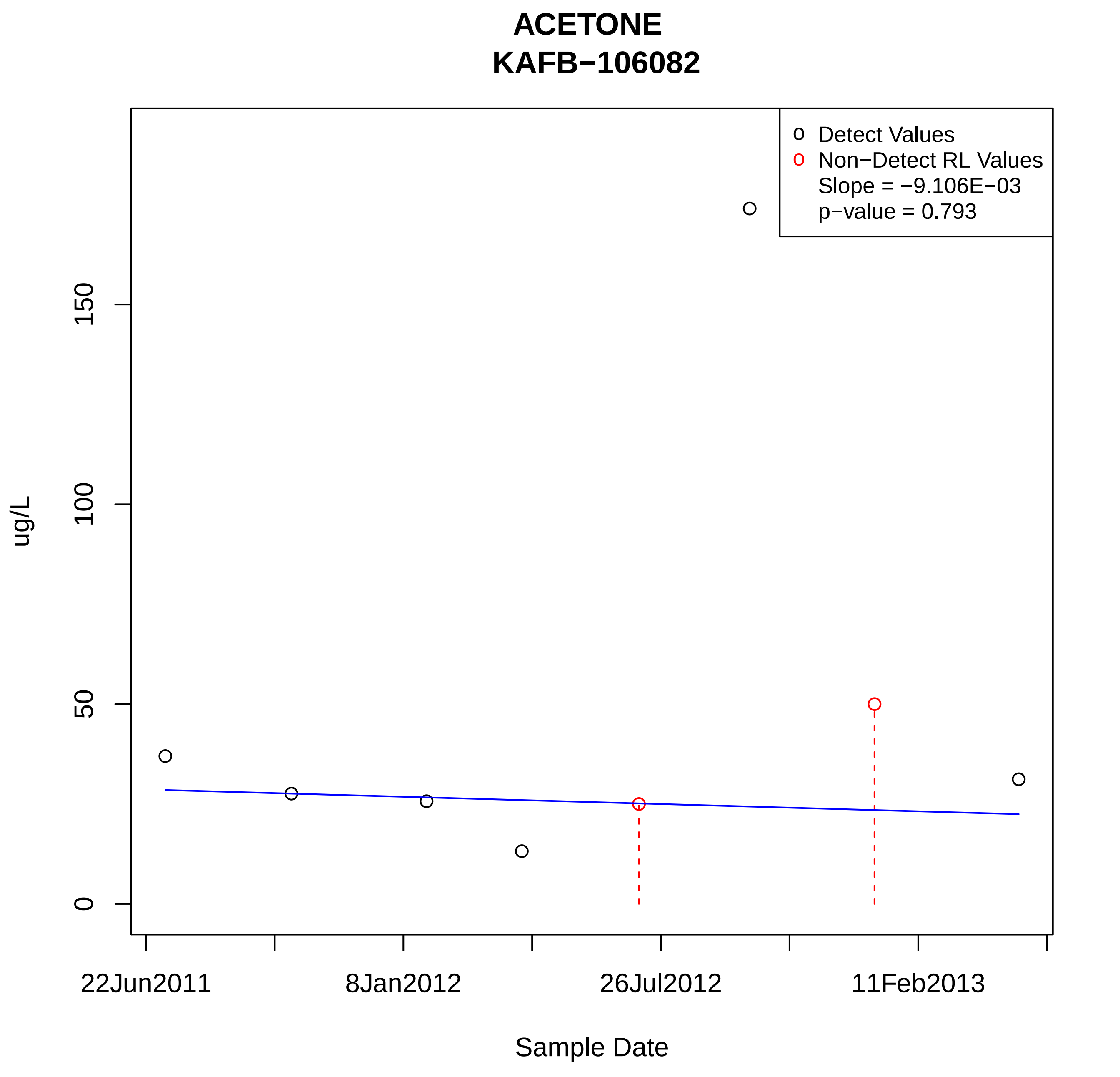


ACETONE
KAFB−106079
o Detect Values
o Non−Detect RL Values
Slope = −1.096E+01
p−value = 0.063
0
500
1000
1500
2000
2500
3000
3500
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

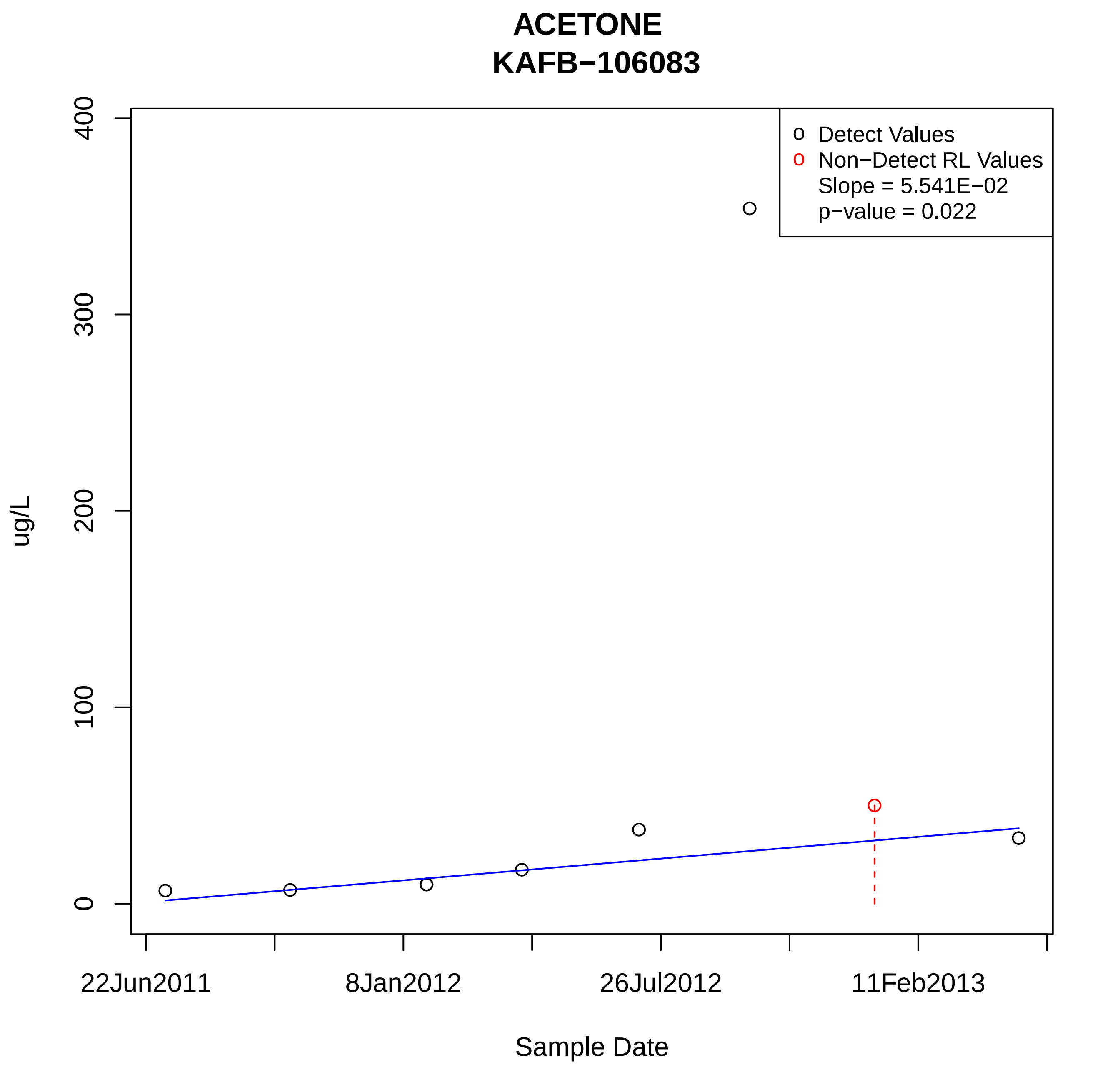

ACETONE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −4.587E−01
p−value = 0.014
ug/L
0
50
100
150
200
250
300
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



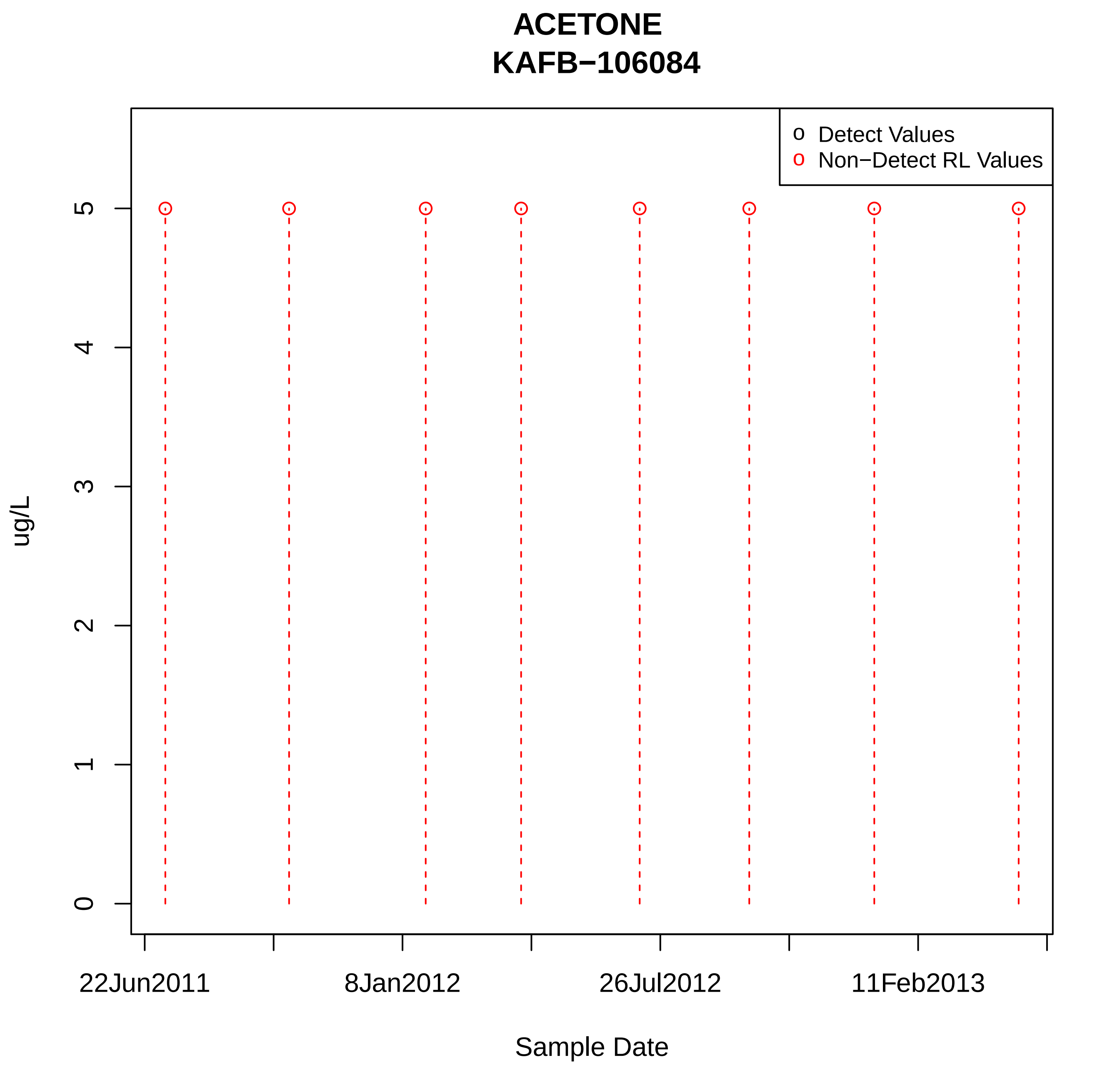
ACETONE
KAFB−106081
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



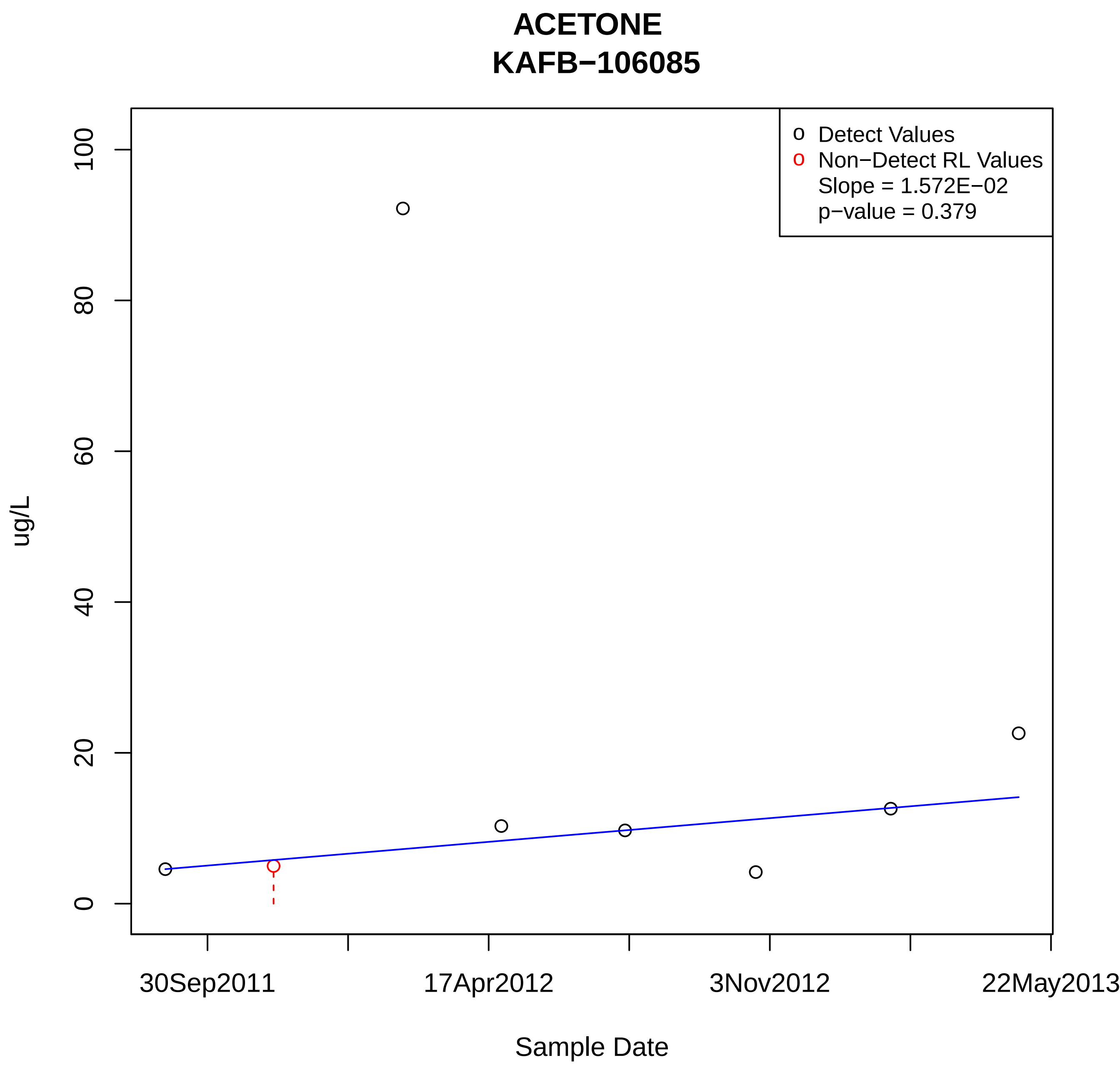
ACETONE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −9.106E−03
p−value = 0.793
ug/L
0
50
100
150
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

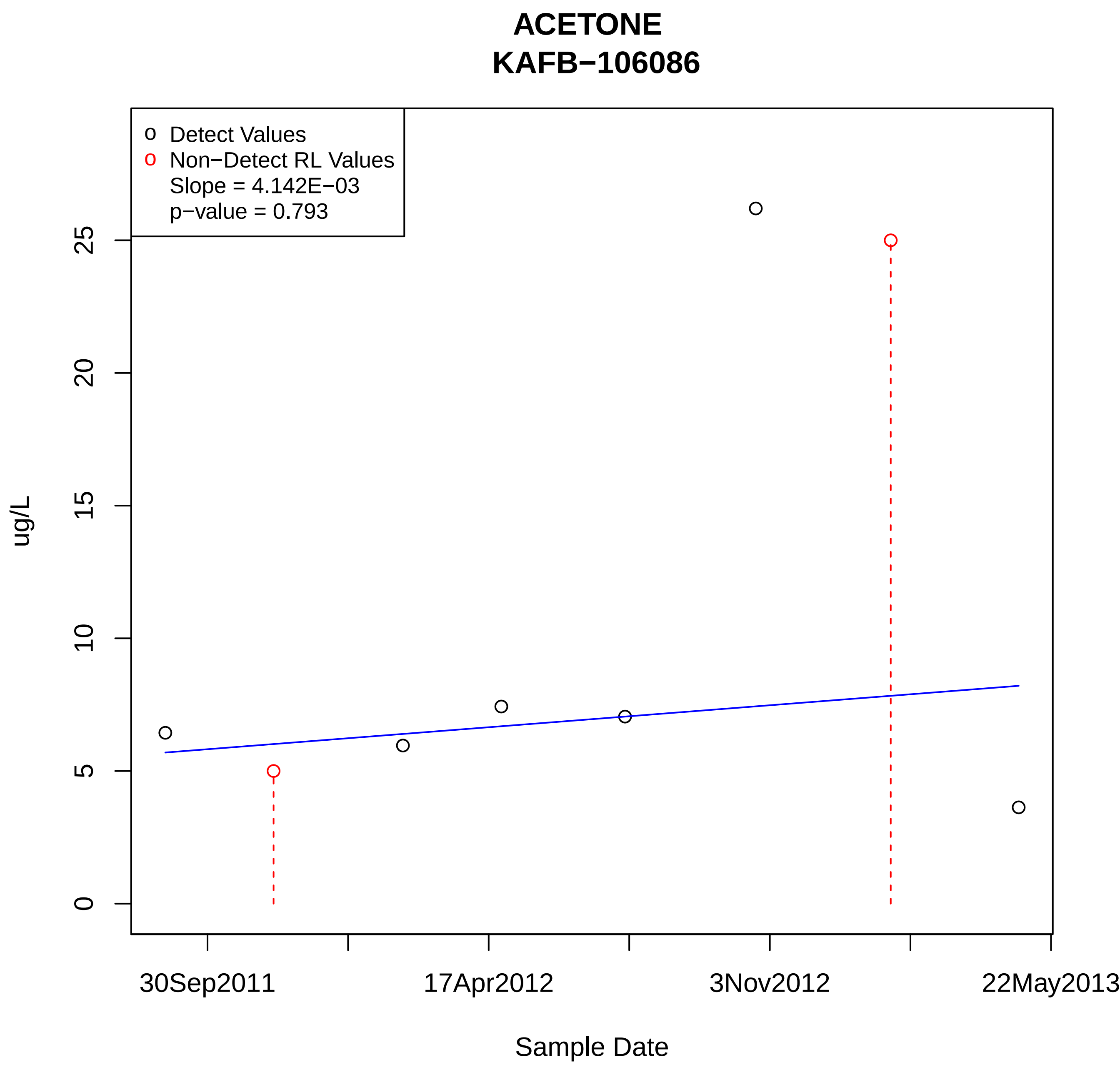


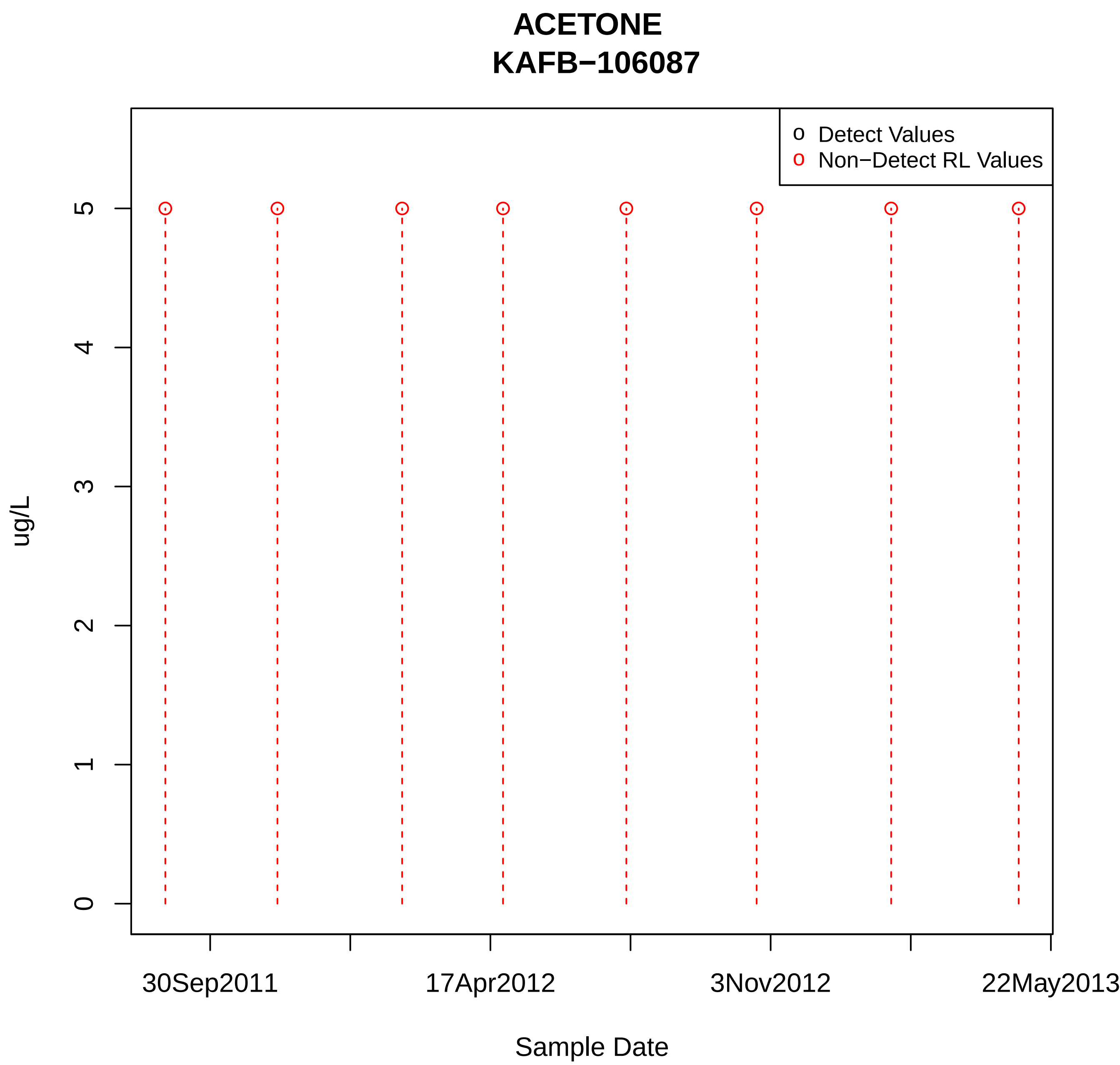
ACETONE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 5.541E−02
p−value = 0.022
ug/L
0
100
200
300
400
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

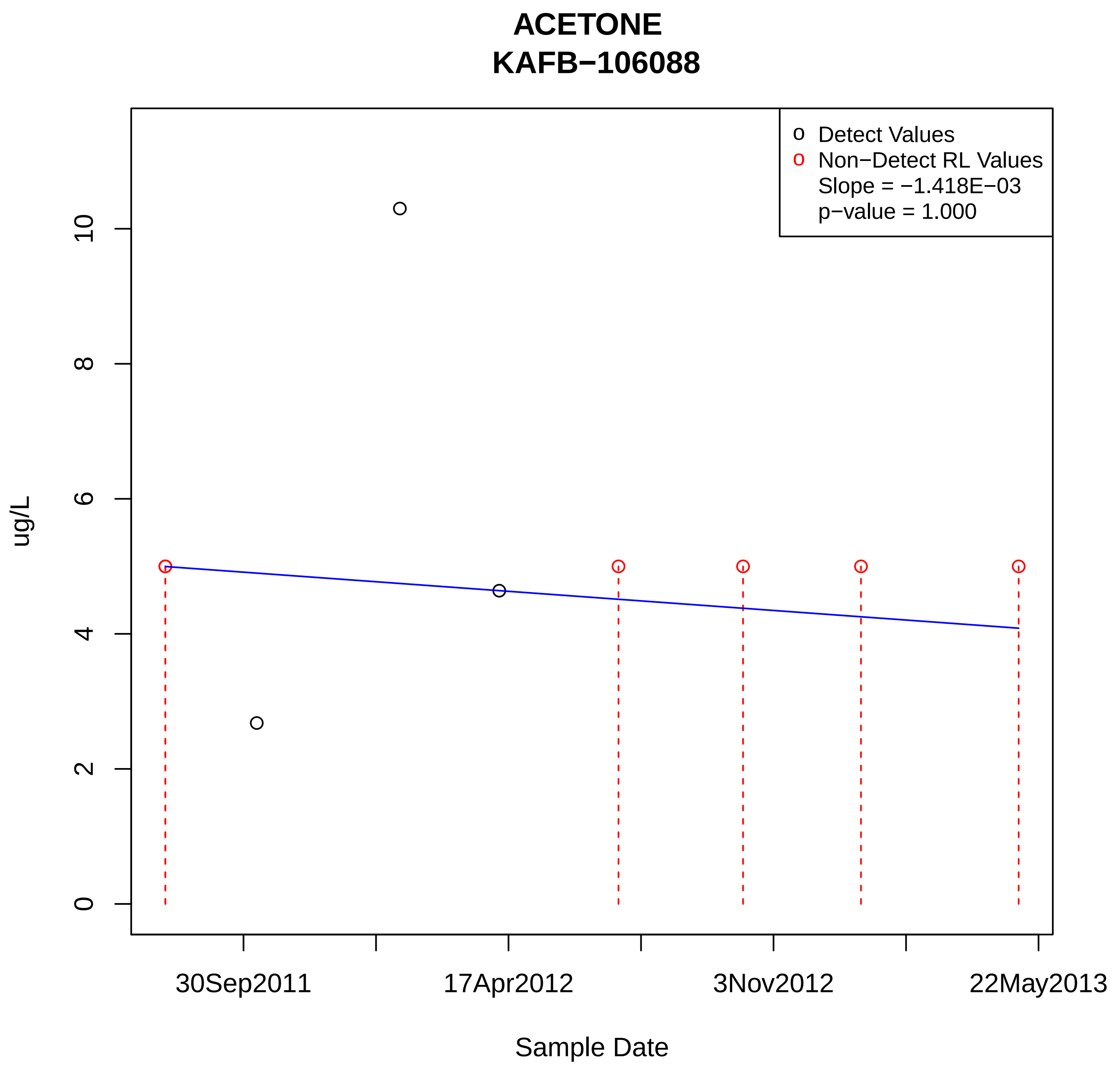


ACETONE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

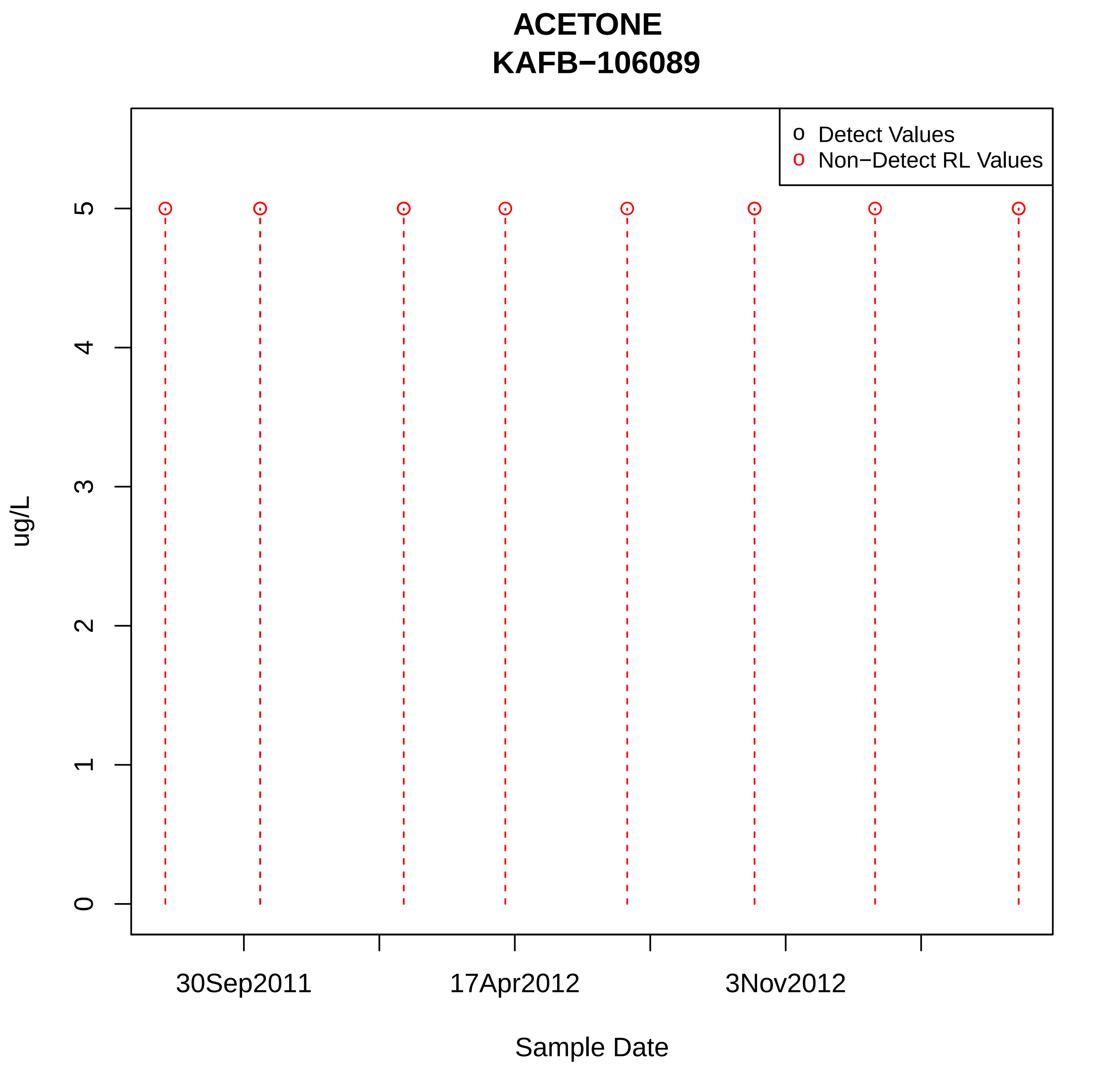

ACETONE
KAFB−106085
Detect Values
Non−Detect RL Values
Slope = 1.572E−02
p−value = 0.379
ug/L
0
20
40
60
80
100
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106086
o Detect Values
o Non−Detect RL Values
Slope = 4.142E−03
p−value = 0.793
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

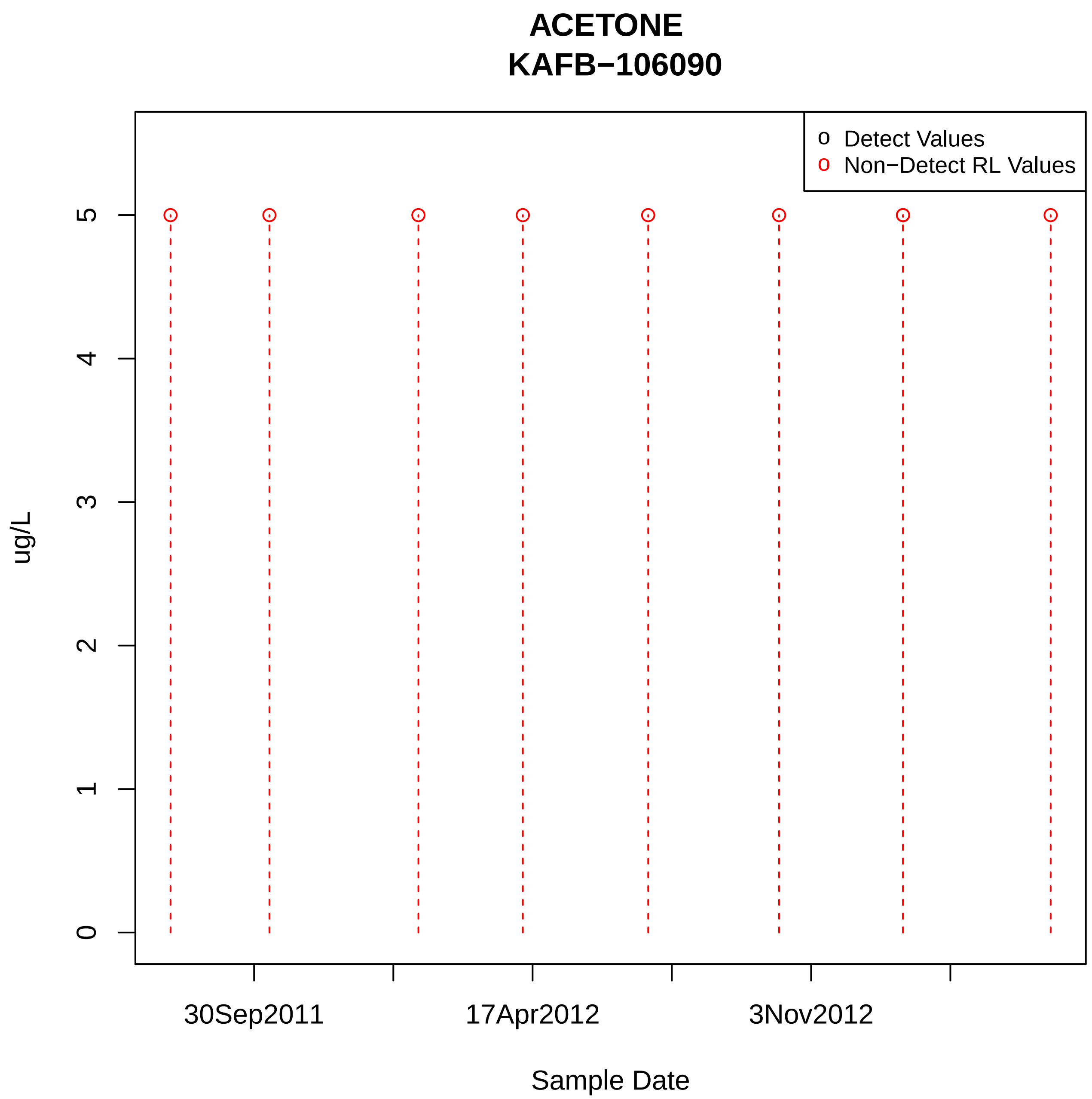

ACETONE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



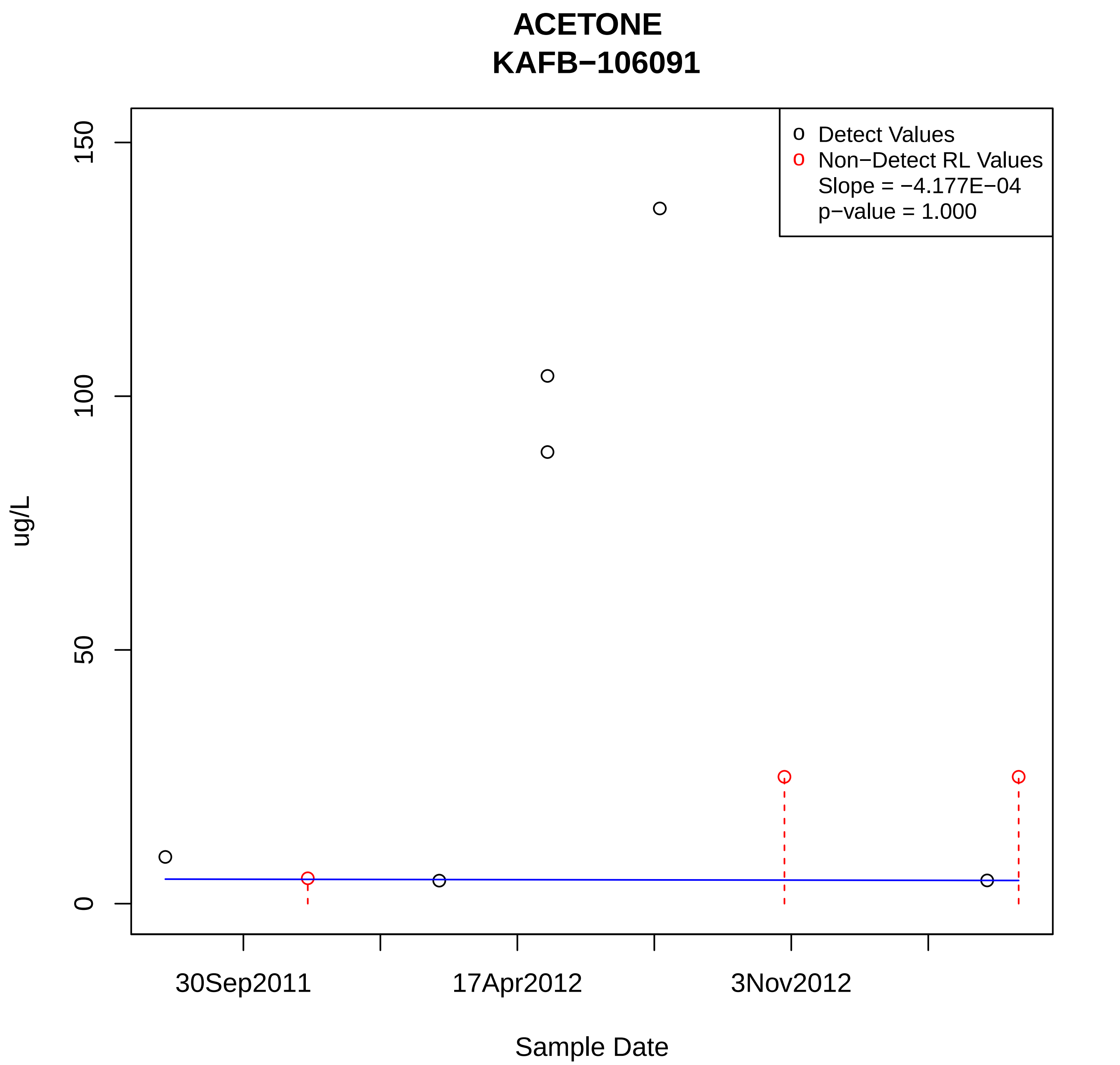
ACETONE
KAFB−106088
Detect Values
Non−Detect RL Values
Slope = −1.418E−03
p−value = 1.000
ug/L
0
2
4
6
8
10
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



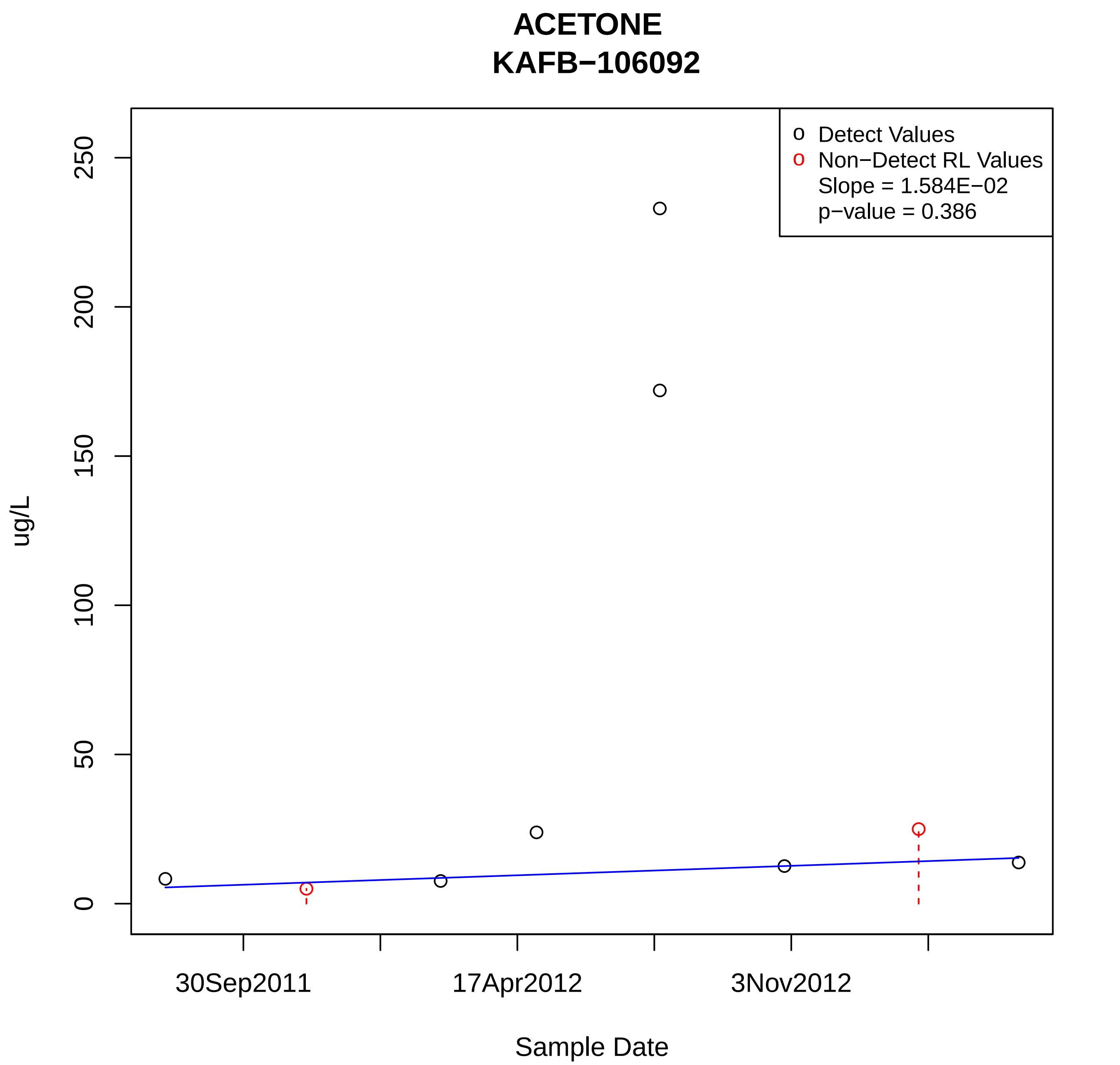
ACETONE
KAFB−106089
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



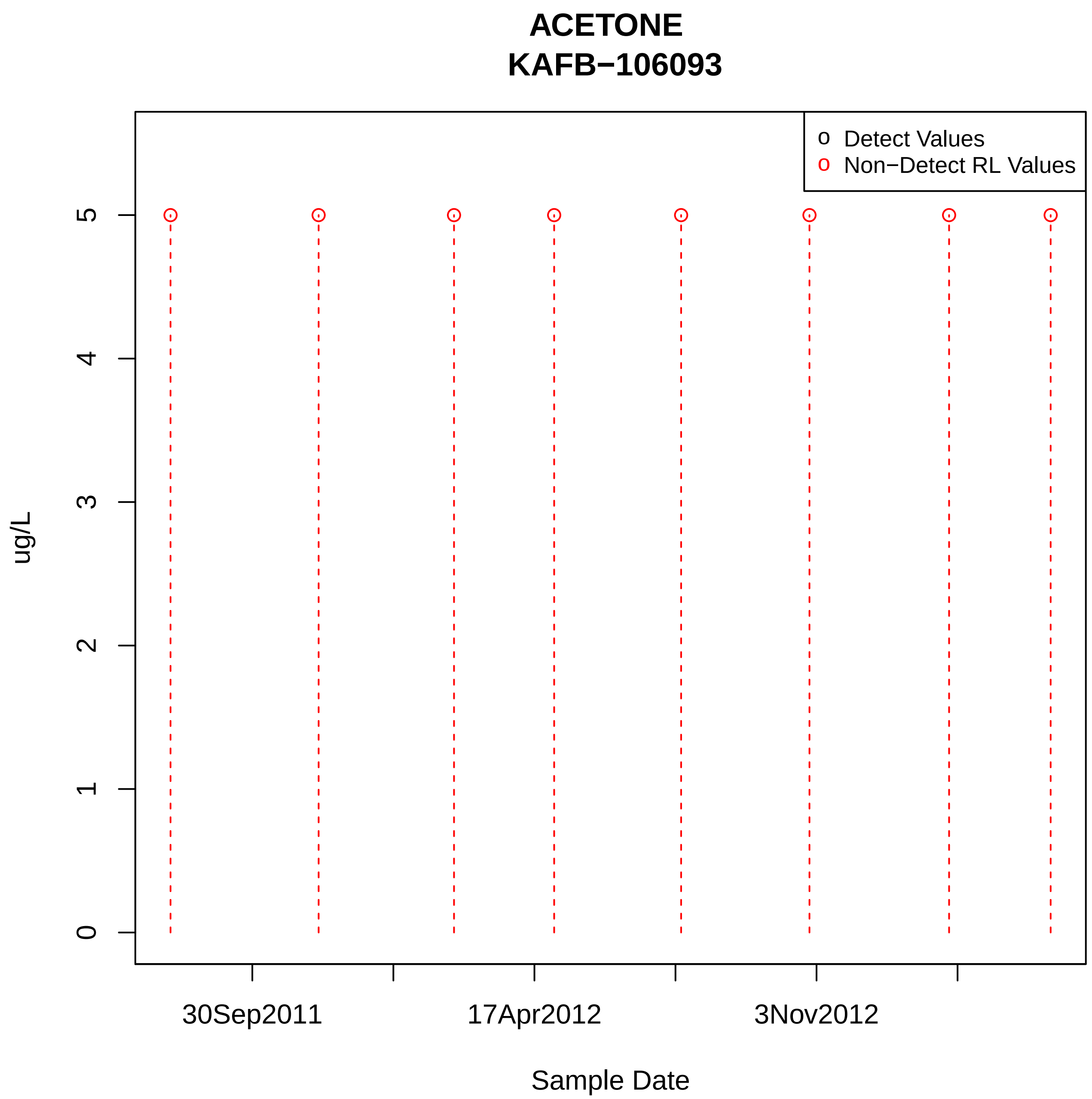
ACETONE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

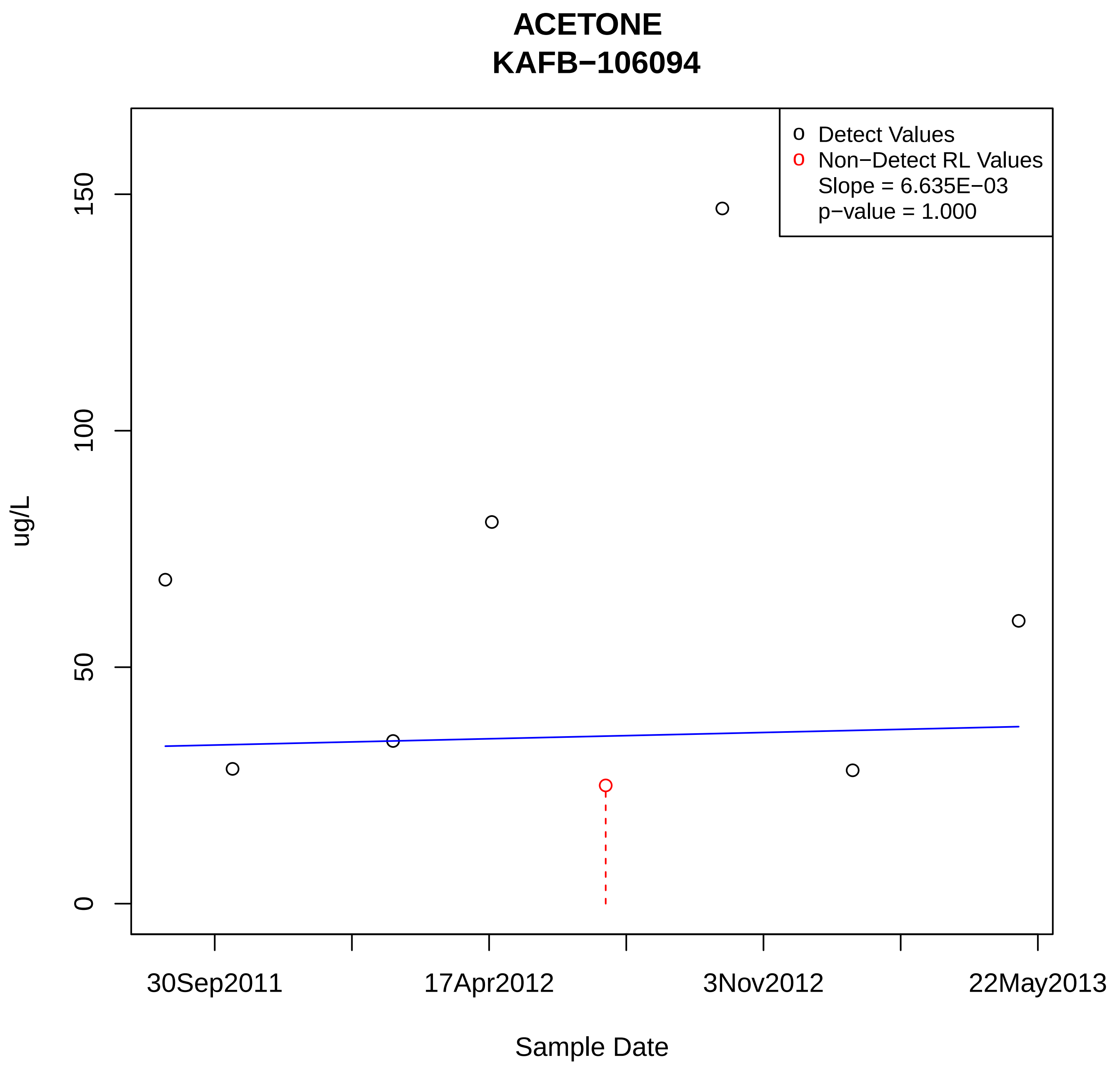


ACETONE
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = −4.177E−04
p−value = 1.000
150
100
50
0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

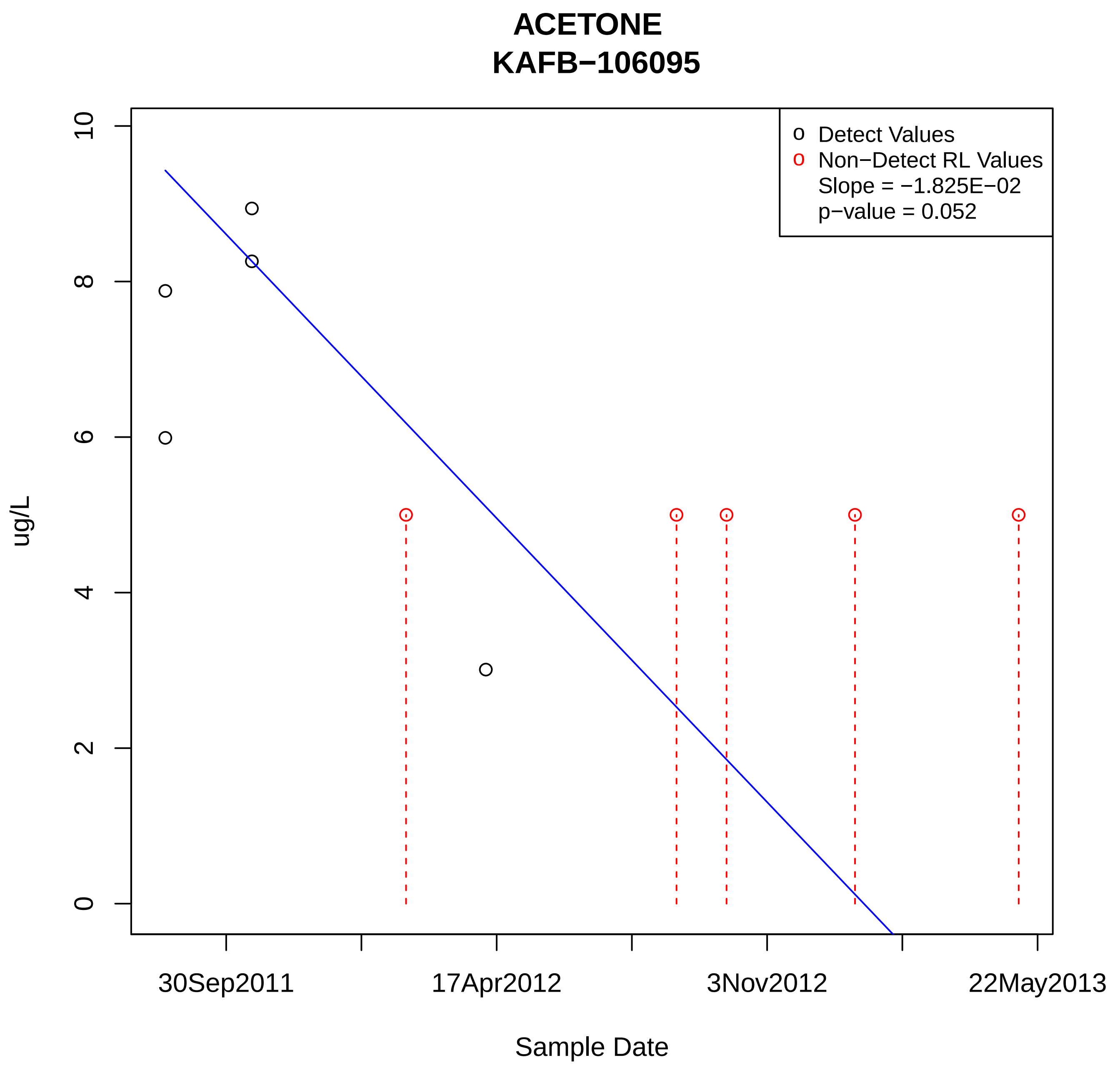


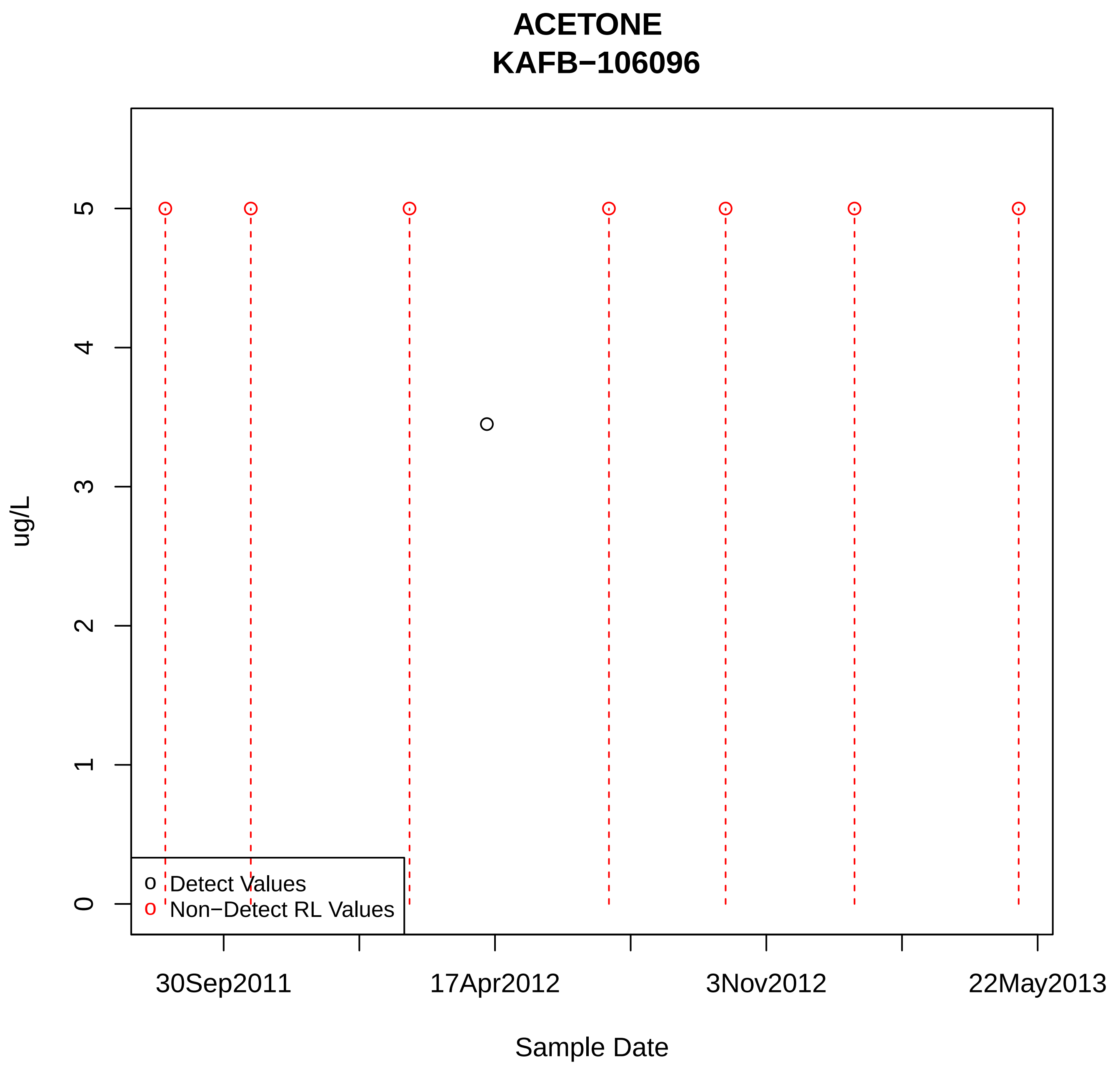
ACETONE
KAFB−106092
Detect Values
Non−Detect RL Values
Slope = 1.584E−02
p−value = 0.386
ug/L
0
50
100
150
200
250
30Sep2011
17Apr2012
3Nov2012
Sample Date

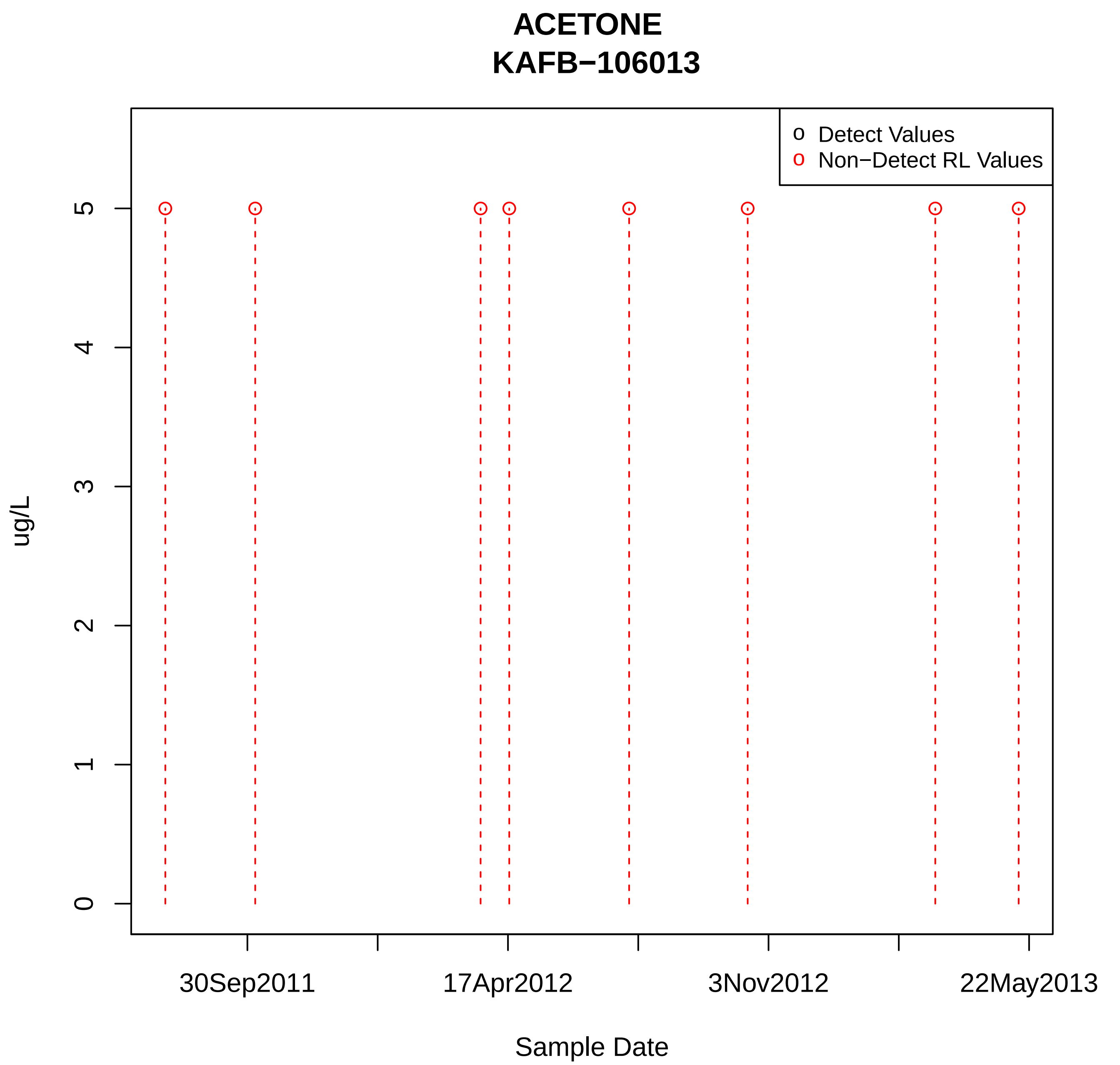

ACETONE
KAFB−106093
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

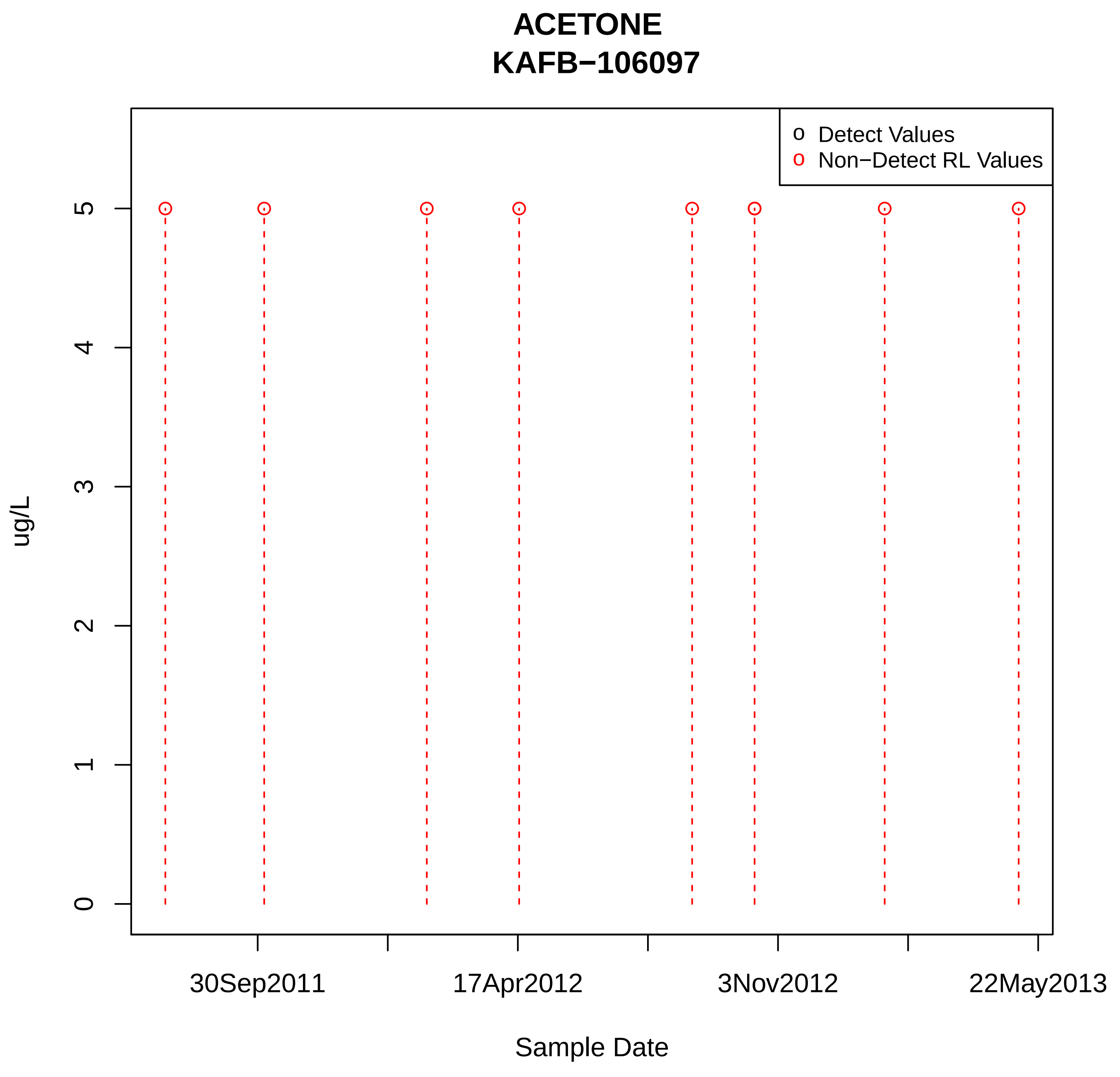


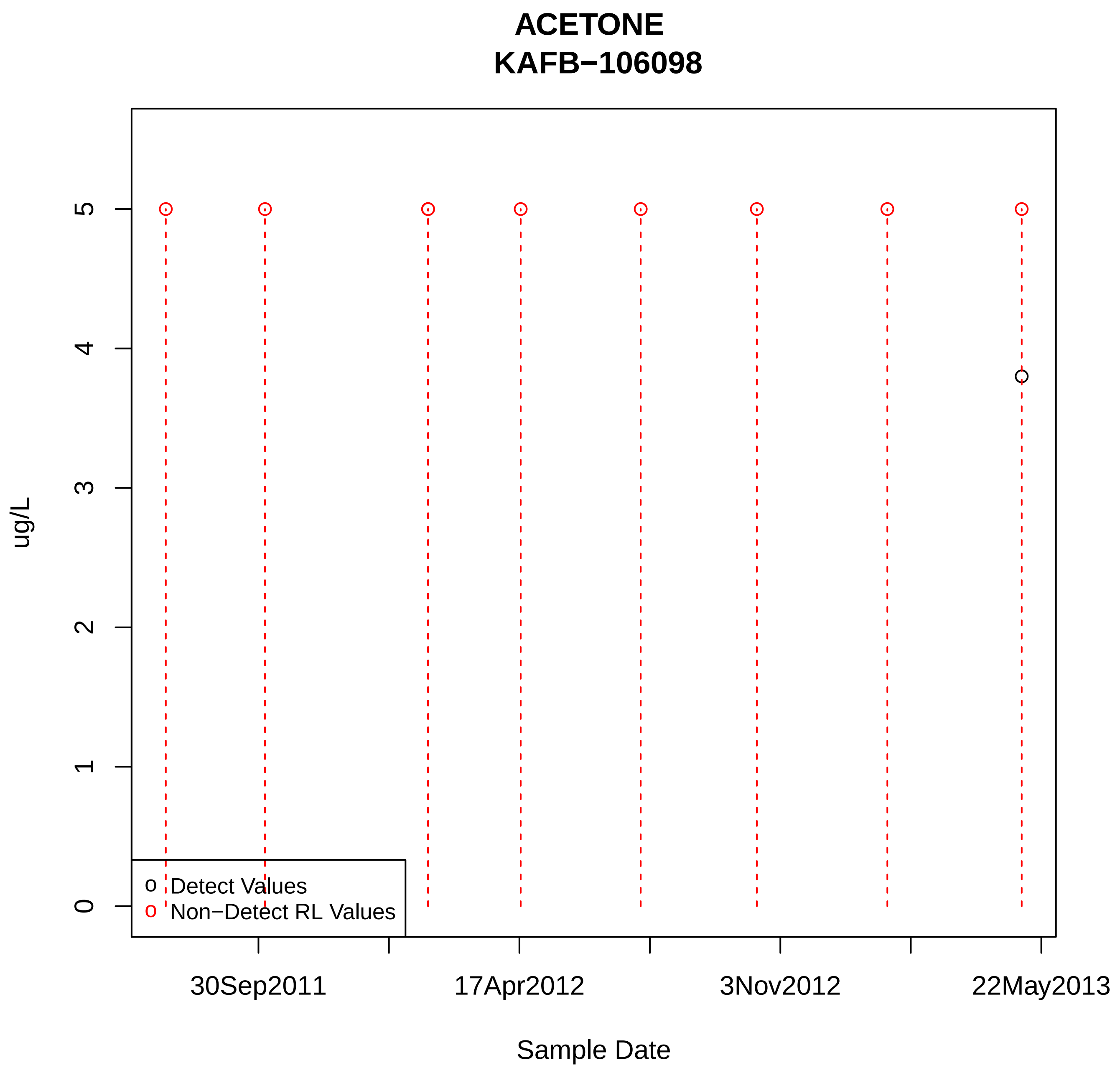
ACETONE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = 6.635E−03
p−value = 1.000
150
100
50
0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

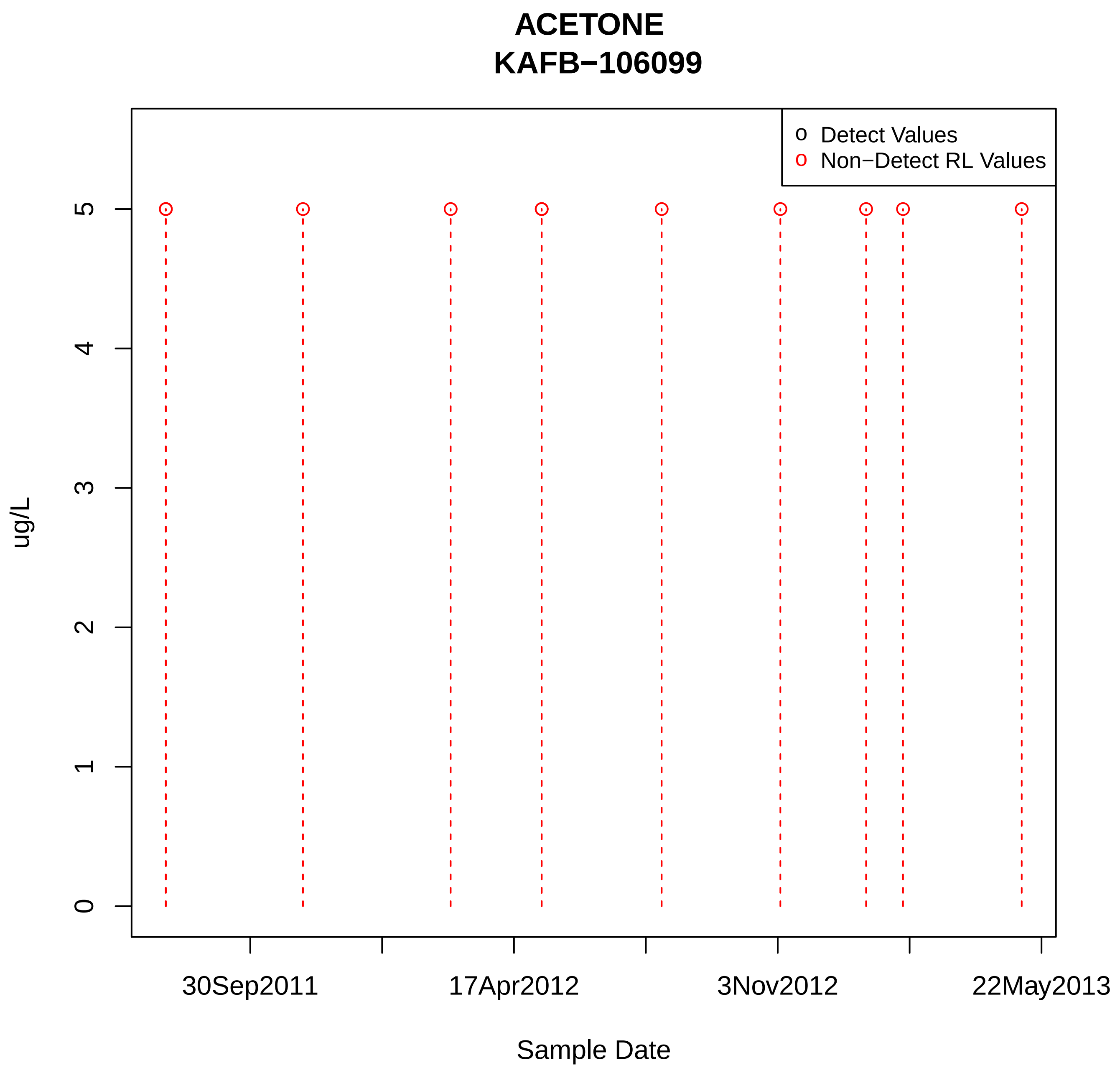

ACETONE
KAFB−106095
ug/L
Sample Date
0
2
4
6
8
10
30Sep2011
17Apr2012
3Nov2012
22May2013
o Detect Values
o Non−Detect RL Values
Slope = −1.825E−02
p−value = 0.052

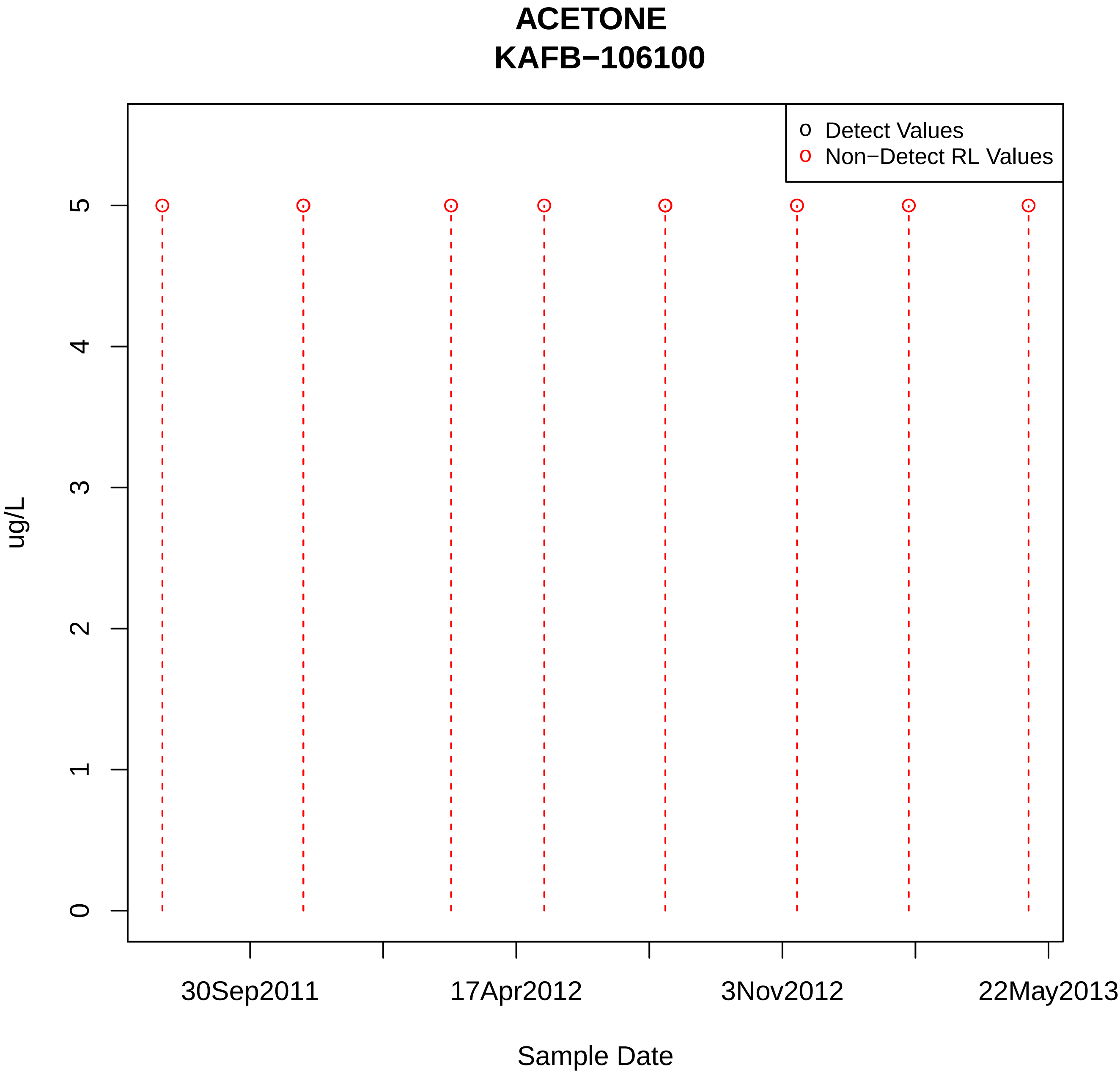

ACETONE
KAFB−106096
ug/L
0
1
2
3
4
5
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106013
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

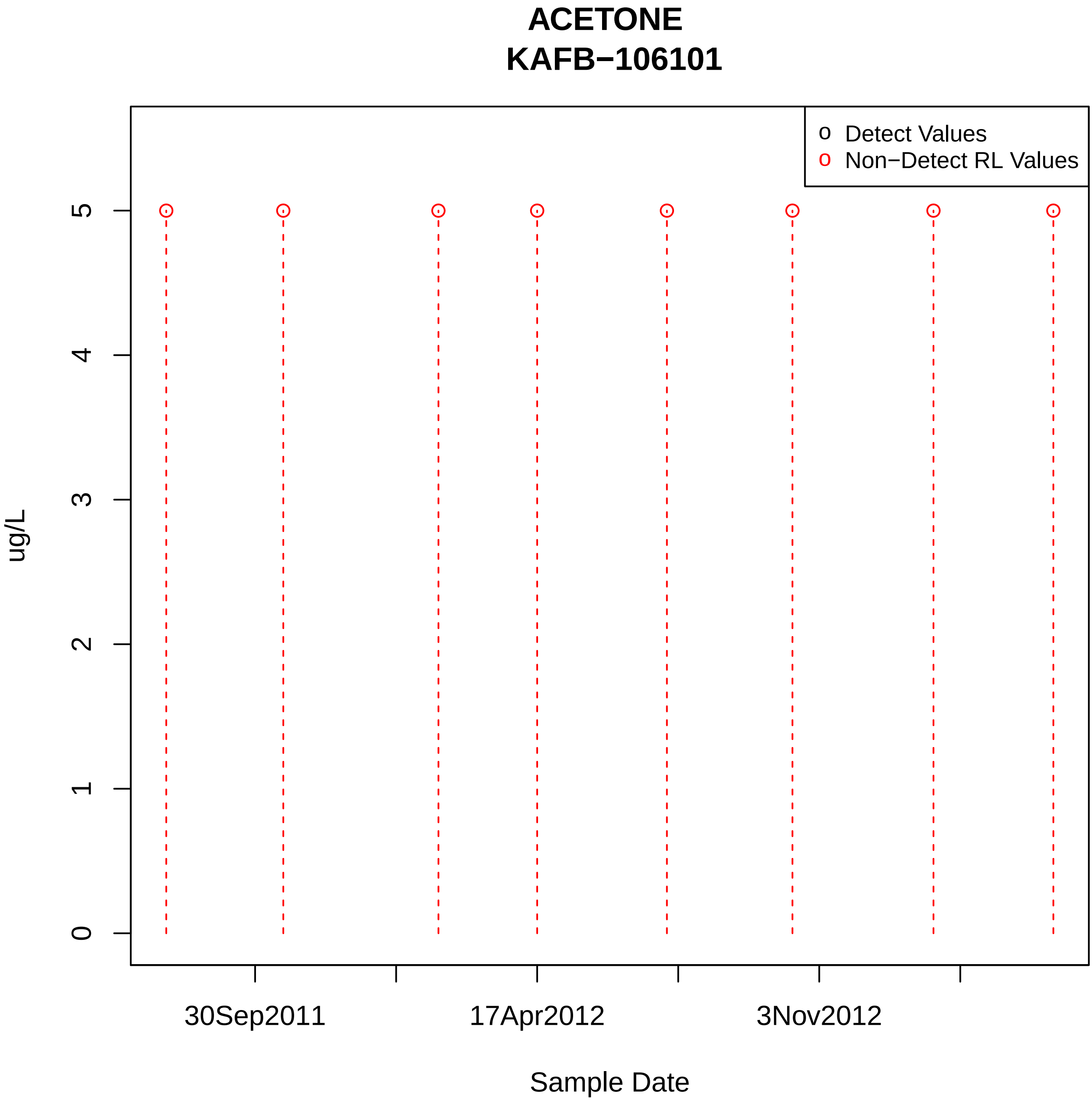

ACETONE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

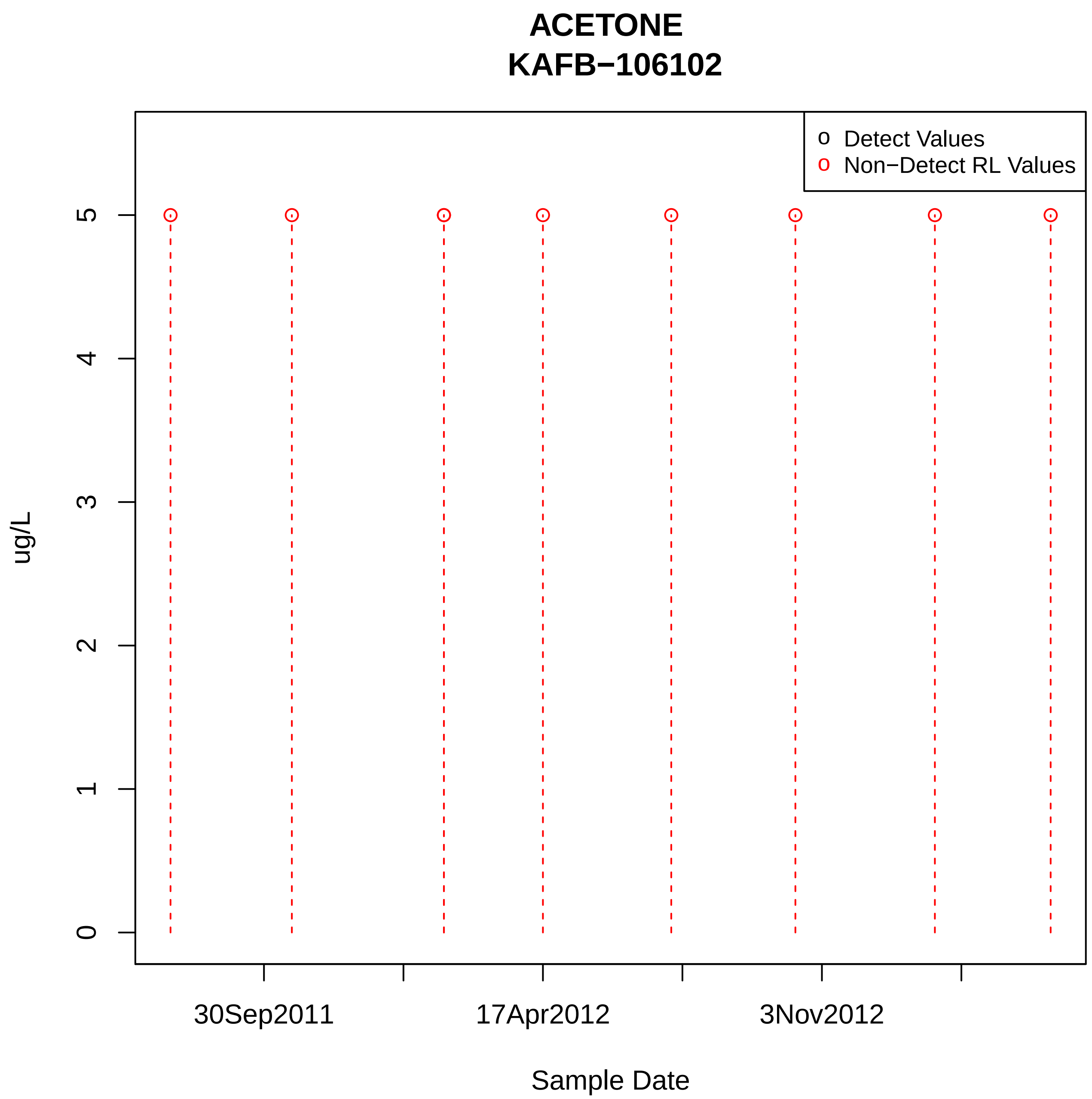

ACETONE
KAFB−106098
ug/L
0
1
2
3
4
5
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ACETONE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

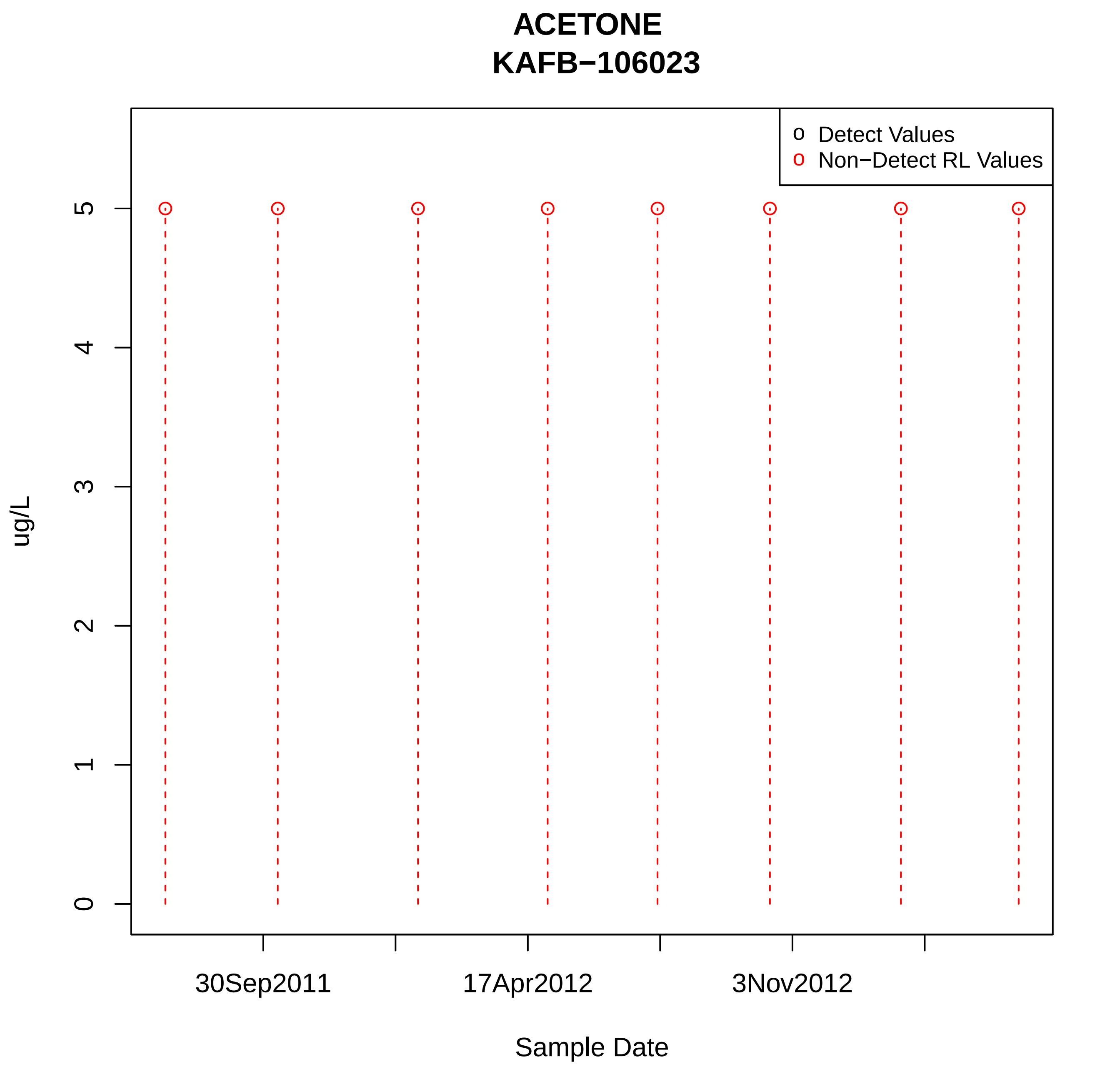


ACETONE
KAFB−106100
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

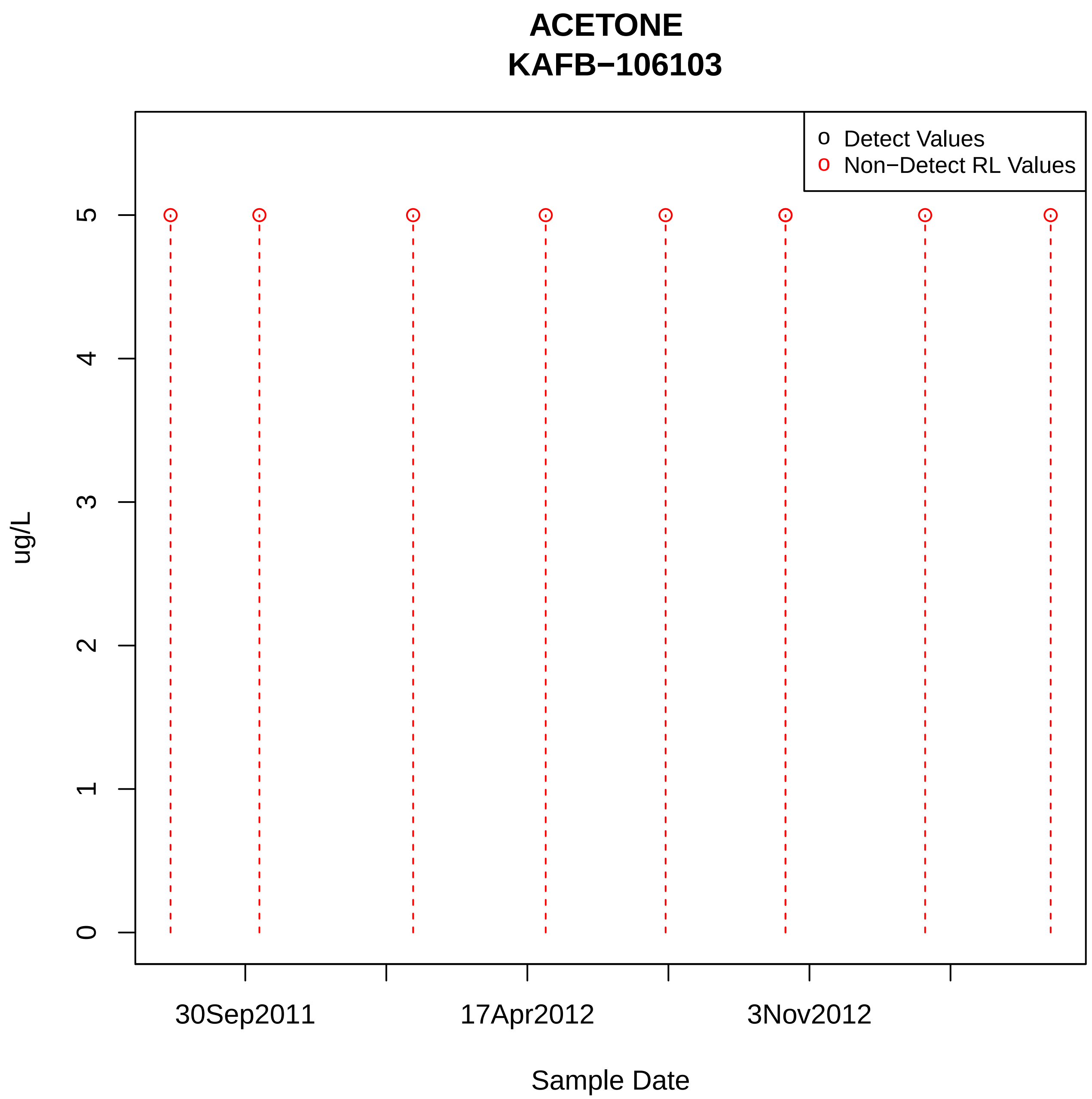

ACETONE
KAFB−106101
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

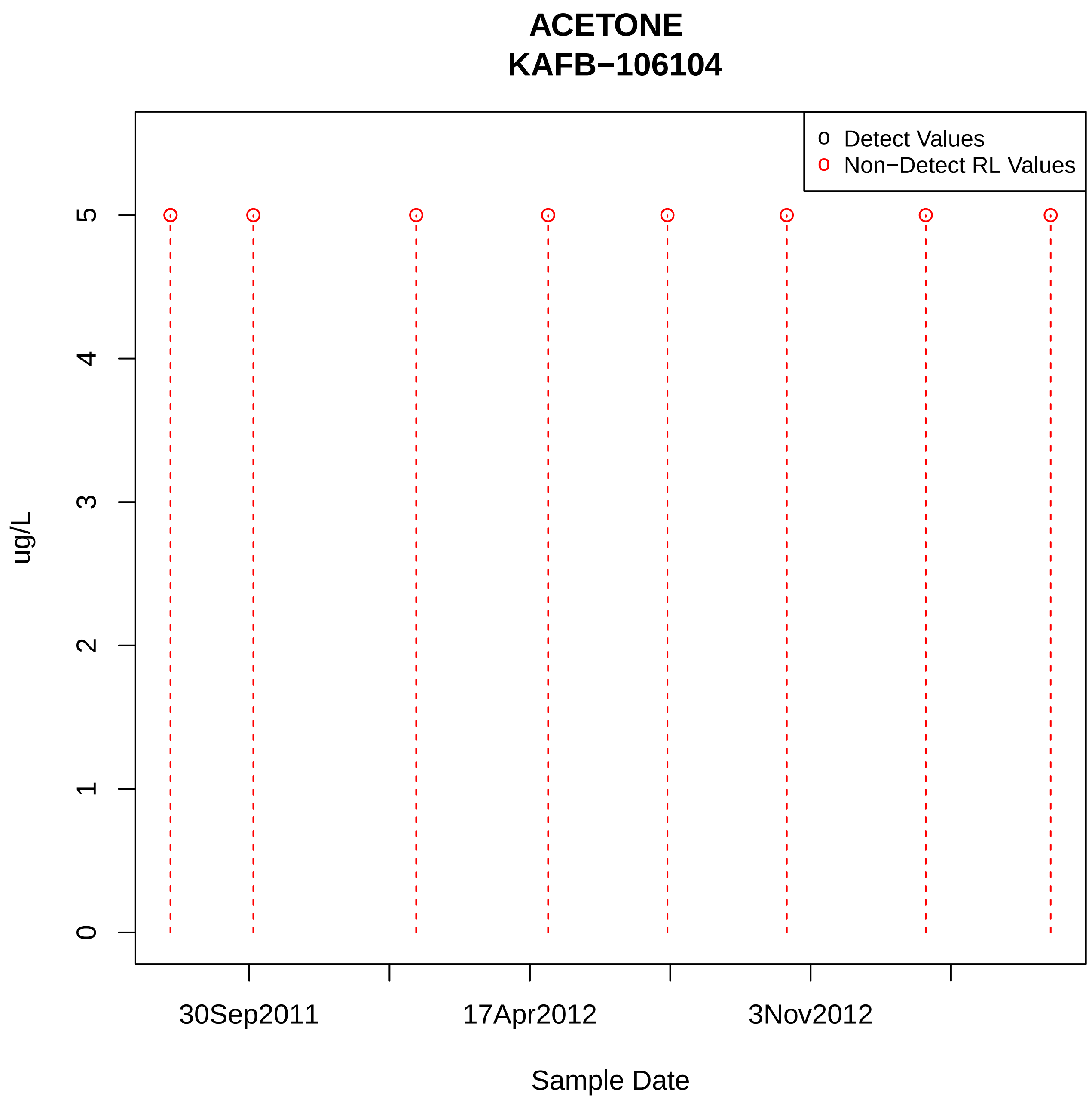


ACETONE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

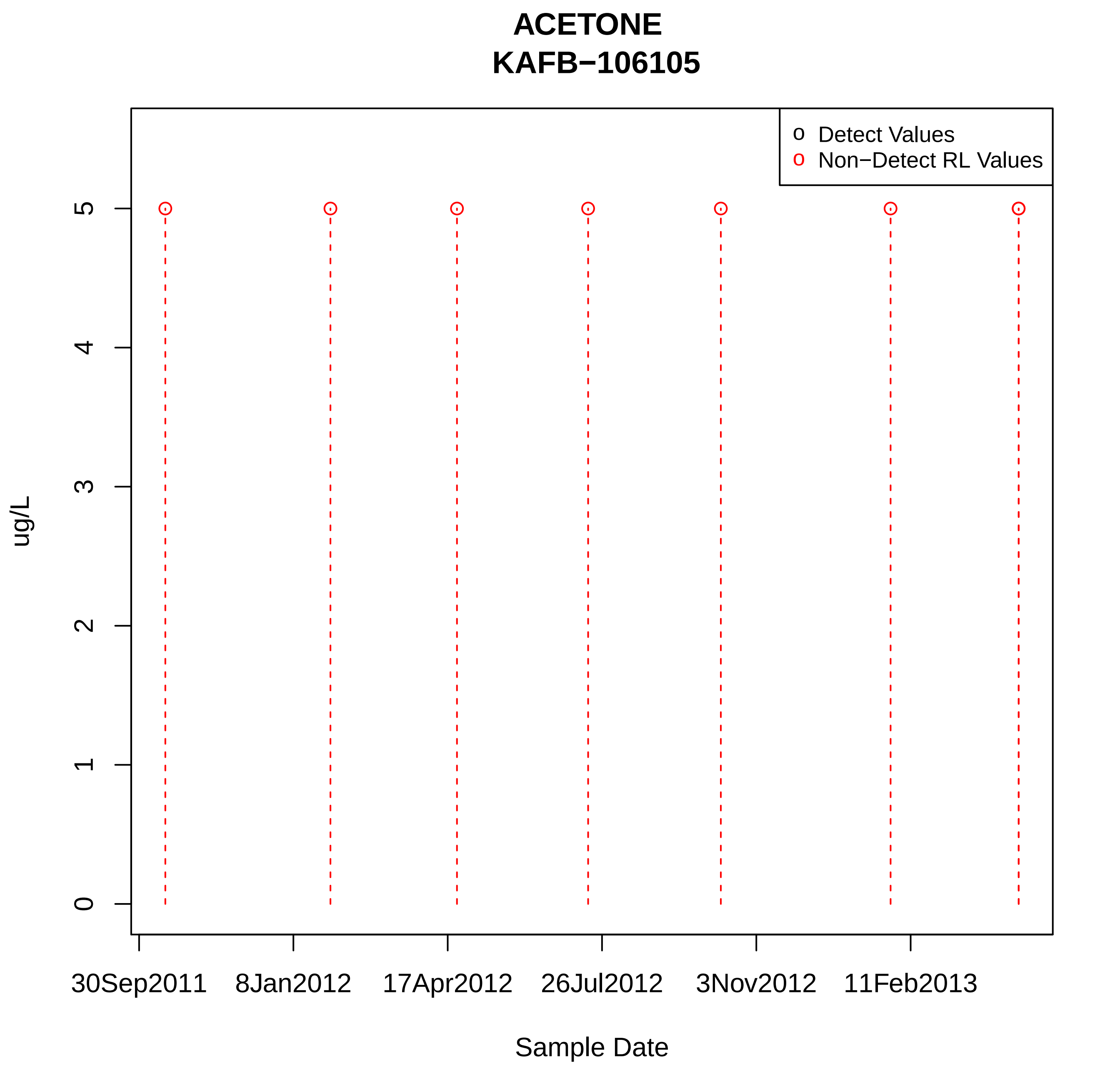


ACETONE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

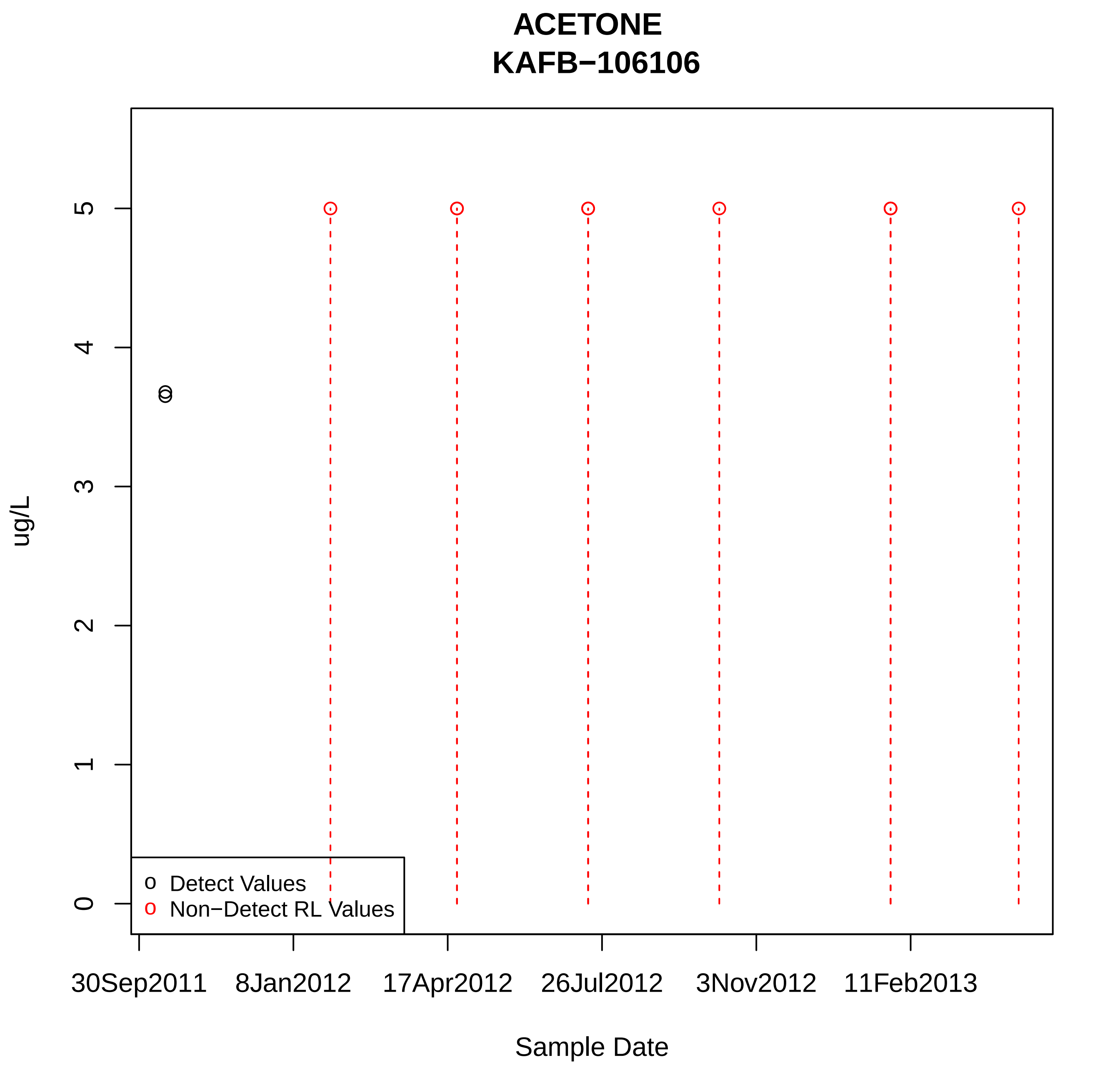

ACETONE
KAFB−106103
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

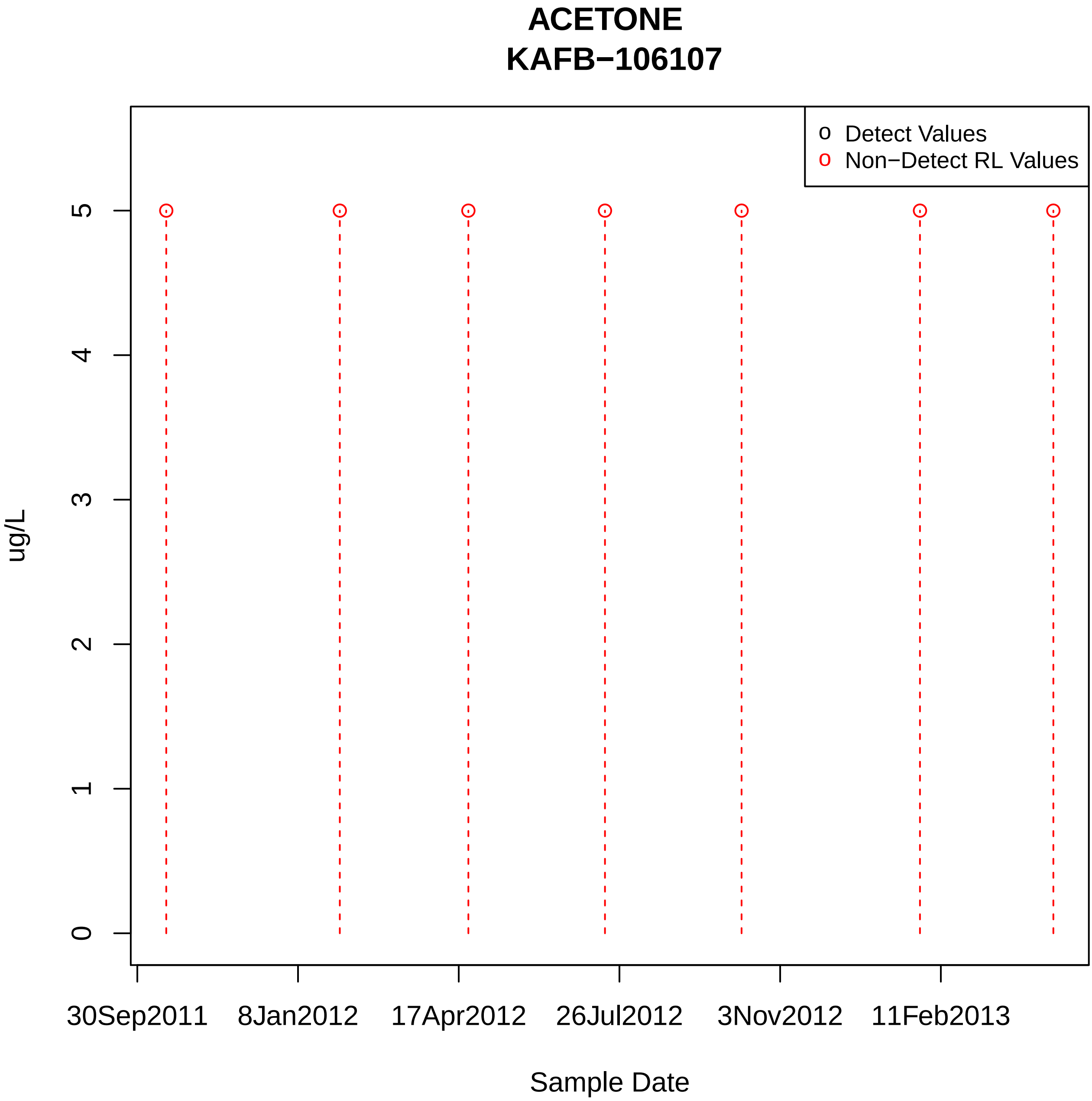


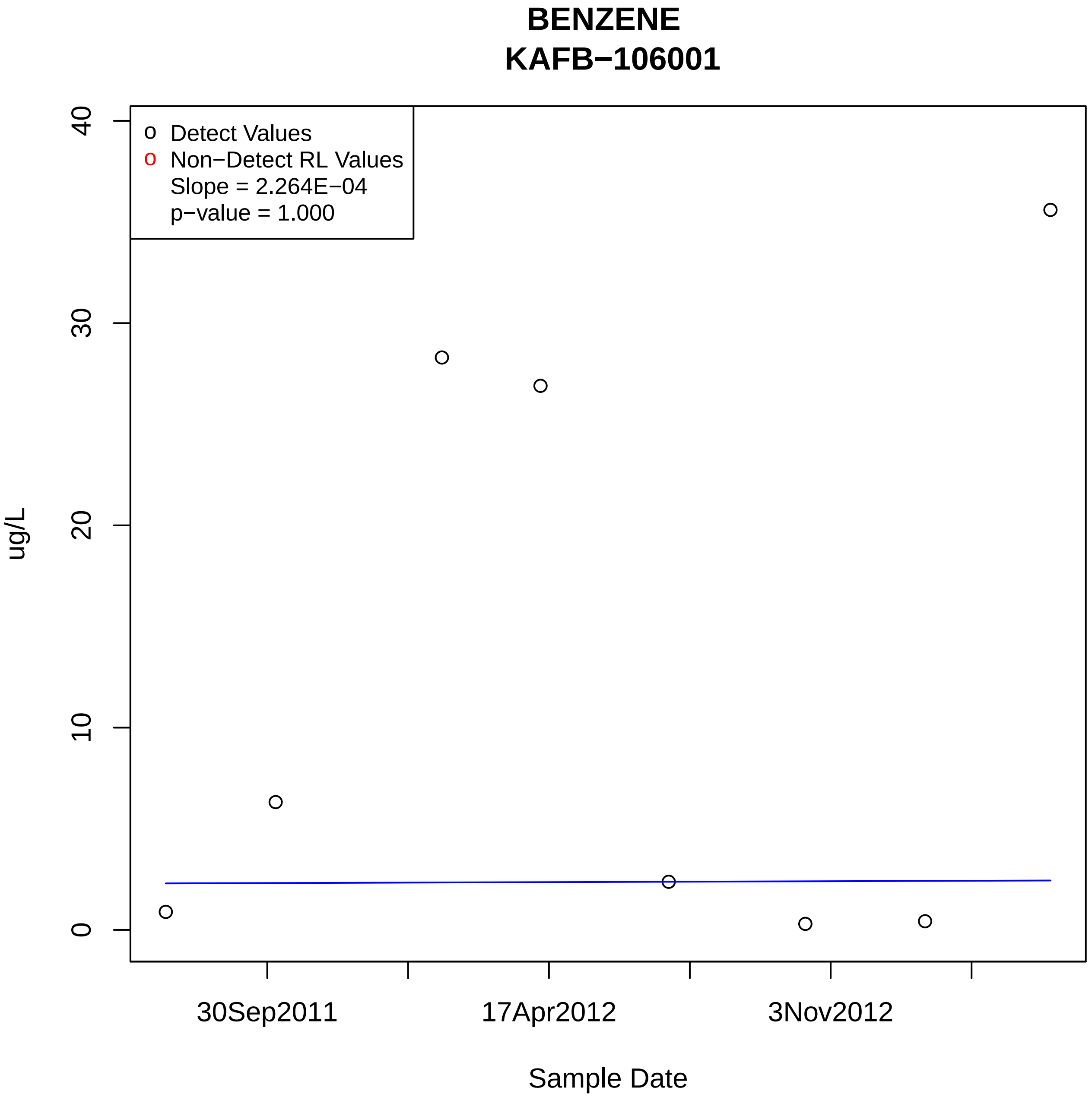
ACETONE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



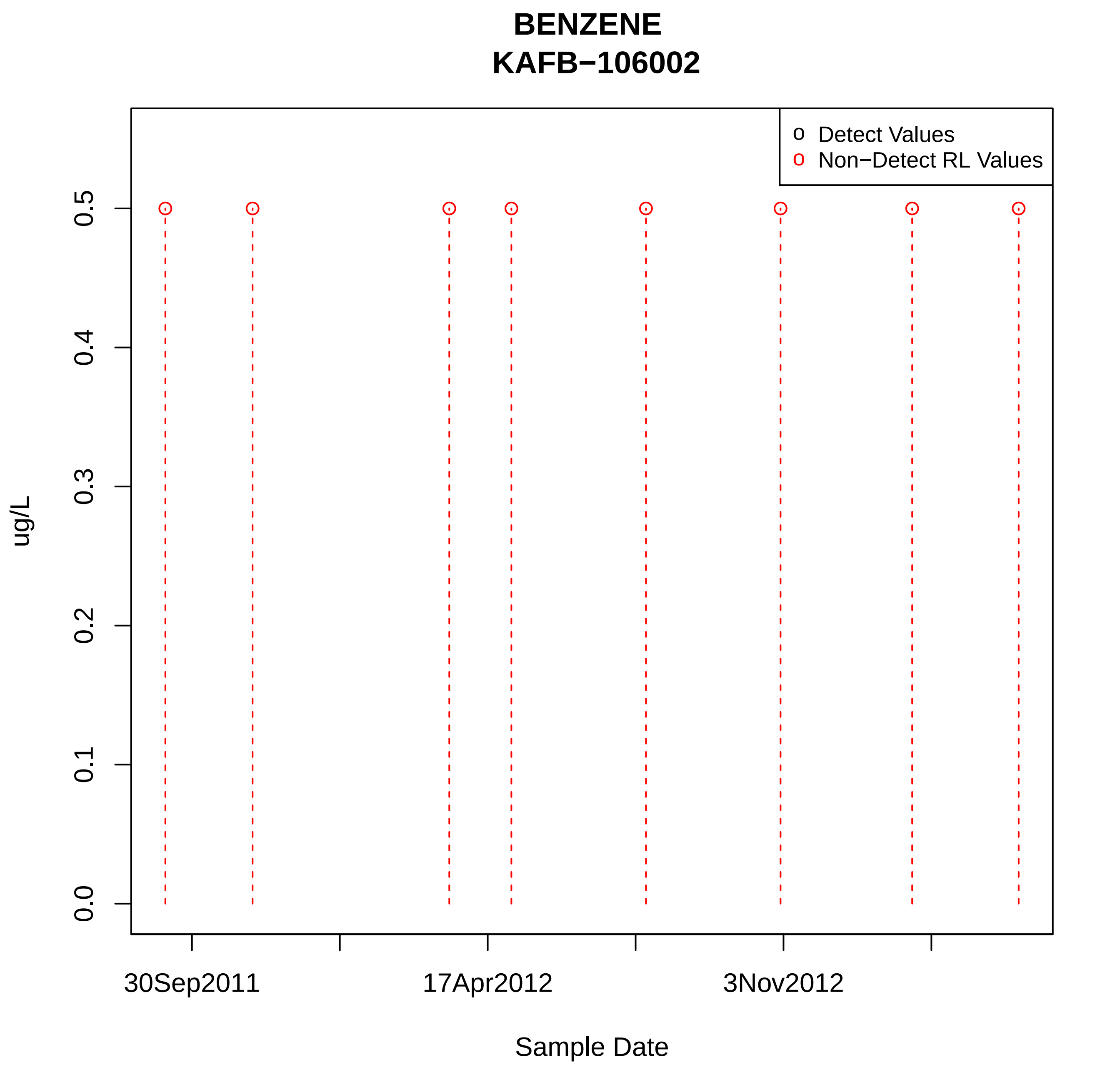
ACETONE
KAFB−106105
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

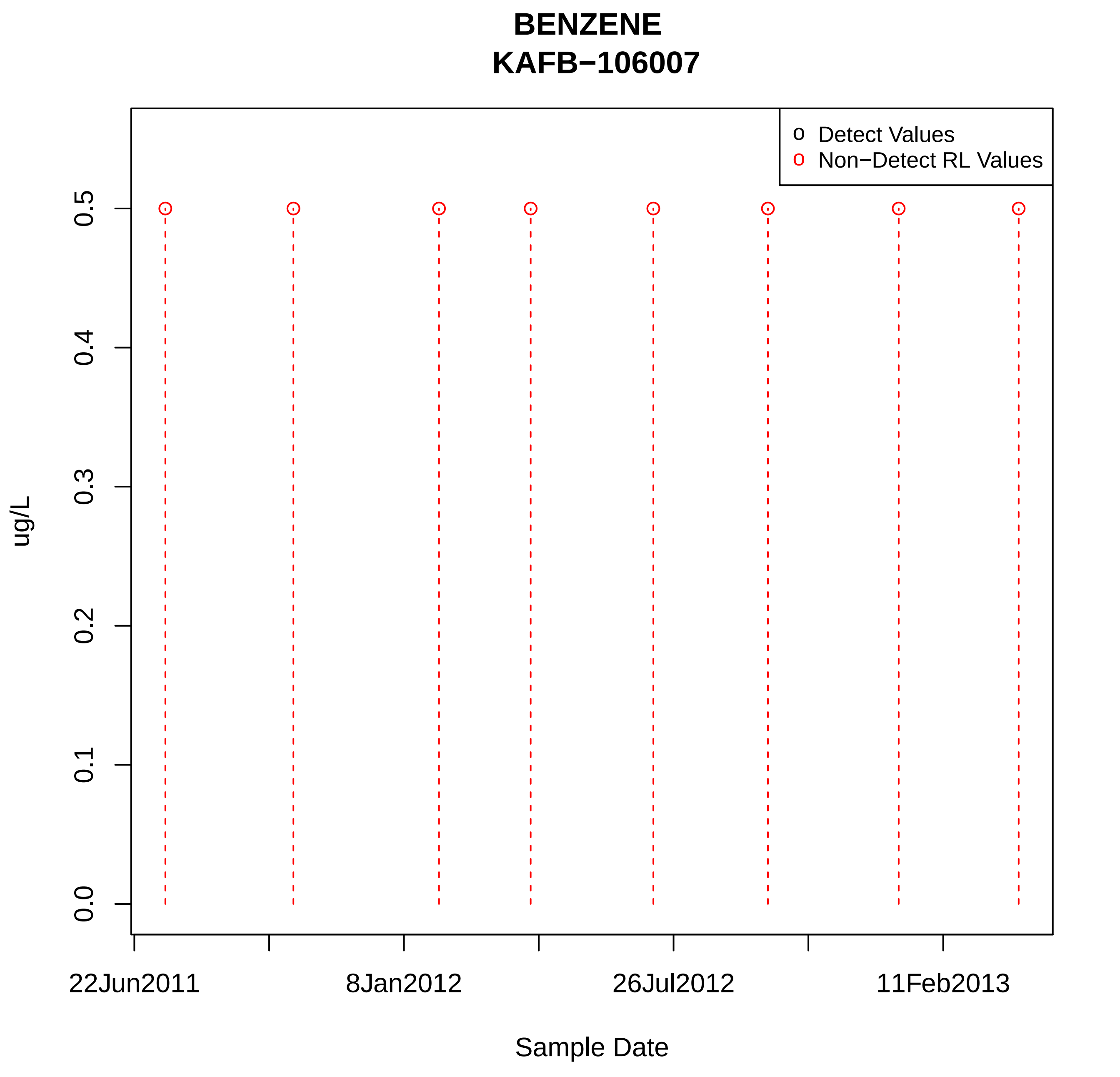

ACETONE
KAFB−106106
ug/L
0
1
2
3
4
5
Detect Values
Non−Detect RL Values
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

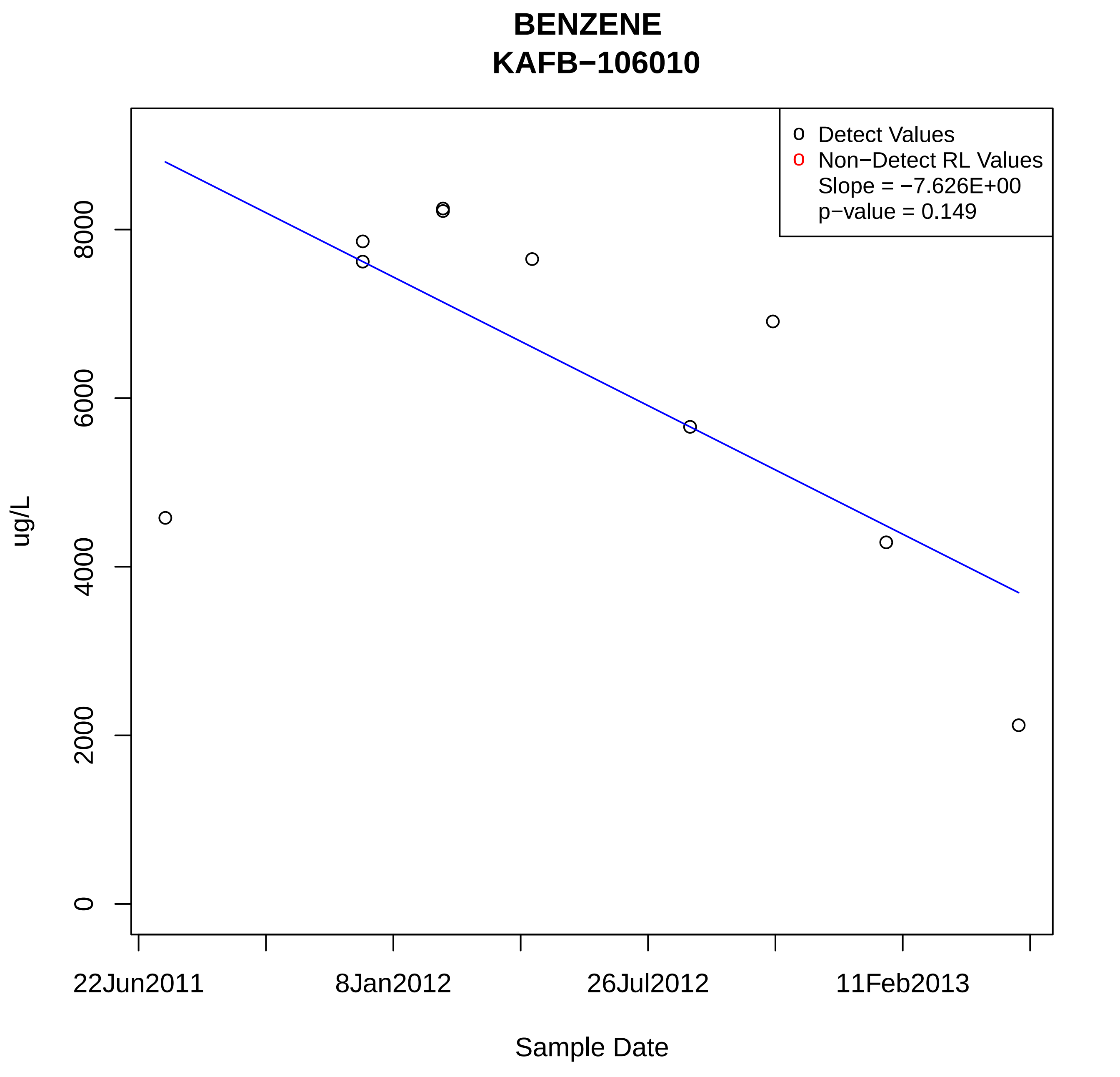

ACETONE
KAFB−106107
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

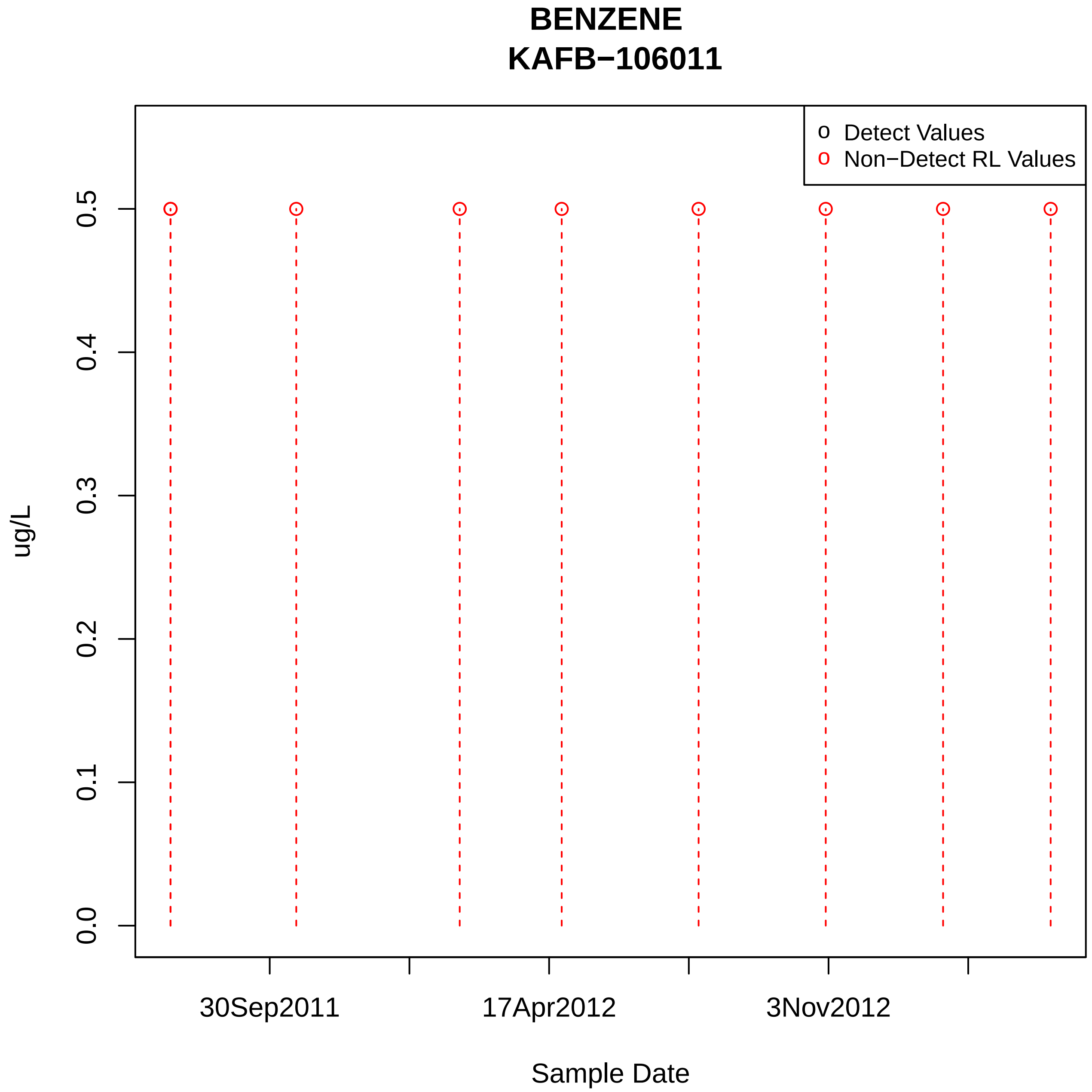


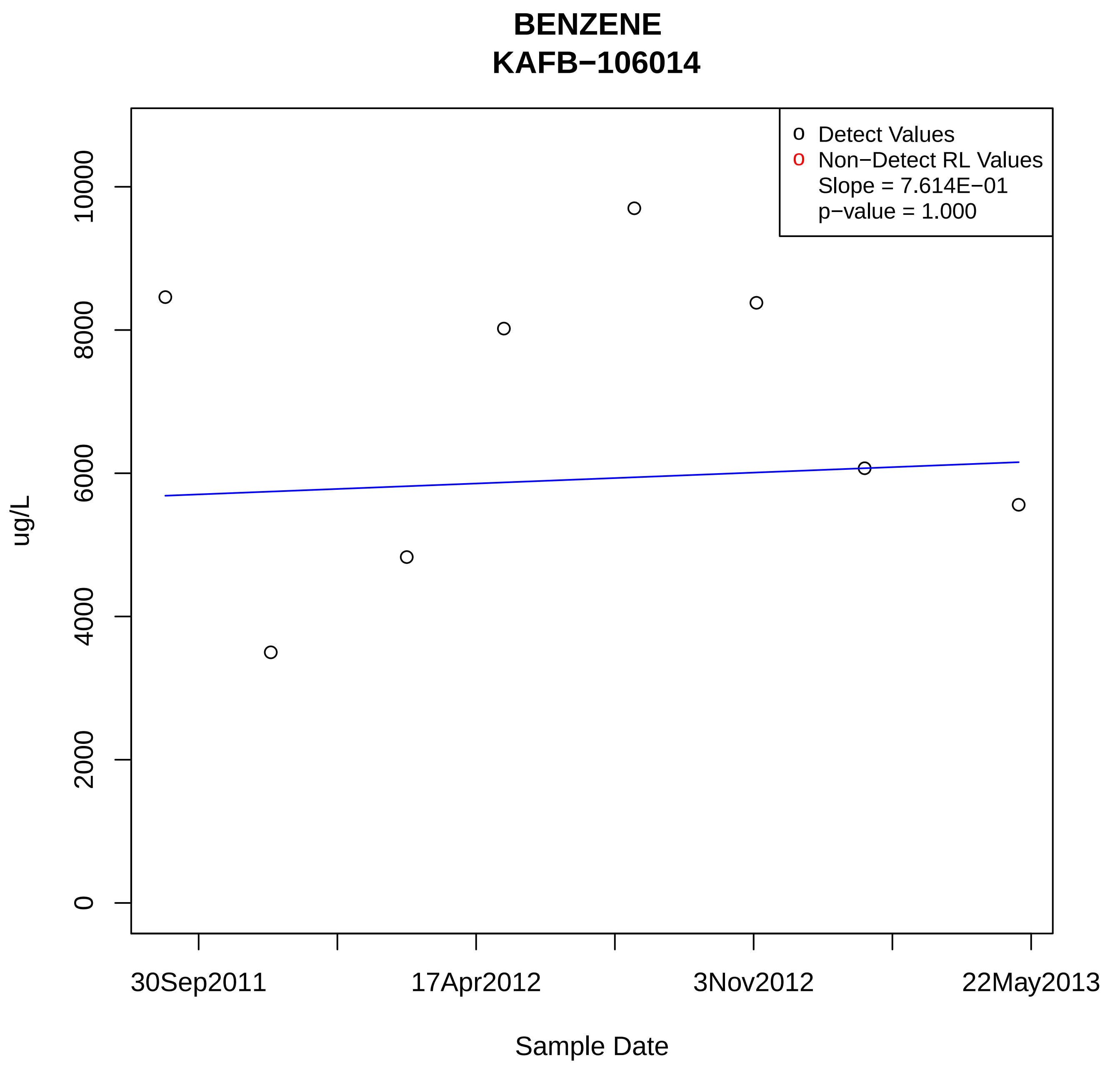
BENZENE
KAFB−106001
Detect Values
Non−Detect RL Values
Slope = 2.264E−04
p−value = 1.000
ug/L
0
10
20
30
40
30Sep2011
17Apr2012
3Nov2012
Sample Date

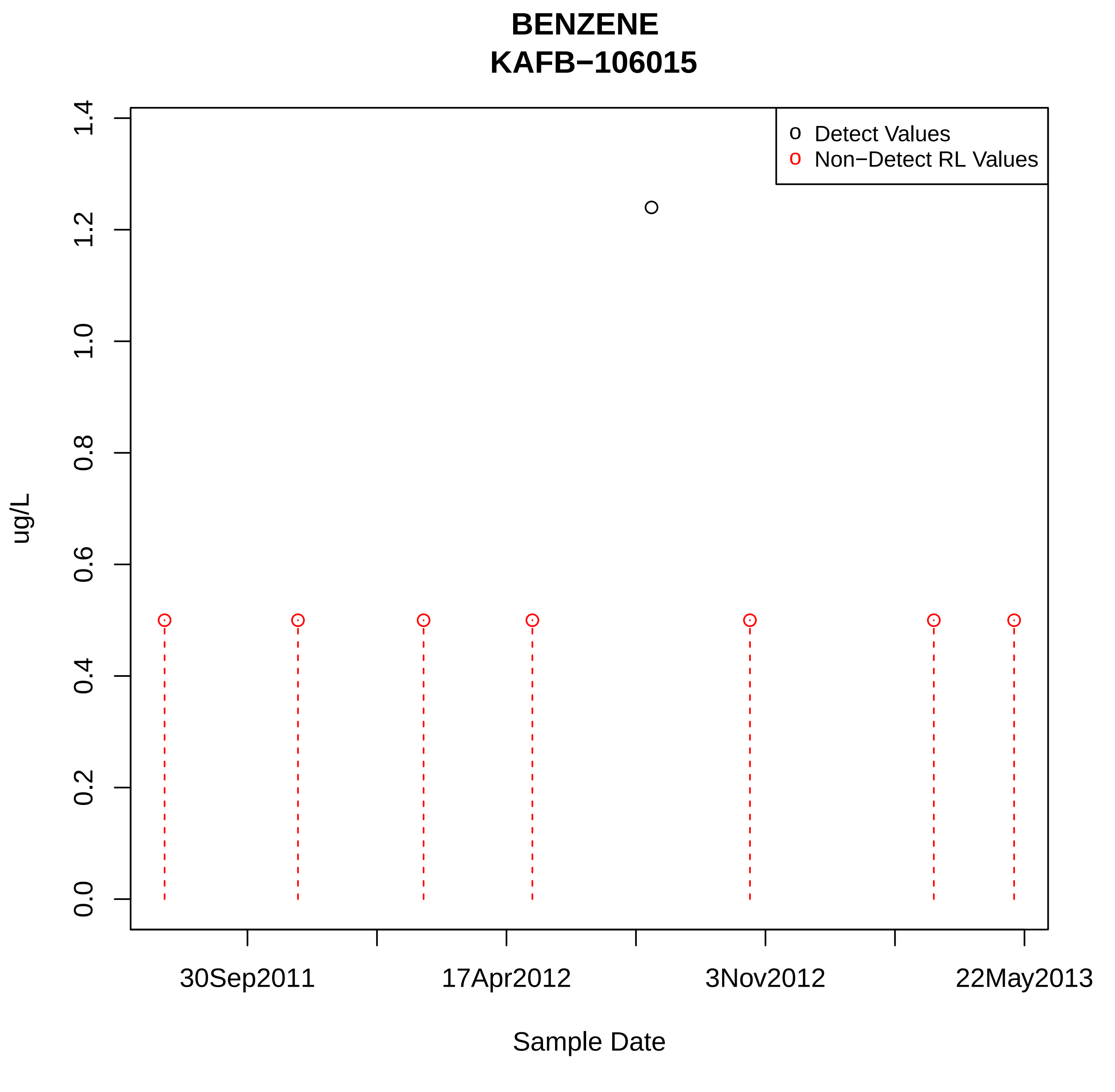

BENZENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


BENZENE
KAFB−106007
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

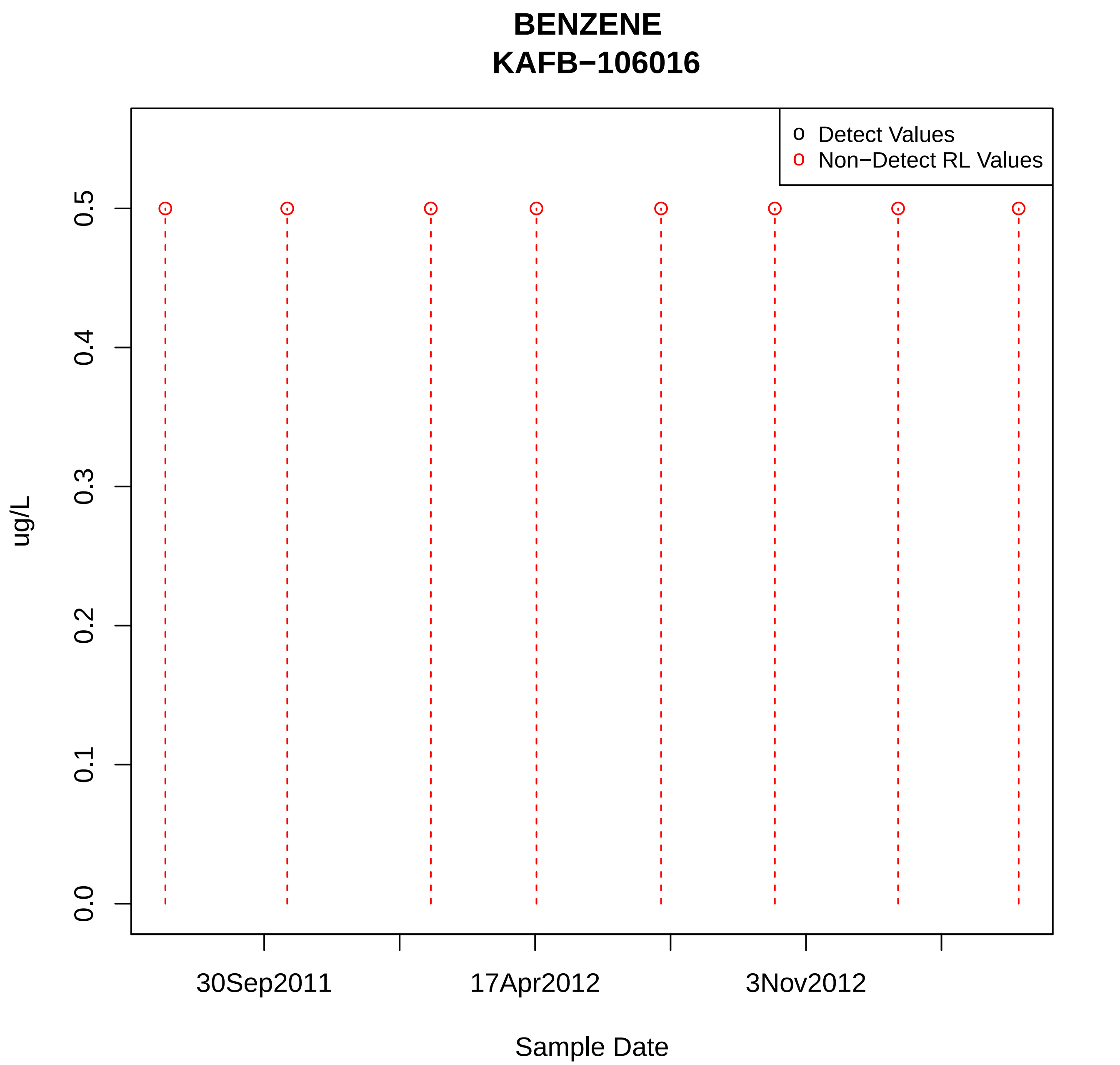

BENZENE
KAFB−106010
o Detect Values
o Non−Detect RL Values
Slope = −7.626E+00
p−value = 0.149
0
2000
4000
6000
8000
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


BENZENE
KAFB−106011
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

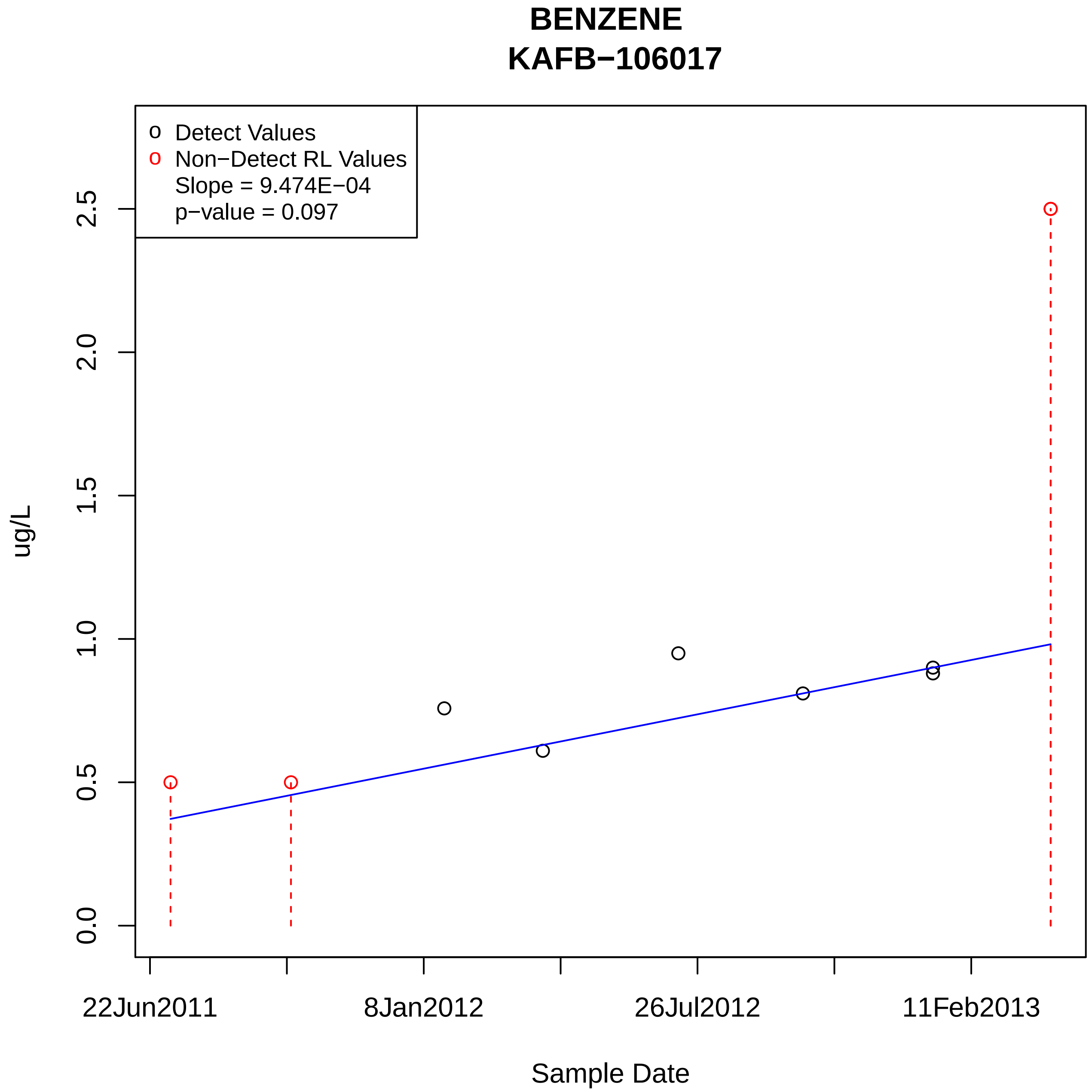

BENZENE
KAFB−106014
o Detect Values
o Non−Detect RL Values
Slope = 7.614E−01
p−value = 1.000
ug/L
0
2000
4000
6000
8000
10000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

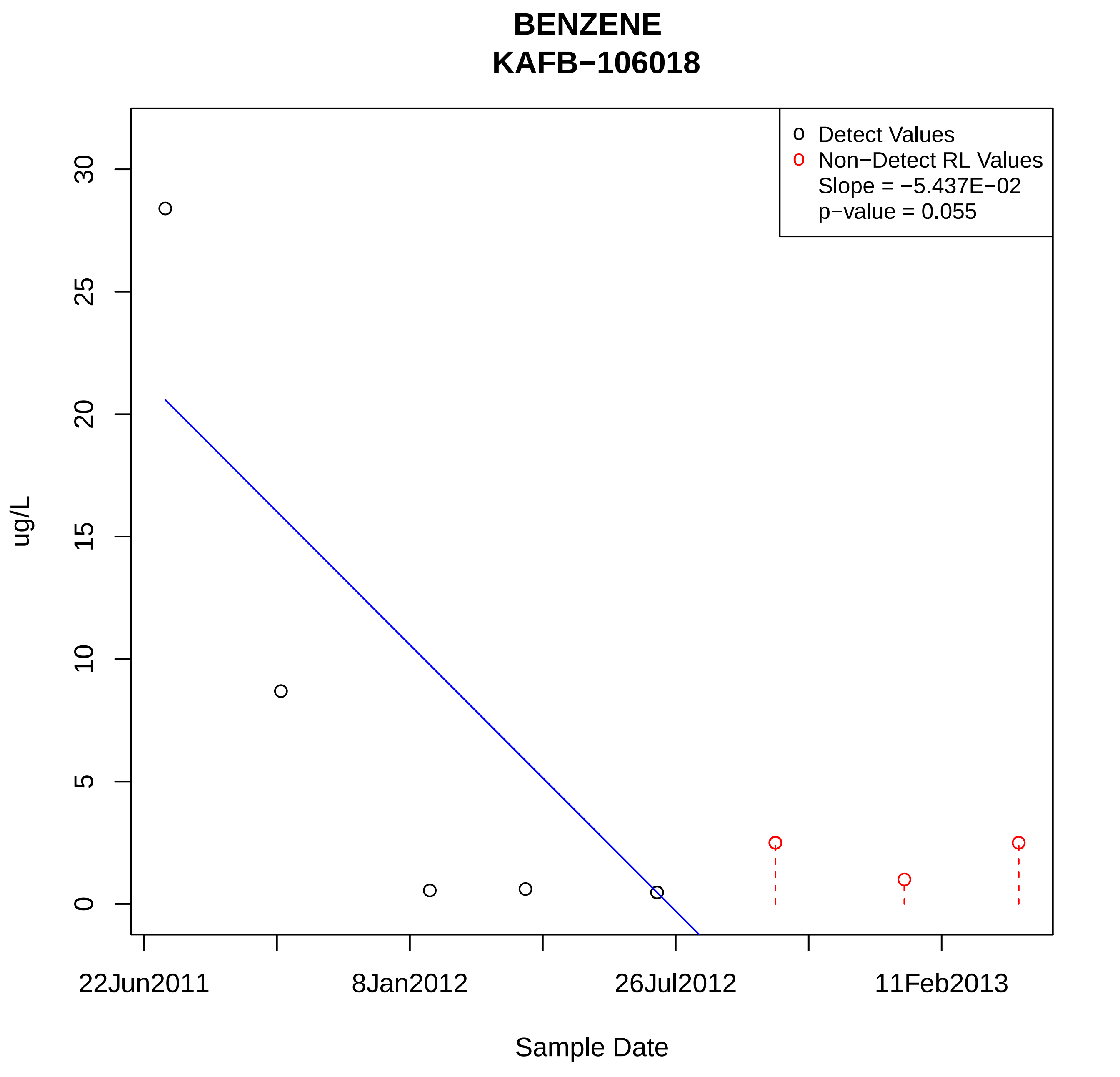


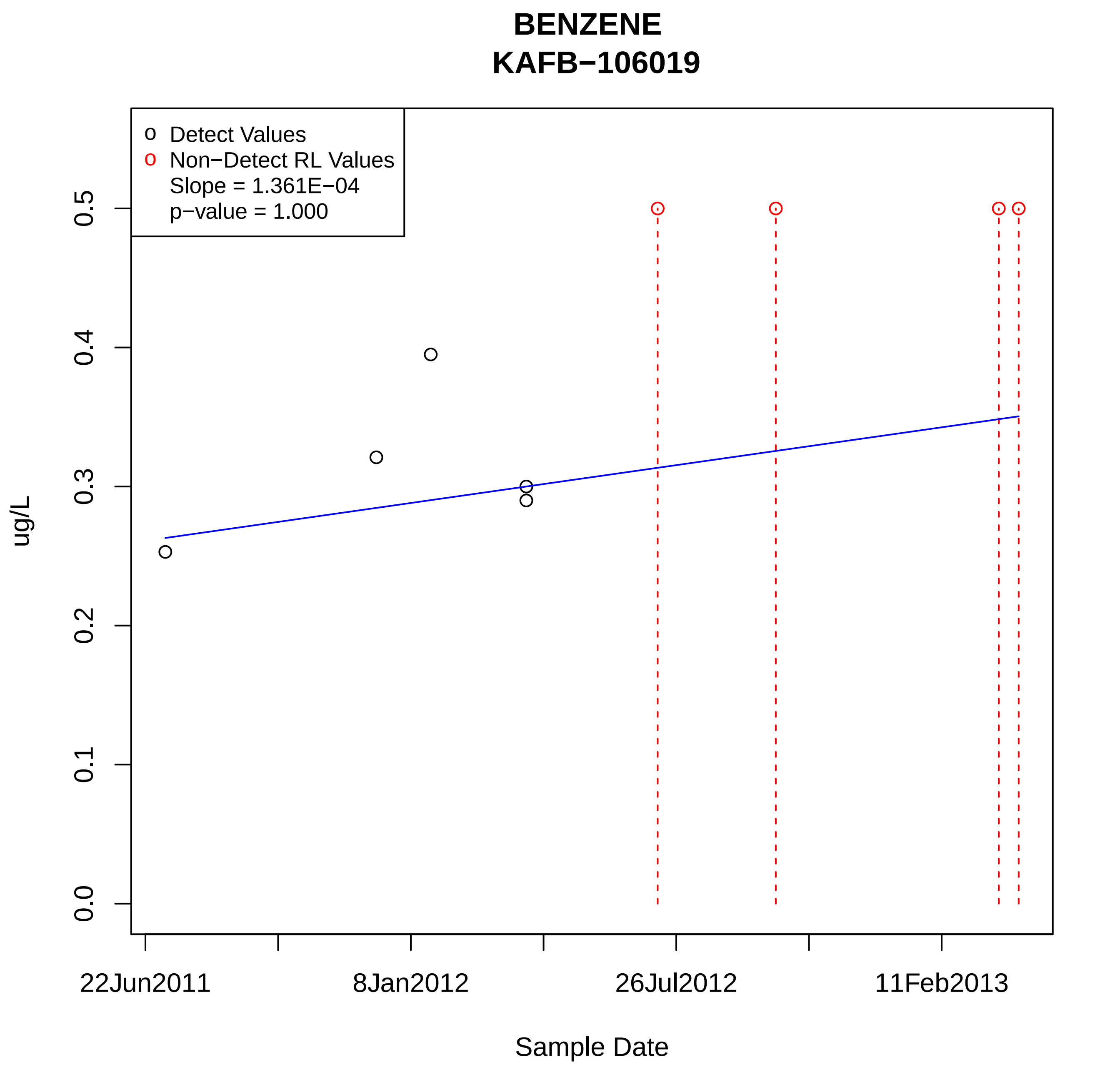
BENZENE
KAFB−106015
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



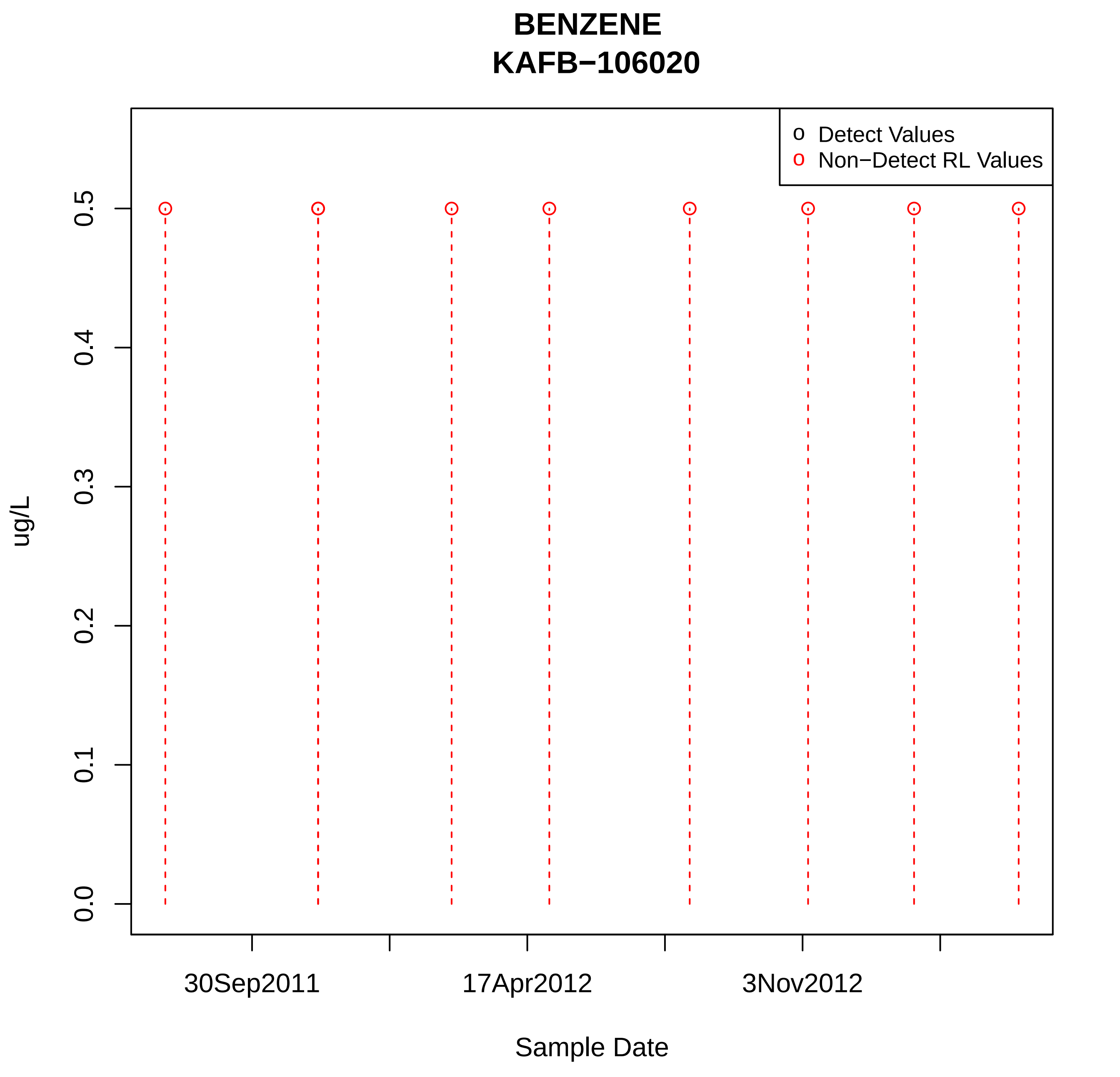
BENZENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


BENZENE
KAFB−106017
o Detect Values
o Non−Detect RL Values
Slope = 9.474E−04
p−value = 0.097
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

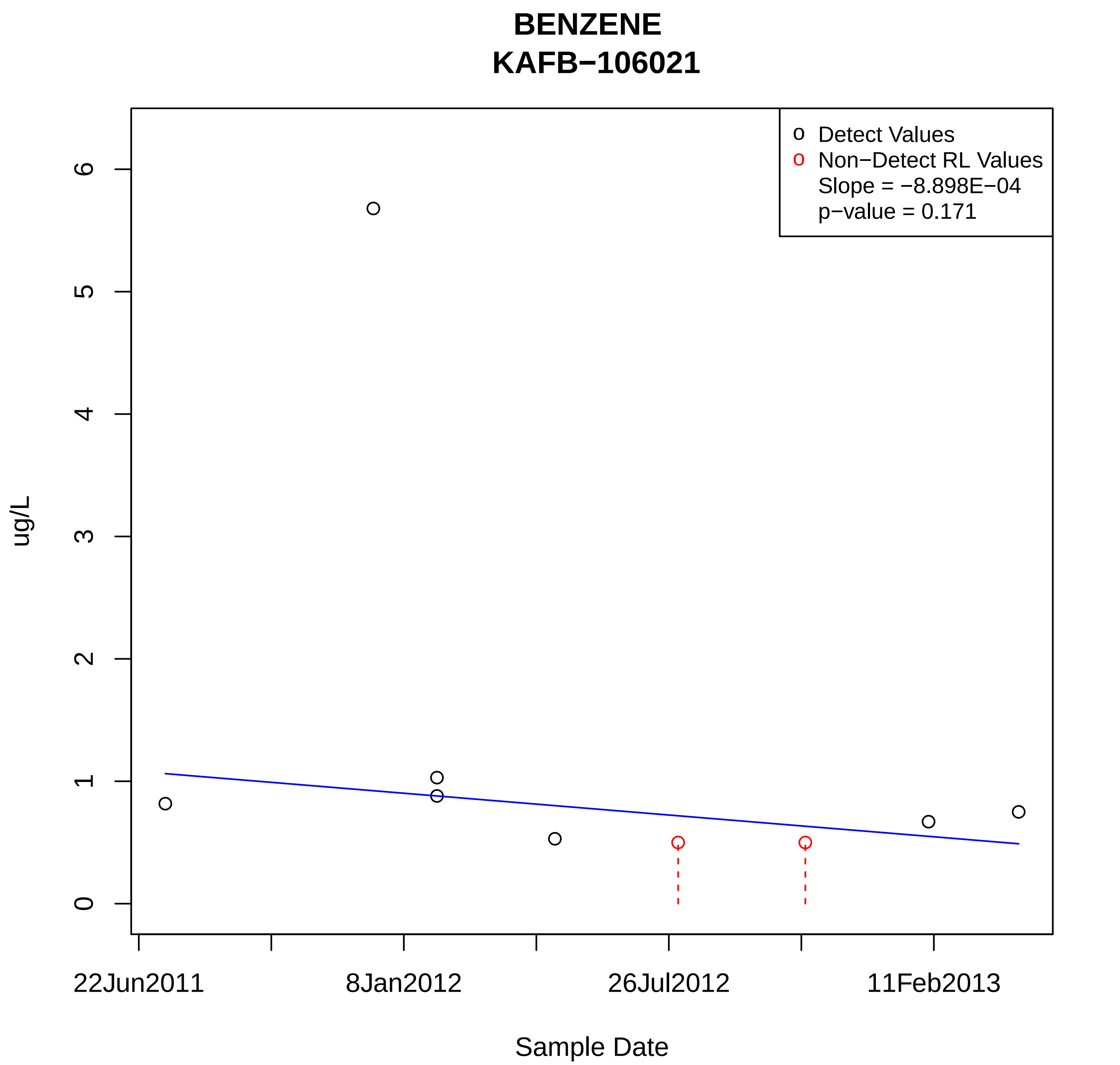

BENZENE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −5.437E−02
p−value = 0.055
ug/L
0
5
10
15
20
25
30
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

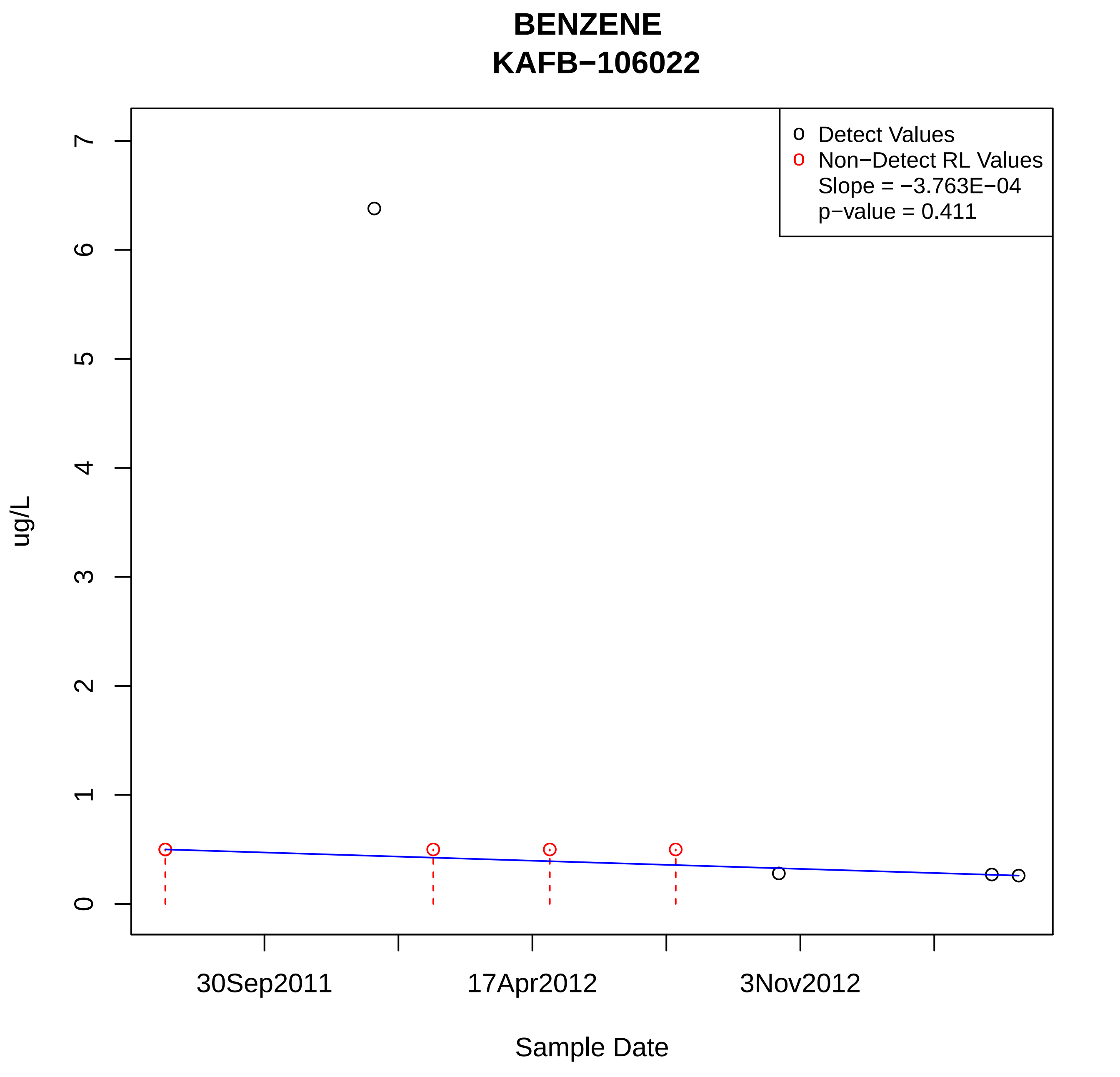


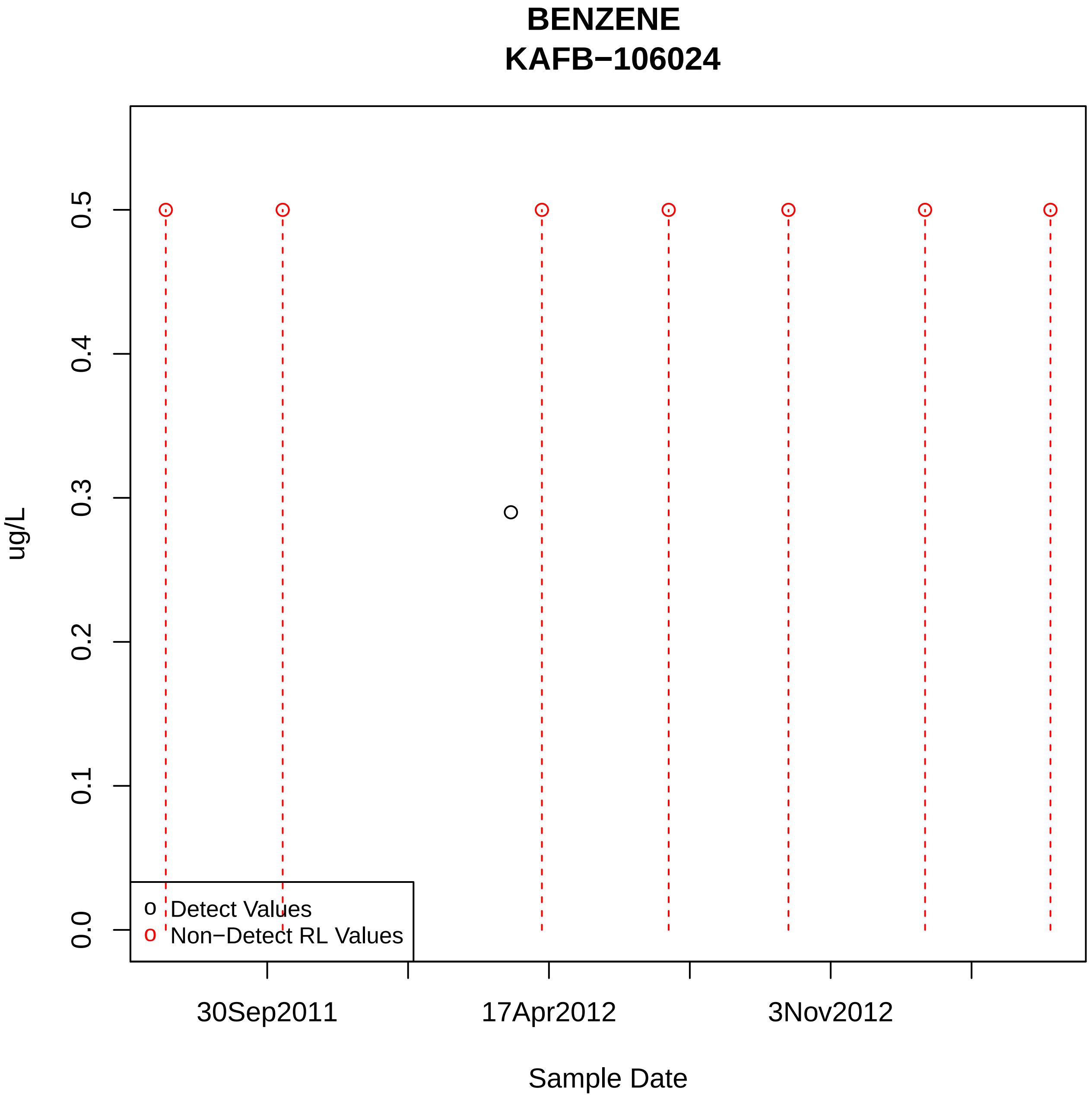
BENZENE
KAFB−106019
Detect Values
Non−Detect RL Values
Slope = 1.361E−04
p−value = 1.000
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



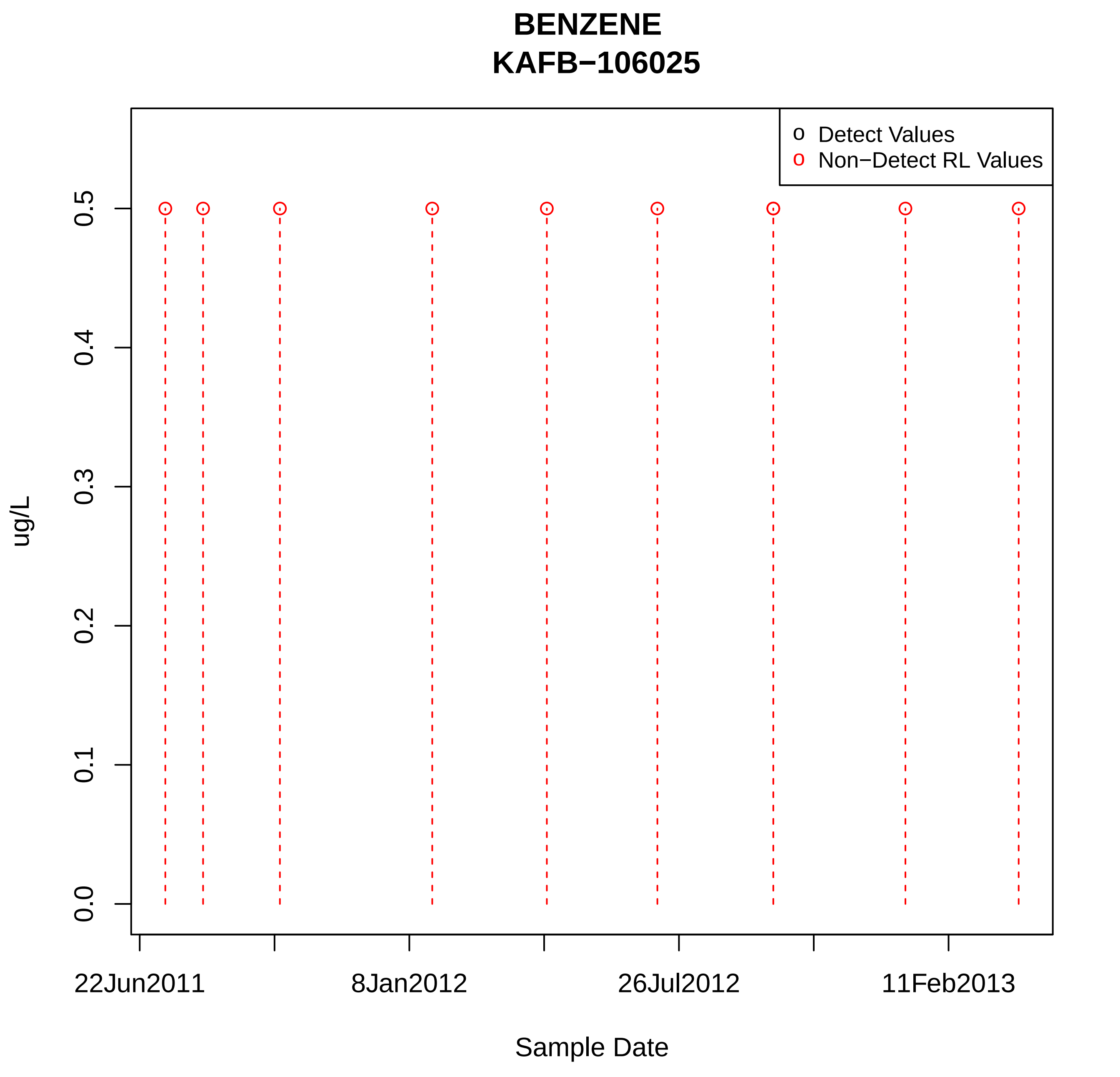
BENZENE
KAFB−106020
o Detect Values
o Non−Detect RL Values
0.5
0.4
0.3
0.2
0.1
0.0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


BENZENE
KAFB−106021
Detect Values
Non−Detect RL Values
Slope = −8.898E−04
p−value = 0.171
ug/L
0
1
2
3
4
5
6
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

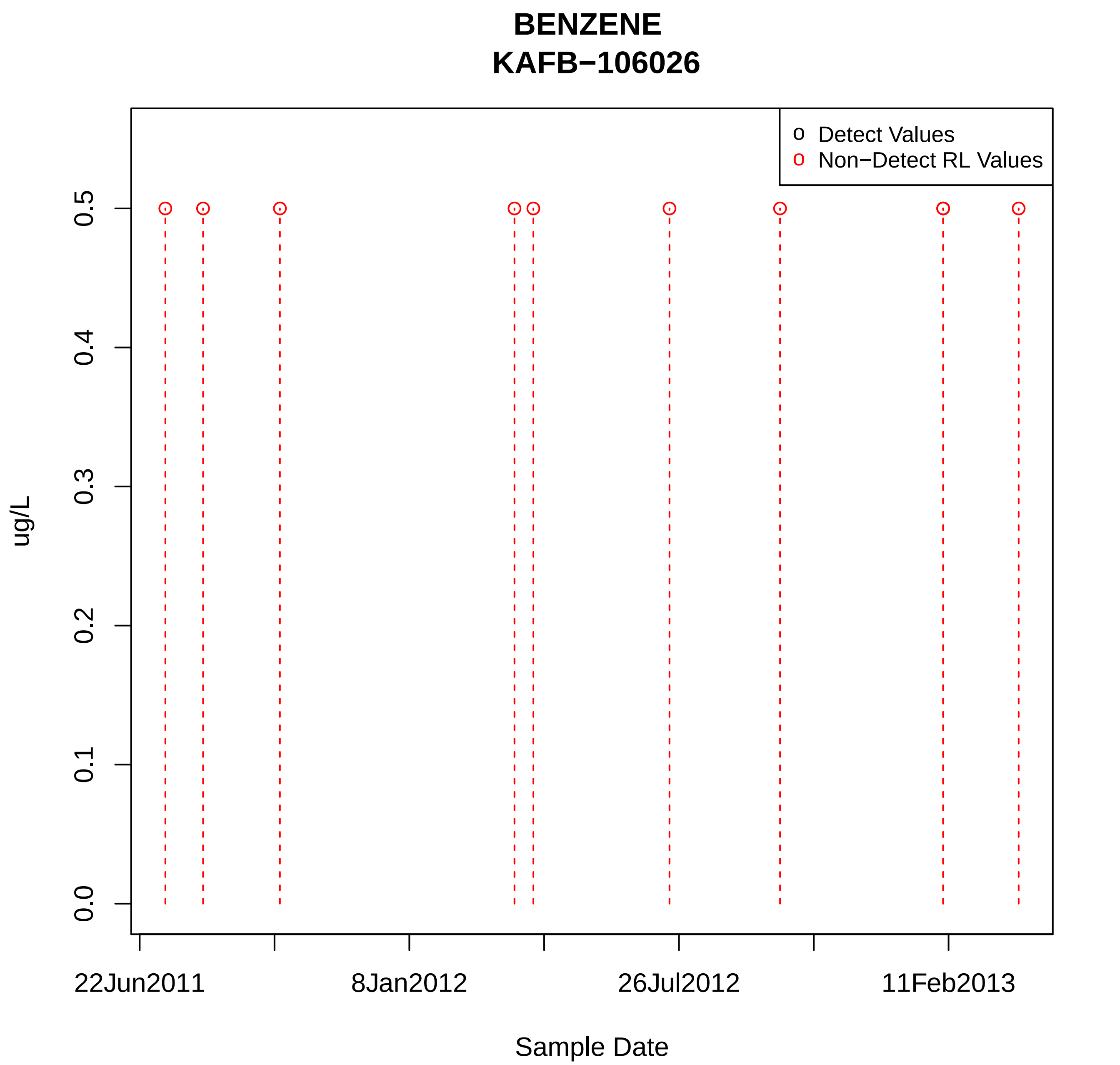

BENZENE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = −3.763E−04
p−value = 0.411
ug/L
0
1
2
3
4
5
6
7
30Sep2011
17Apr2012
3Nov2012
Sample Date



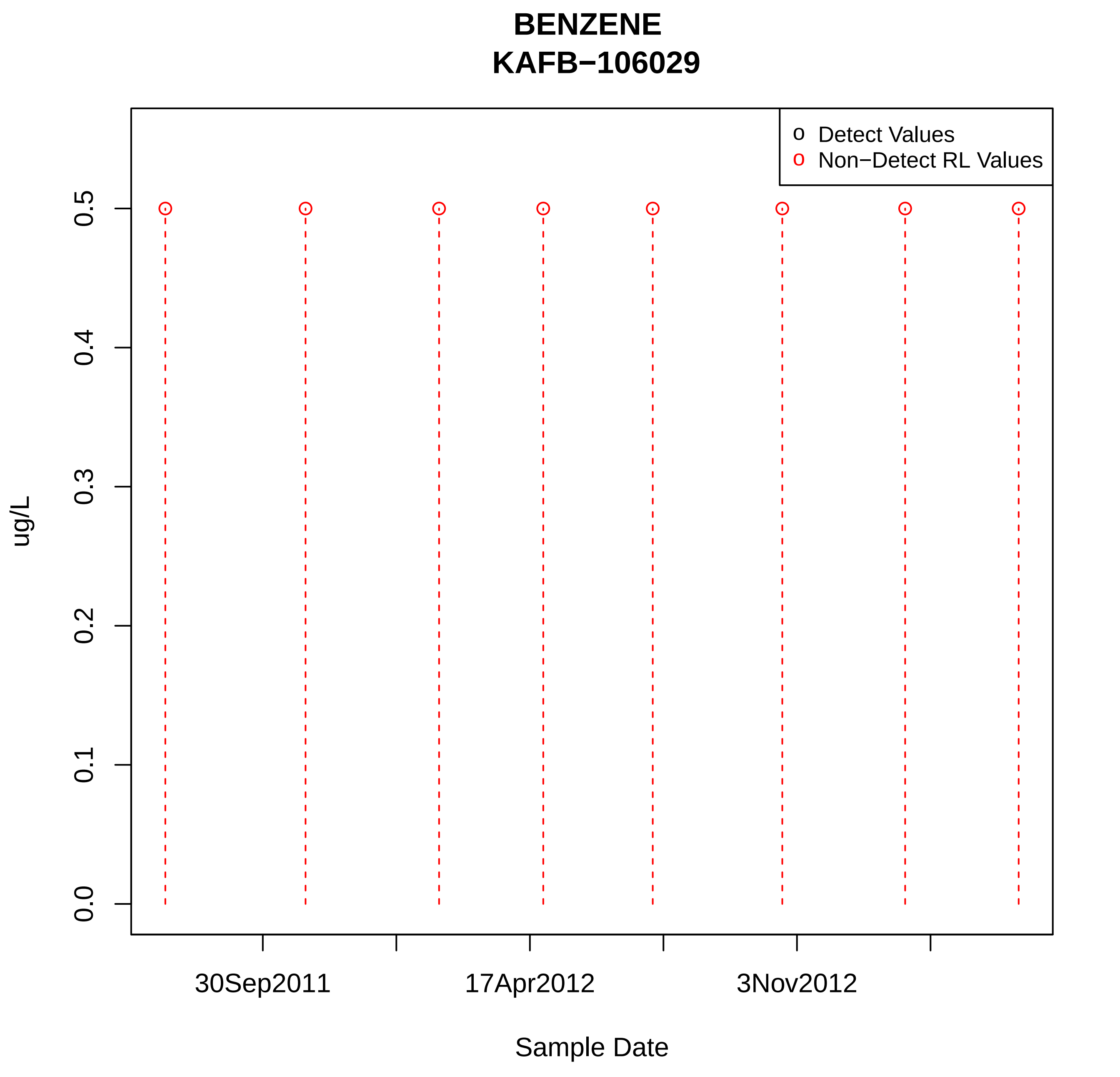
BENZENE
KAFB−106024
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

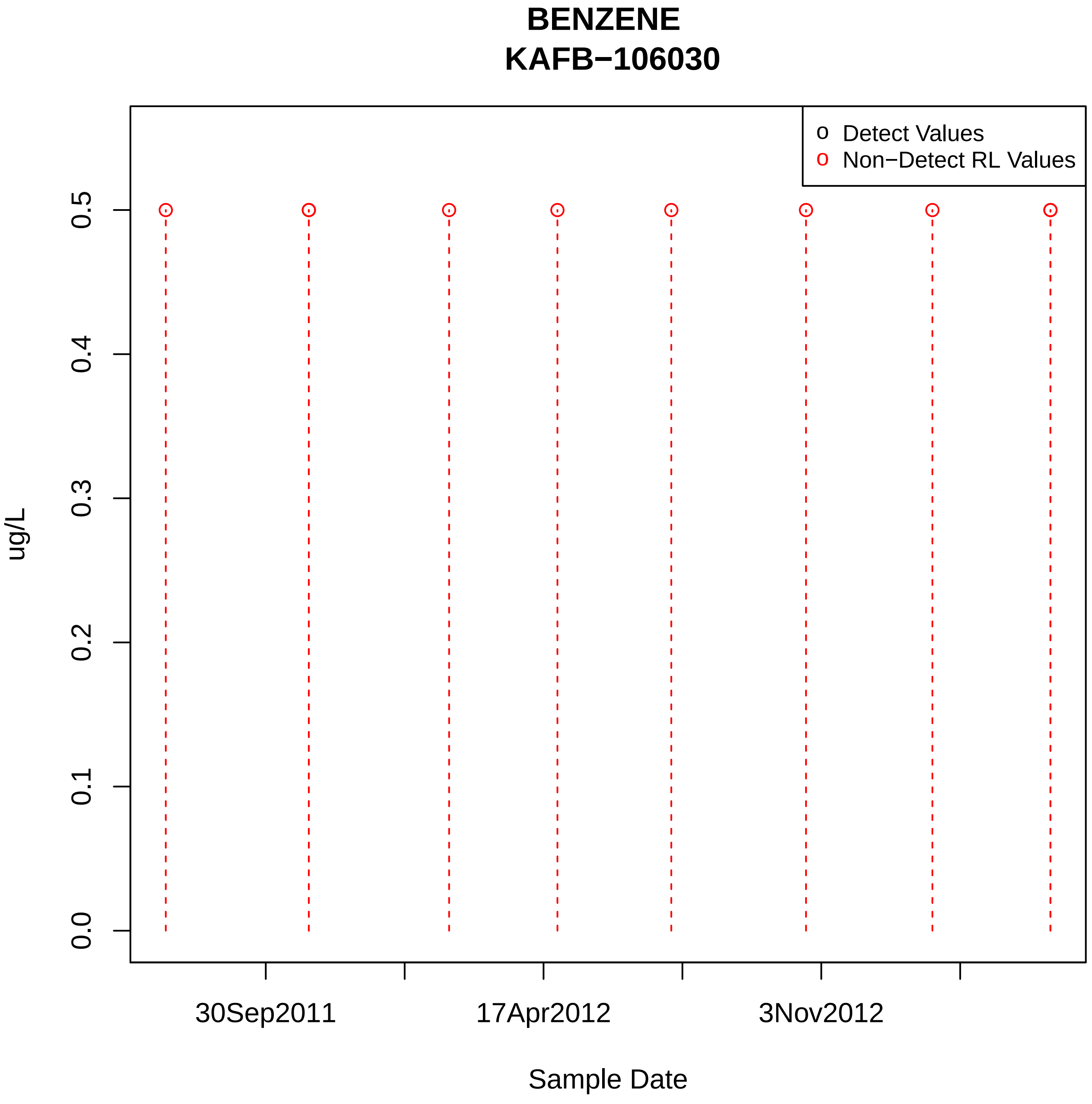


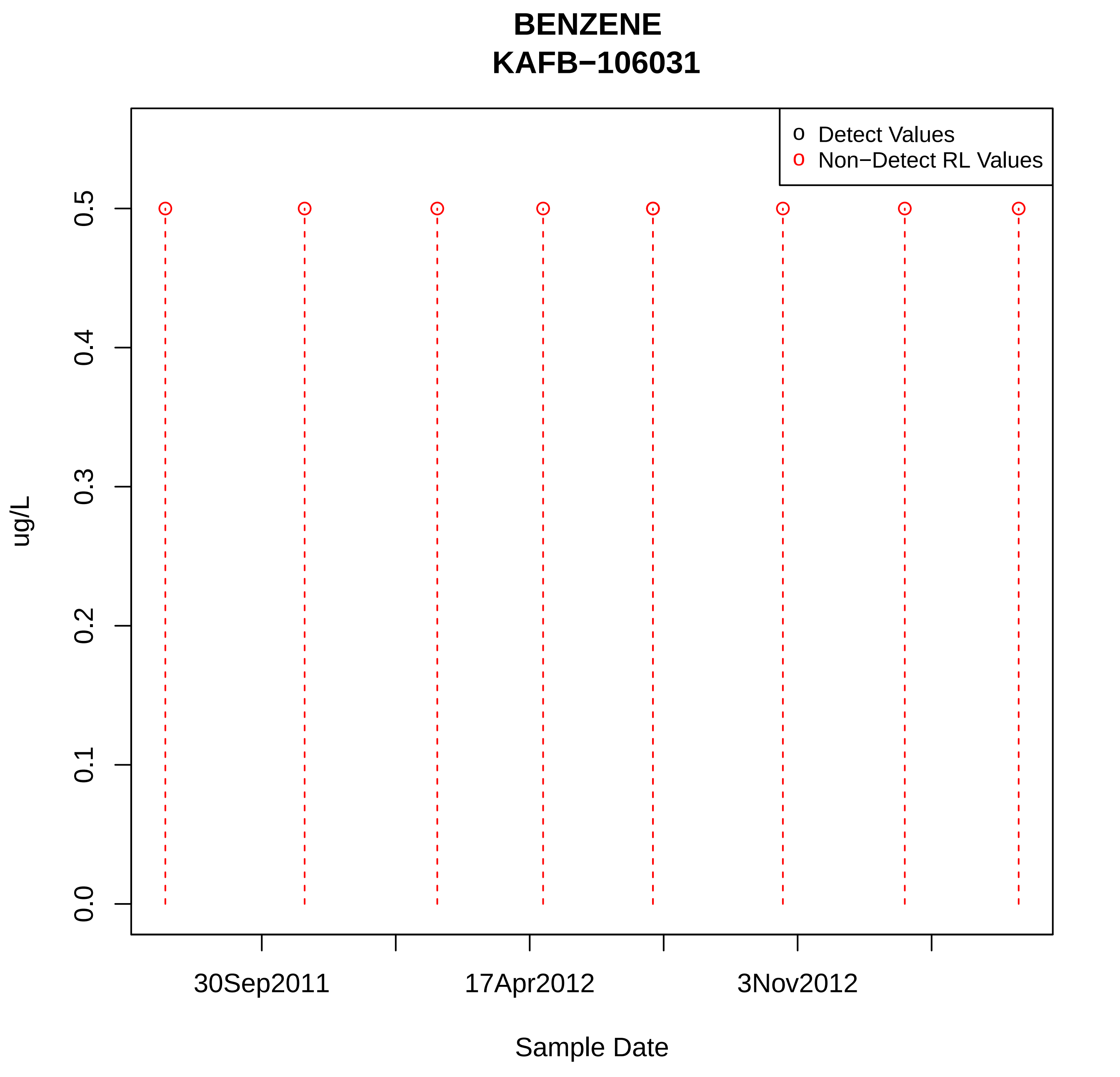
BENZENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

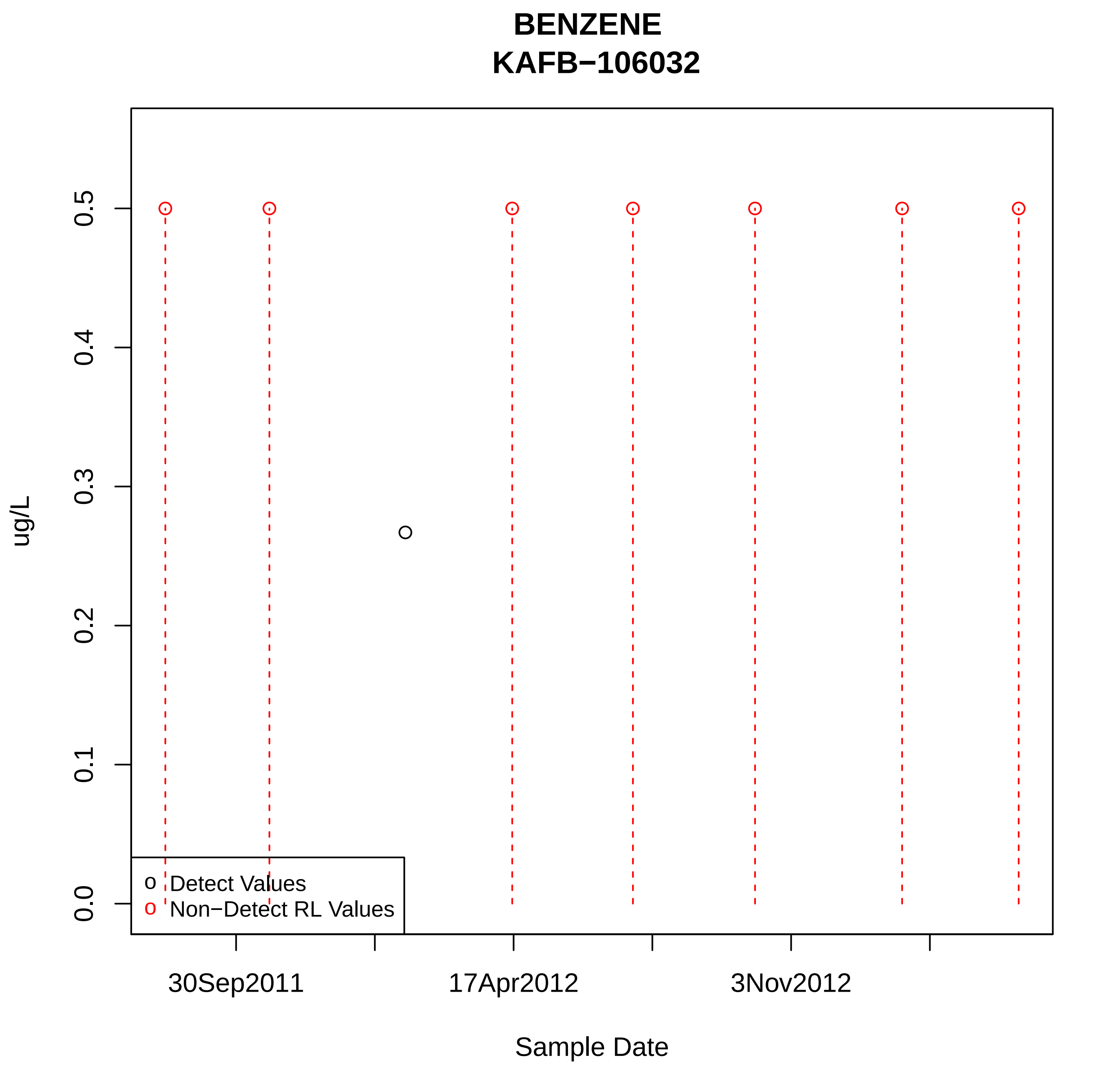


BENZENE
KAFB−106026
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

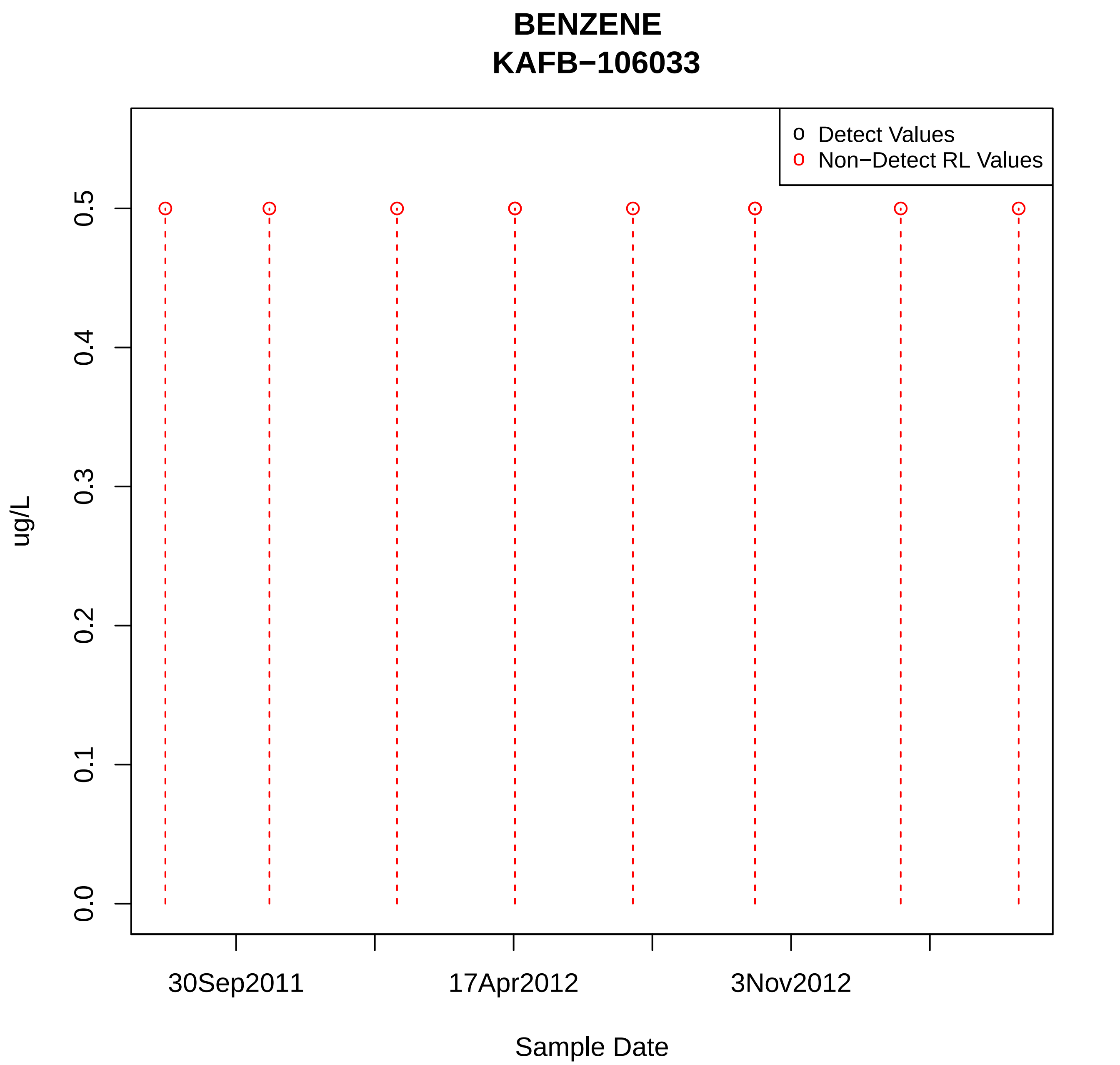

BENZENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


BENZENE
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

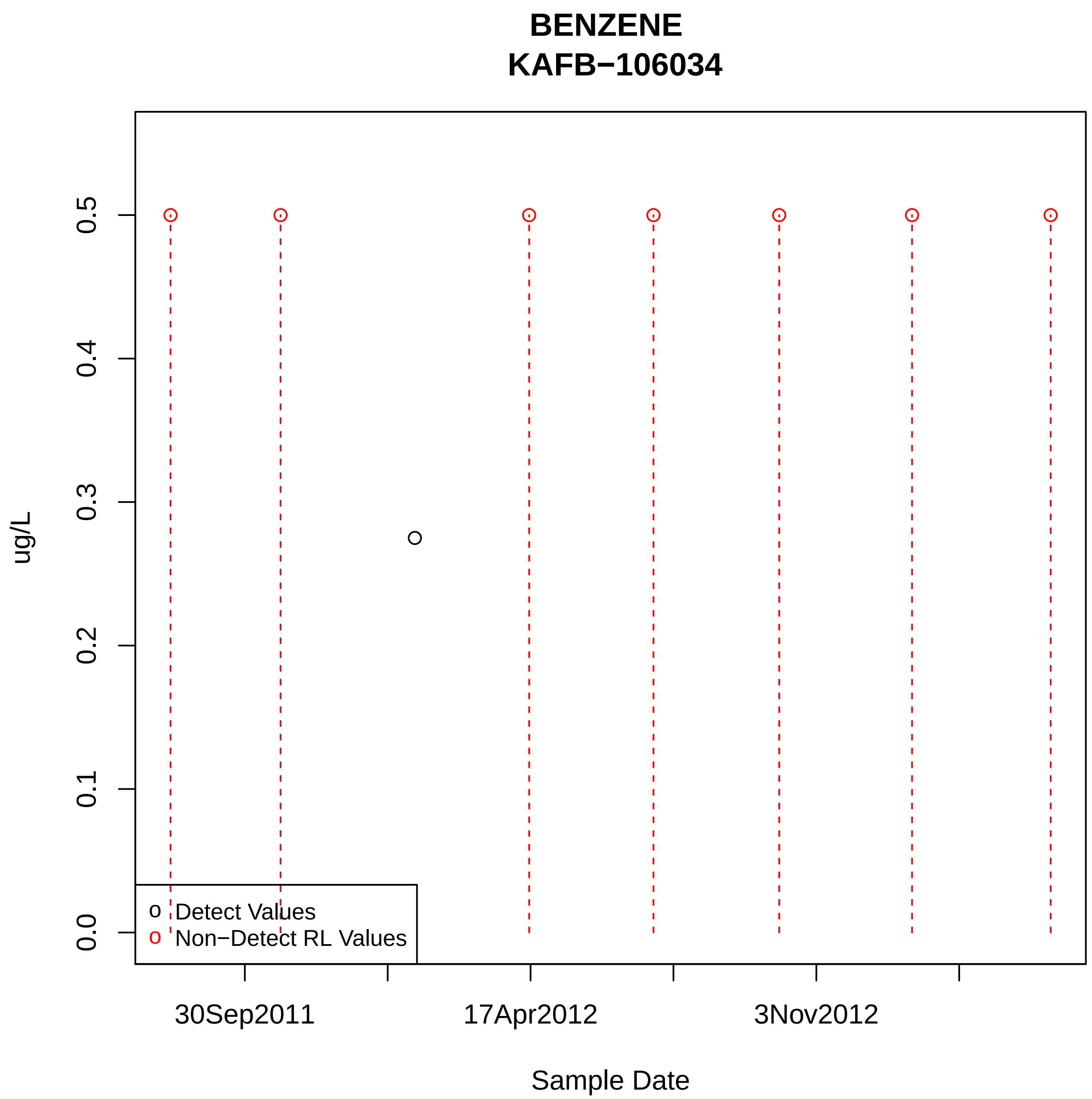

BENZENE
KAFB−106031
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



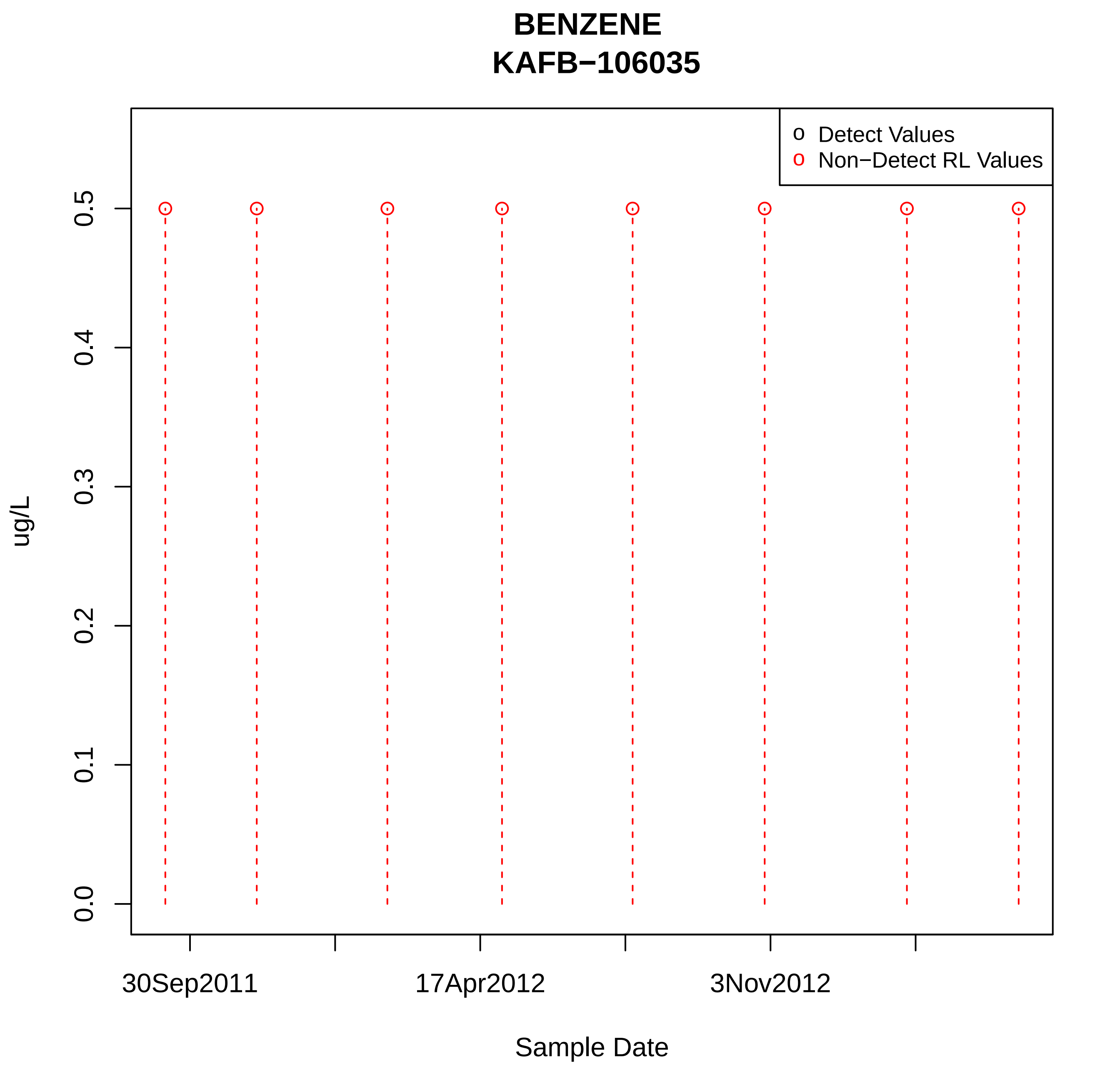
BENZENE
KAFB−106032
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

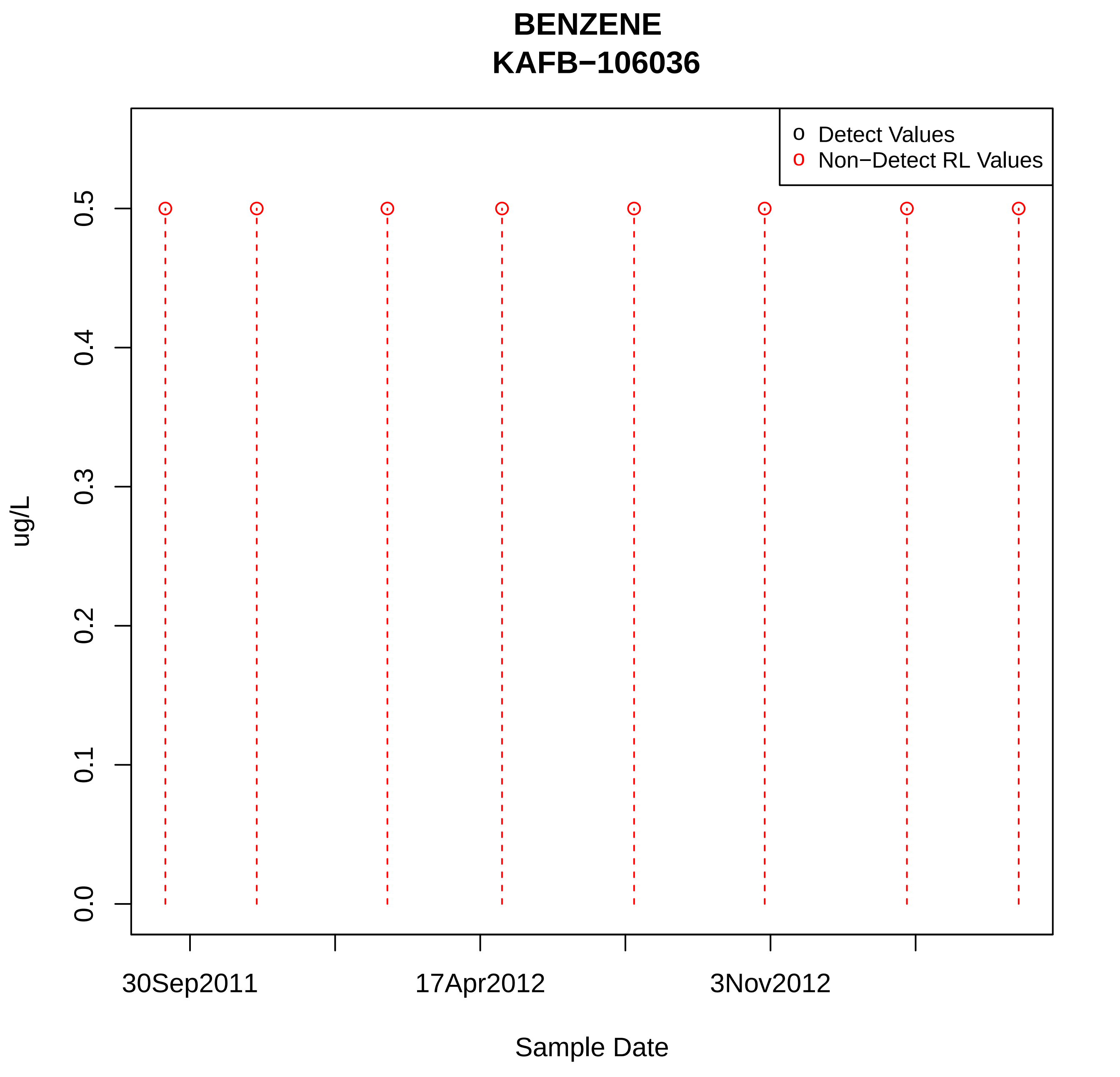


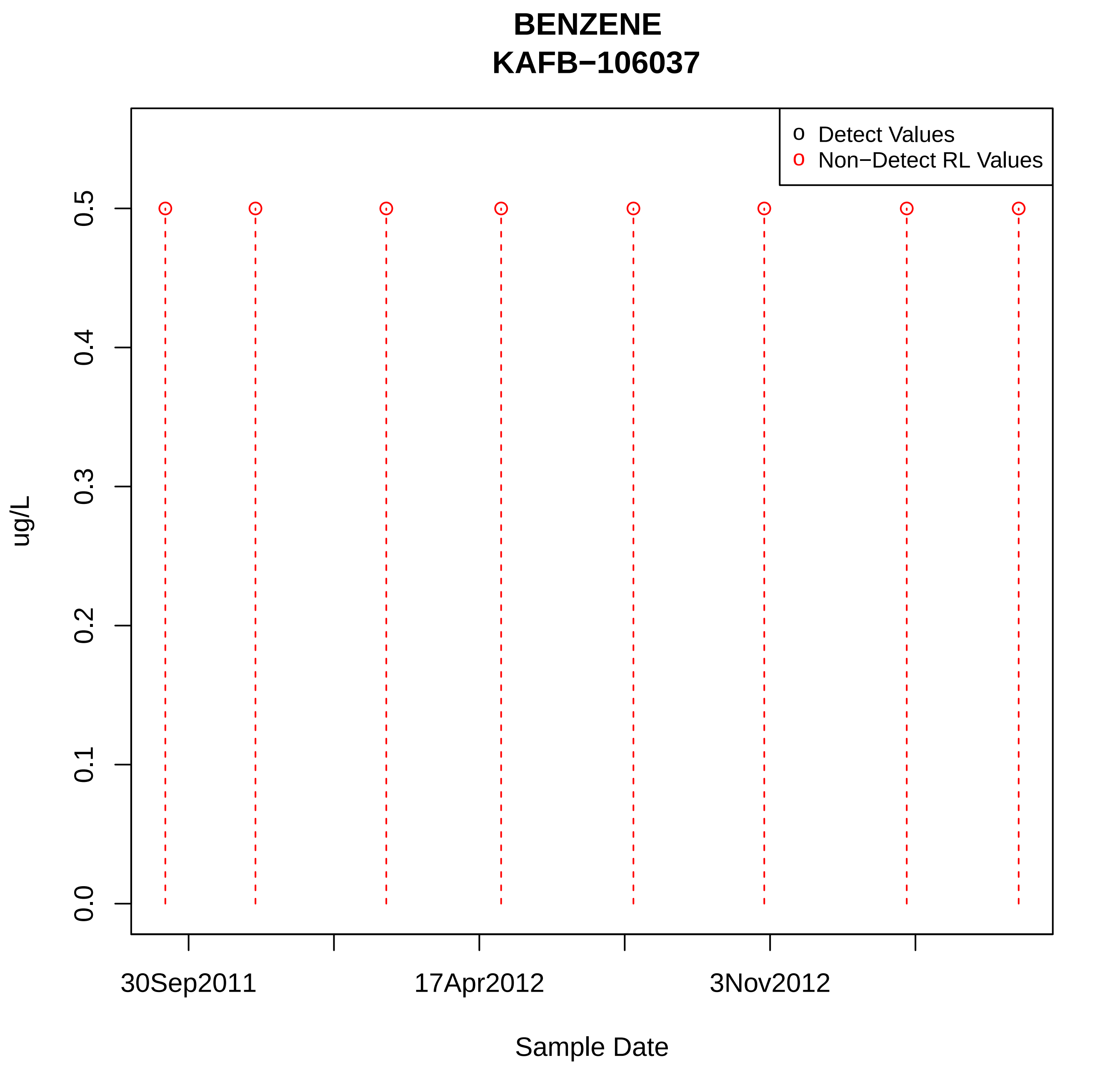
BENZENE
KAFB−106033
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



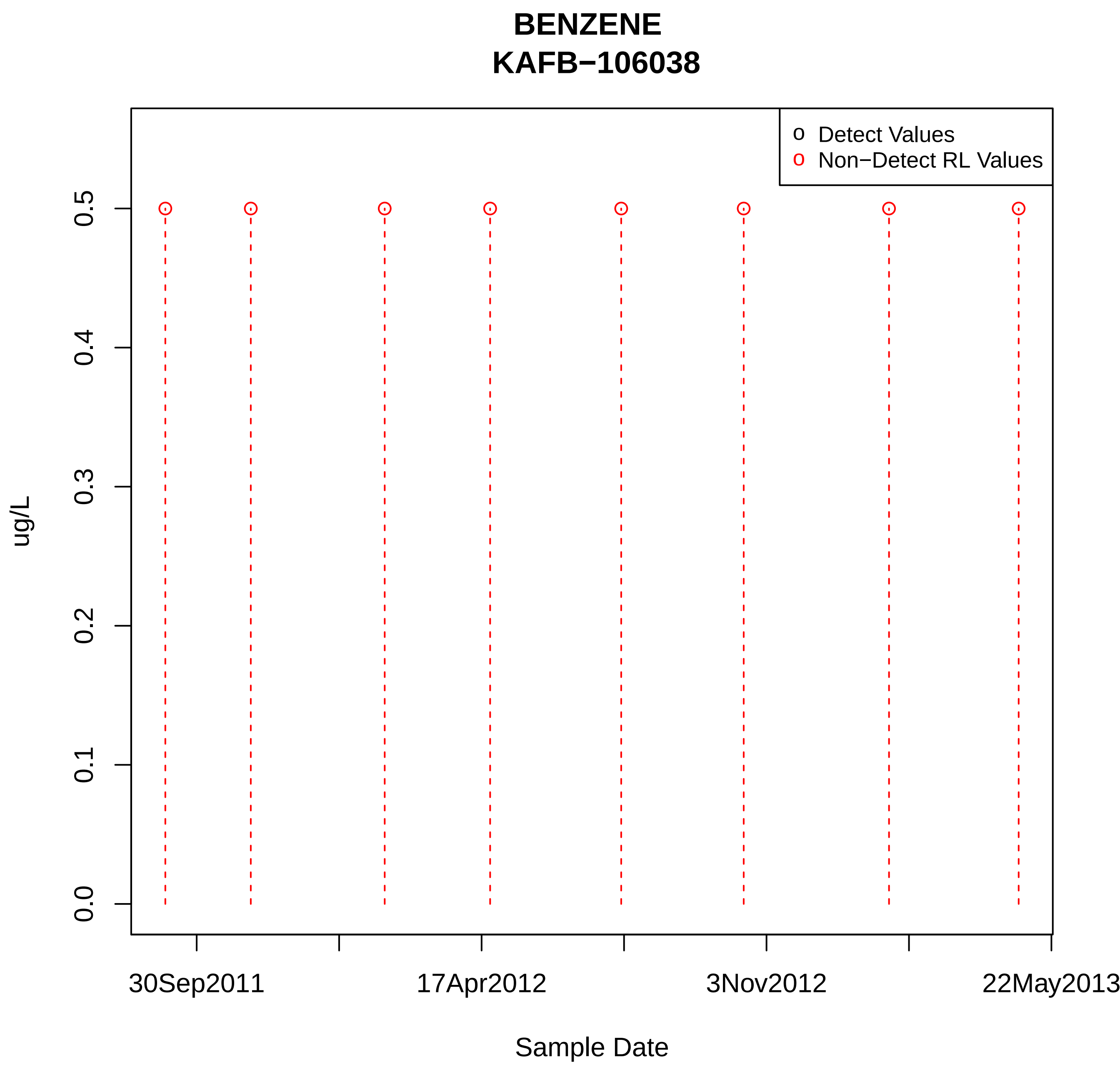
BENZENE
KAFB−106034
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values

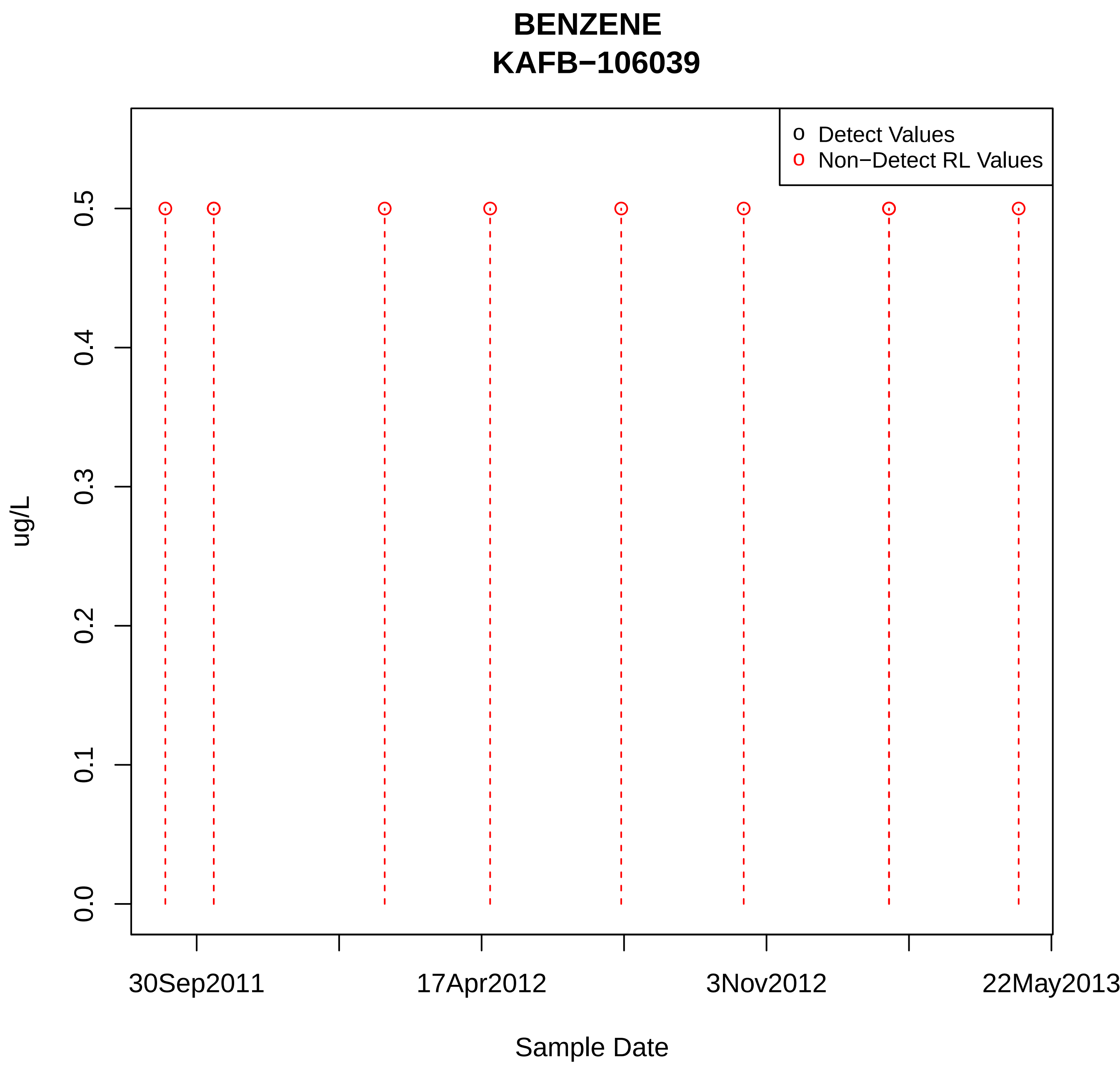

BENZENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


BENZENE
KAFB−106036
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

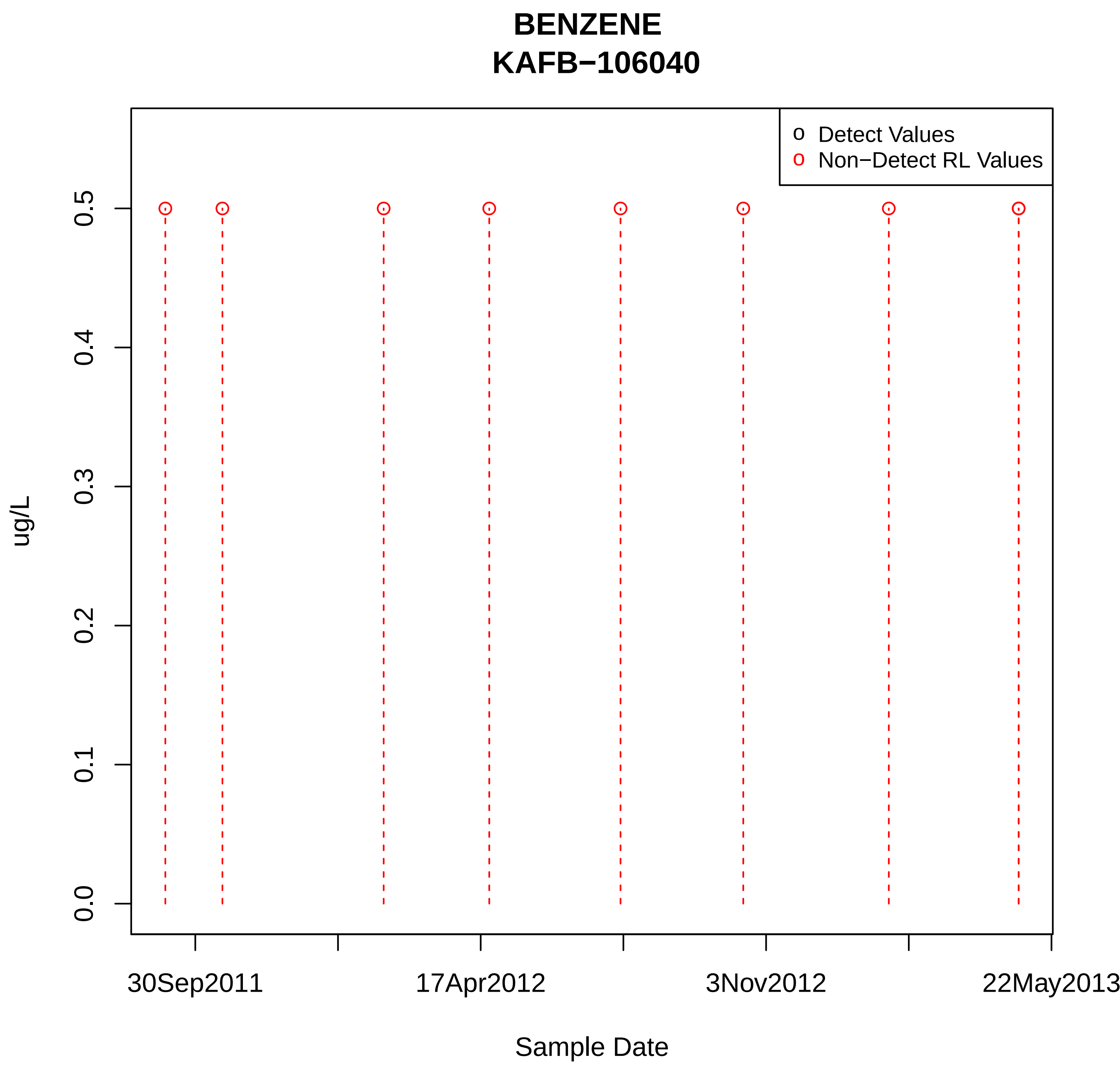


BENZENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

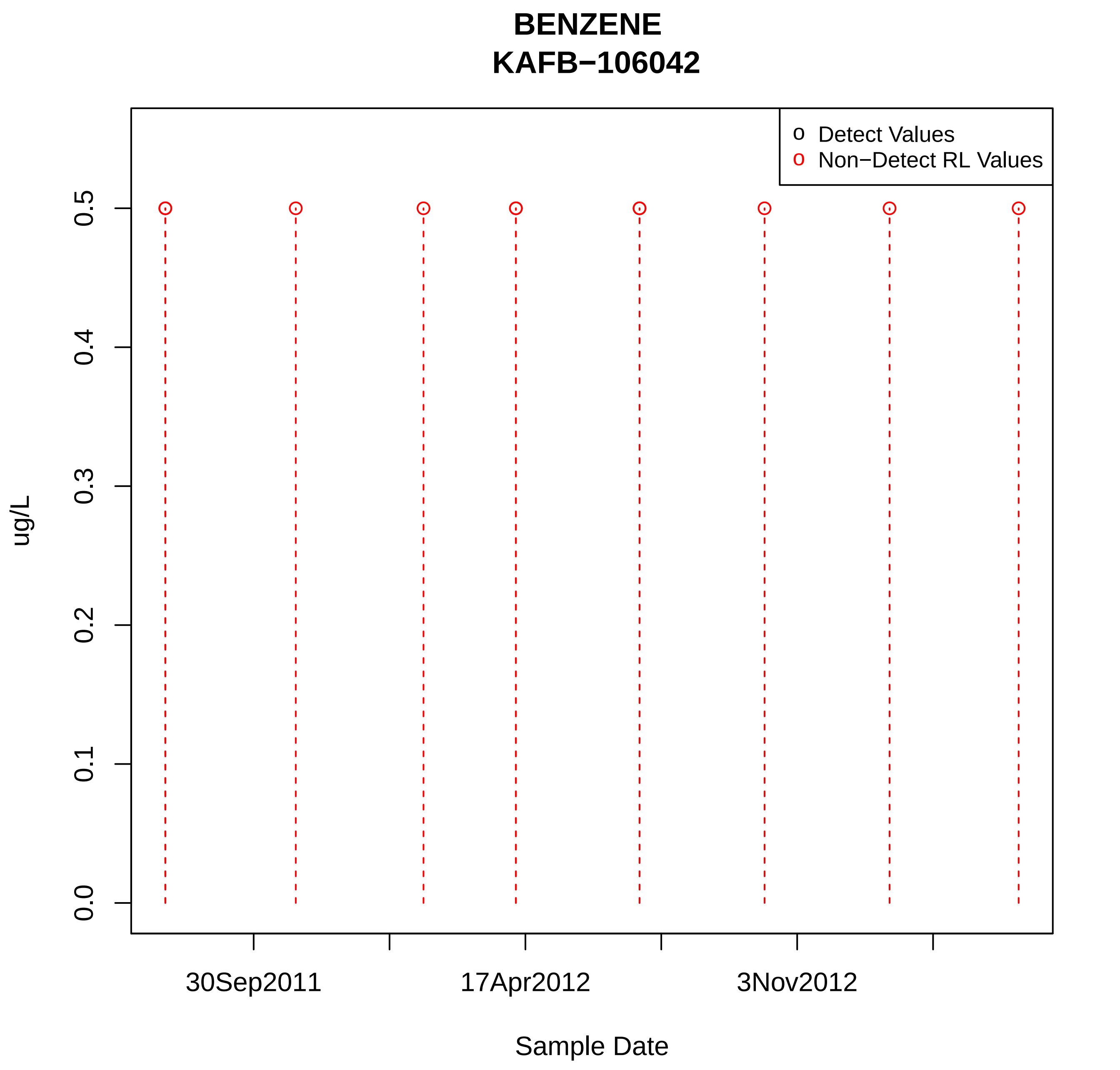

BENZENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

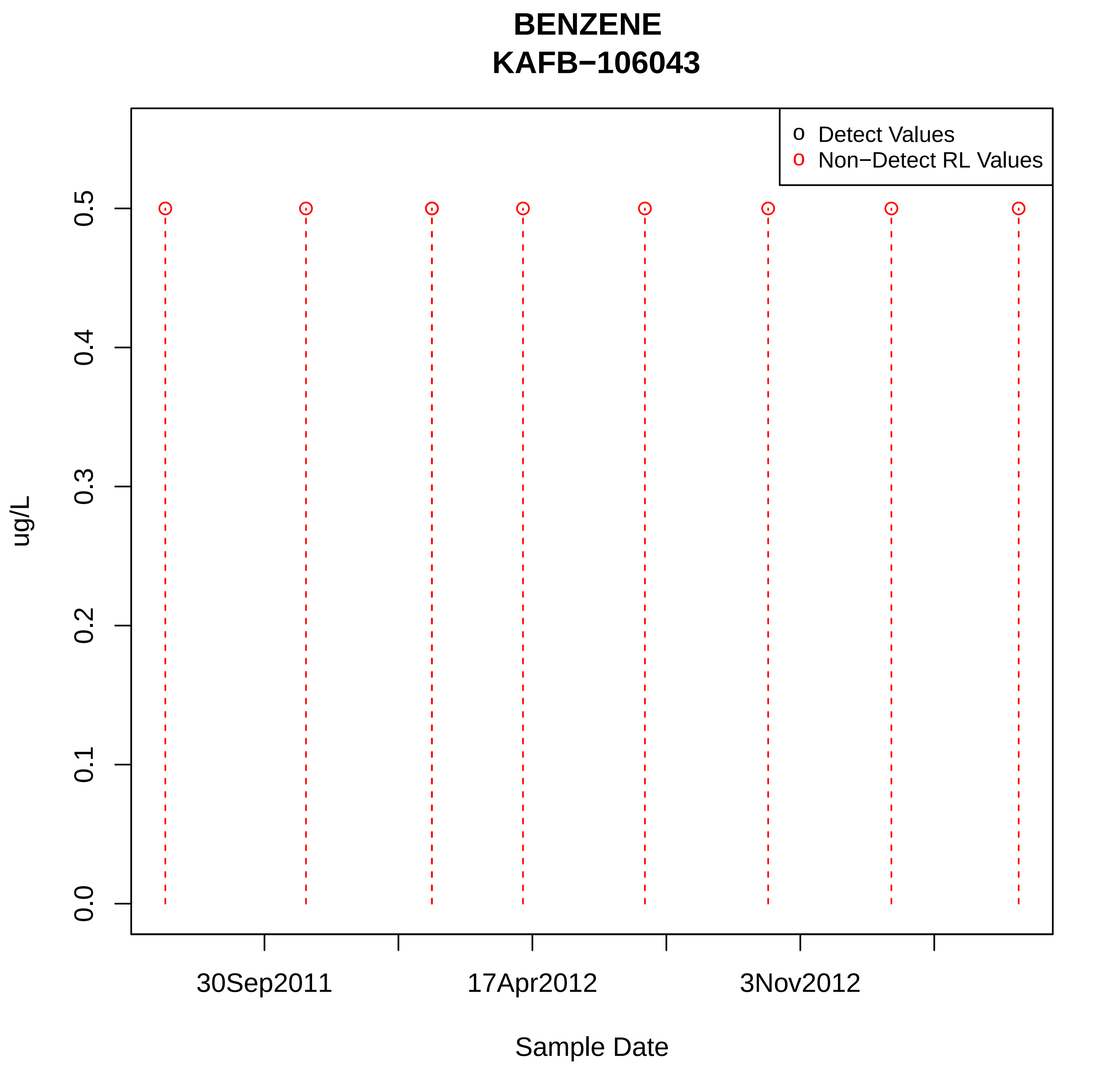


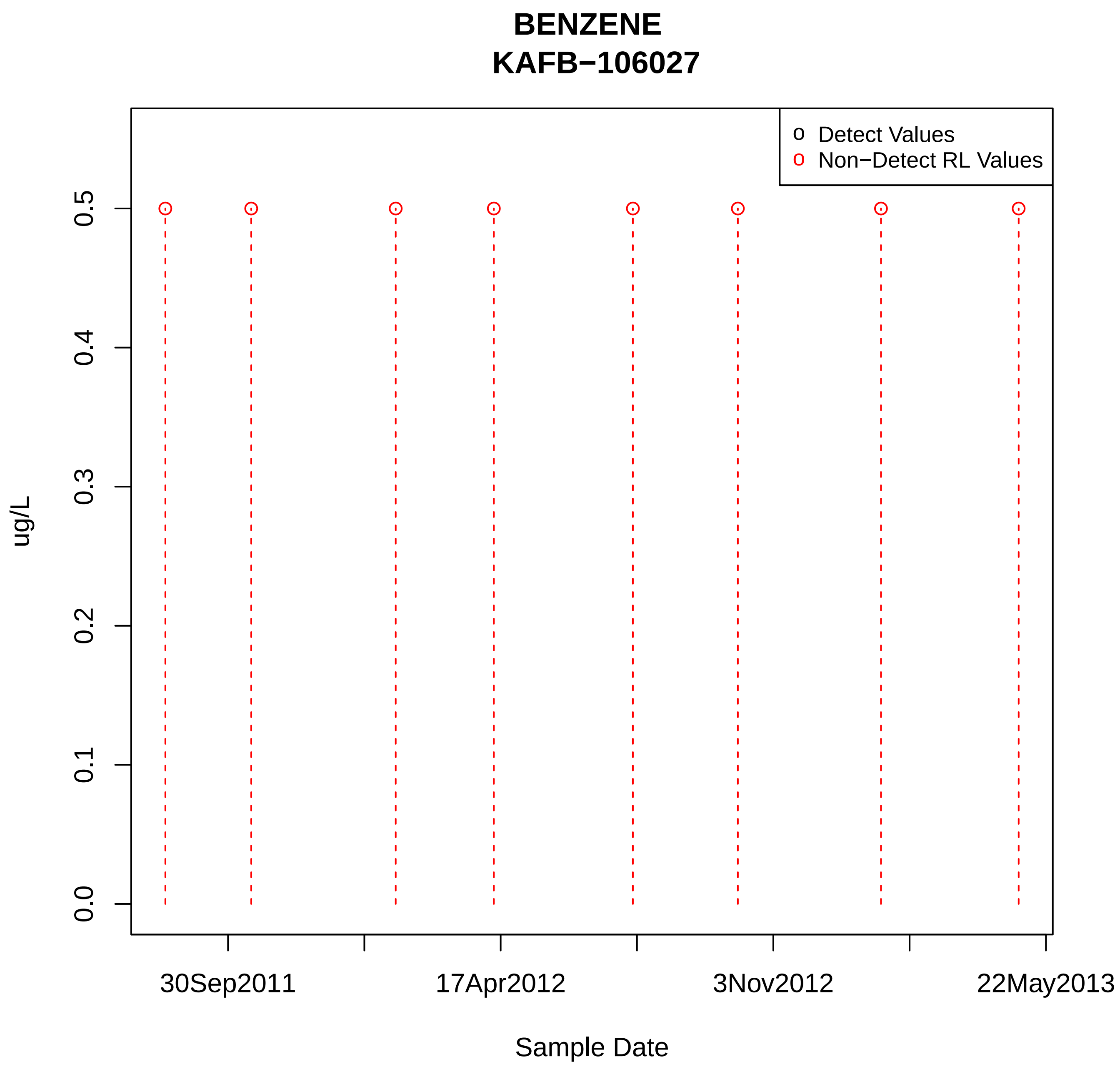
BENZENE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



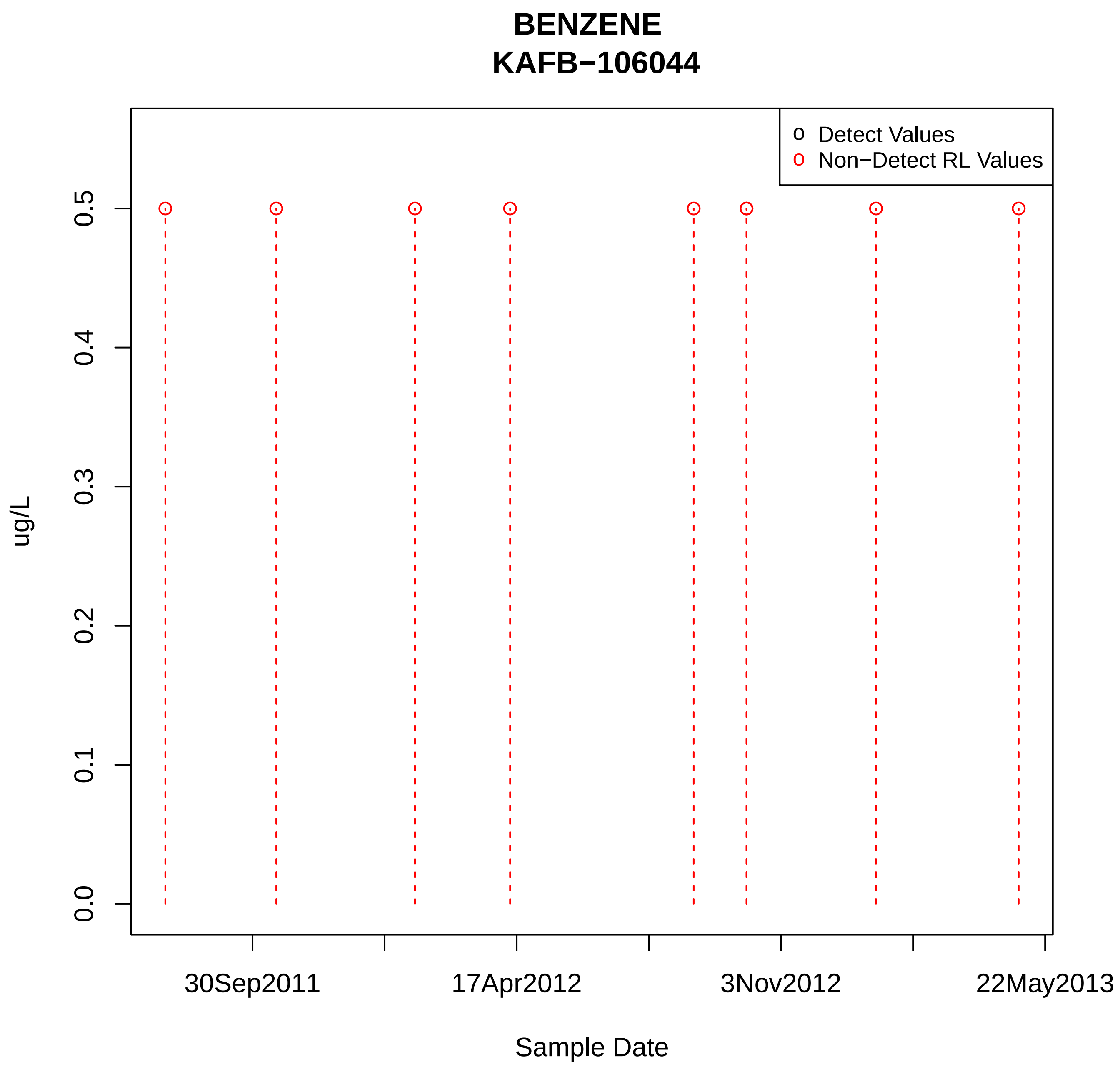
BENZENE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

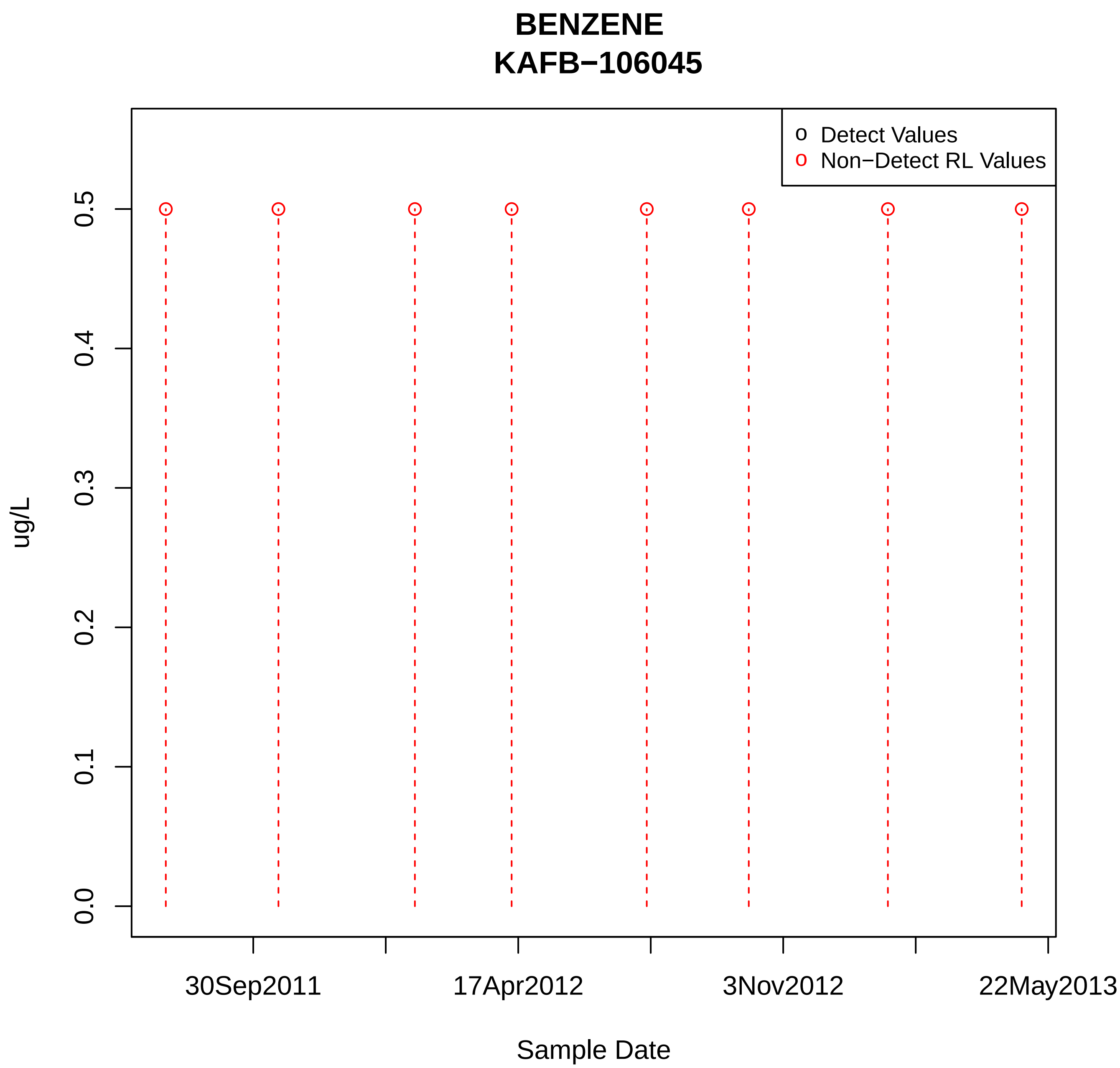

BENZENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

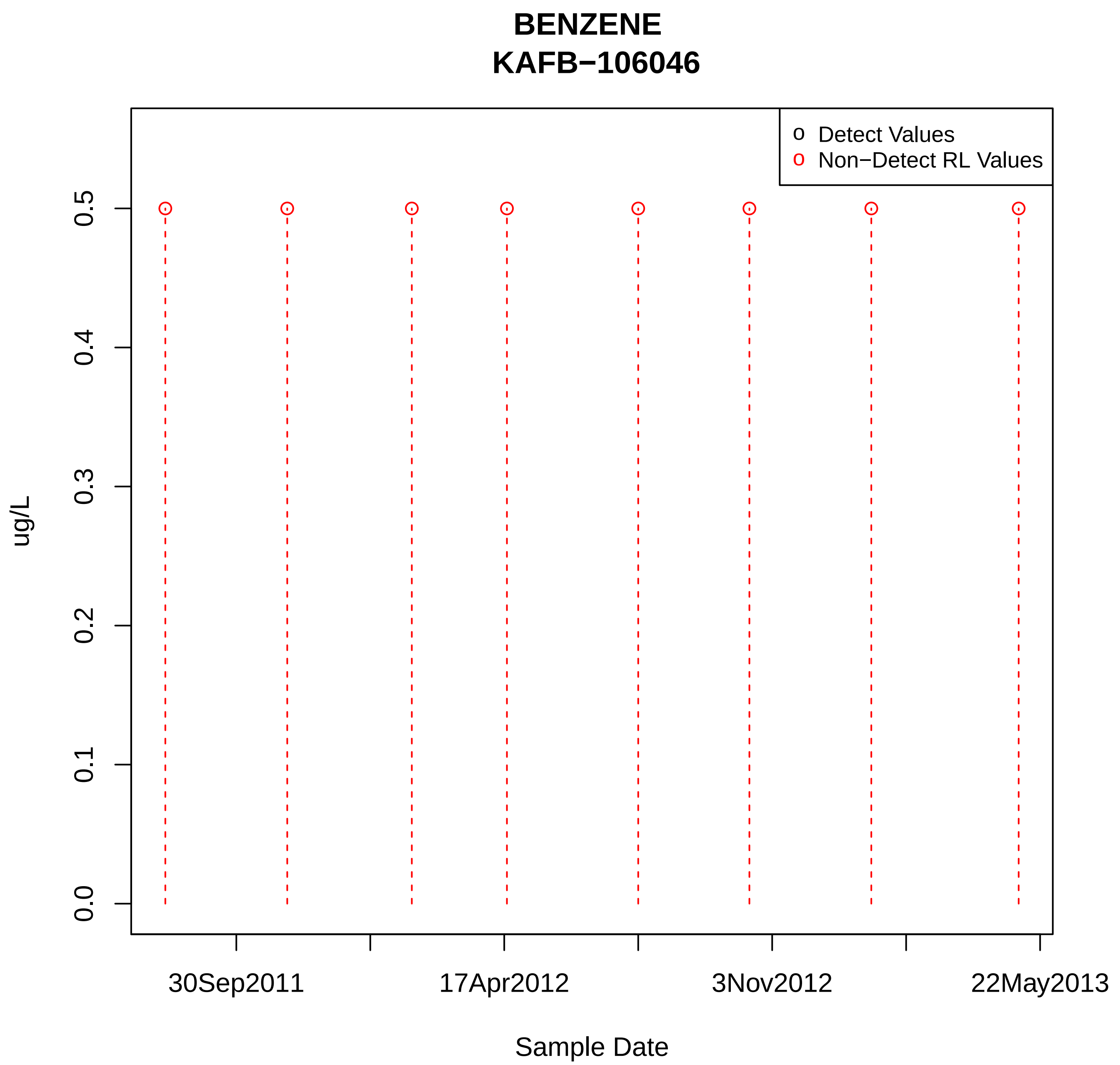

BENZENE
KAFB−106043
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



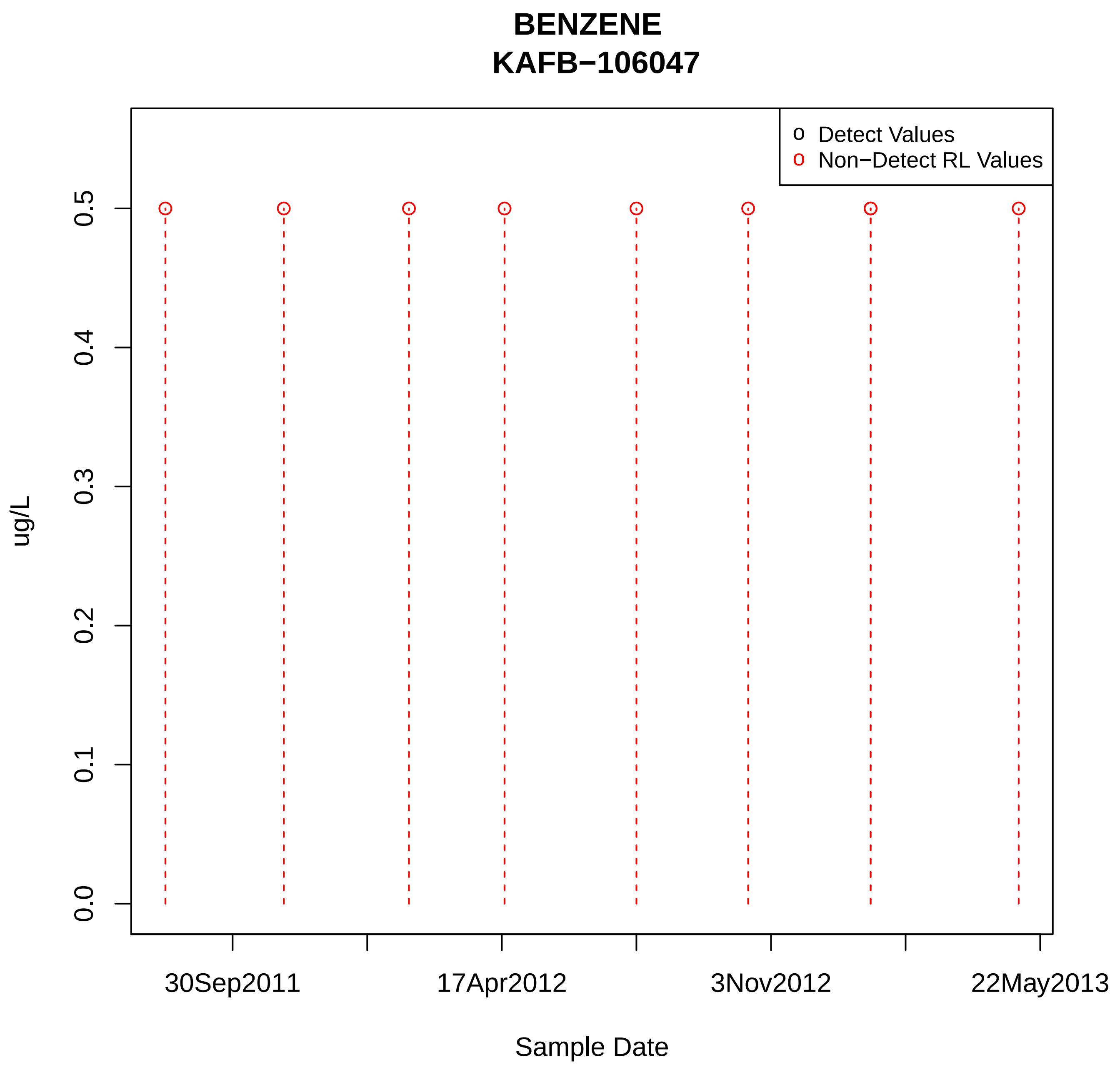
BENZENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

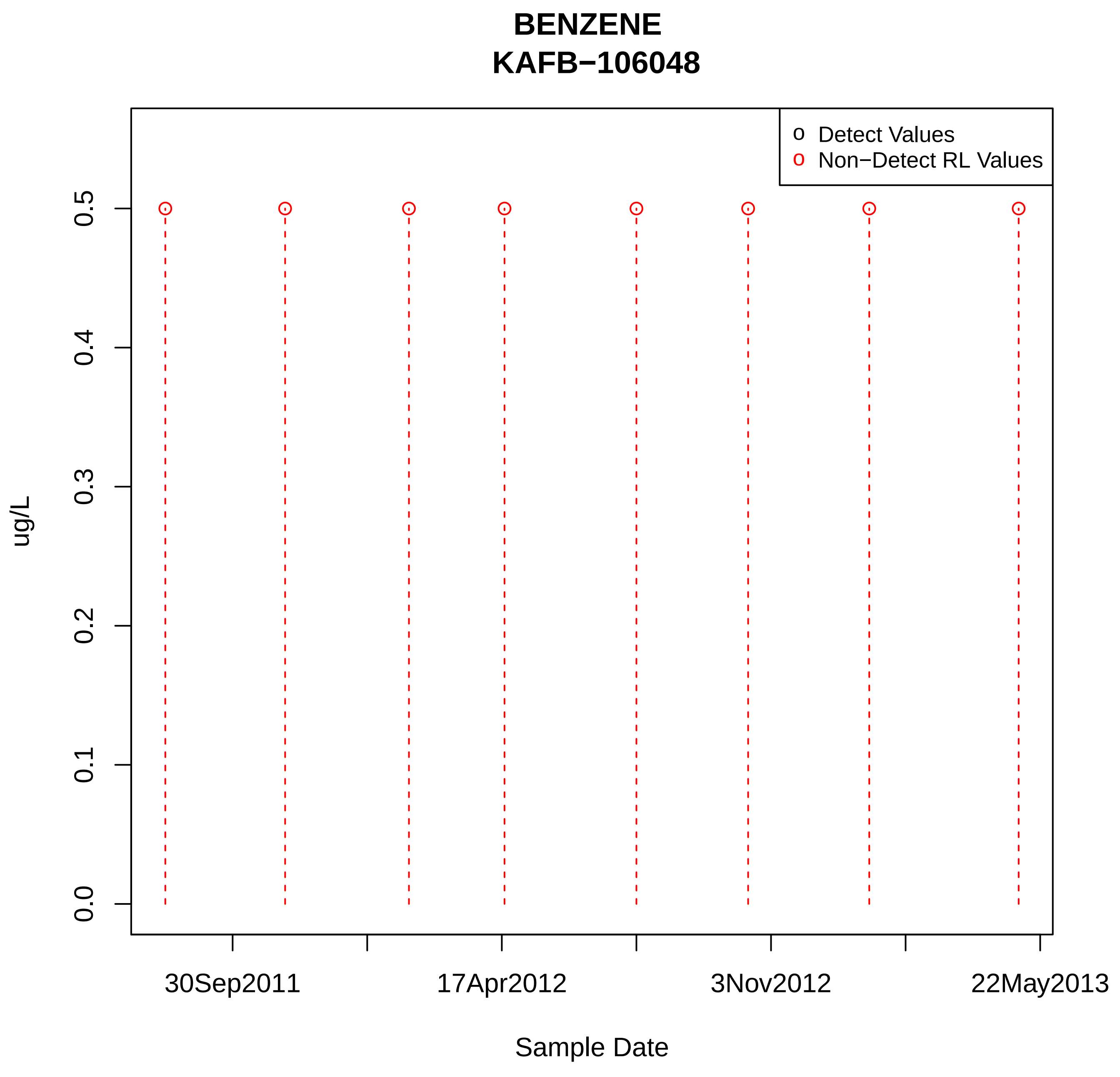

BENZENE
KAFB−106044
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

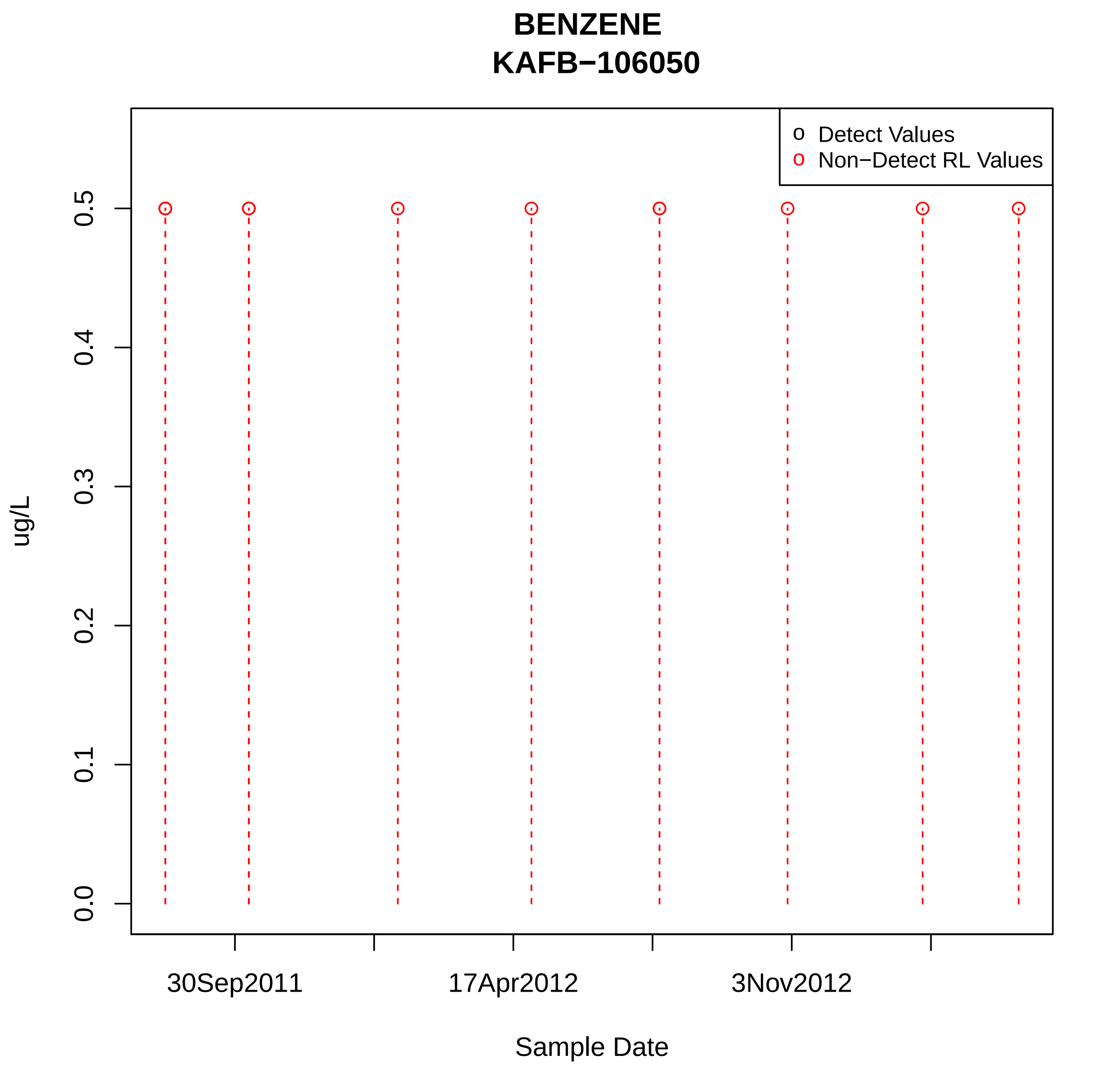

BENZENE
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



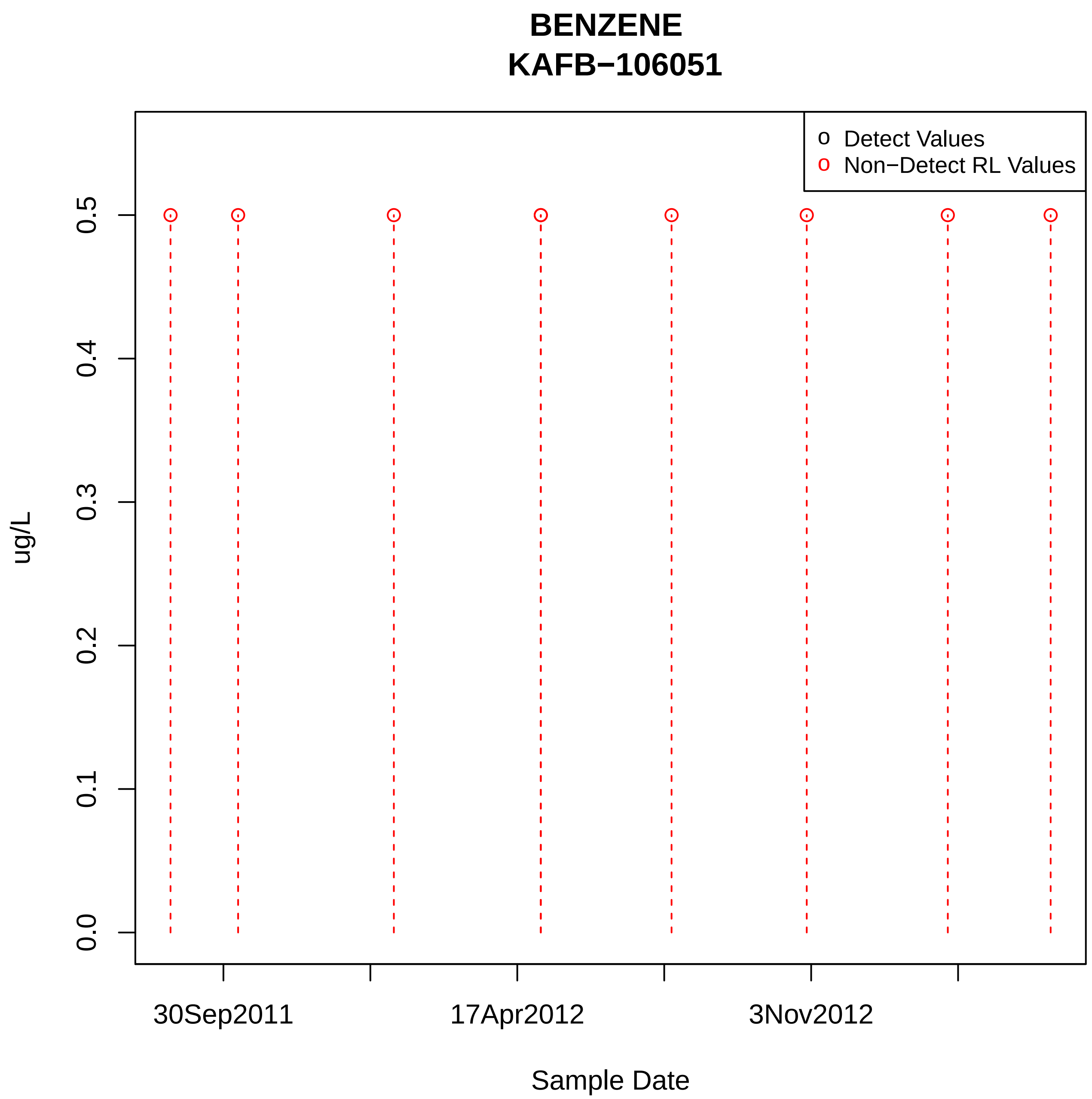
BENZENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

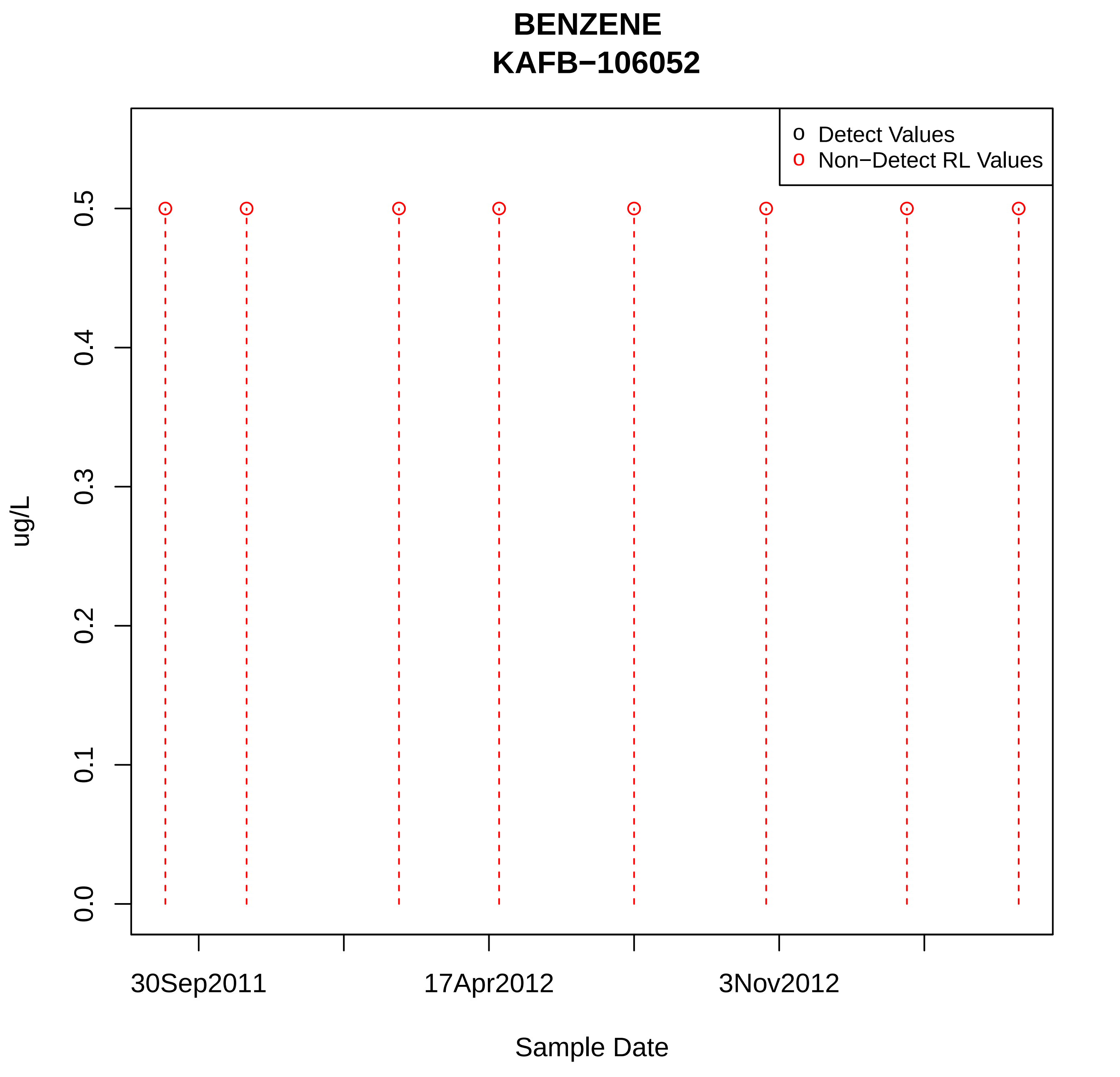

BENZENE
KAFB−106047
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

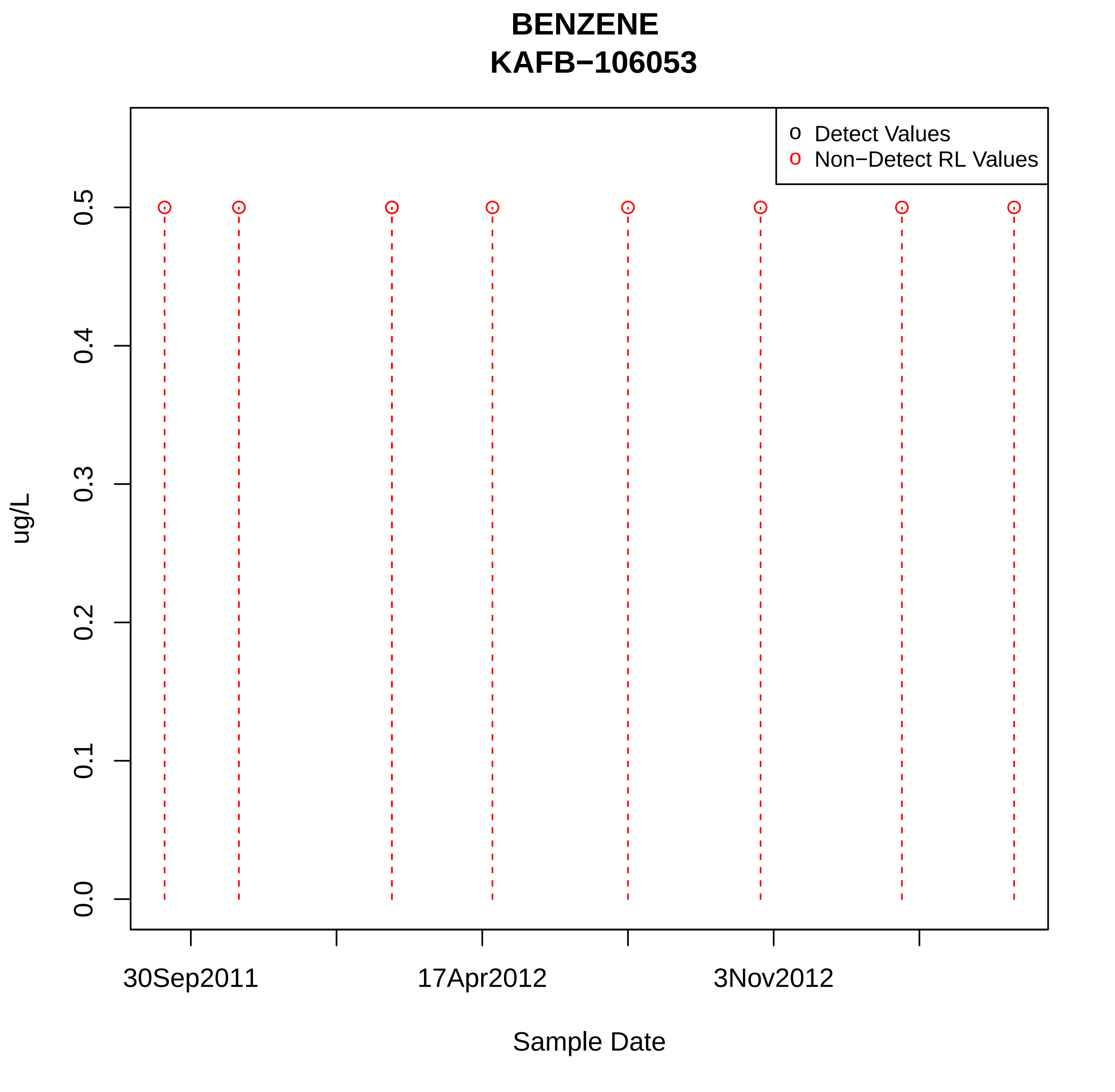

BENZENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



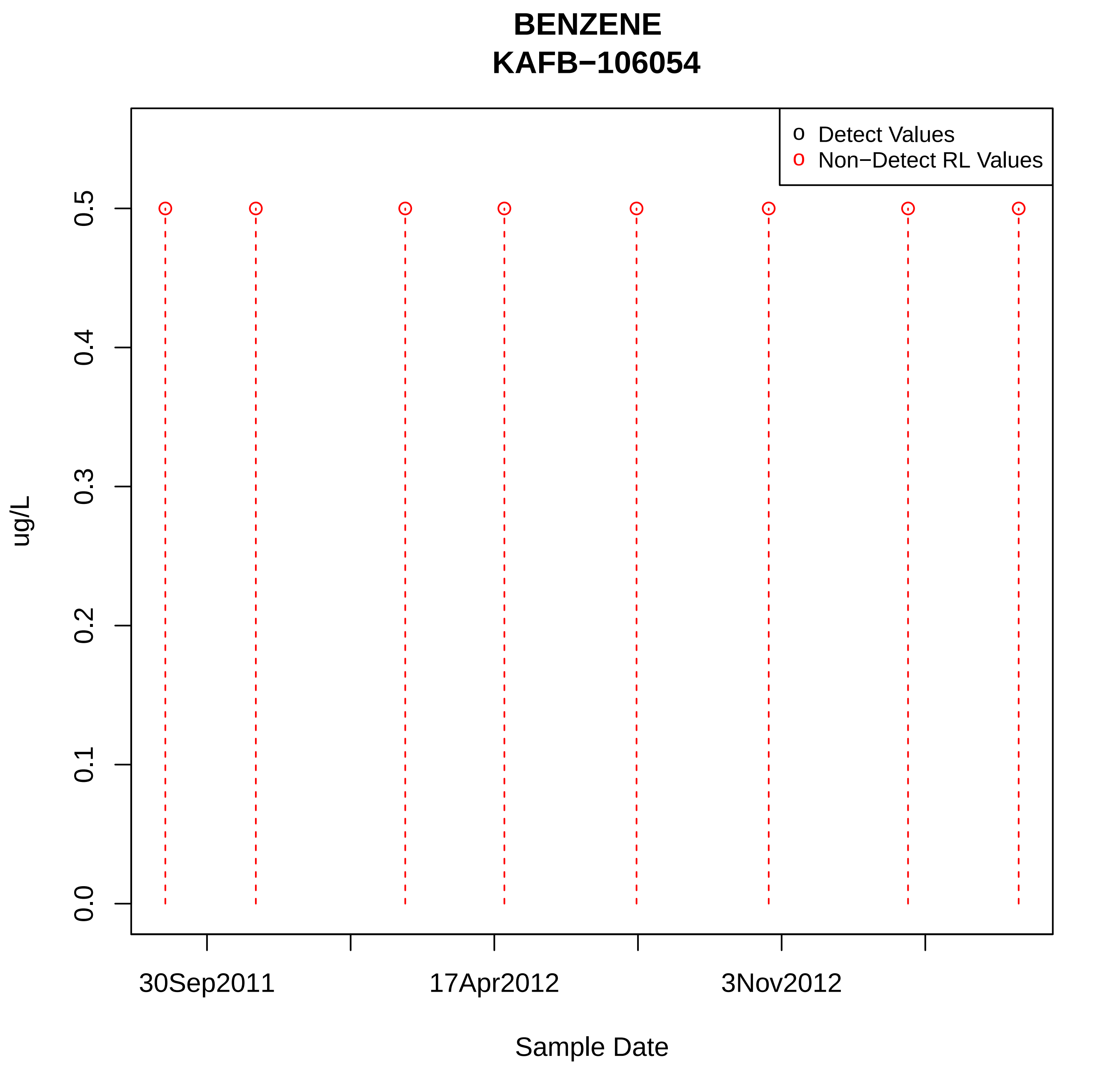
BENZENE
KAFB−106050
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


BENZENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

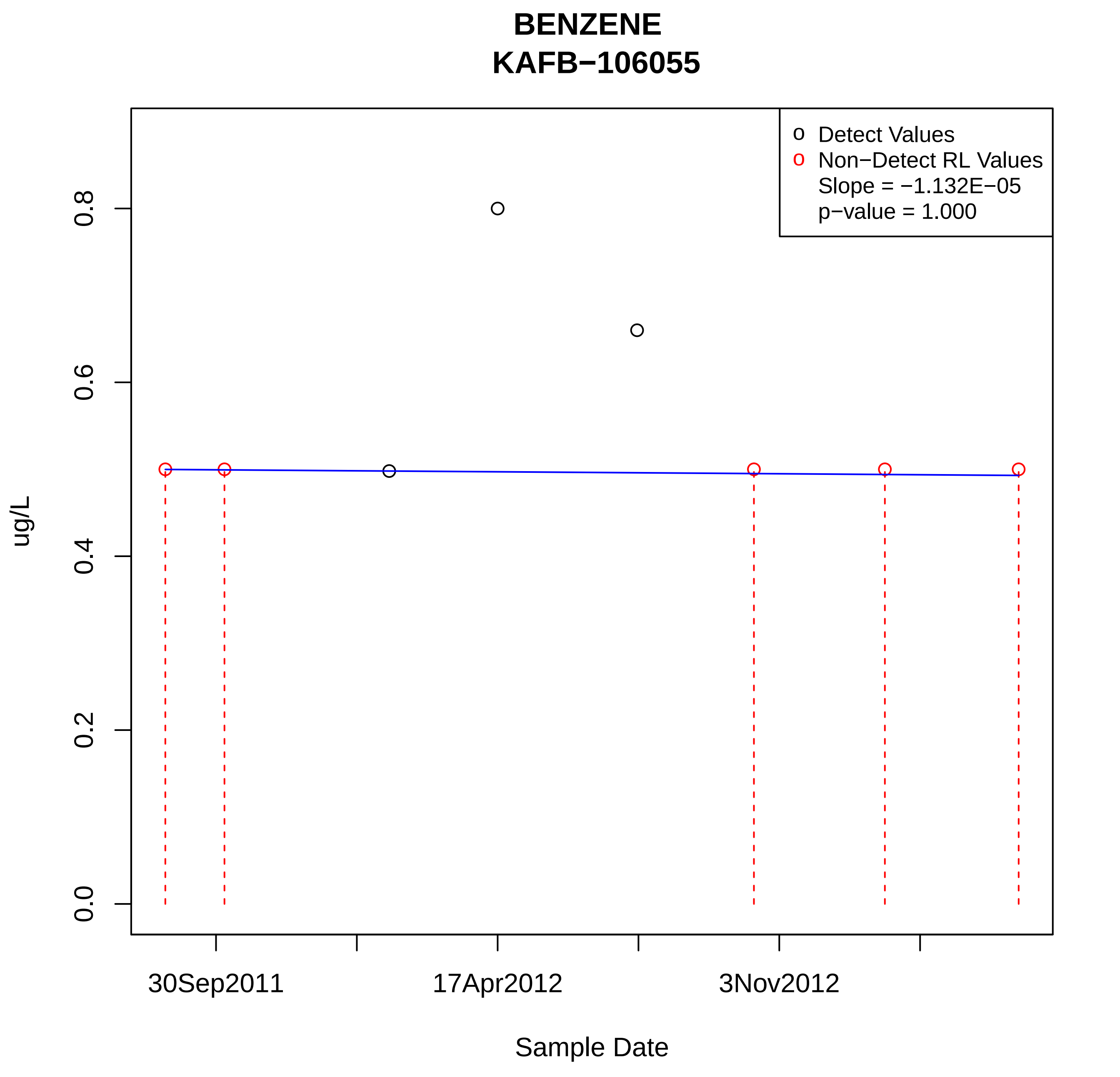

BENZENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

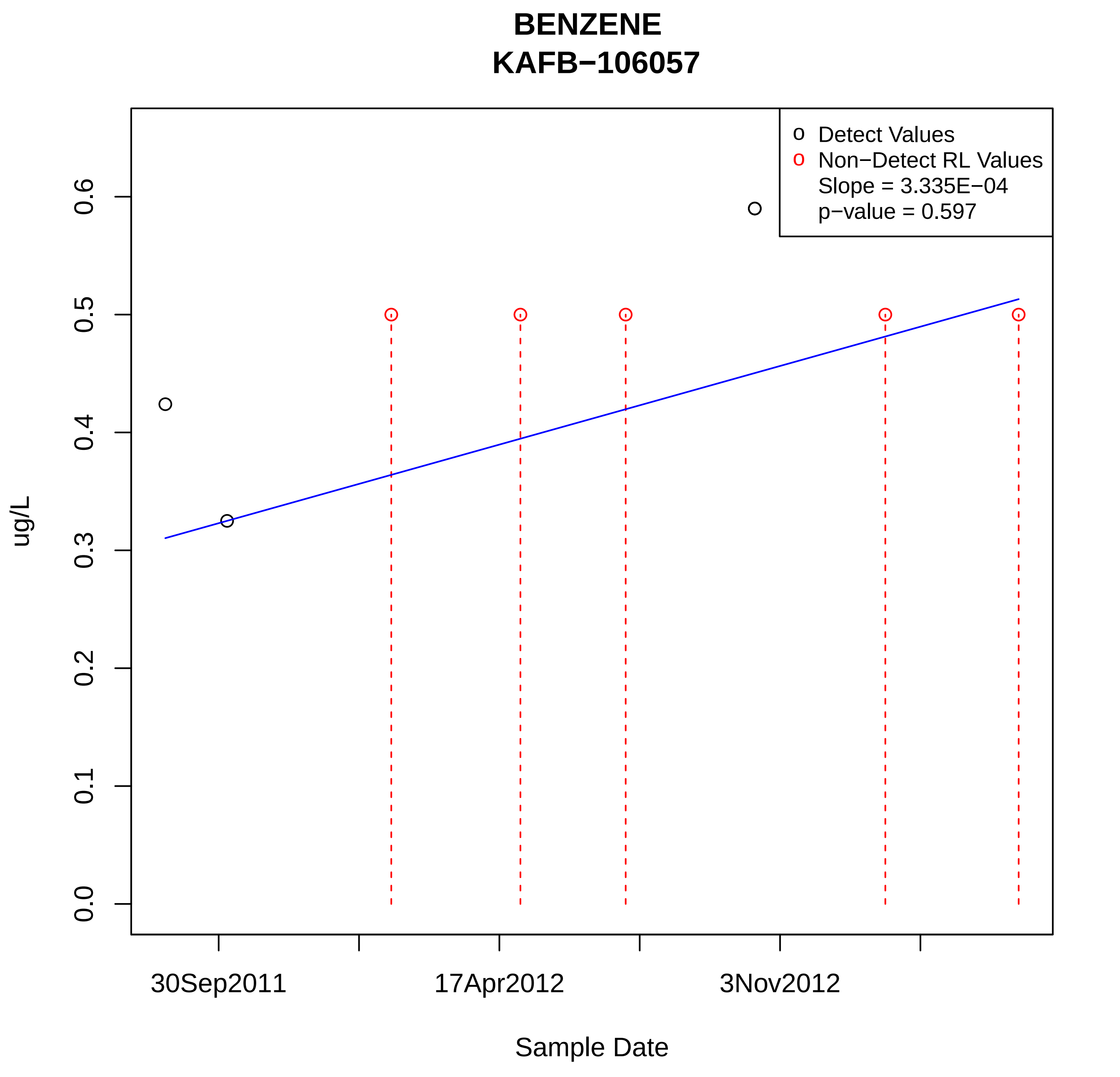


BENZENE
KAFB−106053
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

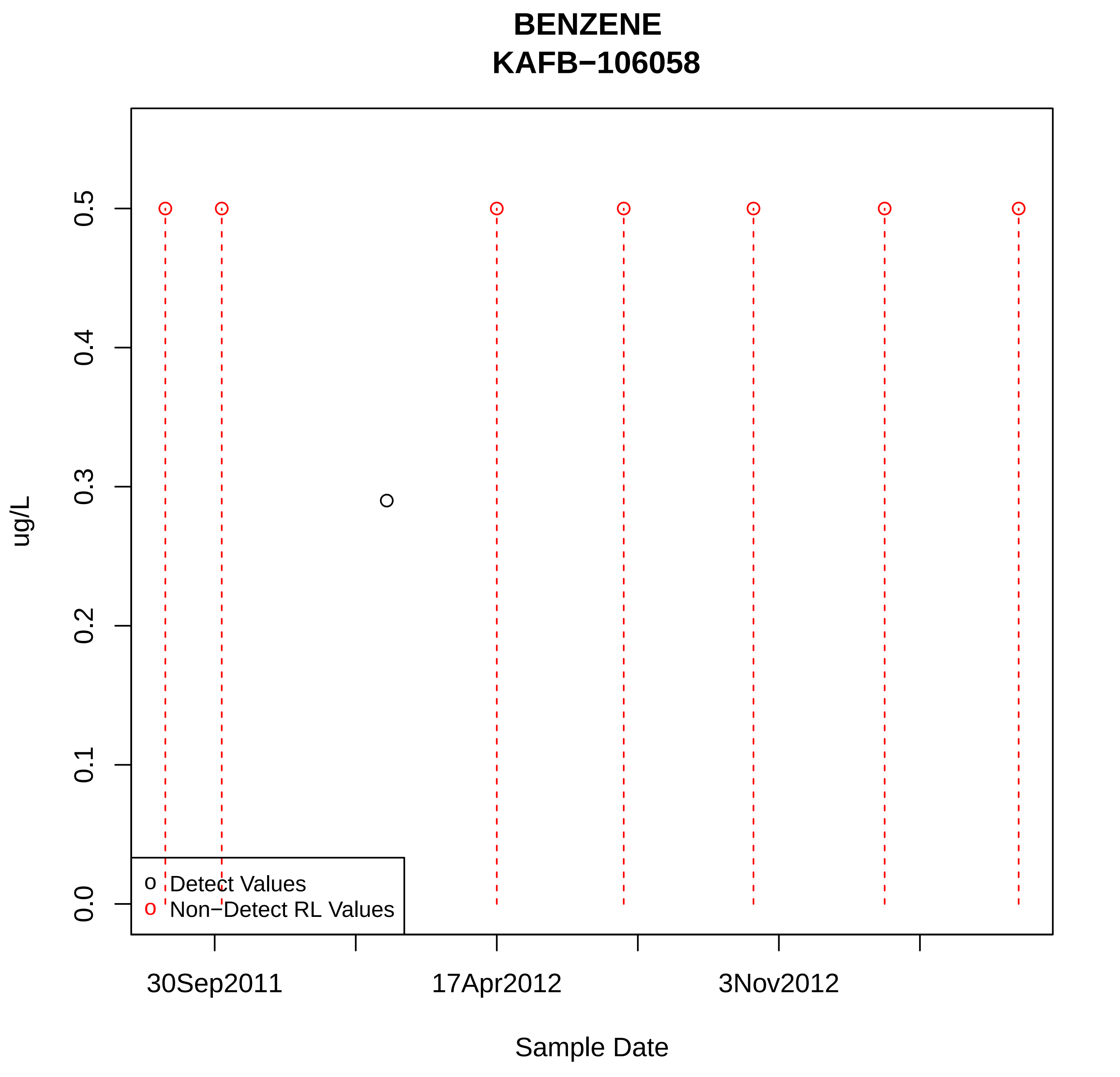


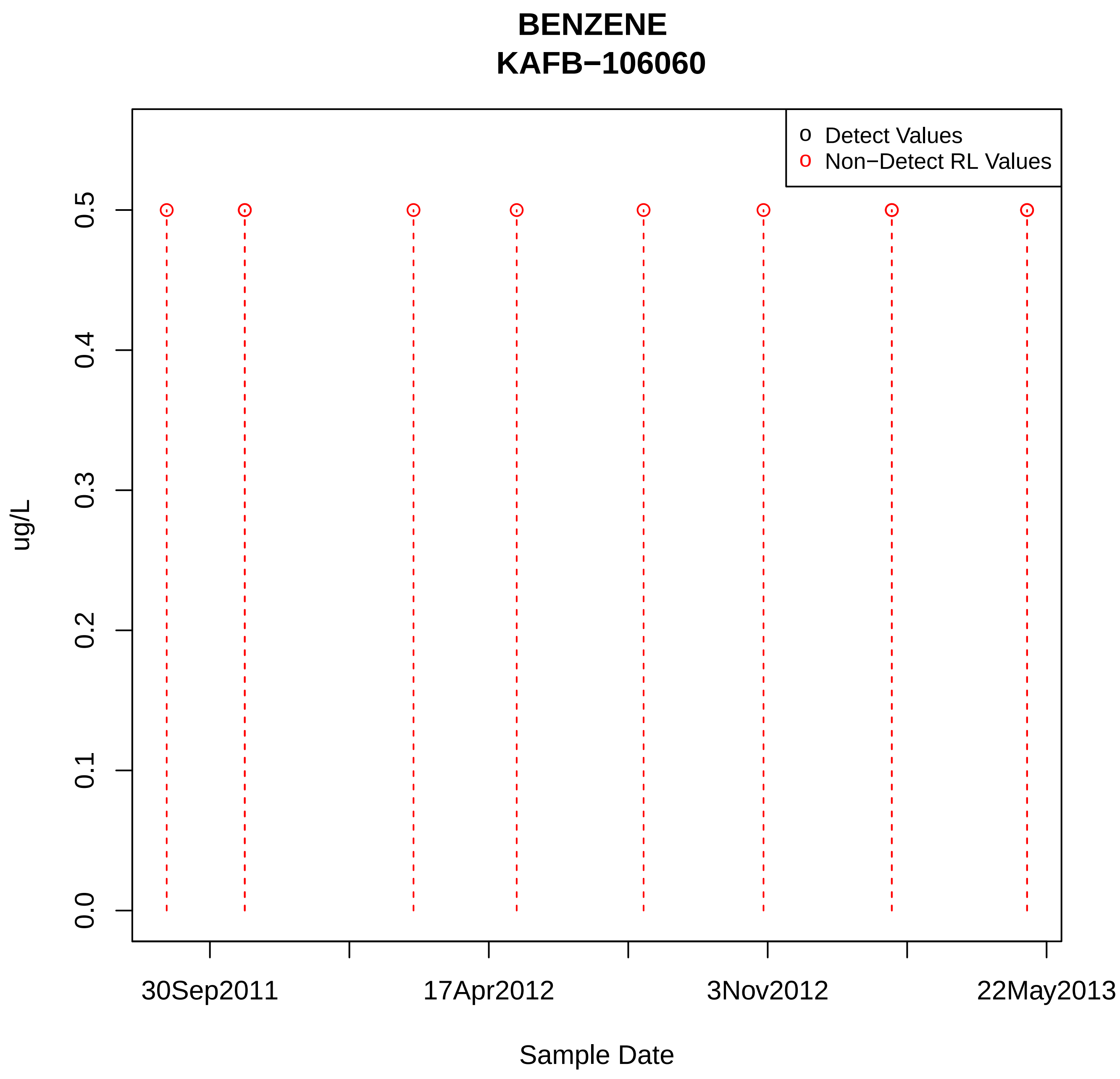
BENZENE
KAFB−106054
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


BENZENE
KAFB−106055
Detect Values
Non−Detect RL Values
Slope = −1.132E−05
p−value = 1.000
0.0
0.2
0.4
0.6
0.8
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

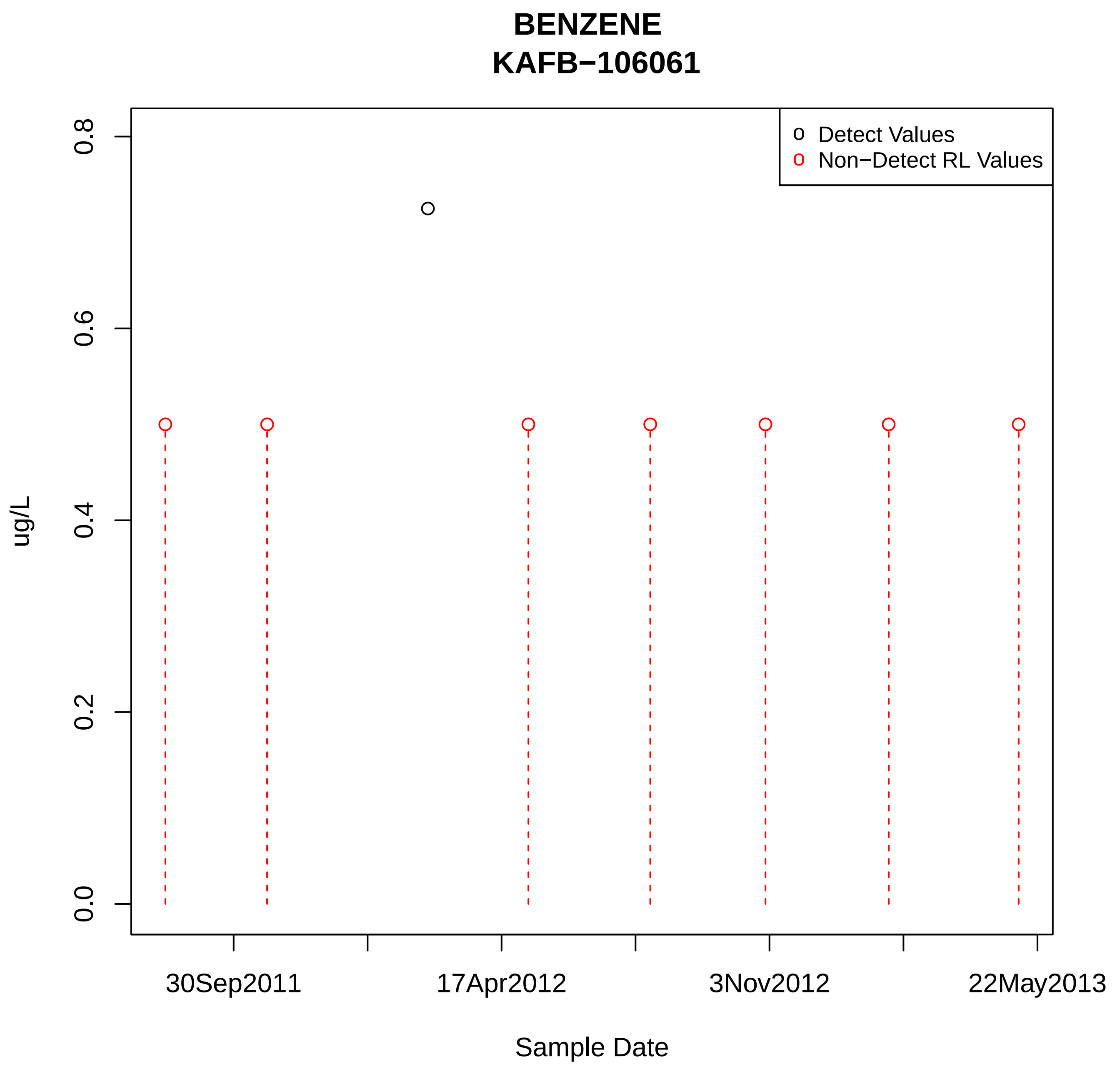


BENZENE
KAFB−106057
o Detect Values
o Non−Detect RL Values
Slope = 3.335E−04
p−value = 0.597
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
Sample Date

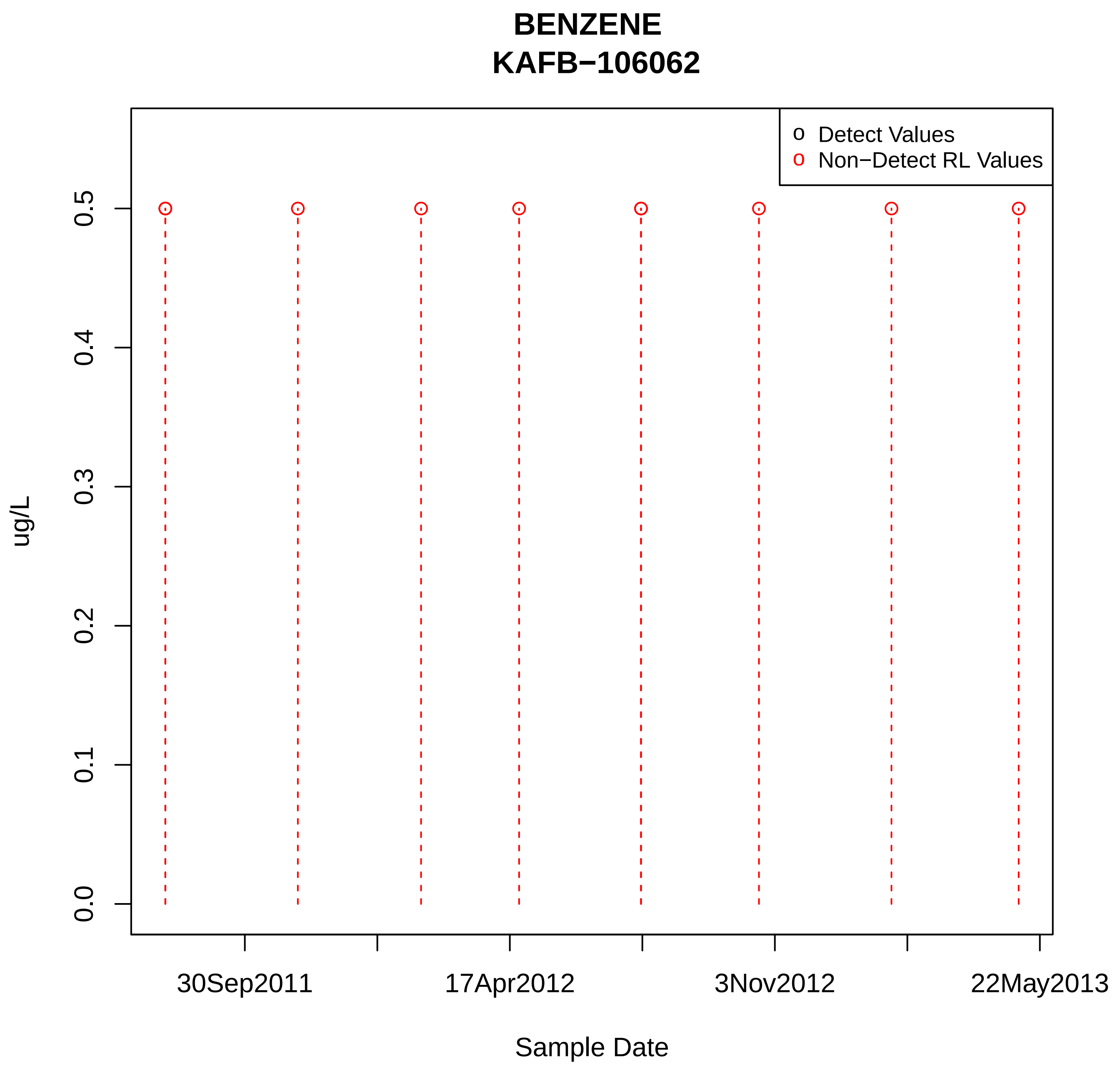

BENZENE
KAFB−106058
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

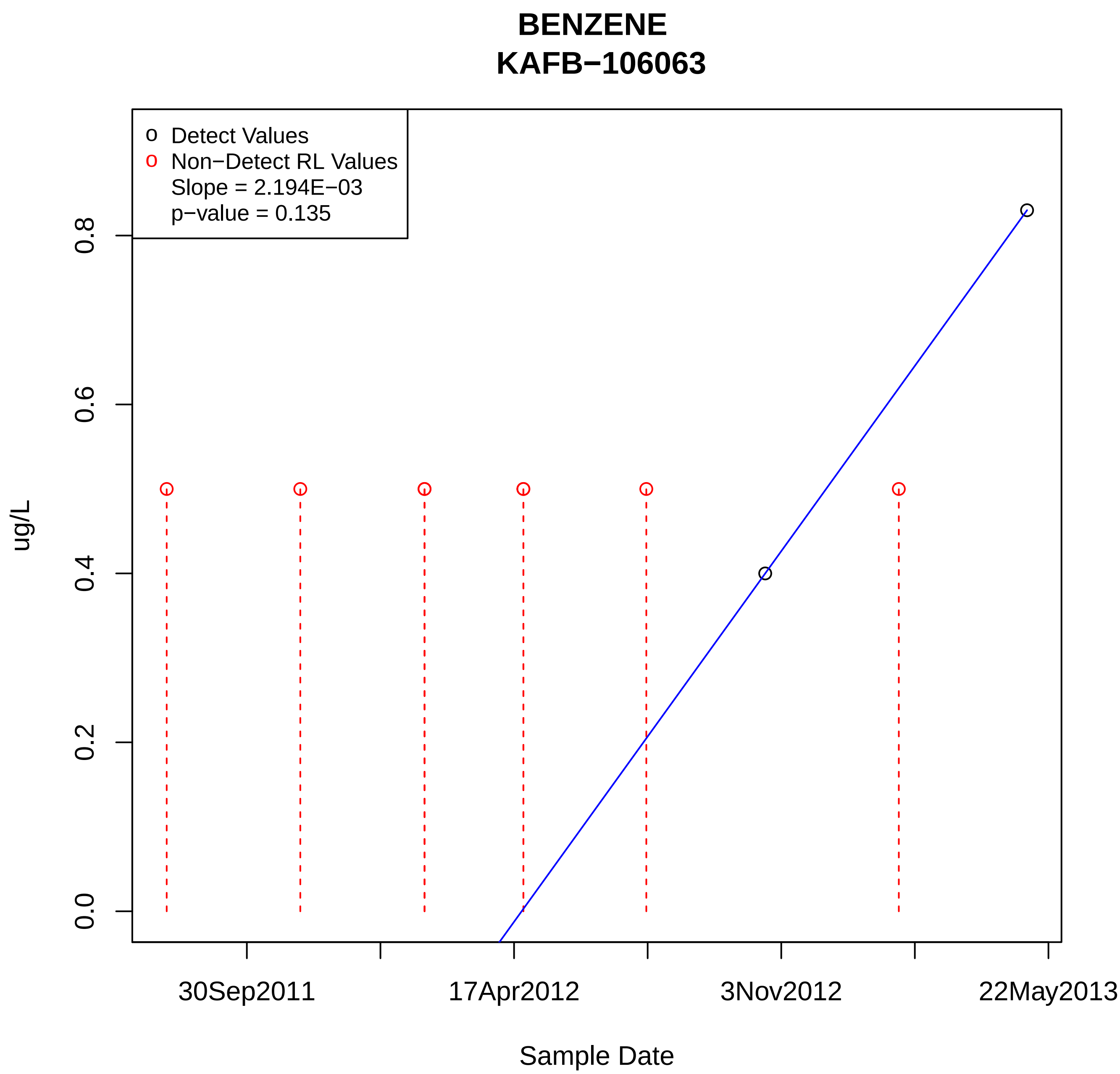


BENZENE
KAFB−106060
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

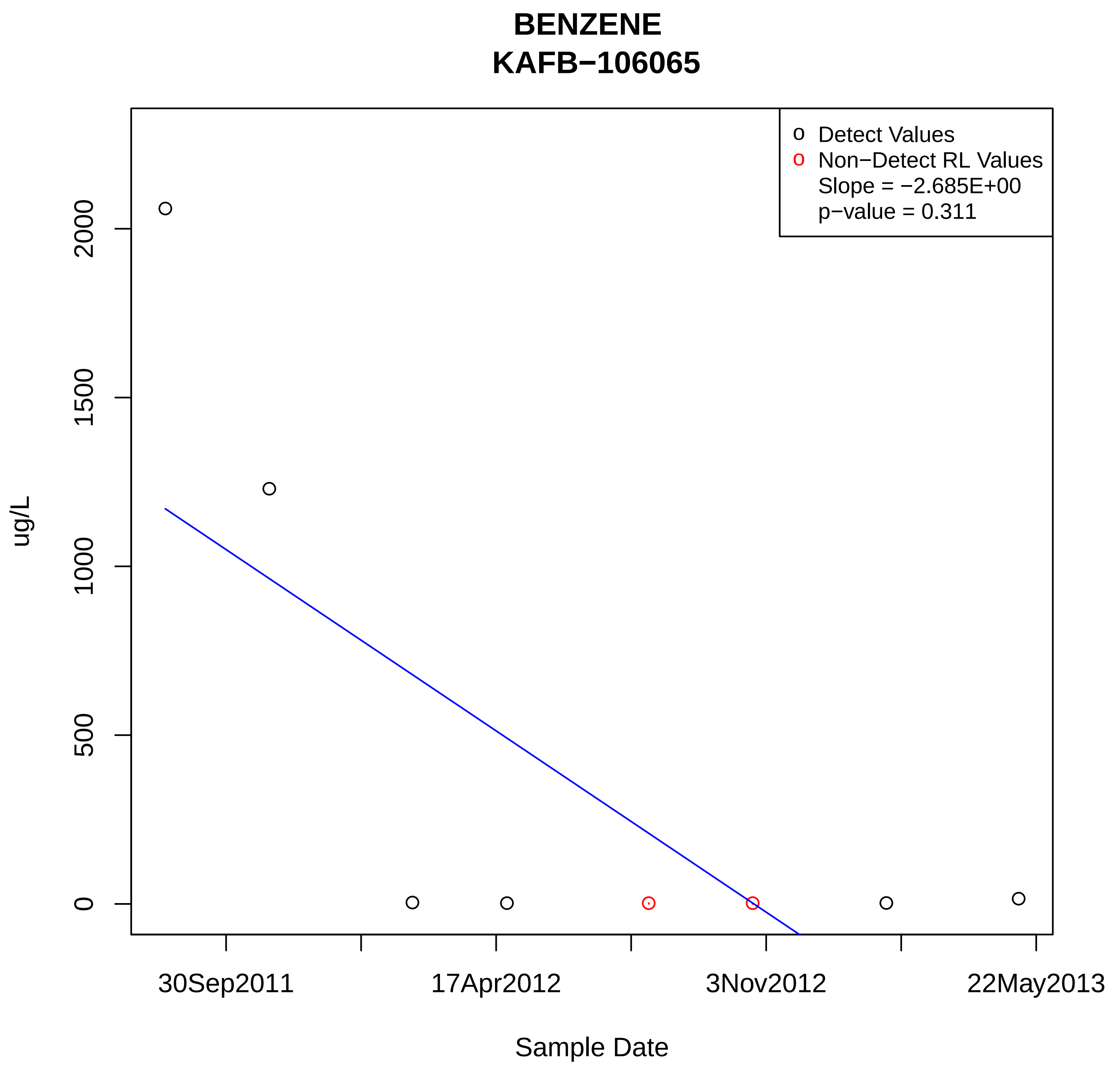


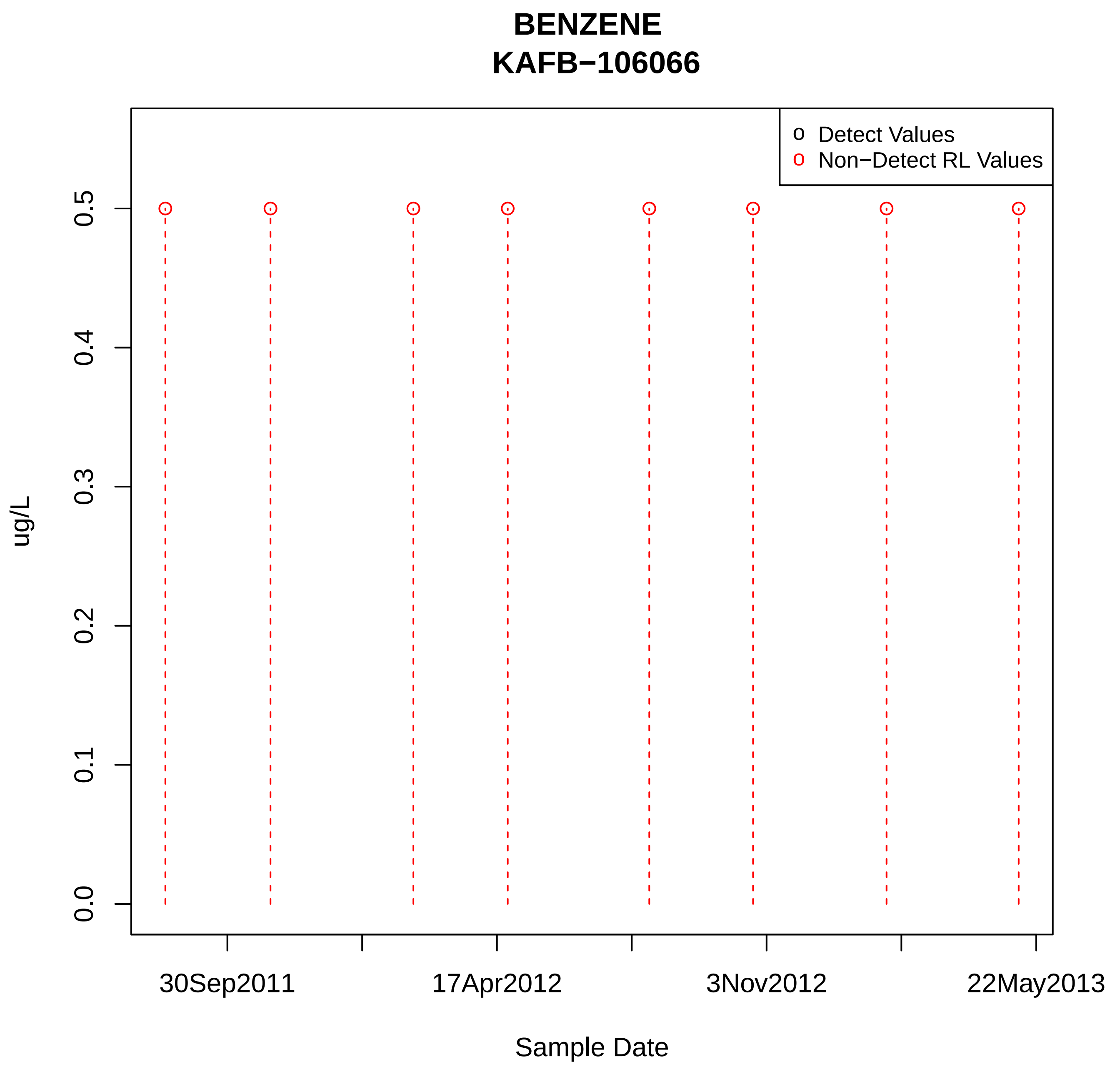
BENZENE
KAFB−106061
Detect Values
Non−Detect RL Values
0.0
0.2
0.4
0.6
0.8
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

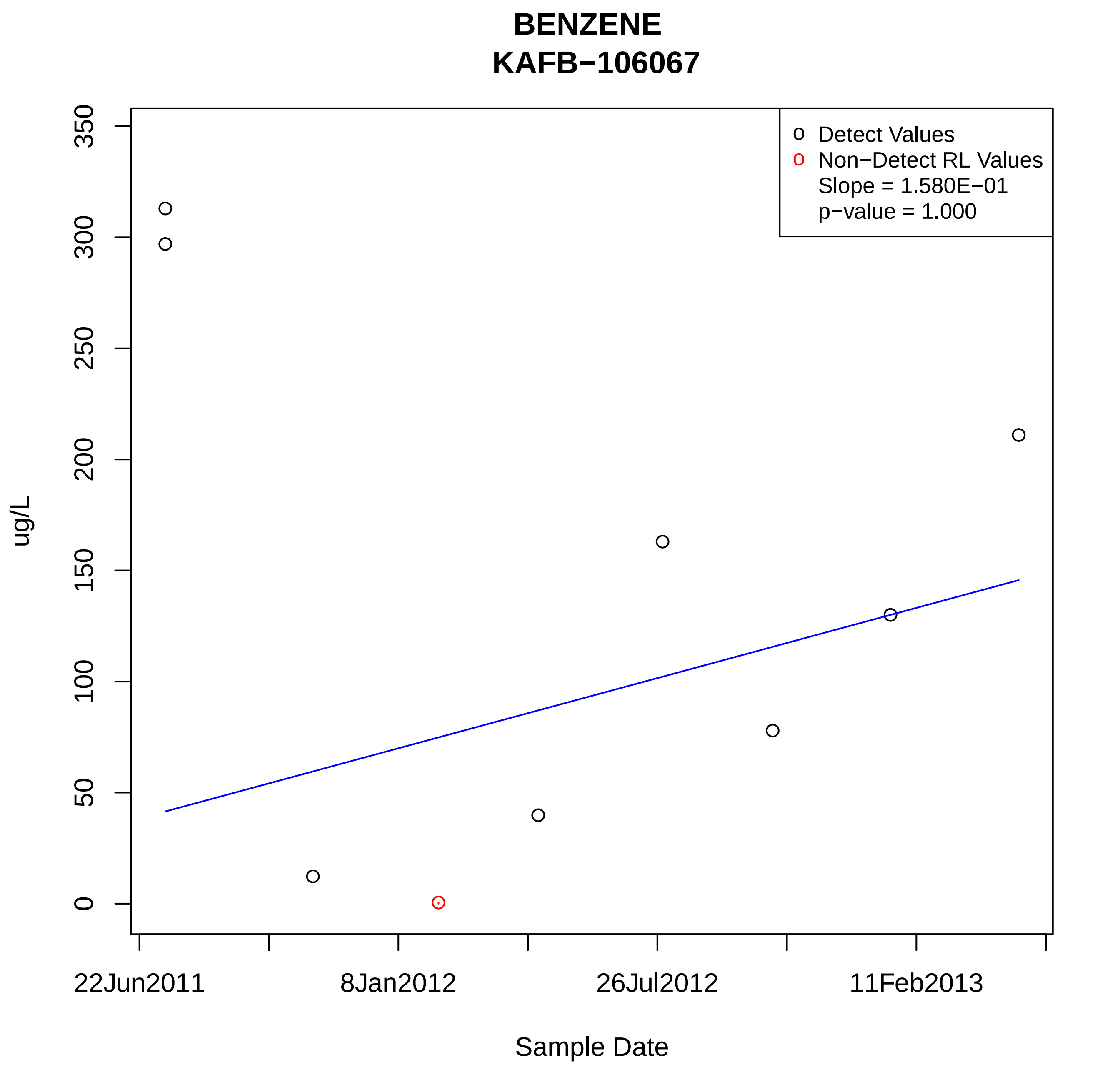

BENZENE
KAFB−106062
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



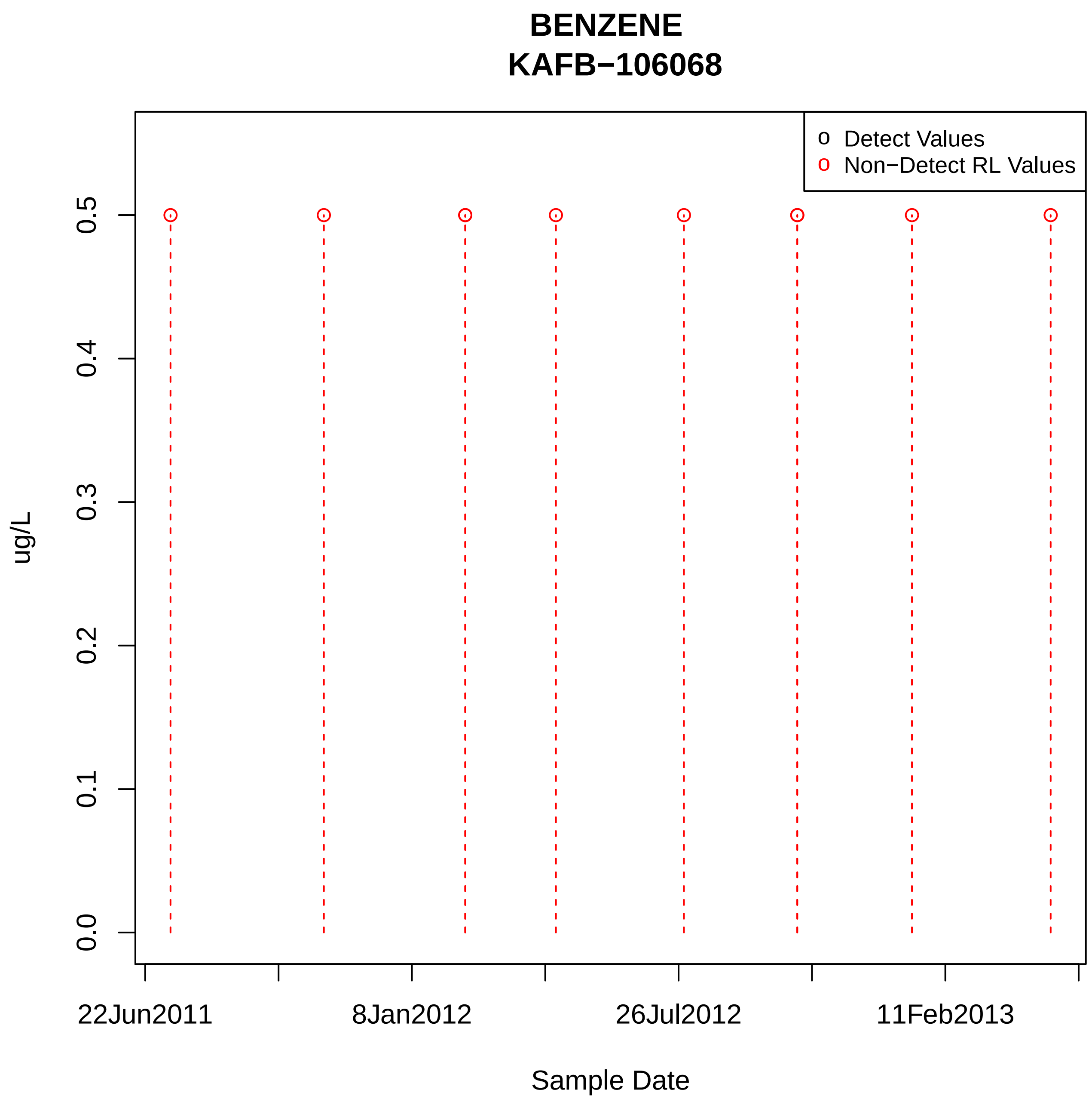
BENZENE
KAFB−106063
Detect Values
Non−Detect RL Values
Slope = 2.194E−03
p−value = 0.135
ug/L
0.0
0.2
0.4
0.6
0.8
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


BENZENE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −2.685E+00
p−value = 0.311
ug/L
0
500
1000
1500
2000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

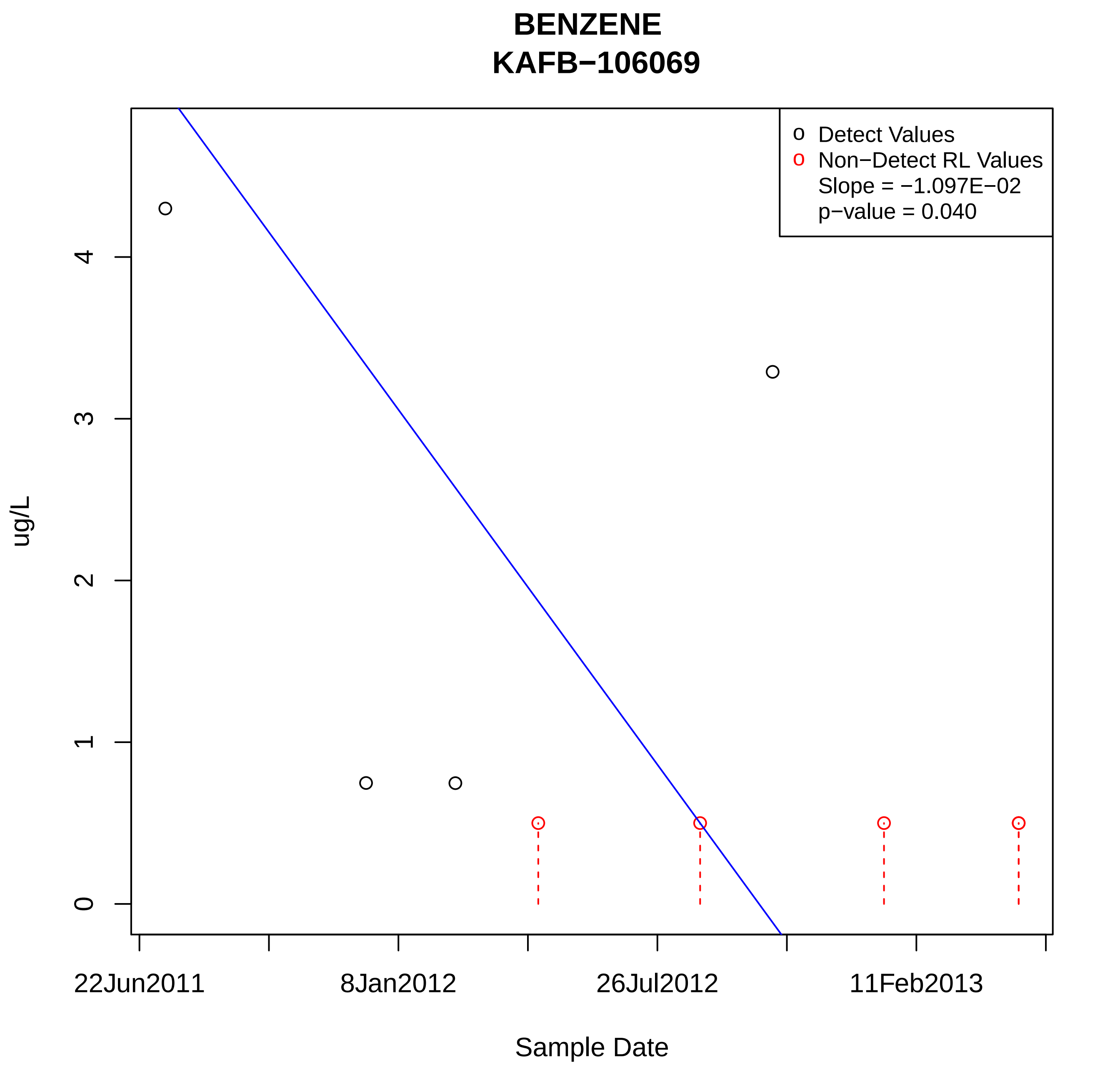

BENZENE
KAFB−106066
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

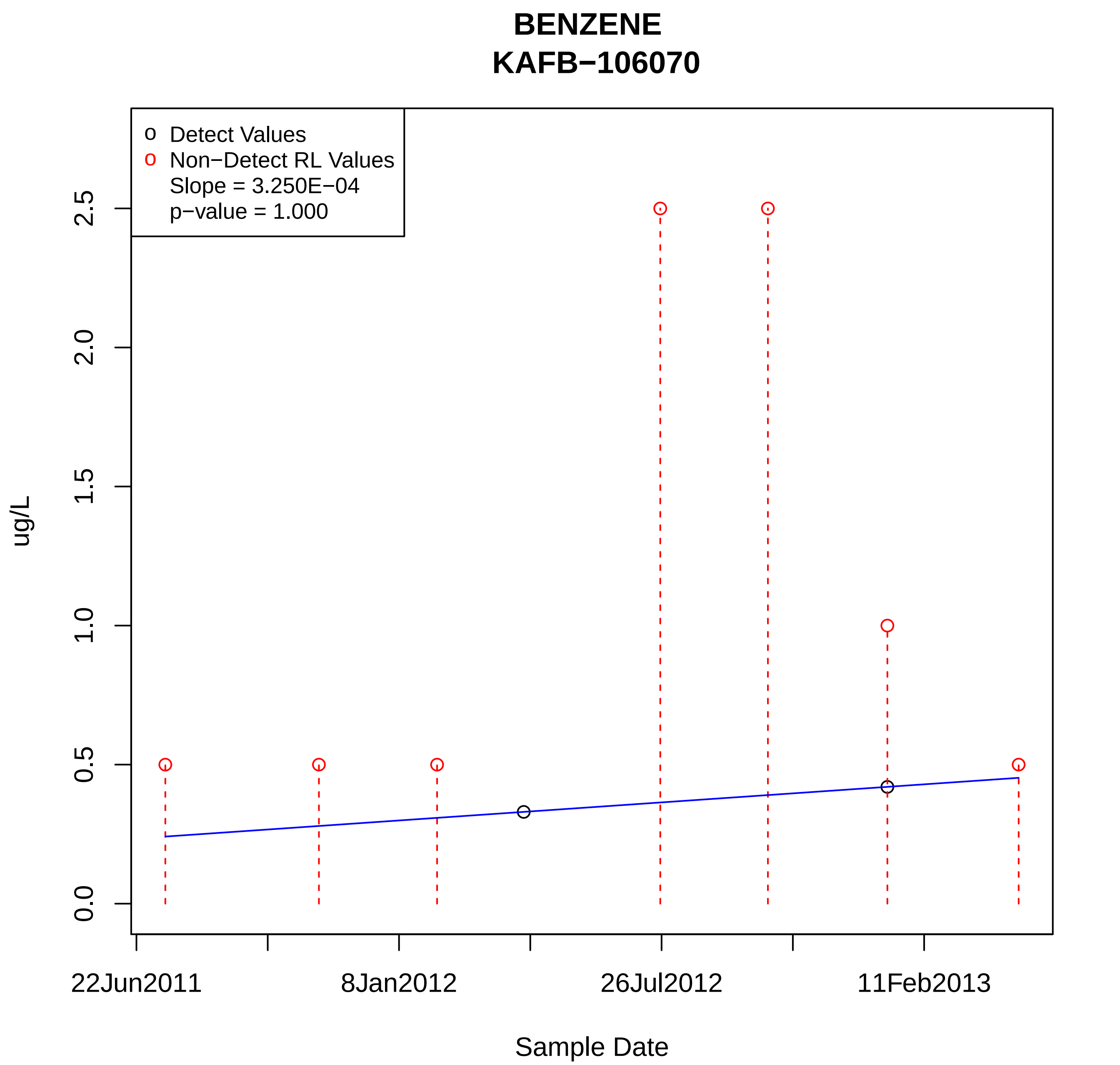


BENZENE
KAFB−106067
o Detect Values
o Non−Detect RL Values
Slope = 1.580E−01
p−value = 1.000
ug/L
0
50
100
150
200
250
300
350
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

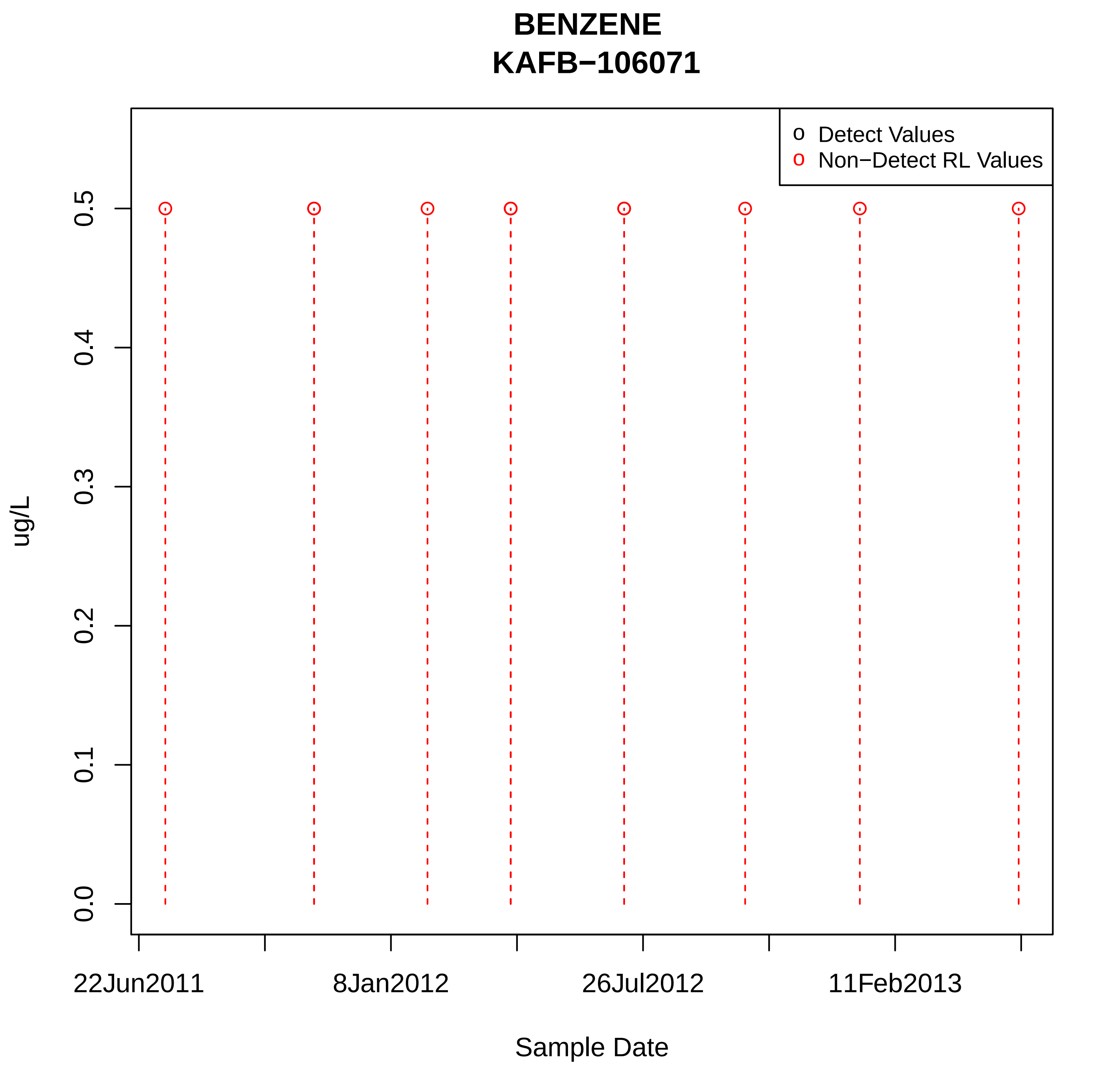


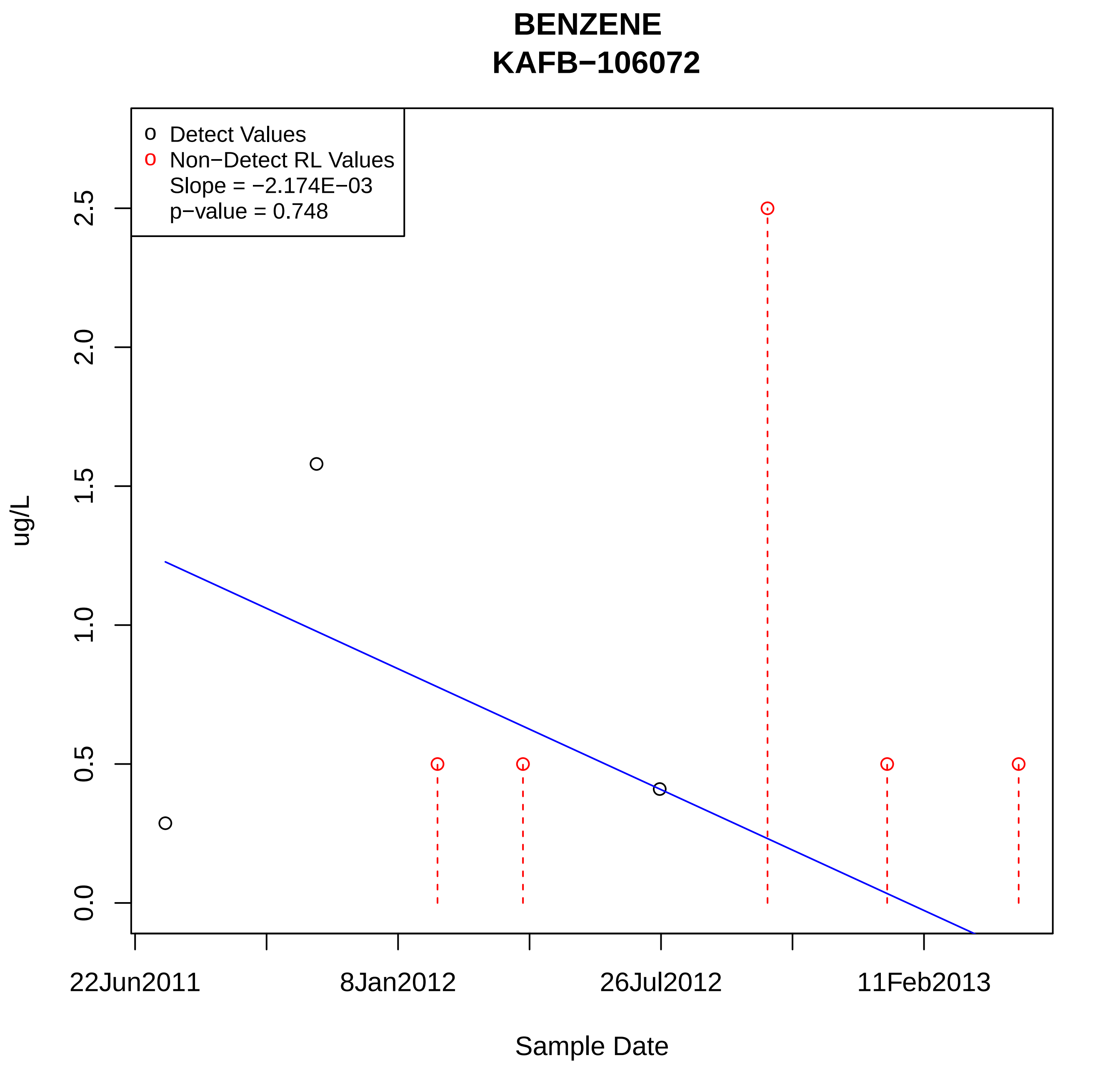
BENZENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

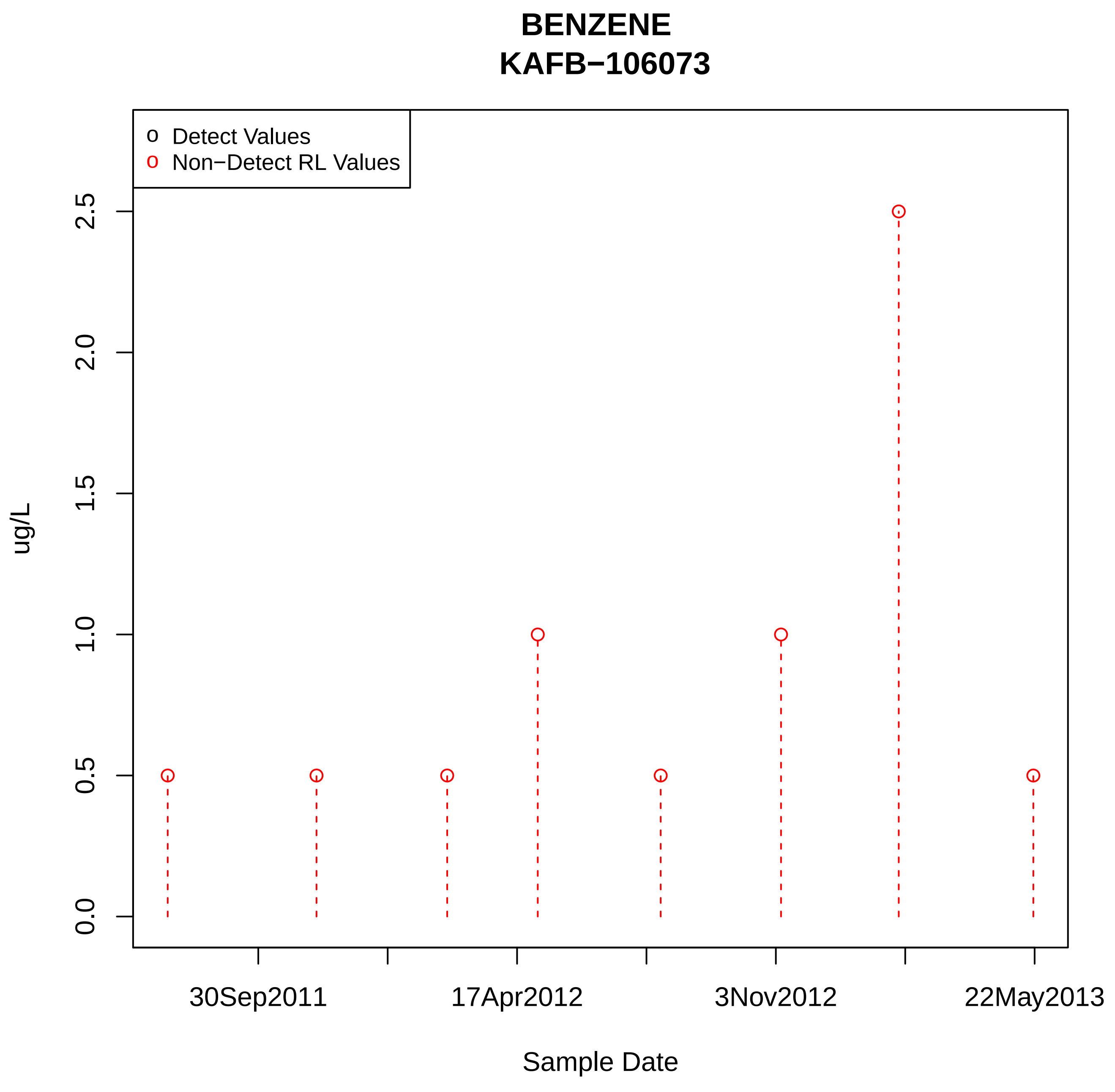

BENZENE
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = −1.097E−02
p−value = 0.040
ug/L
0
1
2
3
4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

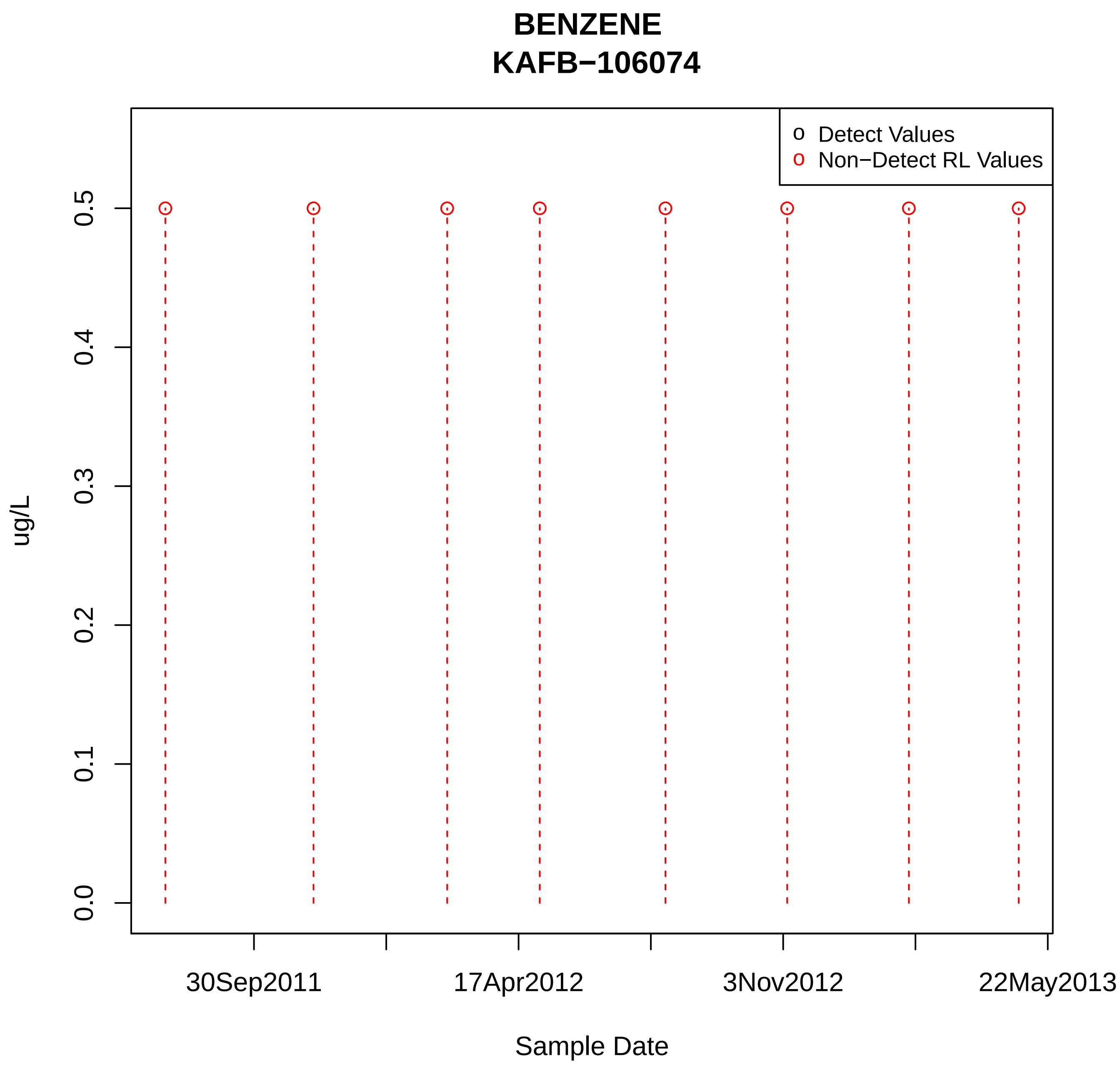


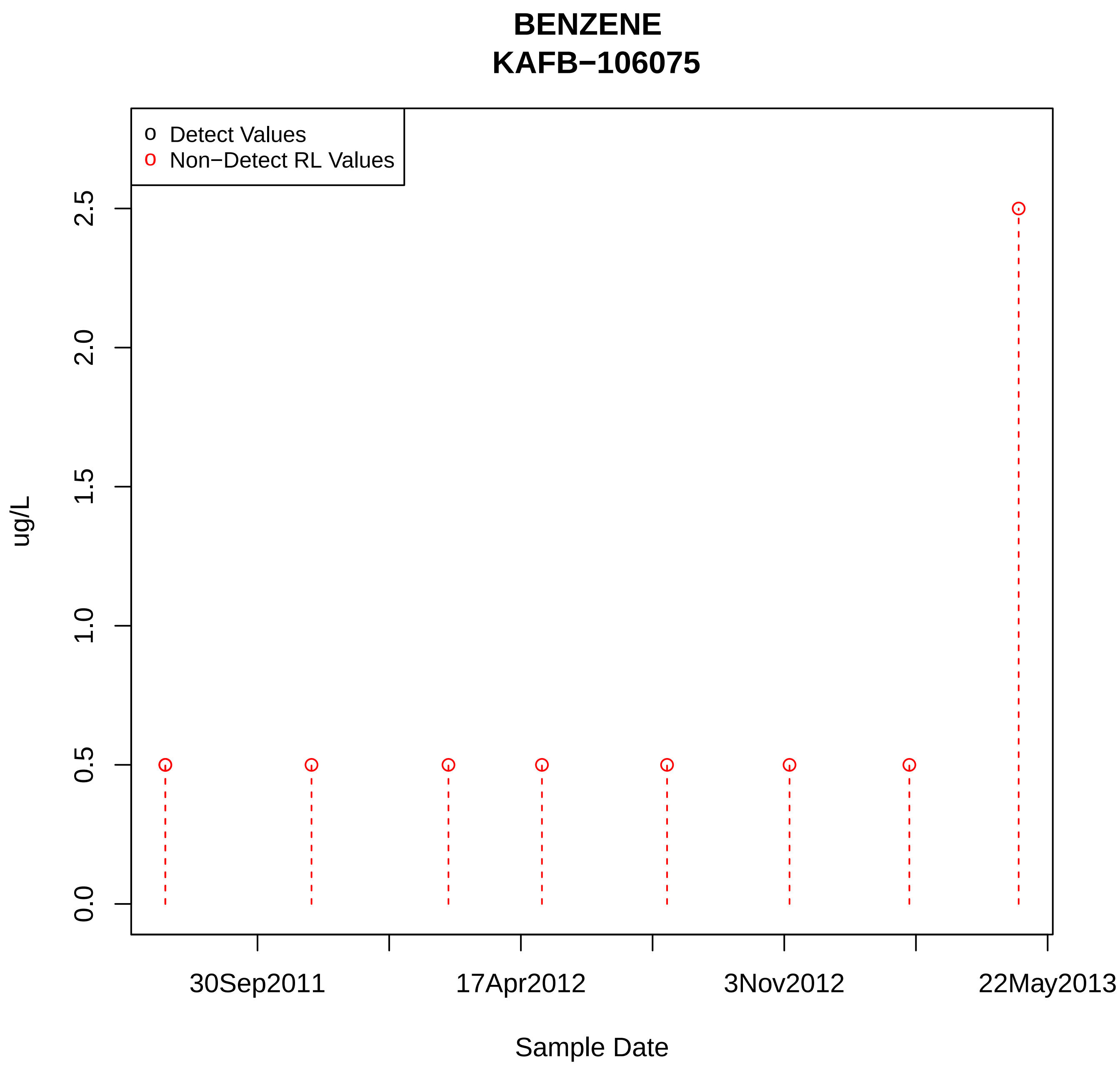
BENZENE
KAFB−106070
o Detect Values
o Non−Detect RL Values
Slope = 3.250E−04
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

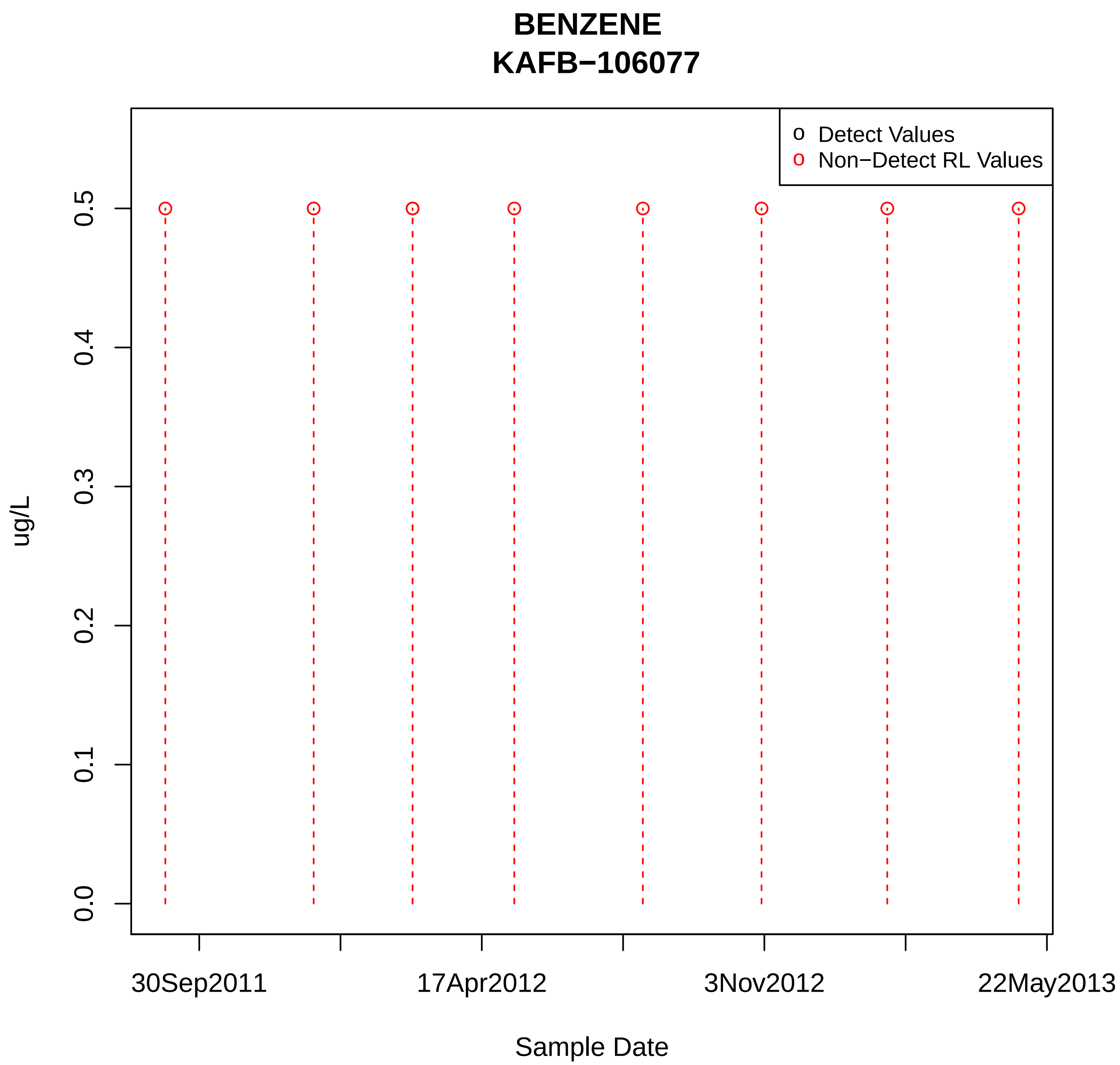

BENZENE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

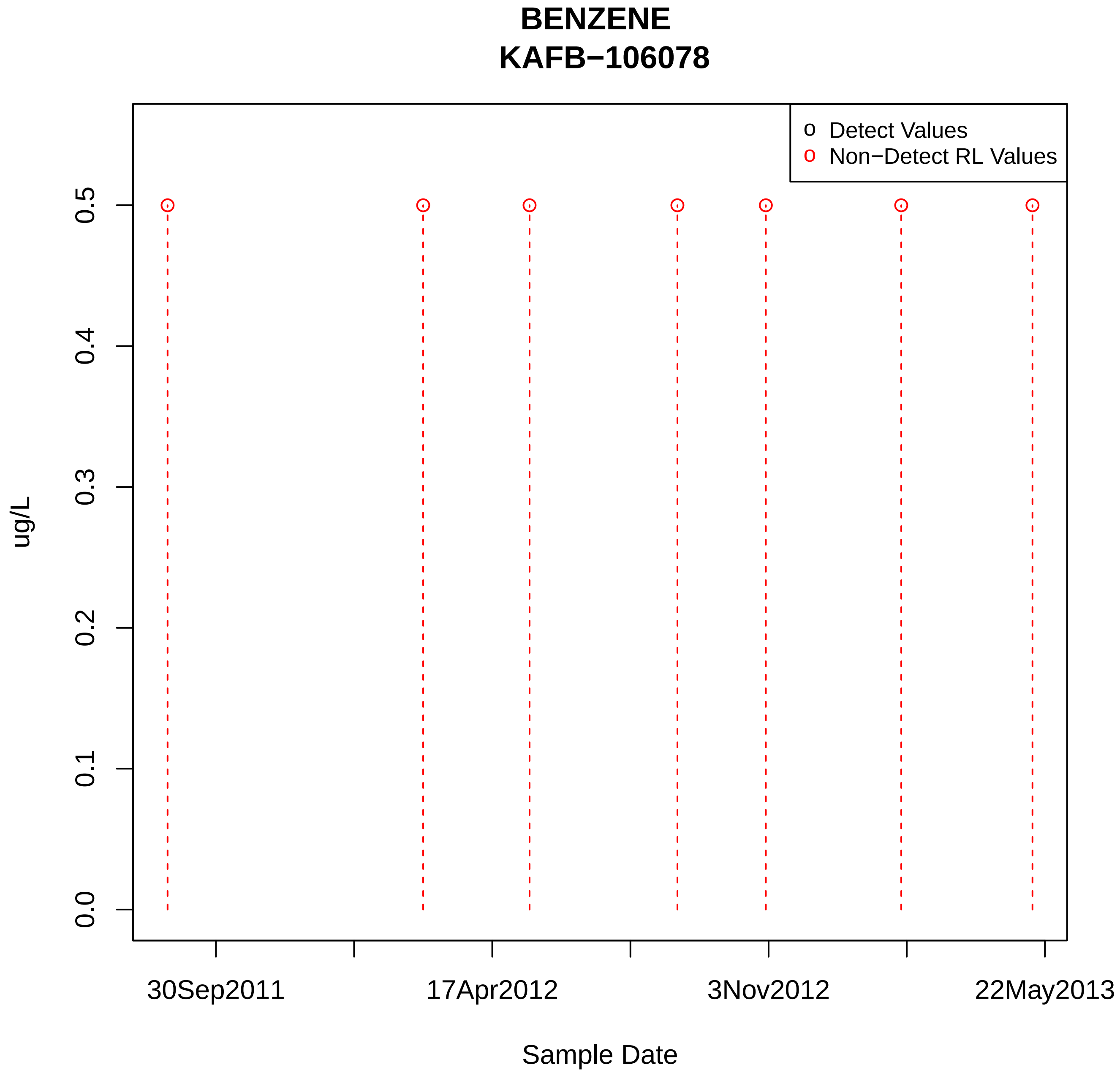

BENZENE
KAFB−106072
o Detect Values
o Non−Detect RL Values
Slope = −2.174E−03
p−value = 0.748
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


BENZENE
KAFB−106073
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

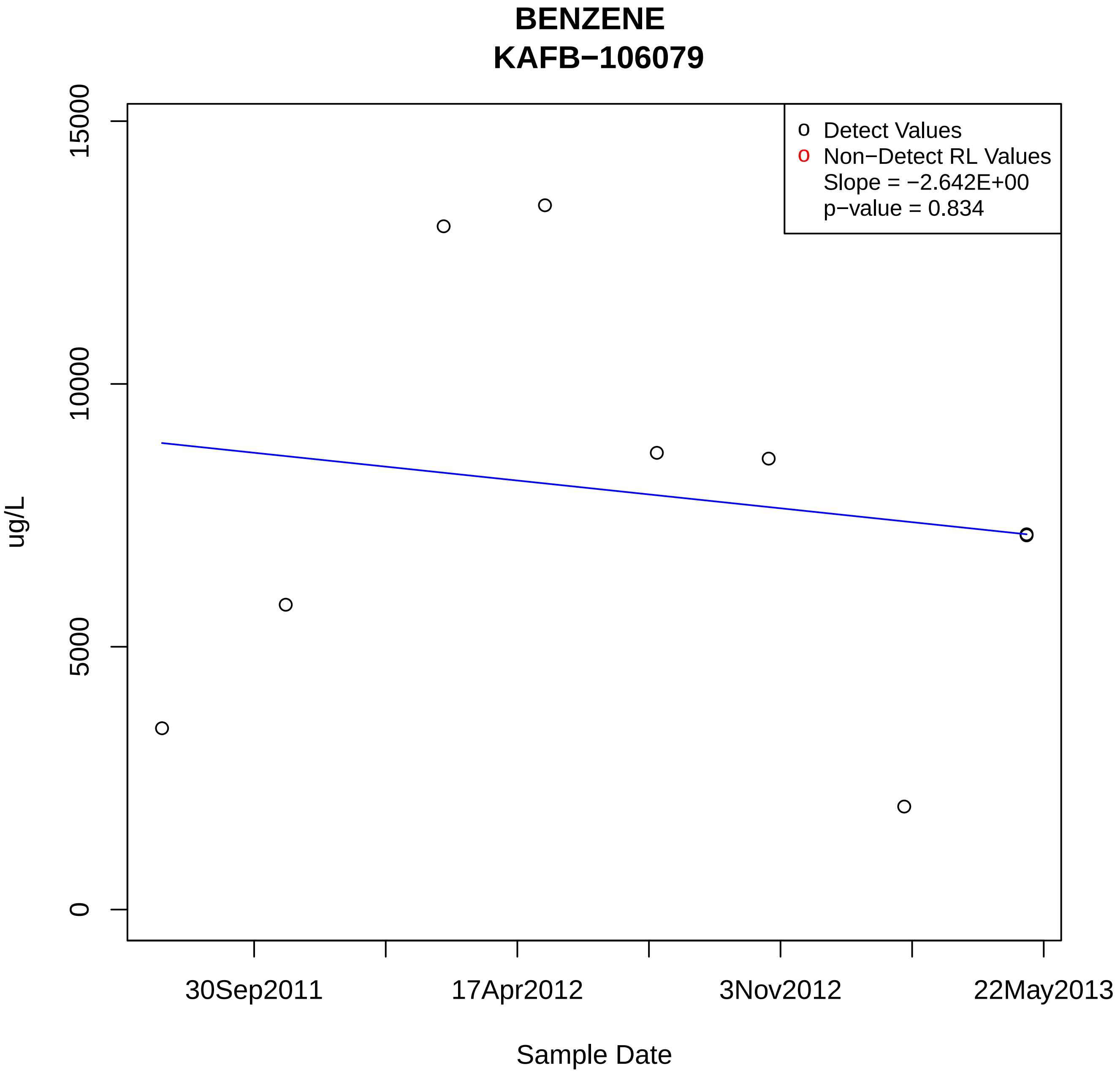

BENZENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


BENZENE
KAFB−106075
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

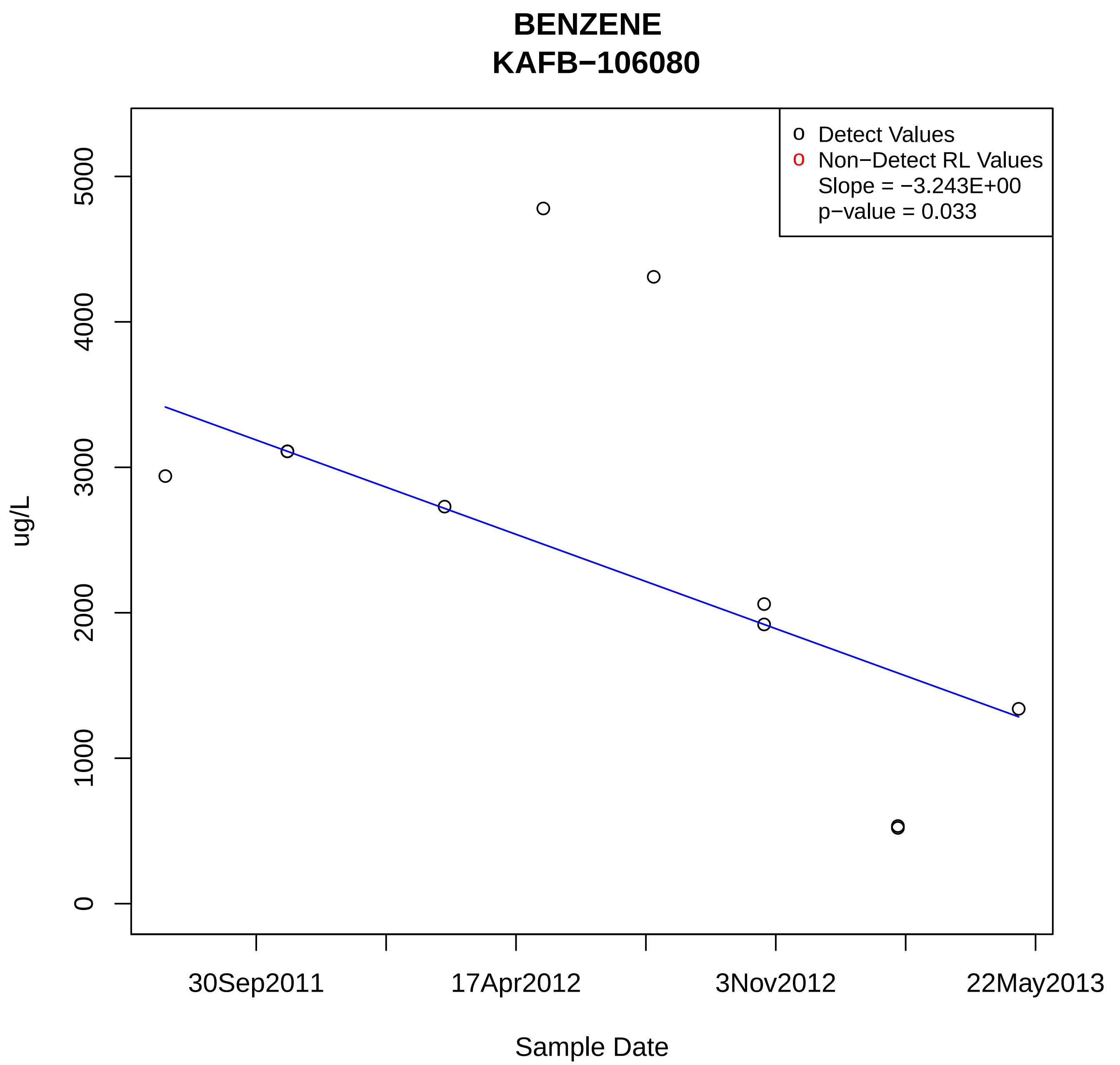

BENZENE
KAFB−106077
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



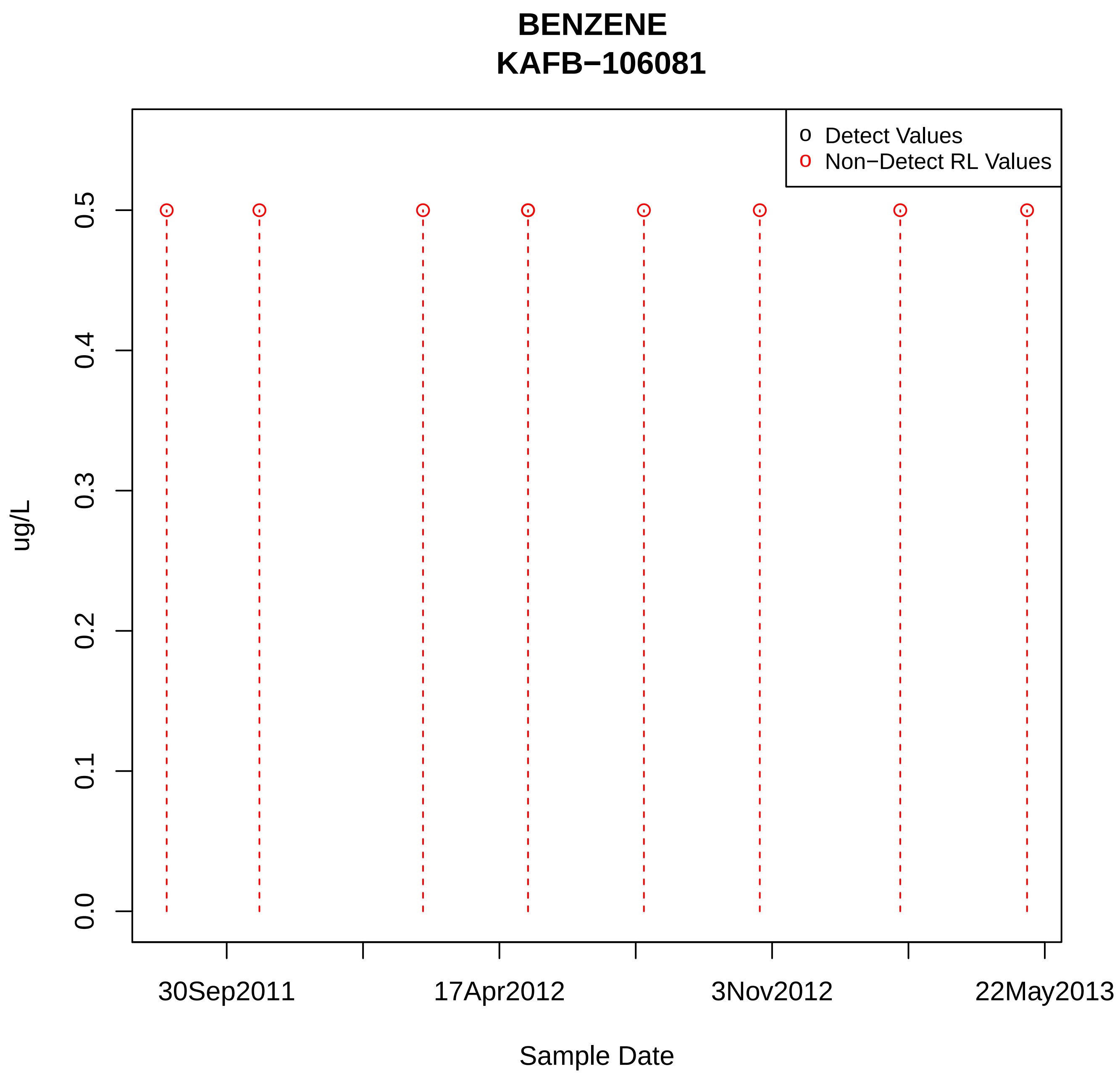
BENZENE
KAFB−106078
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



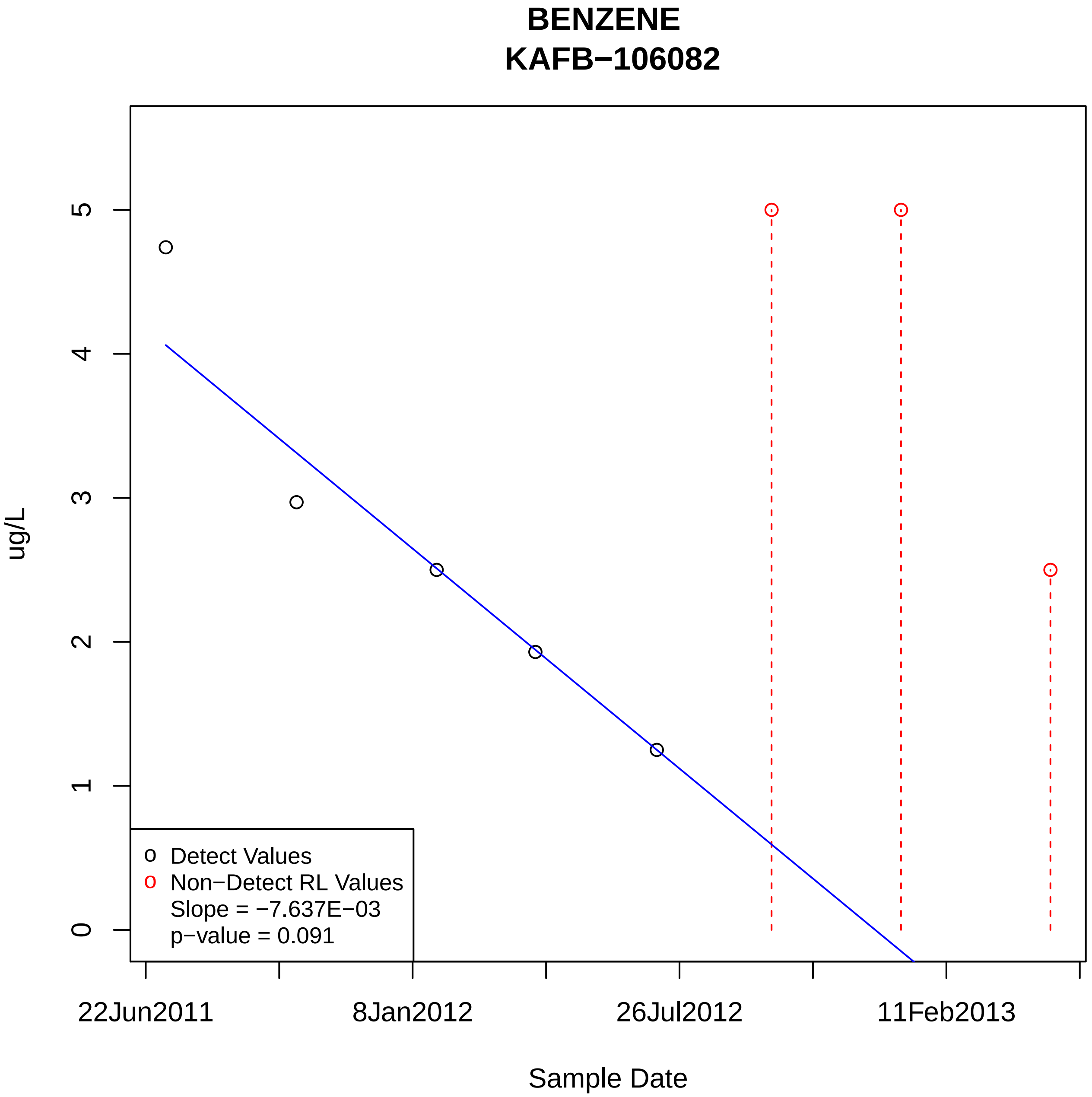
BENZENE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −2.642E+00
p−value = 0.834
15000
10000
5000
0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



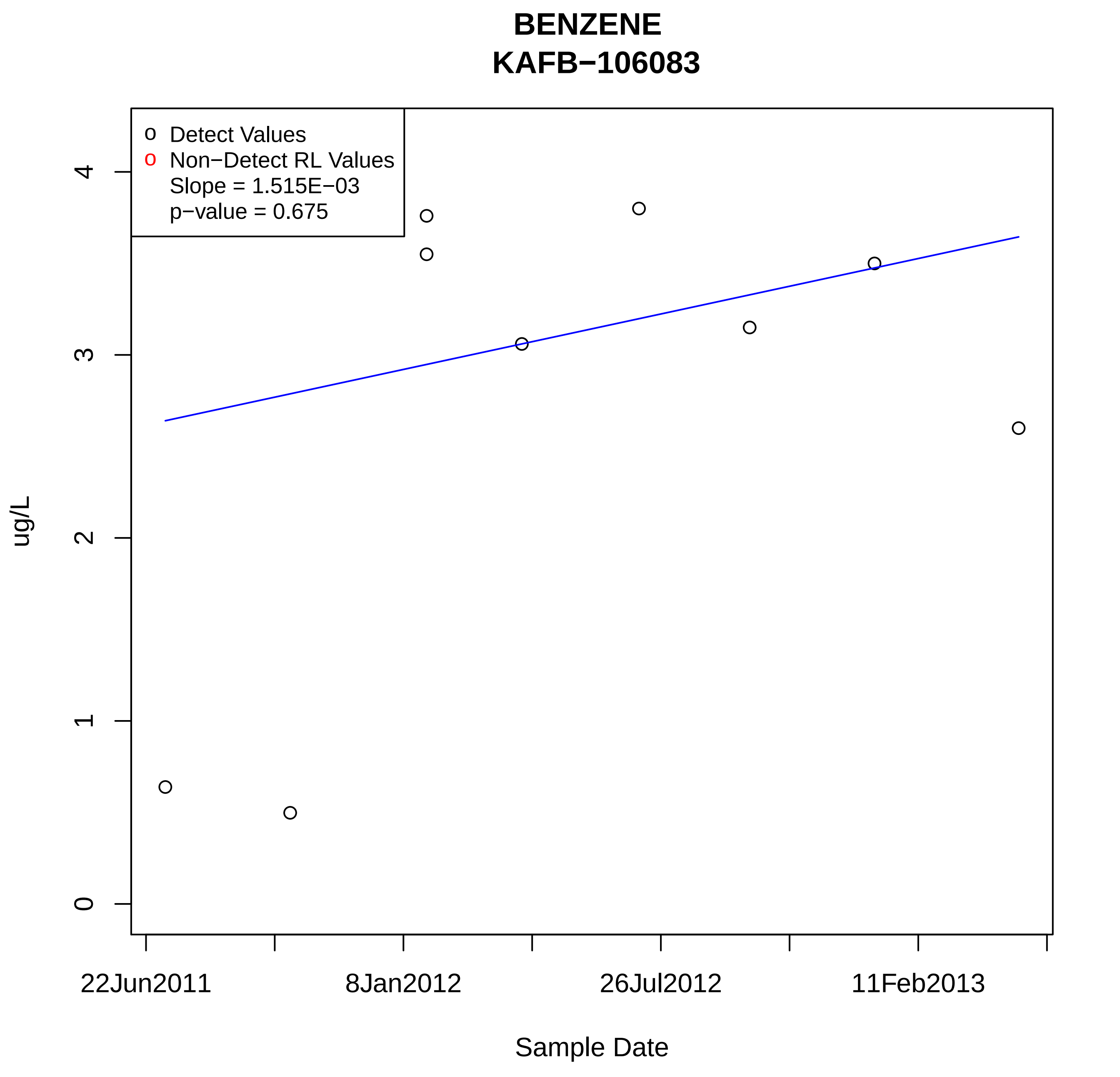
BENZENE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −3.243E+00
p−value = 0.033
ug/L
0
1000
2000
3000
4000
5000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



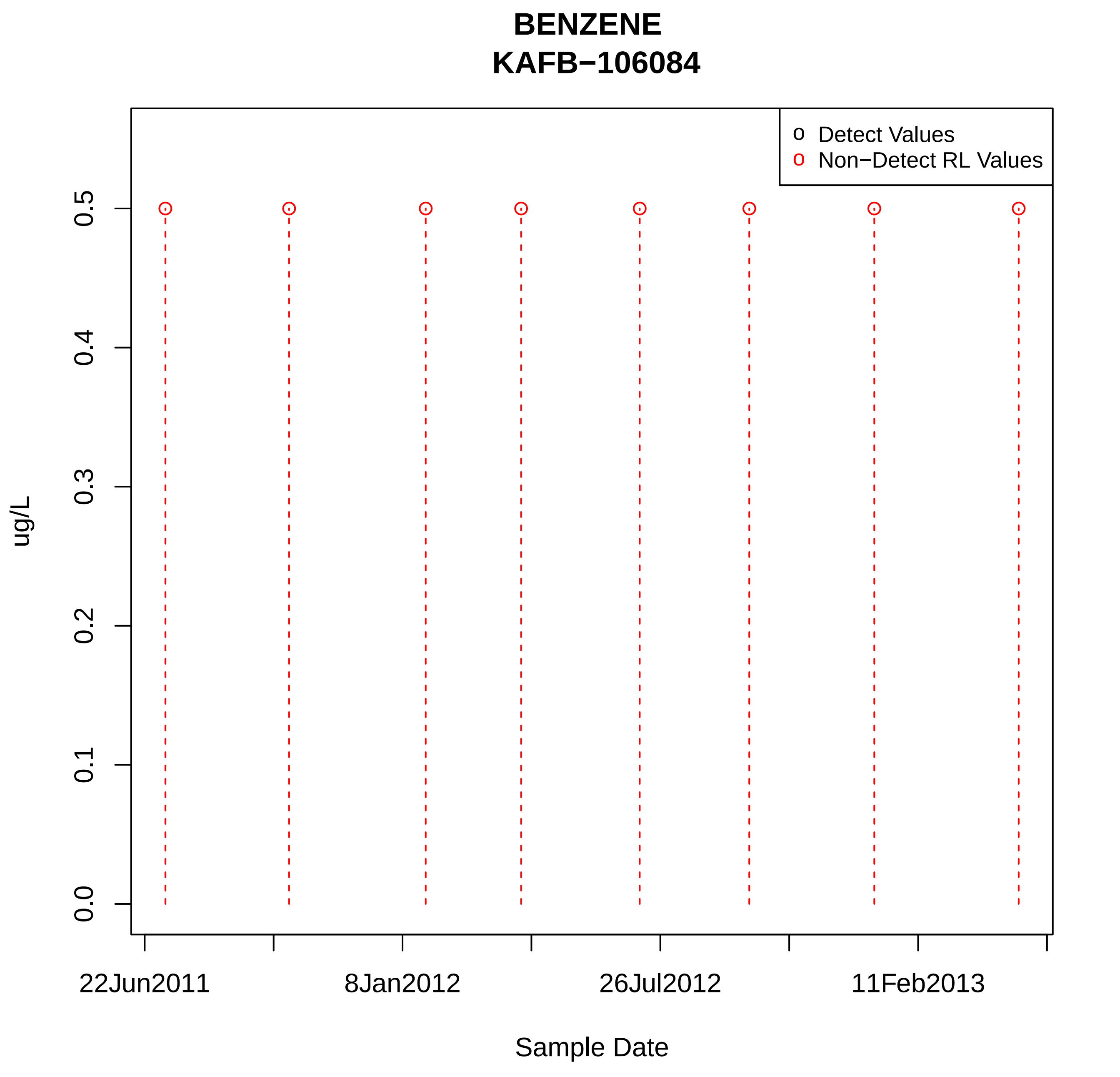
BENZENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

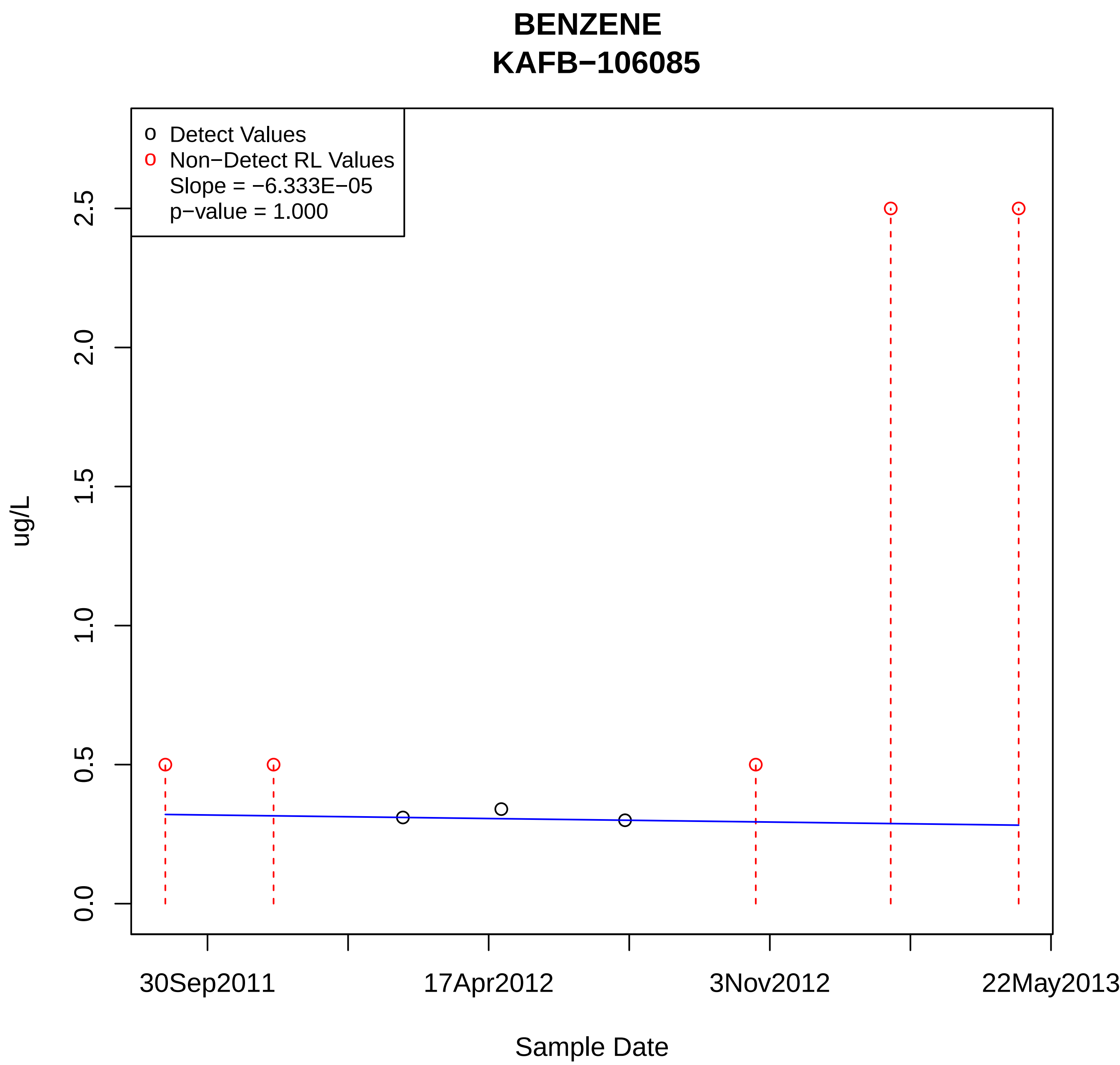


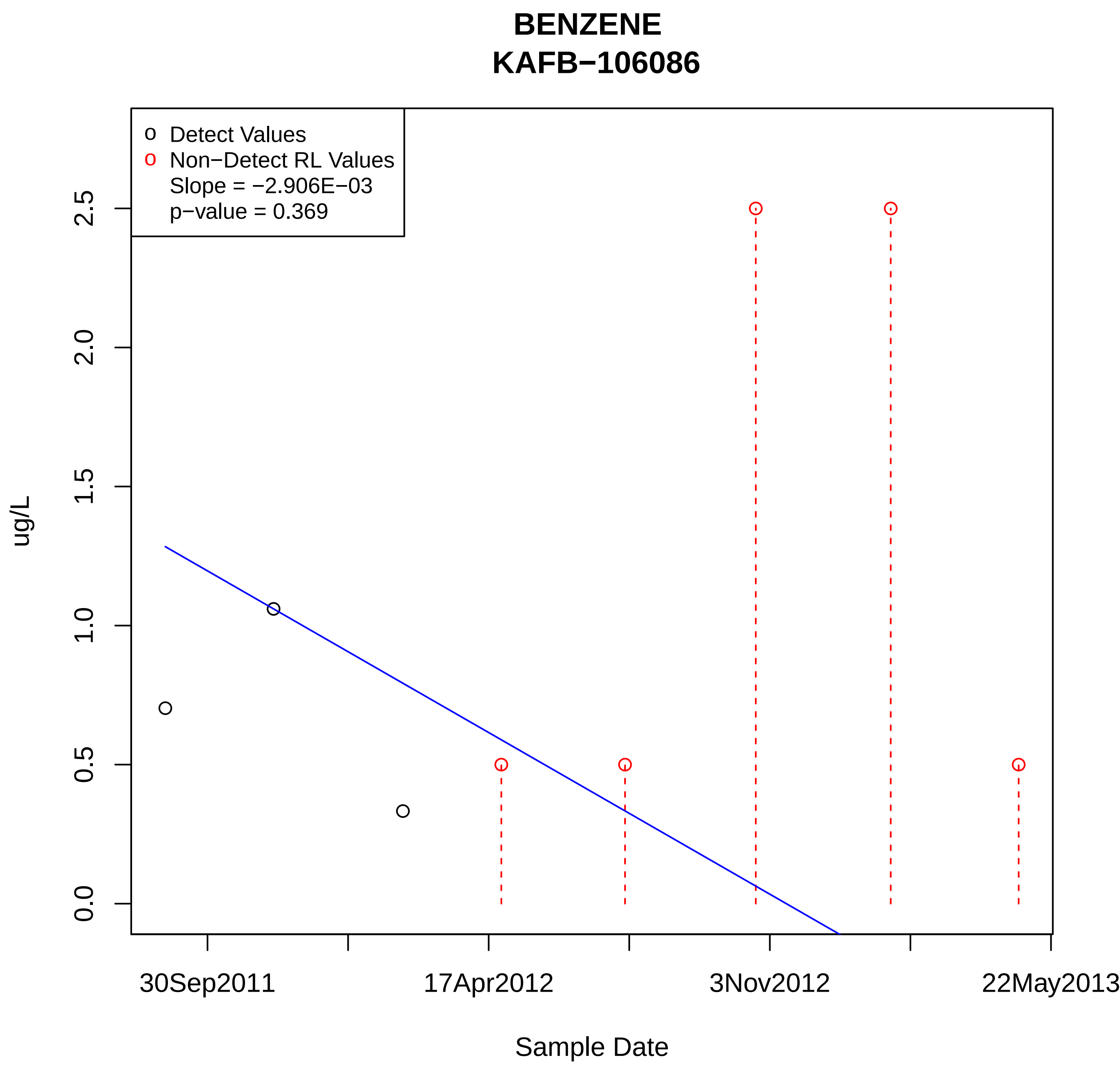
BENZENE
KAFB−106082
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −7.637E−03
p−value = 0.091

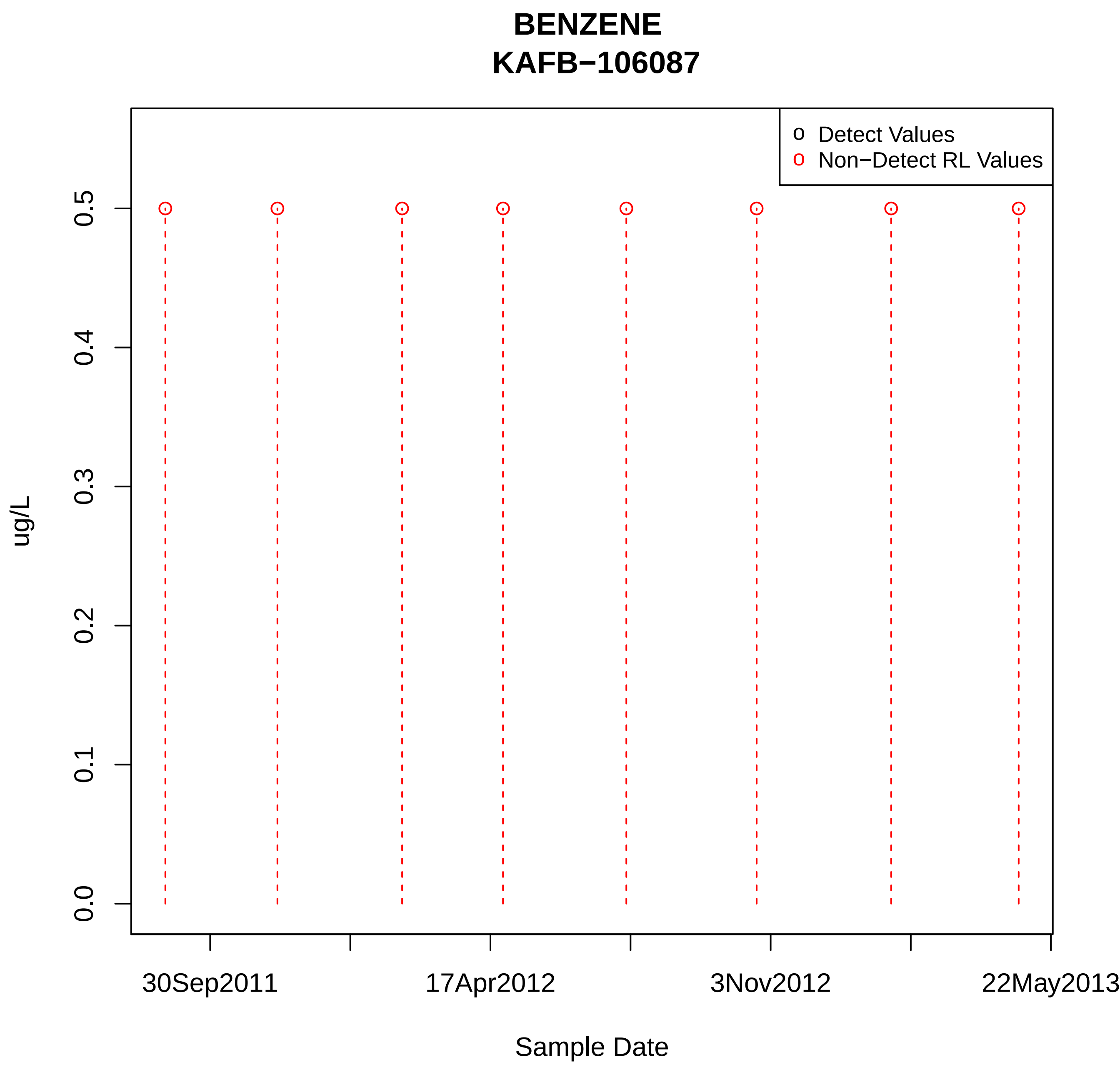


BENZENE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 1.515E−03
p−value = 0.675
ug/L
0
1
2
3
4
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

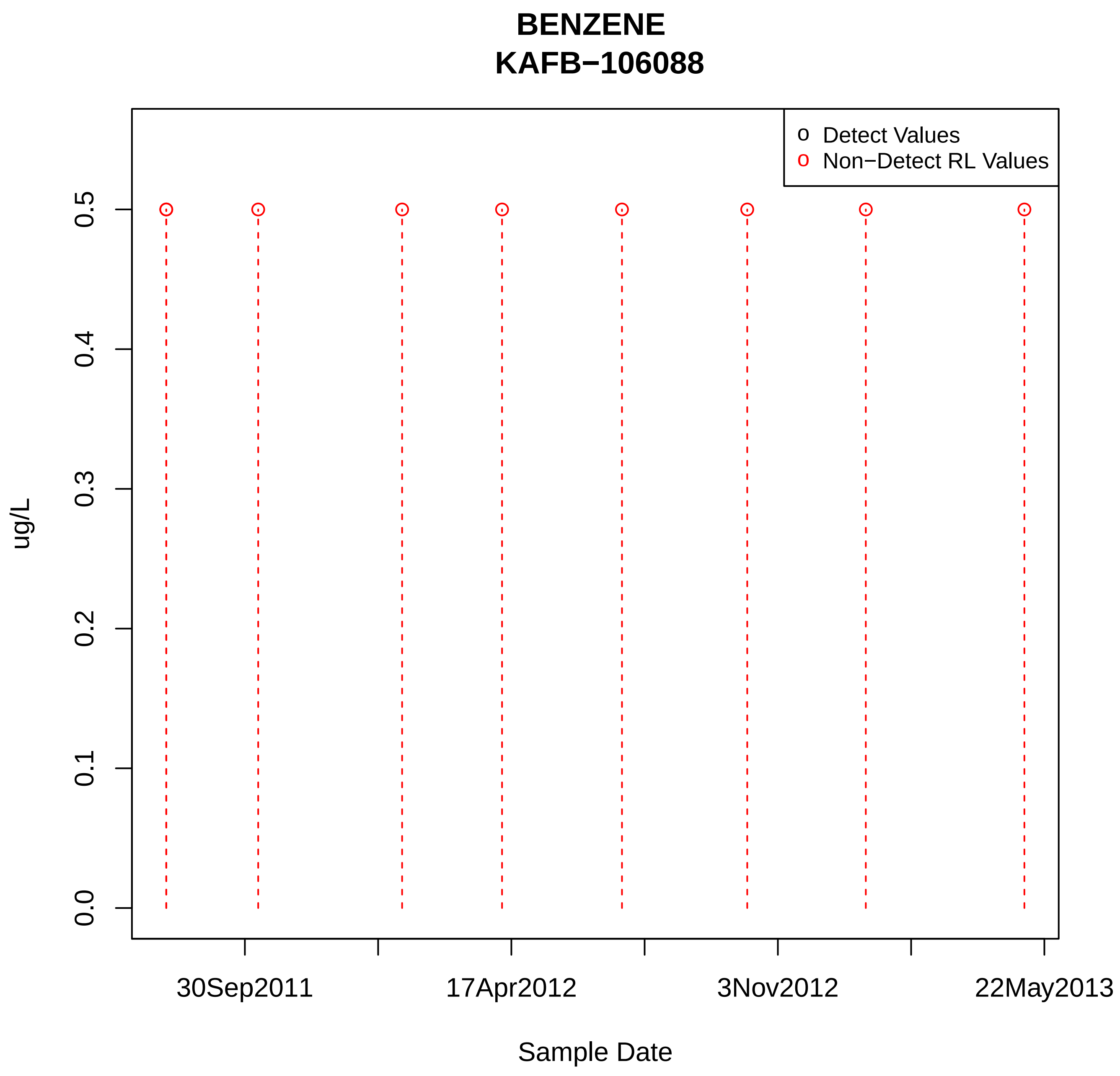

BENZENE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

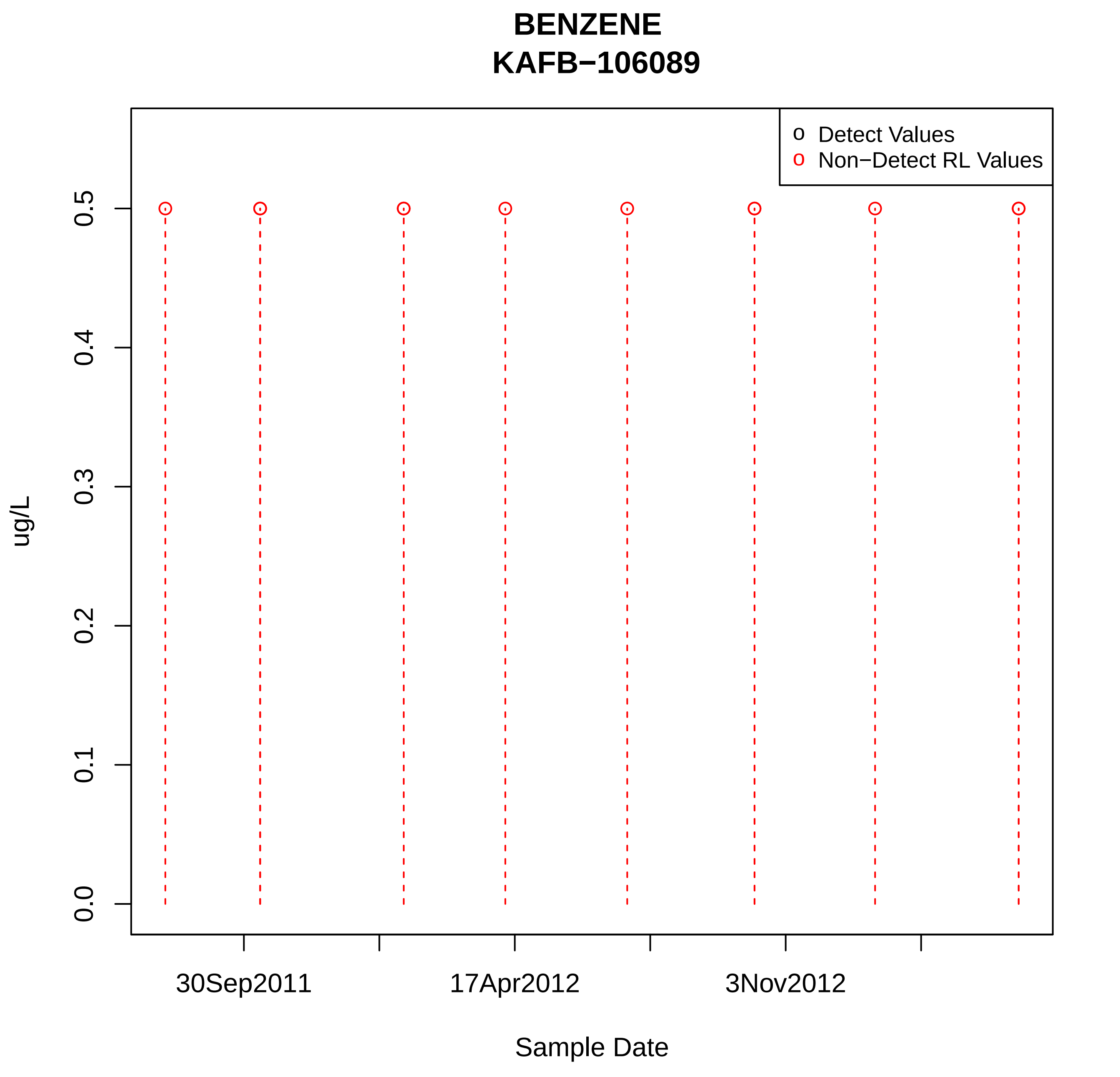

BENZENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
Slope = −6.333E−05
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


BENZENE
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = −2.906E−03
p−value = 0.369
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

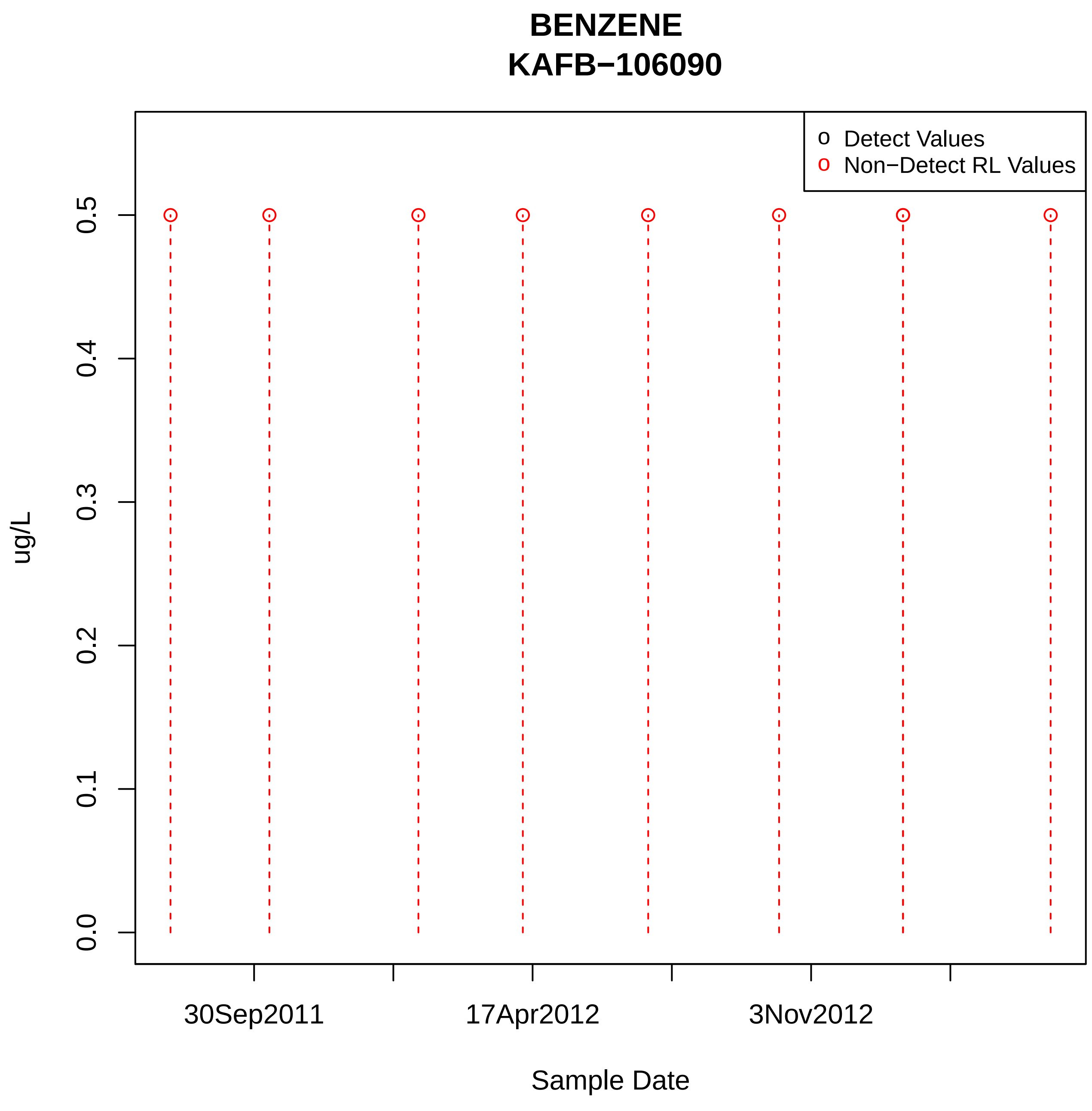


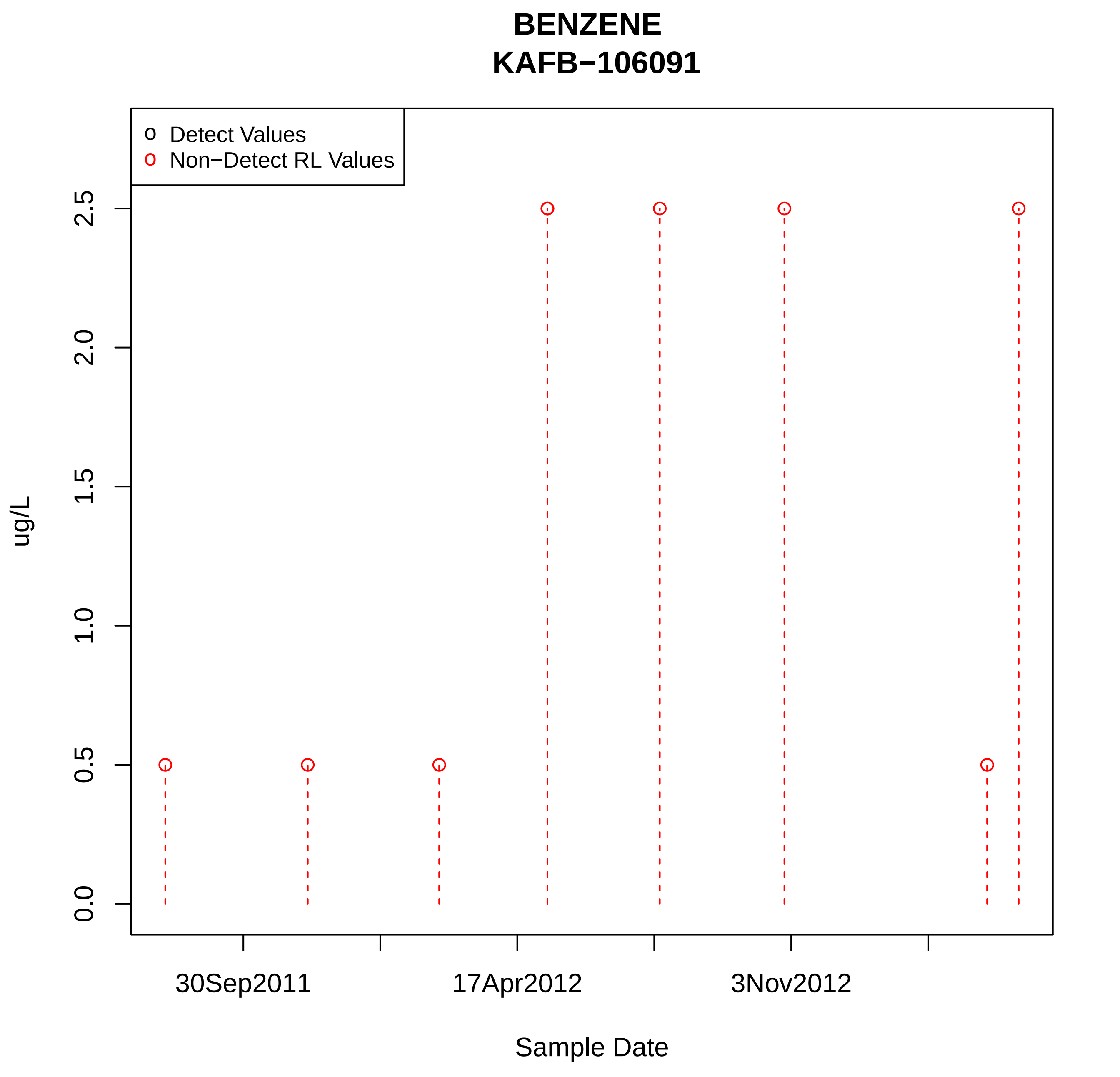
BENZENE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


BENZENE
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

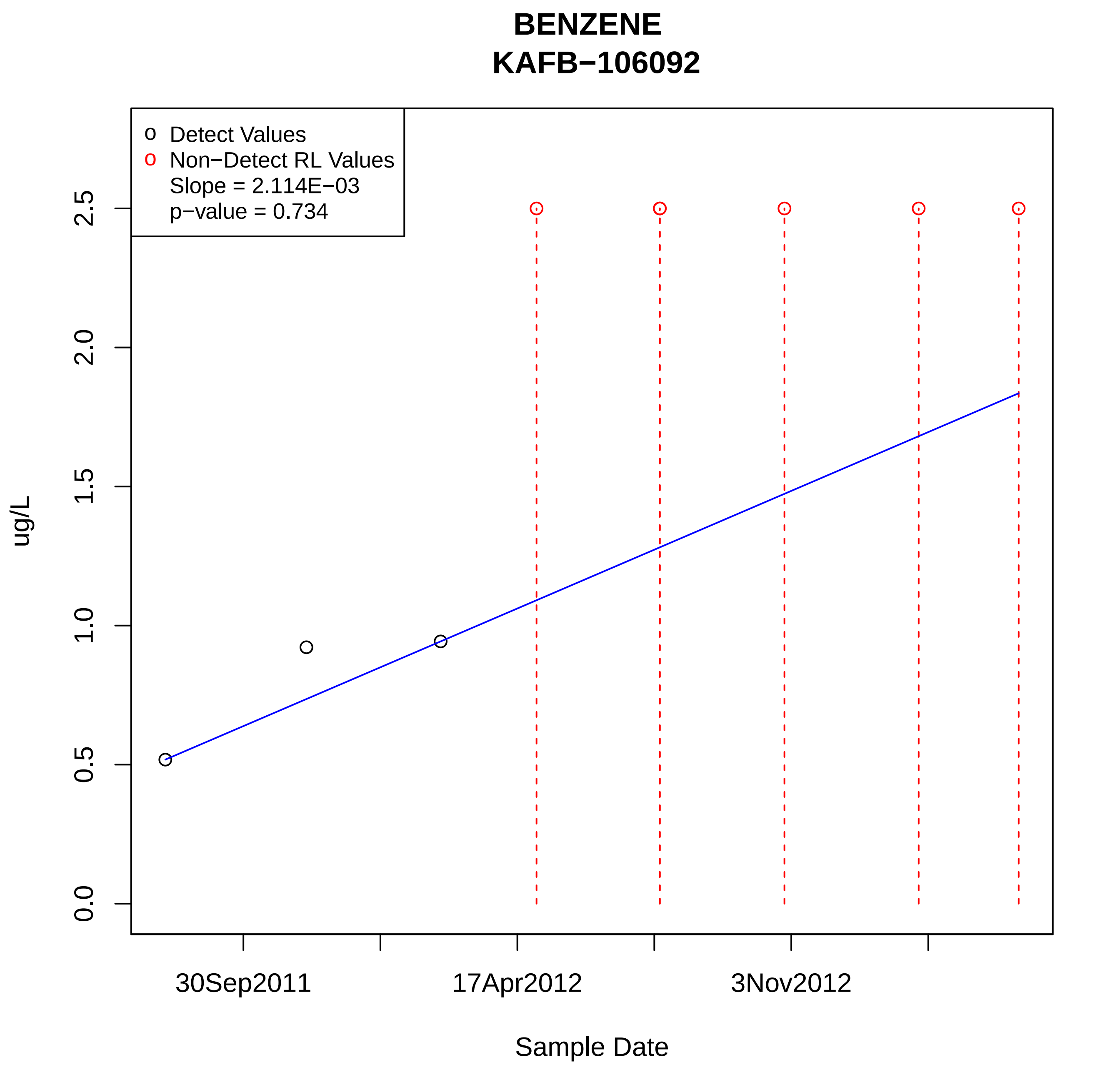


BENZENE
KAFB−106089
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

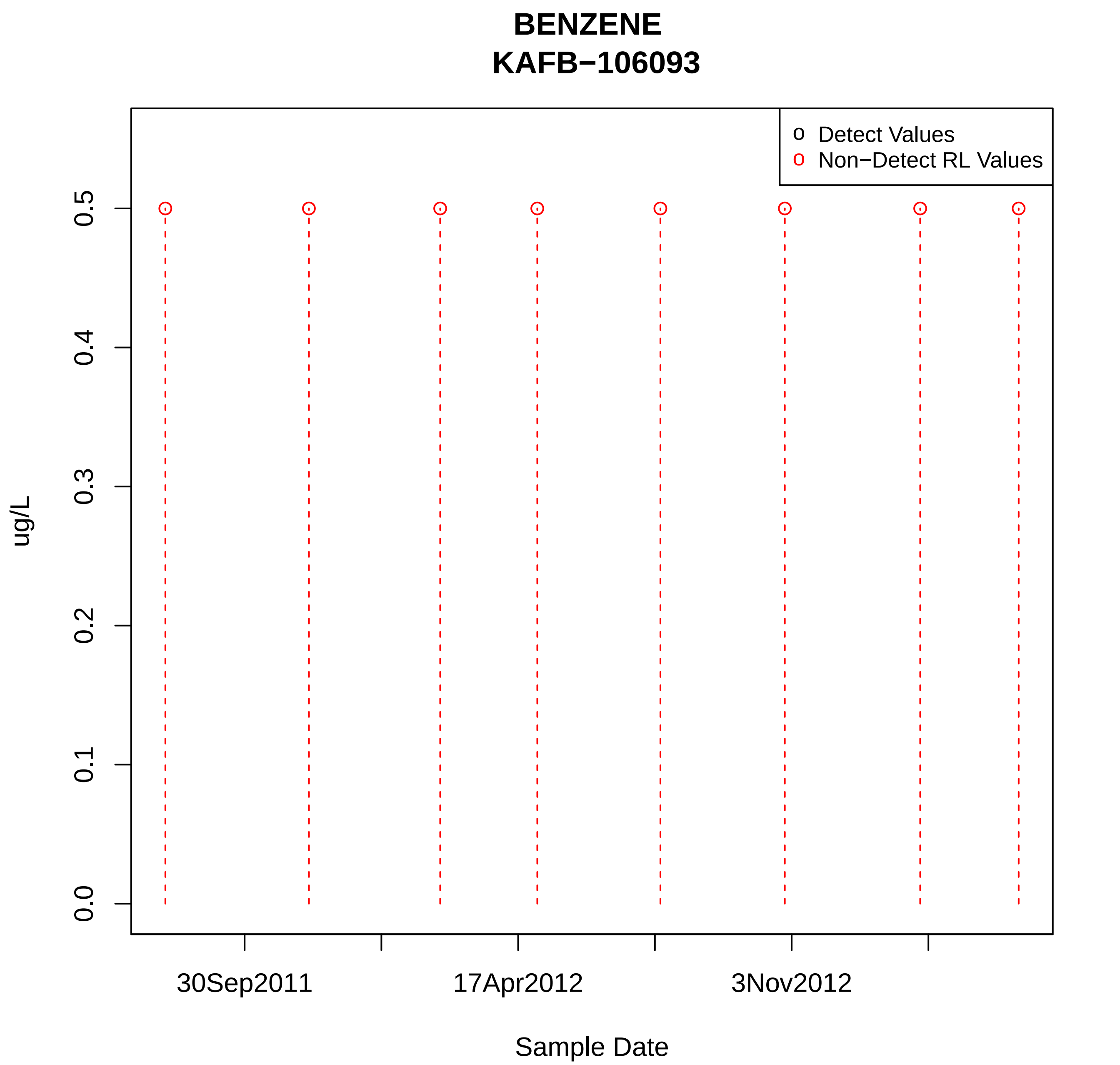

BENZENE
KAFB−106090
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

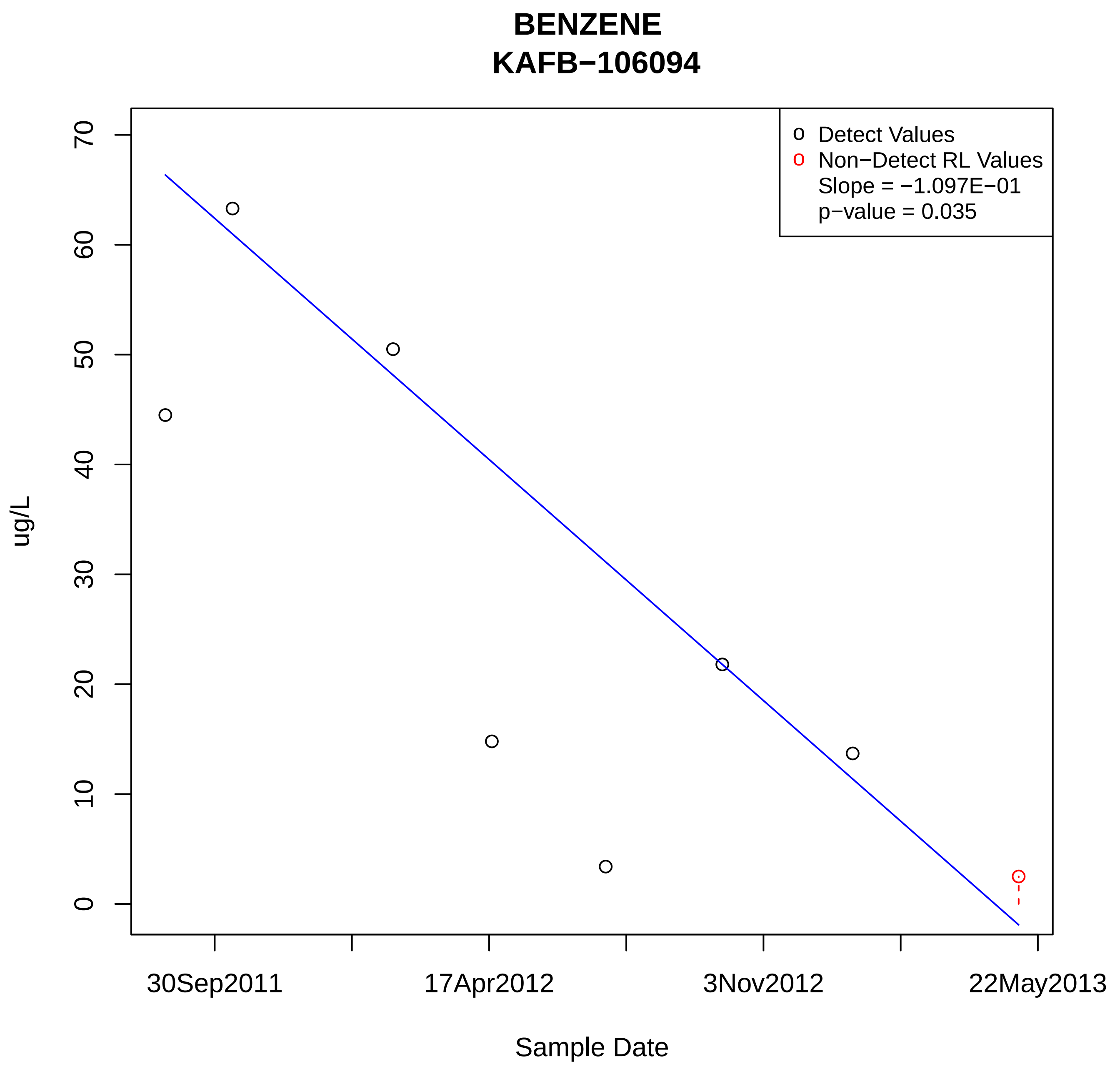


BENZENE
KAFB−106091
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

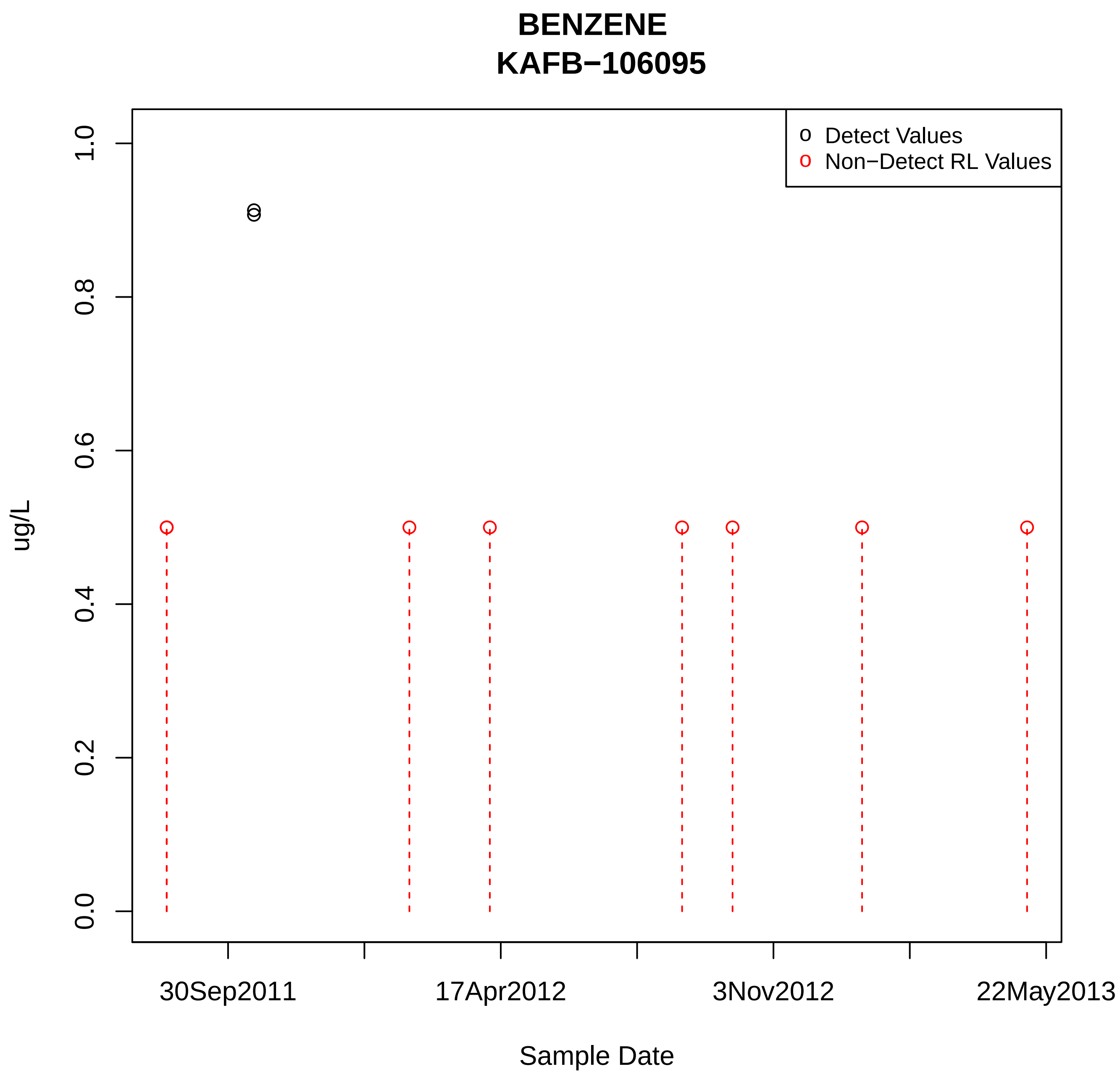


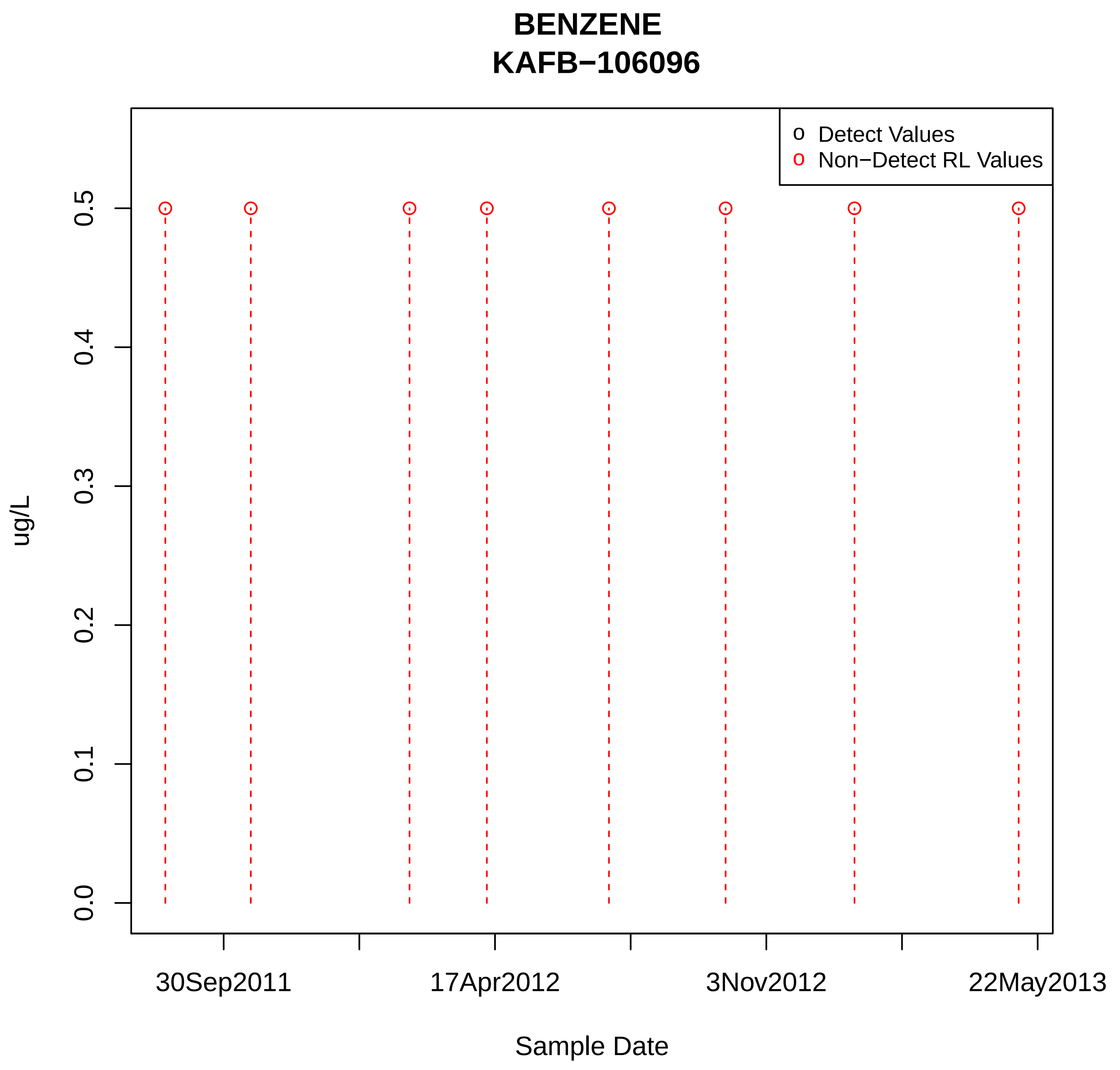
BENZENE
KAFB−106092
o Detect Values
o Non−Detect RL Values
Slope = 2.114E−03
p−value = 0.734
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

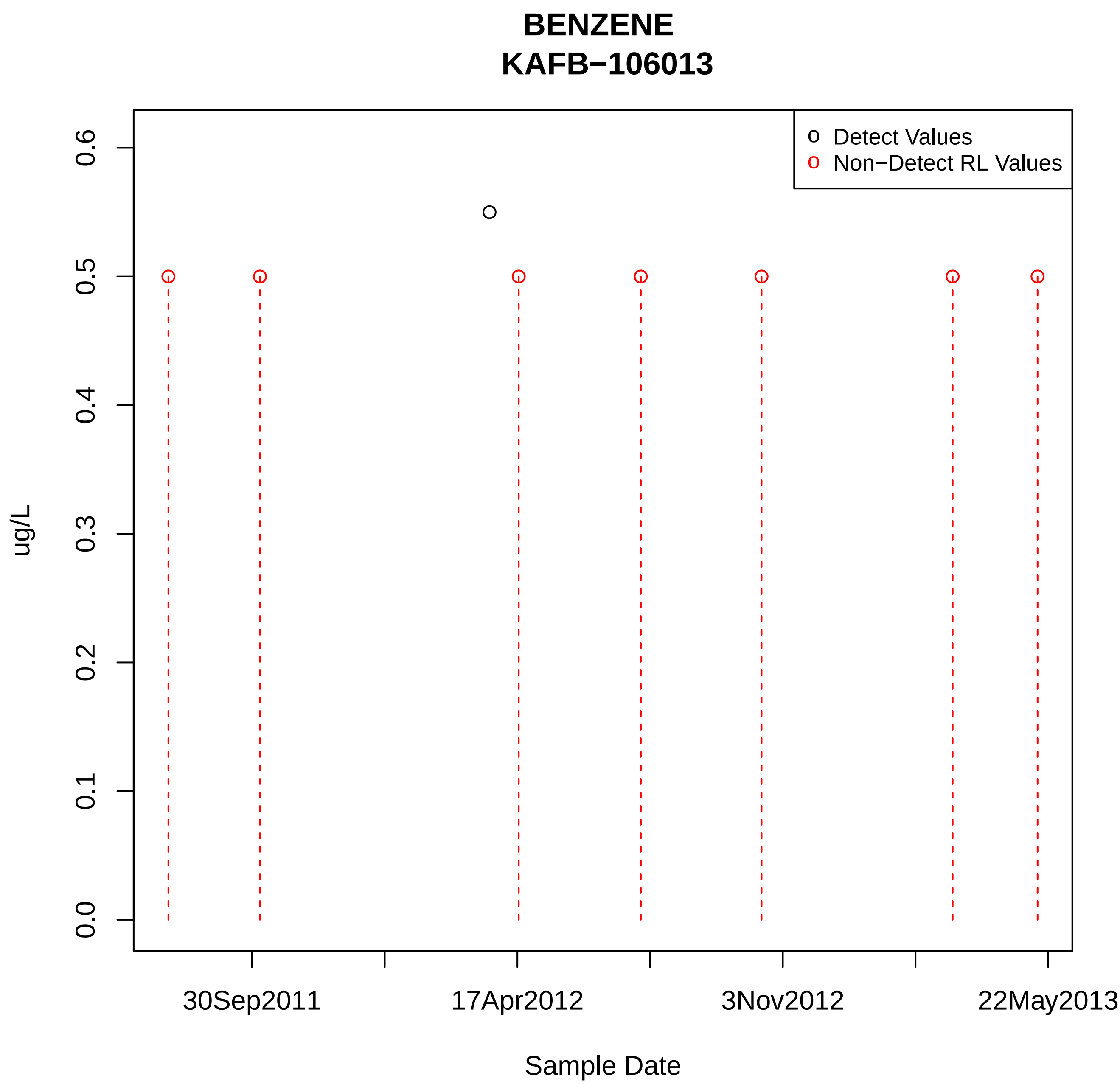

BENZENE
KAFB−106093
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

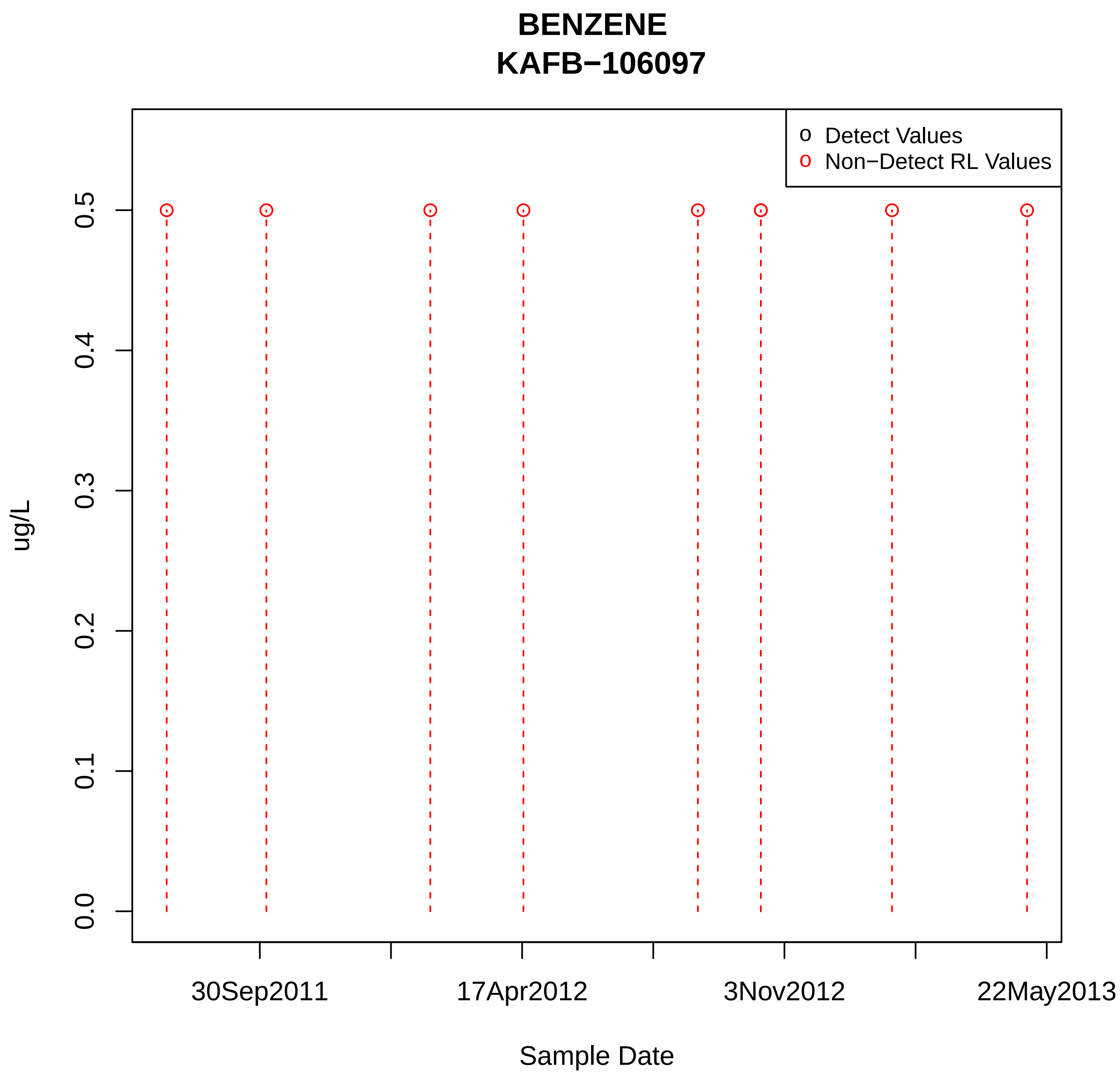


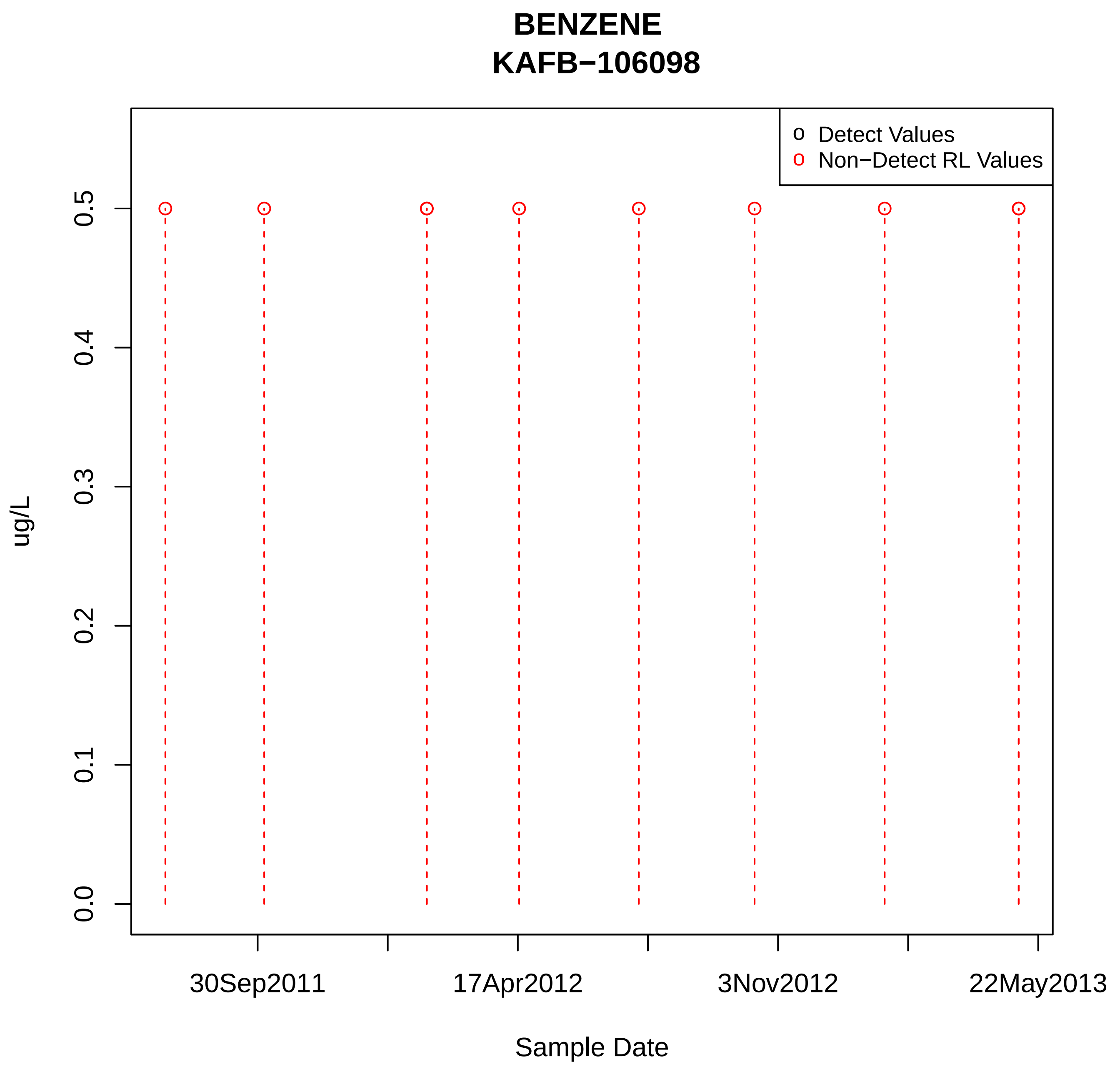
BENZENE
KAFB−106094
o Detect Values
o Non−Detect RL Values
Slope = −1.097E−01
p−value = 0.035
ug/L
0
10
20
30
40
50
60
70
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


BENZENE
KAFB−106095
Detect Values
Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

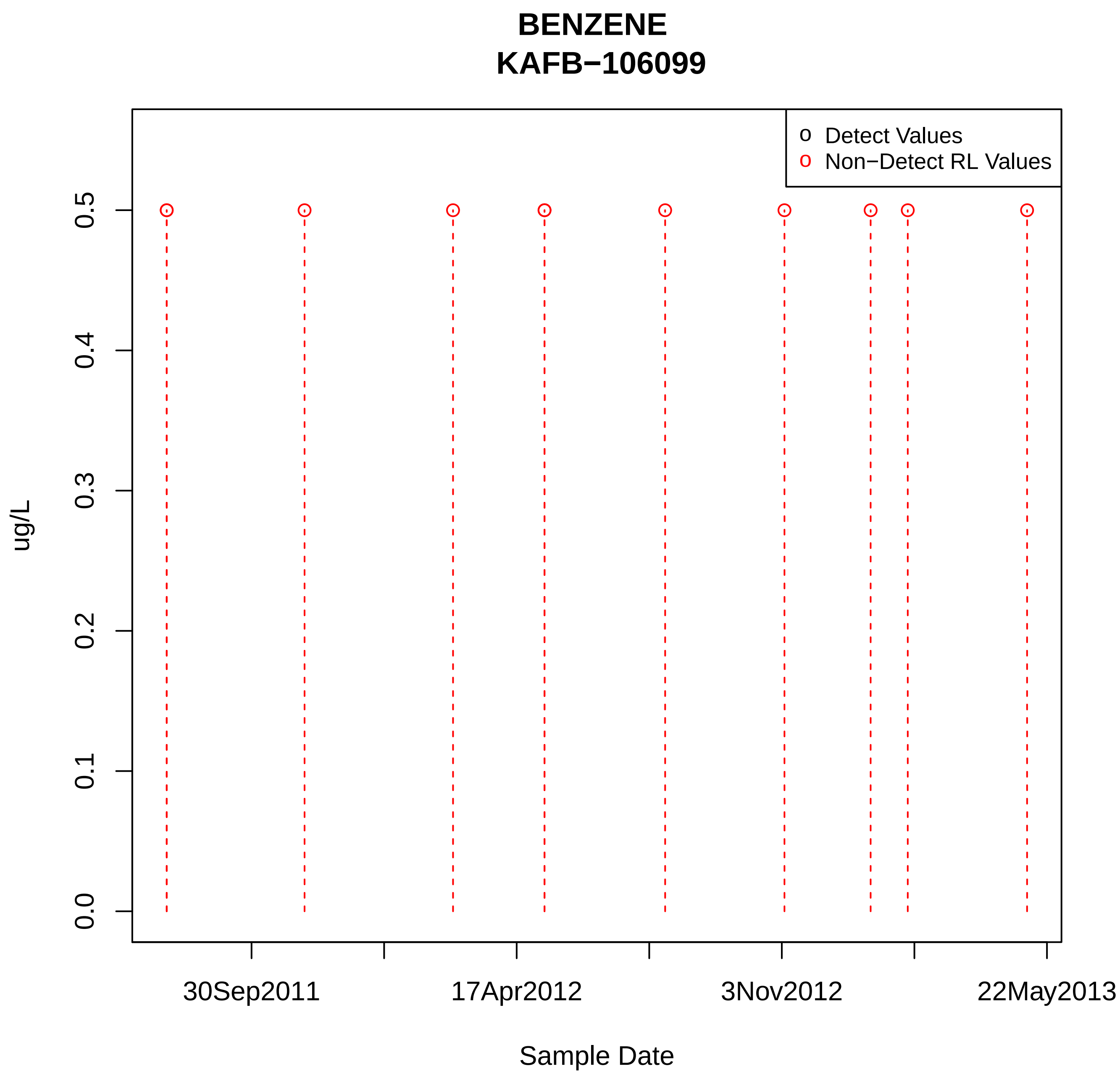

BENZENE
KAFB−106096
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


BENZENE
KAFB−106013
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

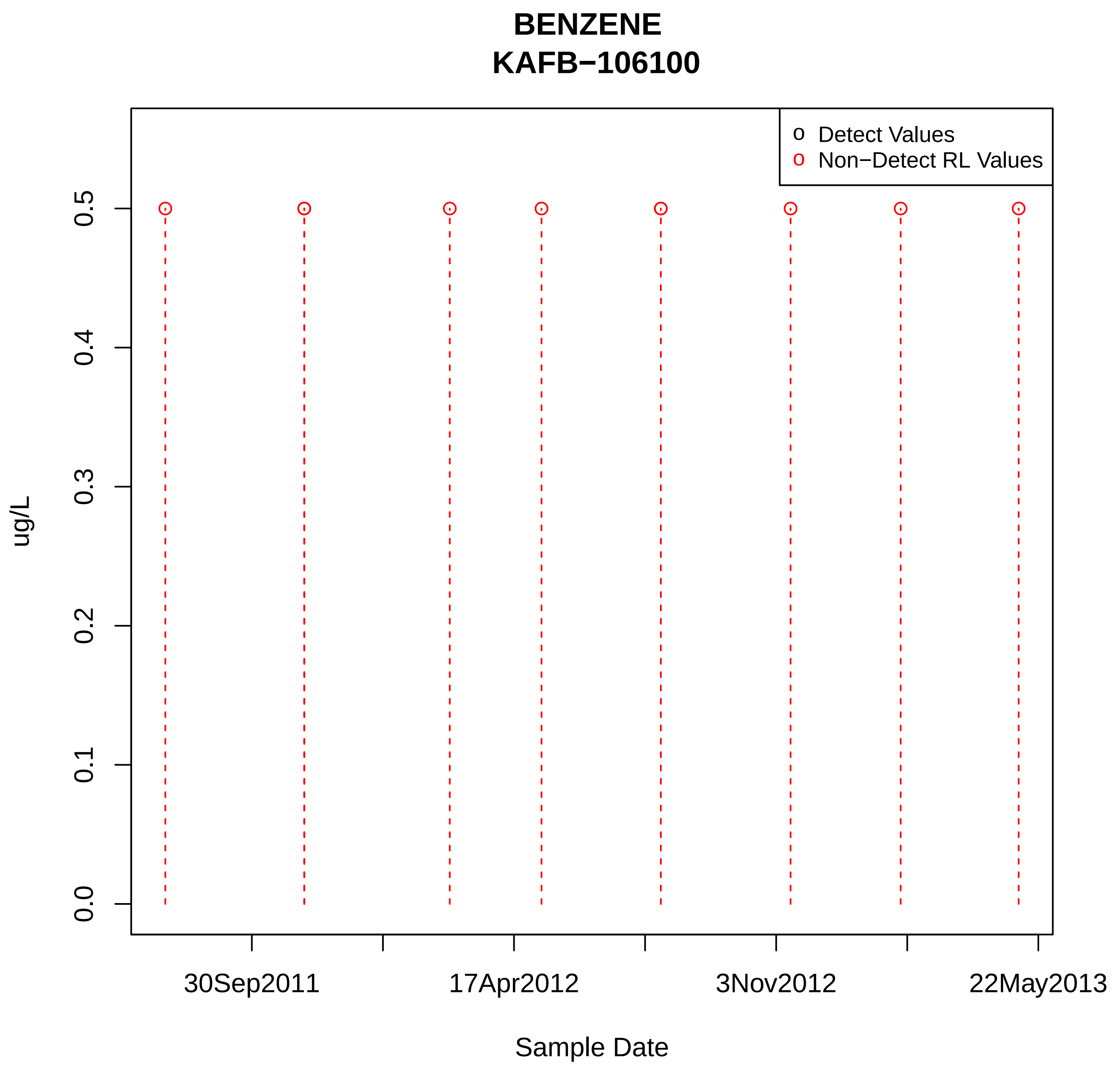

BENZENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



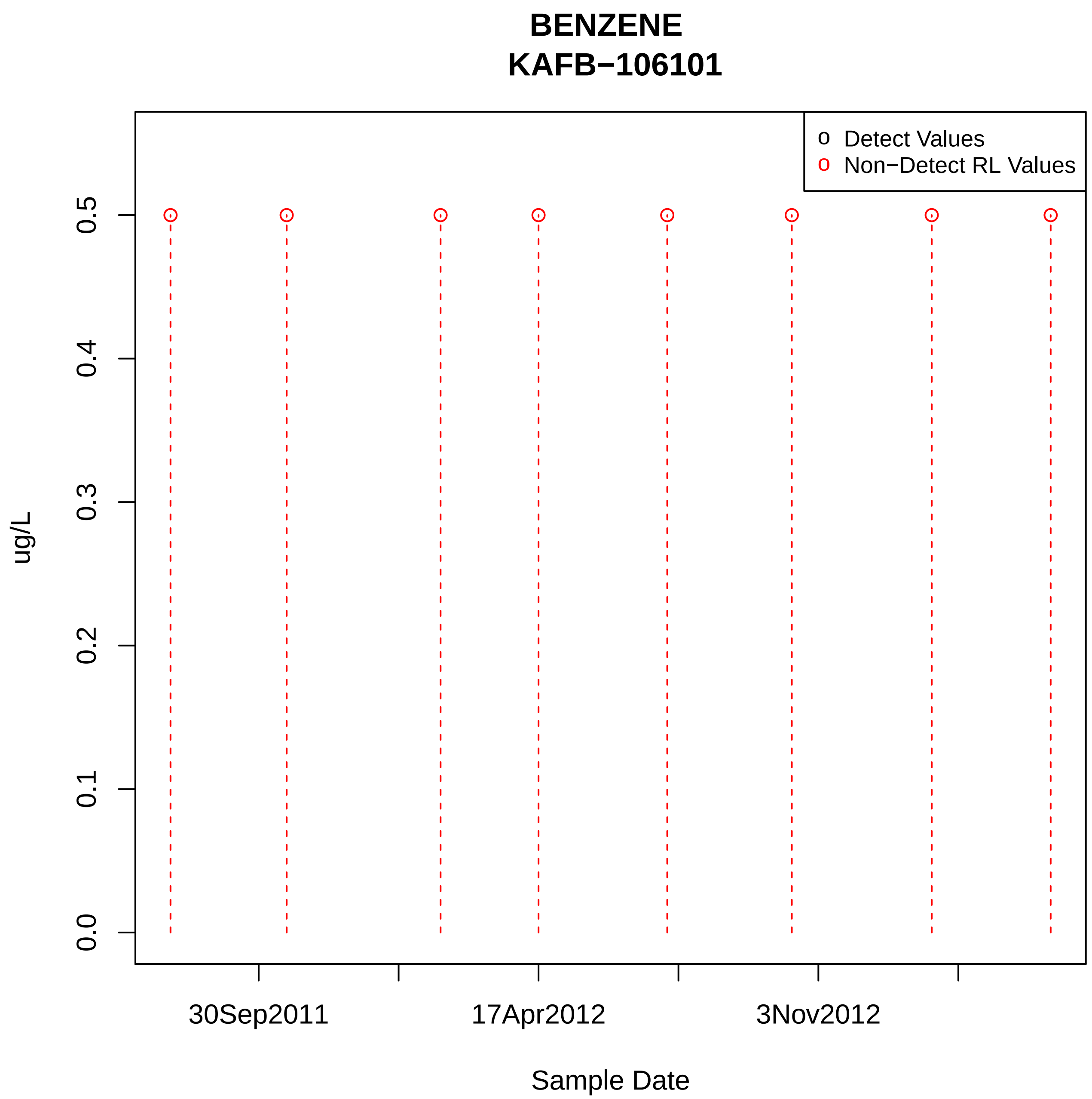
BENZENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

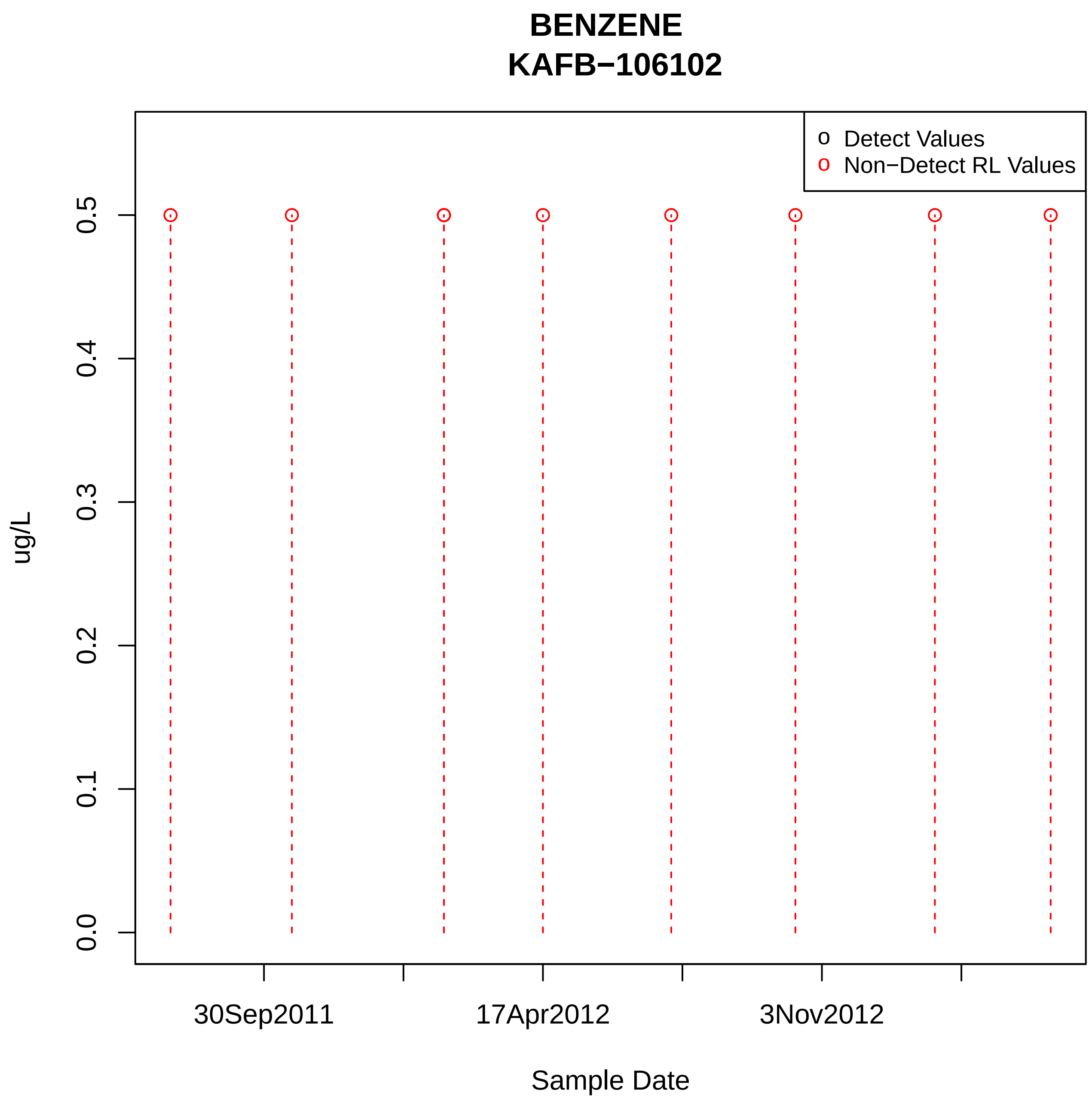


BENZENE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

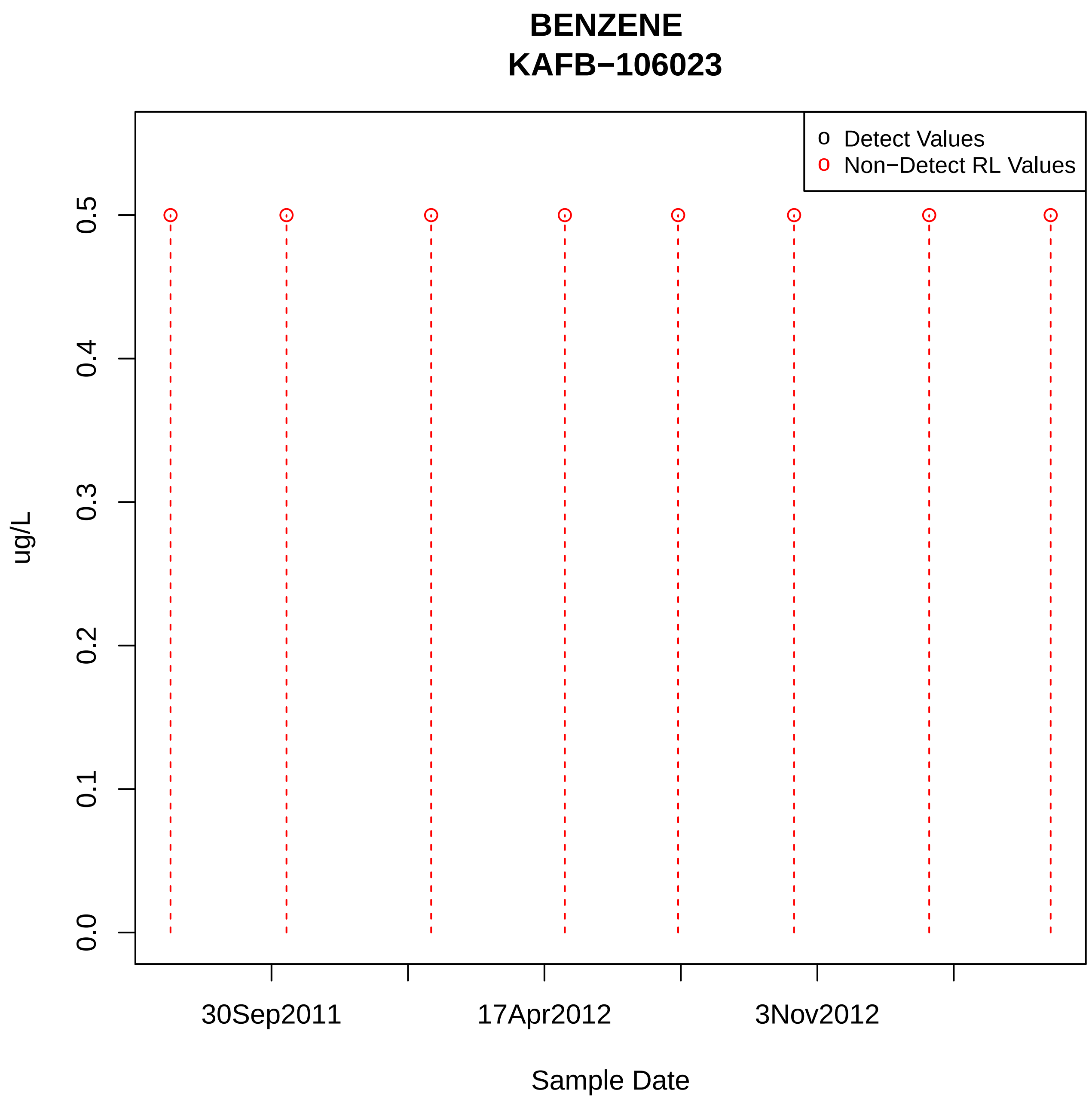


BENZENE
KAFB−106100
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

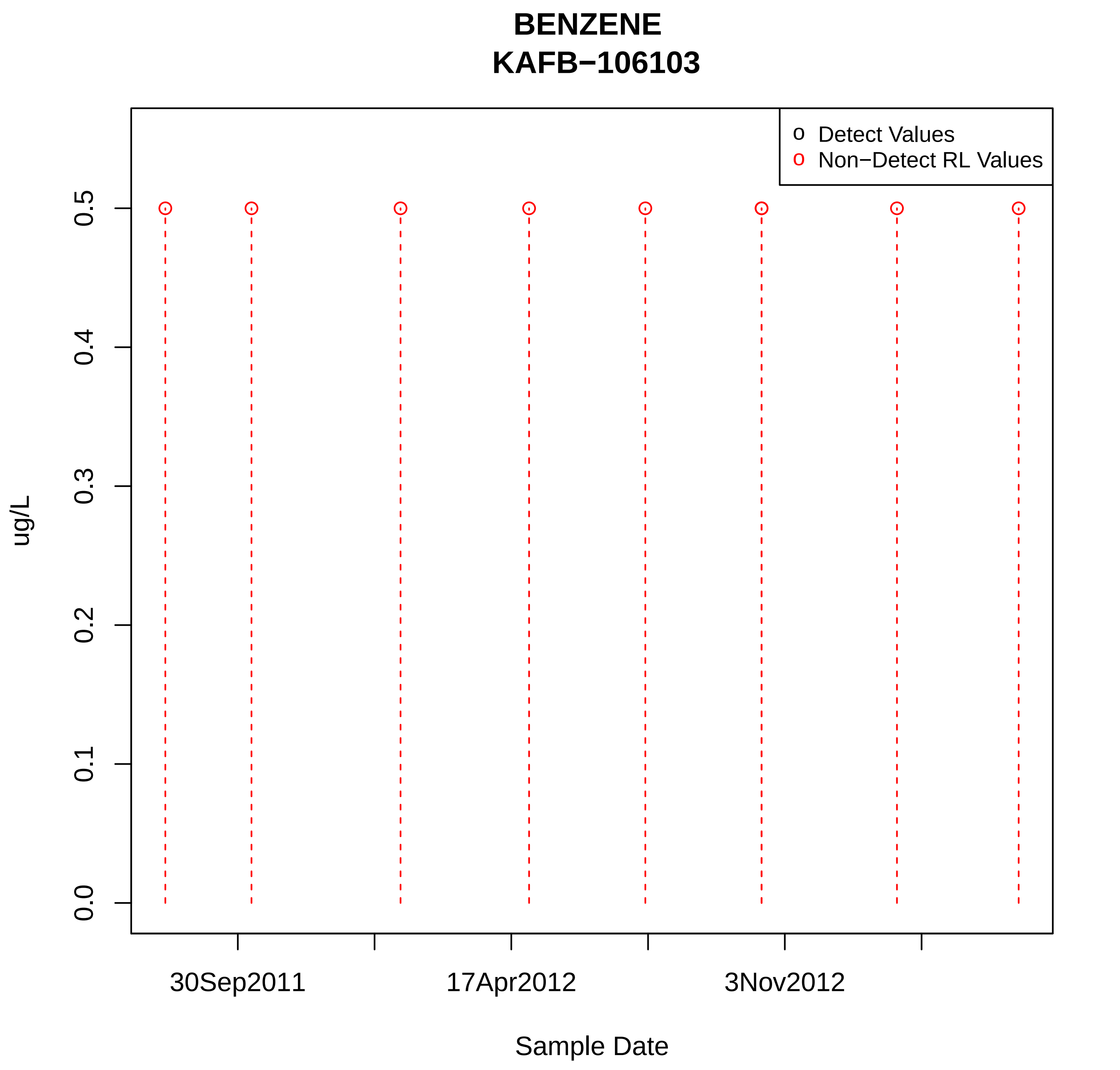

BENZENE
KAFB−106101
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



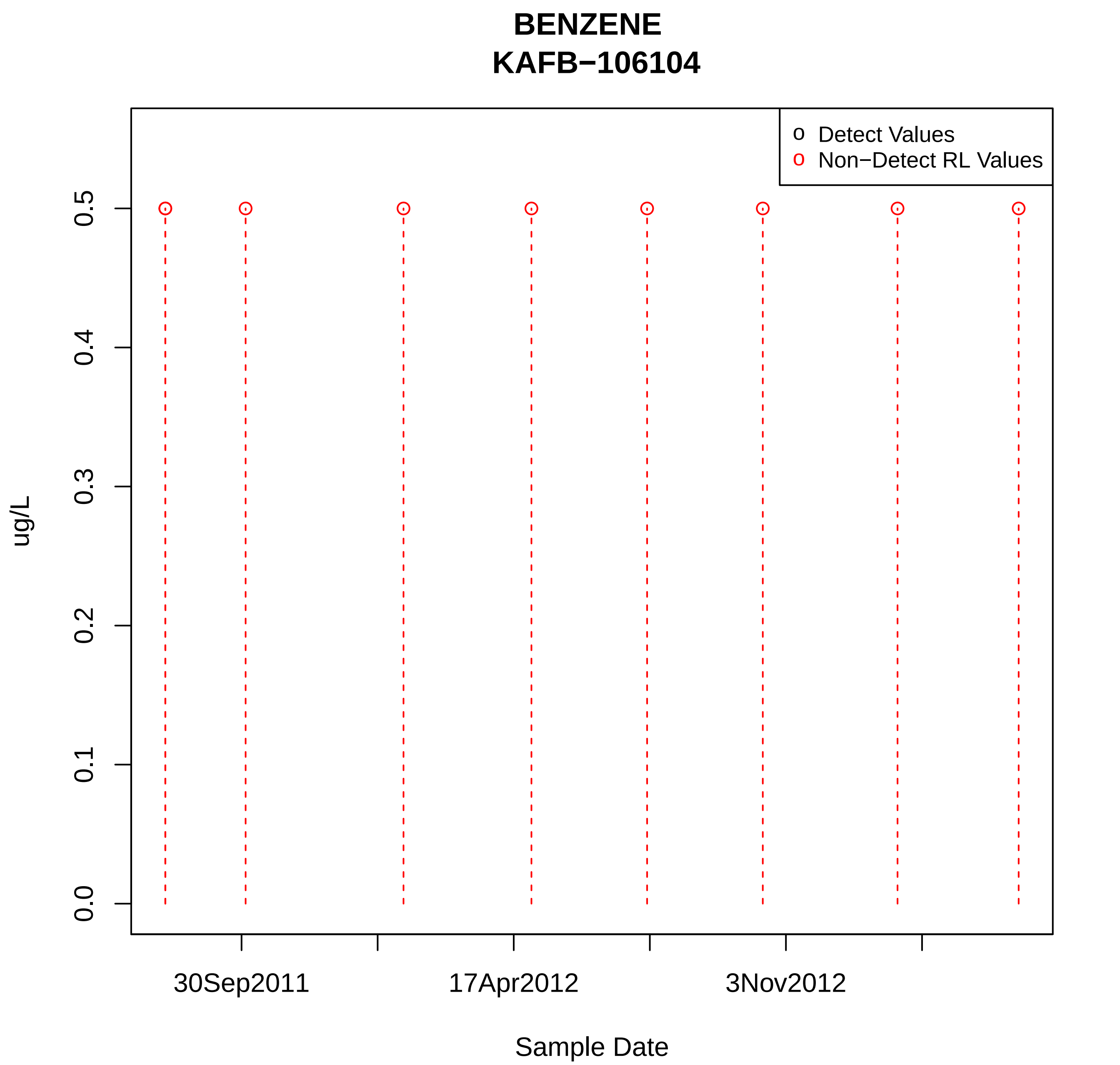
BENZENE
KAFB−106102
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



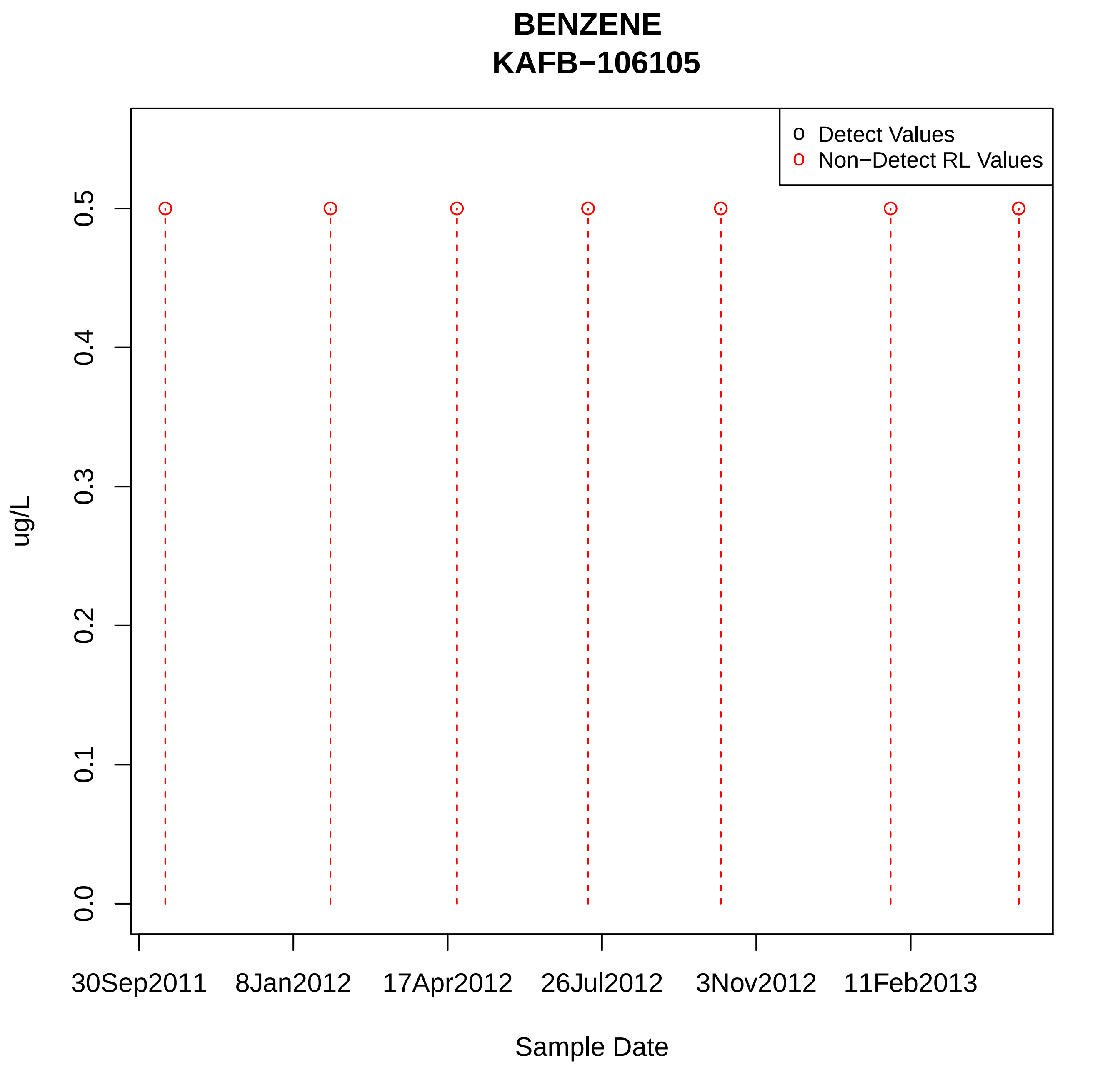
BENZENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

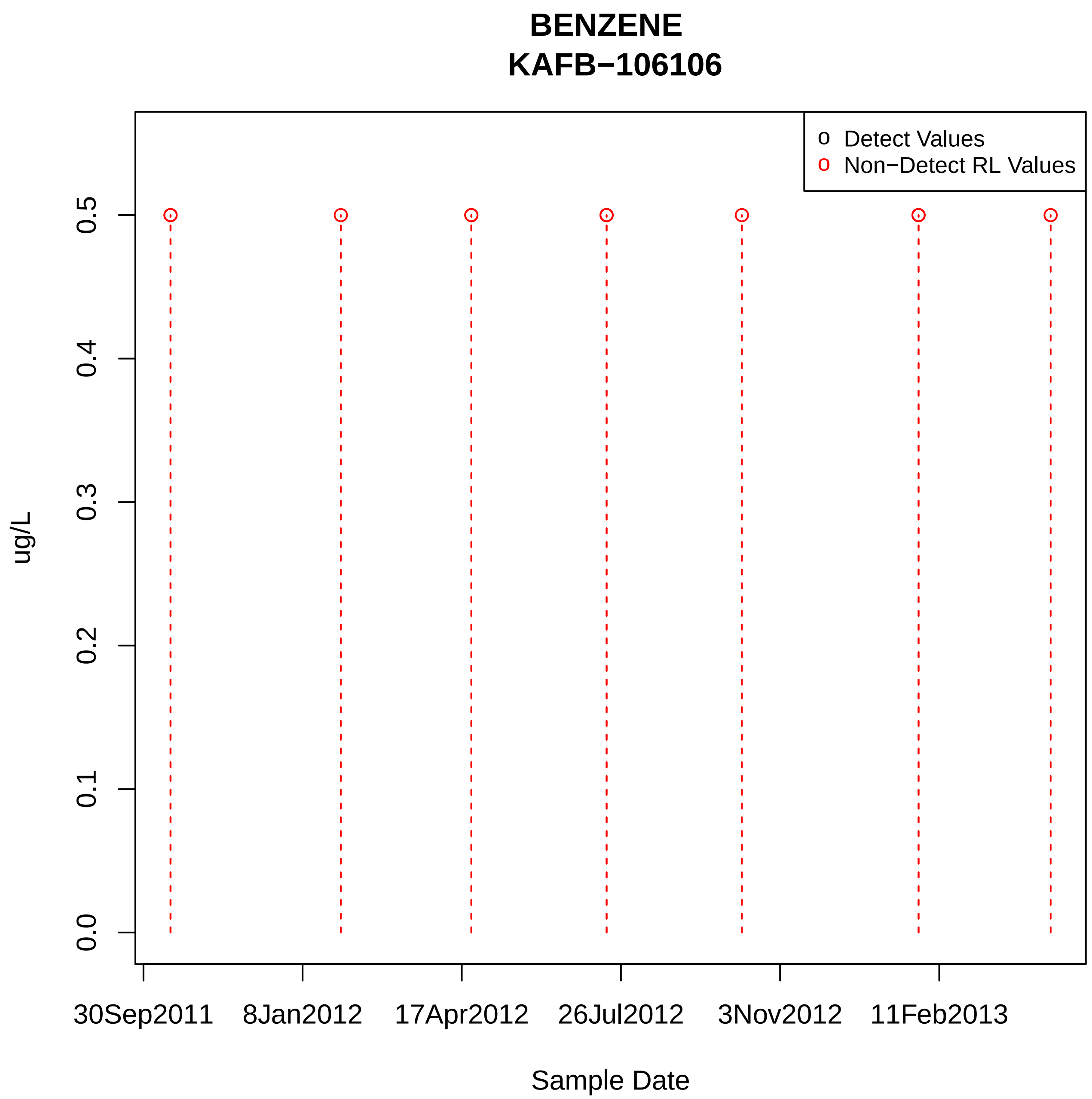


BENZENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

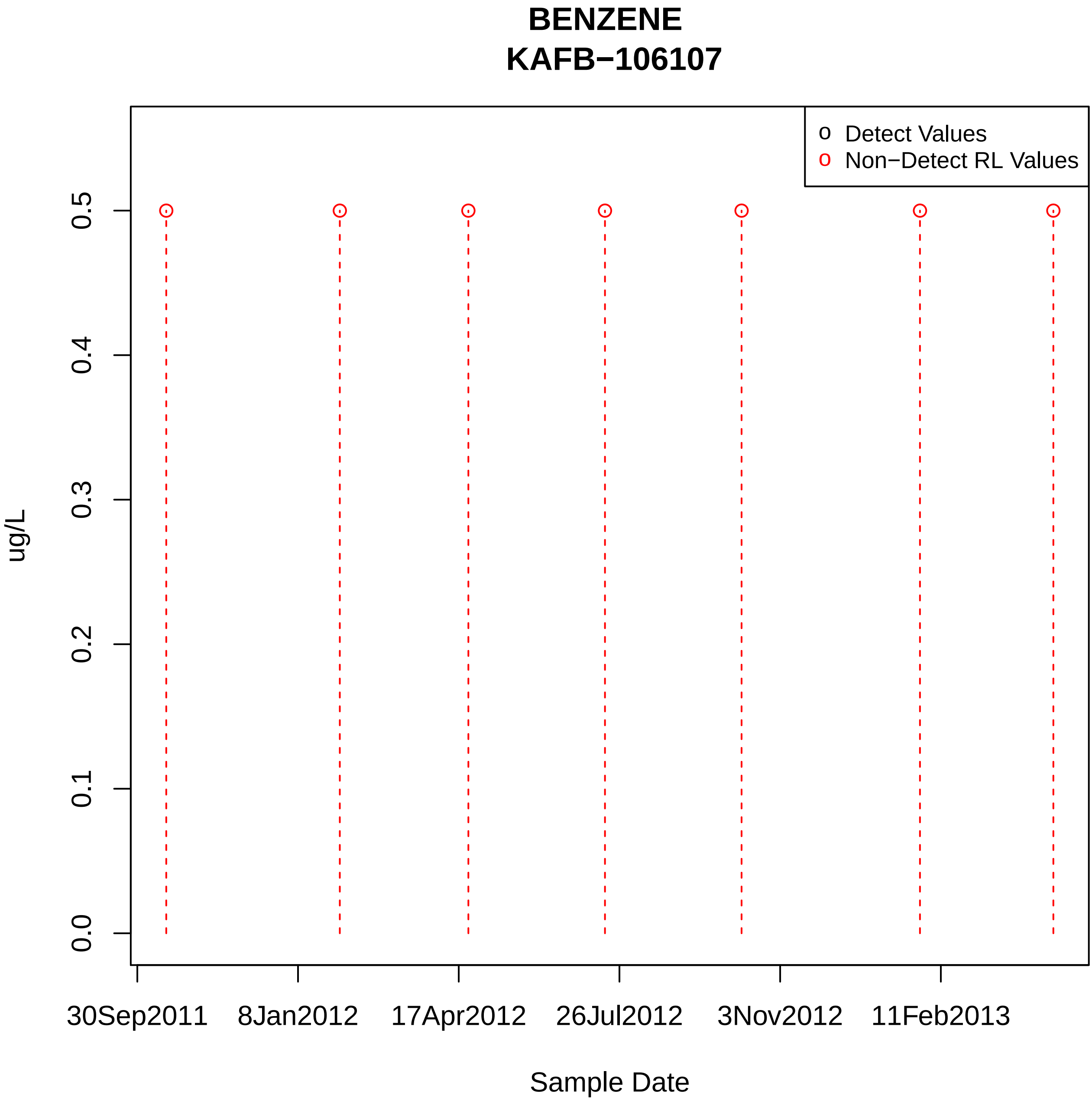


BENZENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

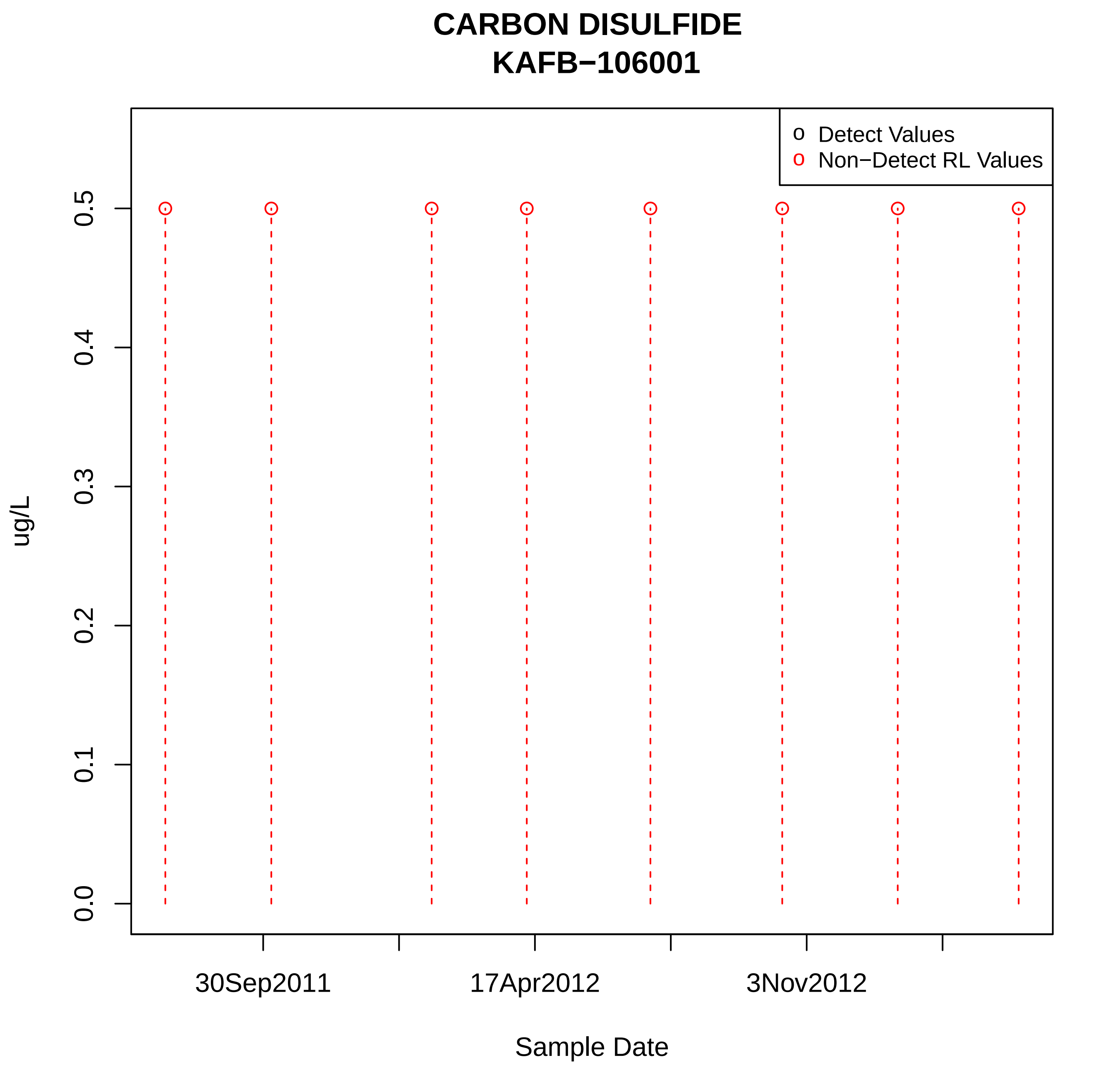

BENZENE
KAFB−106105
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

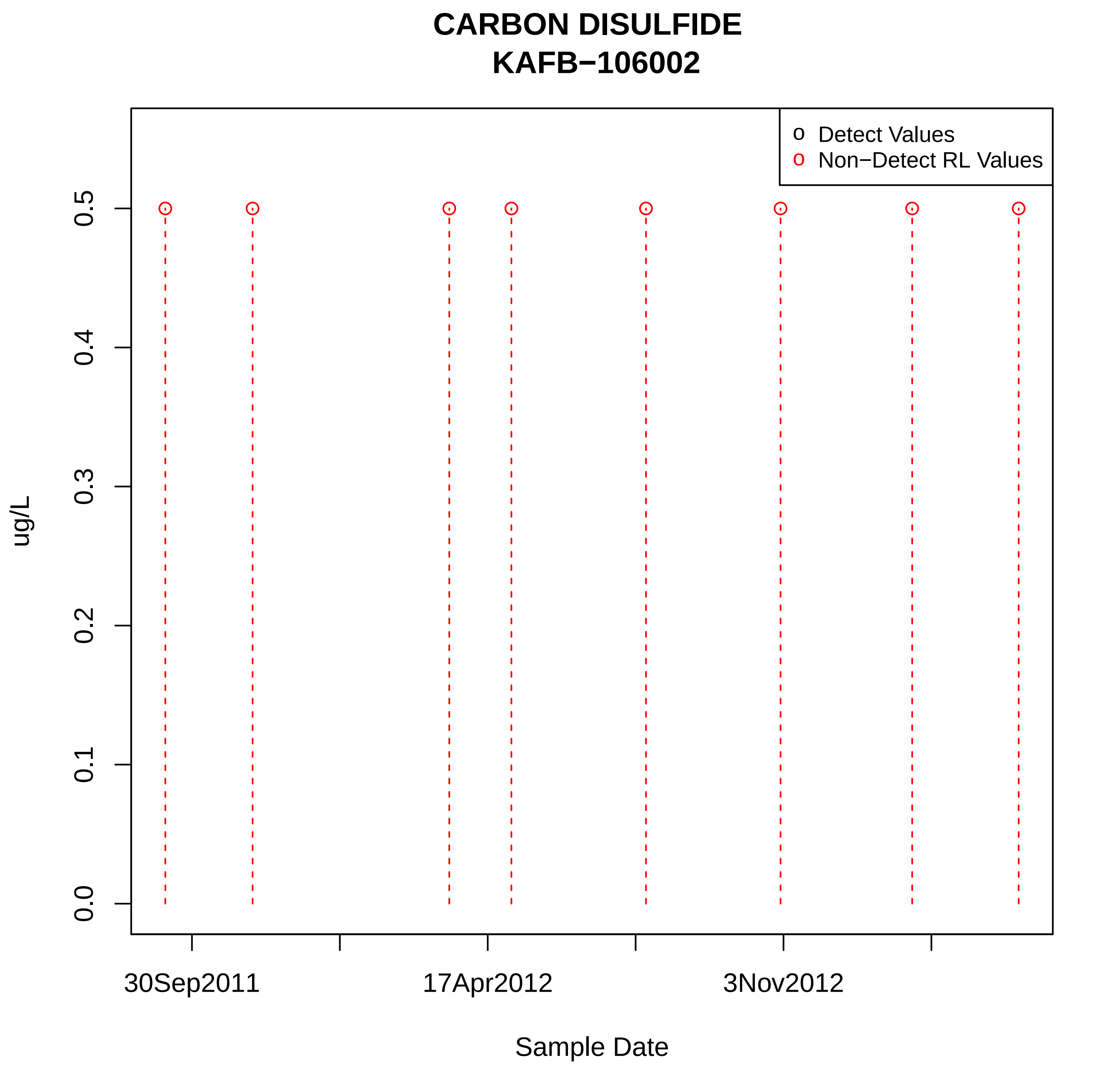


BENZENE
KAFB−106106
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

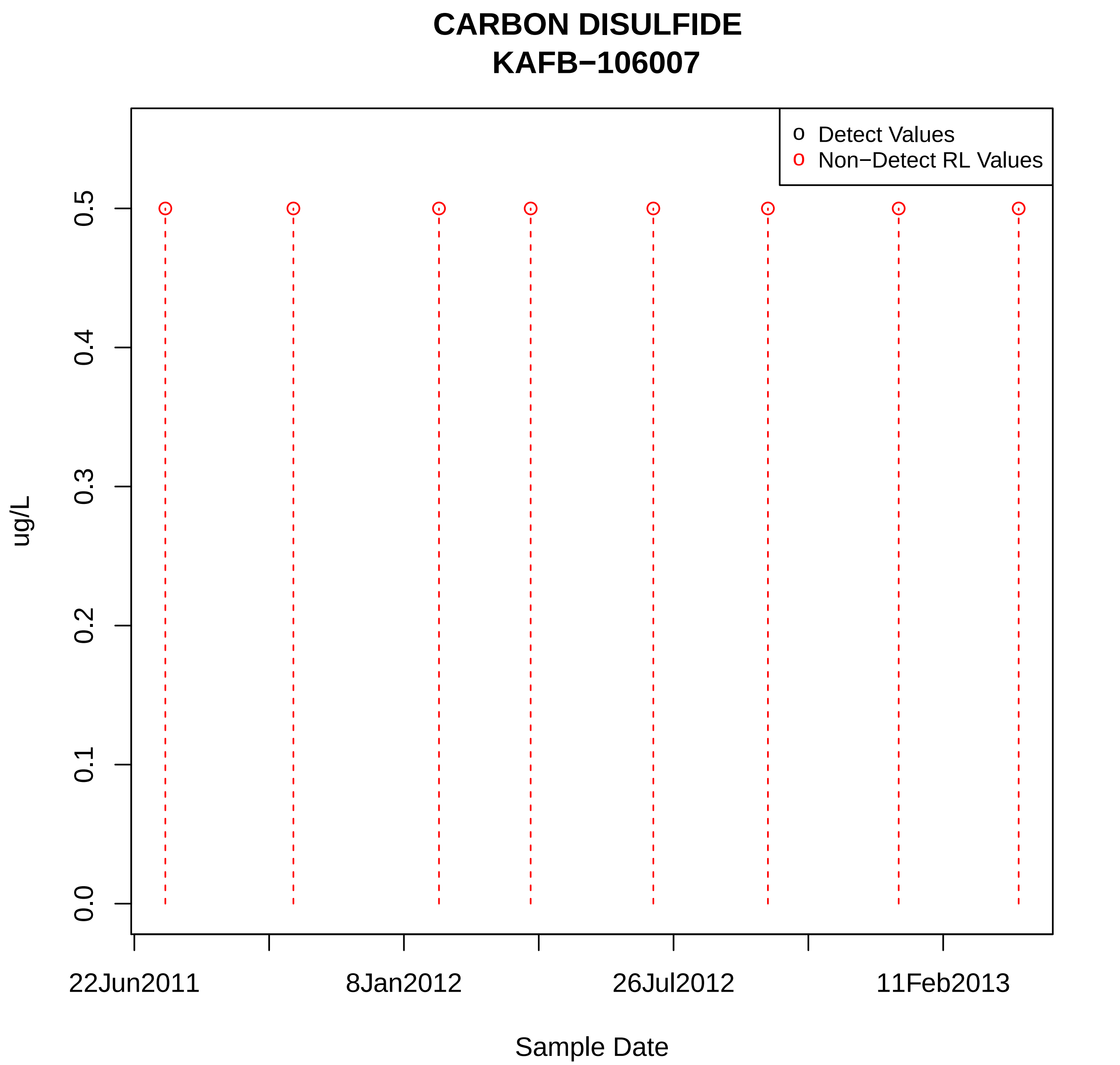


BENZENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

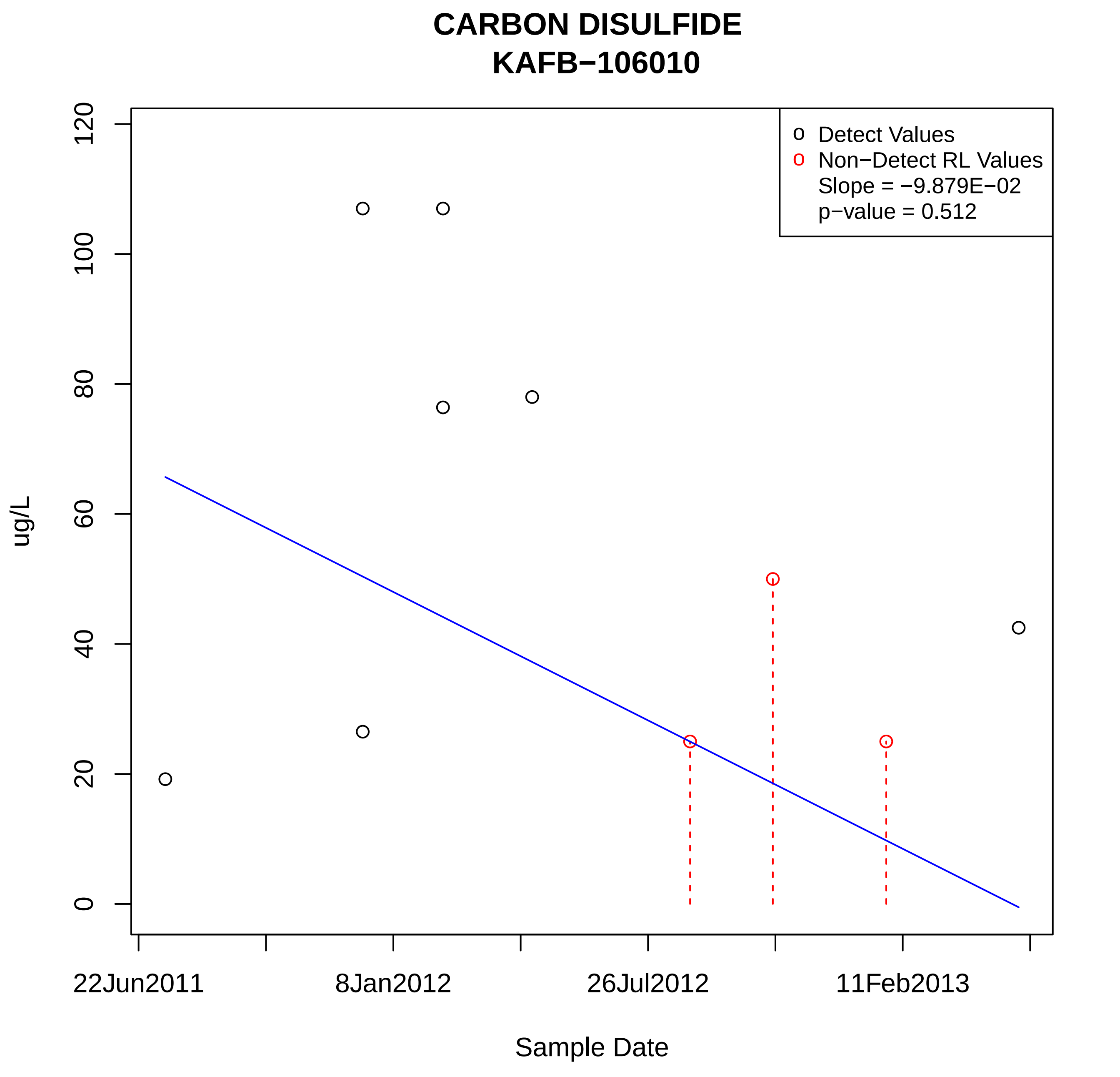

CARBON DISULFIDE
KAFB−106001
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



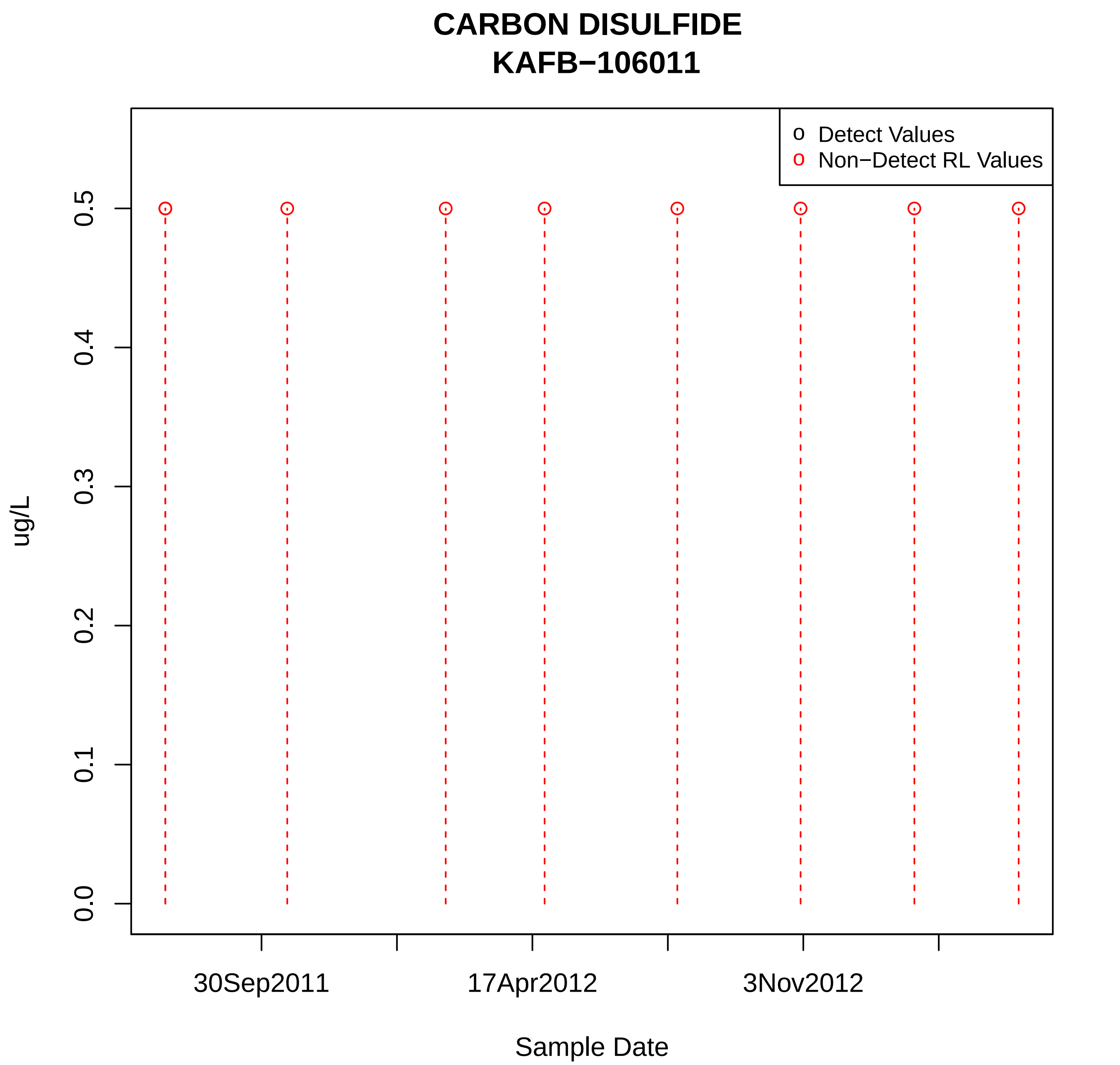
CARBON DISULFIDE
KAFB−106002
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



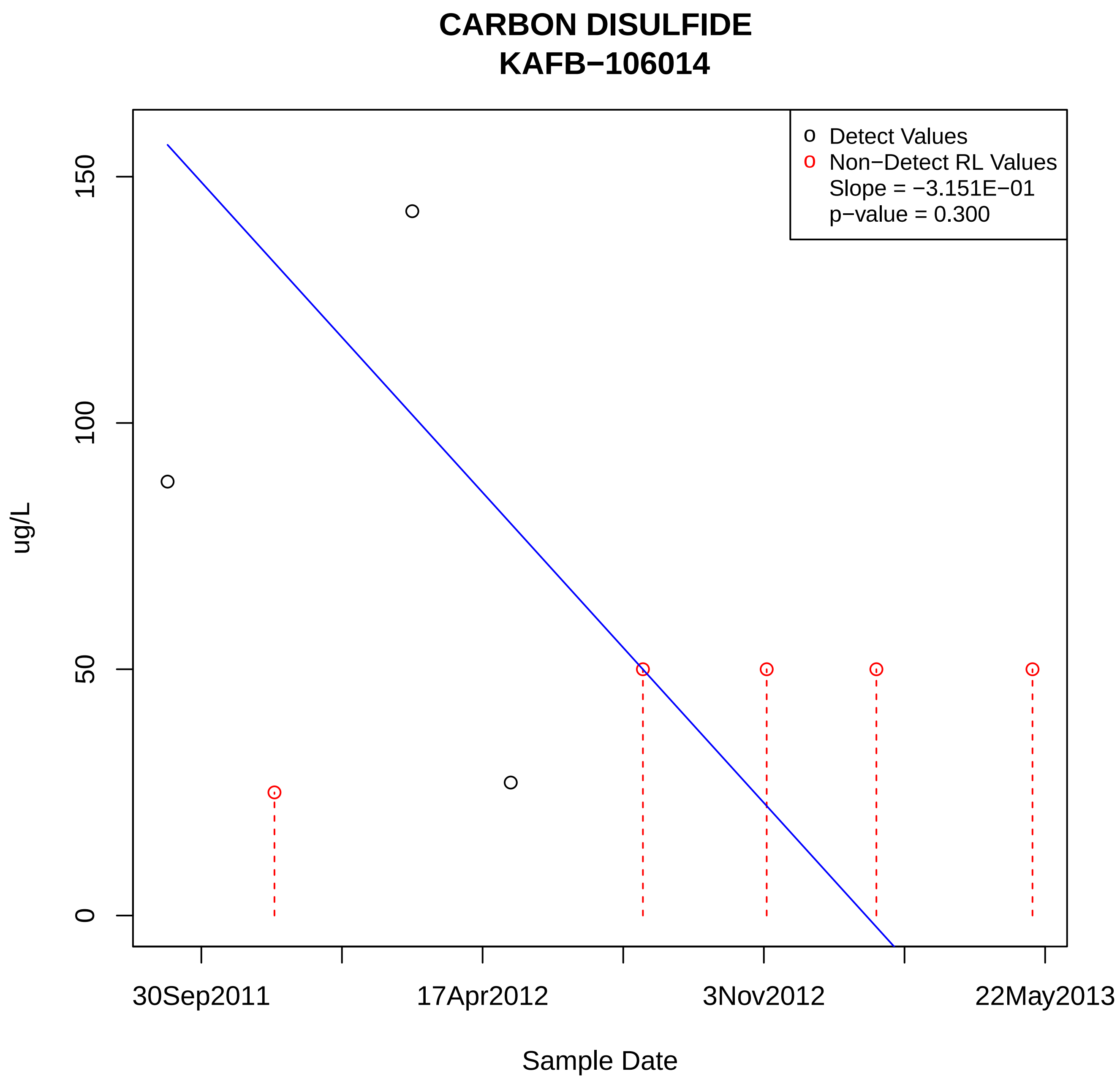
CARBON DISULFIDE
KAFB−106007
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



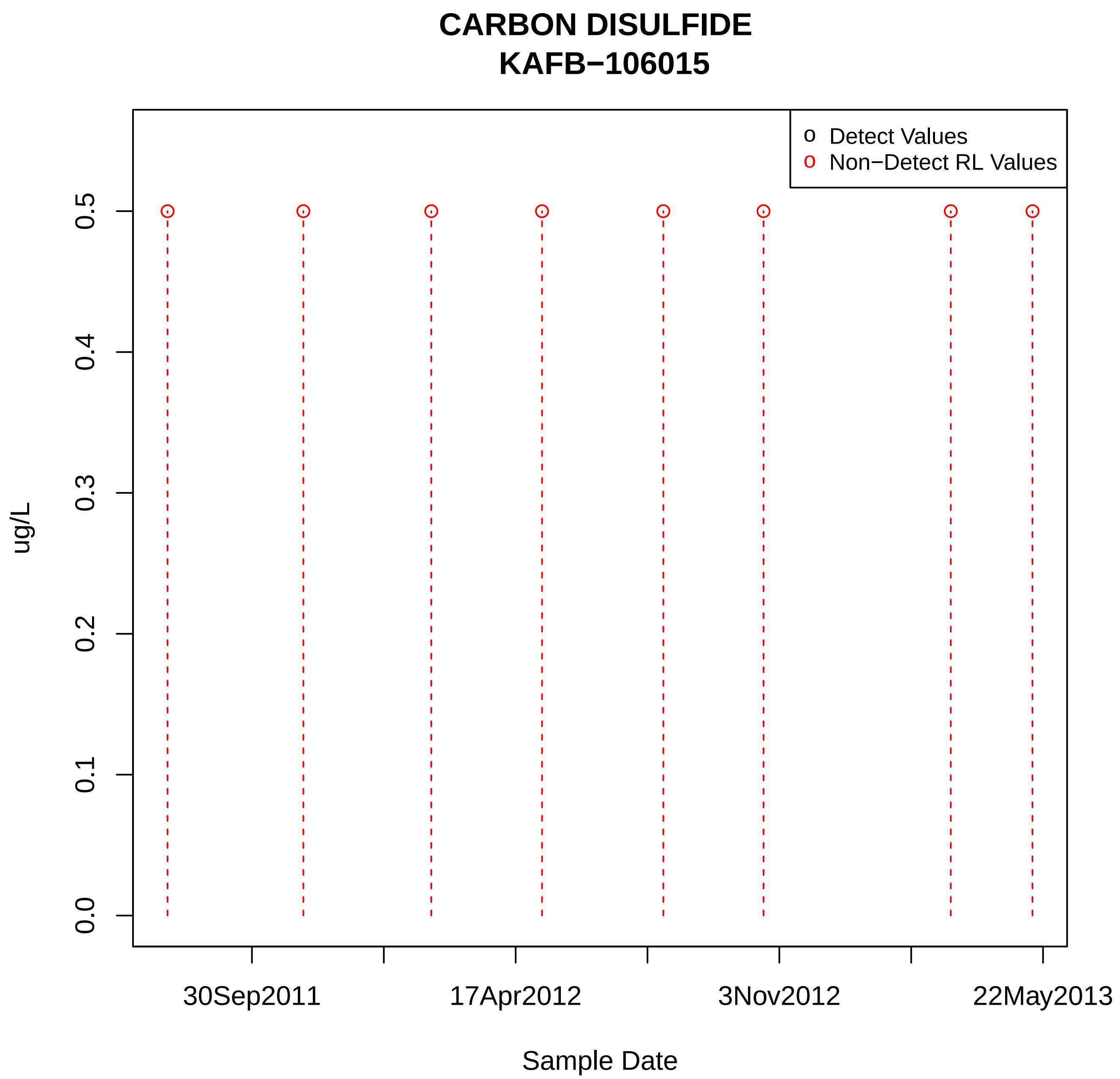
CARBON DISULFIDE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = −9.879E−02
p−value = 0.512
0
20
40
60
80
100
120
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

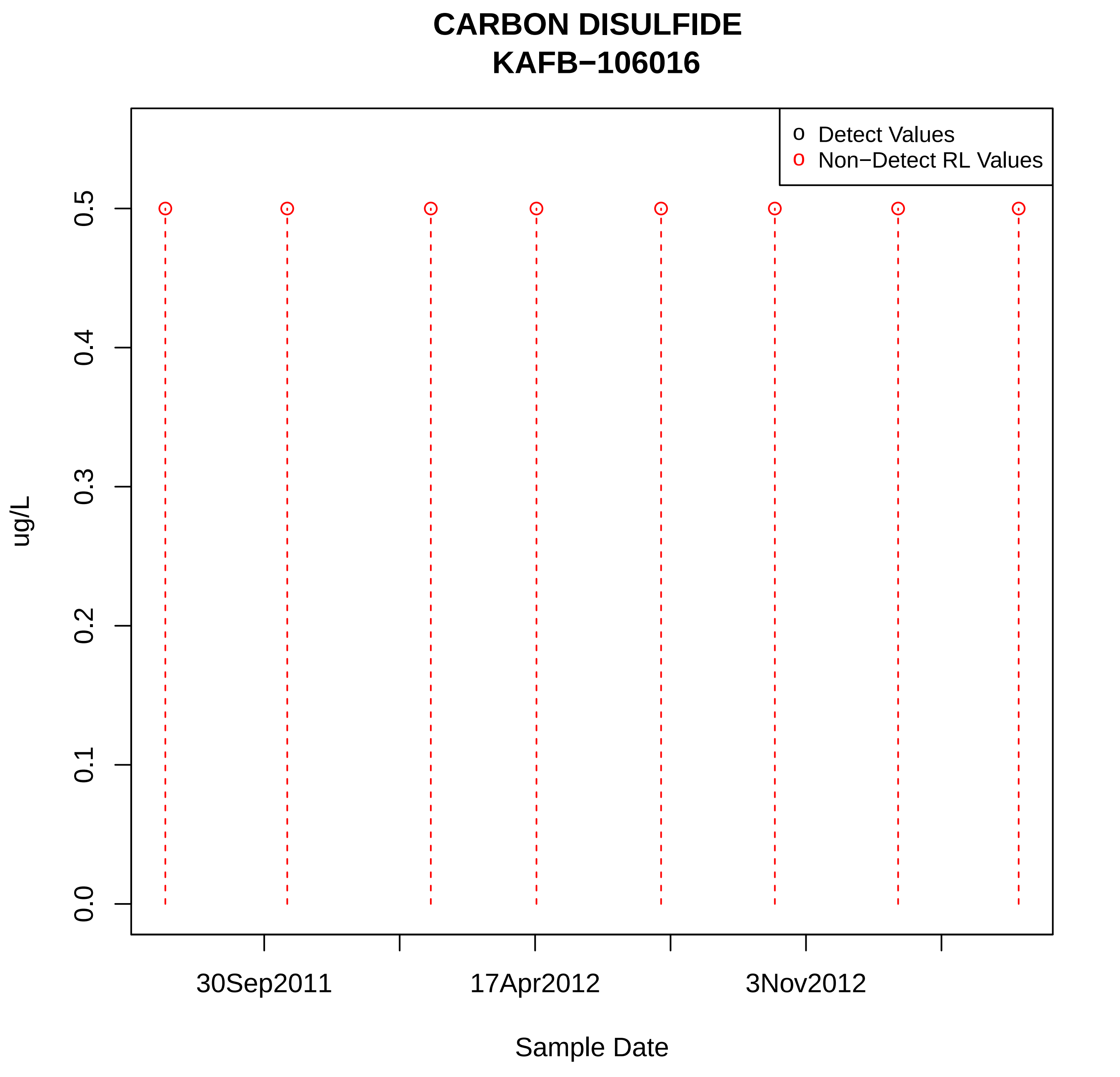


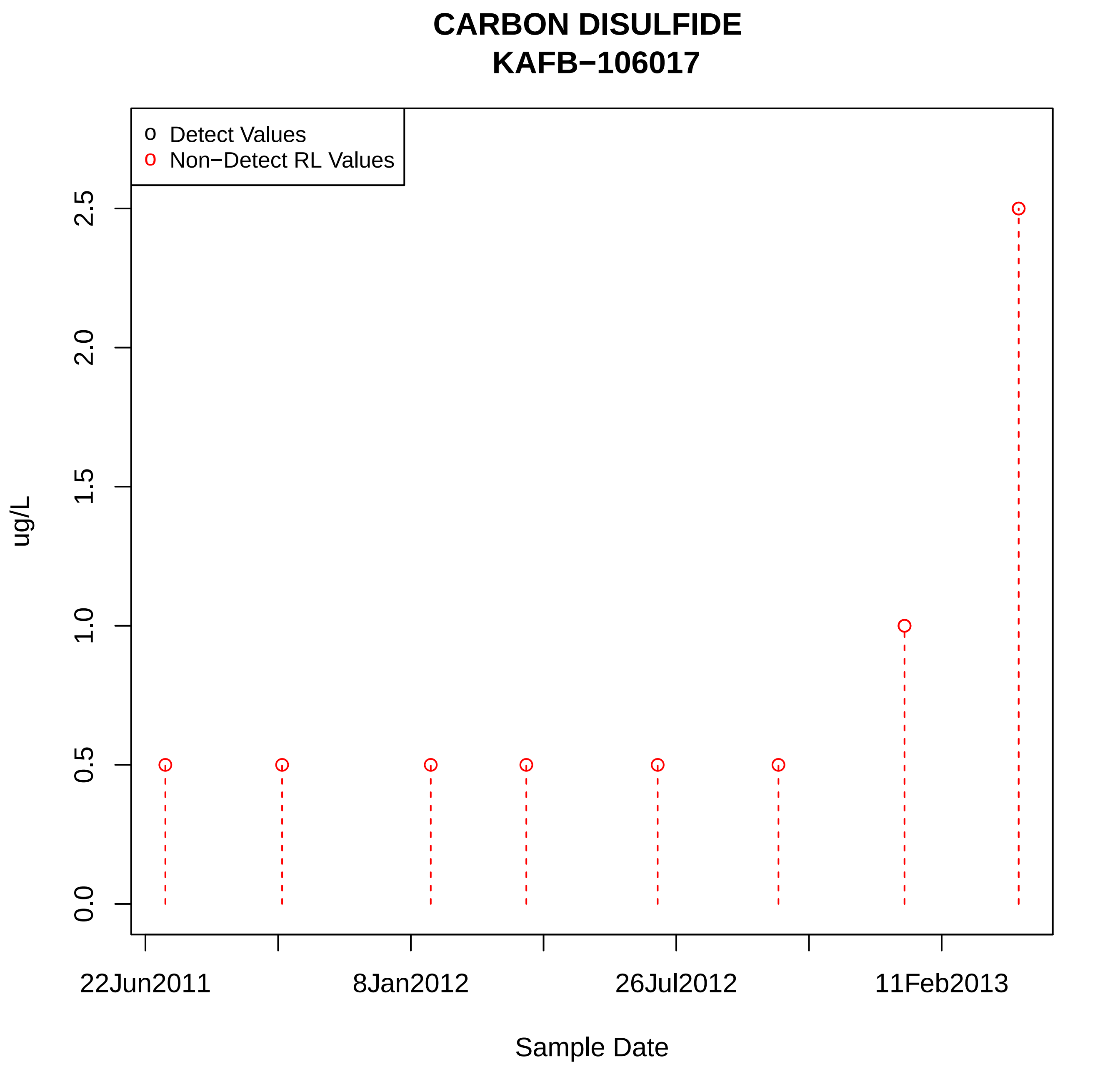
CARBON DISULFIDE
KAFB−106011
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

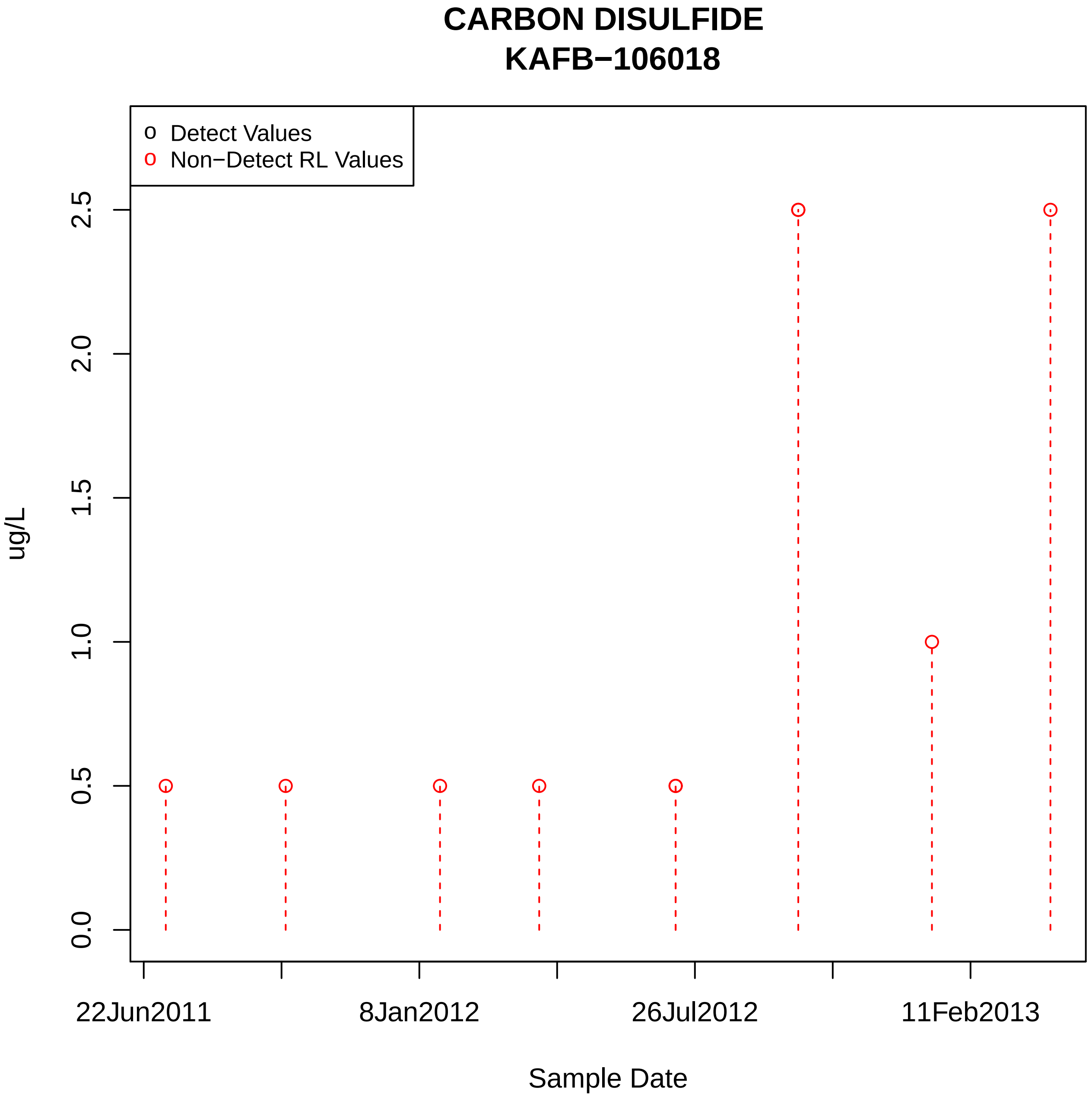


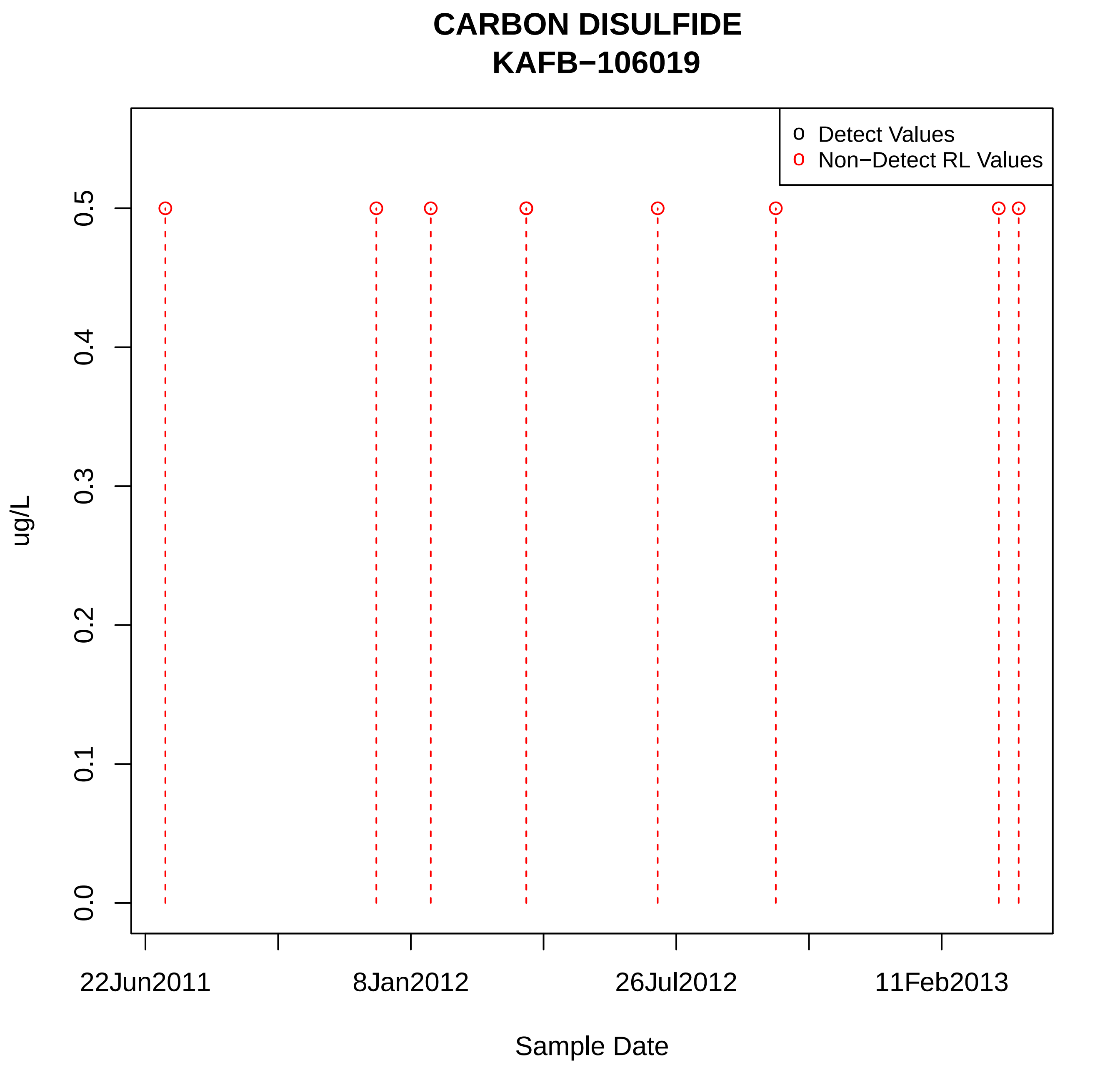
CARBON DISULFIDE
KAFB−106014
o Detect Values
o Non−Detect RL Values
Slope = −3.151E−01
p−value = 0.300
ug/L
0
50
100
150
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

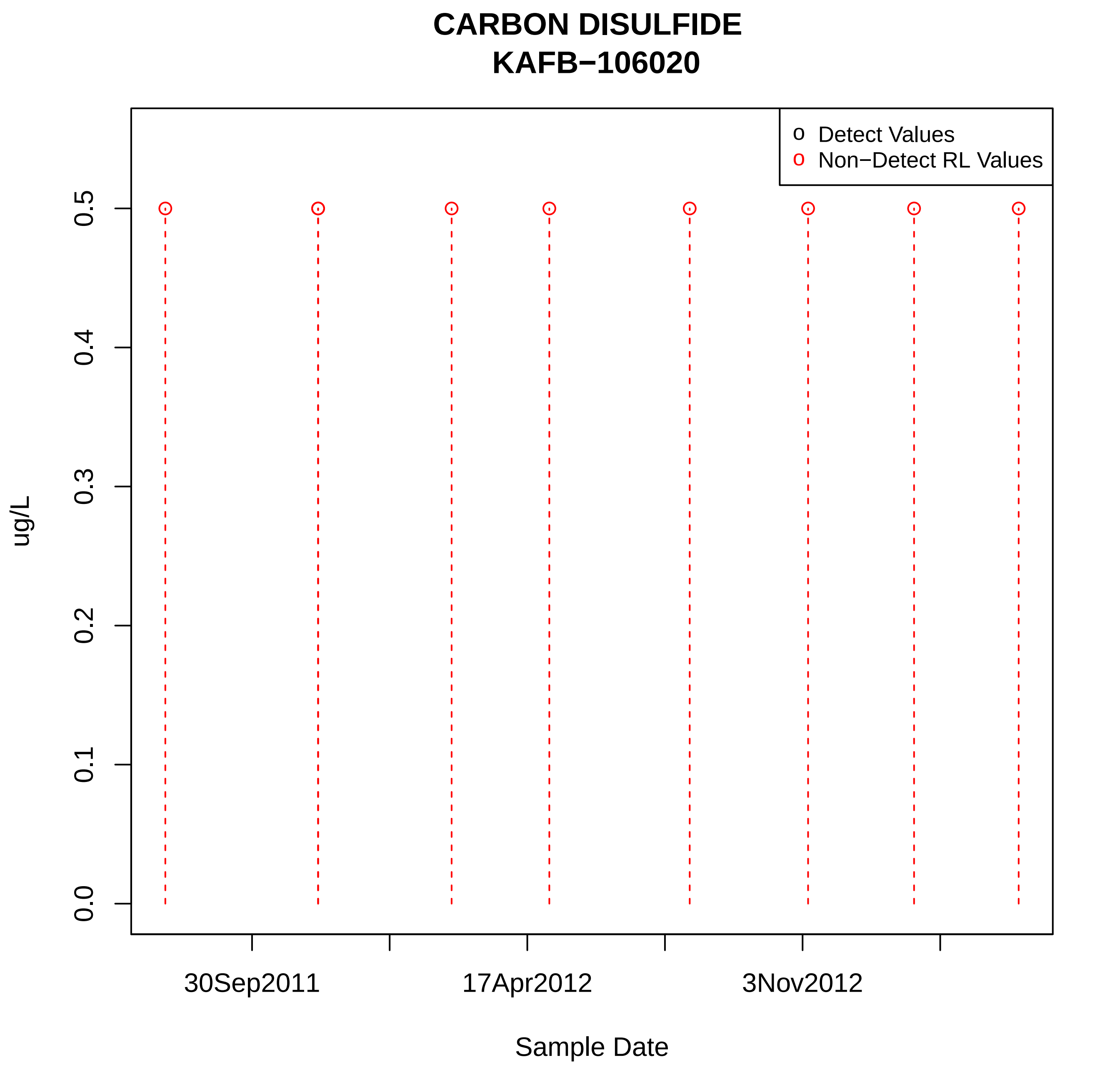

CARBON DISULFIDE
KAFB−106016
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


CARBON DISULFIDE
KAFB−106017
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

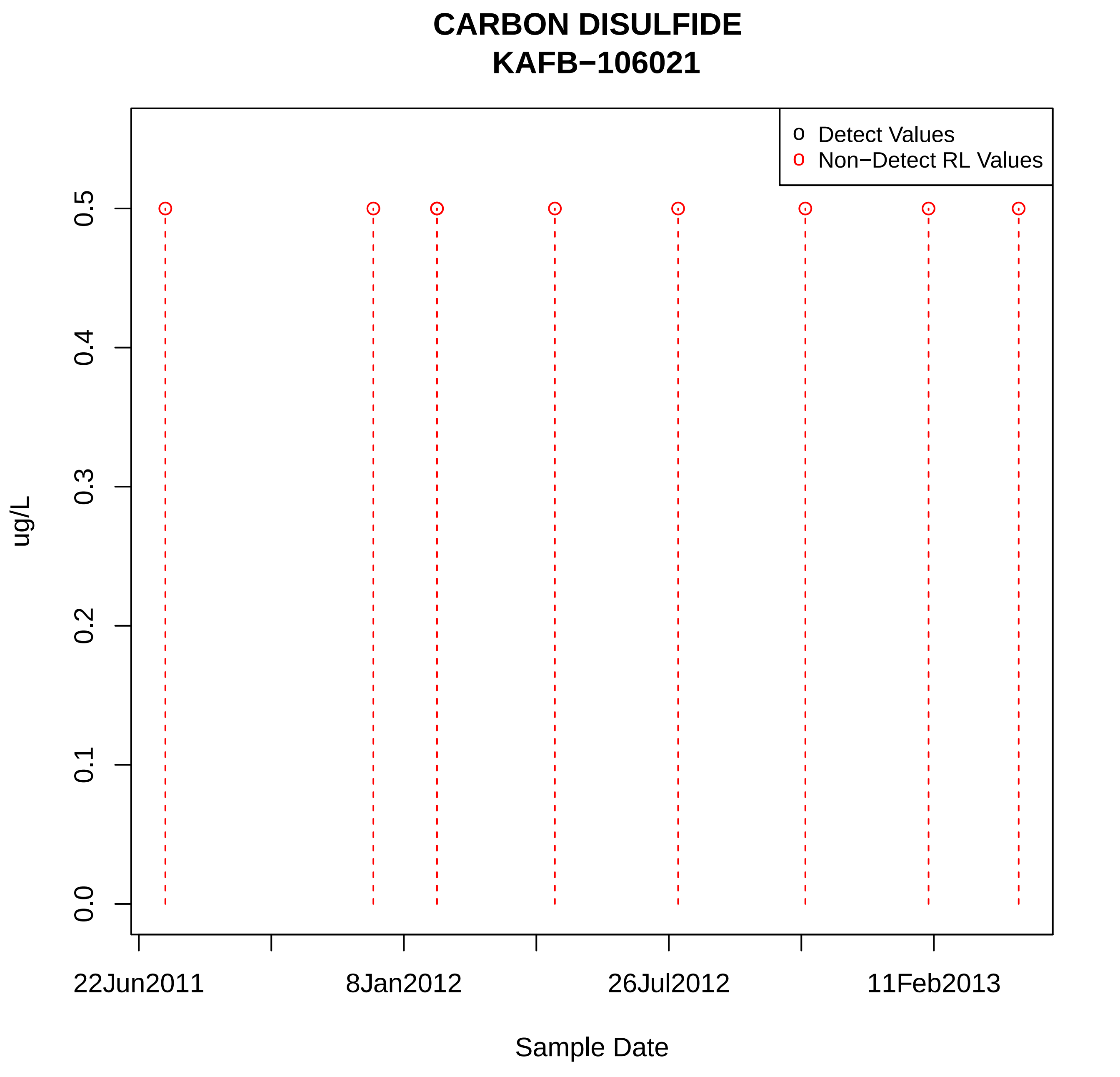

CARBON DISULFIDE
KAFB−106018
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



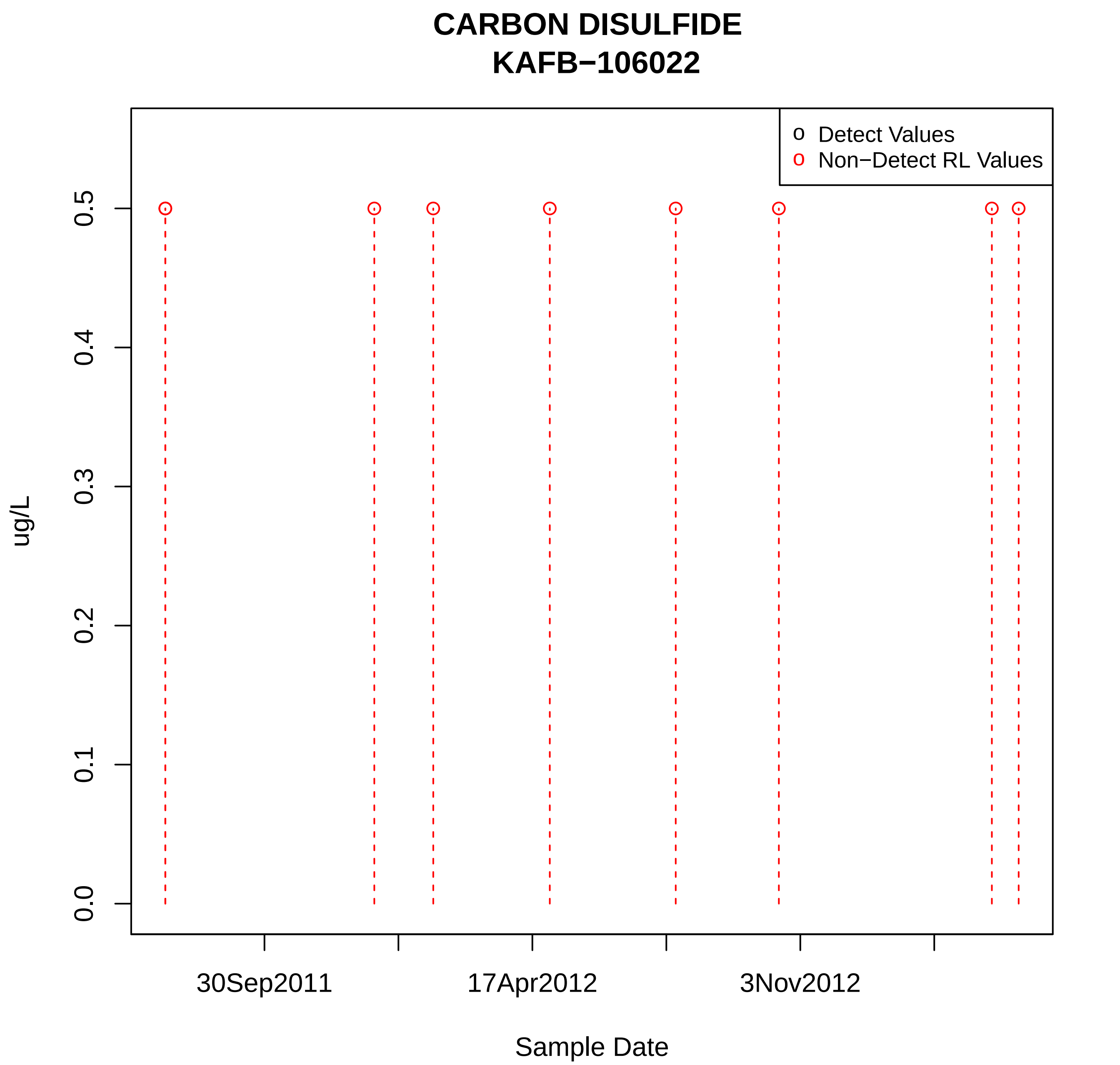
CARBON DISULFIDE
KAFB−106019
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

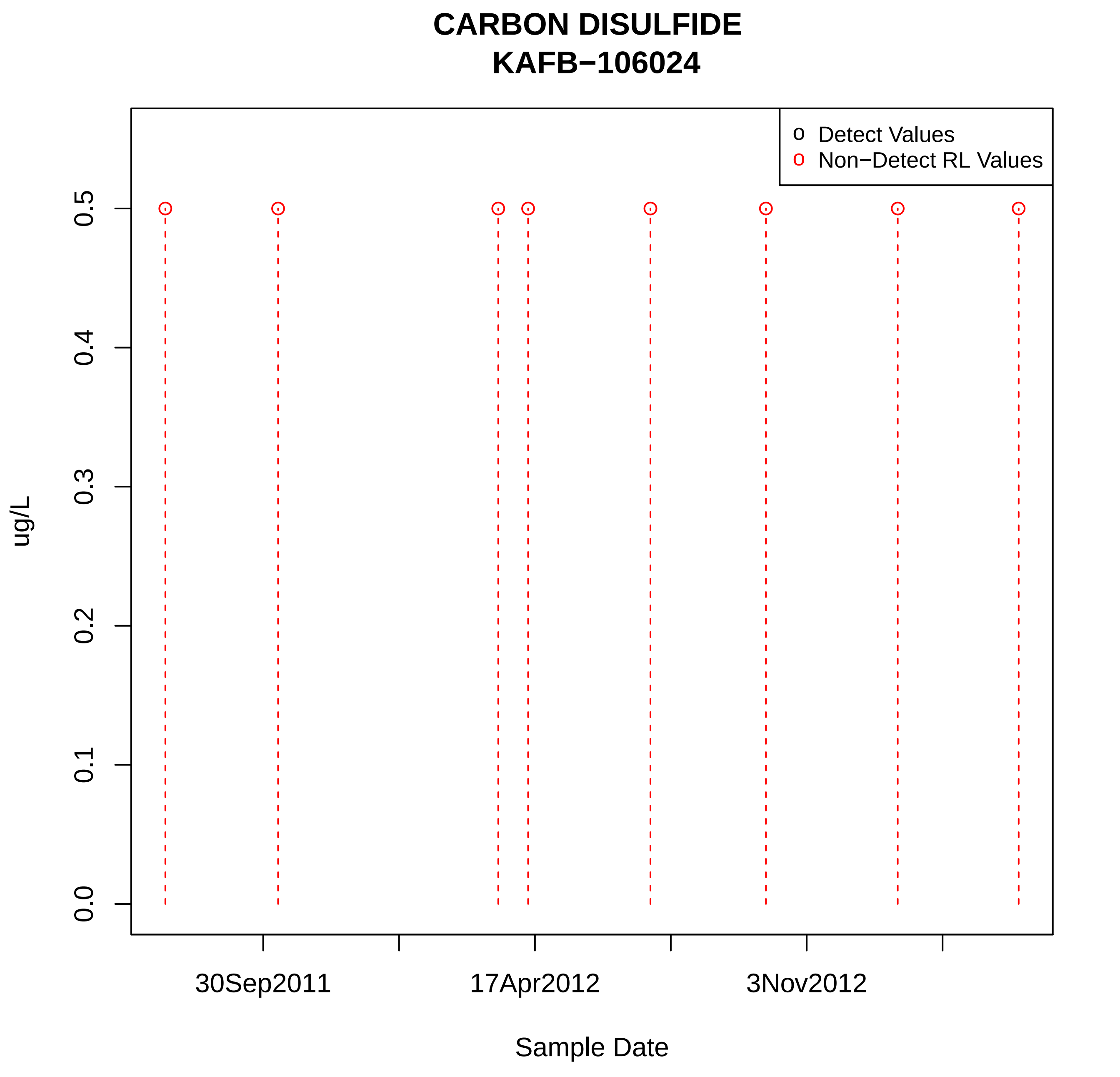


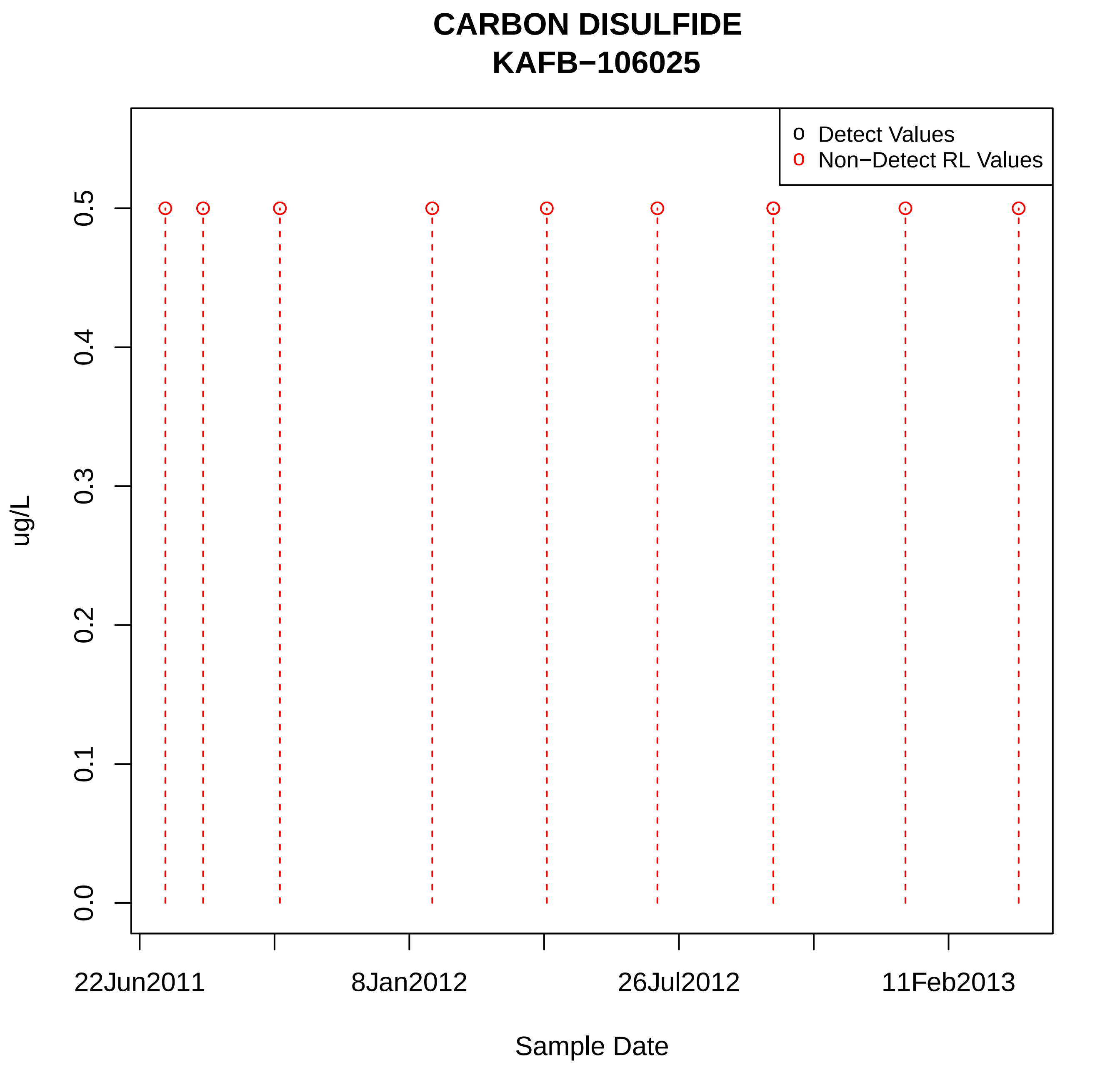
CARBON DISULFIDE
KAFB−106020
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



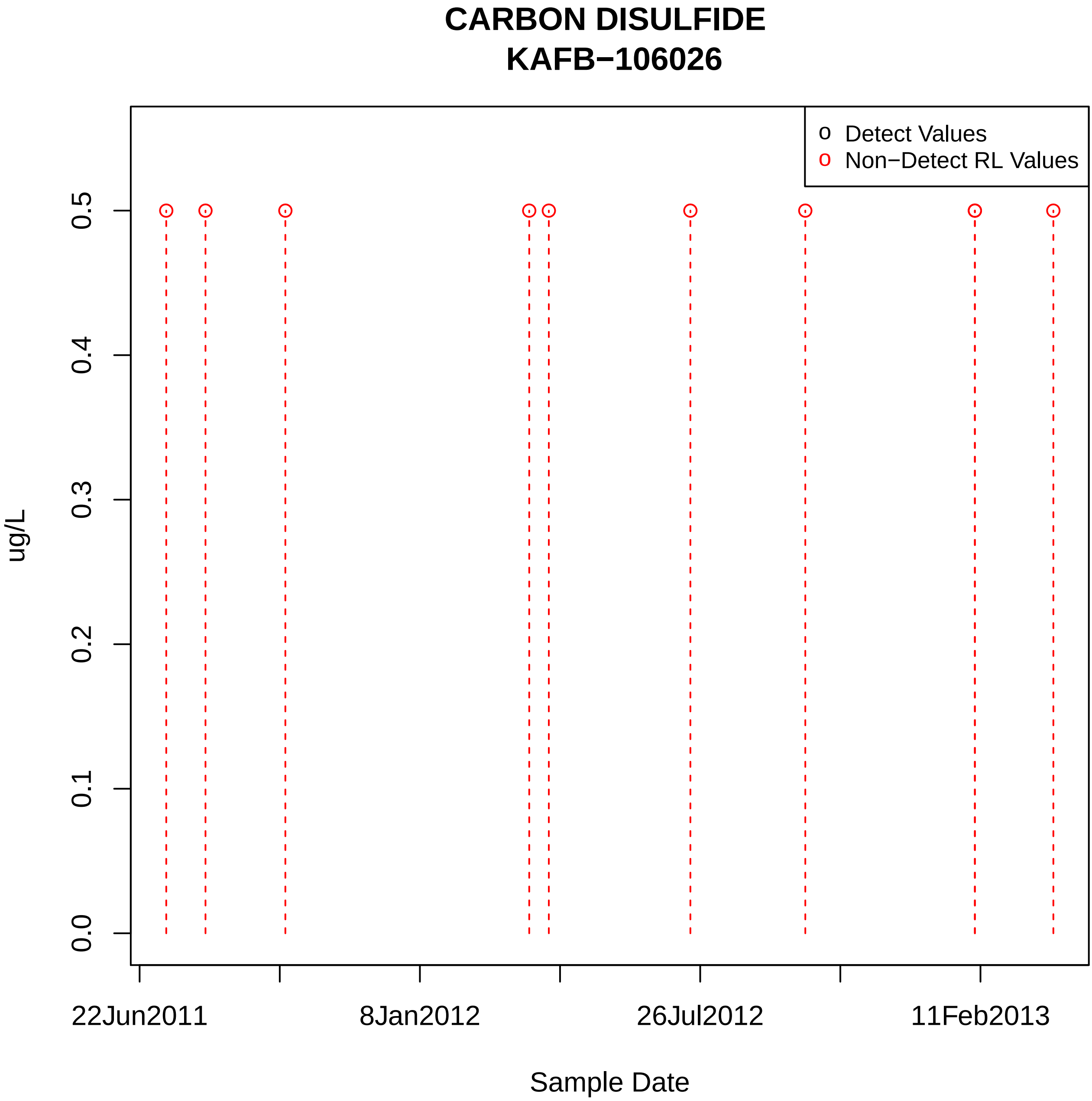
CARBON DISULFIDE
KAFB−106021
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

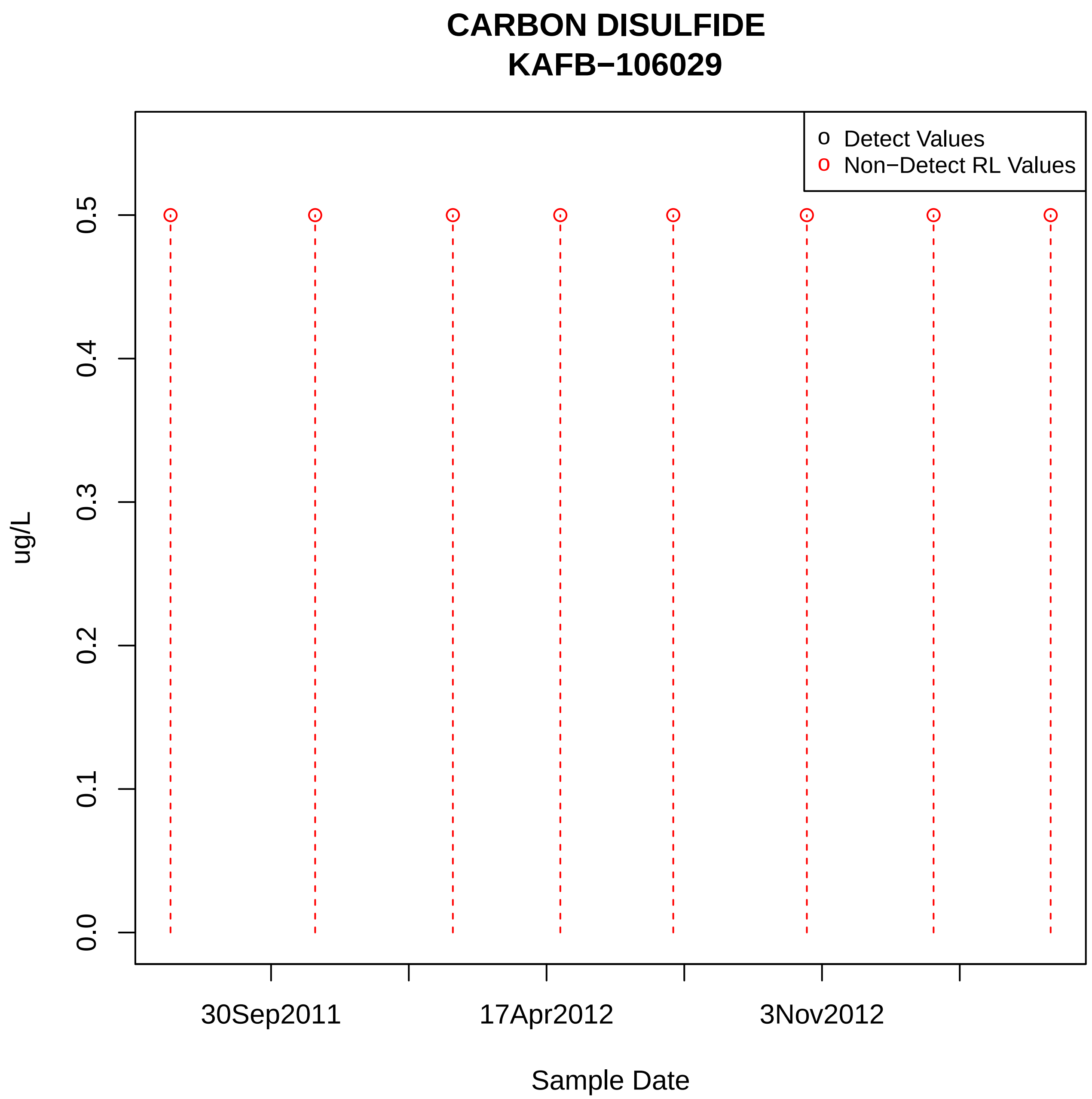

CARBON DISULFIDE
KAFB−106022
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

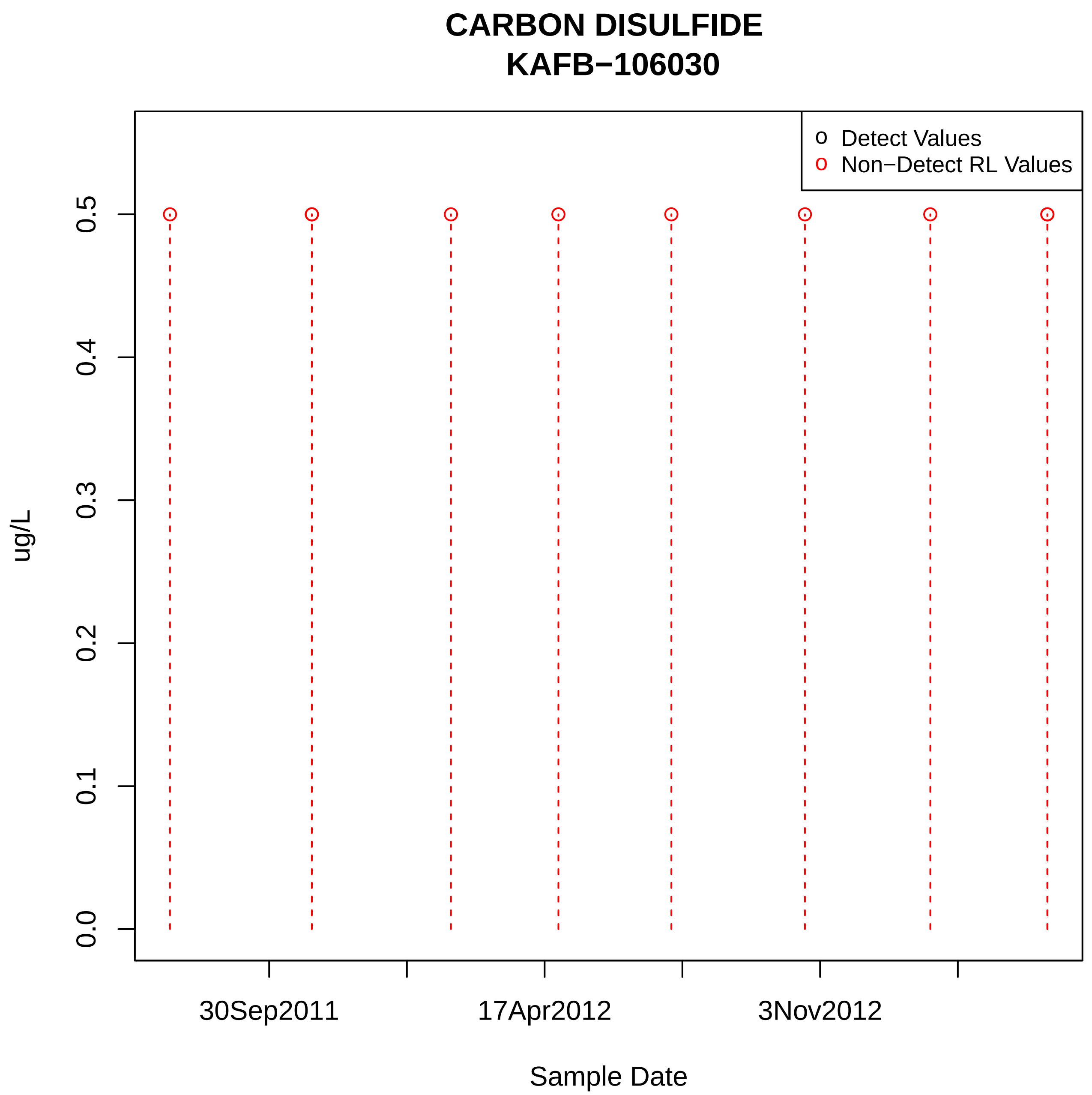

CARBON DISULFIDE
KAFB−106024
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



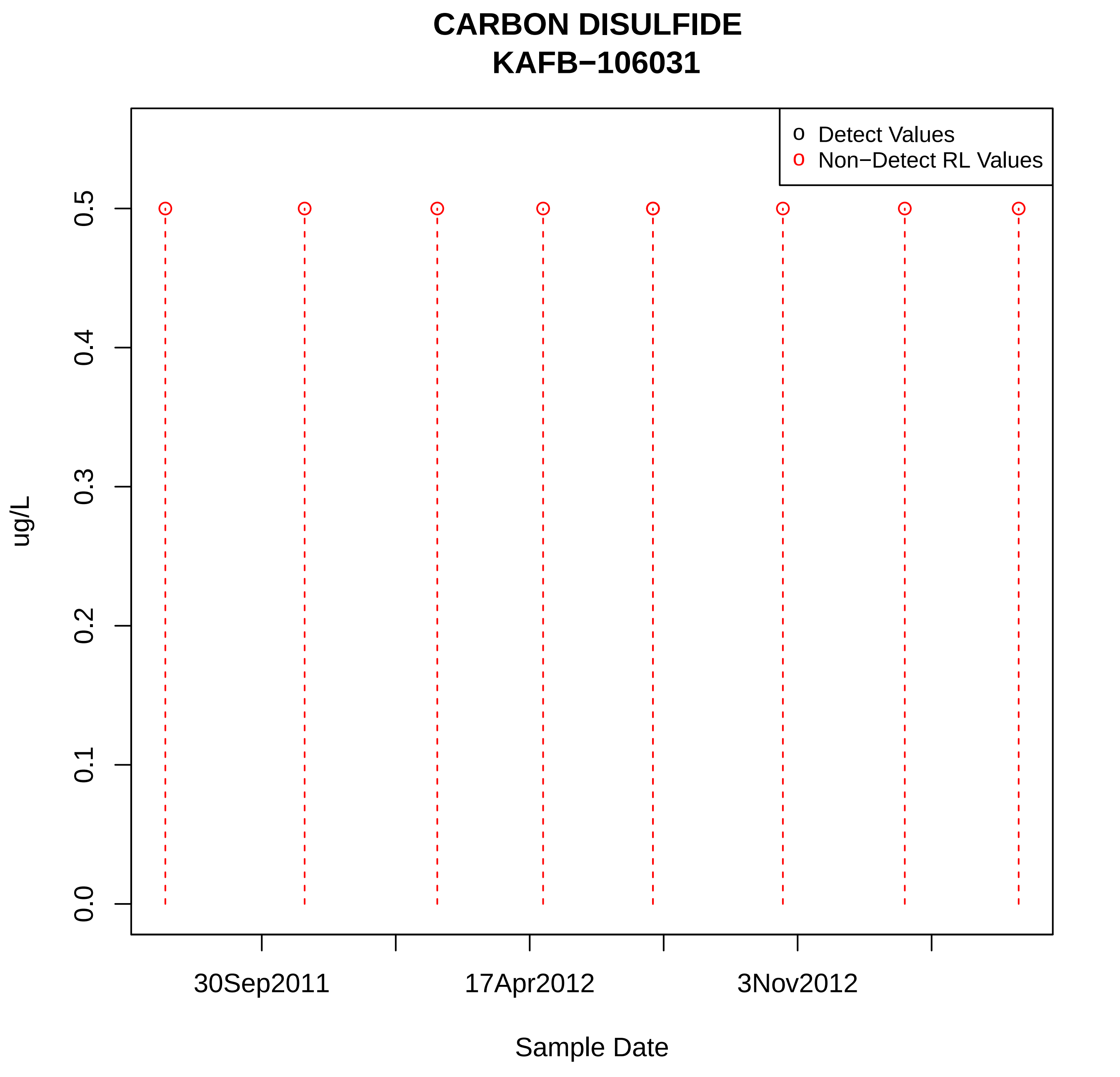
CARBON DISULFIDE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

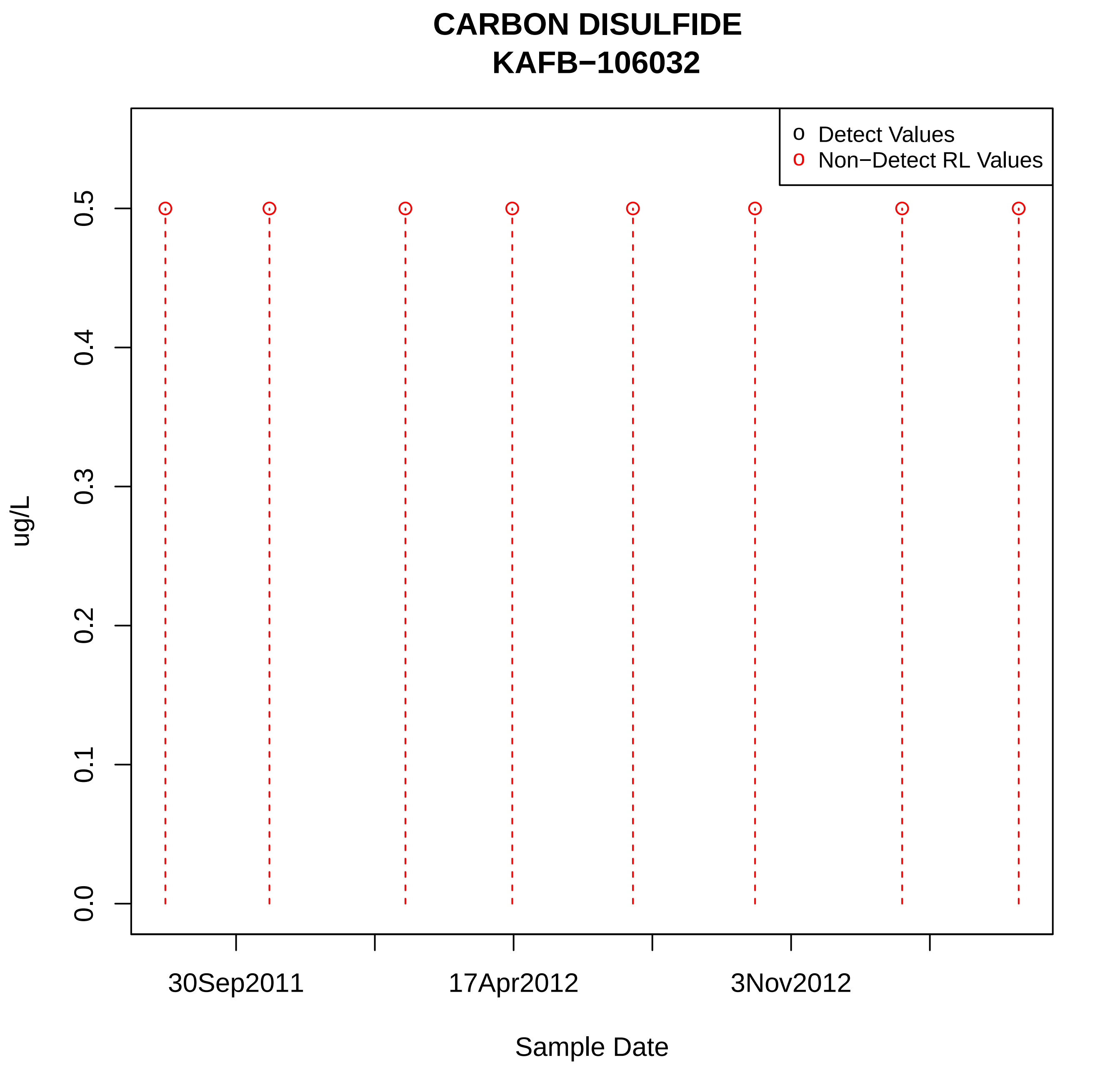

CARBON DISULFIDE
KAFB−106026
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


CARBON DISULFIDE
KAFB−106029
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

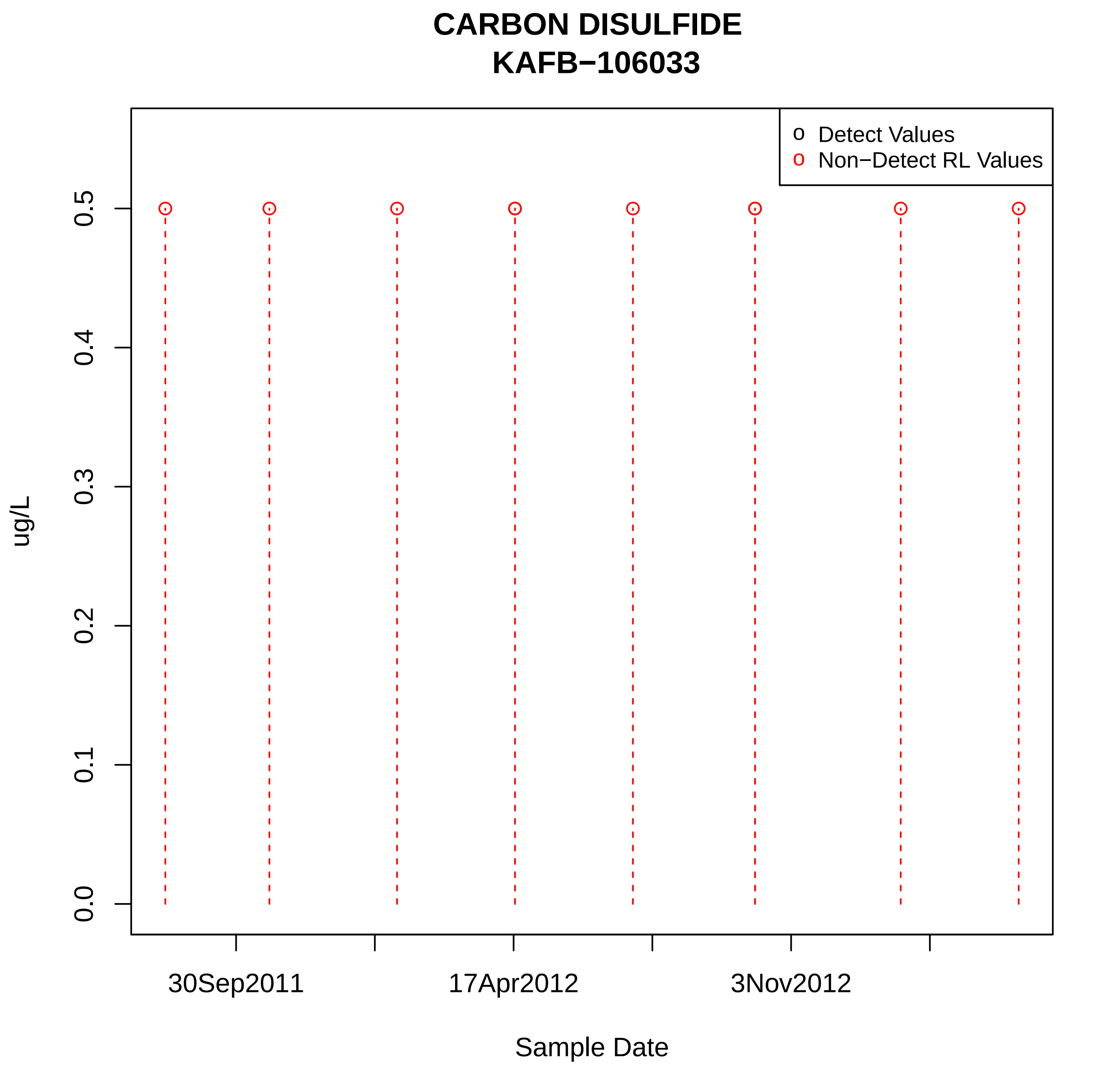


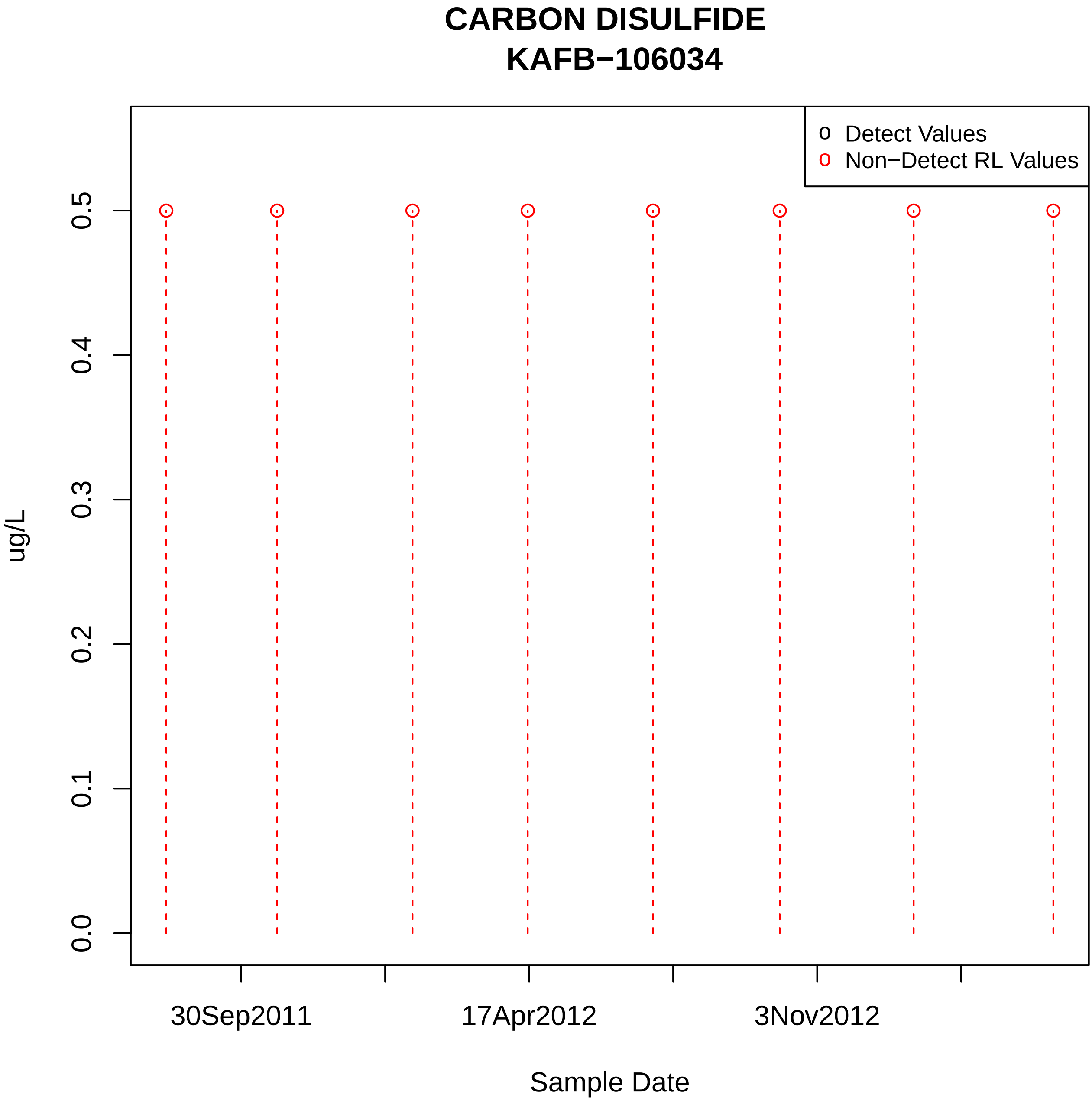
CARBON DISULFIDE
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


CARBON DISULFIDE
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

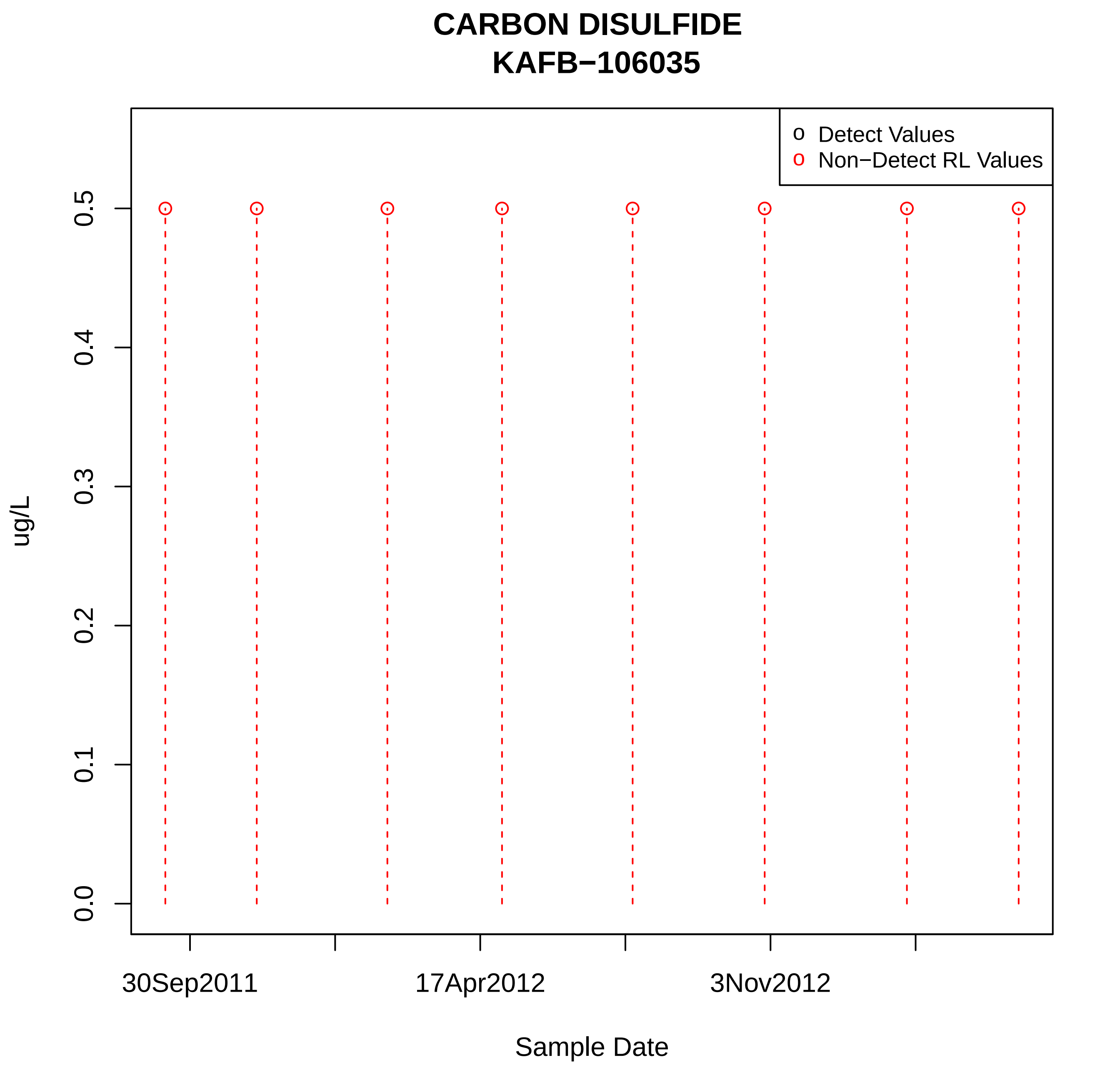


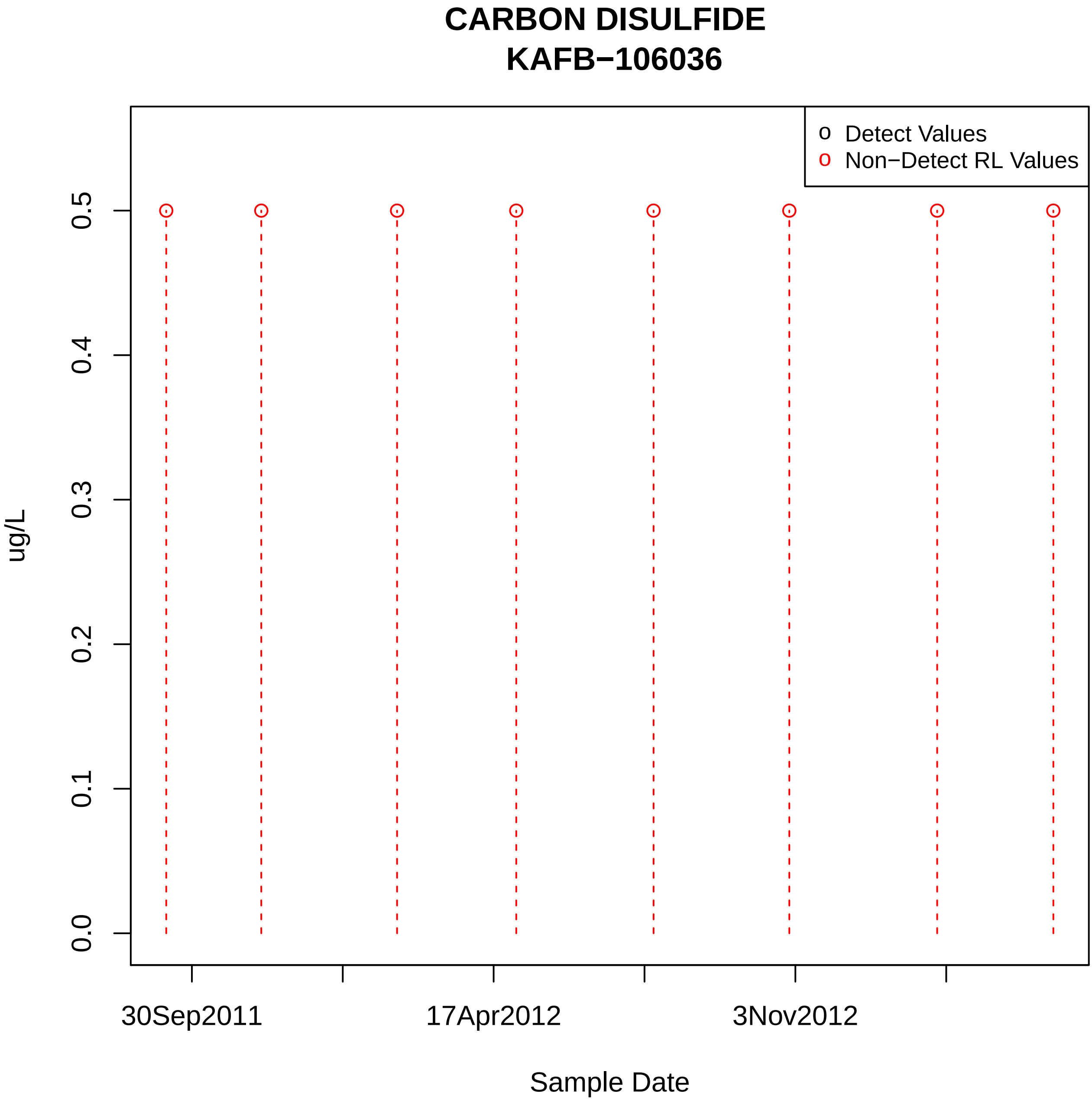
CARBON DISULFIDE
KAFB−106032
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


CARBON DISULFIDE
KAFB−106033
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

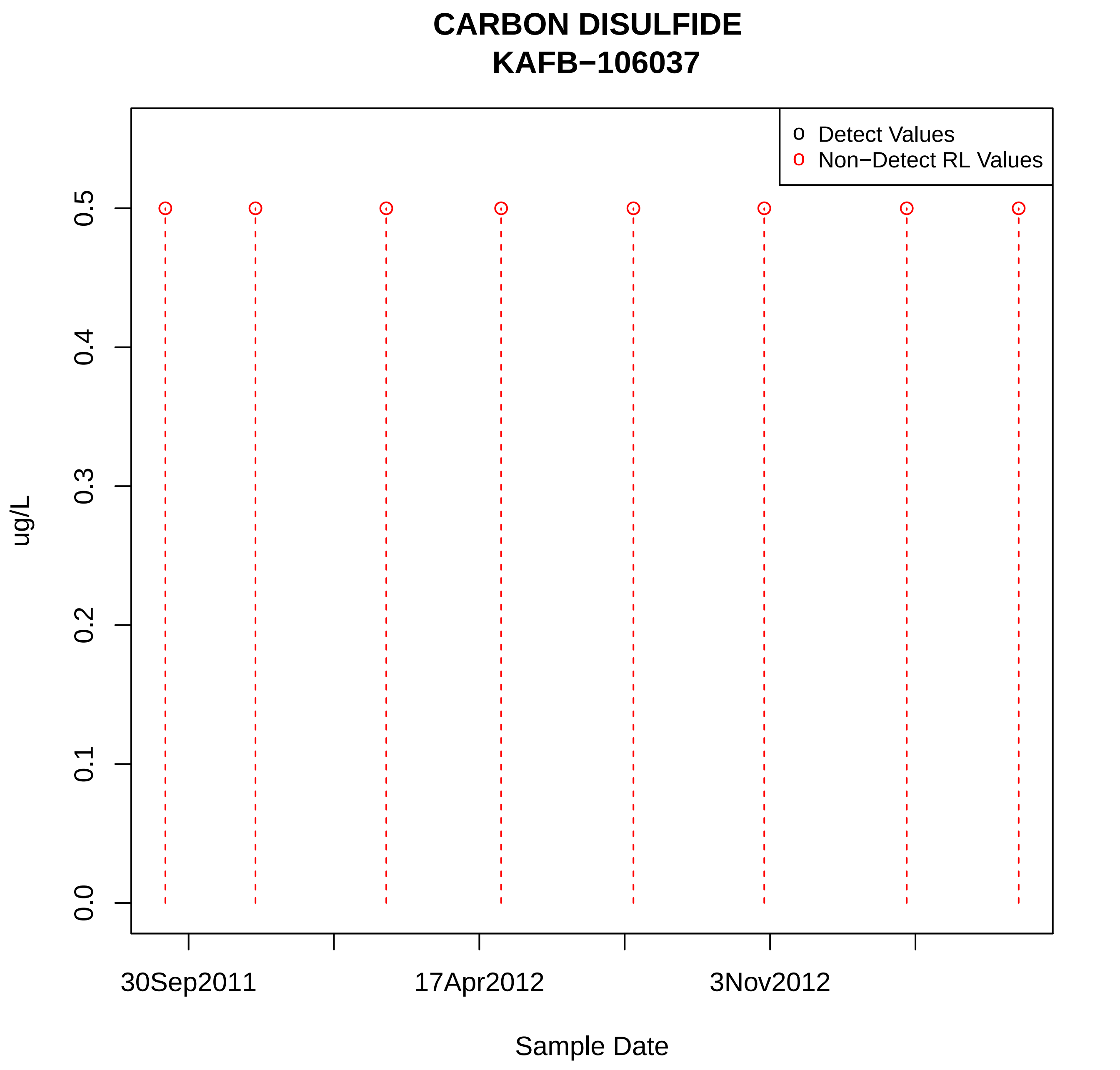


CARBON DISULFIDE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

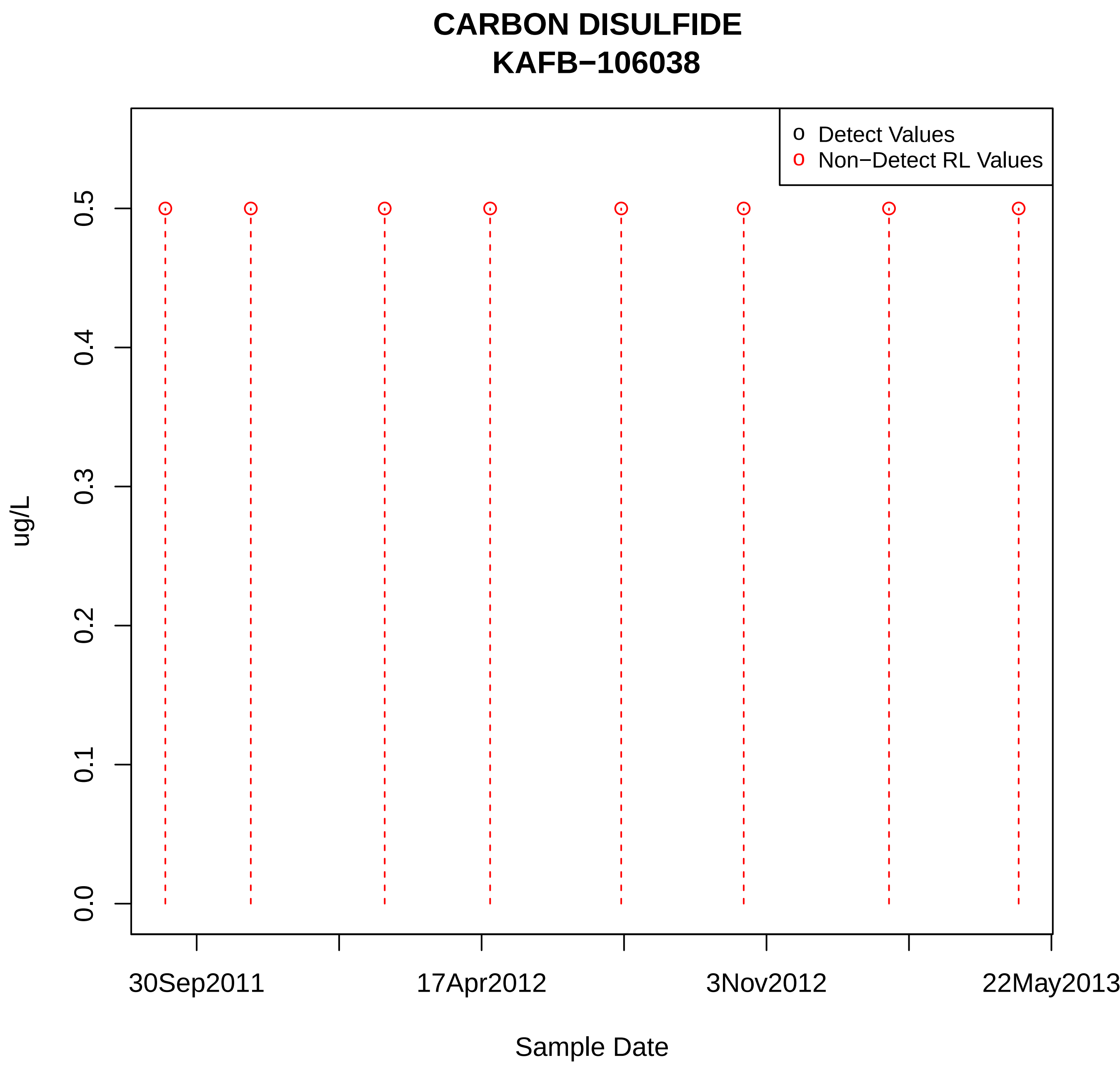

CARBON DISULFIDE
KAFB−106035
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



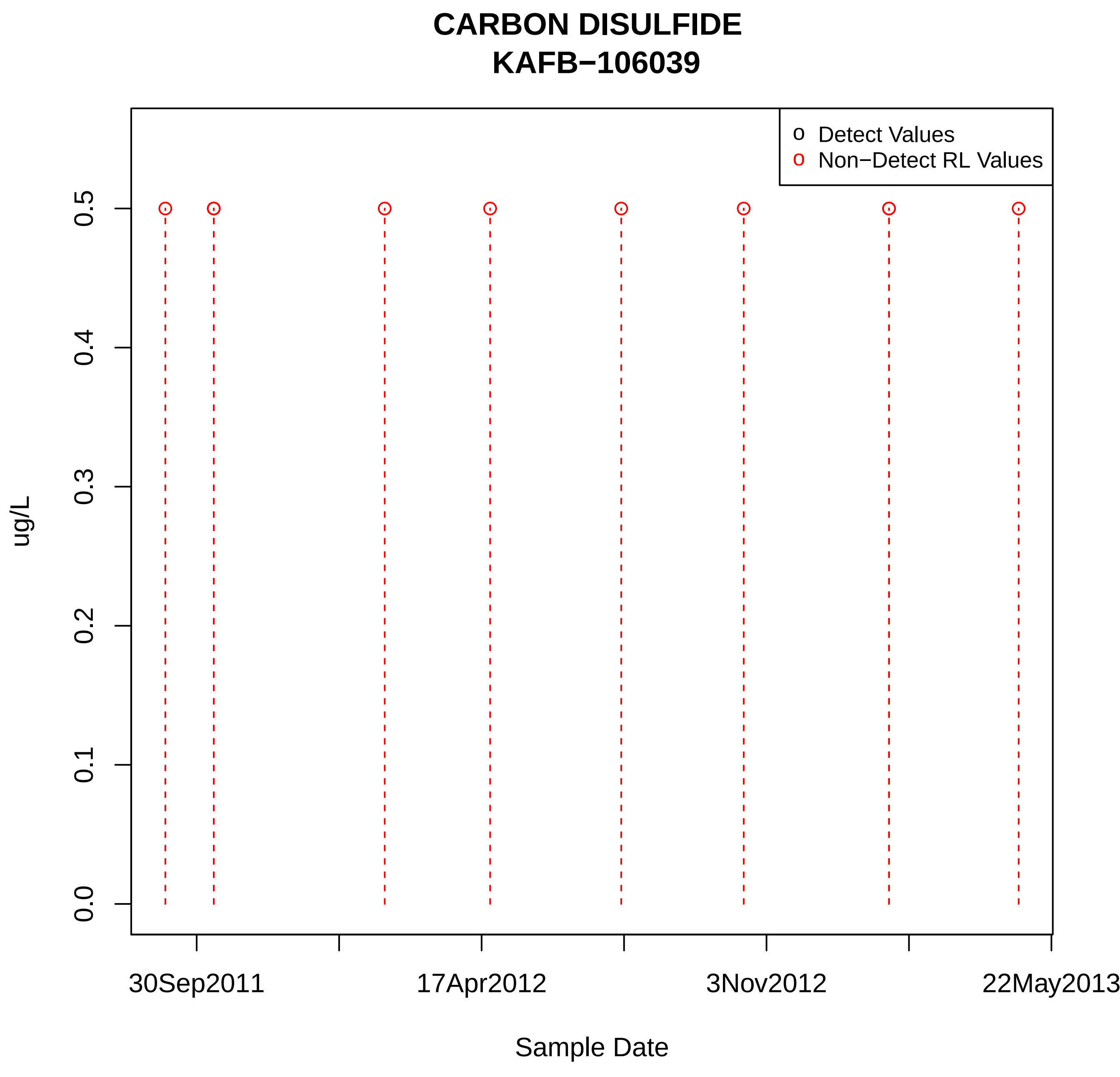
CARBON DISULFIDE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

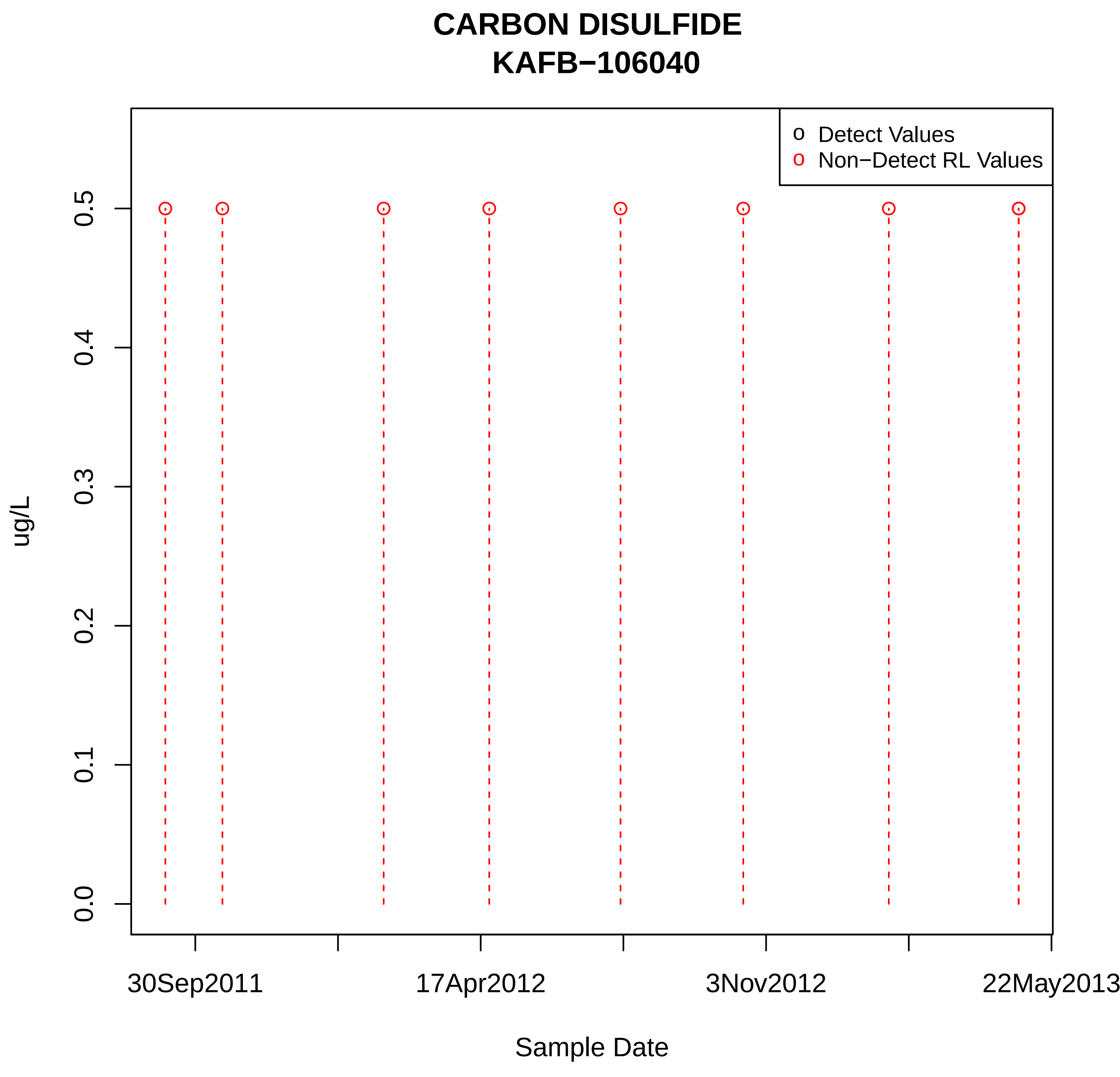


CARBON DISULFIDE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

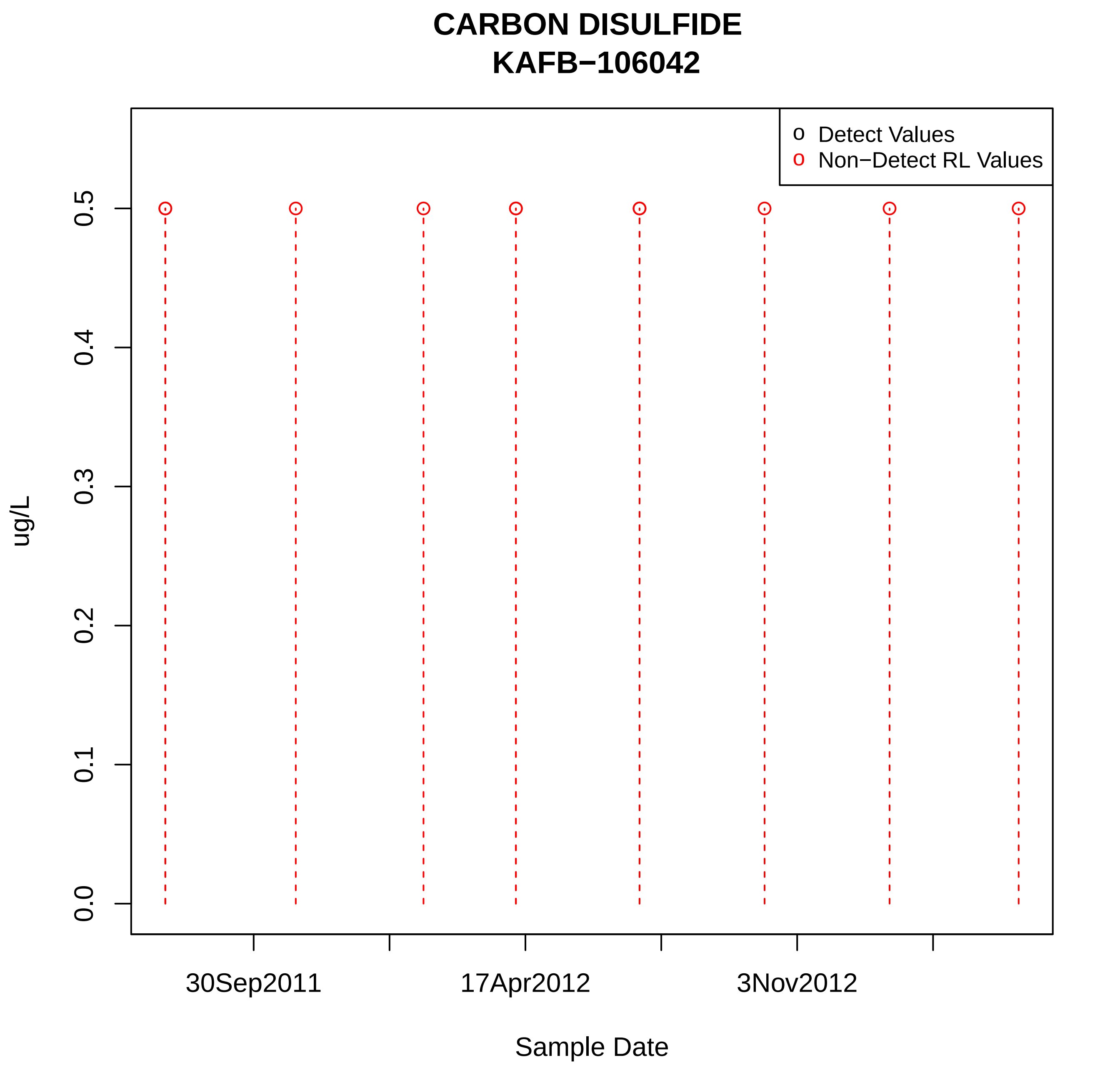


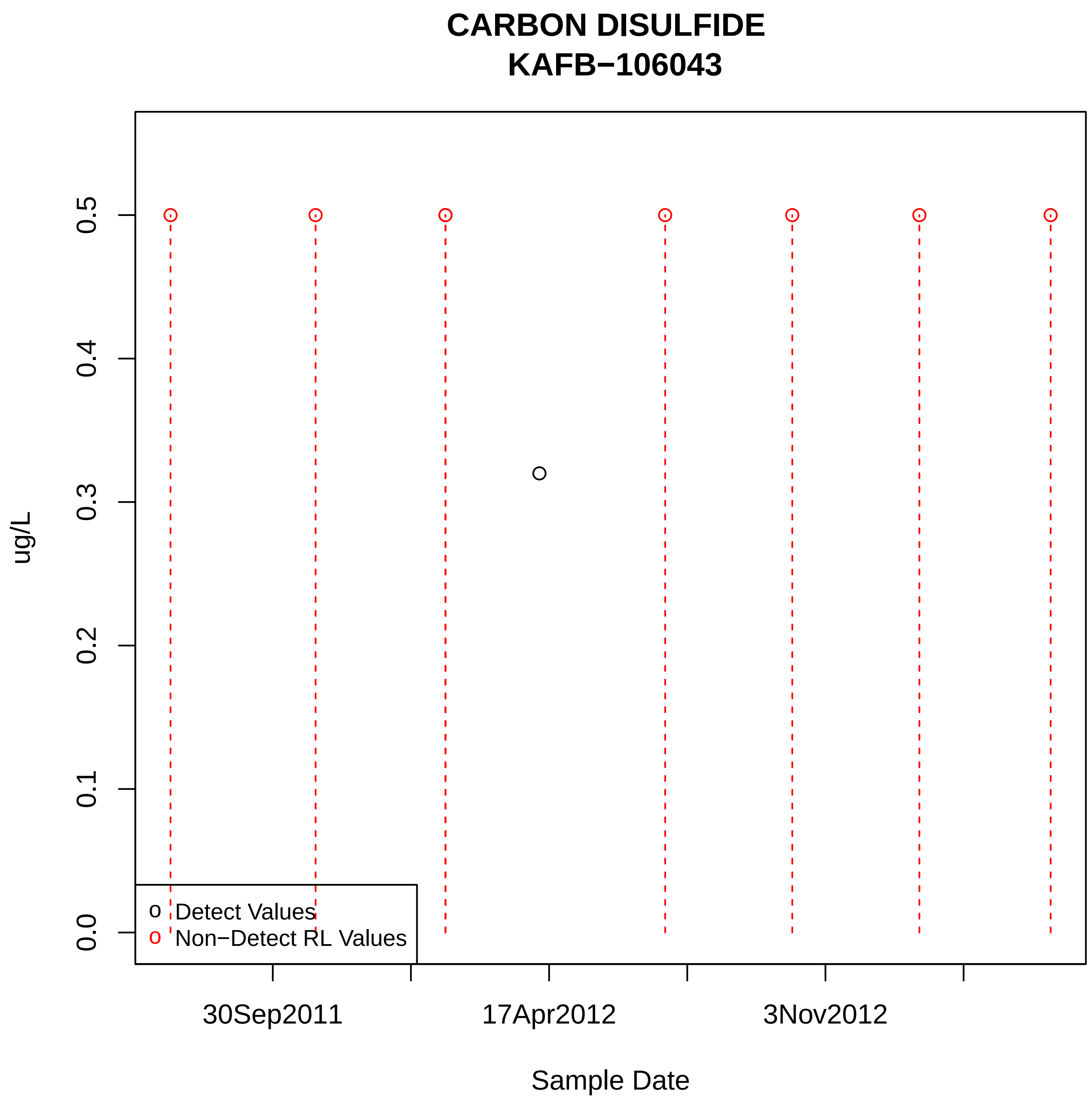
CARBON DISULFIDE
KAFB−106038
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

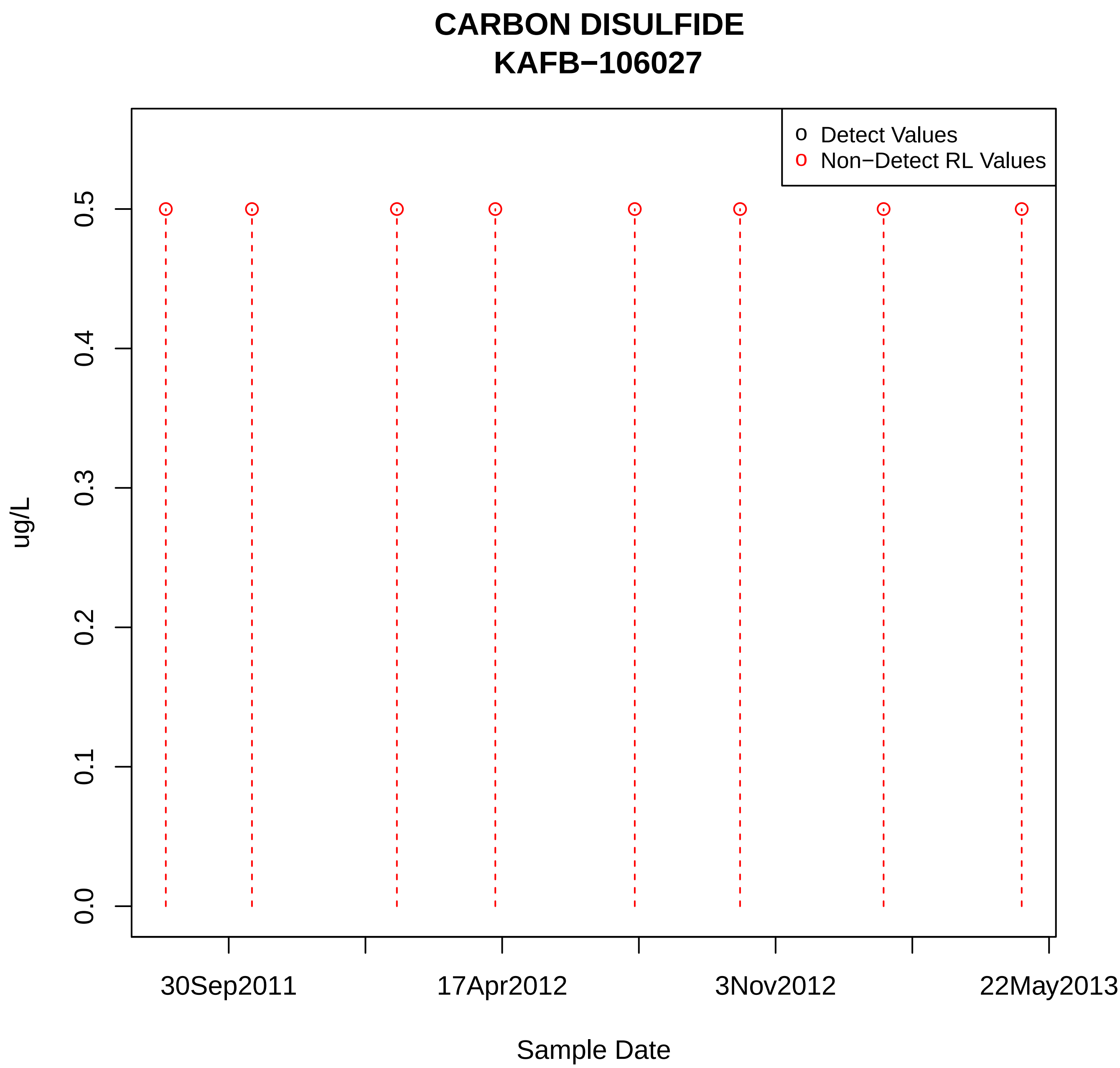


CARBON DISULFIDE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

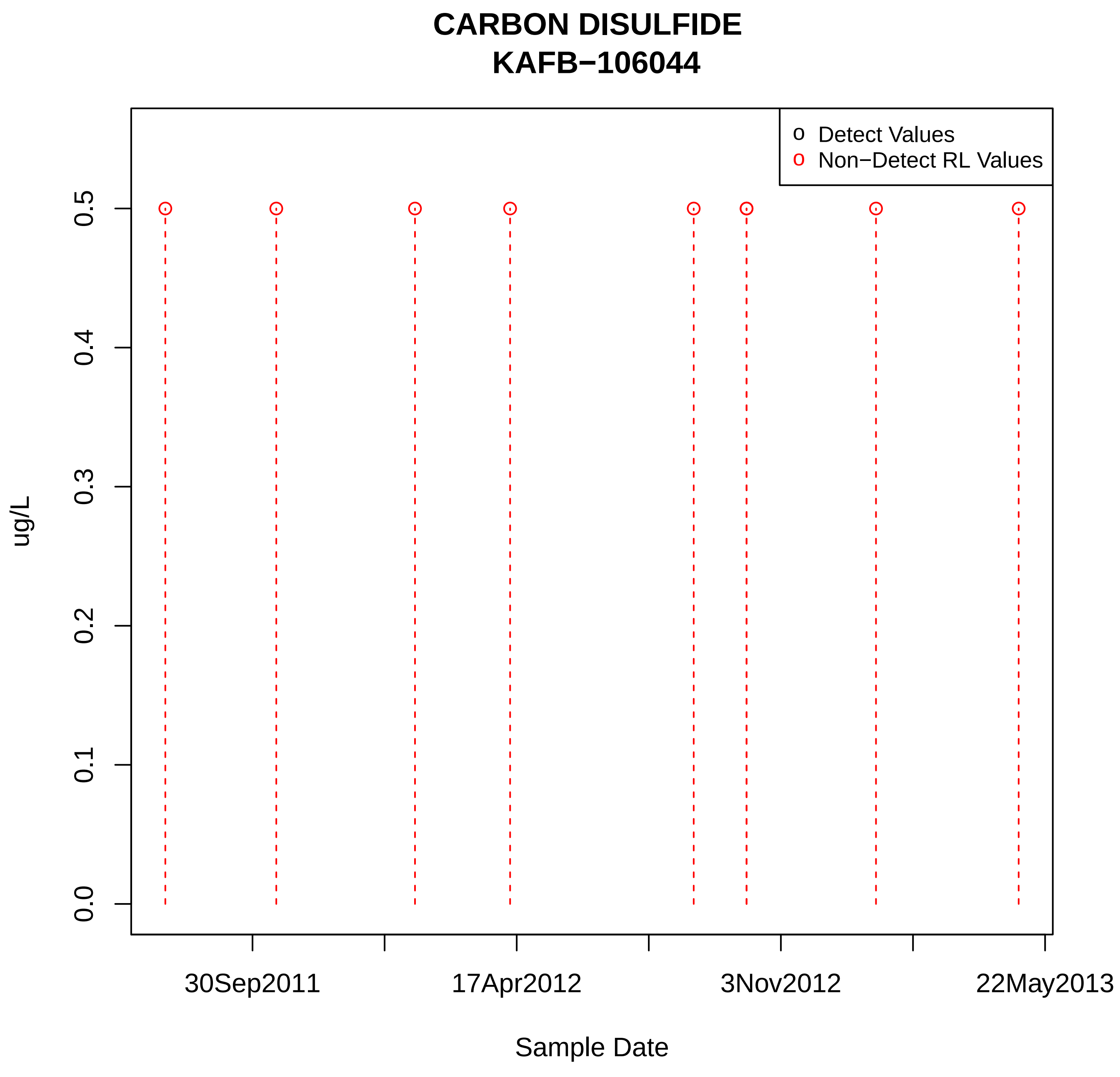

CARBON DISULFIDE
KAFB−106042
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

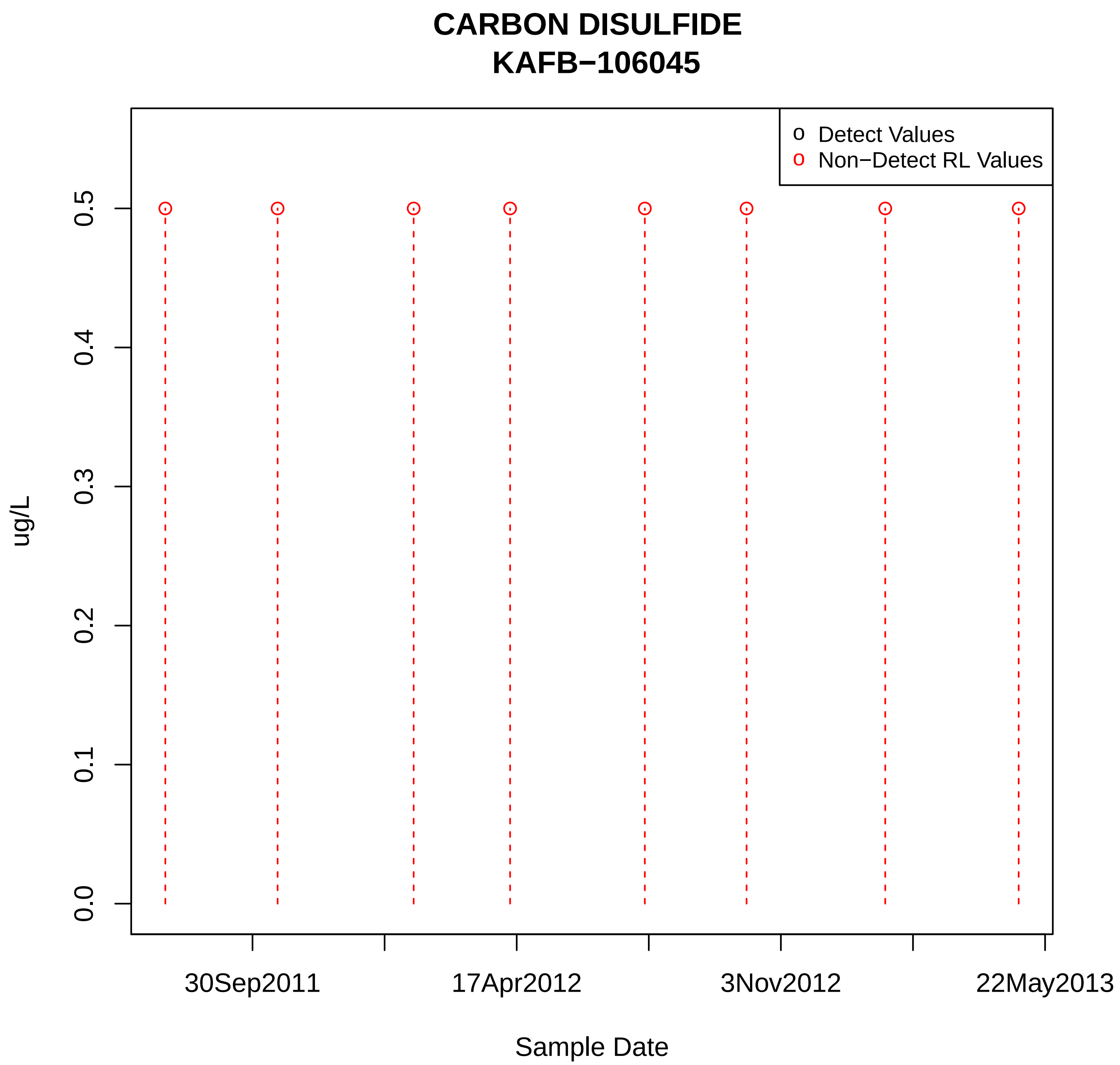


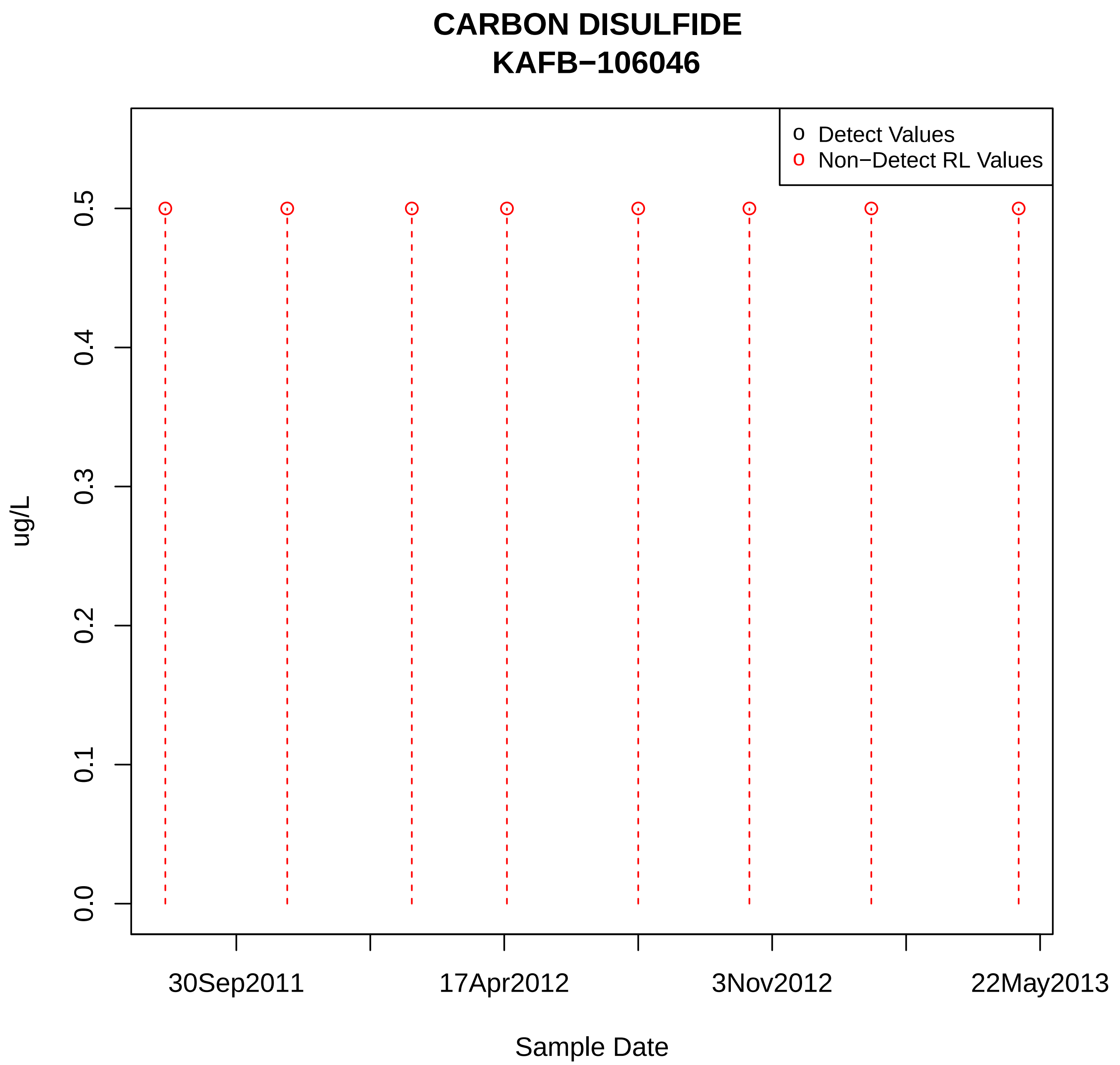
CARBON DISULFIDE
KAFB−106043
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

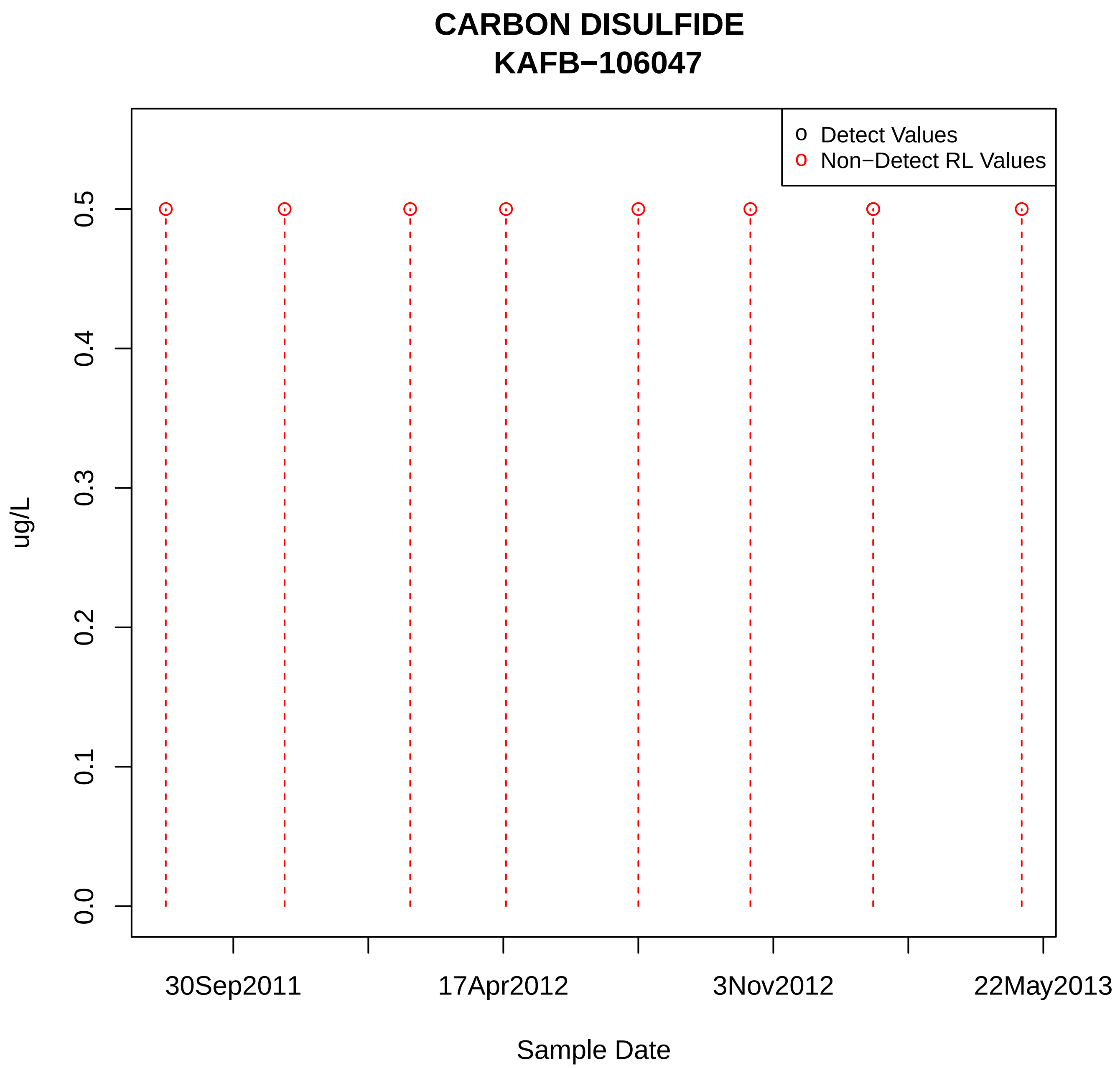


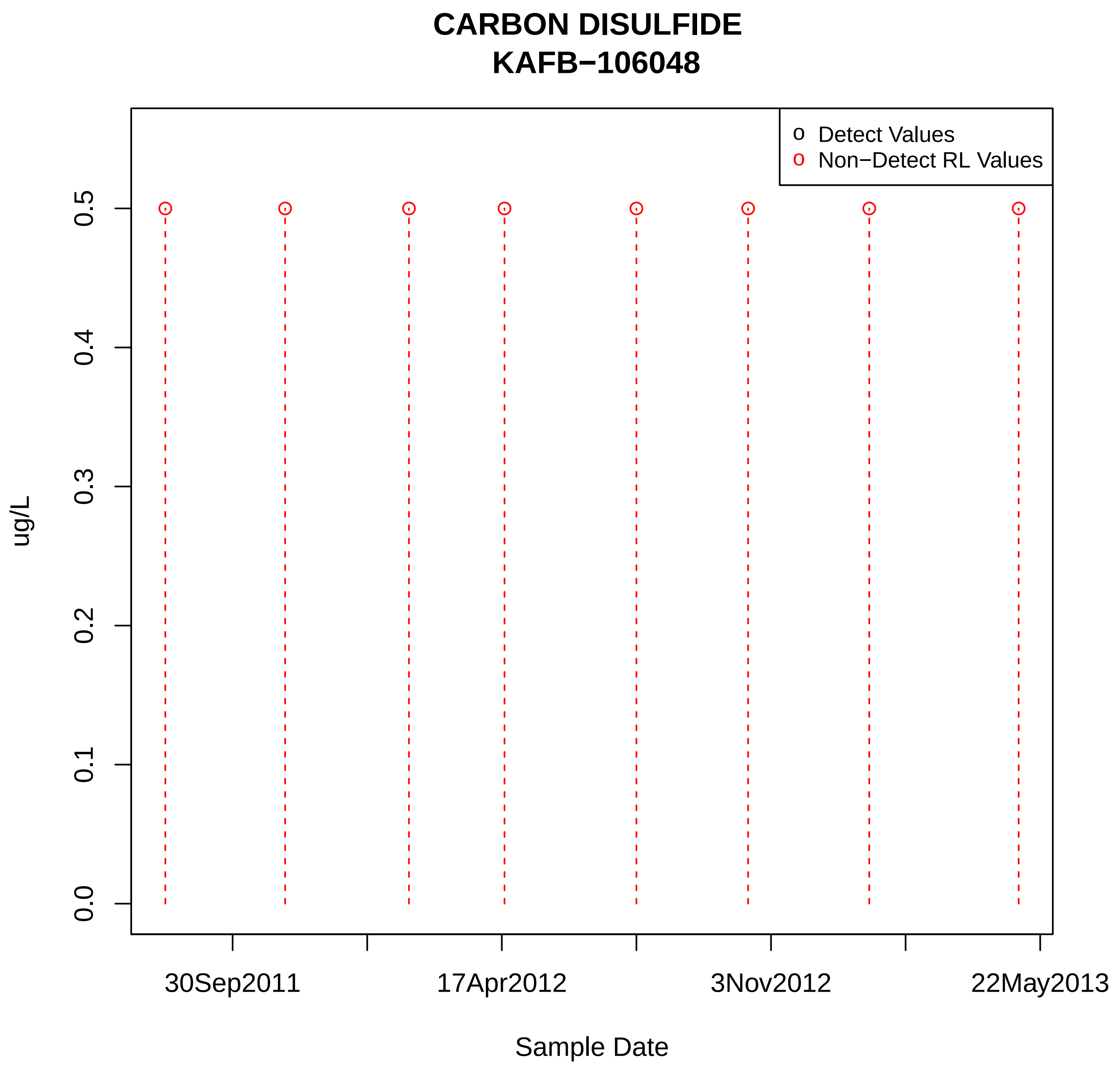
CARBON DISULFIDE
KAFB−106027
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

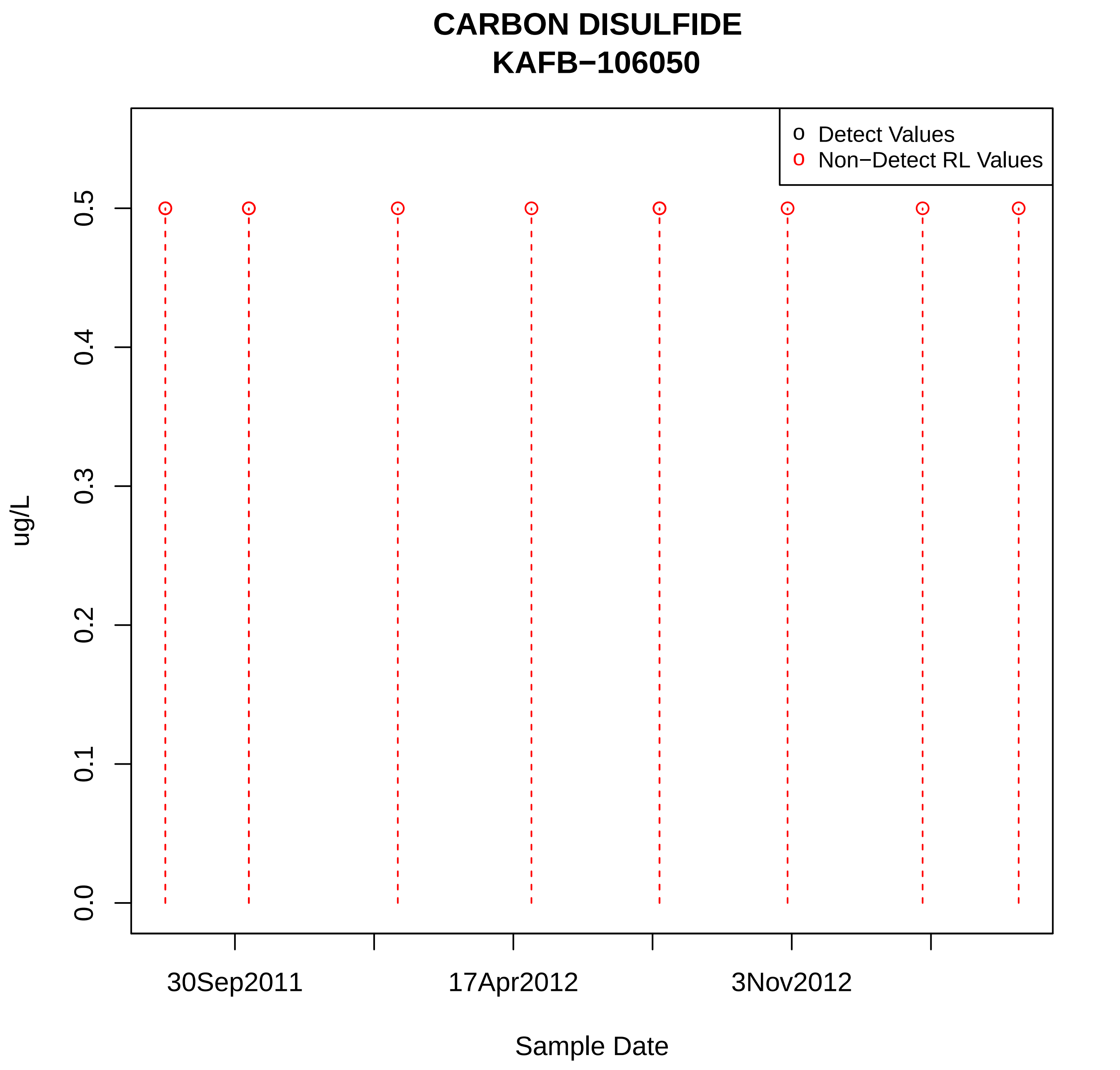

CARBON DISULFIDE
KAFB−106045
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

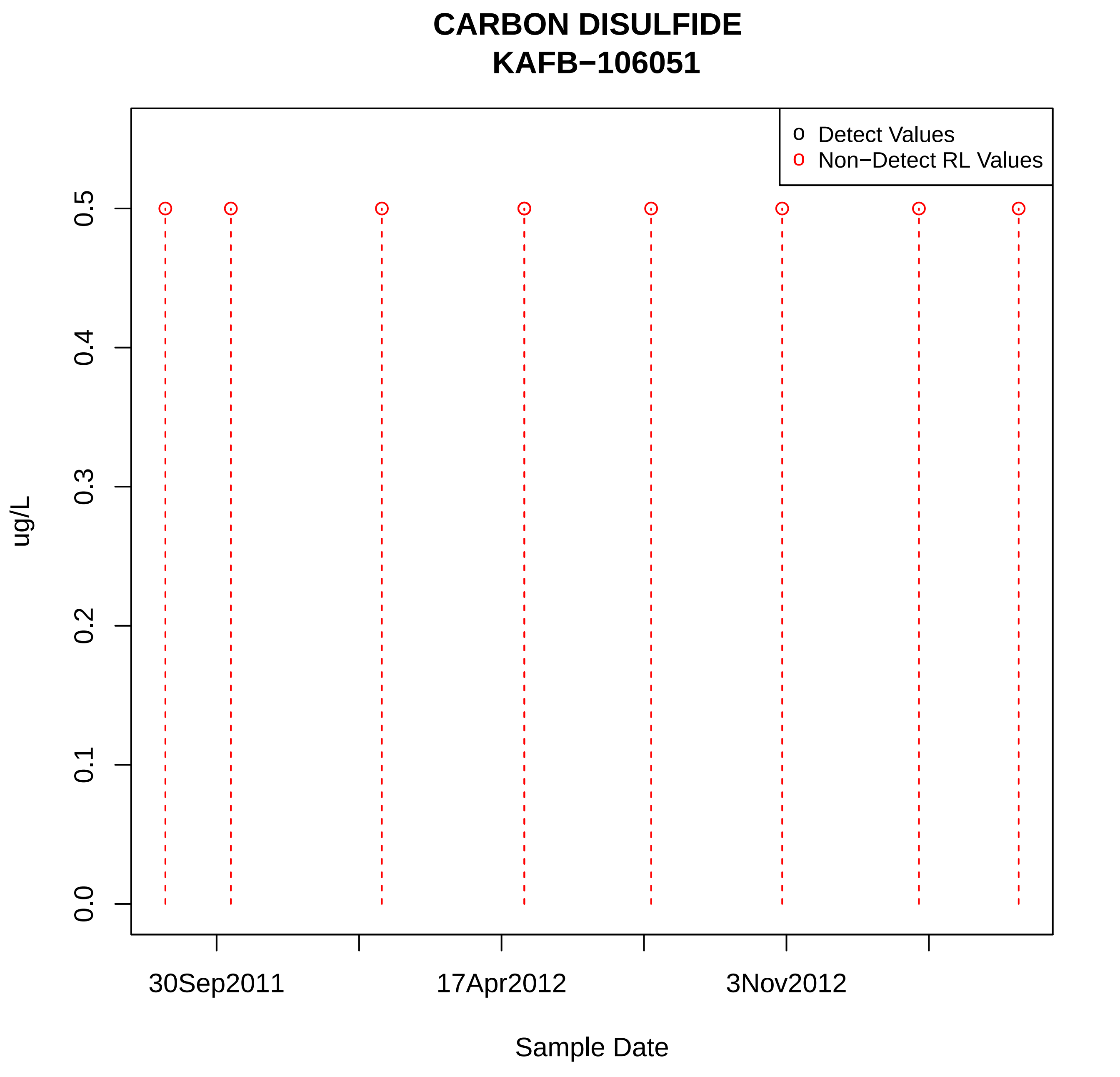

CARBON DISULFIDE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

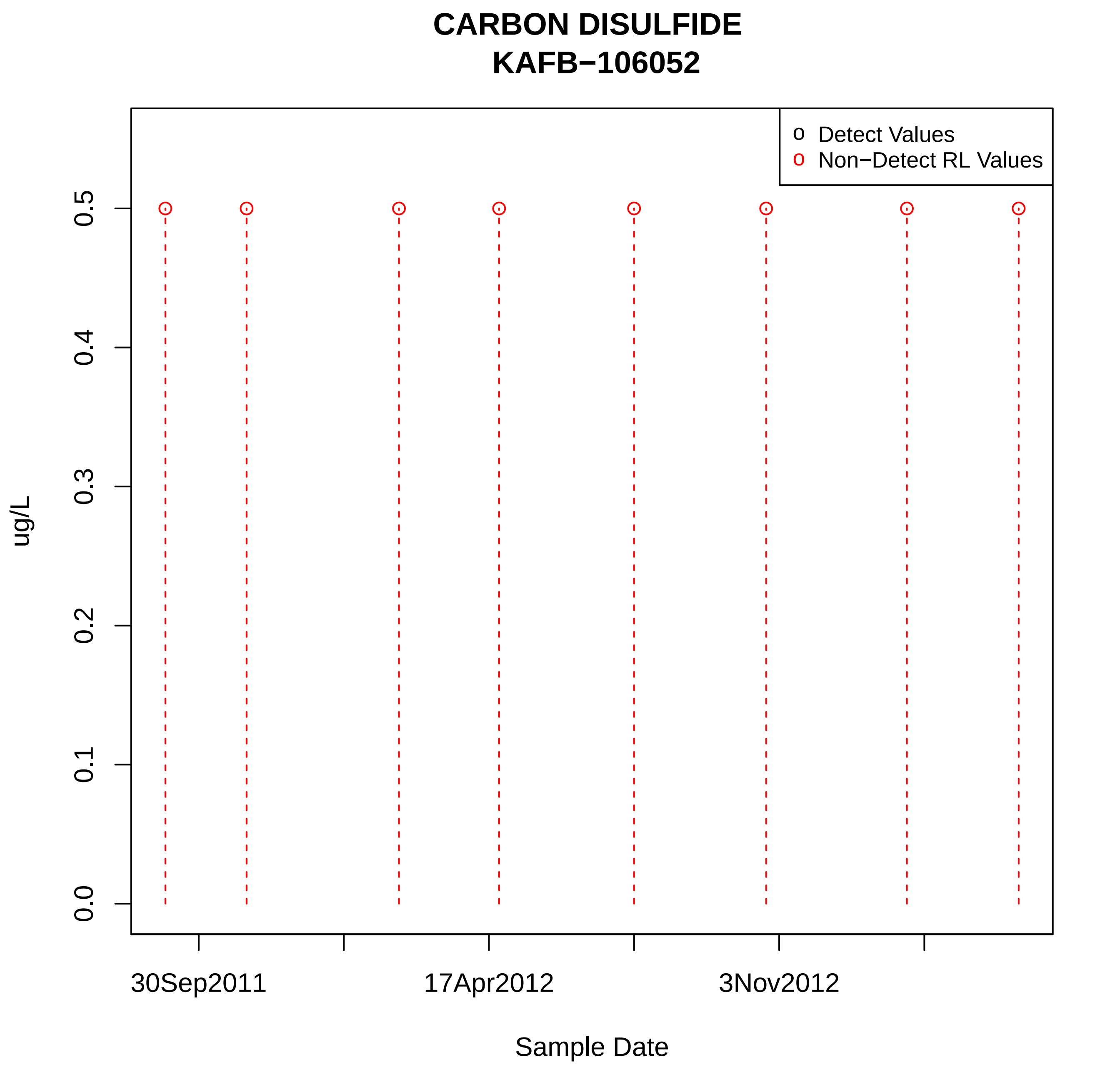

CARBON DISULFIDE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



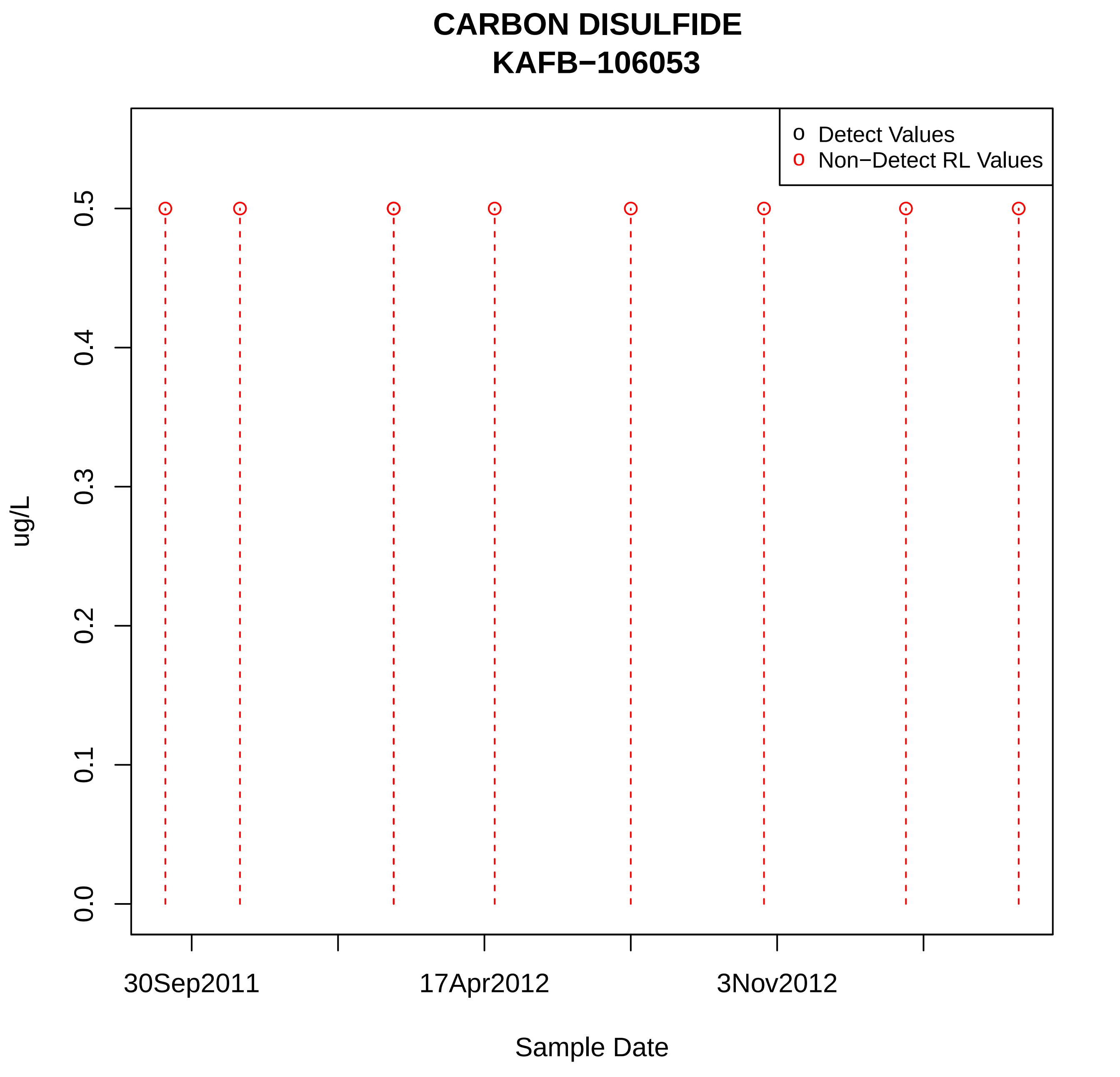
CARBON DISULFIDE
KAFB−106048
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106050
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

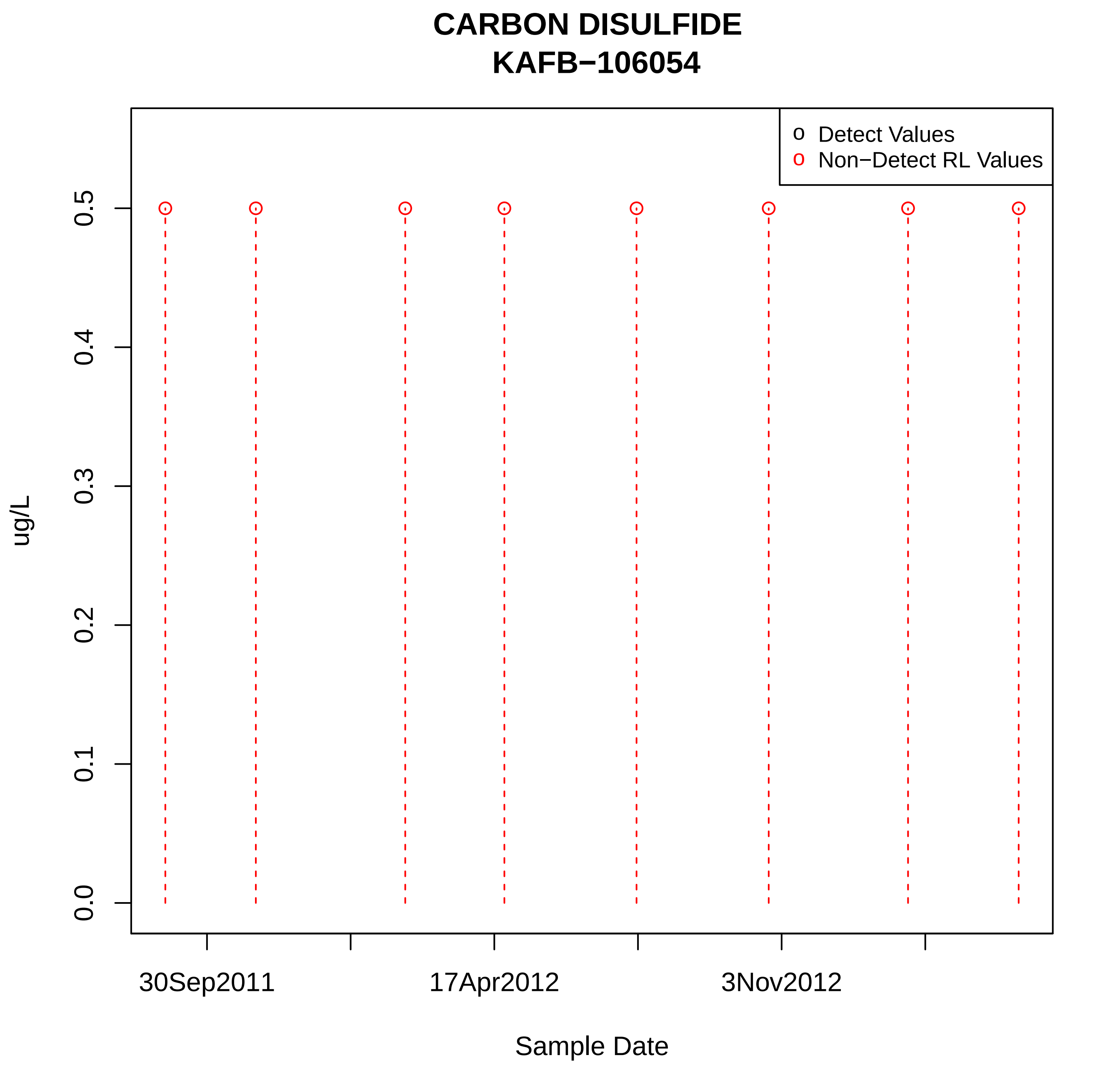

CARBON DISULFIDE
KAFB−106051
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

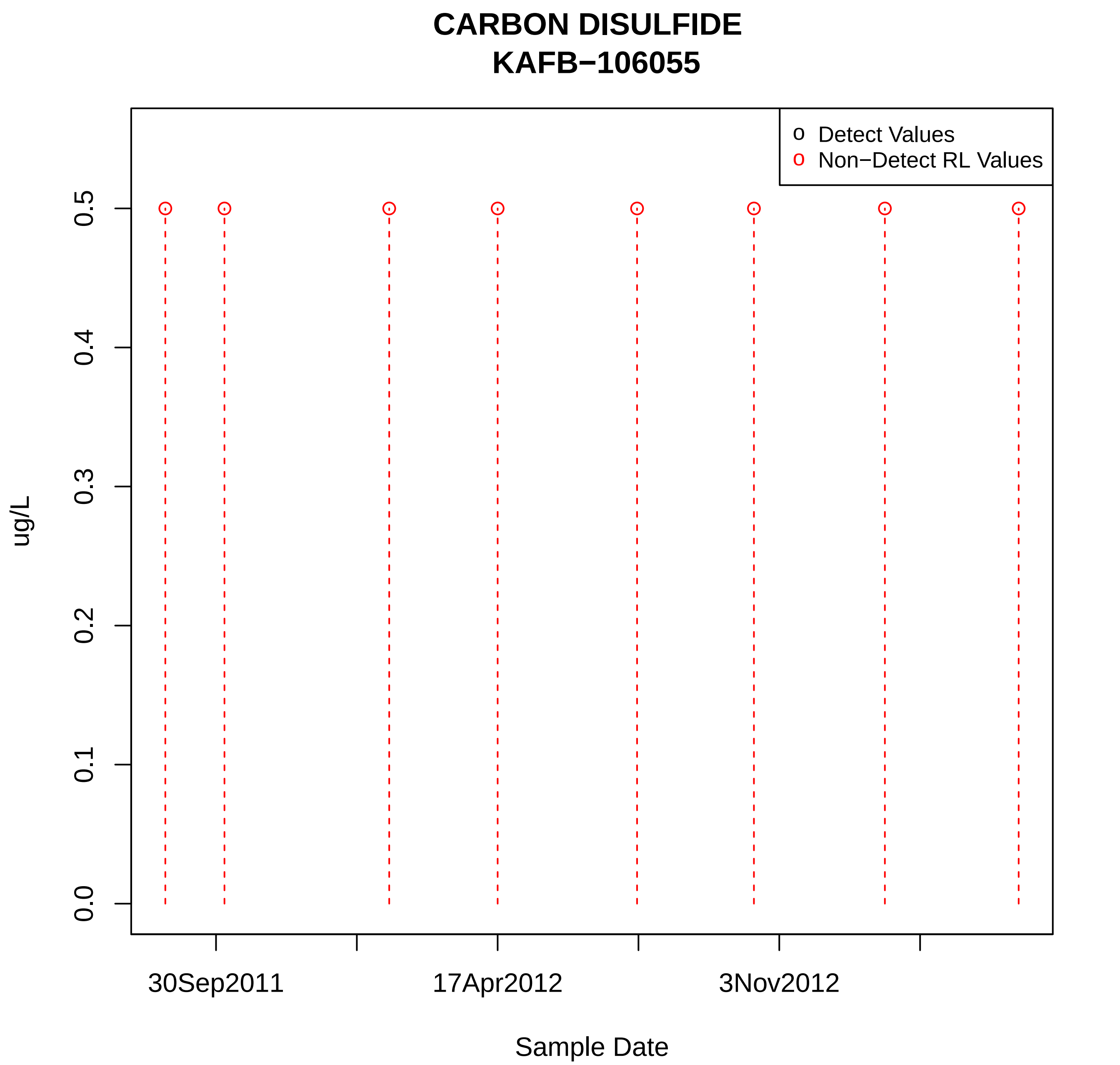


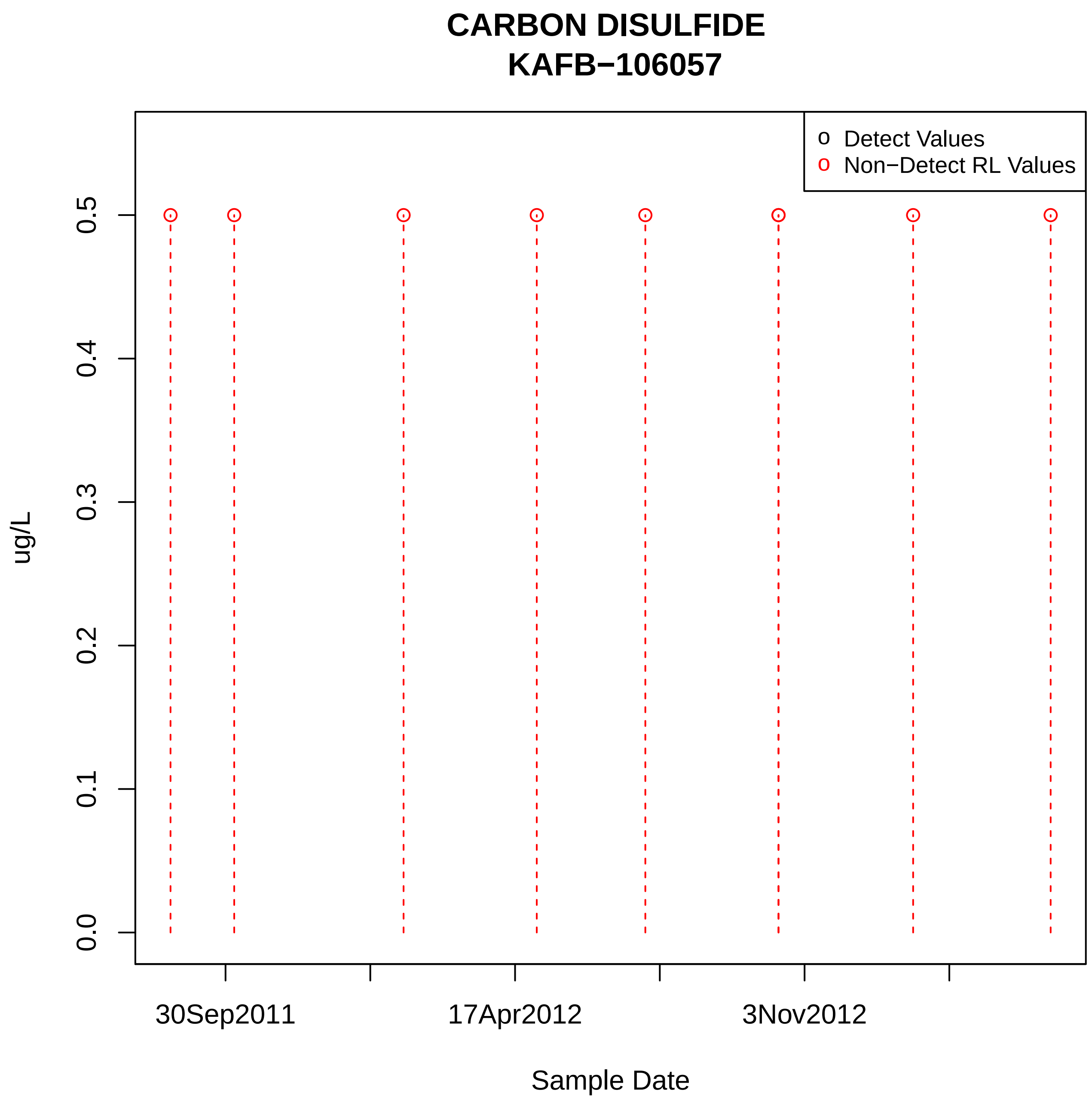
CARBON DISULFIDE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



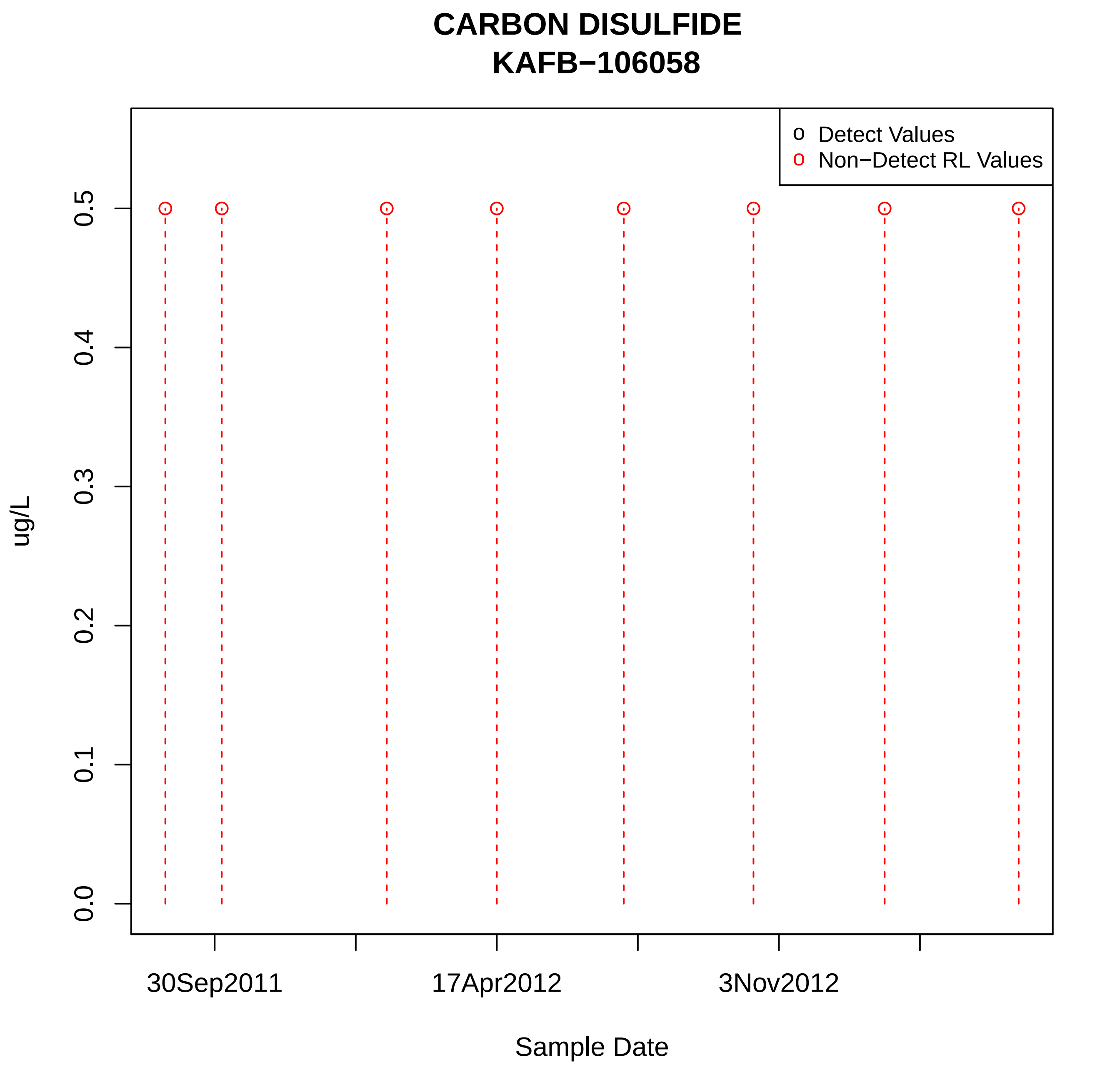
CARBON DISULFIDE
KAFB−106053
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

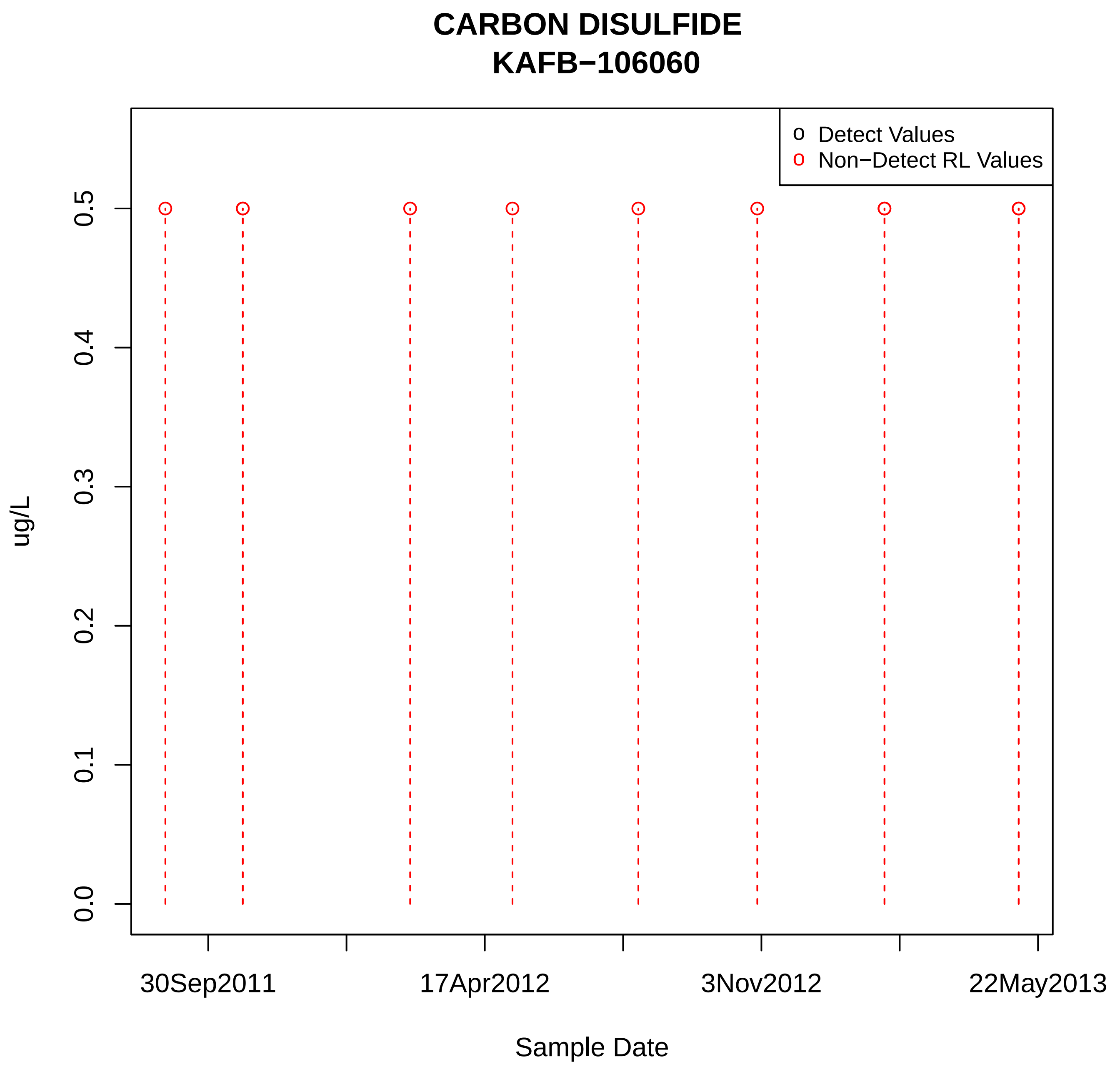

CARBON DISULFIDE
KAFB−106054
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

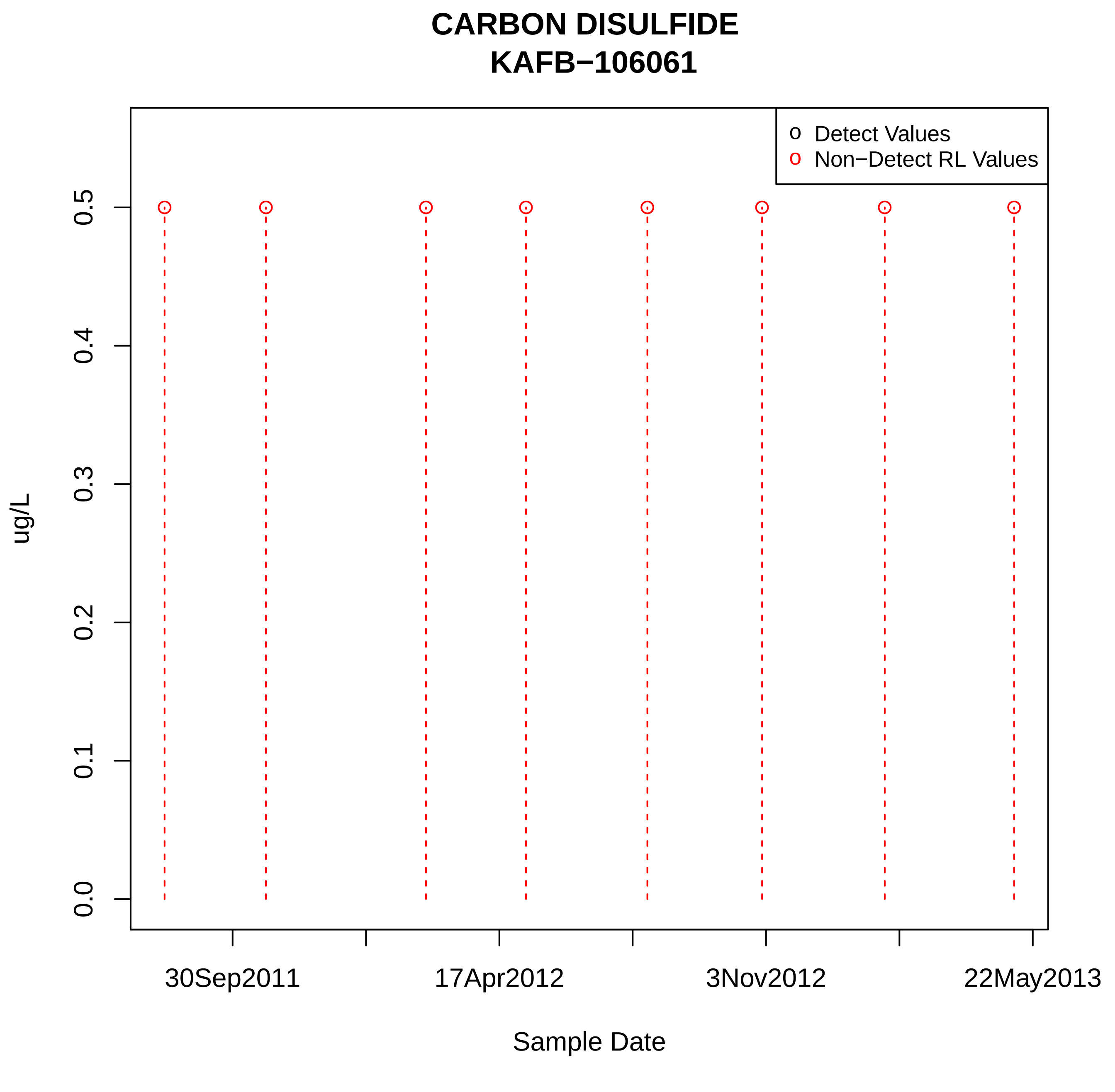

CARBON DISULFIDE
KAFB−106055
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

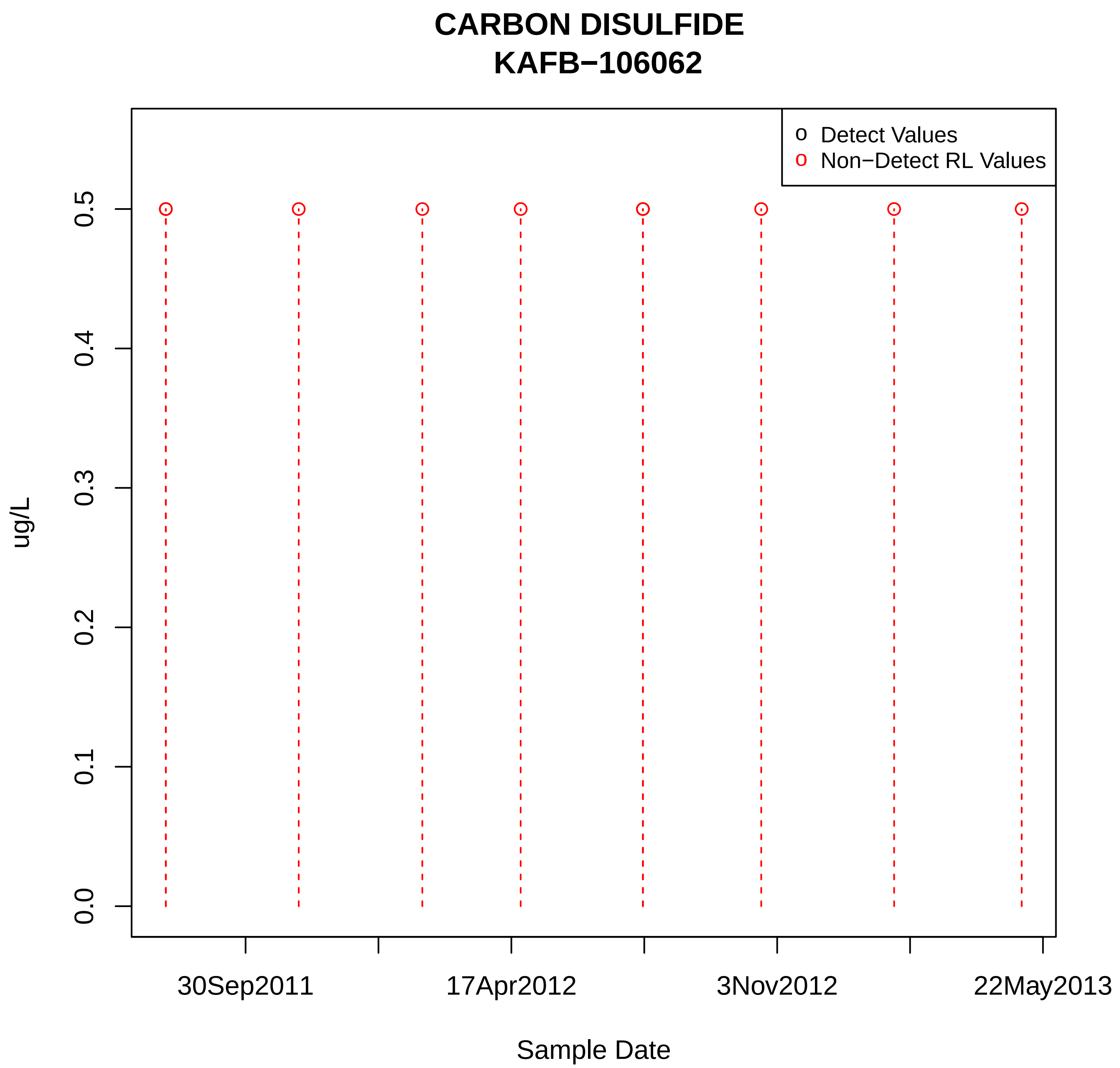


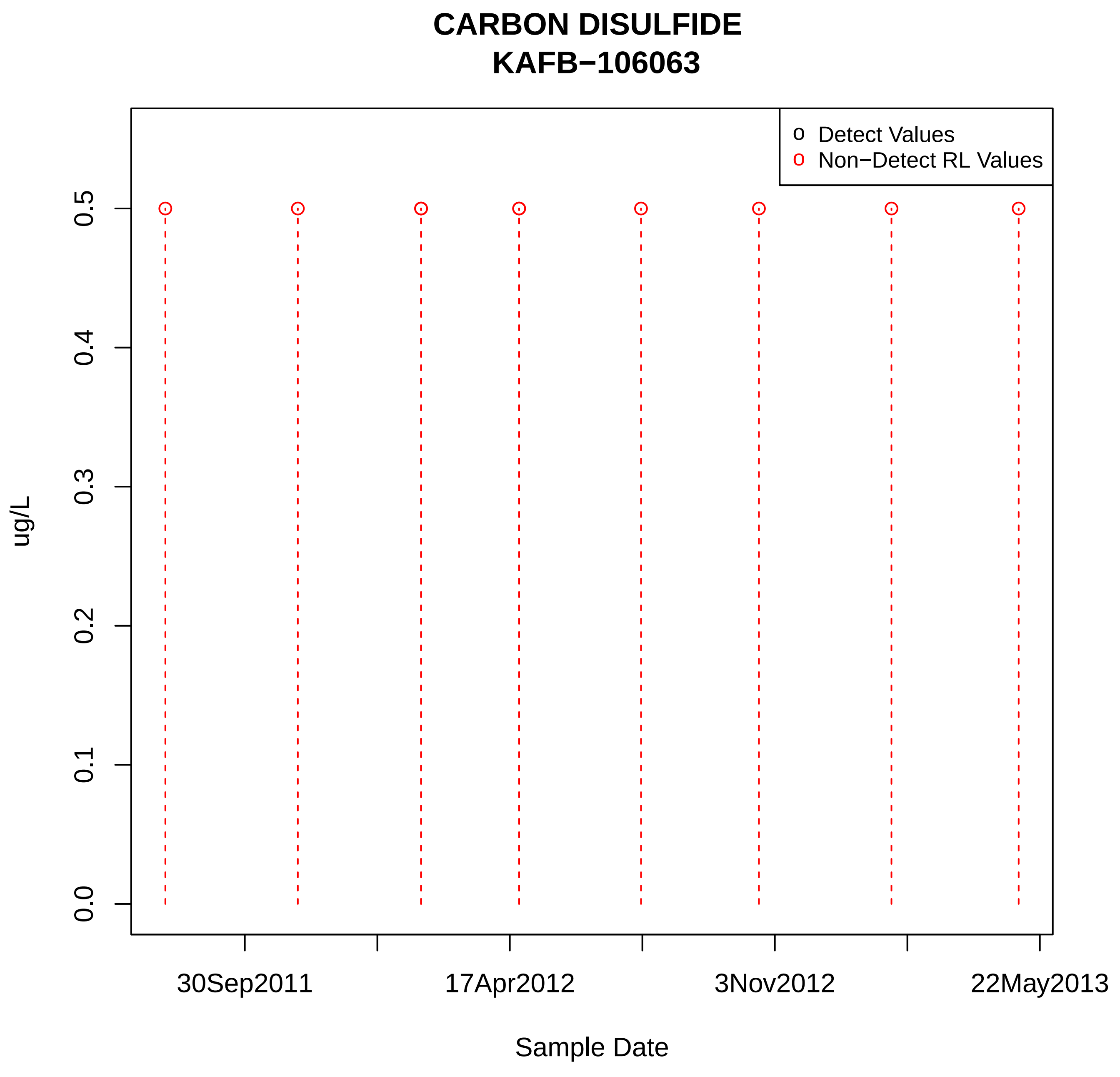
CARBON DISULFIDE
KAFB−106057
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

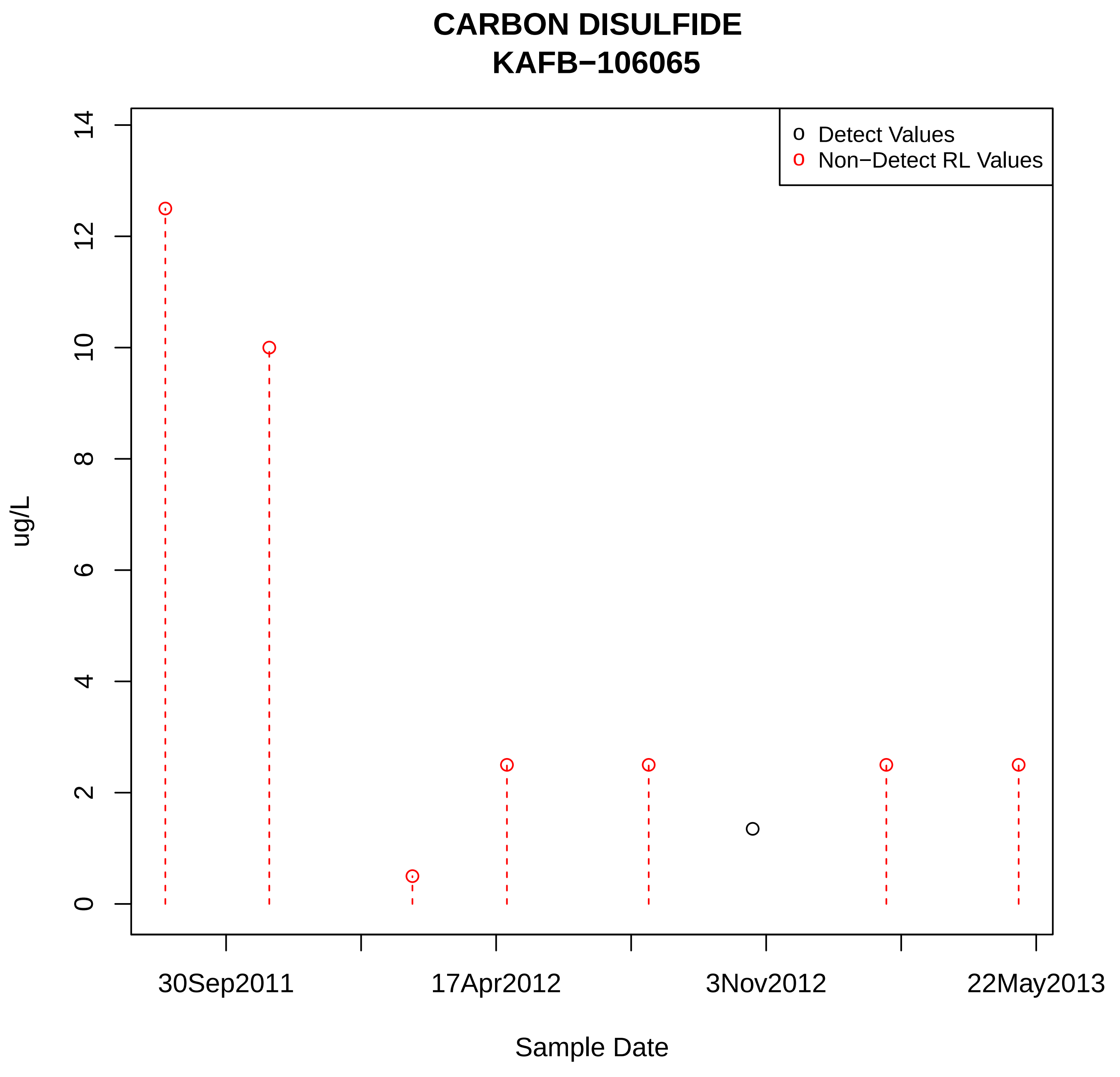

CARBON DISULFIDE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

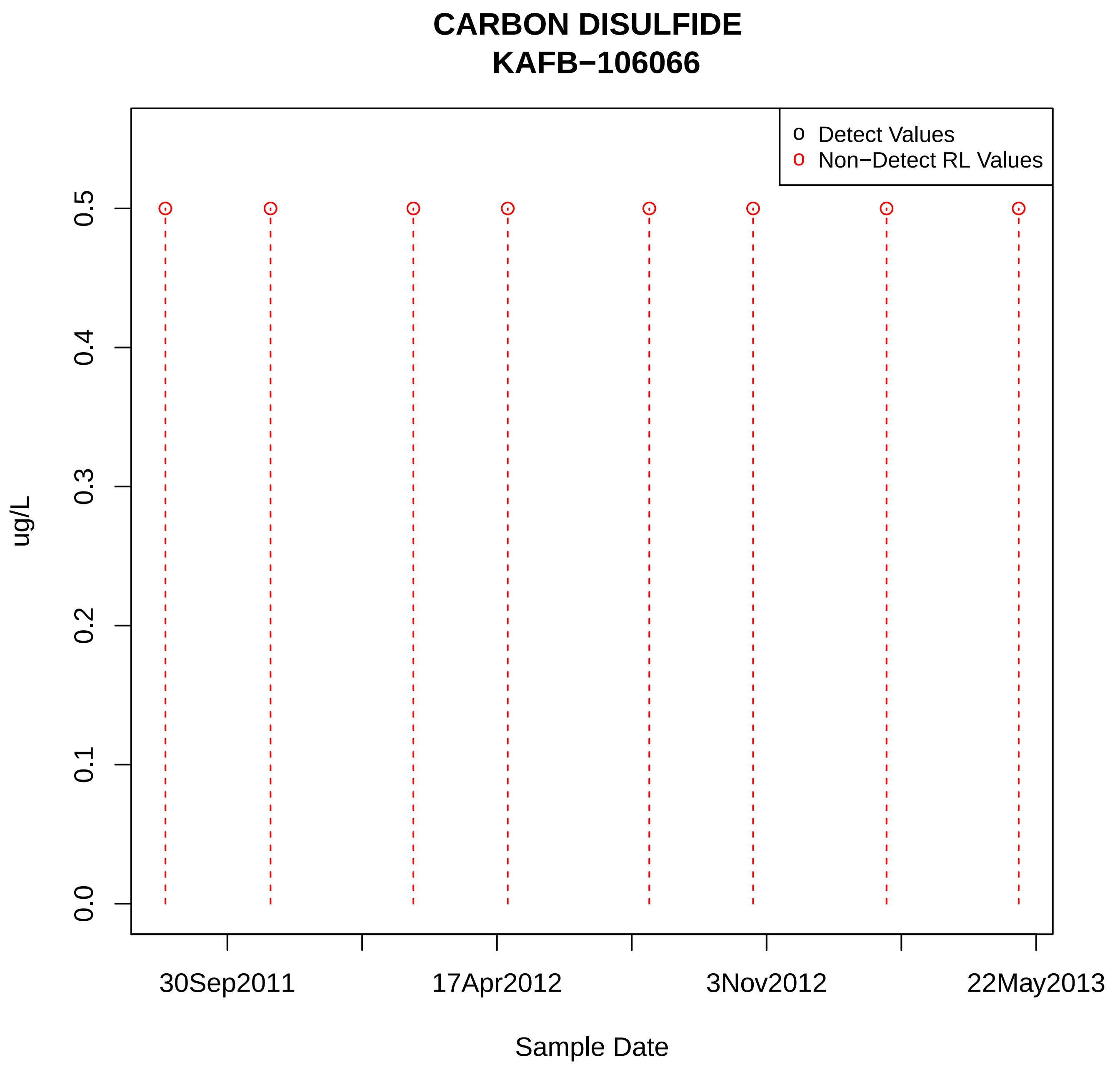

CARBON DISULFIDE
KAFB−106060
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

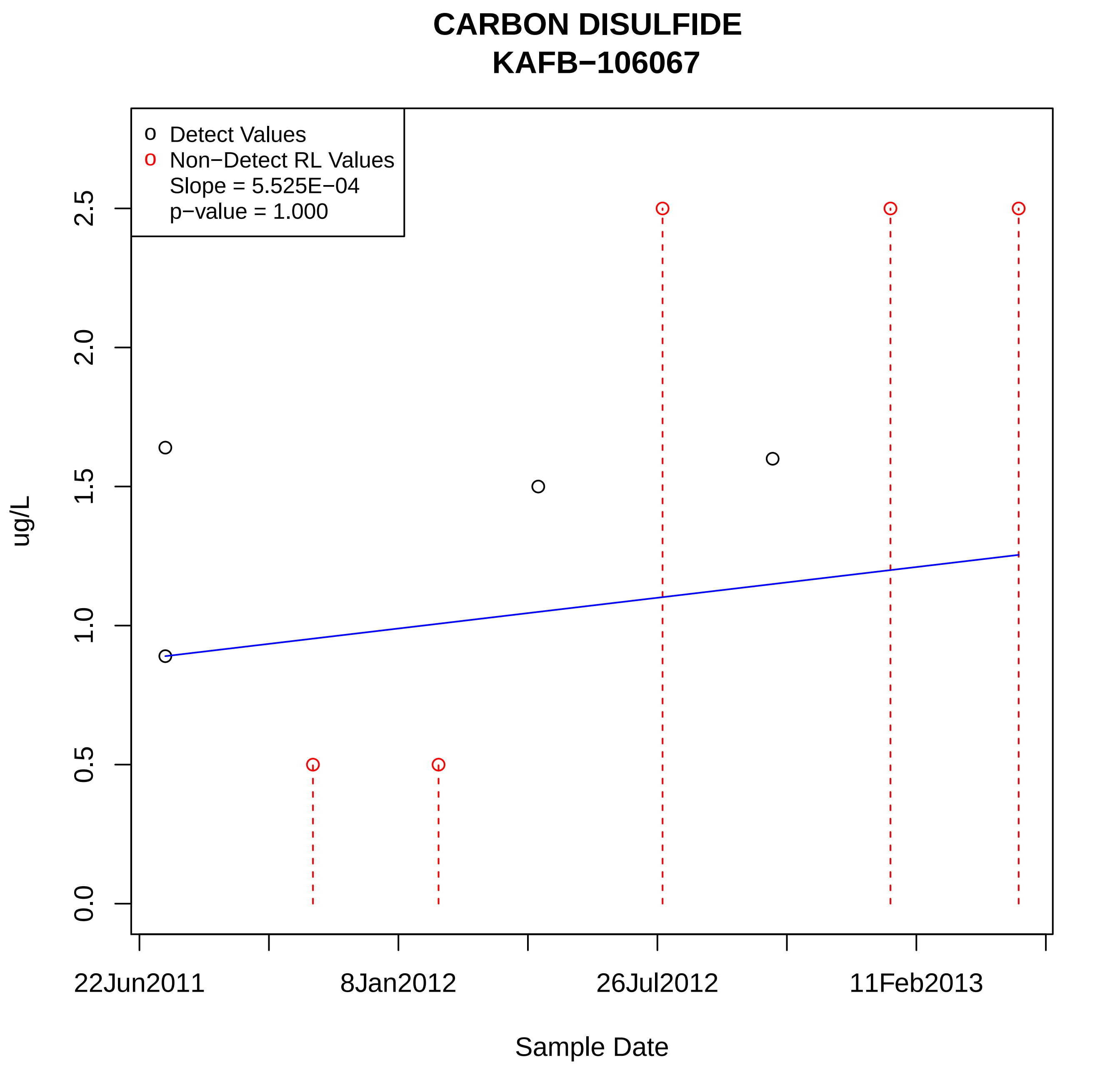

CARBON DISULFIDE
KAFB−106061
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

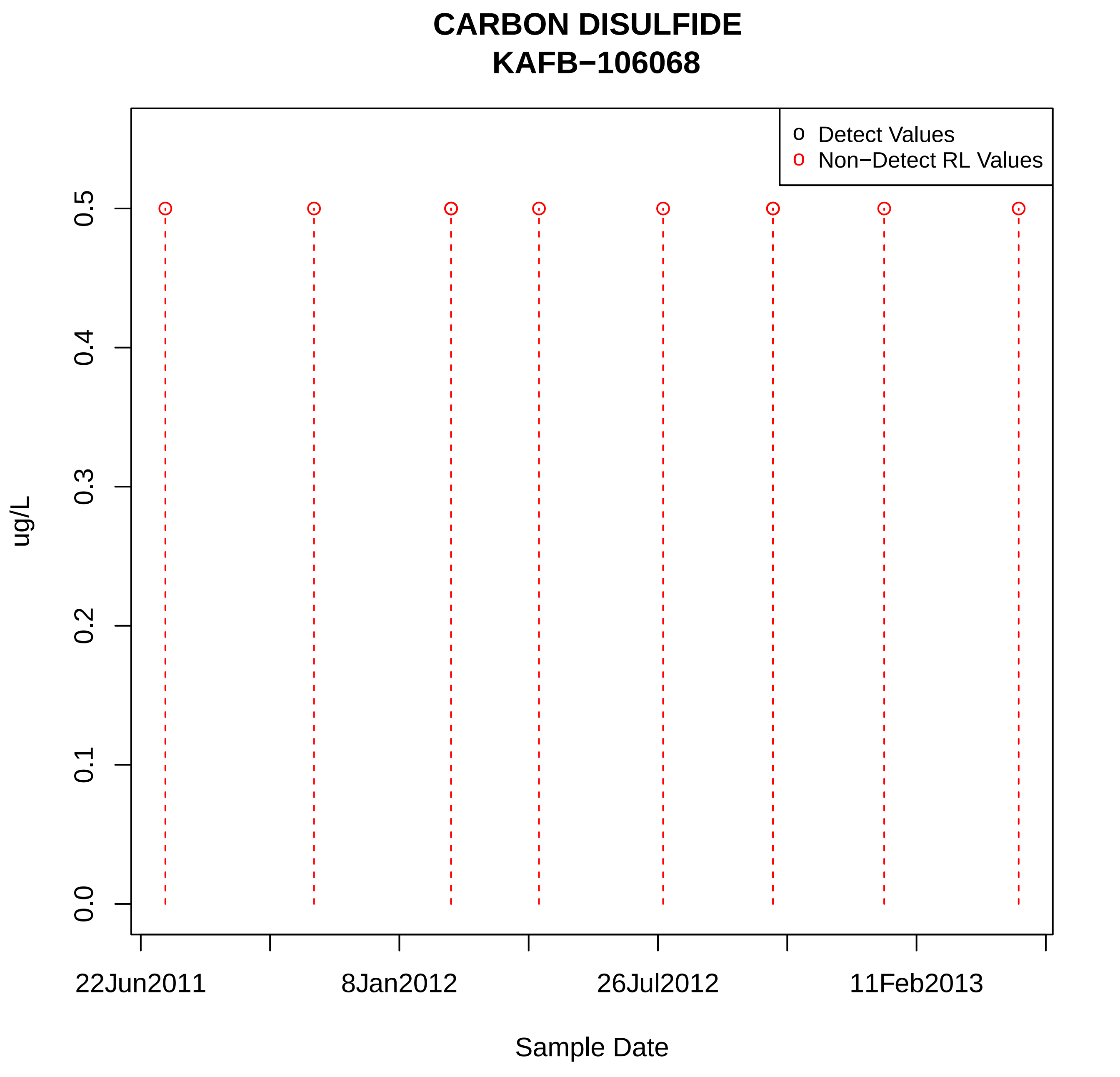

CARBON DISULFIDE
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

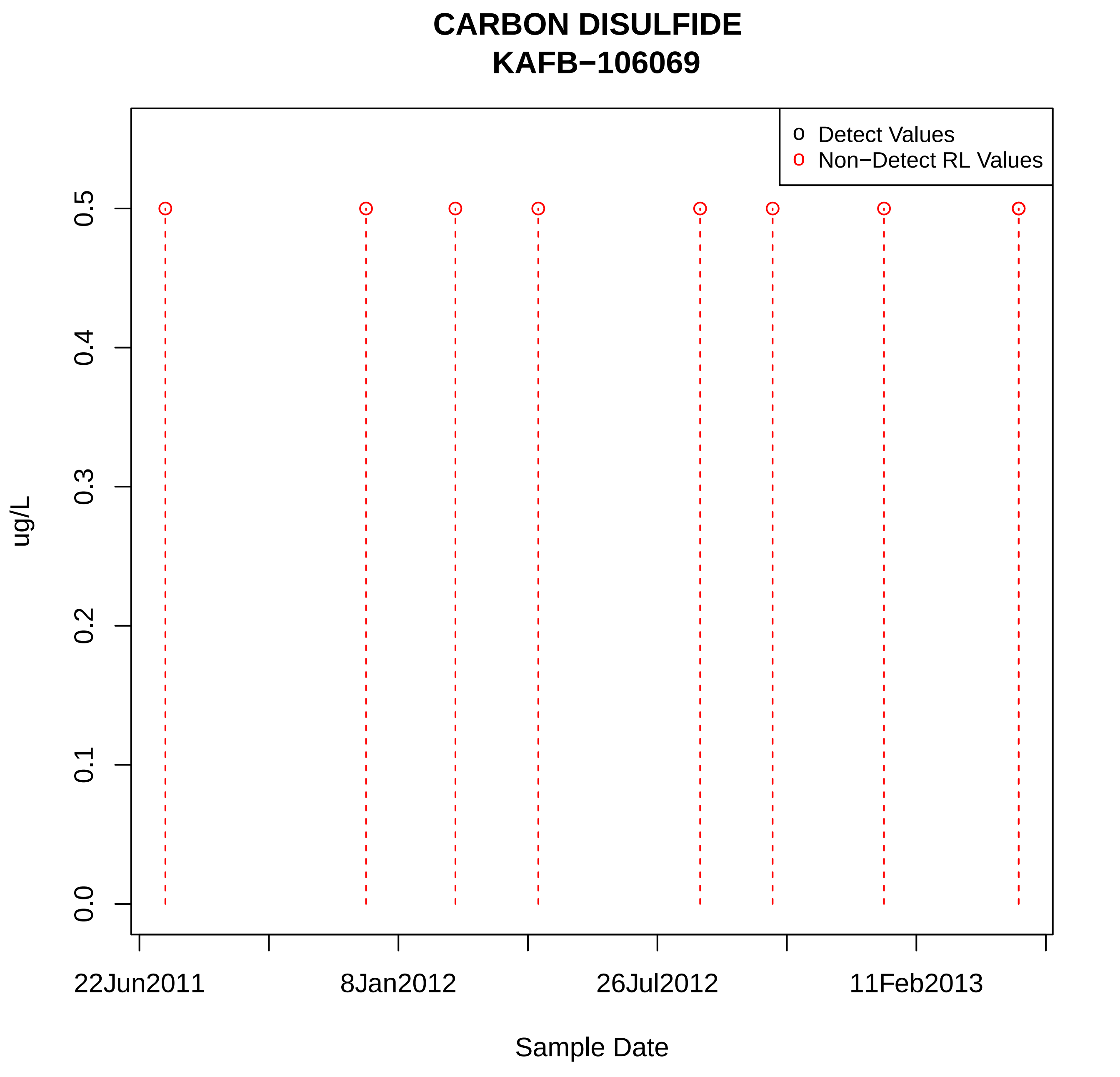

CARBON DISULFIDE
KAFB−106065
o Detect Values
o Non−Detect RL Values
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

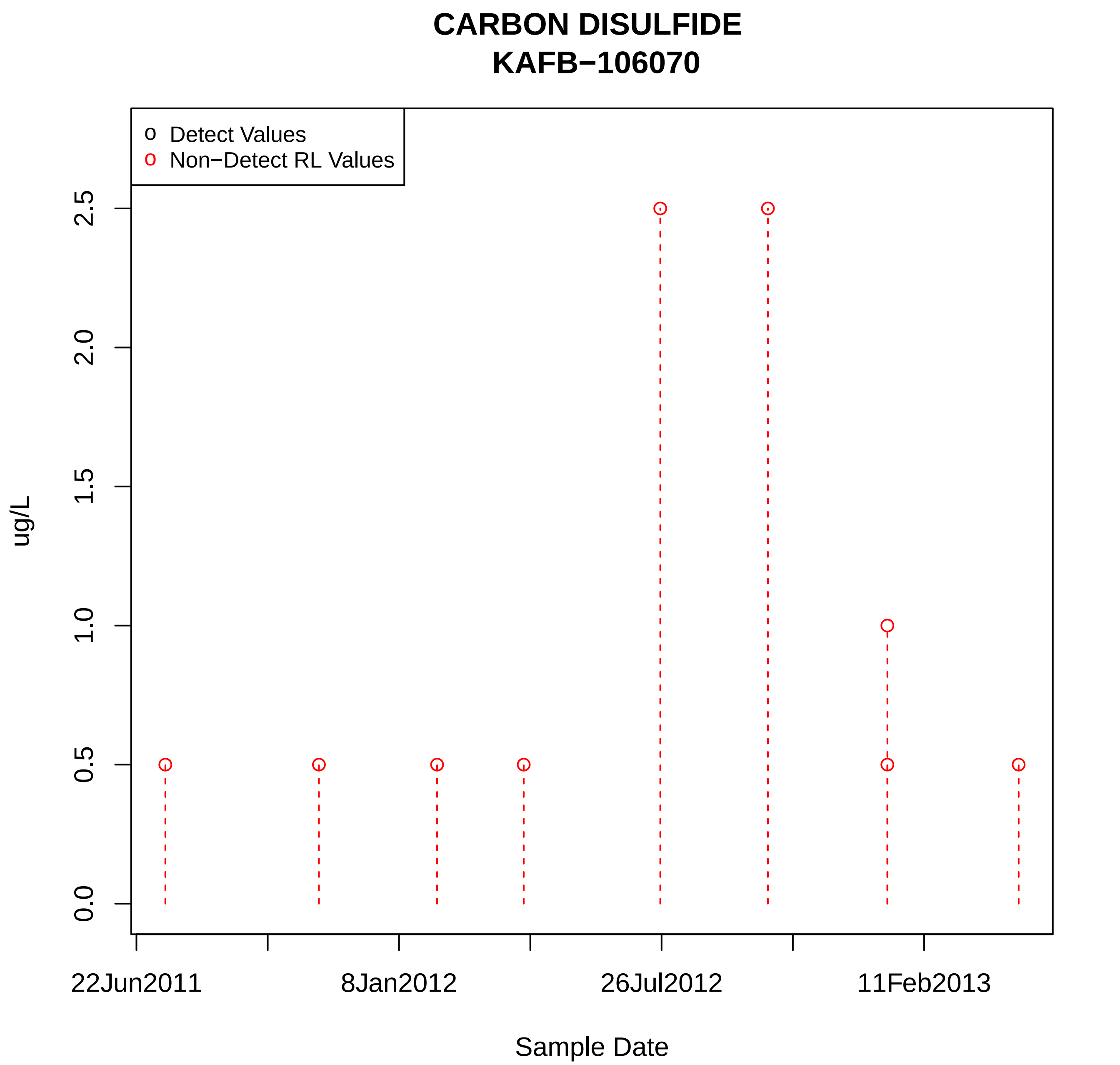

CARBON DISULFIDE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



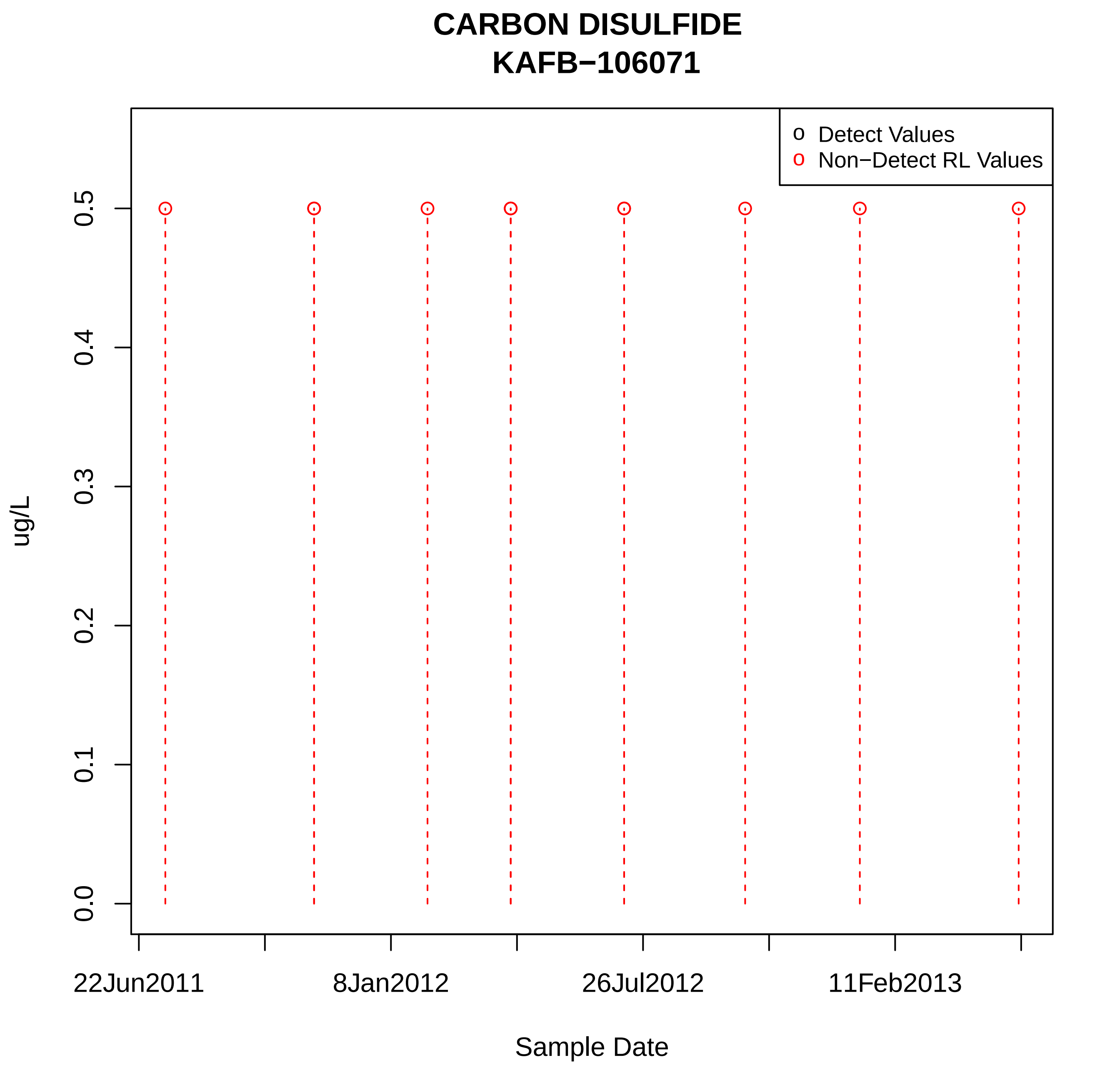
CARBON DISULFIDE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = 5.525E−04
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

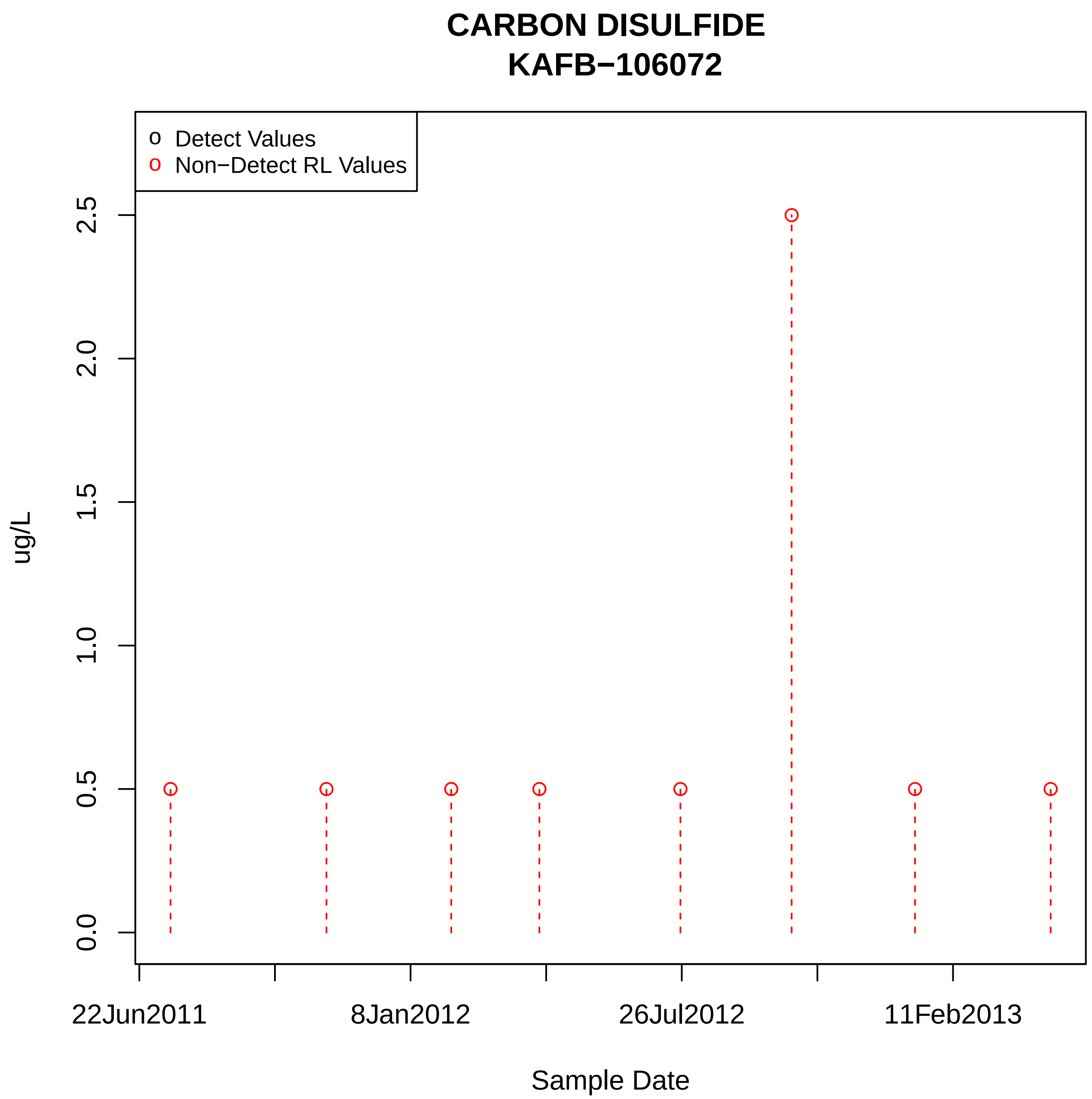

CARBON DISULFIDE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


CARBON DISULFIDE
KAFB−106069
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

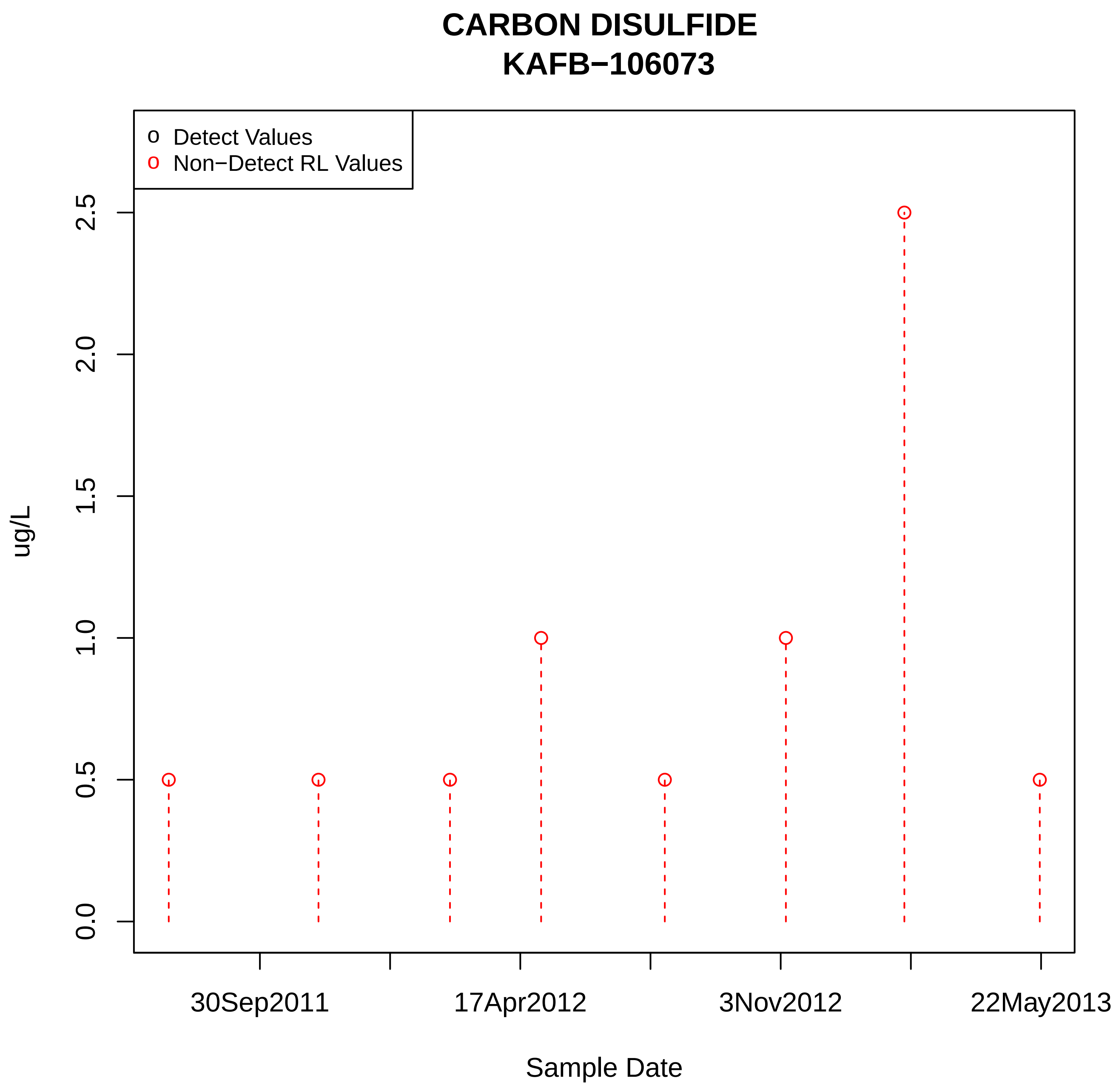


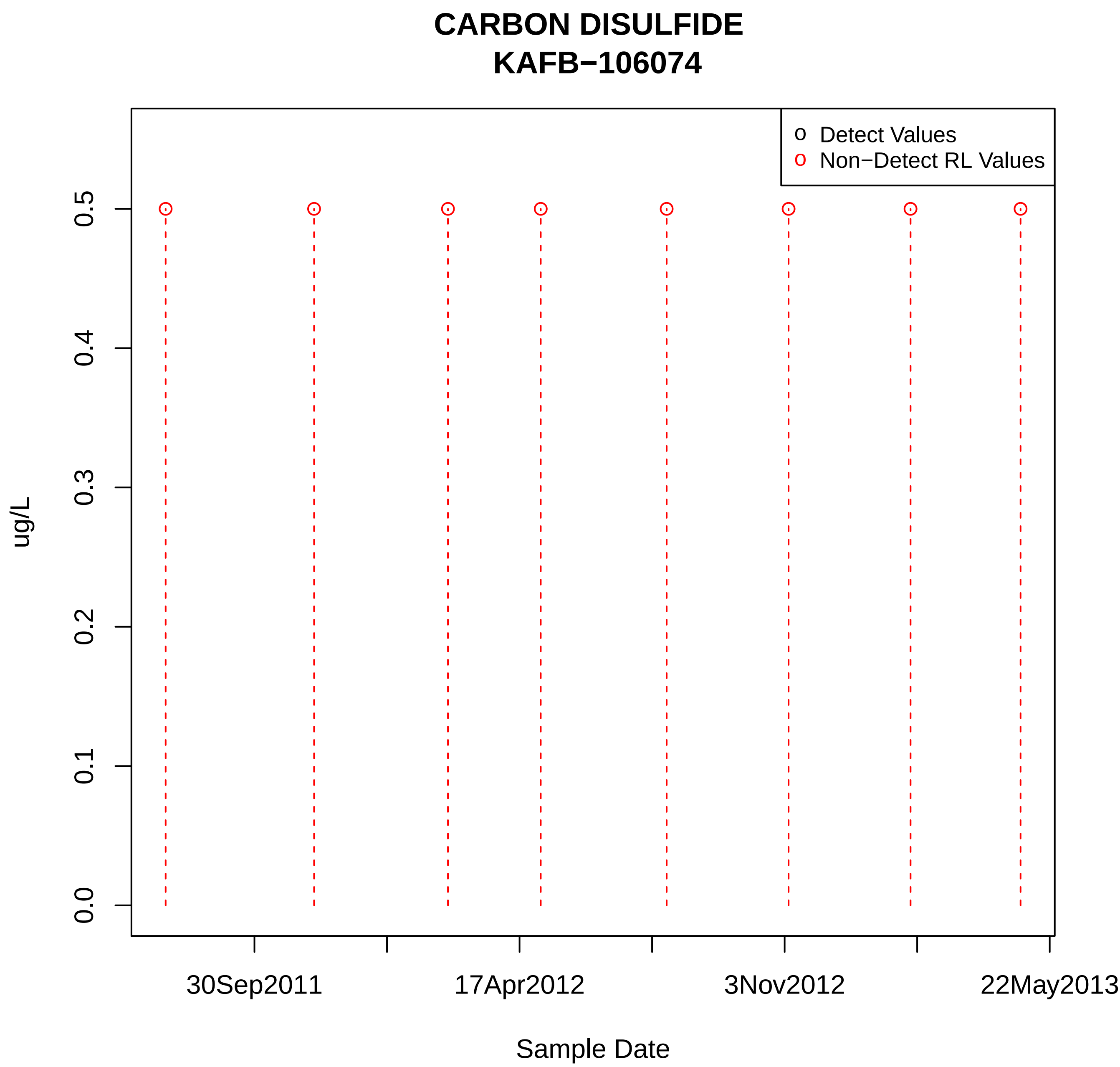
CARBON DISULFIDE
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

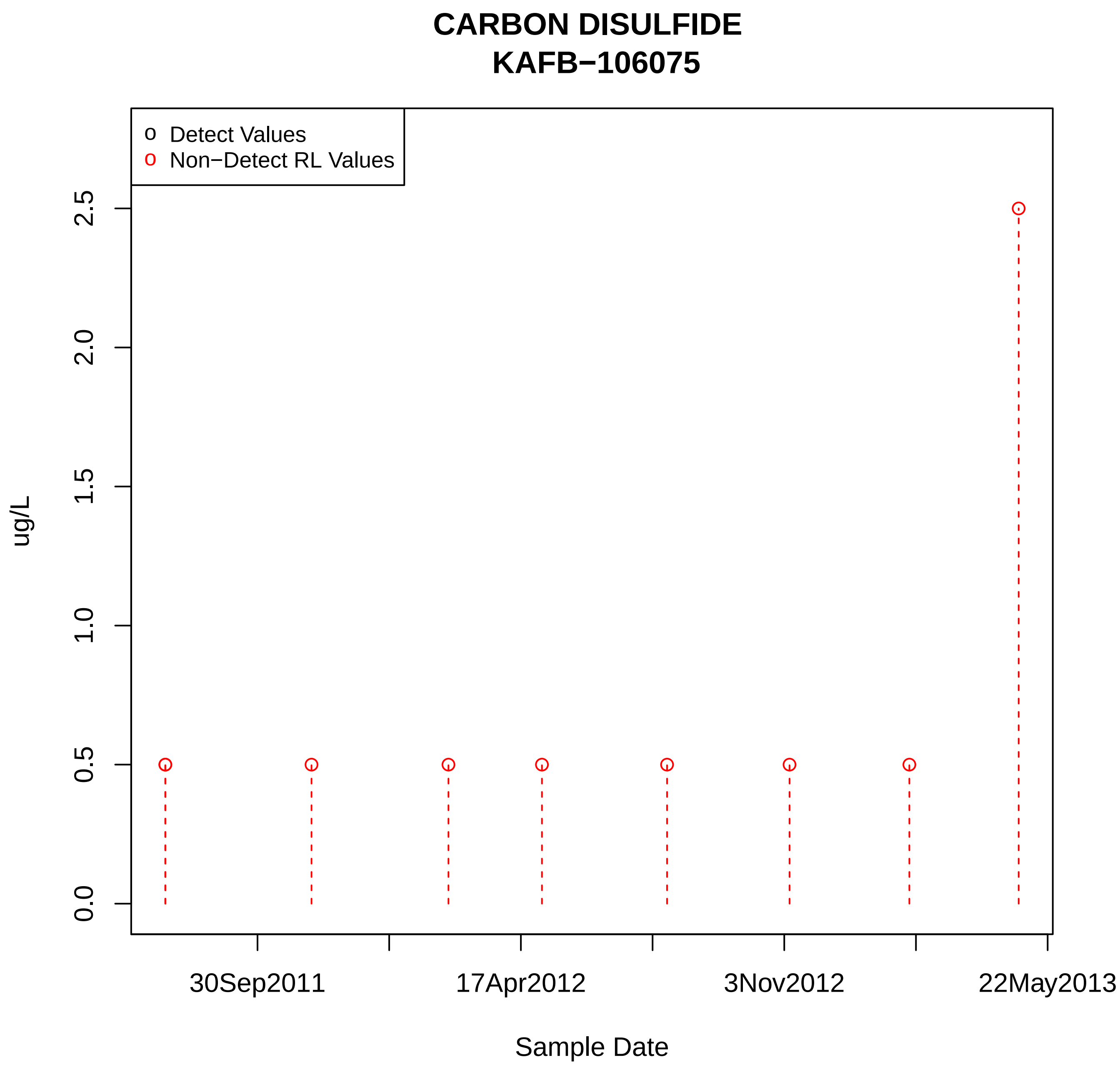

CARBON DISULFIDE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



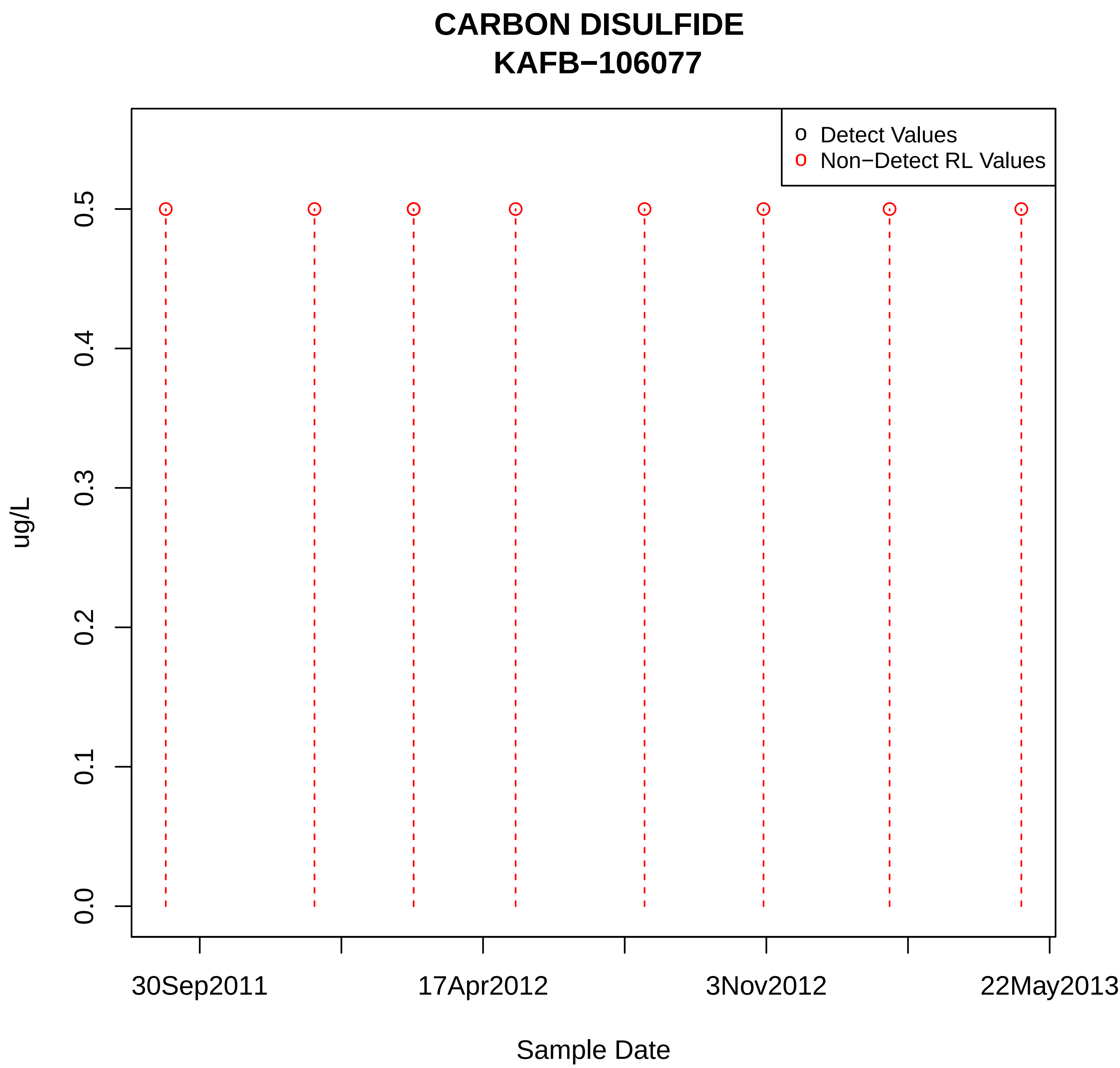
CARBON DISULFIDE
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

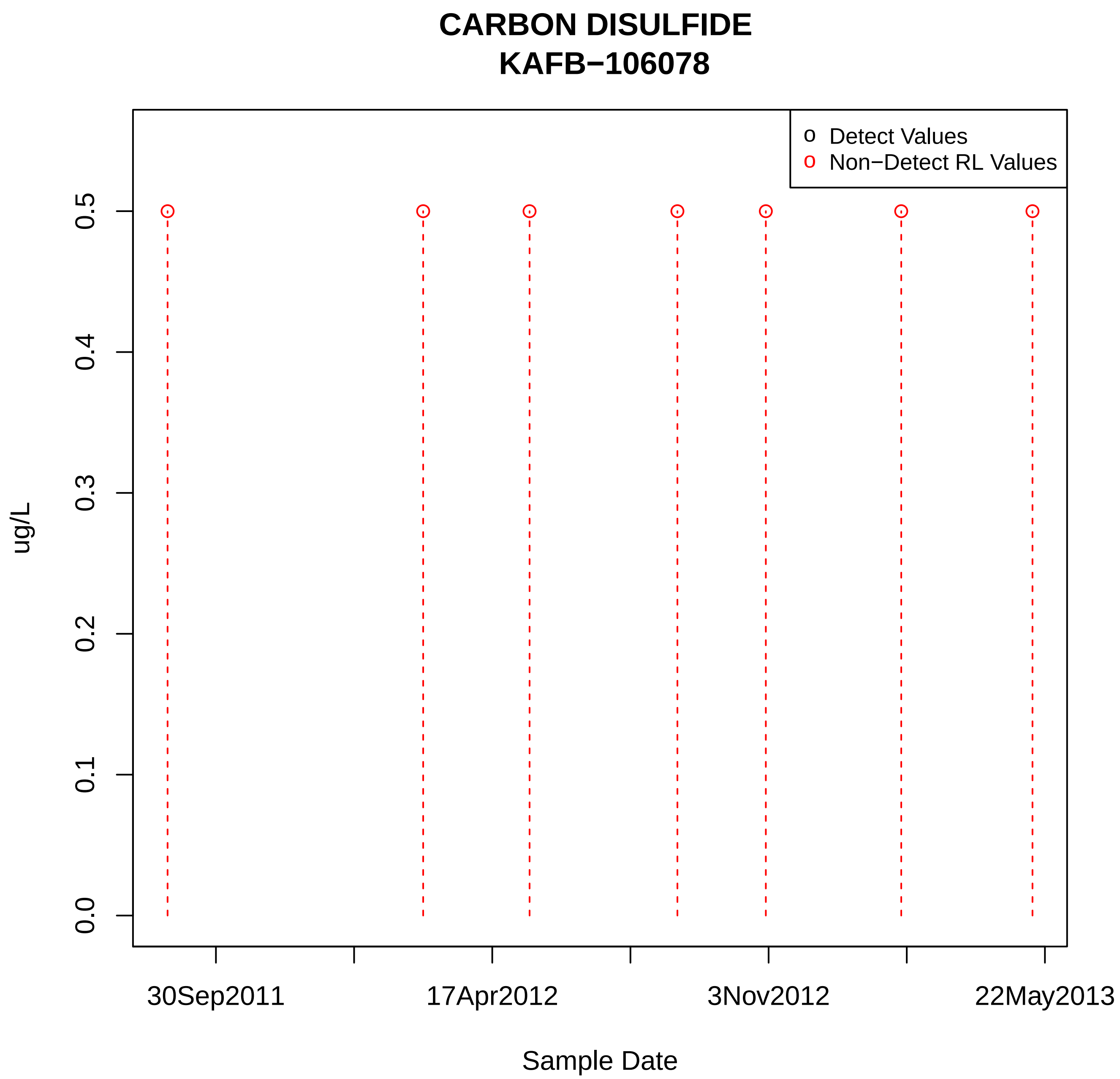

CARBON DISULFIDE
KAFB−106073
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

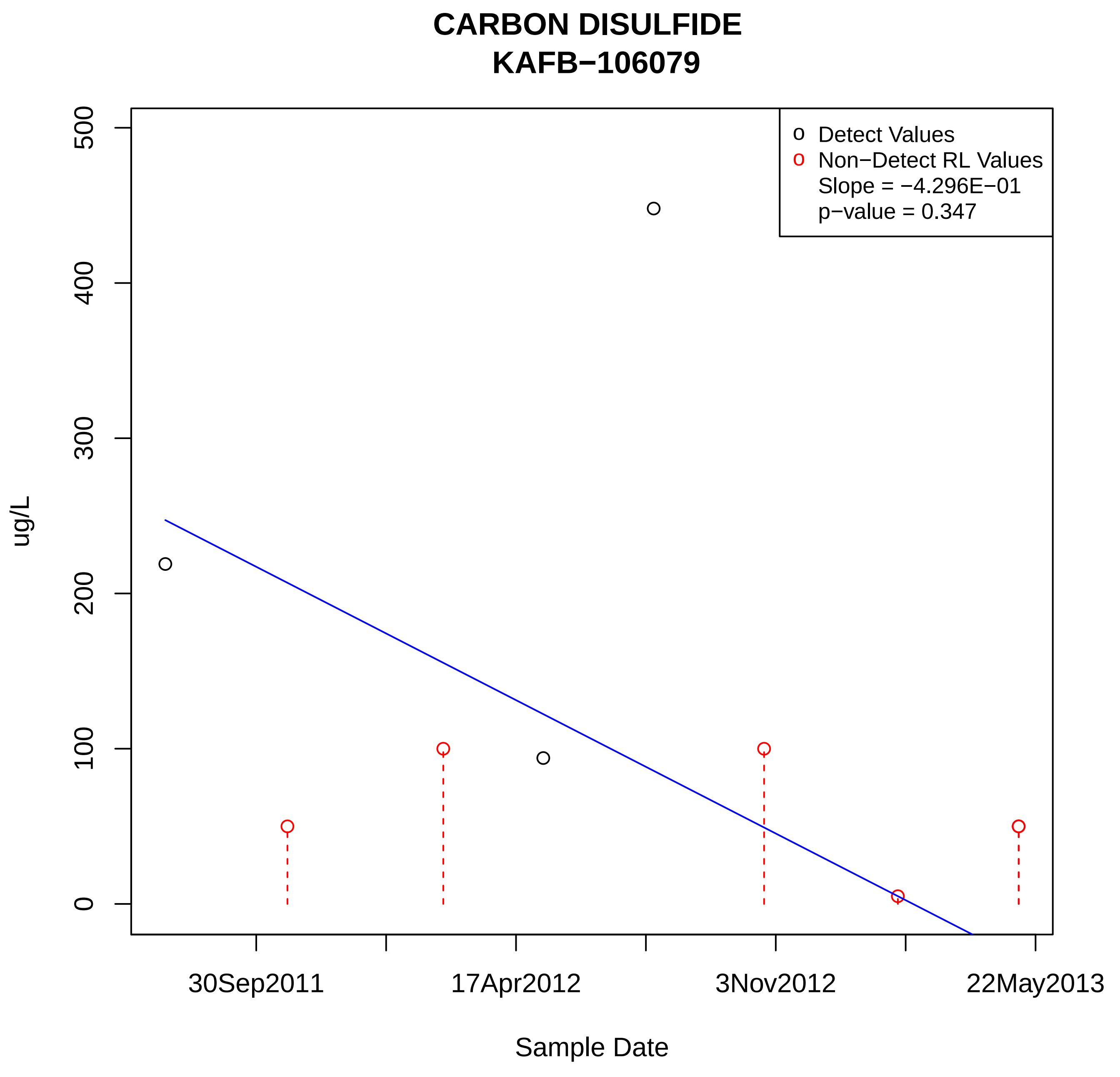


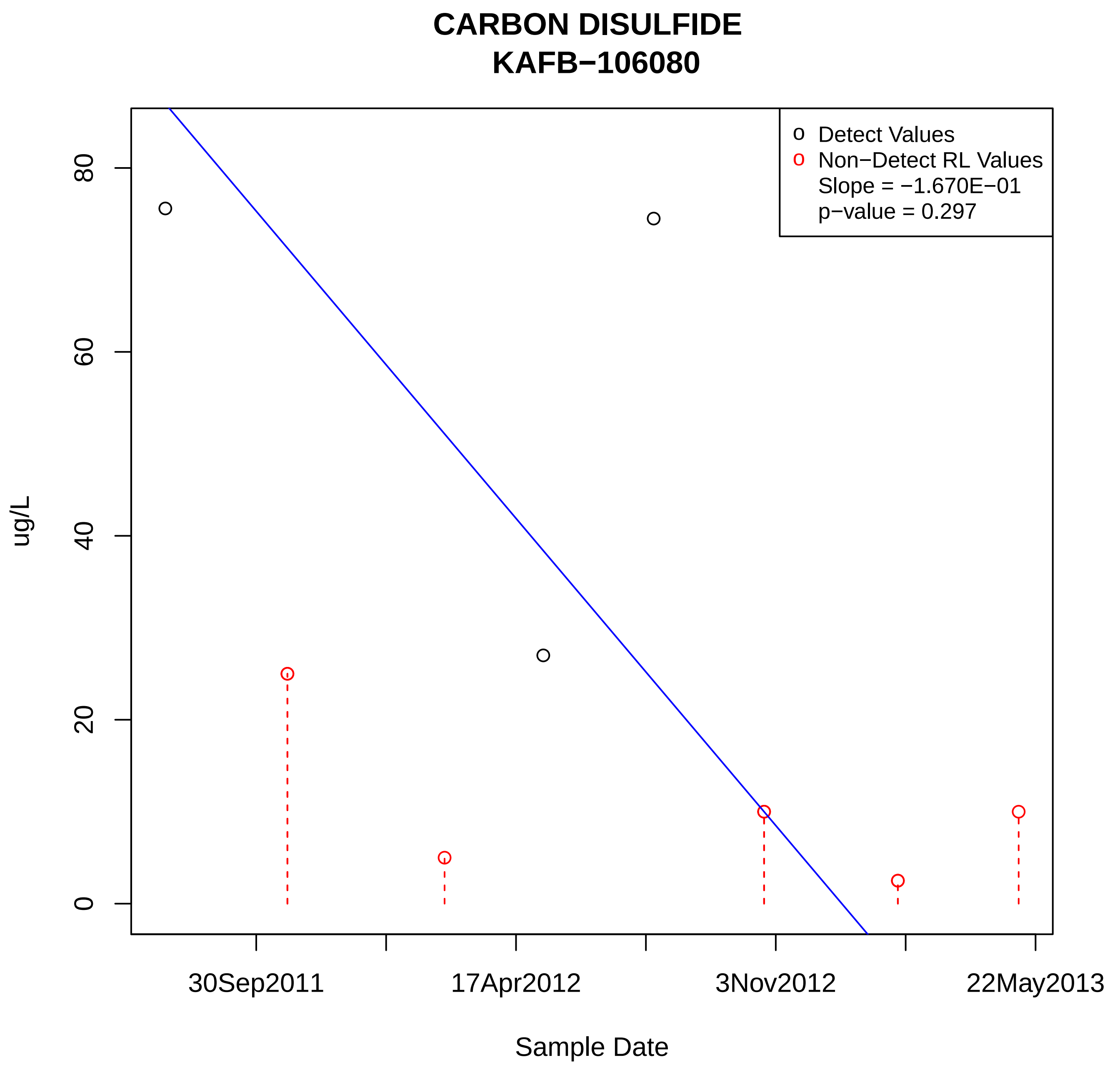
CARBON DISULFIDE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

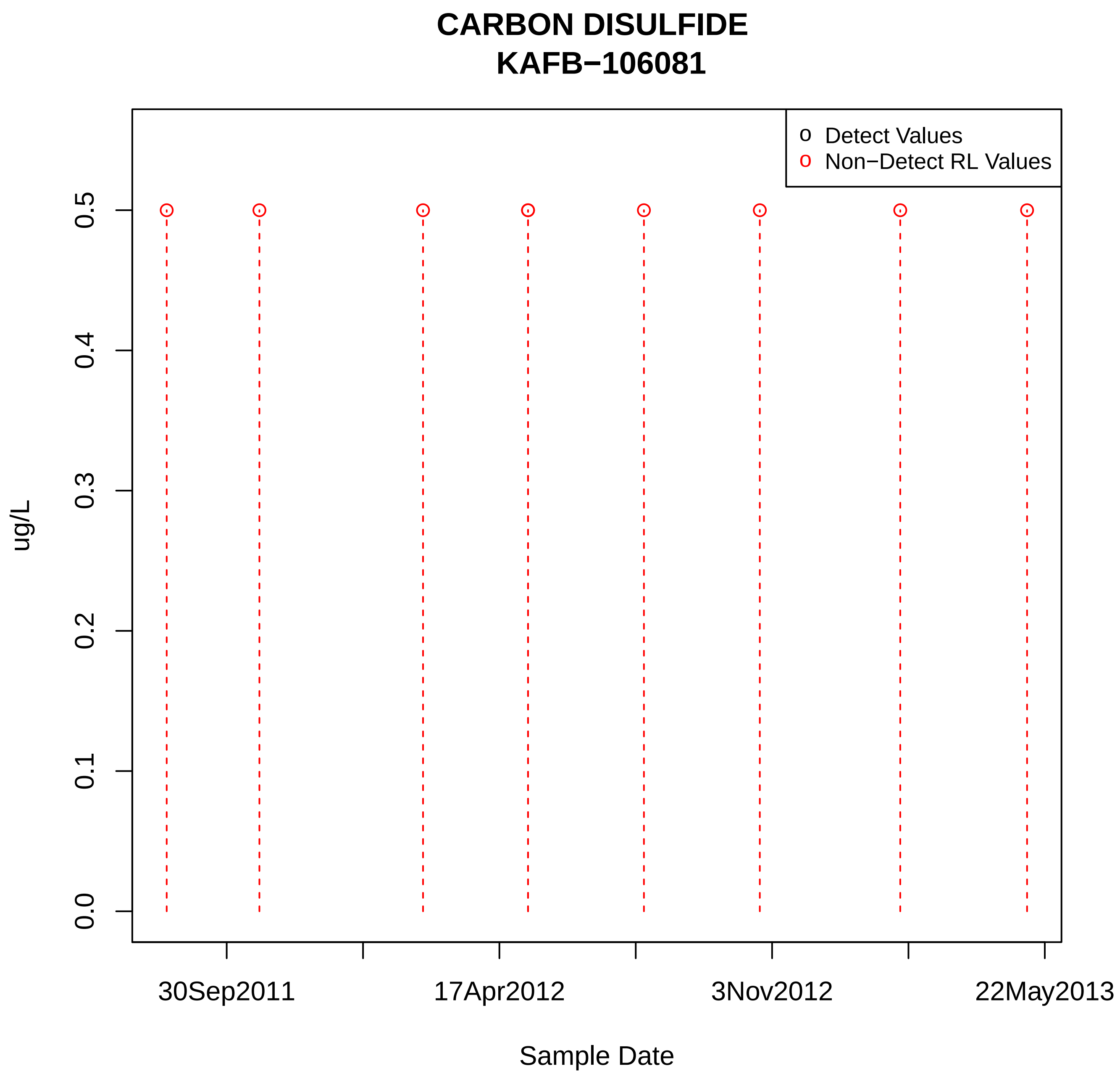

CARBON DISULFIDE
KAFB−106077
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

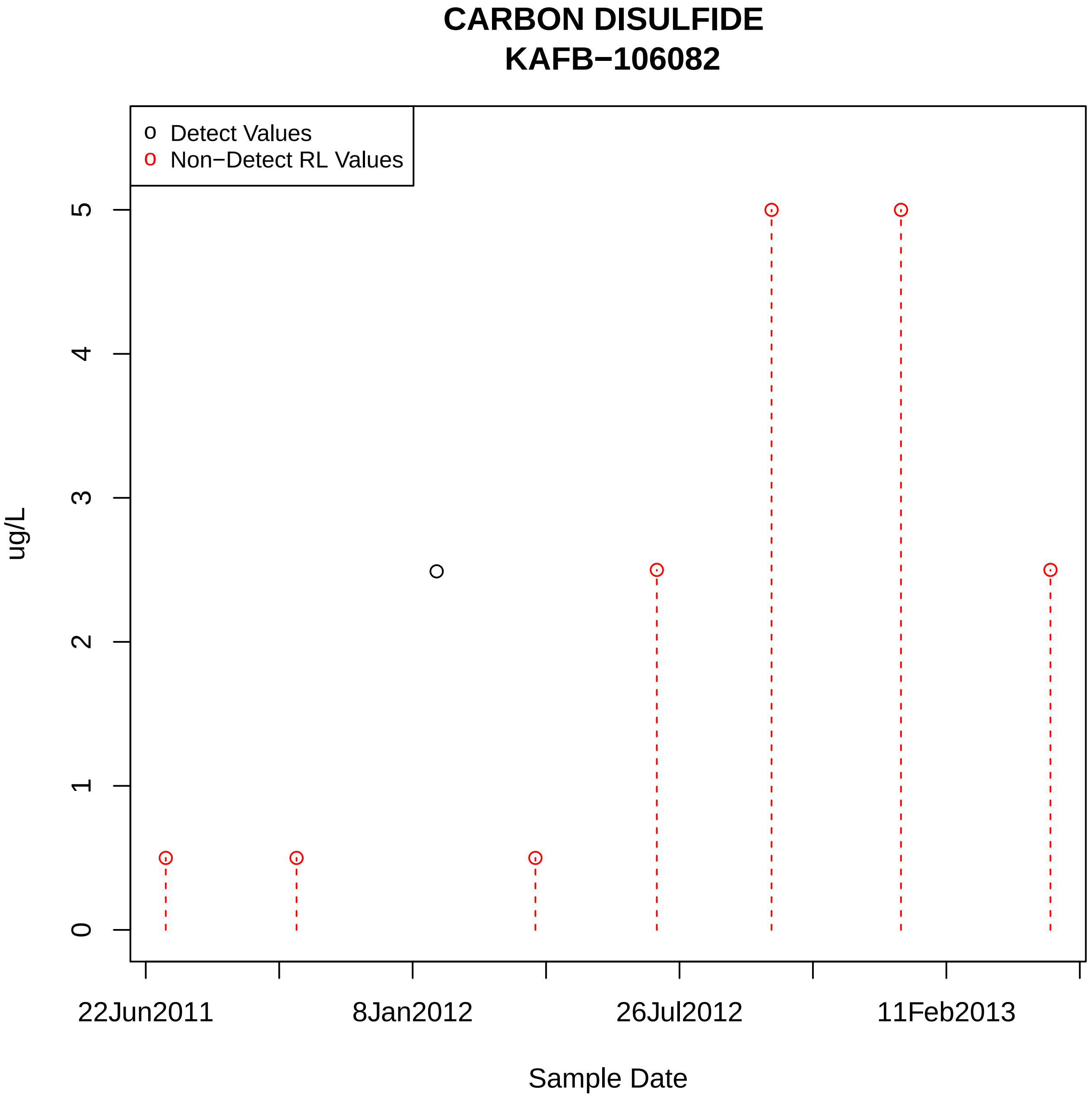


CARBON DISULFIDE
KAFB−106078
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

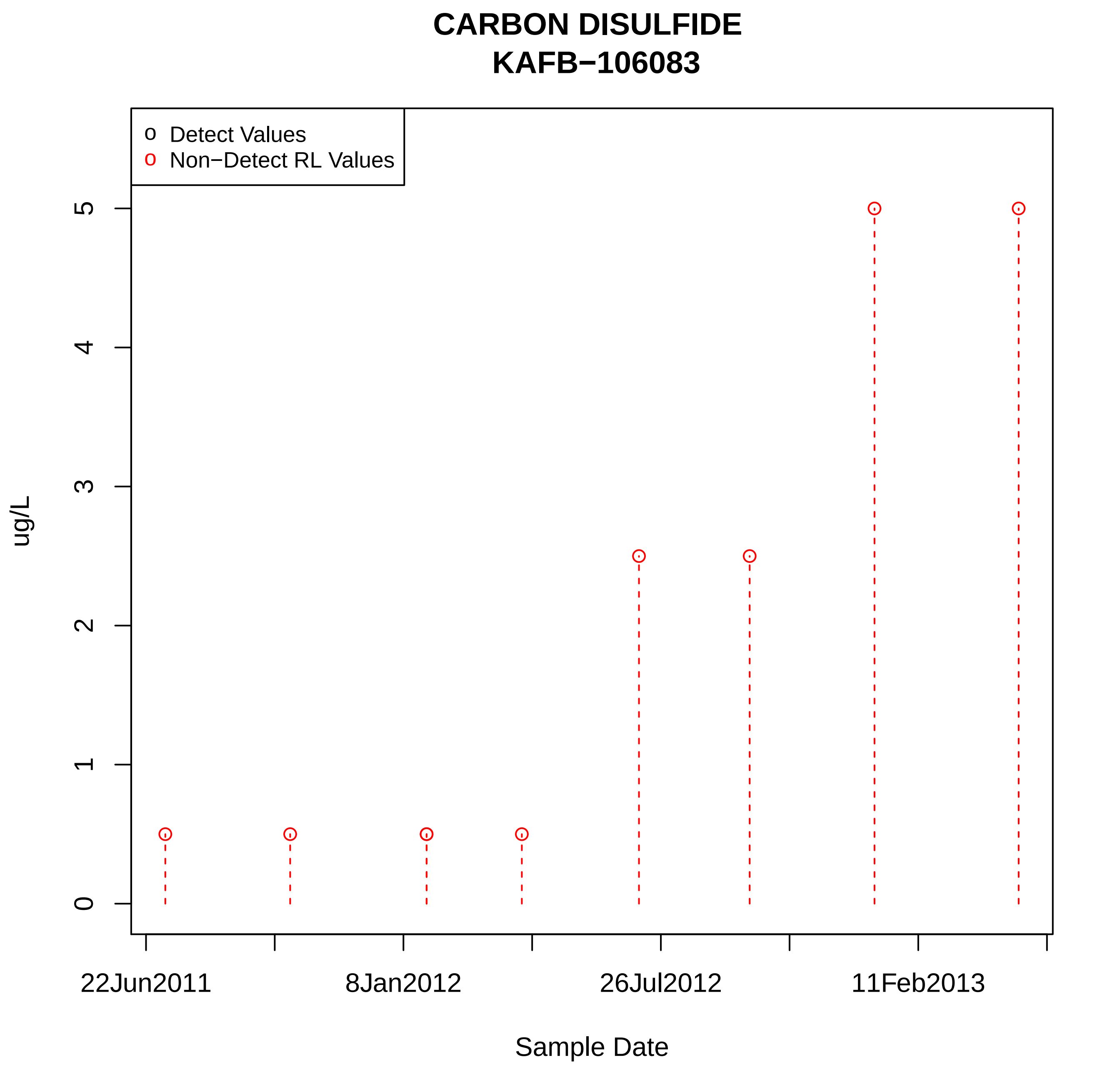

CARBON DISULFIDE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −4.296E−01
p−value = 0.347
ug/L
0
100
200
300
400
500
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −1.670E−01
p−value = 0.297
ug/L
0
20
40
60
80
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

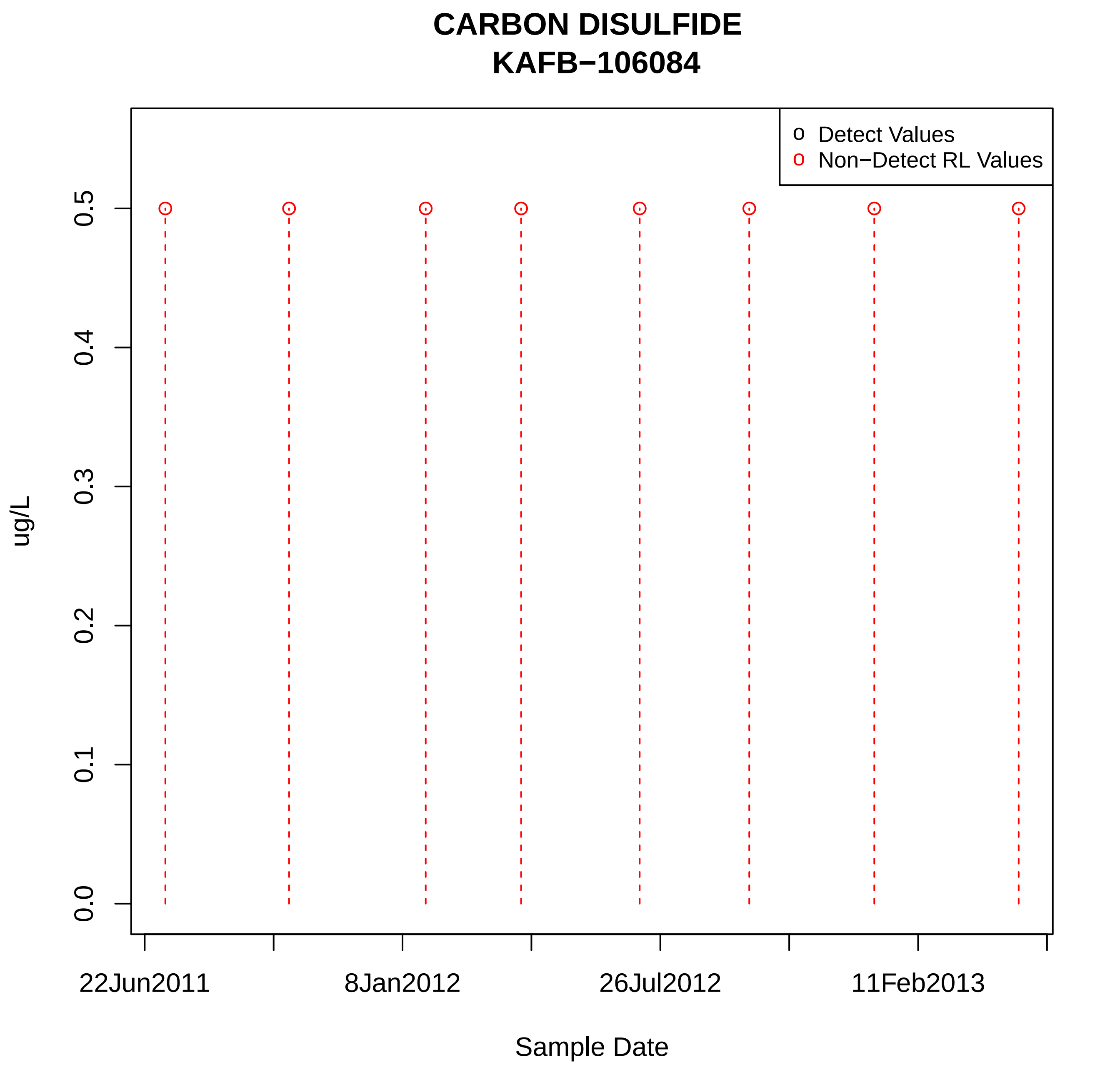

CARBON DISULFIDE
KAFB−106081
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

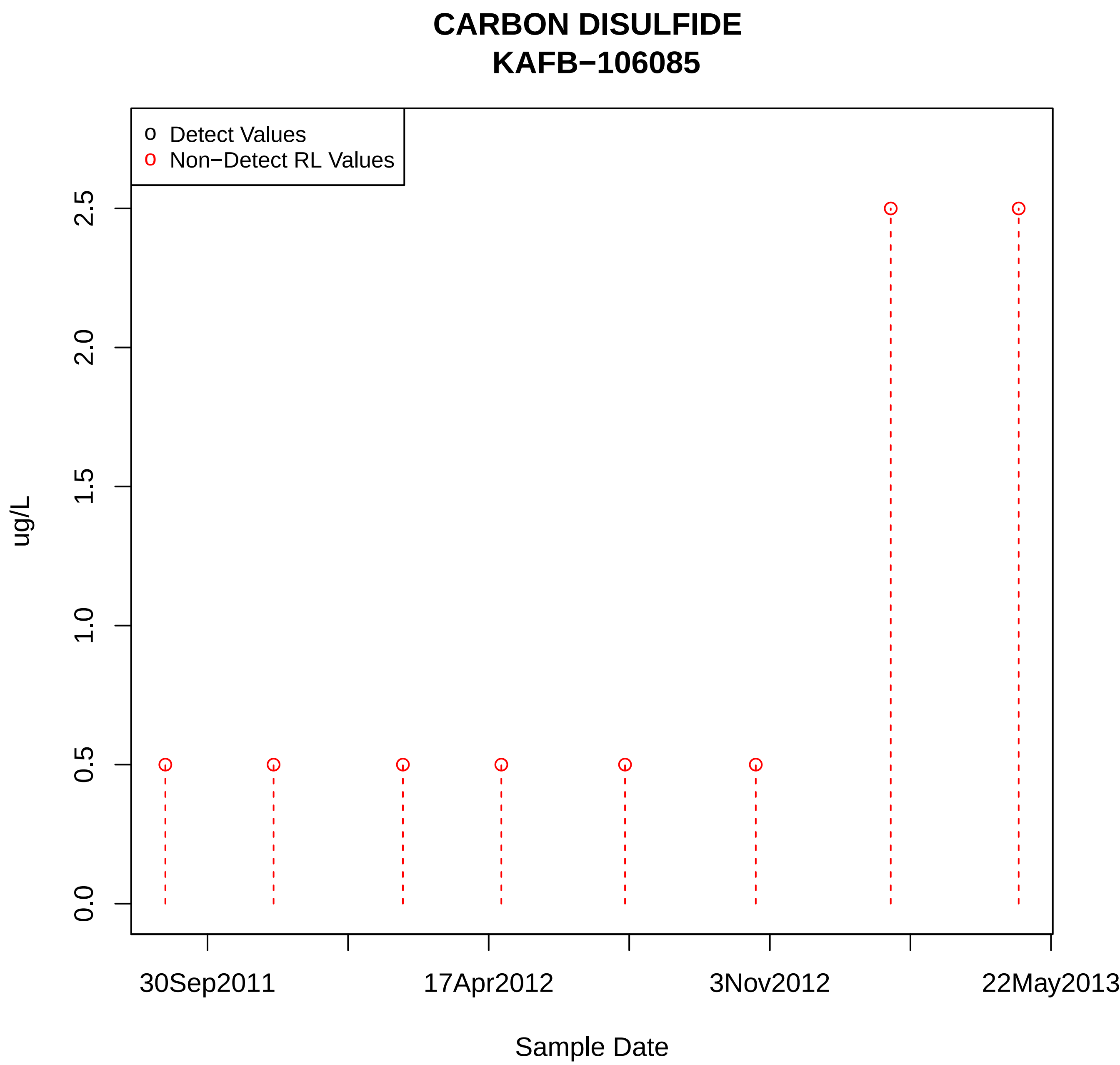


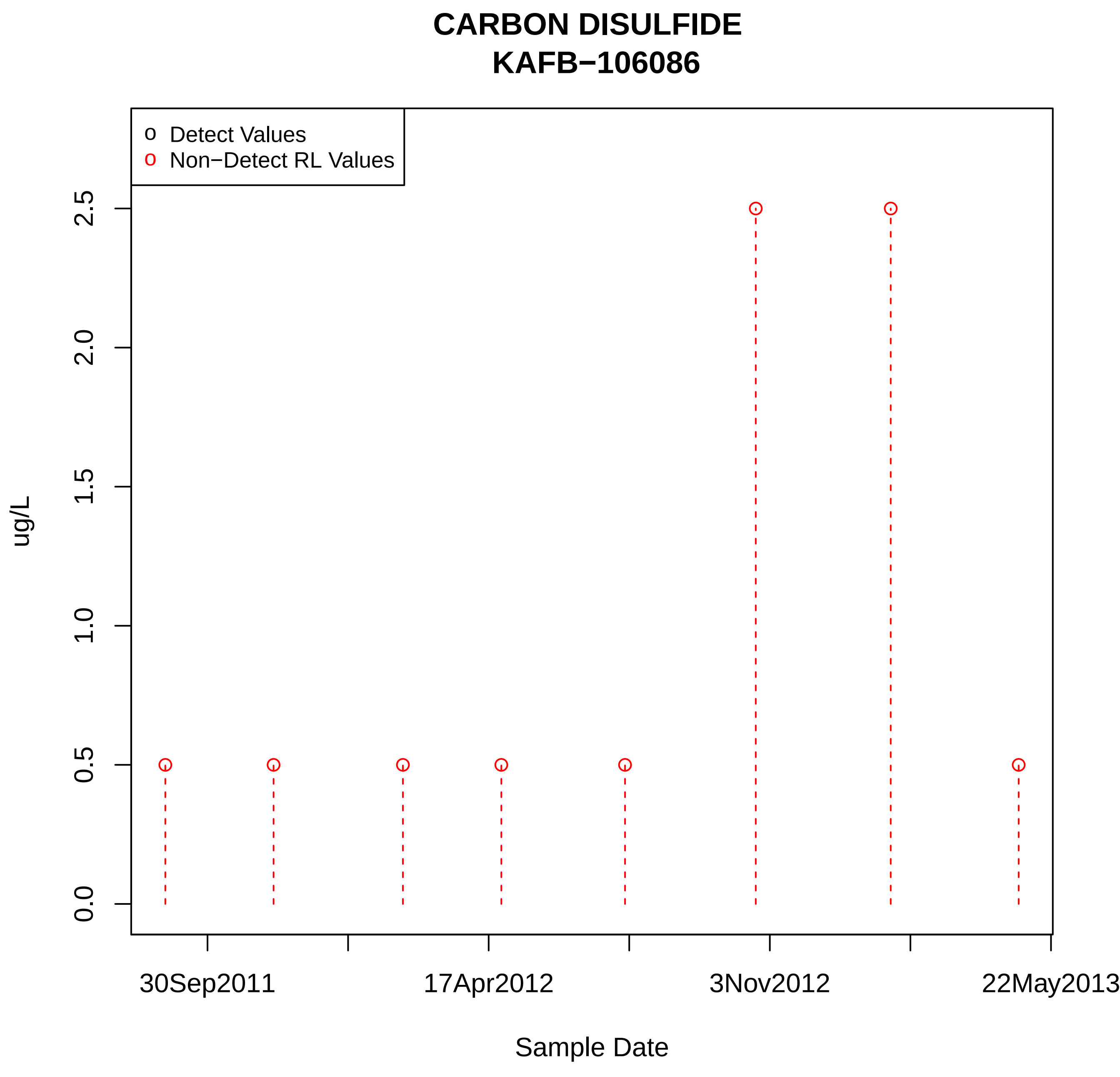
CARBON DISULFIDE
KAFB−106082
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

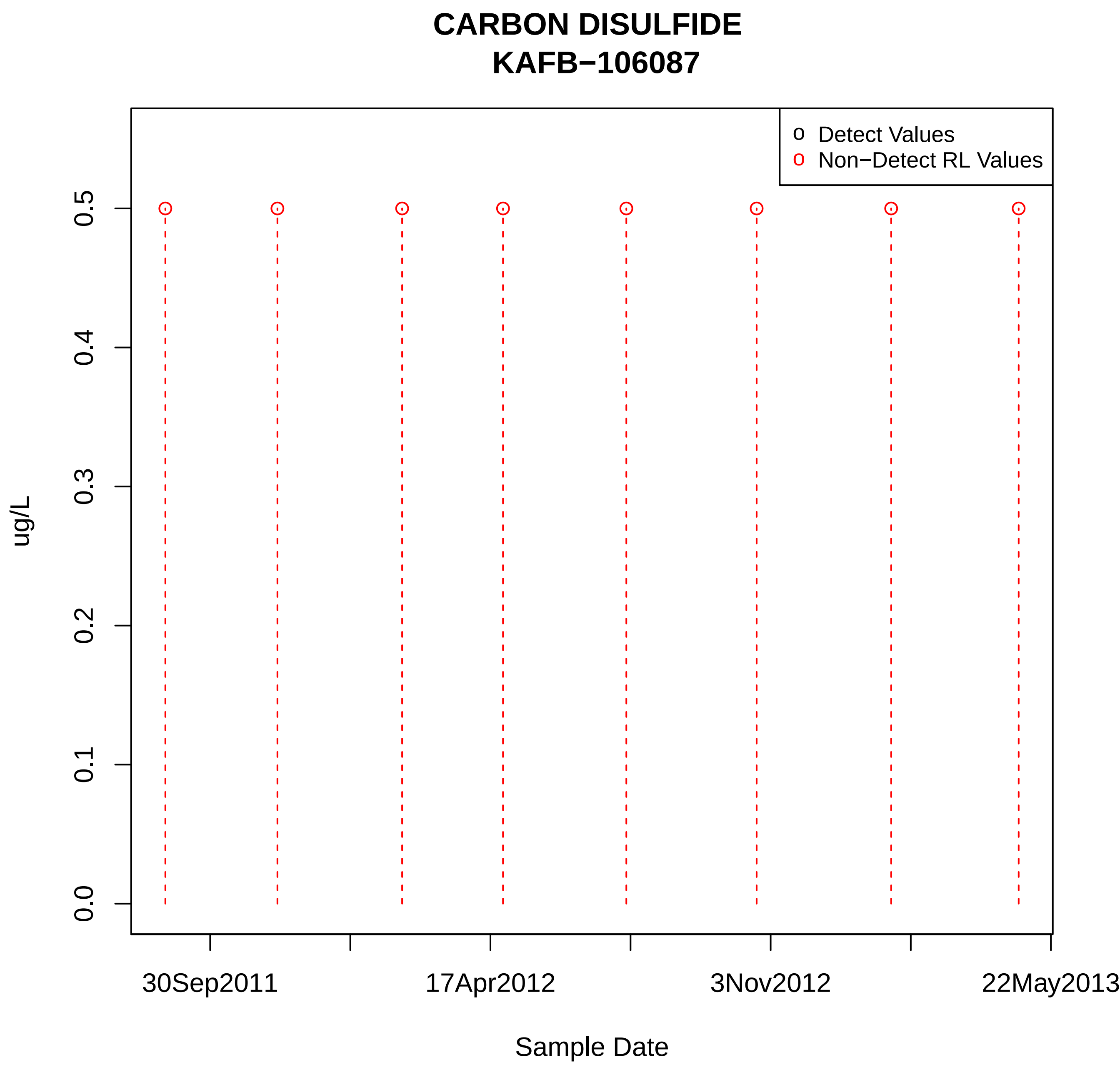


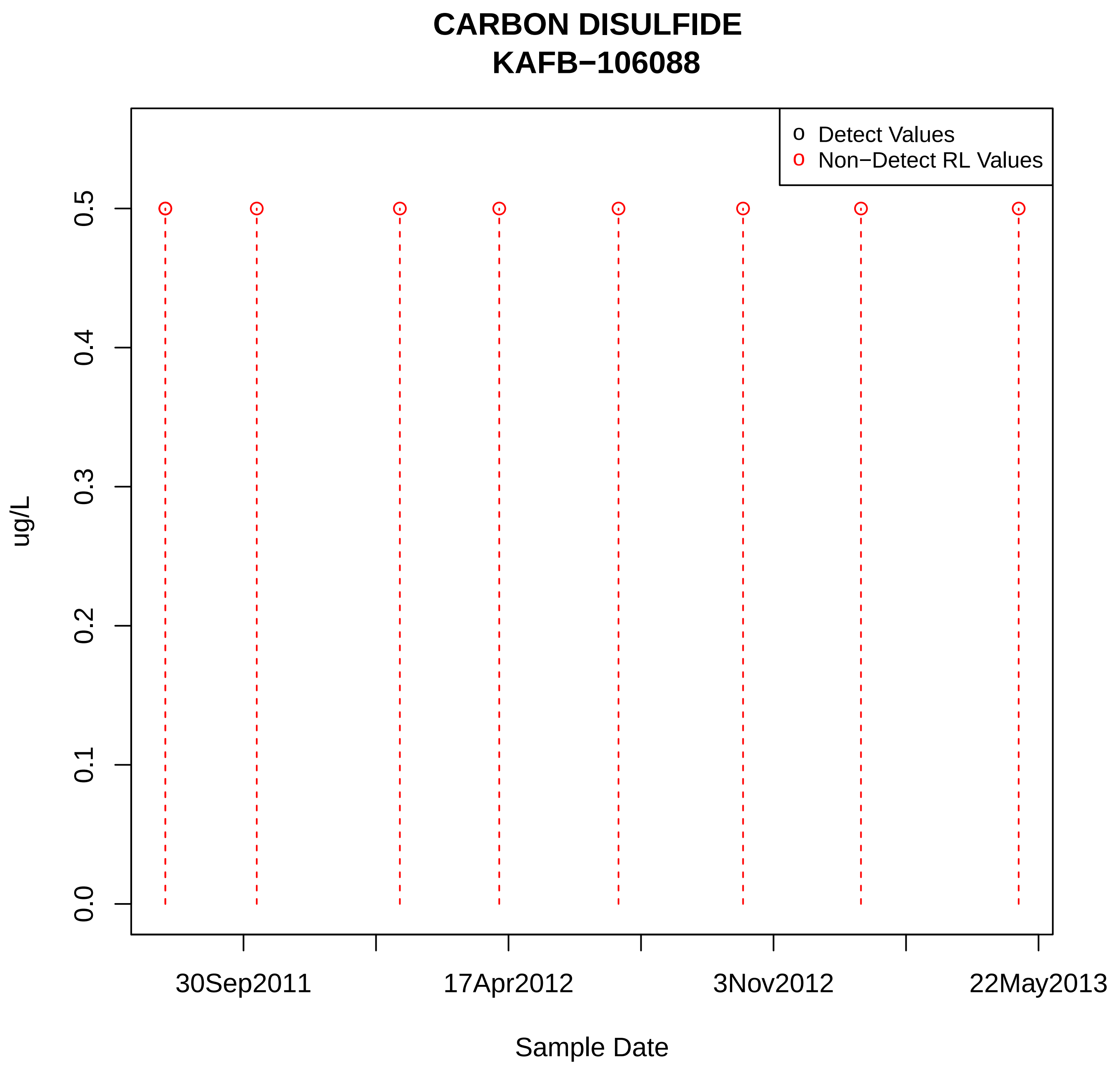
CARBON DISULFIDE
KAFB−106083
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


CARBON DISULFIDE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

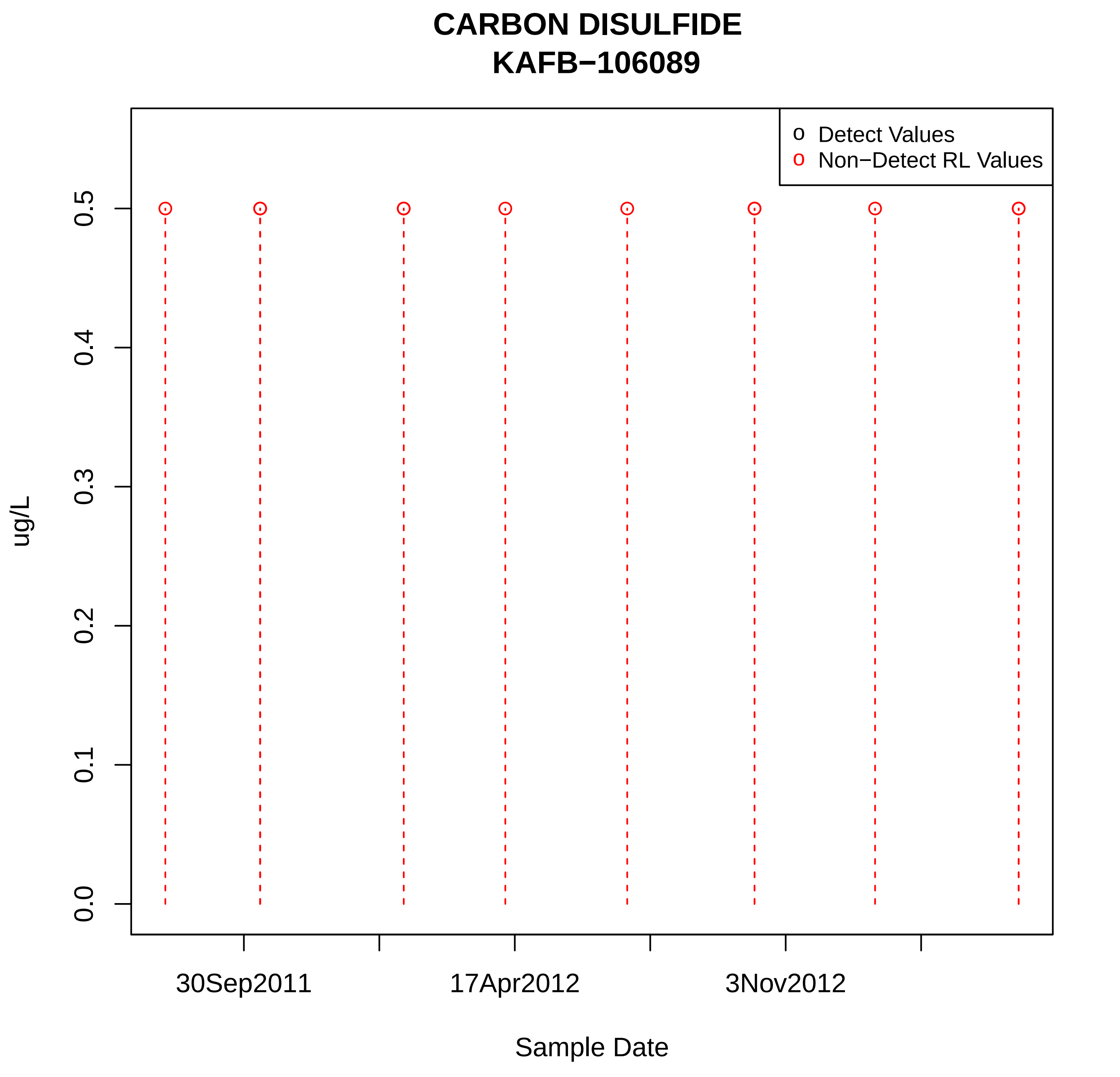

CARBON DISULFIDE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


CARBON DISULFIDE
KAFB−106086
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

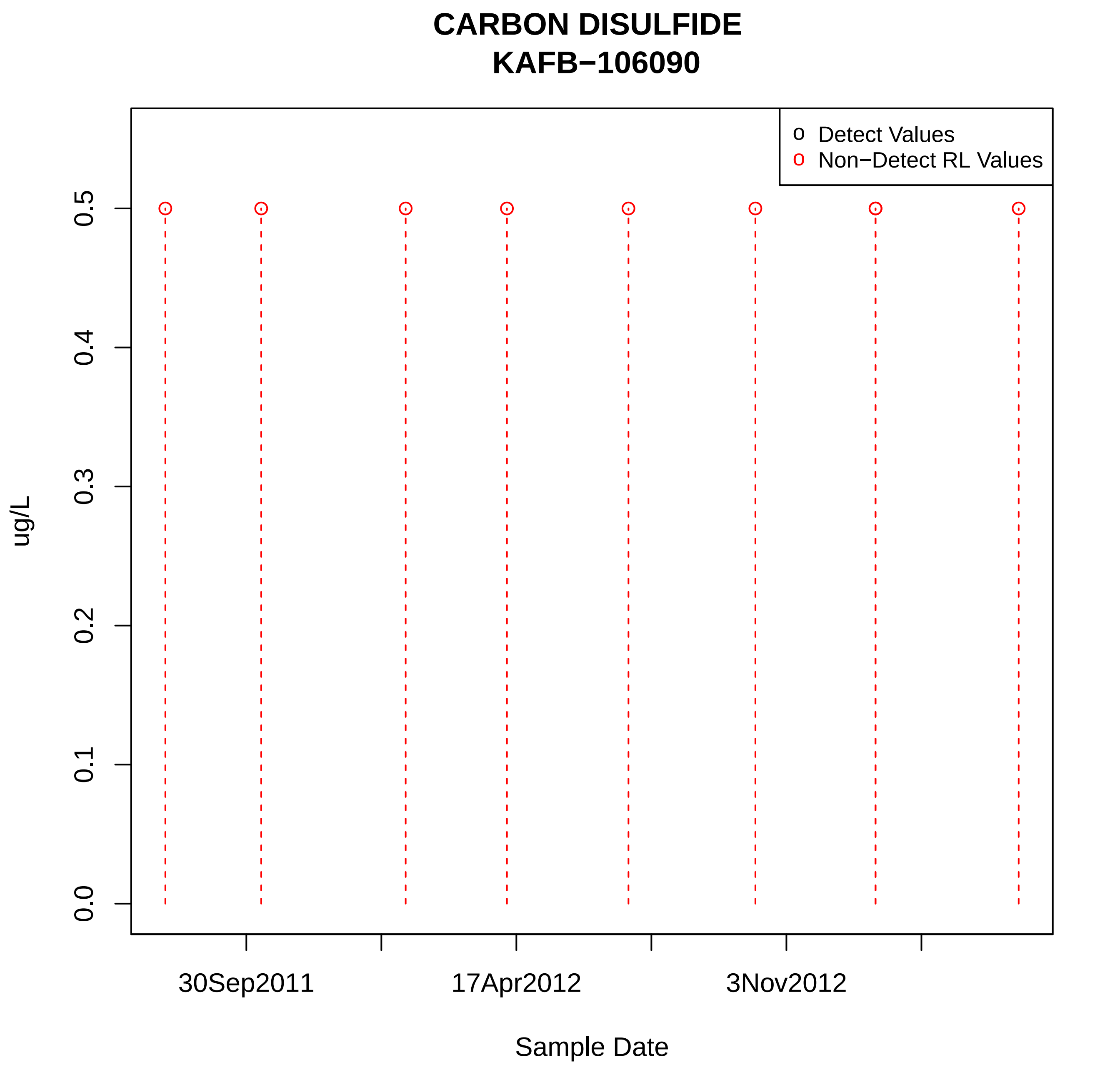

CARBON DISULFIDE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



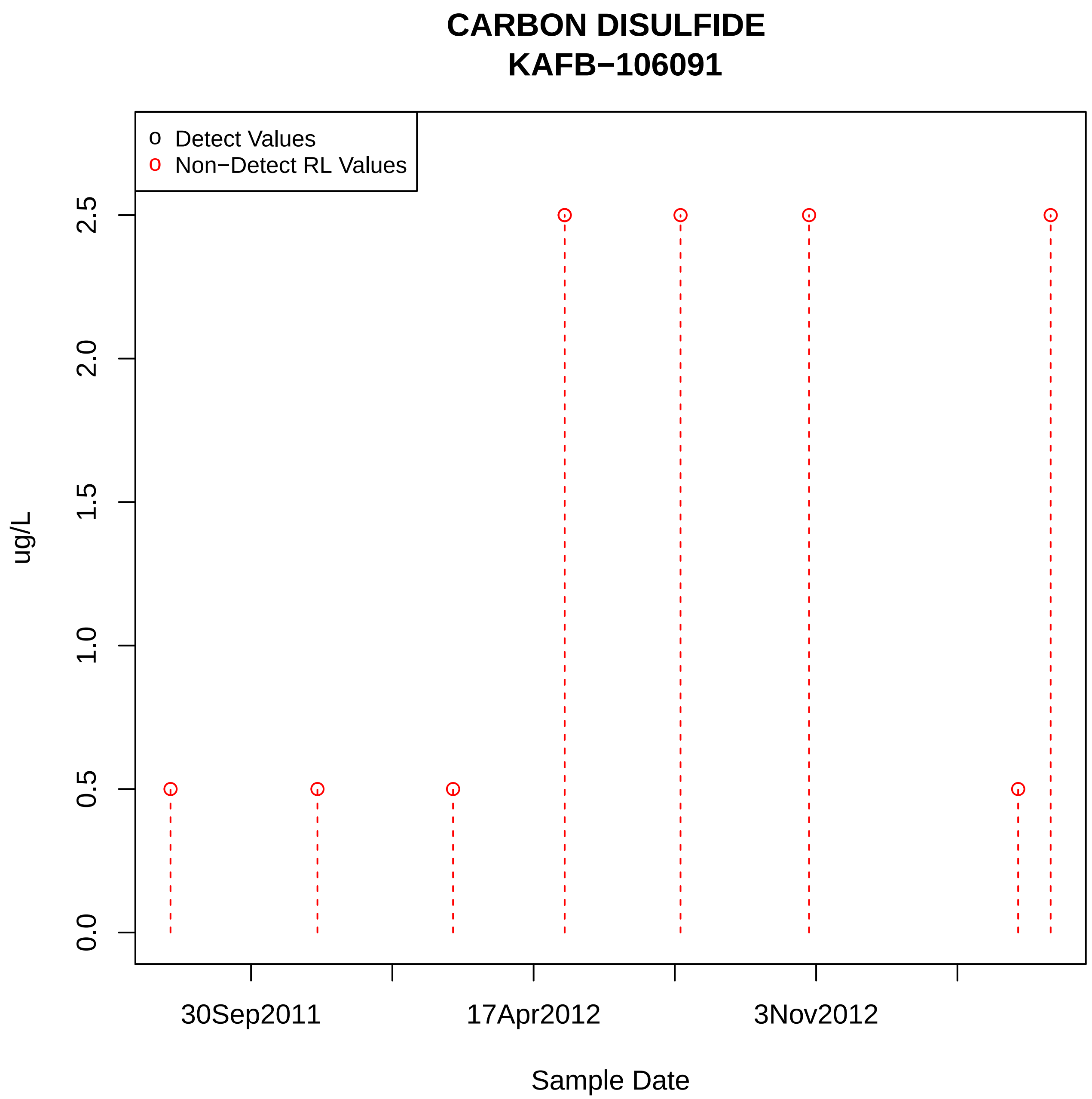
CARBON DISULFIDE
KAFB−106088
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



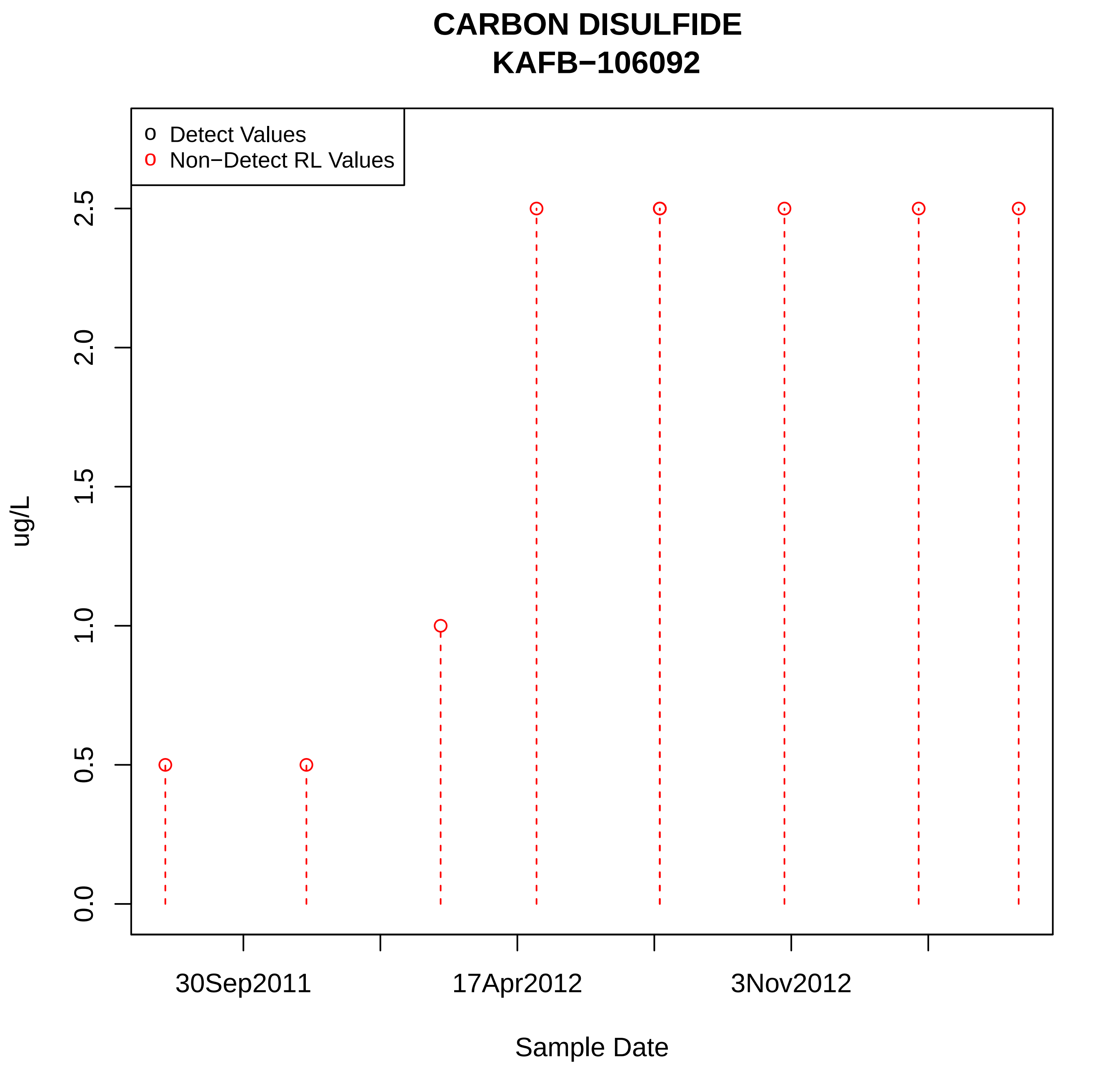
CARBON DISULFIDE
KAFB−106089
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



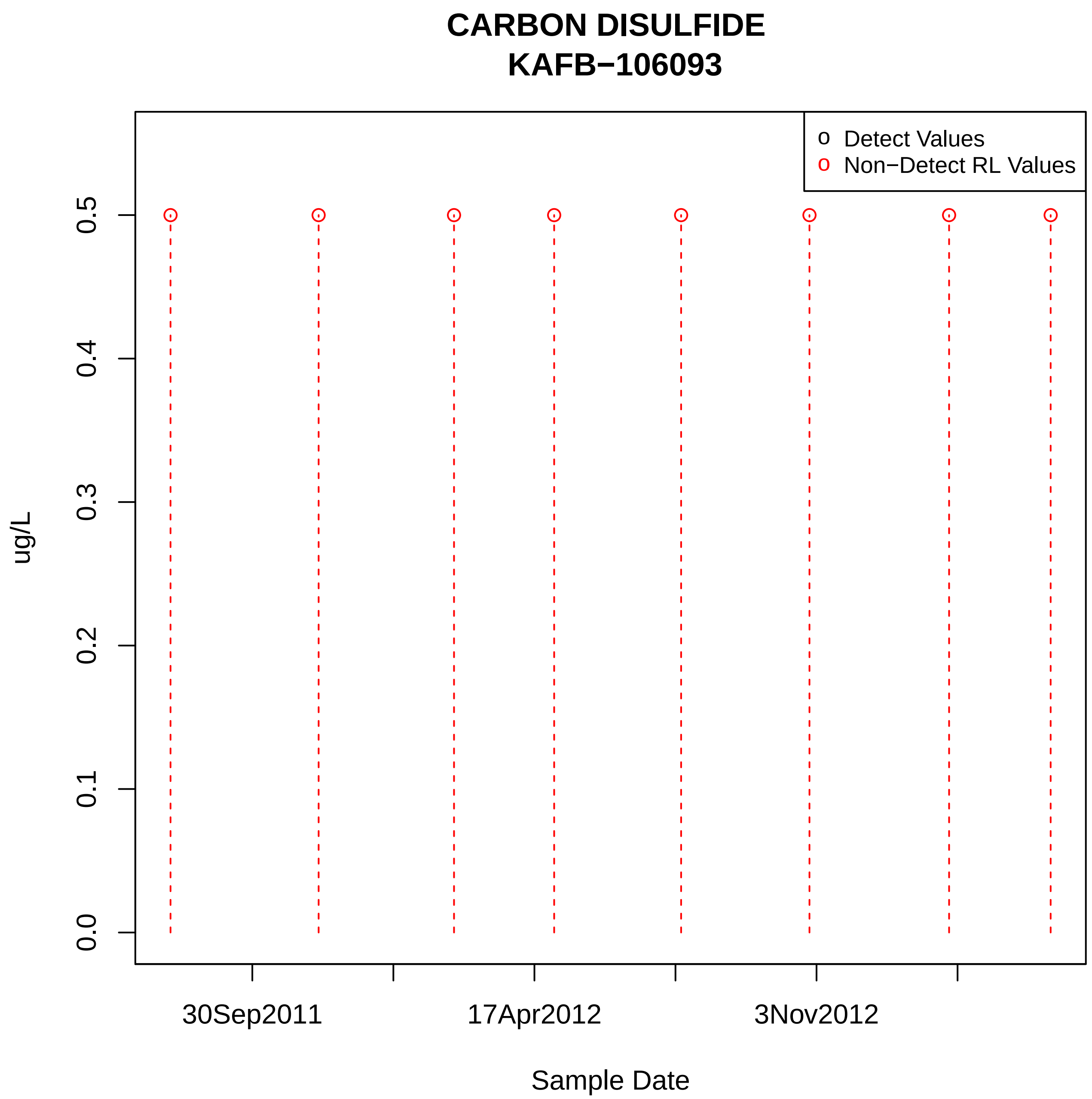
CARBON DISULFIDE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



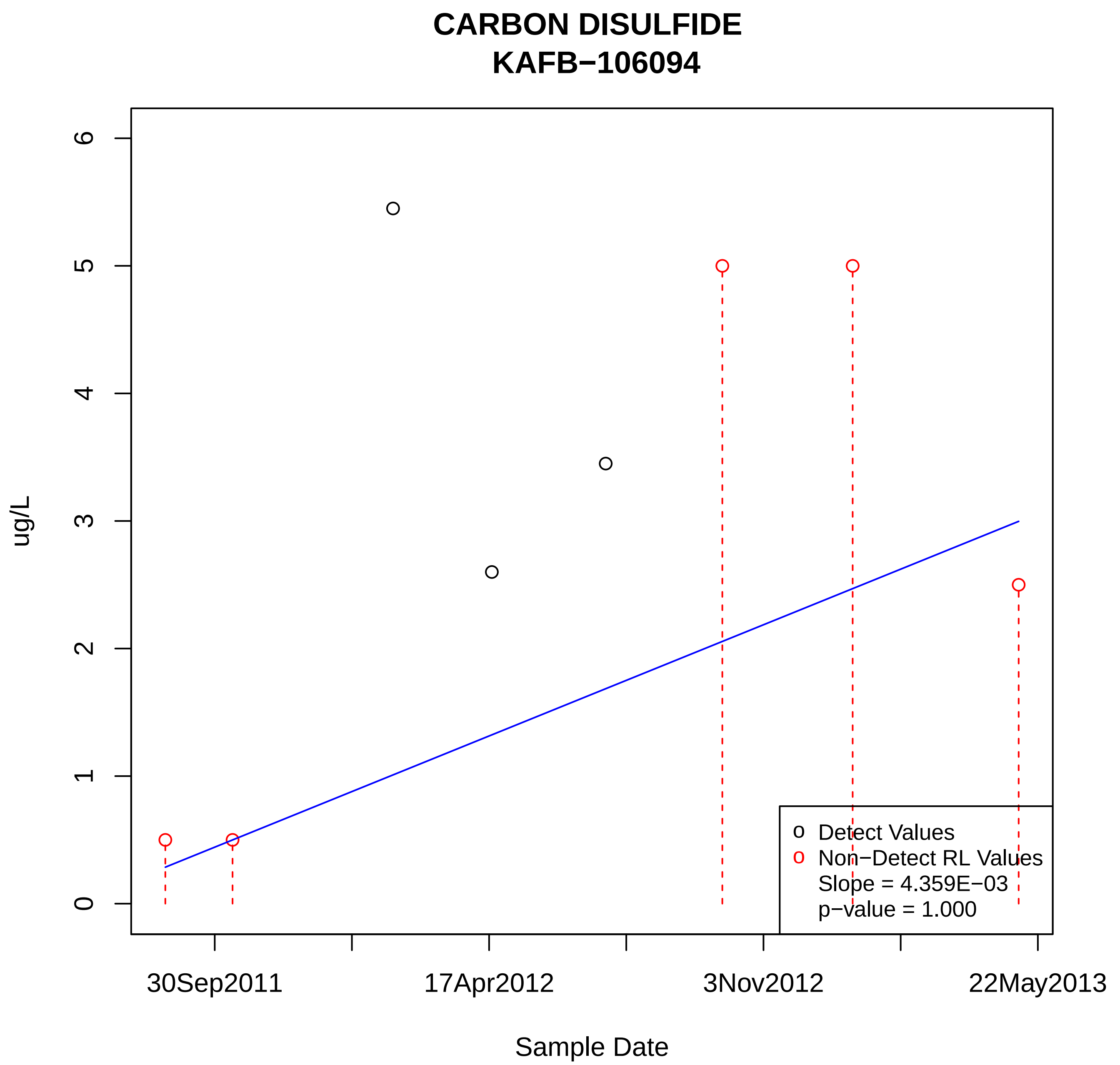
CARBON DISULFIDE
KAFB−106091
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

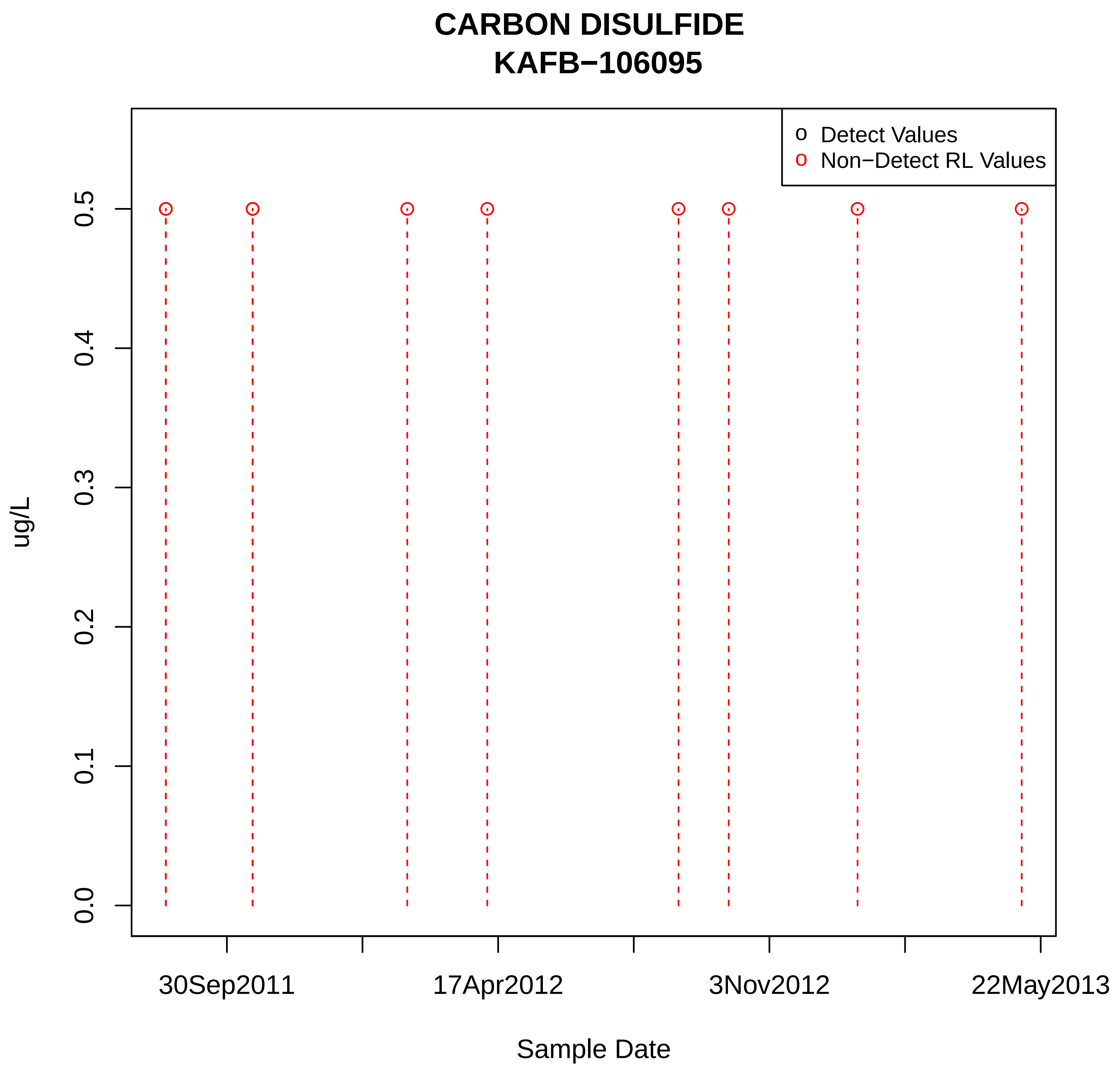


CARBON DISULFIDE
KAFB−106092
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

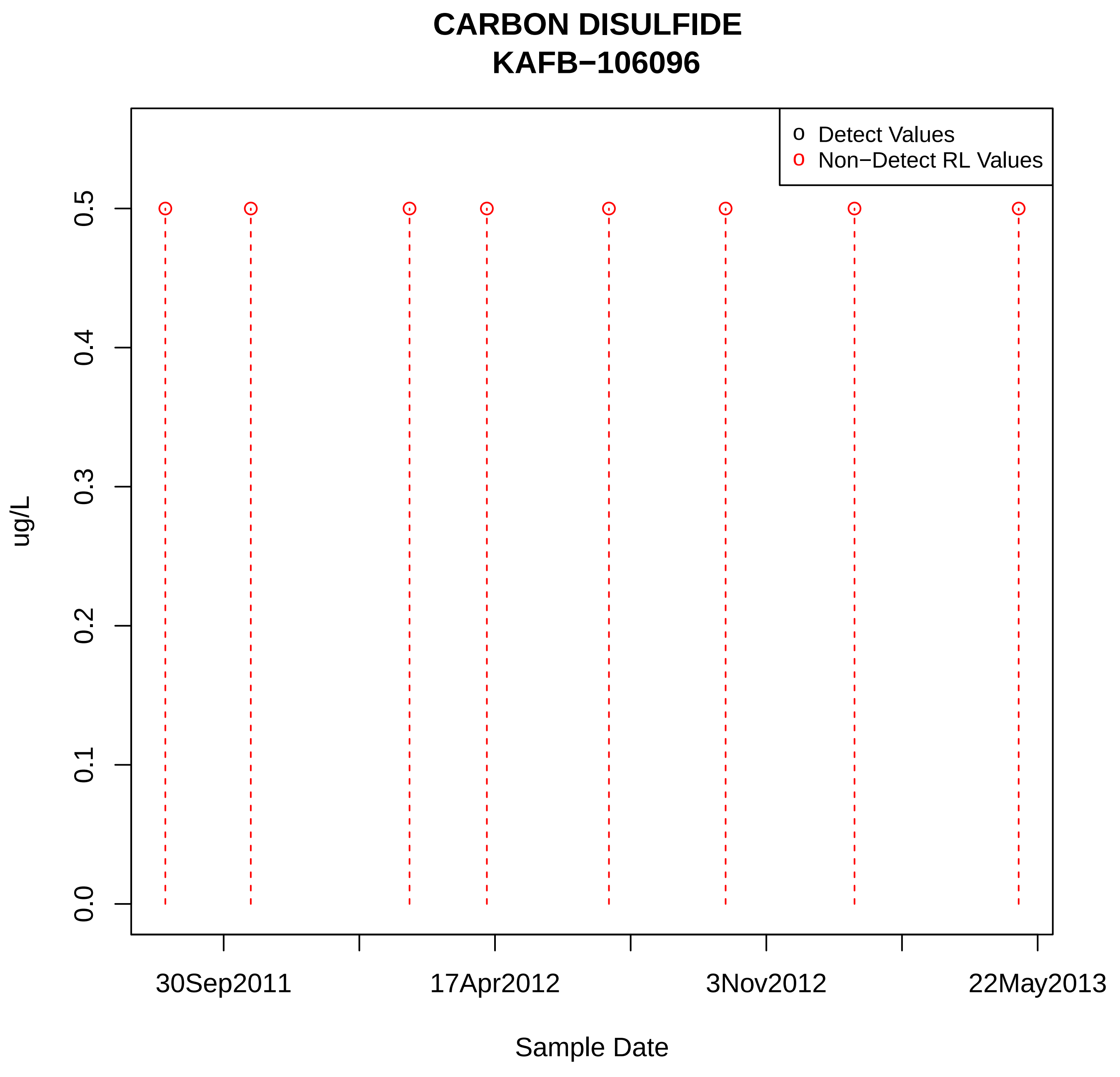


CARBON DISULFIDE
KAFB−106093
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

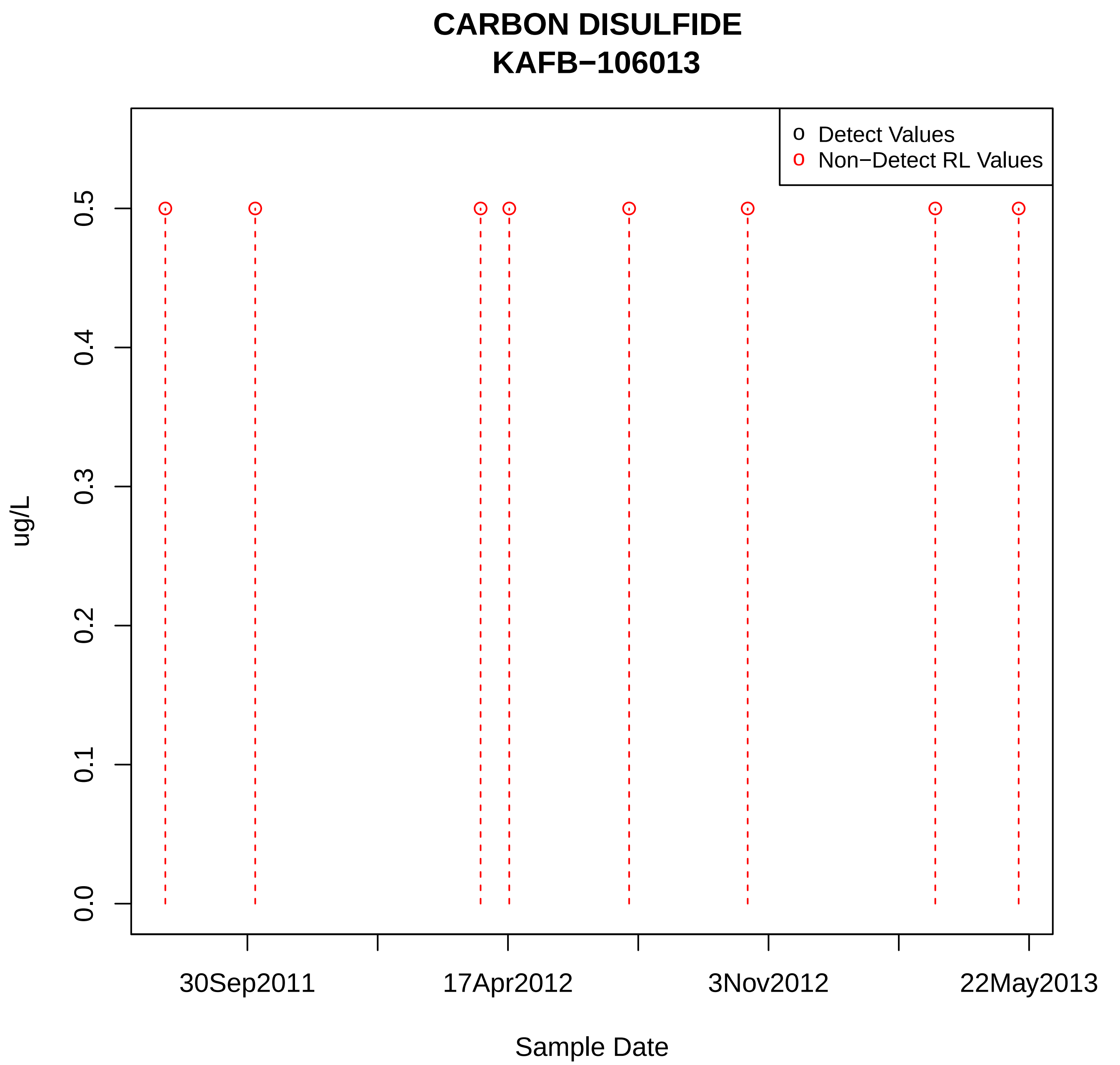

CARBON DISULFIDE
KAFB−106094
ug/L
0
1
2
3
4
5
6
Sample Date
30Sep2011
17Apr2012
3Nov2012
22May2013
o Detect Values
o Non−Detect RL Values
Slope = 4.359E−03
p−value = 1.000



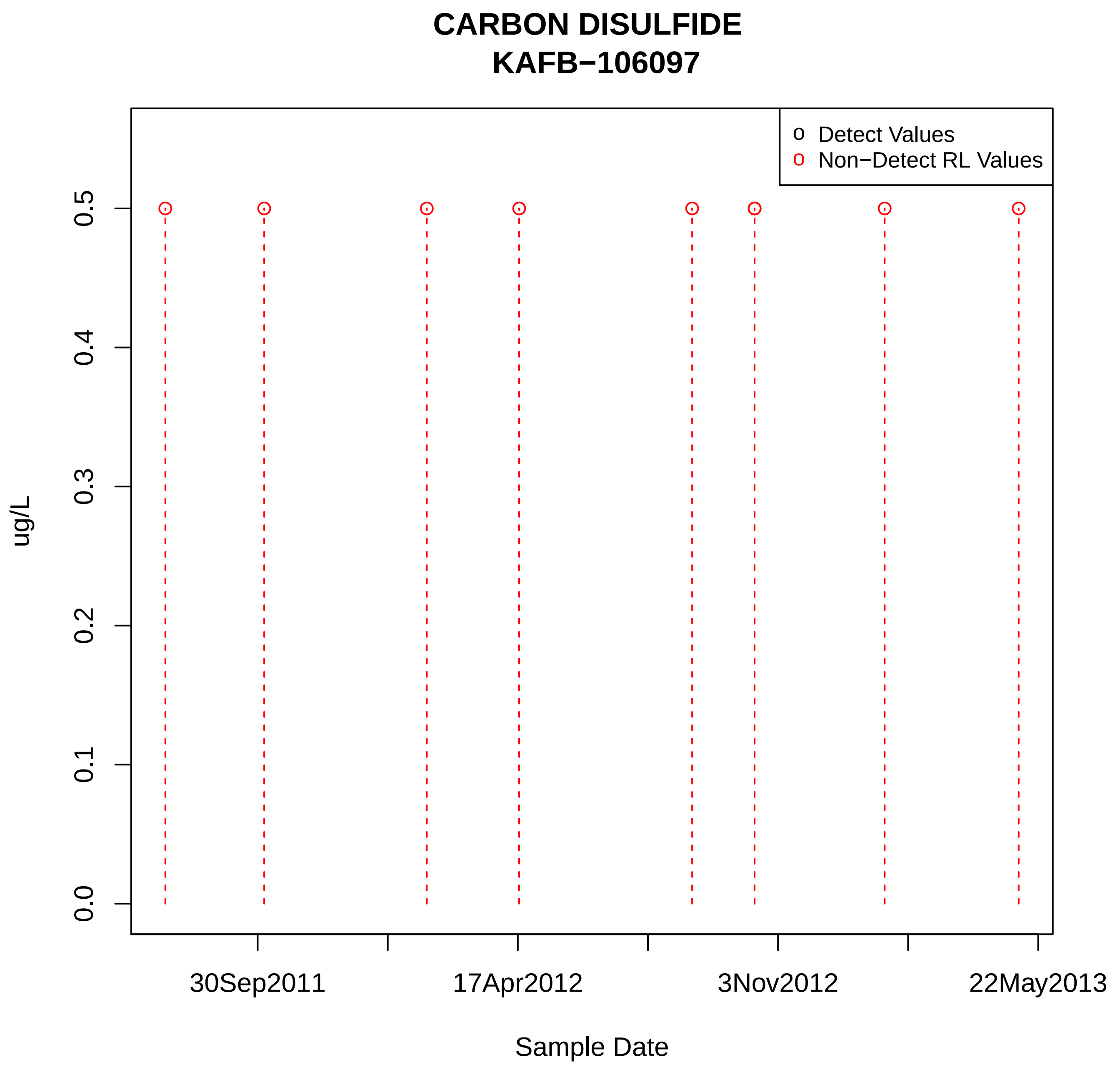
CARBON DISULFIDE
KAFB−106095
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



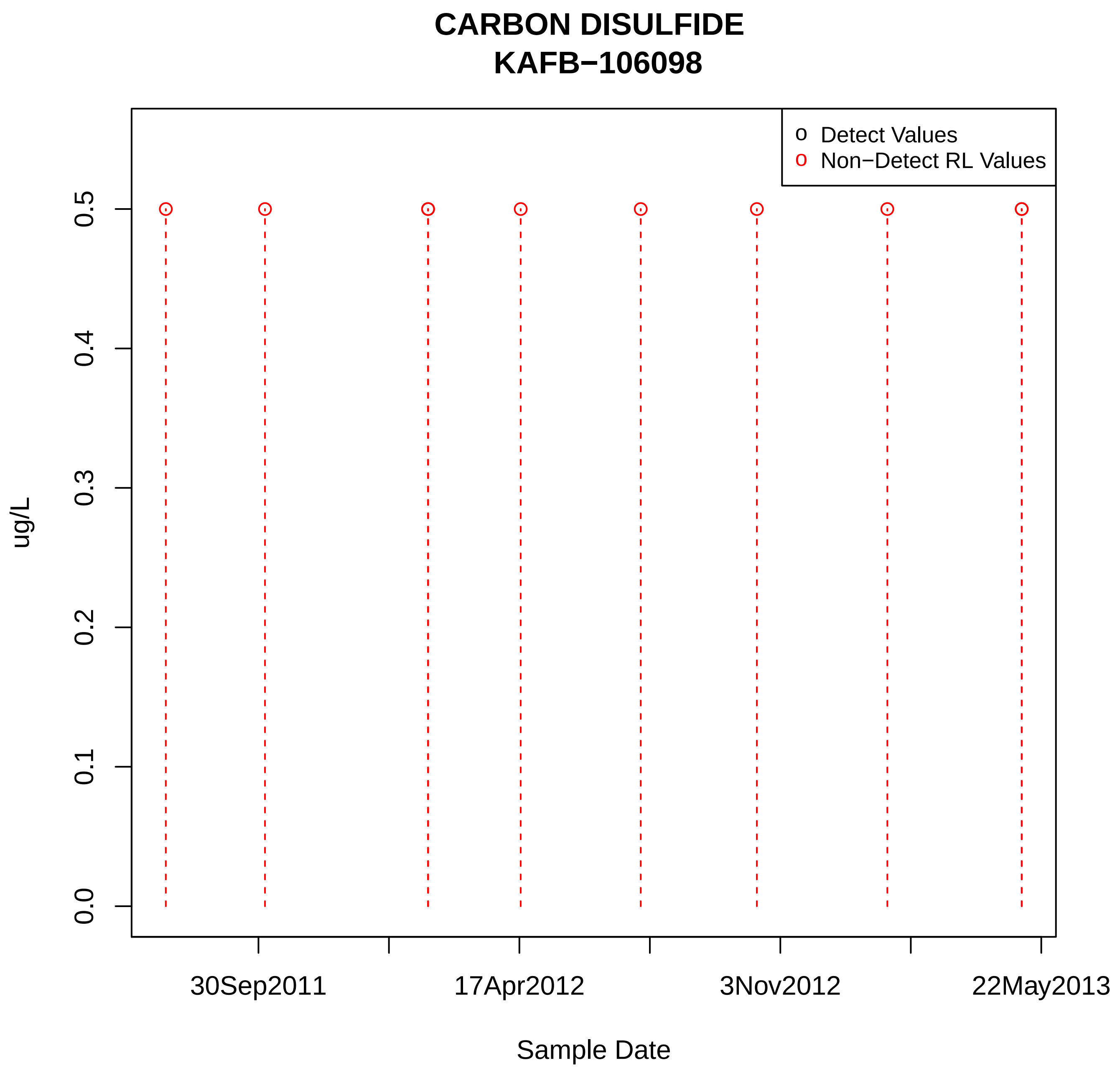
CARBON DISULFIDE
KAFB−106096
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



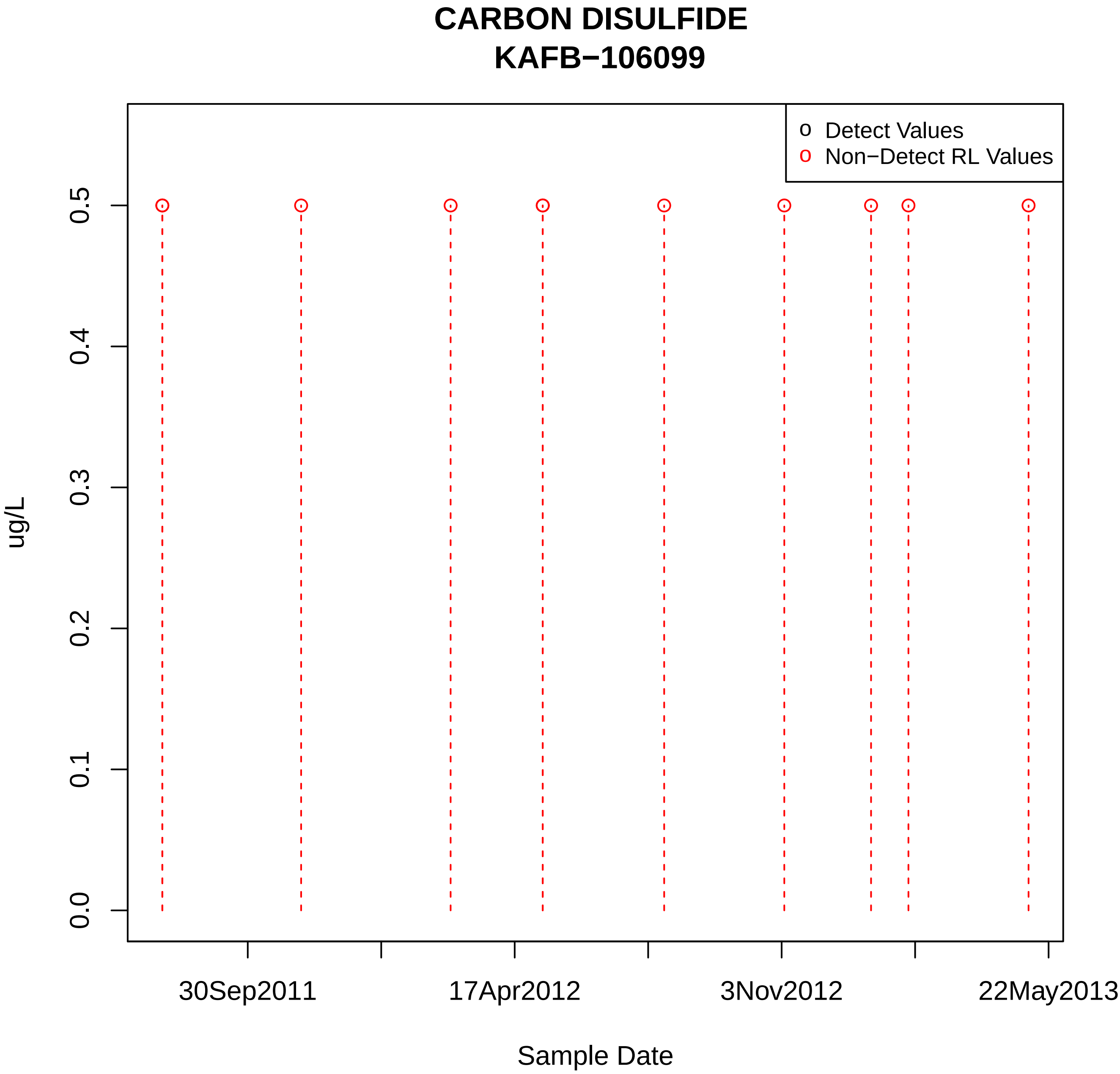
CARBON DISULFIDE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

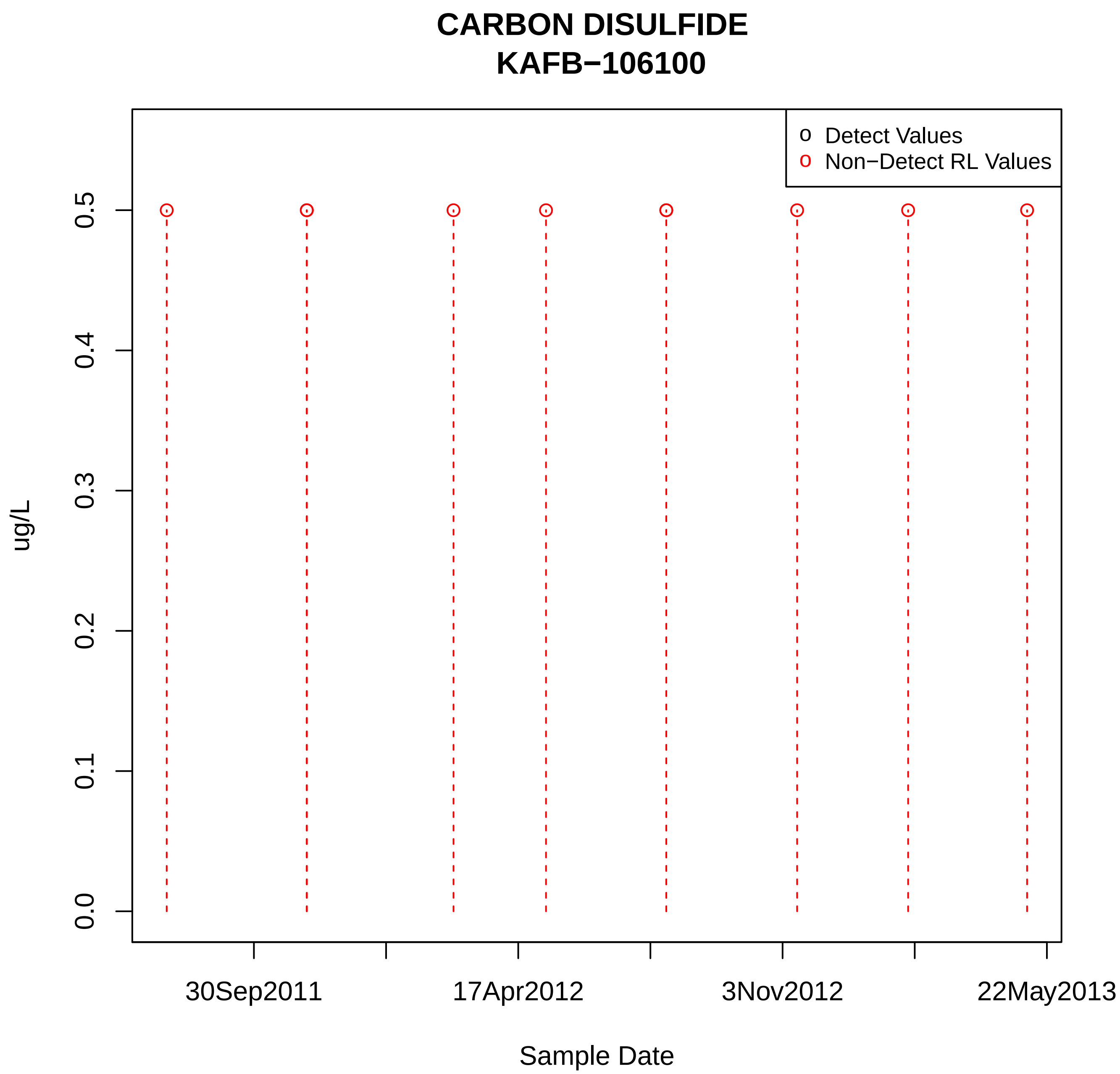


CARBON DISULFIDE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

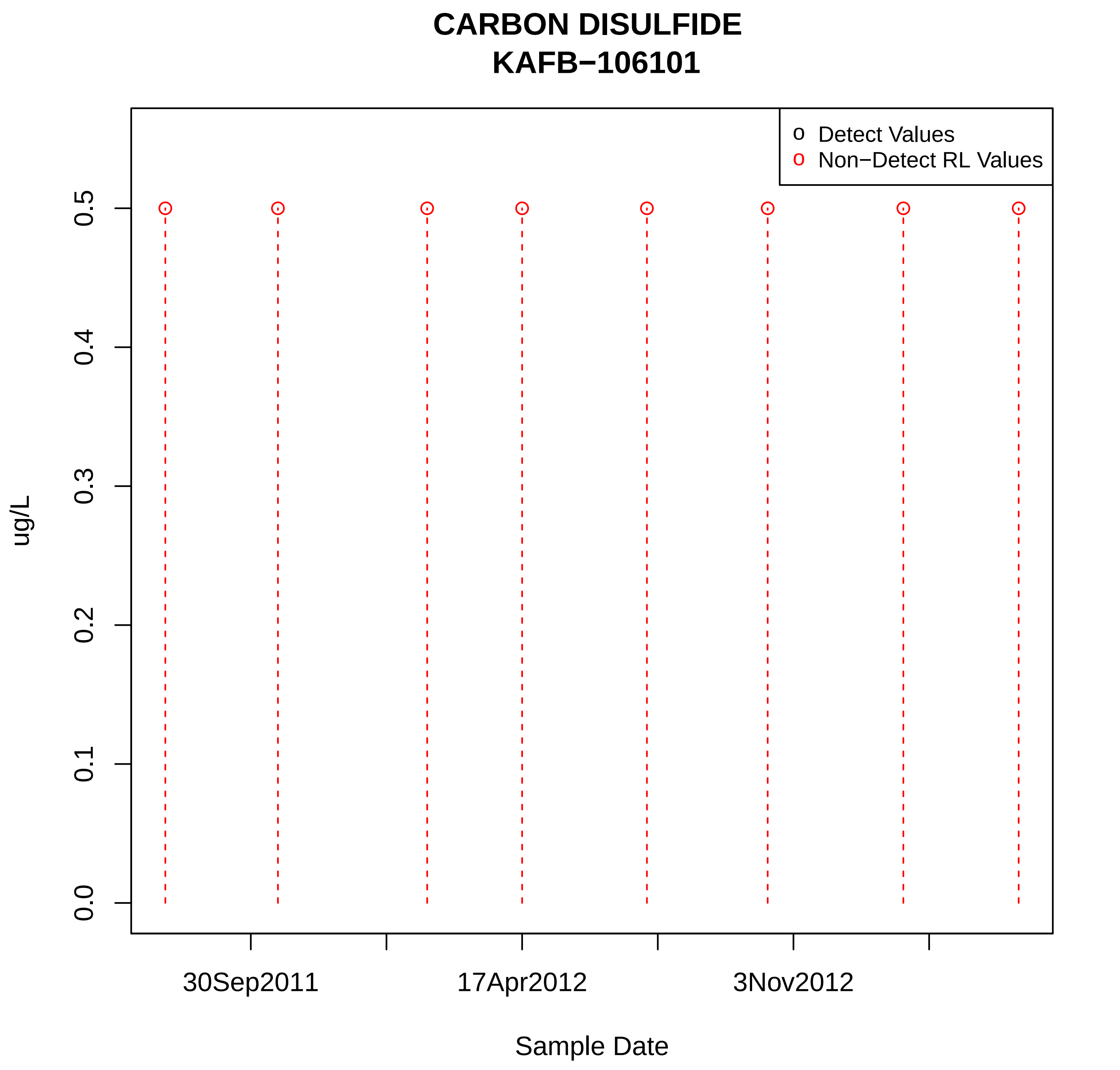


CARBON DISULFIDE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

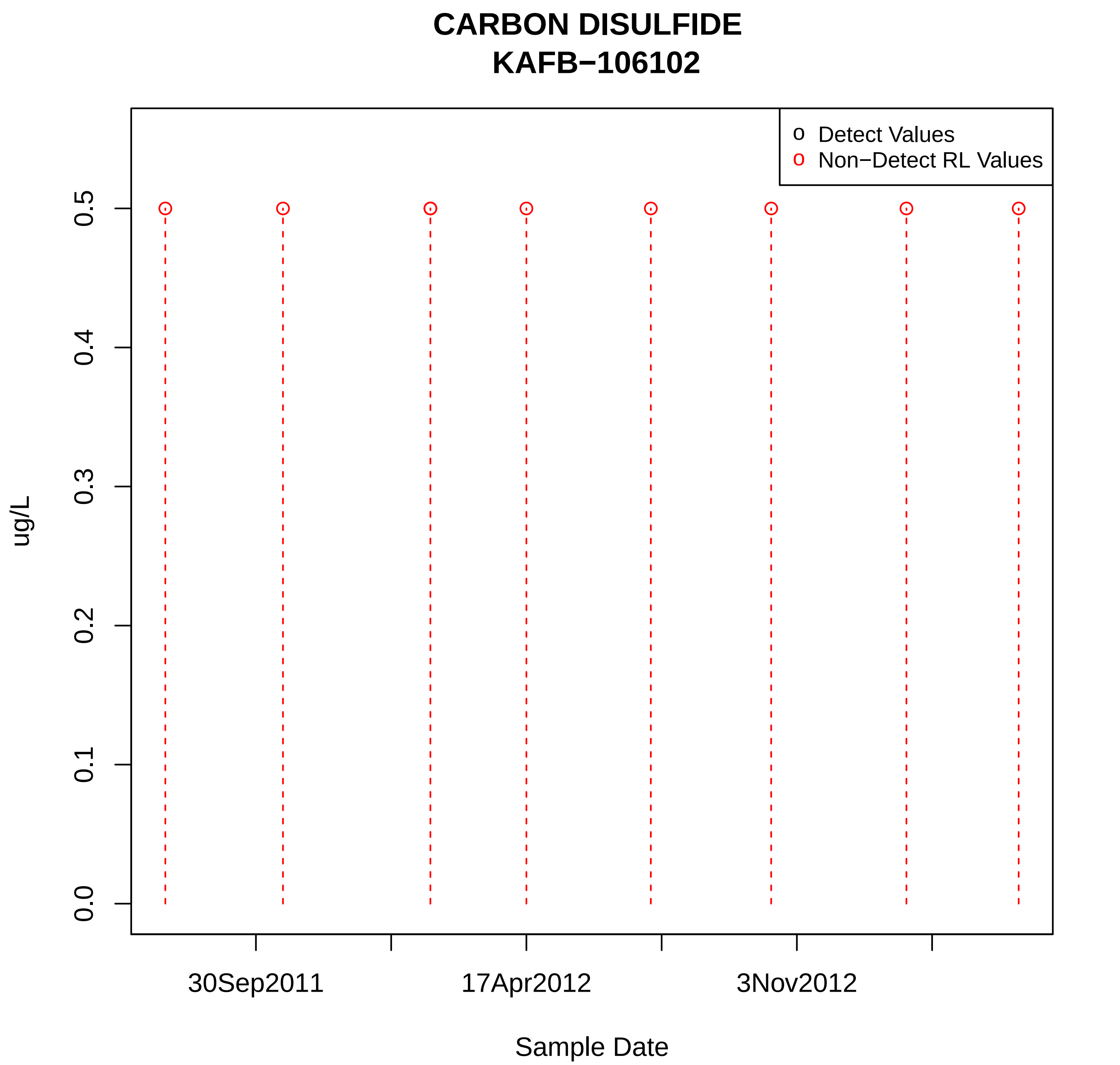

CARBON DISULFIDE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

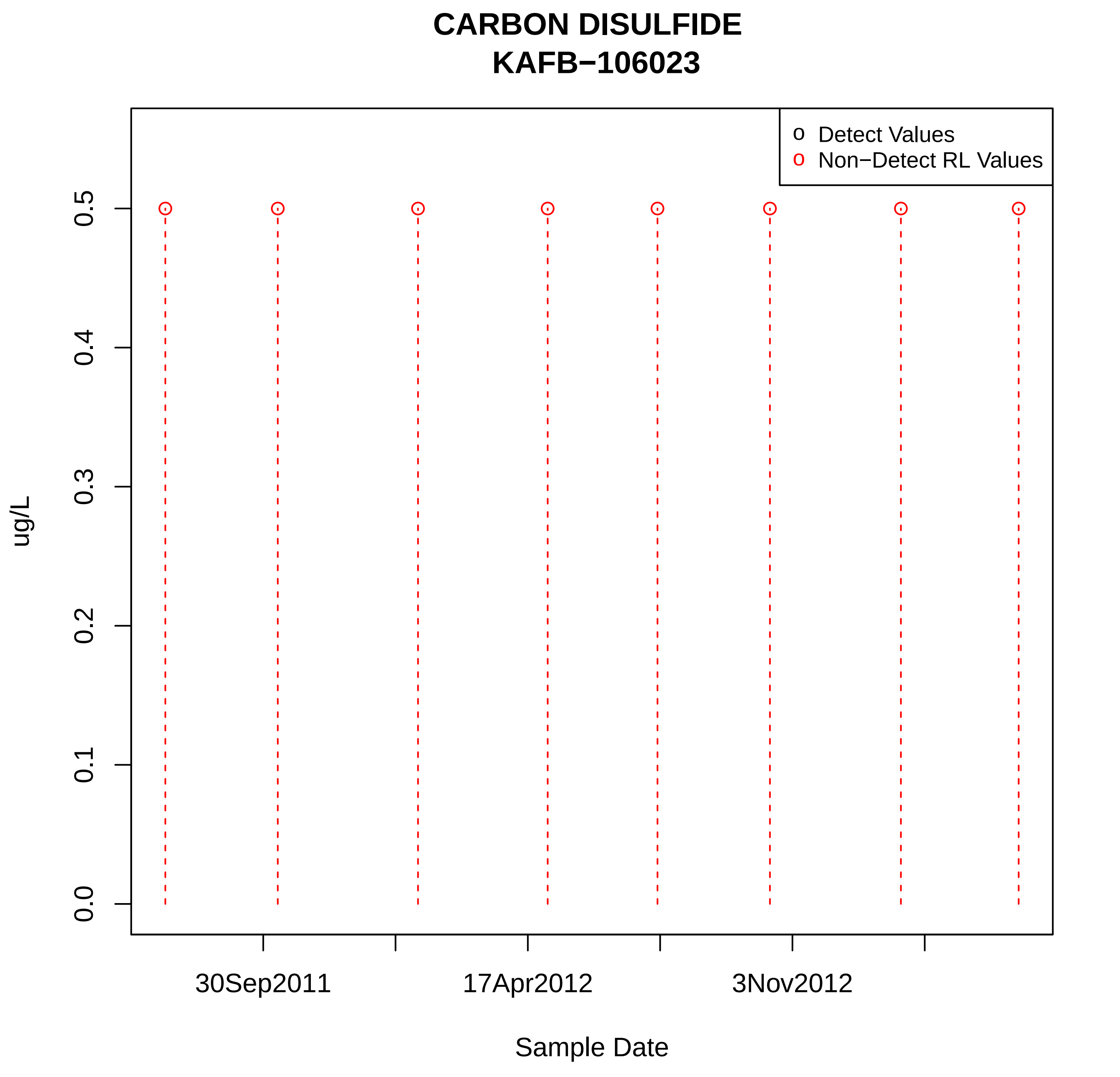


CARBON DISULFIDE
KAFB−106100
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

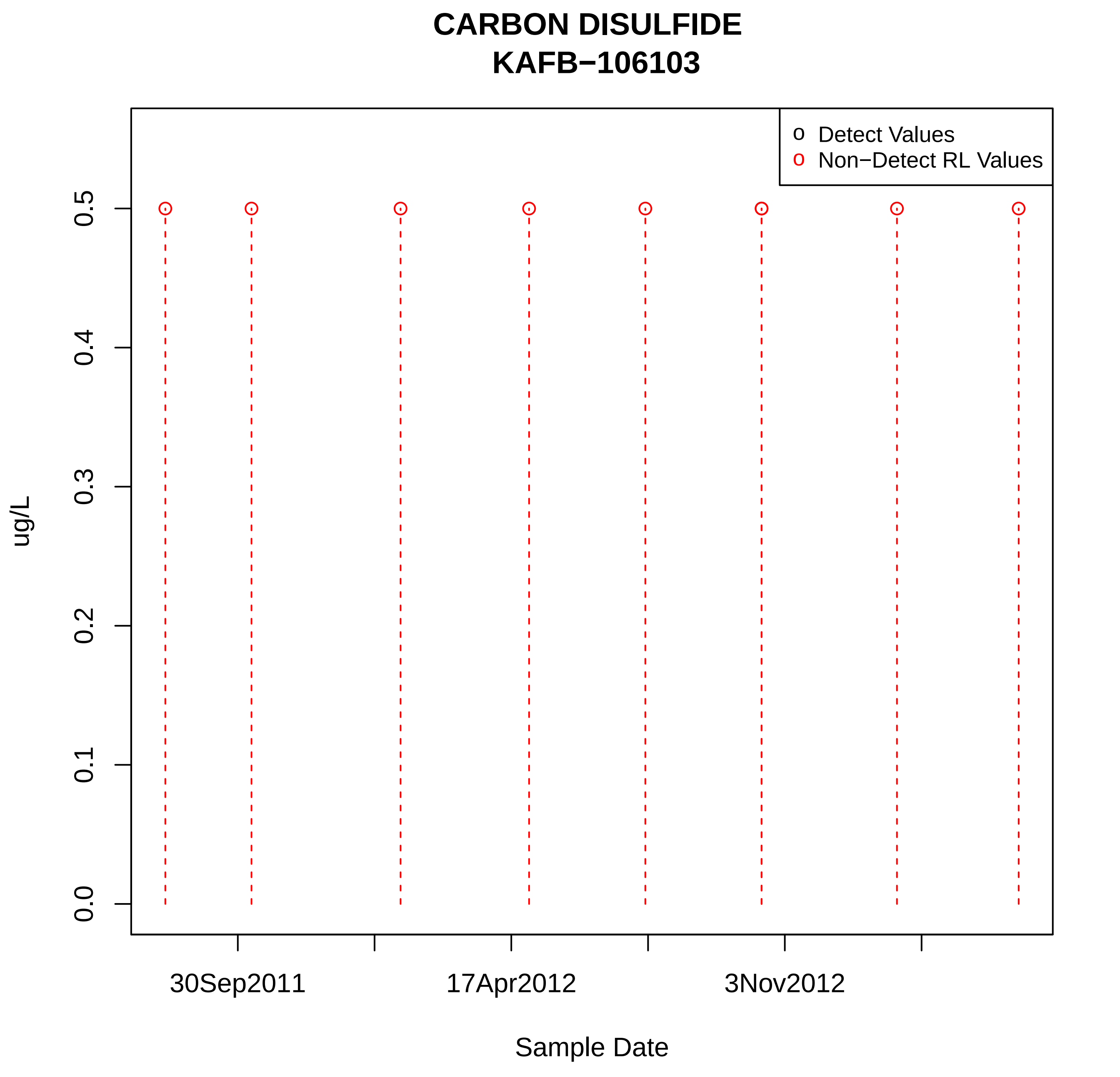


CARBON DISULFIDE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

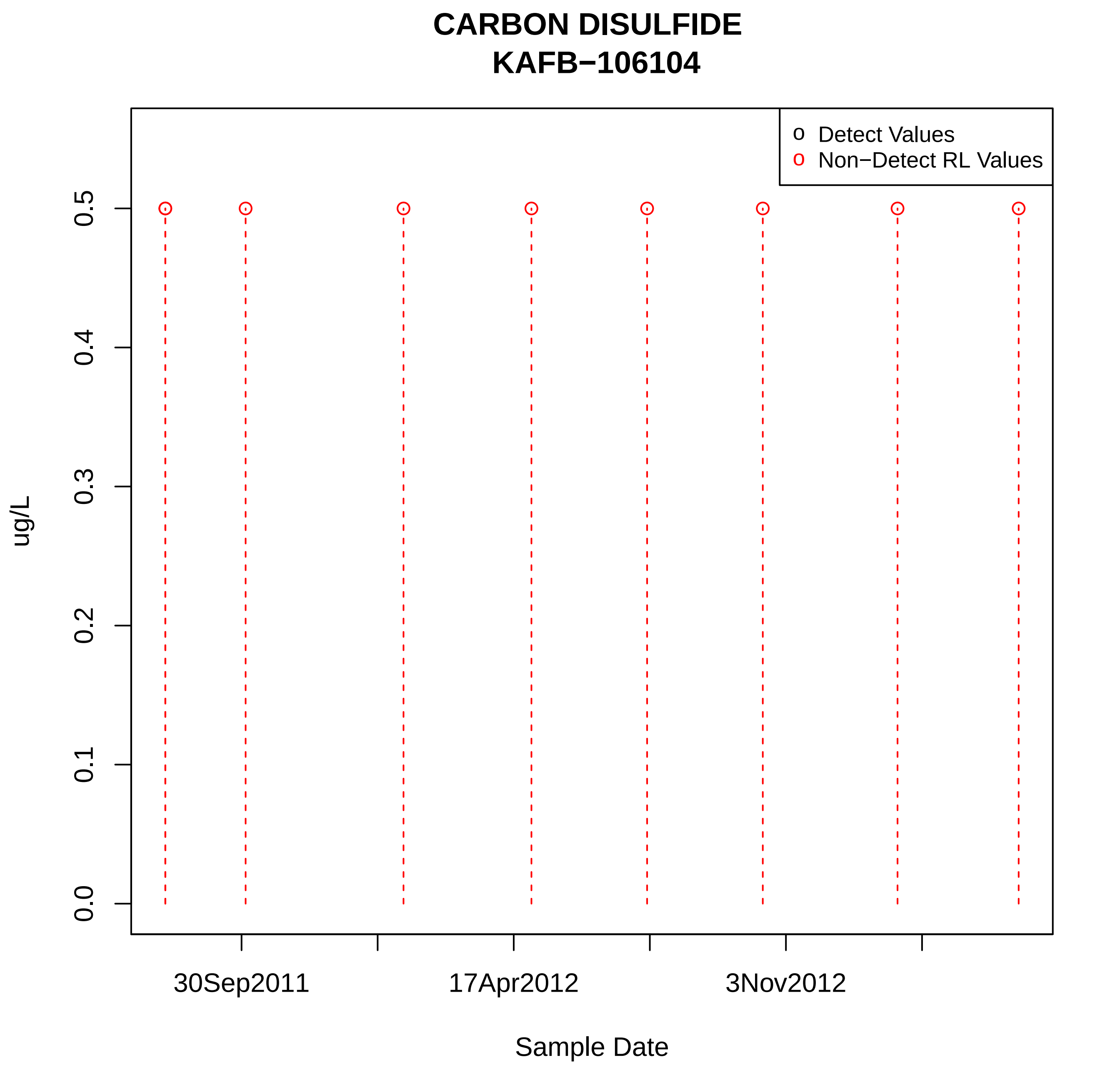

CARBON DISULFIDE
KAFB−106102
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



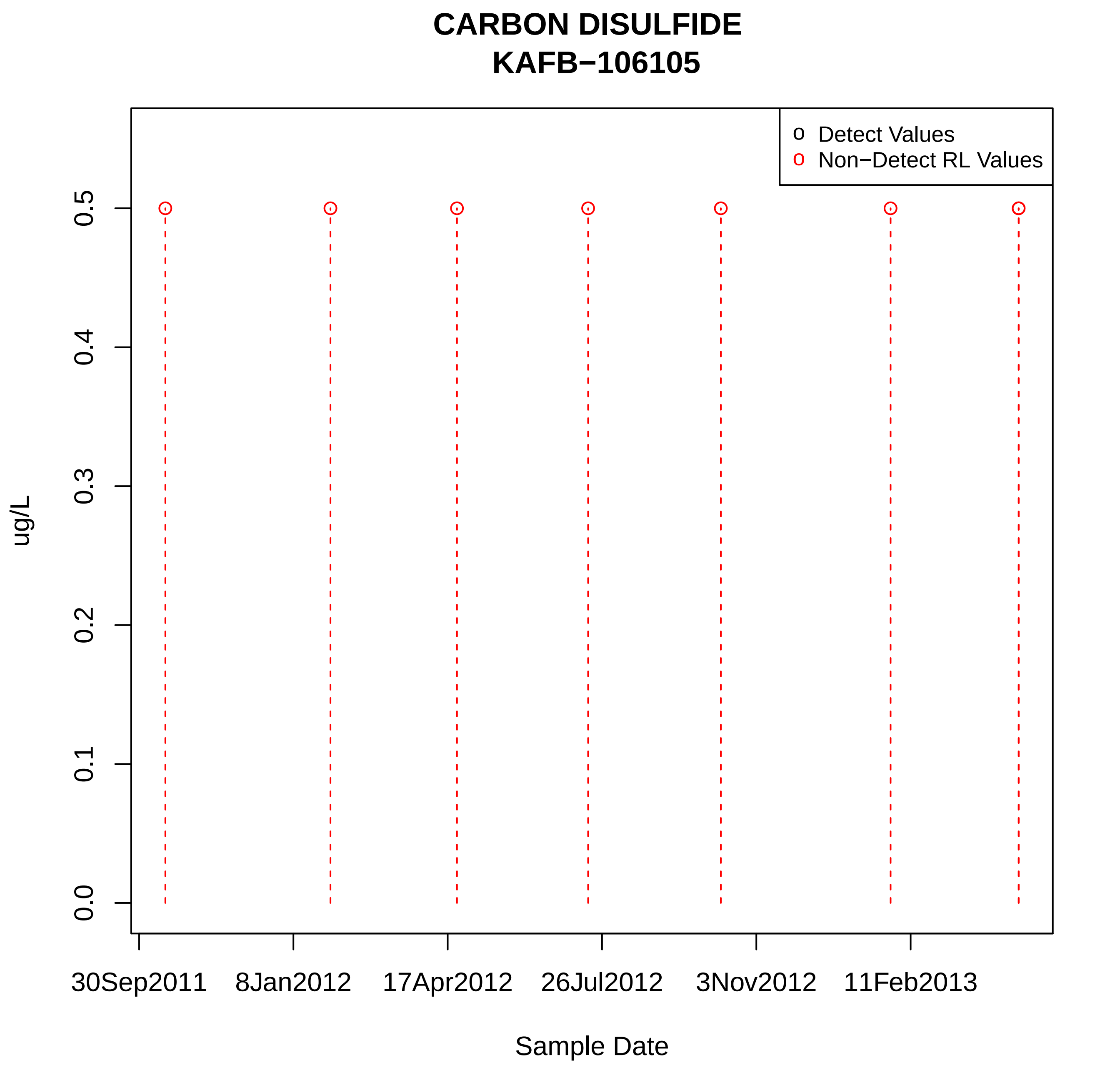
CARBON DISULFIDE
KAFB−106023
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



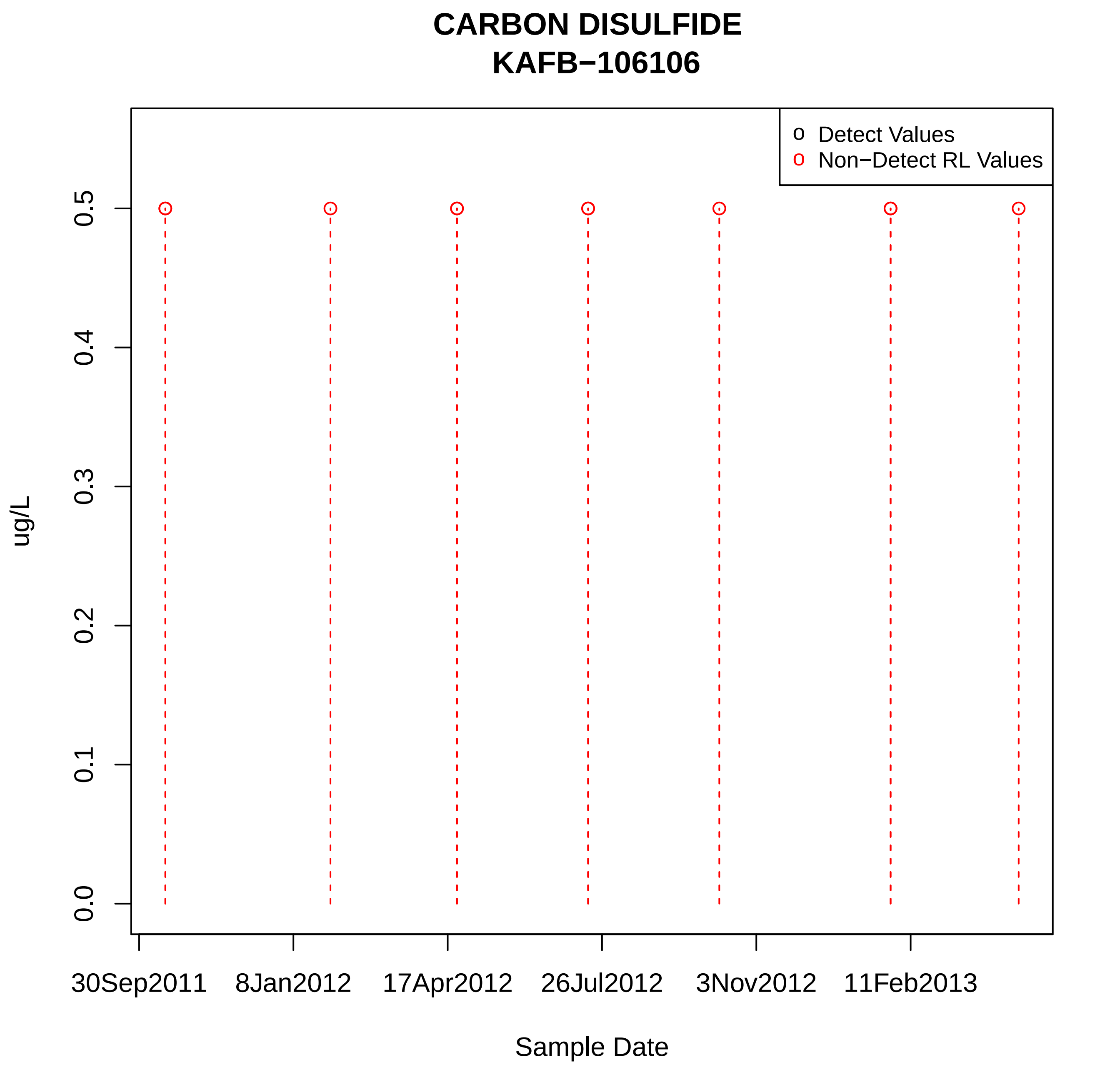
CARBON DISULFIDE
KAFB−106103
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

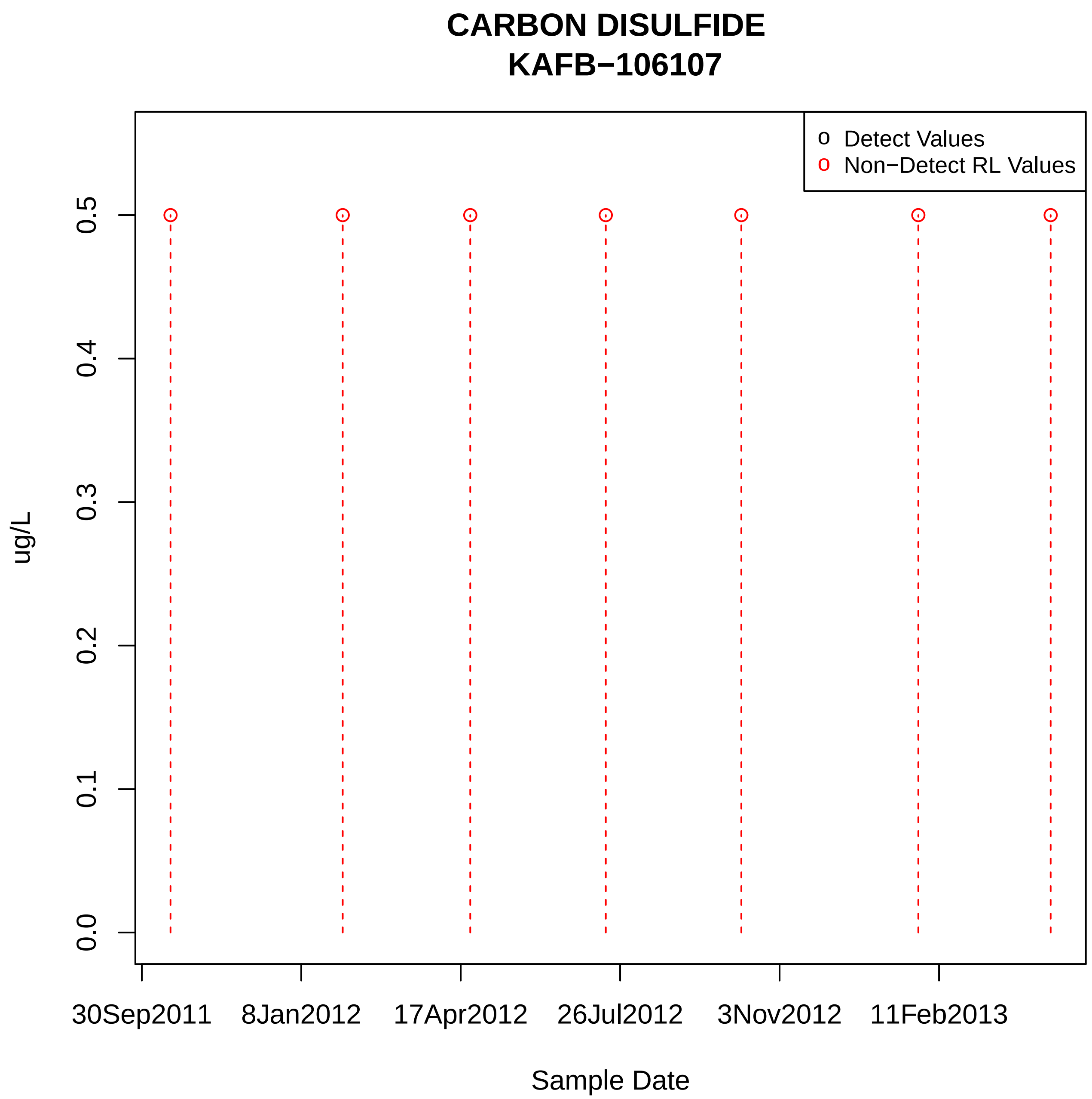


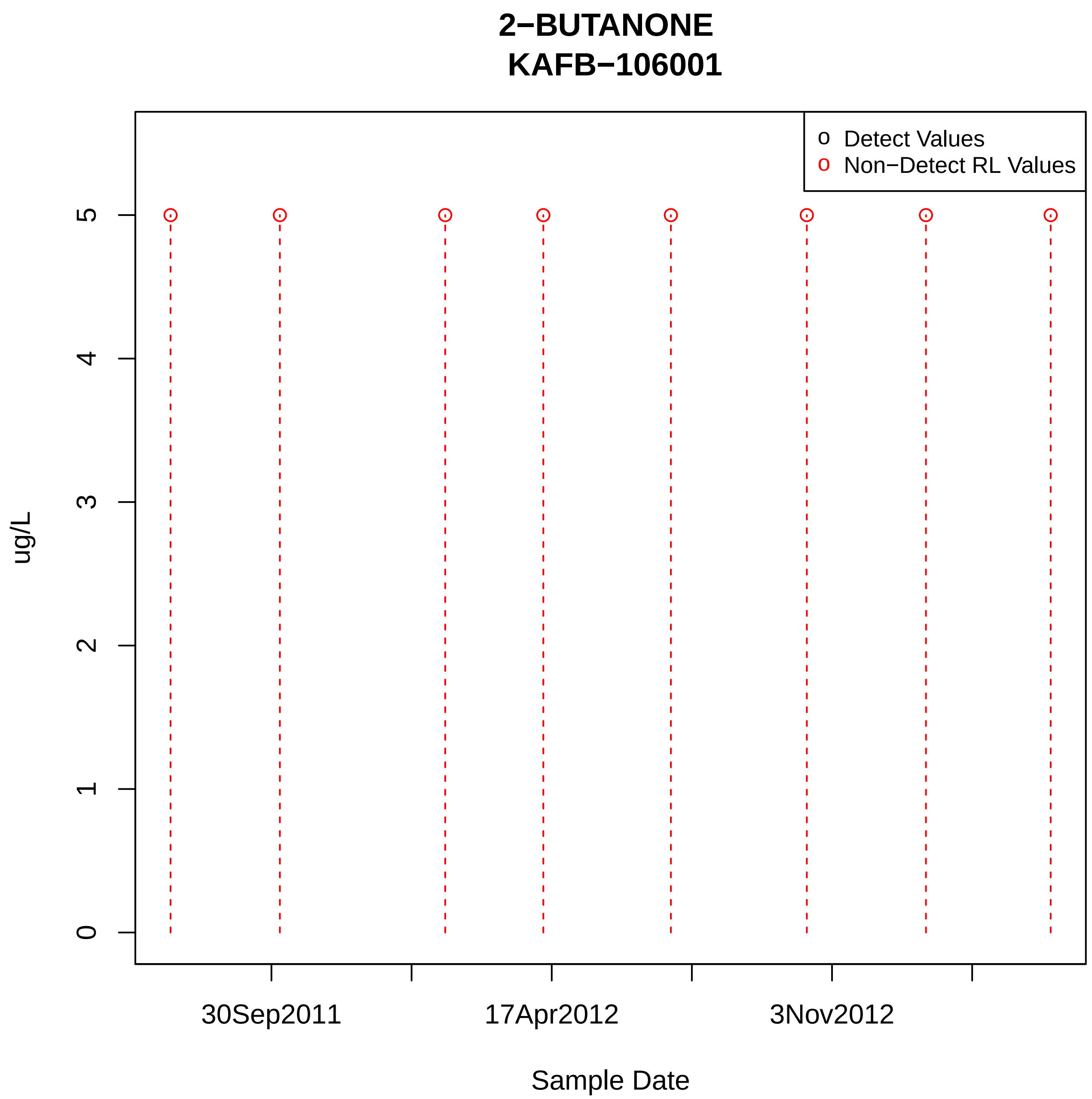
CARBON DISULFIDE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



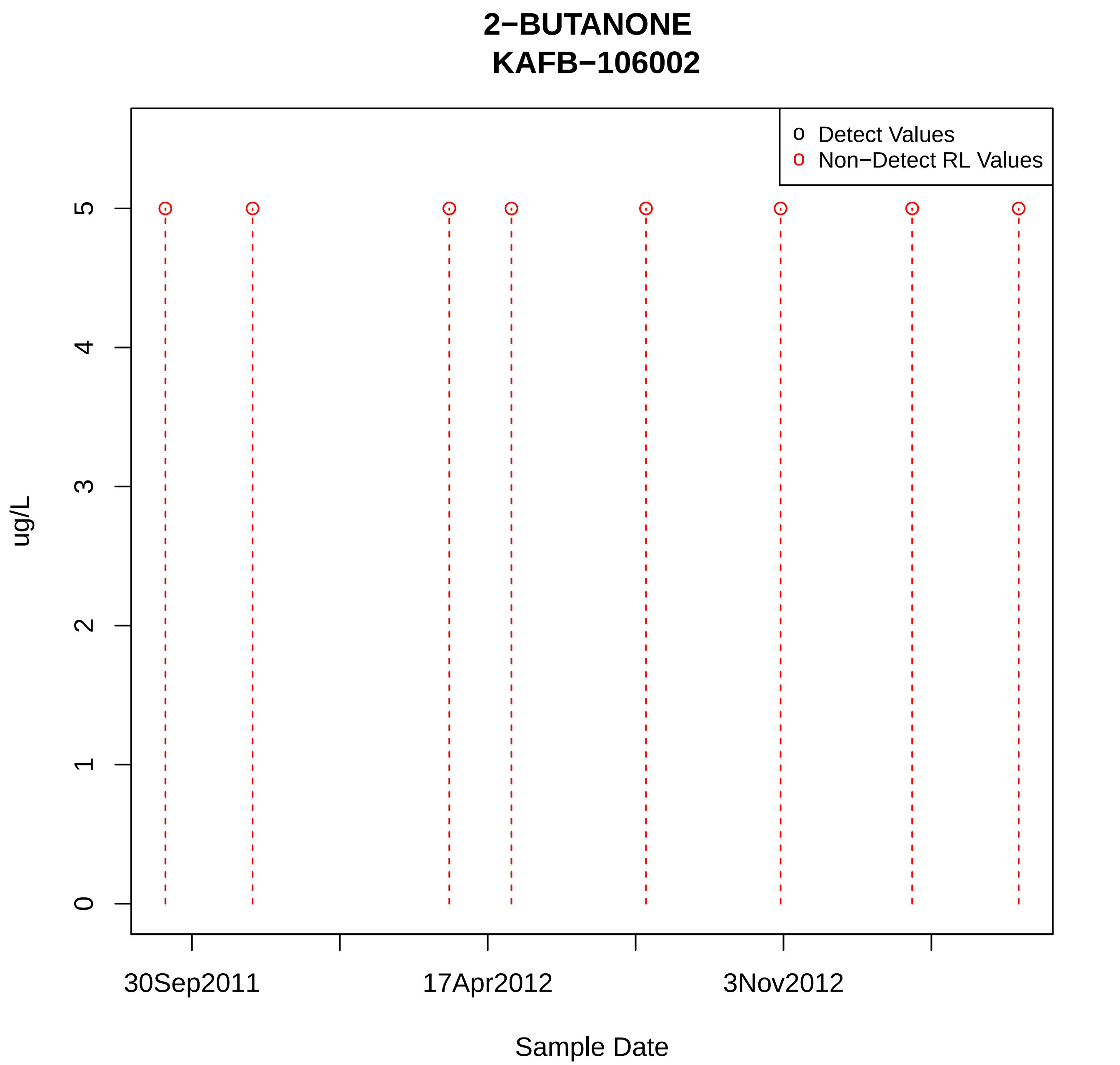
CARBON DISULFIDE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

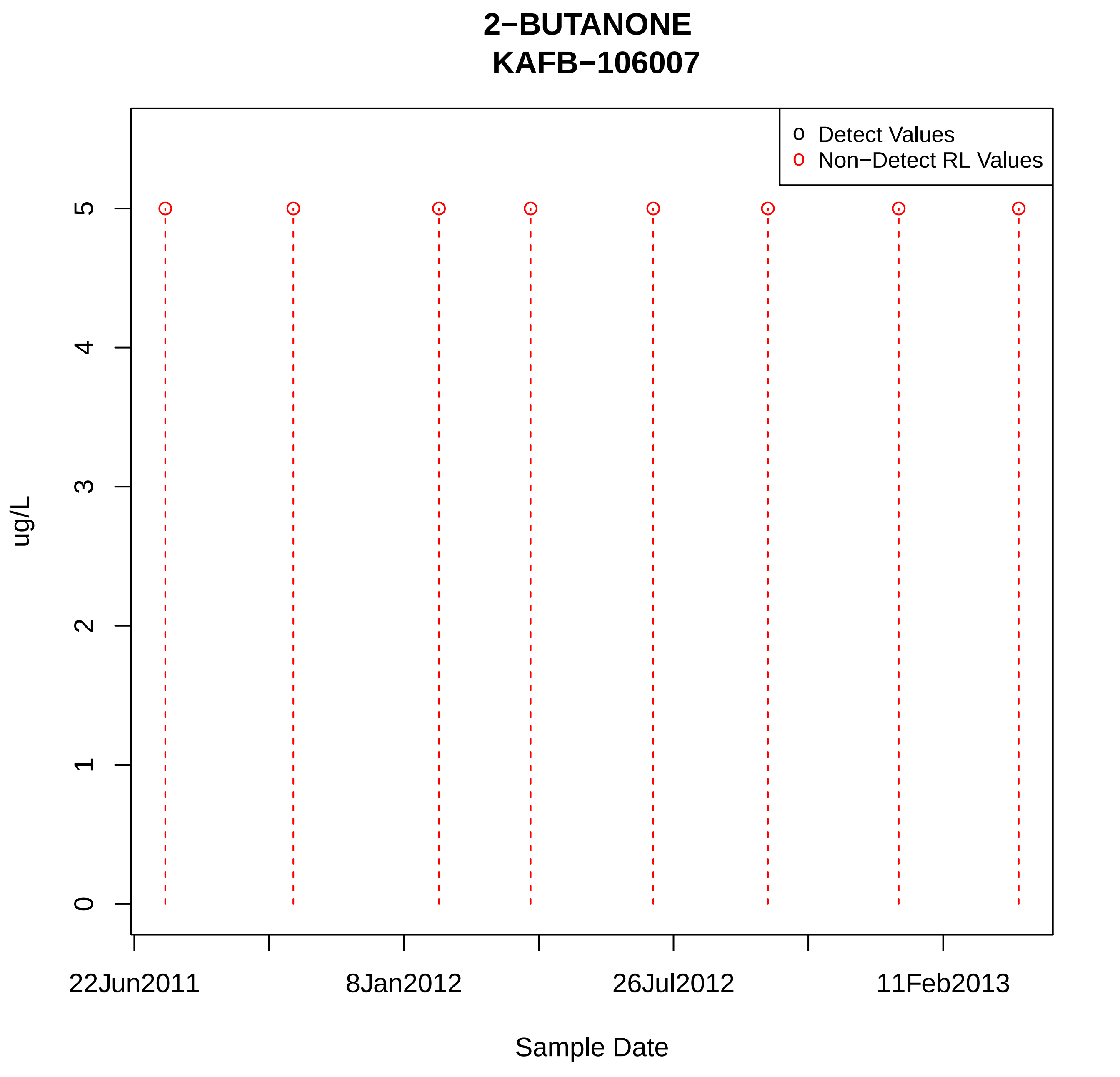

CARBON DISULFIDE
KAFB−106106
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


CARBON DISULFIDE
KAFB−106107
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

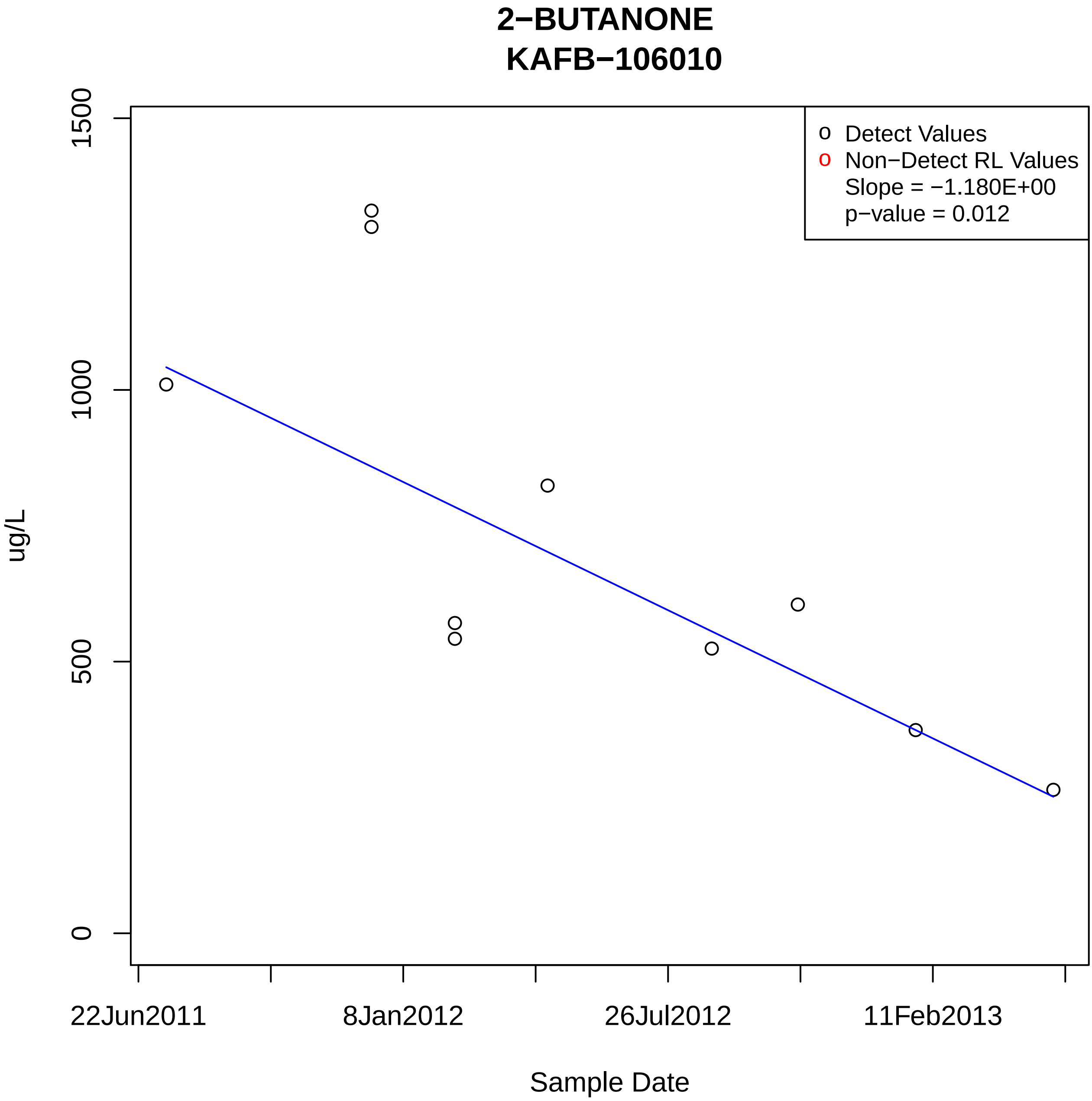


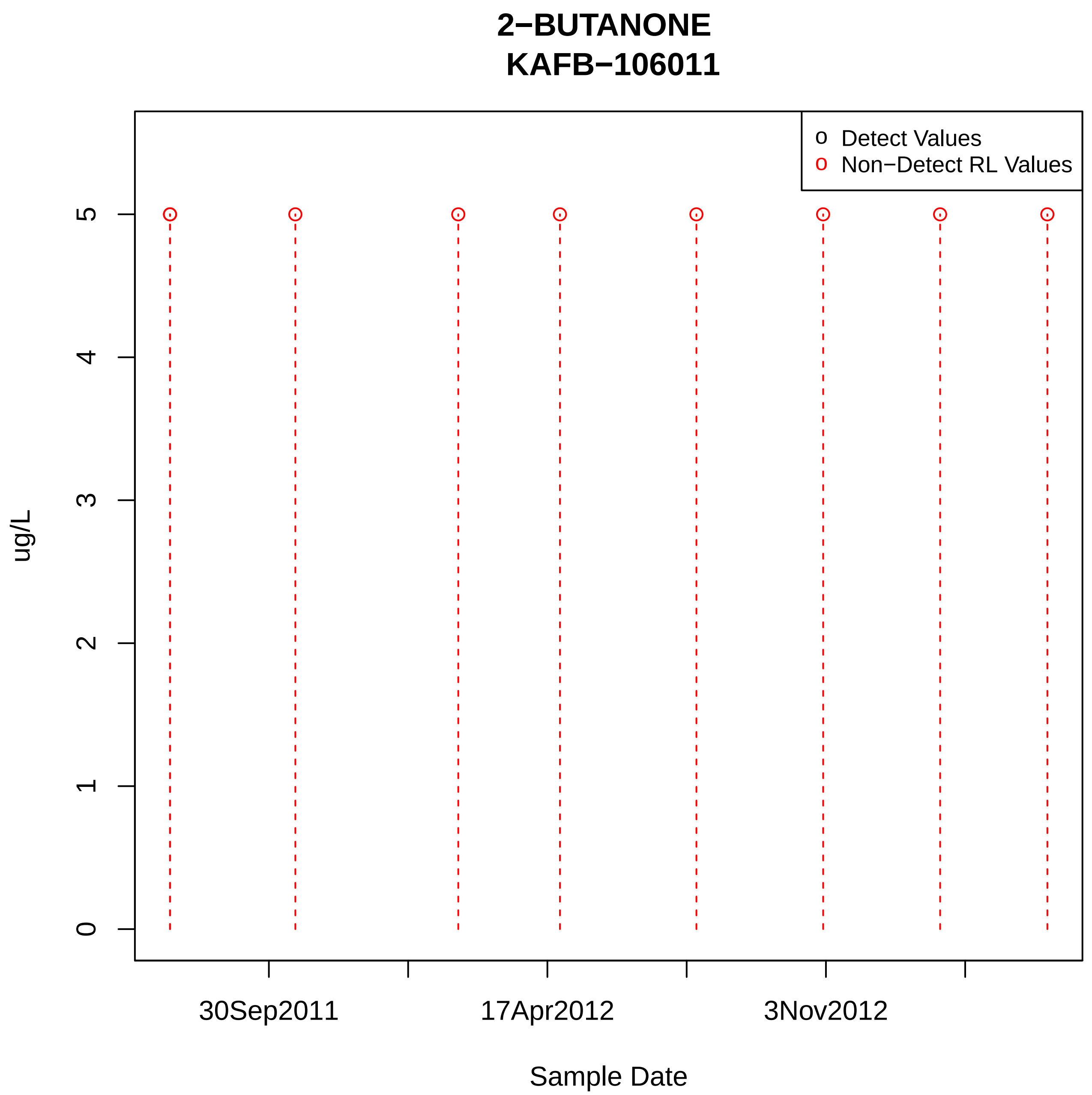
2−BUTANONE
KAFB−106001
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−BUTANONE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

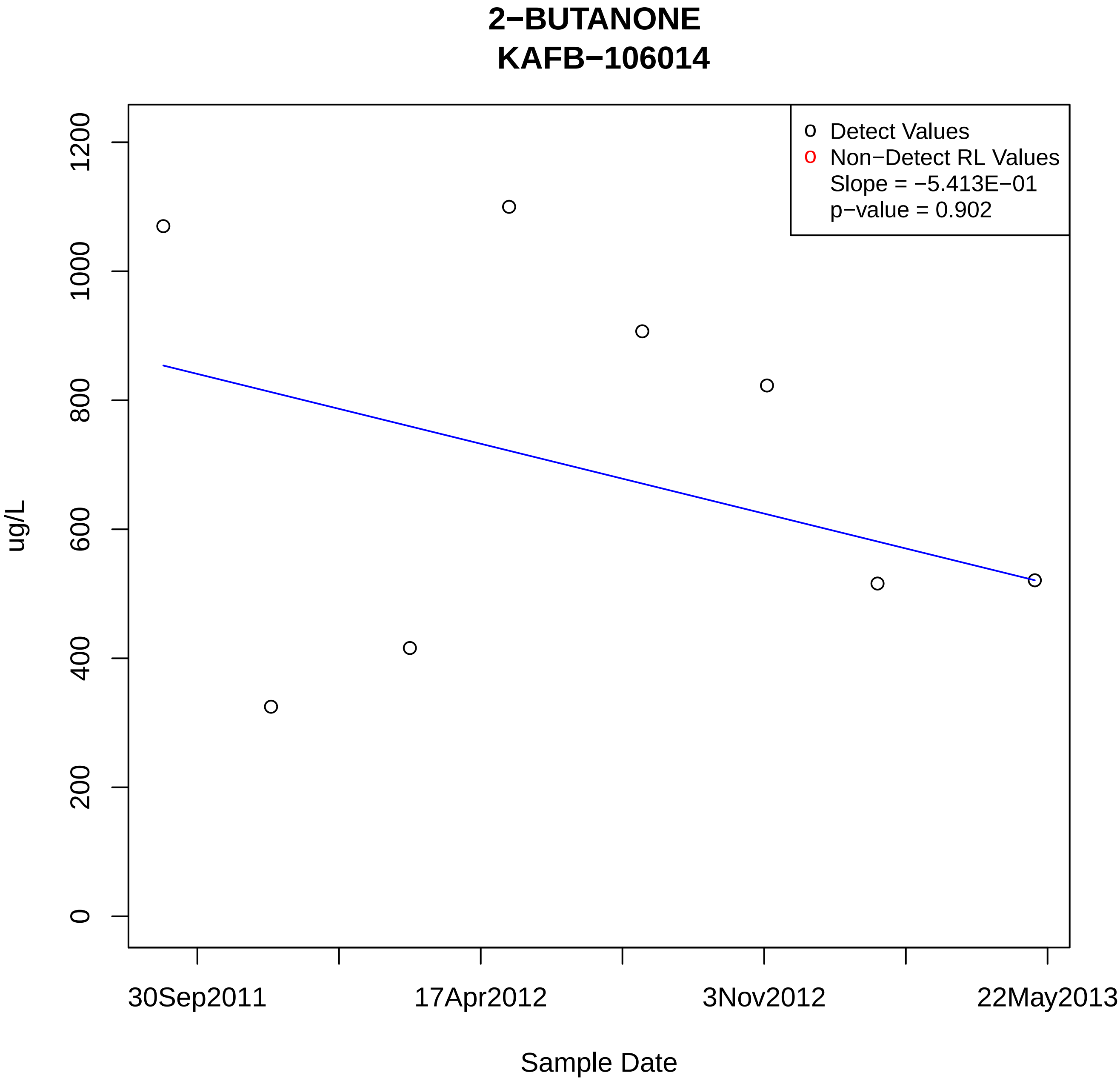


2−BUTANONE
KAFB−106007
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

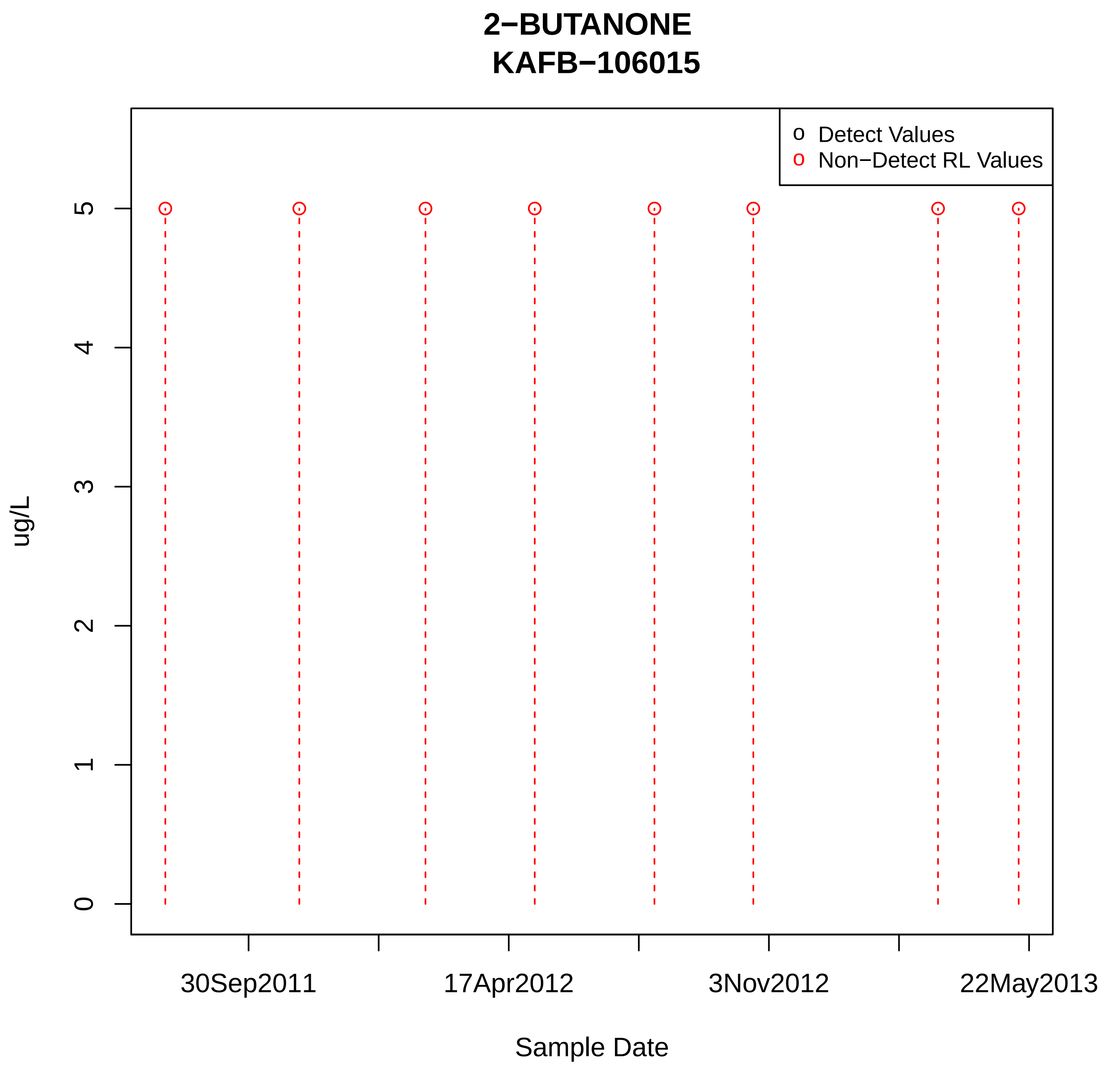

2−BUTANONE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = −1.180E+00
p−value = 0.012
ug/L
1500
1000
500
0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

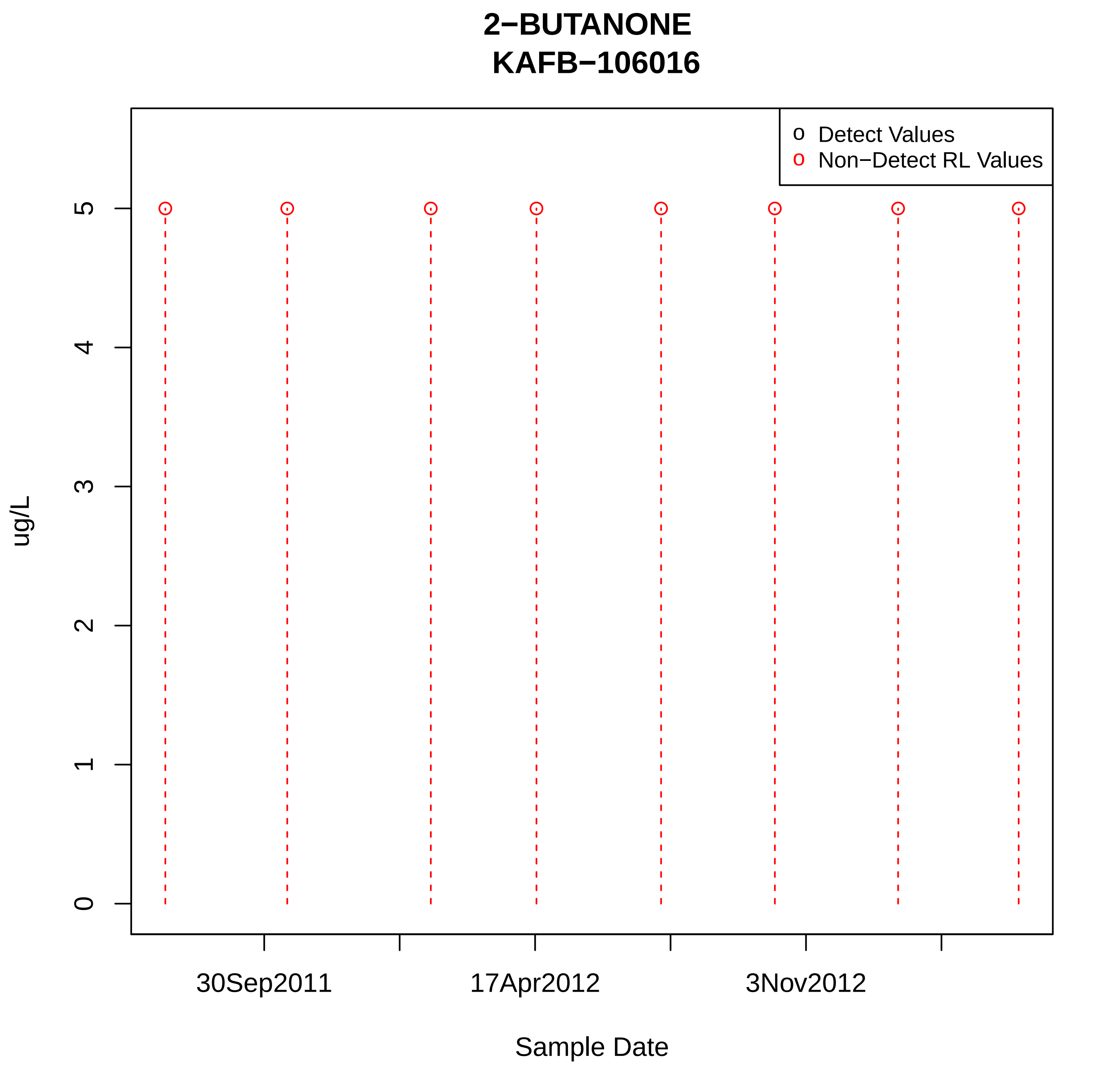


2−BUTANONE
KAFB−106011
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

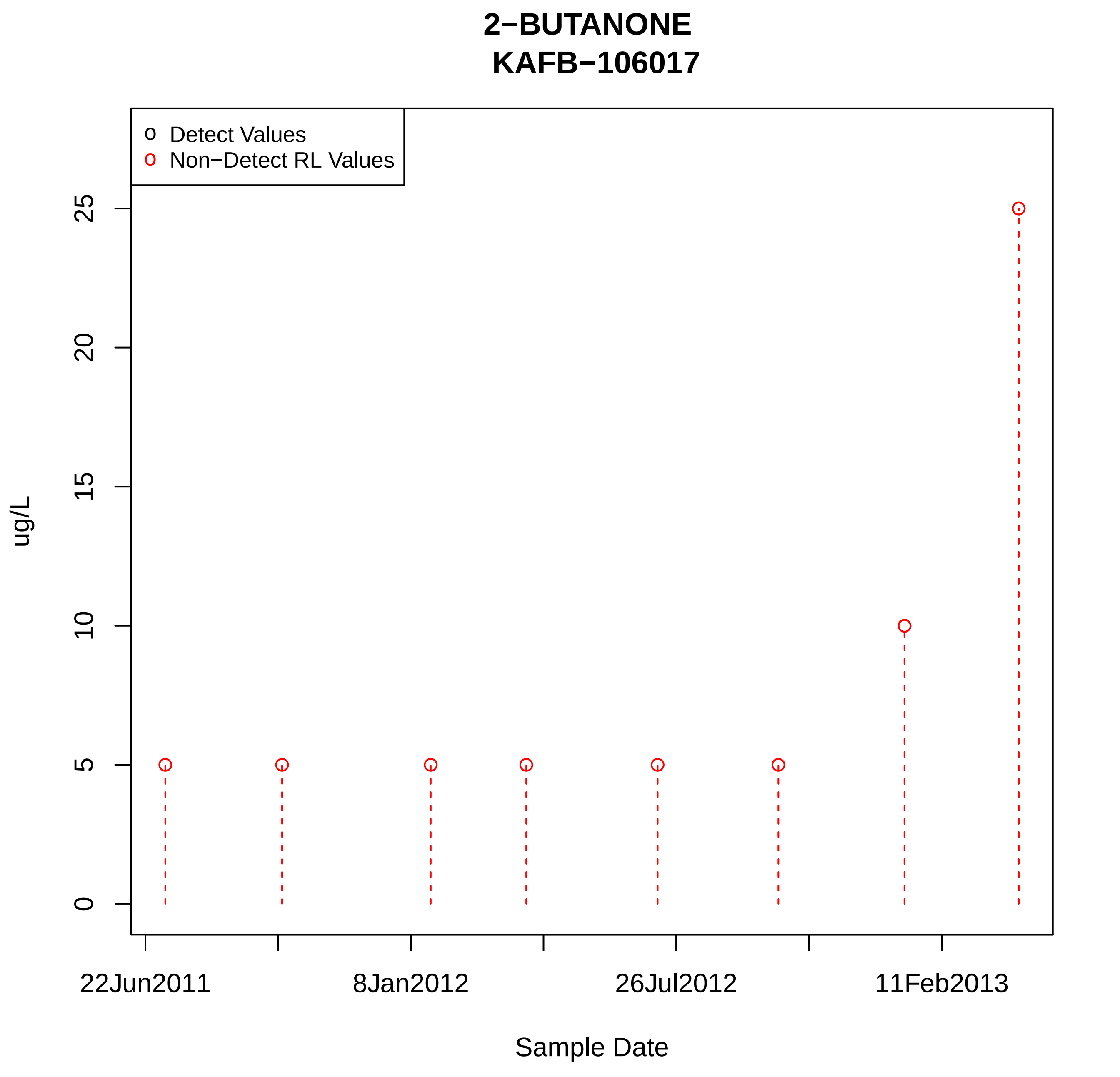


2−BUTANONE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −5.413E−01
p−value = 0.902
ug/L
0
200
400
600
800
1000
1200
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

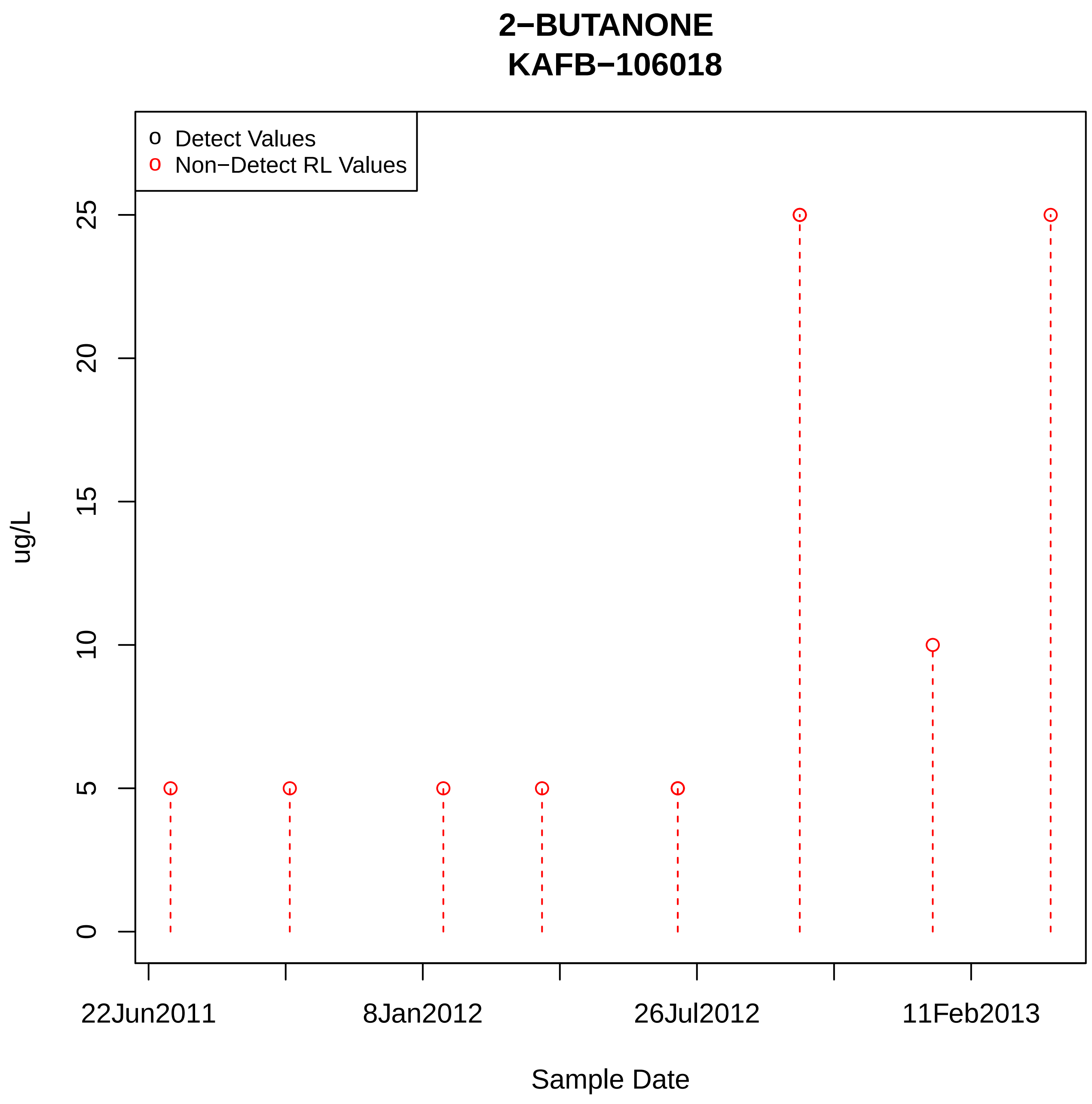

2−BUTANONE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

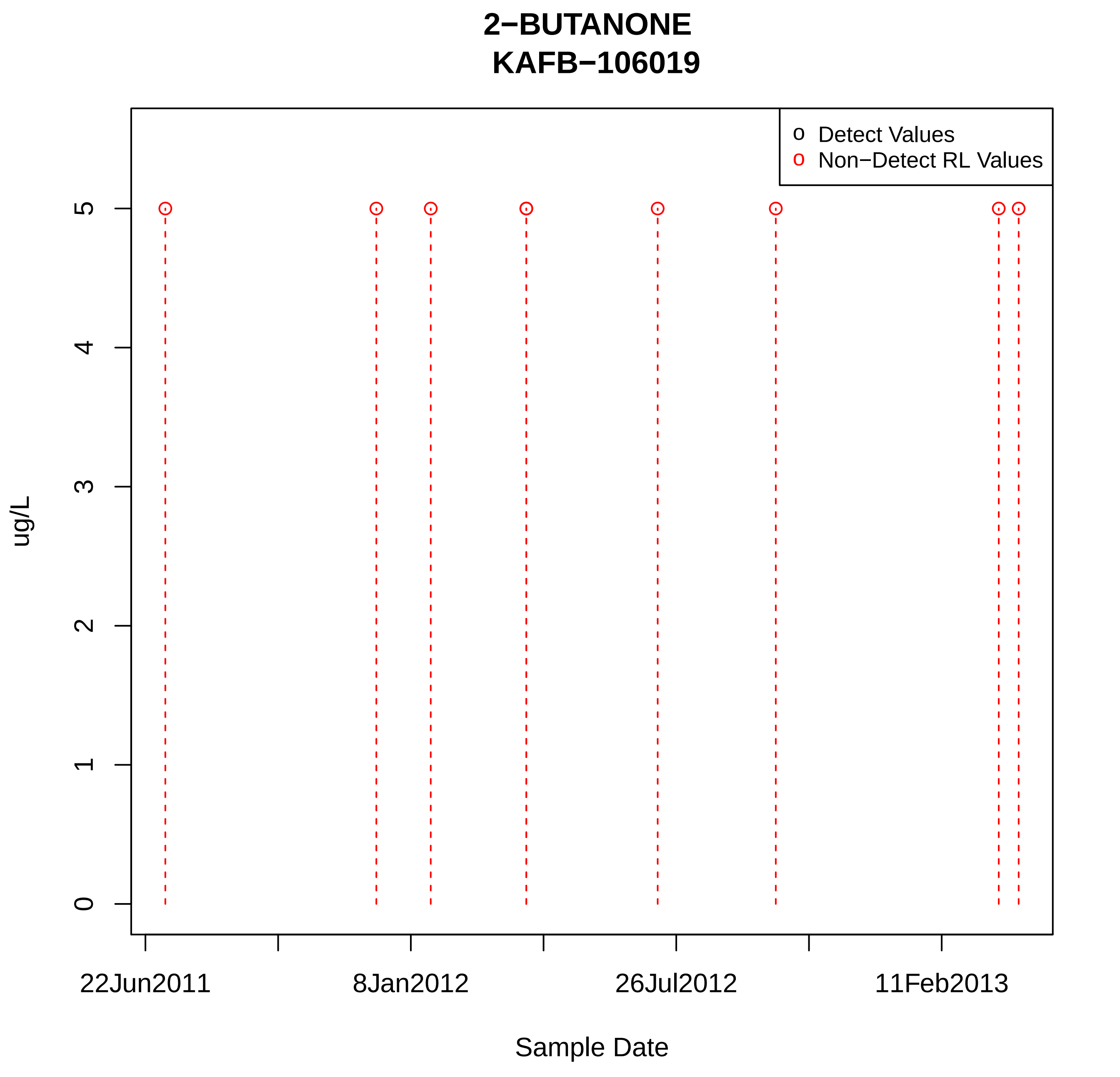


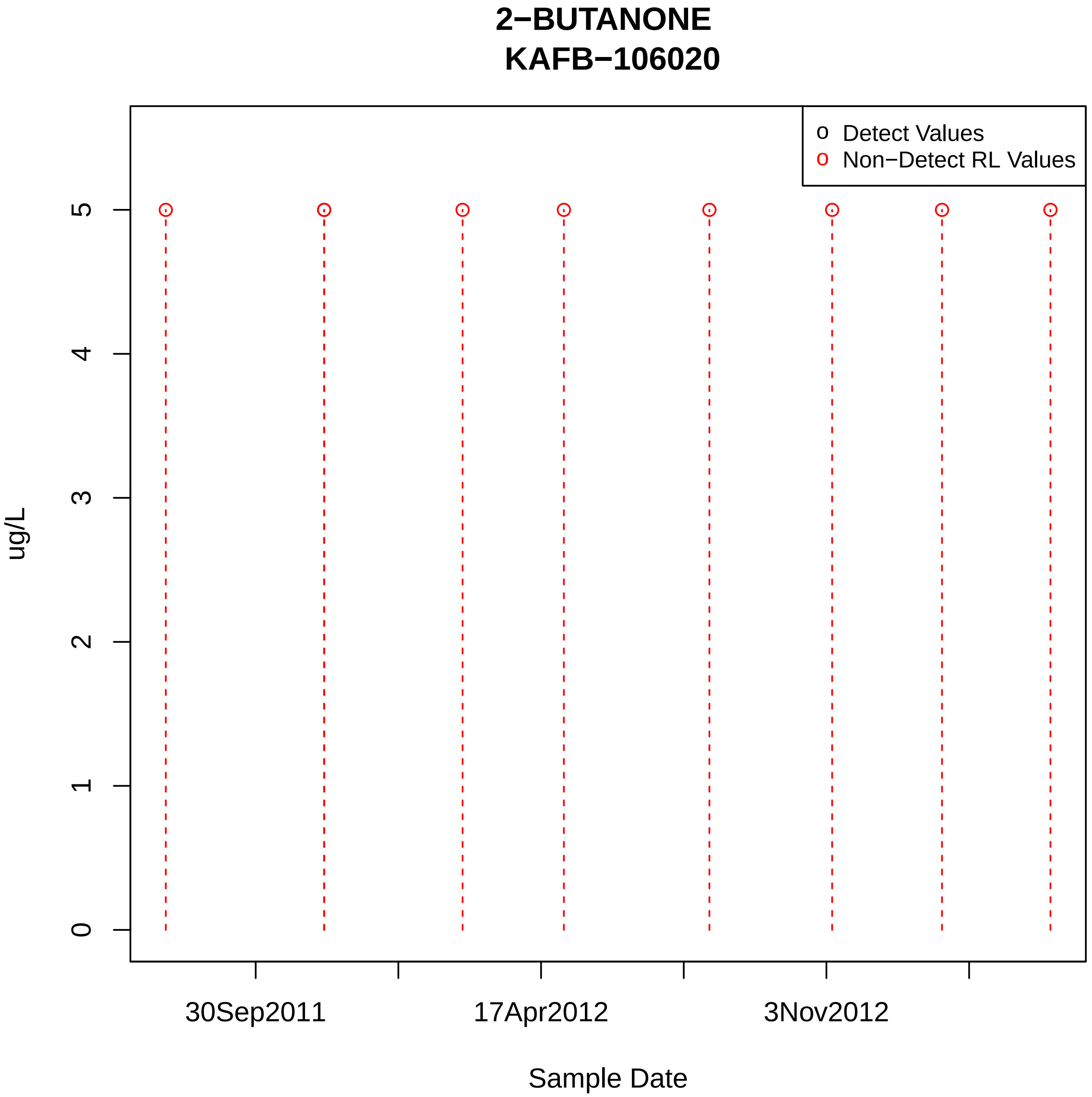
2−BUTANONE
KAFB−106016
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



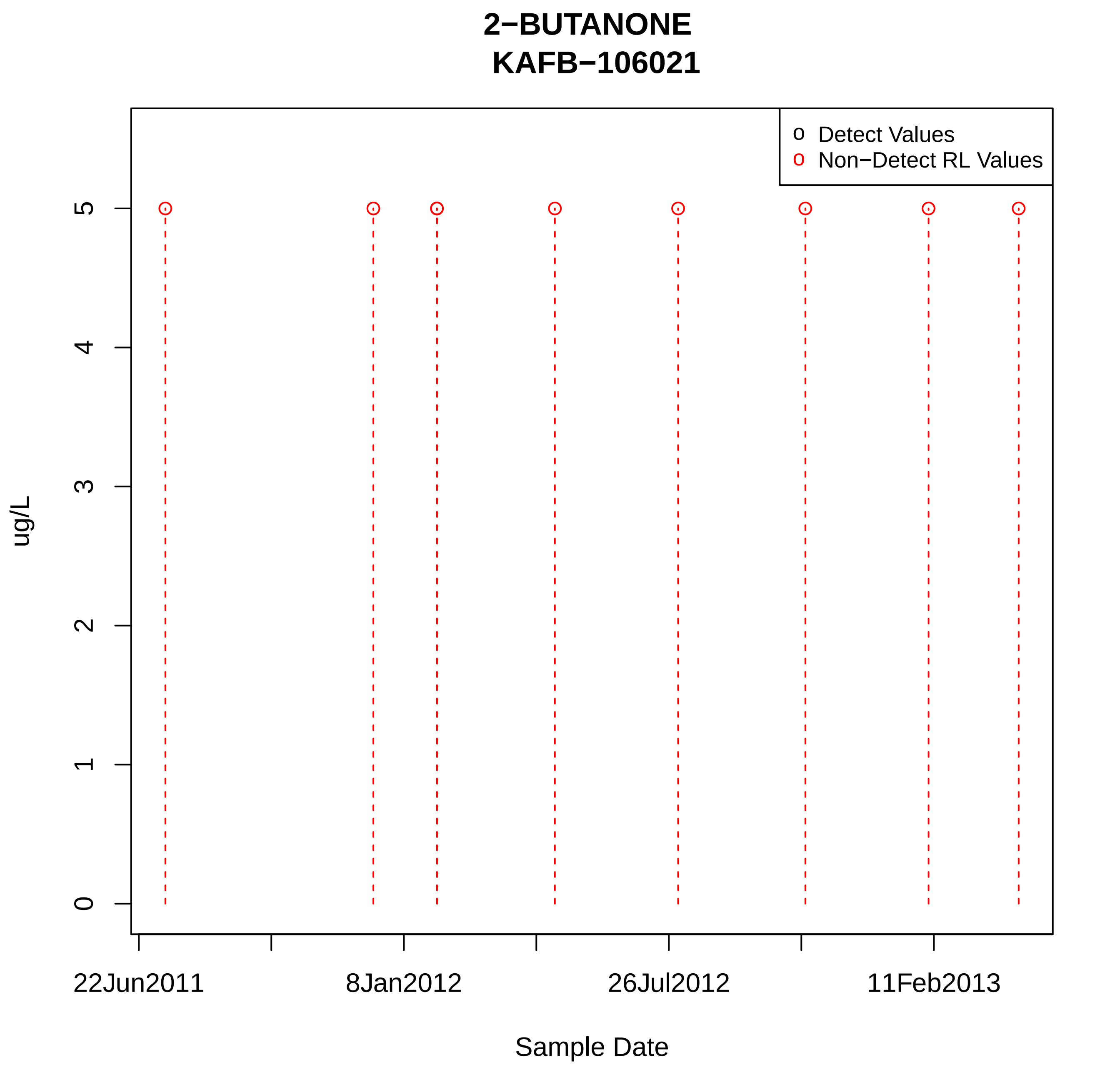
2−BUTANONE
KAFB−106017
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

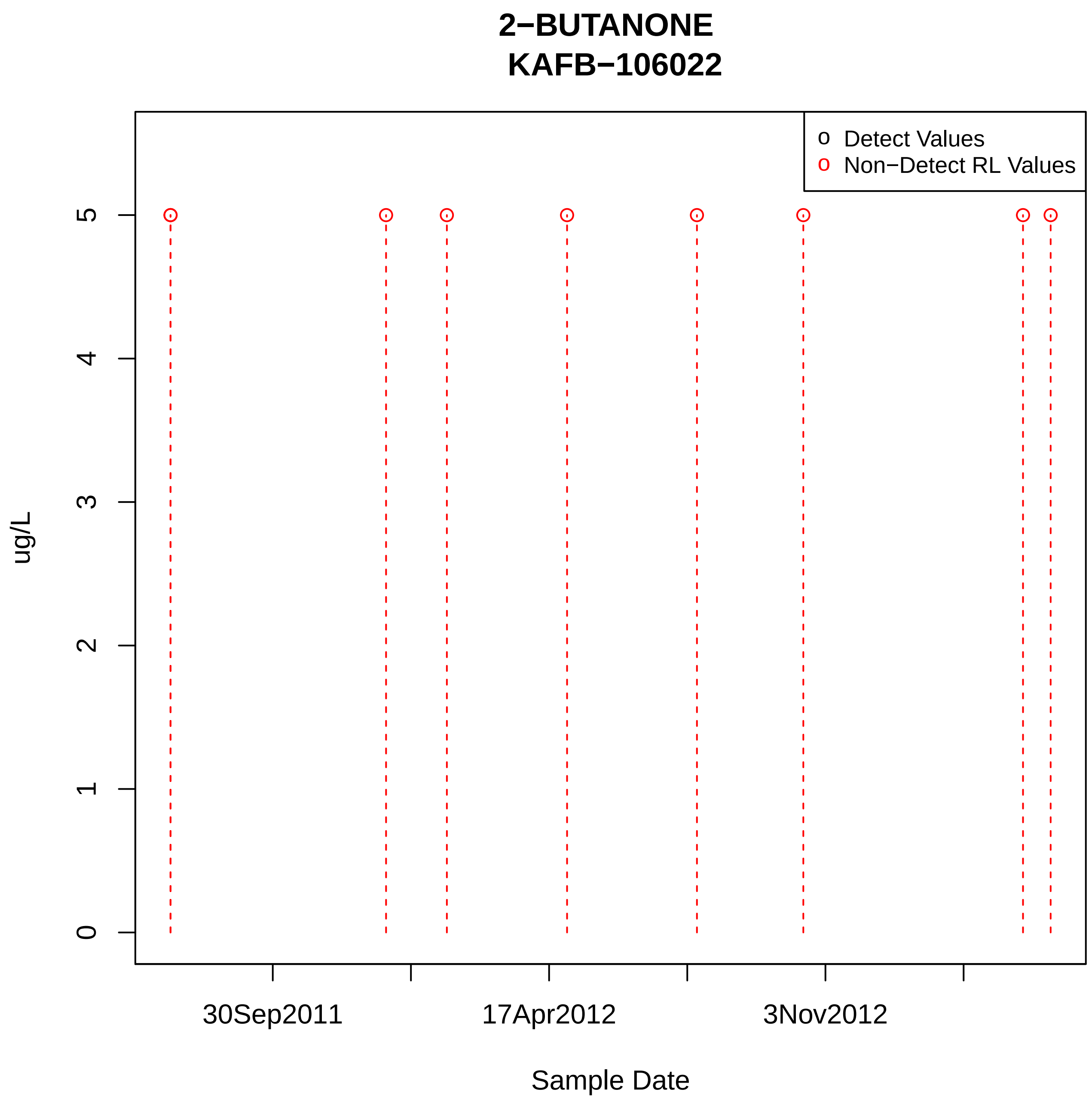

2−BUTANONE
KAFB−106018
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


2−BUTANONE
KAFB−106019
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

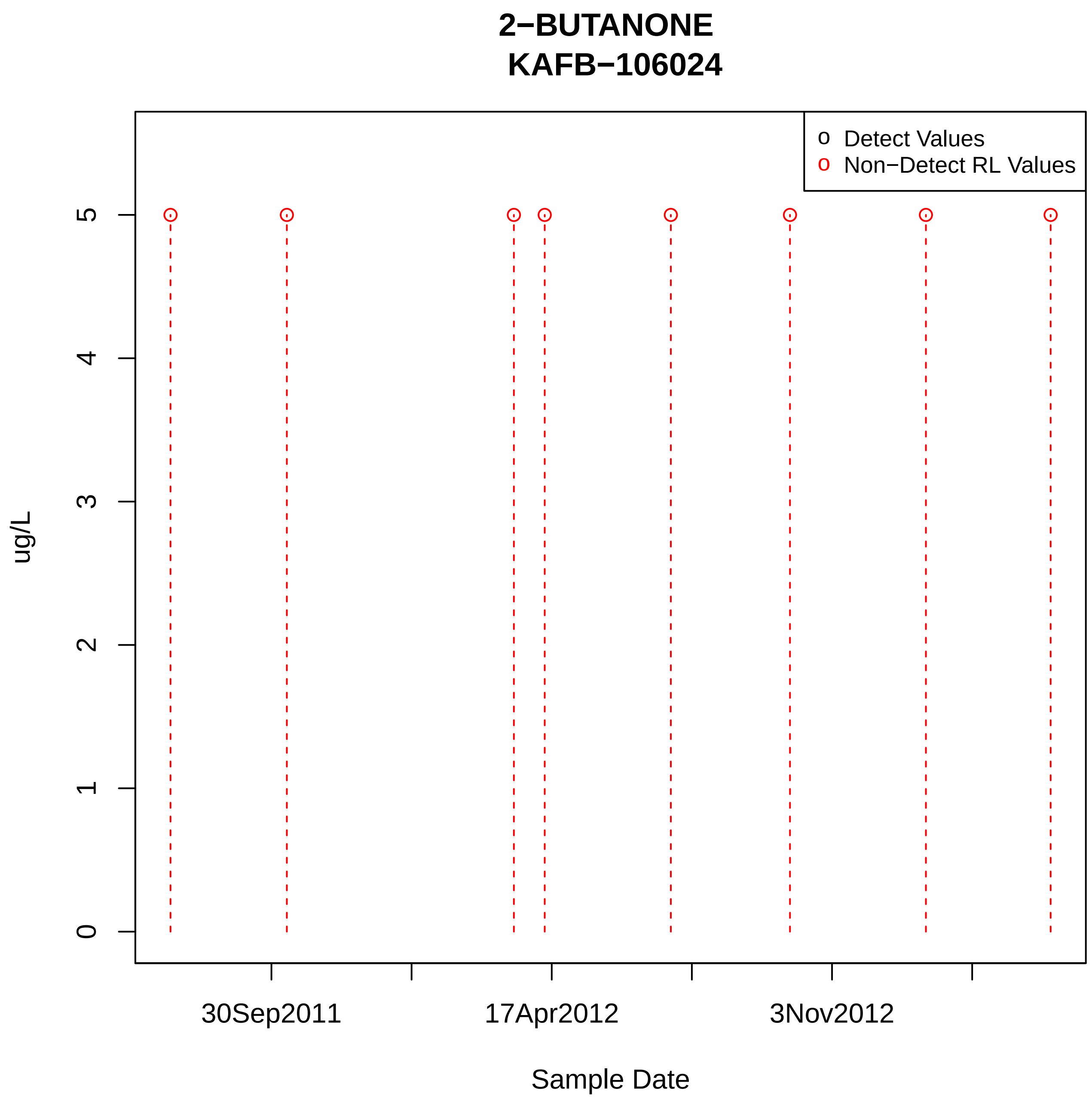


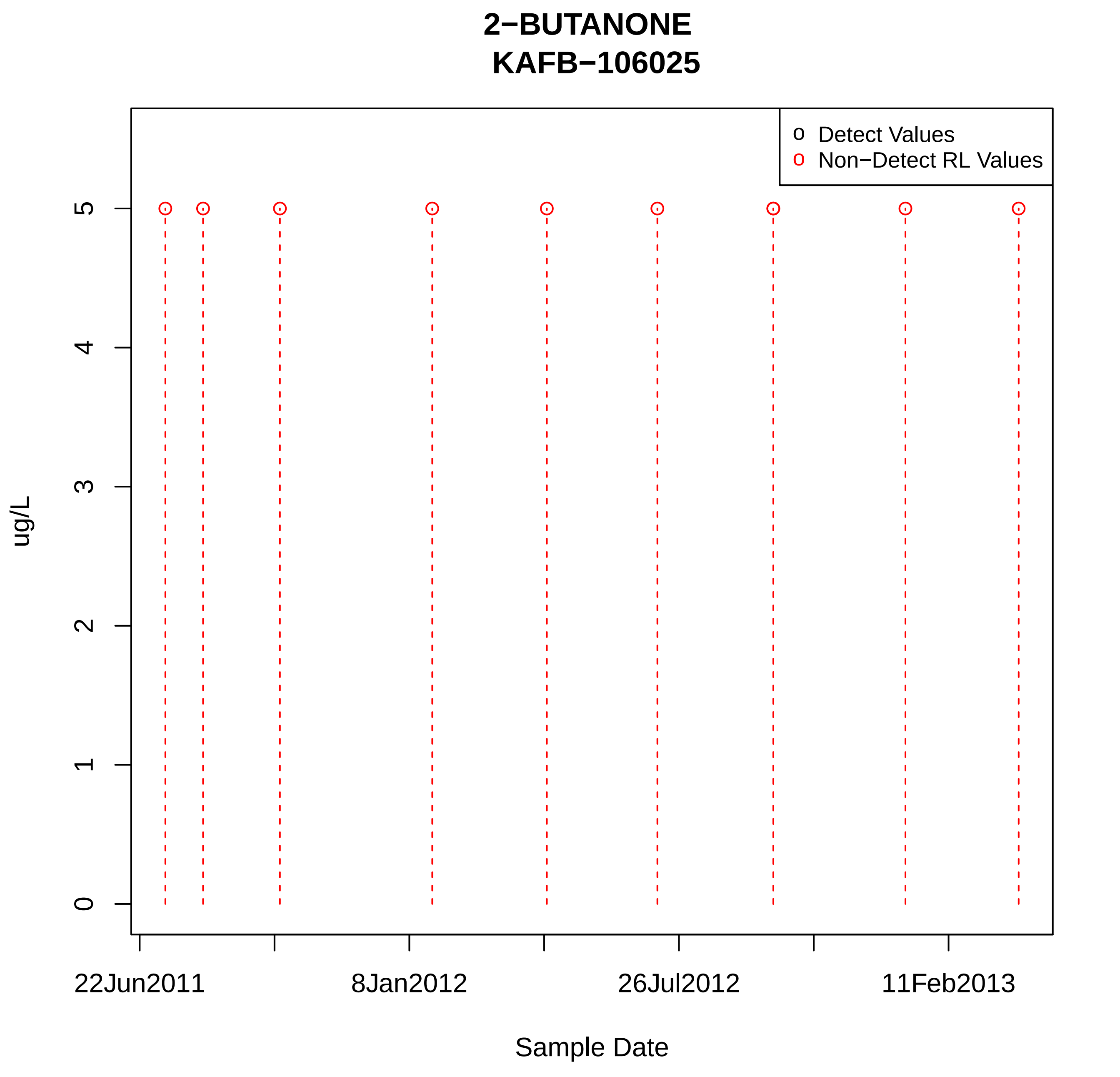
2−BUTANONE
KAFB−106020
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

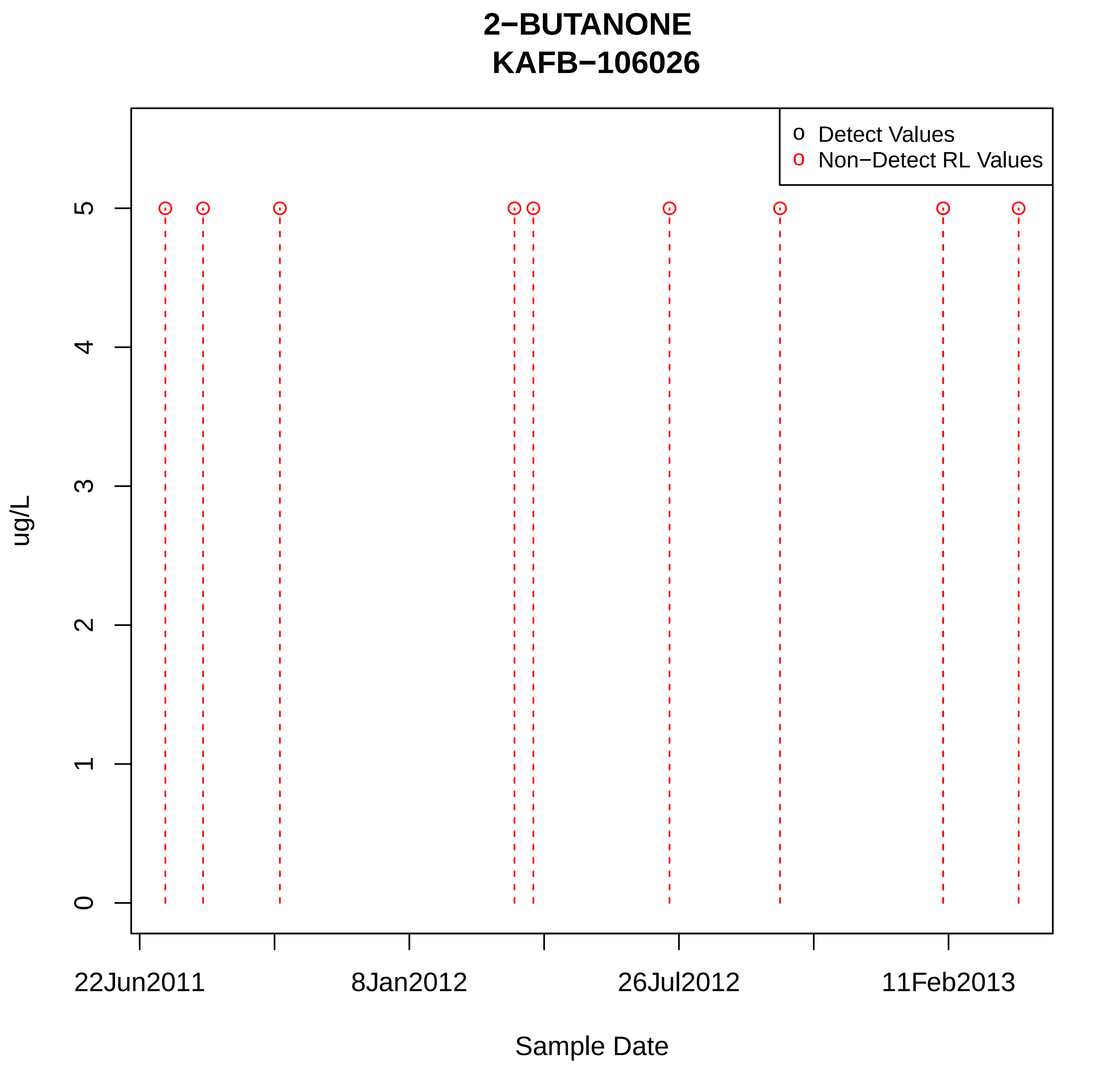

2−BUTANONE
KAFB−106021
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



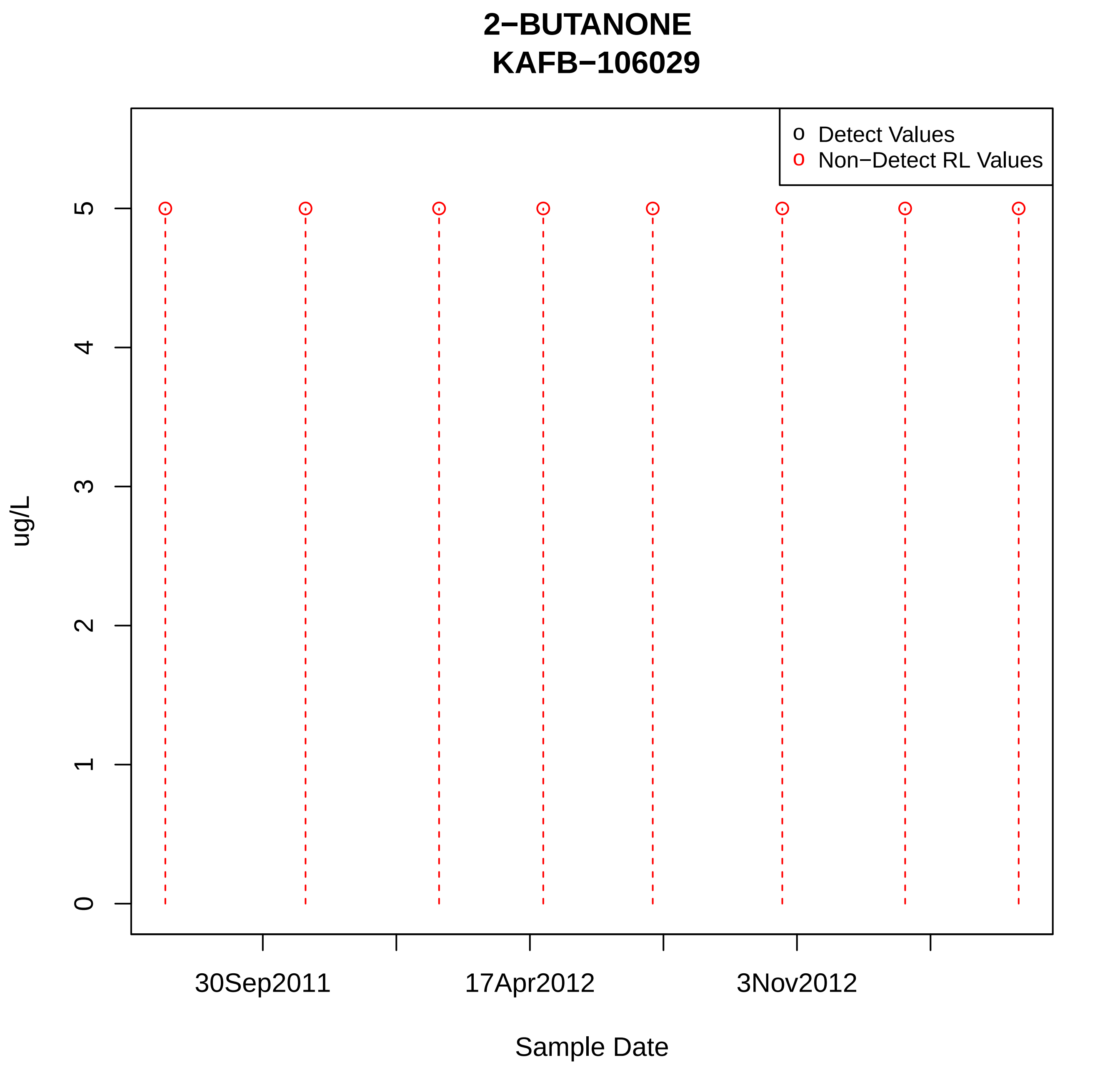
2−BUTANONE
KAFB−106022
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−BUTANONE
KAFB−106024
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

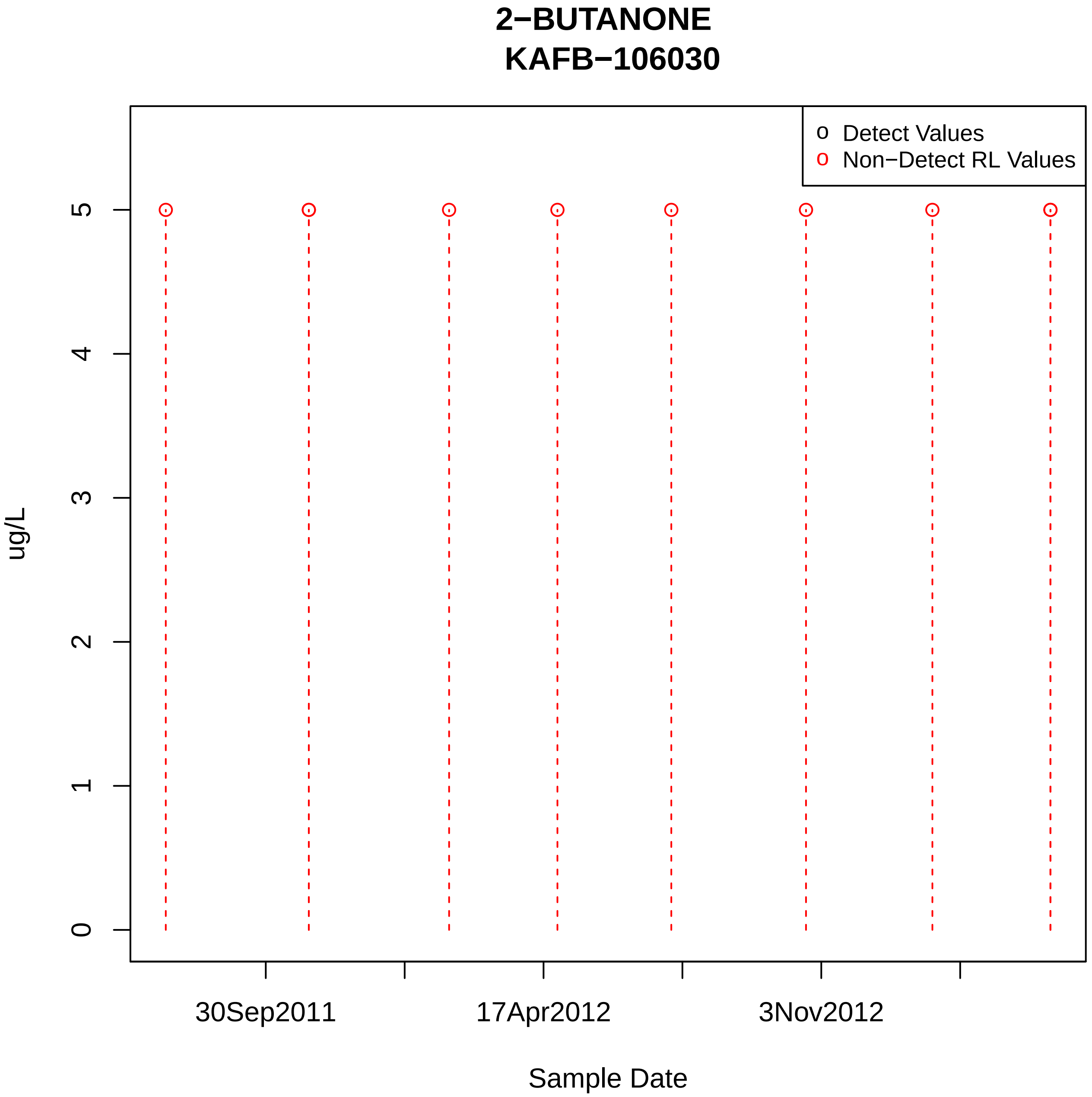

2−BUTANONE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



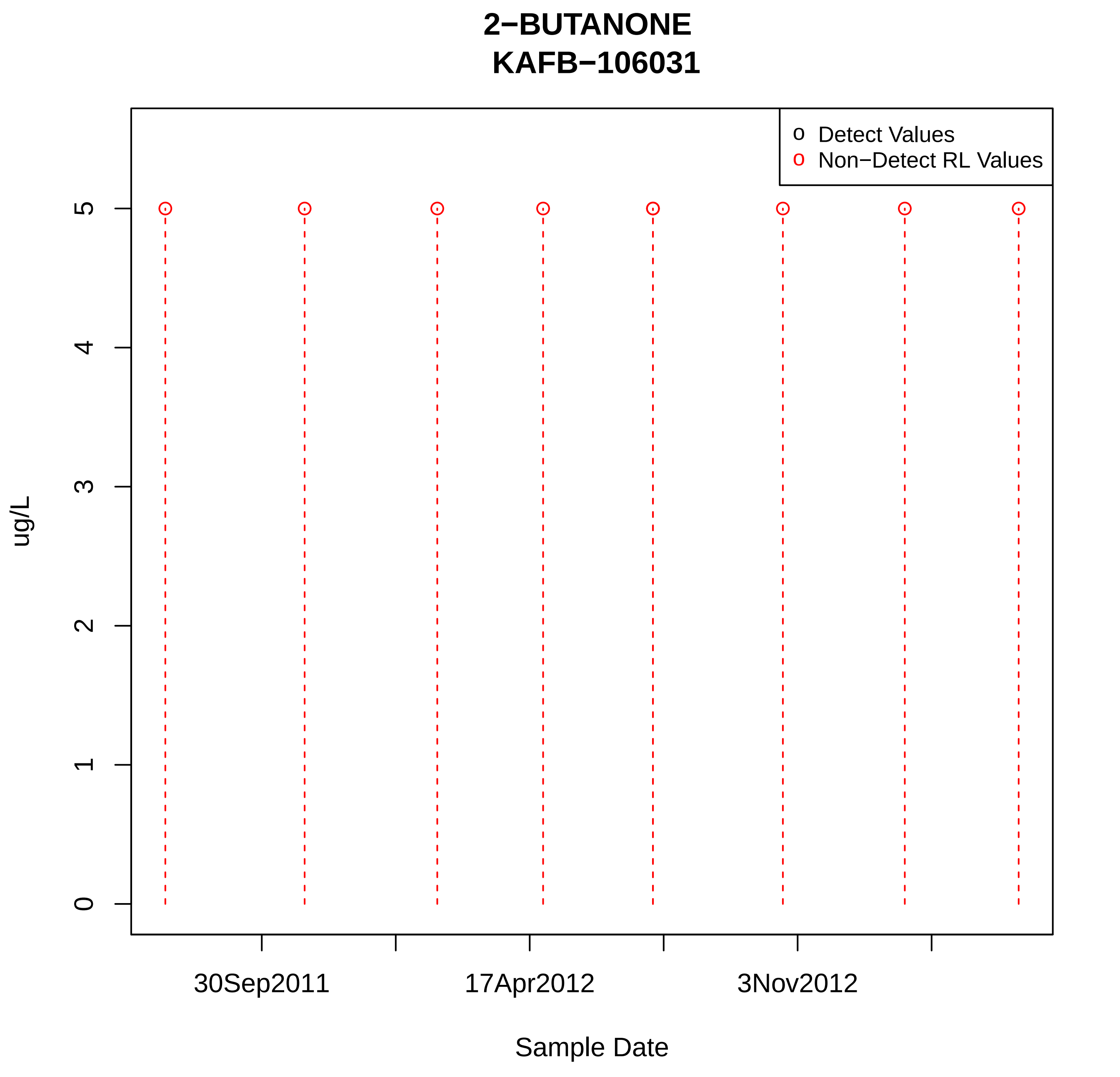
2−BUTANONE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

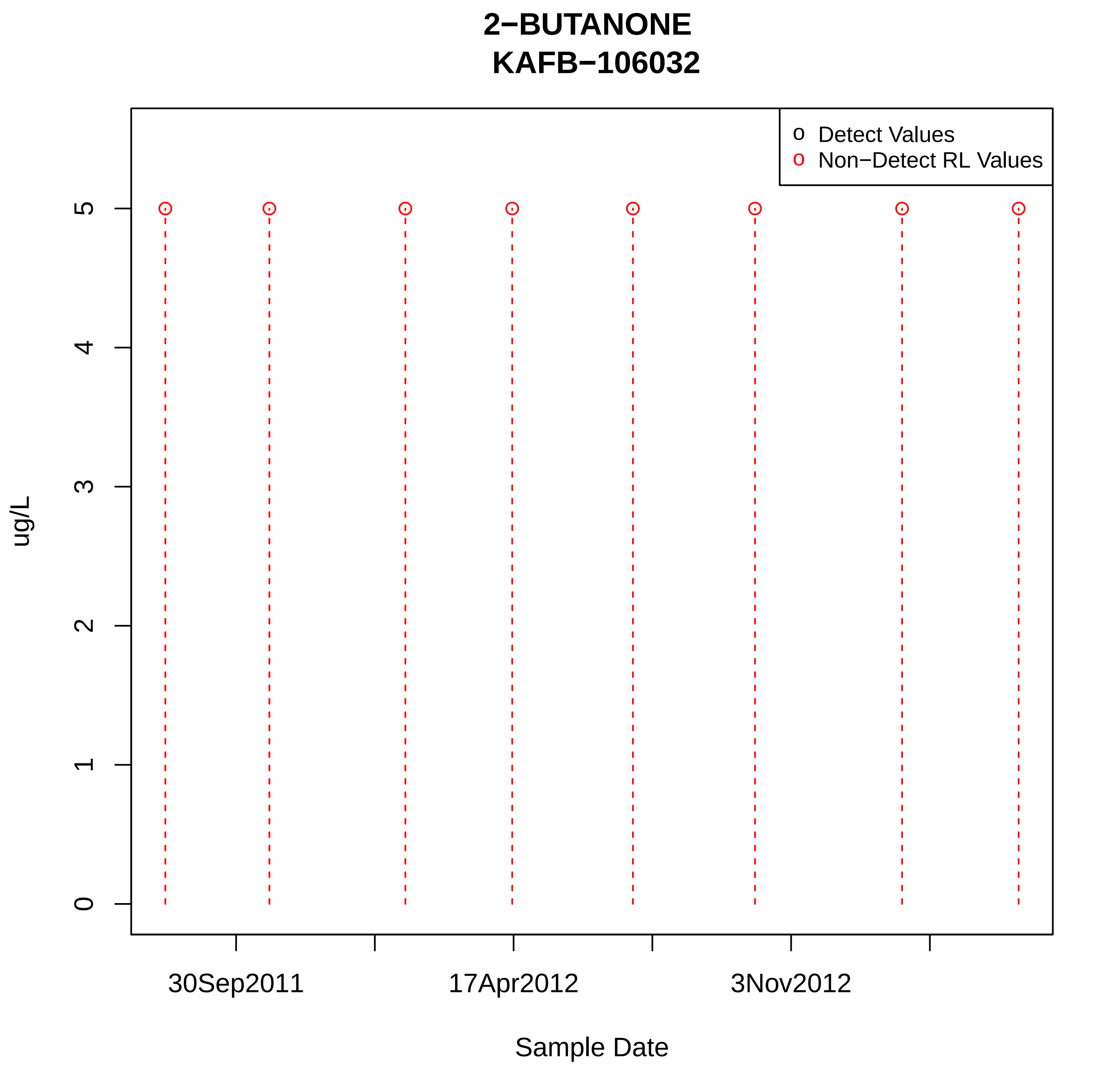


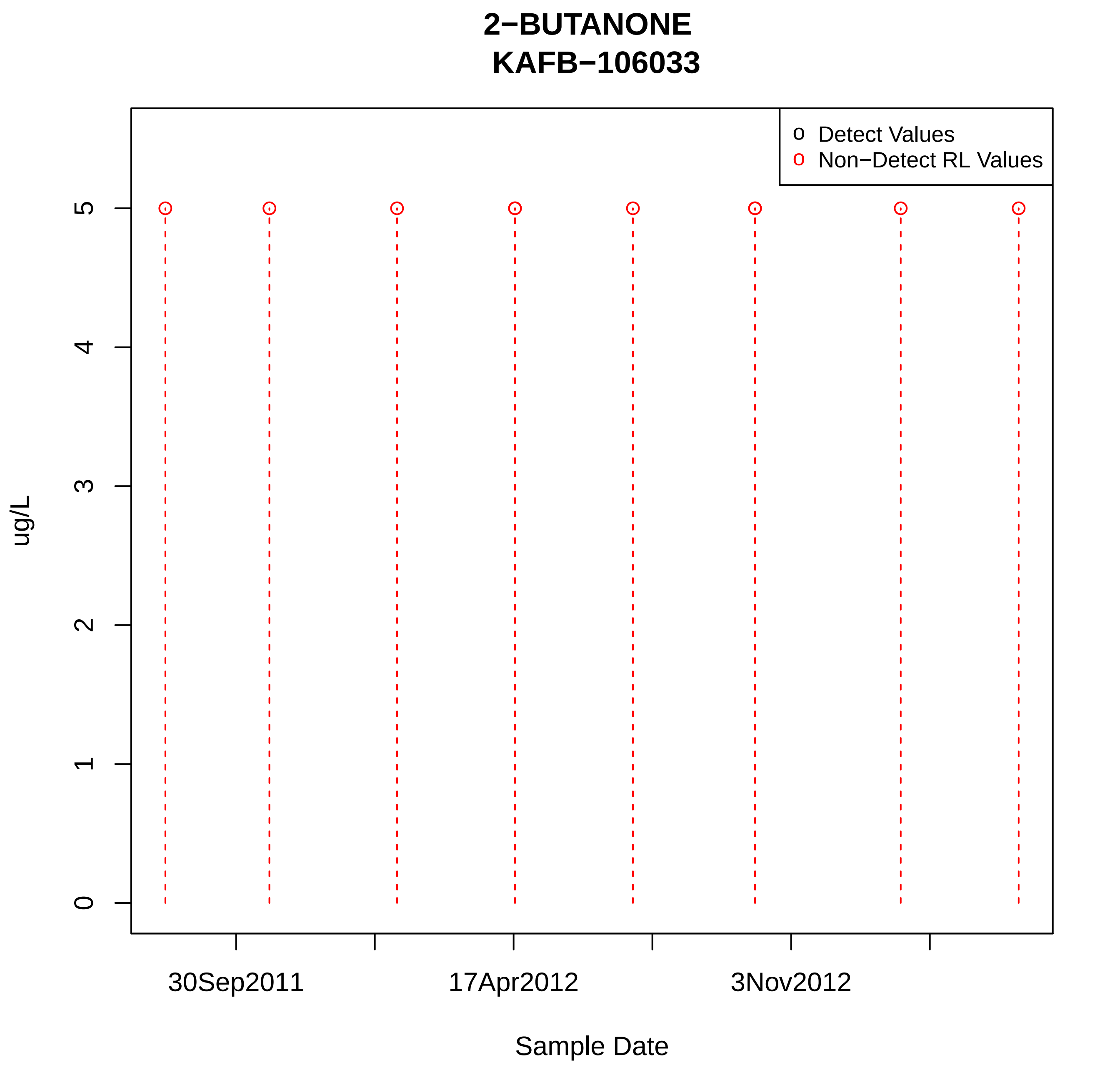
2−BUTANONE
KAFB−106029
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

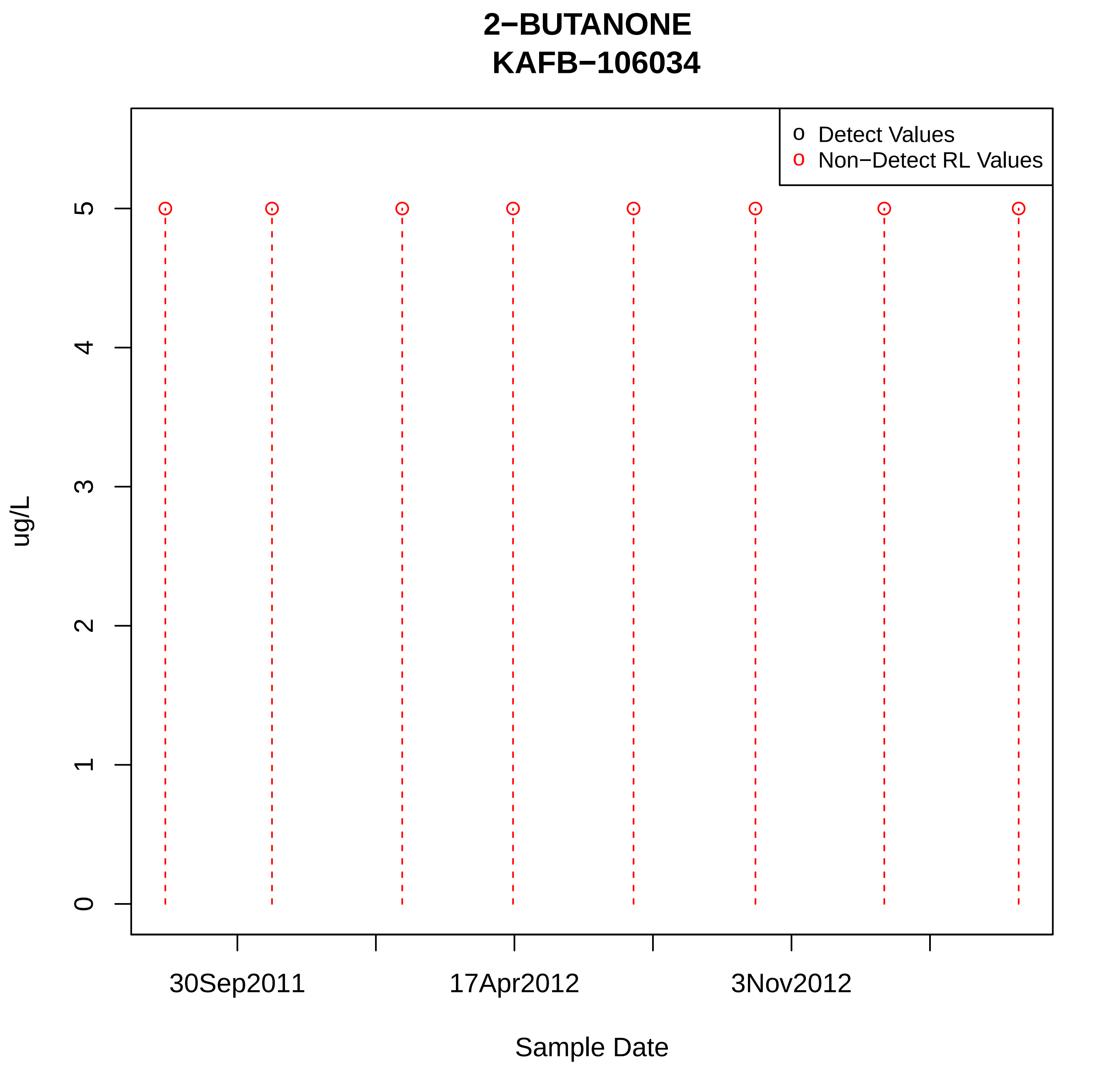


2−BUTANONE
KAFB−106030
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

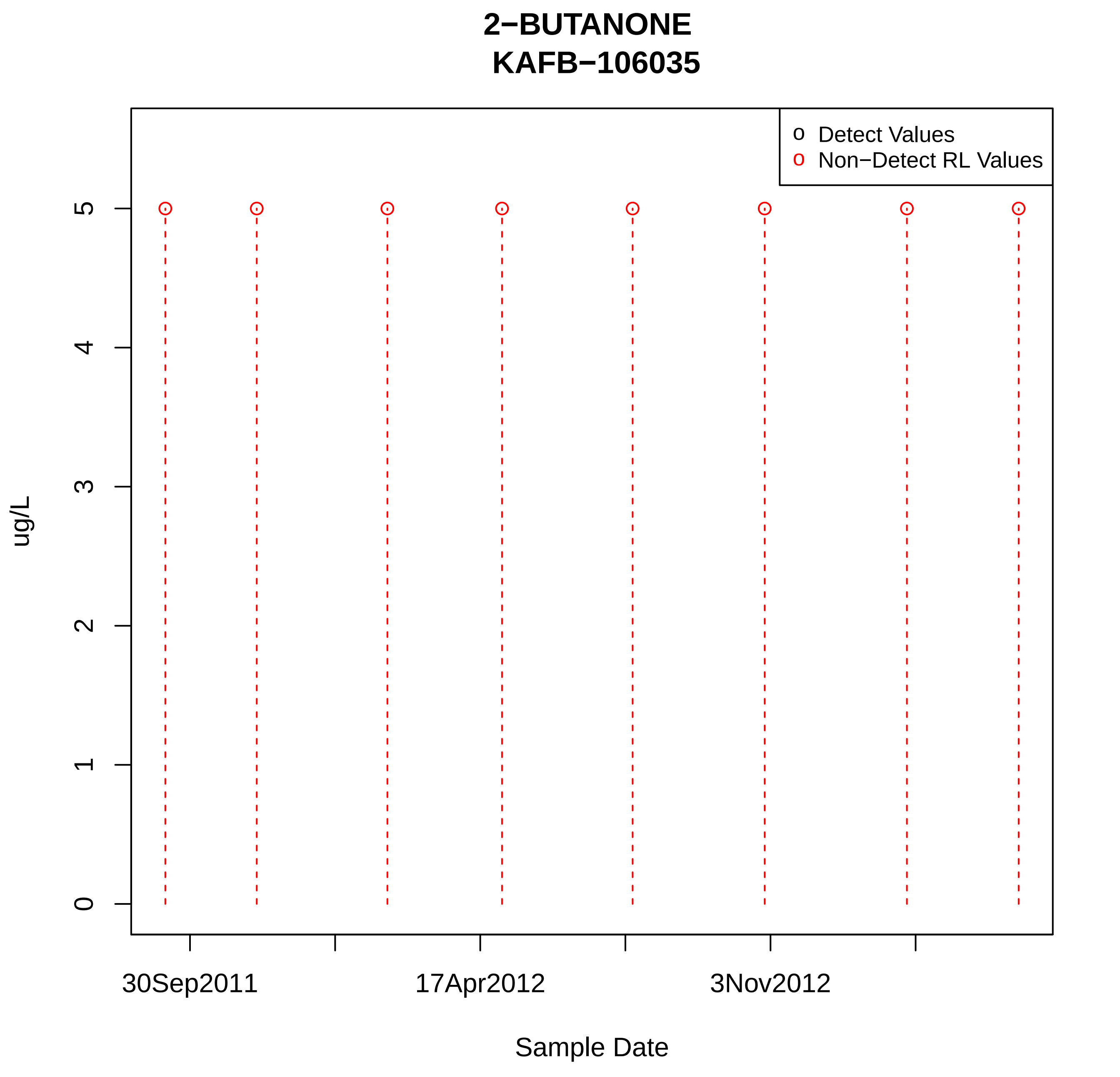

2−BUTANONE
KAFB−106031
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−BUTANONE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

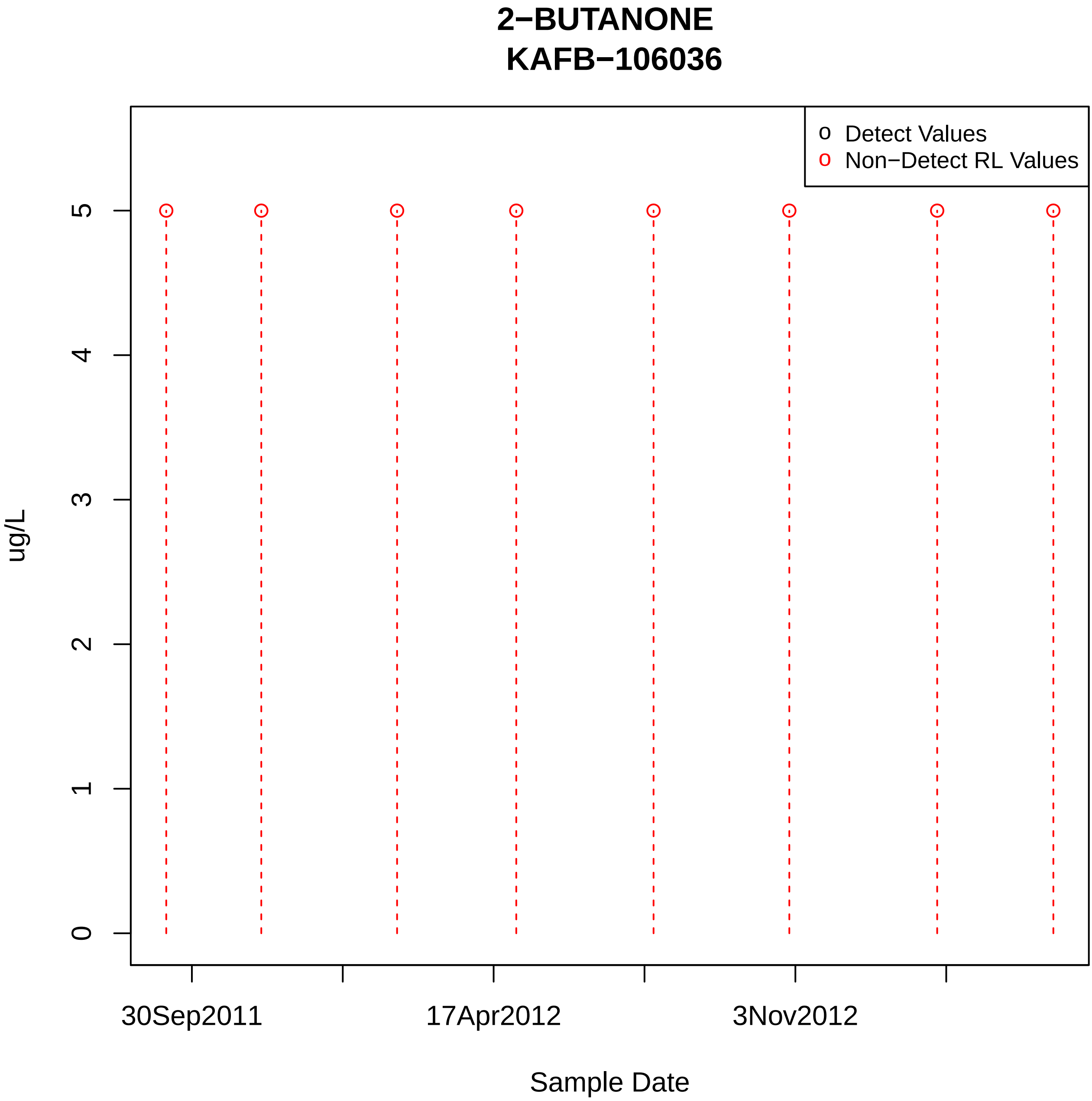

2−BUTANONE
KAFB−106033
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

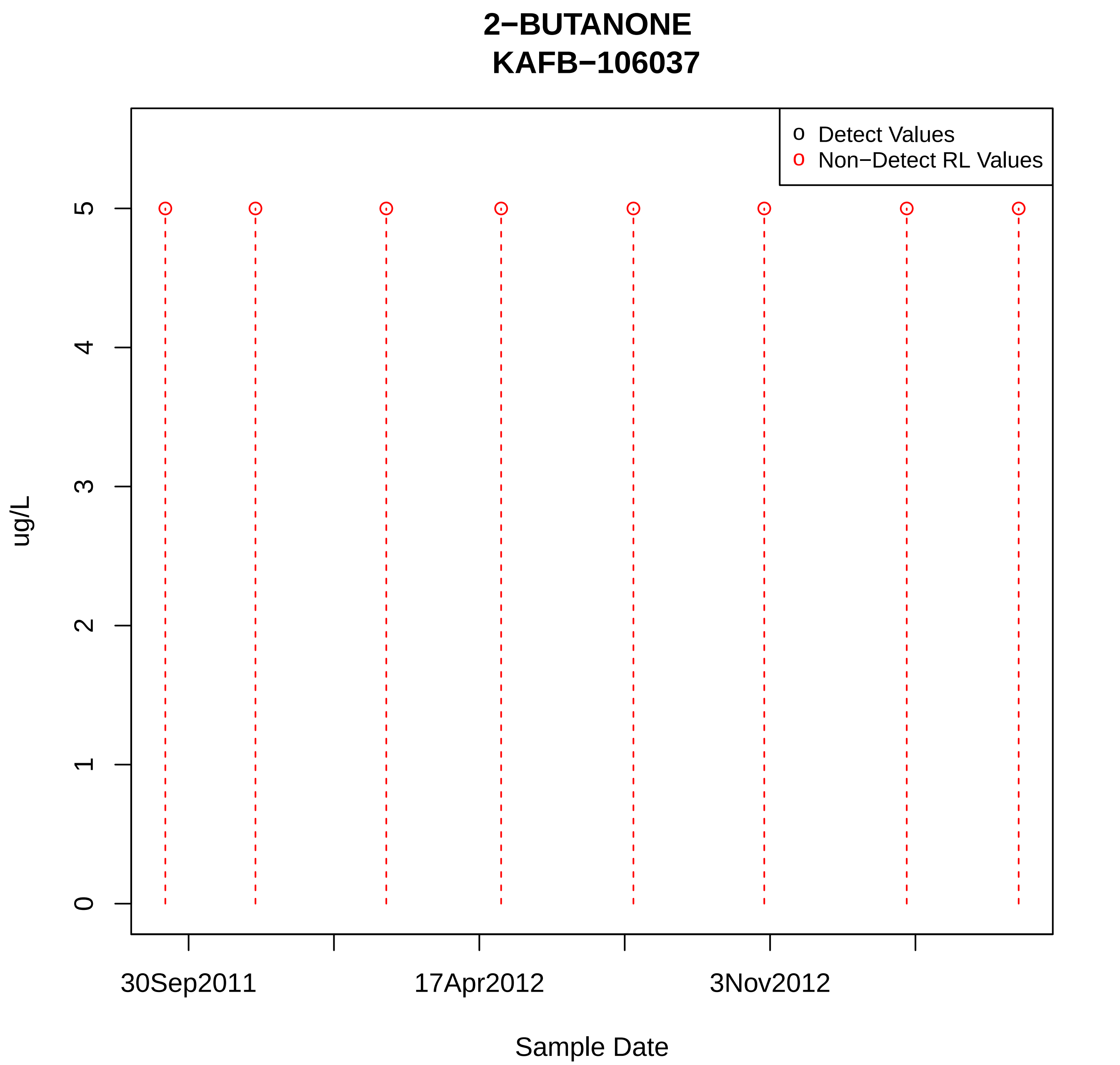


2−BUTANONE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

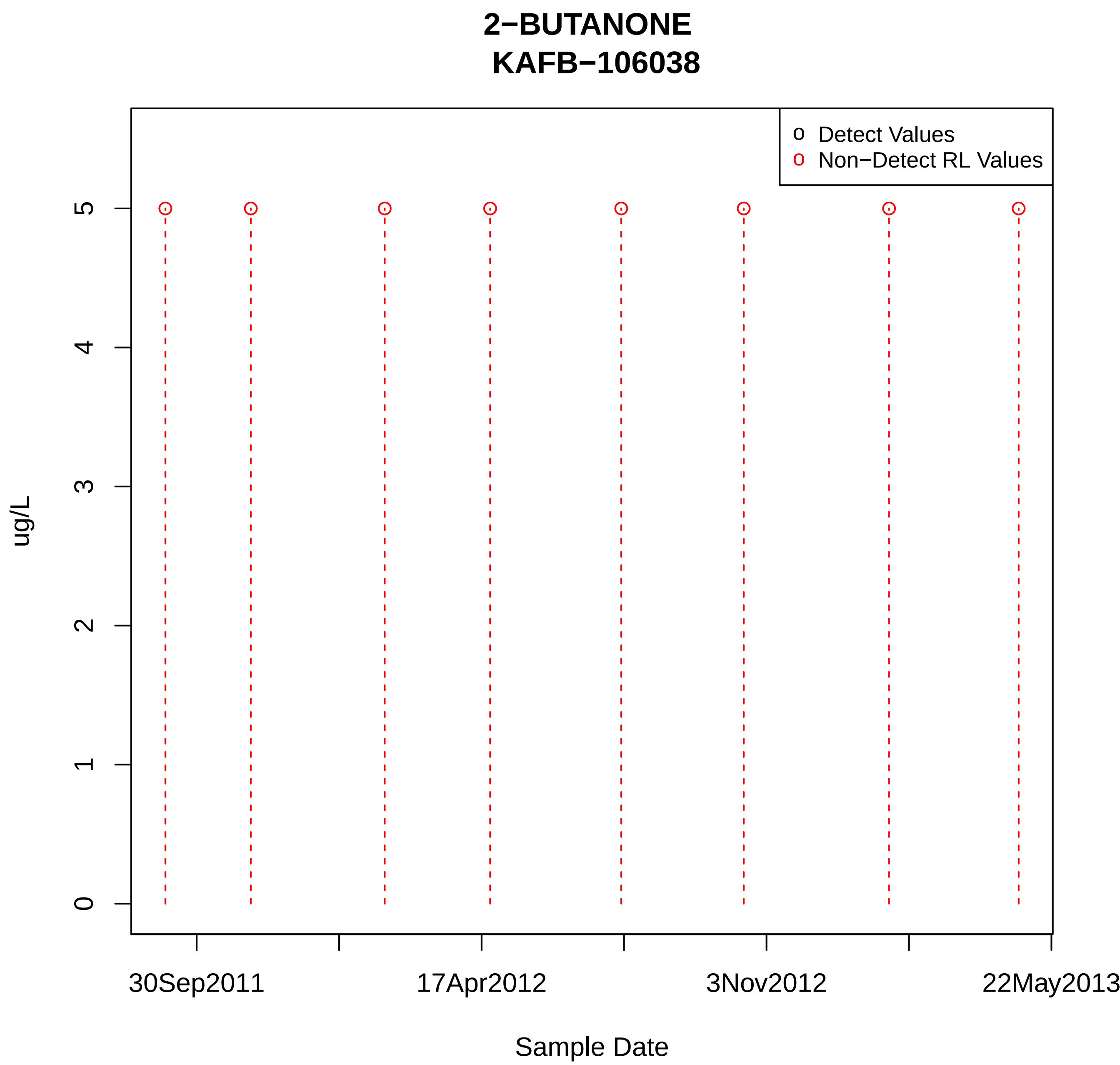


2−BUTANONE
KAFB−106035
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

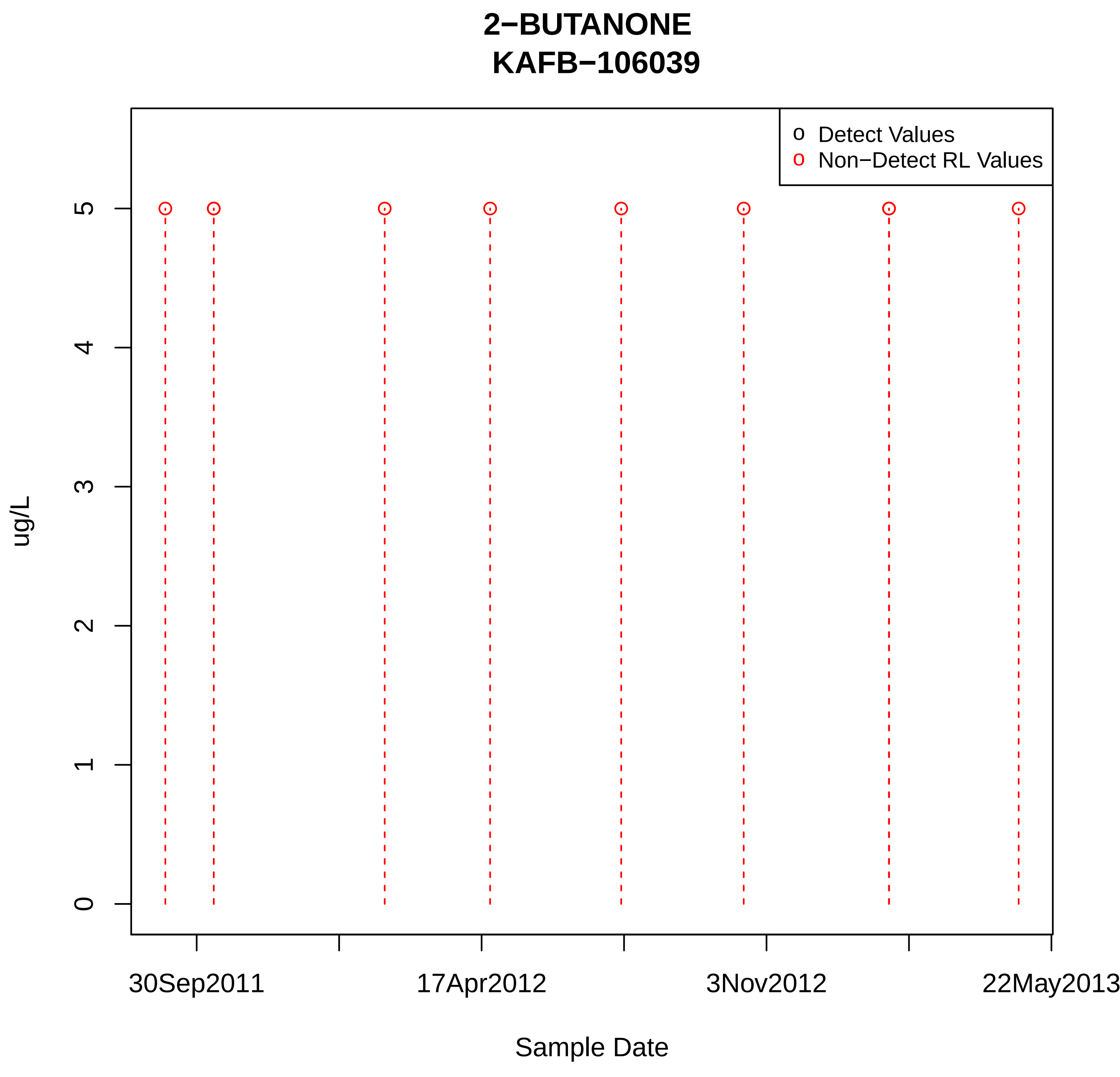

2−BUTANONE
KAFB−106036
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

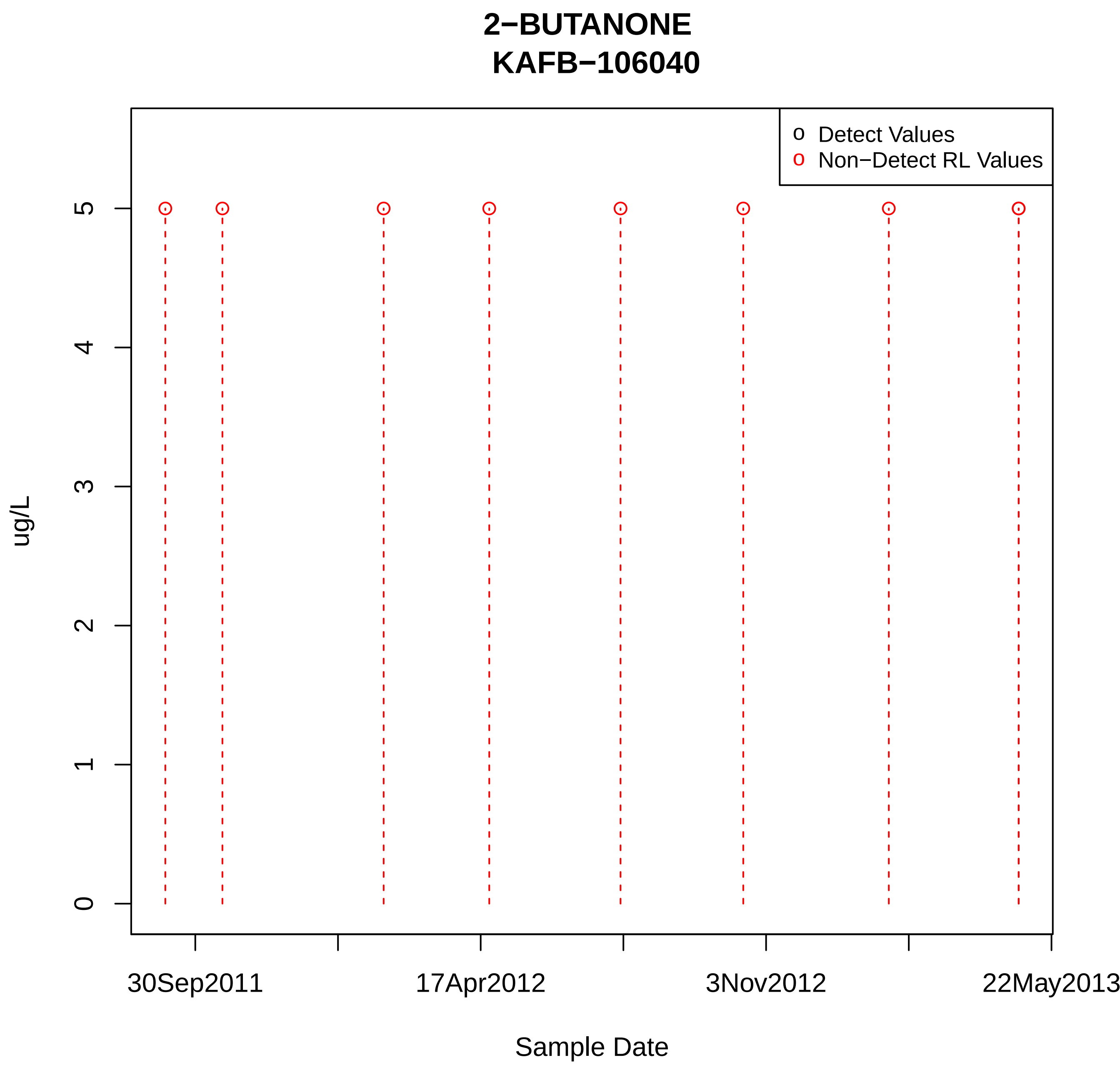


2−BUTANONE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

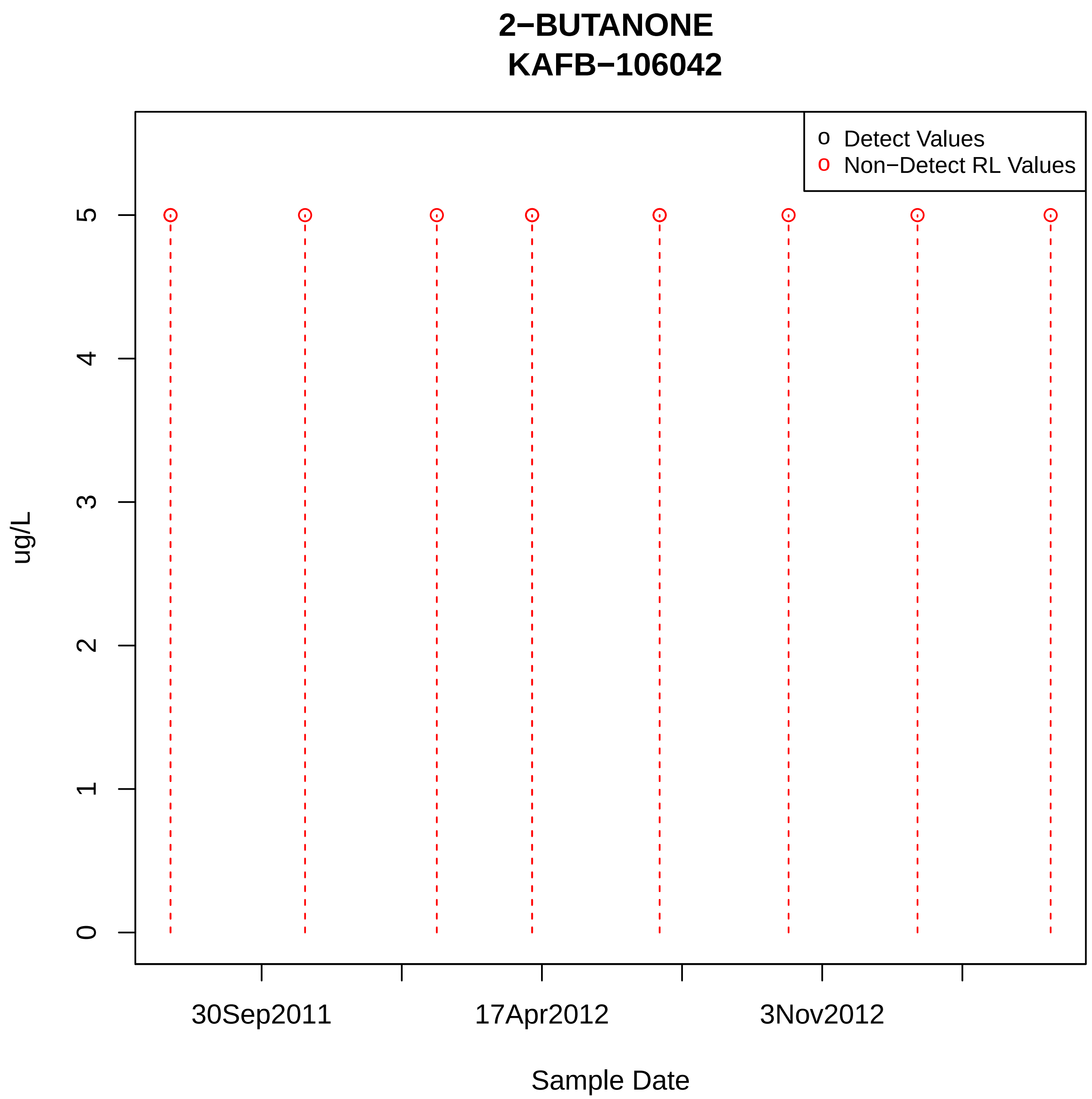


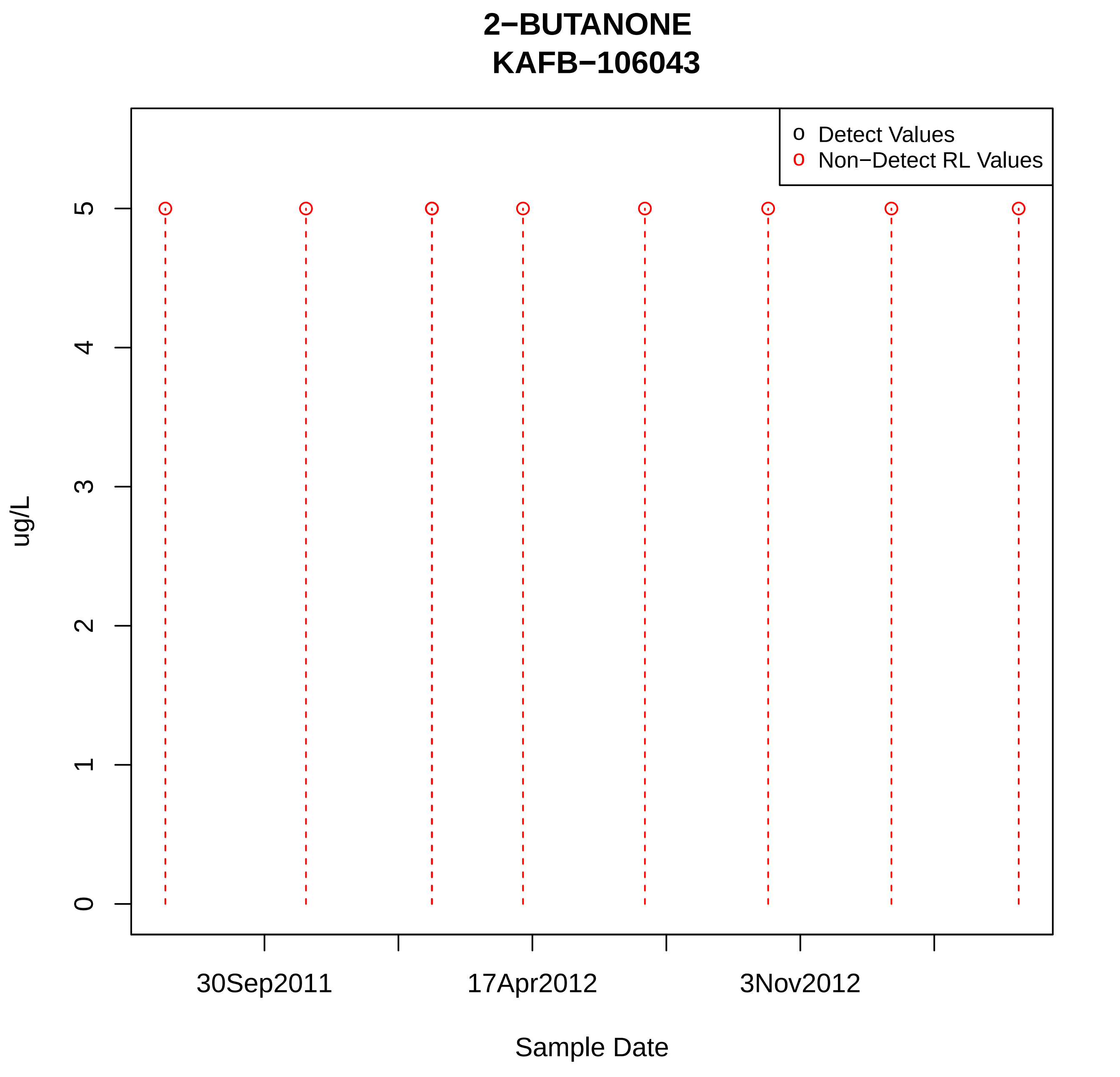
2−BUTANONE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106039
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

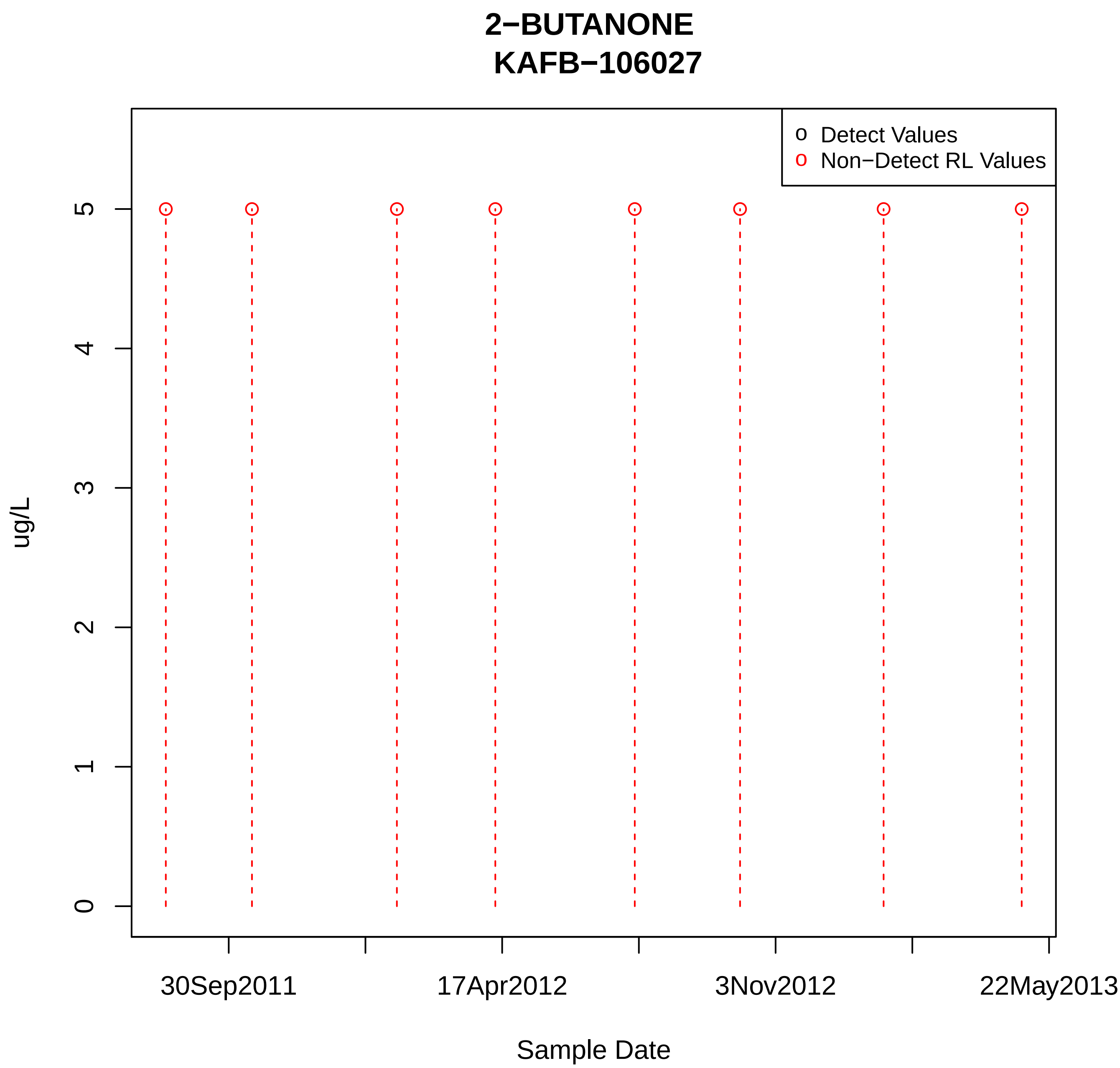


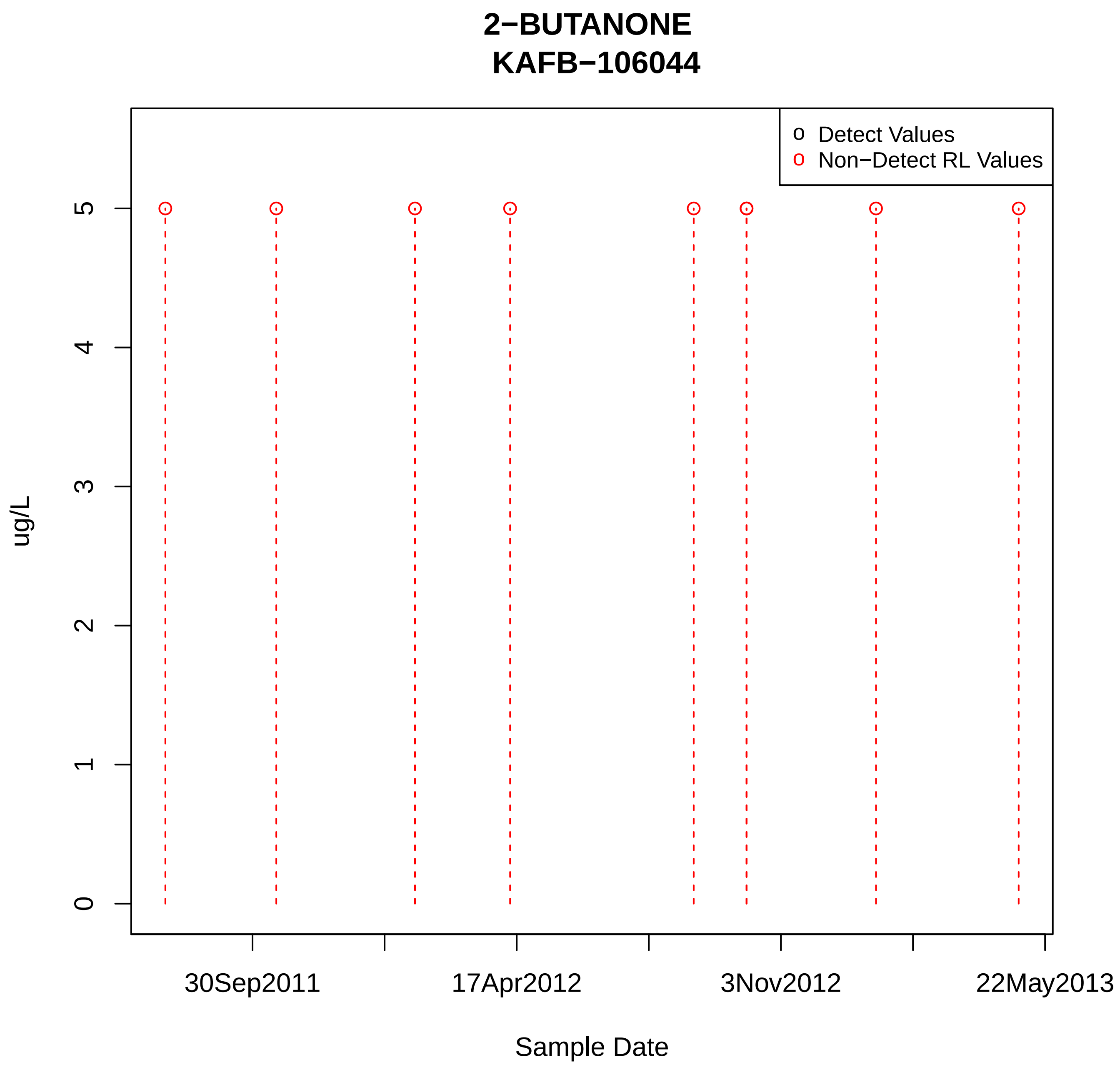
2−BUTANONE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

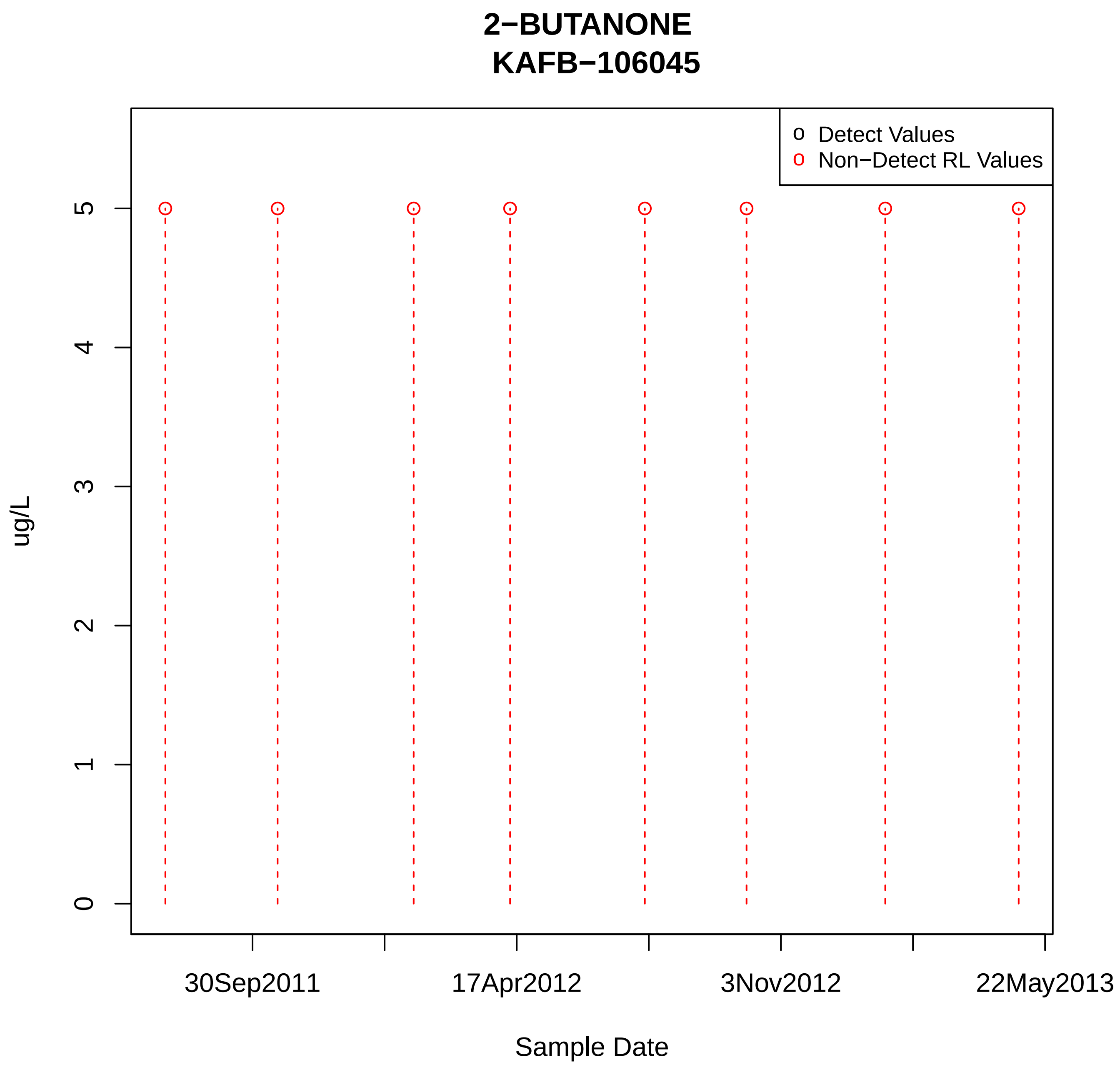

2−BUTANONE
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

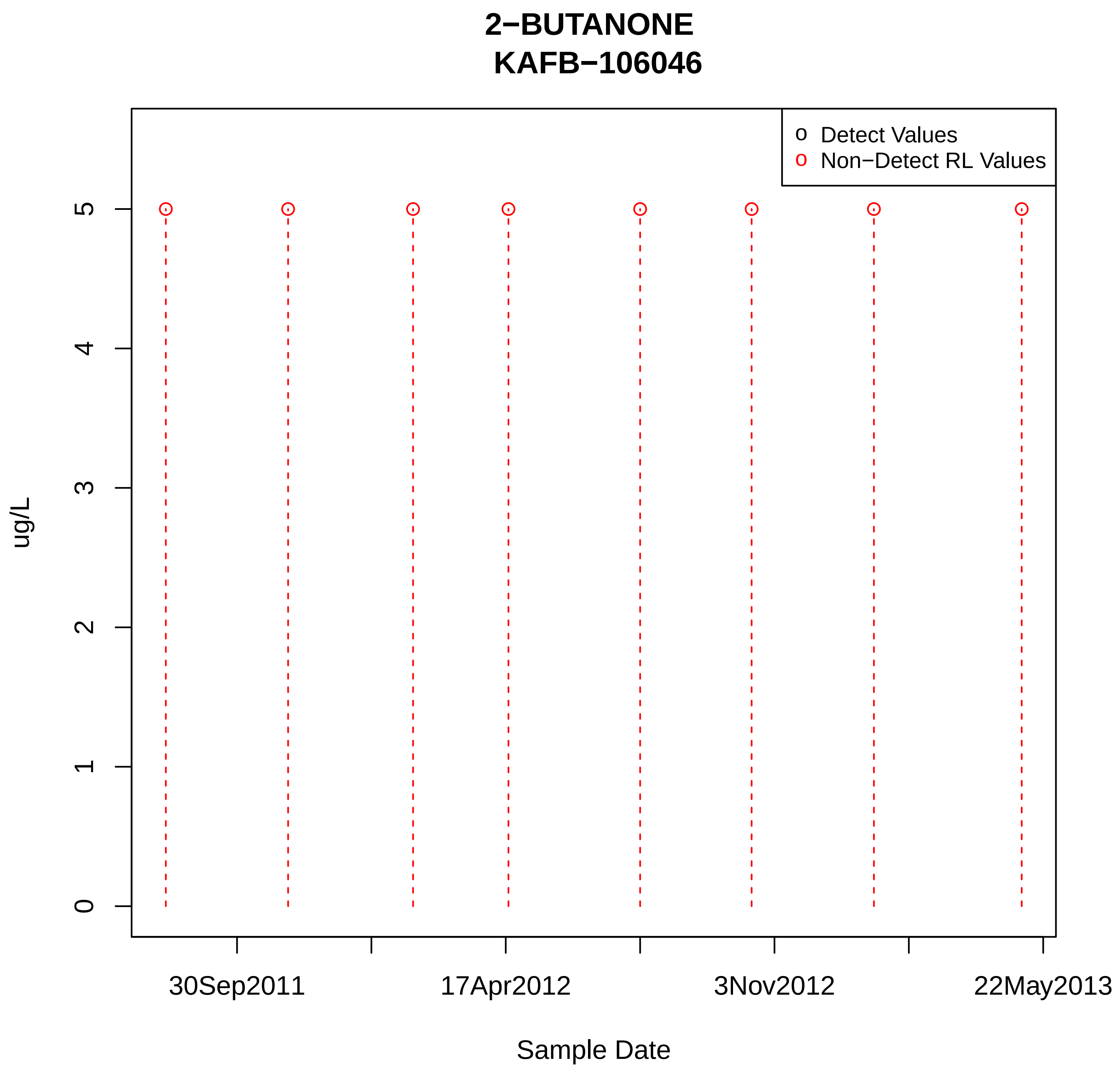


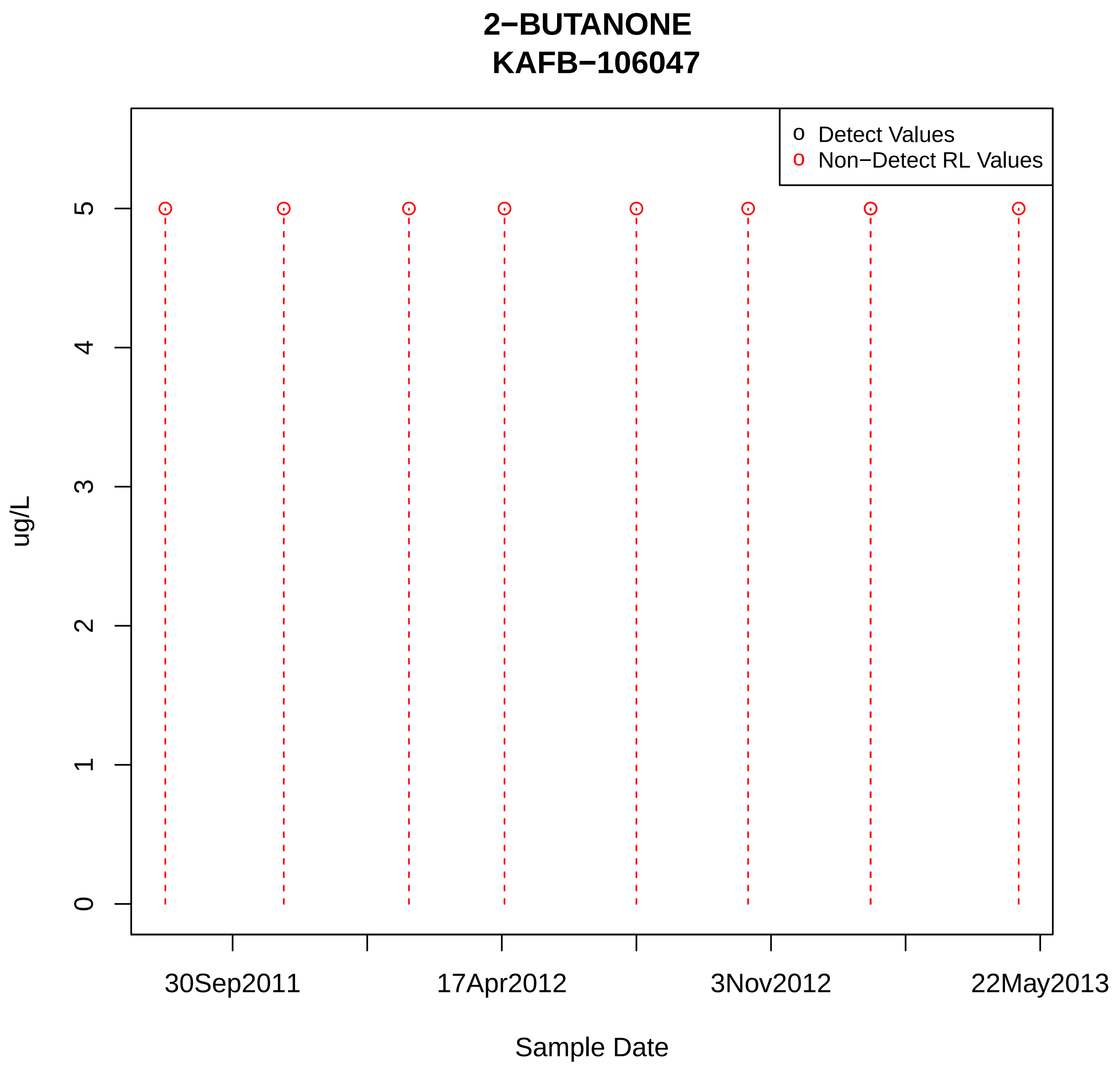
2−BUTANONE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

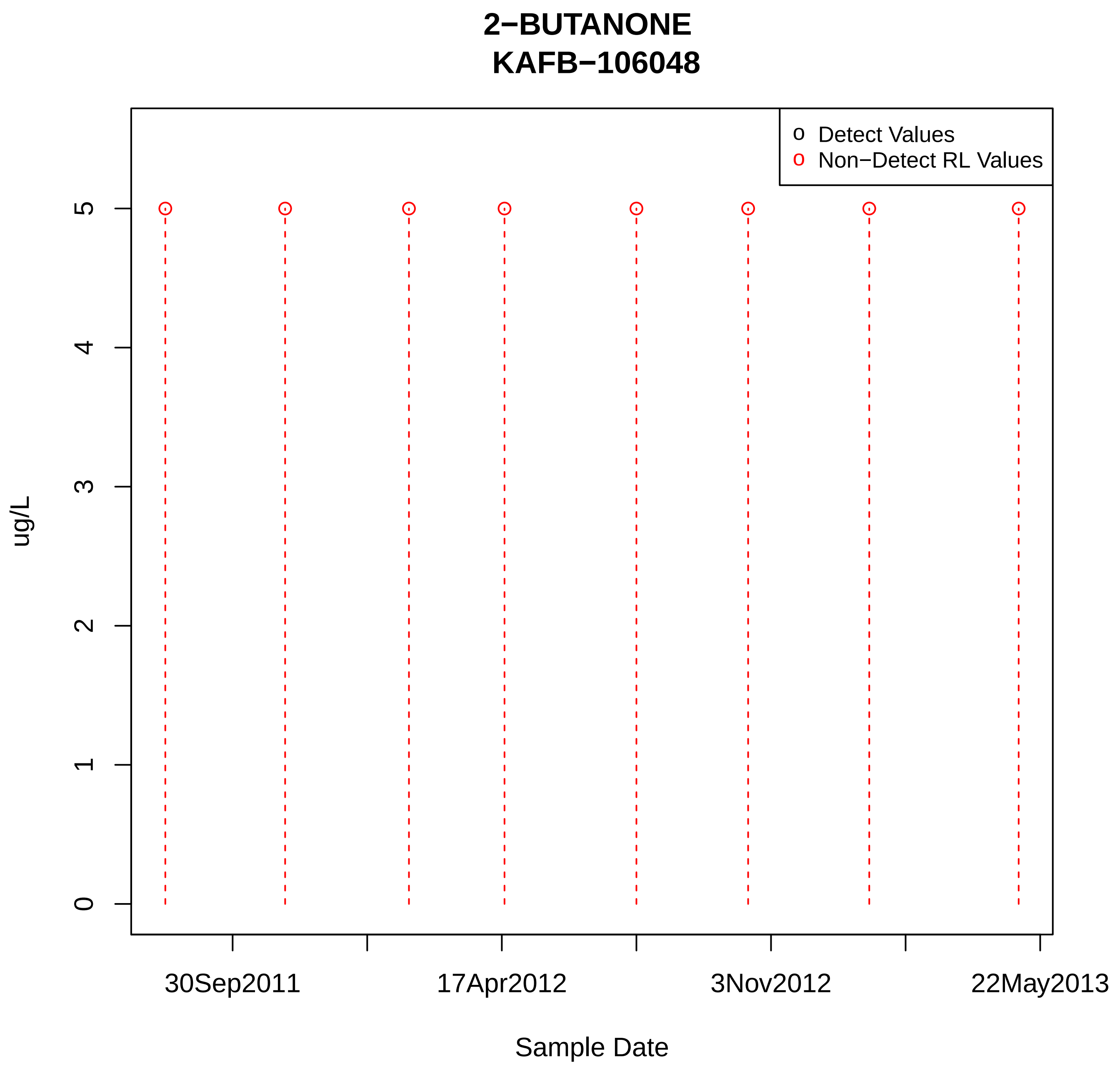

2−BUTANONE
KAFB−106027
Detect Values
Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

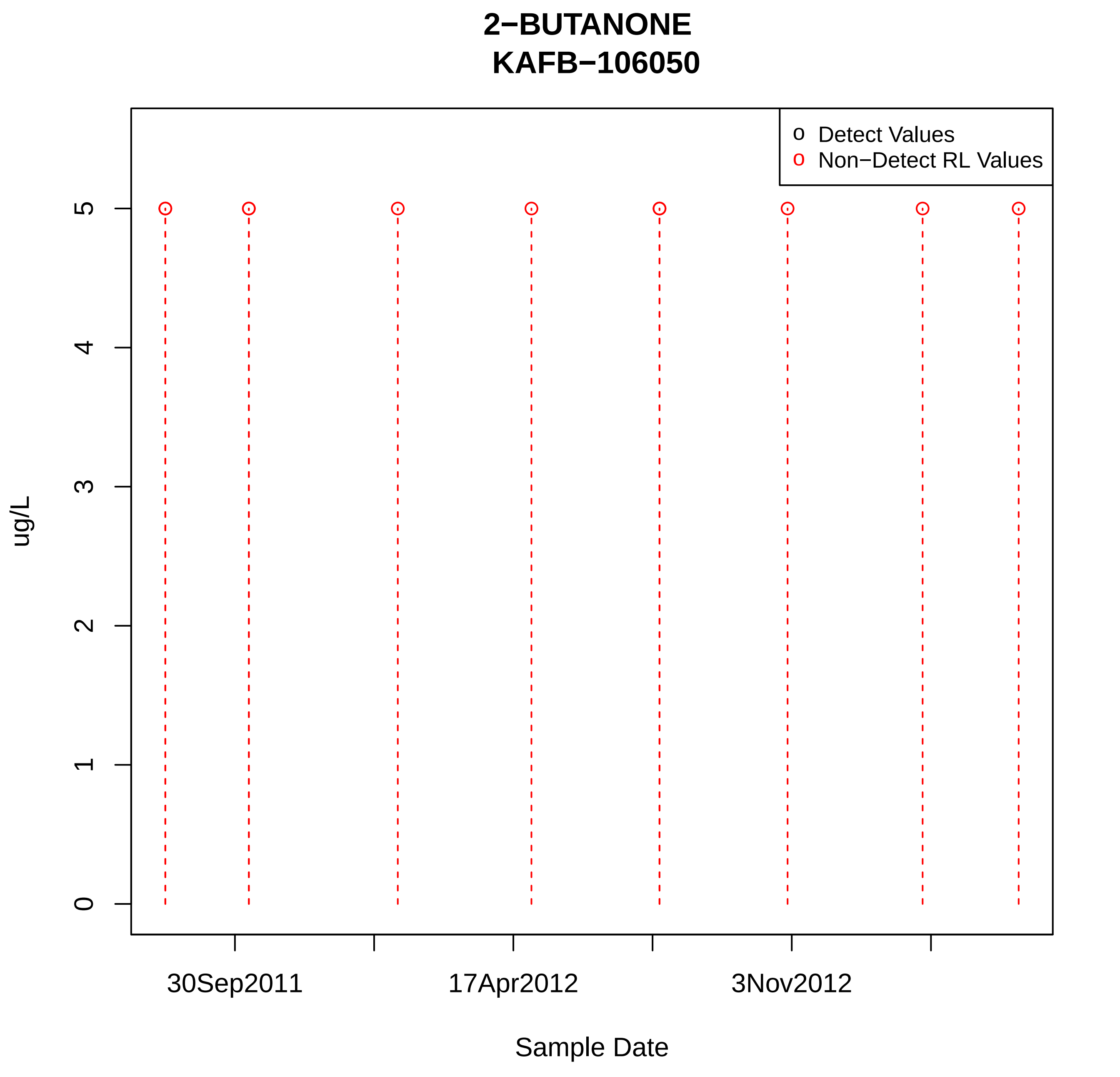

2−BUTANONE
KAFB−106044
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106045
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

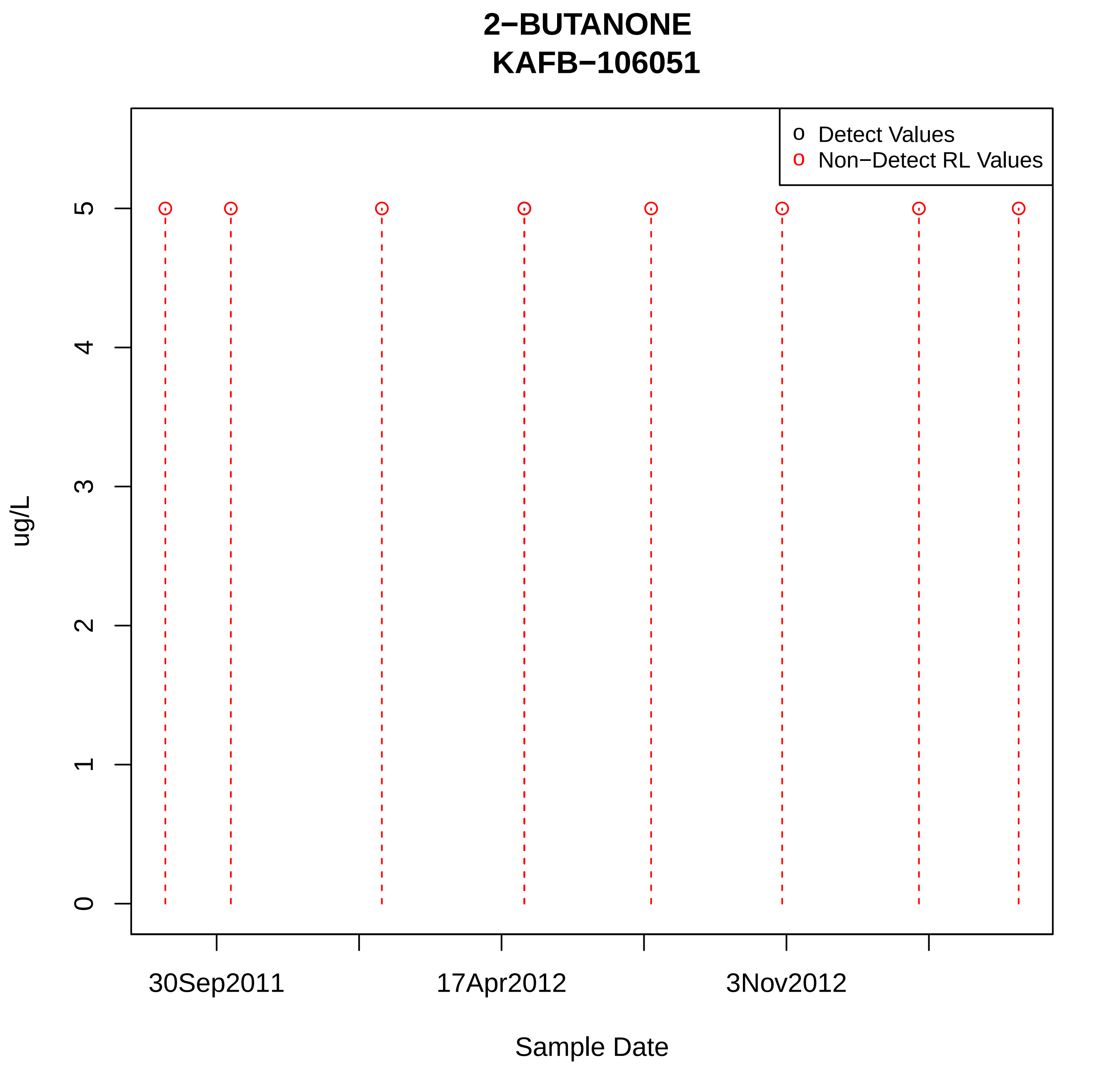

2−BUTANONE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106047
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

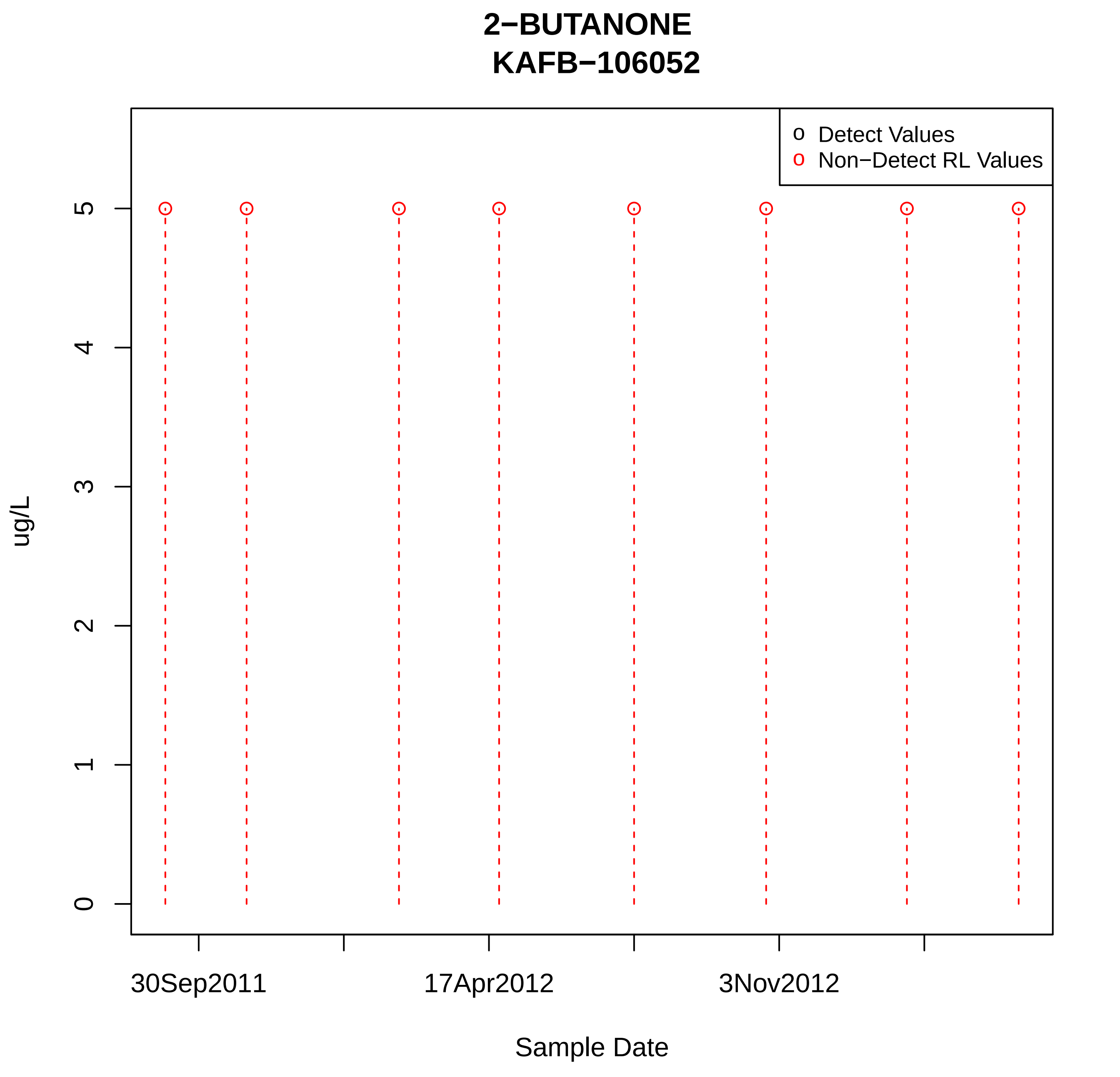

2−BUTANONE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

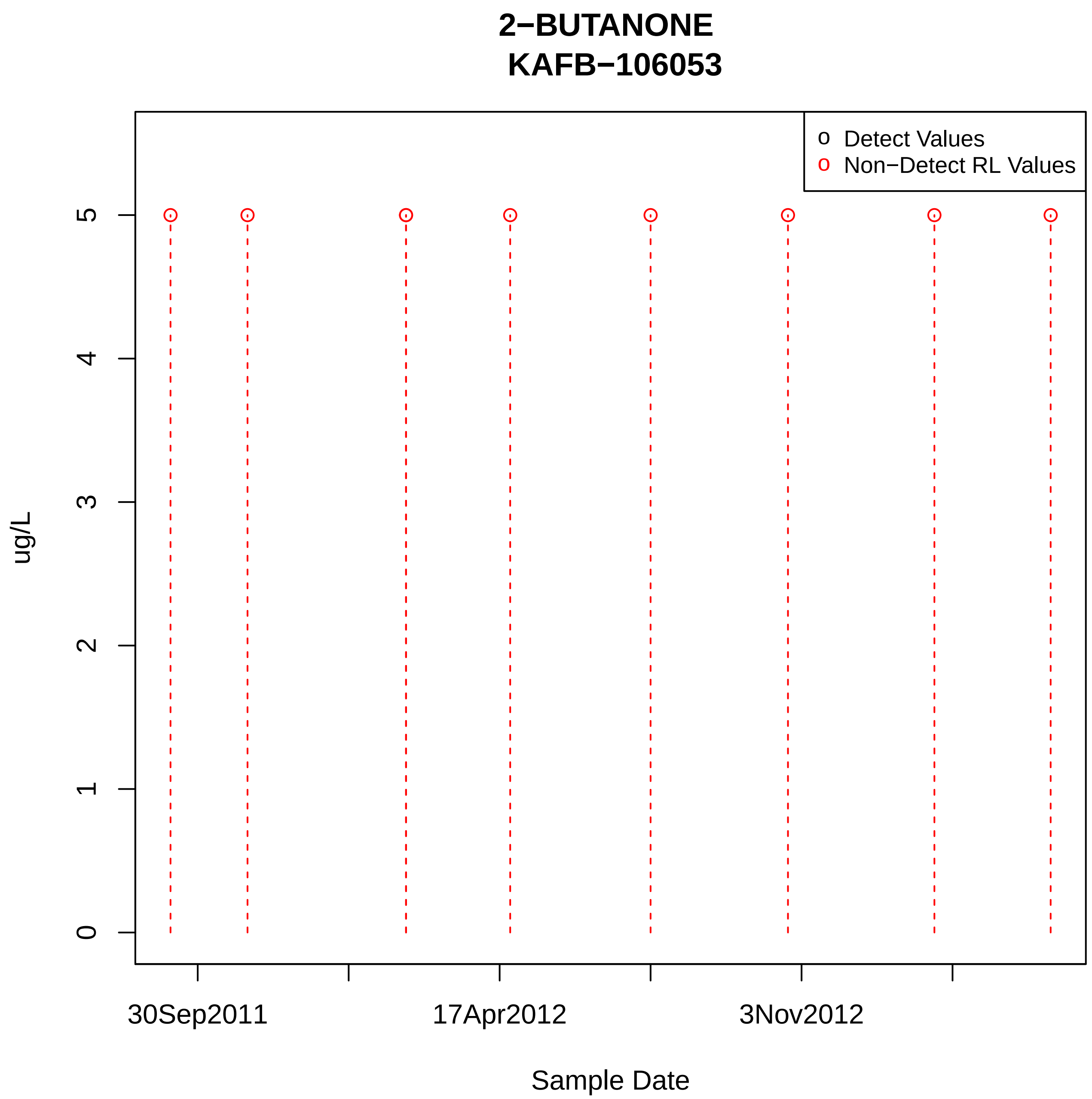


2−BUTANONE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

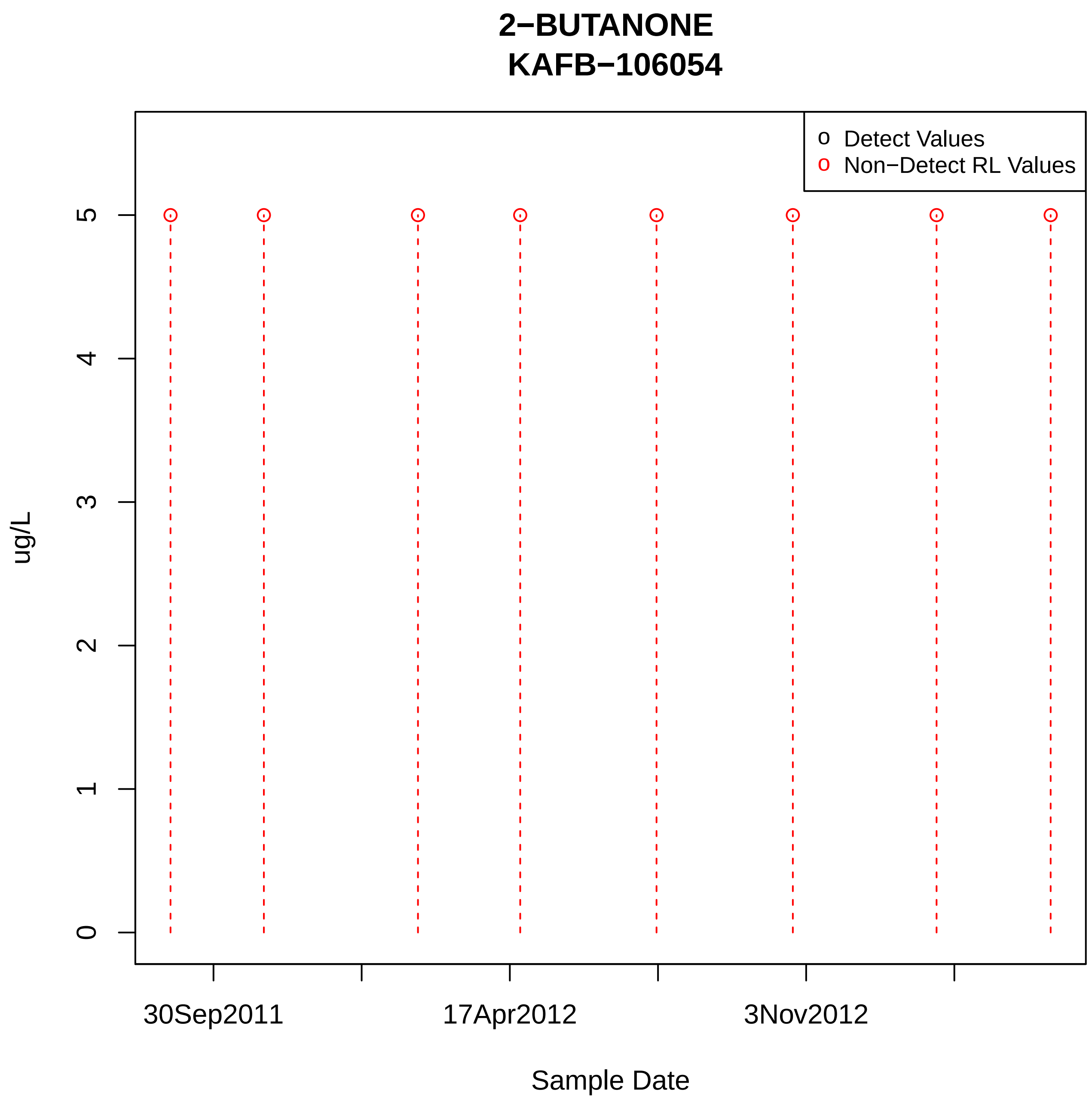


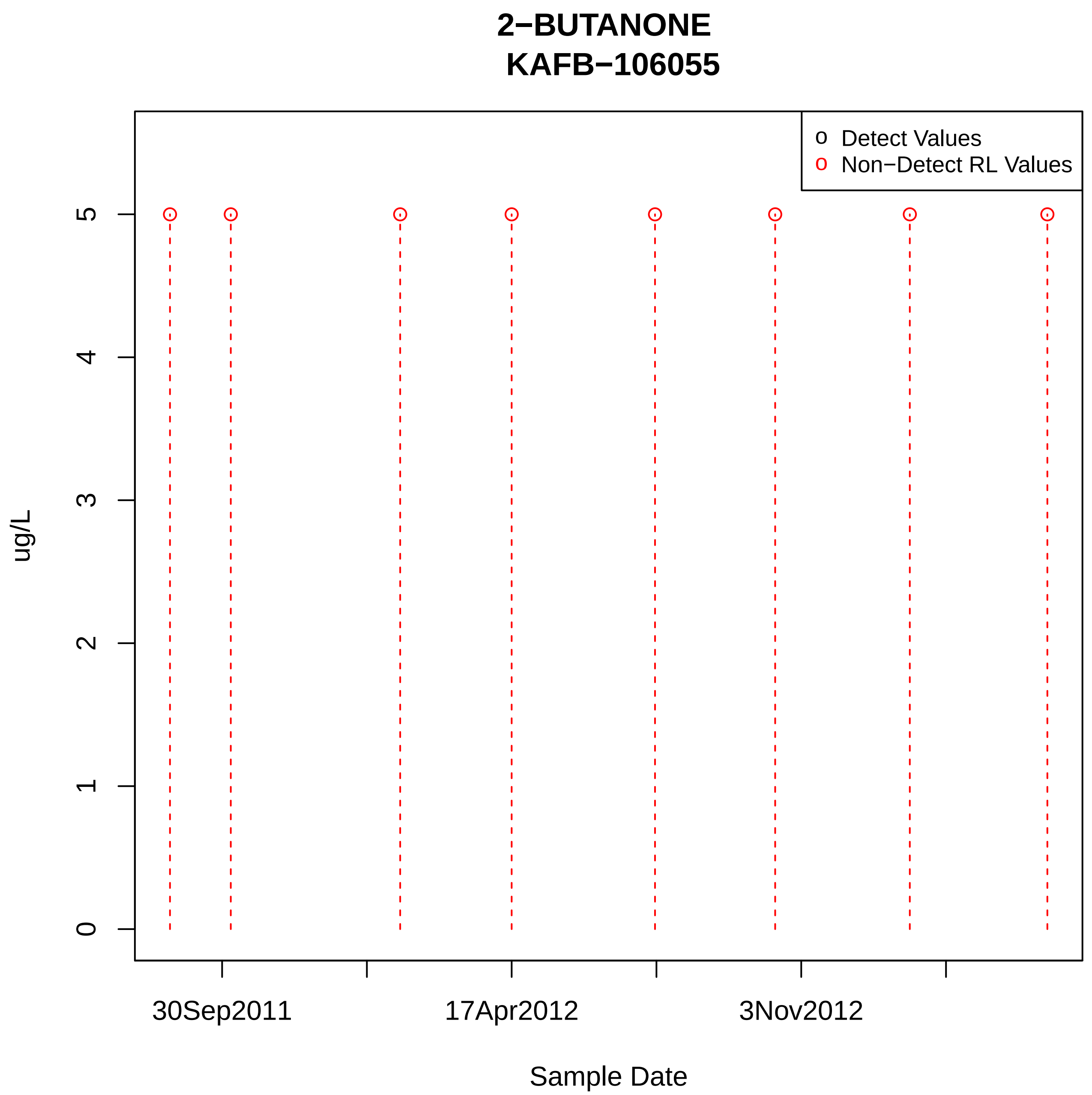
2−BUTANONE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−BUTANONE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

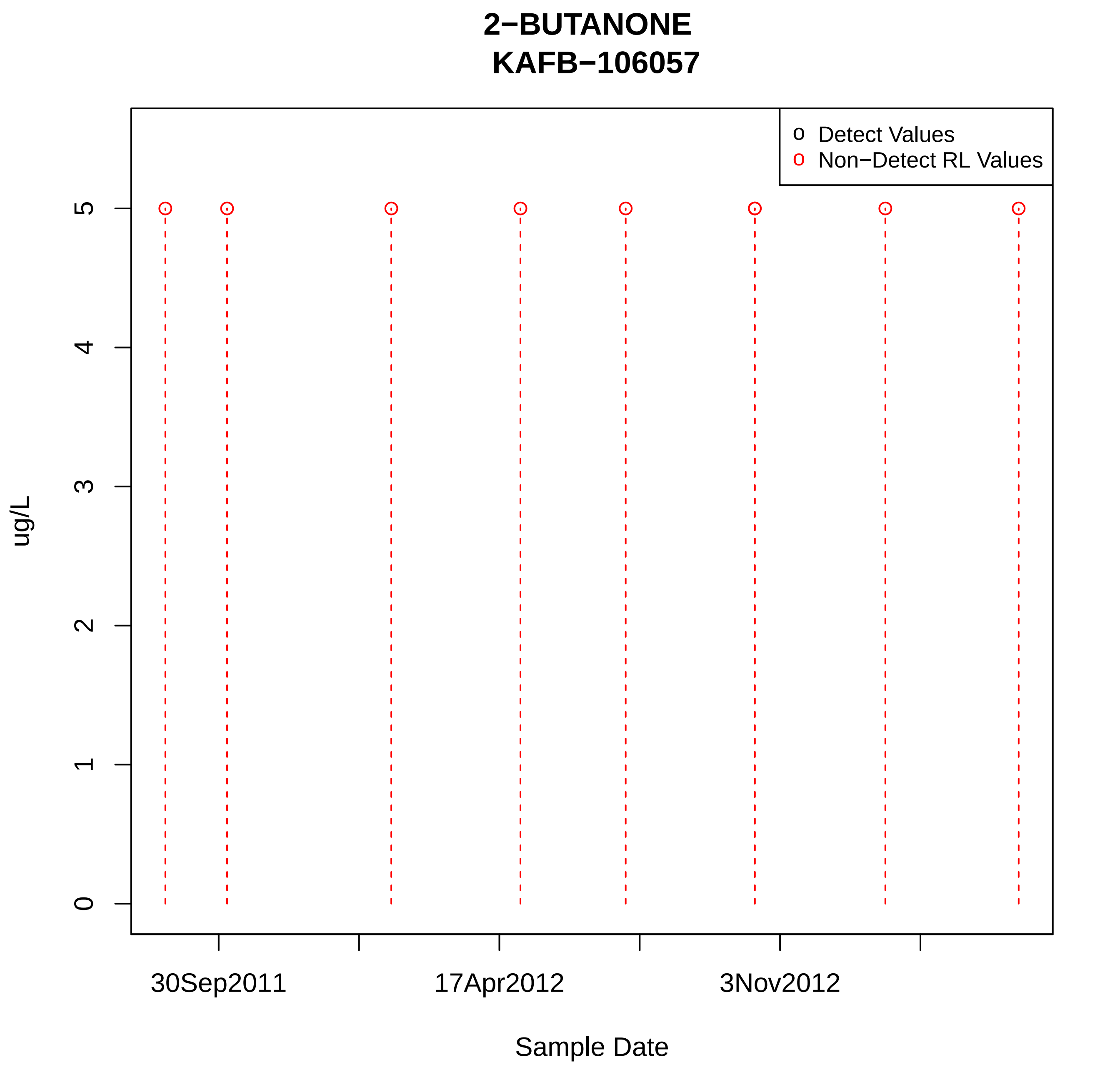


2−BUTANONE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

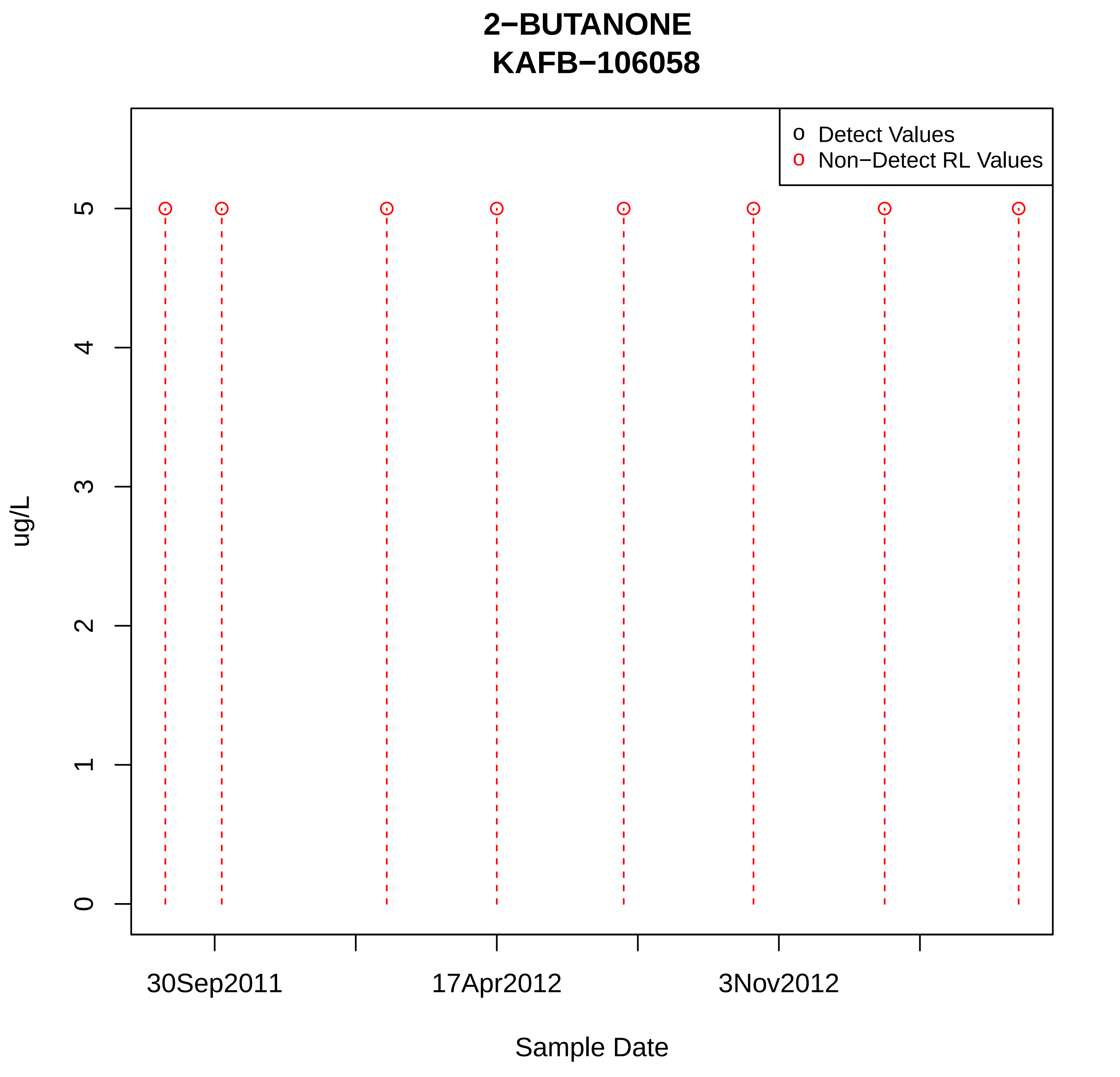

2−BUTANONE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

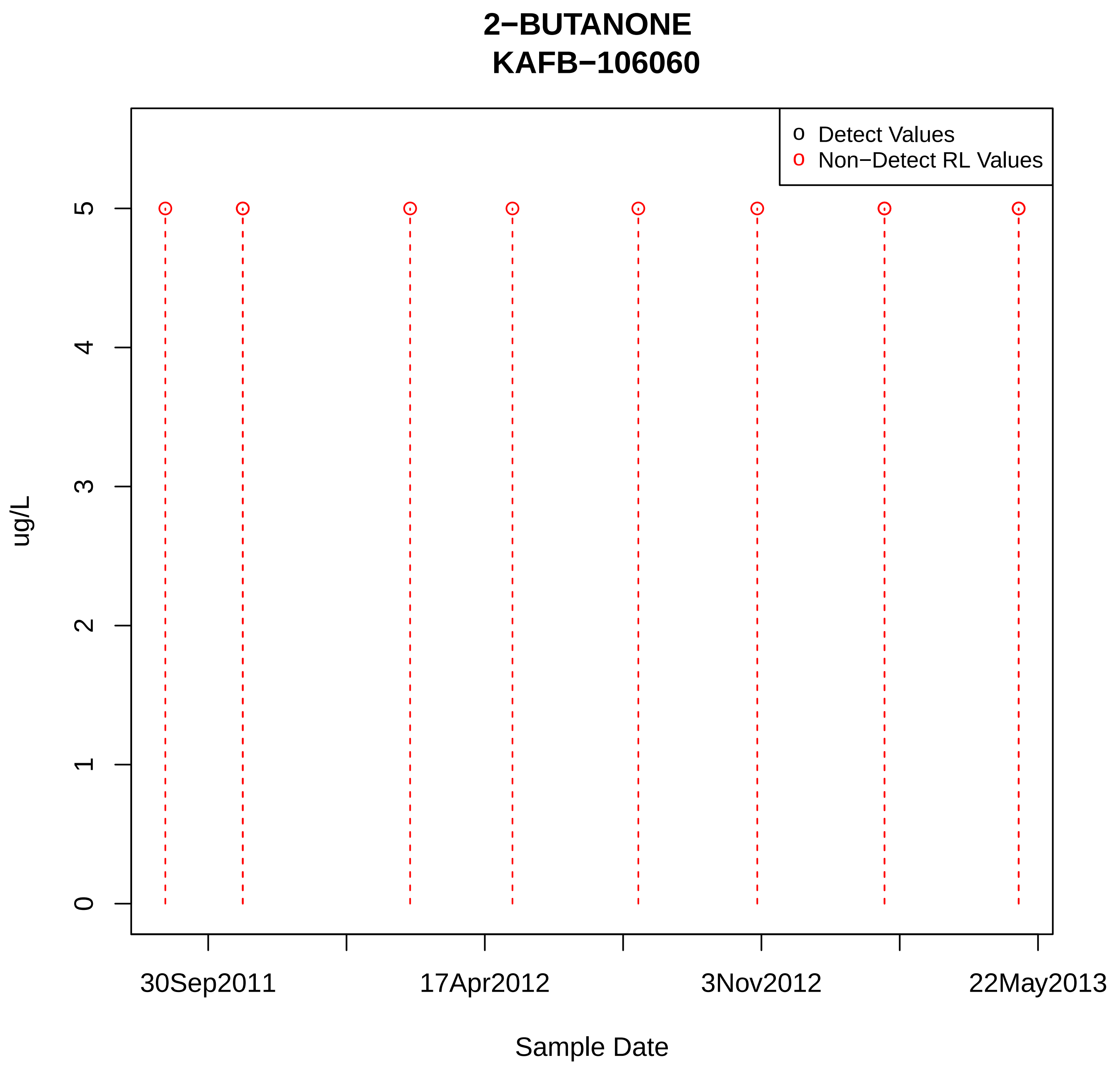


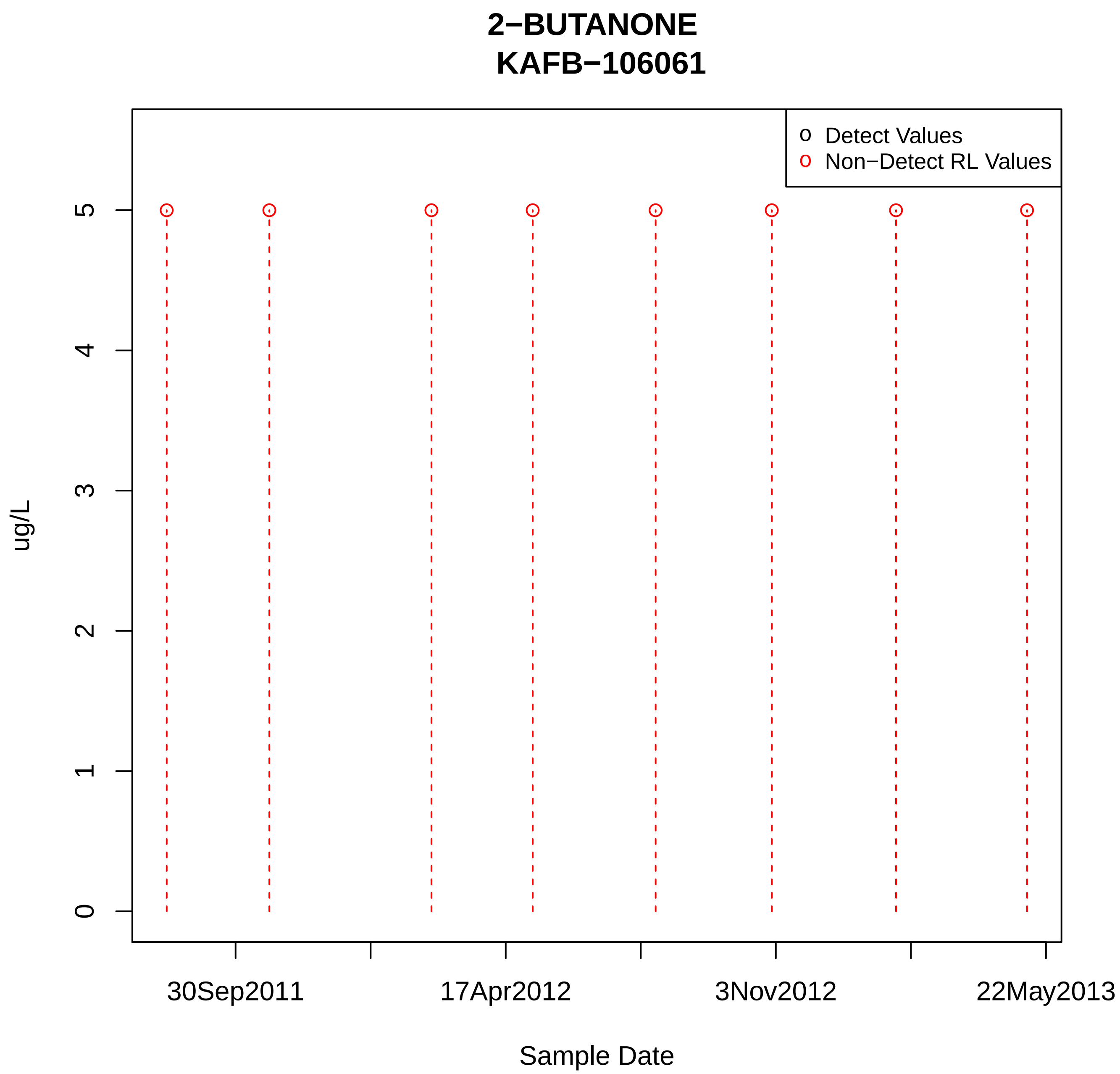
2−BUTANONE
KAFB−106055
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

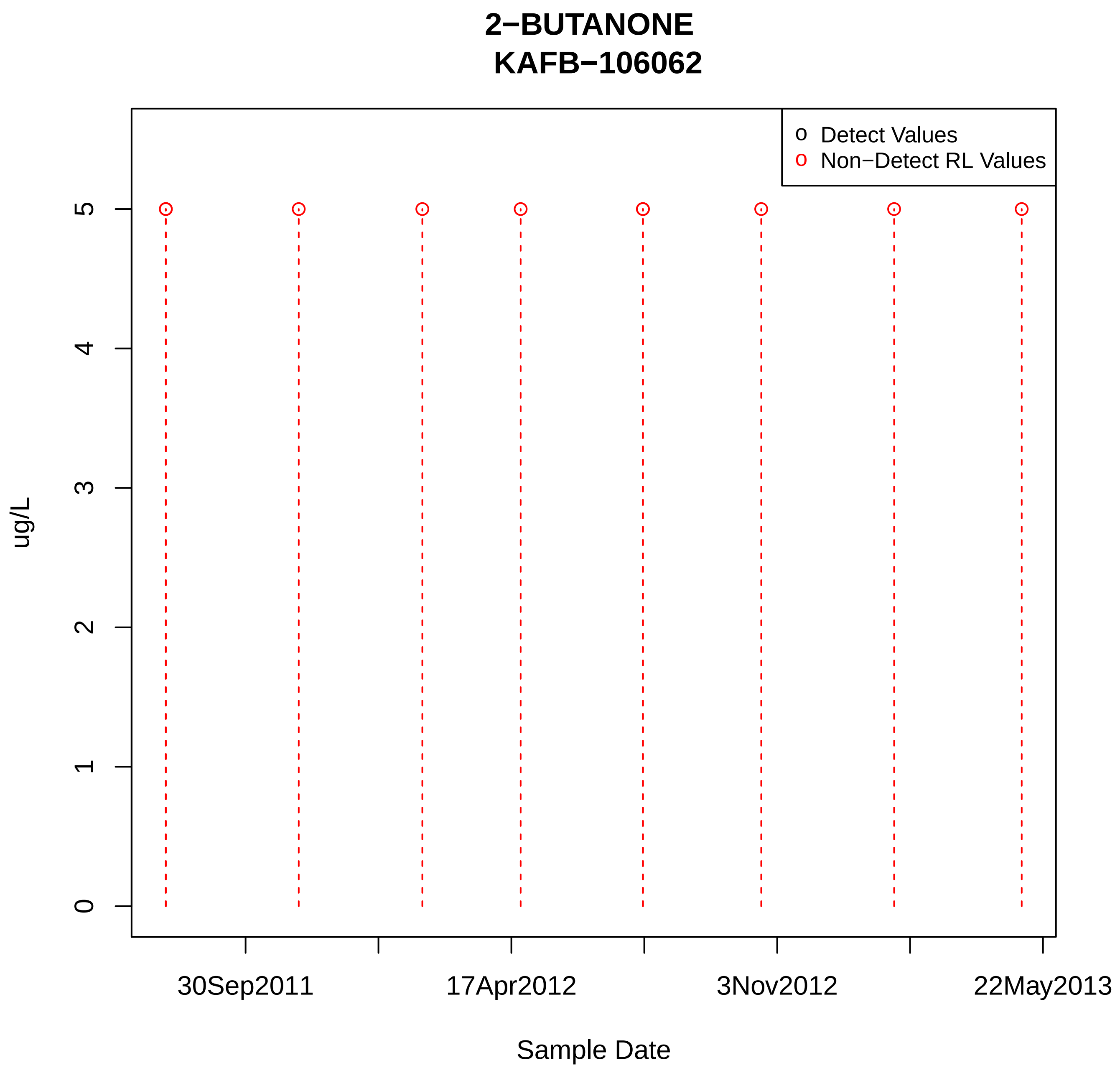


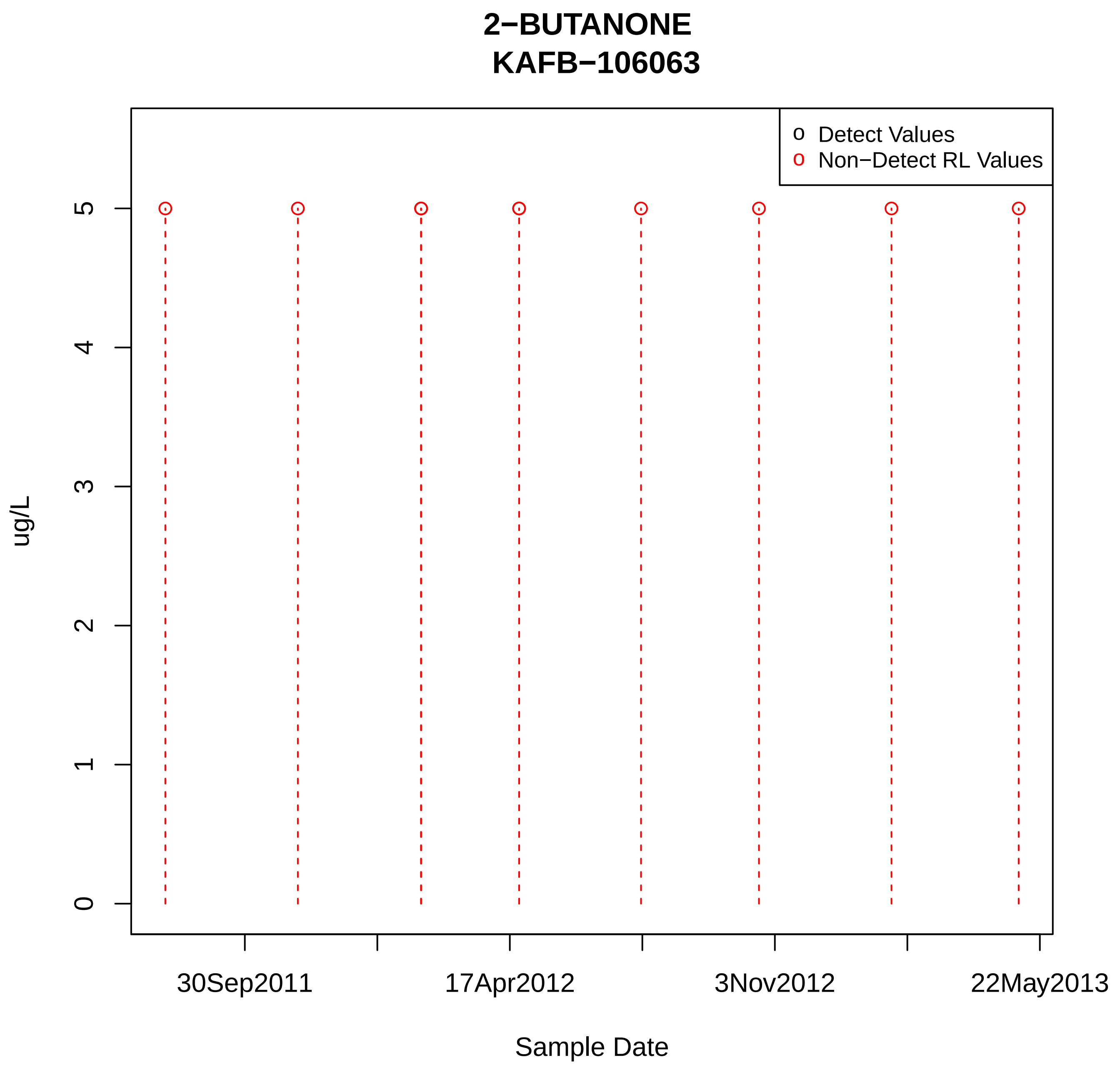
2−BUTANONE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

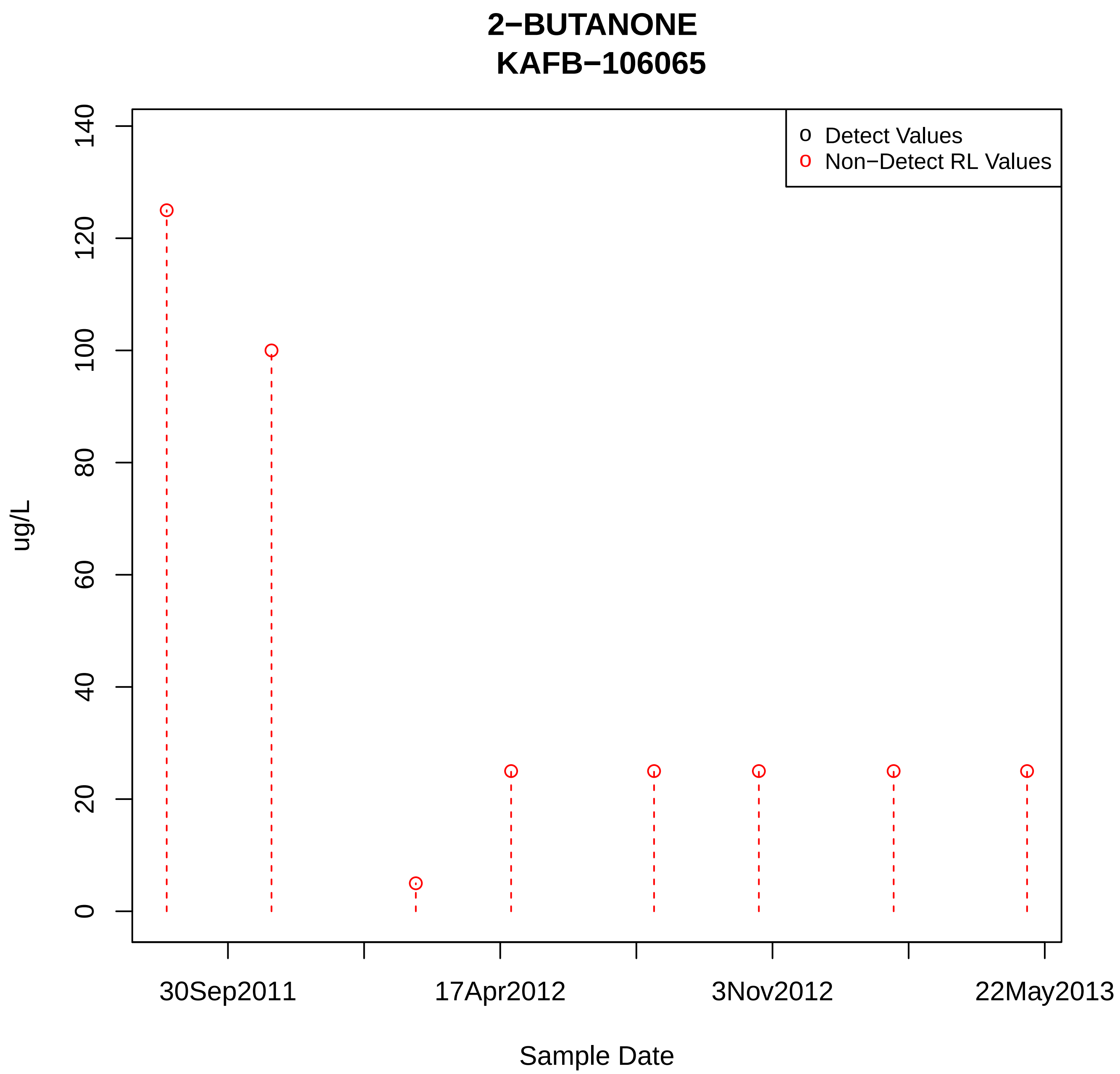

2−BUTANONE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

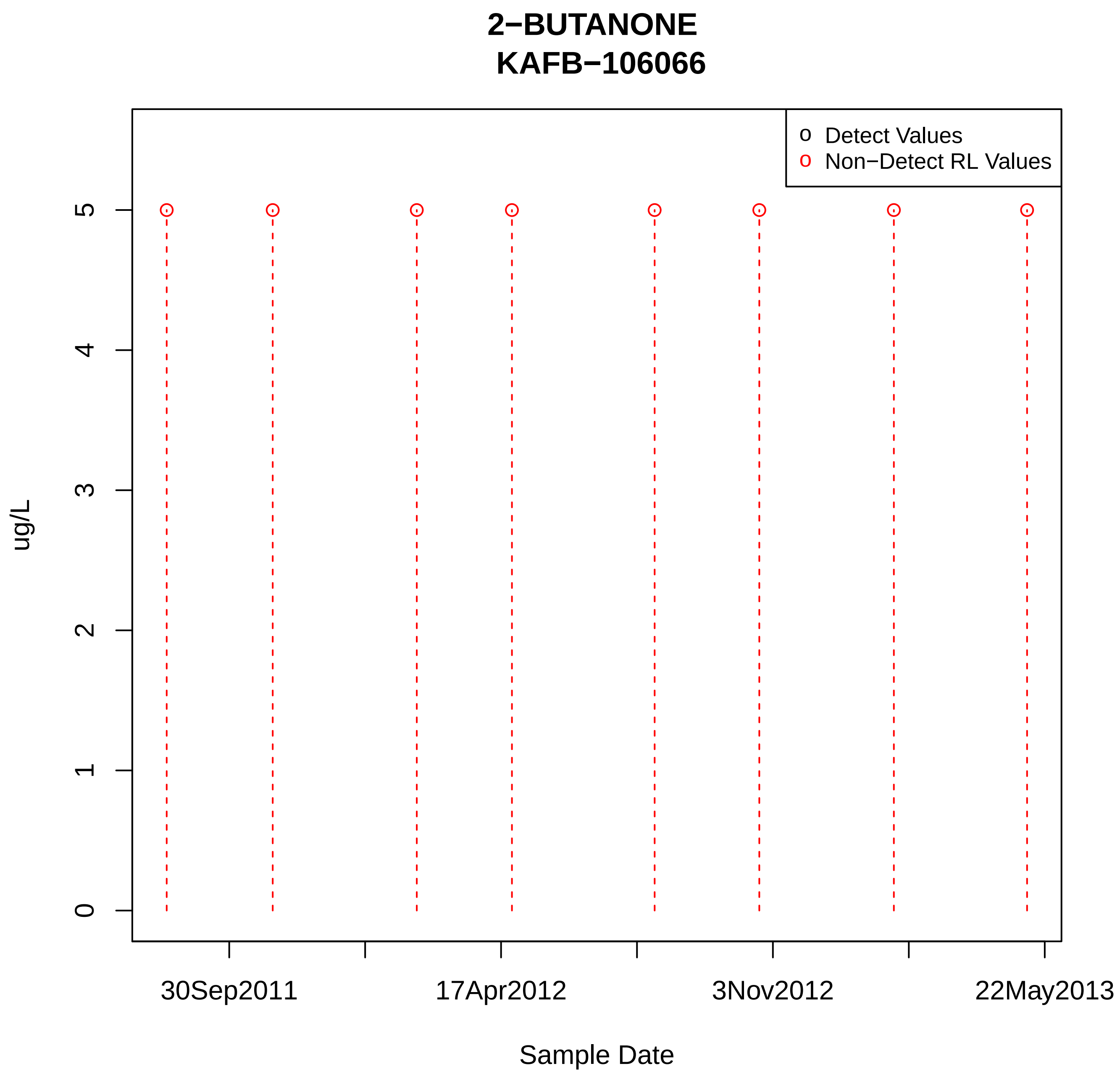

2−BUTANONE
KAFB−106060
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106061
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

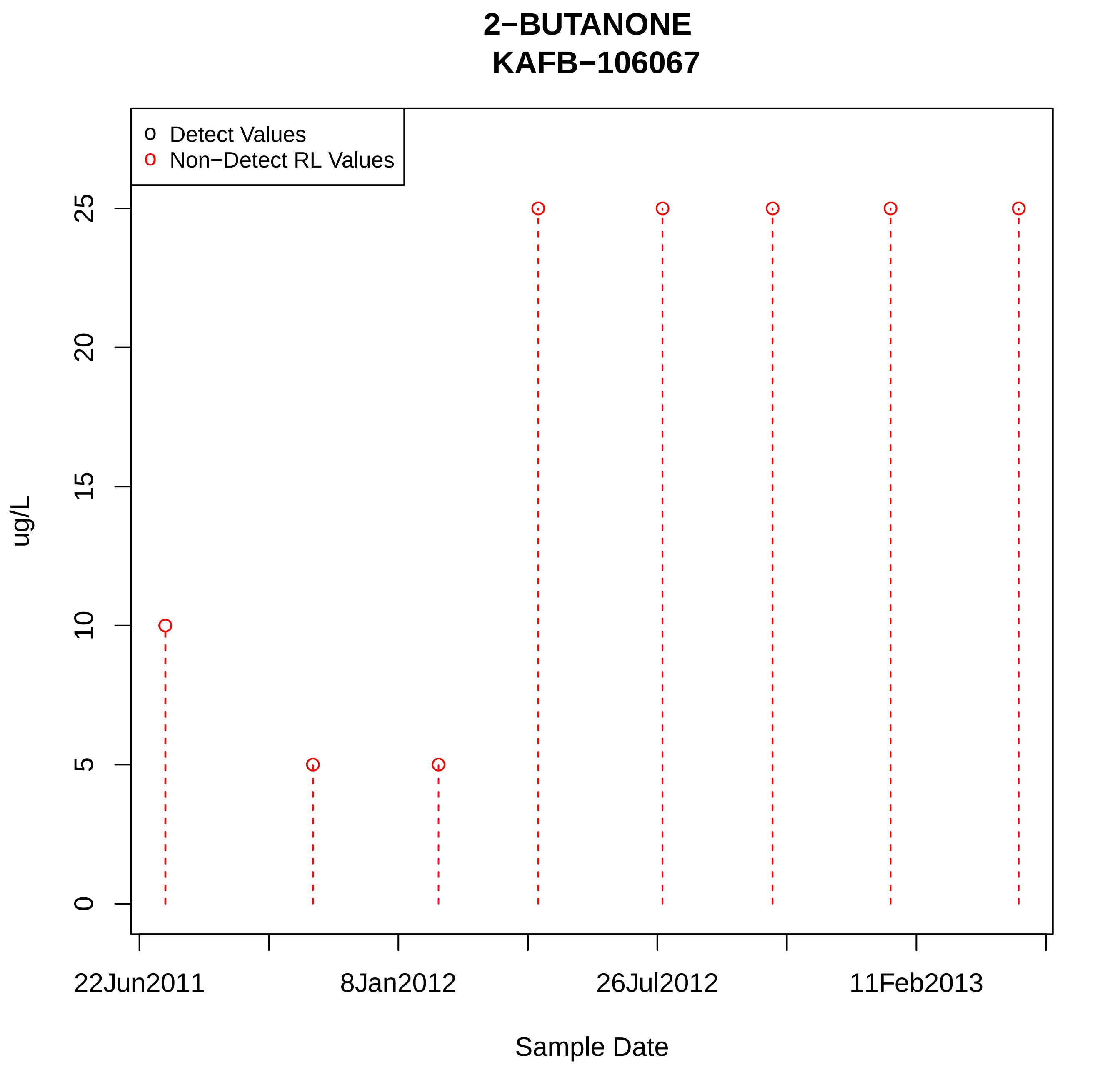

2−BUTANONE
KAFB−106062
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

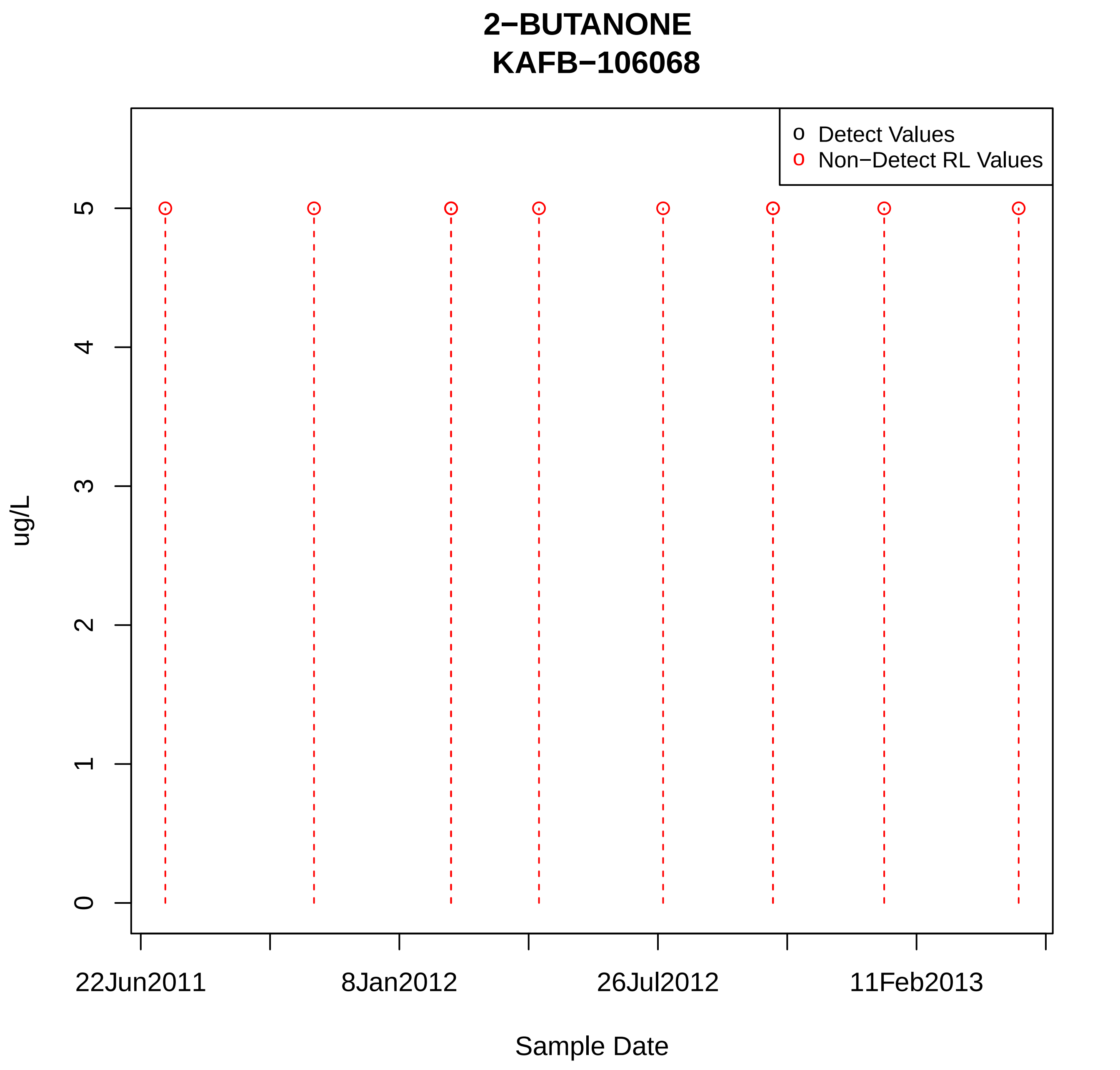

2−BUTANONE
KAFB−106063
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106065
o Detect Values
o Non−Detect RL Values
ug/L
0
20
40
60
80
100
120
140
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

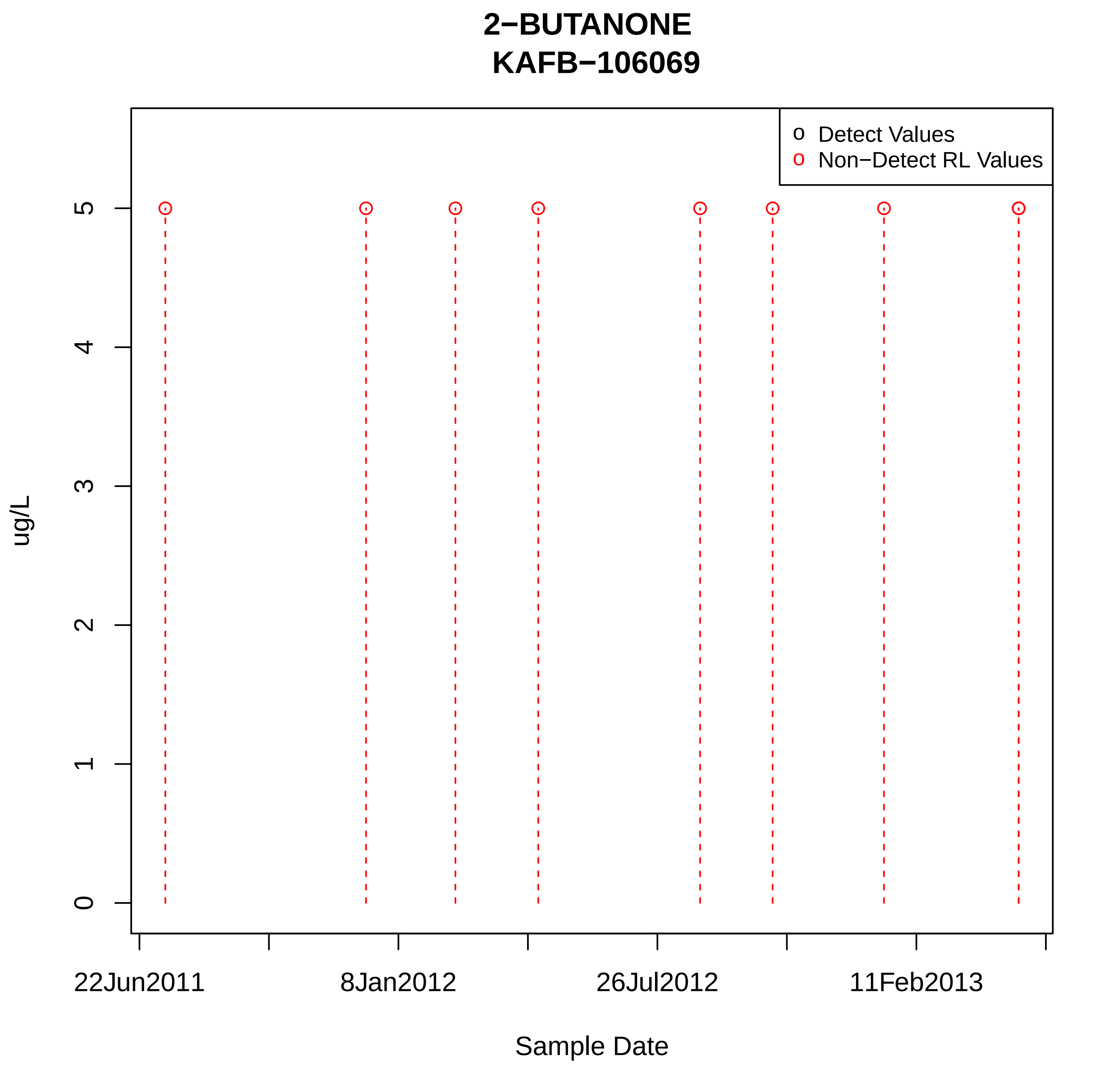


2−BUTANONE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

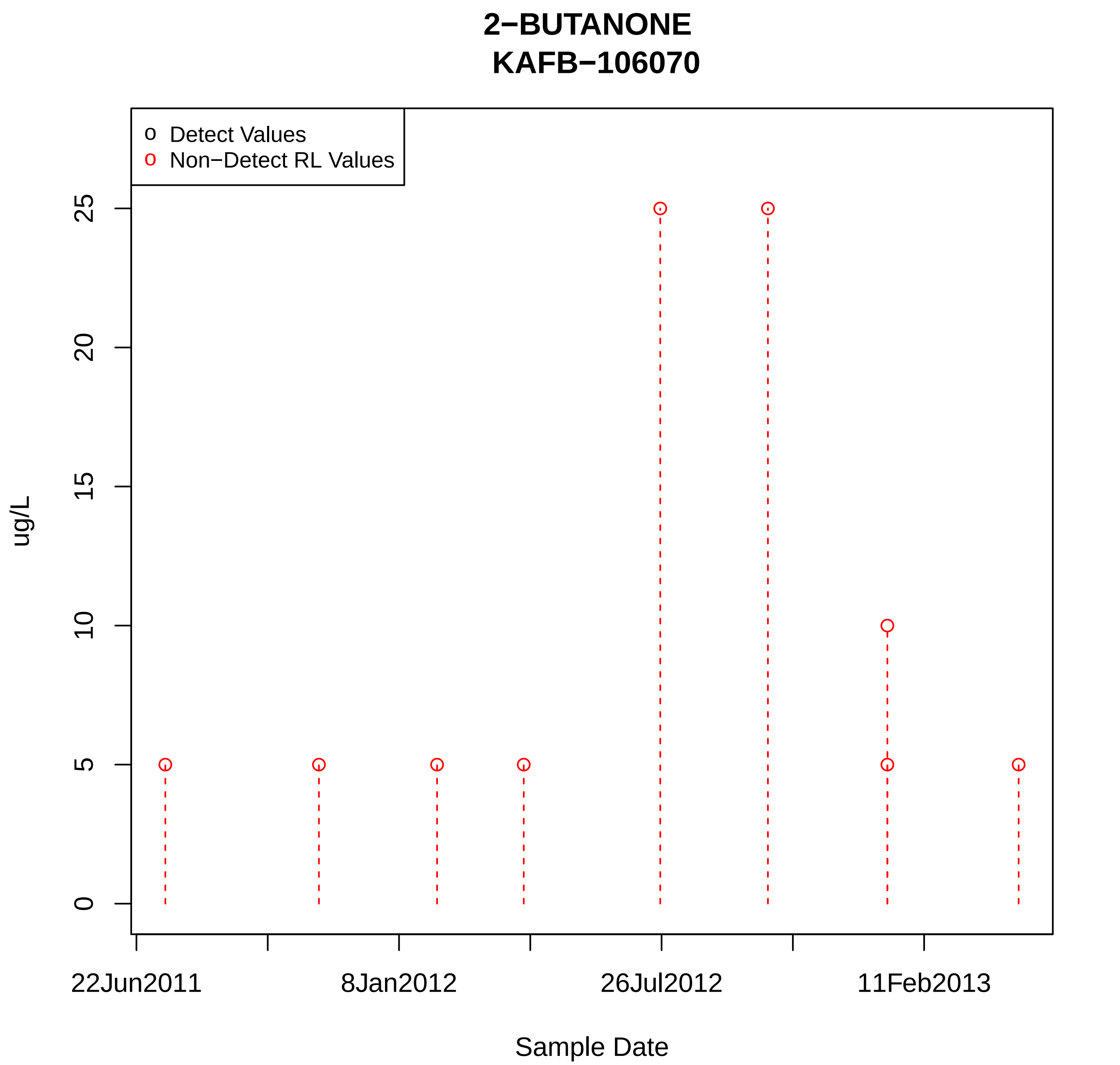

2−BUTANONE
KAFB−106067
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

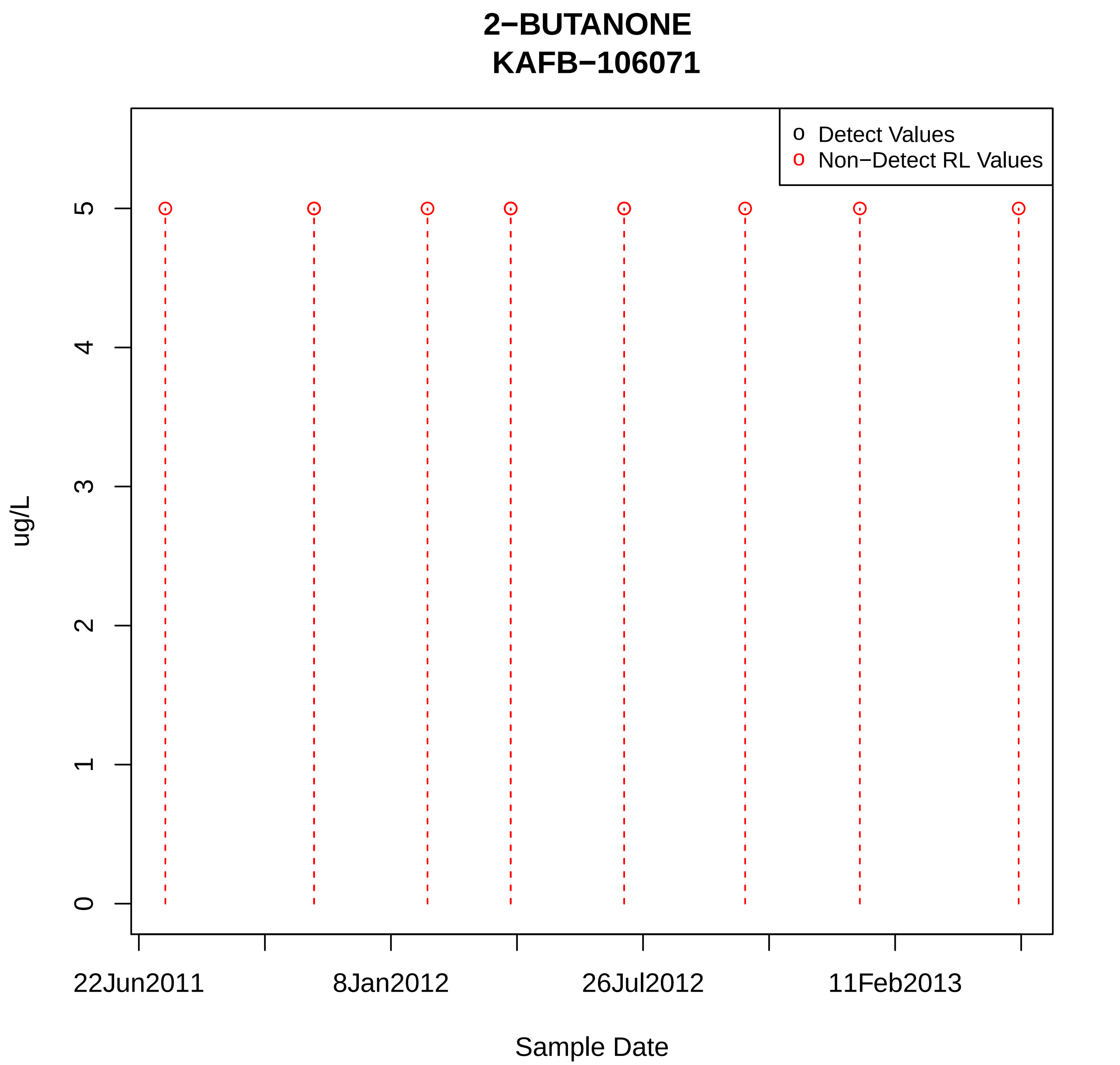


2−BUTANONE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

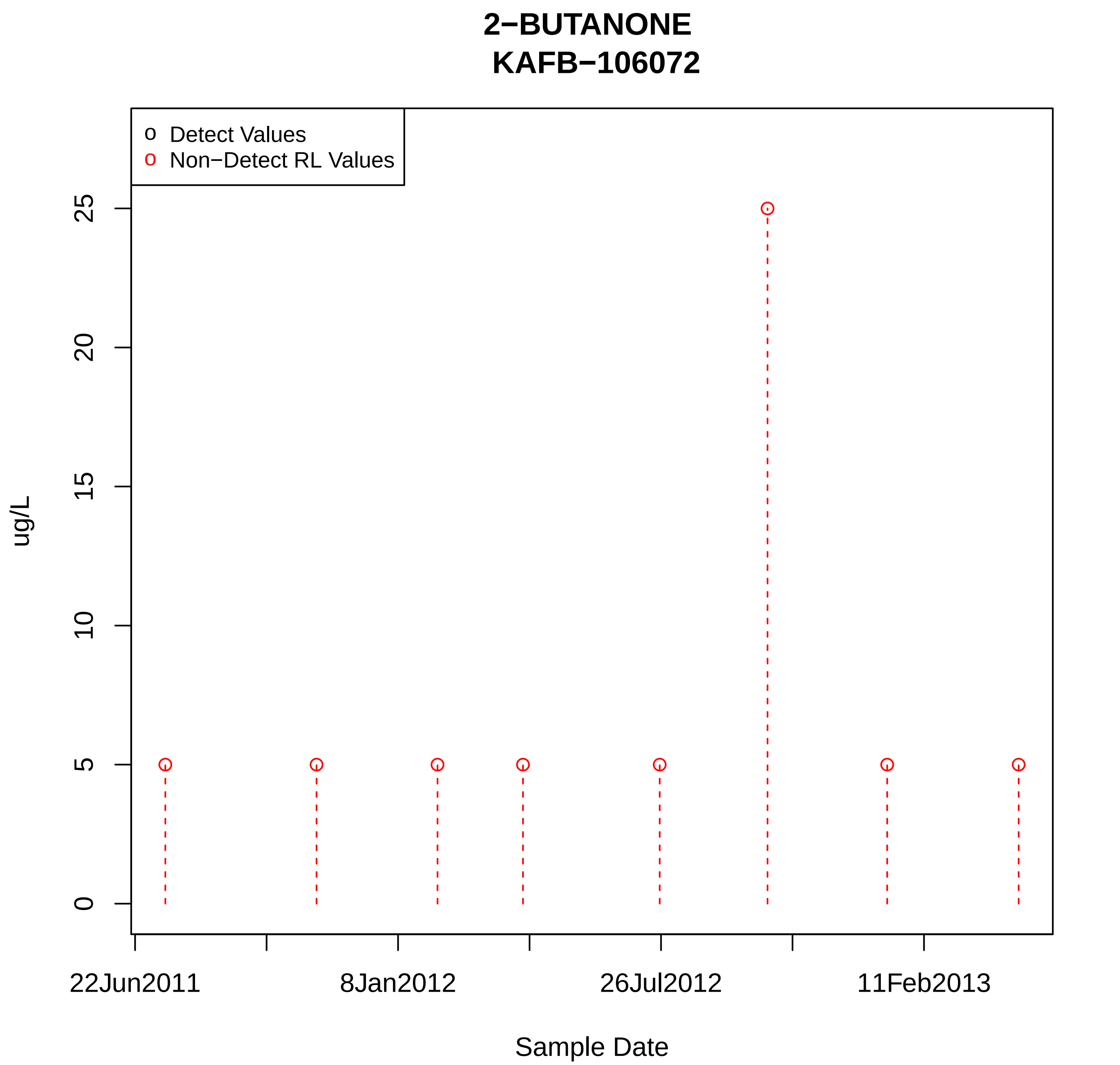


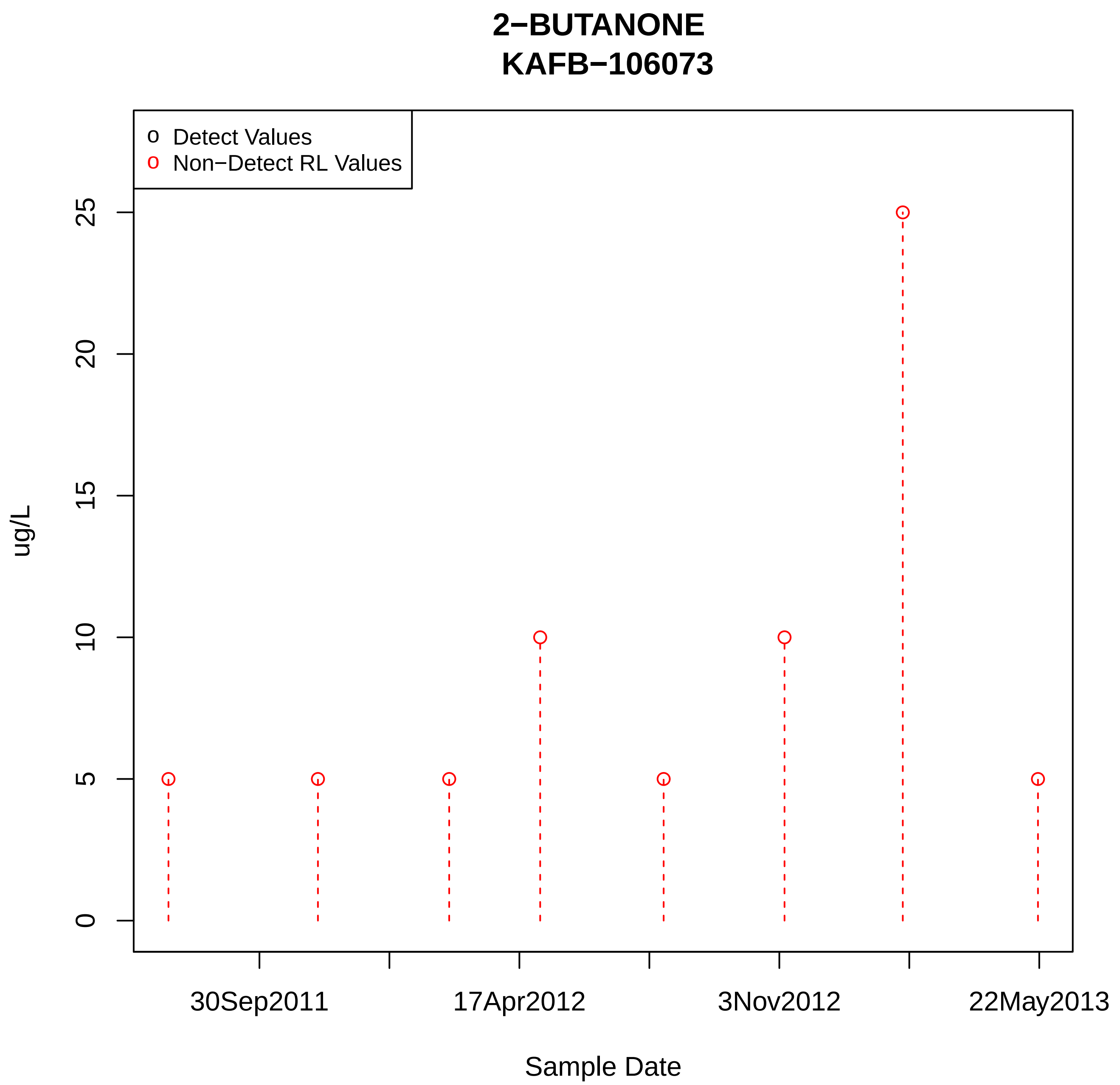
2−BUTANONE
KAFB−106069
Detect Values
Non−Detect RL Values
0
1
2
3
4
5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

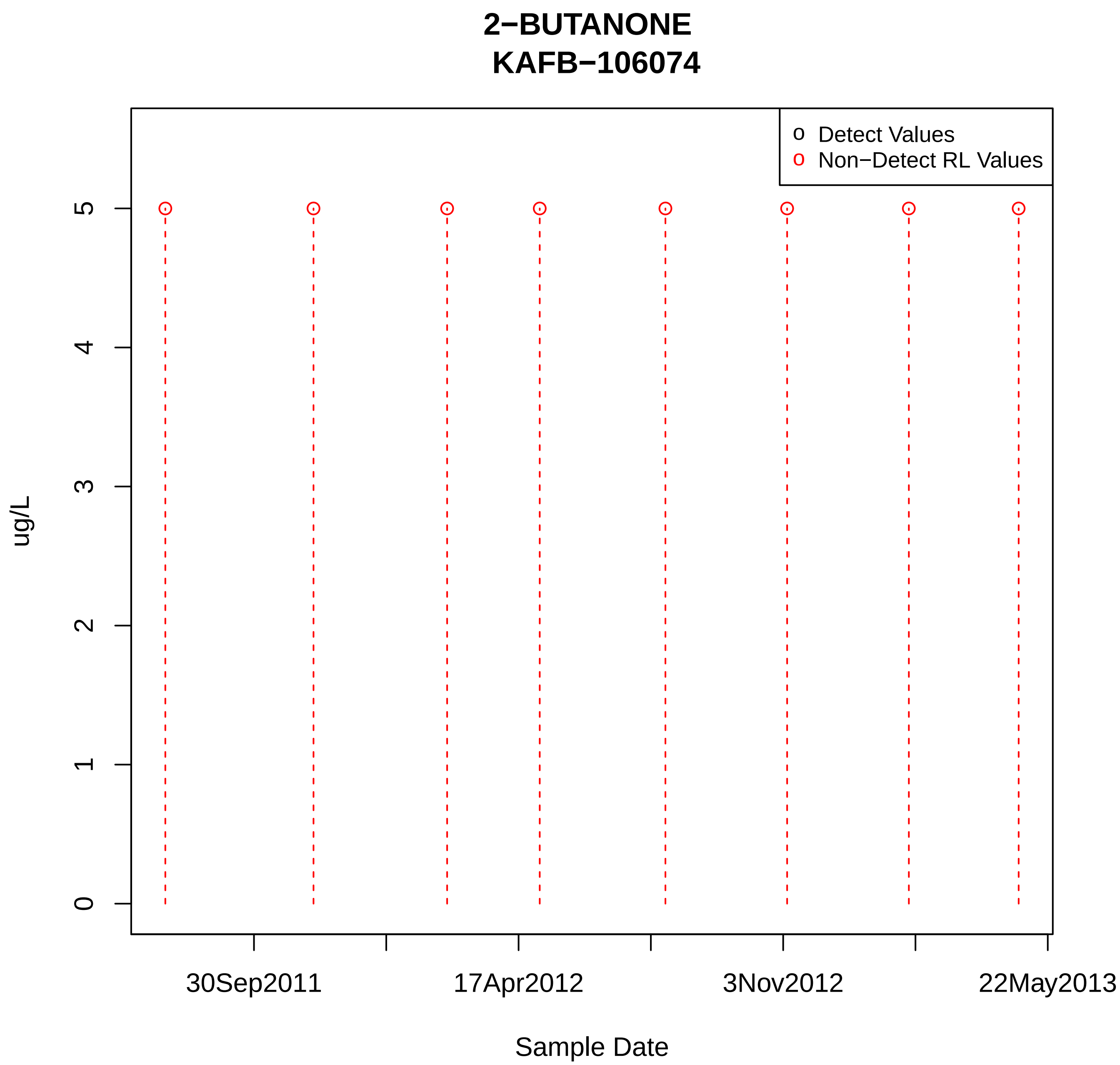

2−BUTANONE
KAFB−106070
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

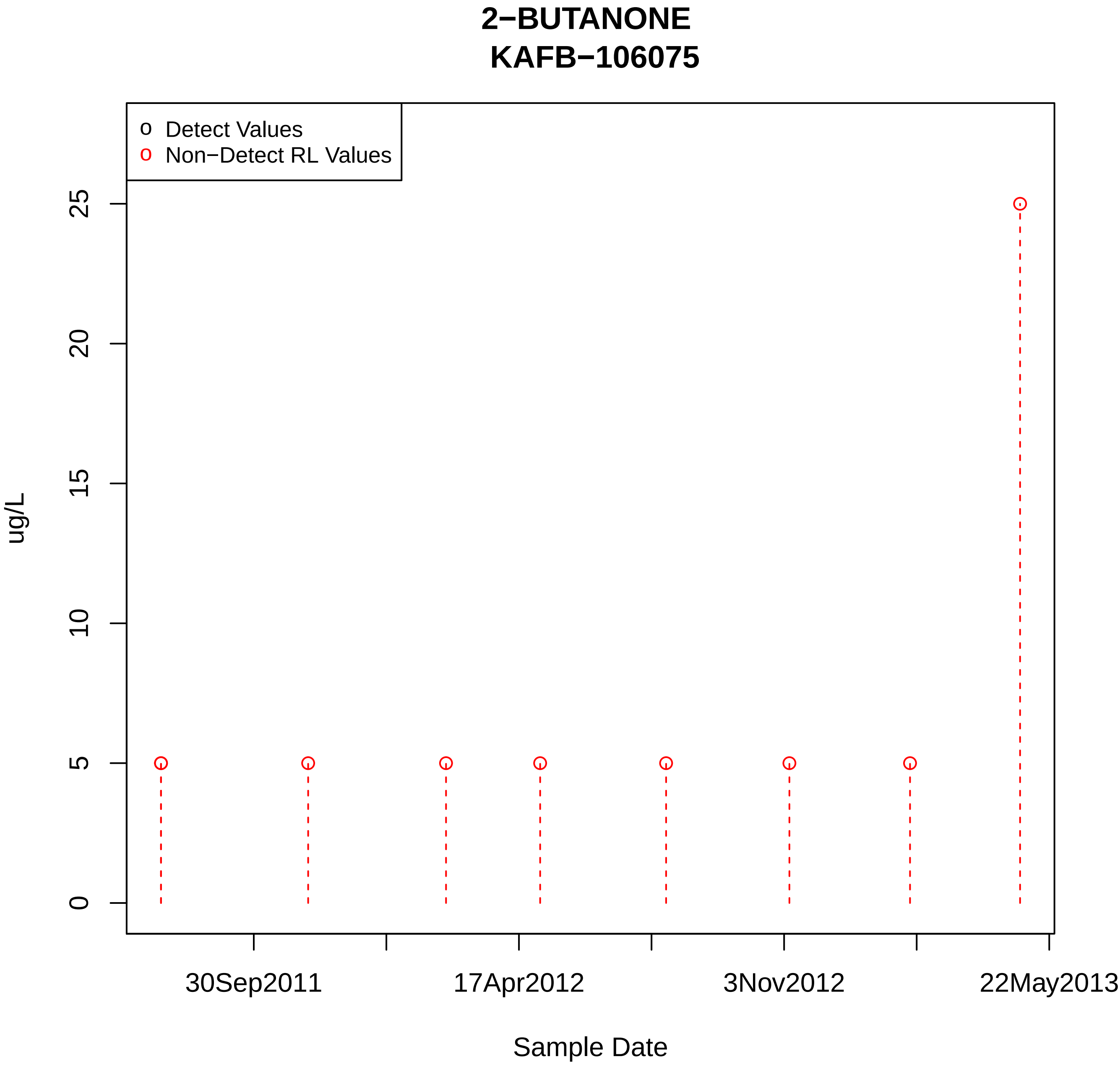


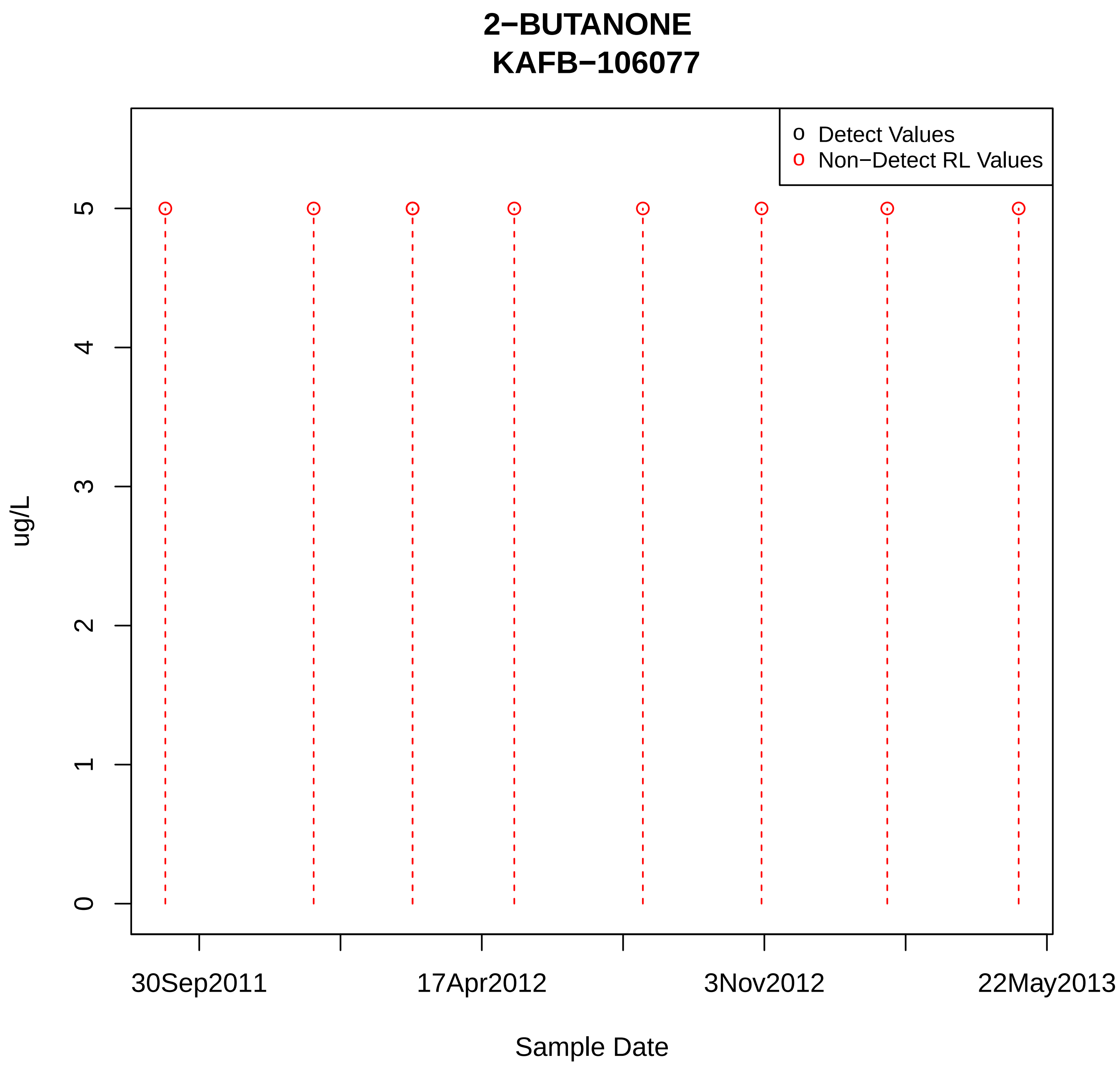
2−BUTANONE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


2−BUTANONE
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

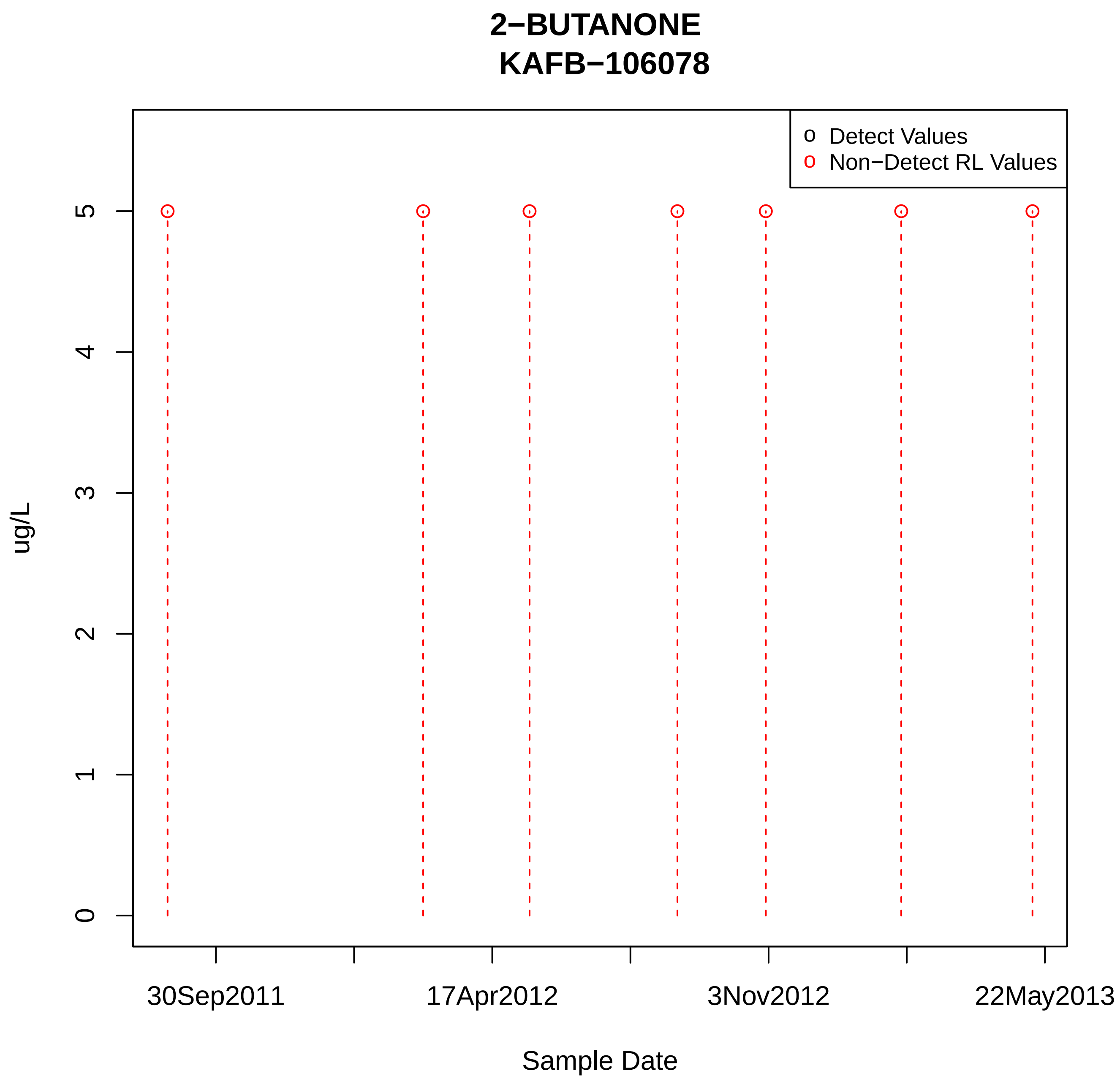

2−BUTANONE
KAFB−106073
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106074
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

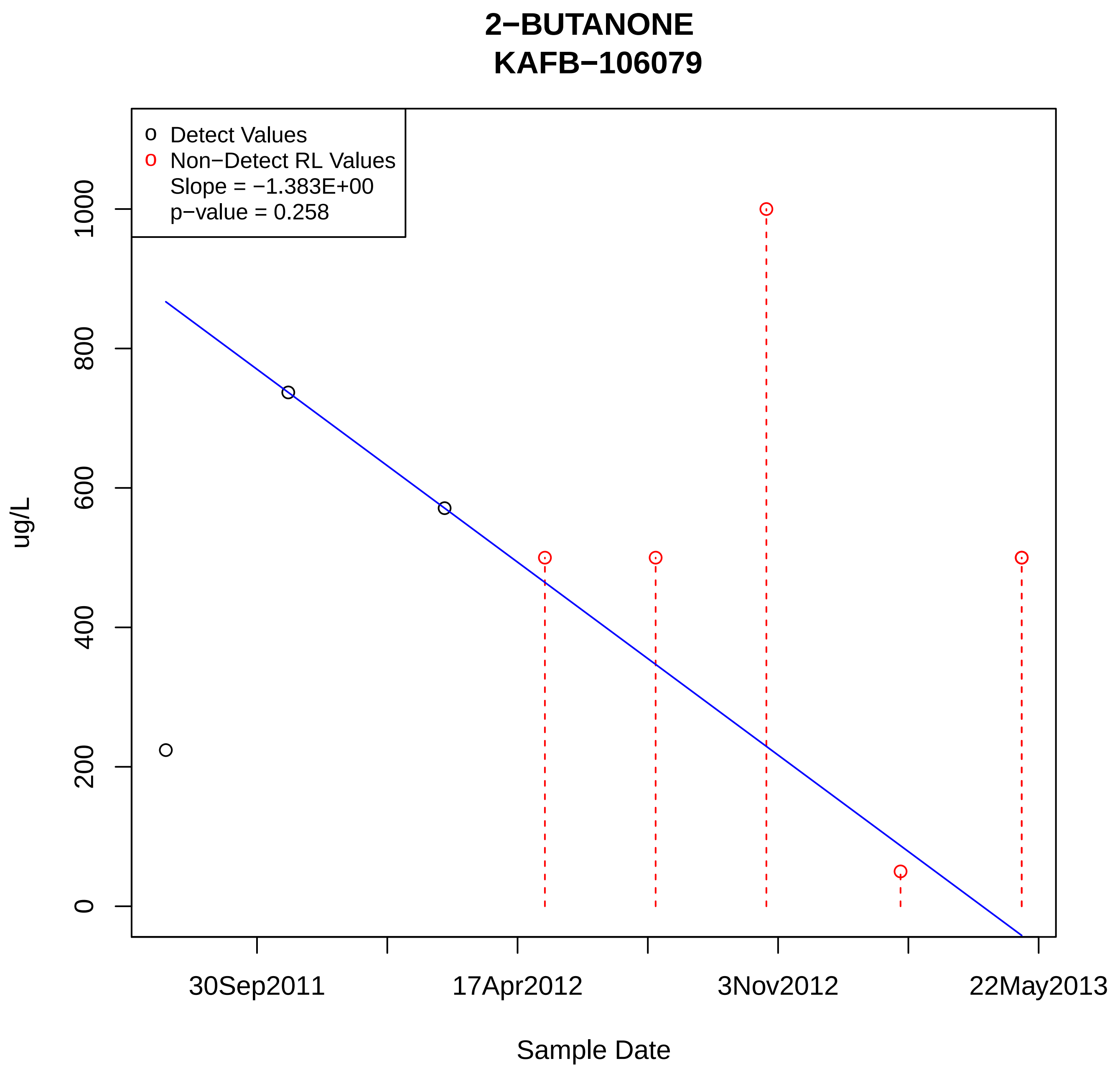

2−BUTANONE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



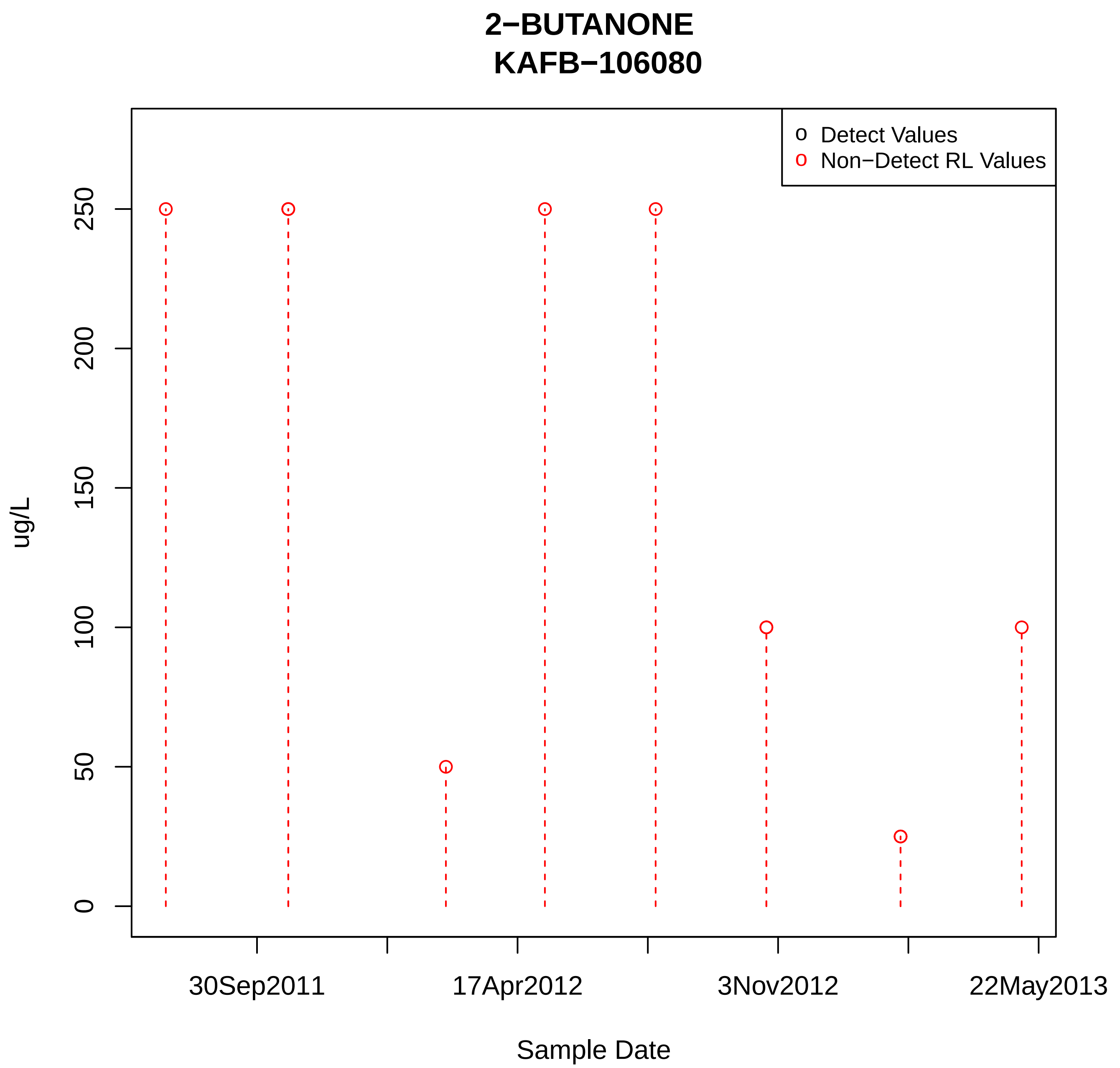
2−BUTANONE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



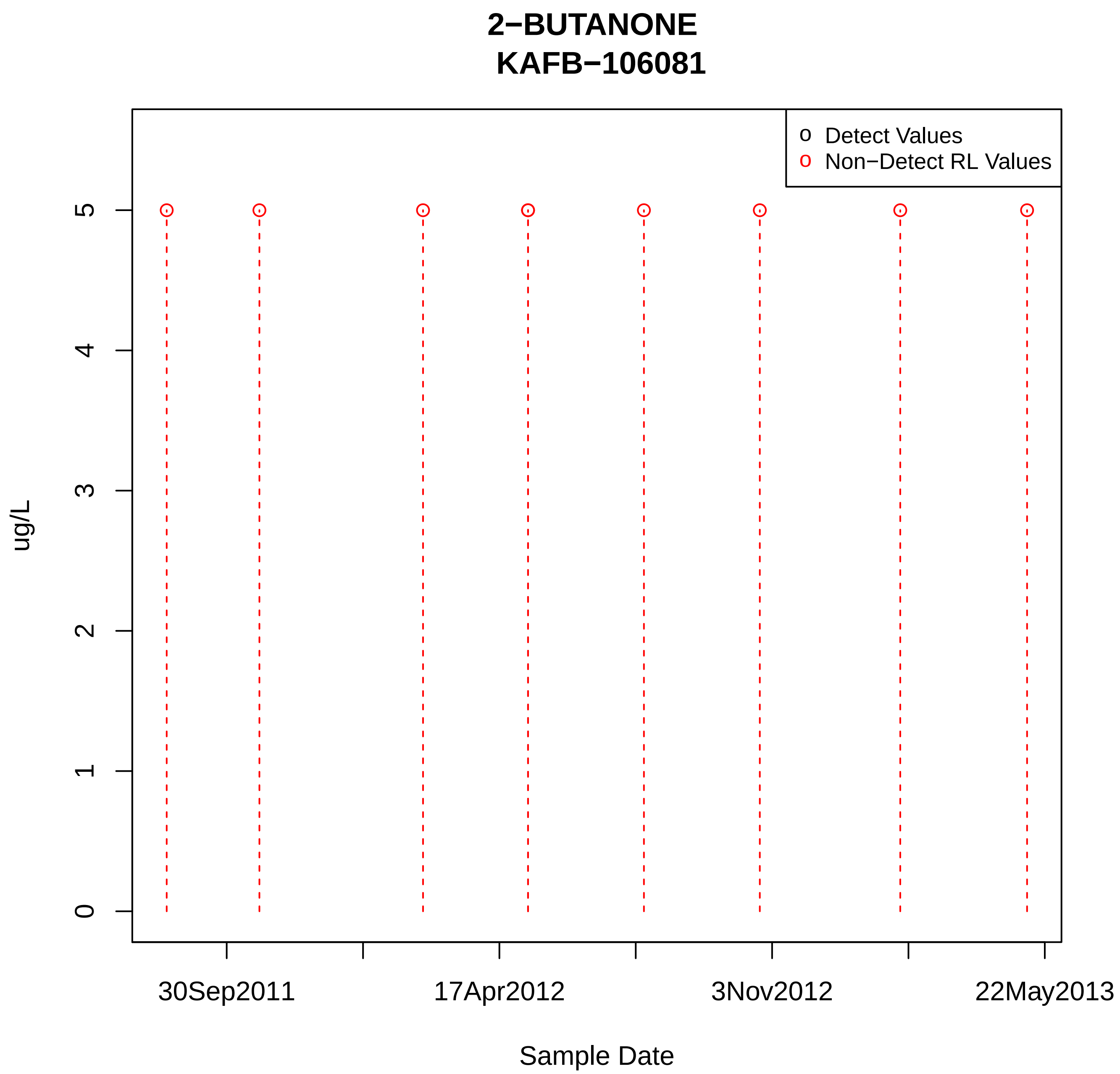
2−BUTANONE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



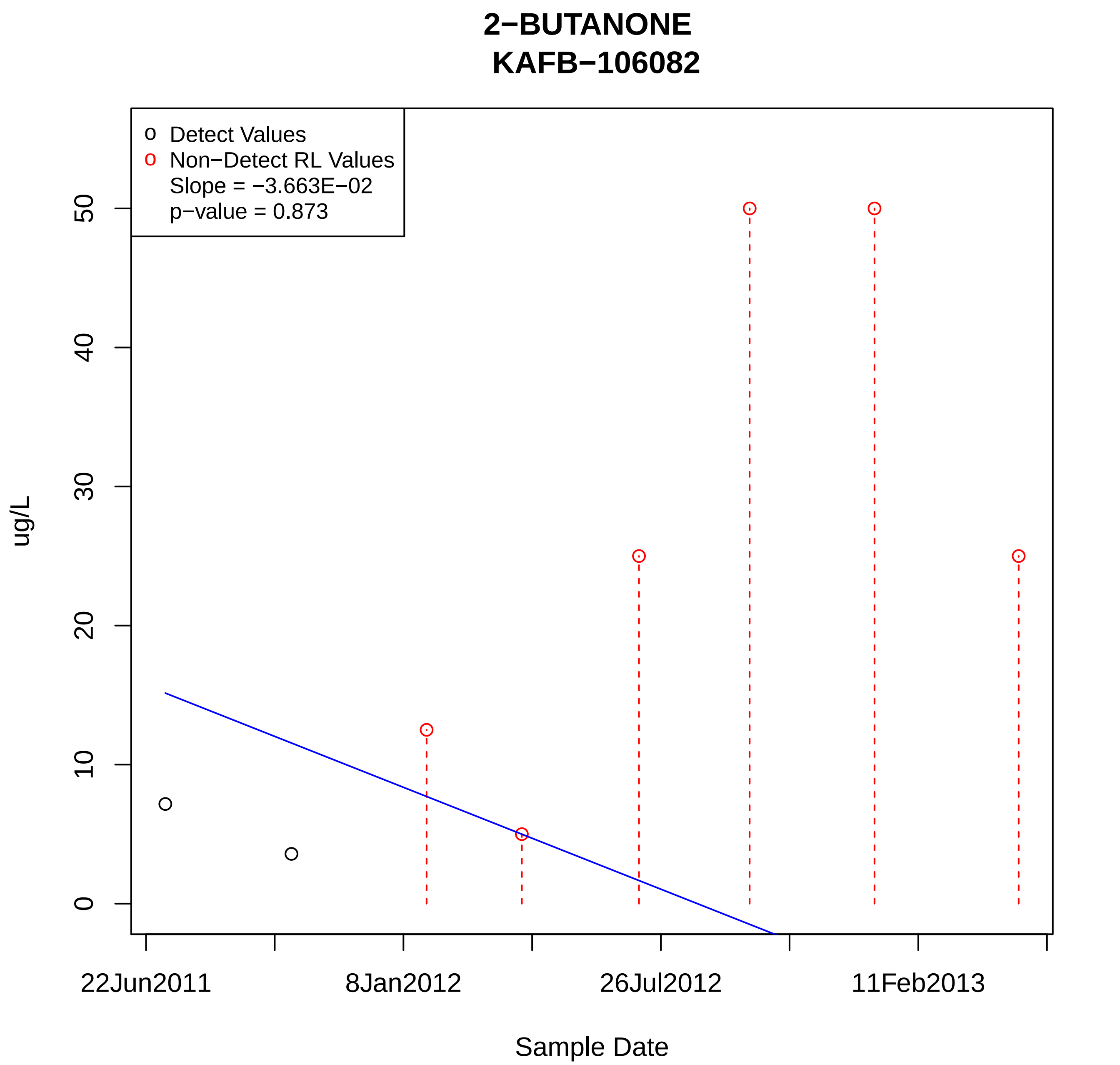
2−BUTANONE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −1.383E+00
p−value = 0.258
ug/L
0
200
400
600
800
1000
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

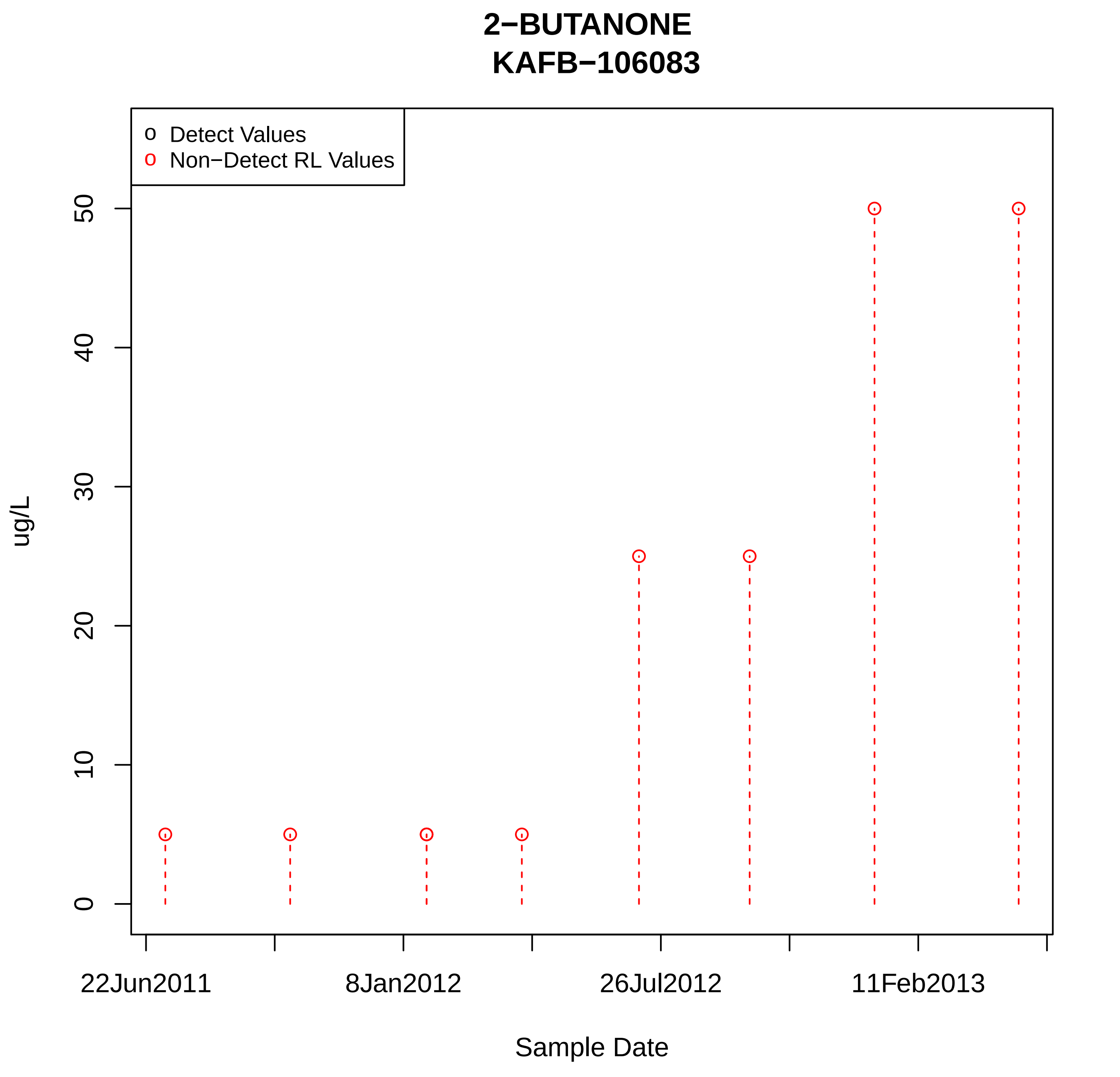


2−BUTANONE
KAFB−106080
o Detect Values
o Non−Detect RL Values
0
50
100
150
200
250
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

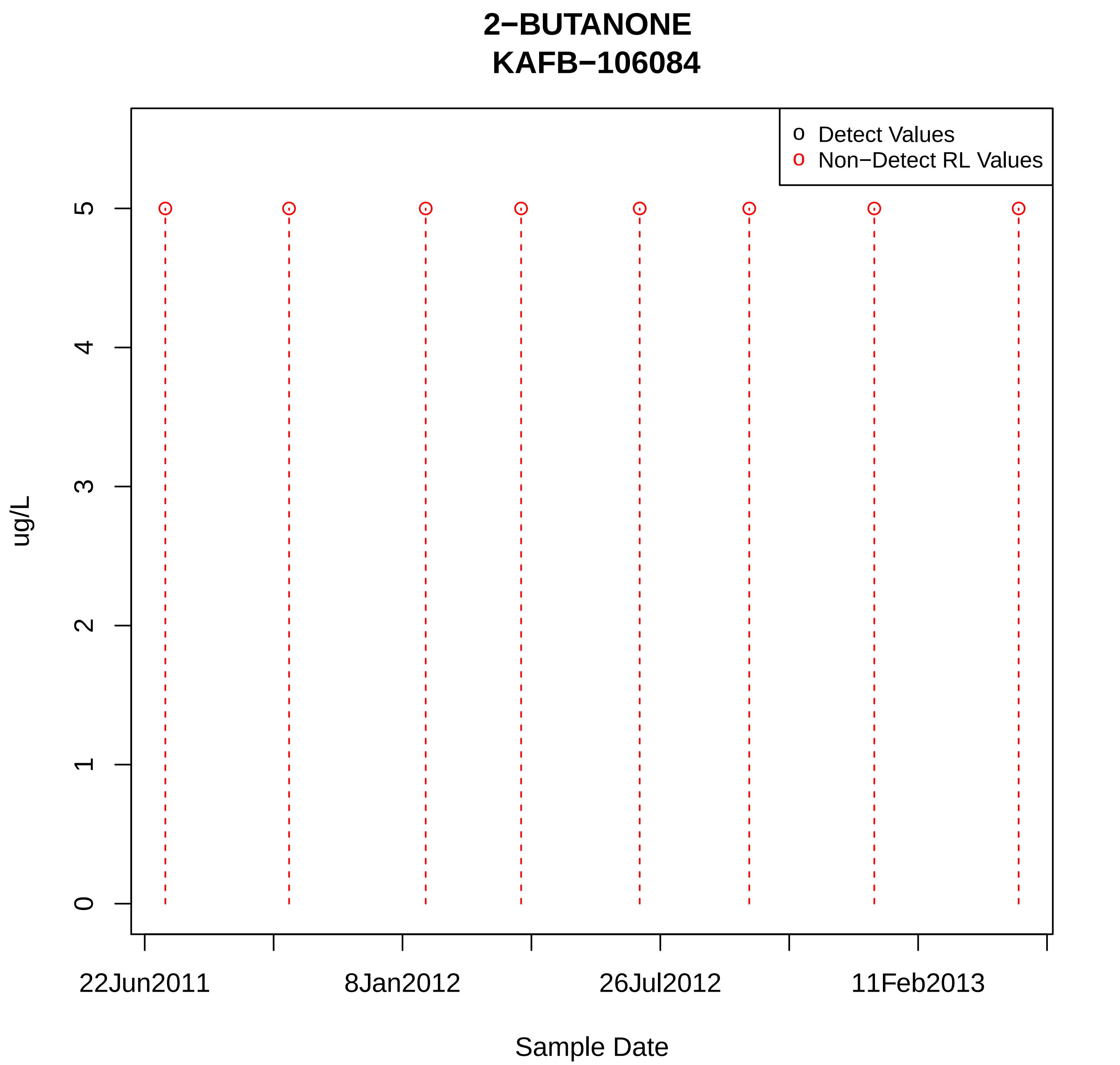


2−BUTANONE
KAFB−106081
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

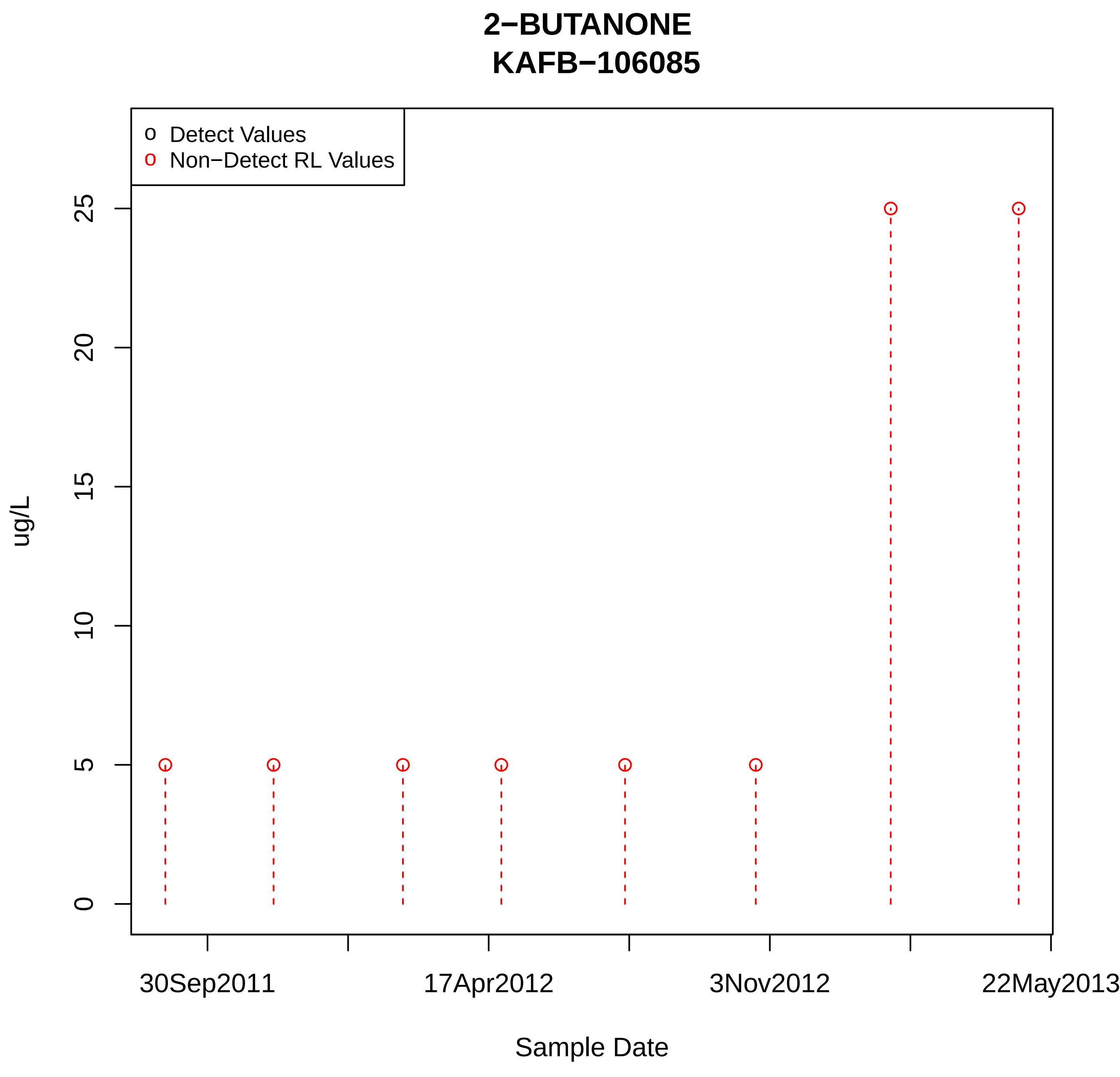

2−BUTANONE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −3.663E−02
p−value = 0.873
0
10
20
30
40
50
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



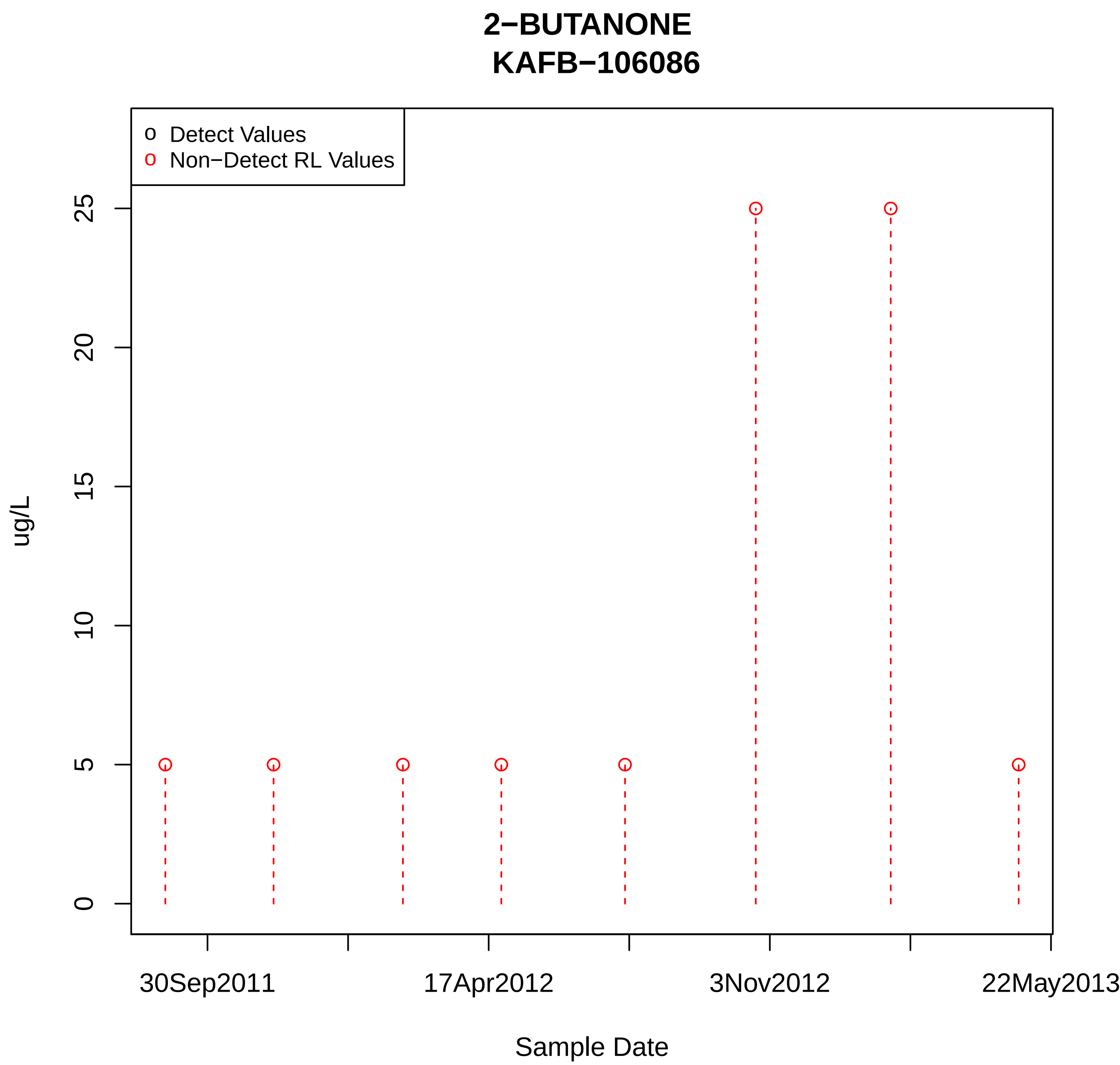
2−BUTANONE
KAFB−106083
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



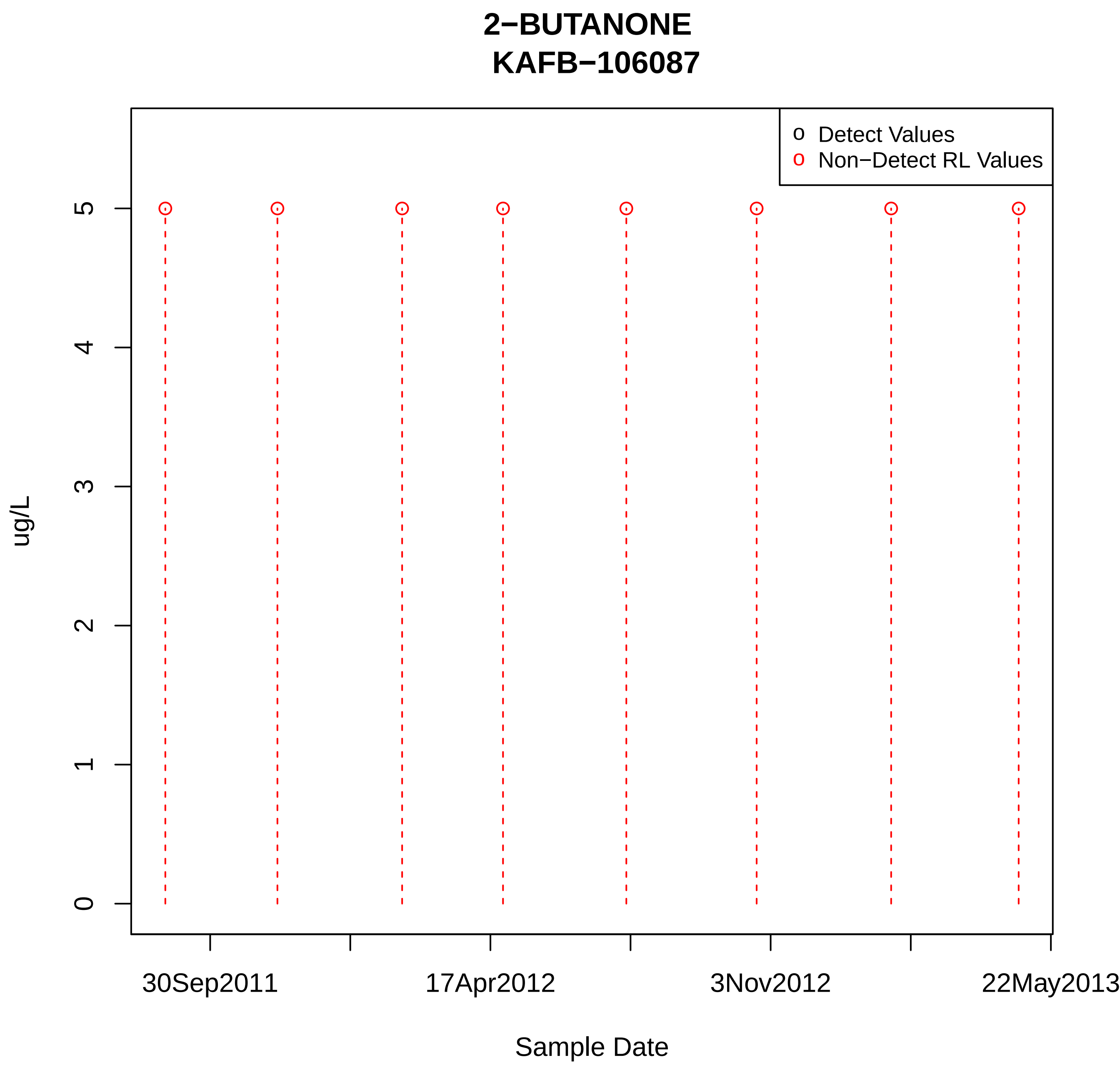
2−BUTANONE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

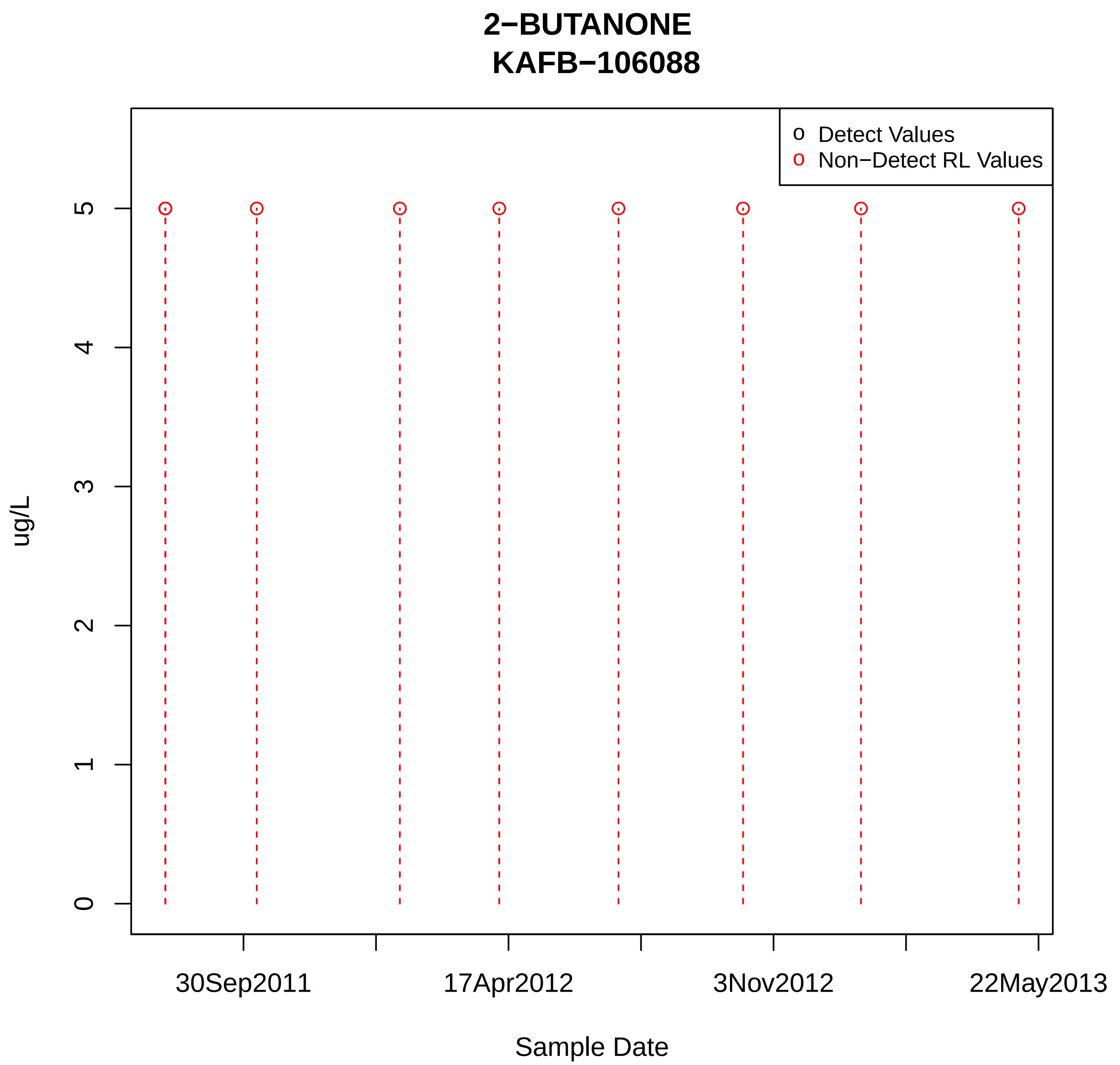


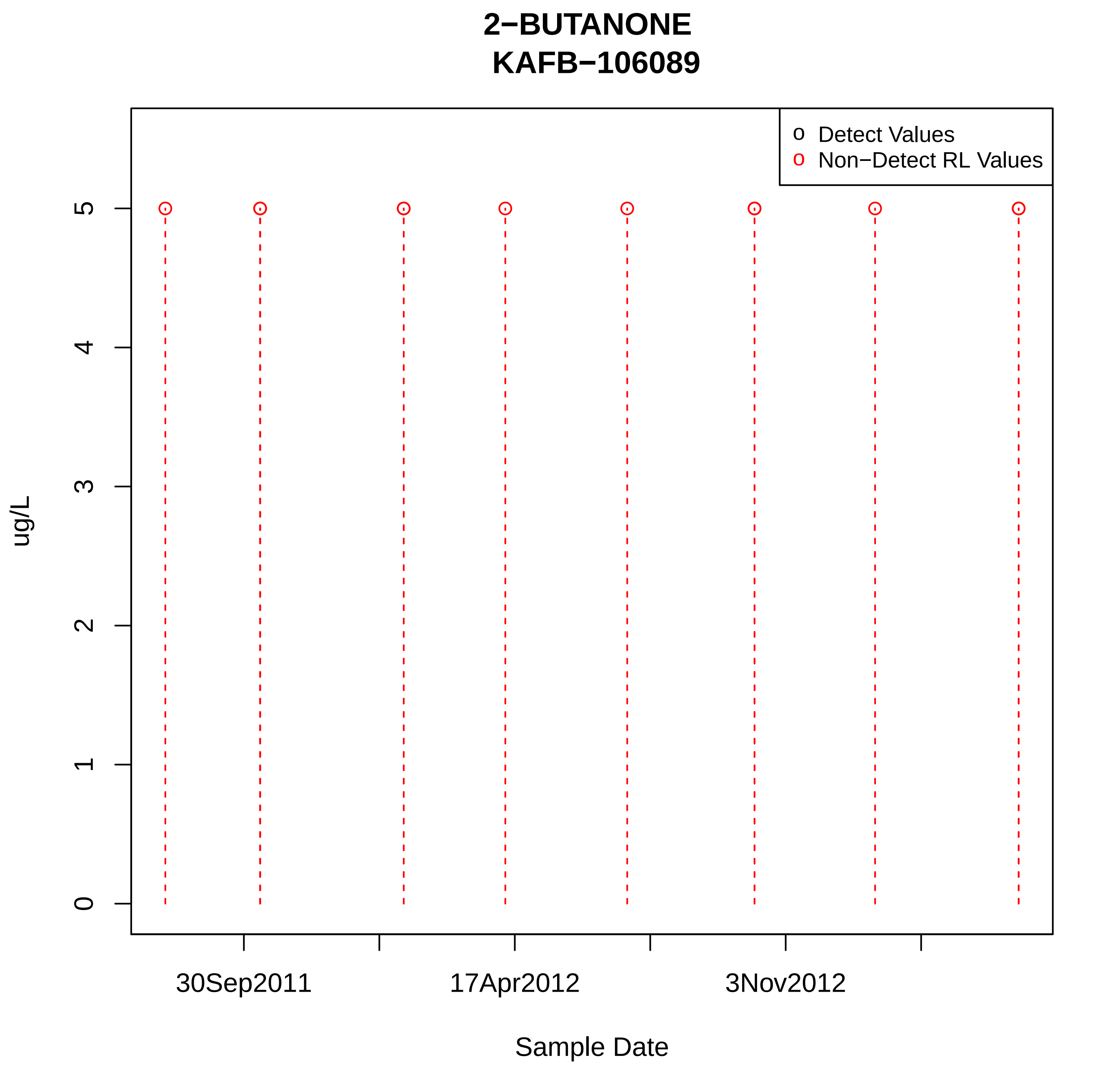
2−BUTANONE
KAFB−106085
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



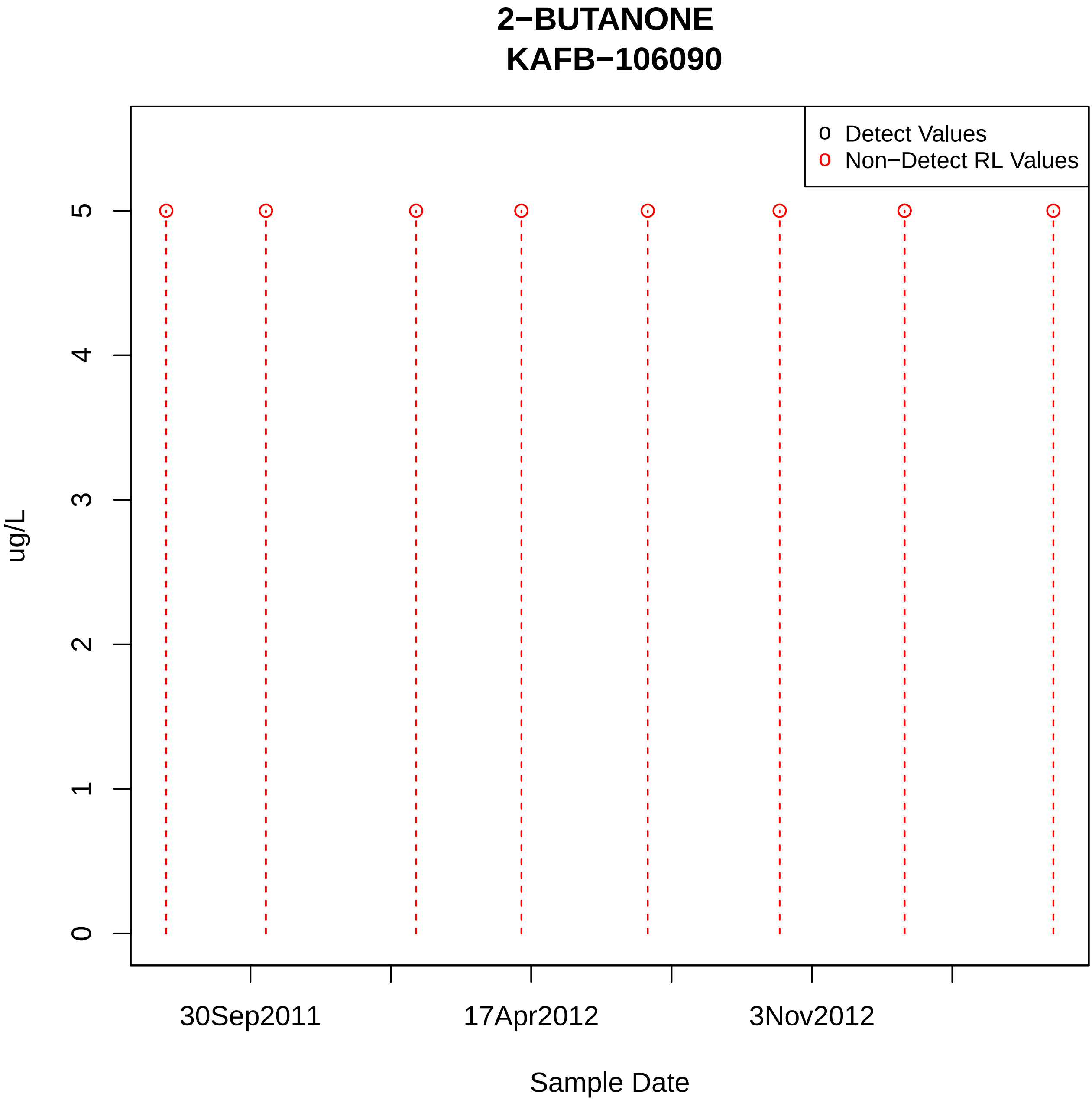
2−BUTANONE
KAFB−106086
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106087
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

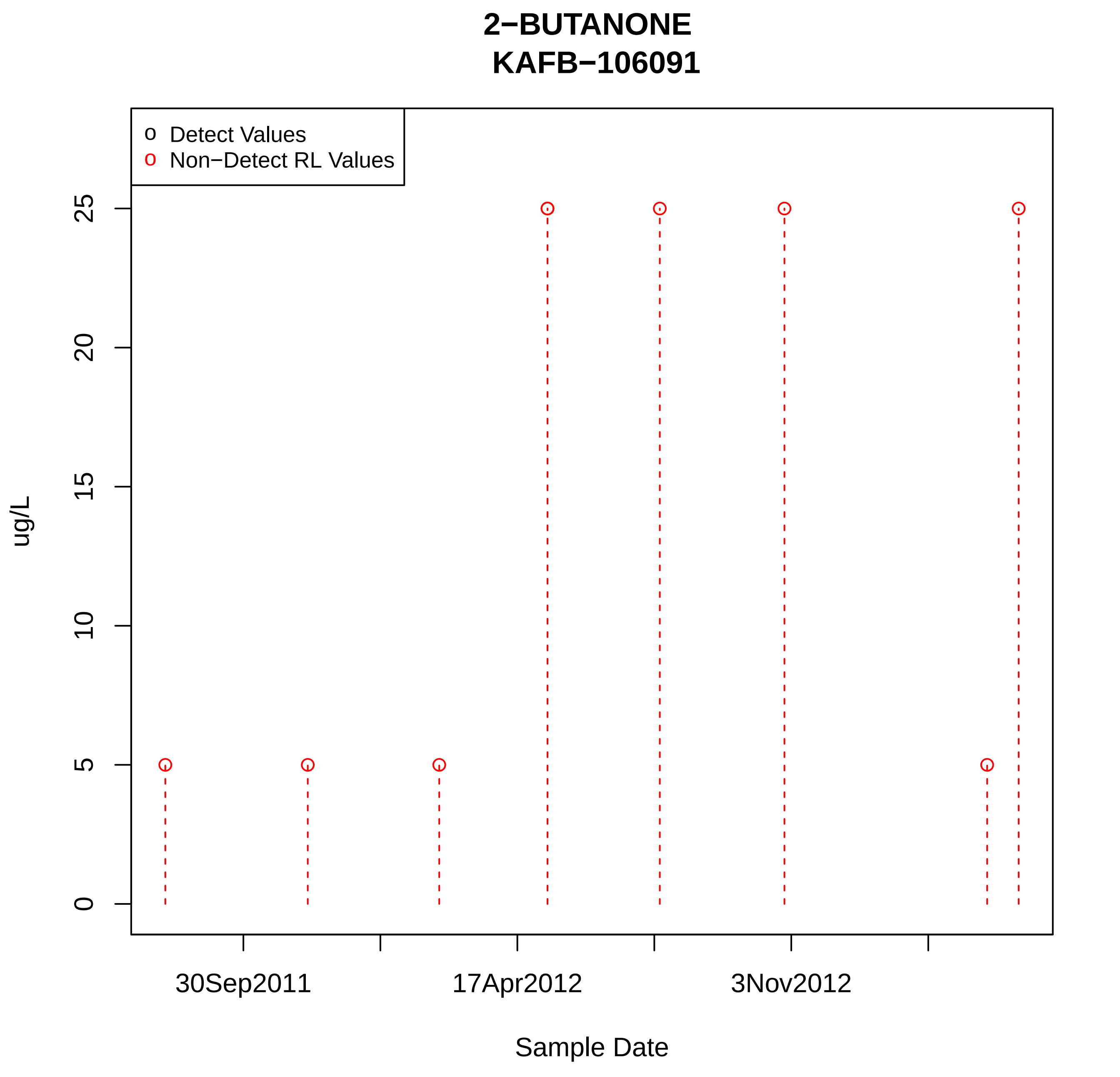

2−BUTANONE
KAFB−106088
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

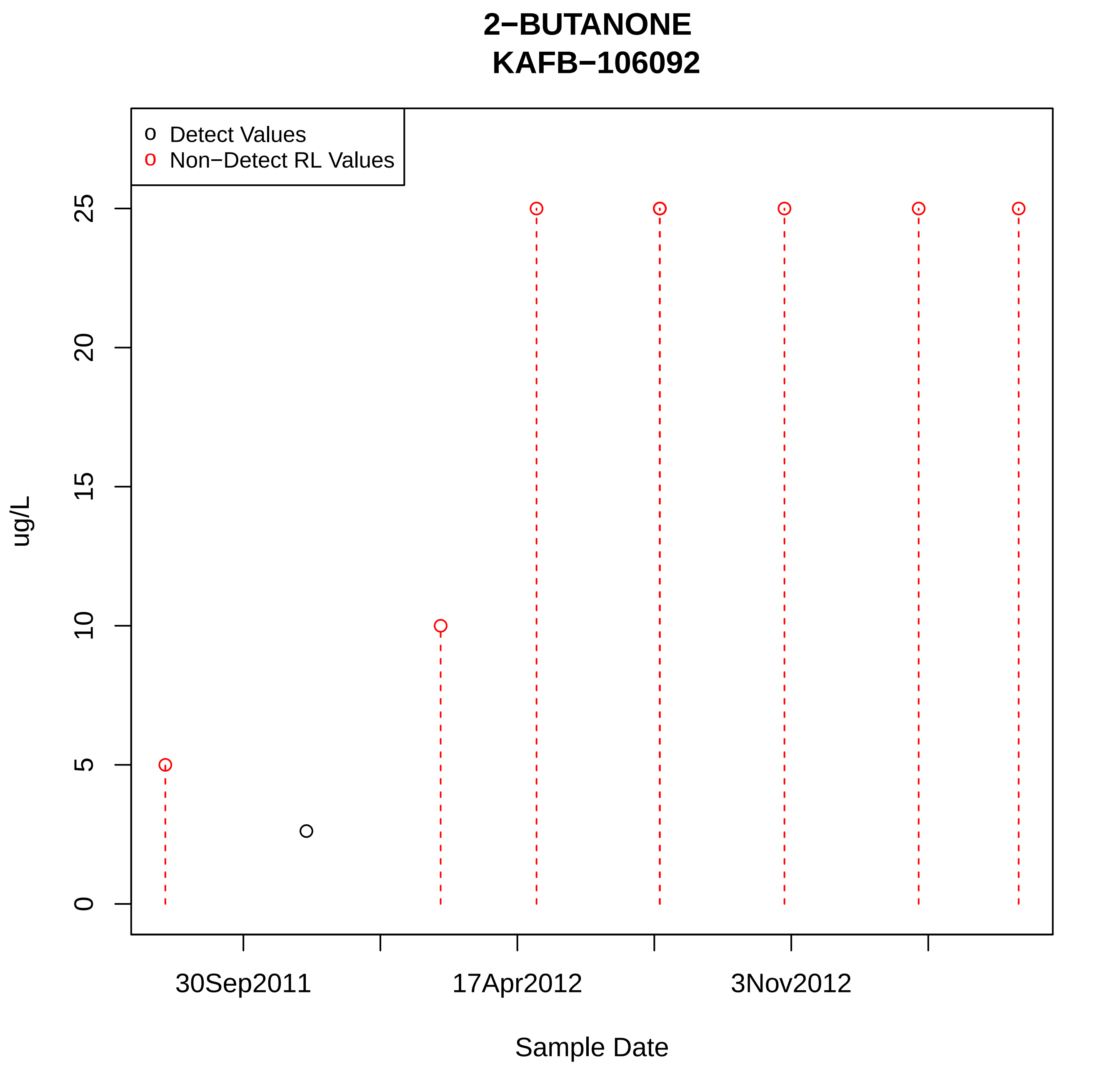


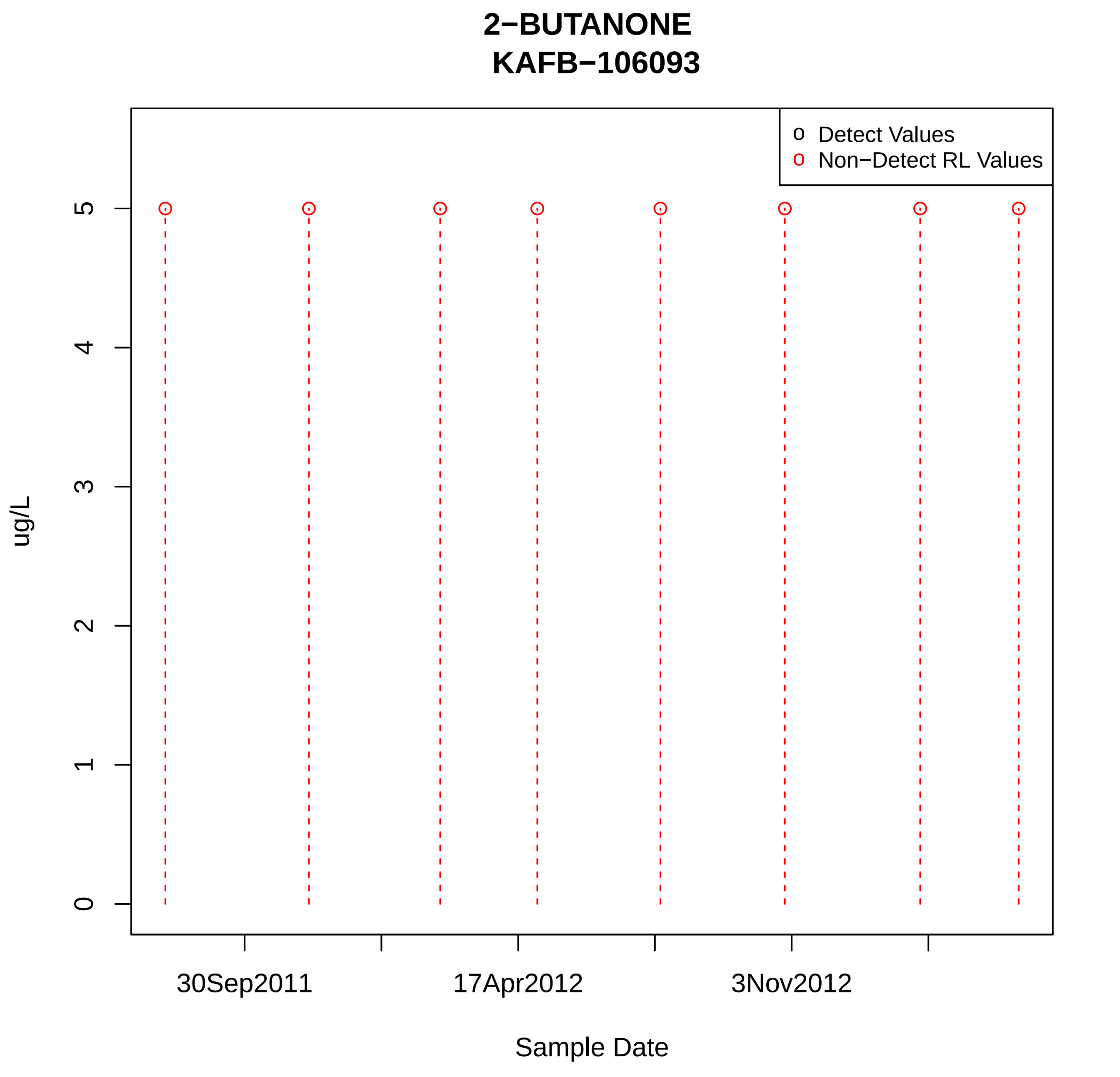
2−BUTANONE
KAFB−106089
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



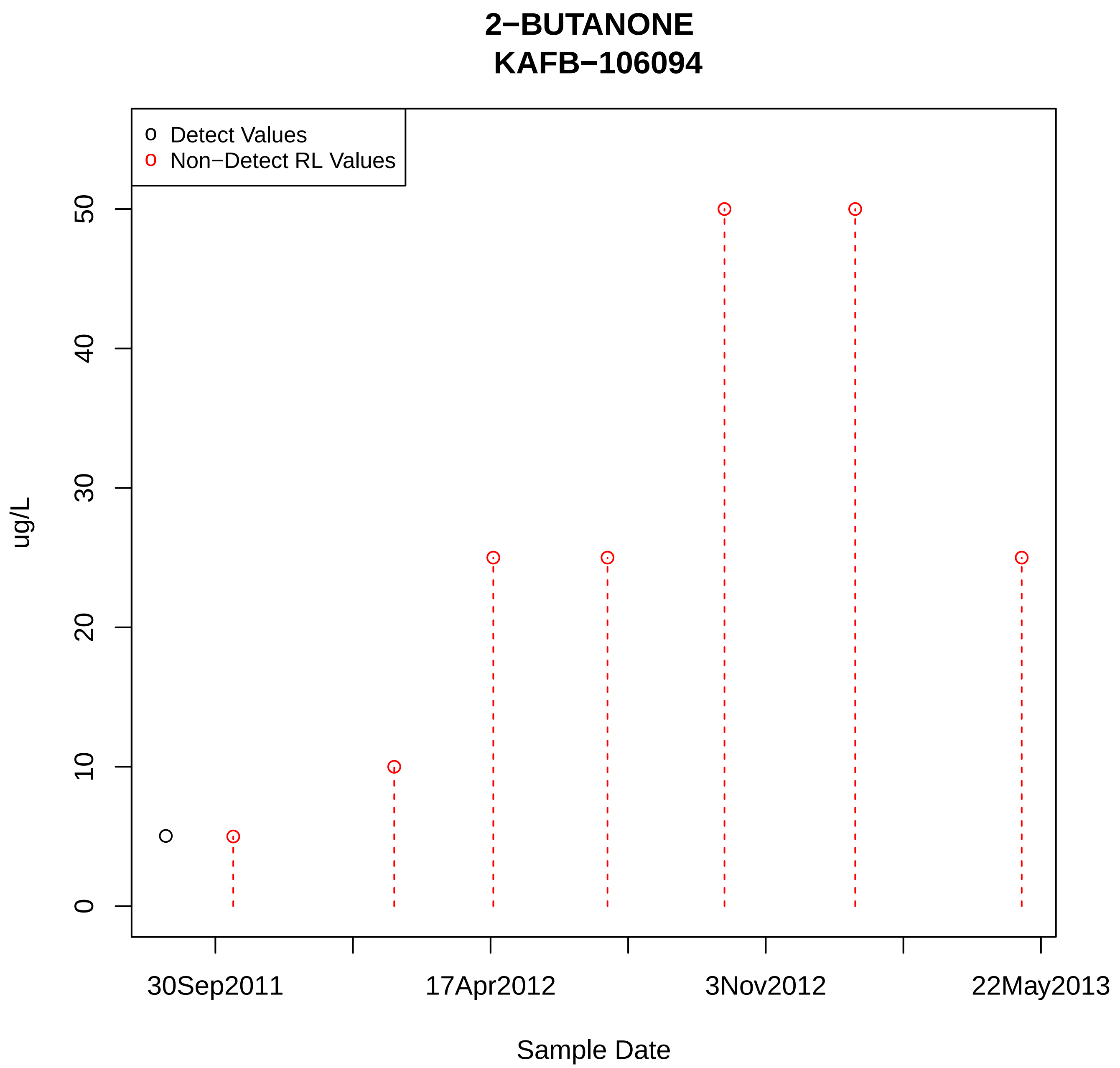
2−BUTANONE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−BUTANONE
KAFB−106091
o Detect Values
o Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
Sample Date

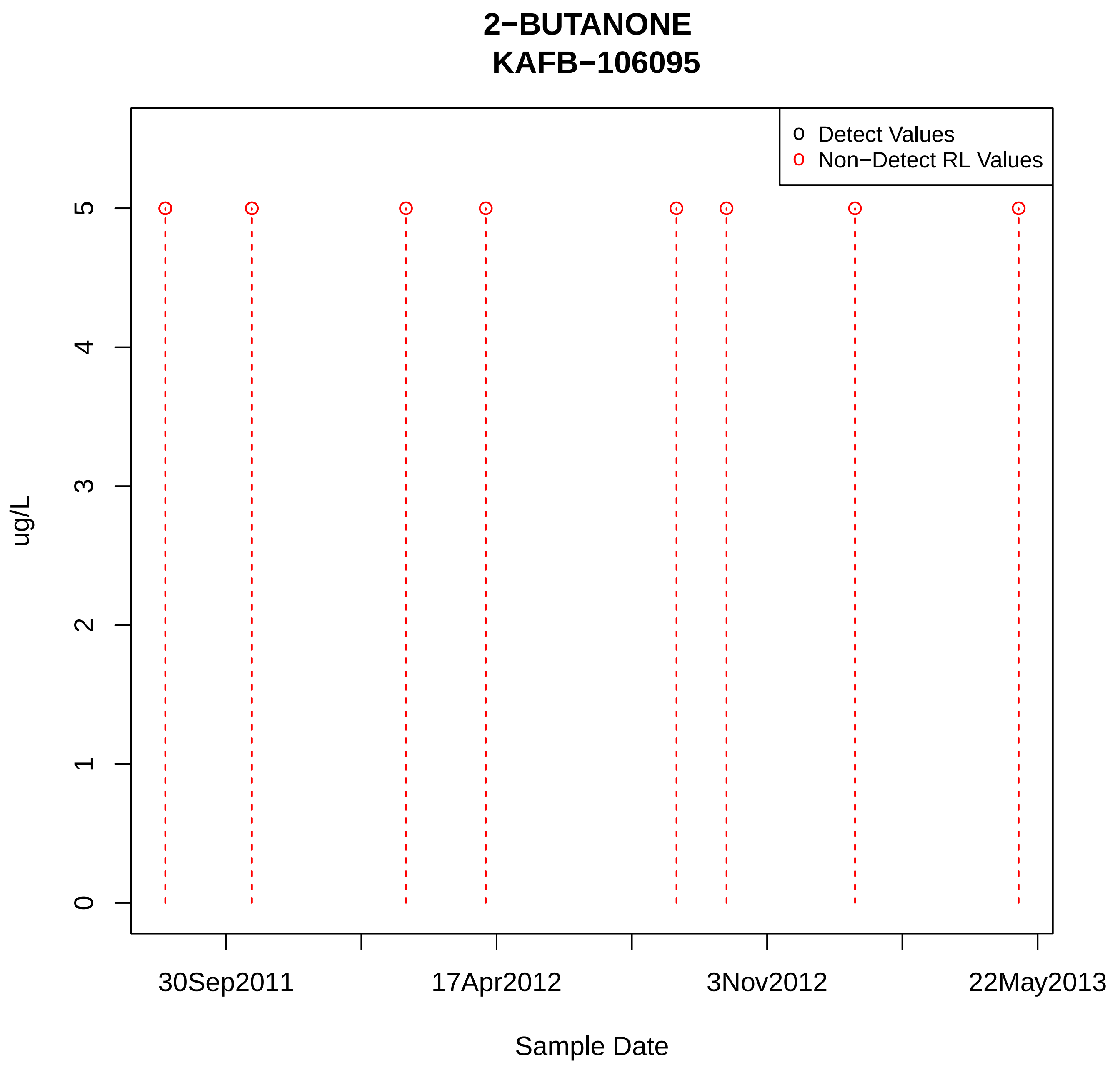

2−BUTANONE
KAFB−106092
Detect Values
Non−Detect RL Values
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
Sample Date

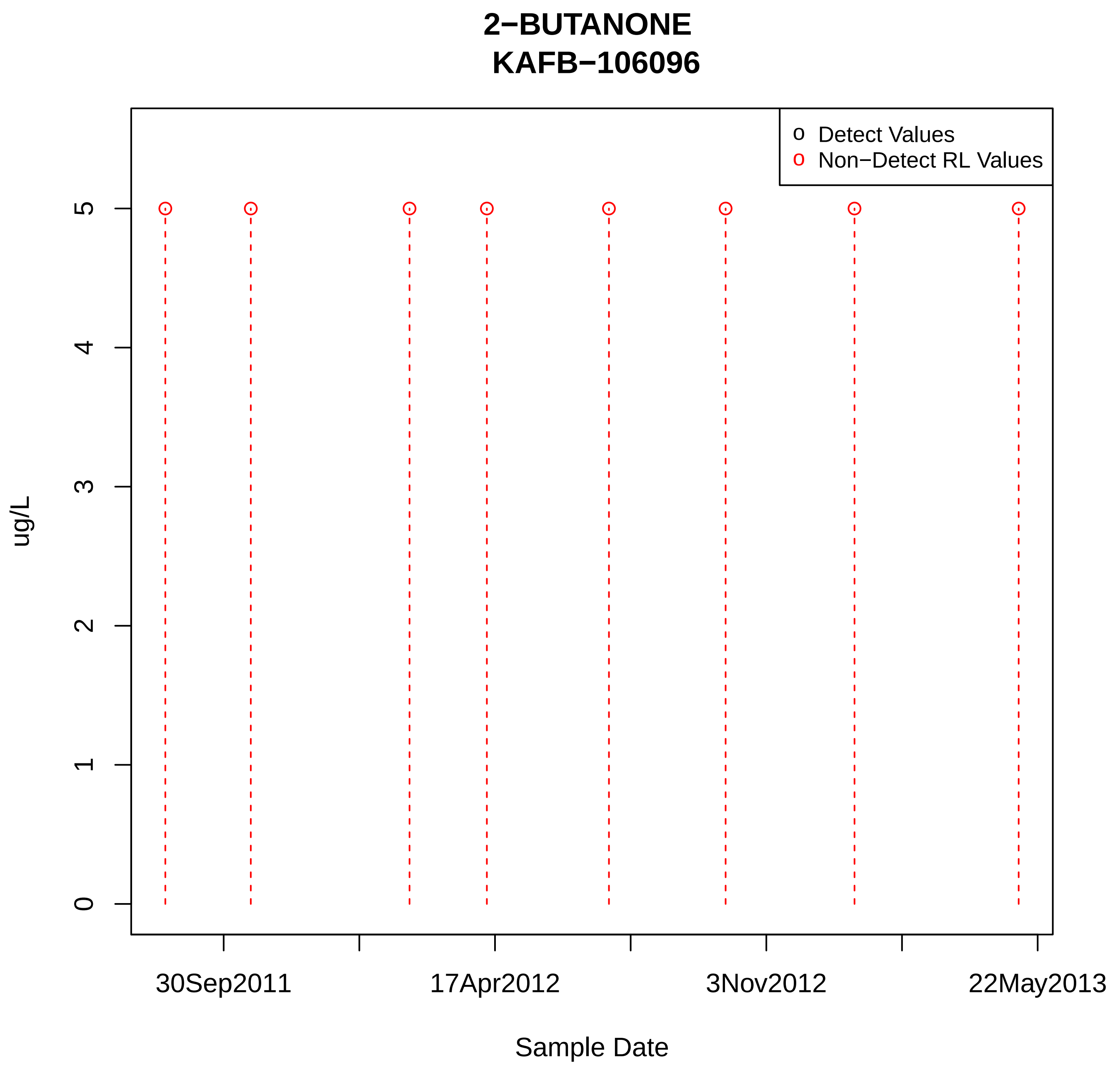


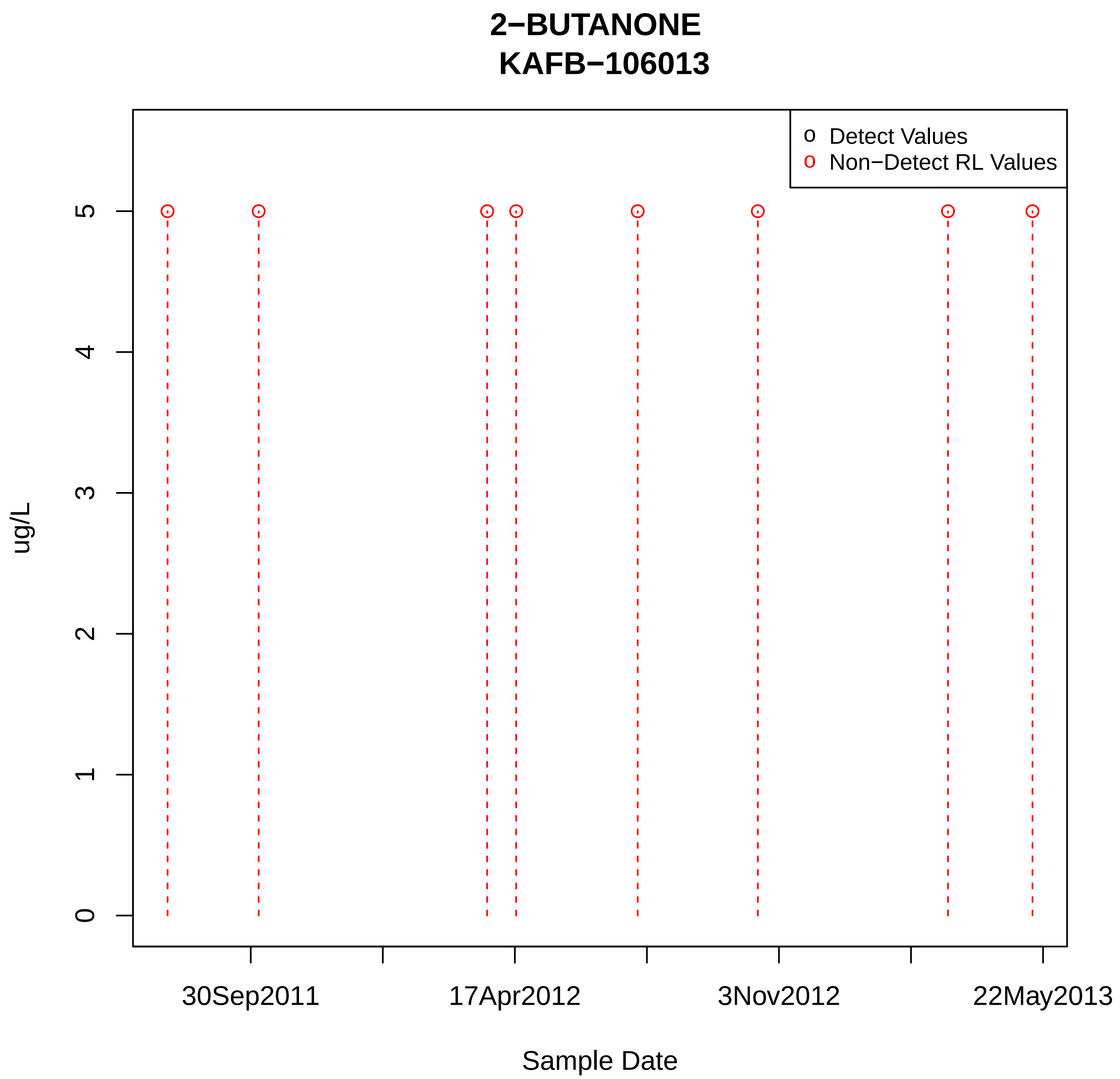
2−BUTANONE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

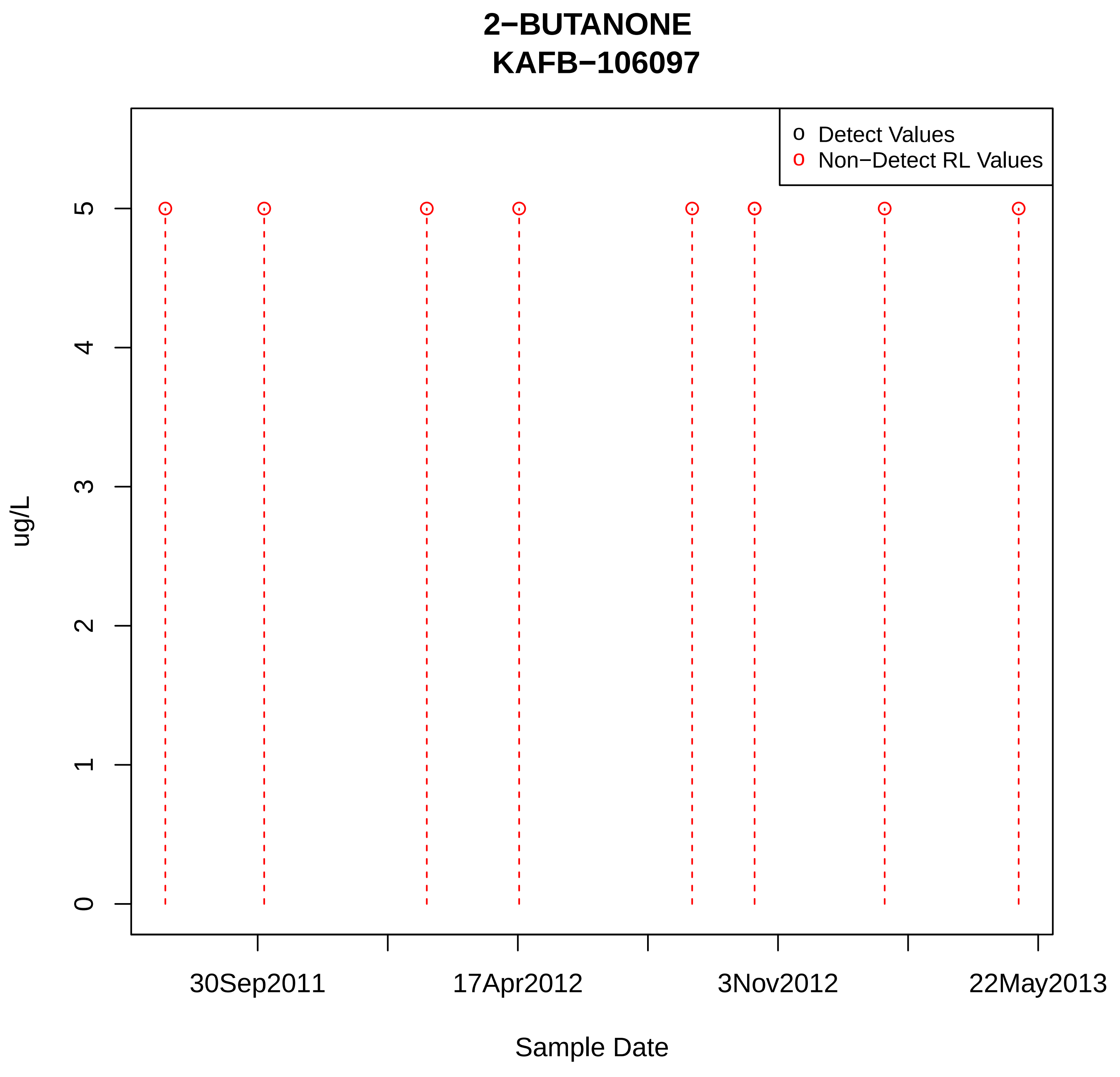


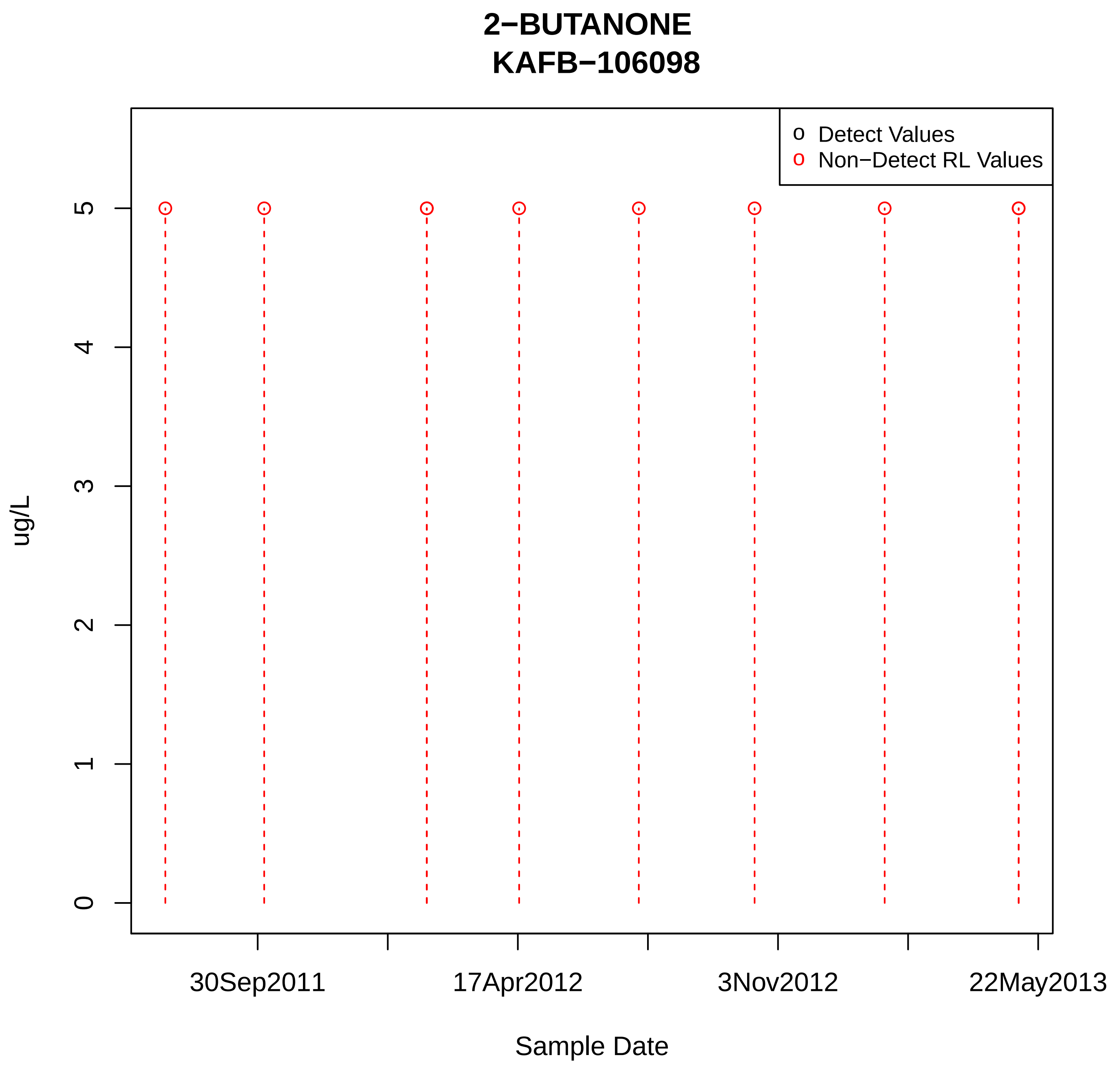
2−BUTANONE
KAFB−106094
o Detect Values
o Non−Detect RL Values
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

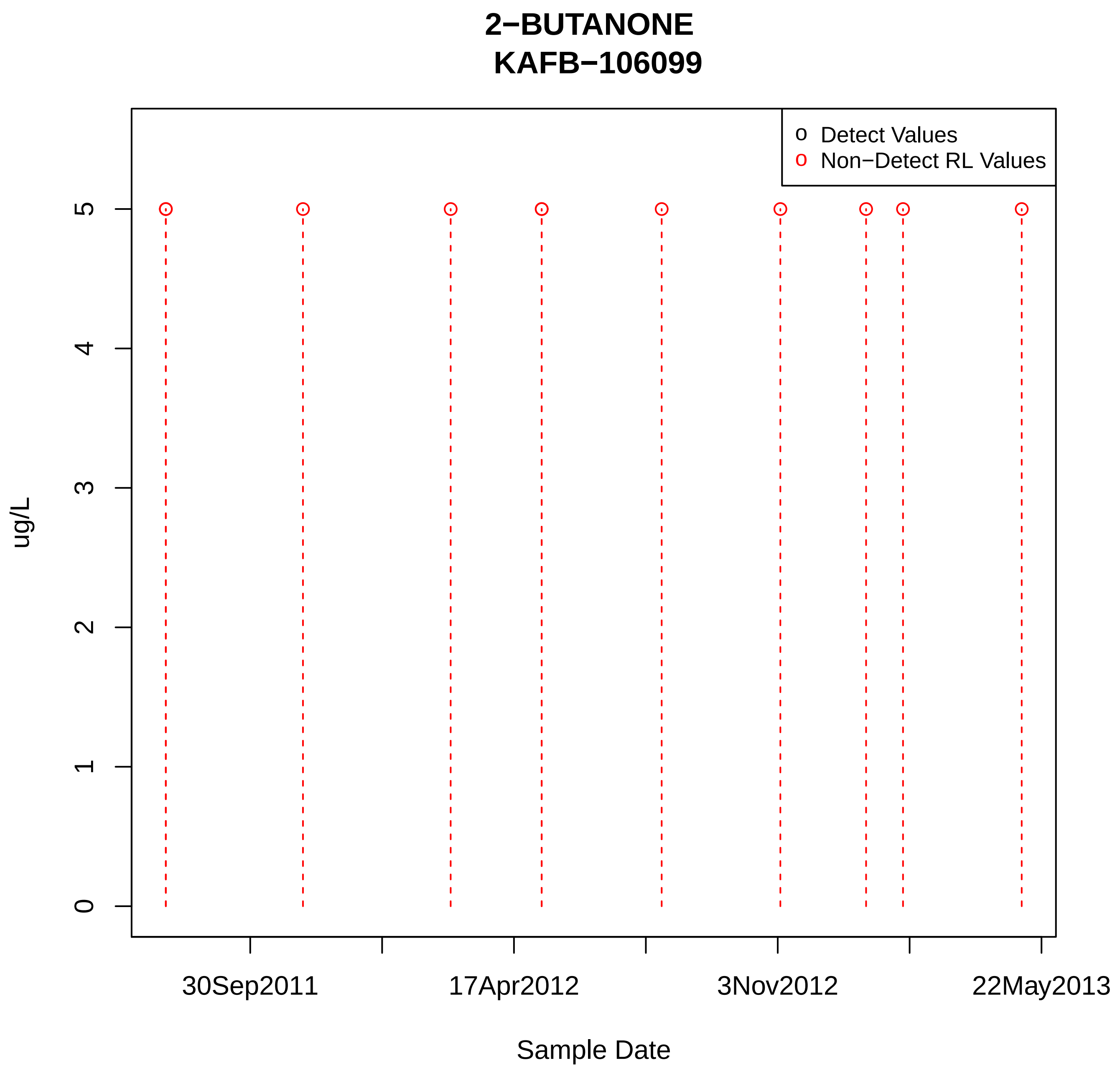

2−BUTANONE
KAFB−106095
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

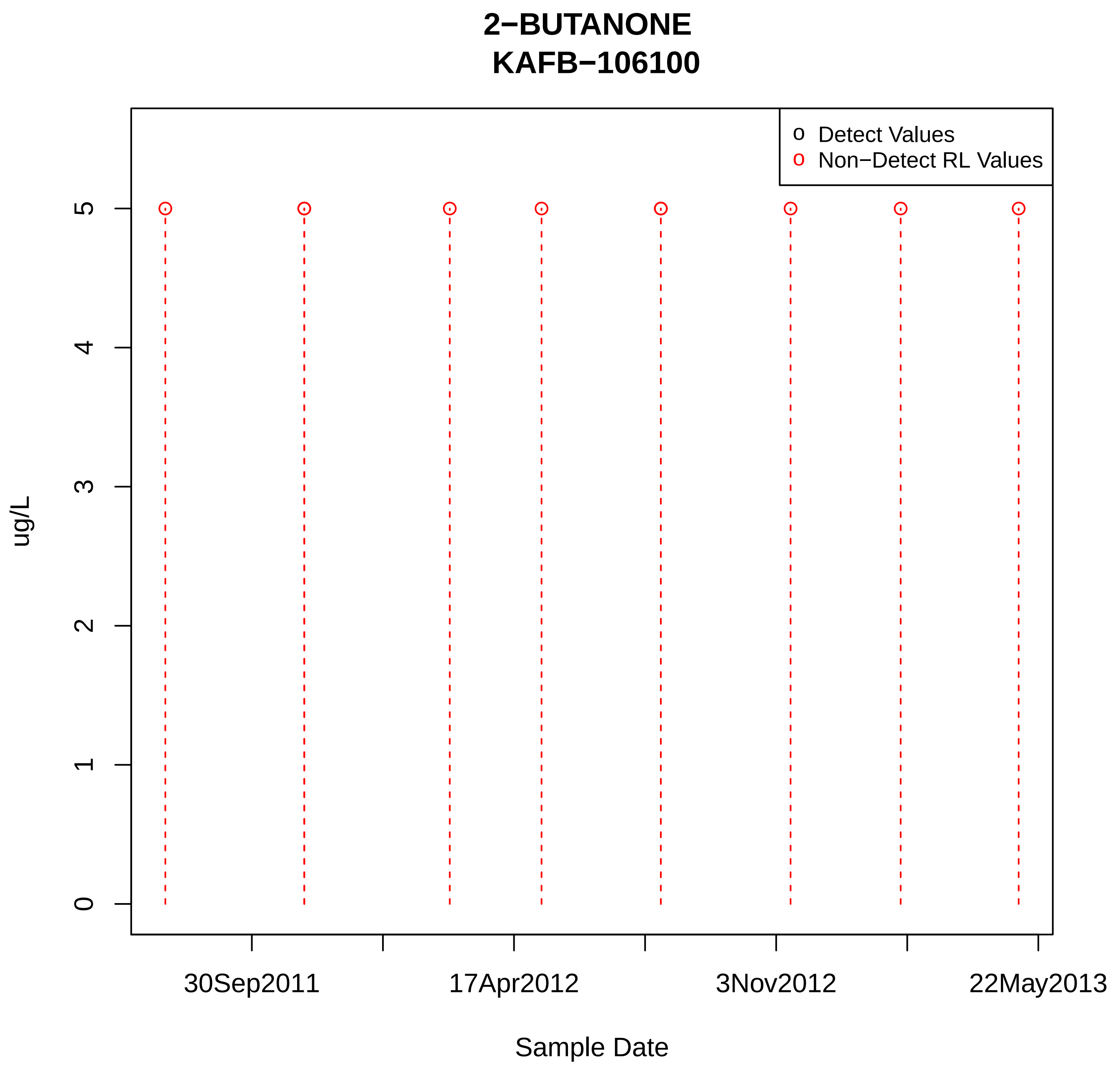

2−BUTANONE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


2−BUTANONE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

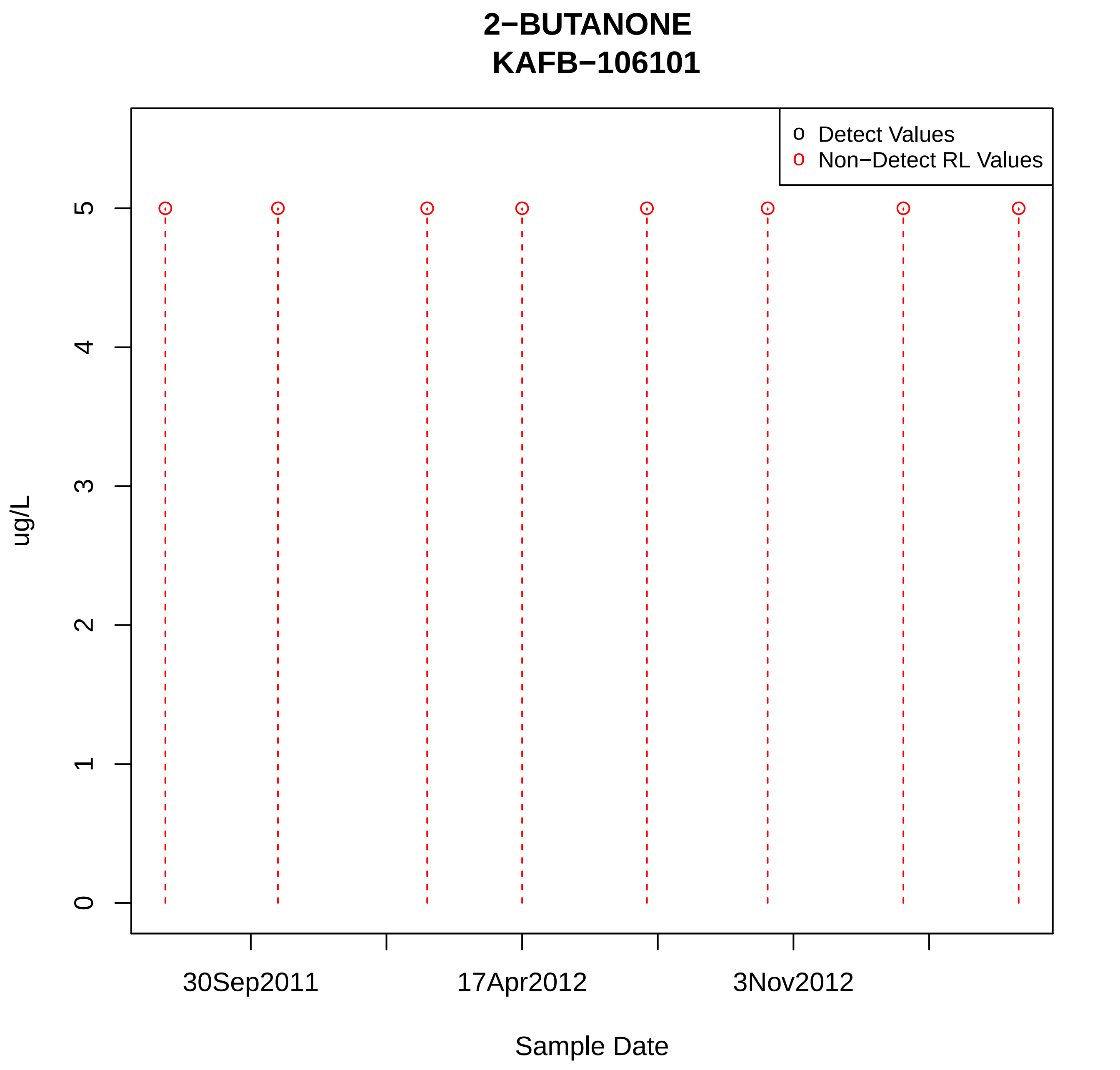

2−BUTANONE
KAFB−106098
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

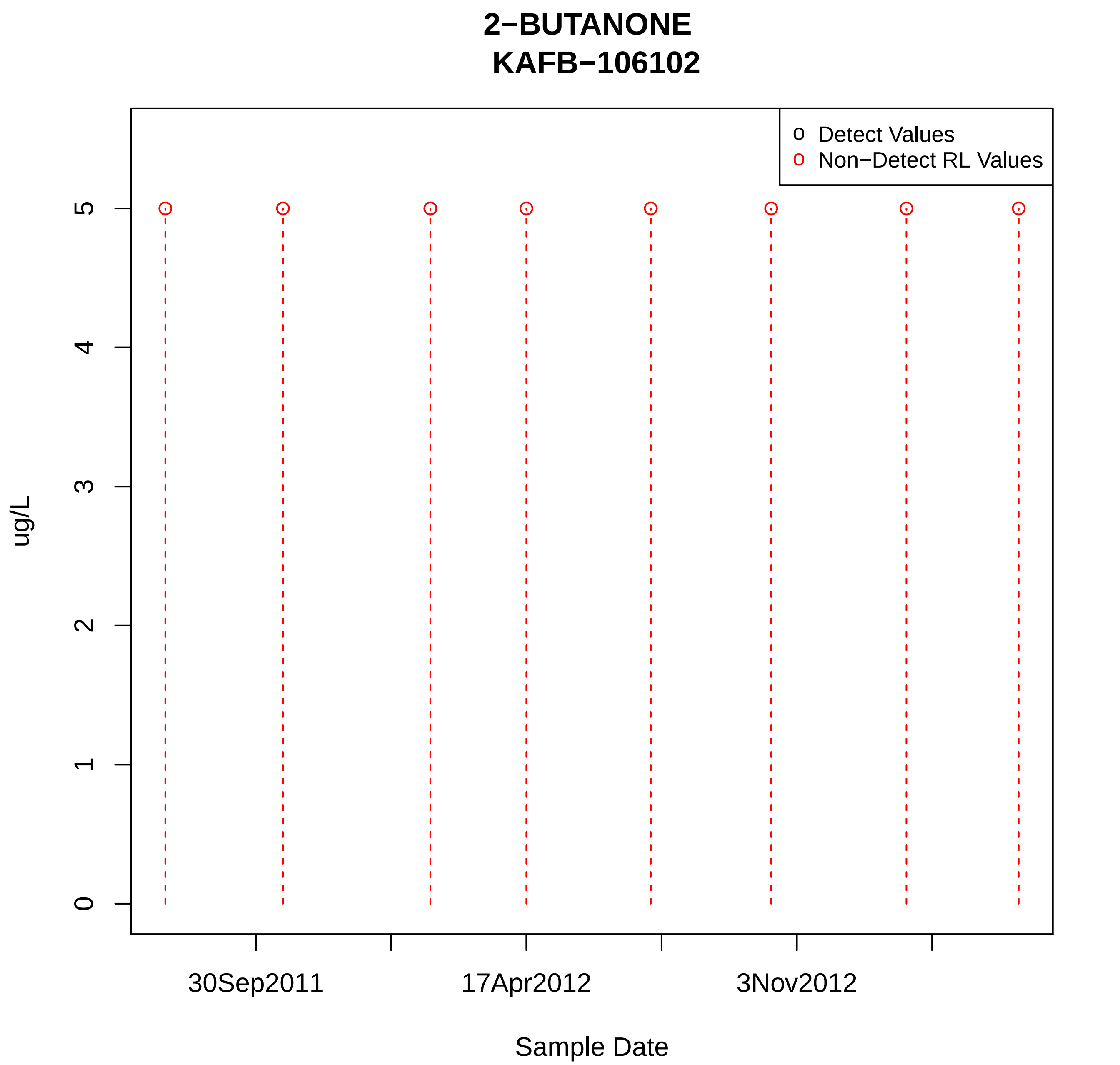


2−BUTANONE
KAFB−106099
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

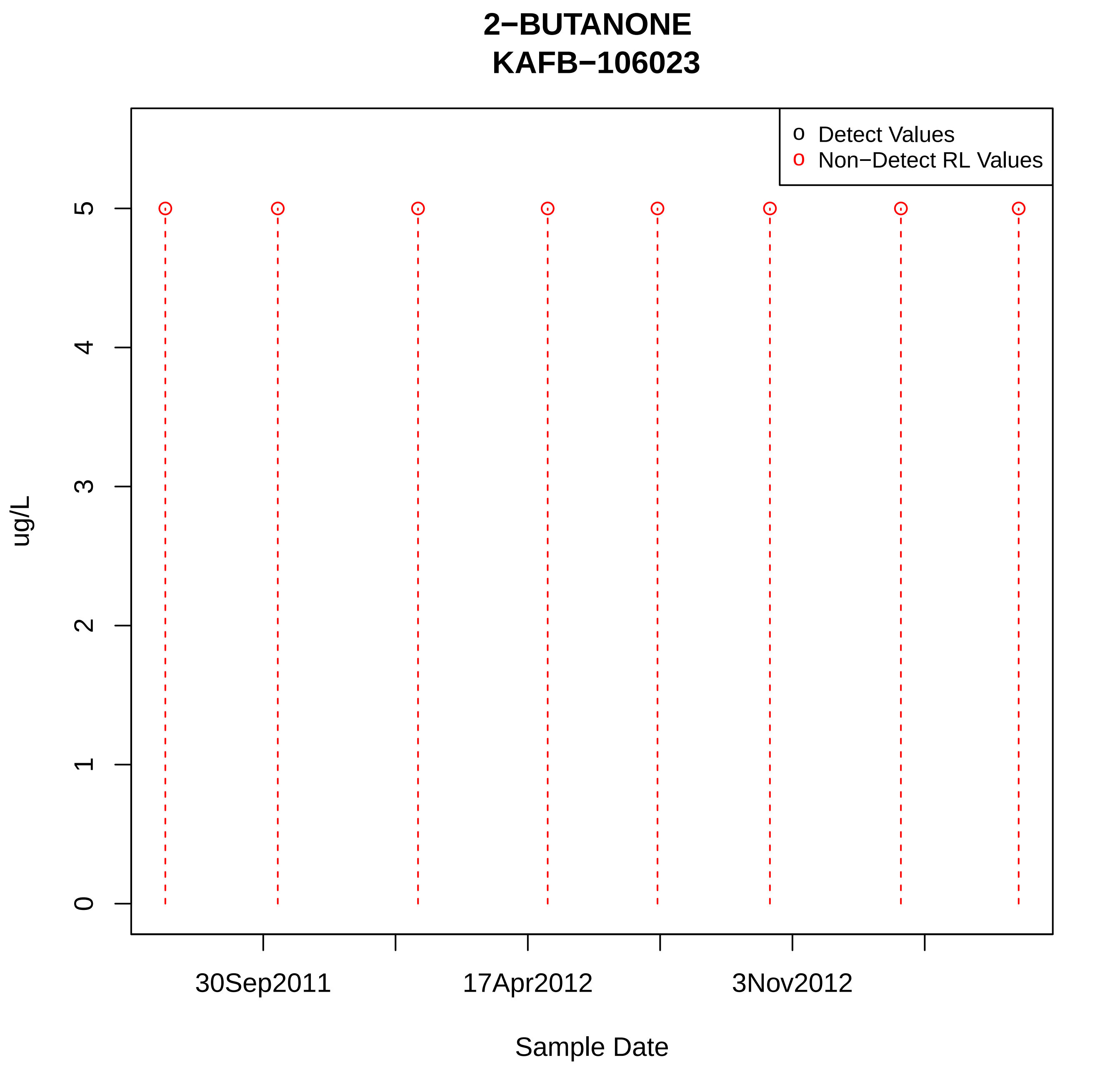


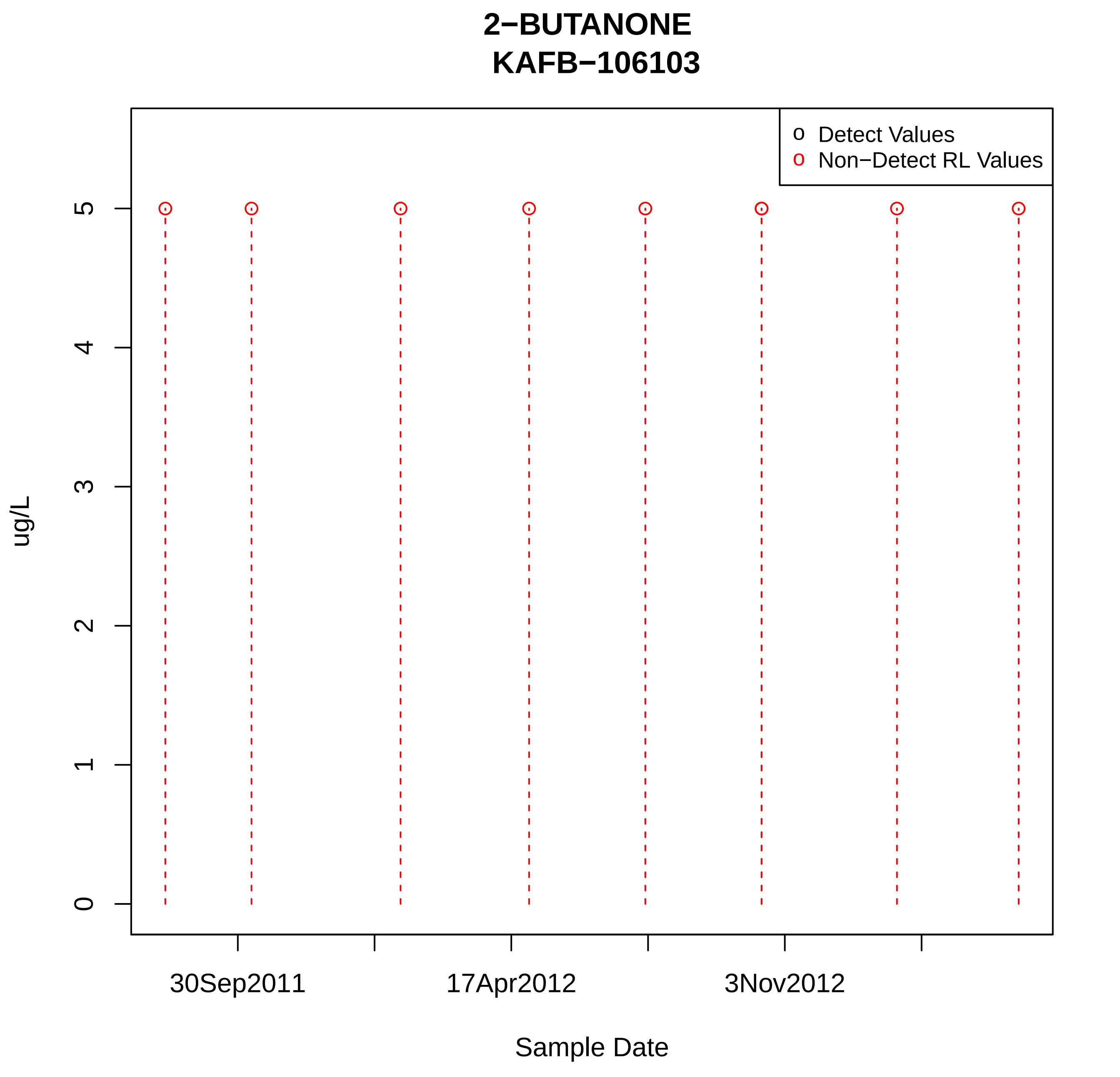
2−BUTANONE
KAFB−106100
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

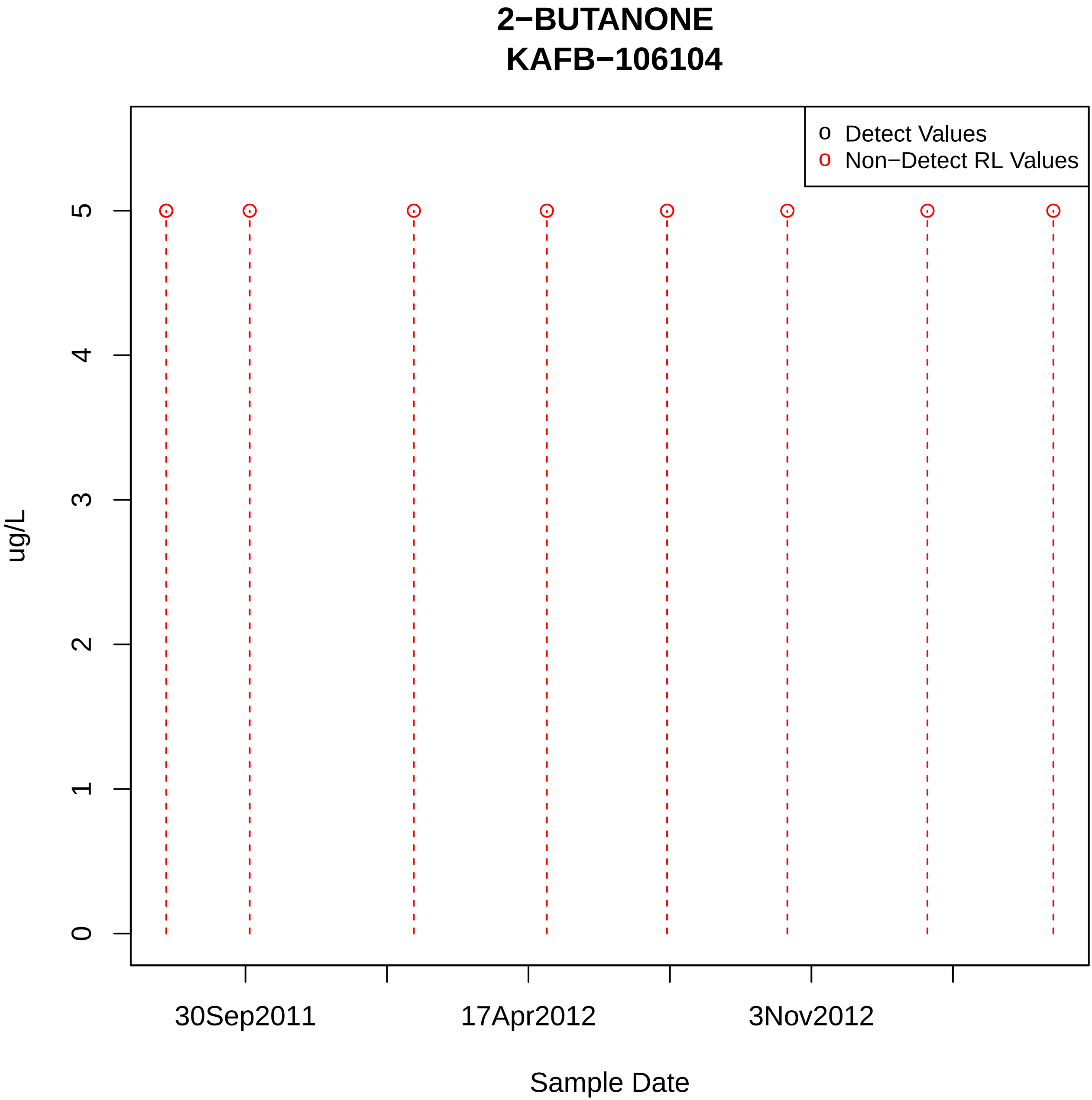

2−BUTANONE
KAFB−106101
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



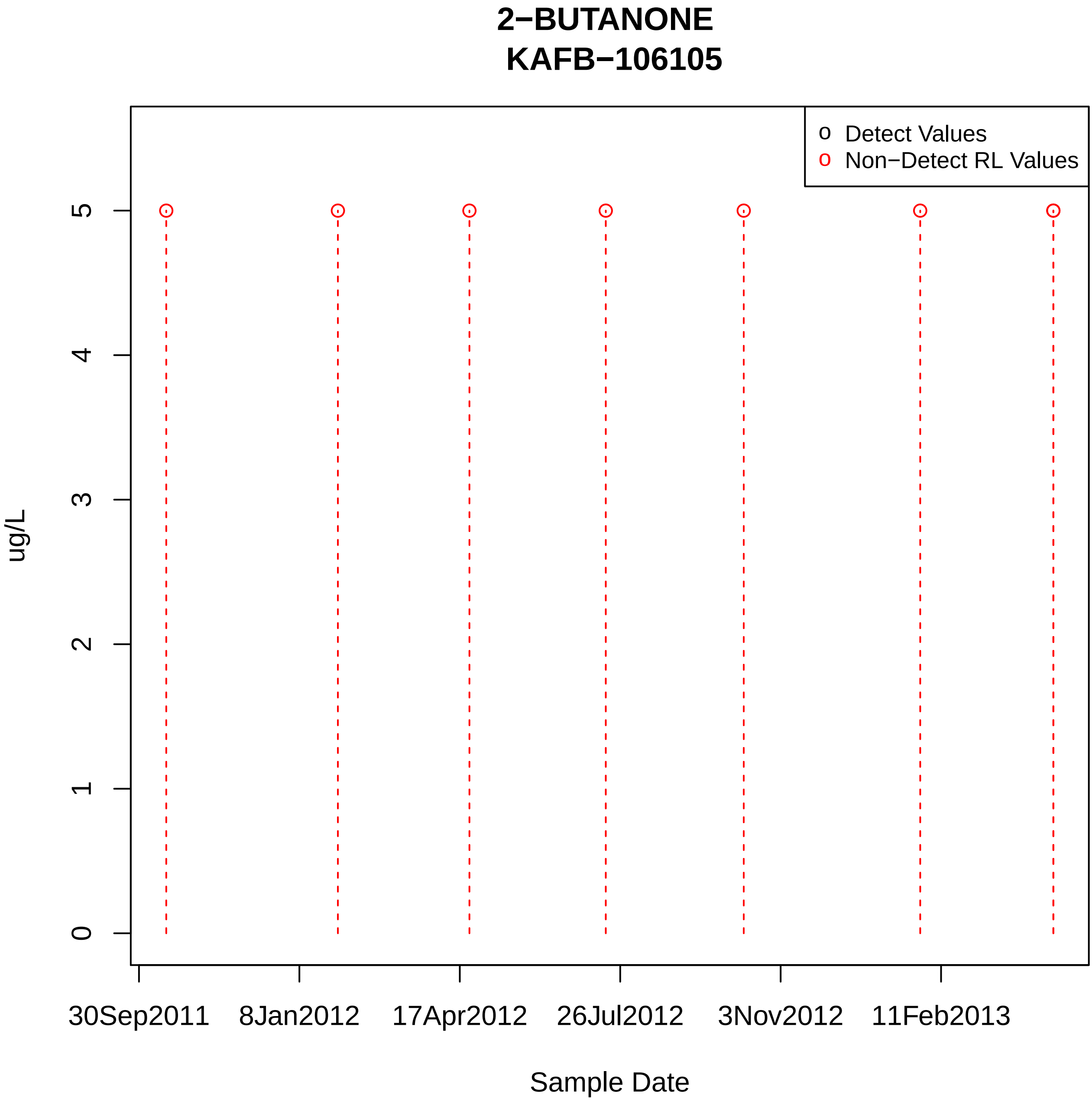
2−BUTANONE
KAFB−106102
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

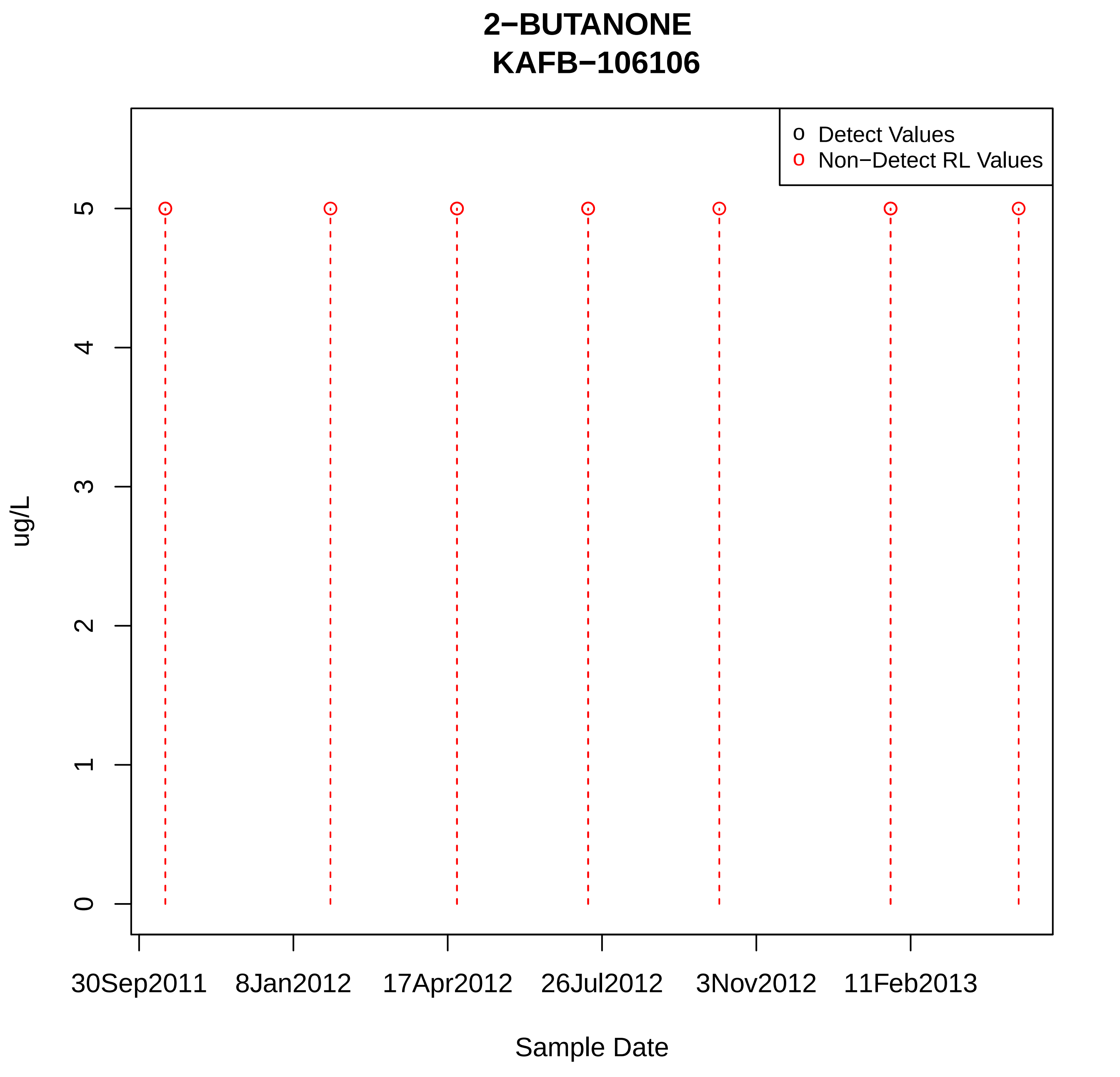

2−BUTANONE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

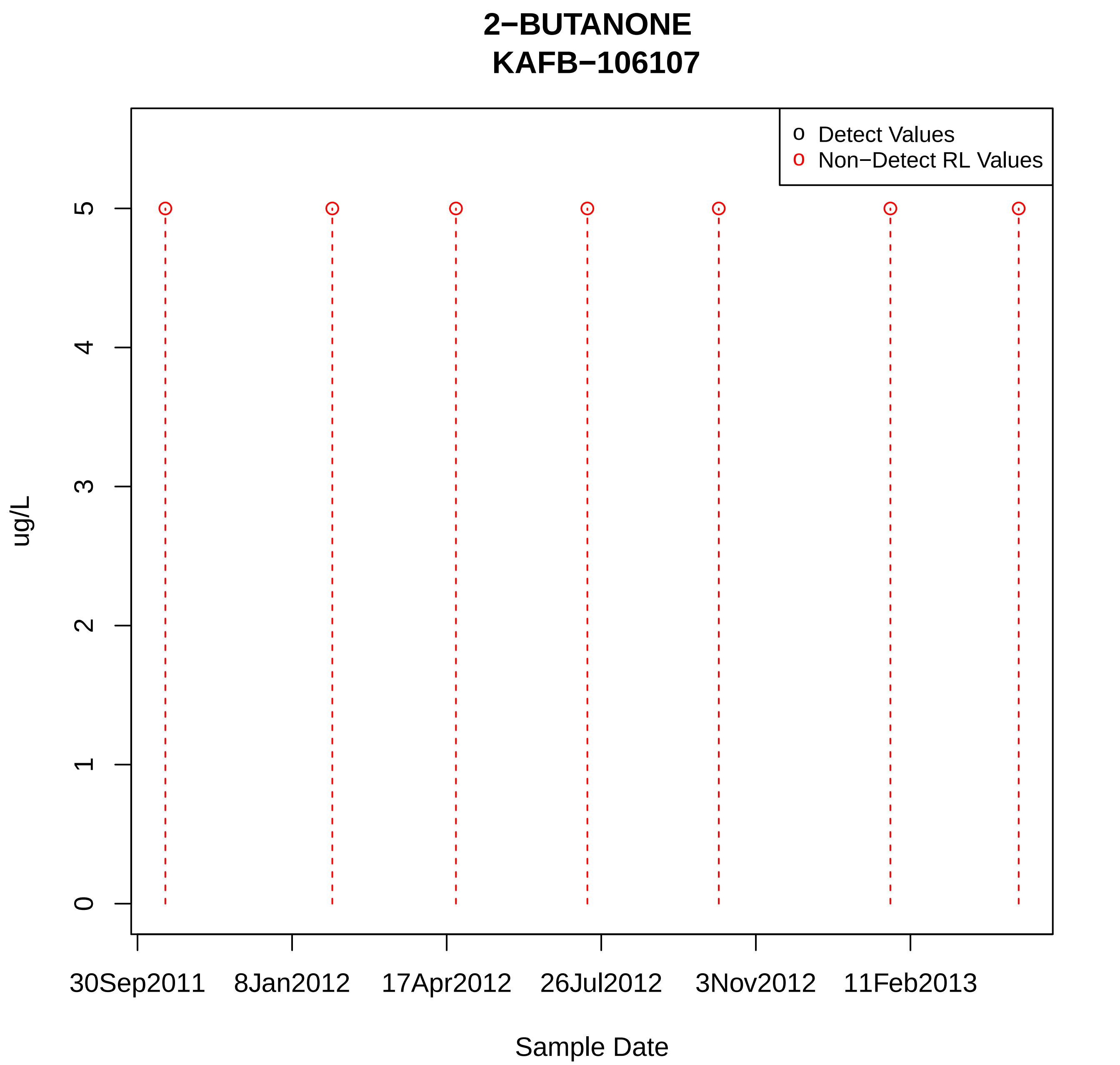

2−BUTANONE
KAFB−106103
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date



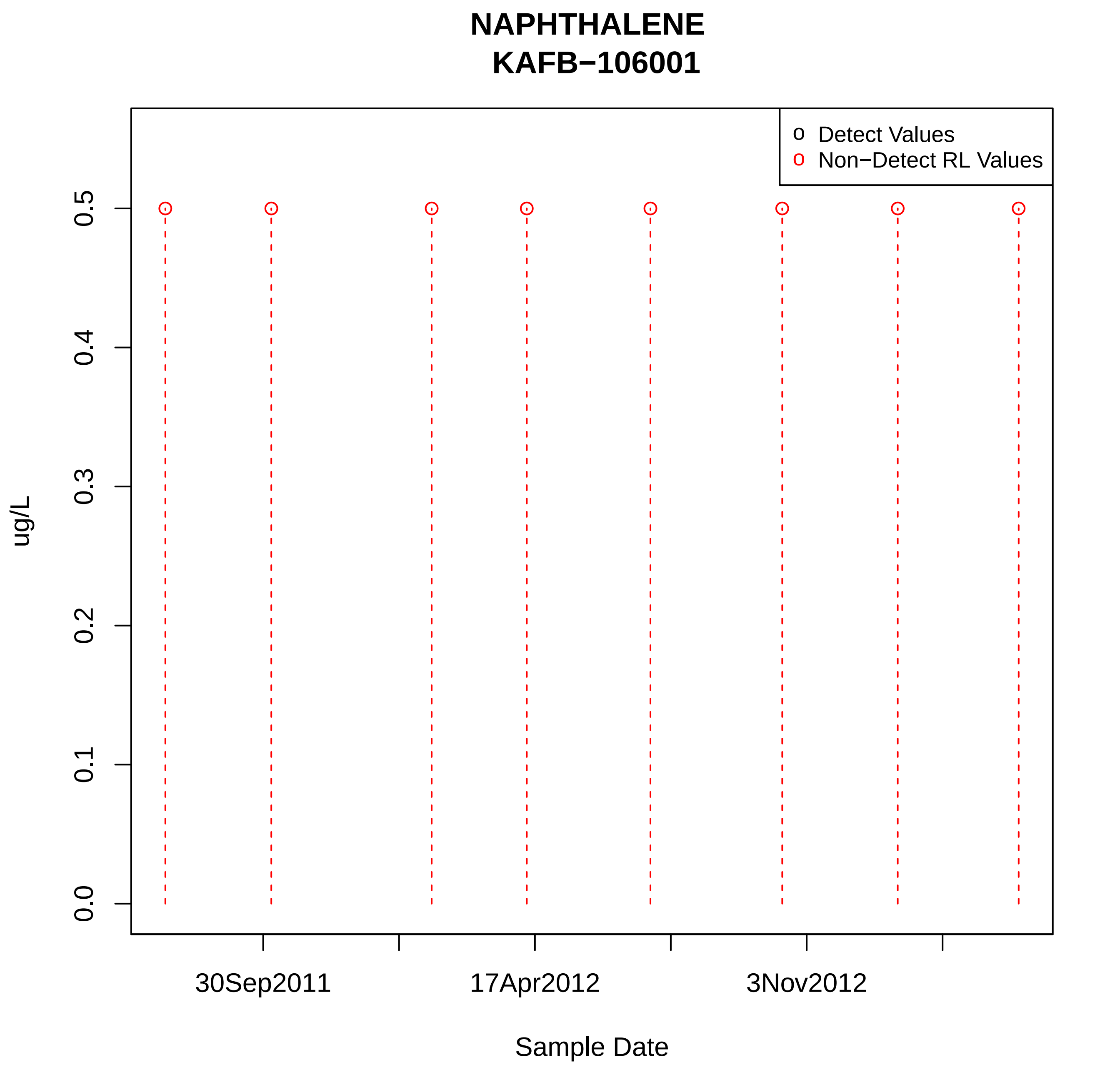
2−BUTANONE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date


2−BUTANONE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

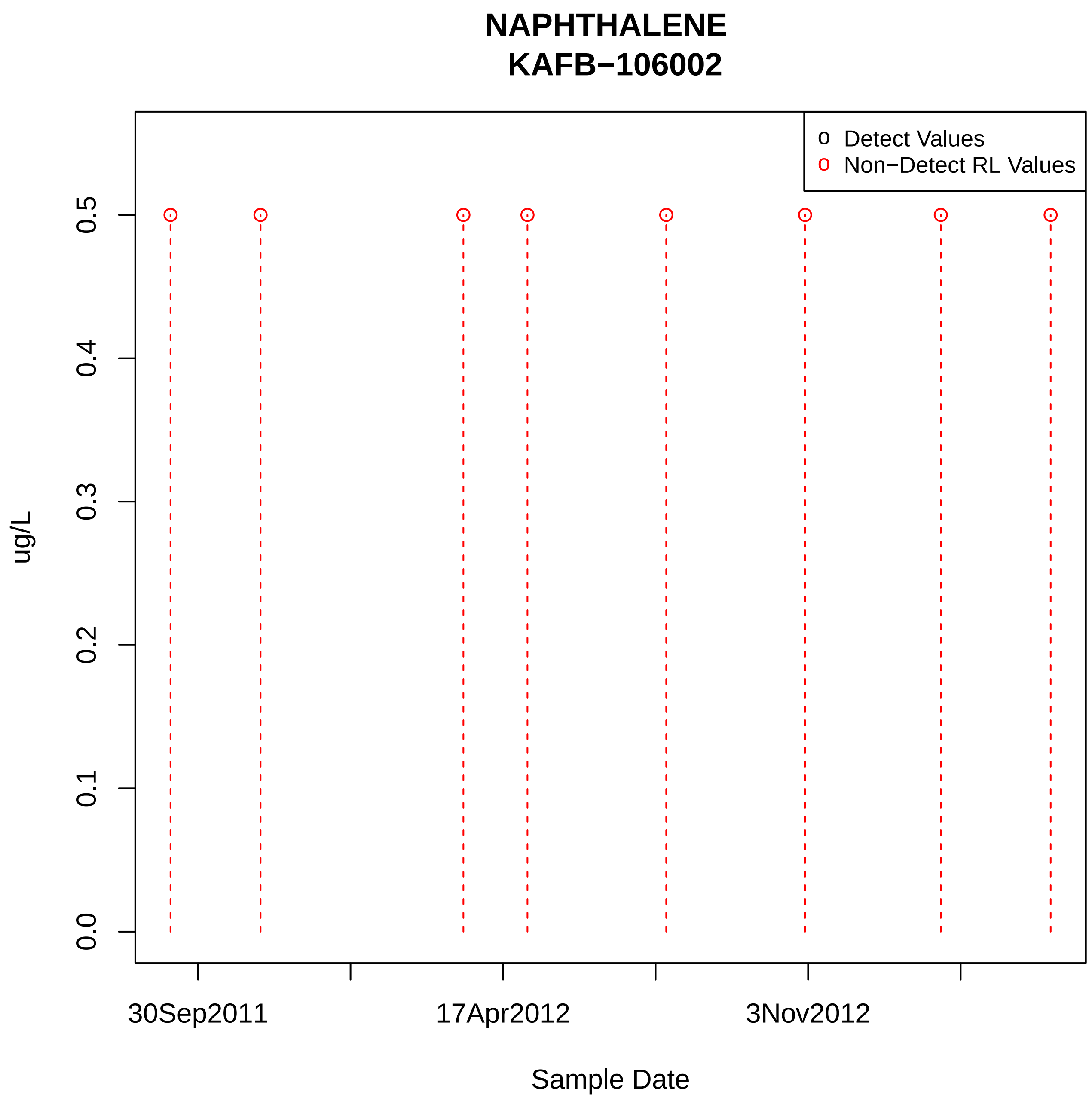

2−BUTANONE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



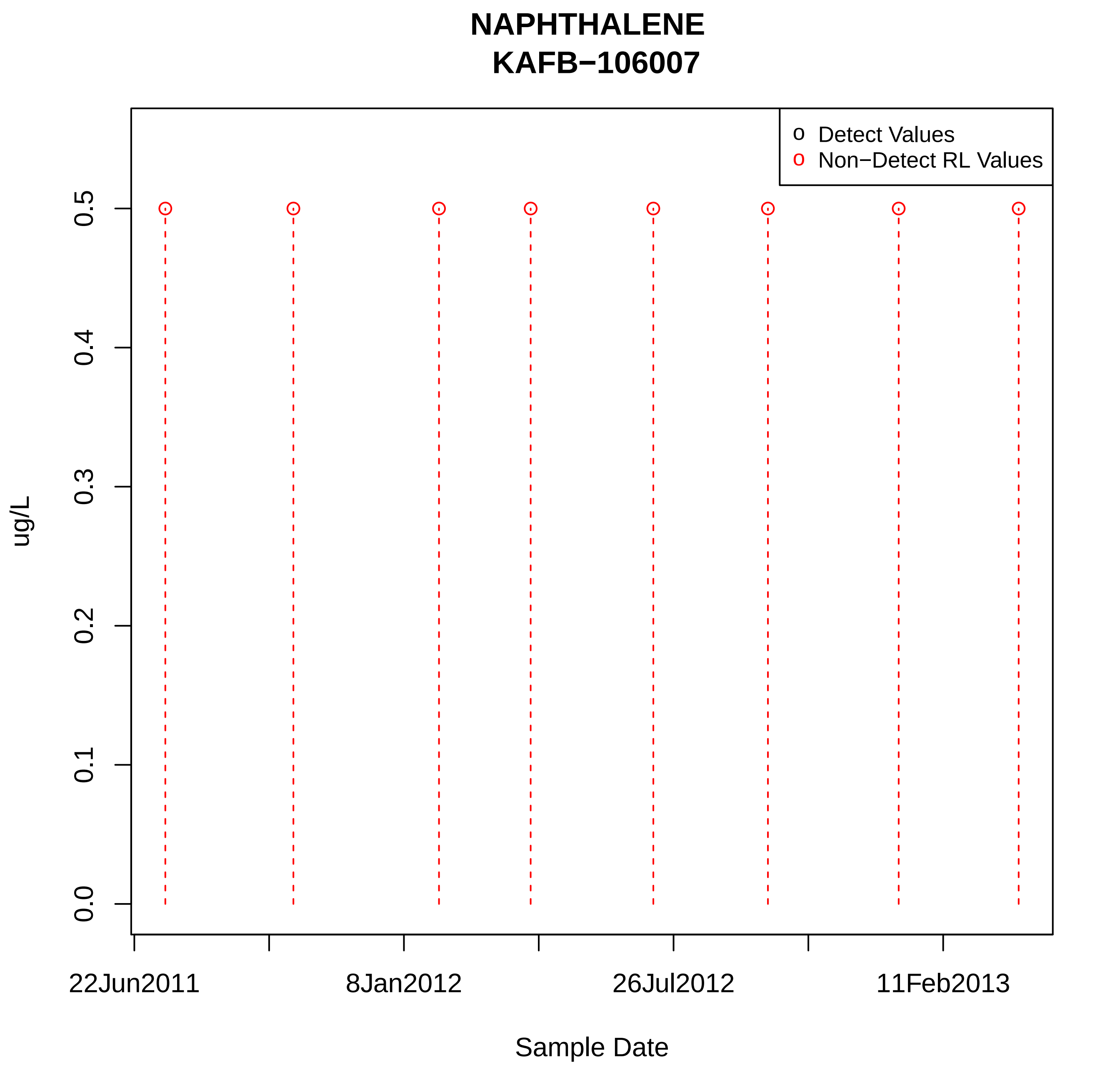
2−BUTANONE
KAFB−106107
o Detect Values
o Non−Detect RL Values
0
1
2
3
4
5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

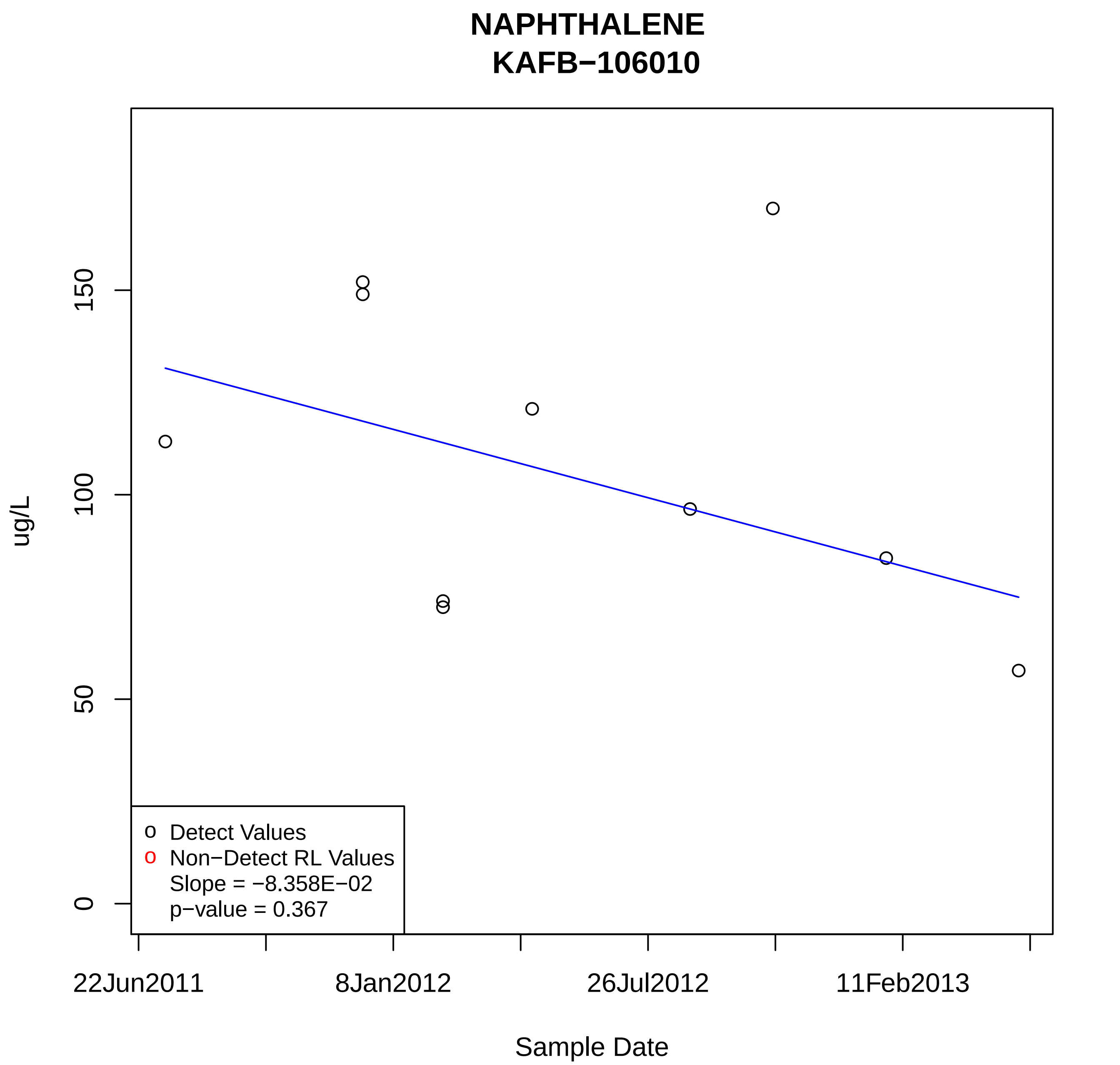


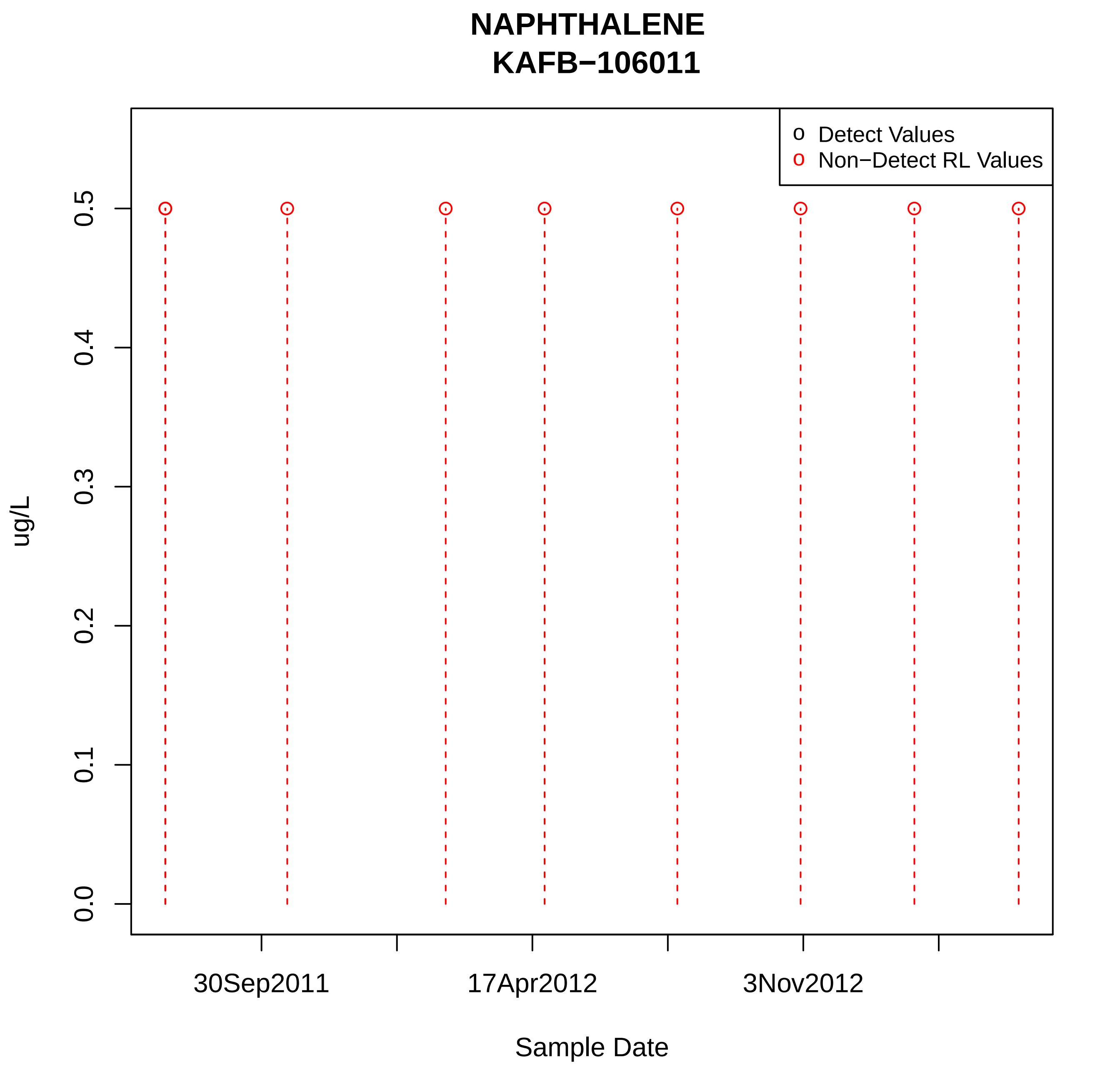
NAPHTHALENE
KAFB−106001
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

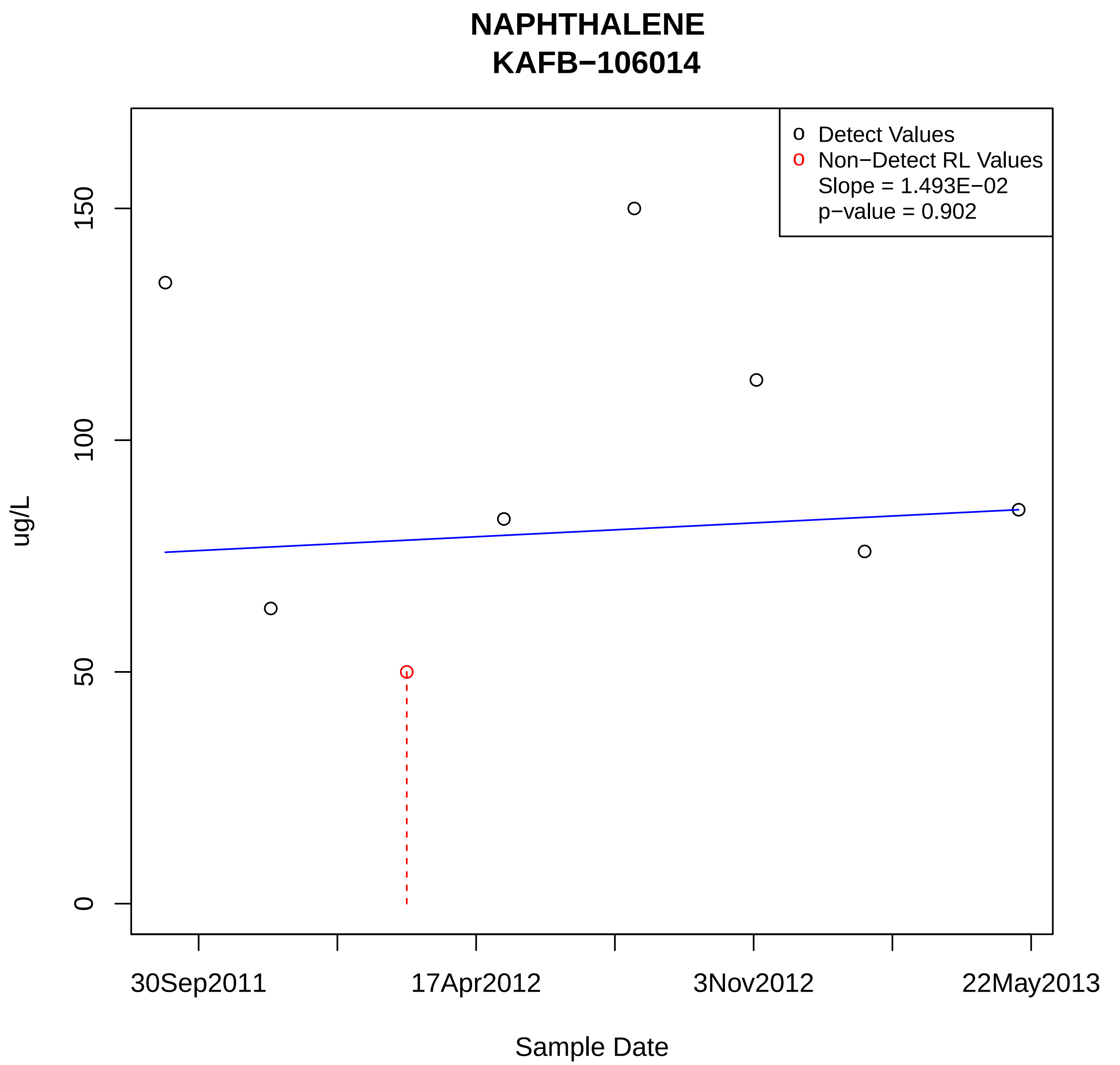


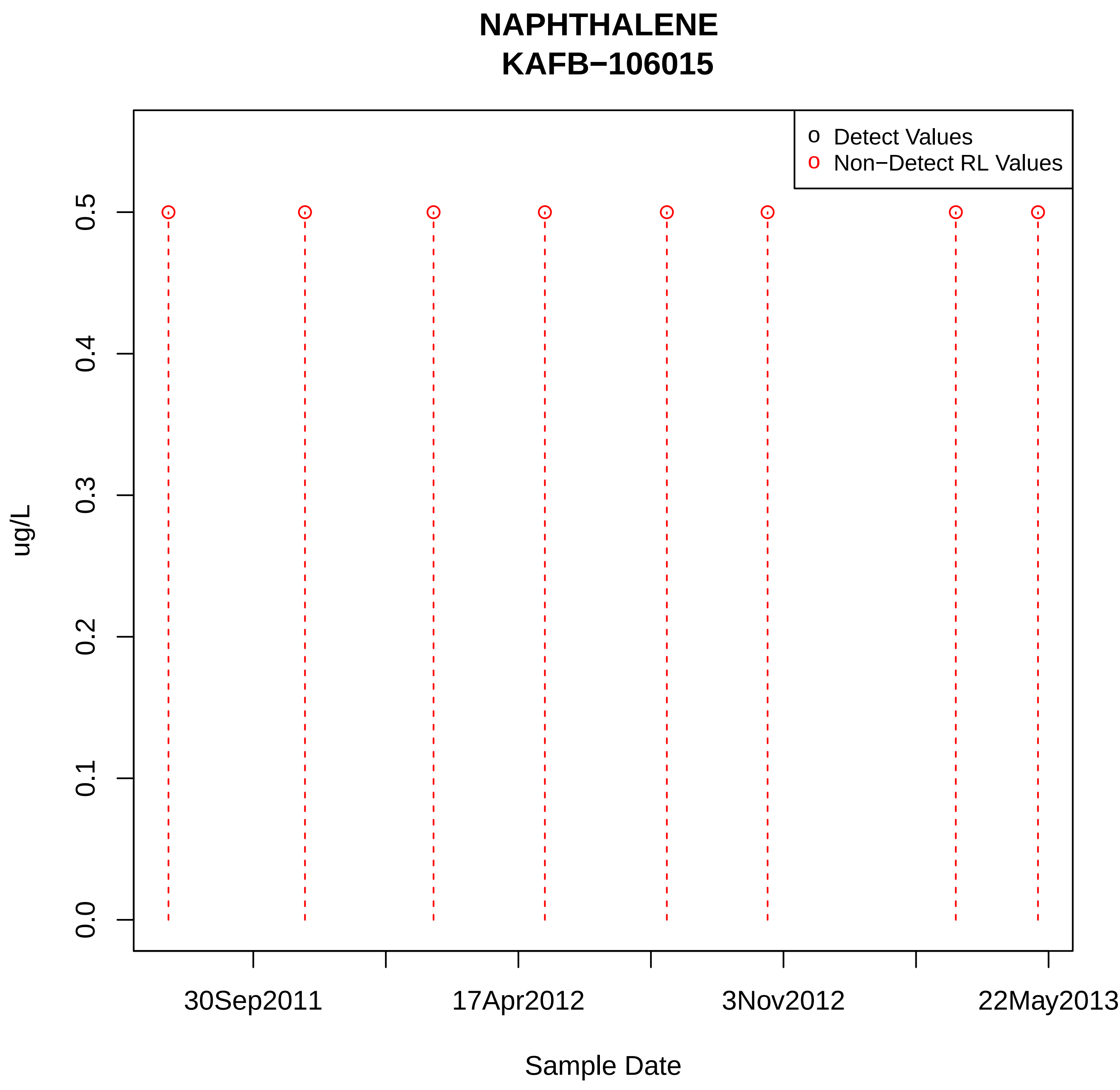
NAPHTHALENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


NAPHTHALENE
KAFB−106007
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

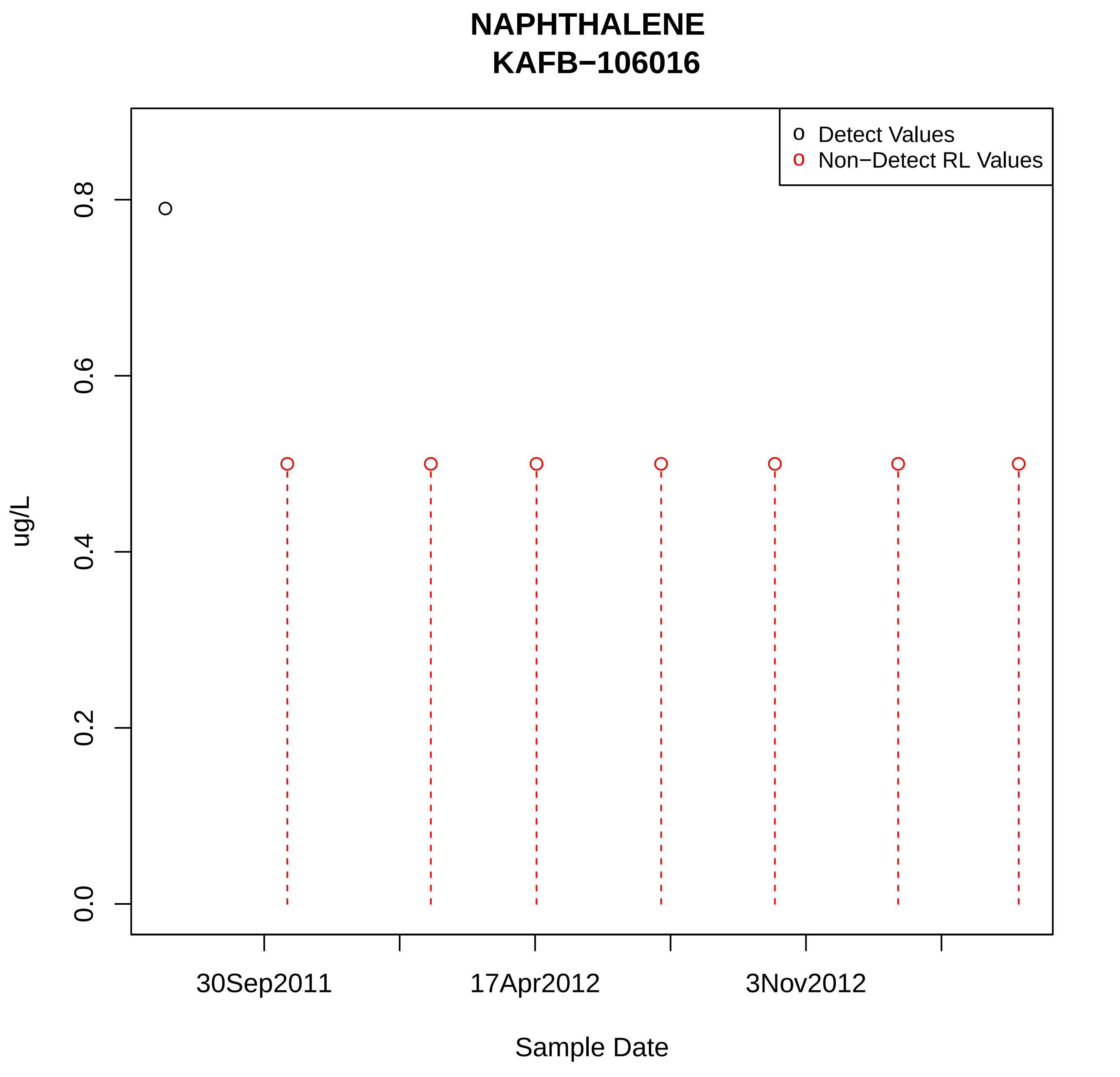

NAPHTHALENE
KAFB−106010
ug/L
0
50
100
150
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −8.358E−02
p−value = 0.367


NAPHTHALENE
KAFB−106011
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

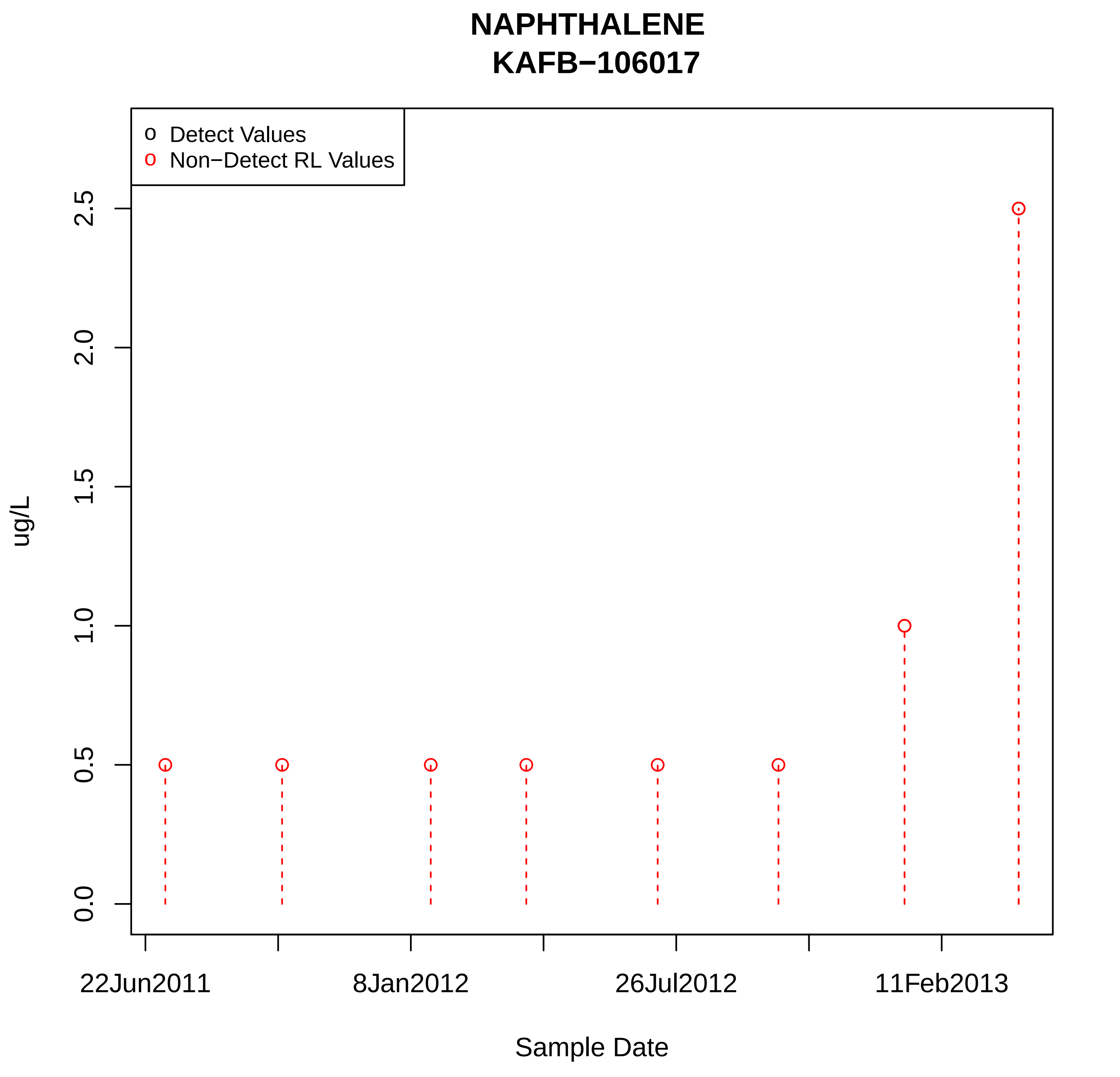

NAPHTHALENE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = 1.493E−02
p−value = 0.902
ug/L
0
50
100
150
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



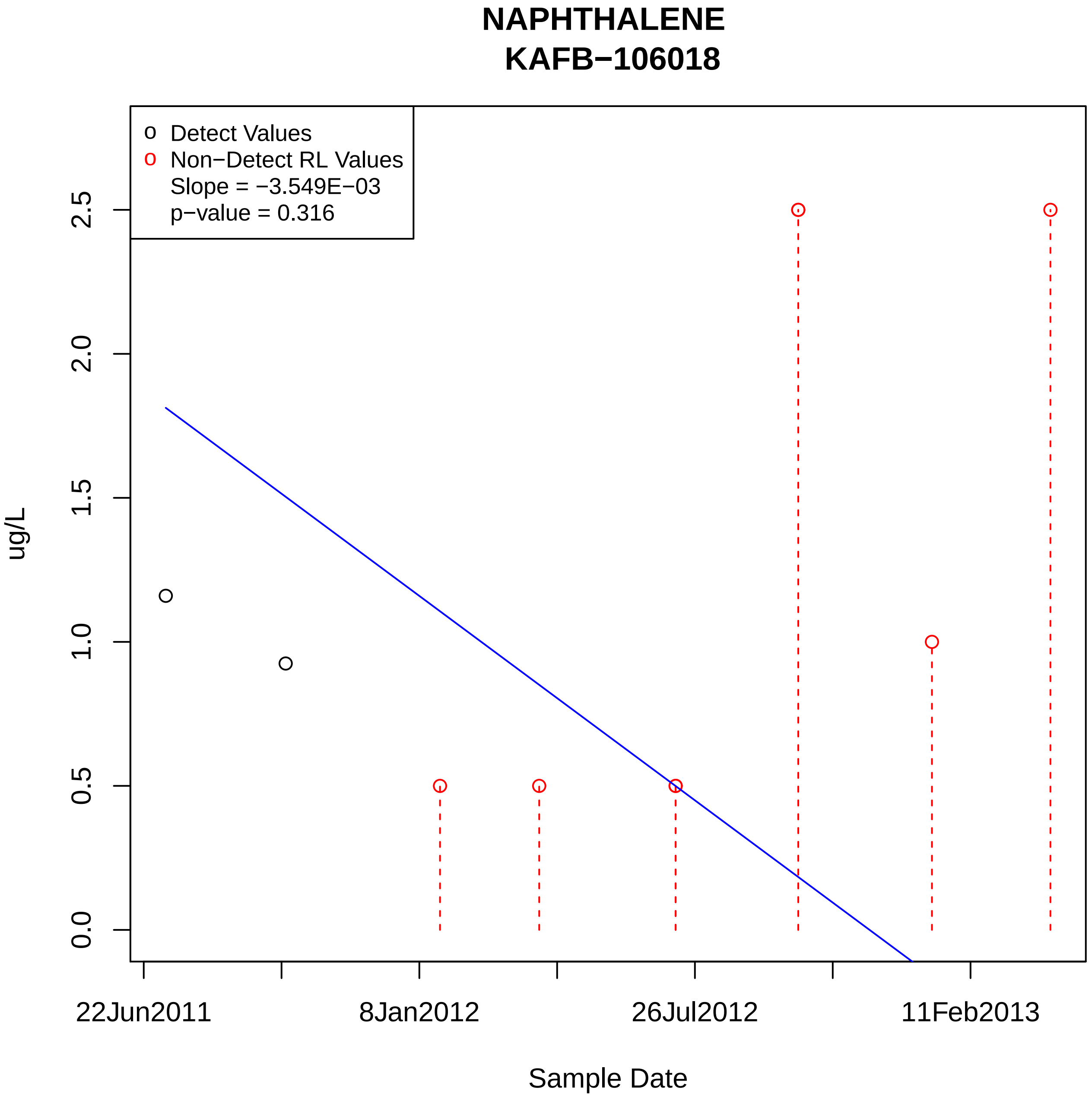
NAPHTHALENE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



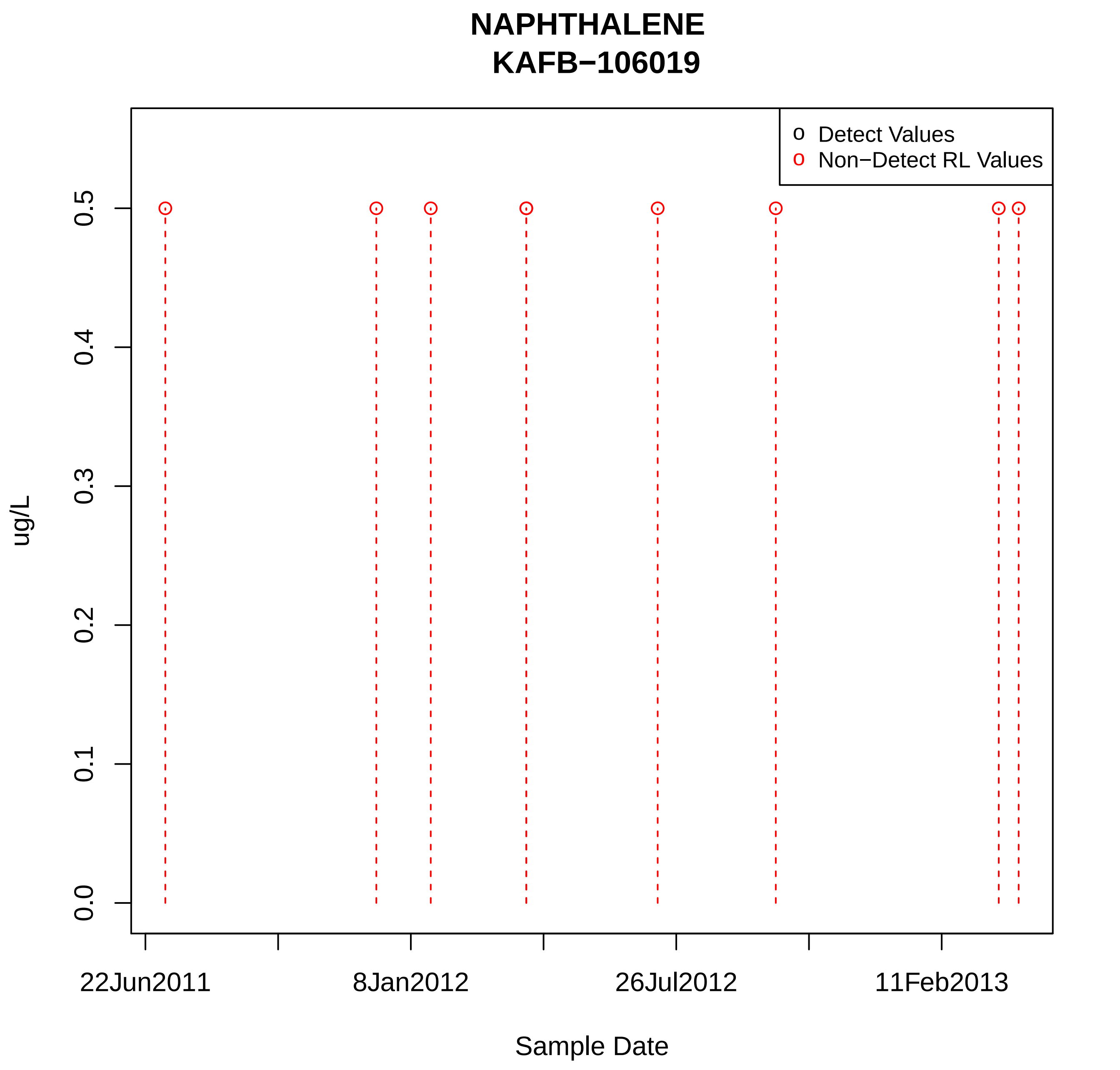
NAPHTHALENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
0.0
0.2
0.4
0.6
0.8
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



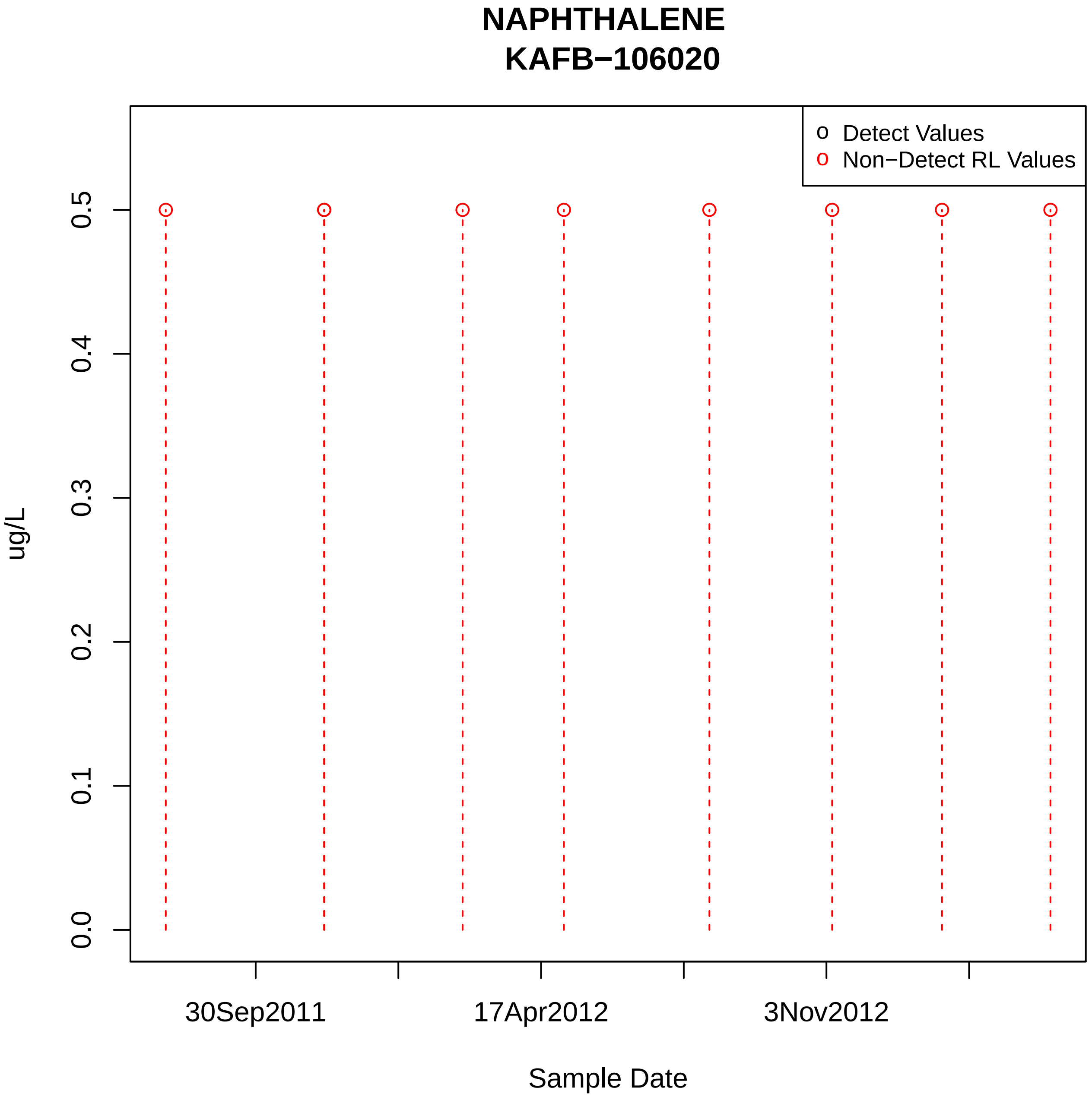
NAPHTHALENE
KAFB−106017
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



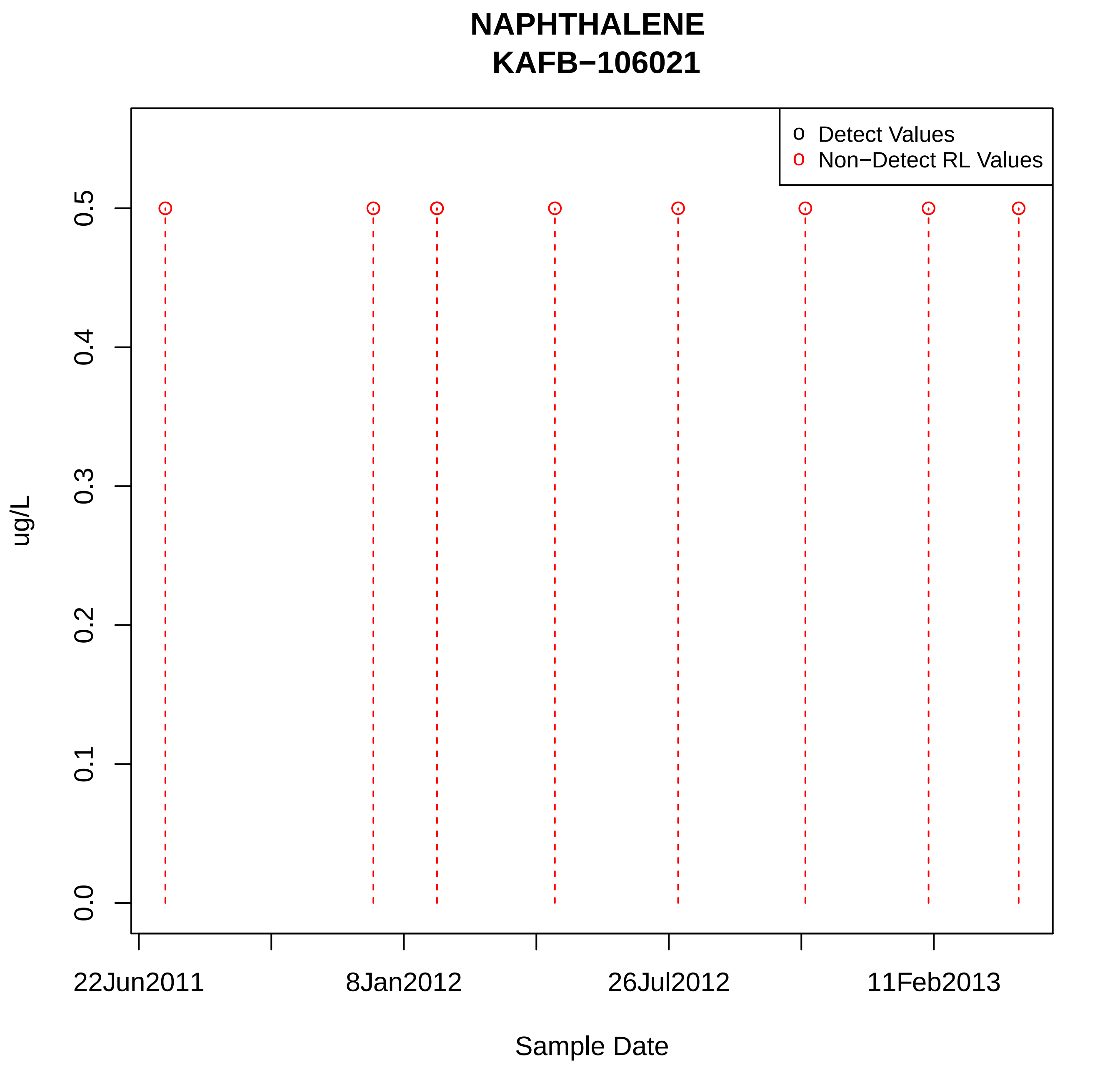
NAPHTHALENE
KAFB−106018
o Detect Values
o Non−Detect RL Values
Slope = −3.549E−03
p−value = 0.316
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

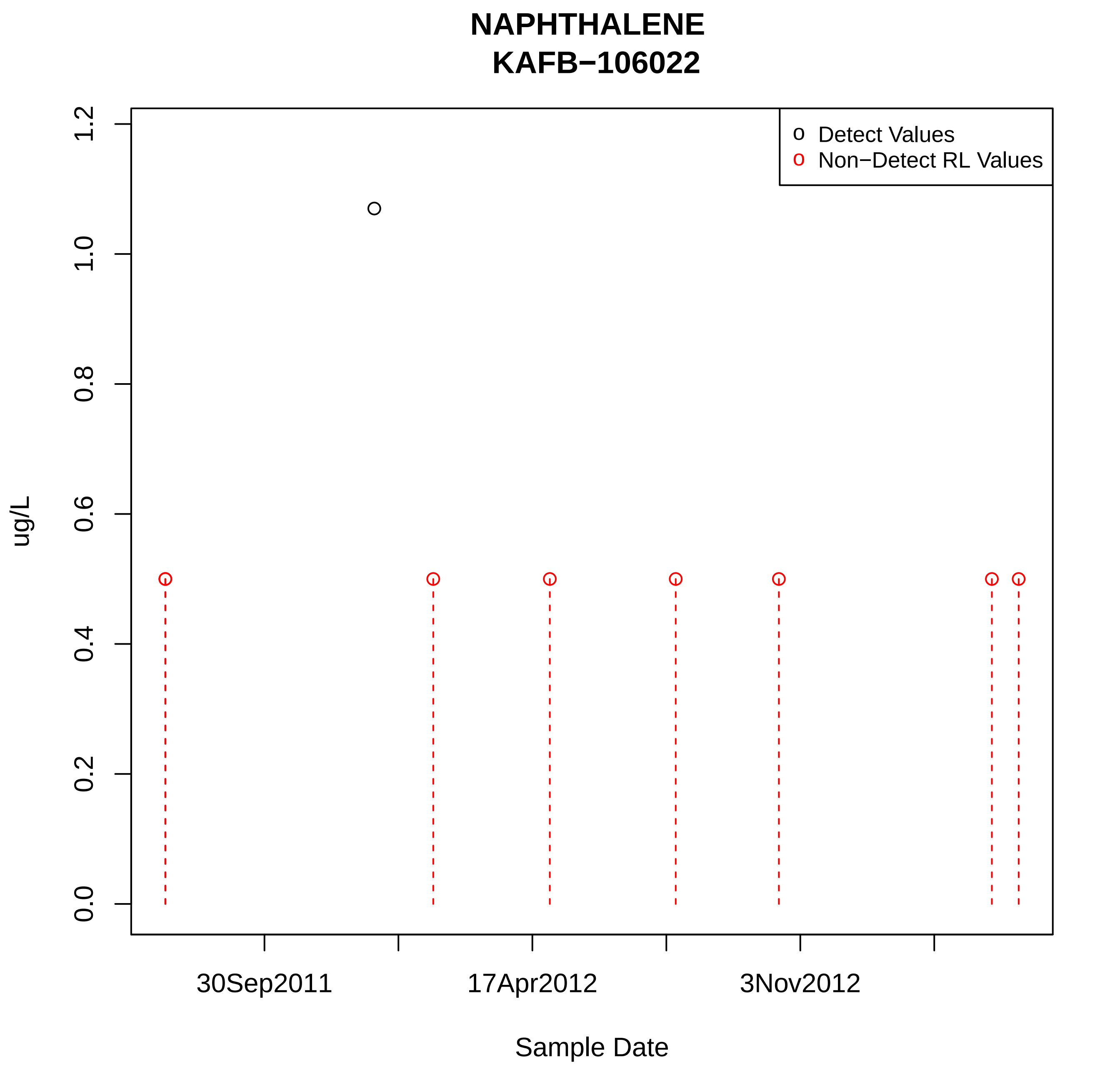


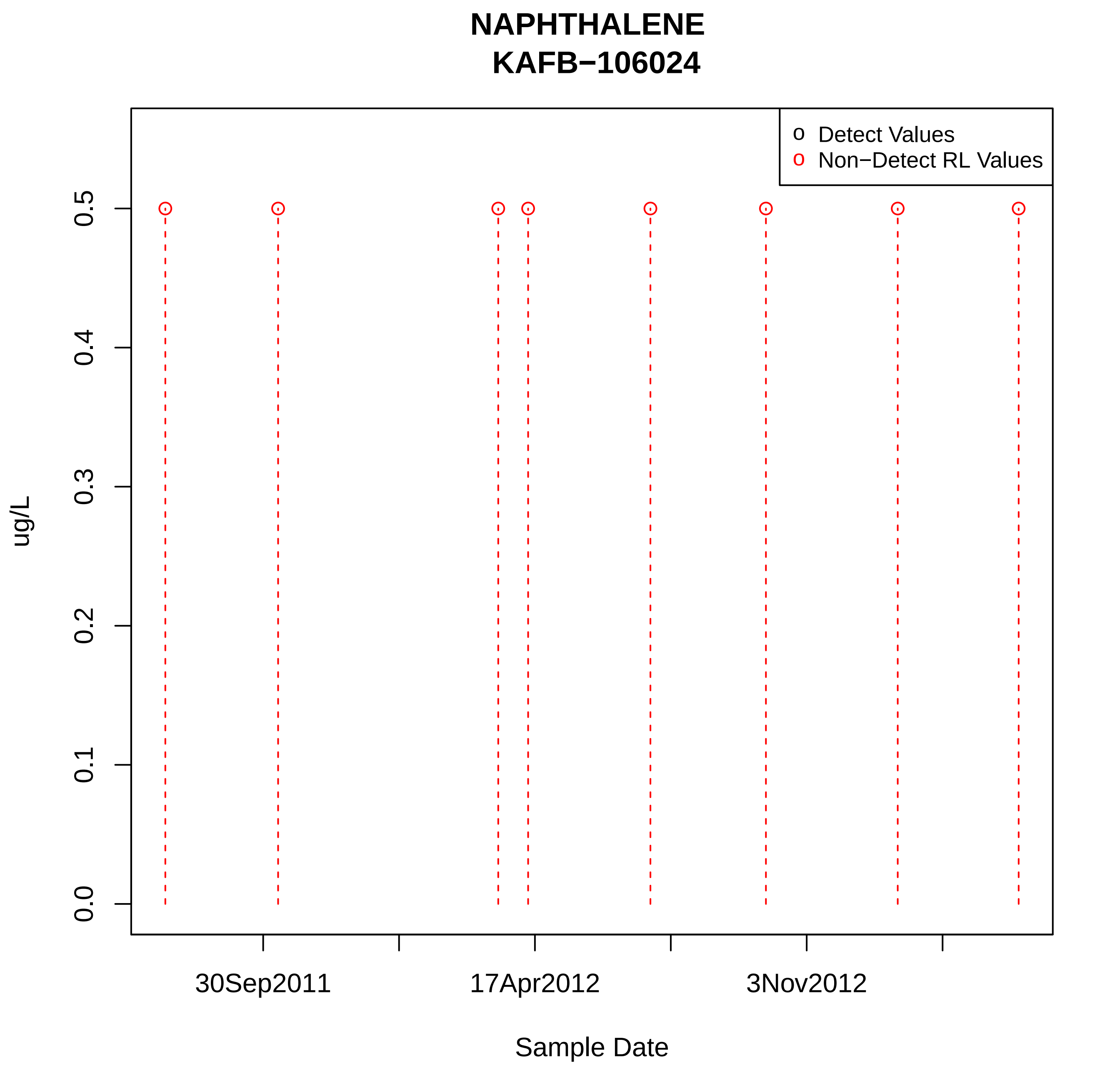
NAPHTHALENE
KAFB−106019
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

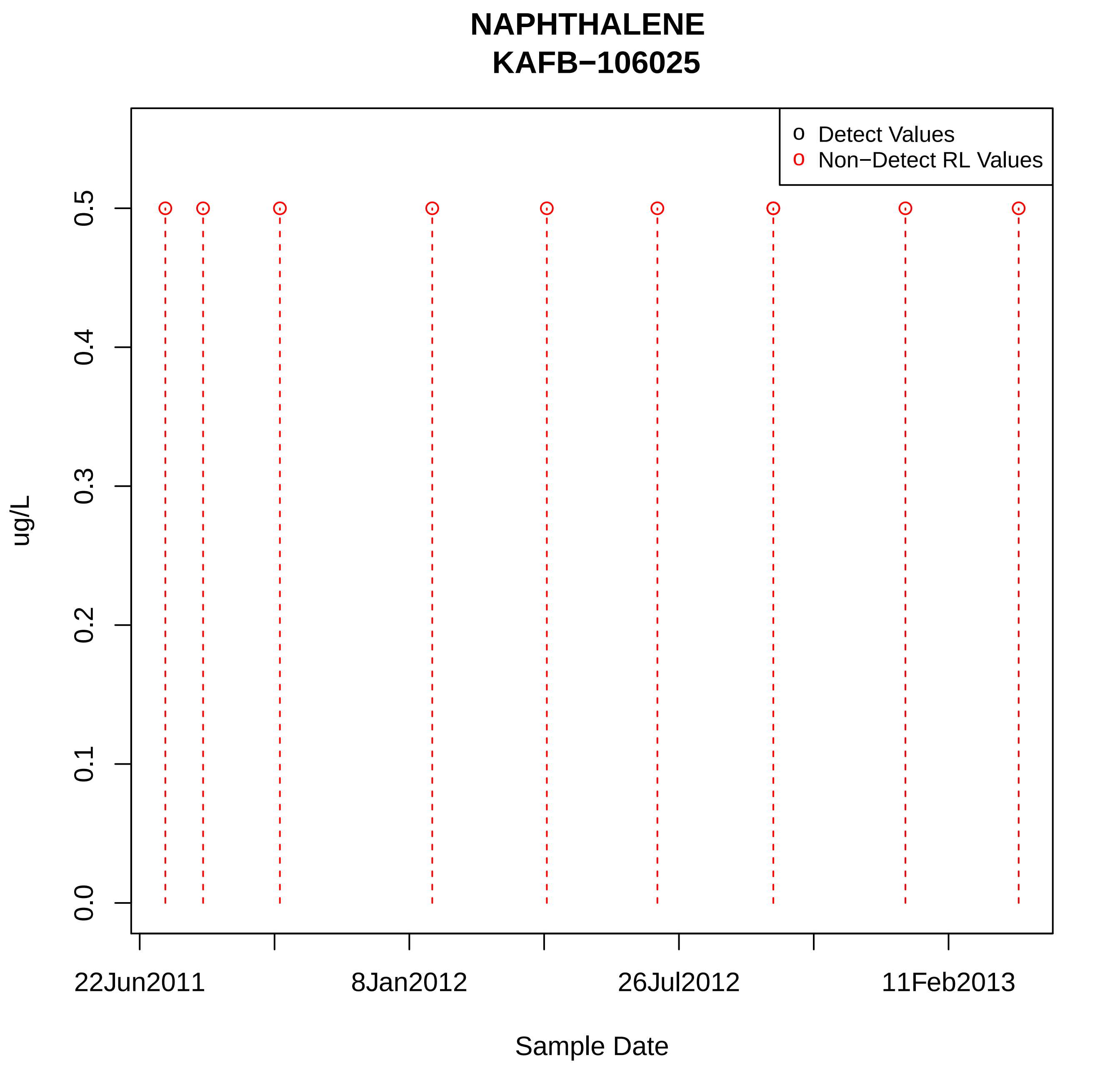


NAPHTHALENE
KAFB−106020
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

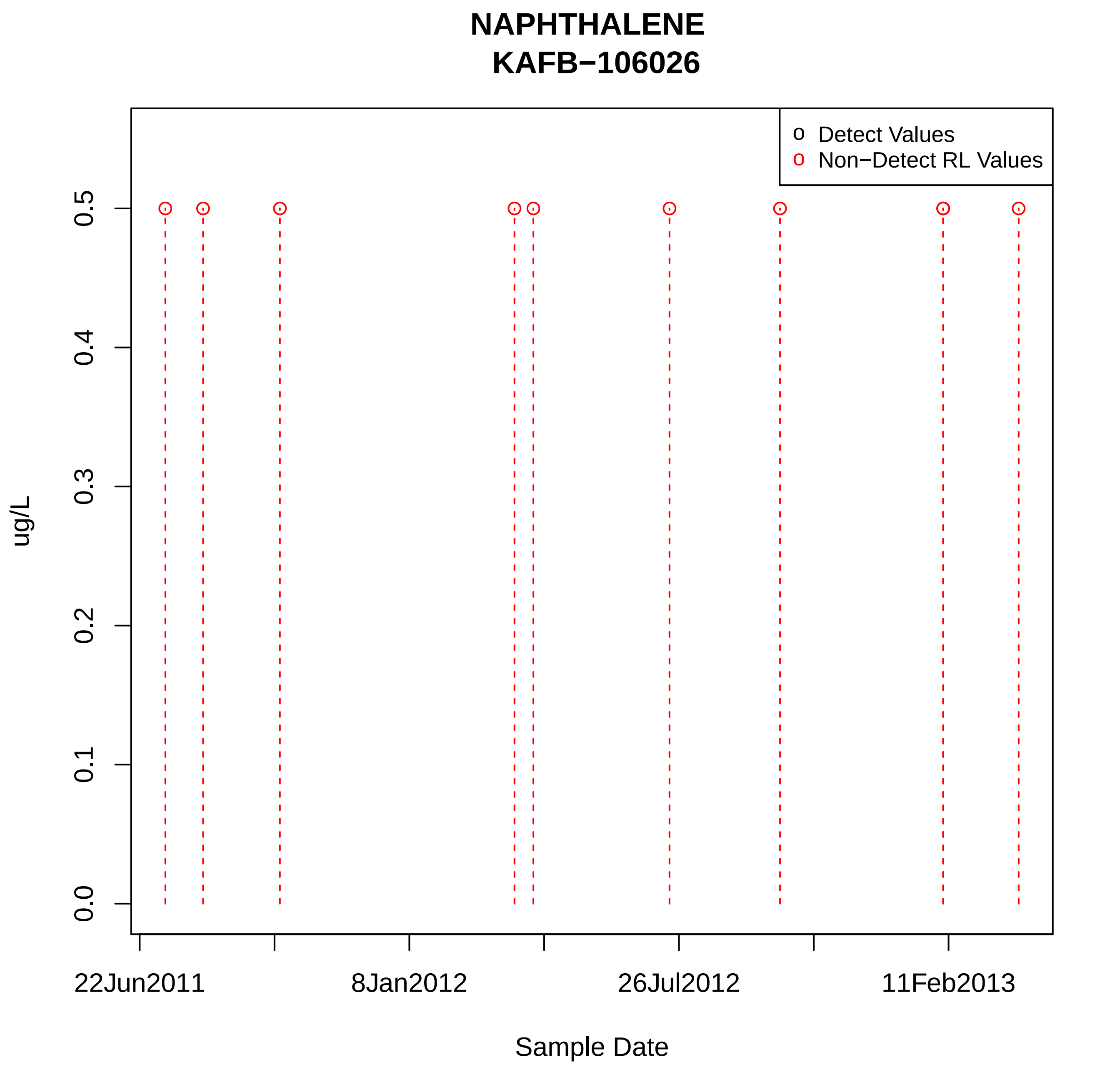

NAPHTHALENE
KAFB−106021
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

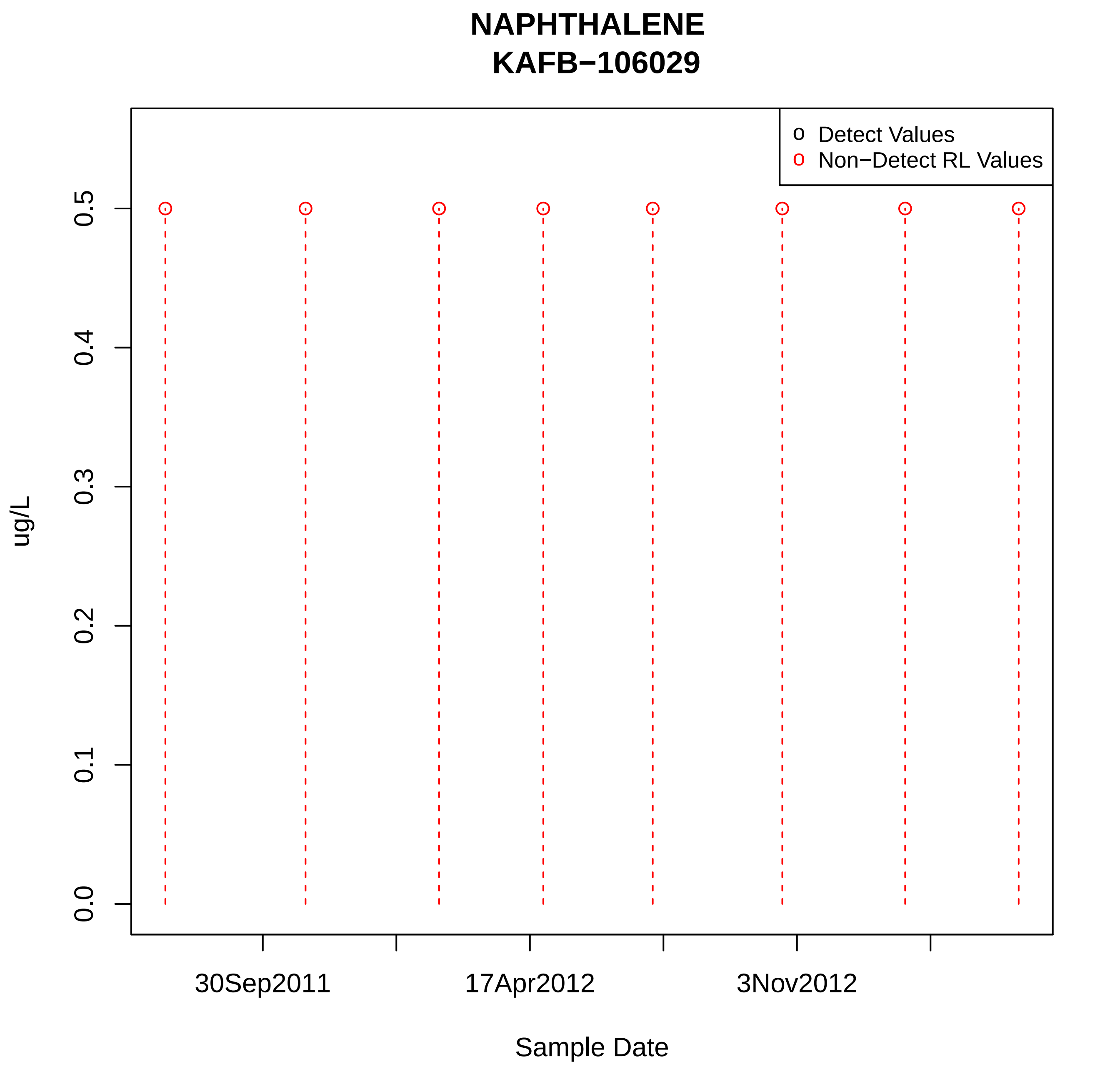

NAPHTHALENE
KAFB−106022
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
30Sep2011
17Apr2012
3Nov2012
Sample Date

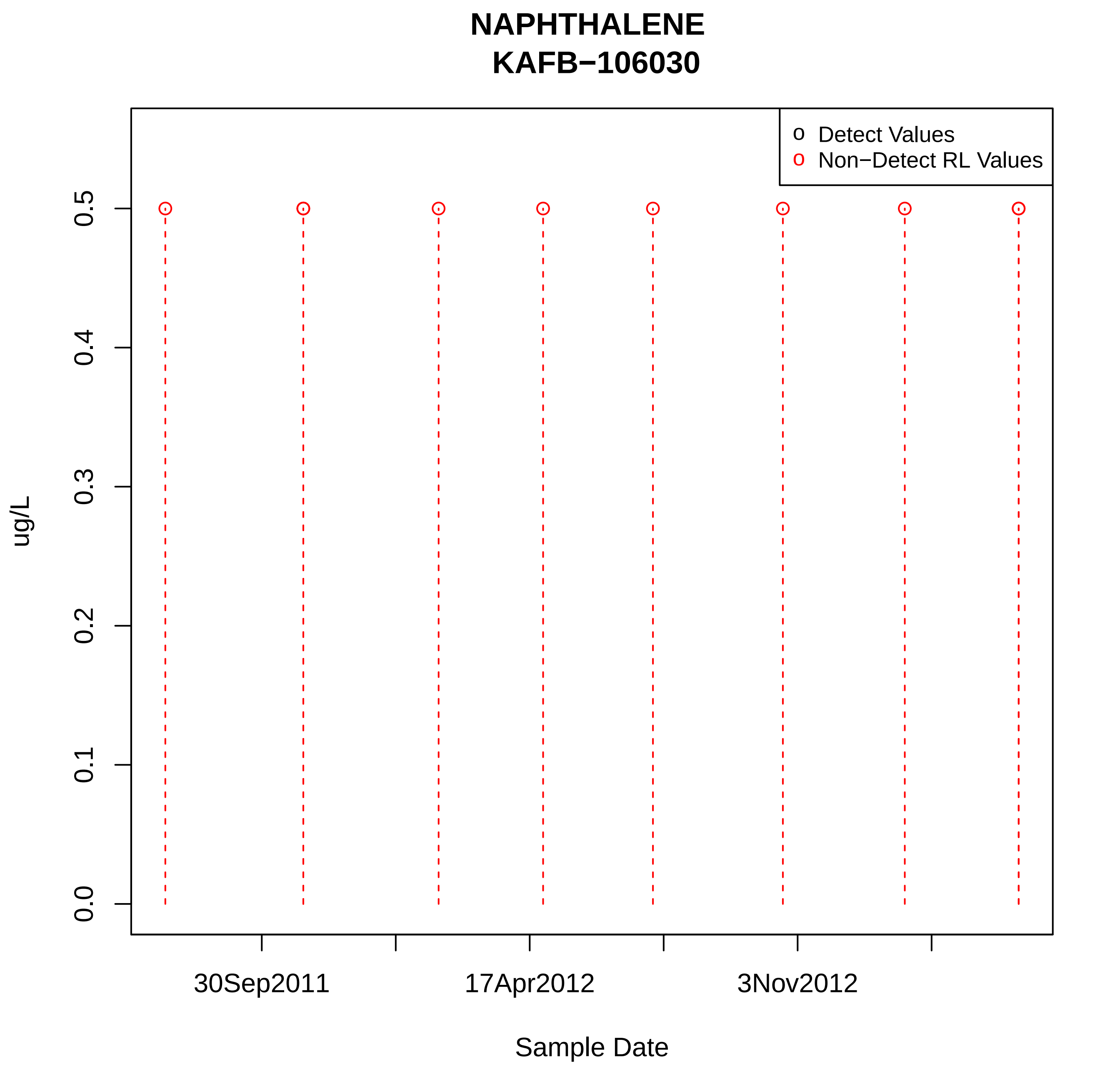

NAPHTHALENE
KAFB−106024
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



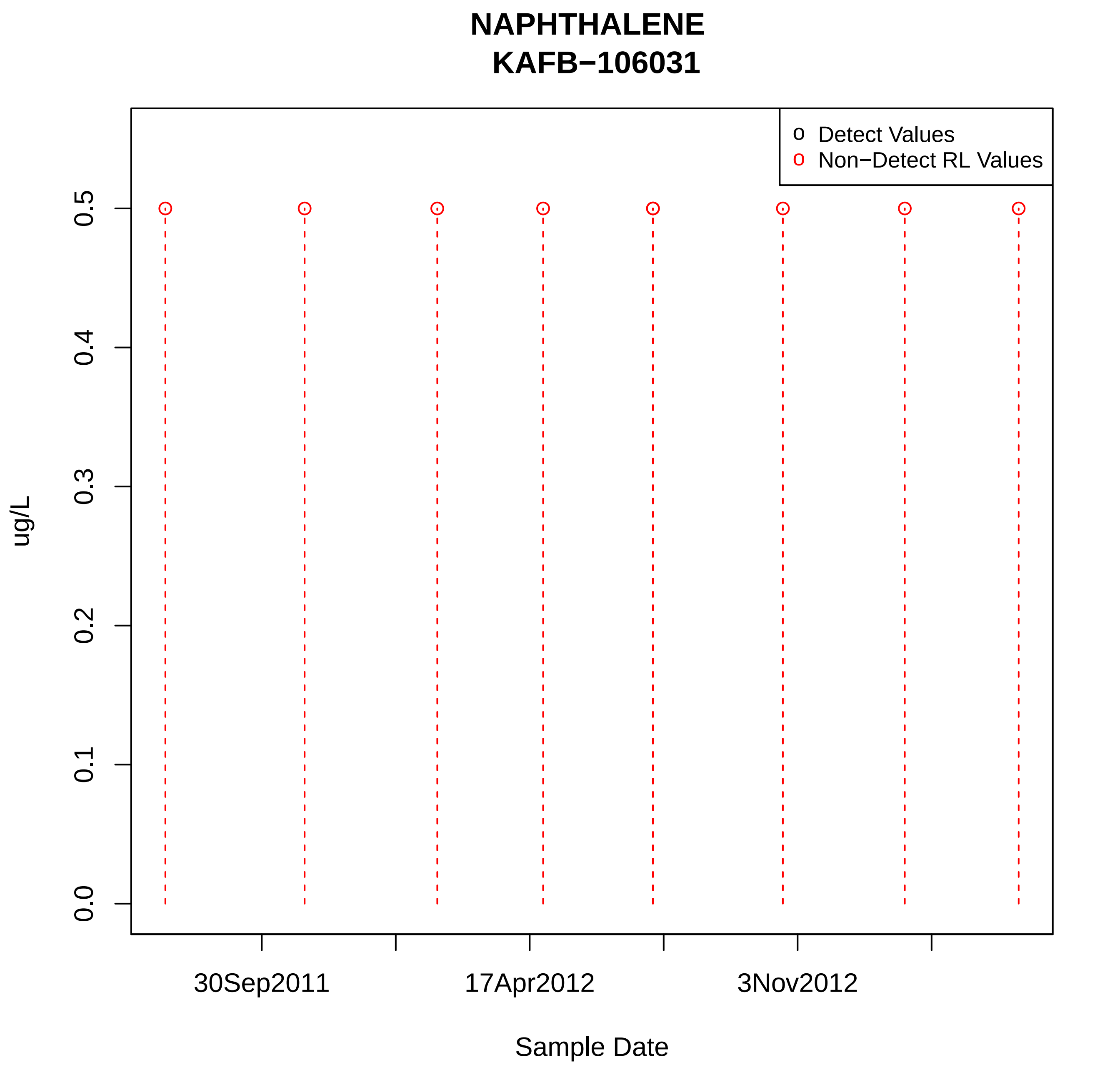
NAPHTHALENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

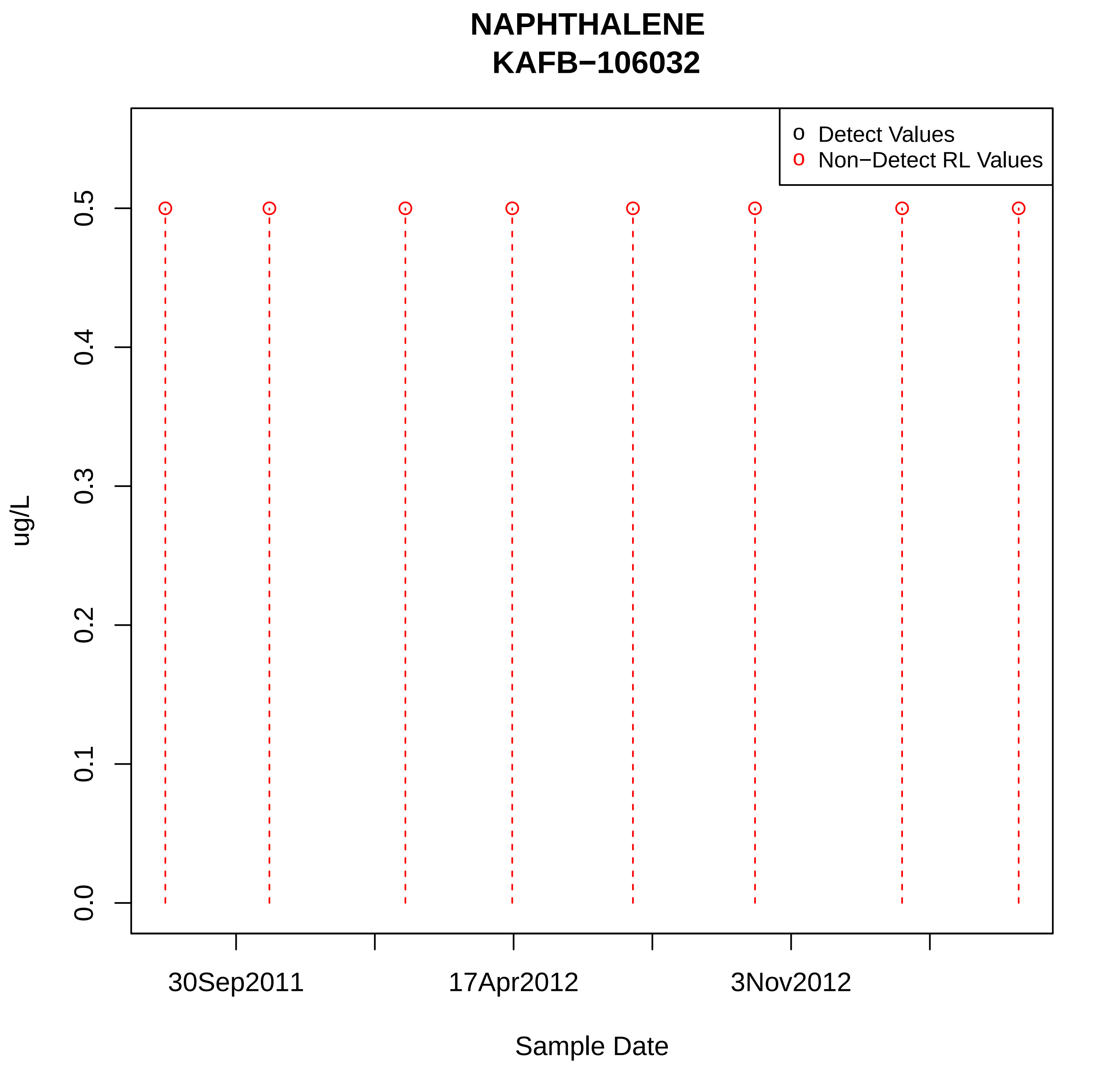

NAPHTHALENE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


NAPHTHALENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

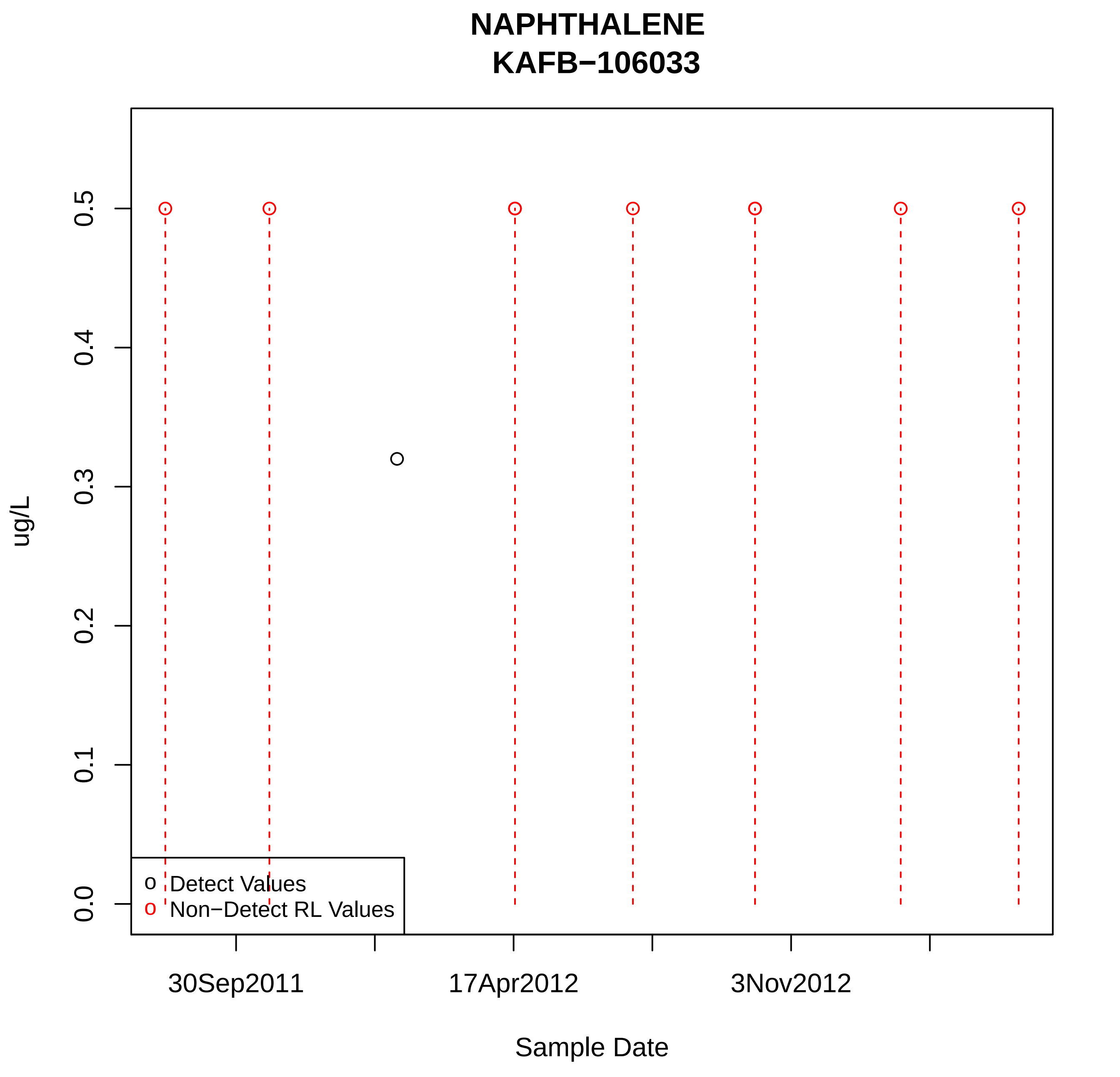


NAPHTHALENE
KAFB−106030
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

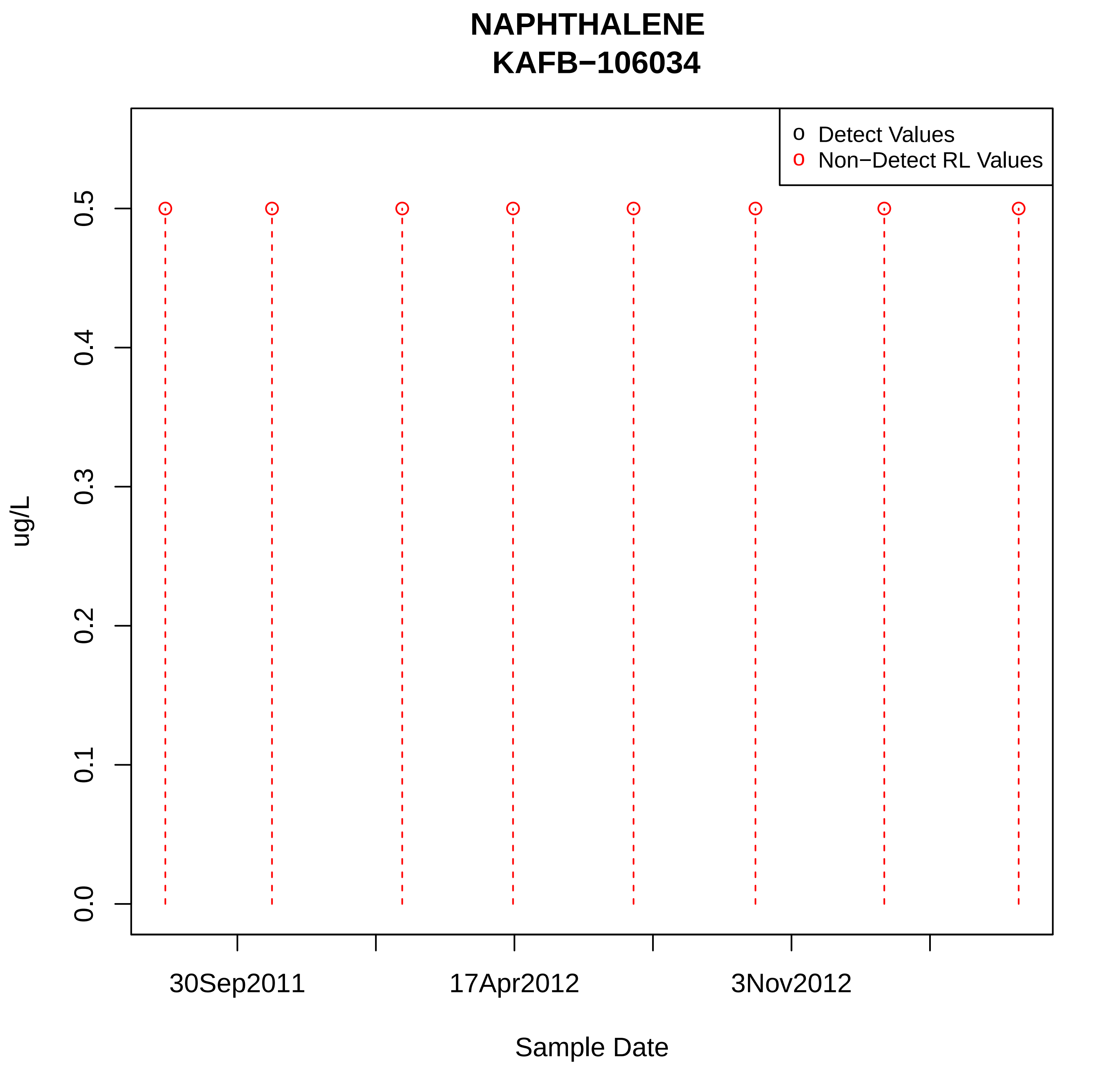

NAPHTHALENE
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

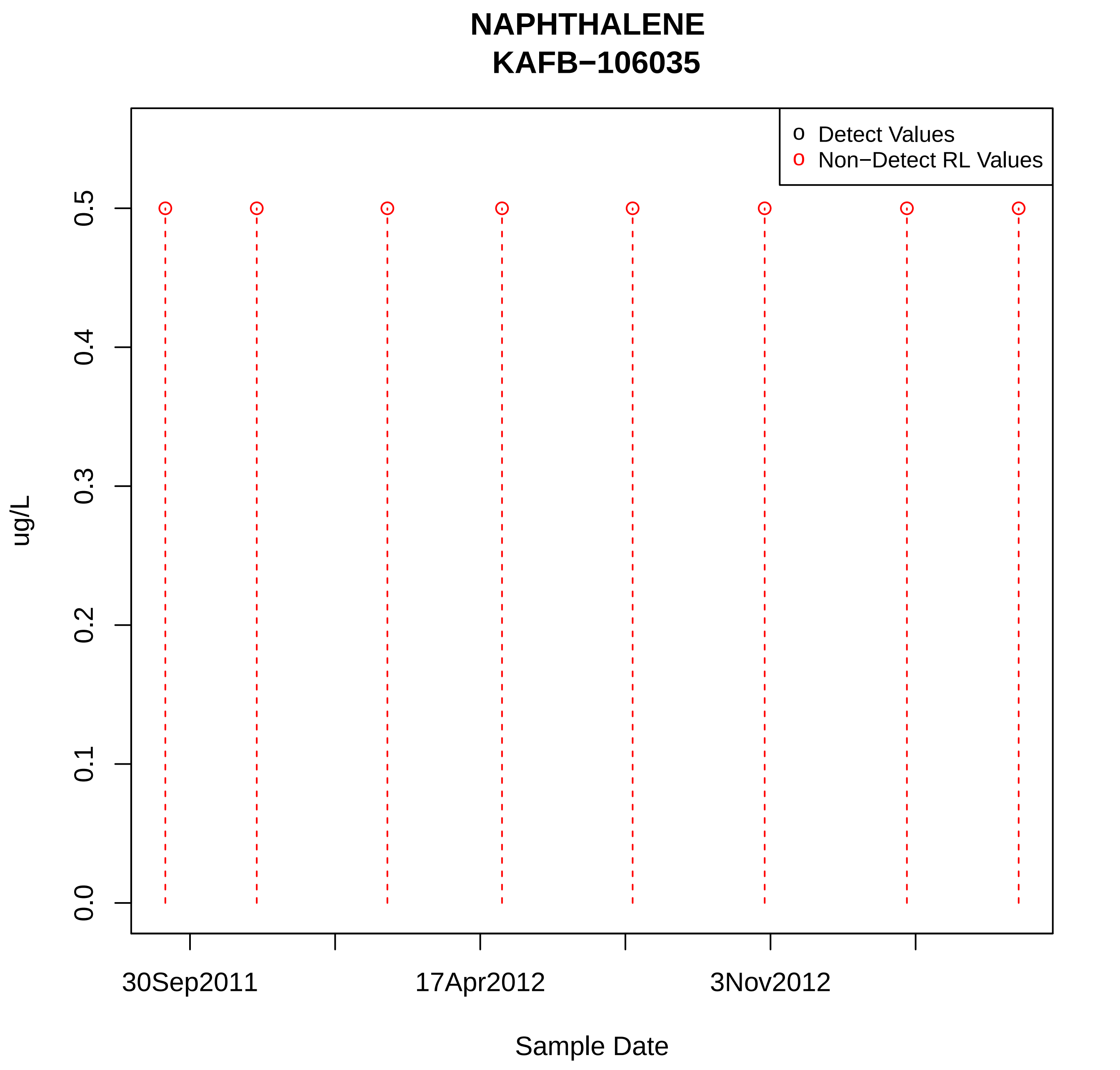


NAPHTHALENE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

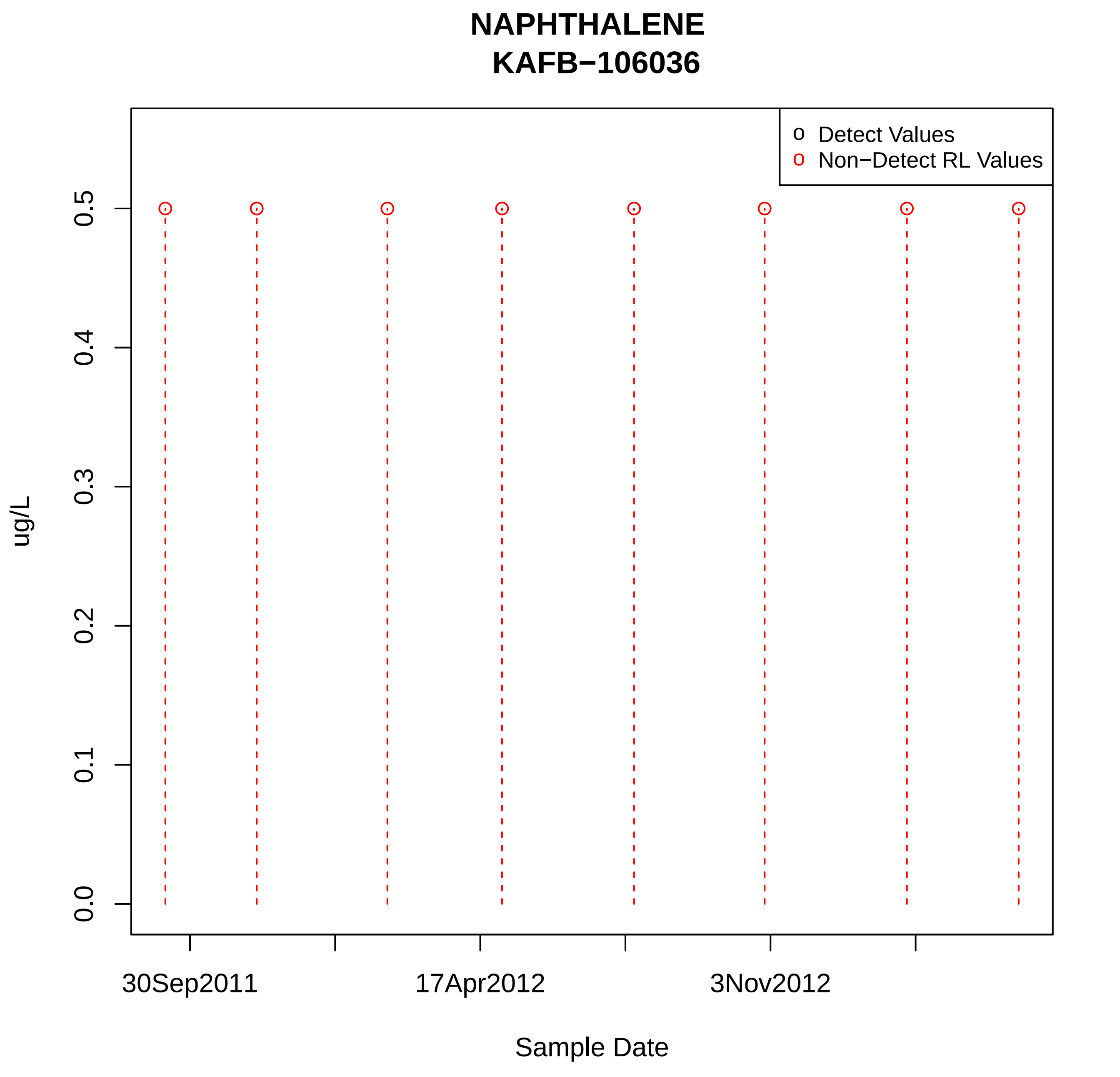


NAPHTHALENE
KAFB−106033
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

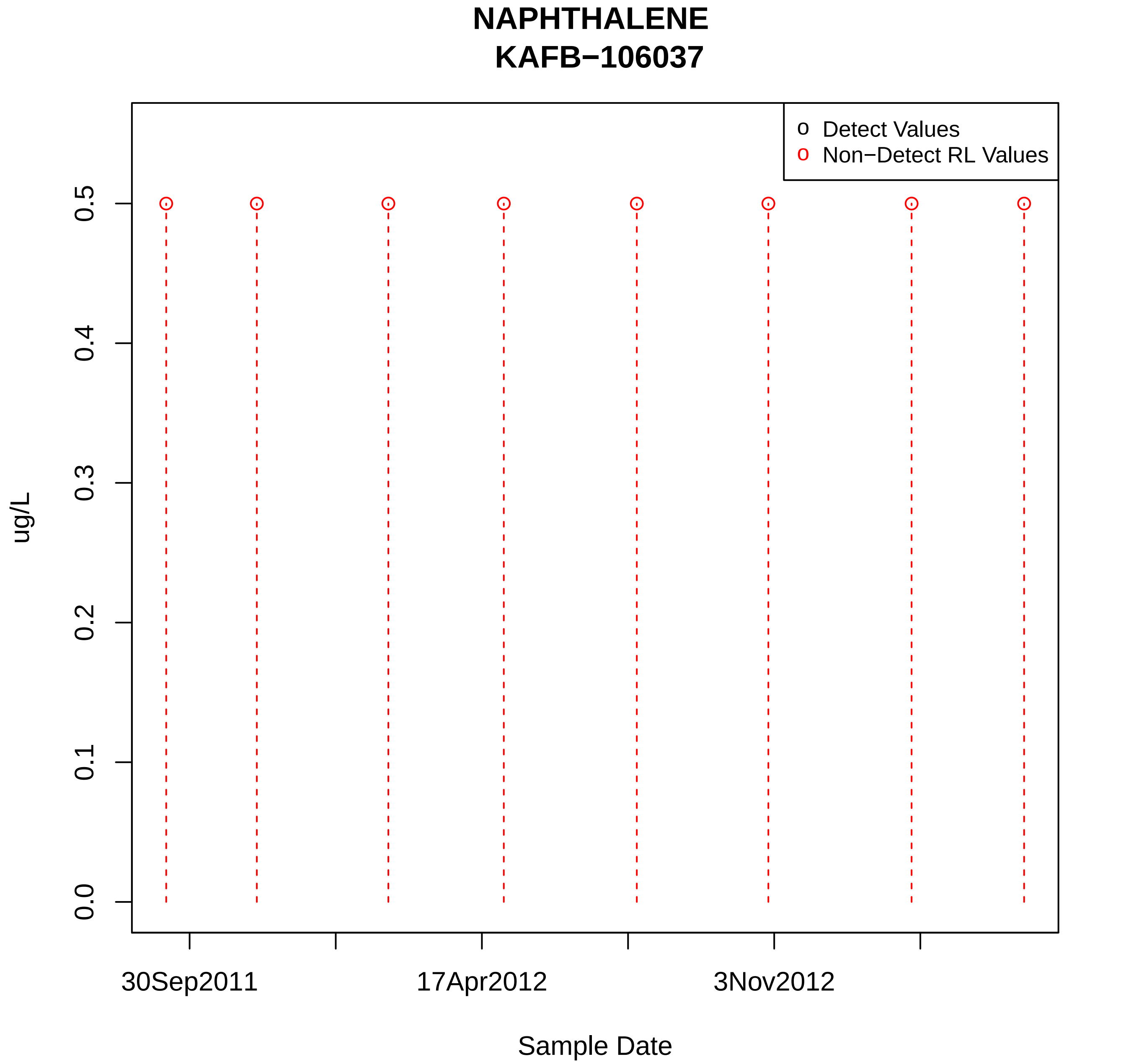

NAPHTHALENE
KAFB−106034
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



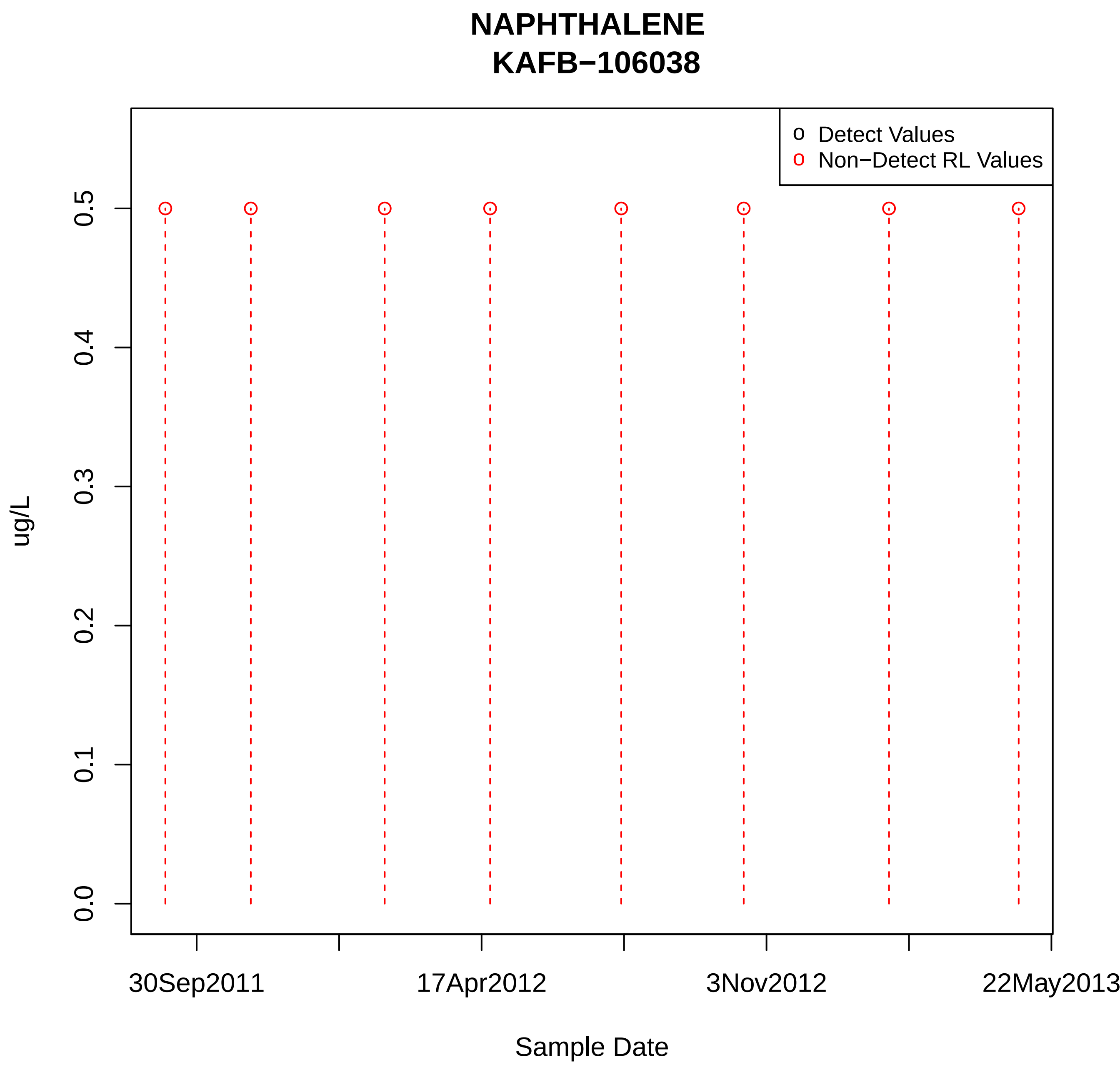
NAPHTHALENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



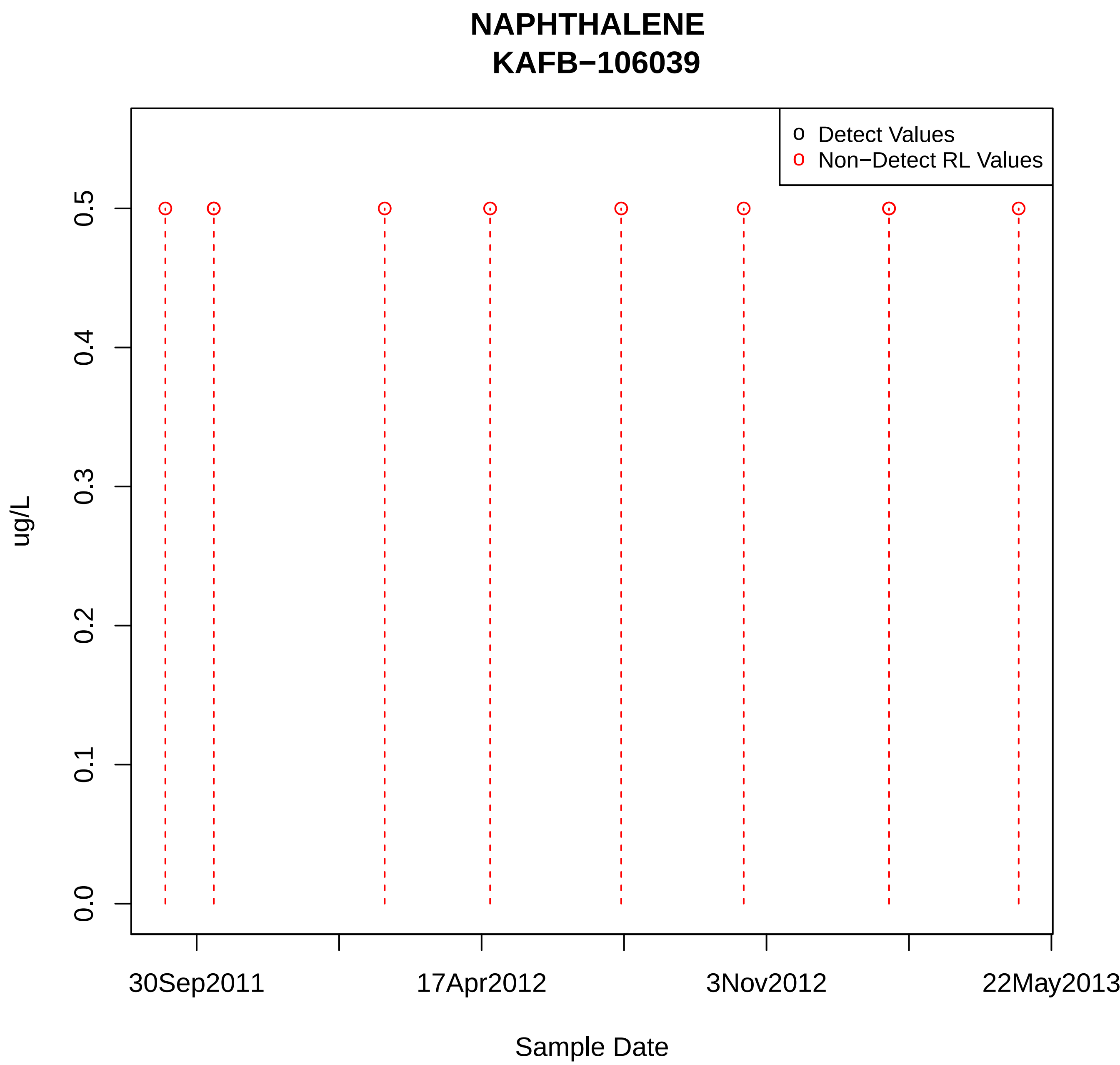
NAPHTHALENE
KAFB−106036
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

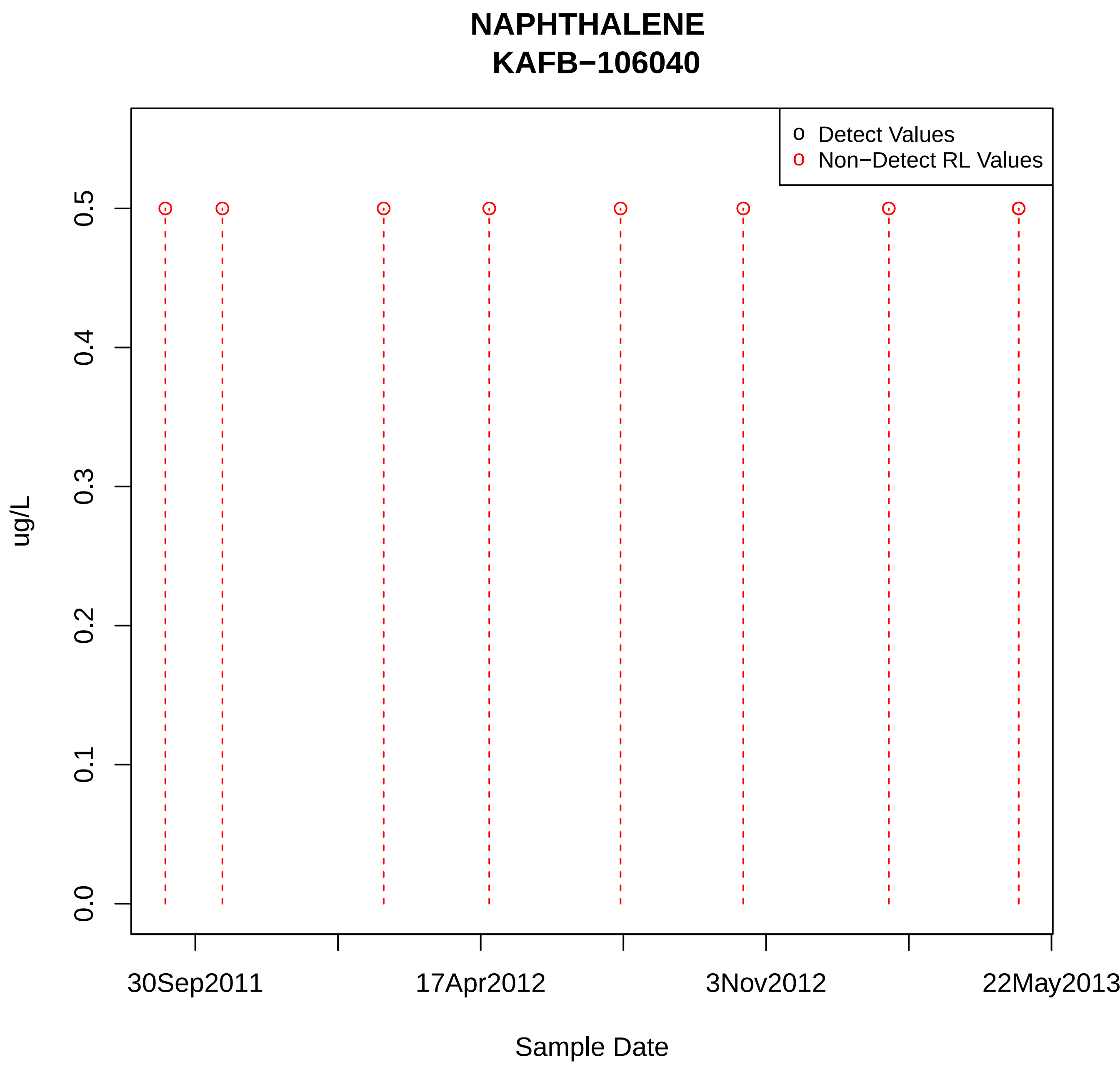


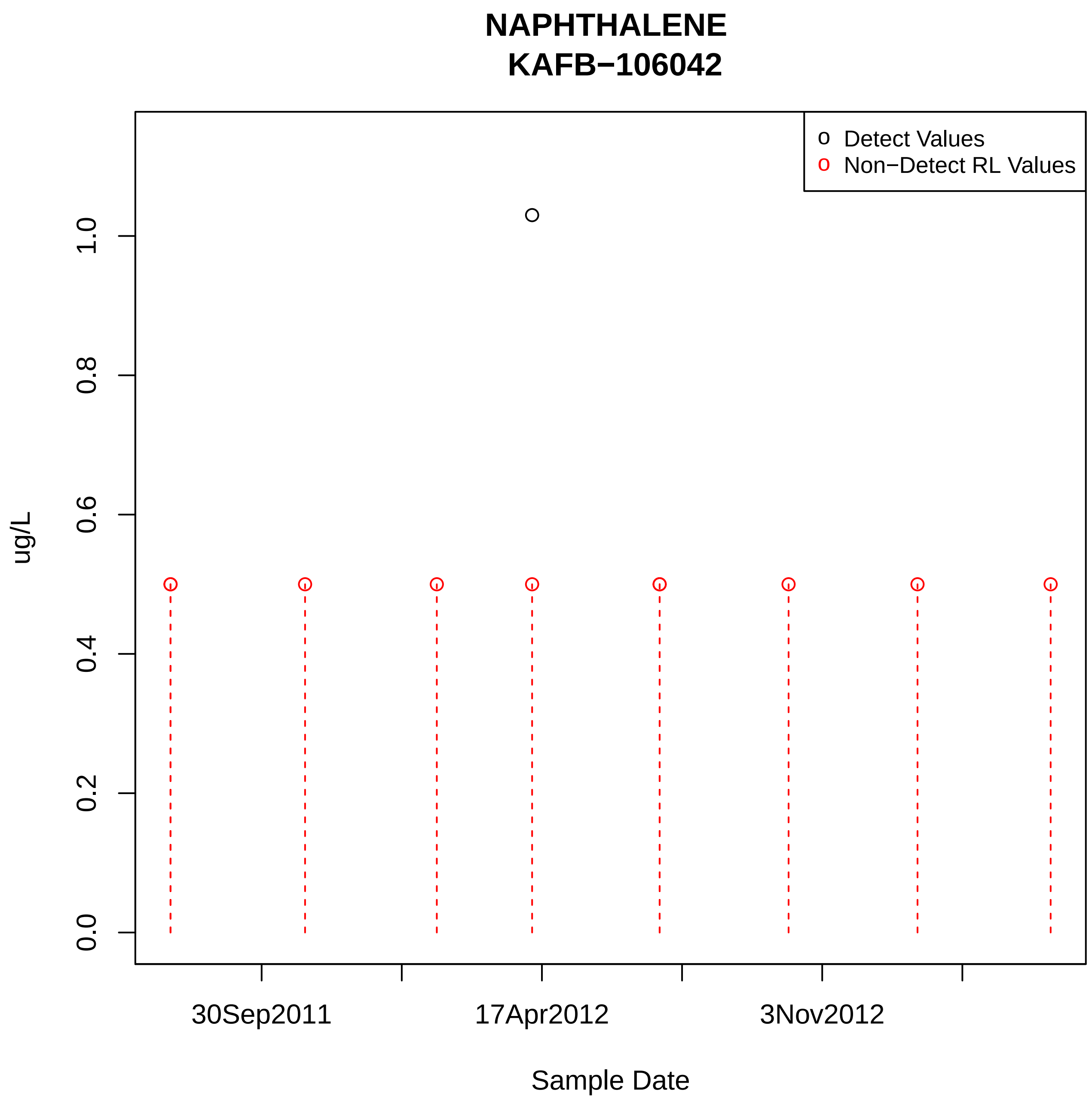
NAPHTHALENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

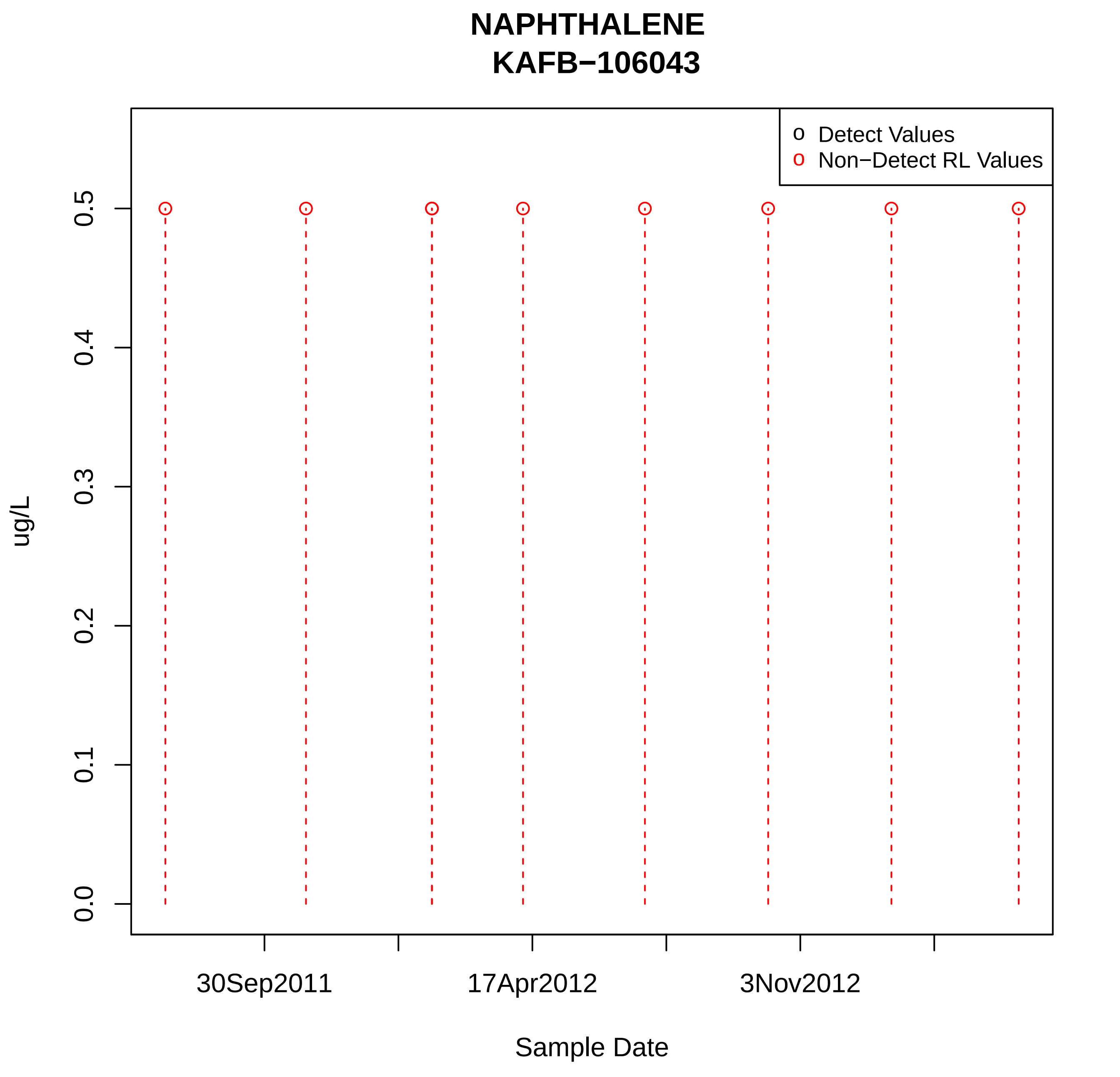


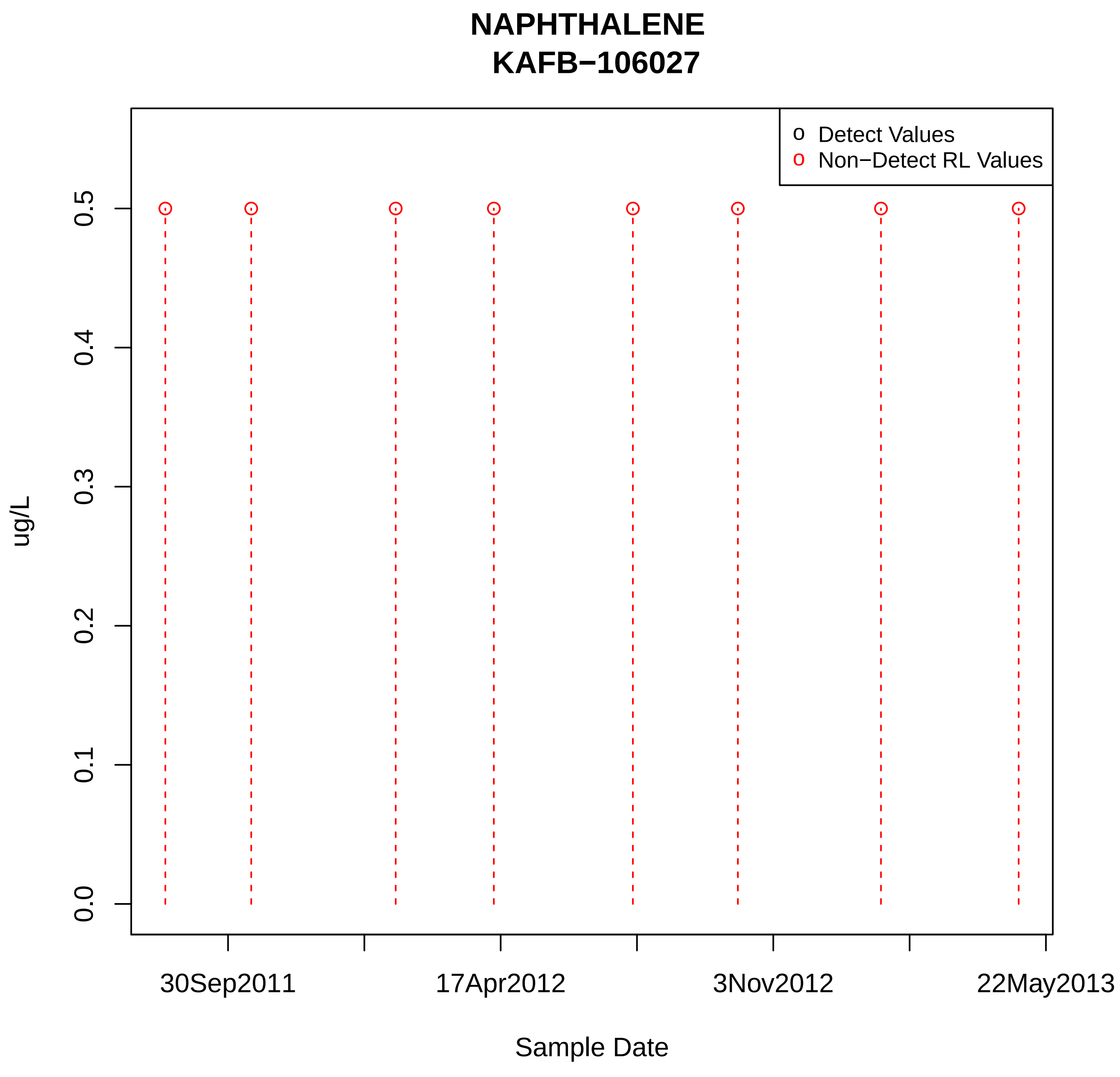
NAPHTHALENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


NAPHTHALENE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

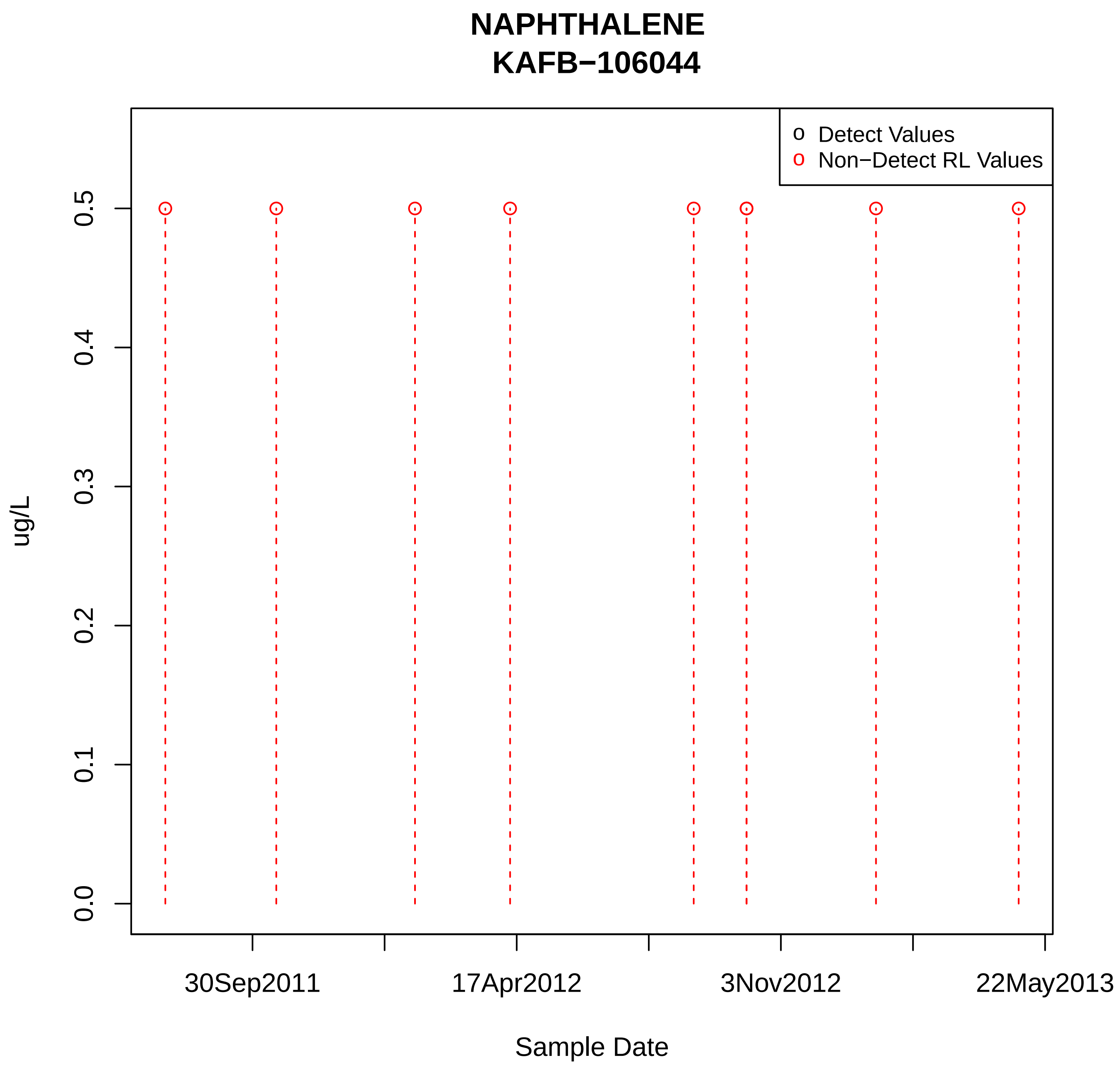

NAPHTHALENE
KAFB−106040
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


NAPHTHALENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
1.0
0.8
0.6
0.4
0.2
0.0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

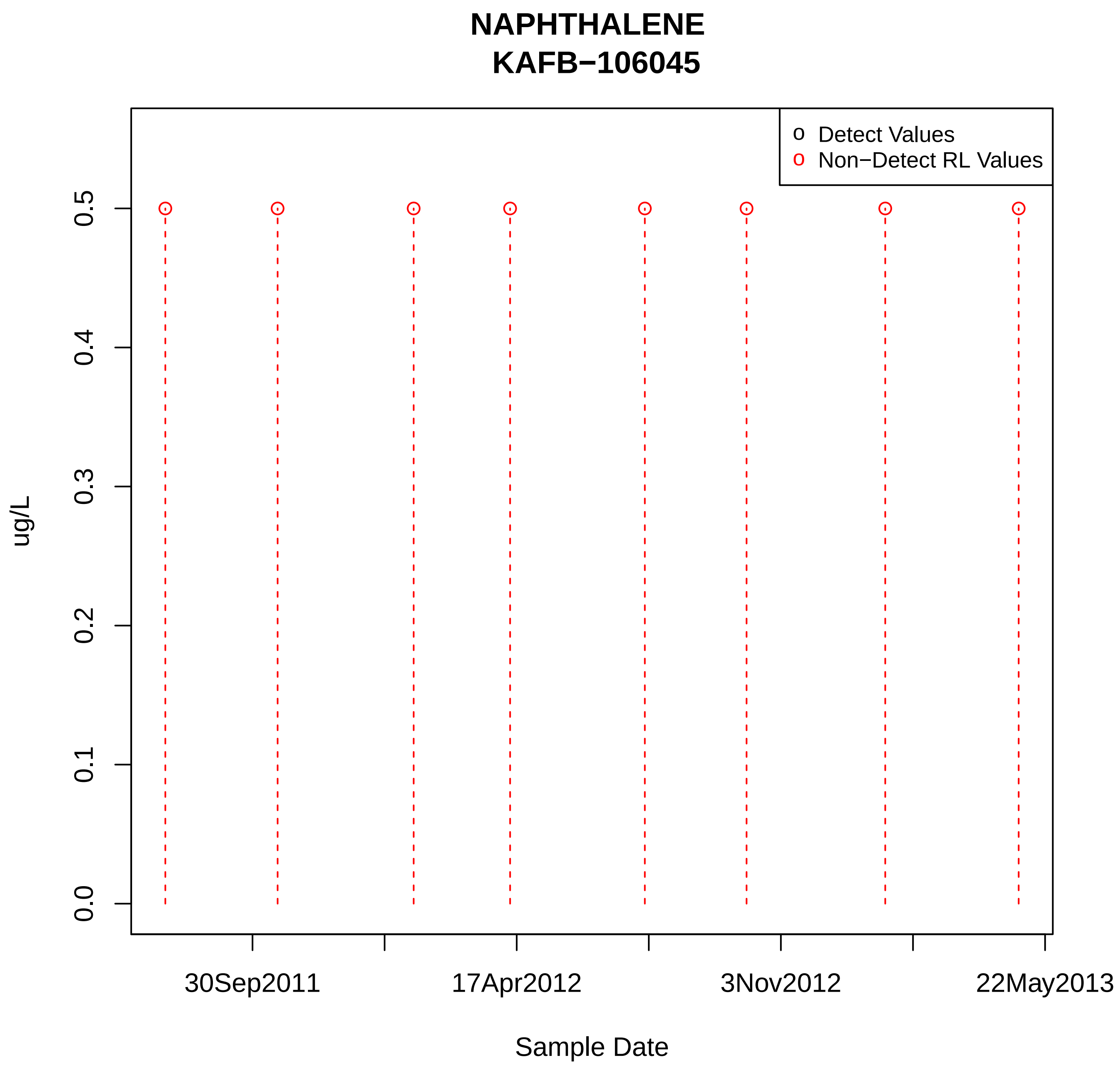

NAPHTHALENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



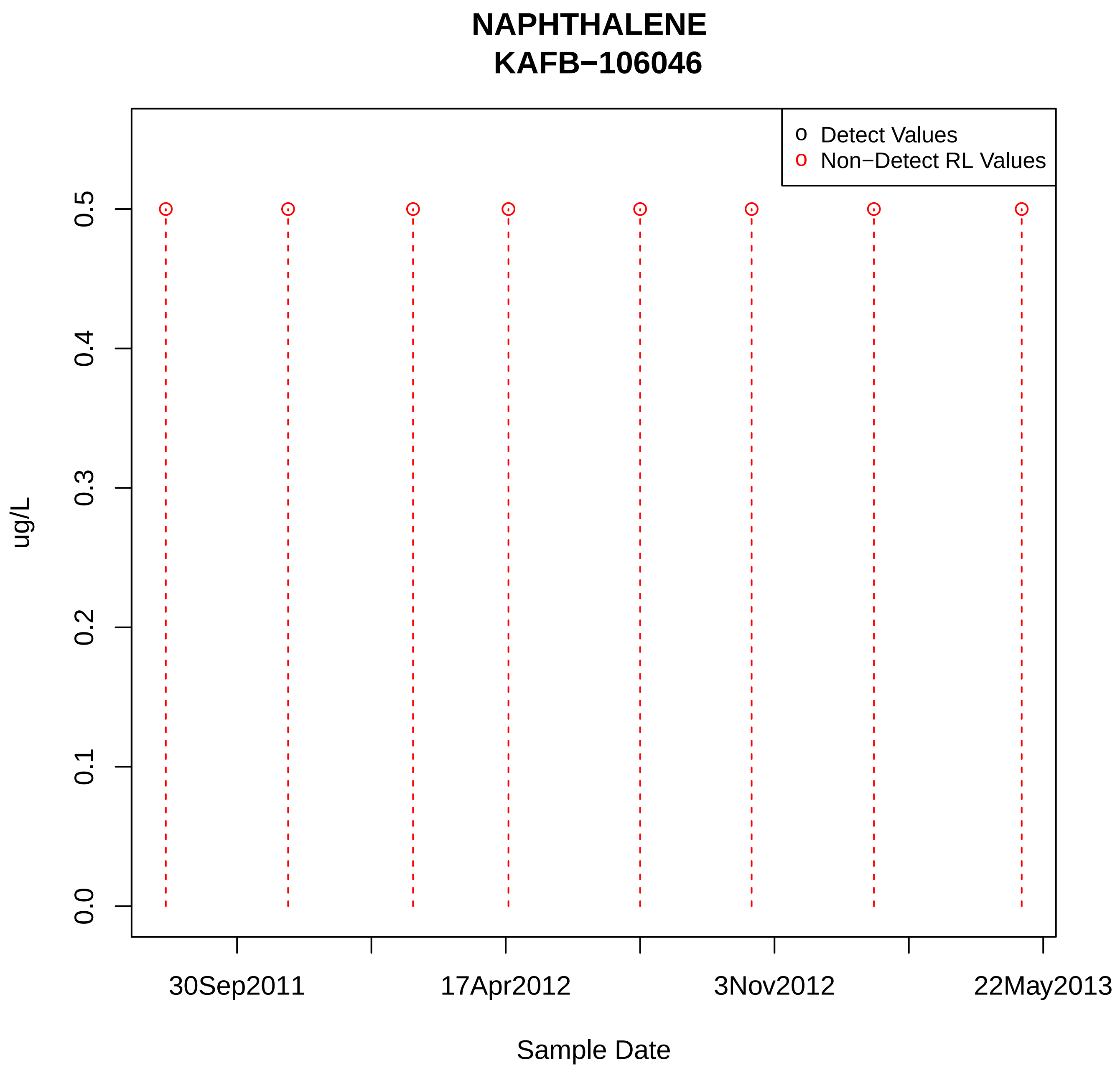
NAPHTHALENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



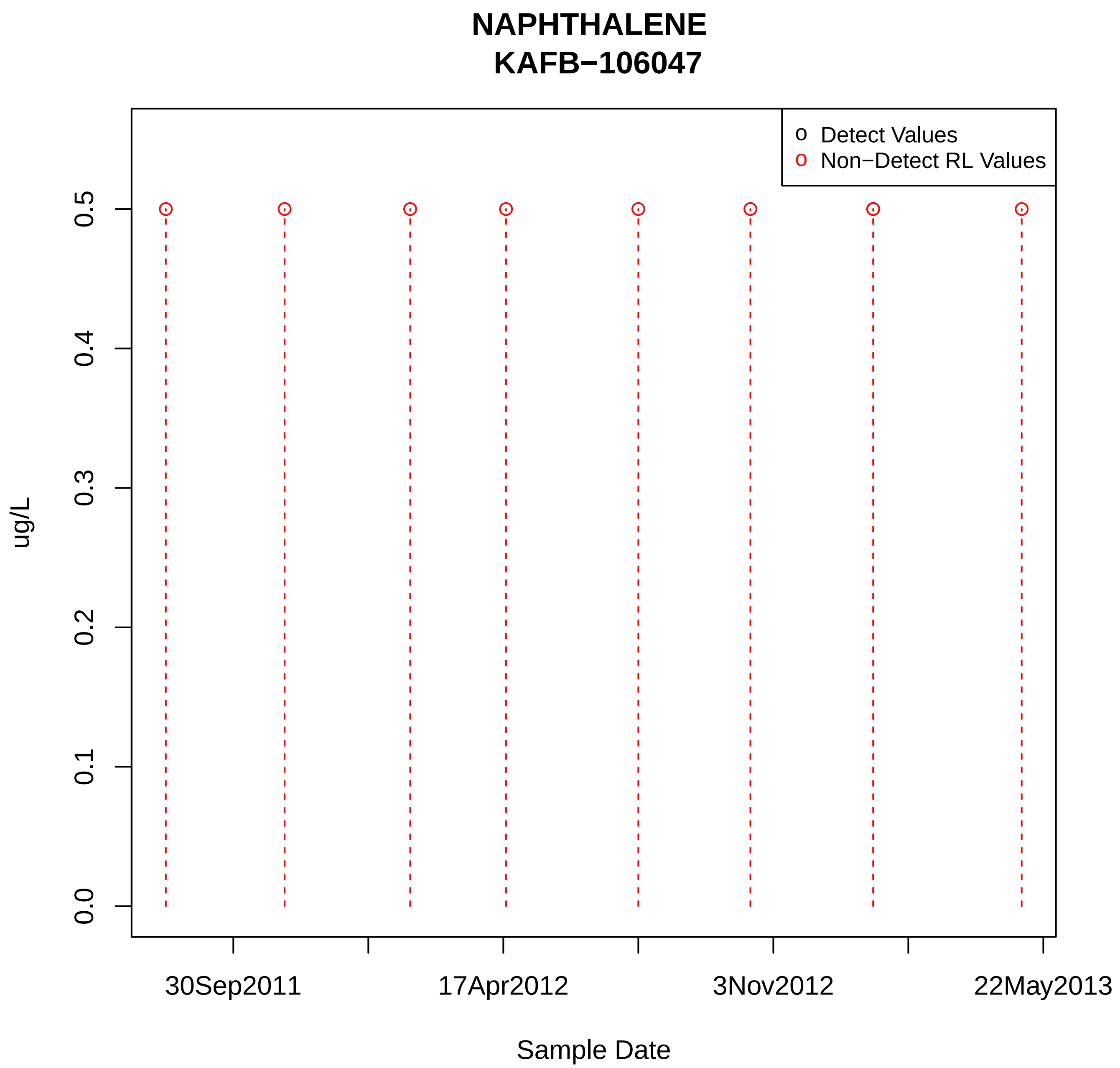
NAPHTHALENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



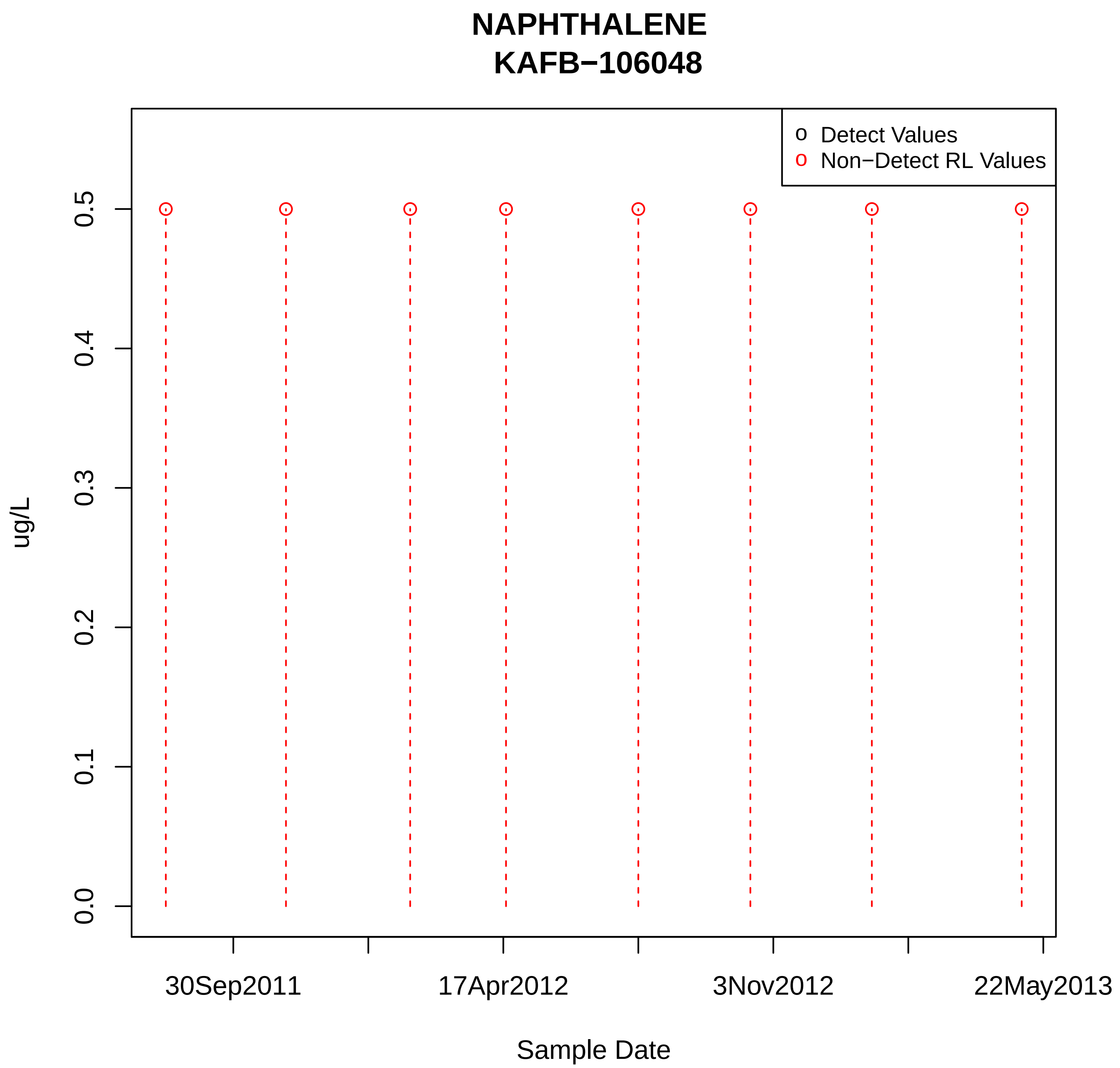
NAPHTHALENE
KAFB−106045
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



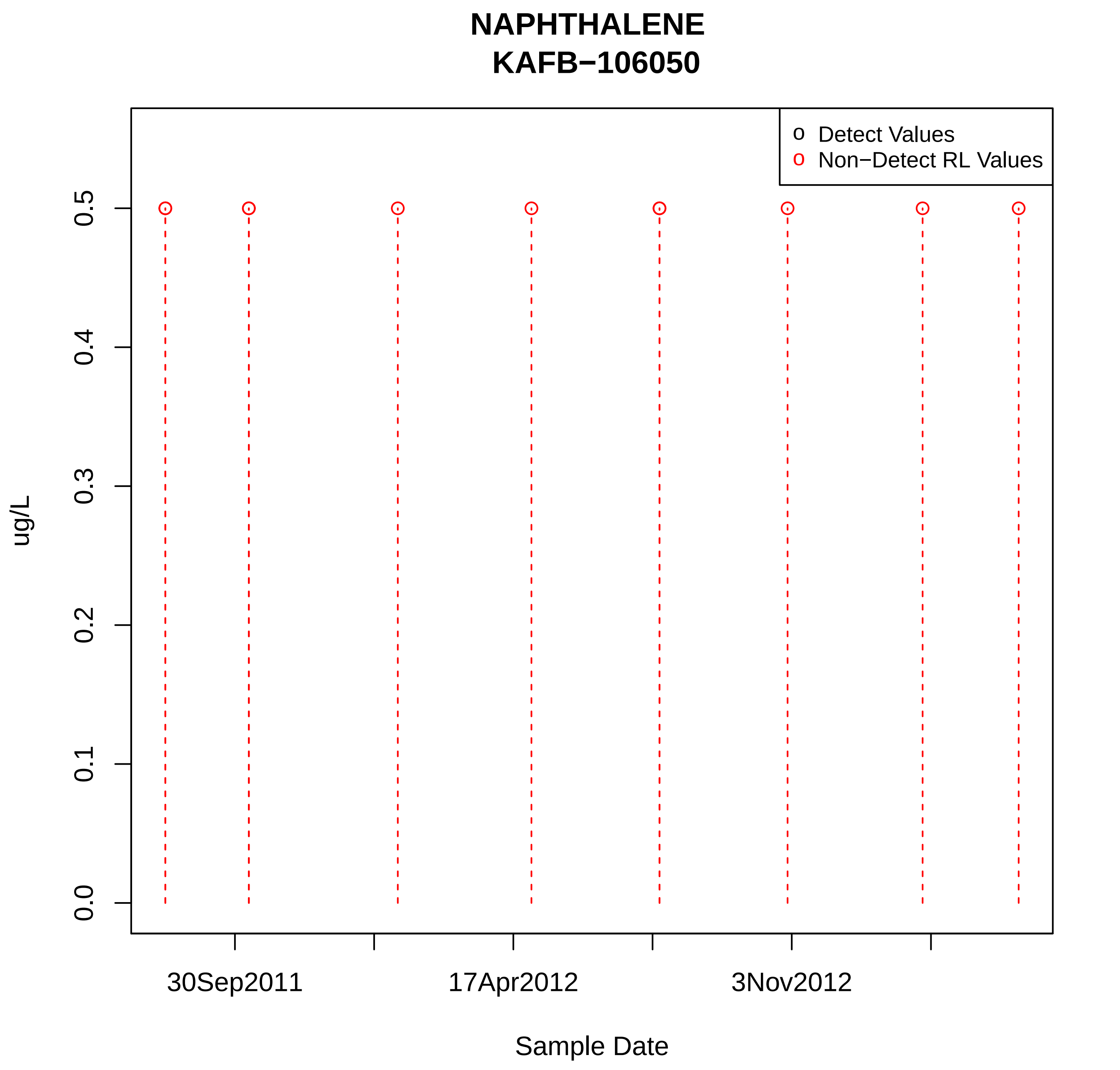
NAPHTHALENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

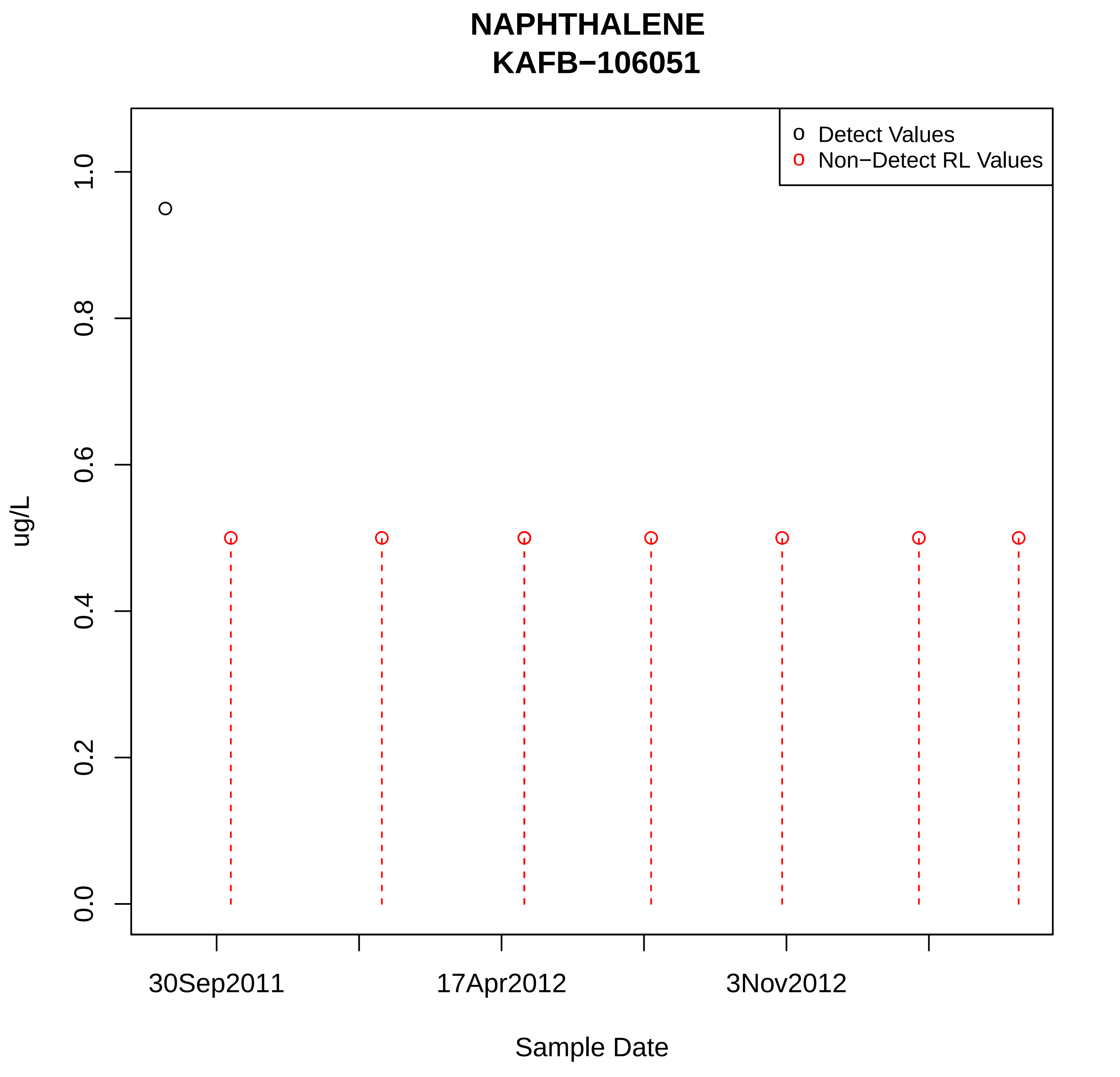


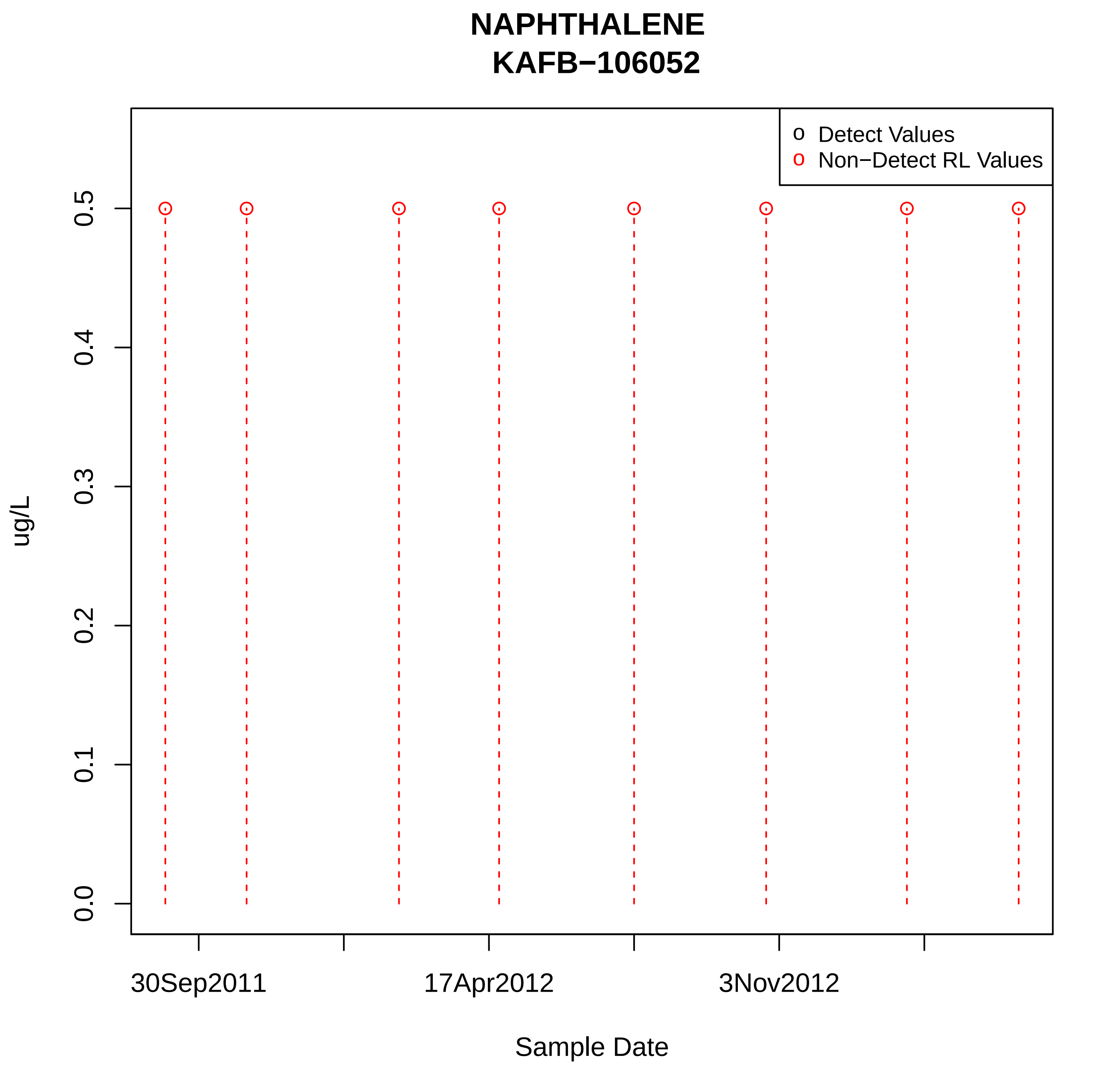
NAPHTHALENE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



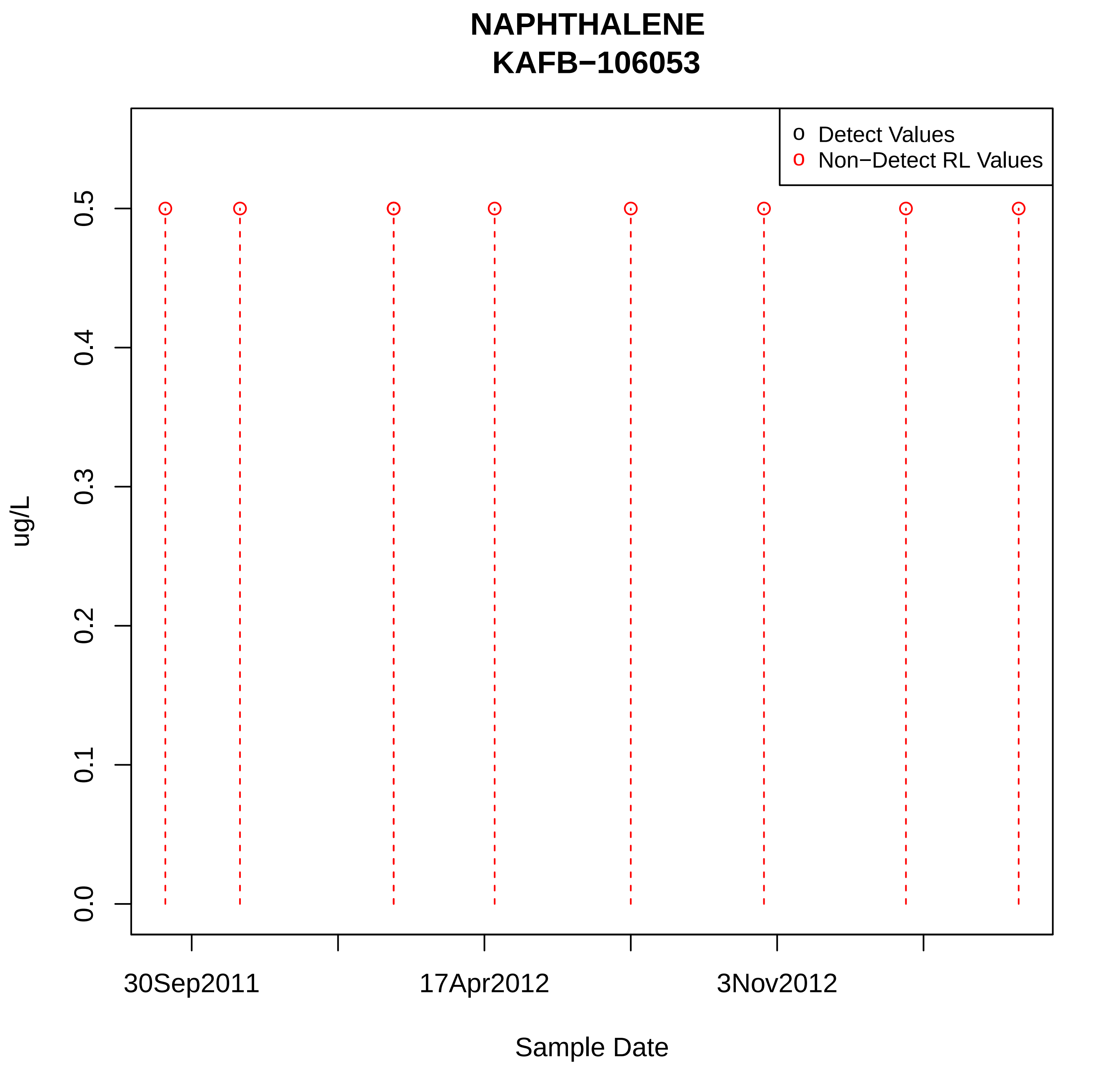
NAPHTHALENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

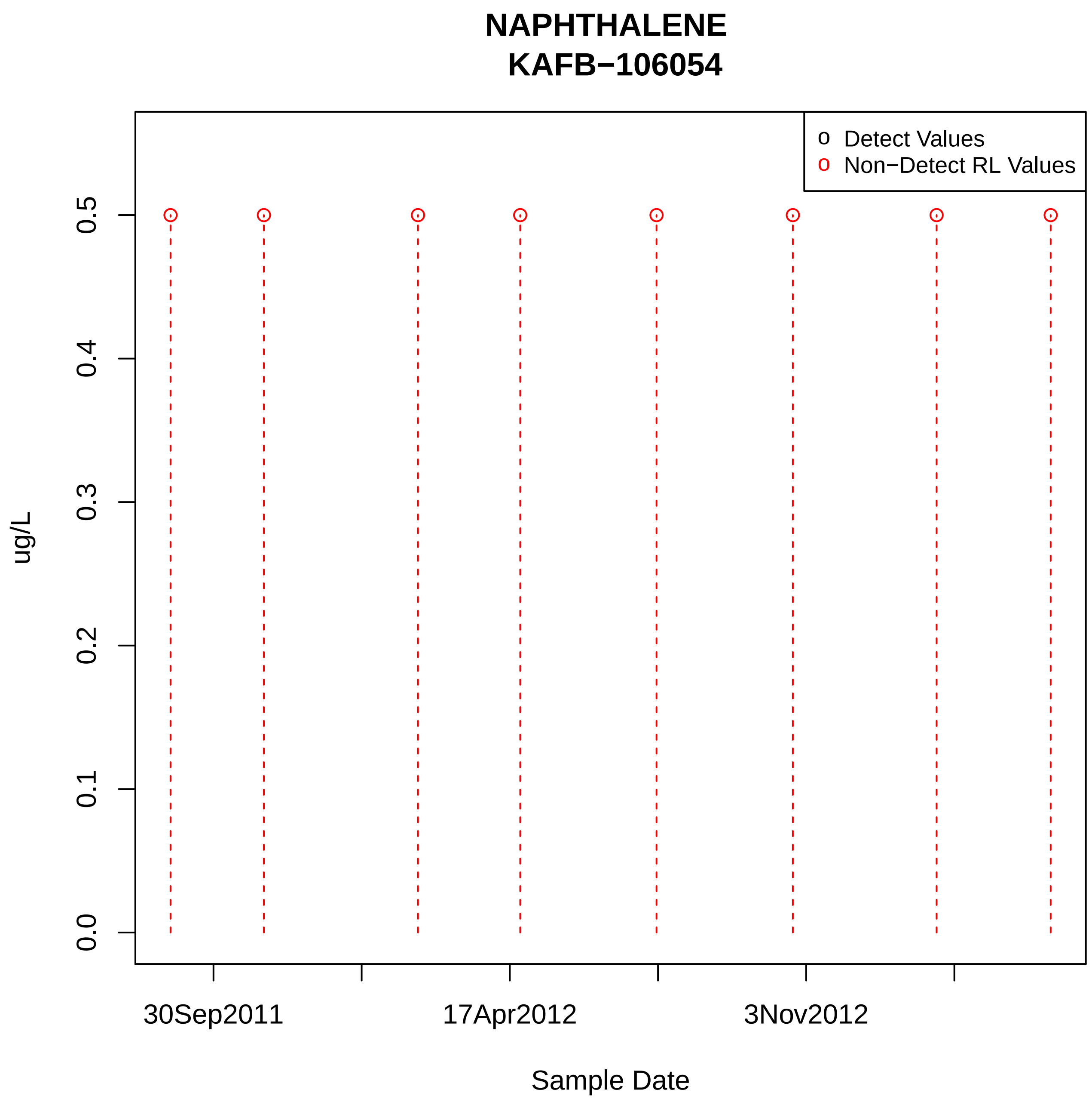

NAPHTHALENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


NAPHTHALENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

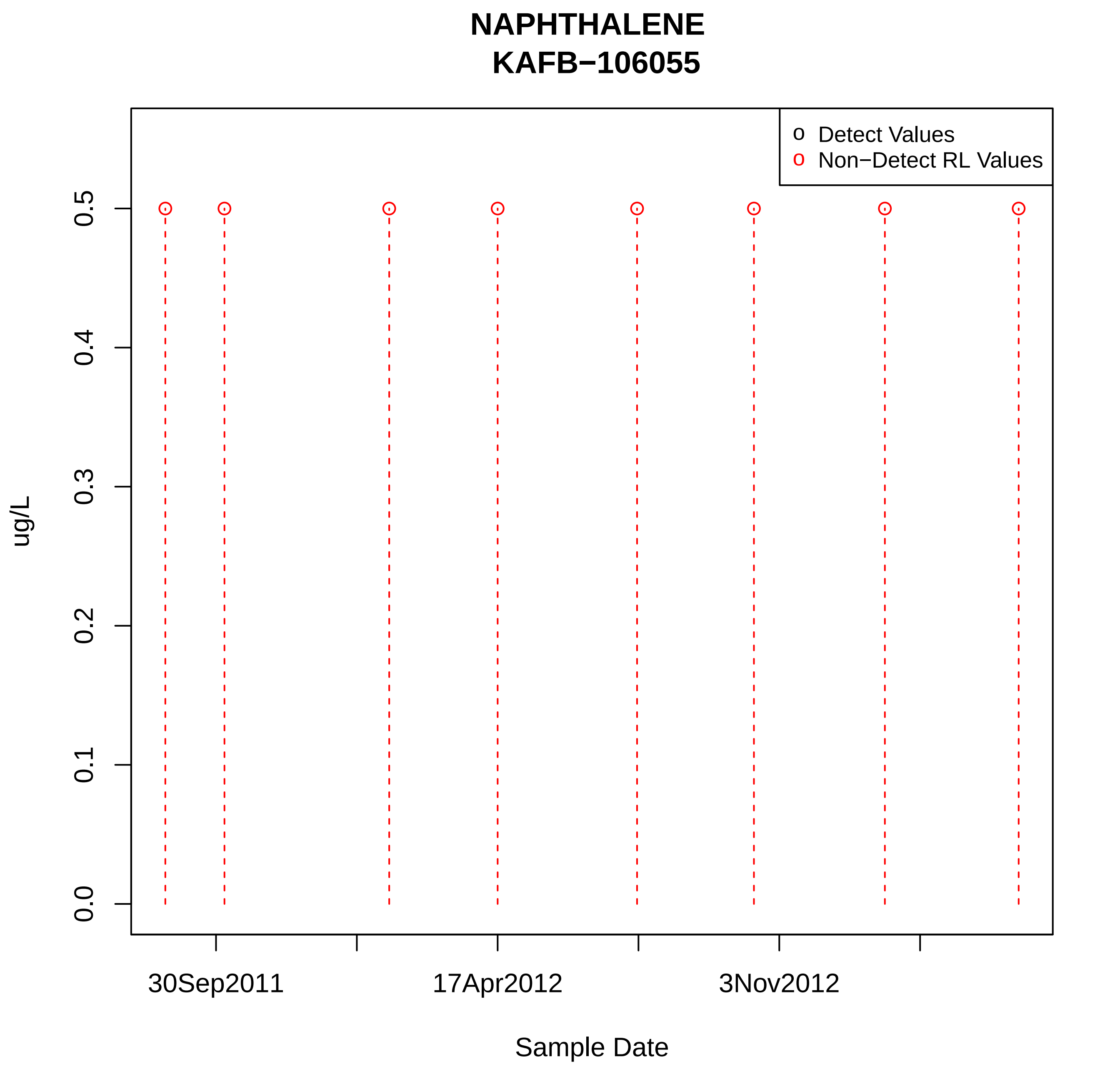


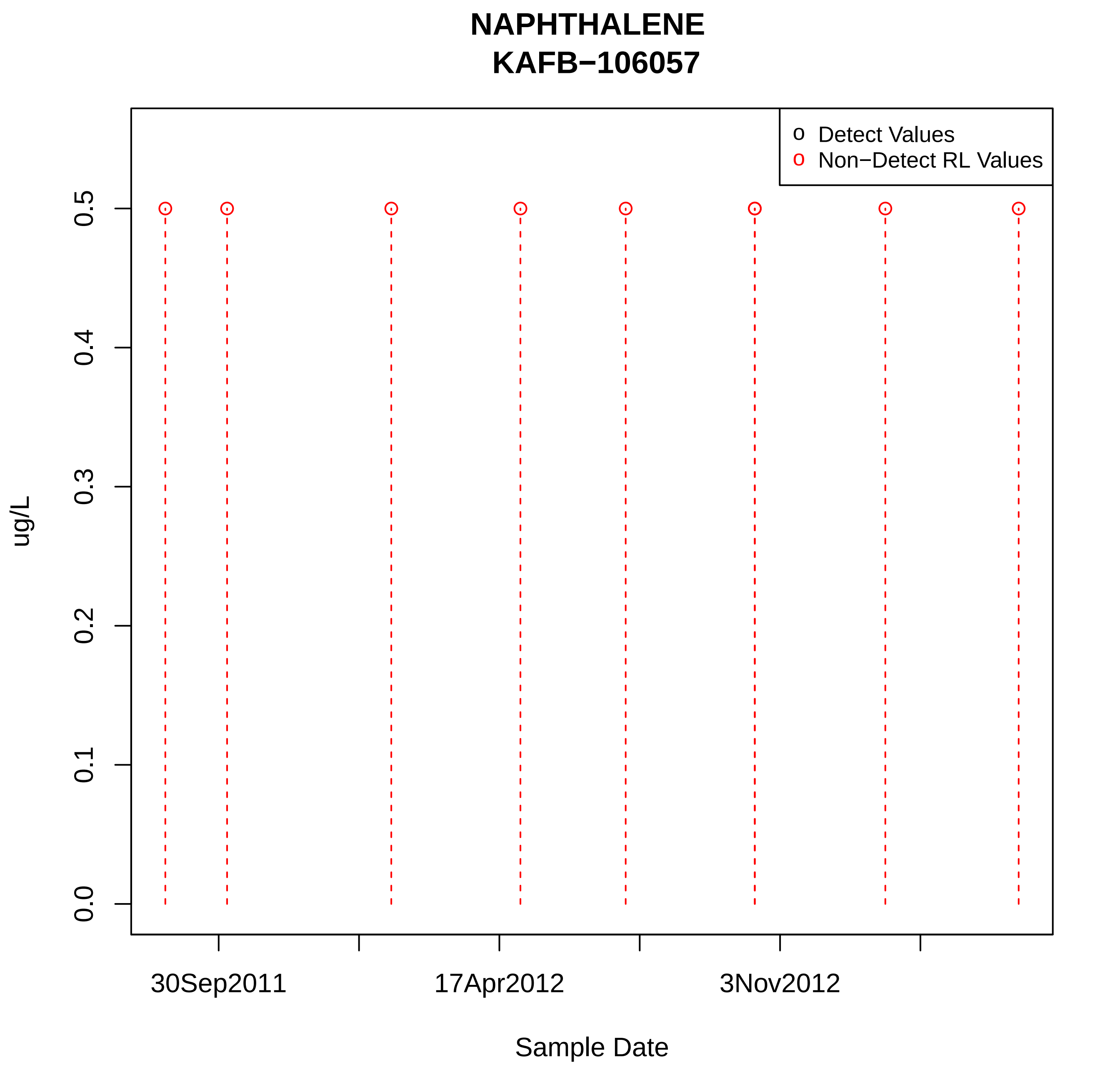
NAPHTHALENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

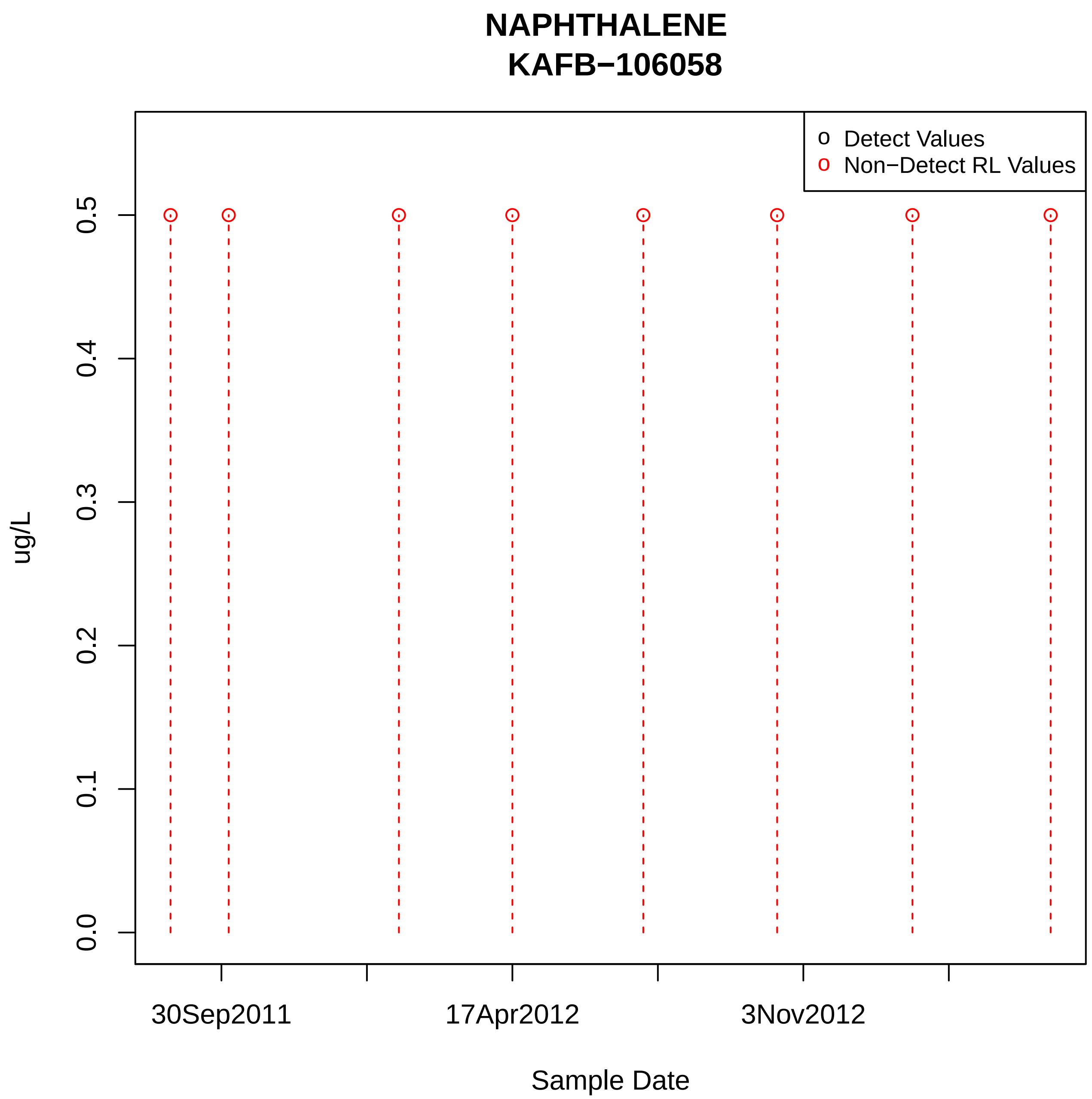

NAPHTHALENE
KAFB−106053
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



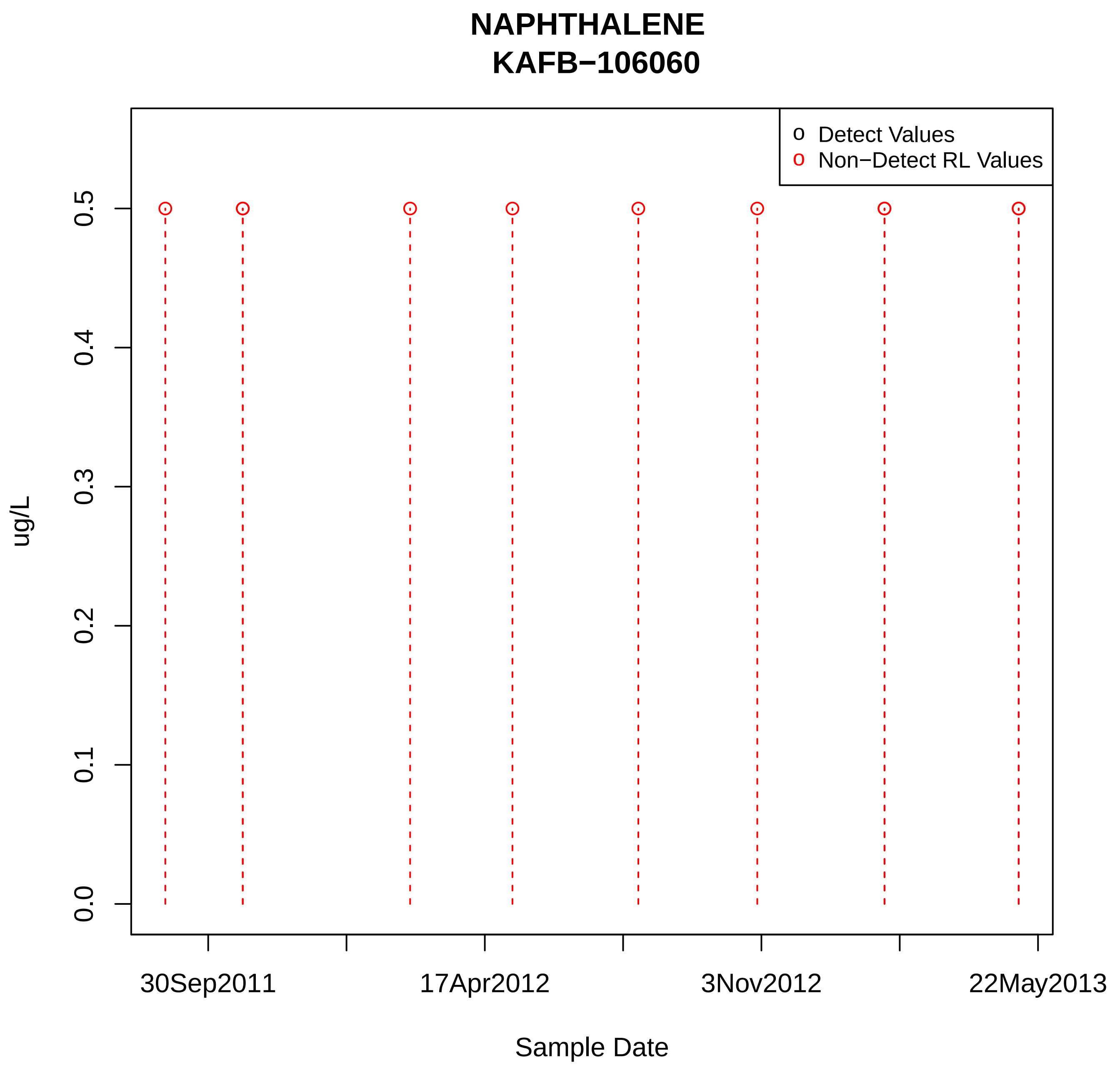
NAPHTHALENE
KAFB−106054
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


NAPHTHALENE
KAFB−106055
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

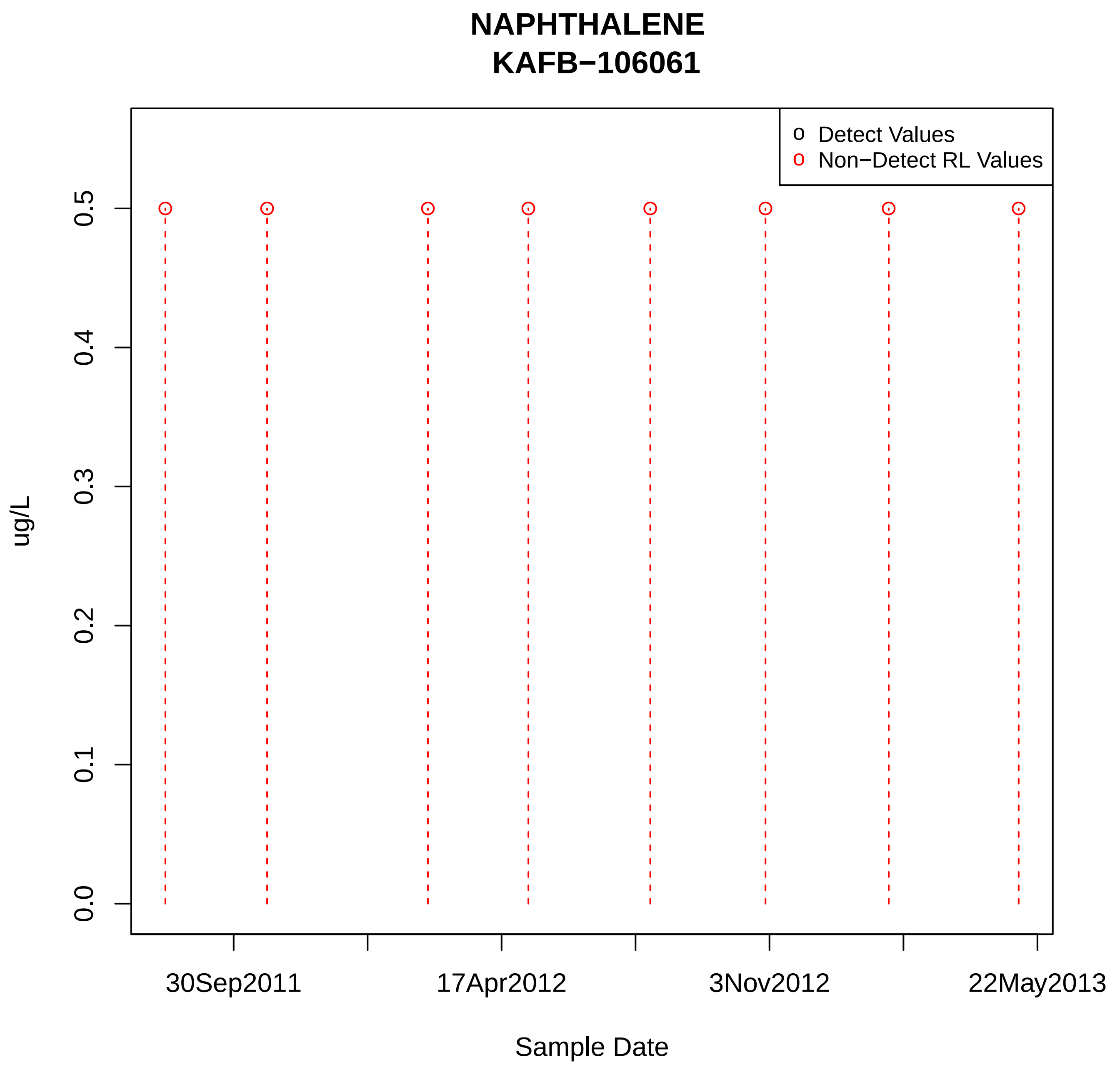

NAPHTHALENE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

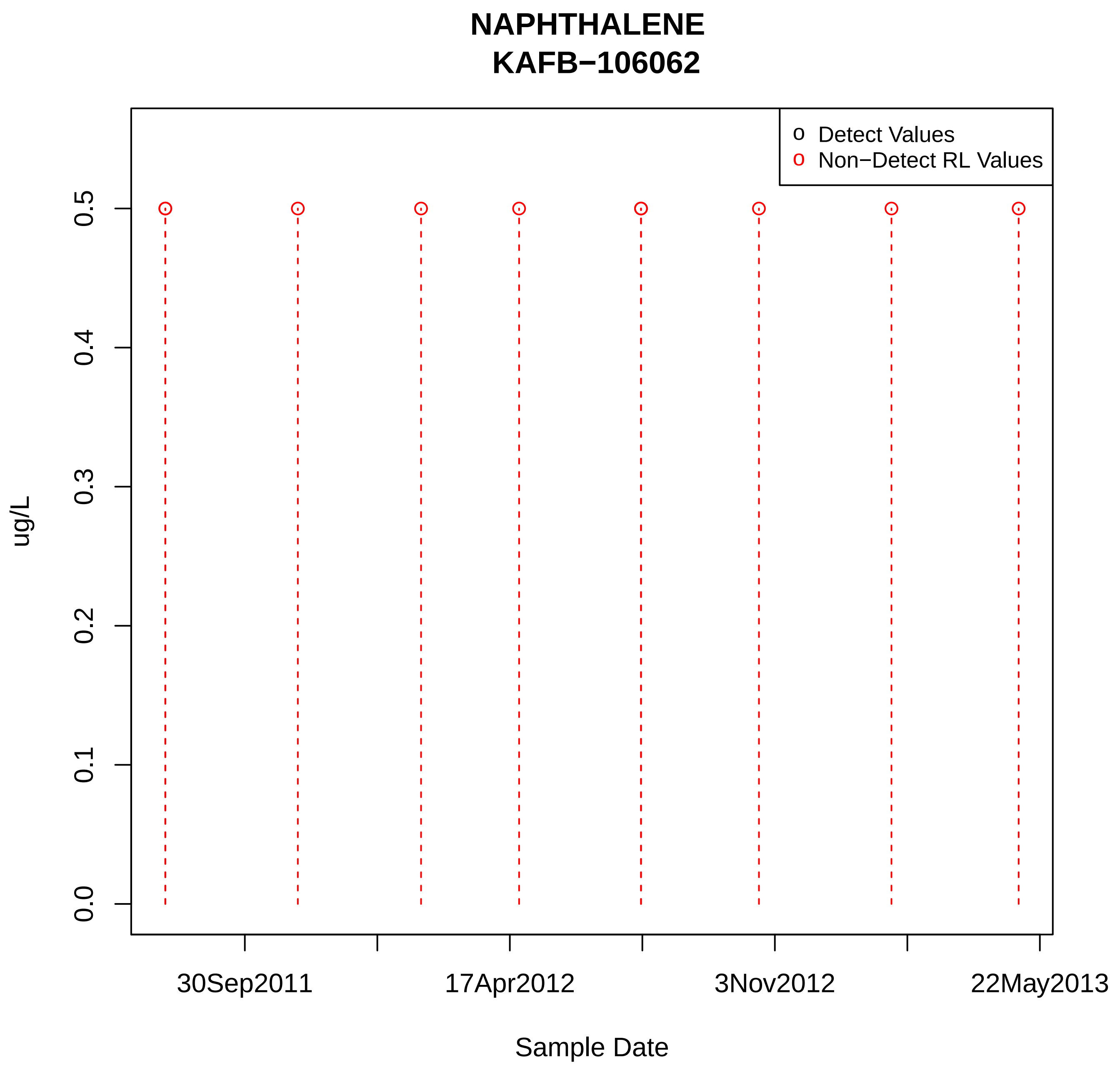


NAPHTHALENE
KAFB−106058
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

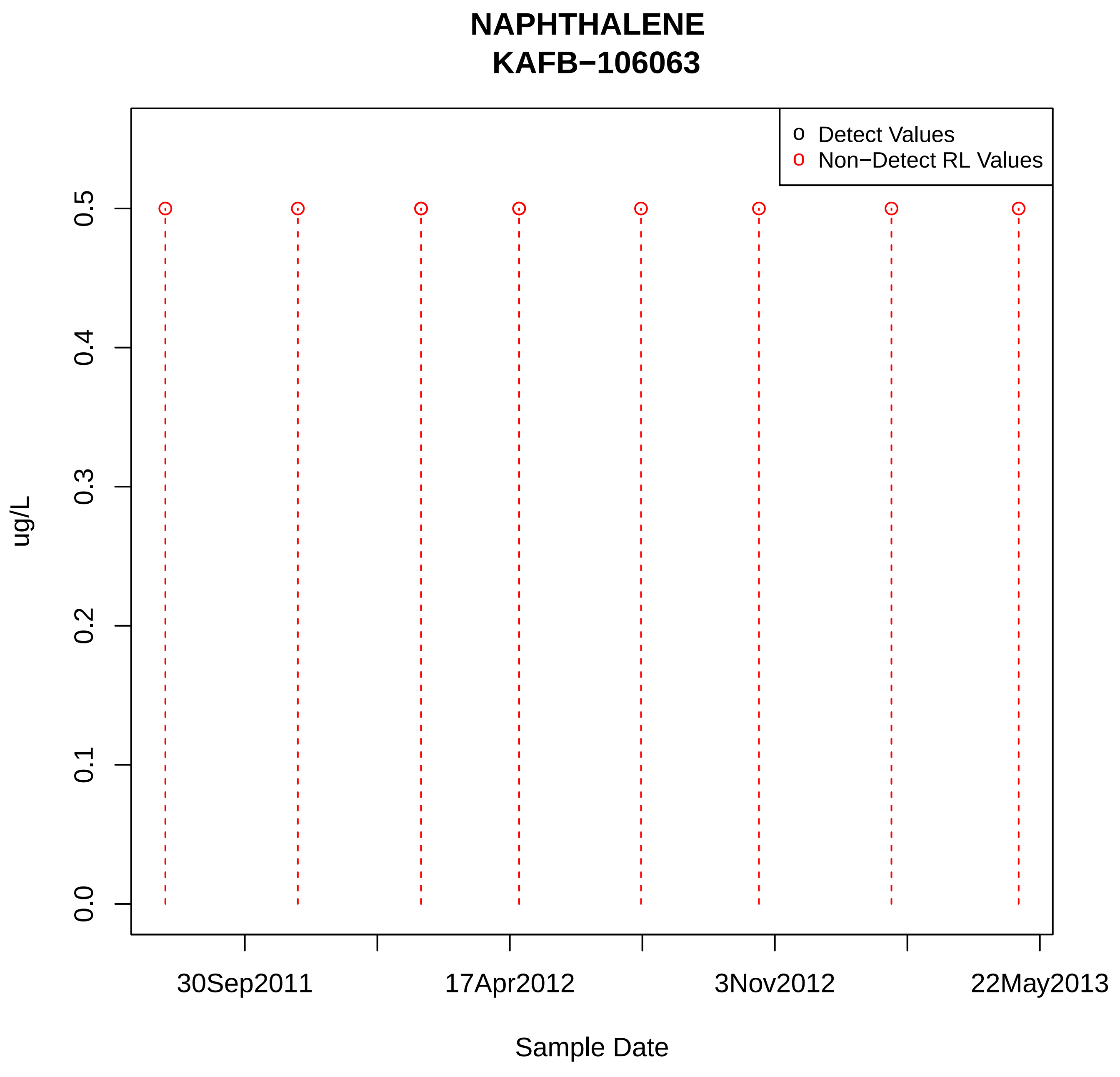


NAPHTHALENE
KAFB−106060
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

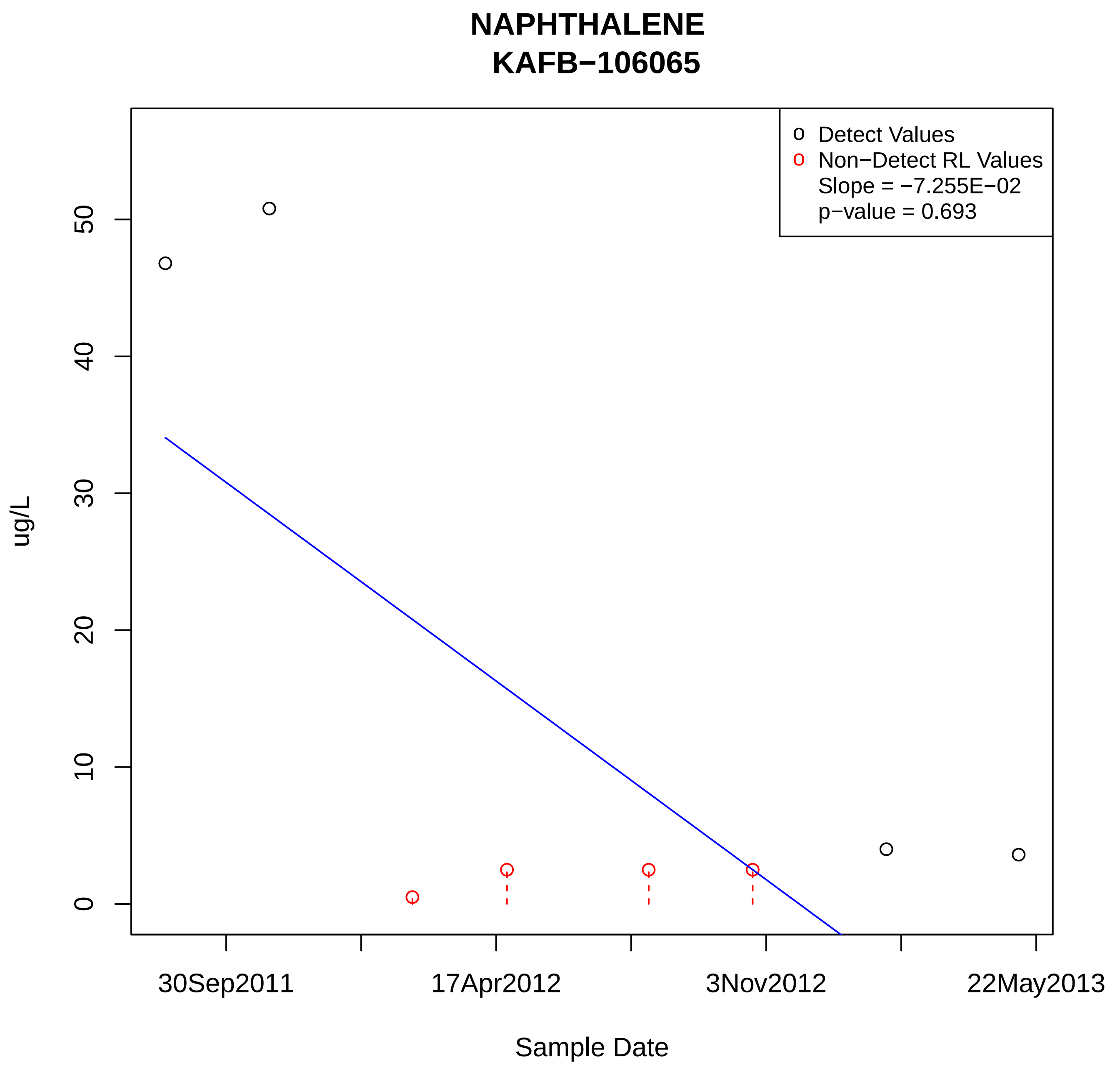

NAPHTHALENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



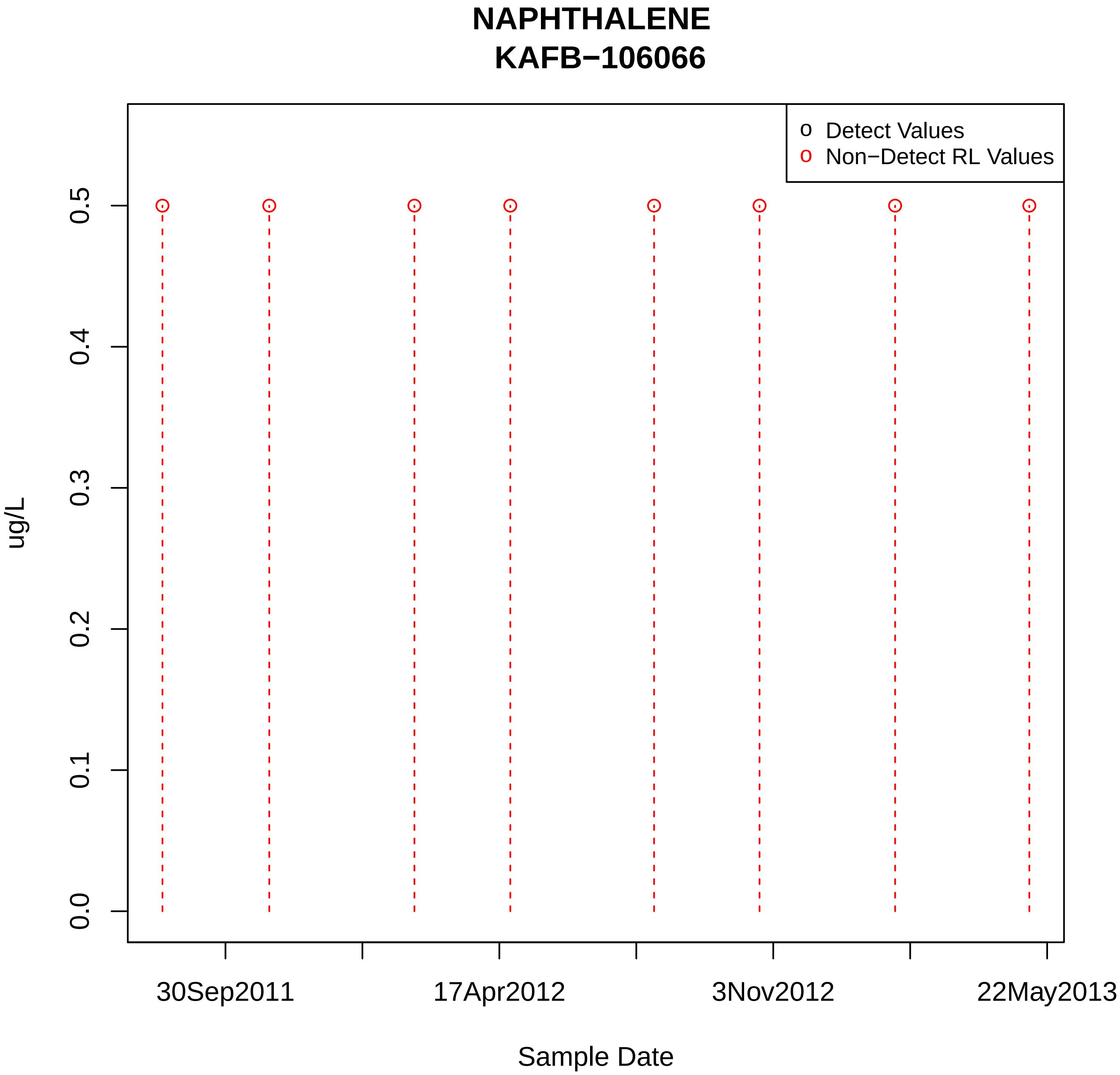
NAPHTHALENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



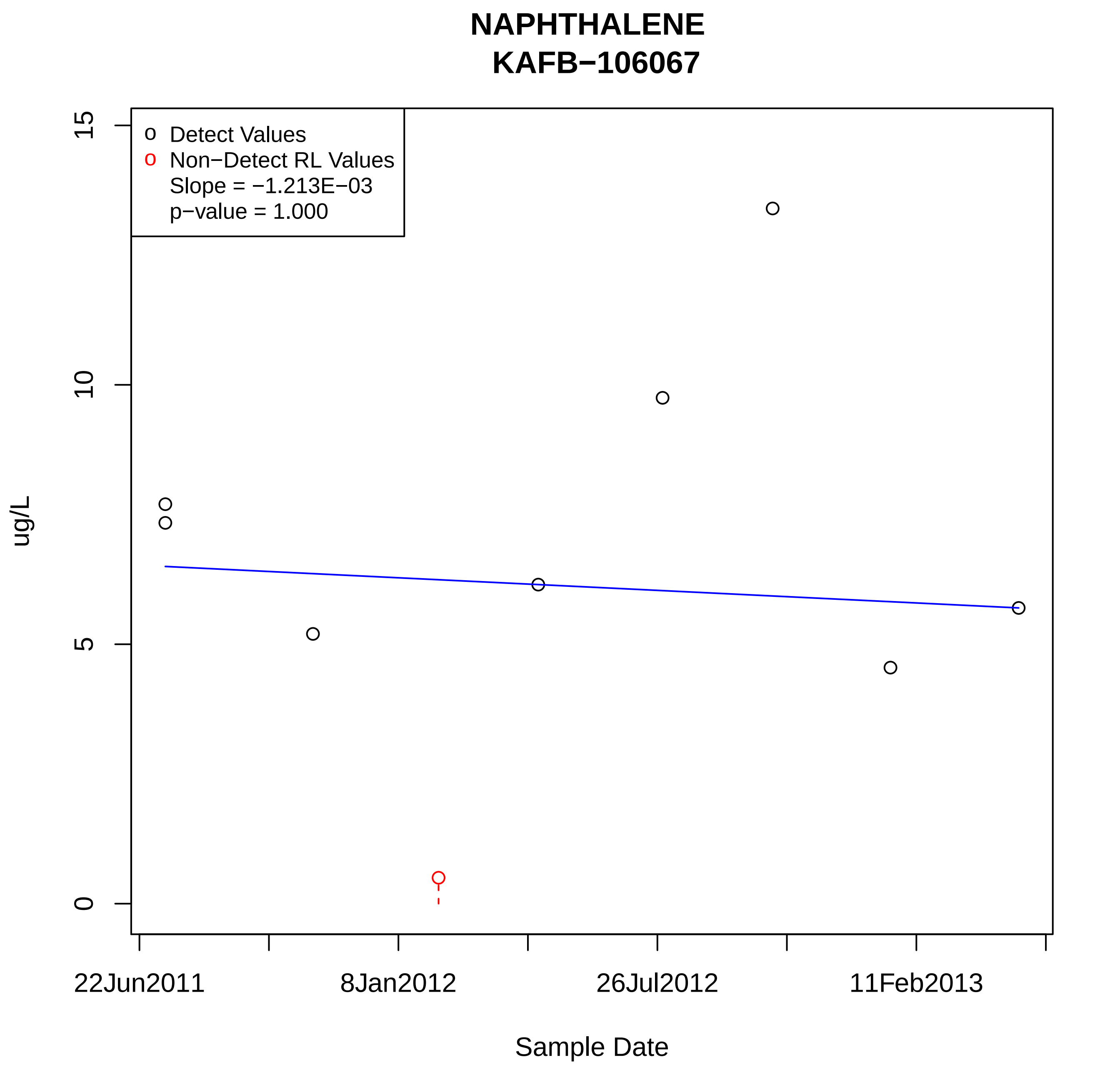
NAPHTHALENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



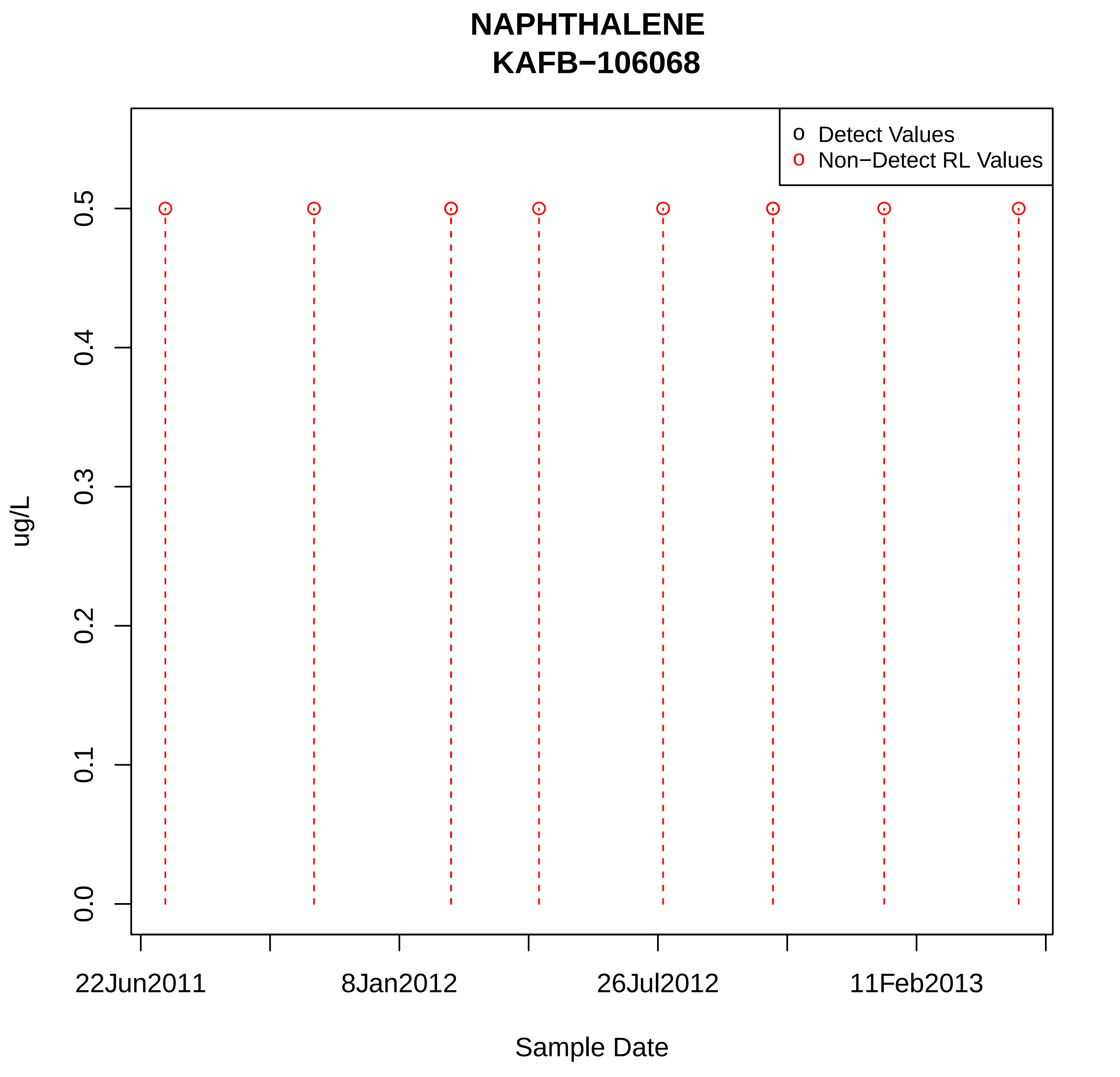
NAPHTHALENE
KAFB−106065
o Detect Values
o Non−Detect RL Values
Slope = −7.255E−02
p−value = 0.693
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

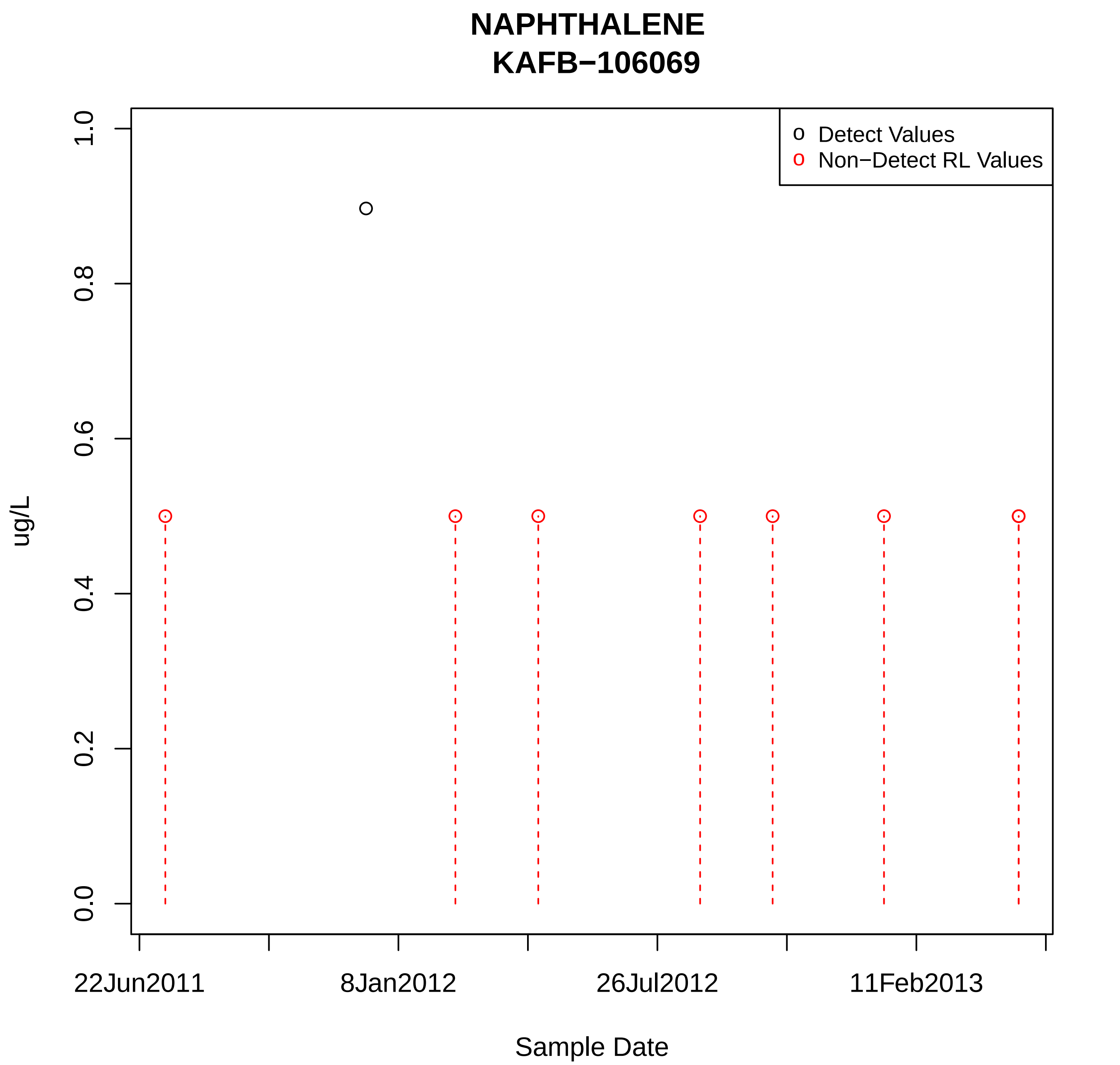


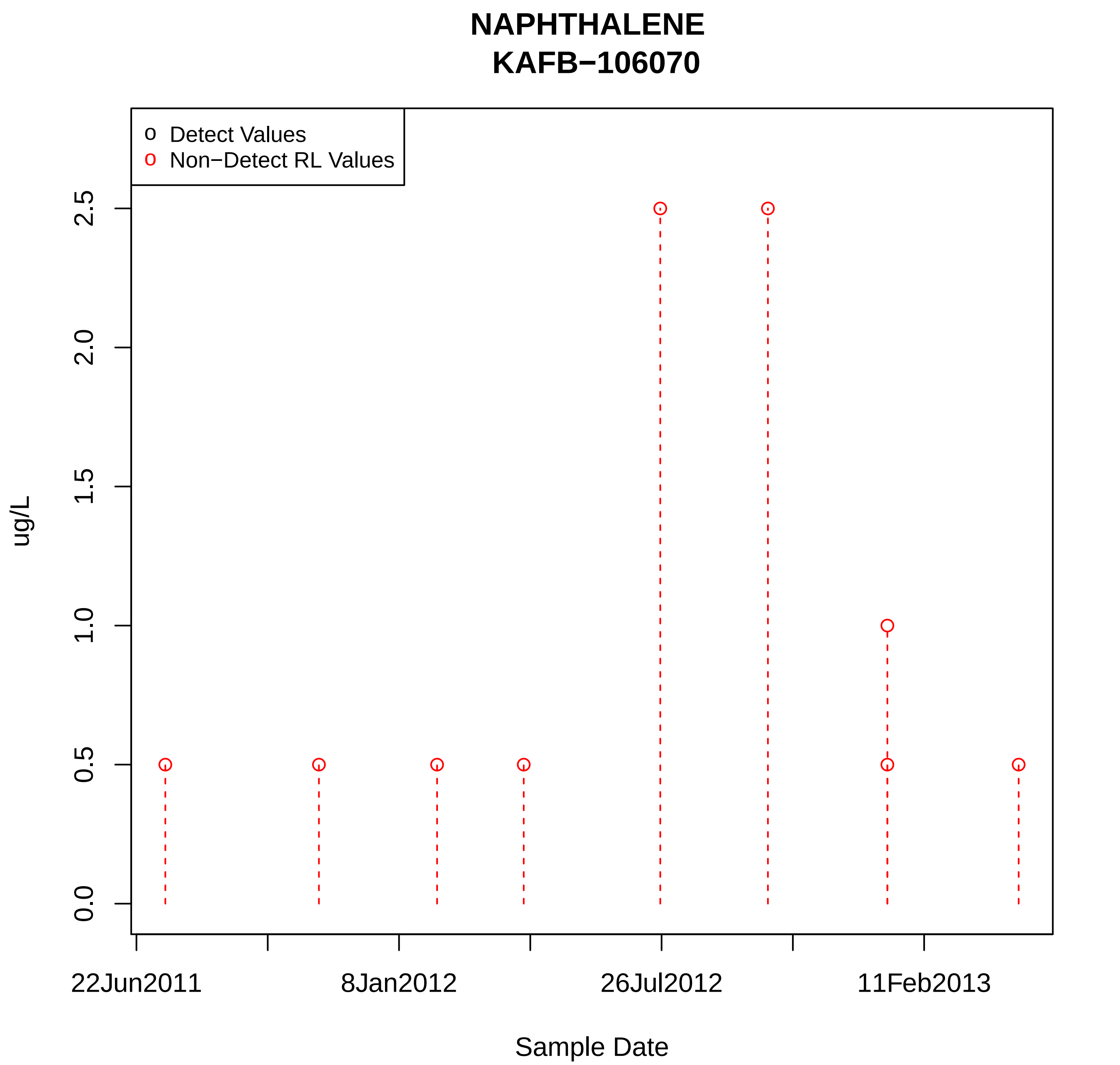
NAPHTHALENE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



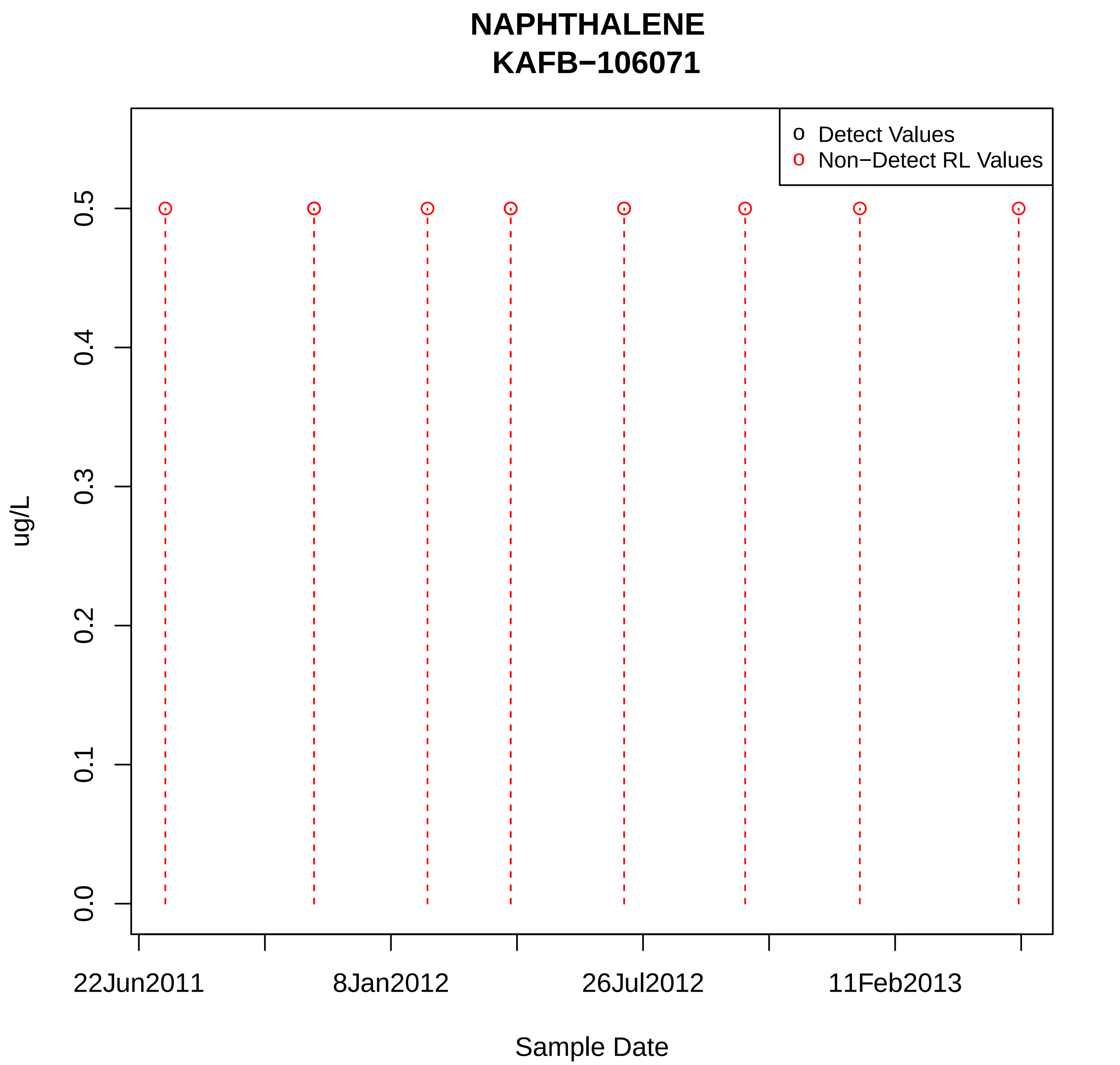
NAPHTHALENE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = −1.213E−03
p−value = 1.000
ug/L
0
5
10
15
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


NAPHTHALENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

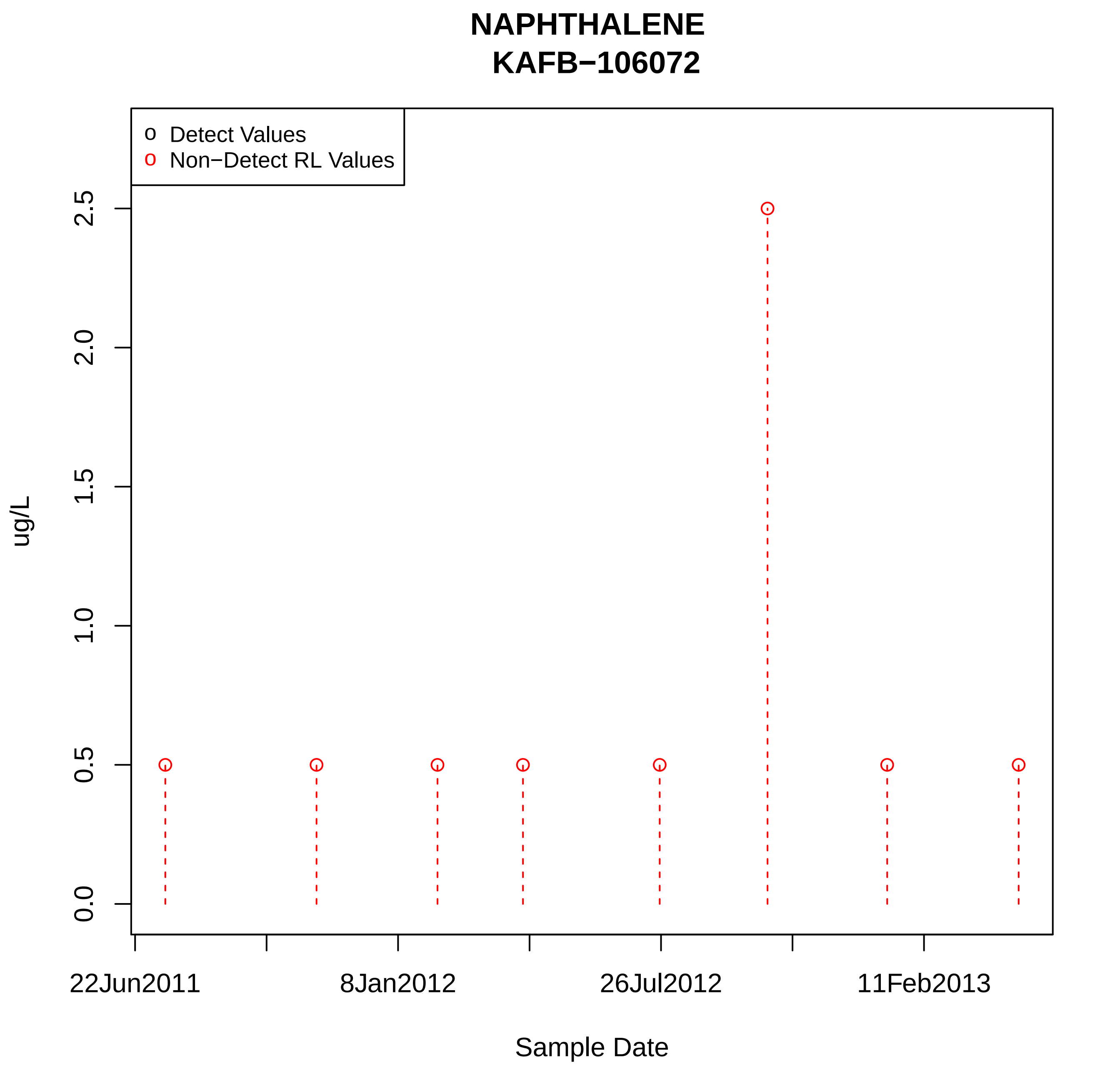

NAPHTHALENE
KAFB−106069
Detect Values
Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

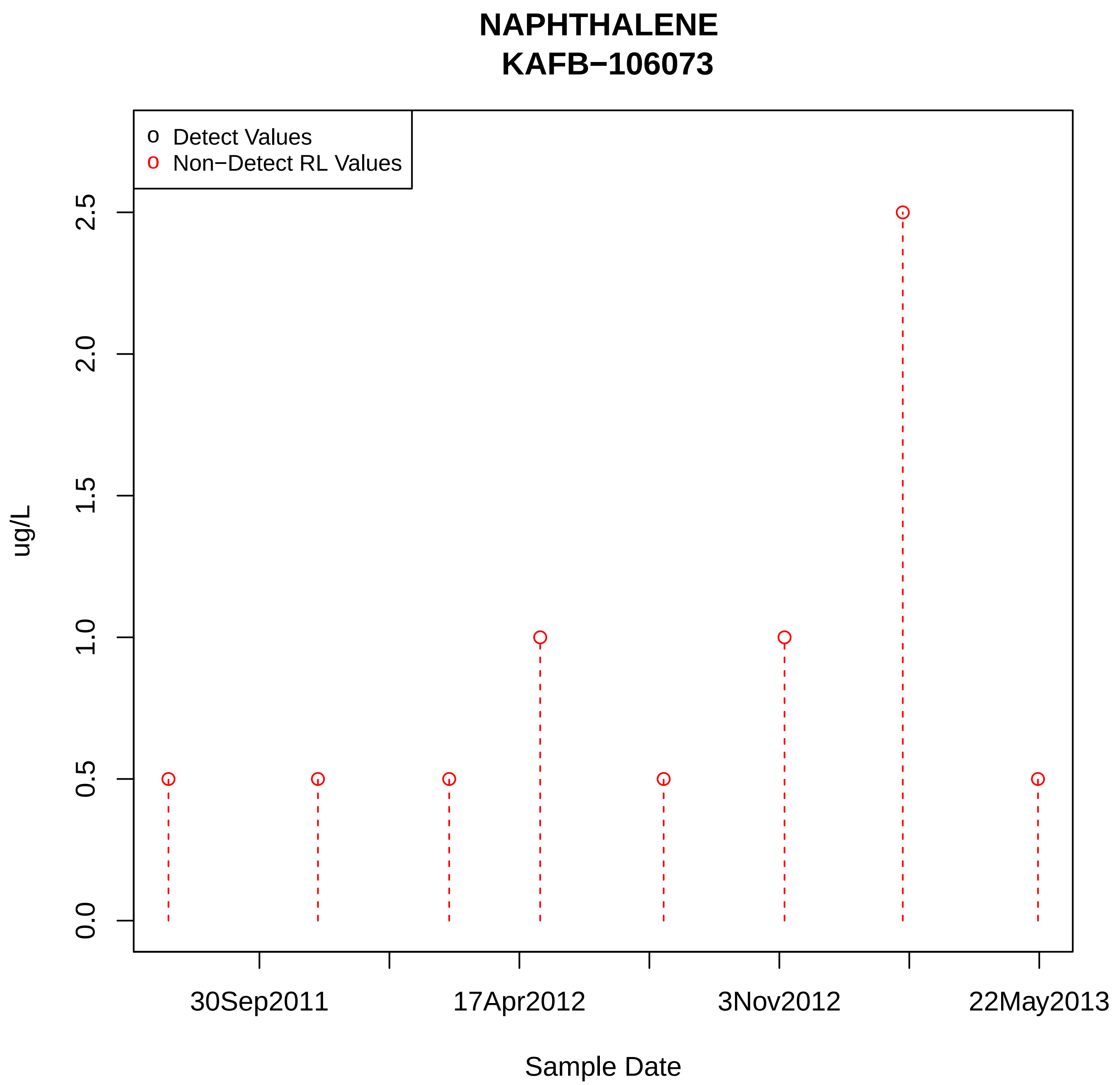


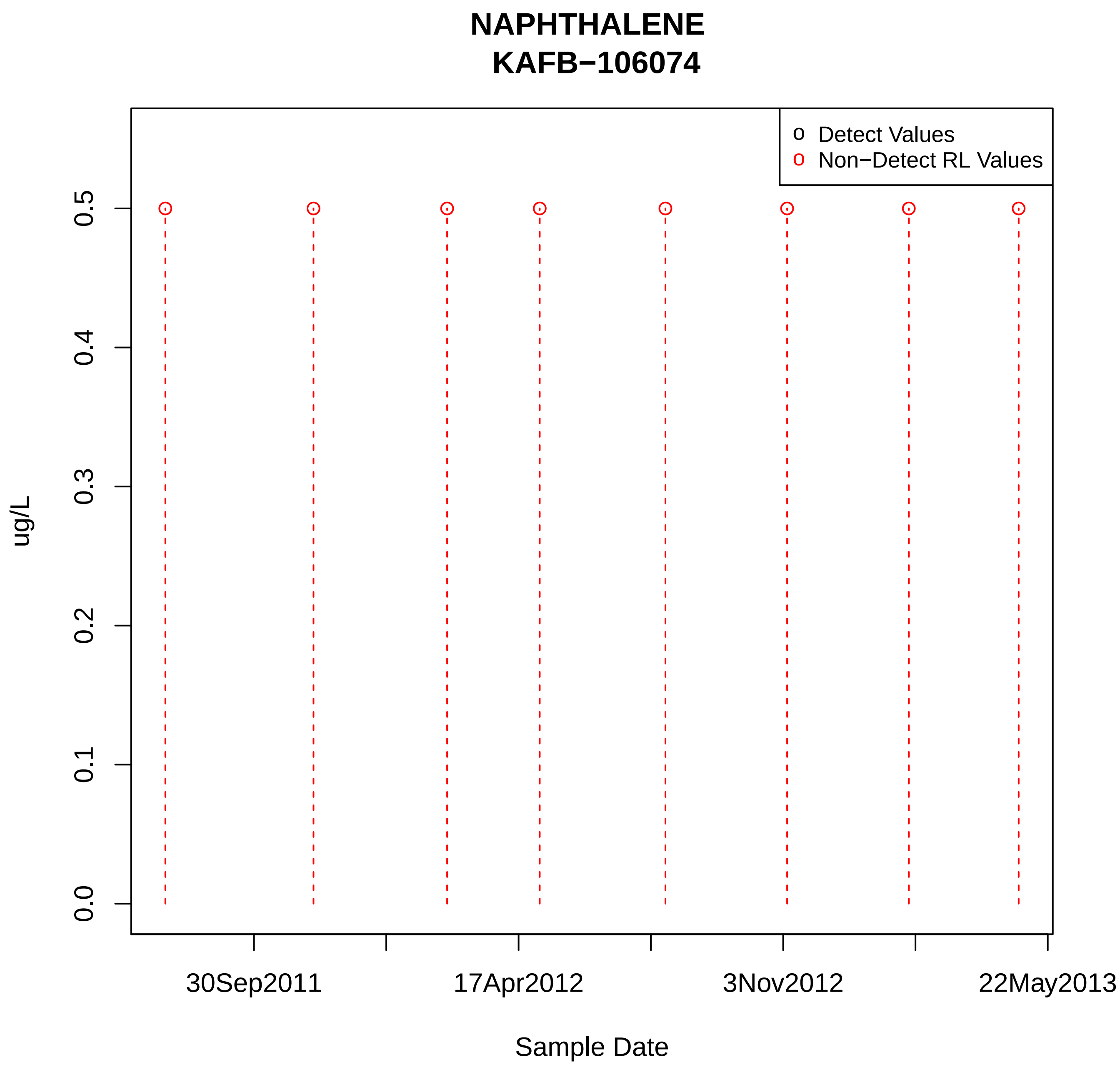
NAPHTHALENE
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



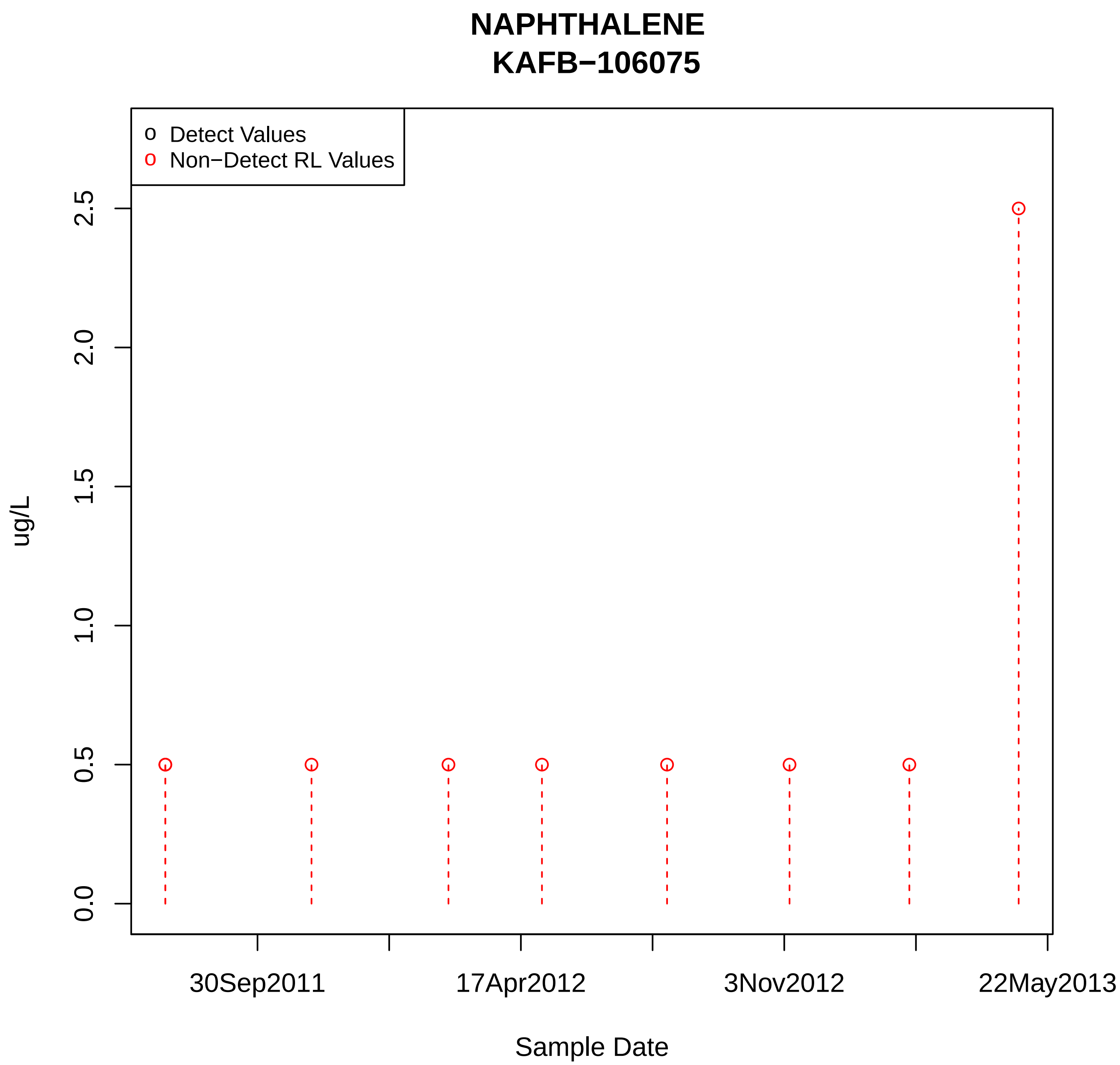
NAPHTHALENE
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

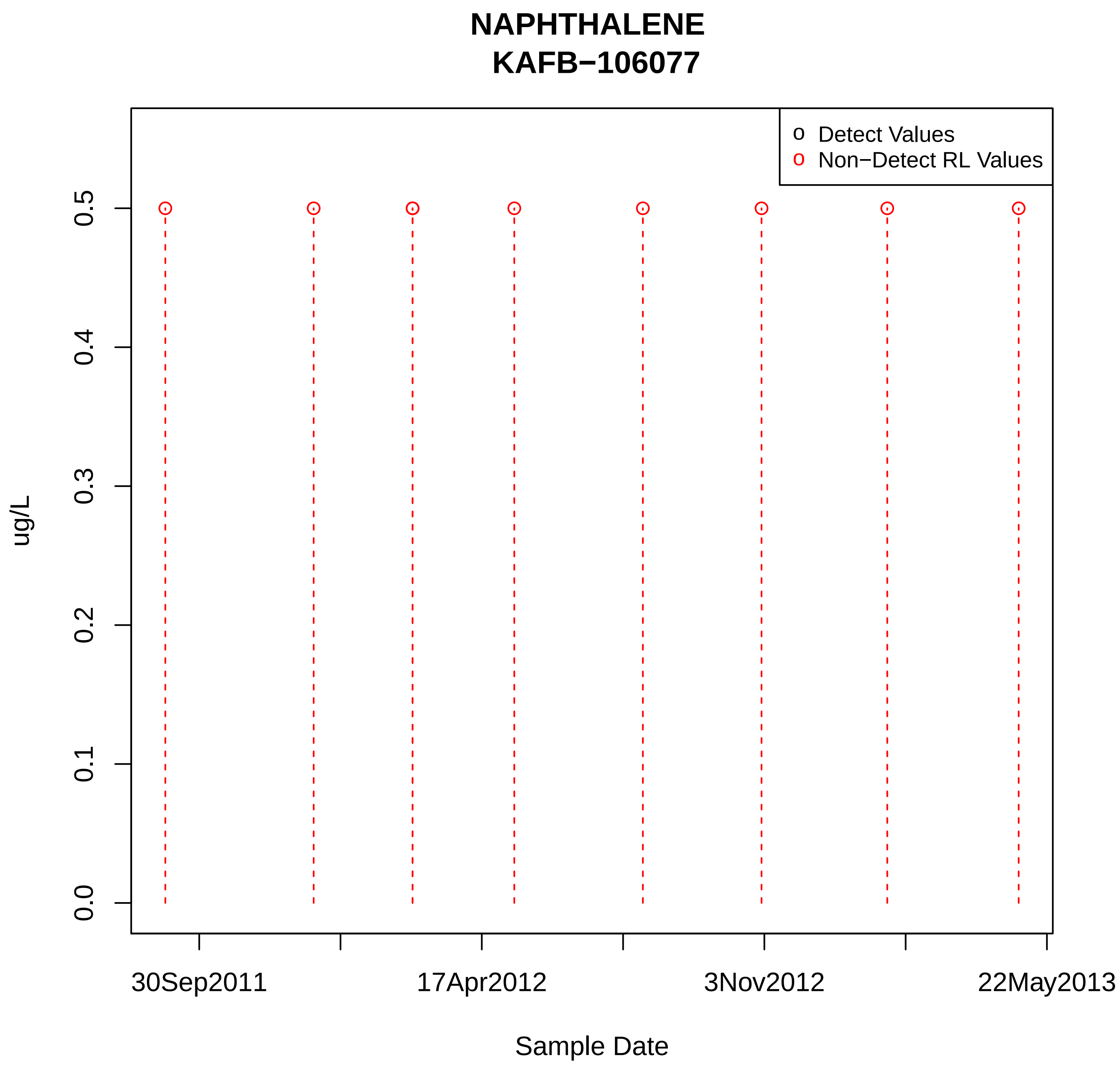

NAPHTHALENE
KAFB−106072
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

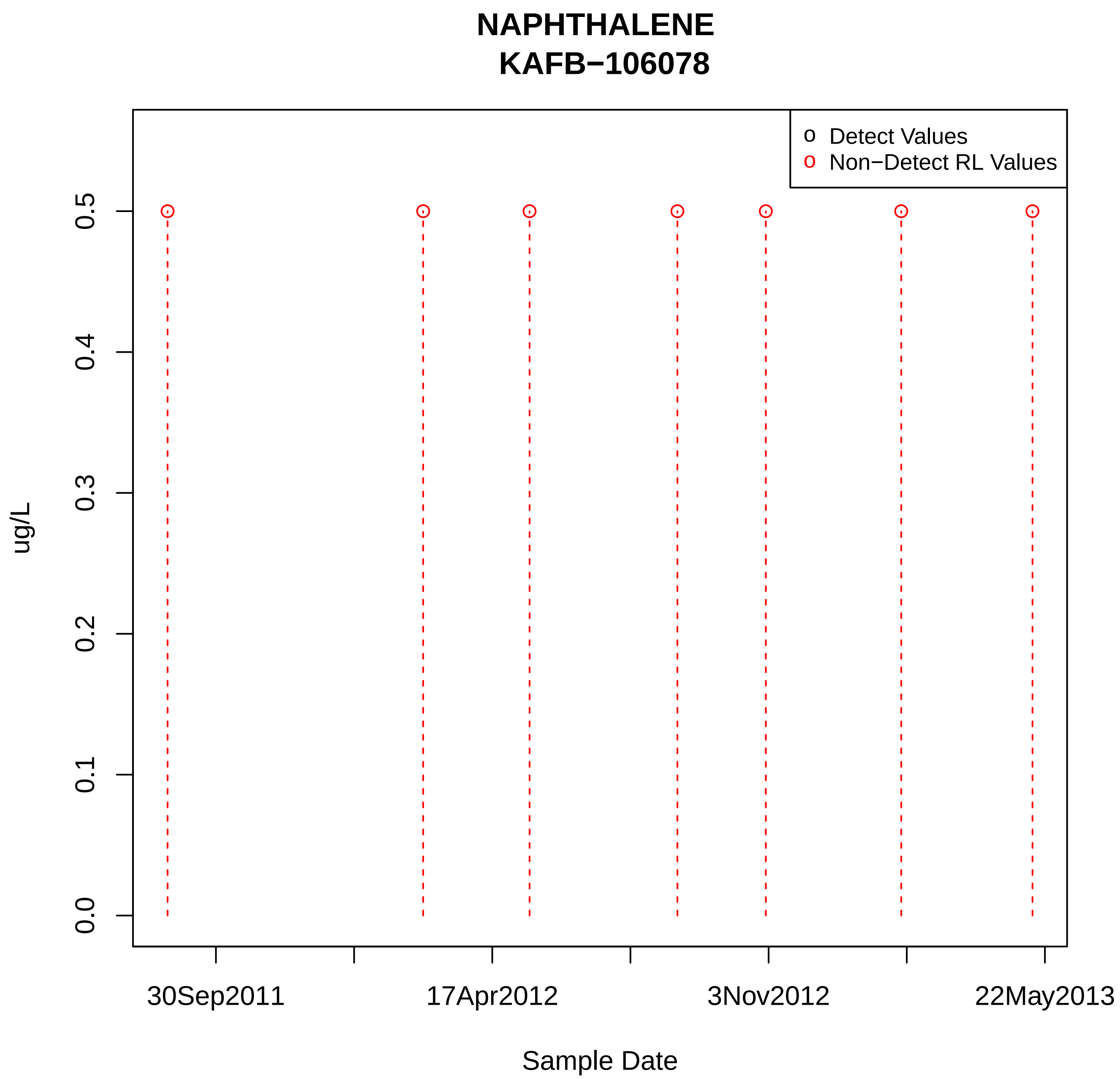

NAPHTHALENE
KAFB−106073
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

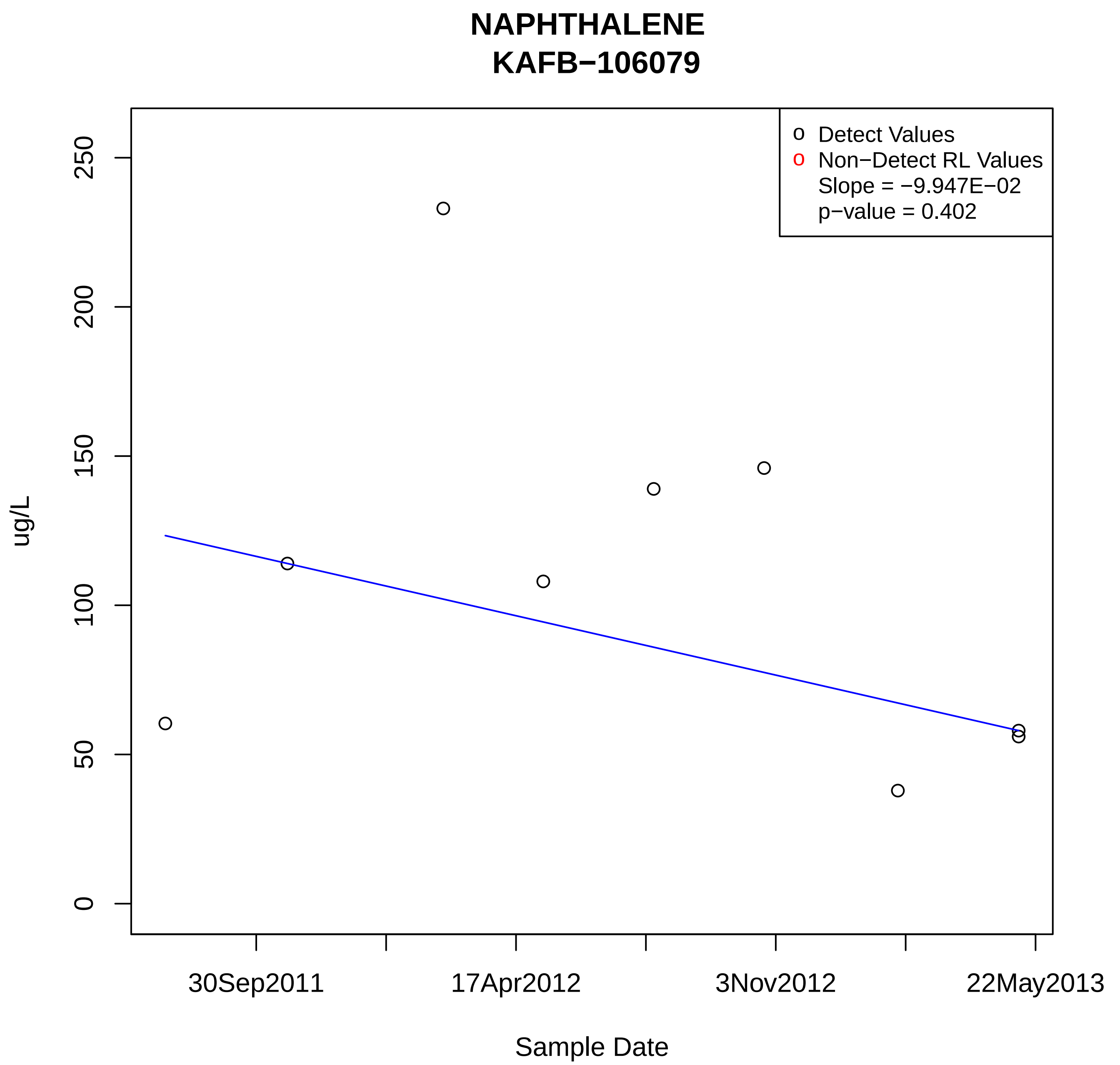


NAPHTHALENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

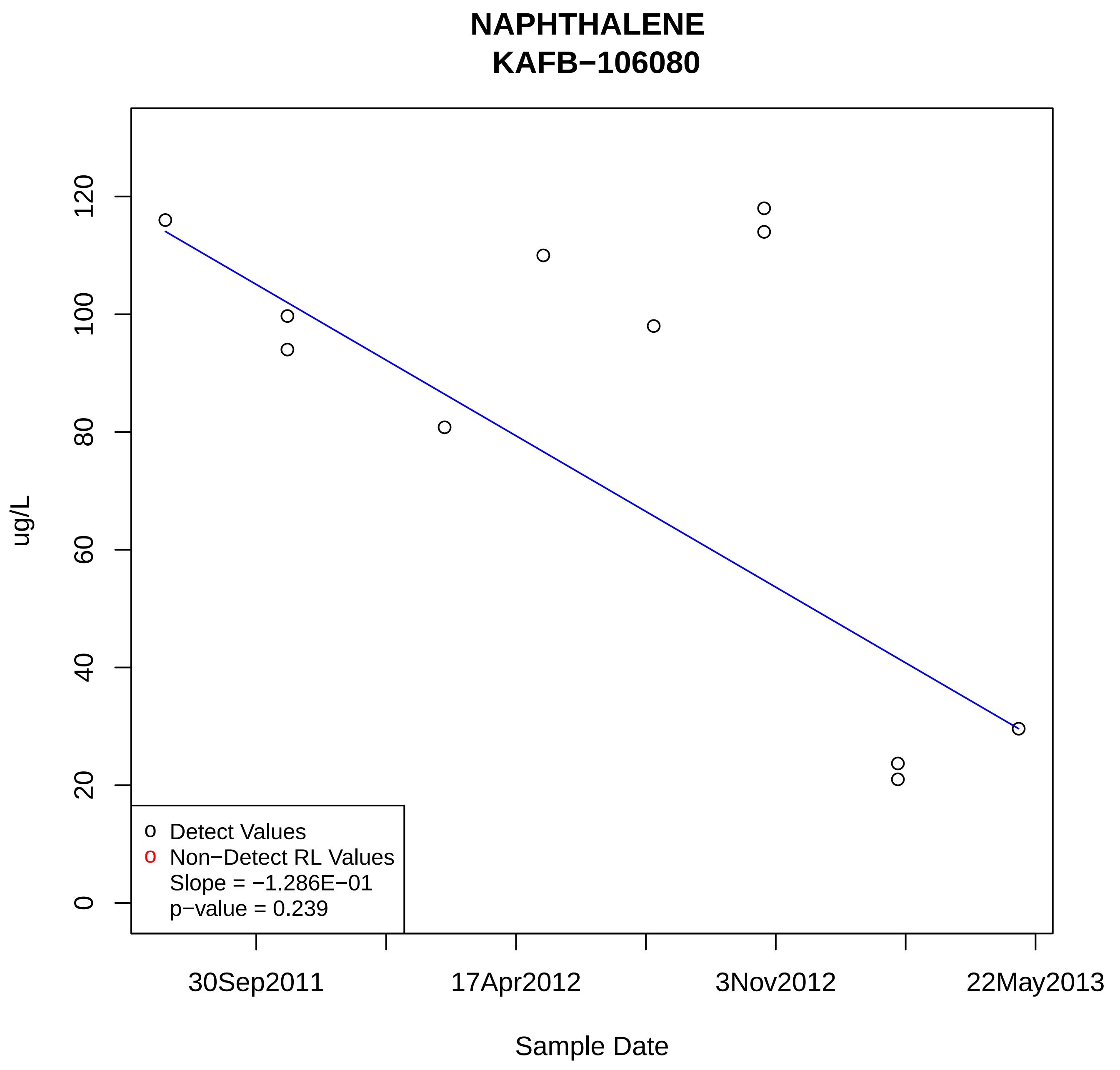

NAPHTHALENE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


NAPHTHALENE
KAFB−106077
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

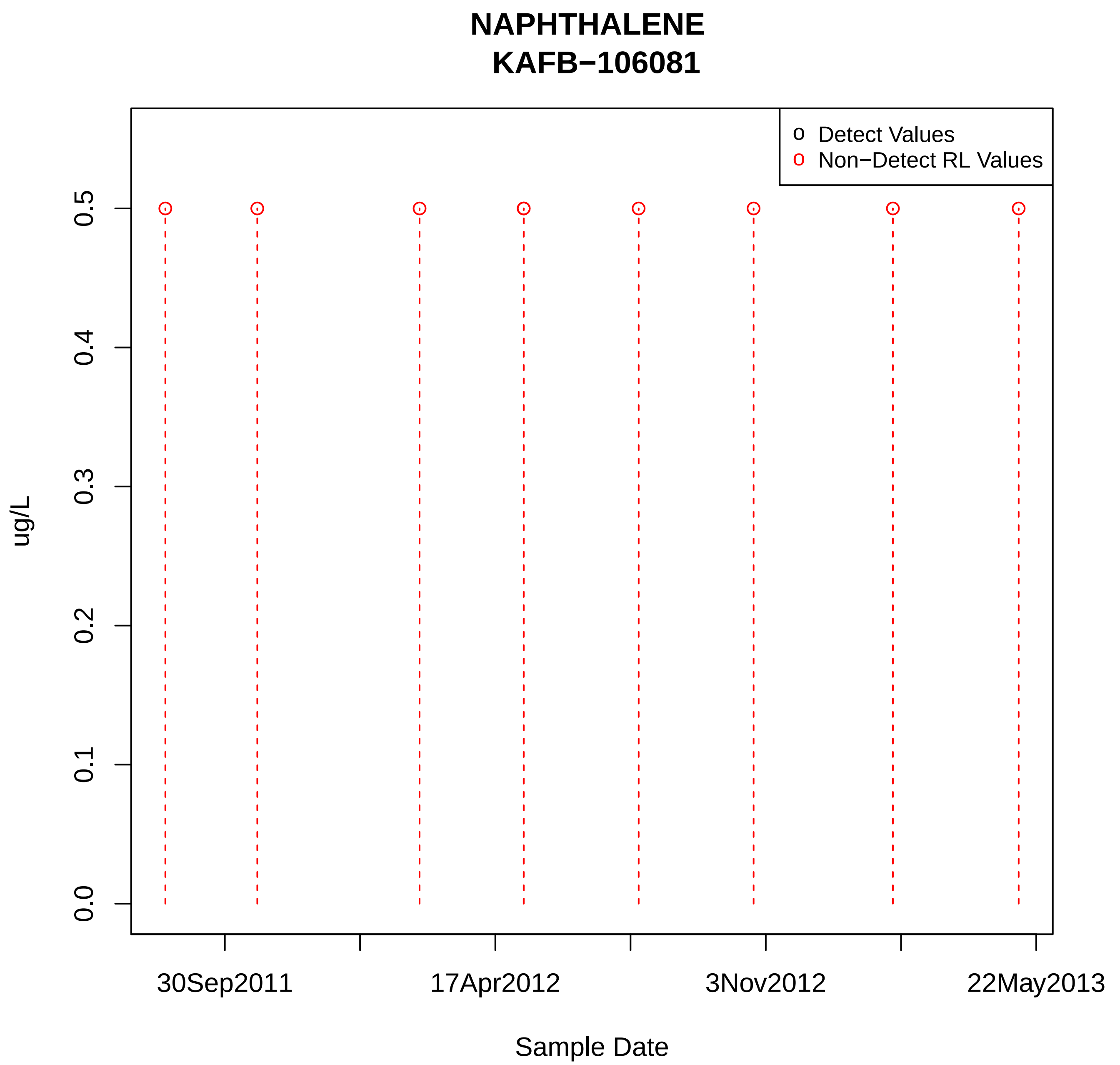

NAPHTHALENE
KAFB−106078
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



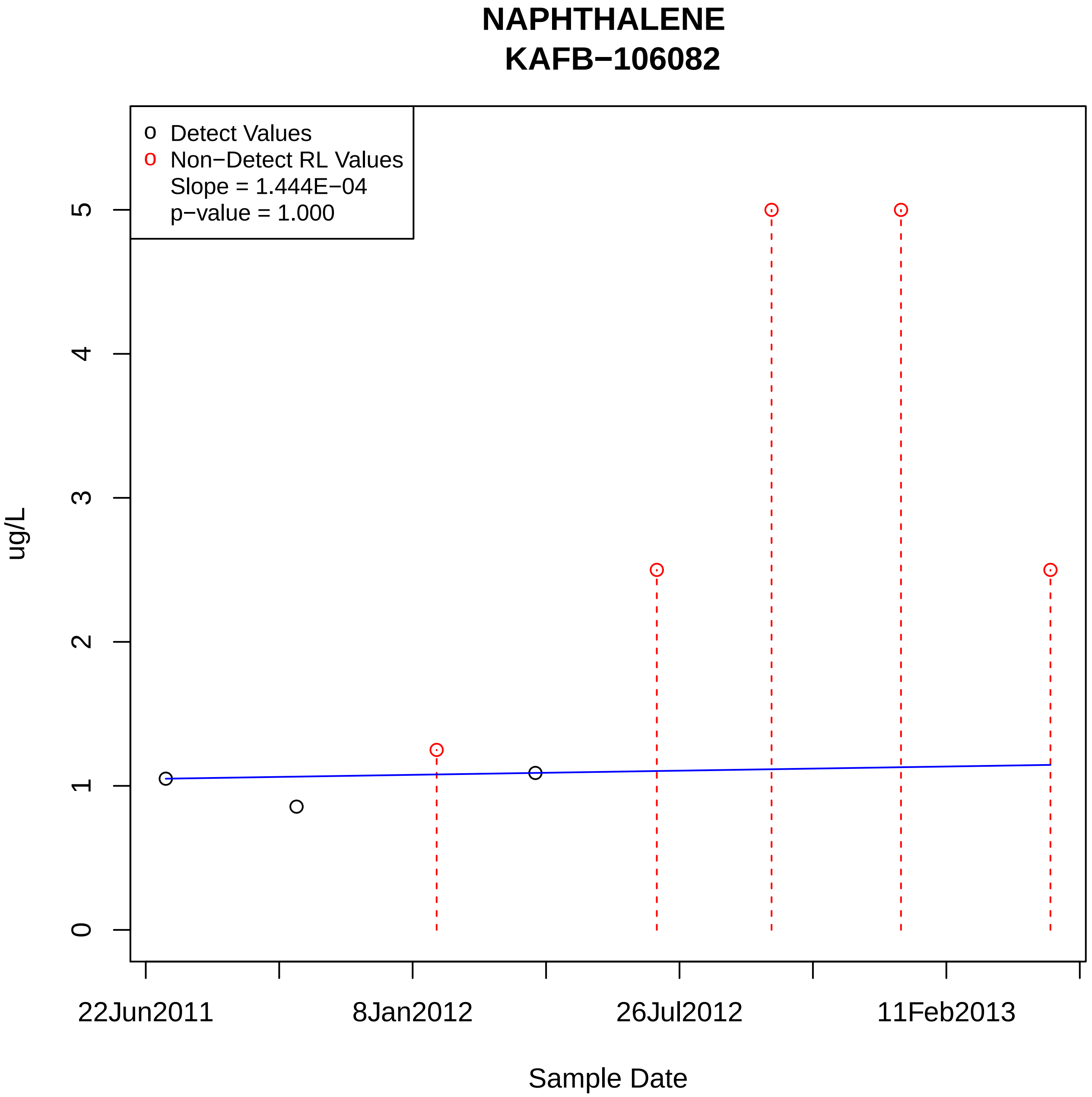
NAPHTHALENE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −9.947E−02
p−value = 0.402
ug/L
0
50
100
150
200
250
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



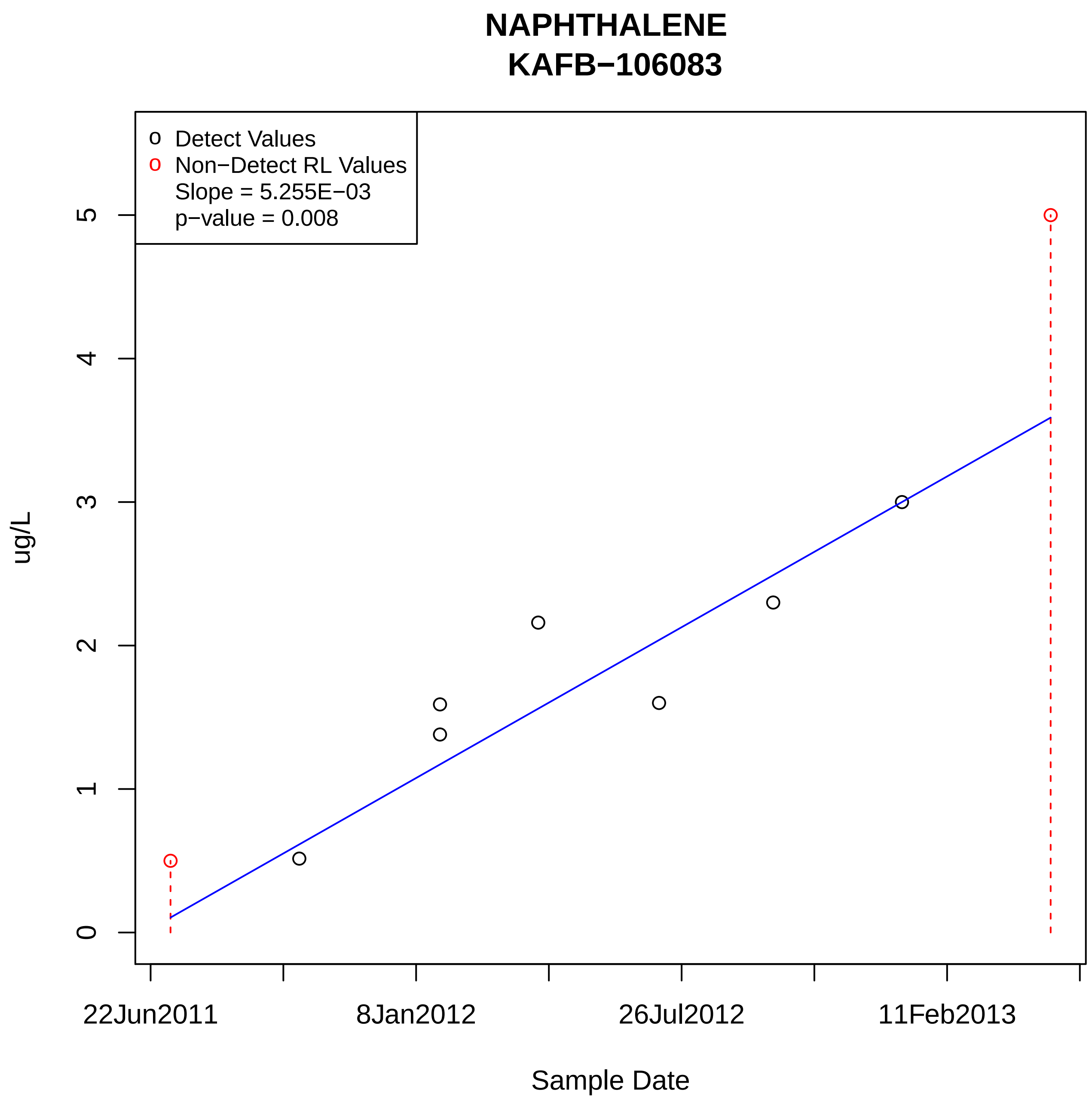
NAPHTHALENE
KAFB−106080
ug/L
0
20
40
60
80
100
120
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values
Slope = −1.286E−01
p−value = 0.239



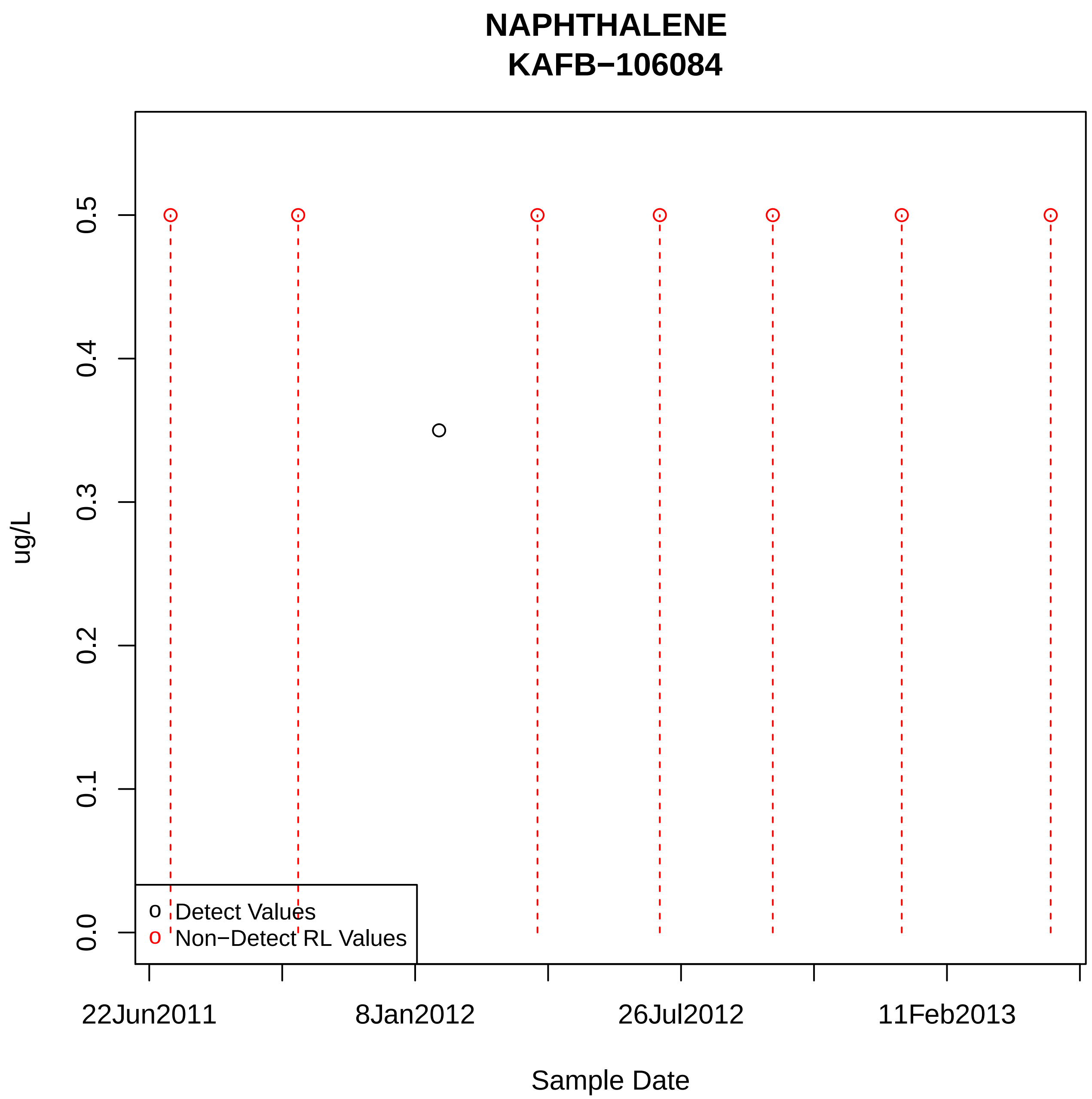
NAPHTHALENE
KAFB−106081
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



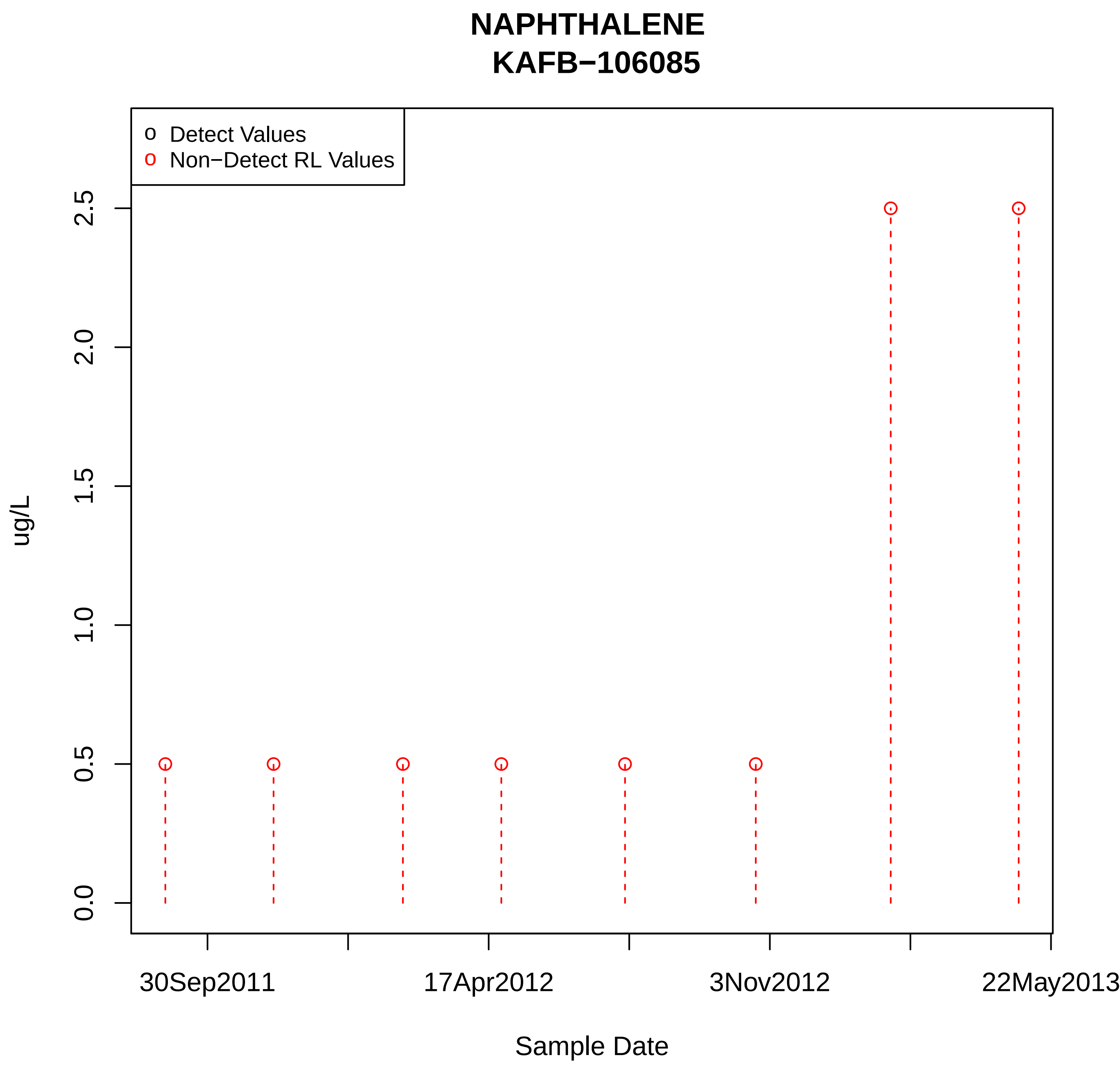
NAPHTHALENE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = 1.444E−04
p−value = 1.000
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

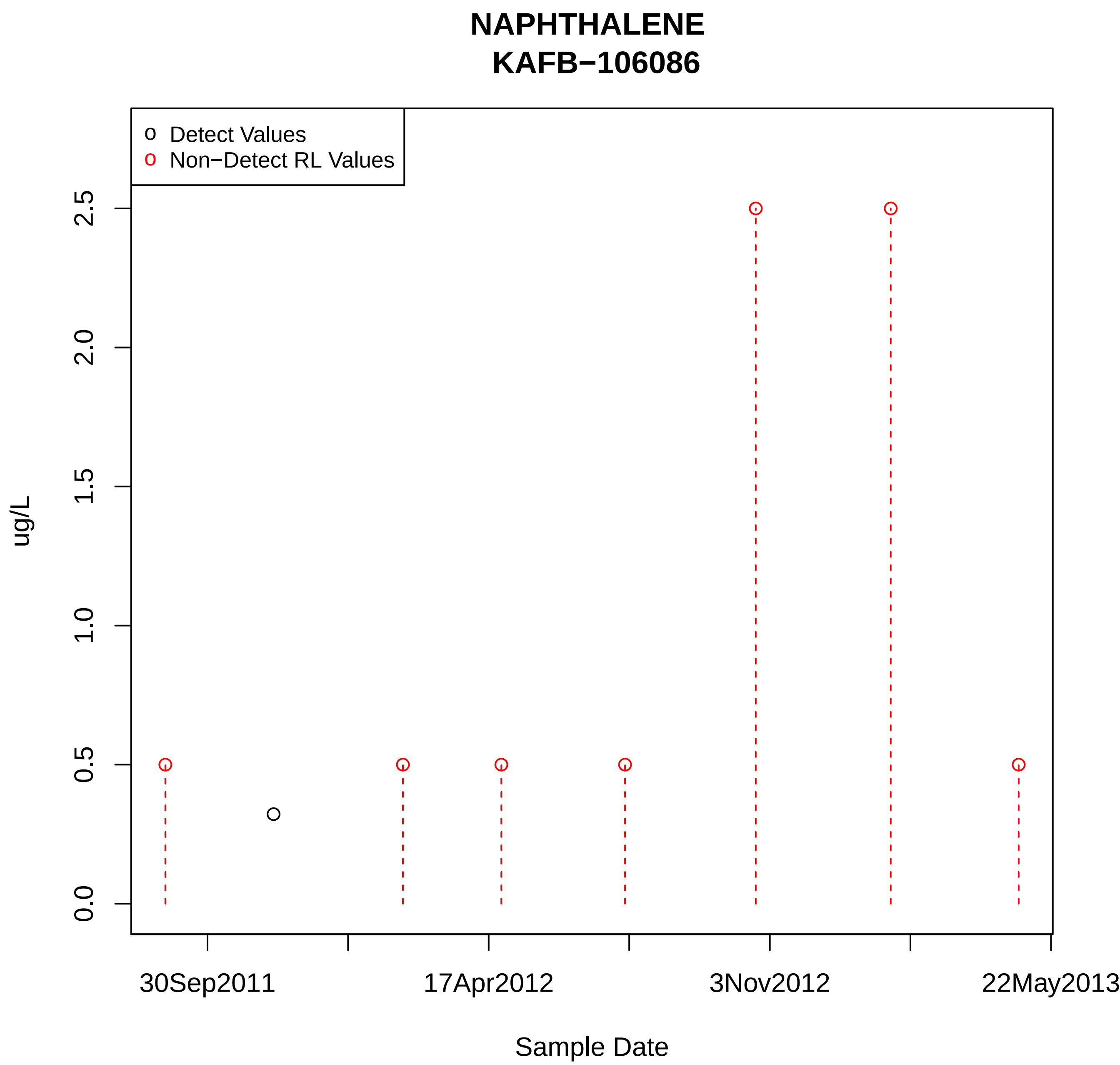


NAPHTHALENE
KAFB−106083
o Detect Values
o Non−Detect RL Values
Slope = 5.255E−03
p−value = 0.008
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

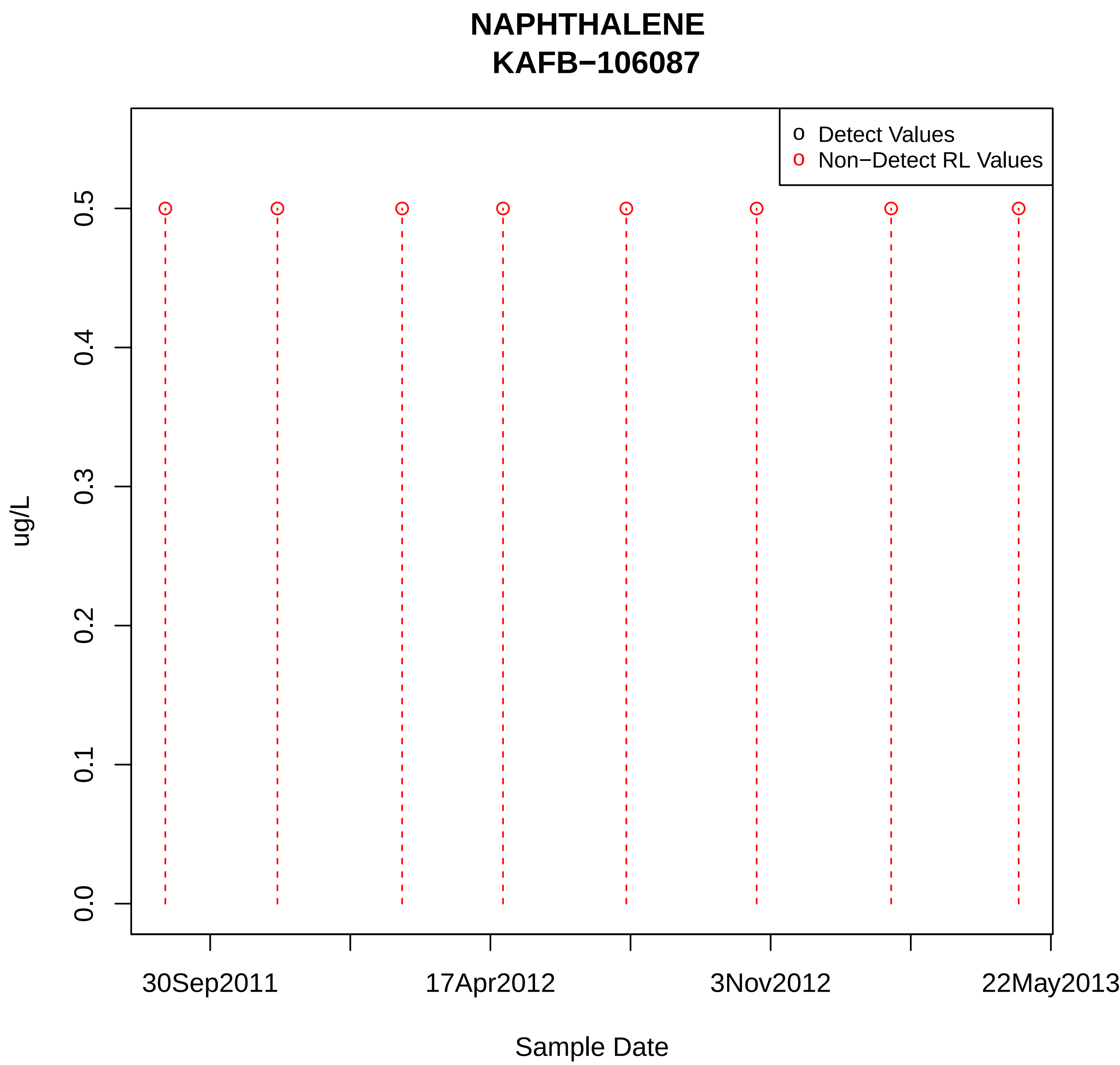


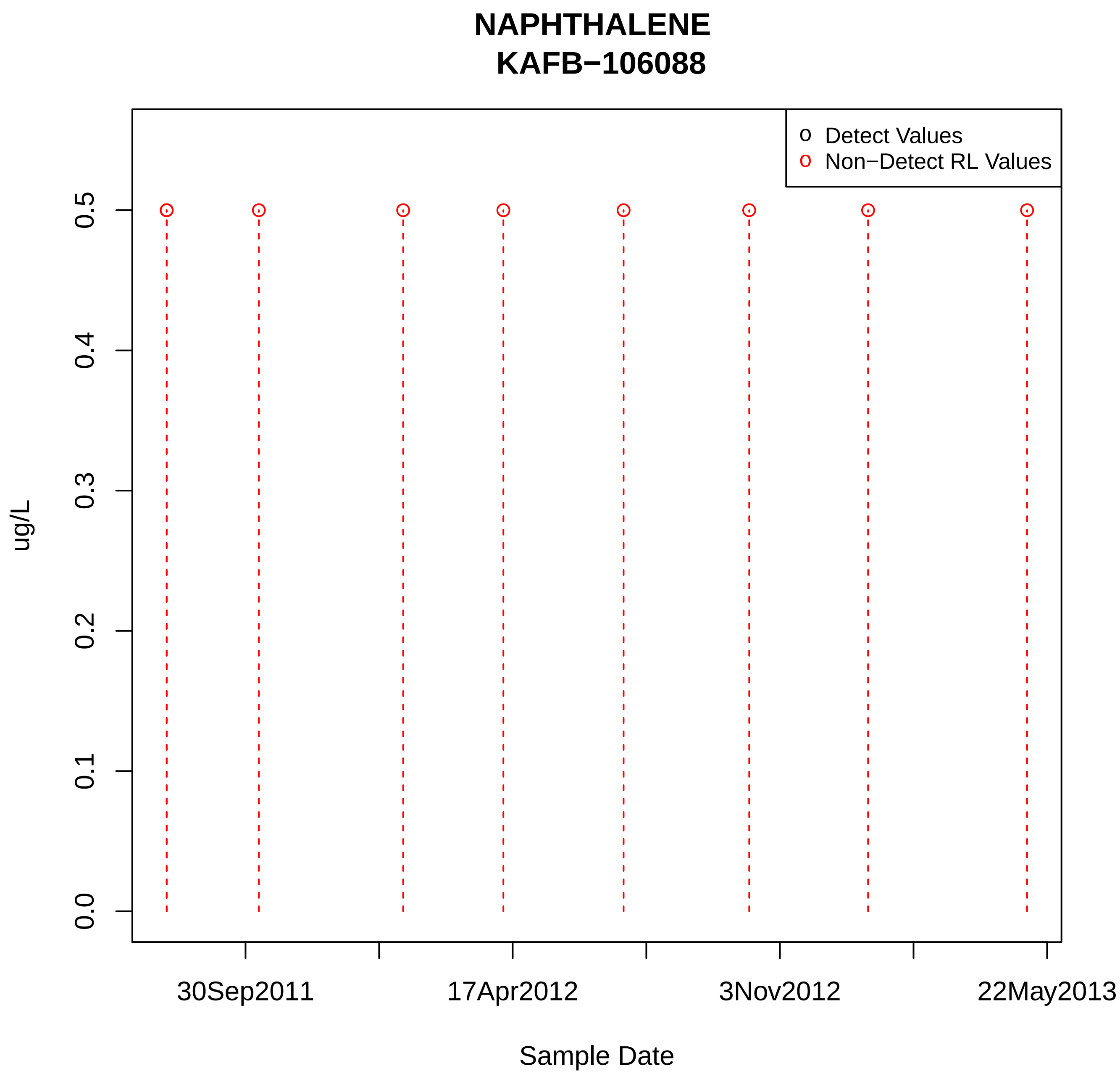
NAPHTHALENE
KAFB−106084
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values


NAPHTHALENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

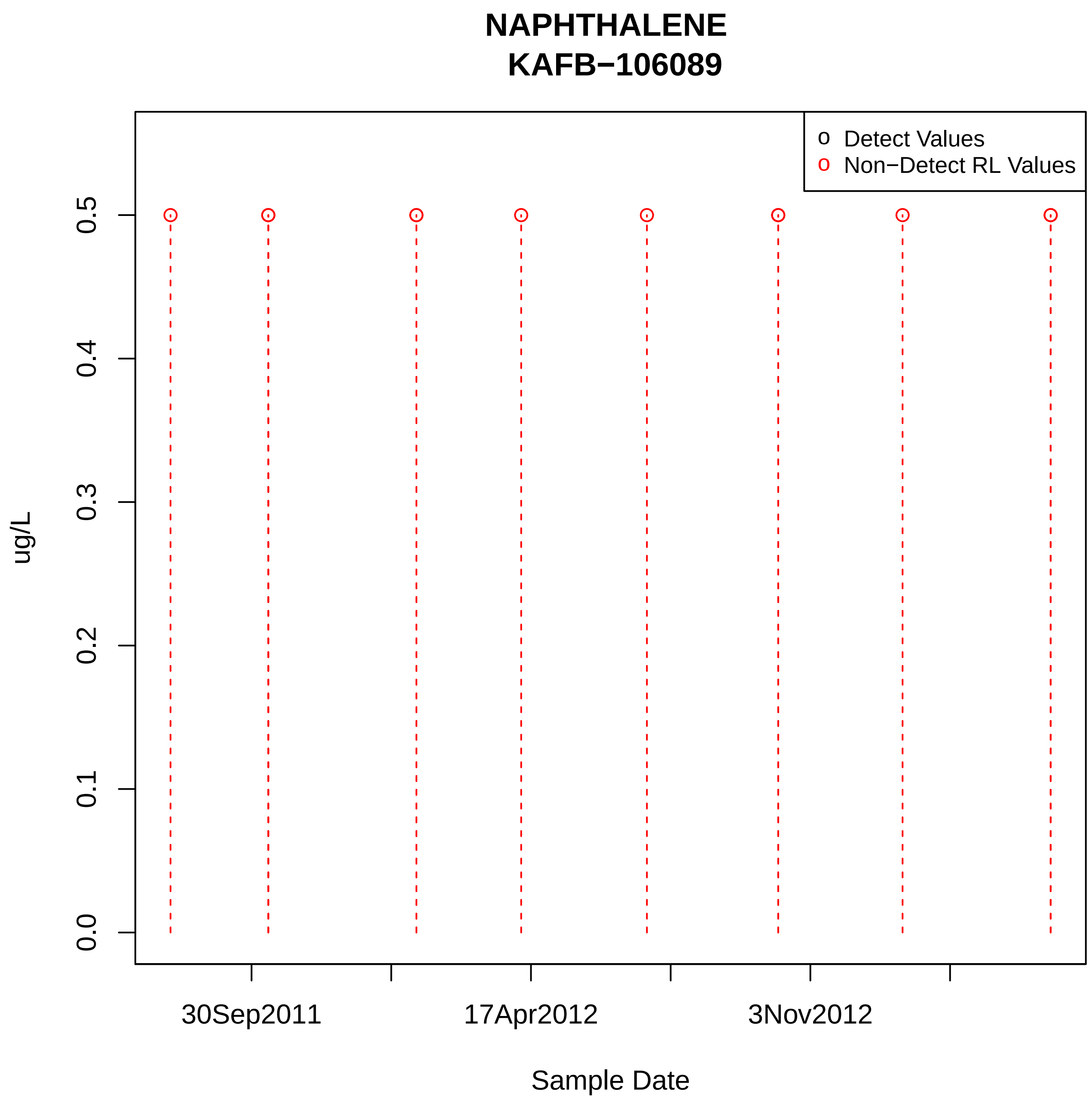


NAPHTHALENE
KAFB−106086
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

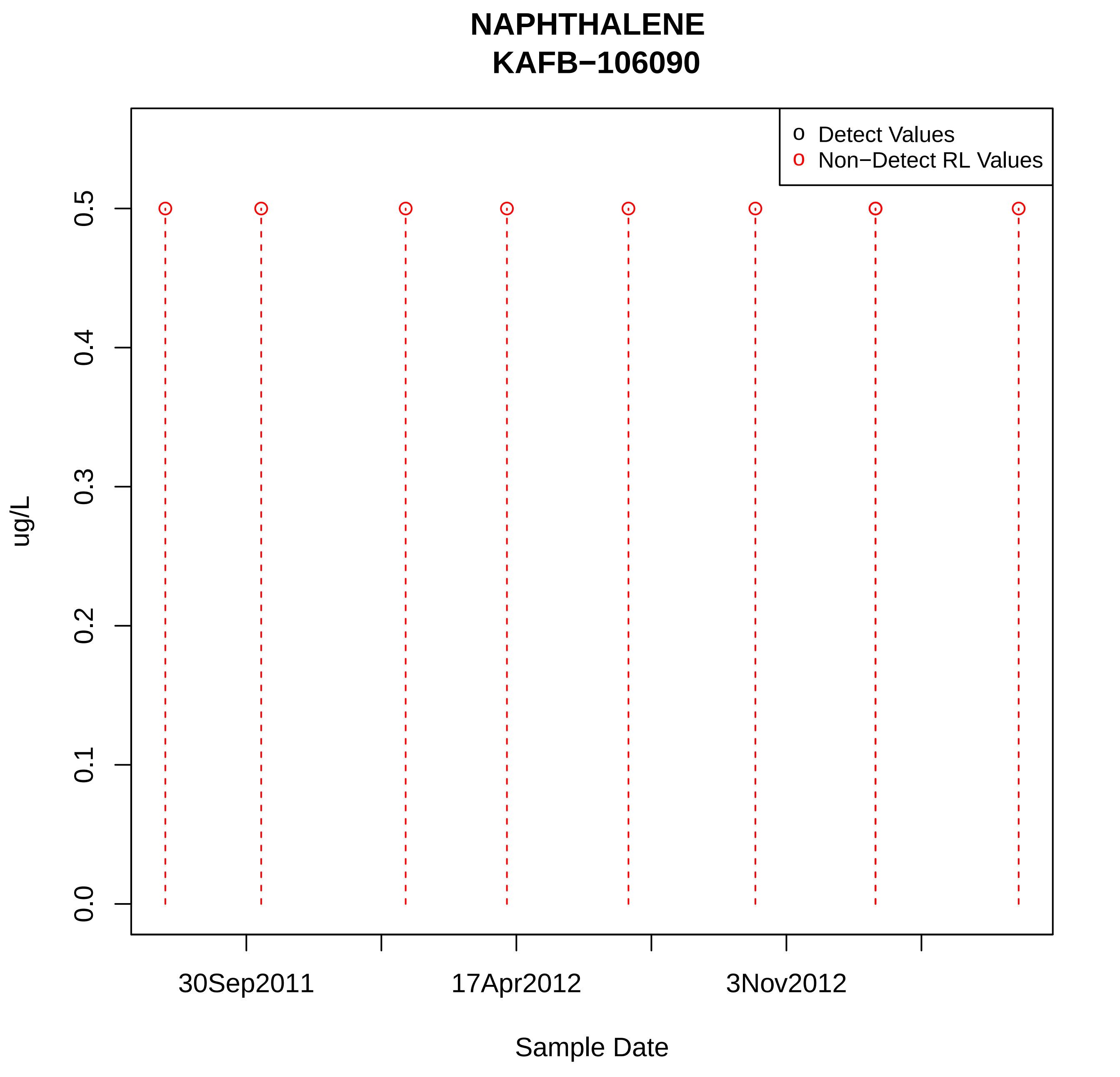

NAPHTHALENE
KAFB−106087
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

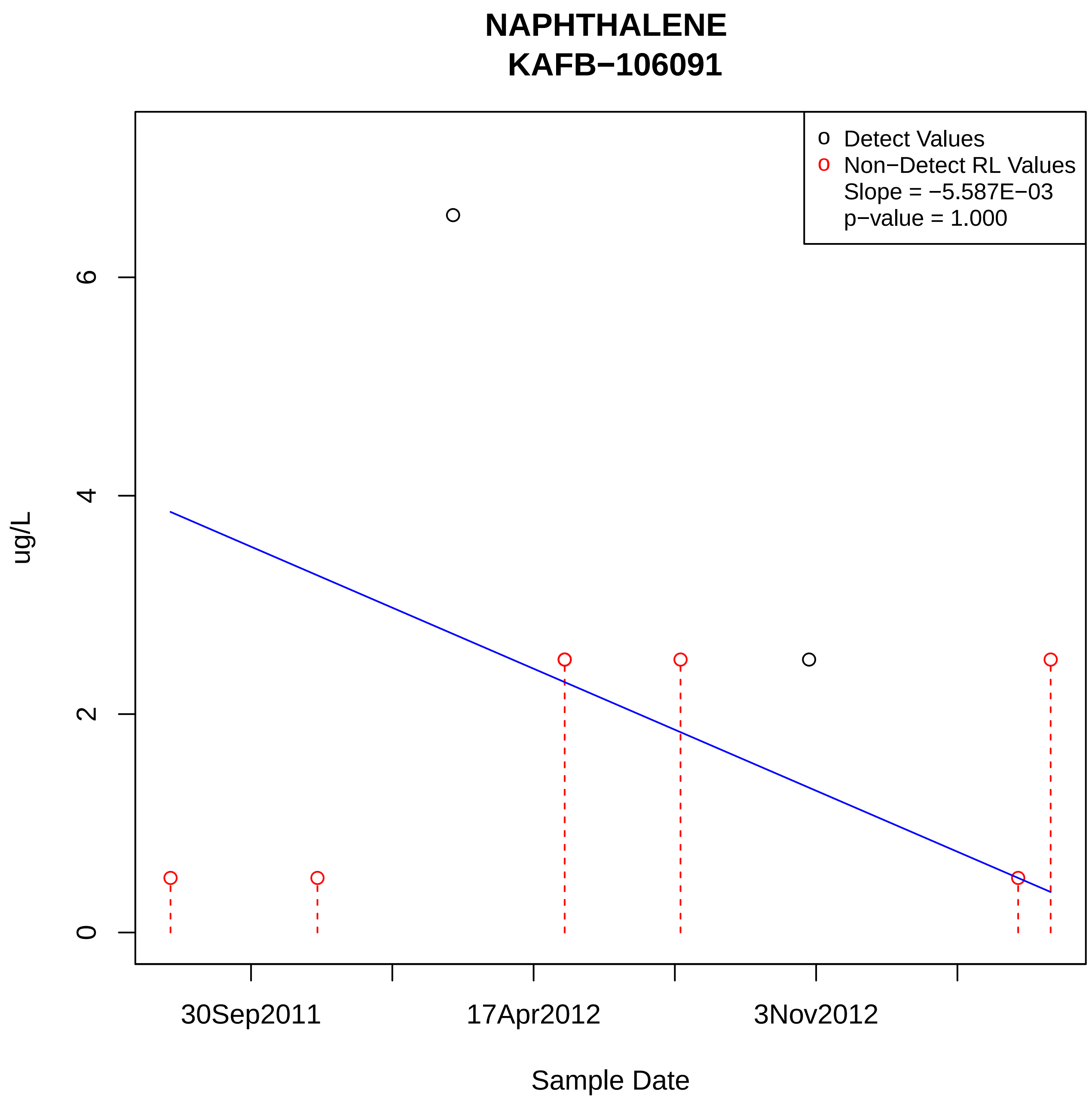


NAPHTHALENE
KAFB−106088
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

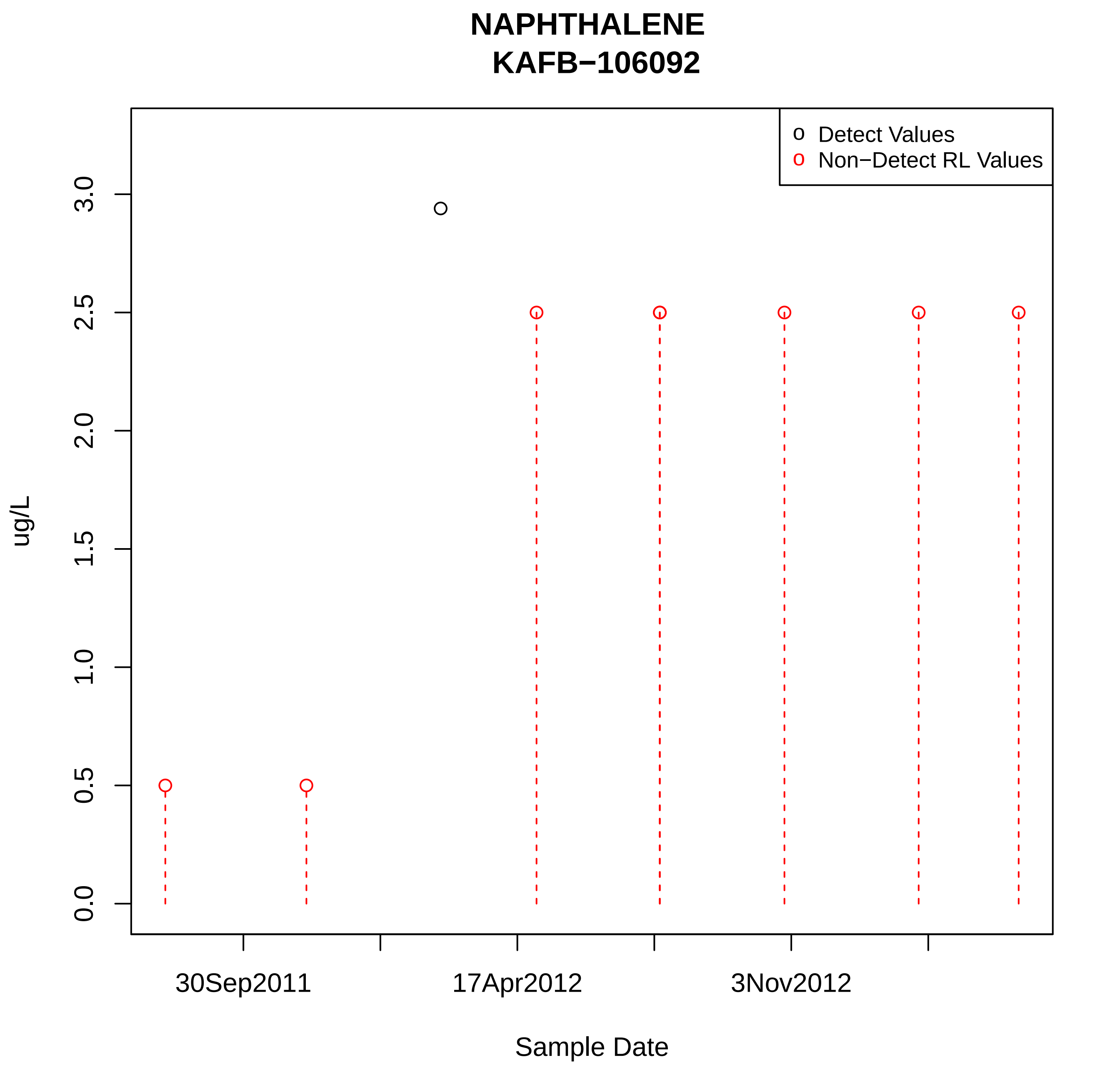


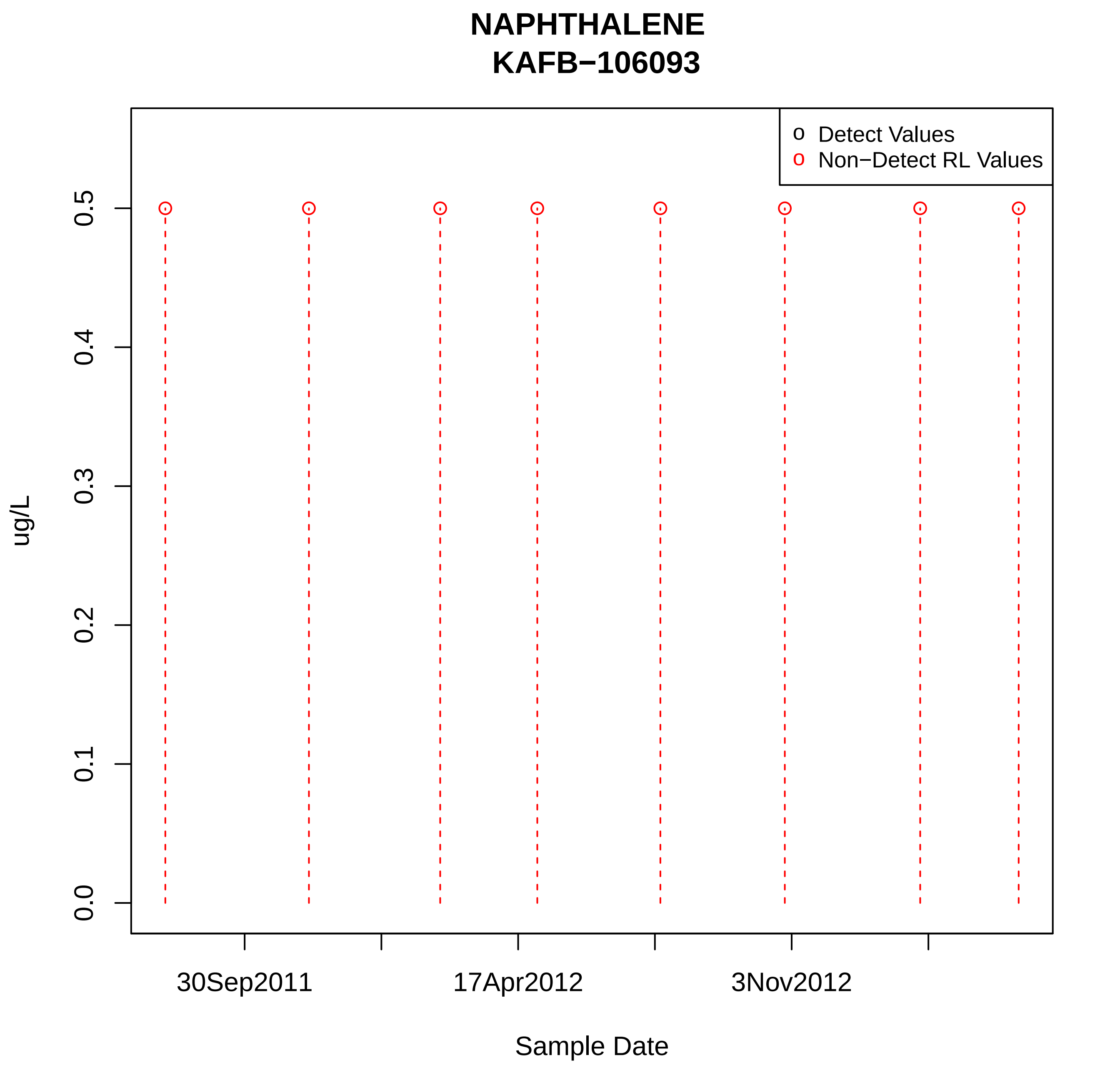
NAPHTHALENE
KAFB−106089
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

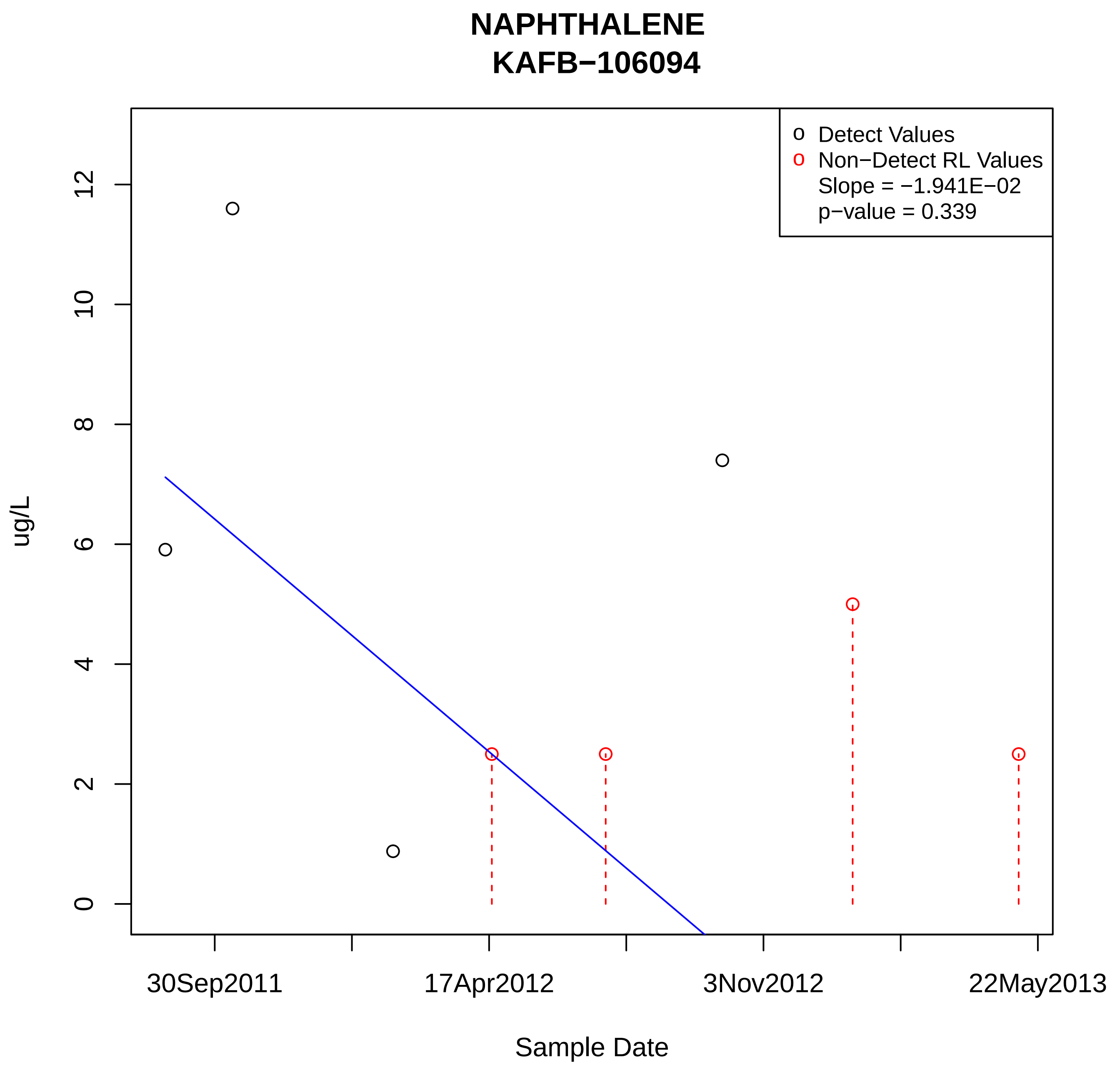

NAPHTHALENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

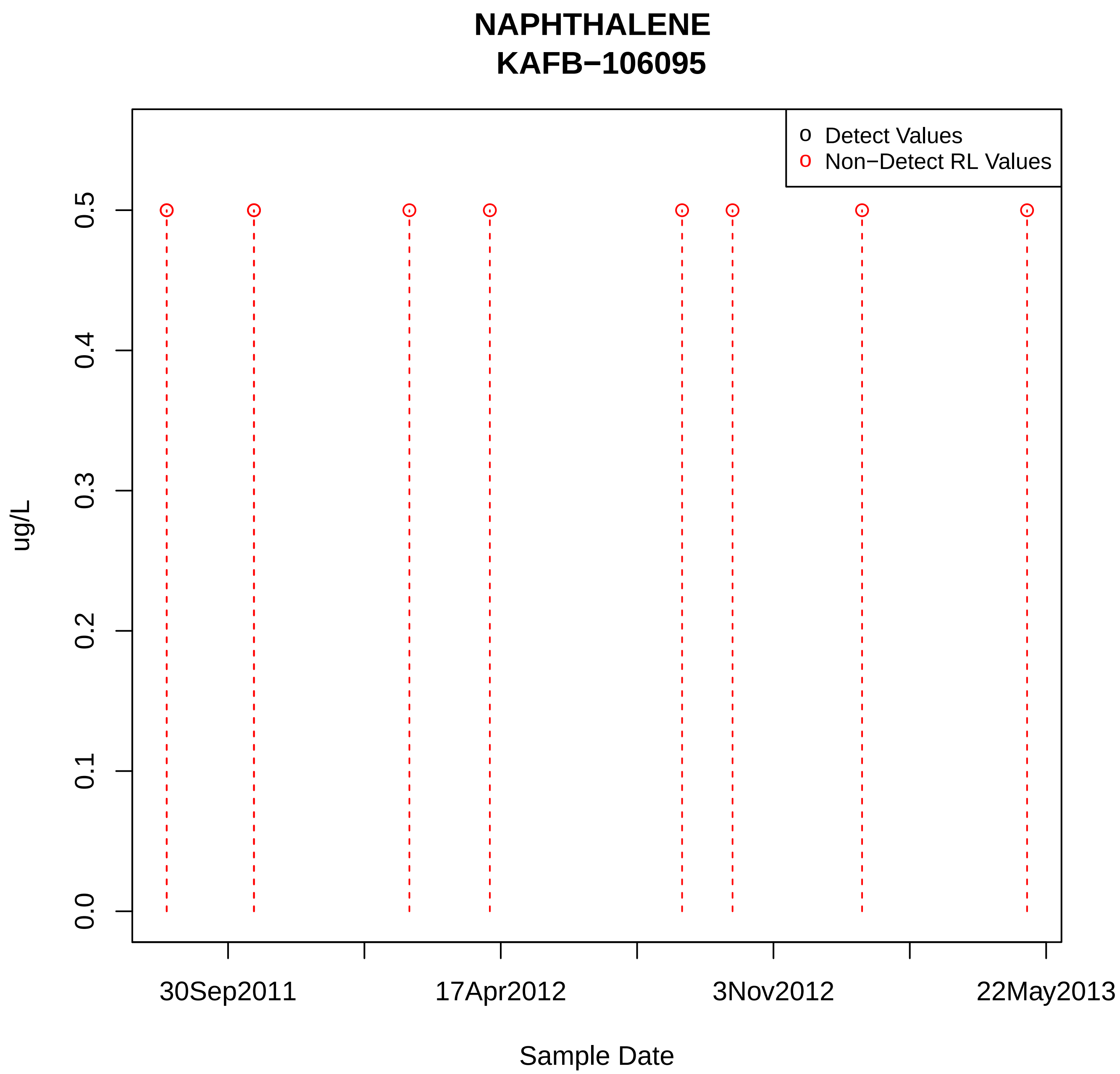


NAPHTHALENE
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = −5.587E−03
p−value = 1.000
ug/L
0
2
4
6
30Sep2011
17Apr2012
3Nov2012
Sample Date

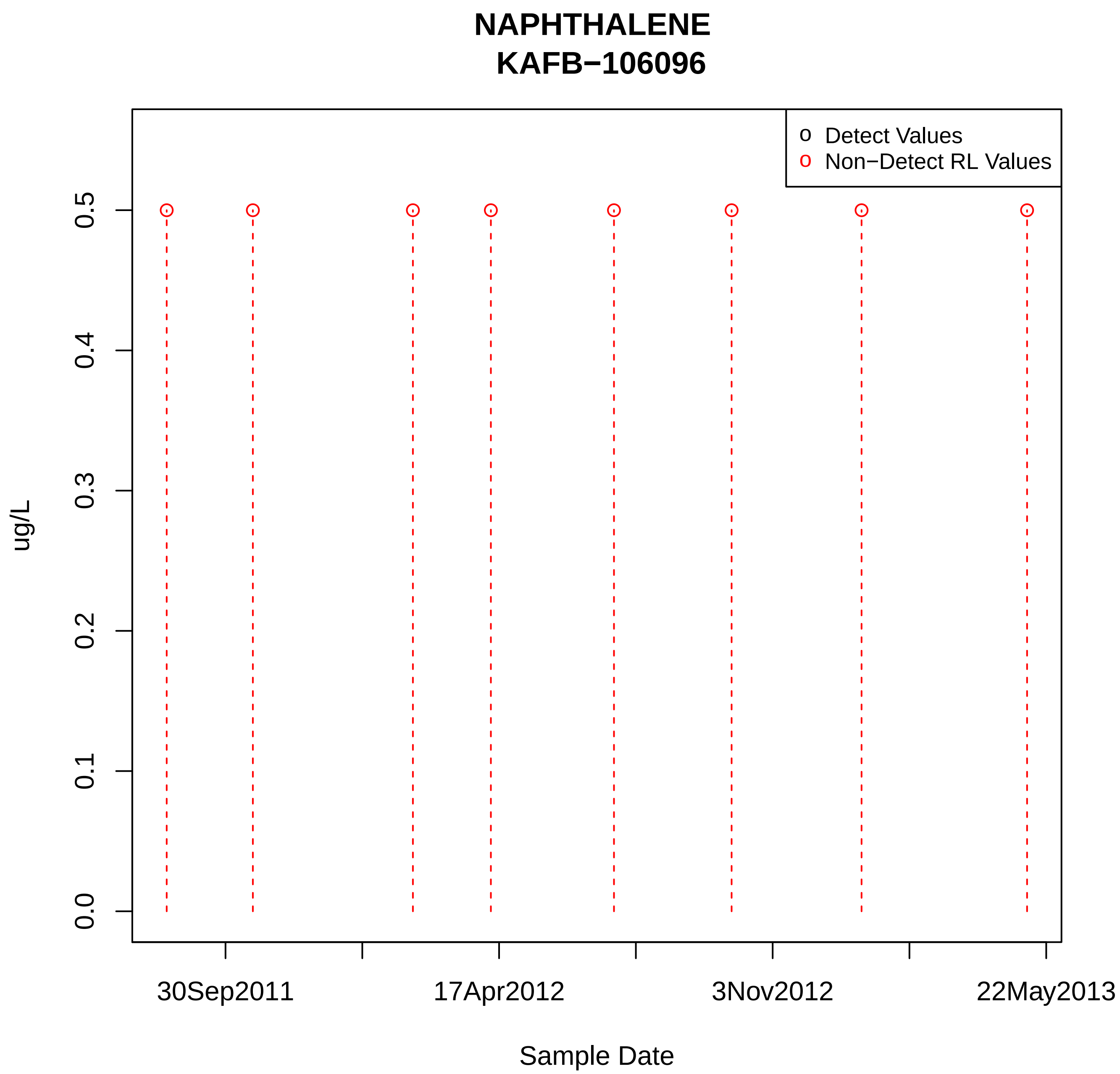

NAPHTHALENE
KAFB−106092
Detect Values
Non−Detect RL Values
0.0
0.5
1.0
1.5
2.0
2.5
3.0
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

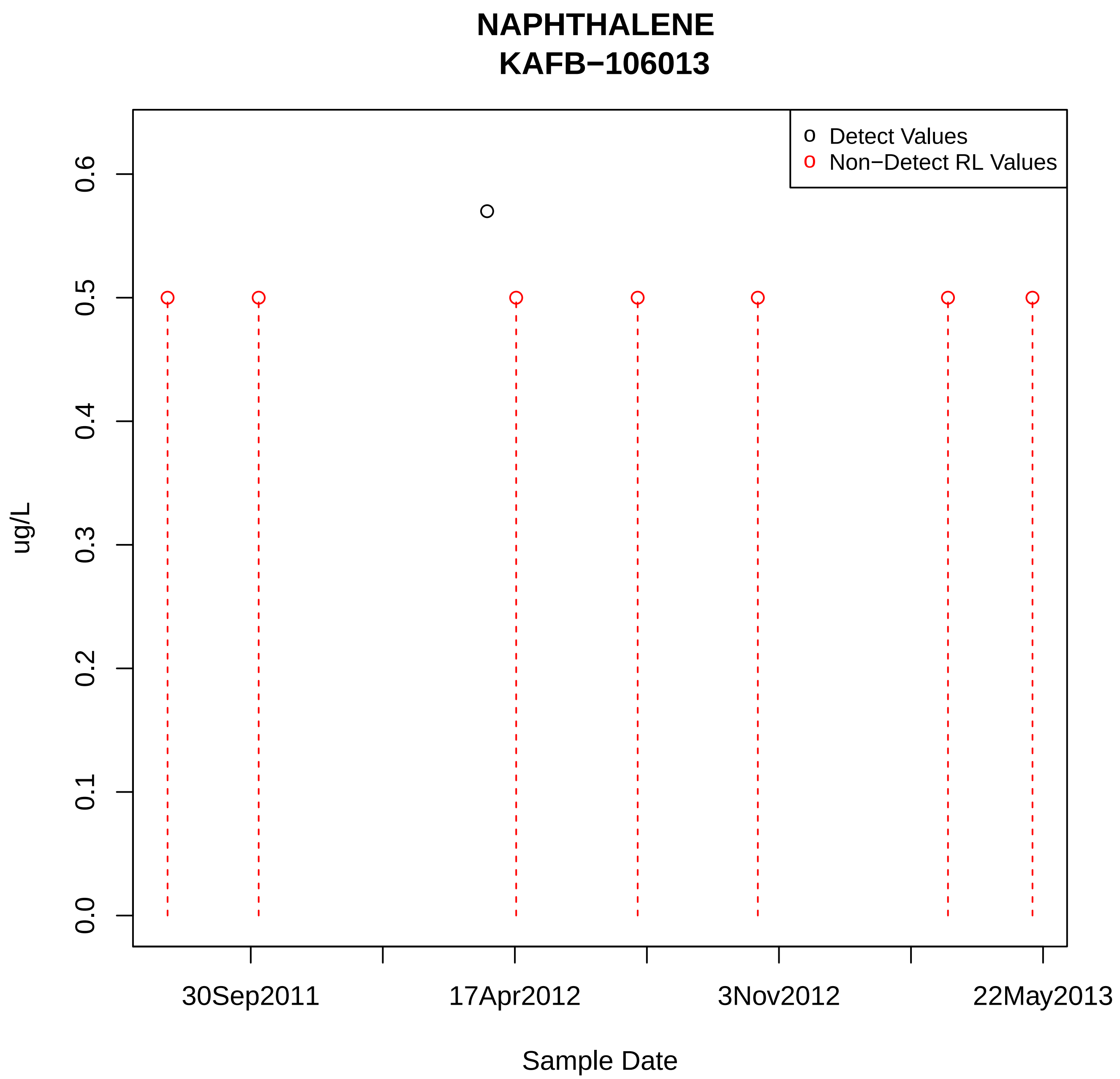

NAPHTHALENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

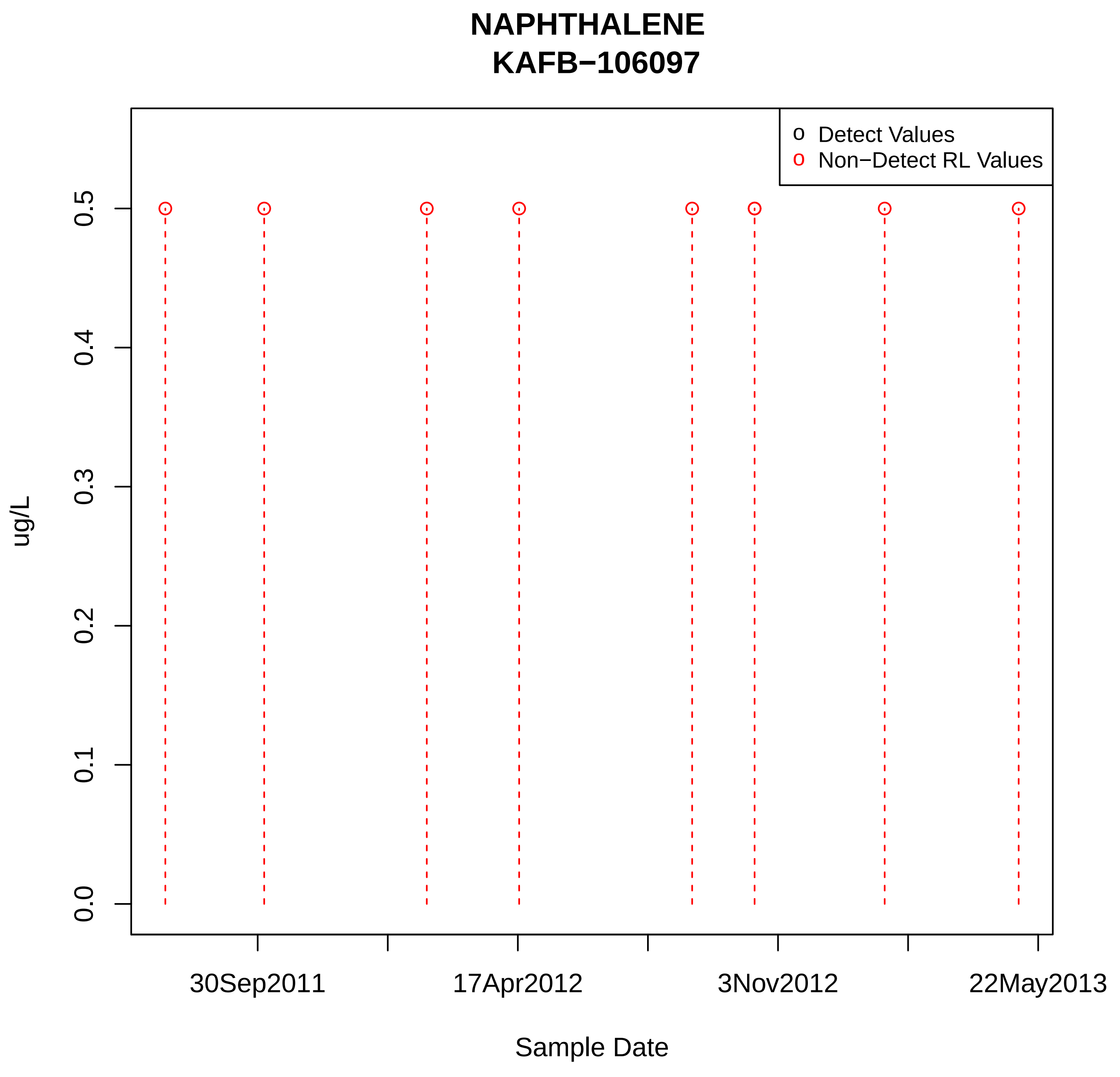

NAPHTHALENE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = −1.941E−02
p−value = 0.339
ug/L
0
2
4
6
8
10
12
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



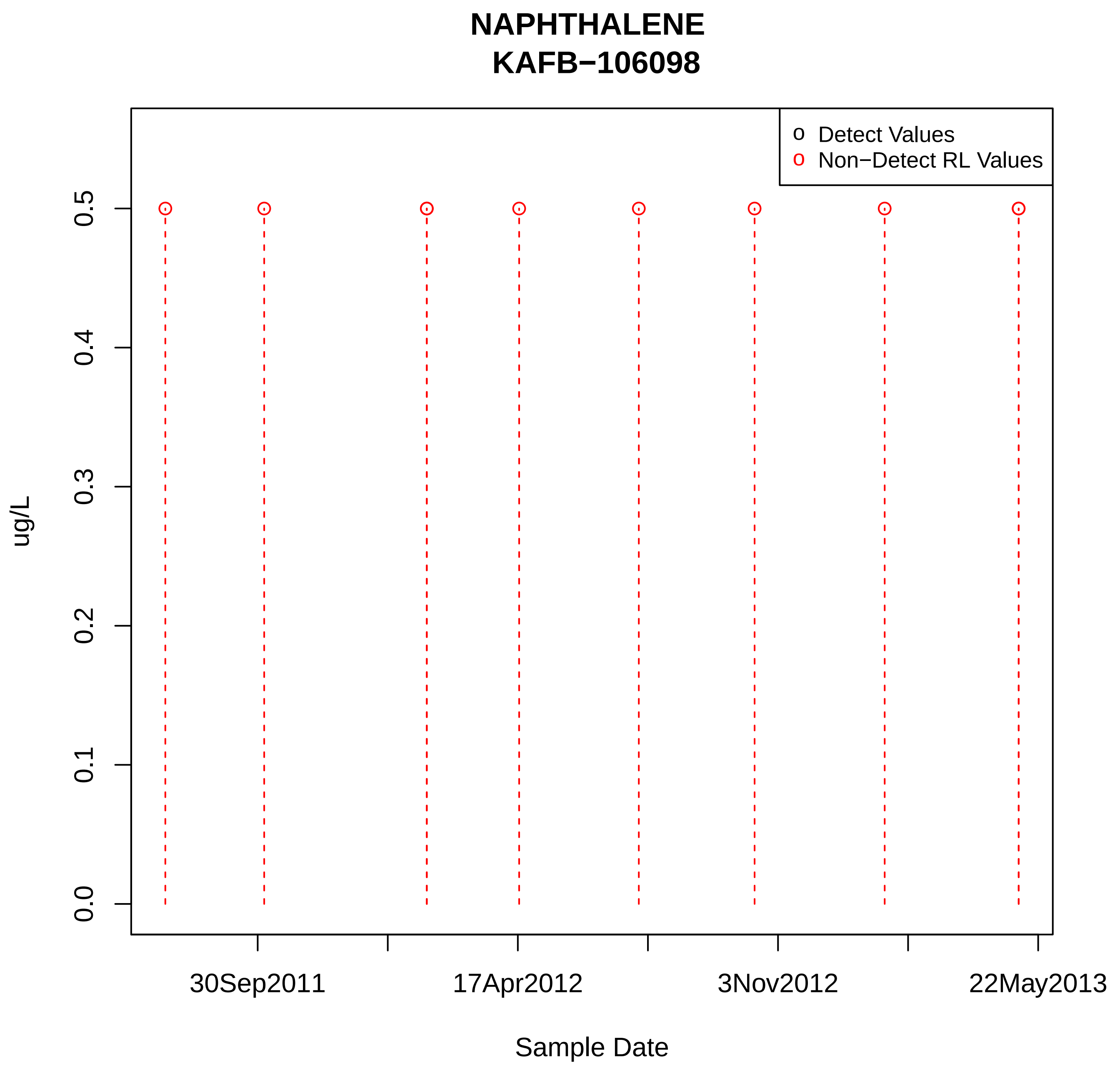
NAPHTHALENE
KAFB−106095
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

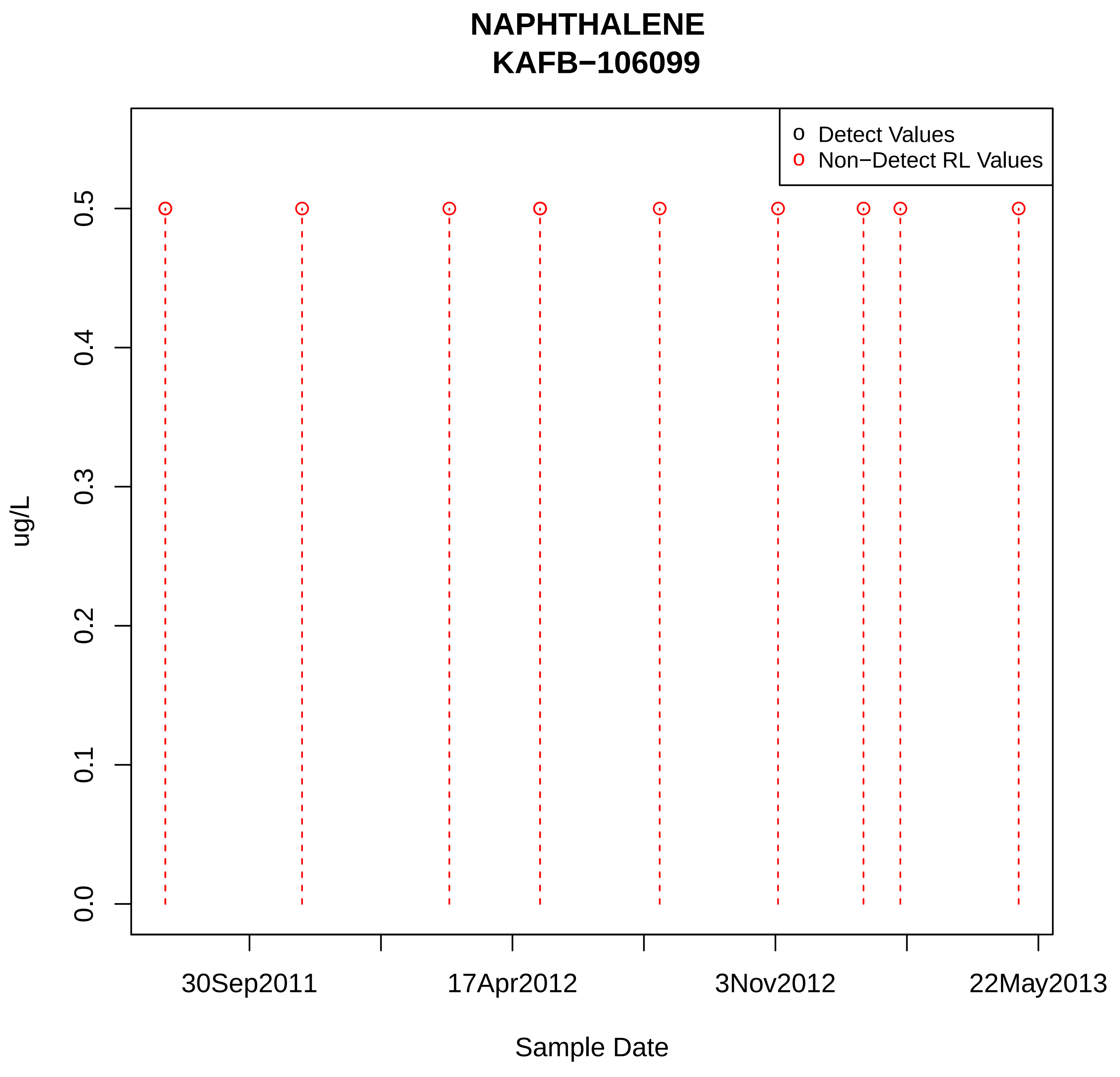

NAPHTHALENE
KAFB−106096
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


NAPHTHALENE
KAFB−106013
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
0.6
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

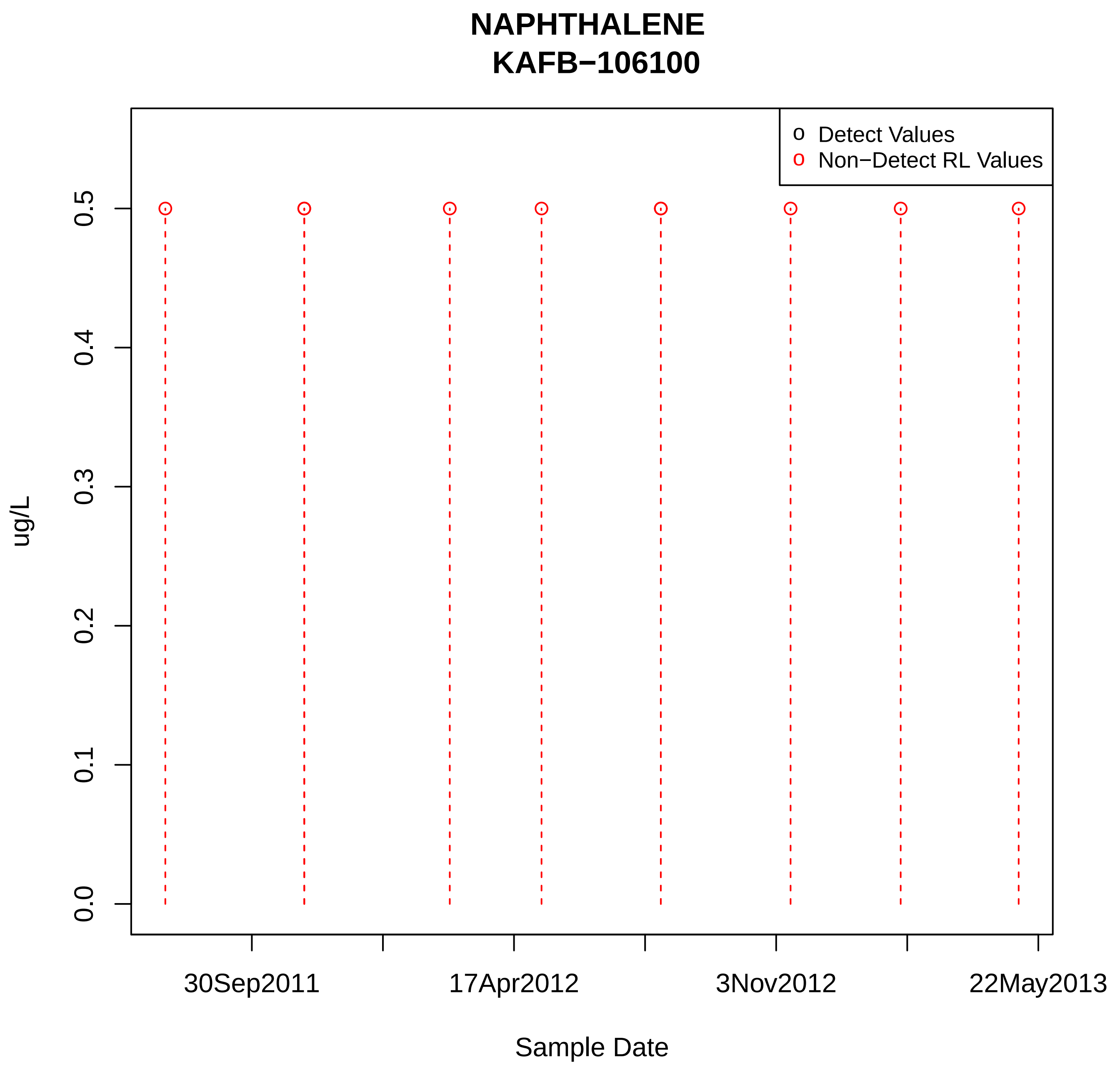


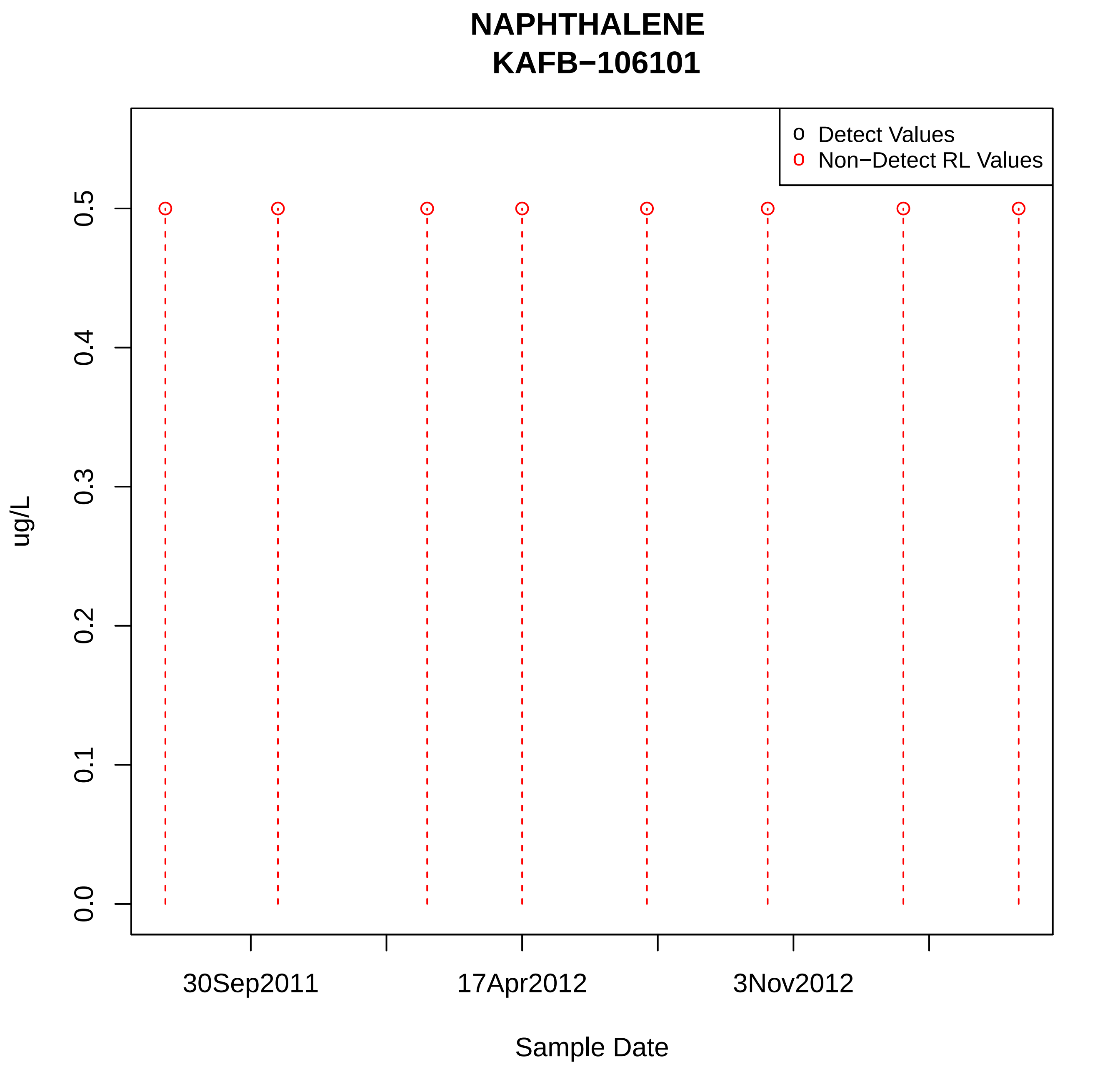
NAPHTHALENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


NAPHTHALENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

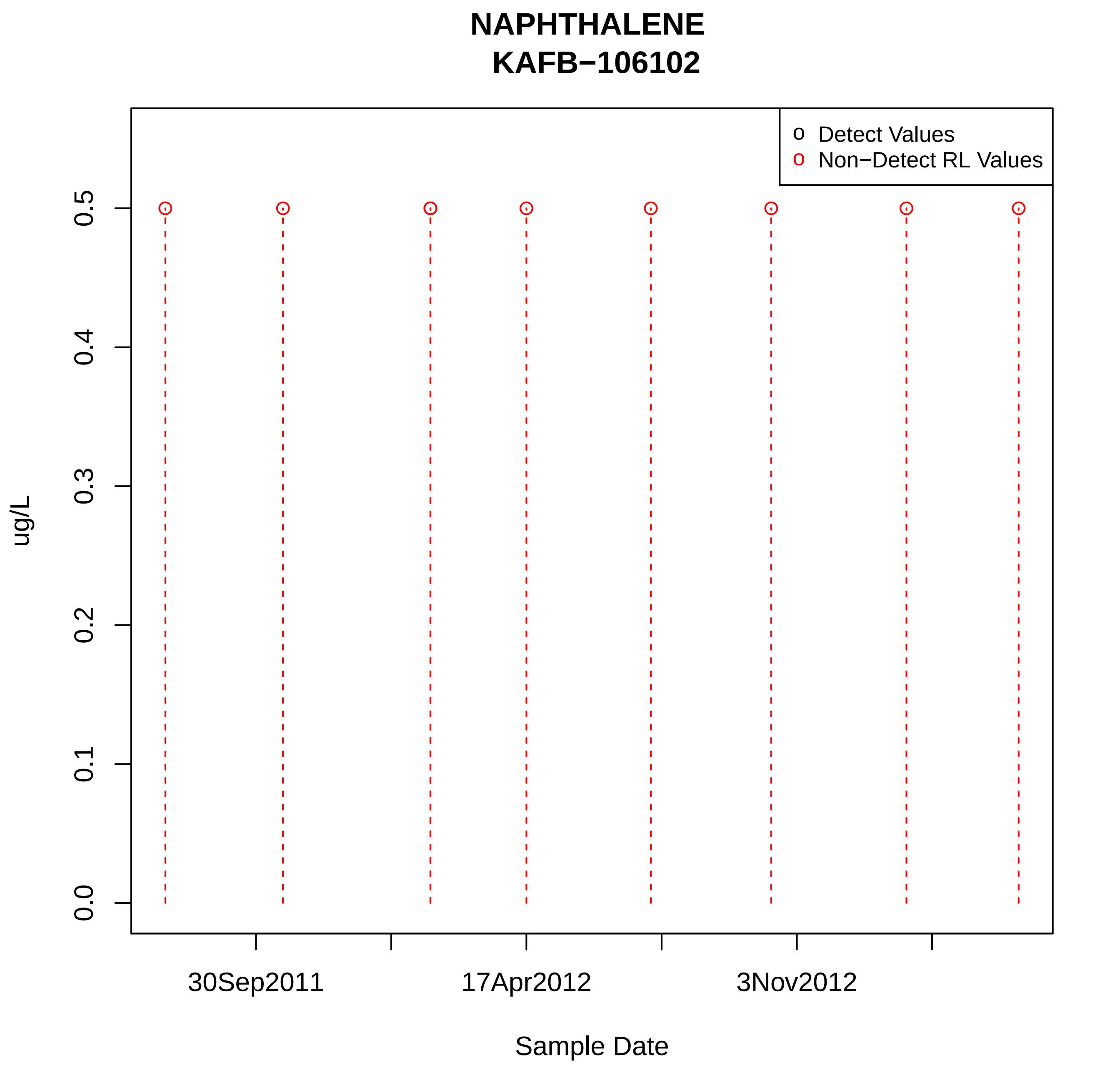


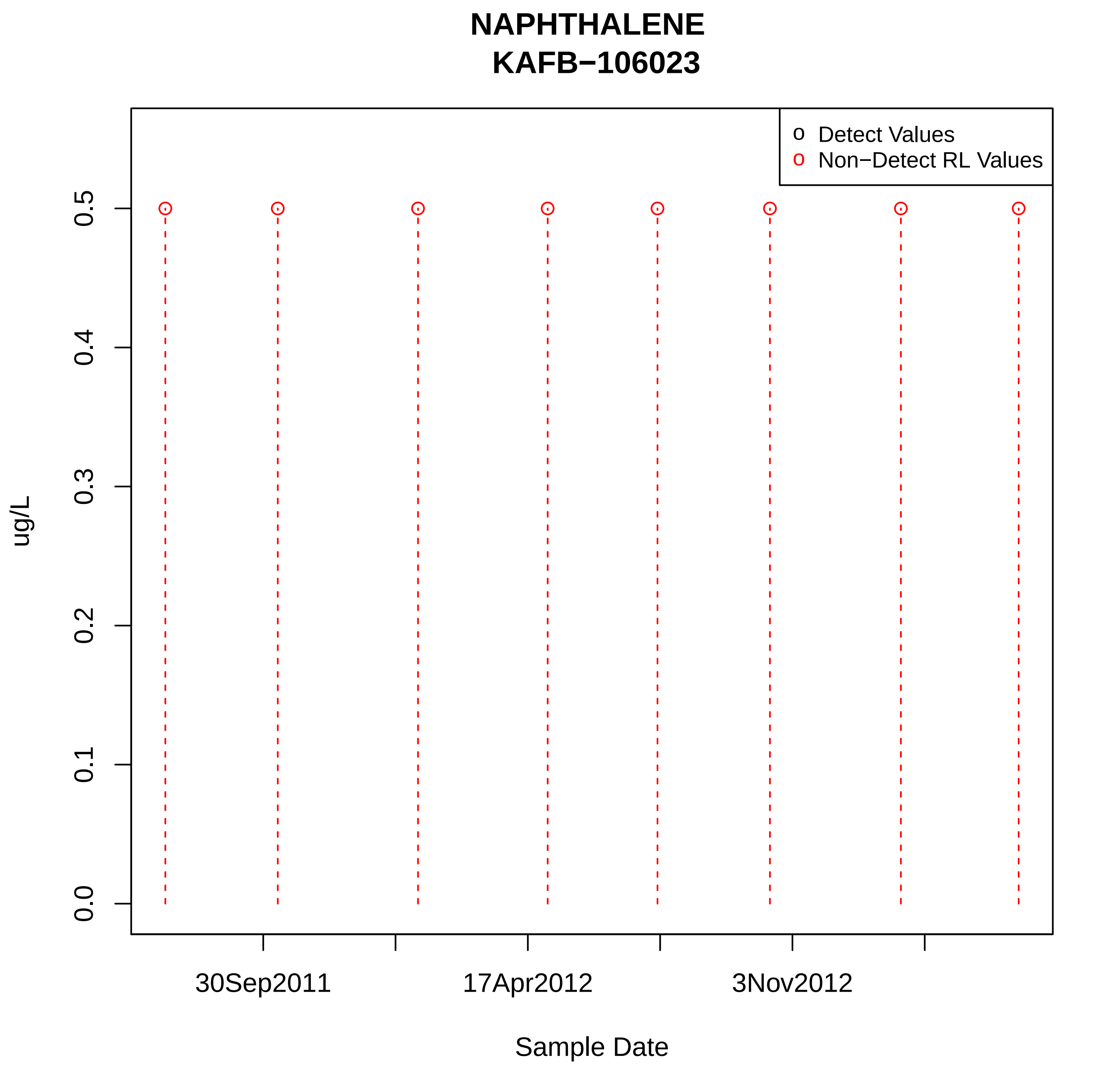
NAPHTHALENE
KAFB−106099
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

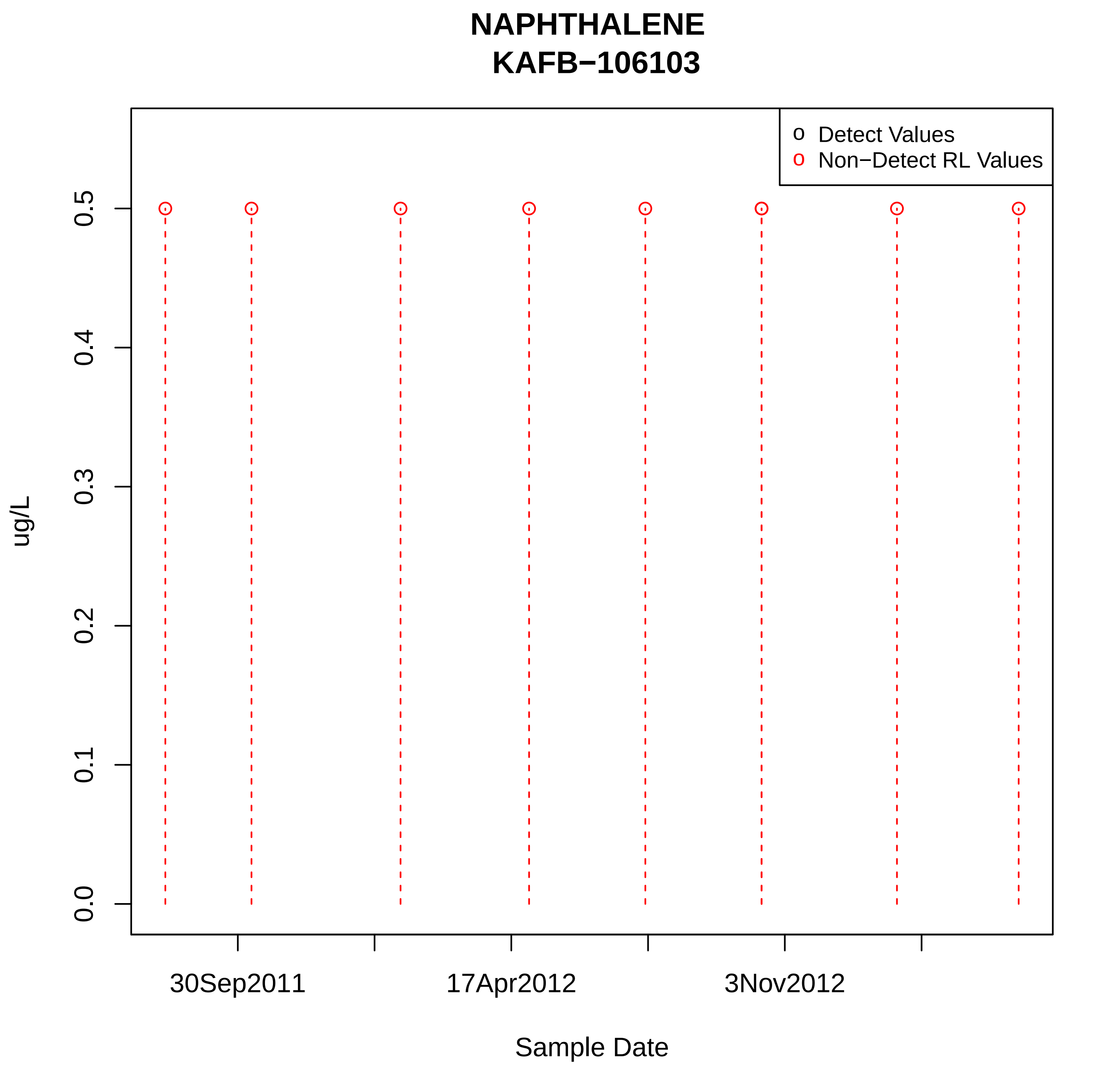

NAPHTHALENE
KAFB−106100
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

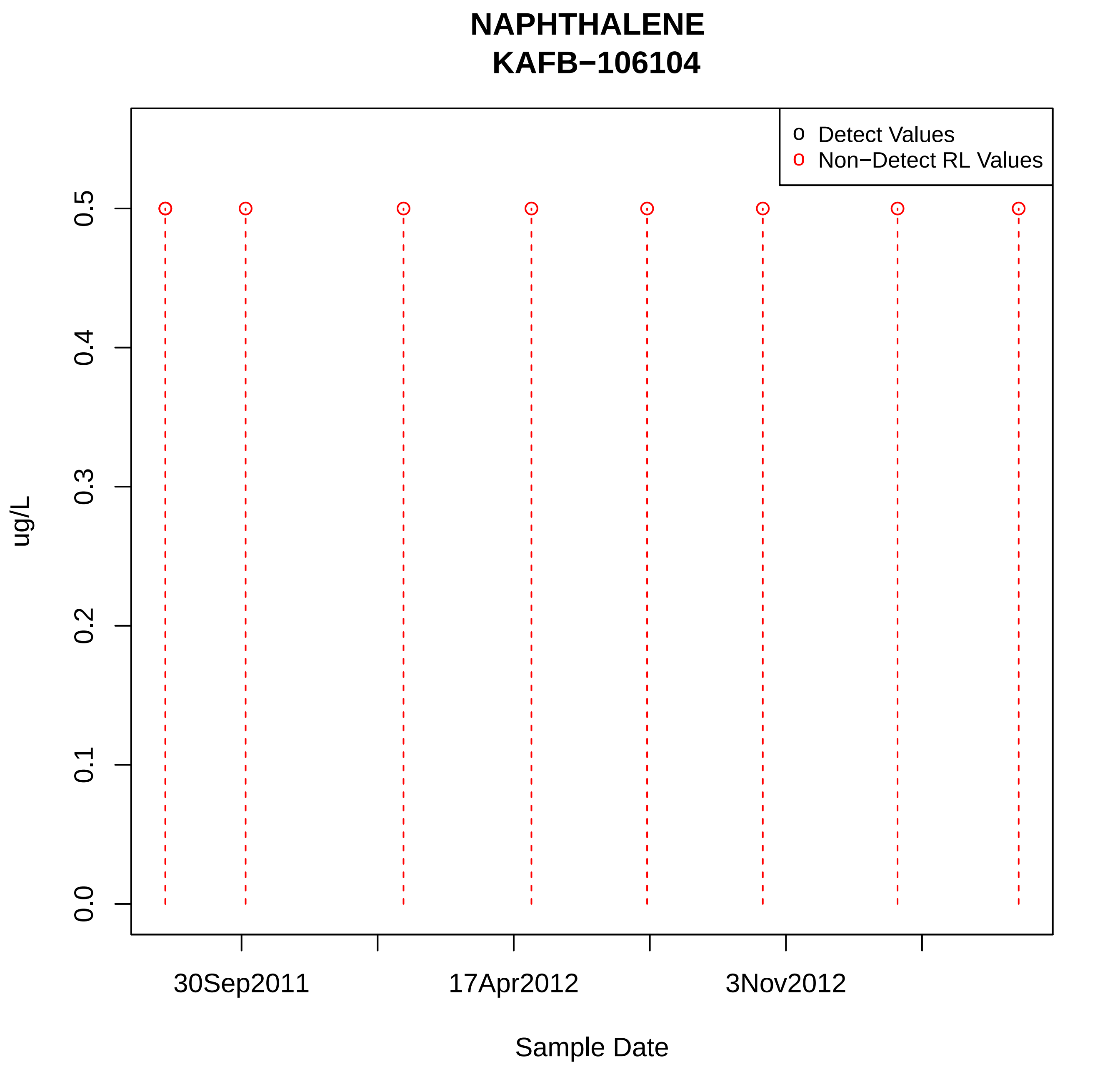


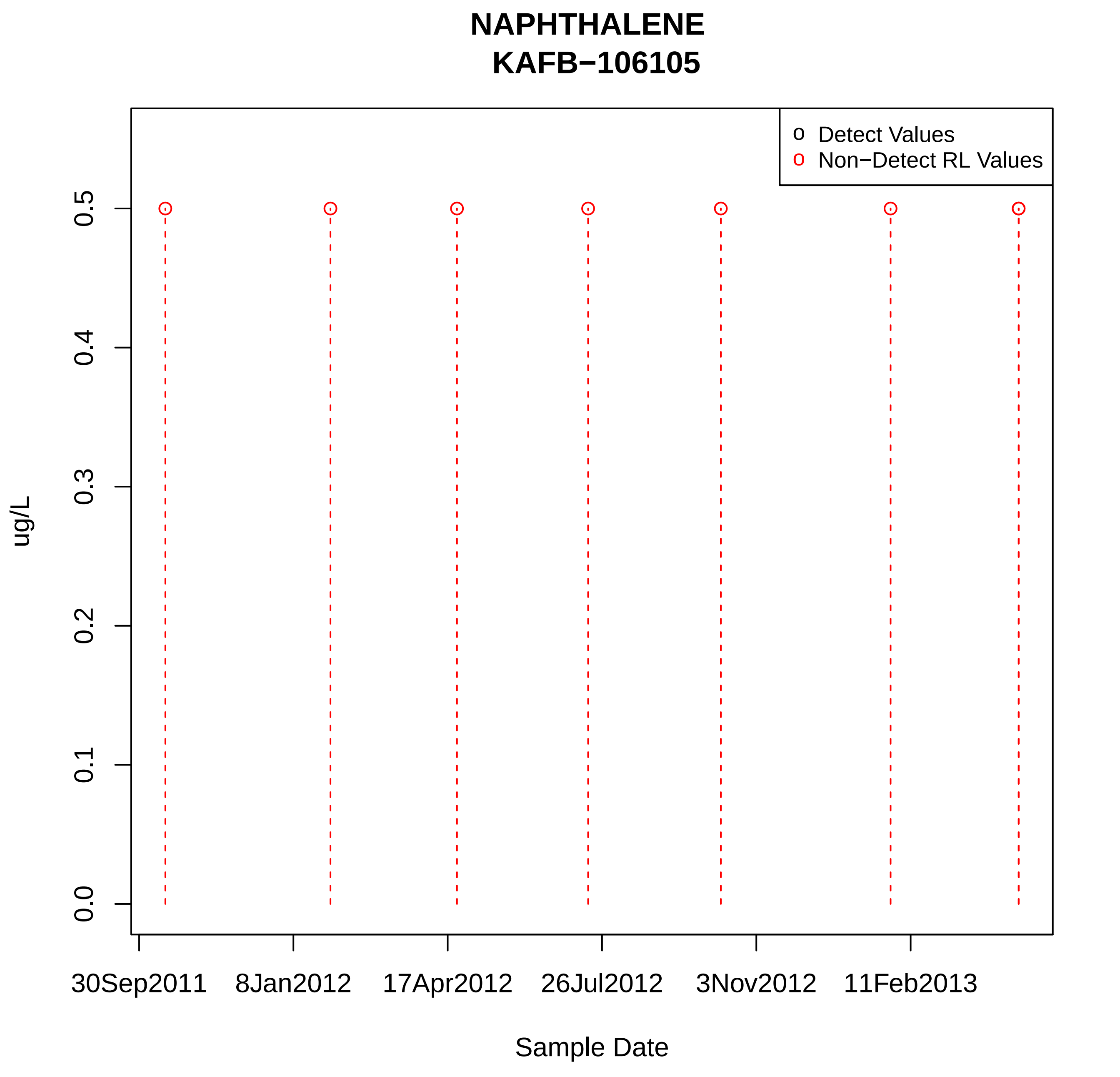
NAPHTHALENE
KAFB−106101
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

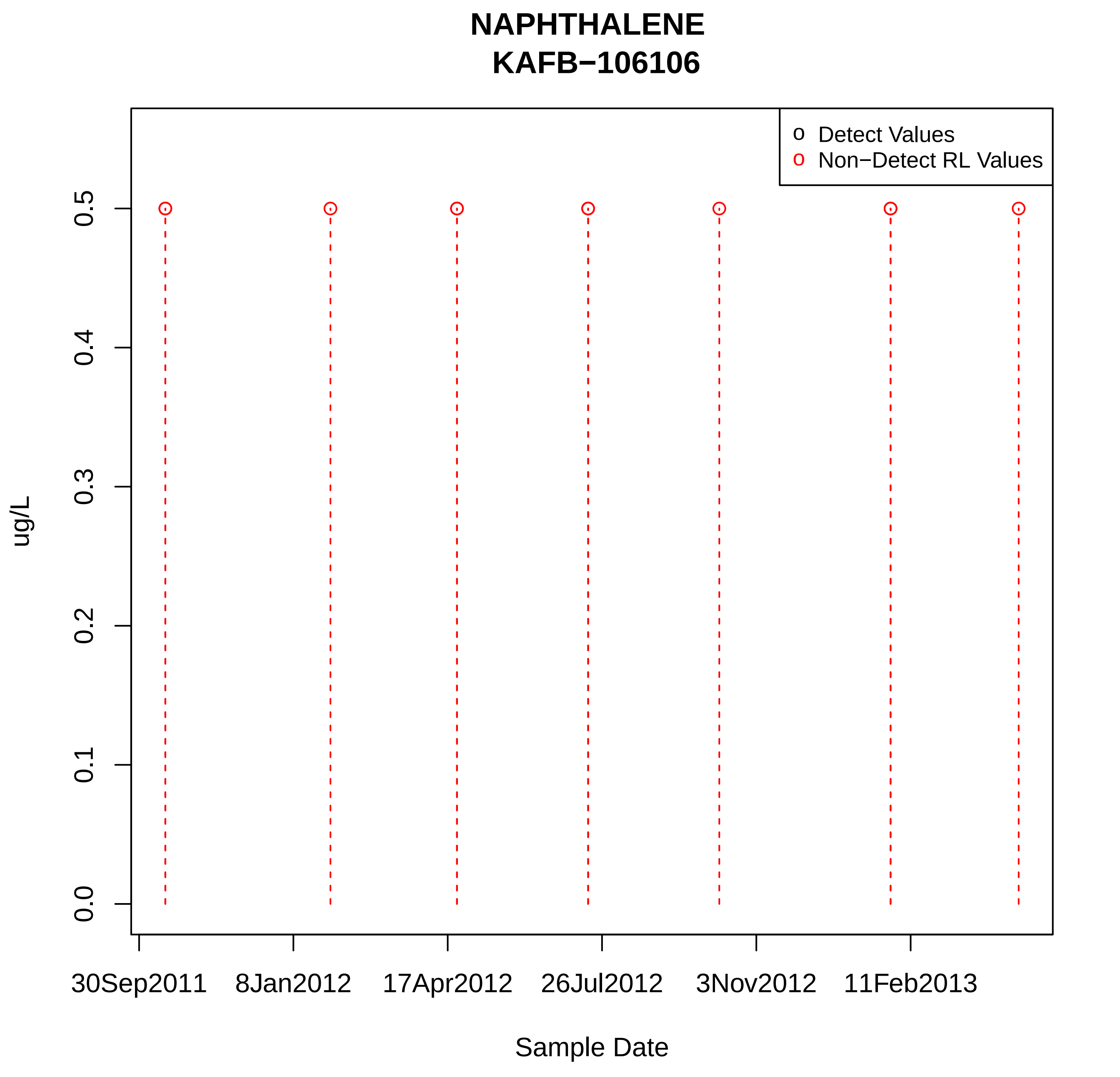

NAPHTHALENE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

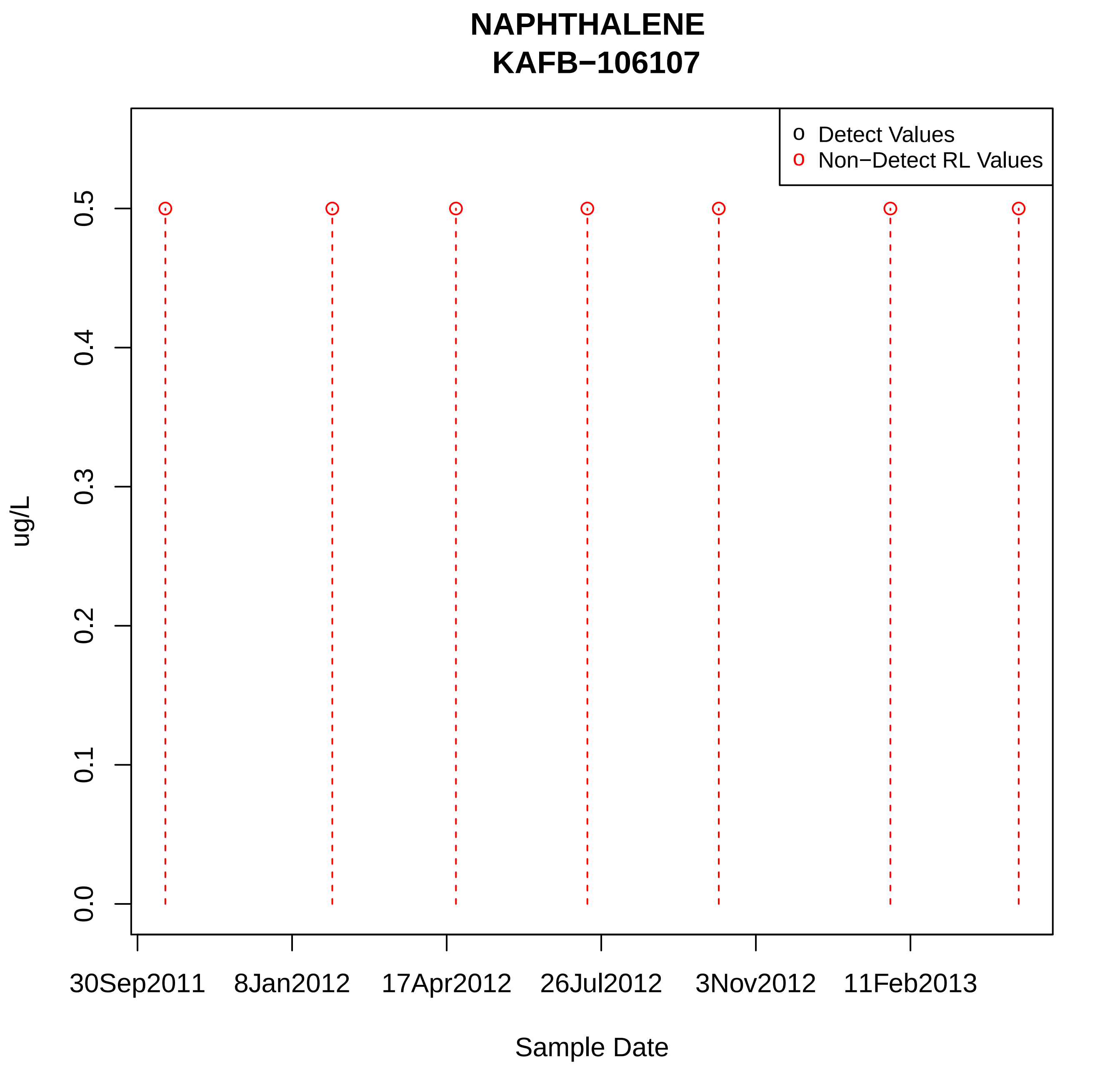

NAPHTHALENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


NAPHTHALENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

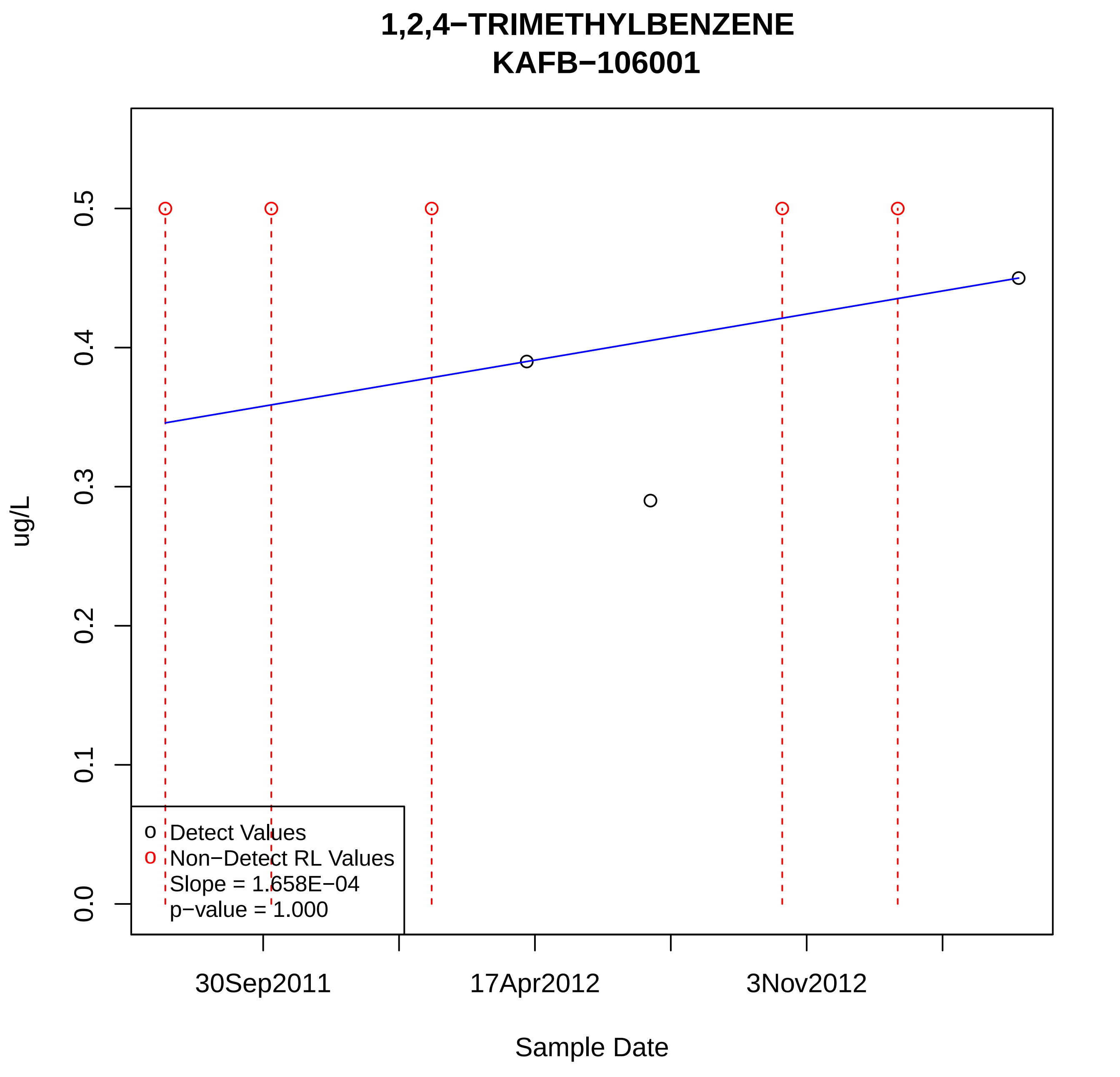

NAPHTHALENE
KAFB−106104
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


NAPHTHALENE
KAFB−106105
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

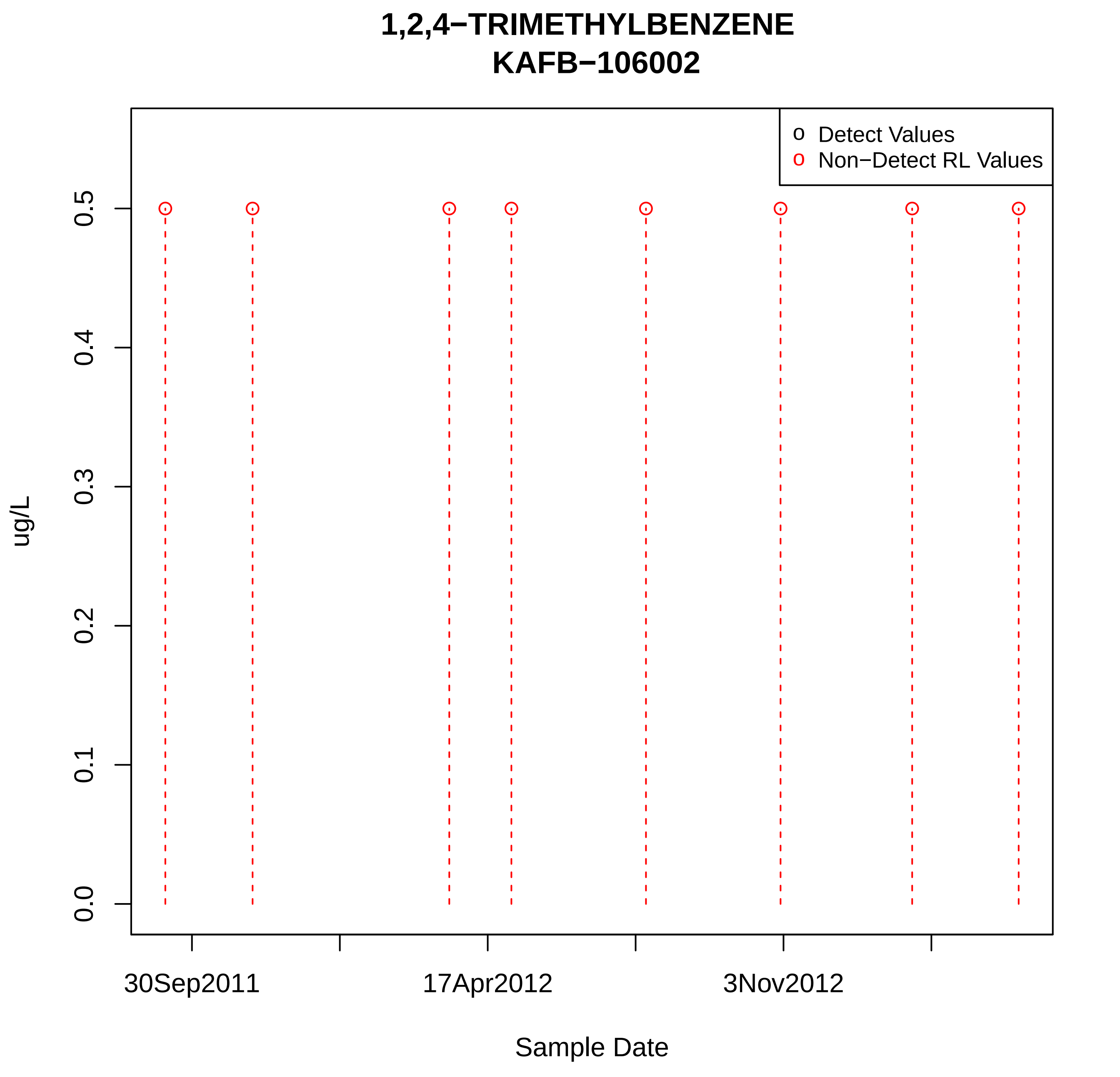

NAPHTHALENE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



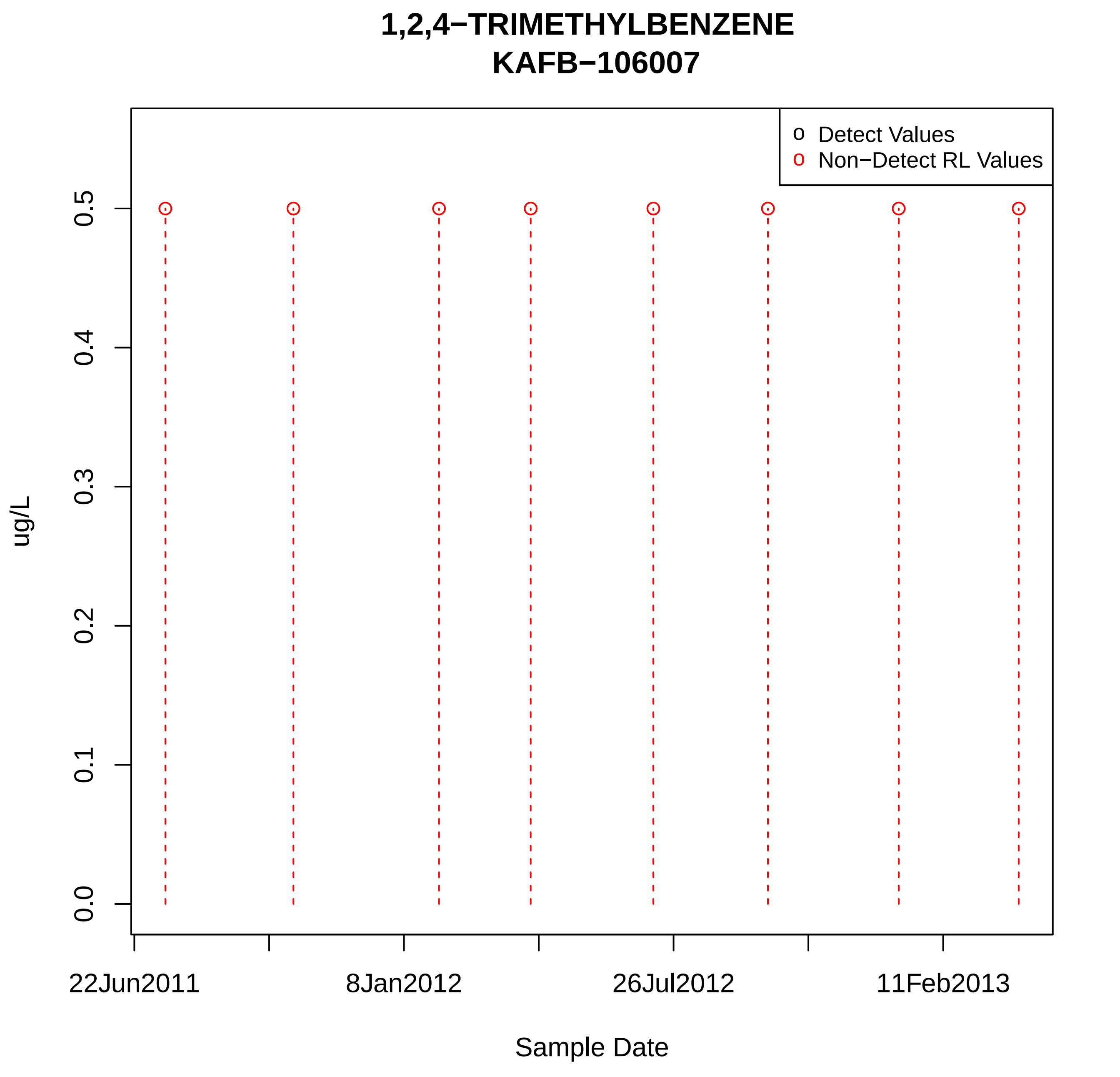
NAPHTHALENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

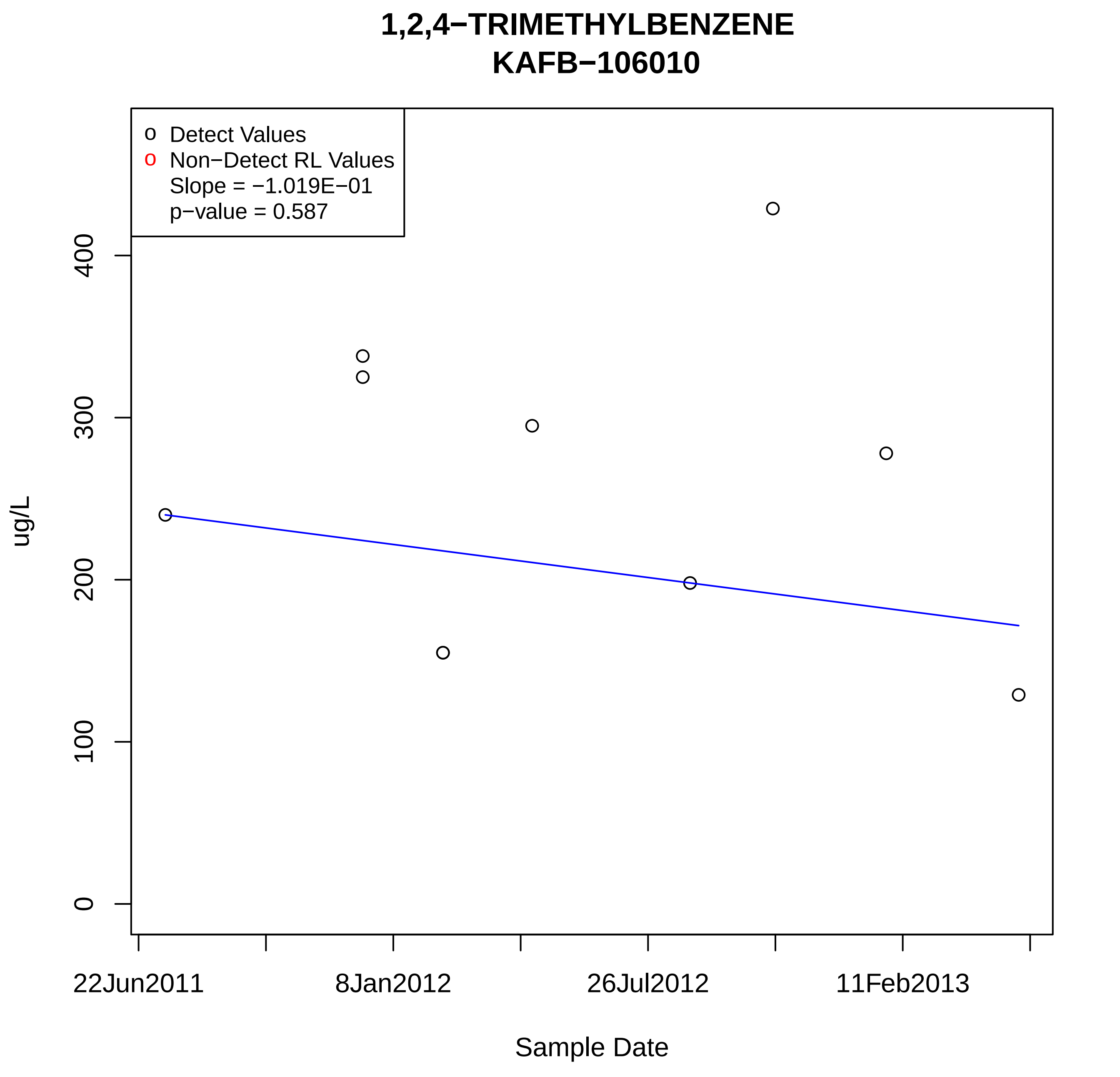


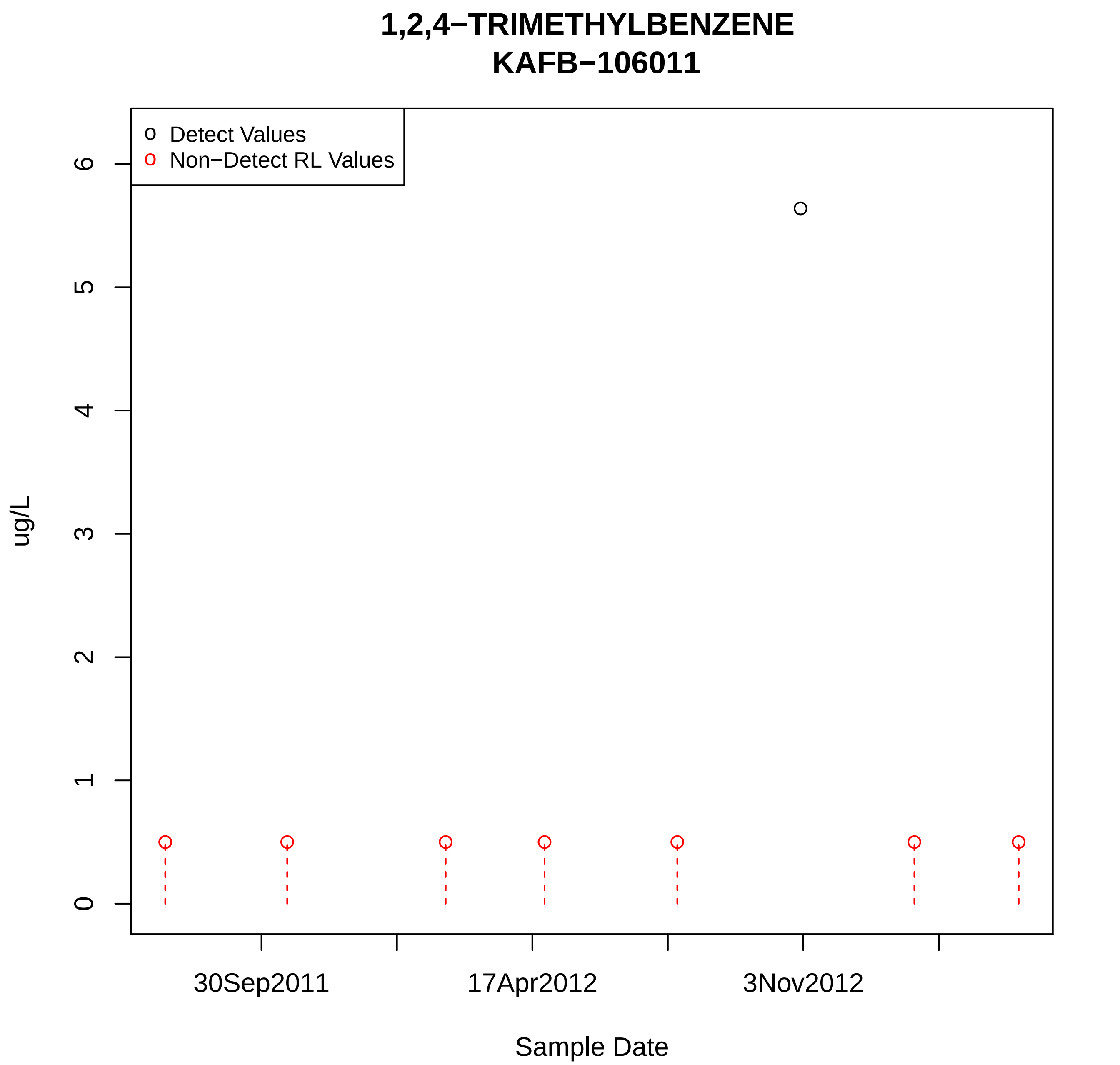
1,2,4−TRIMETHYLBENZENE
KAFB−106001
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values
Slope = 1.658E−04
p−value = 1.000

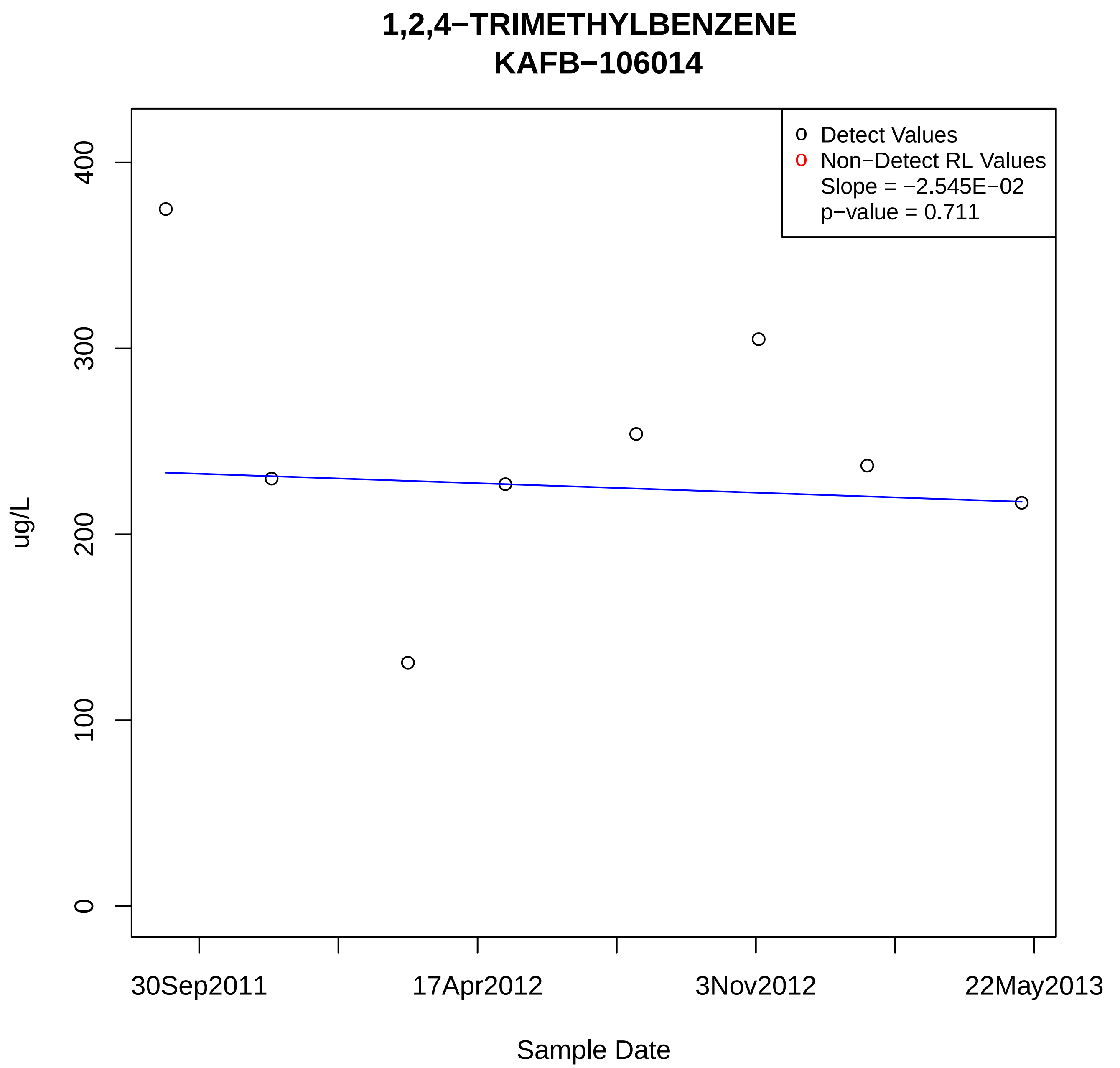


1,2,4−TRIMETHYLBENZENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

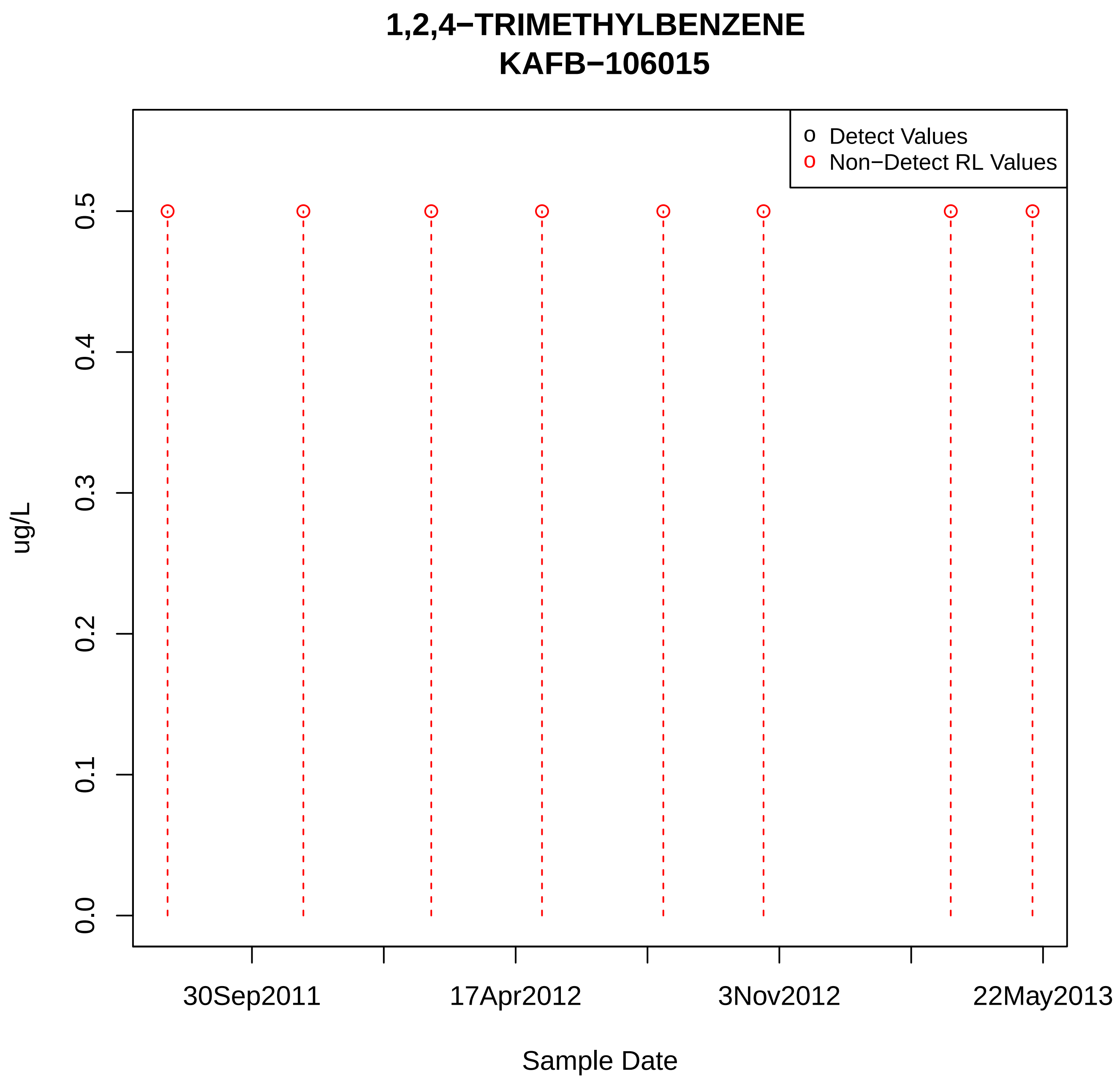

1,2,4−TRIMETHYLBENZENE
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = −1.019E−01
p−value = 0.587
ug/L
0
100
200
300
400
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

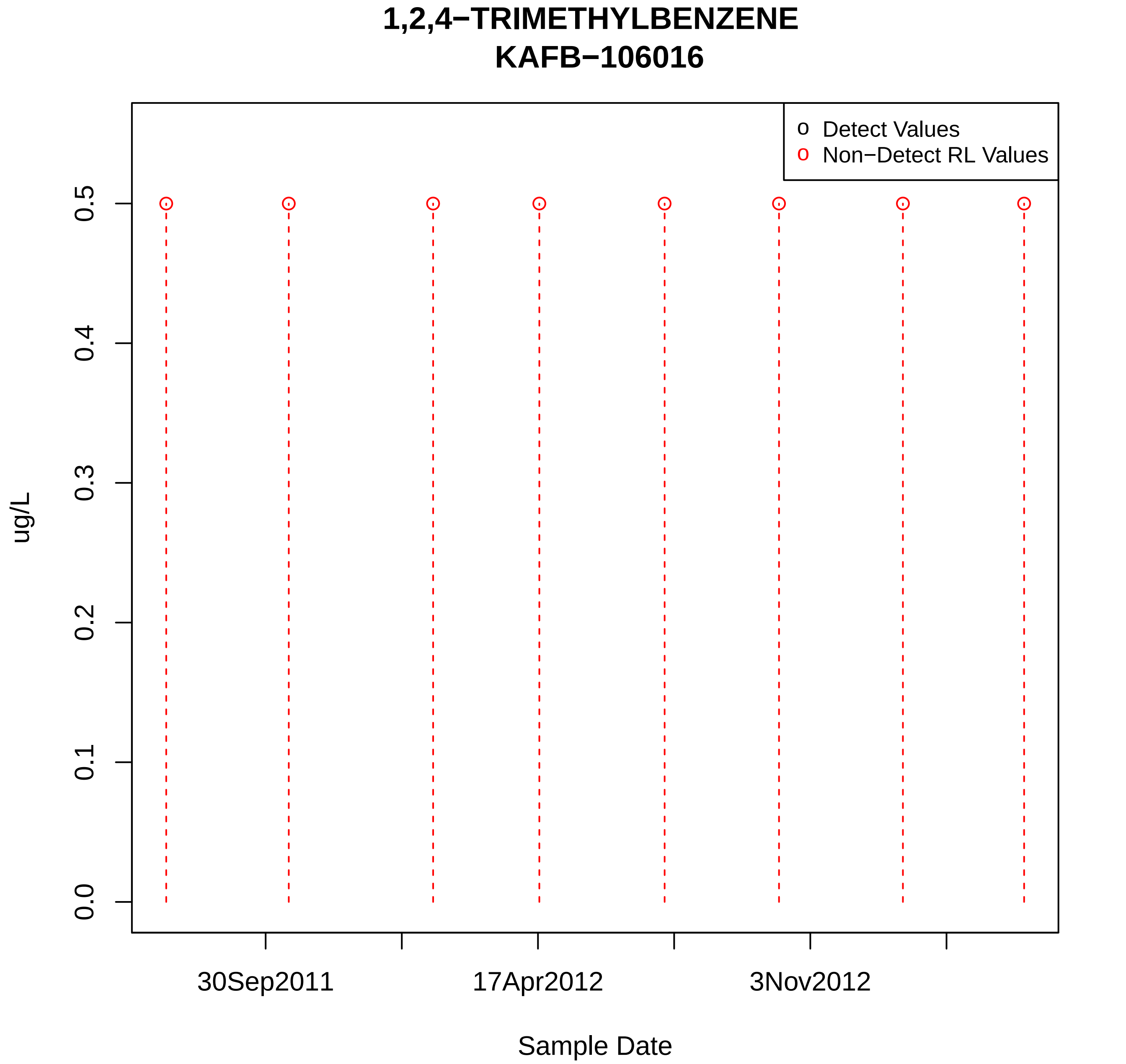

1,2,4−TRIMETHYLBENZENE
KAFB−106011
Detect Values
Non−Detect RL Values
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date



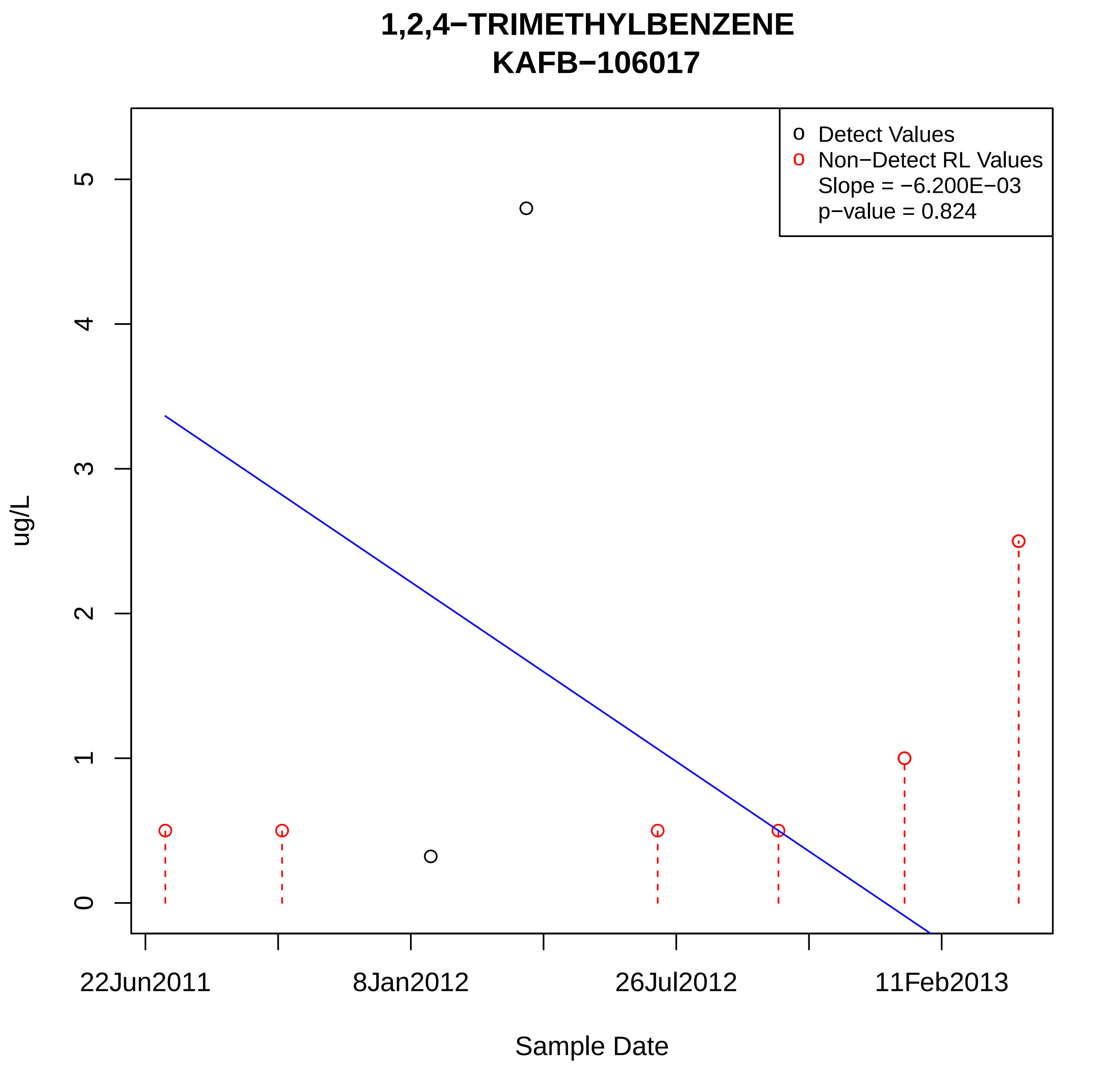
1,2,4−TRIMETHYLBENZENE
KAFB−106014
Detect Values
Non−Detect RL Values
Slope = −2.545E−02
p−value = 0.711
ug/L
0
100
200
300
400
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

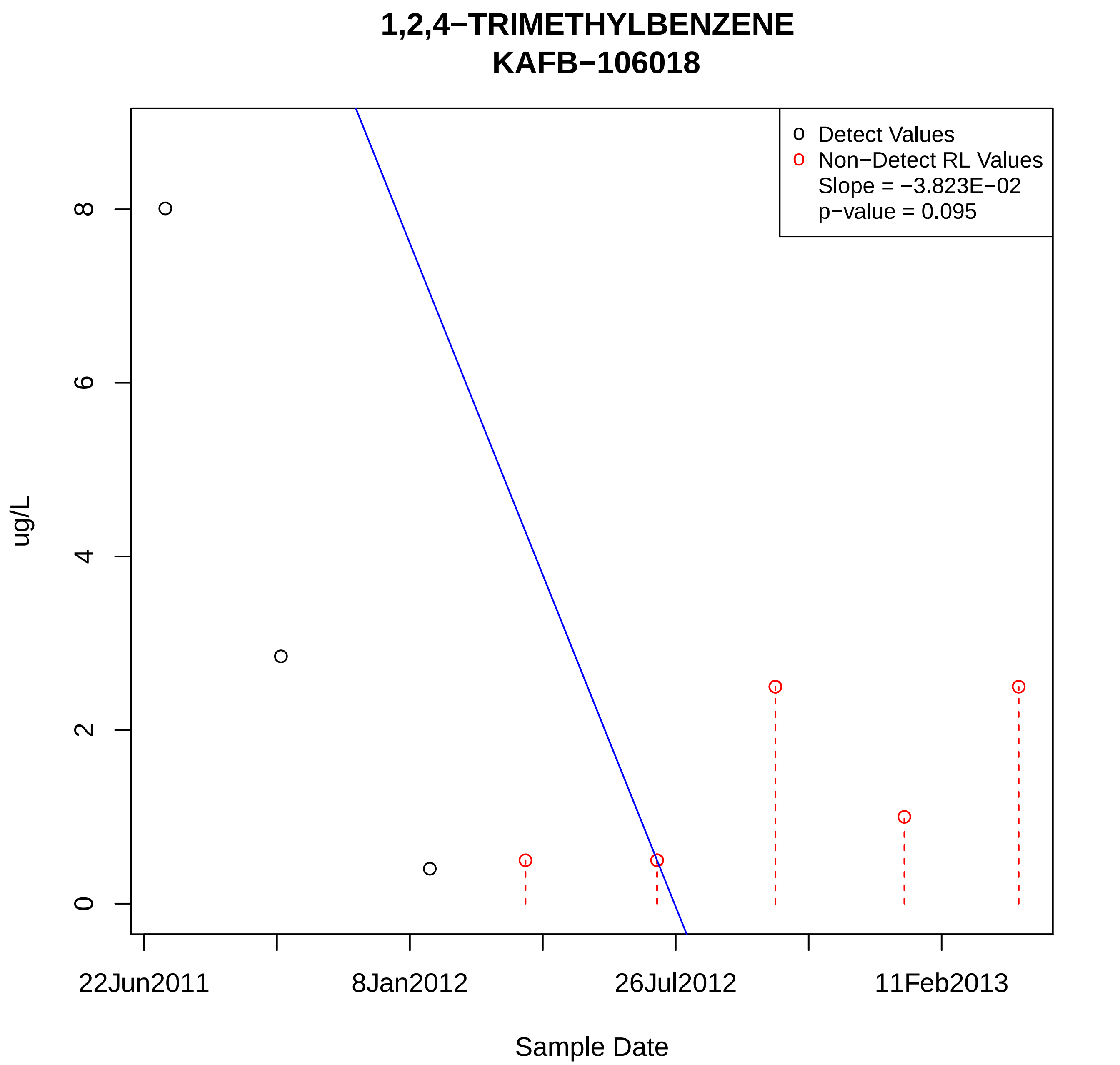


1,2,4−TRIMETHYLBENZENE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

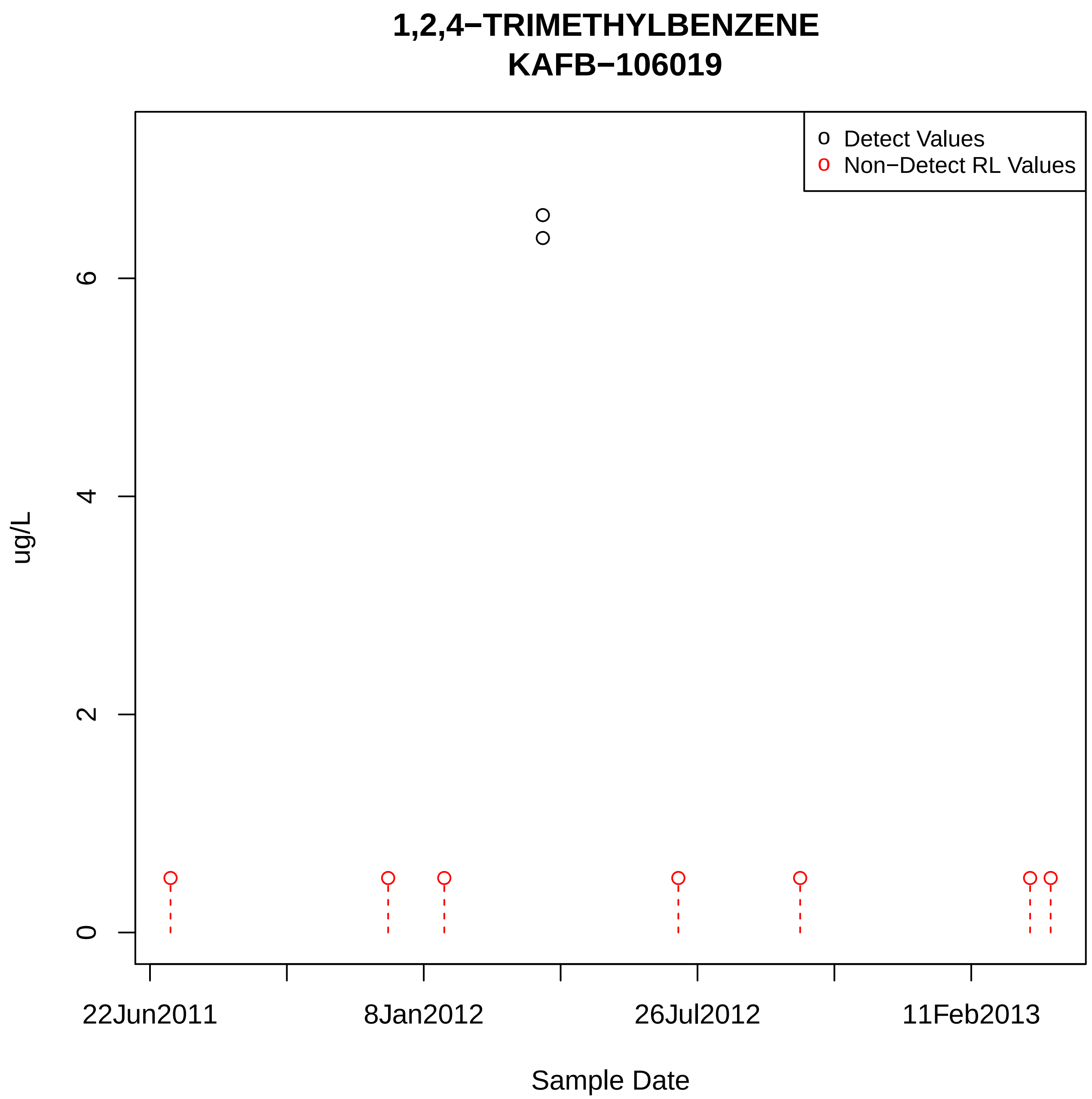


1,2,4−TRIMETHYLBENZENE
KAFB−106016
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

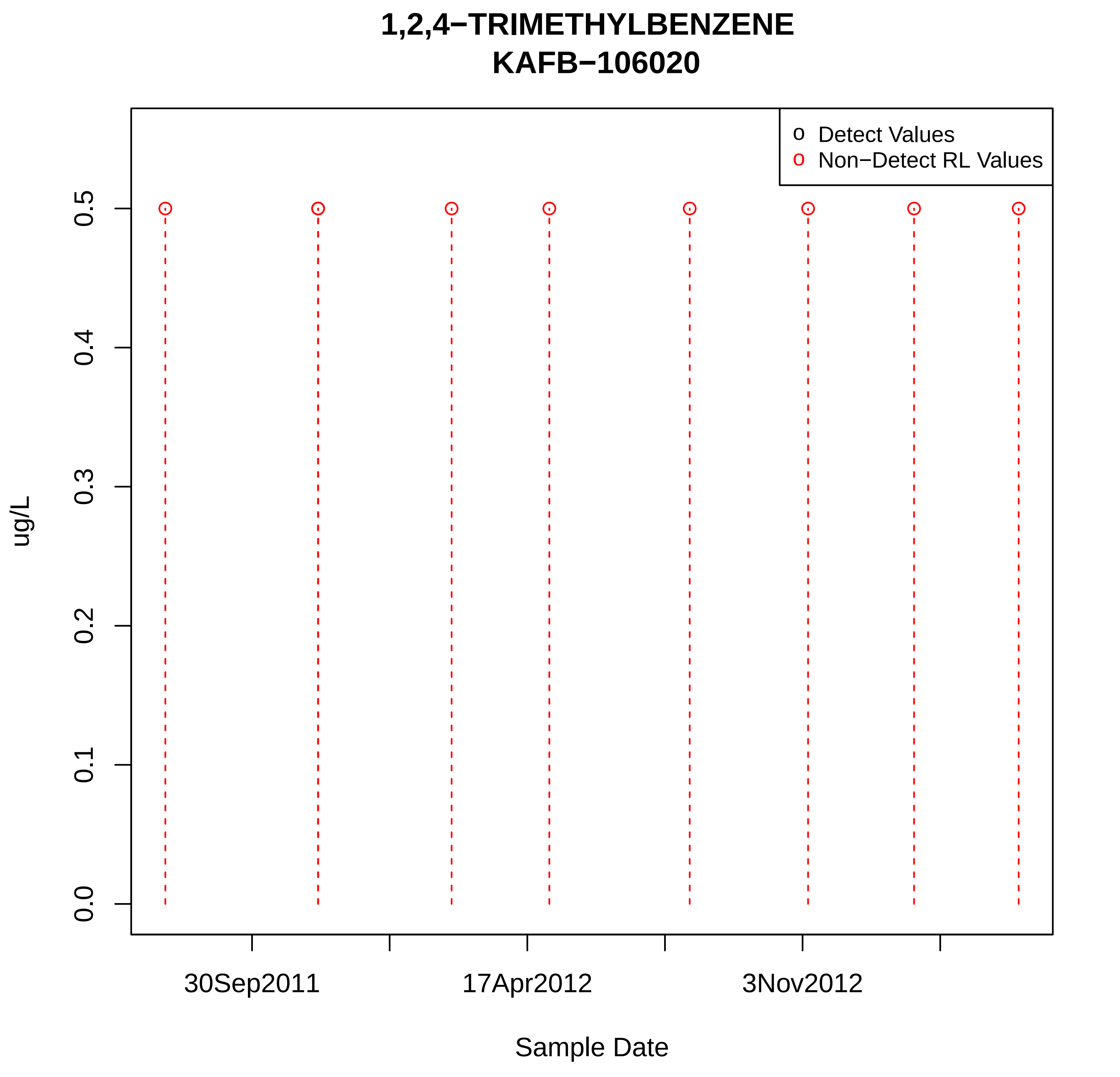

1,2,4−TRIMETHYLBENZENE
KAFB−106017
Detect Values
Non−Detect RL Values
Slope = −6.200E−03
p−value = 0.824
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

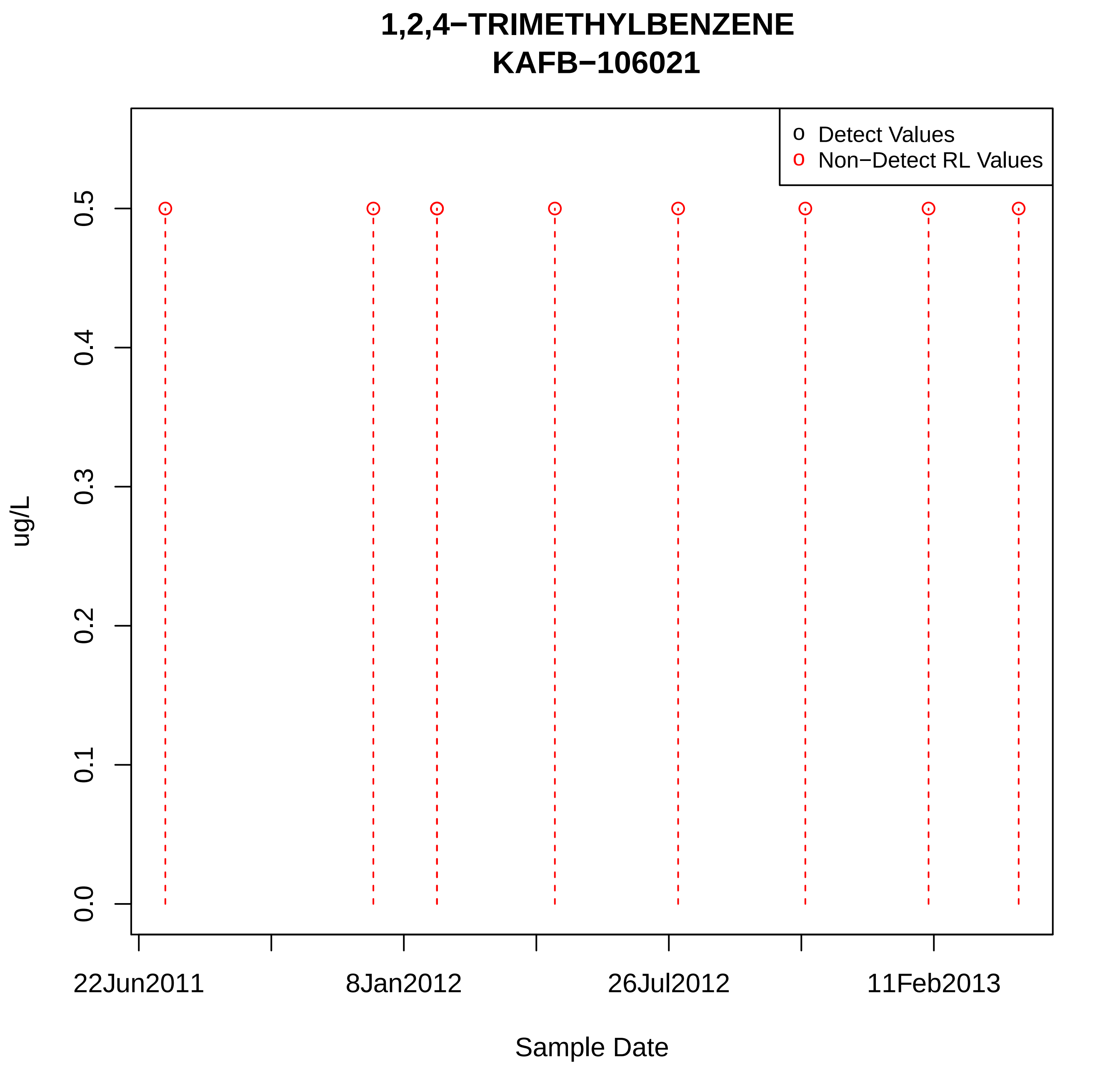


1,2,4−TRIMETHYLBENZENE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −3.823E−02
p−value = 0.095
ug/L
0
2
4
6
8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

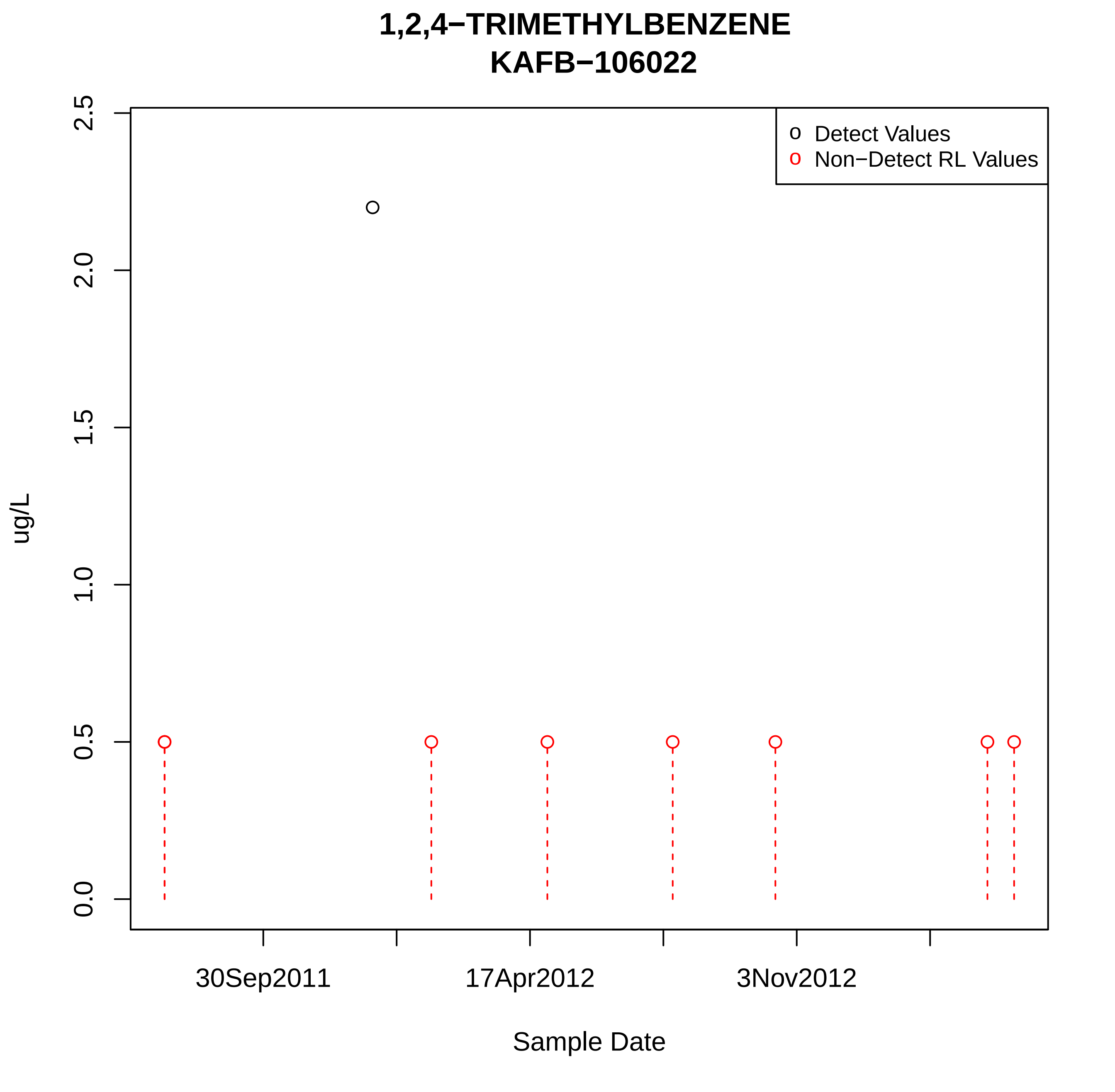


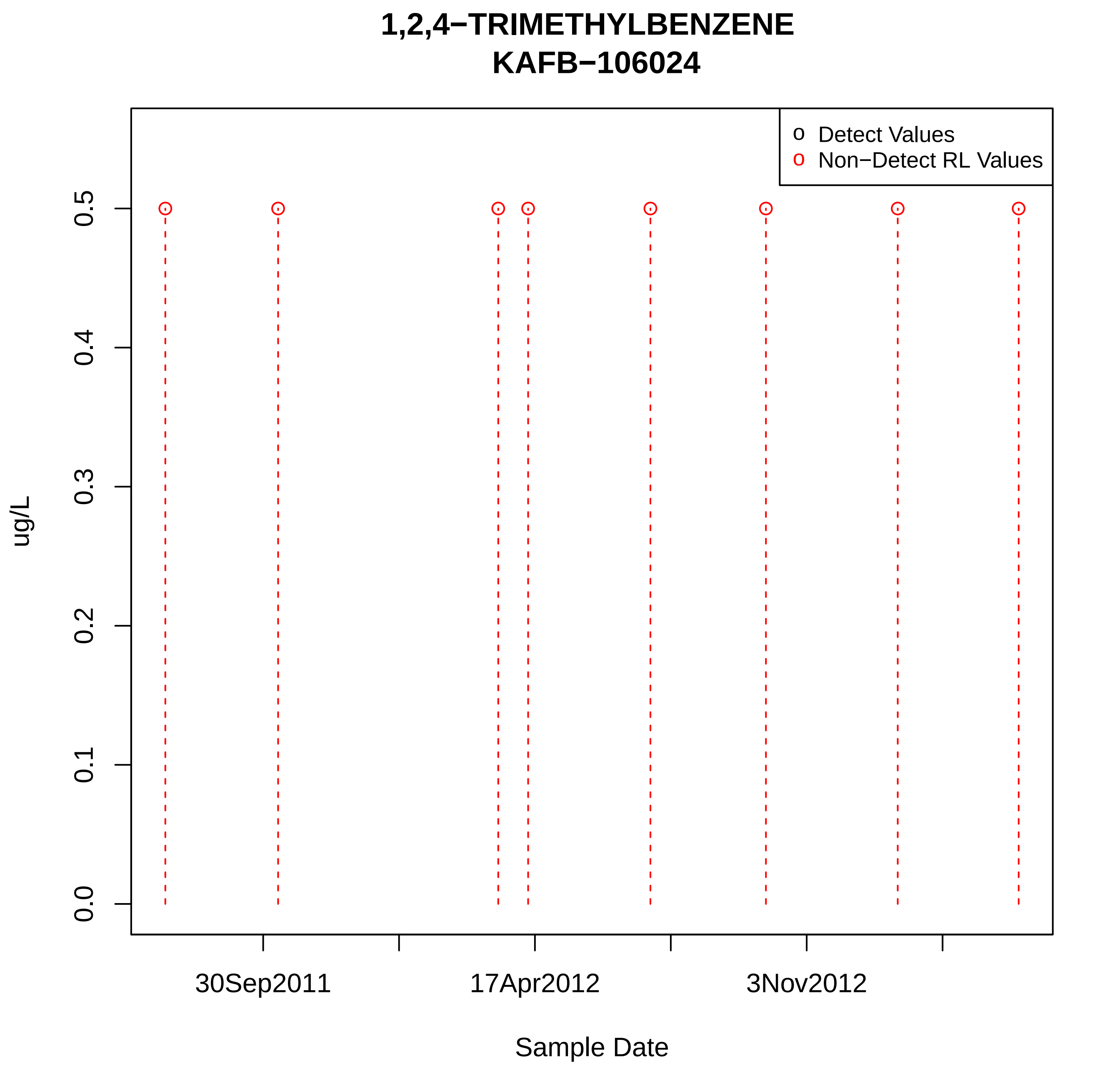
1,2,4−TRIMETHYLBENZENE
KAFB−106019
o Detect Values
o Non−Detect RL Values
0
2
4
6
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106020
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

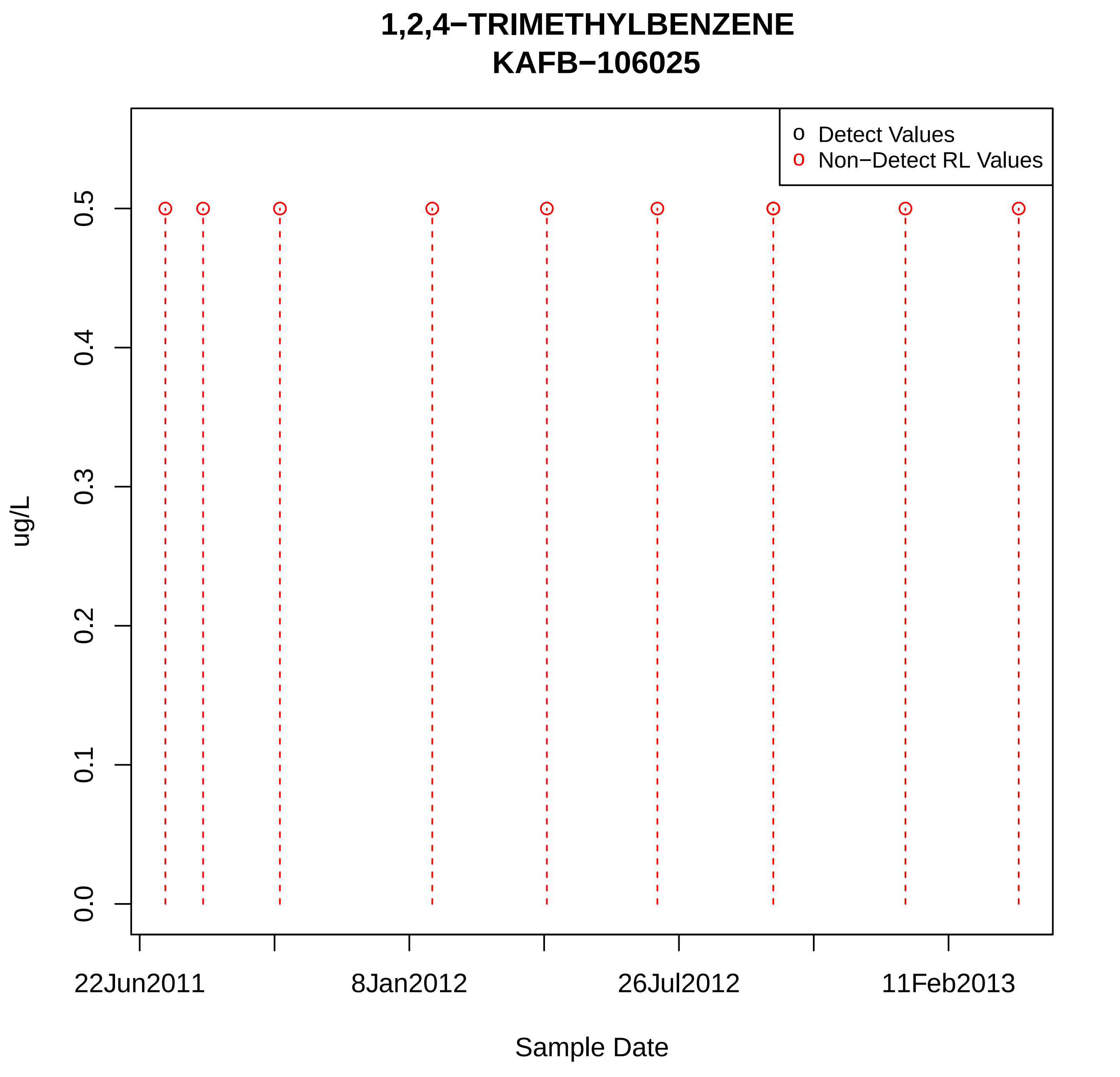


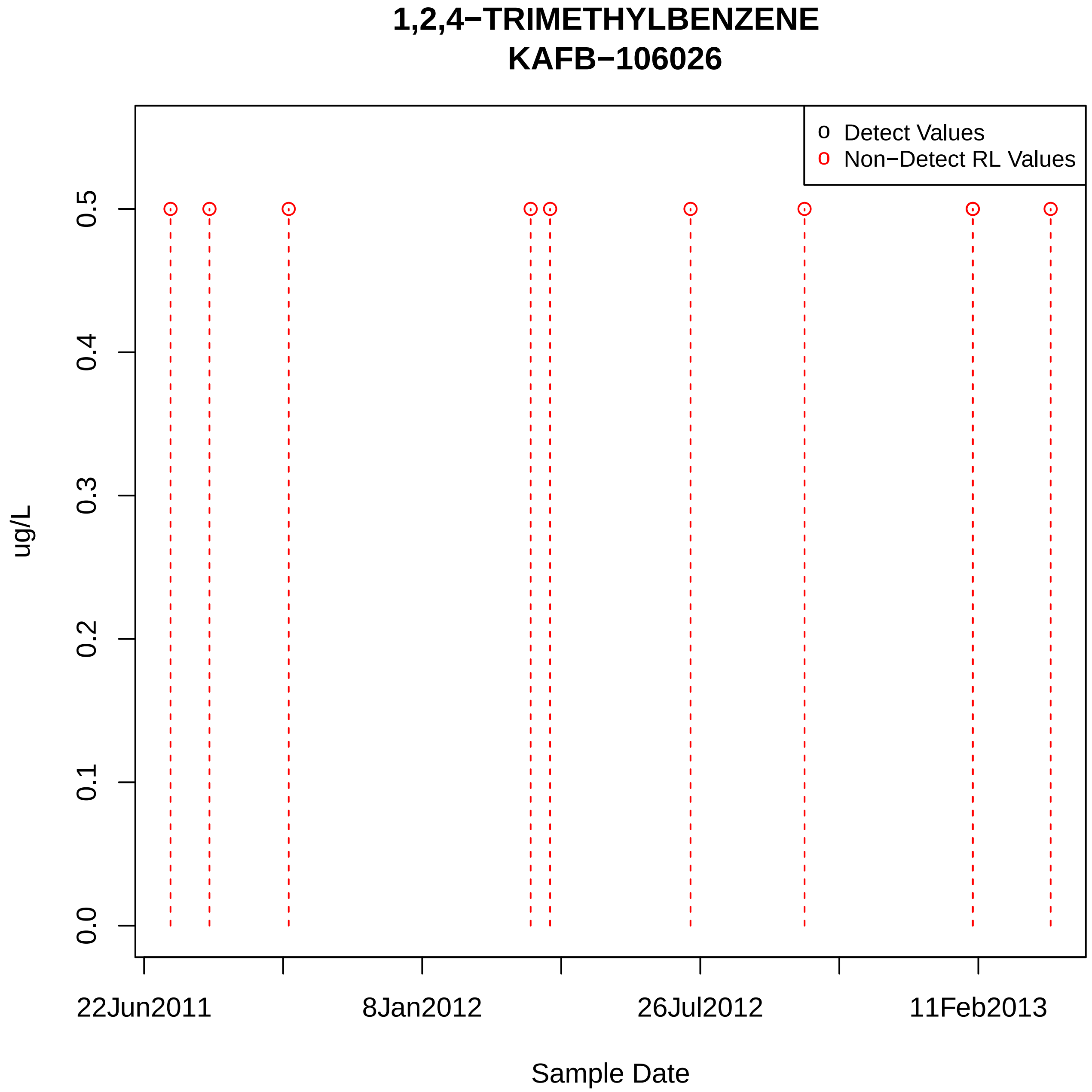
1,2,4−TRIMETHYLBENZENE
KAFB−106021
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

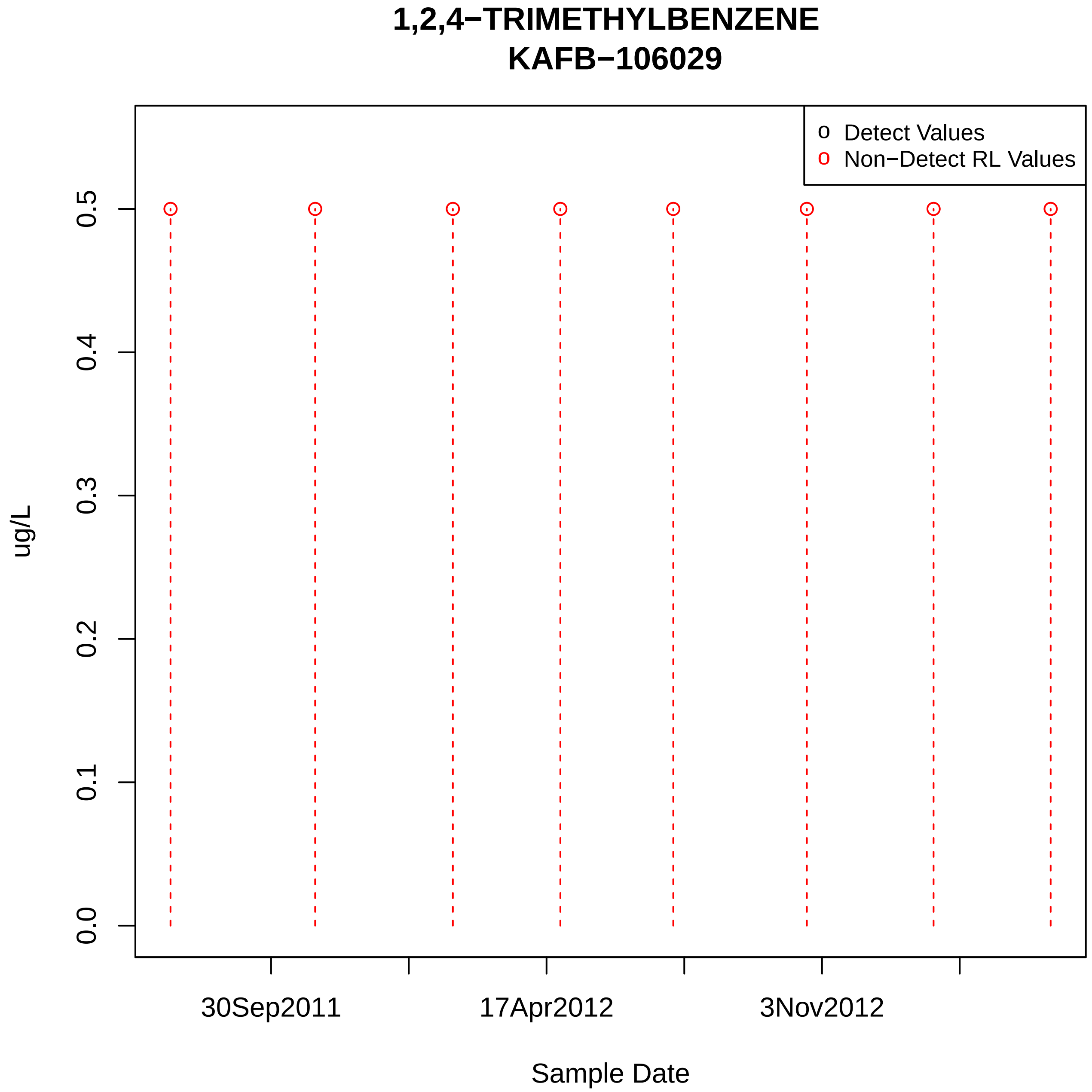

1,2,4−TRIMETHYLBENZENE
KAFB−106022
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



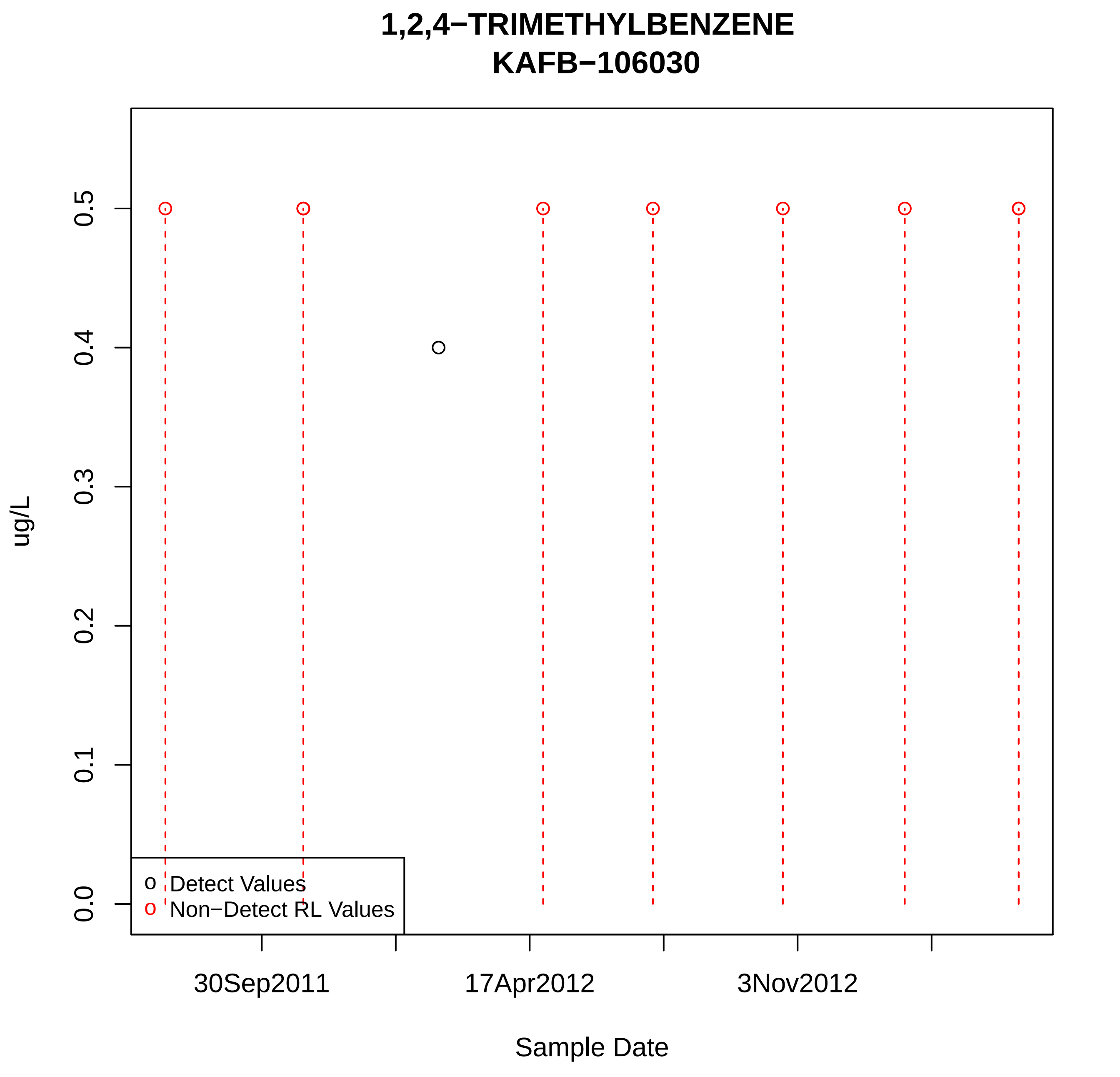
1,2,4−TRIMETHYLBENZENE
KAFB−106024
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

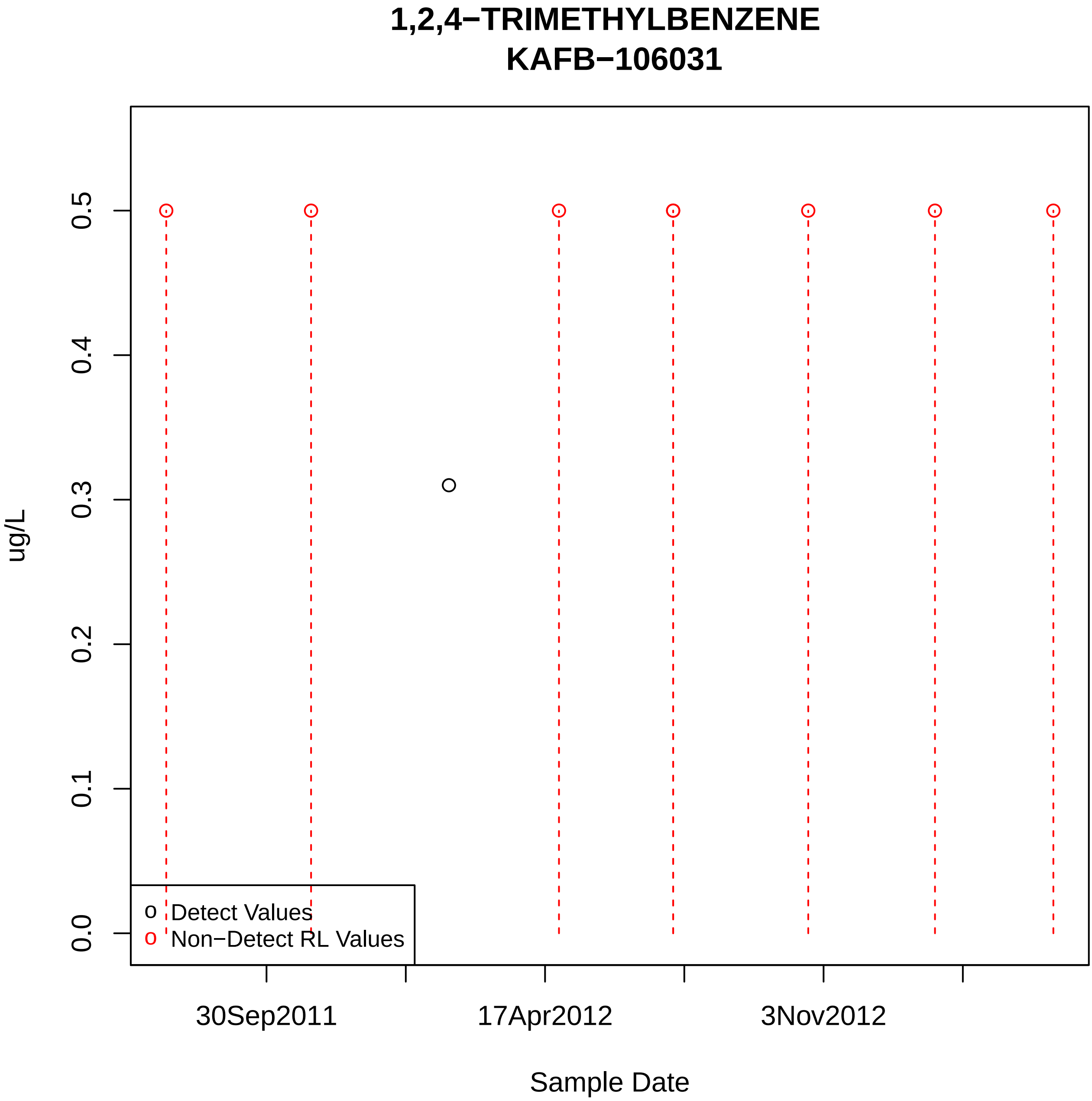

1,2,4−TRIMETHYLBENZENE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



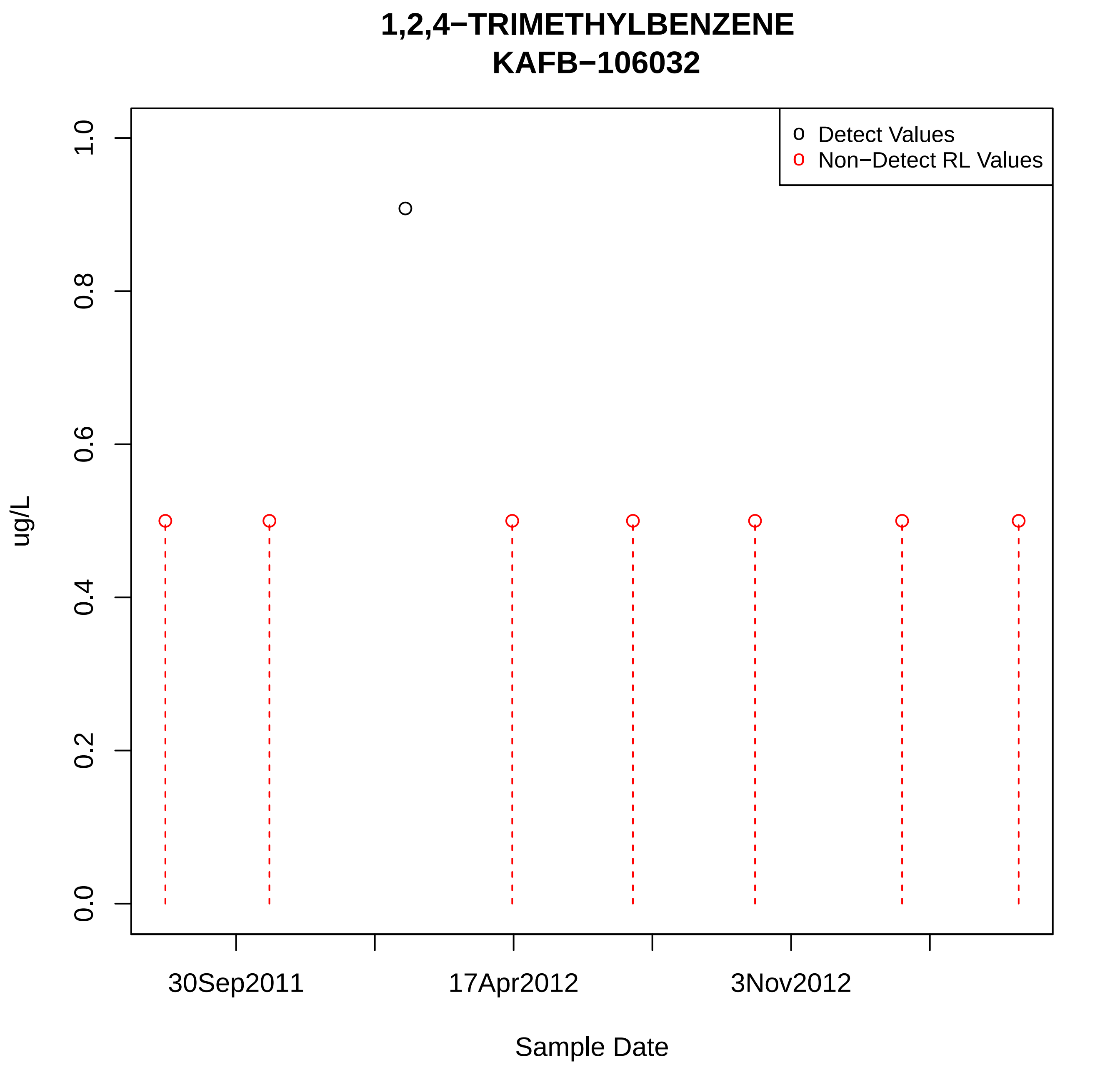
1,2,4−TRIMETHYLBENZENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

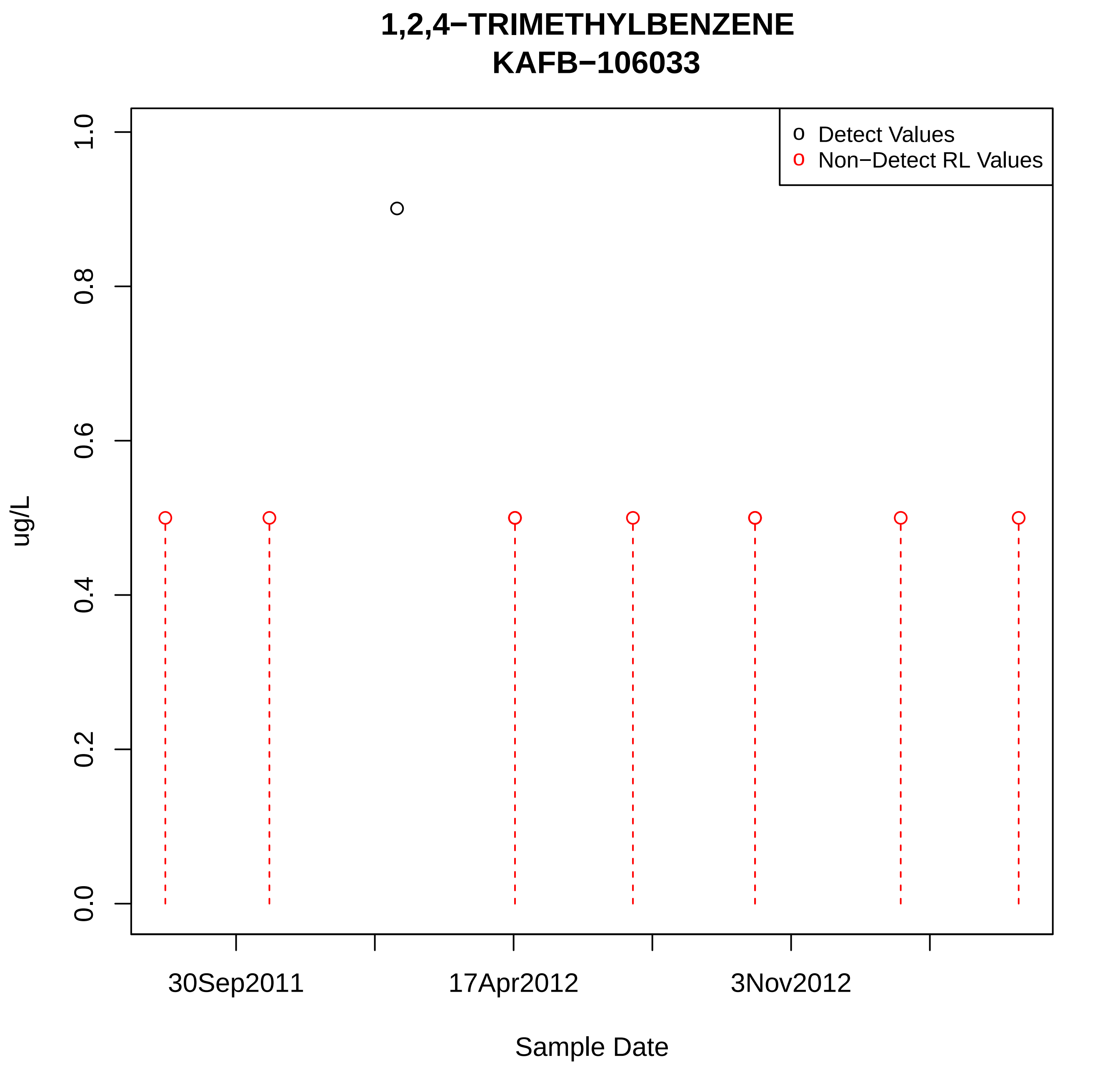


1,2,4−TRIMETHYLBENZENE
KAFB−106030
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

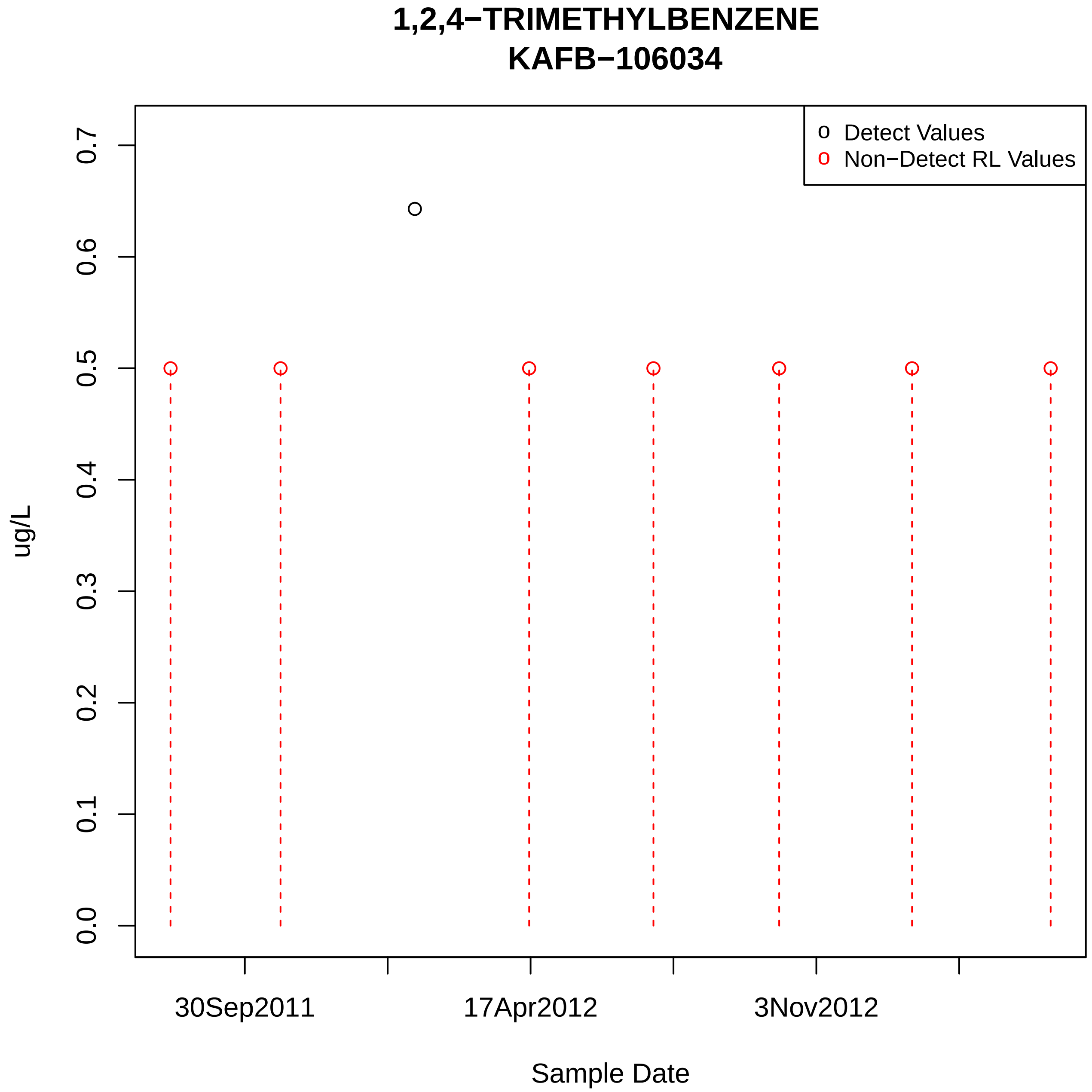


1,2,4−TRIMETHYLBENZENE
KAFB−106031
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

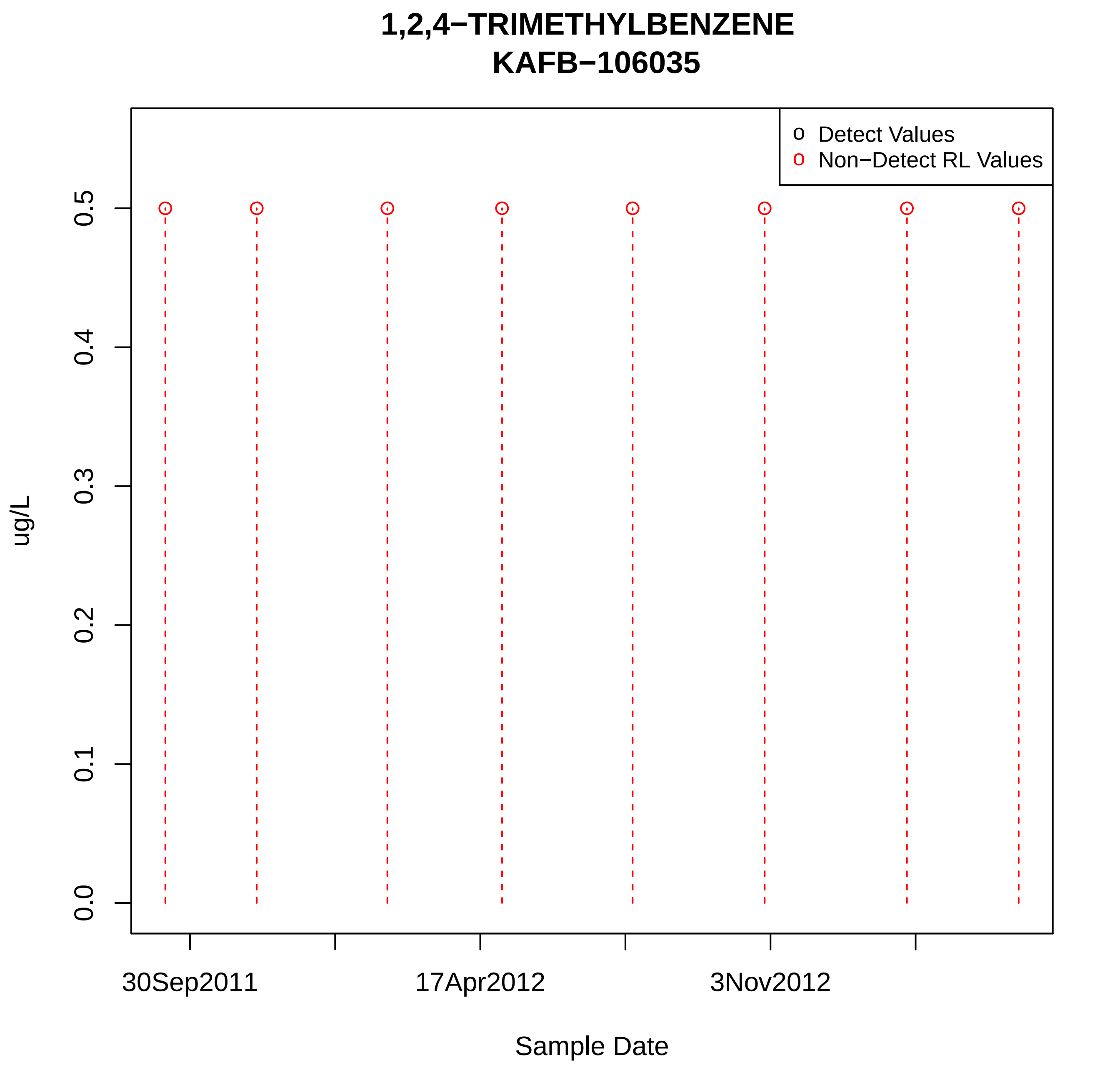

1,2,4−TRIMETHYLBENZENE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date

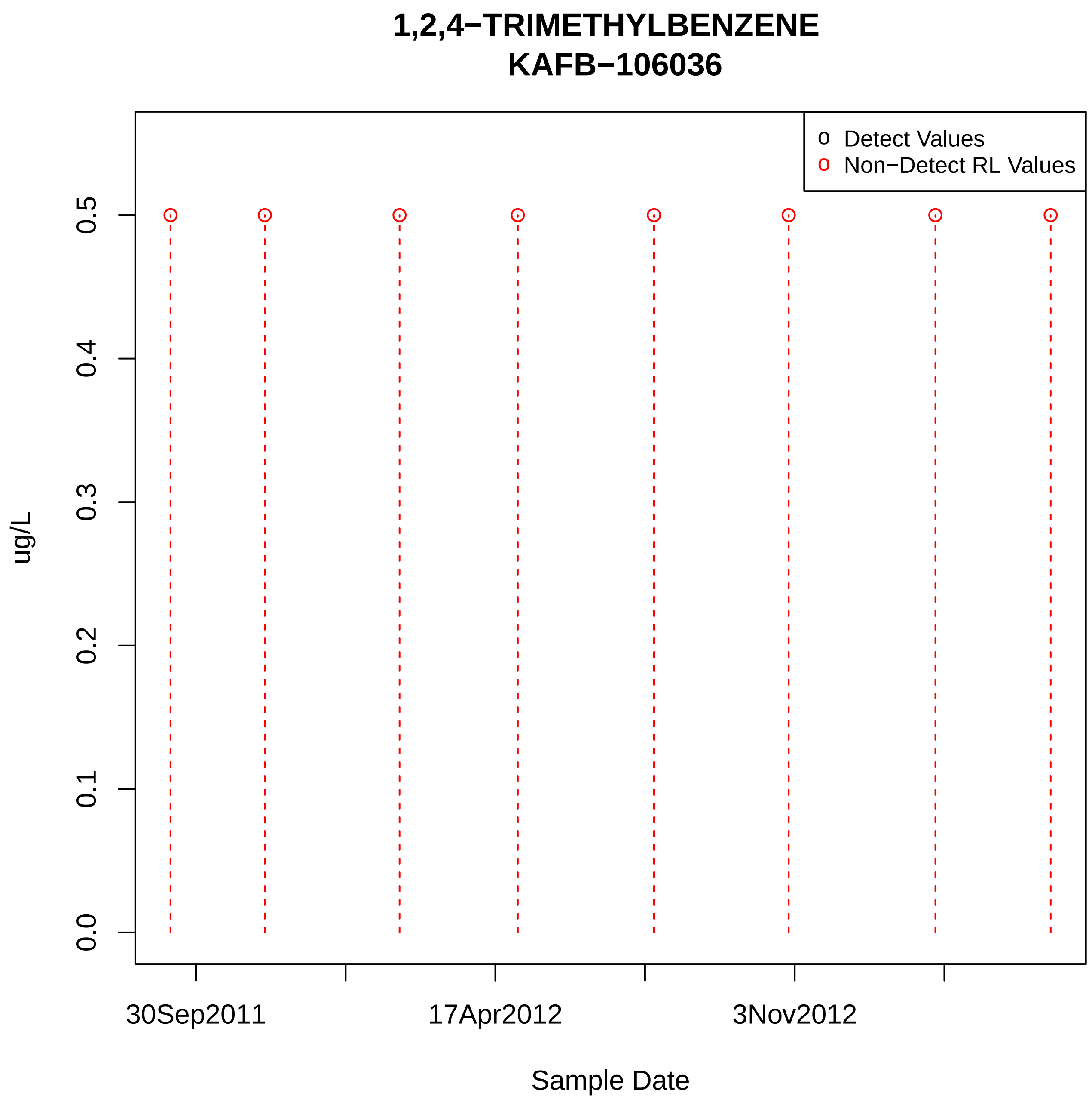


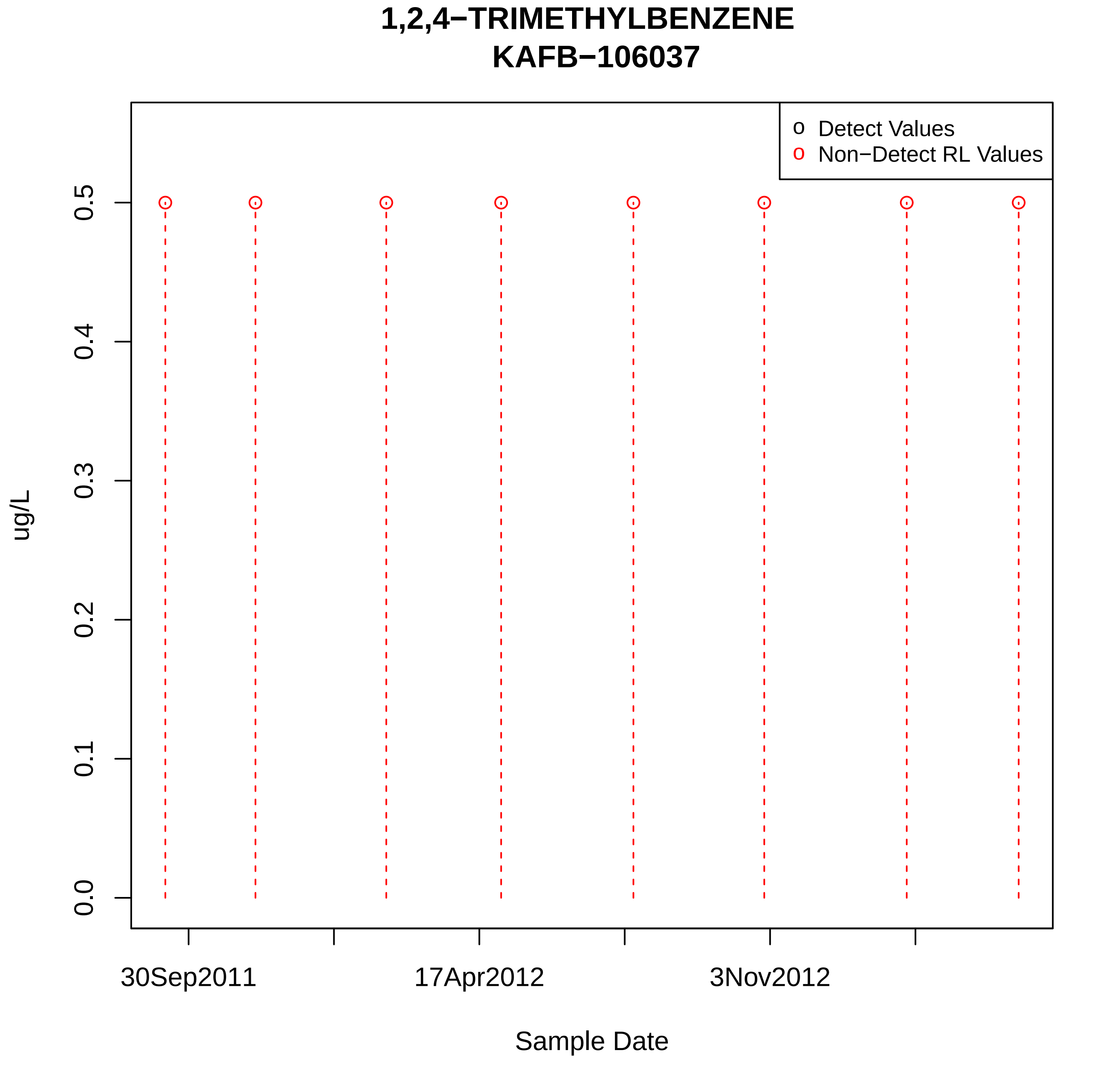
1,2,4−TRIMETHYLBENZENE
KAFB−106033
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
30Sep2011
17Apr2012
3Nov2012
Sample Date



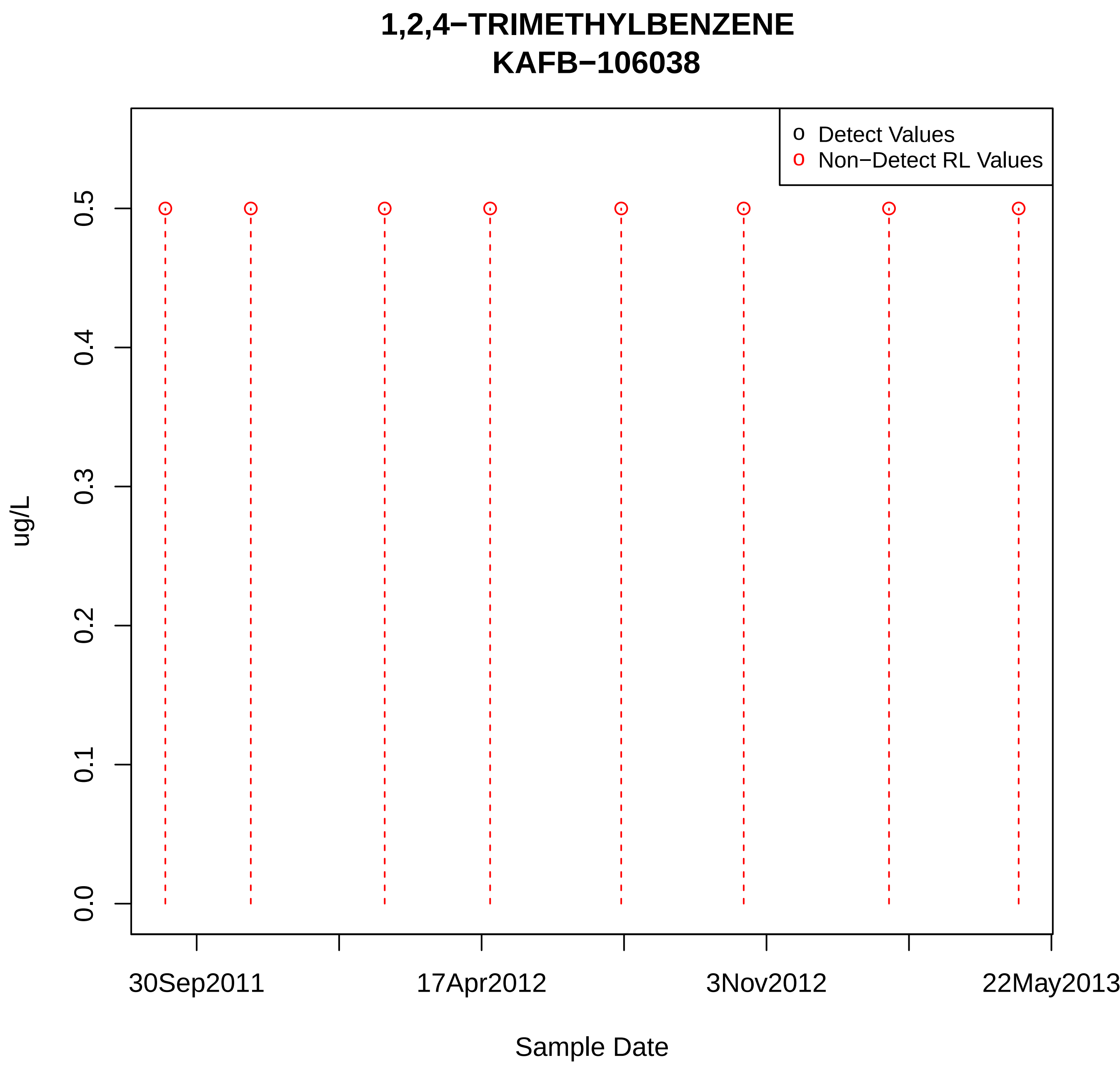
1,2,4−TRIMETHYLBENZENE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

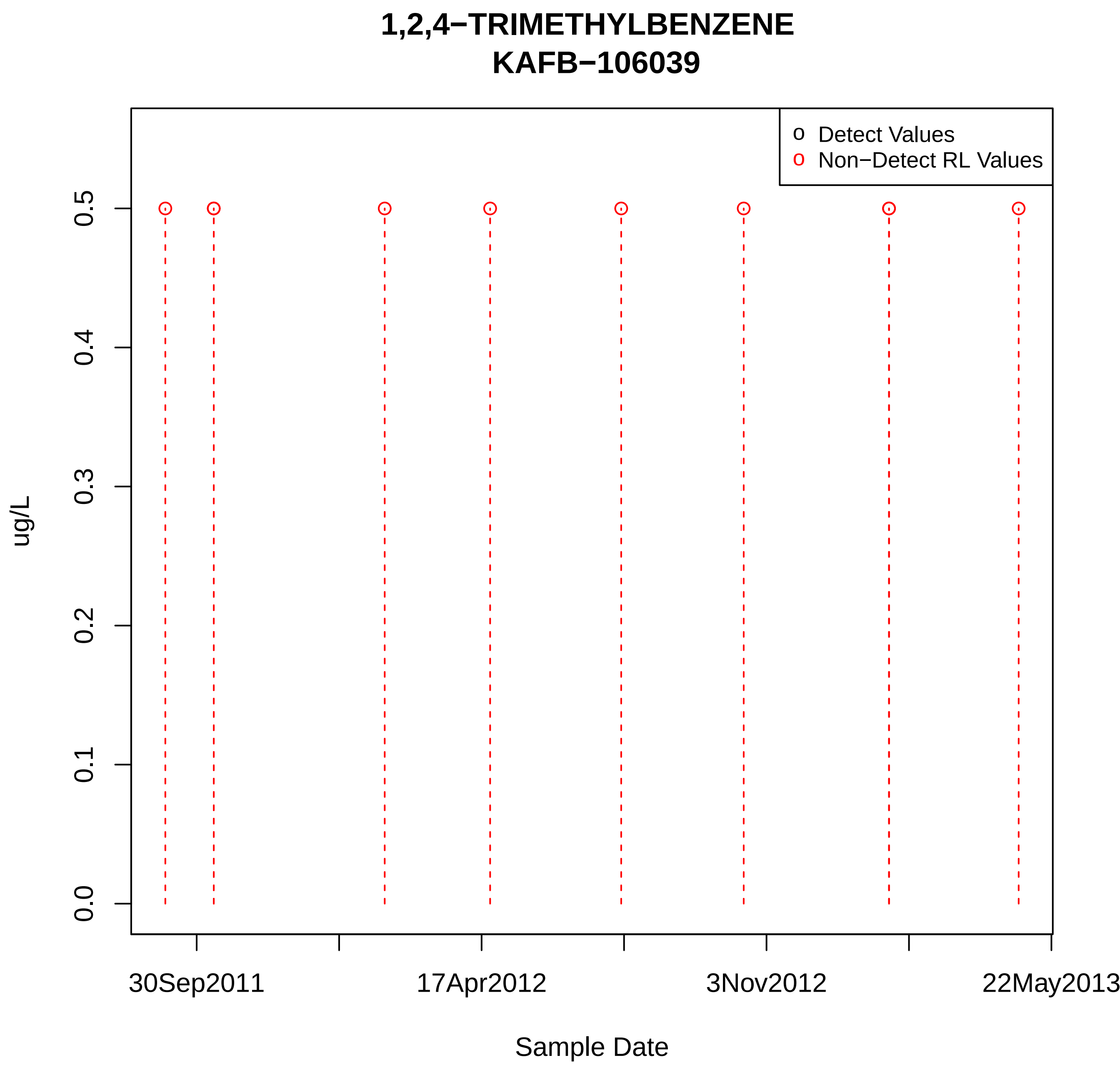

1,2,4−TRIMETHYLBENZENE
KAFB−106036
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

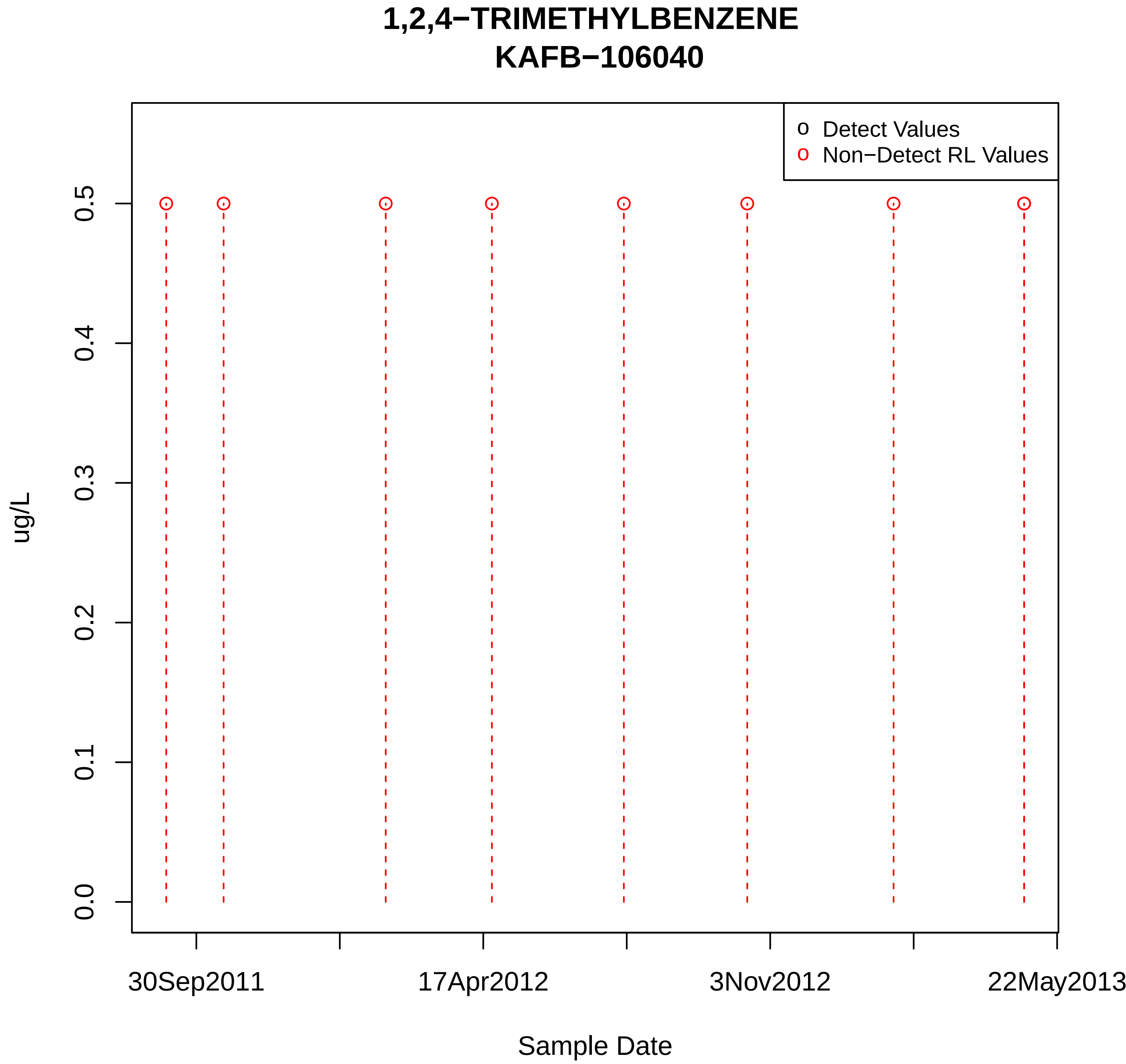


1,2,4−TRIMETHYLBENZENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

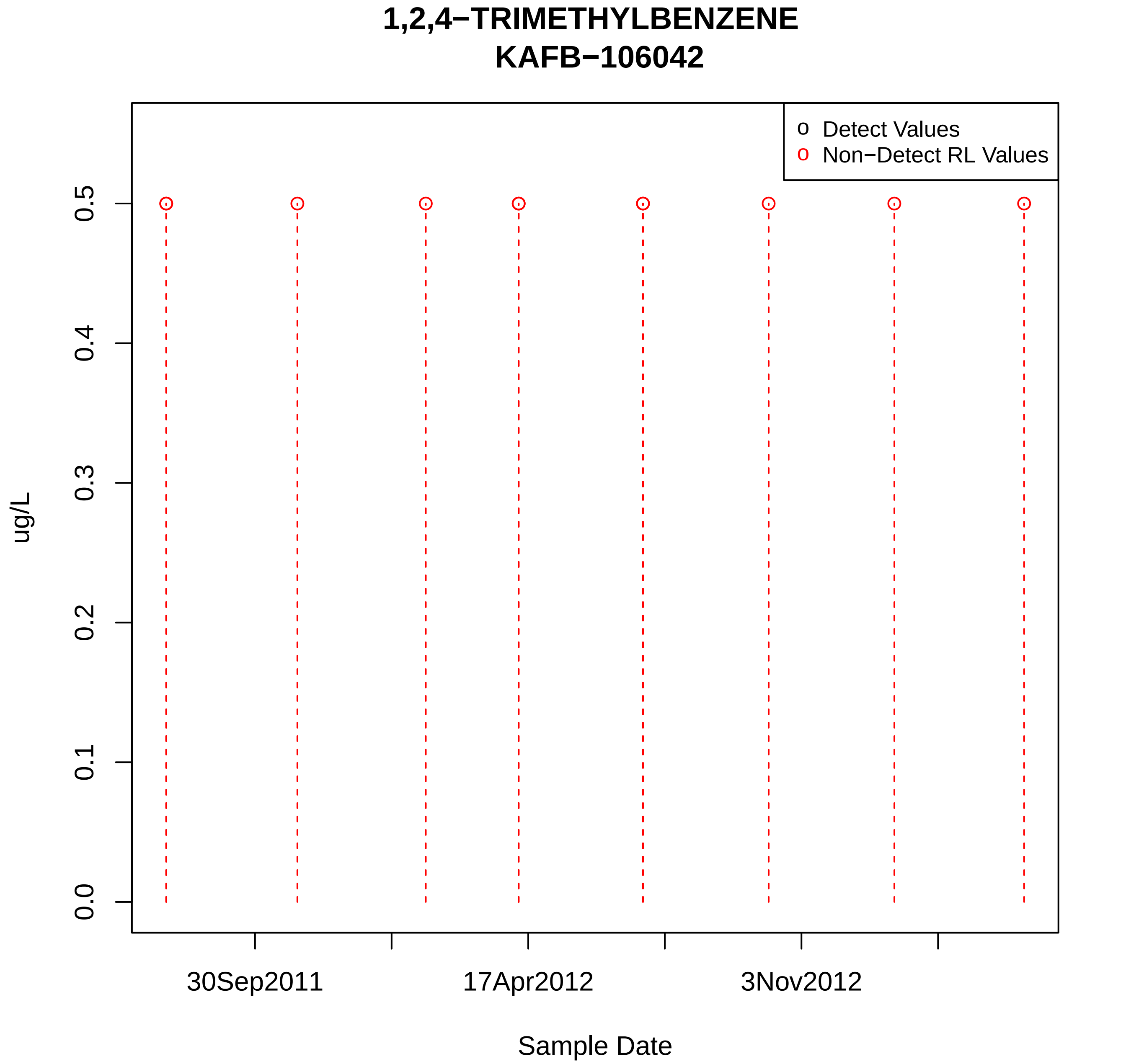


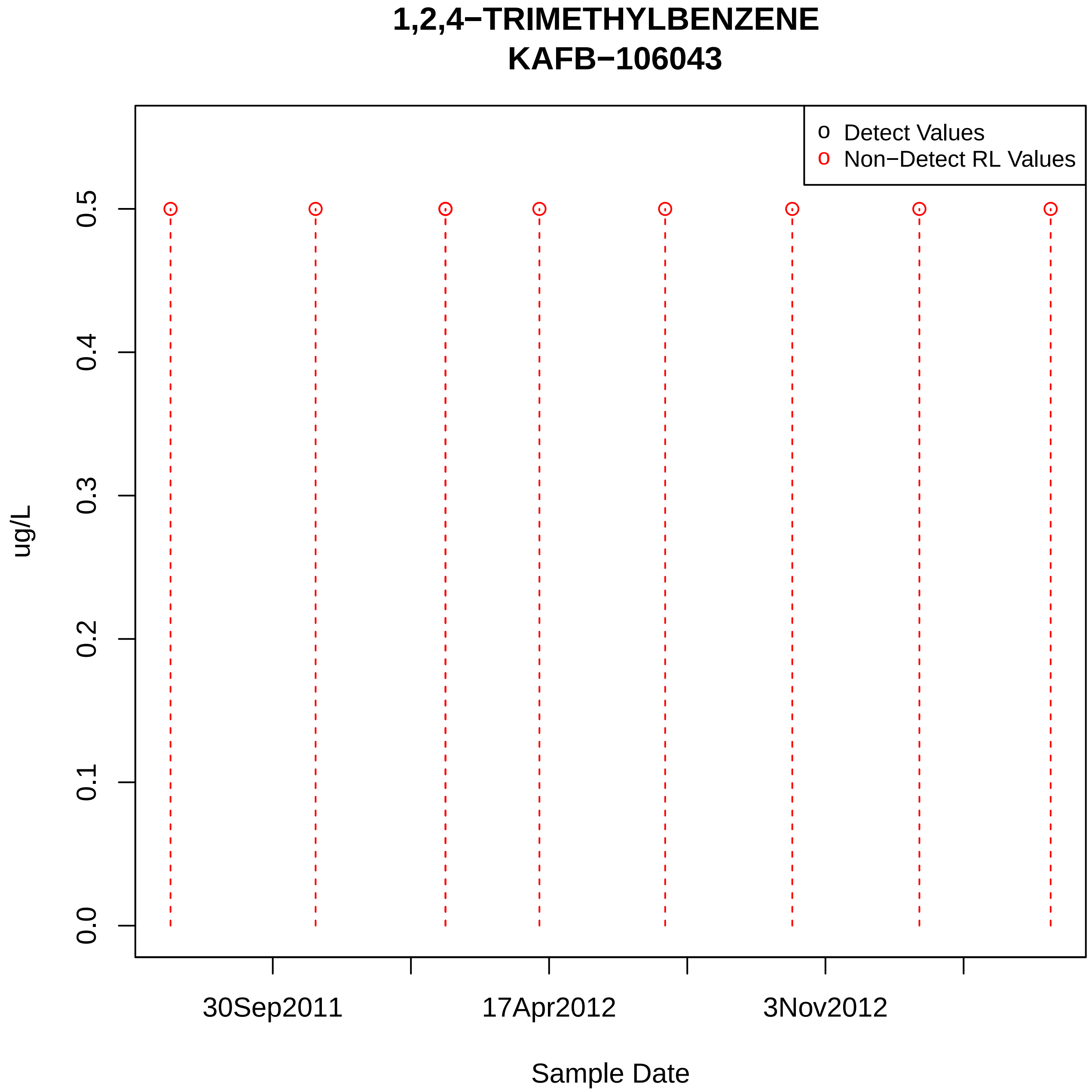
1,2,4−TRIMETHYLBENZENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

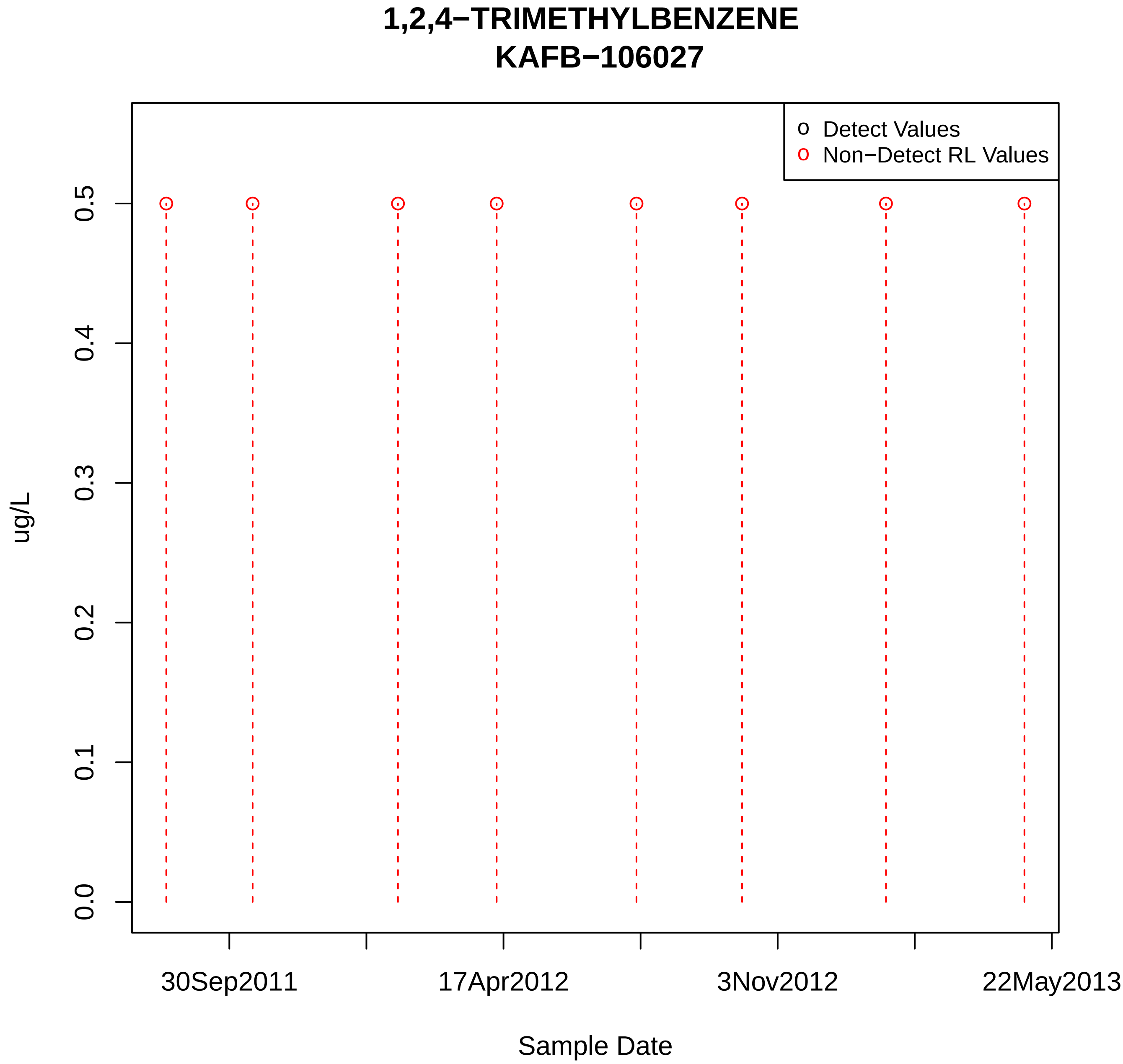

1,2,4−TRIMETHYLBENZENE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

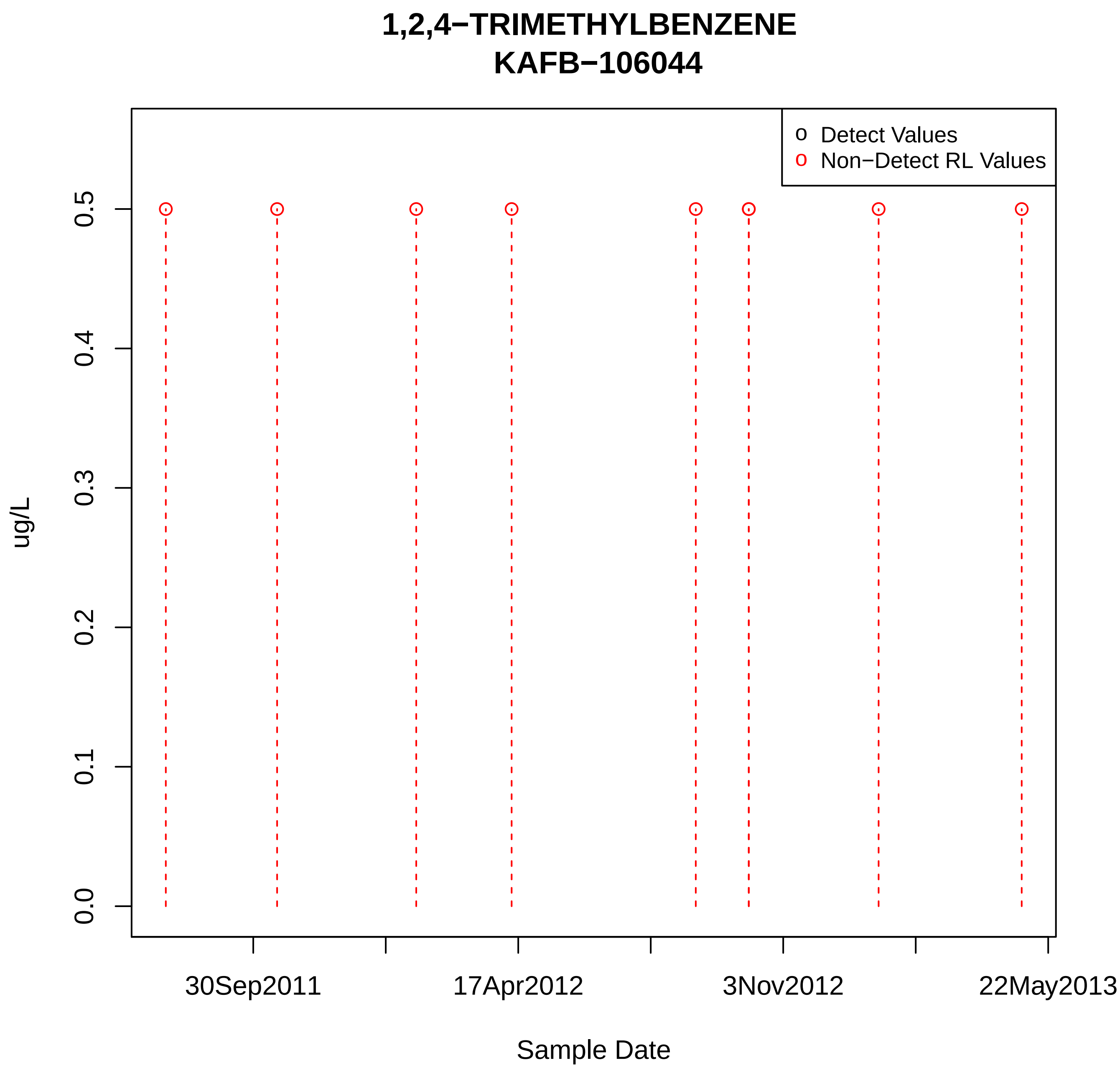


1,2,4−TRIMETHYLBENZENE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

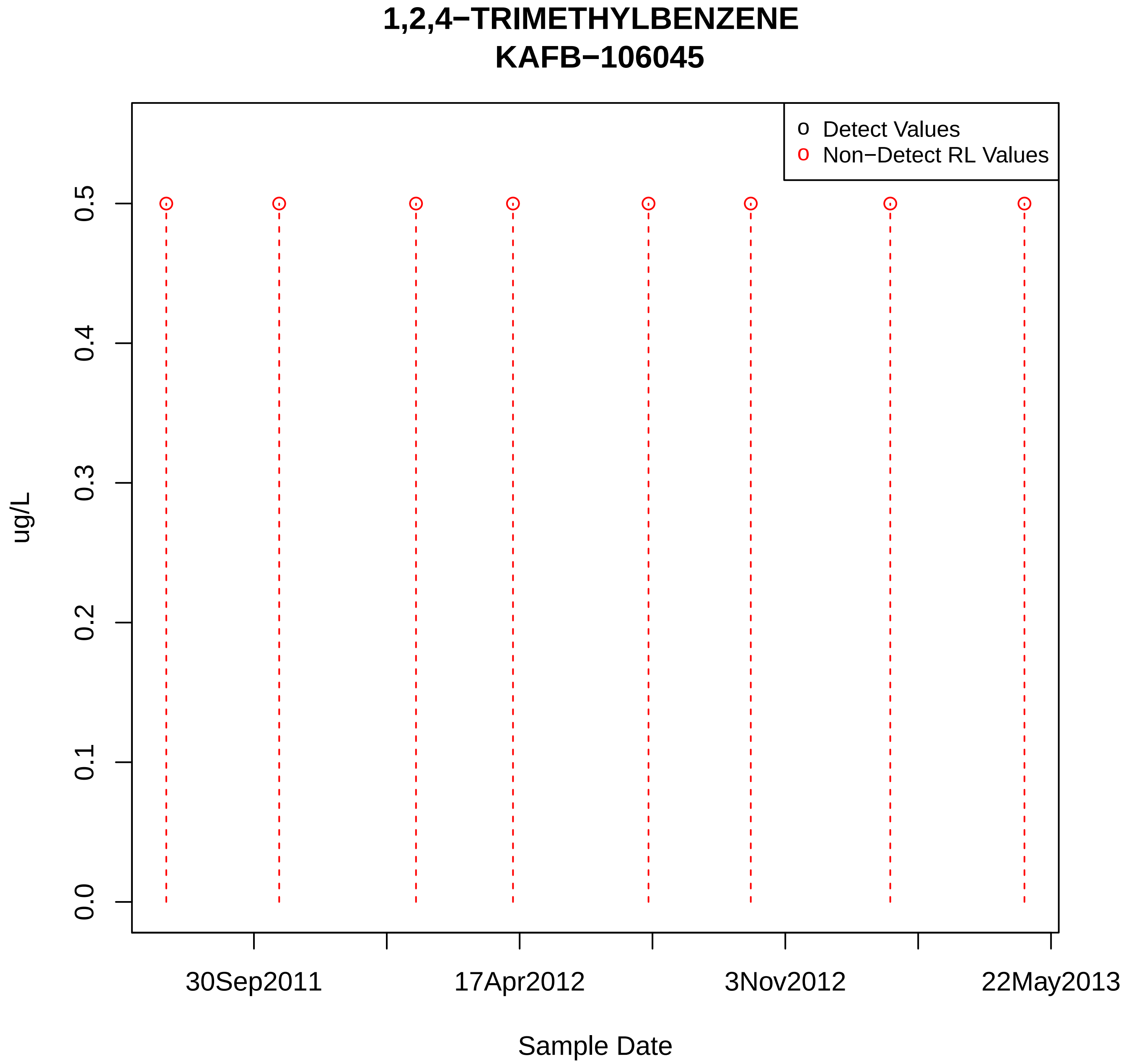

1,2,4−TRIMETHYLBENZENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

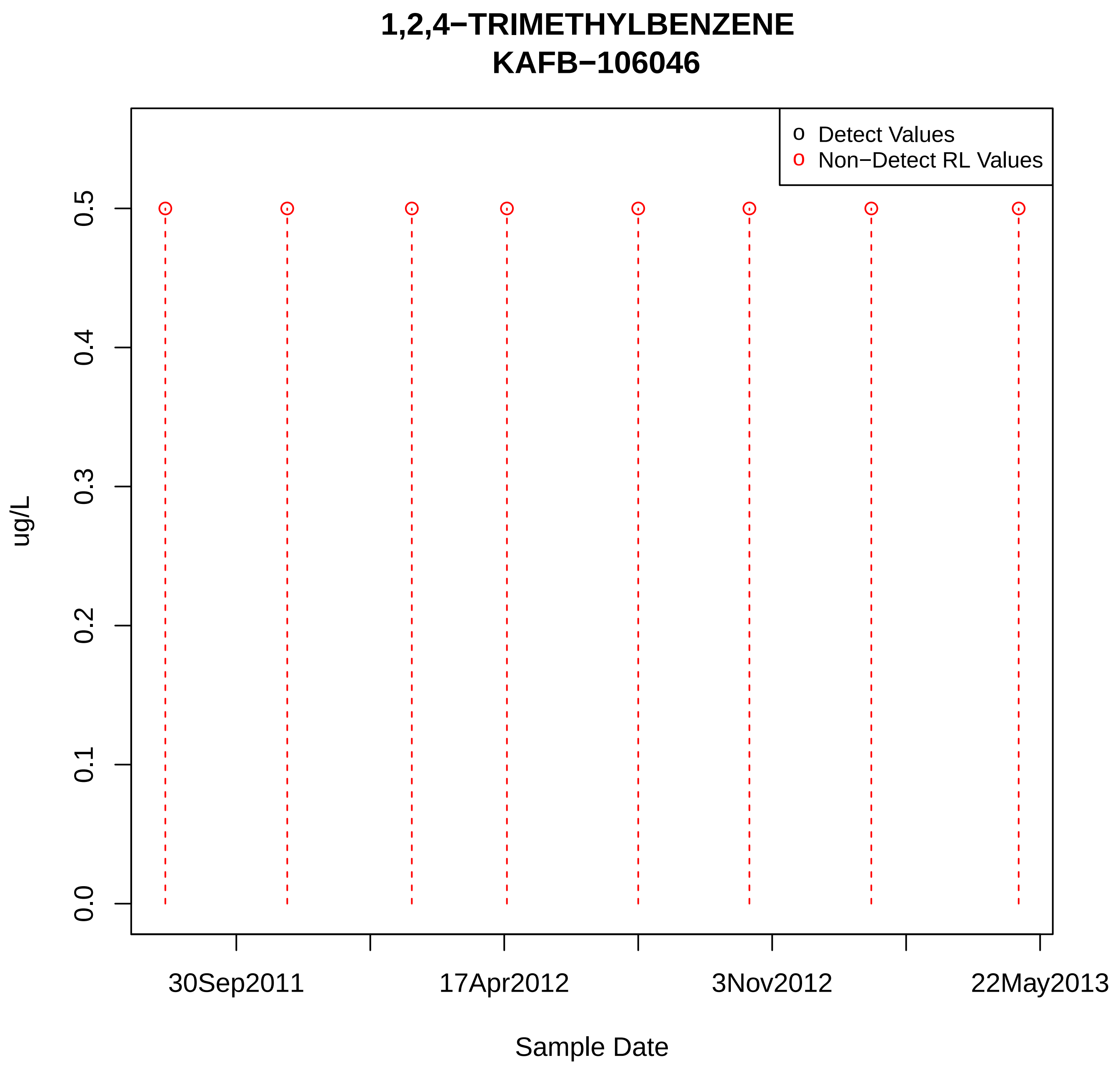

1,2,4−TRIMETHYLBENZENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

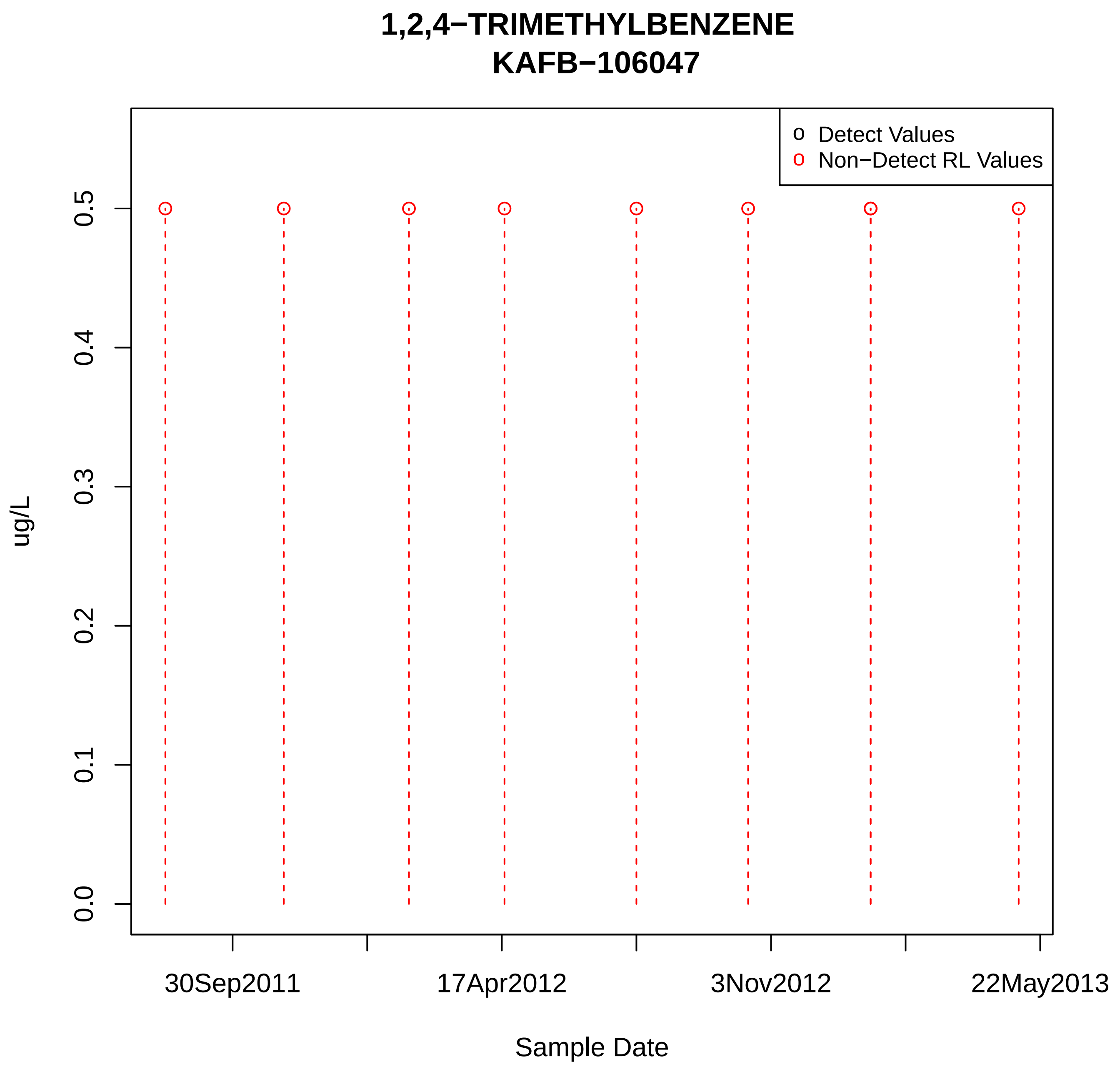


1,2,4−TRIMETHYLBENZENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

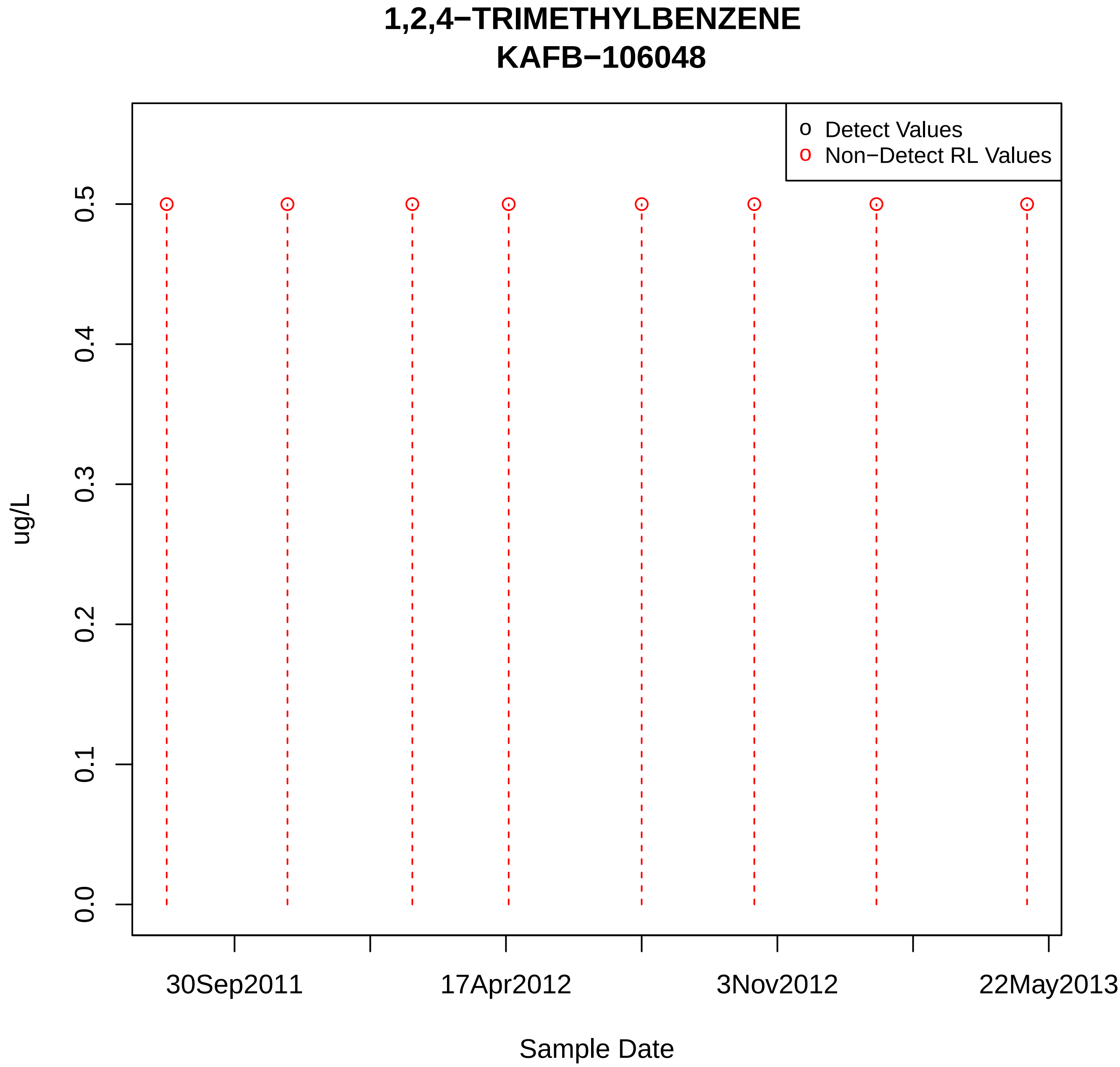


1,2,4−TRIMETHYLBENZENE
KAFB−106045
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

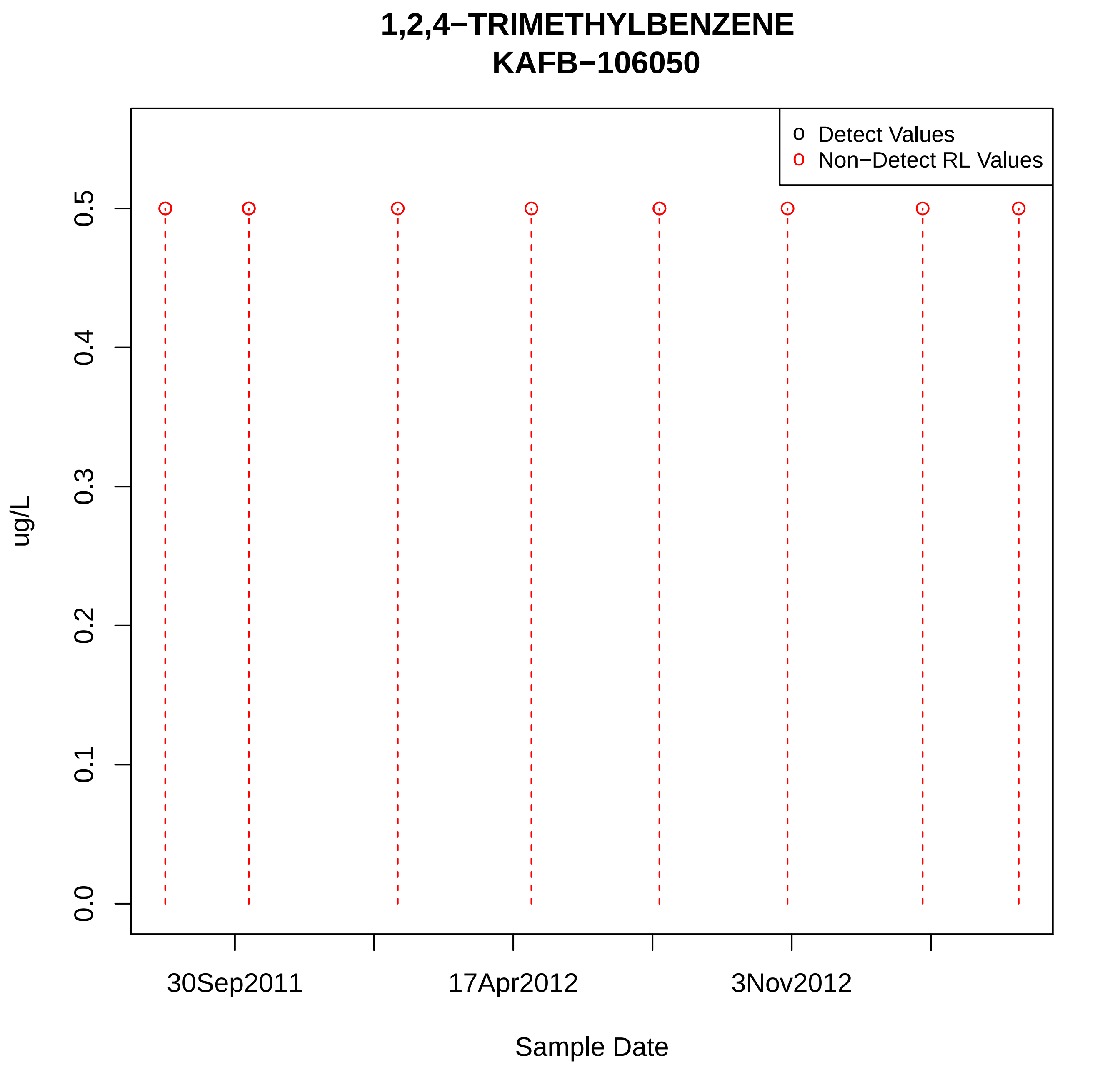

1,2,4−TRIMETHYLBENZENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

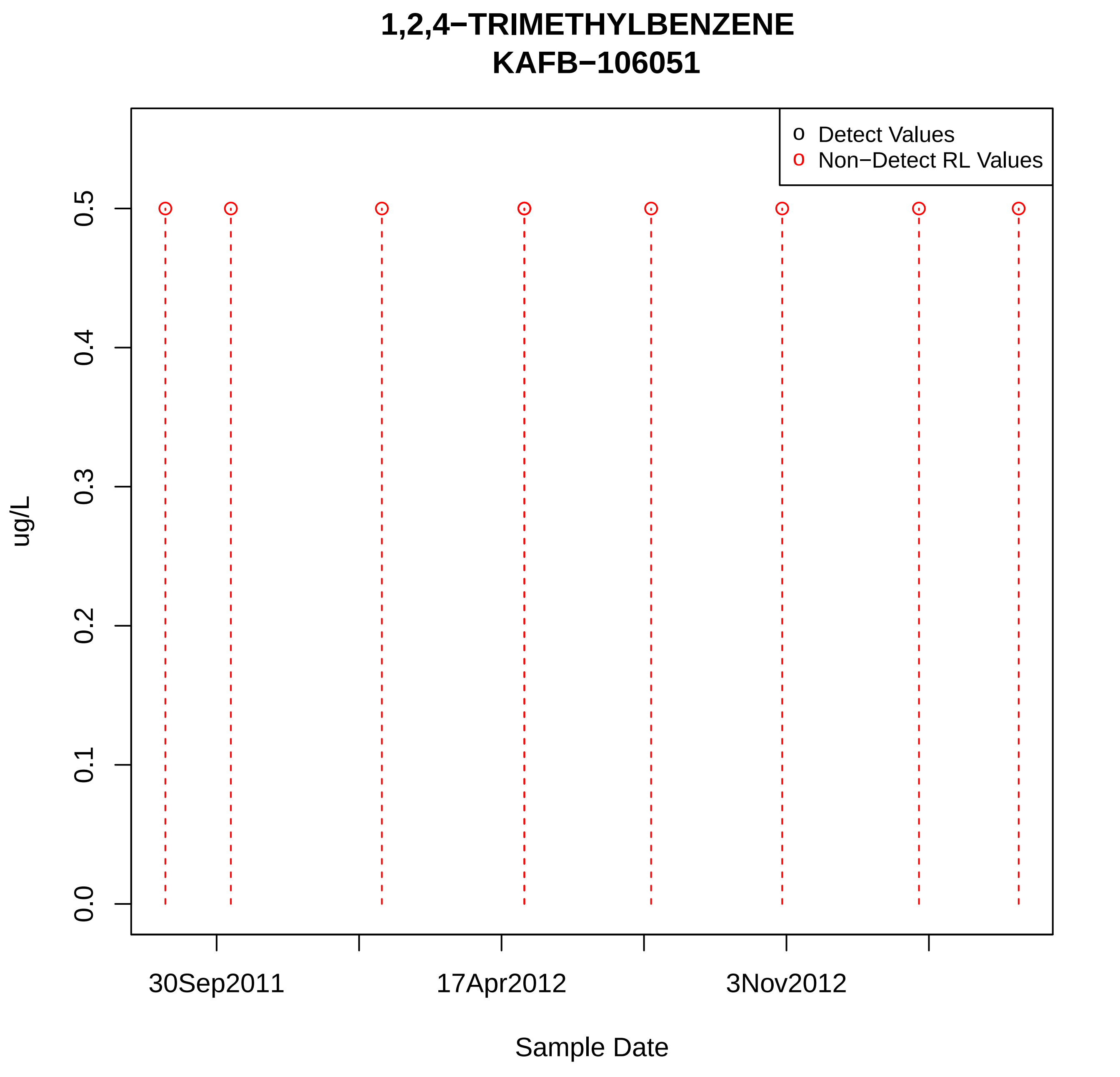


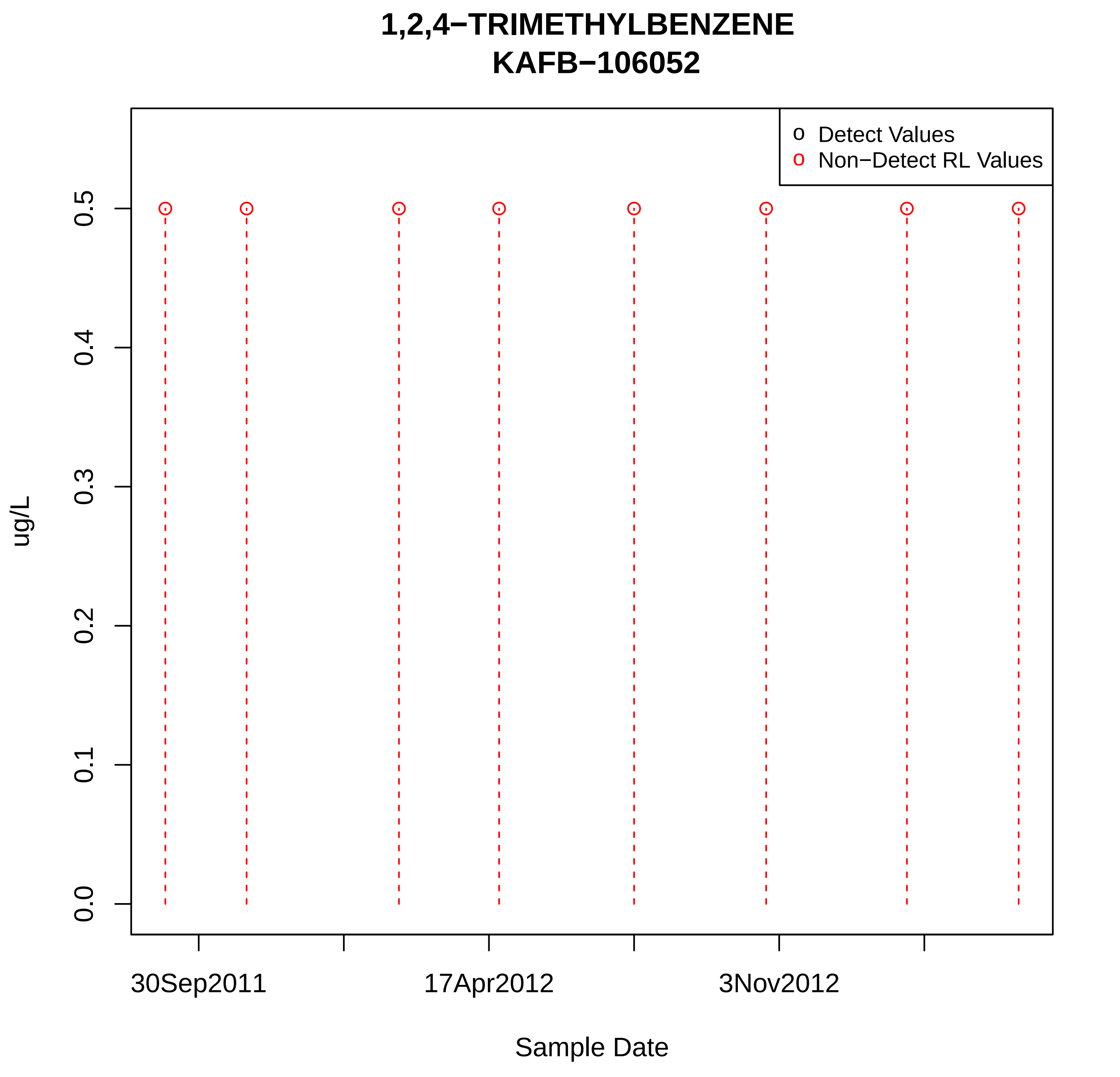
1,2,4−TRIMETHYLBENZENE
KAFB−106047
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



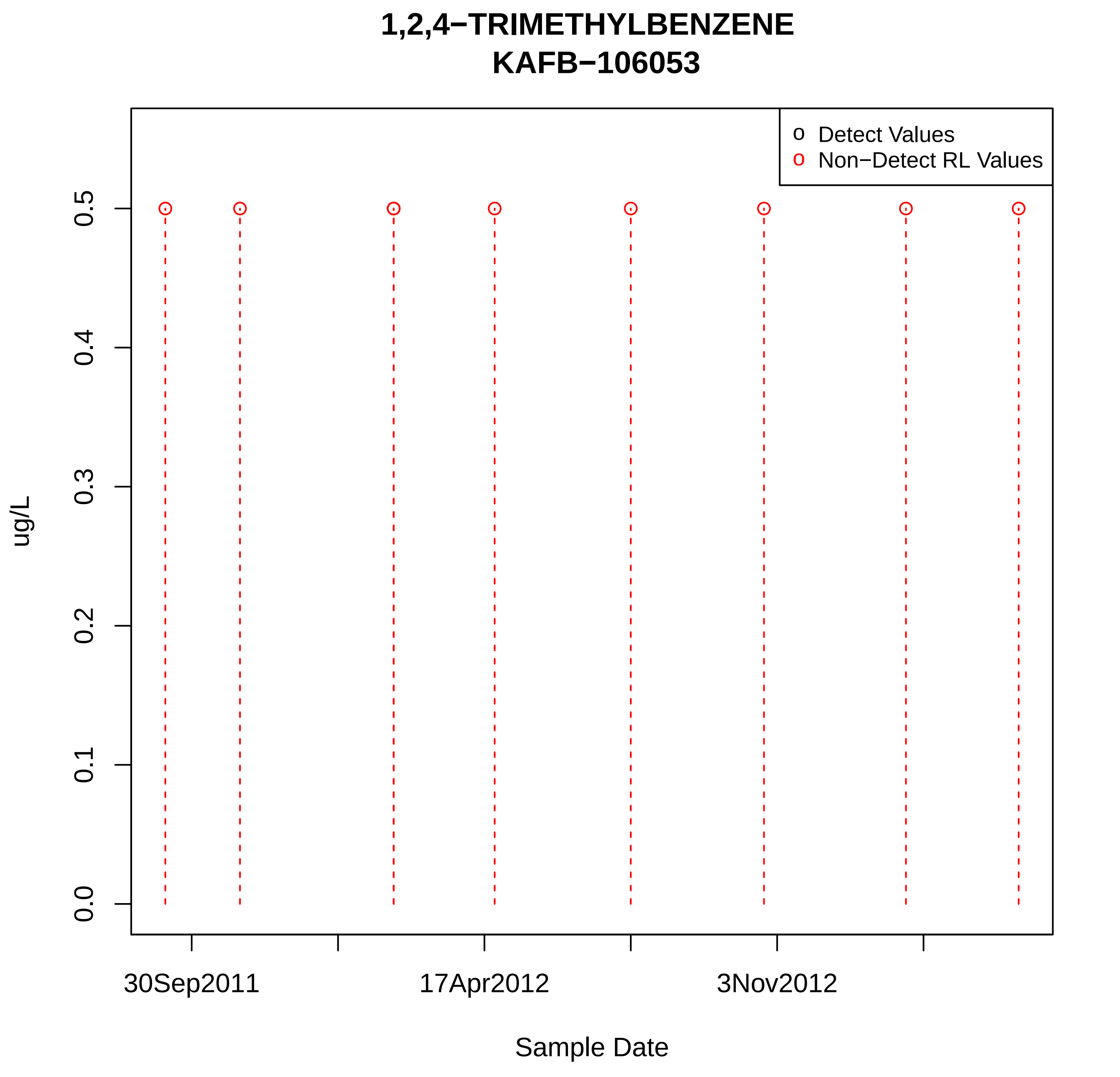
1,2,4−TRIMETHYLBENZENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

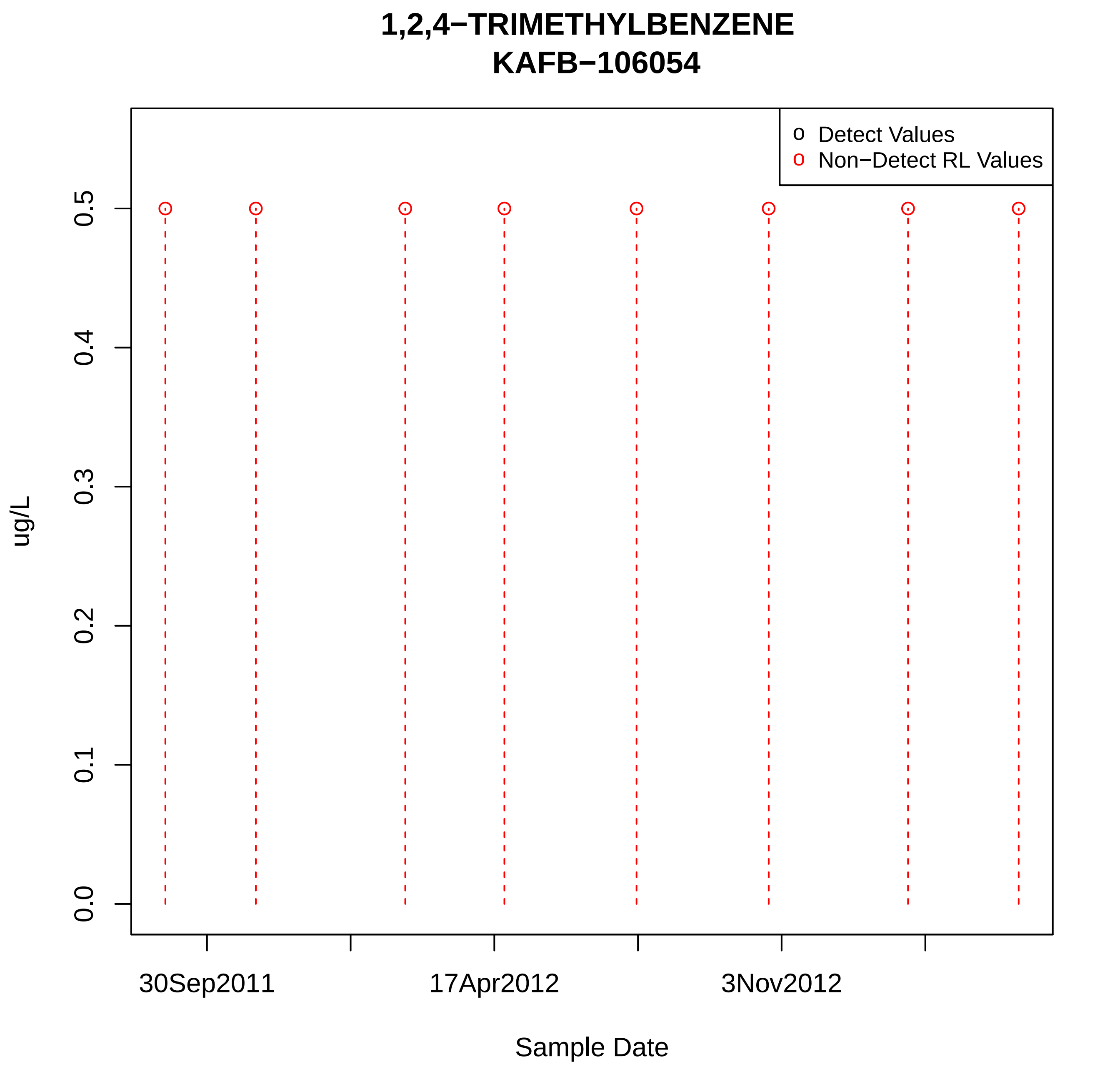

1,2,4−TRIMETHYLBENZENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



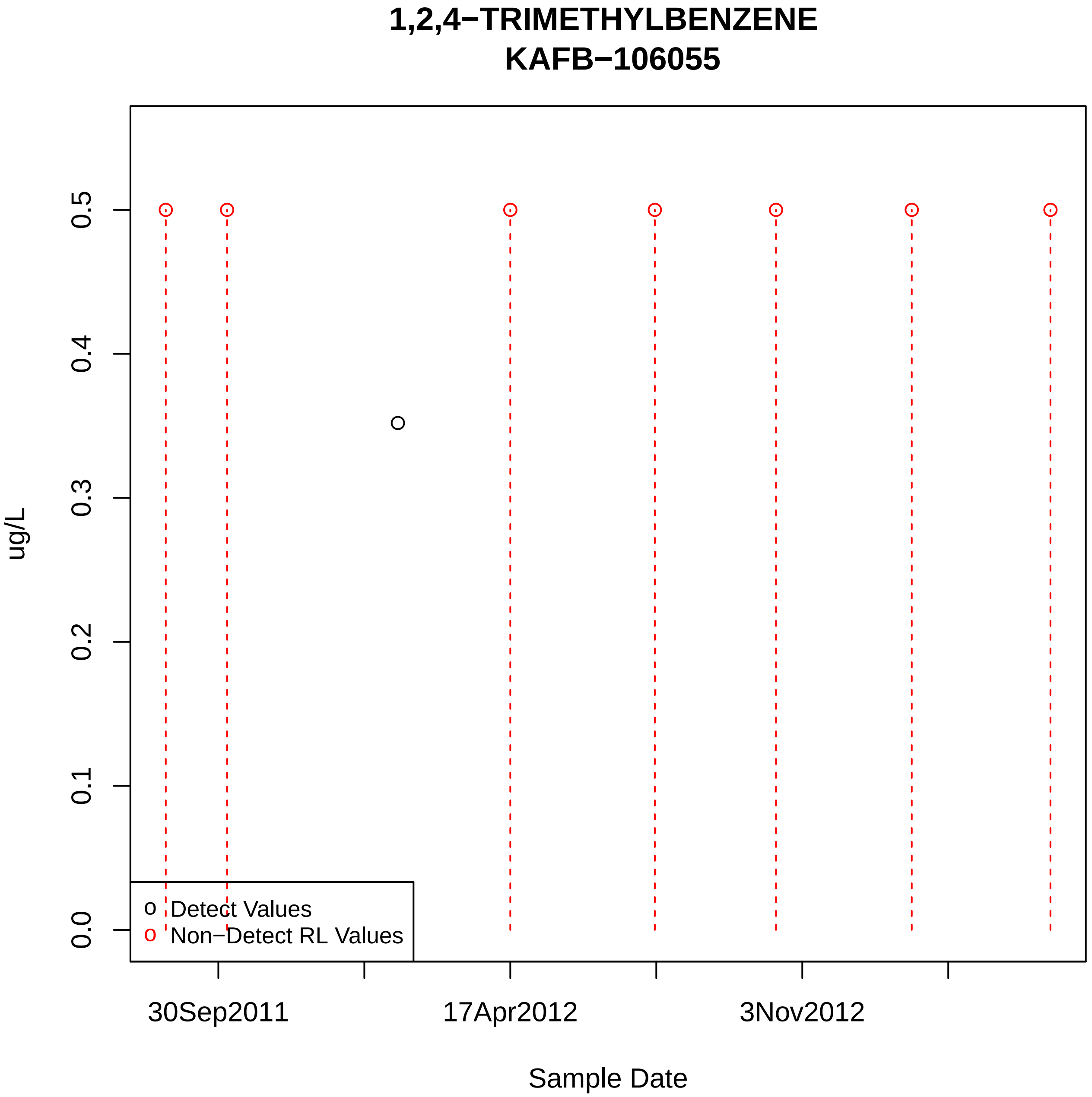
1,2,4−TRIMETHYLBENZENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

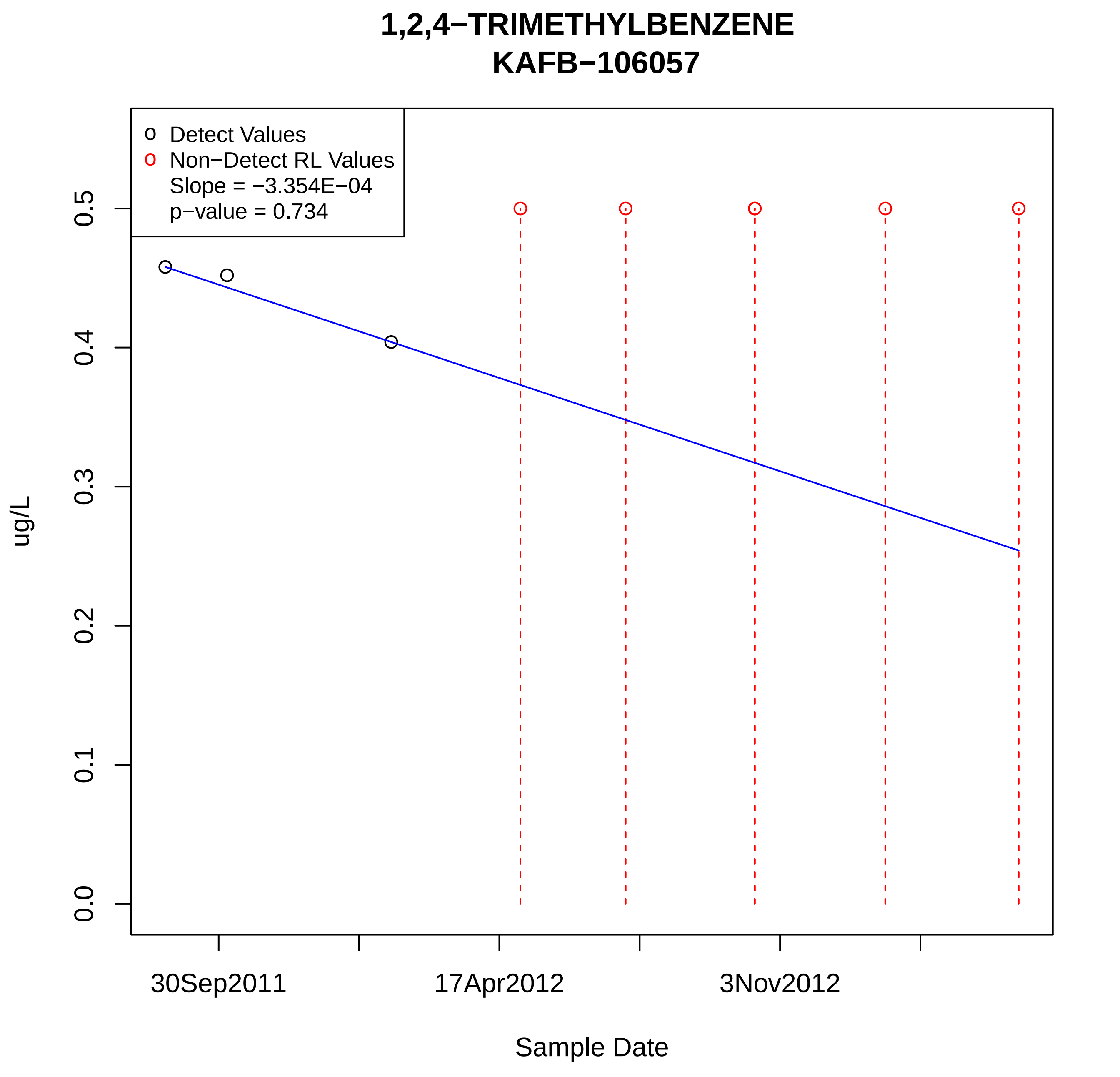


1,2,4−TRIMETHYLBENZENE
KAFB−106053
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

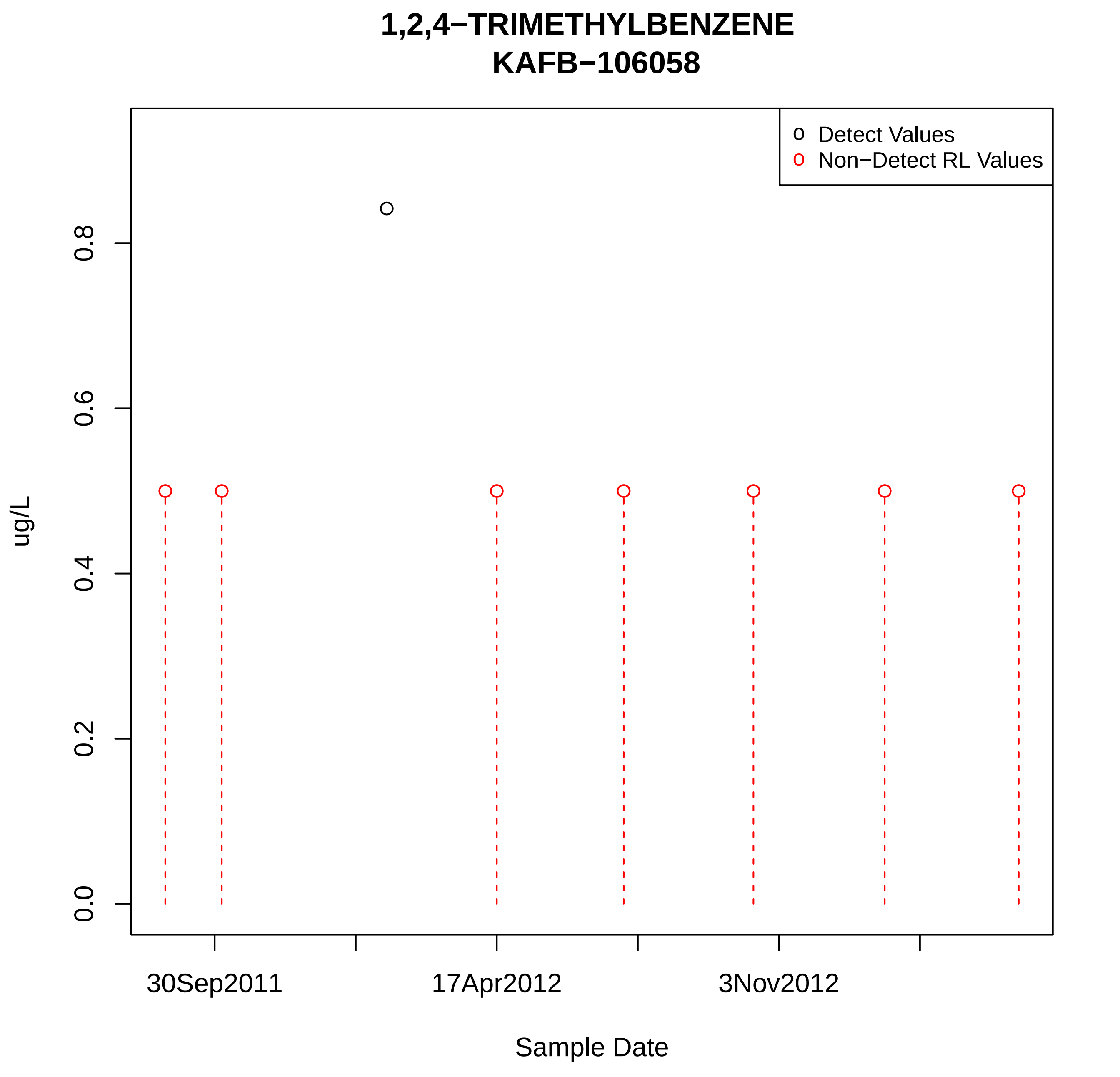


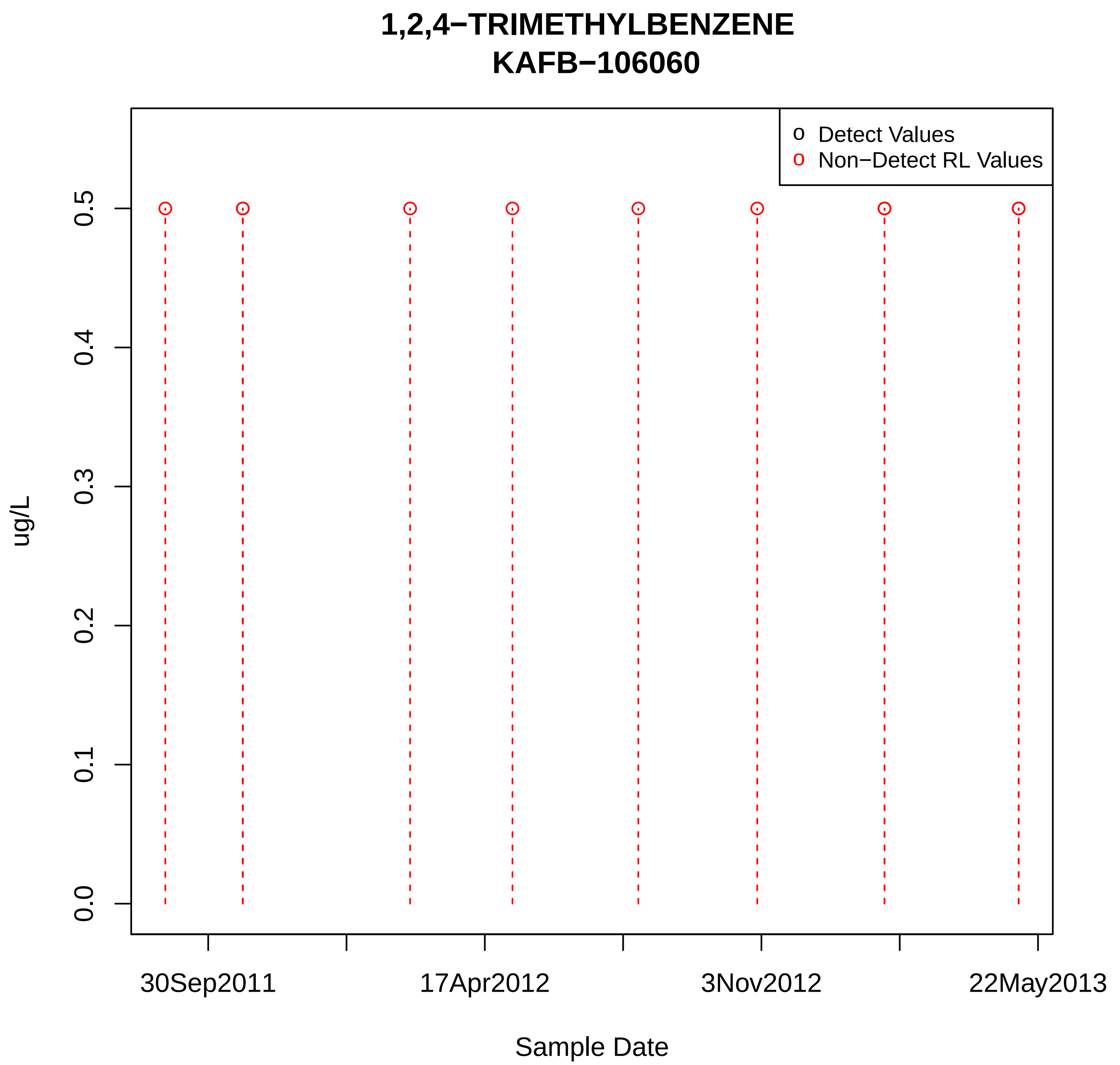
1,2,4−TRIMETHYLBENZENE
KAFB−106054
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106055
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

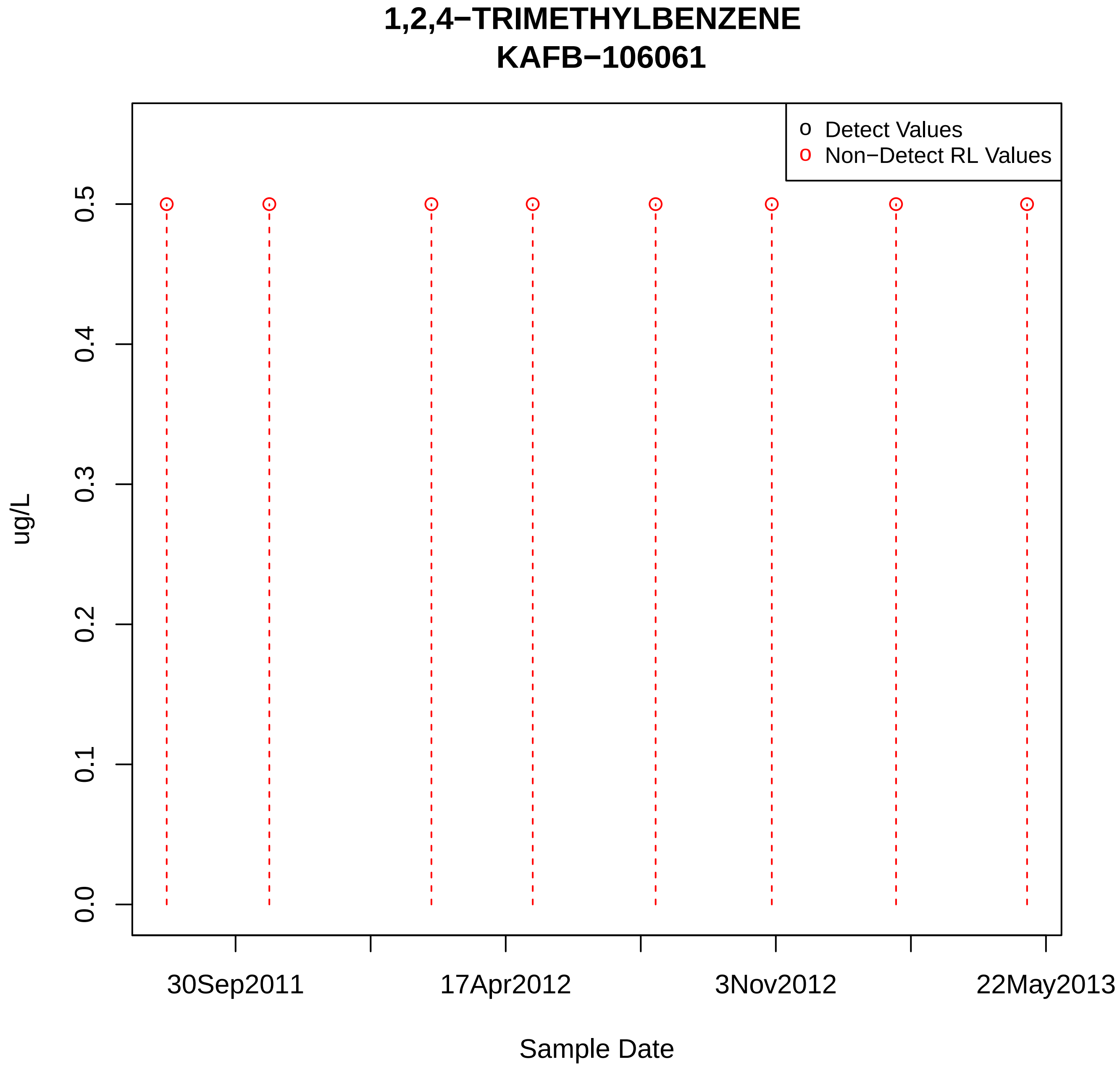


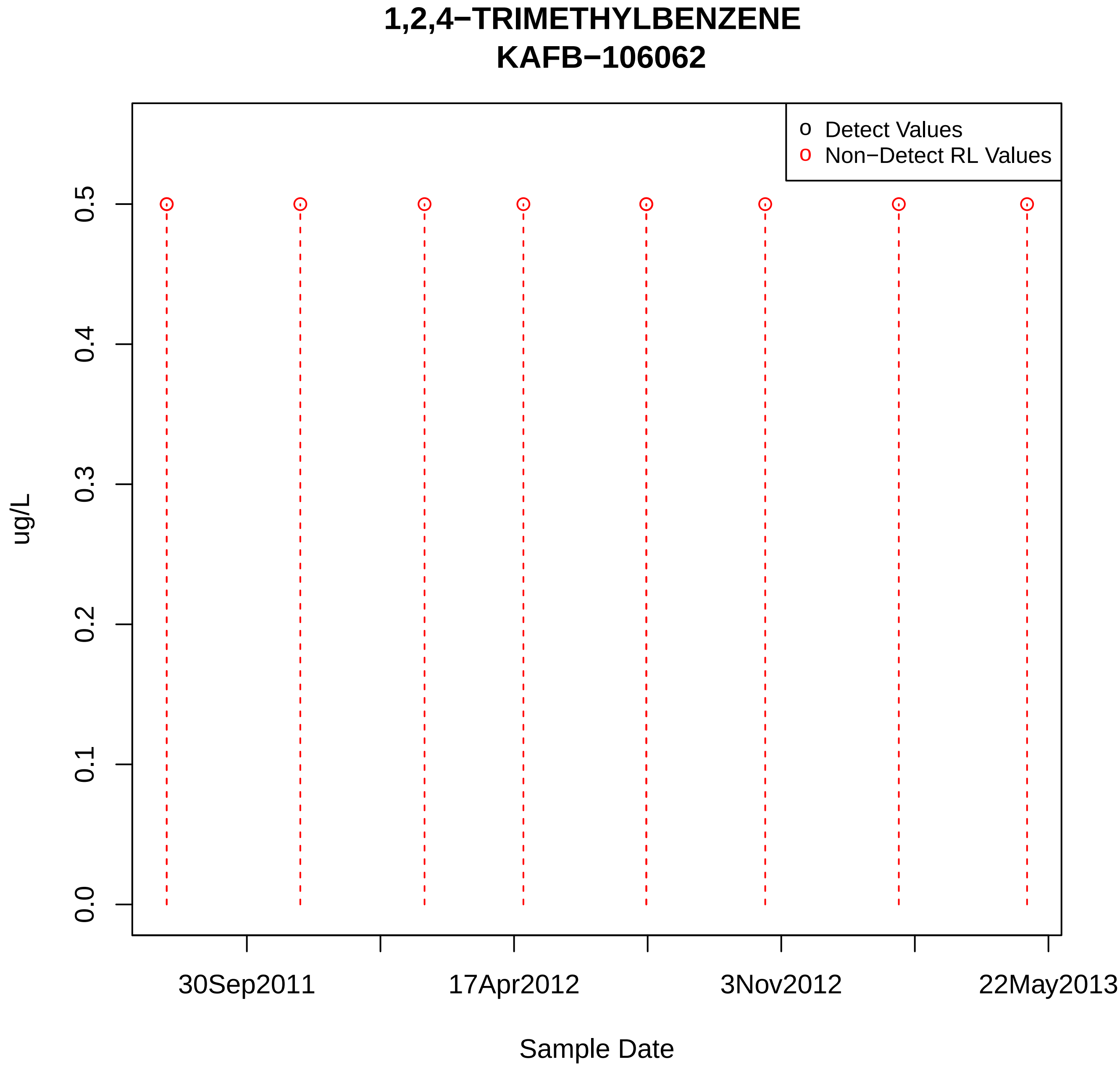
1,2,4−TRIMETHYLBENZENE
KAFB−106057
Detect Values
Non−Detect RL Values
Slope = −3.354E−04
p−value = 0.734
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

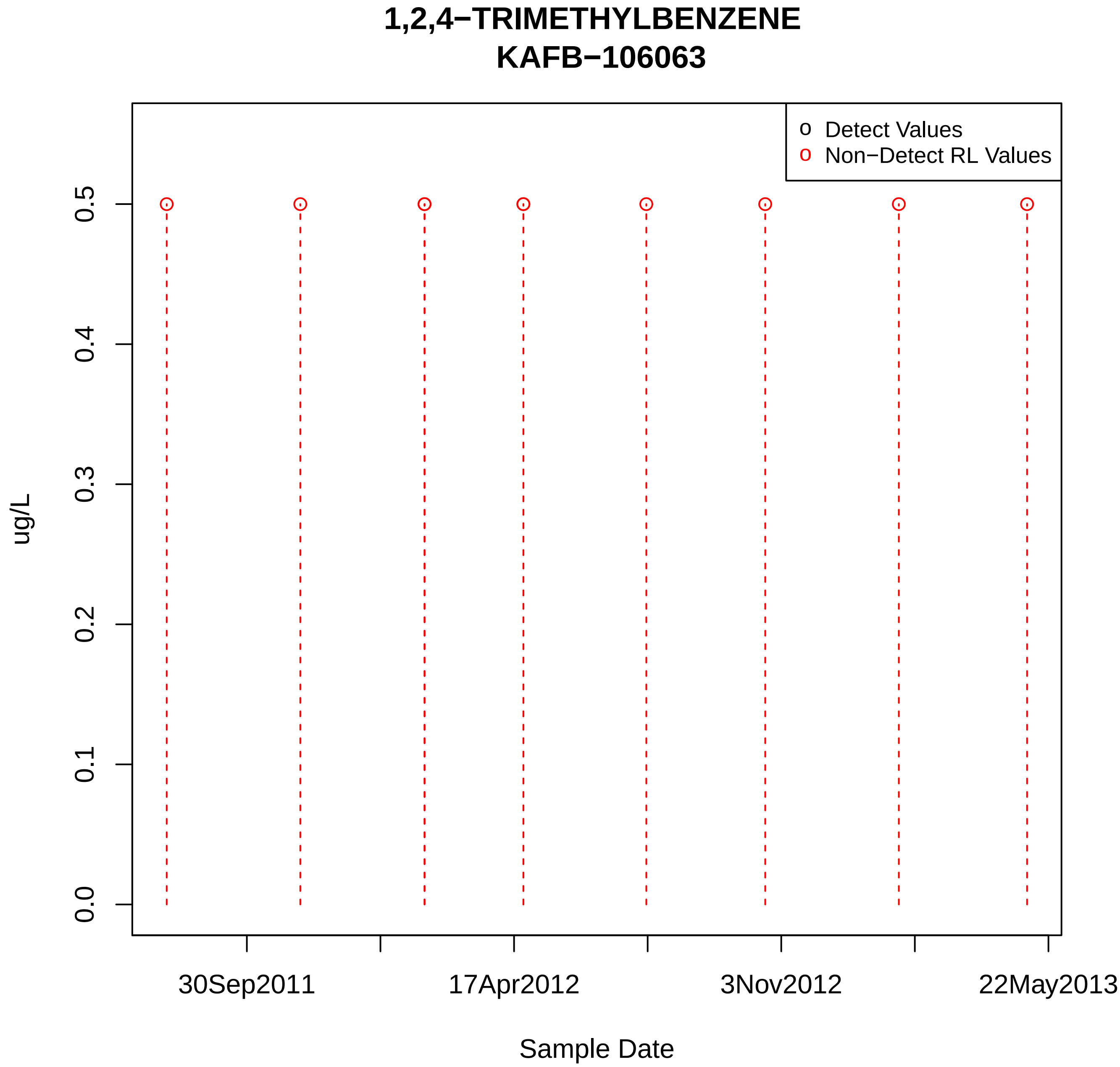

1,2,4−TRIMETHYLBENZENE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
30Sep2011
17Apr2012
3Nov2012
Sample Date



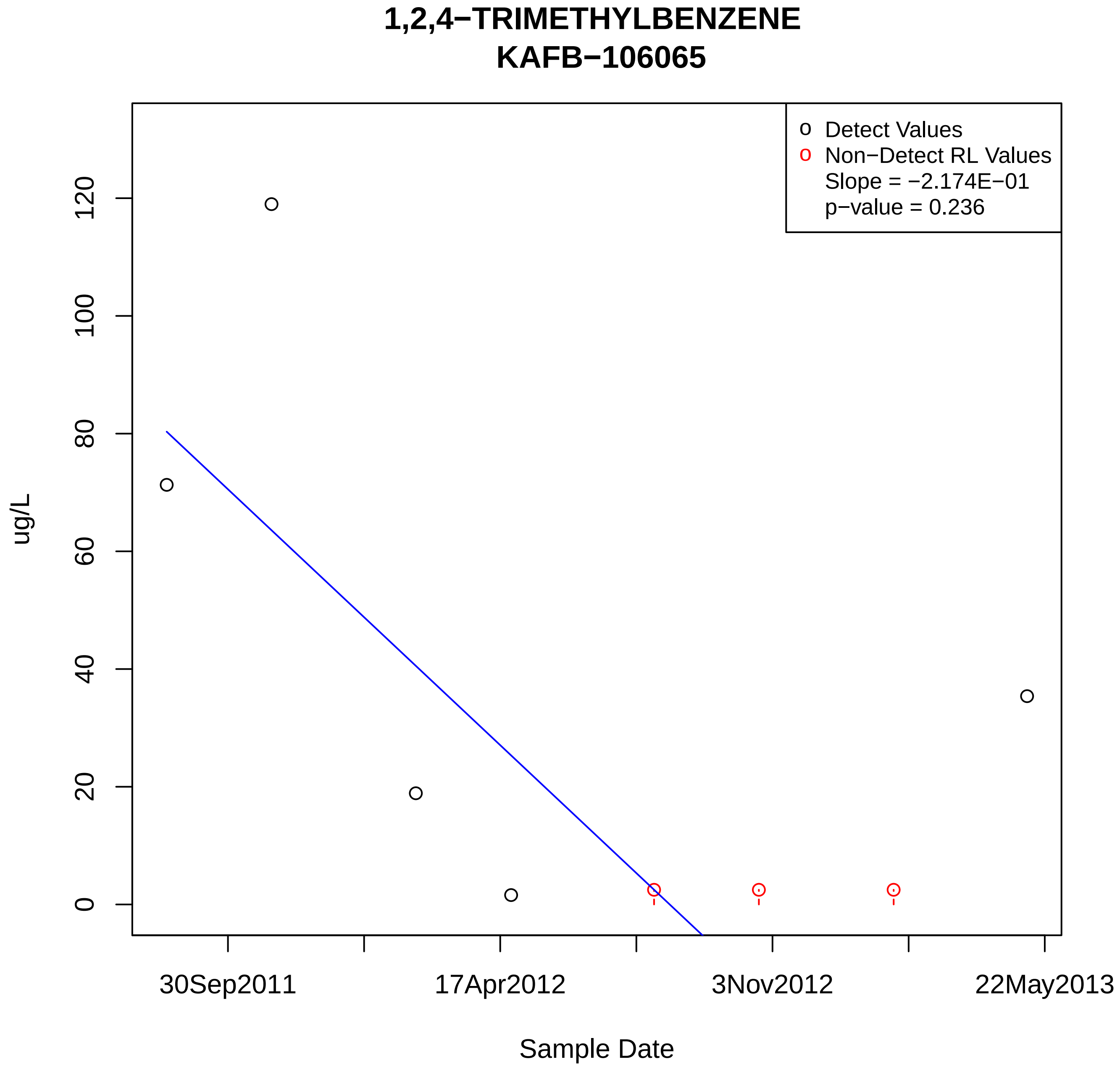
1,2,4−TRIMETHYLBENZENE
KAFB−106060
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

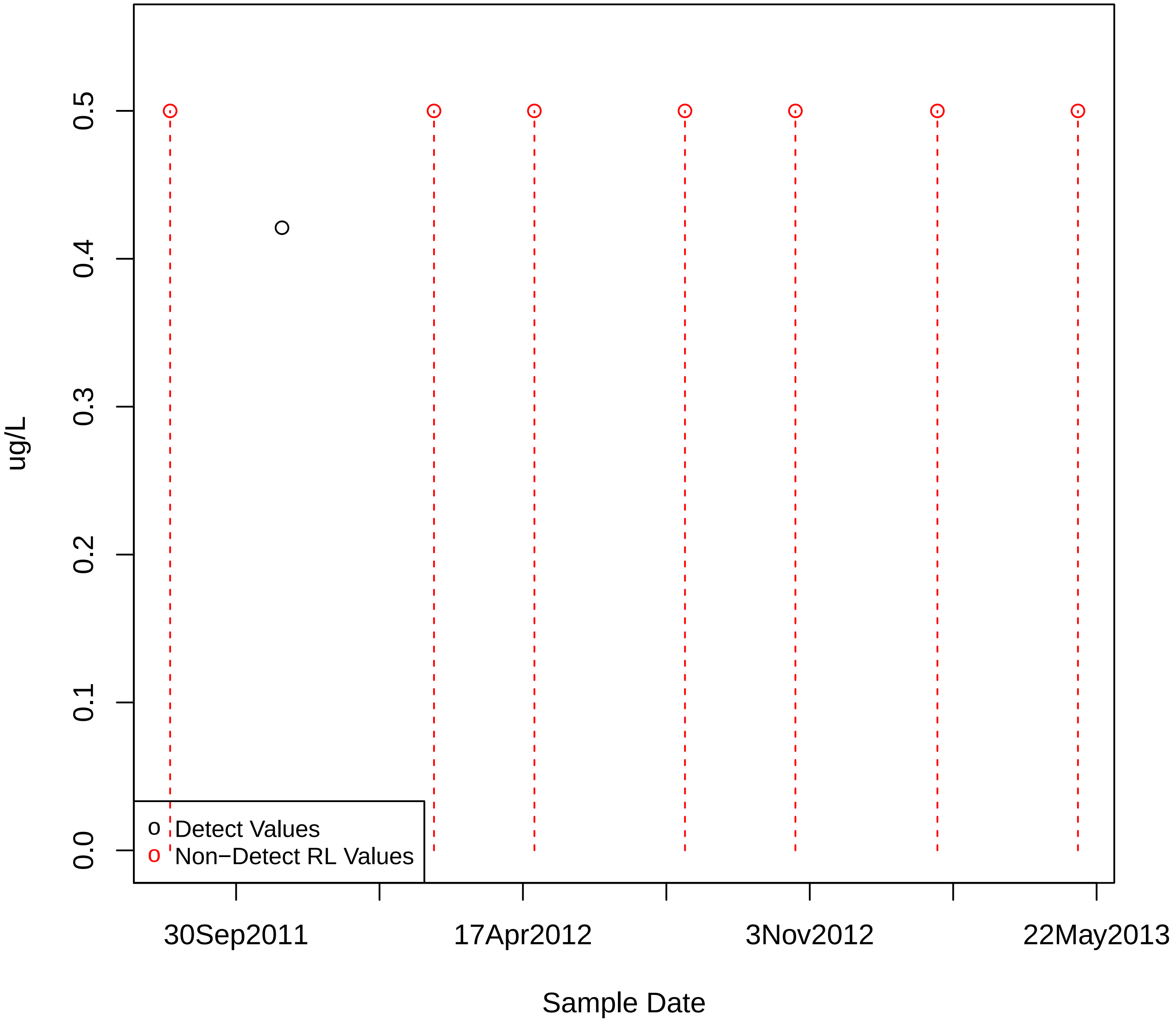


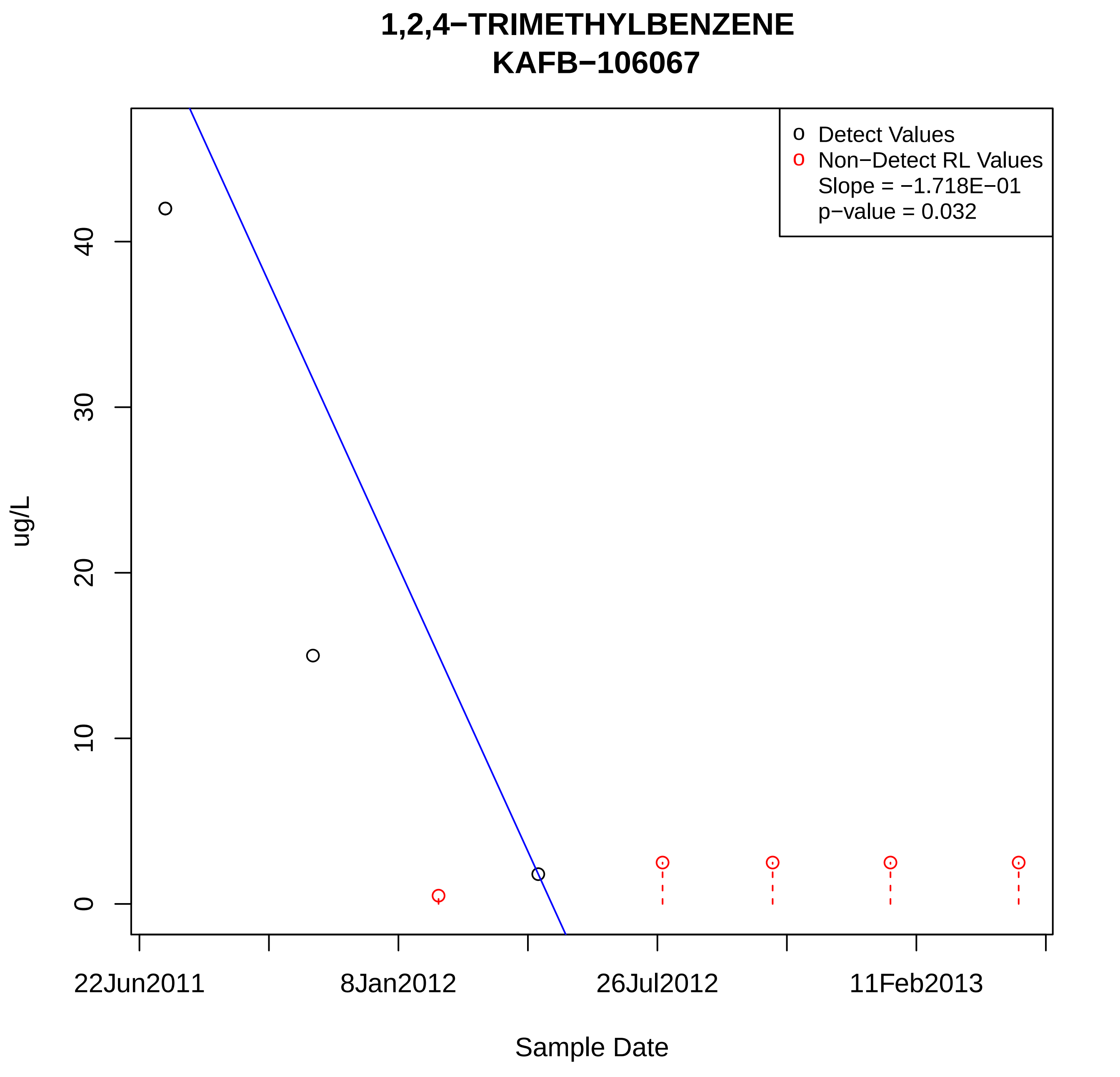
1,2,4−TRIMETHYLBENZENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



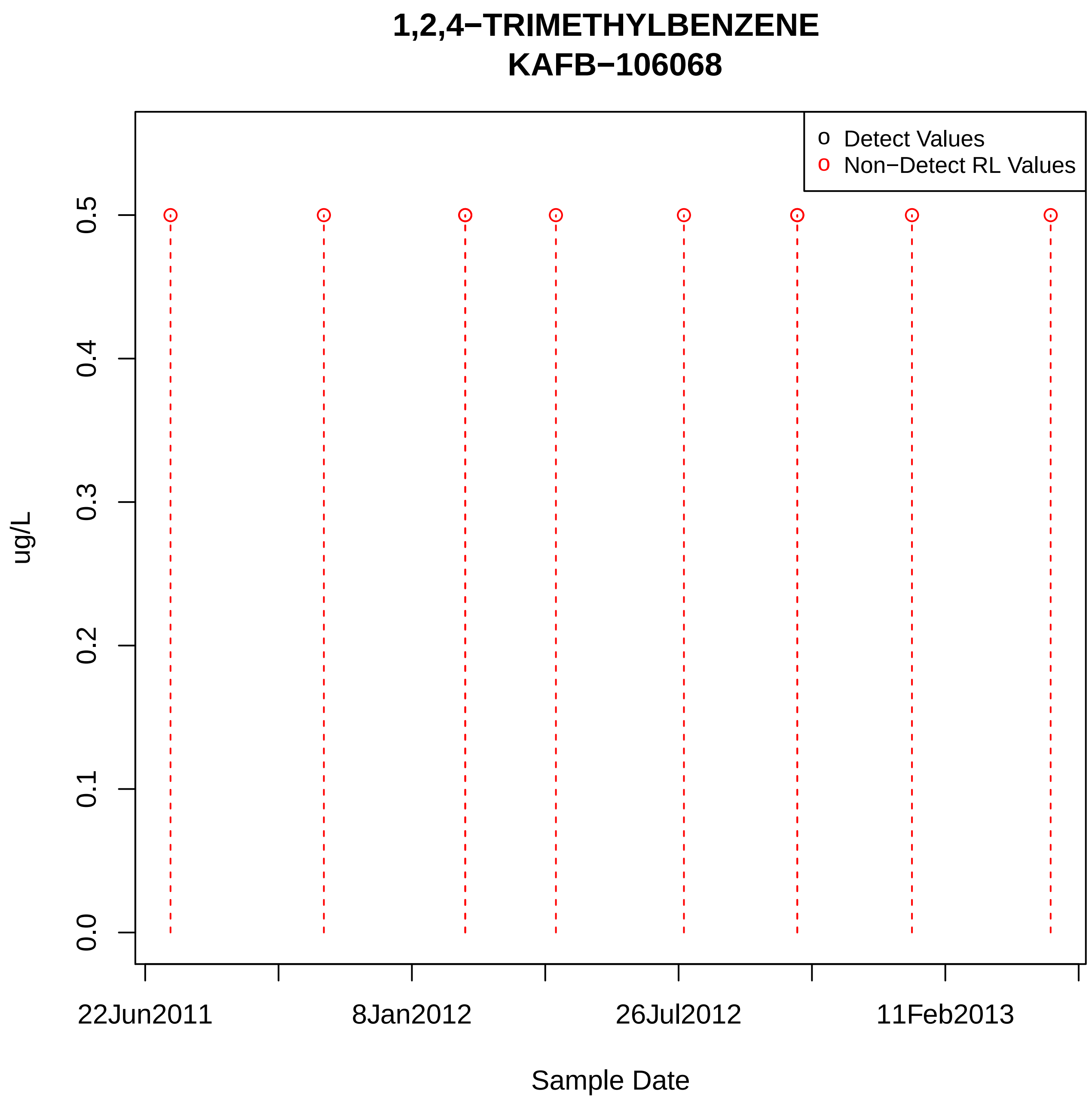
1,2,4−TRIMETHYLBENZENE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −2.174E−01
p−value = 0.236
ug/L
0
20
40
60
80
100
120
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

1,2,4−TRIMETHYLBENZENE
KAFB−106066

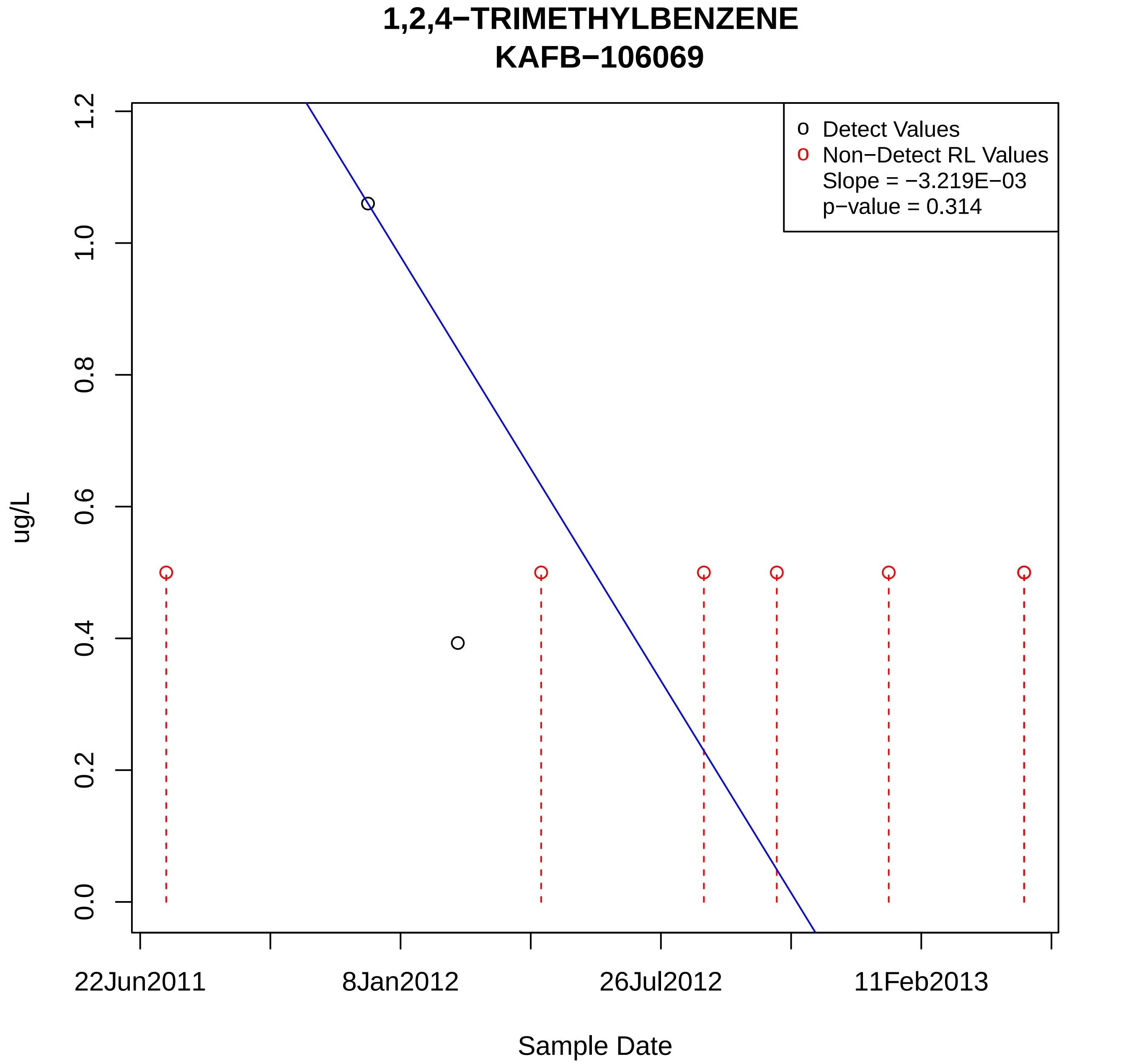


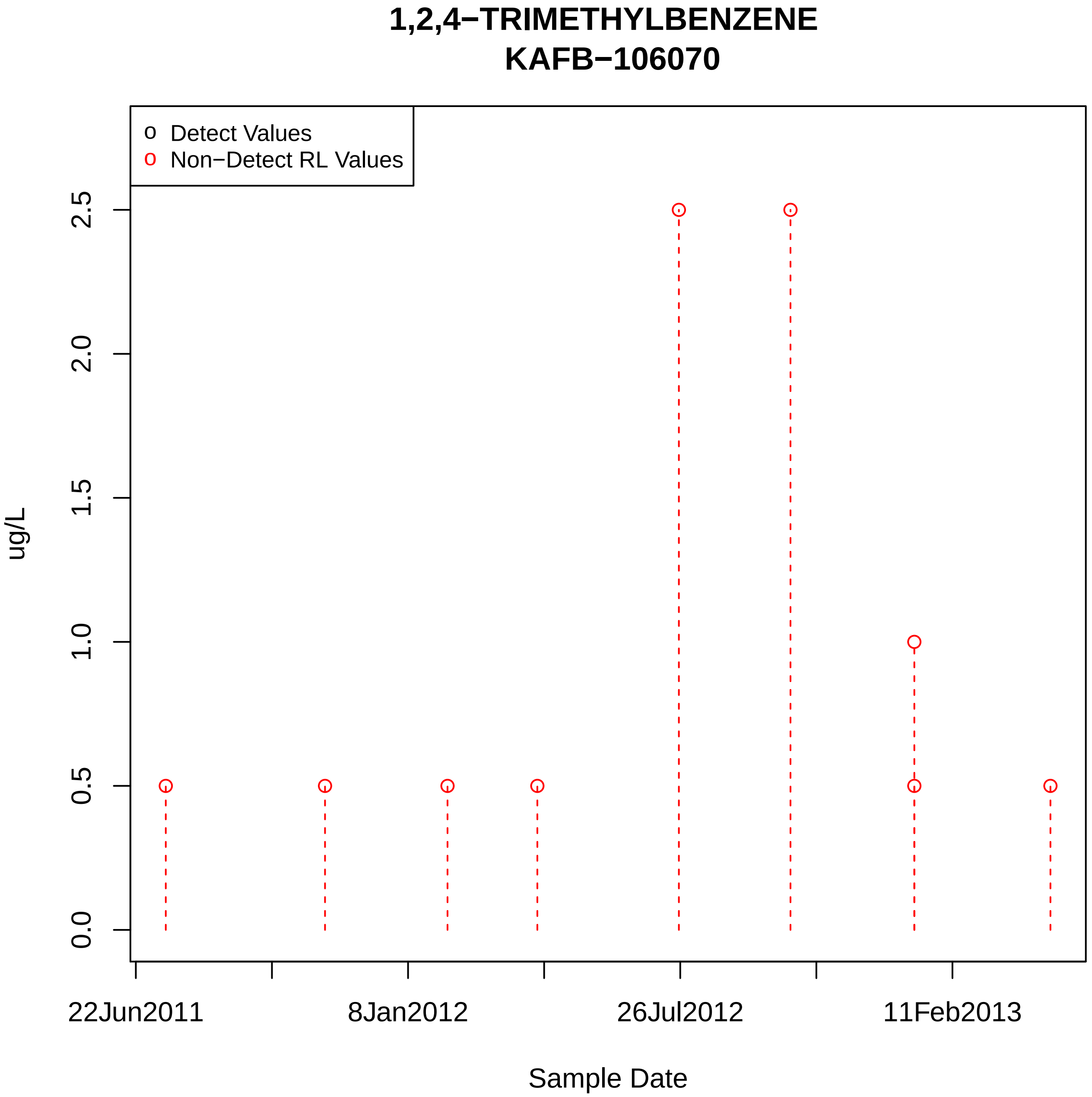


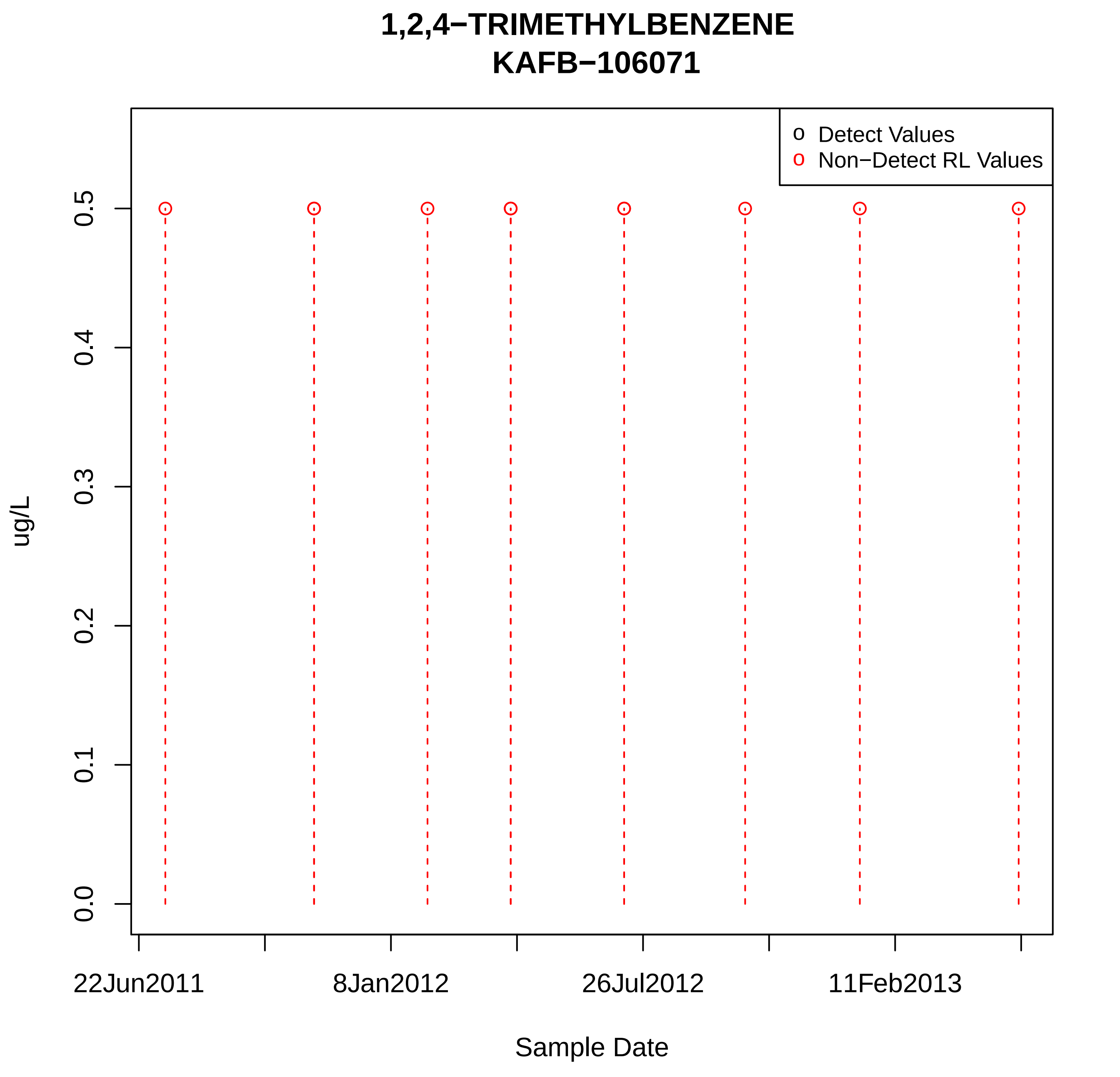
1,2,4−TRIMETHYLBENZENE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = −1.718E−01
p−value = 0.032
ug/L
0
10
20
30
40
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

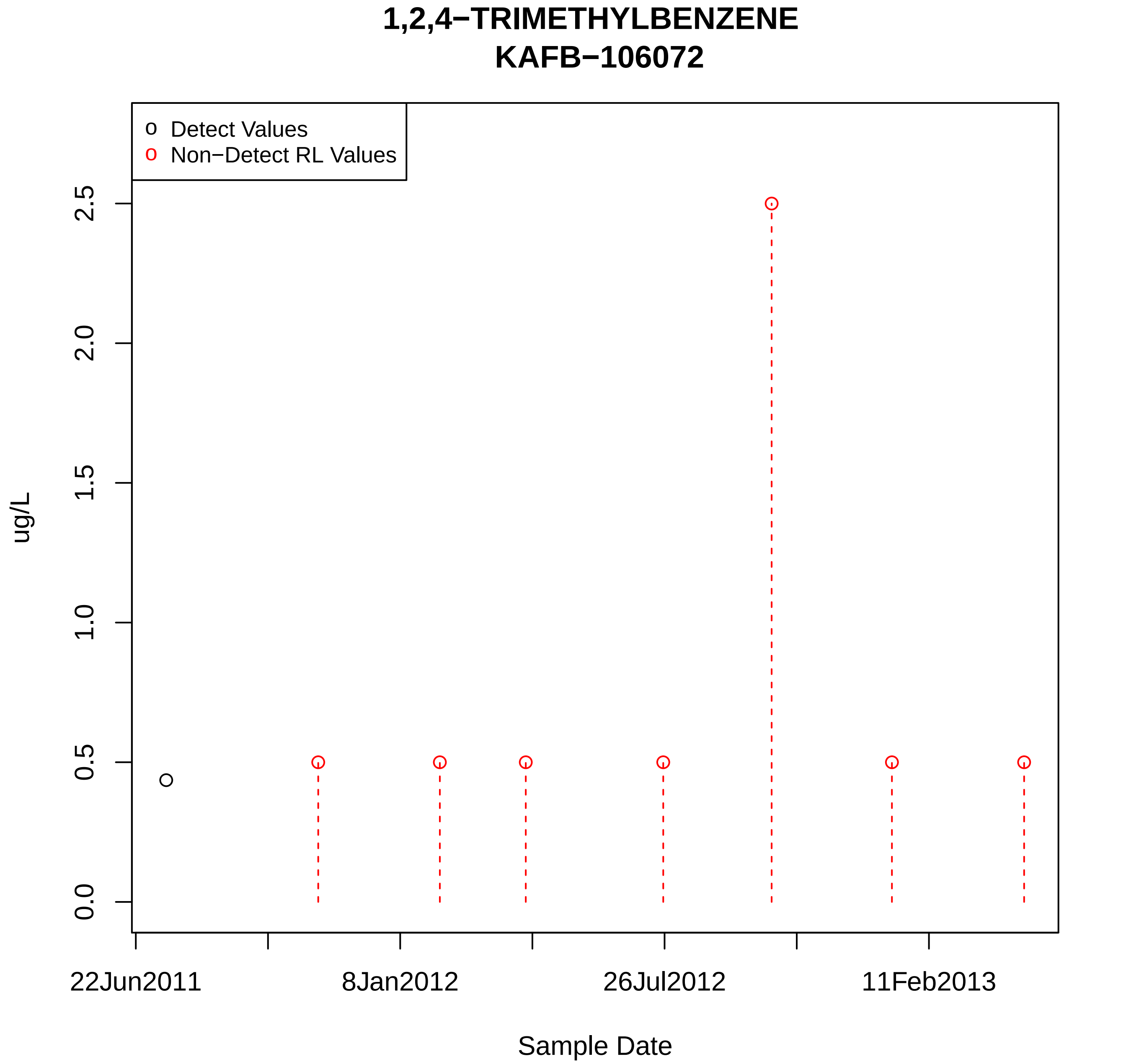


1,2,4−TRIMETHYLBENZENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

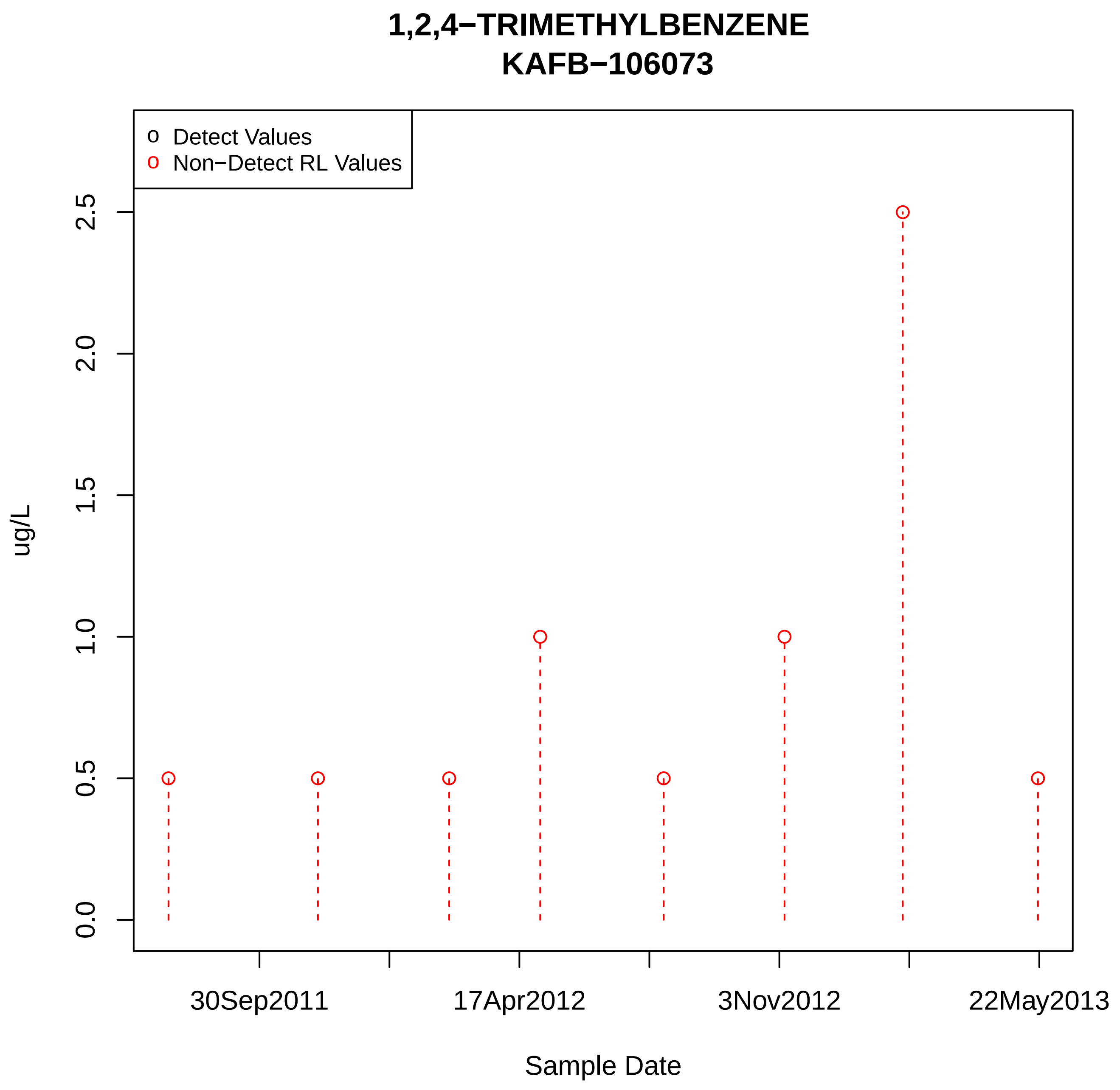

1,2,4−TRIMETHYLBENZENE
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = −3.219E−03
p−value = 0.314
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

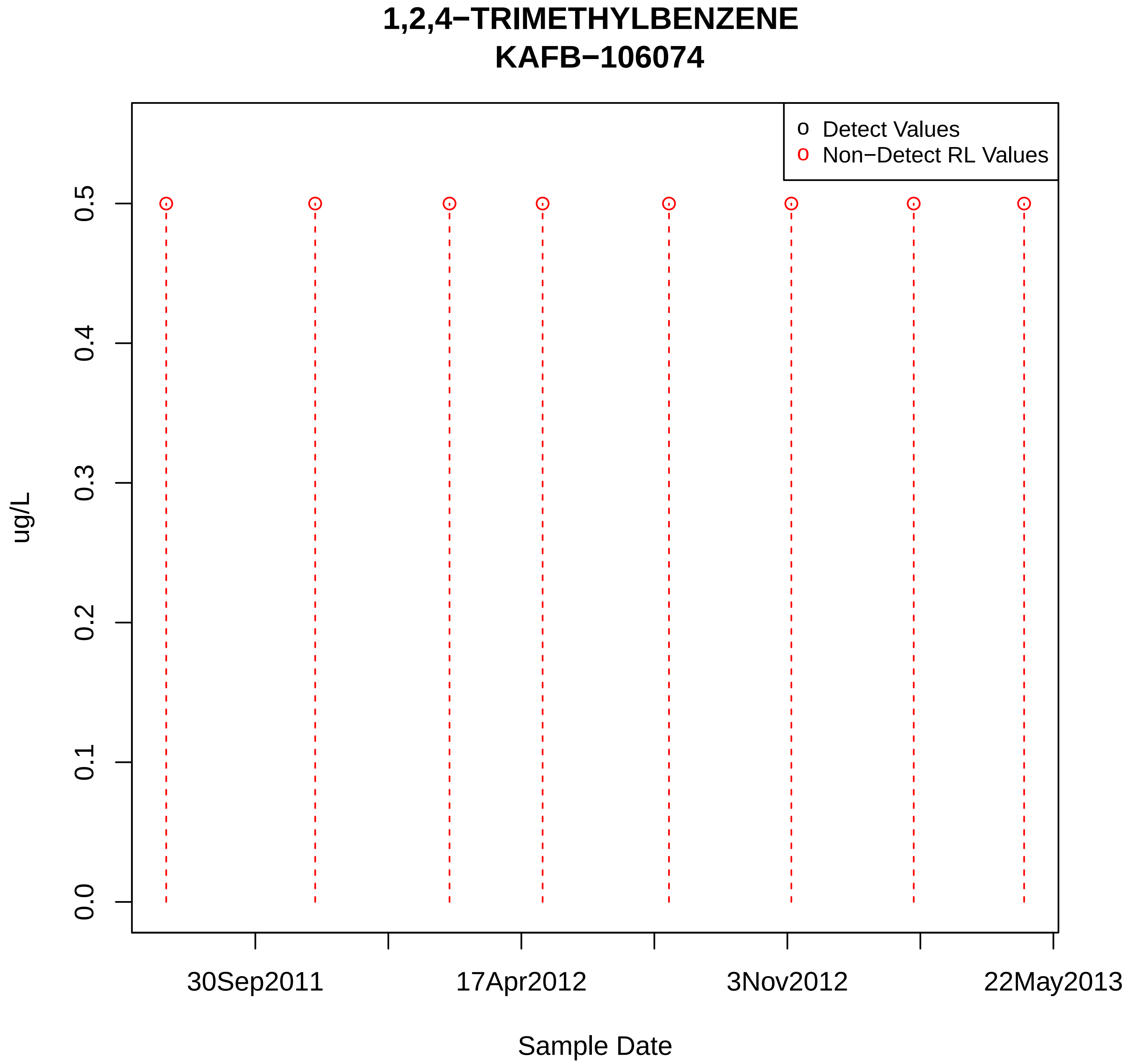

1,2,4−TRIMETHYLBENZENE
KAFB−106070
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106071
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

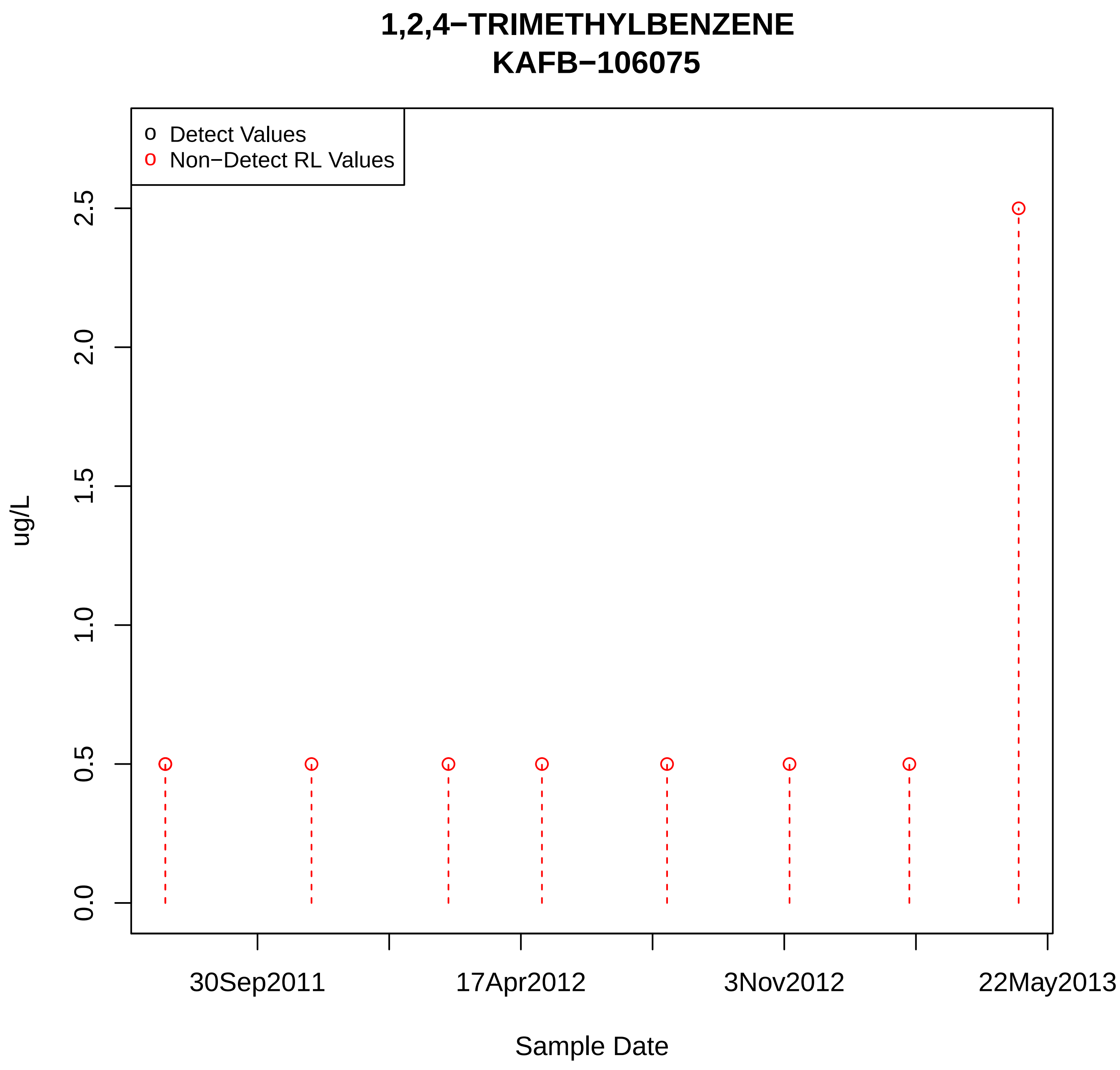


1,2,4−TRIMETHYLBENZENE
KAFB−106072
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

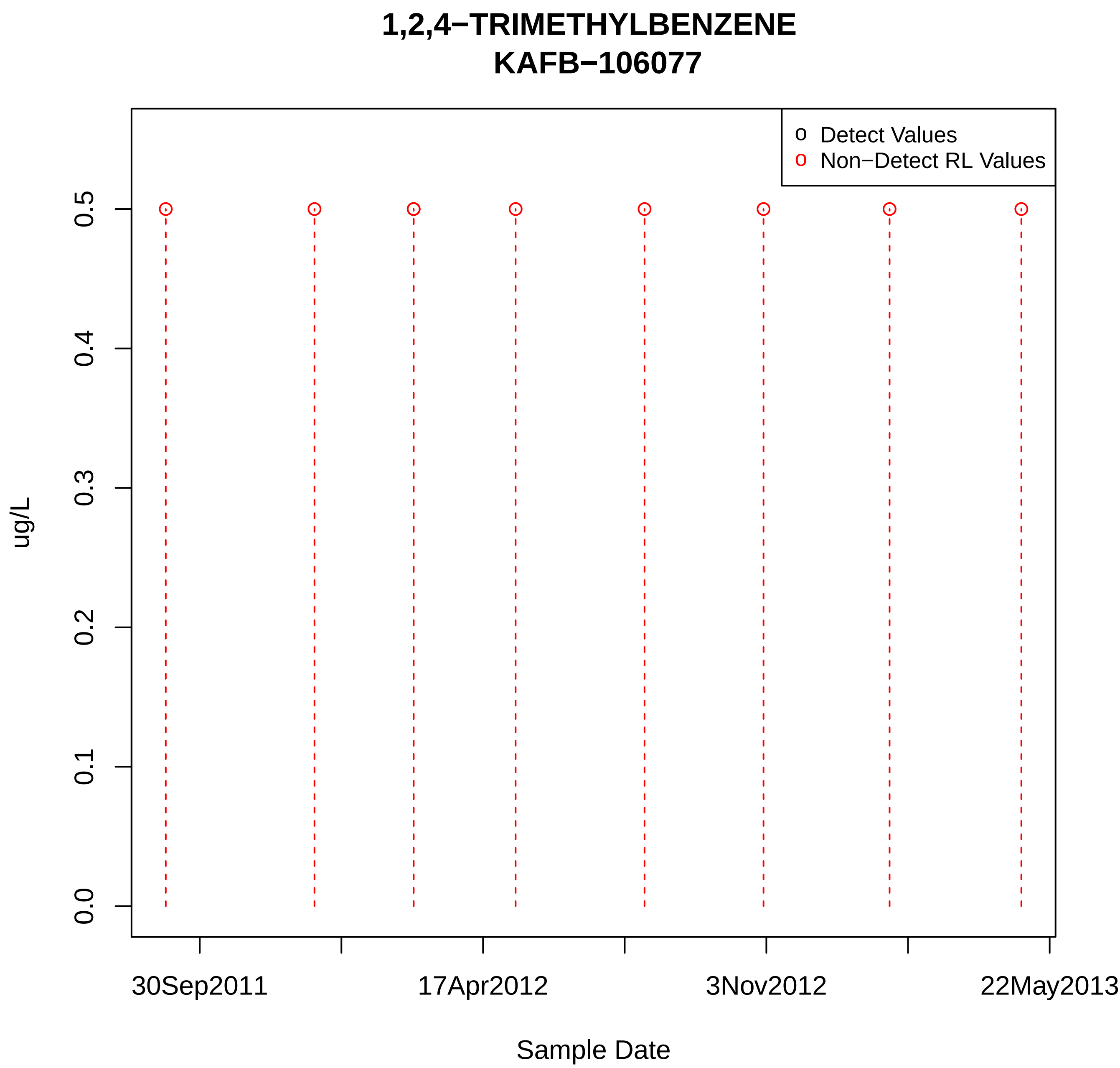

1,2,4−TRIMETHYLBENZENE
KAFB−106073
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



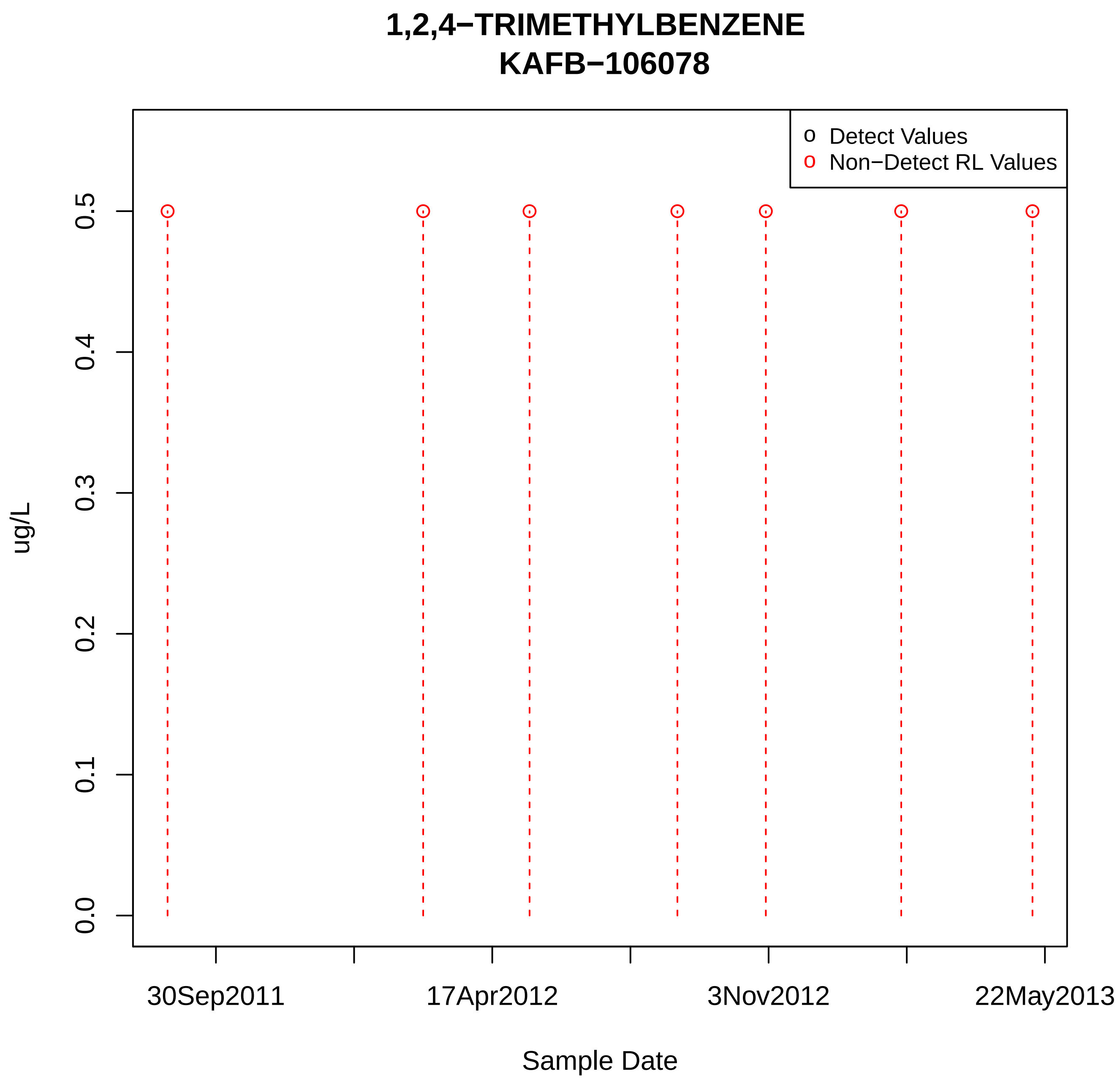
1,2,4−TRIMETHYLBENZENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

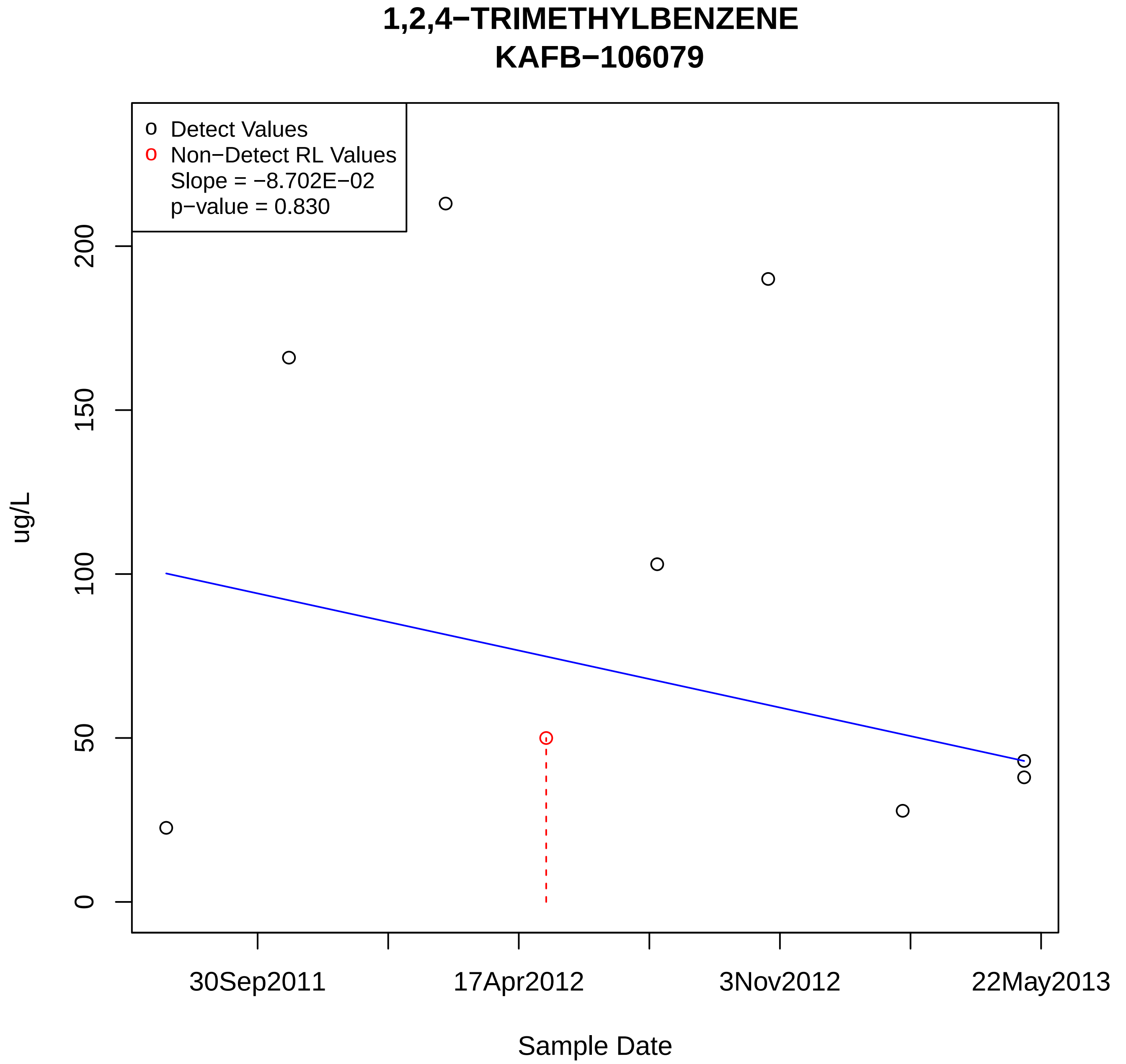


1,2,4−TRIMETHYLBENZENE
KAFB−106075
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

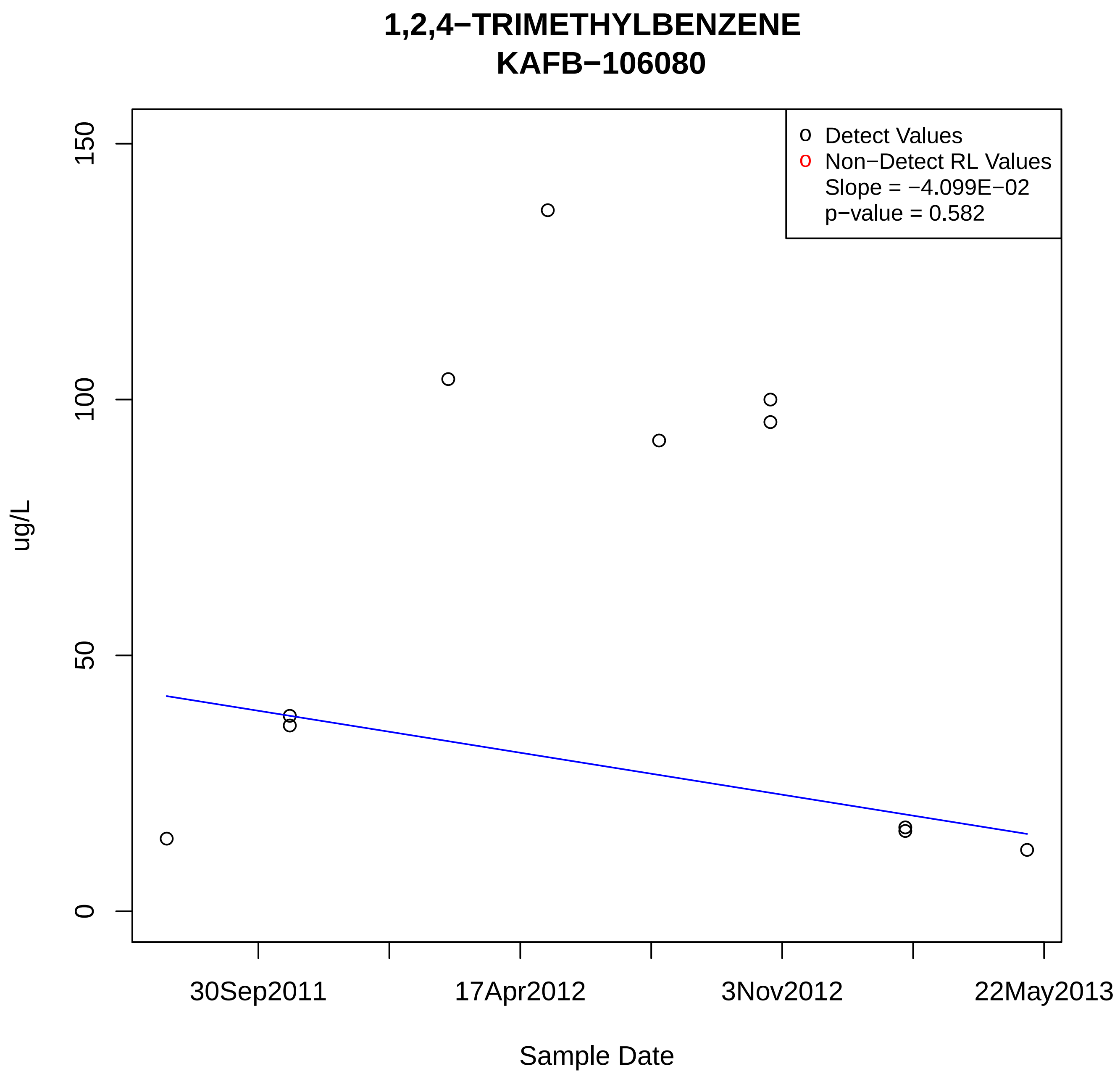


1,2,4−TRIMETHYLBENZENE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

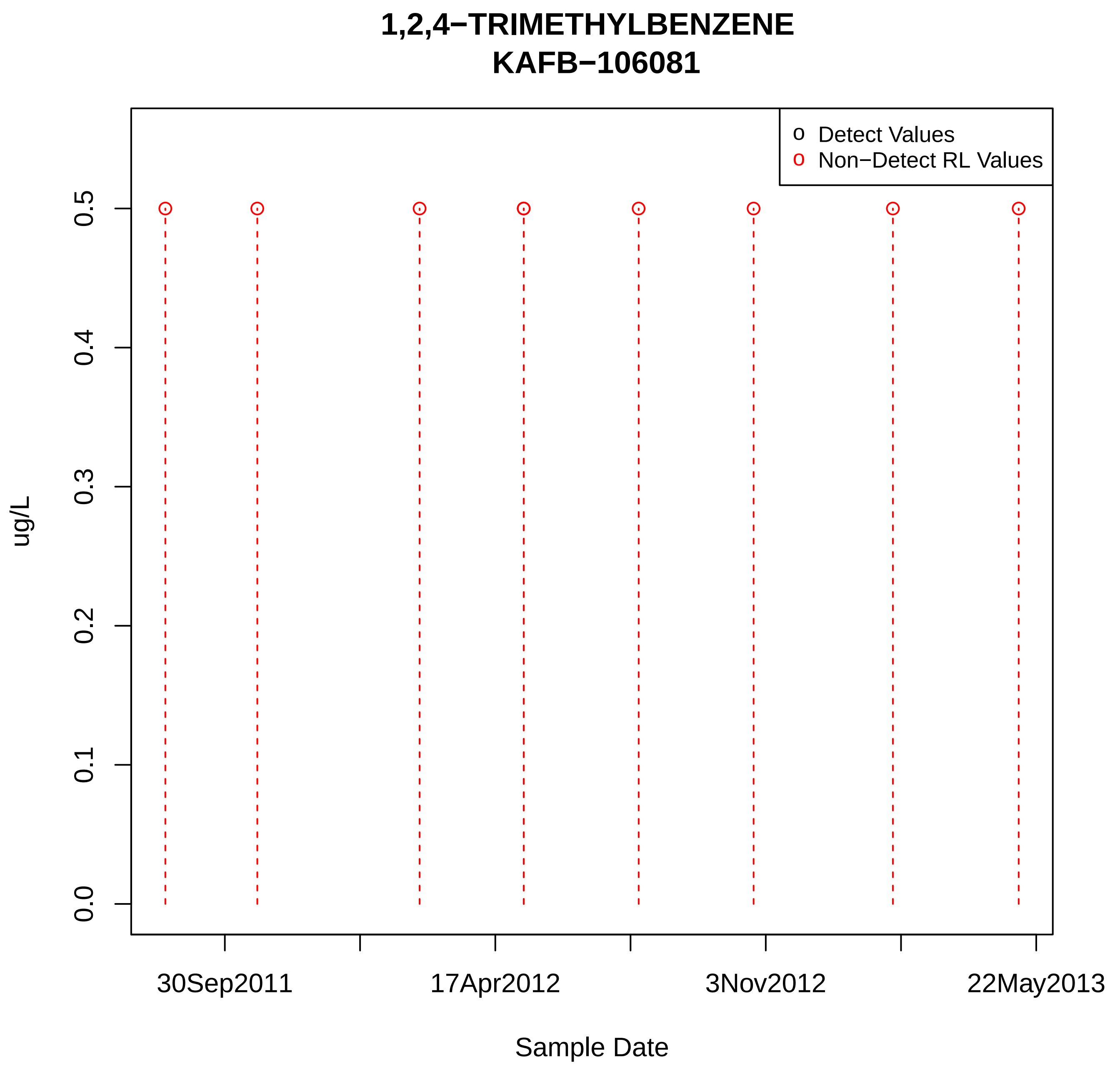

1,2,4−TRIMETHYLBENZENE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



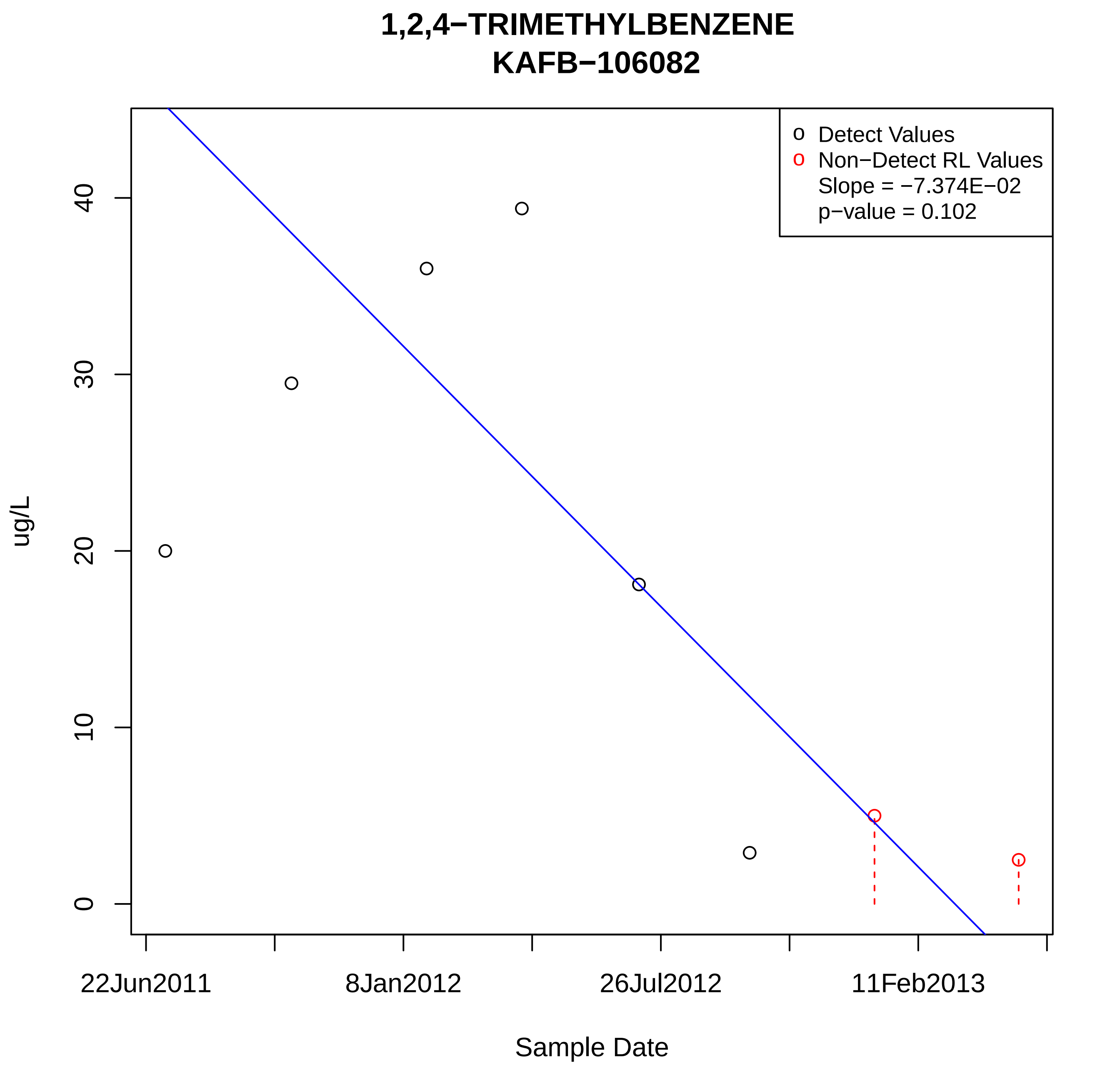
1,2,4−TRIMETHYLBENZENE
KAFB−106079
Detect Values
Non−Detect RL Values
Slope = −8.702E−02
p−value = 0.830
ug/L
0
50
100
150
200
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



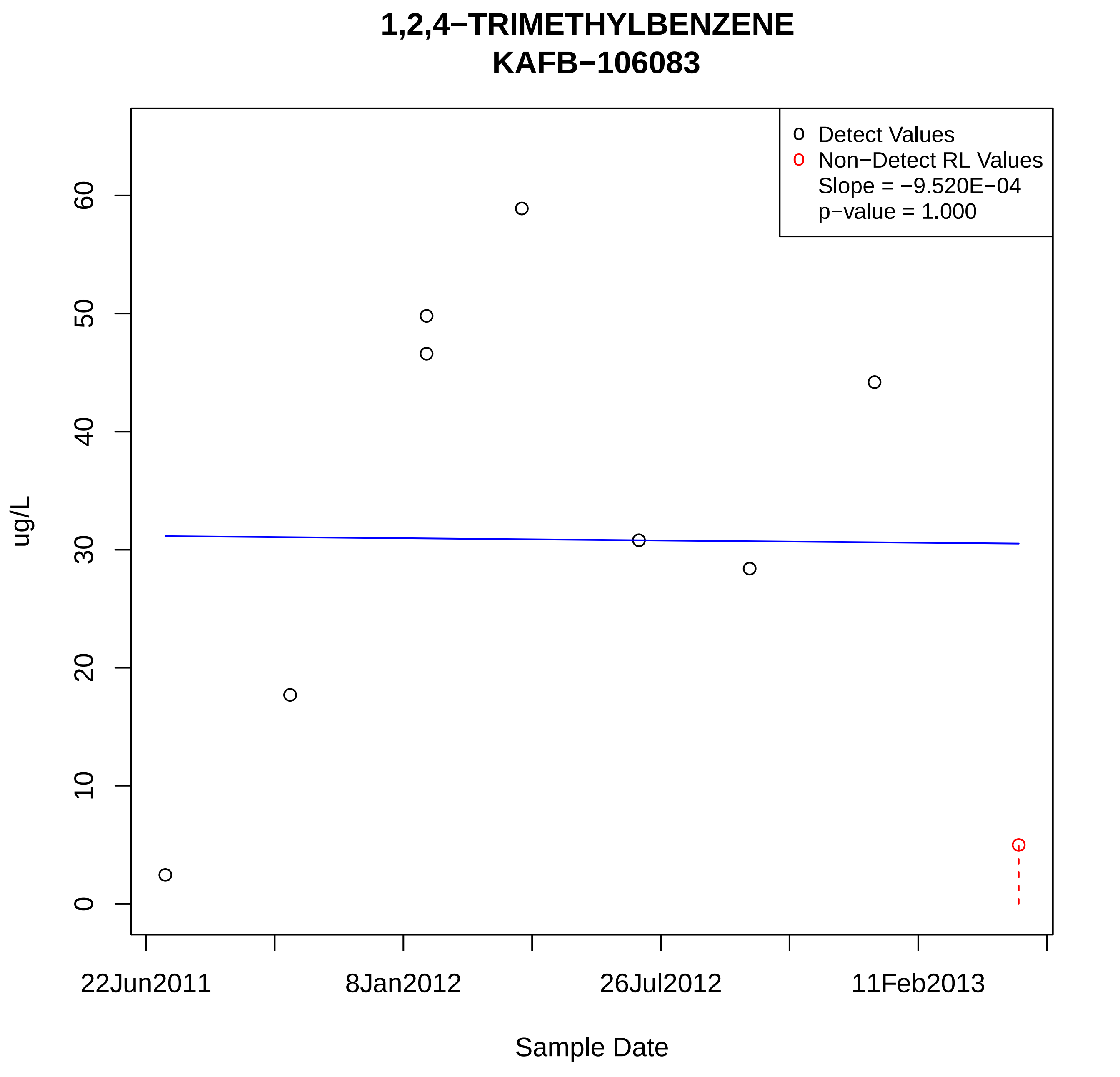
1,2,4−TRIMETHYLBENZENE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −4.099E−02
p−value = 0.582
150
100
50
0
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



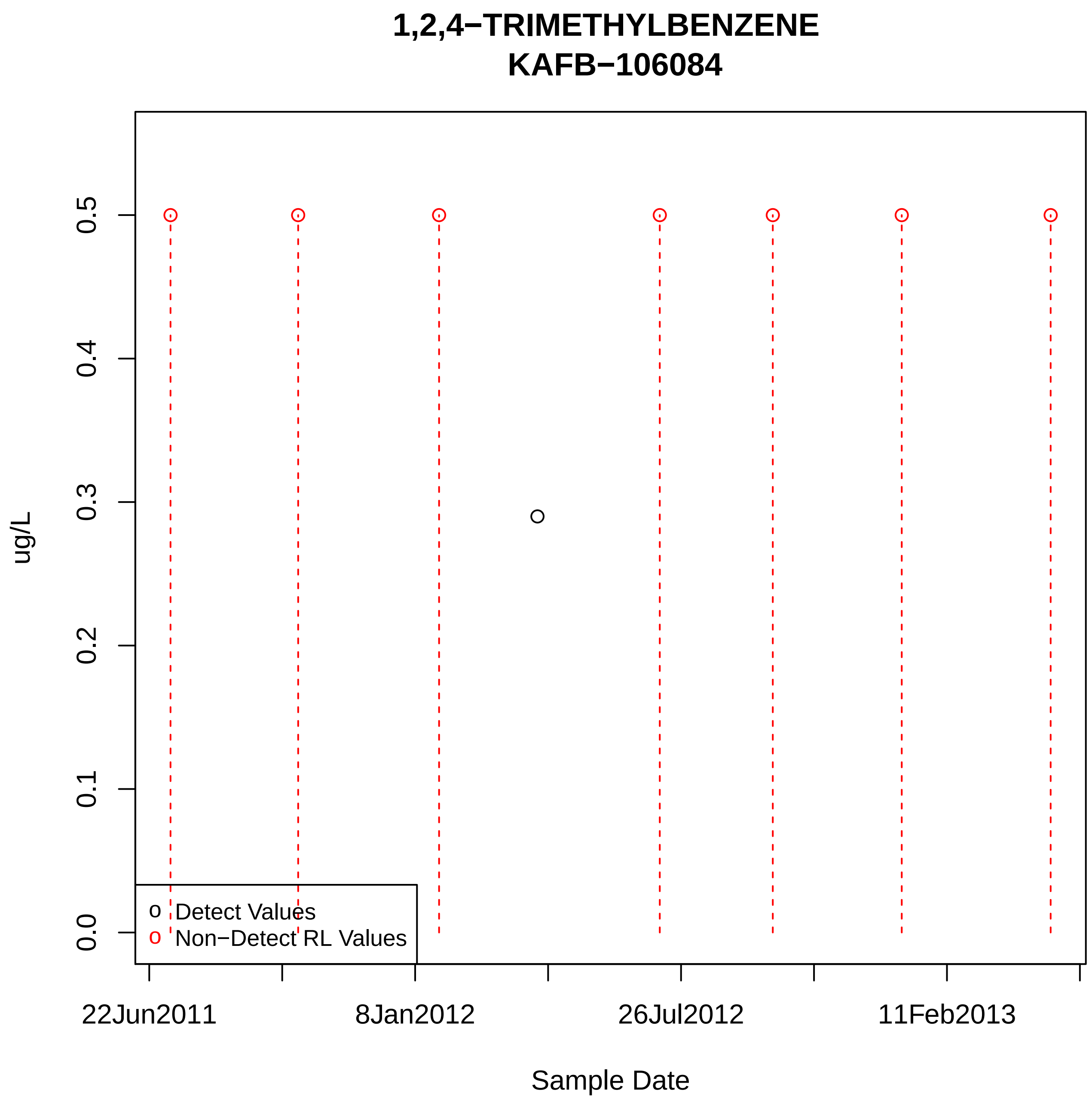
1,2,4−TRIMETHYLBENZENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

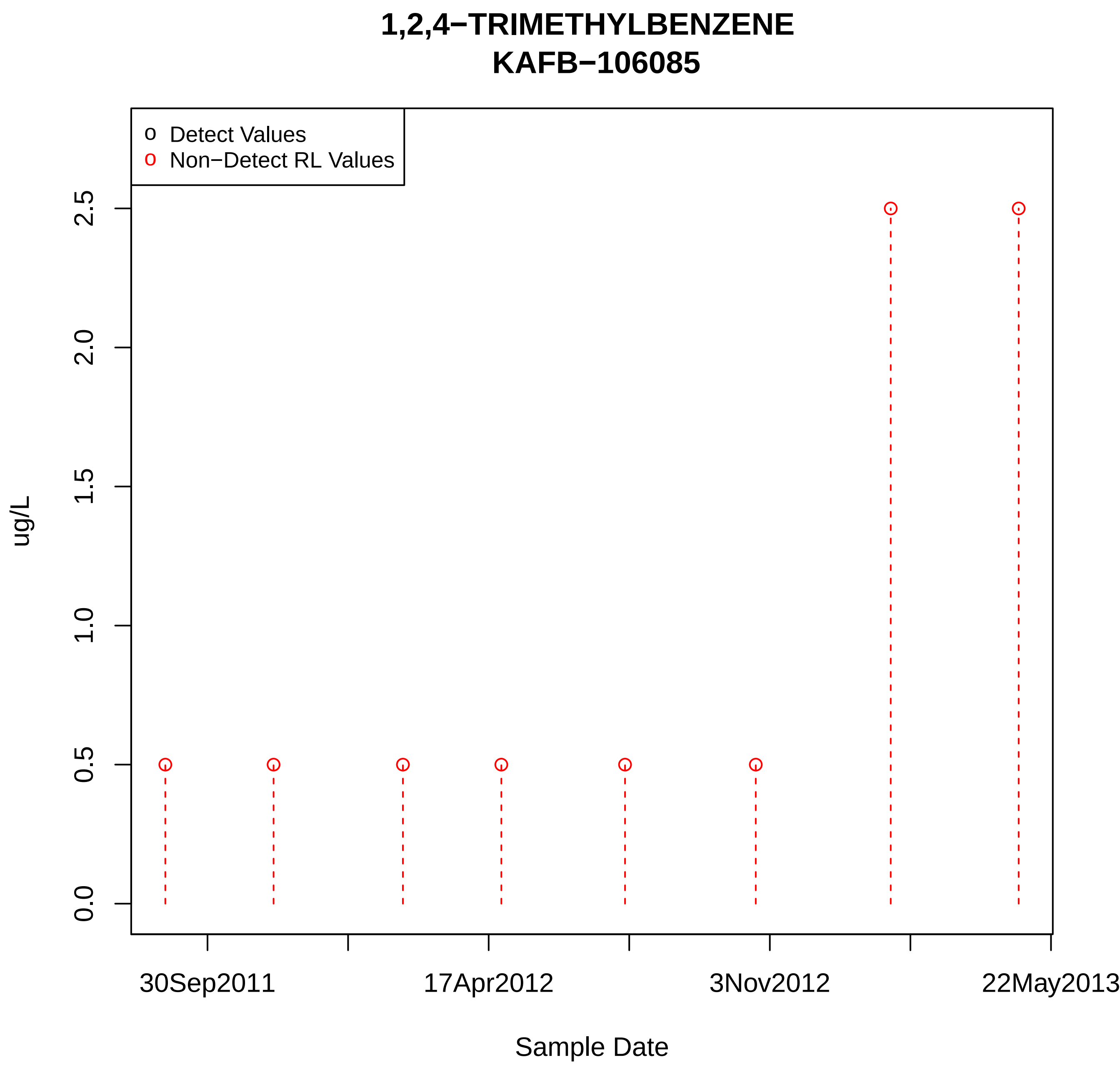


1,2,4−TRIMETHYLBENZENE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = −7.374E−02
p−value = 0.102
ug/L
0
10
20
30
40
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

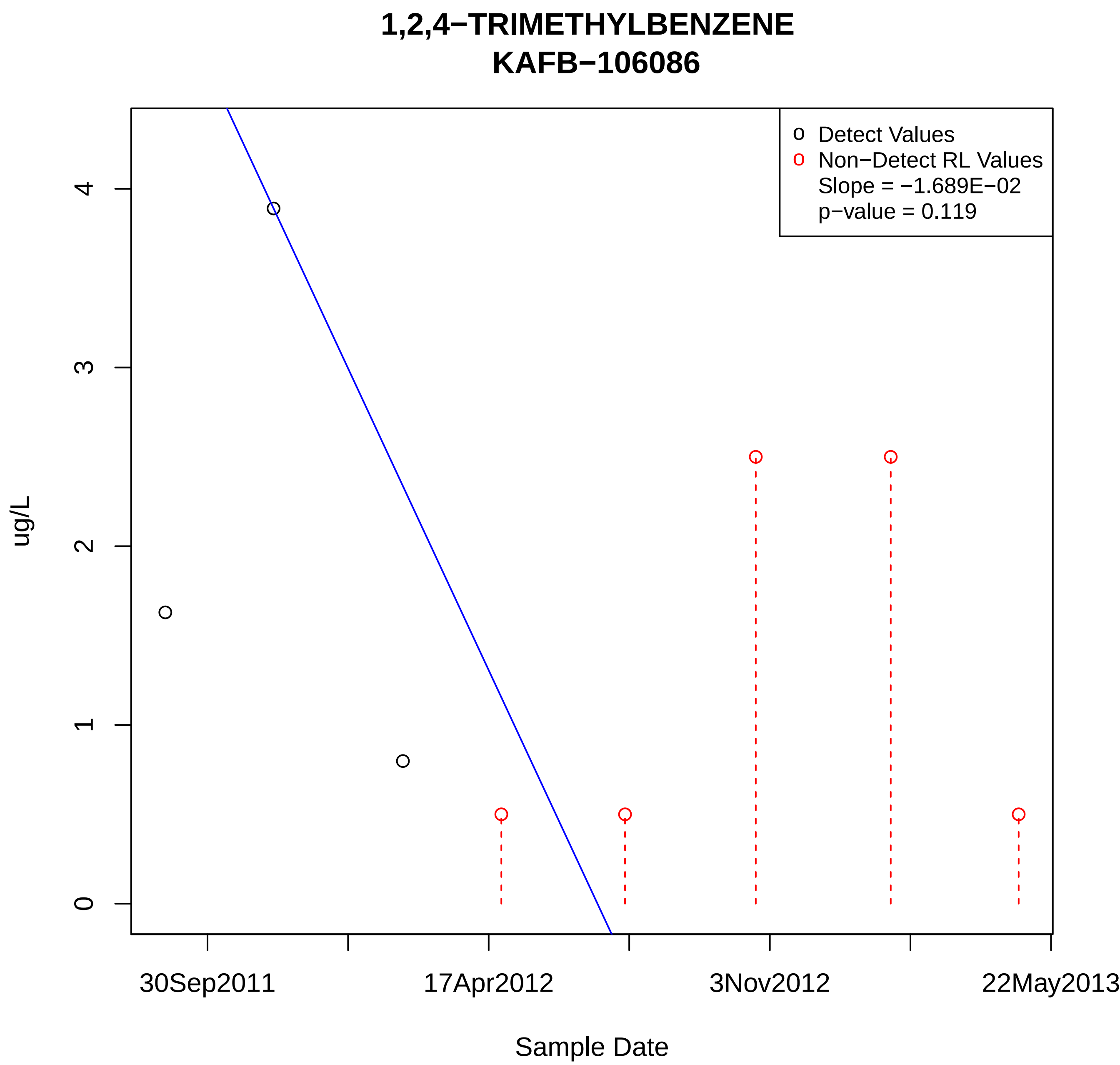


1,2,4−TRIMETHYLBENZENE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = −9.520E−04
p−value = 1.000
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

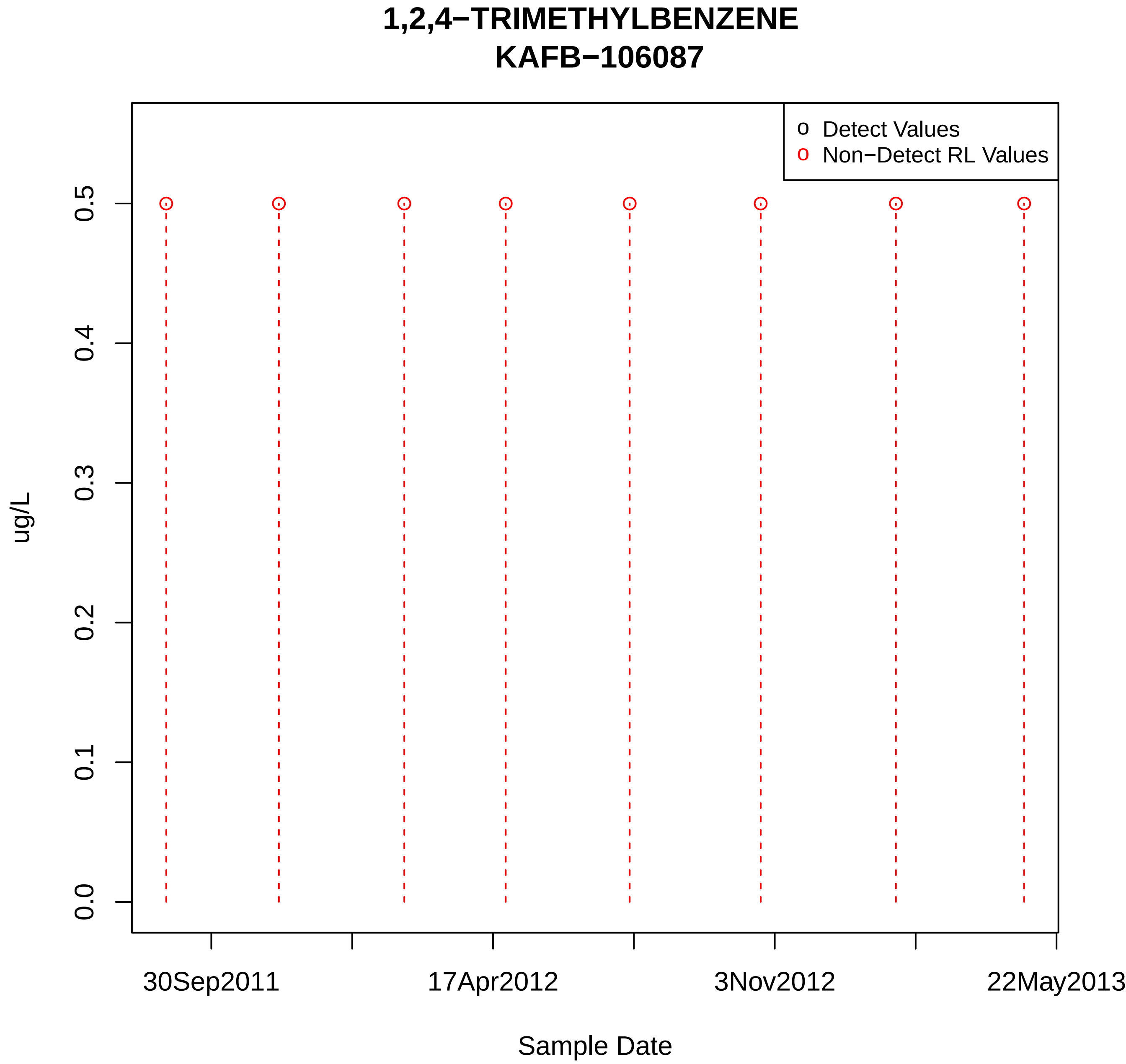

1,2,4−TRIMETHYLBENZENE
KAFB−106084
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
Detect Values
Non−Detect RL Values
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

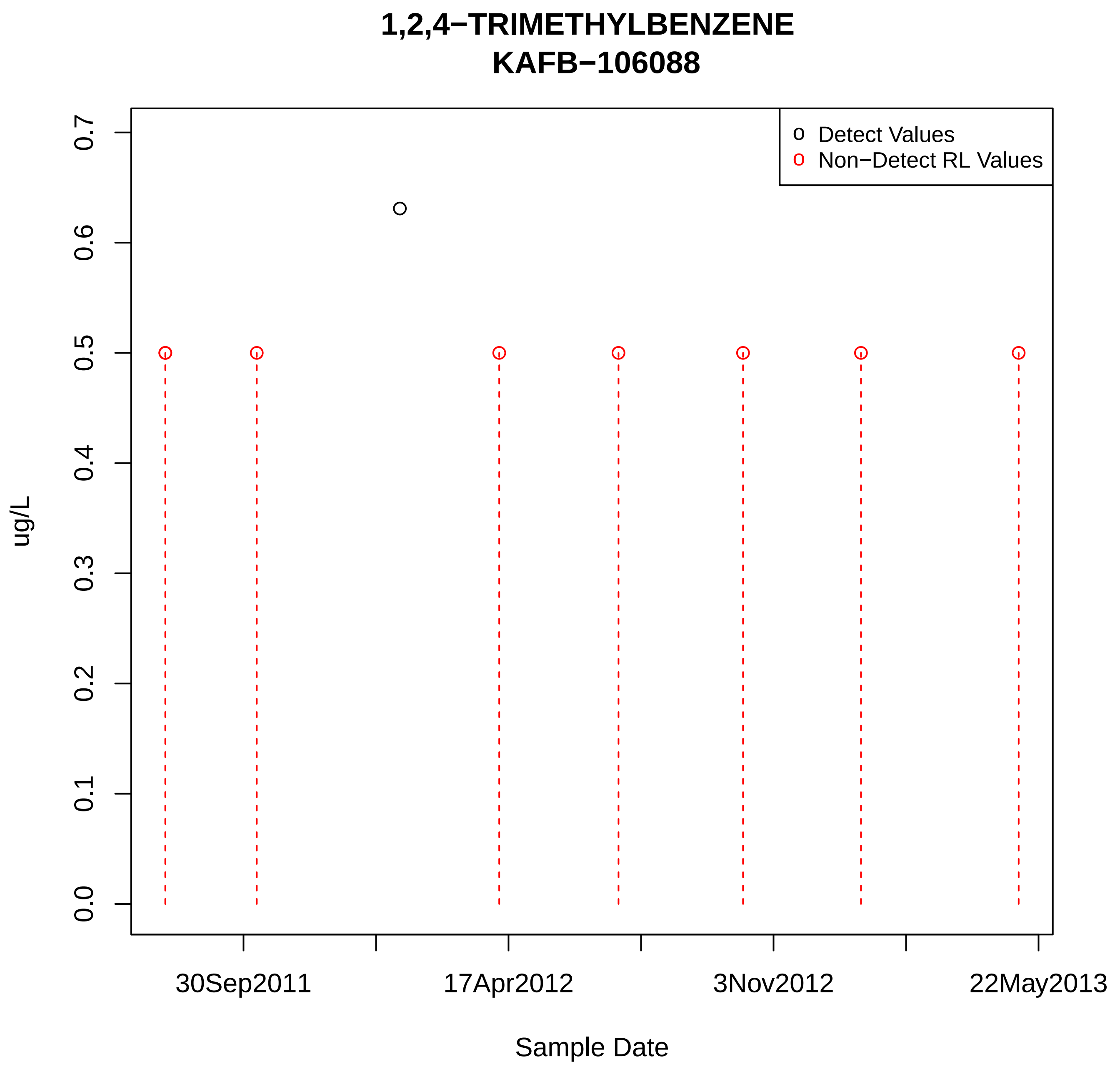


1,2,4−TRIMETHYLBENZENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

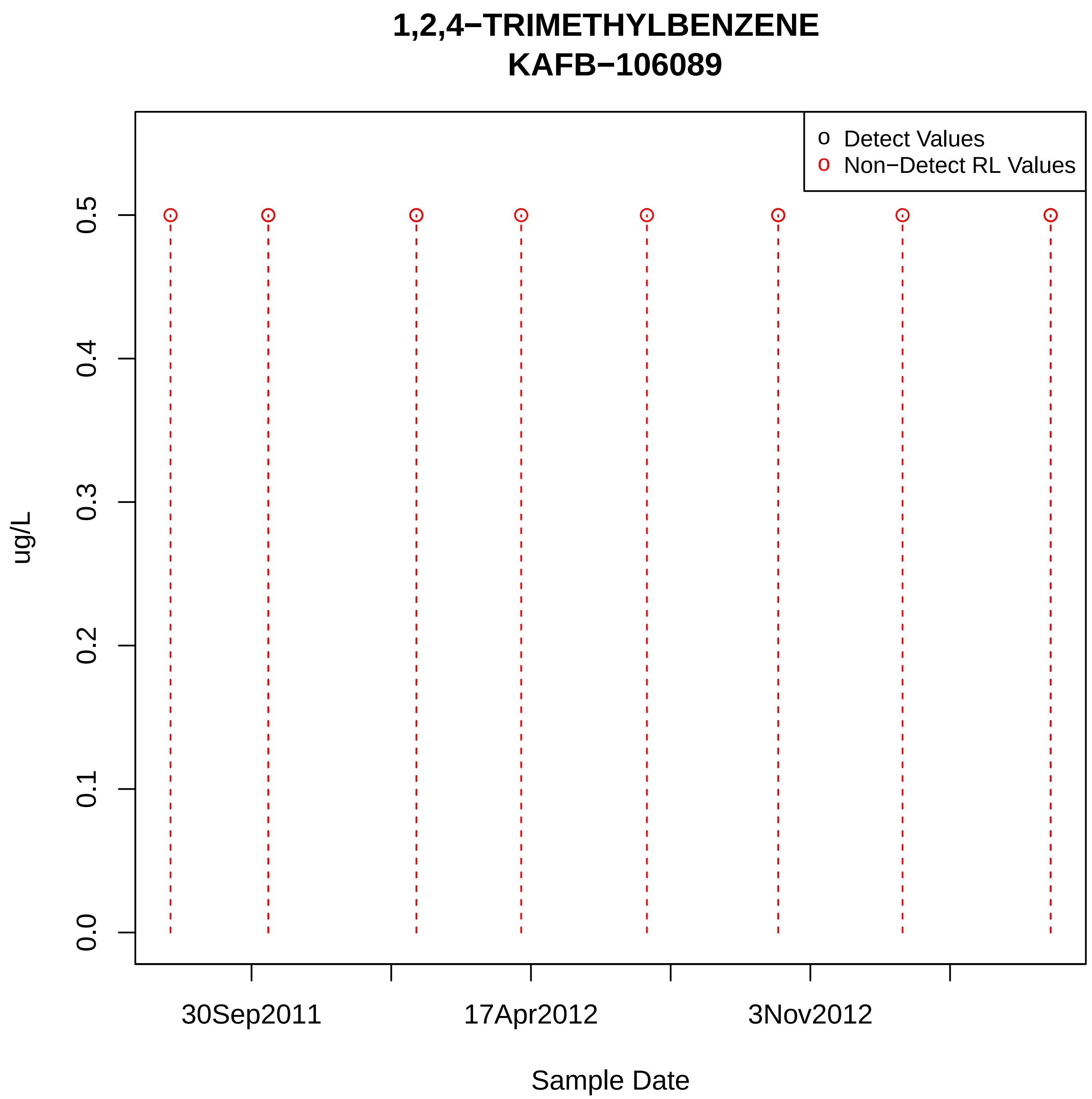


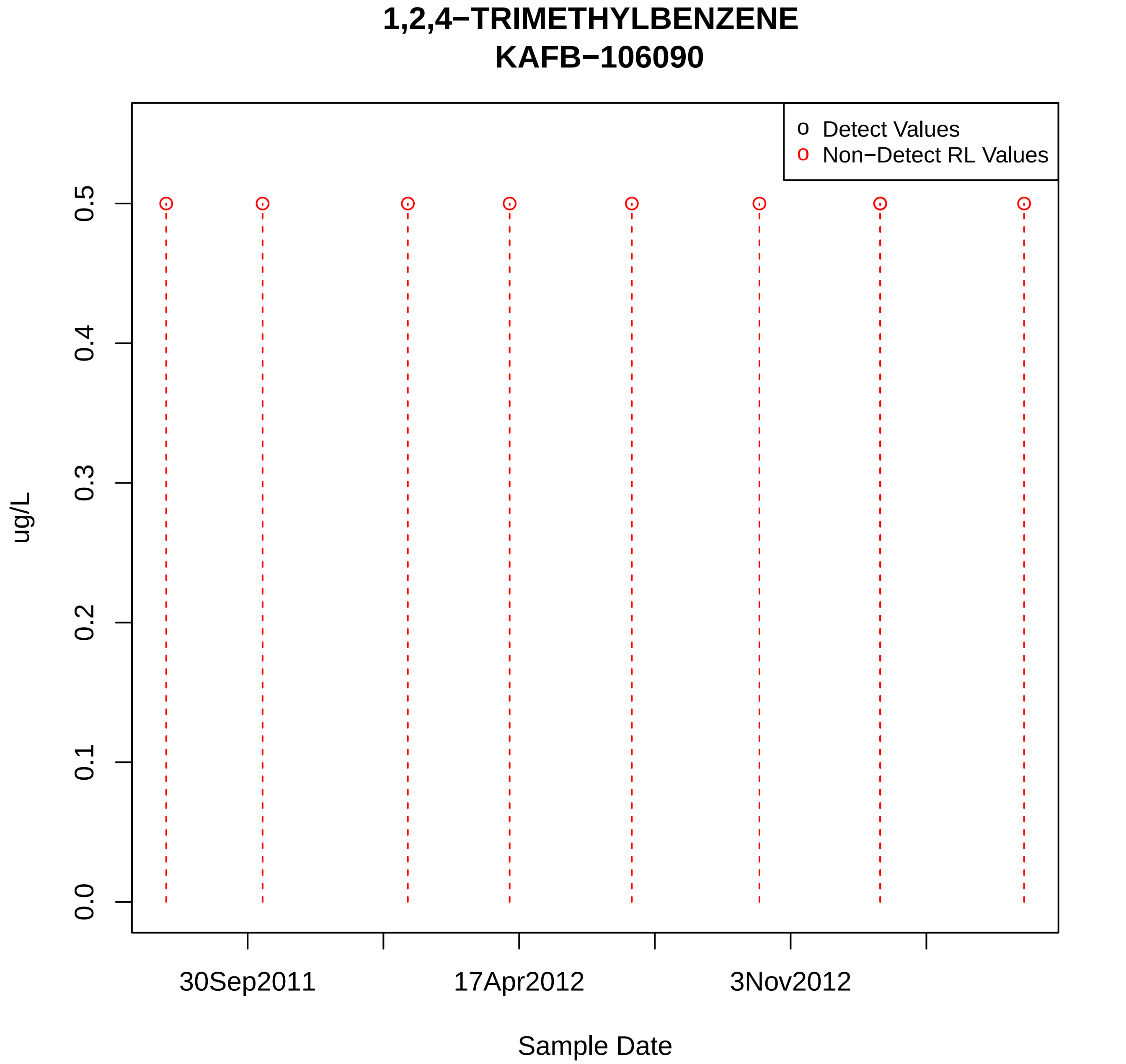
1,2,4−TRIMETHYLBENZENE
KAFB−106086
Detect Values
Non−Detect RL Values
Slope = −1.689E−02
p−value = 0.119
ug/L
0
1
2
3
4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106087
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

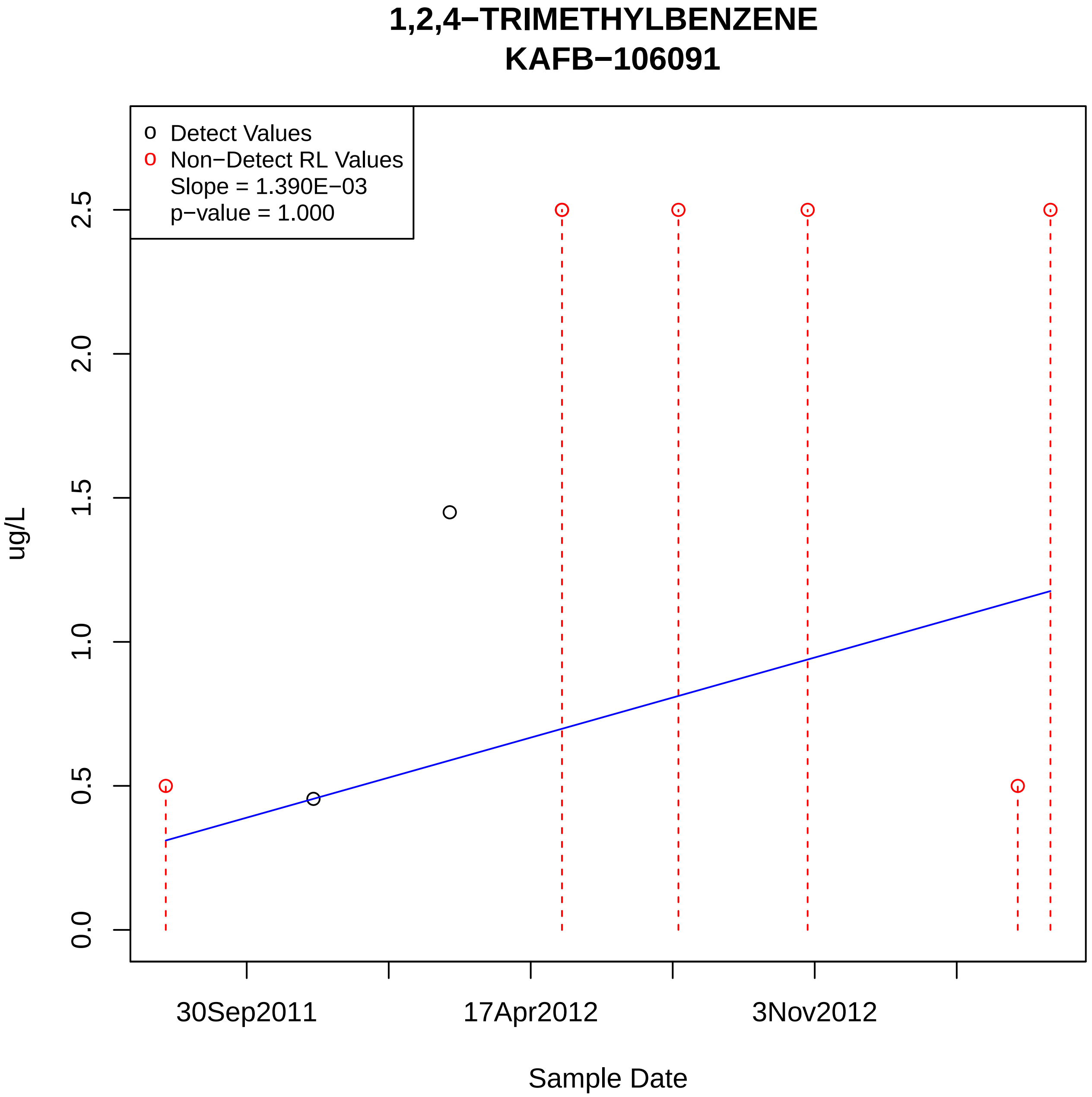


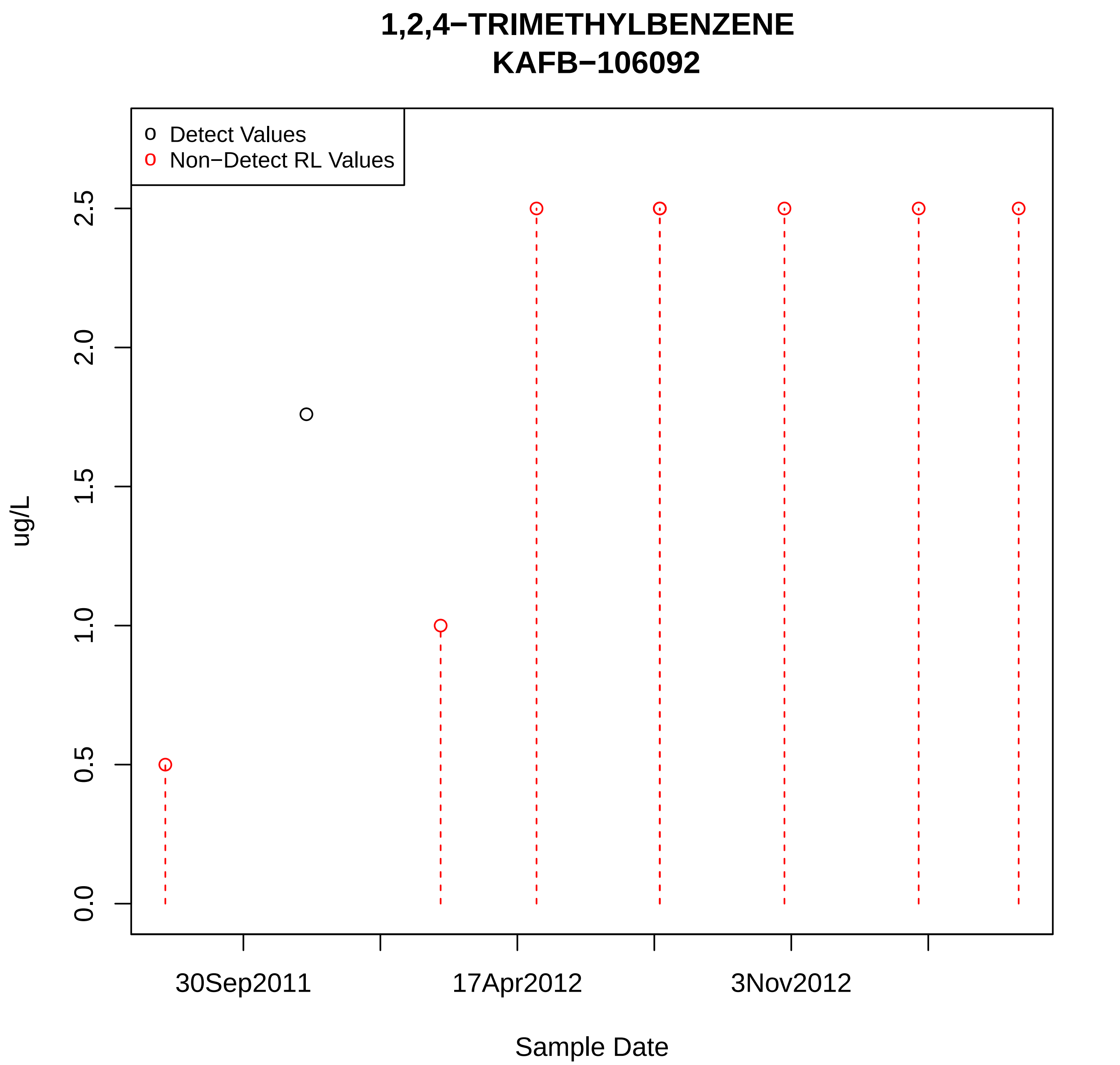
1,2,4−TRIMETHYLBENZENE
KAFB−106088
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

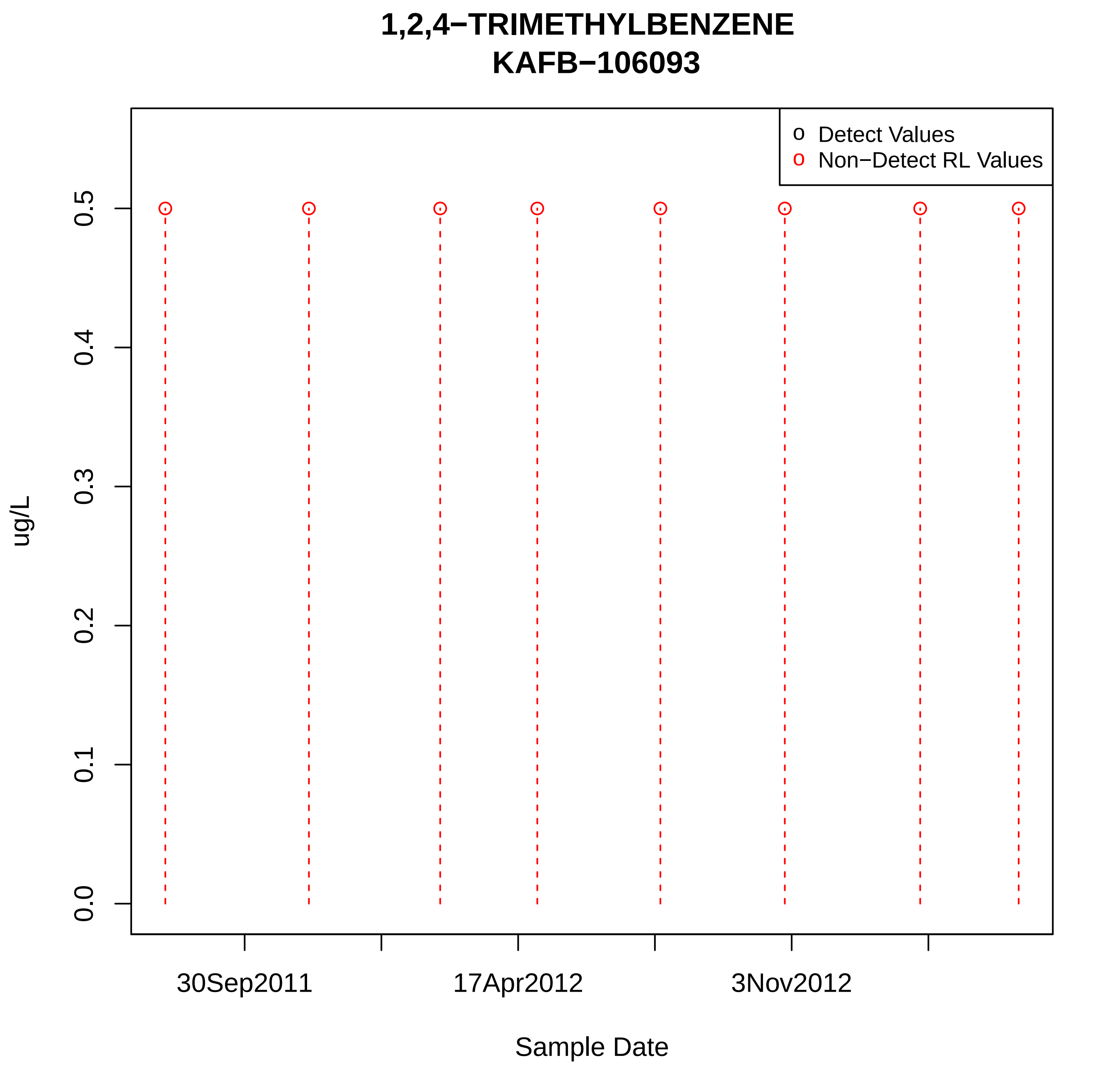

1,2,4−TRIMETHYLBENZENE
KAFB−106089
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

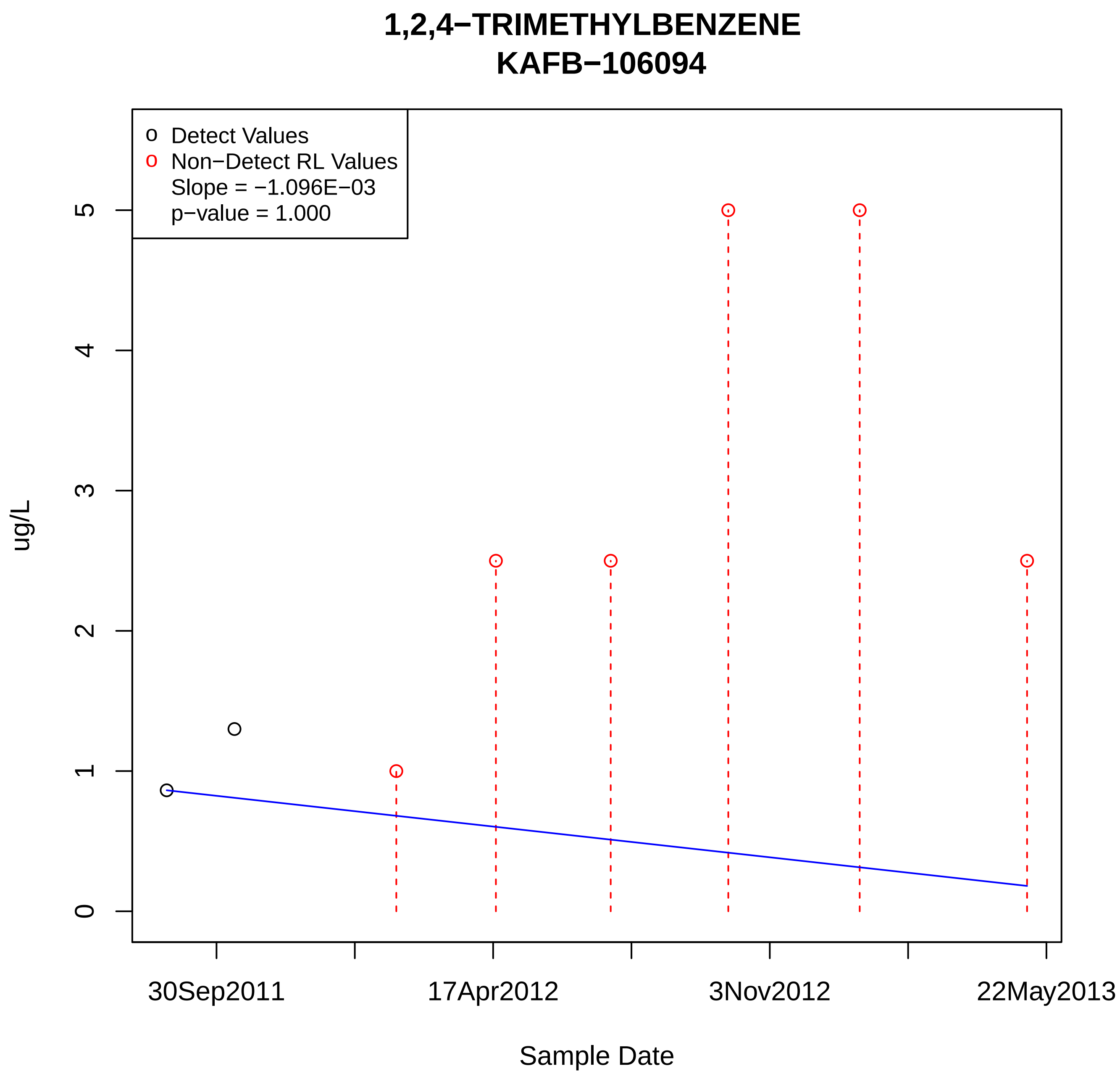


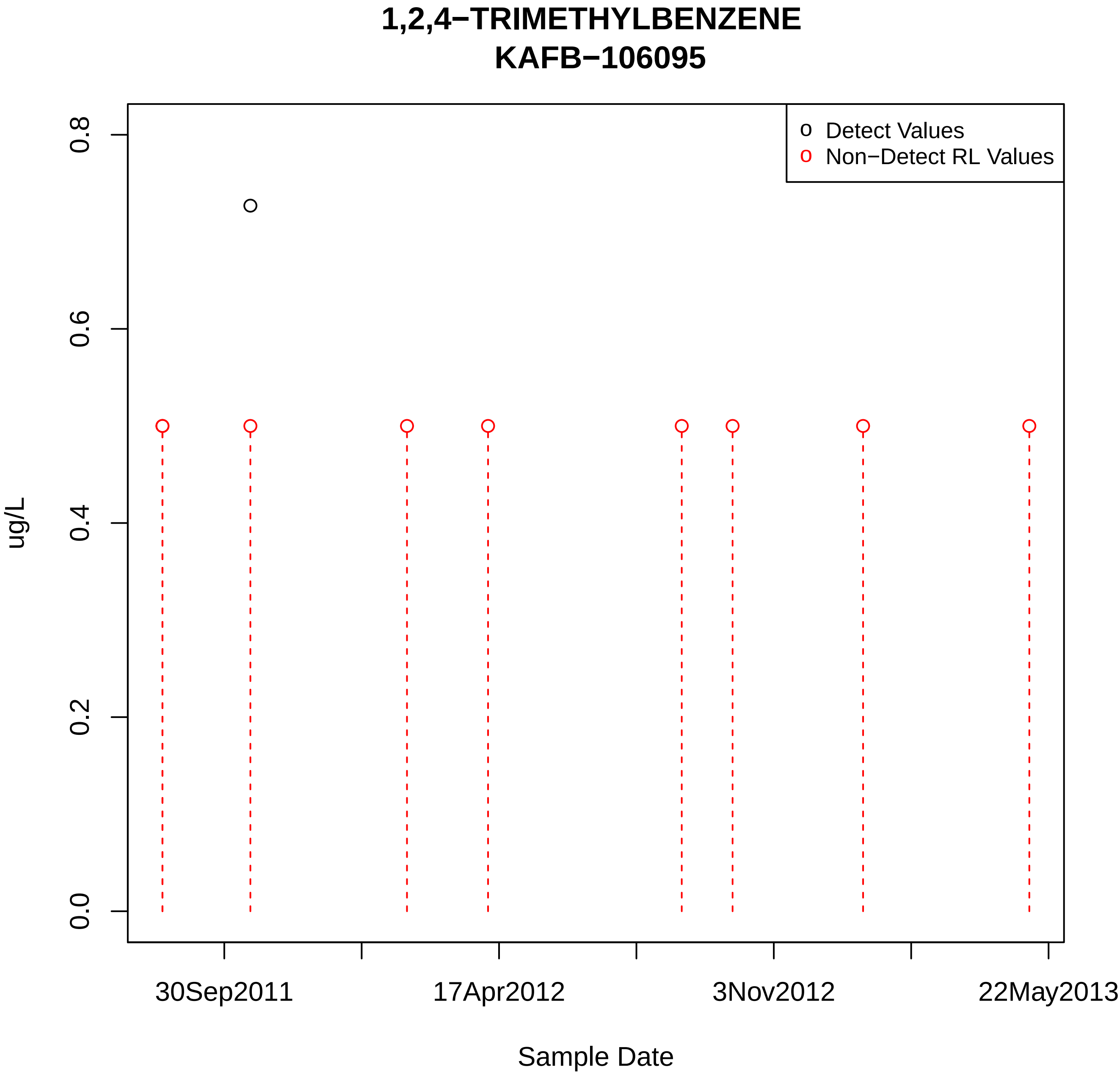
1,2,4−TRIMETHYLBENZENE
KAFB−106090
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

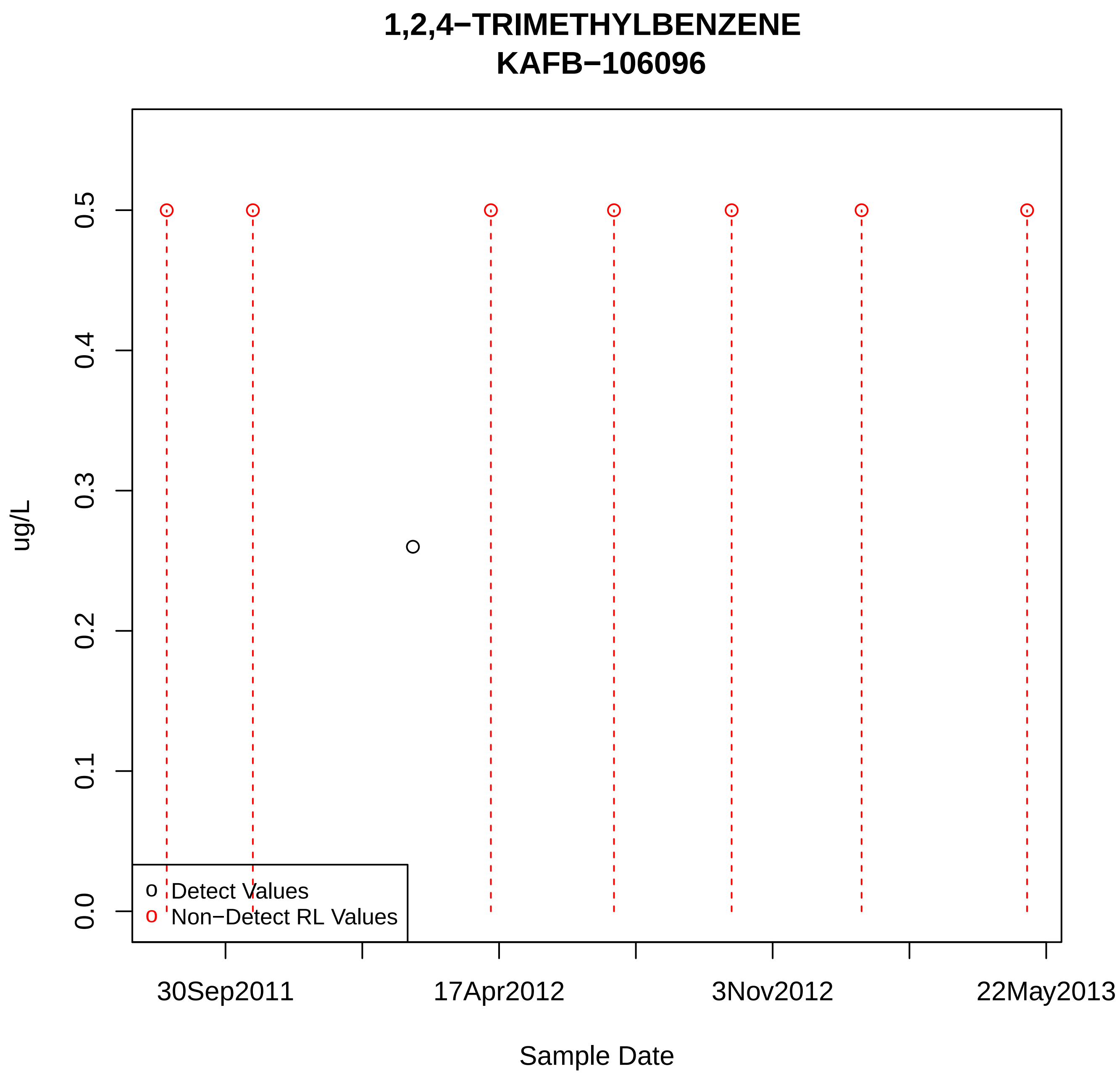

1,2,4−TRIMETHYLBENZENE
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = 1.390E−03
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106092
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

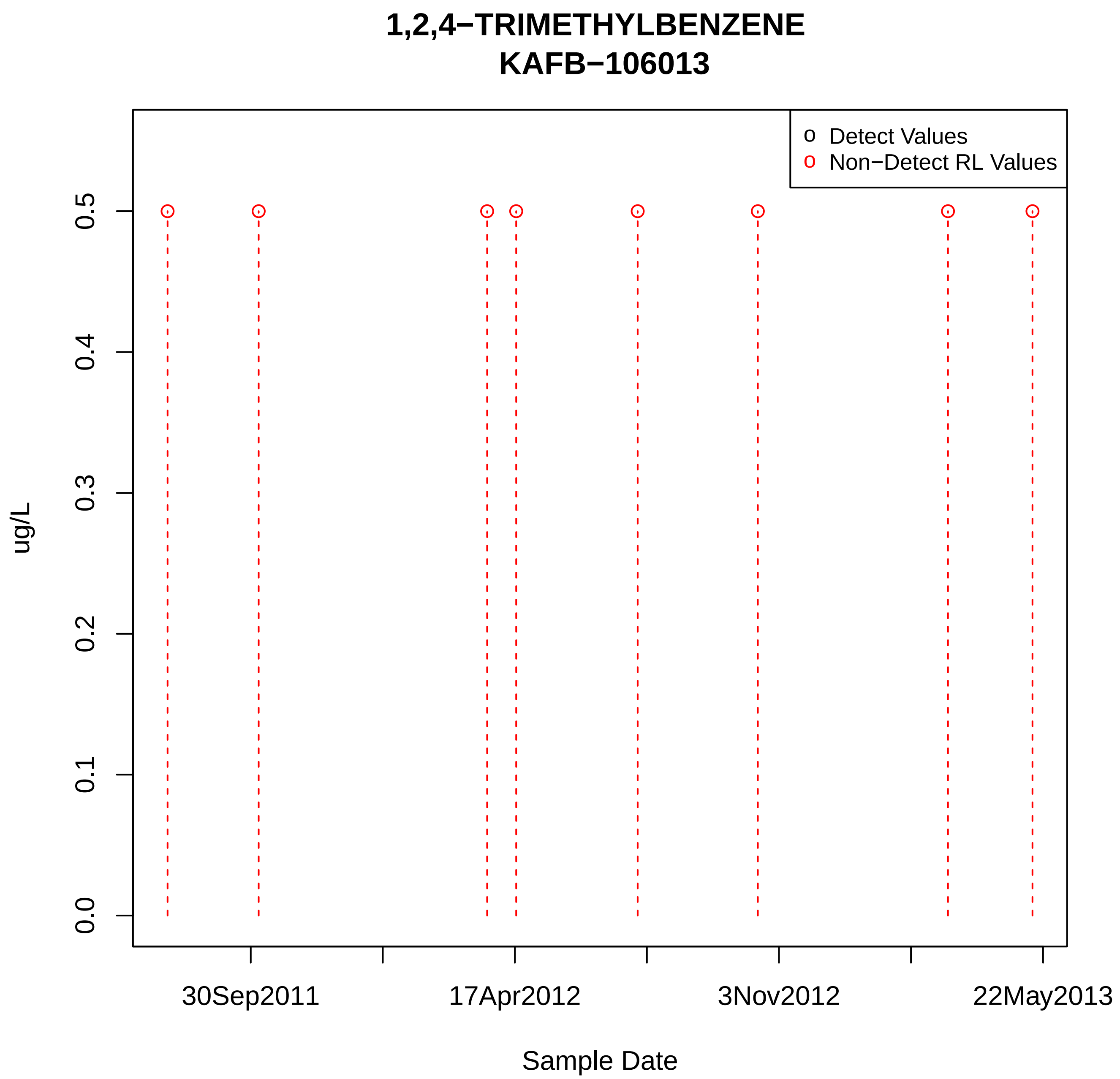

1,2,4−TRIMETHYLBENZENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = −1.096E−03
p−value = 1.000
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

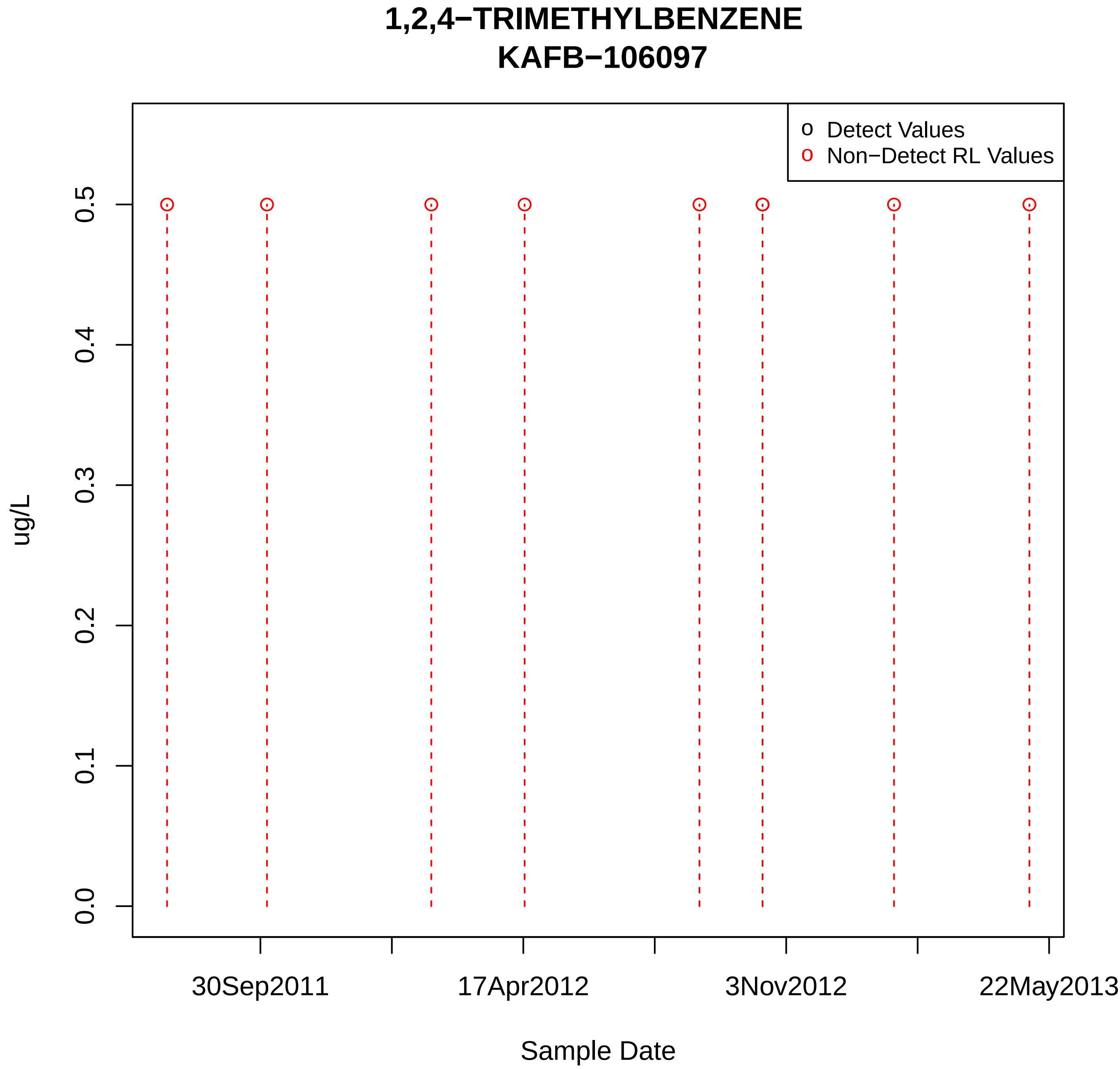

1,2,4−TRIMETHYLBENZENE
KAFB−106095
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.2
0.4
0.6
0.8
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



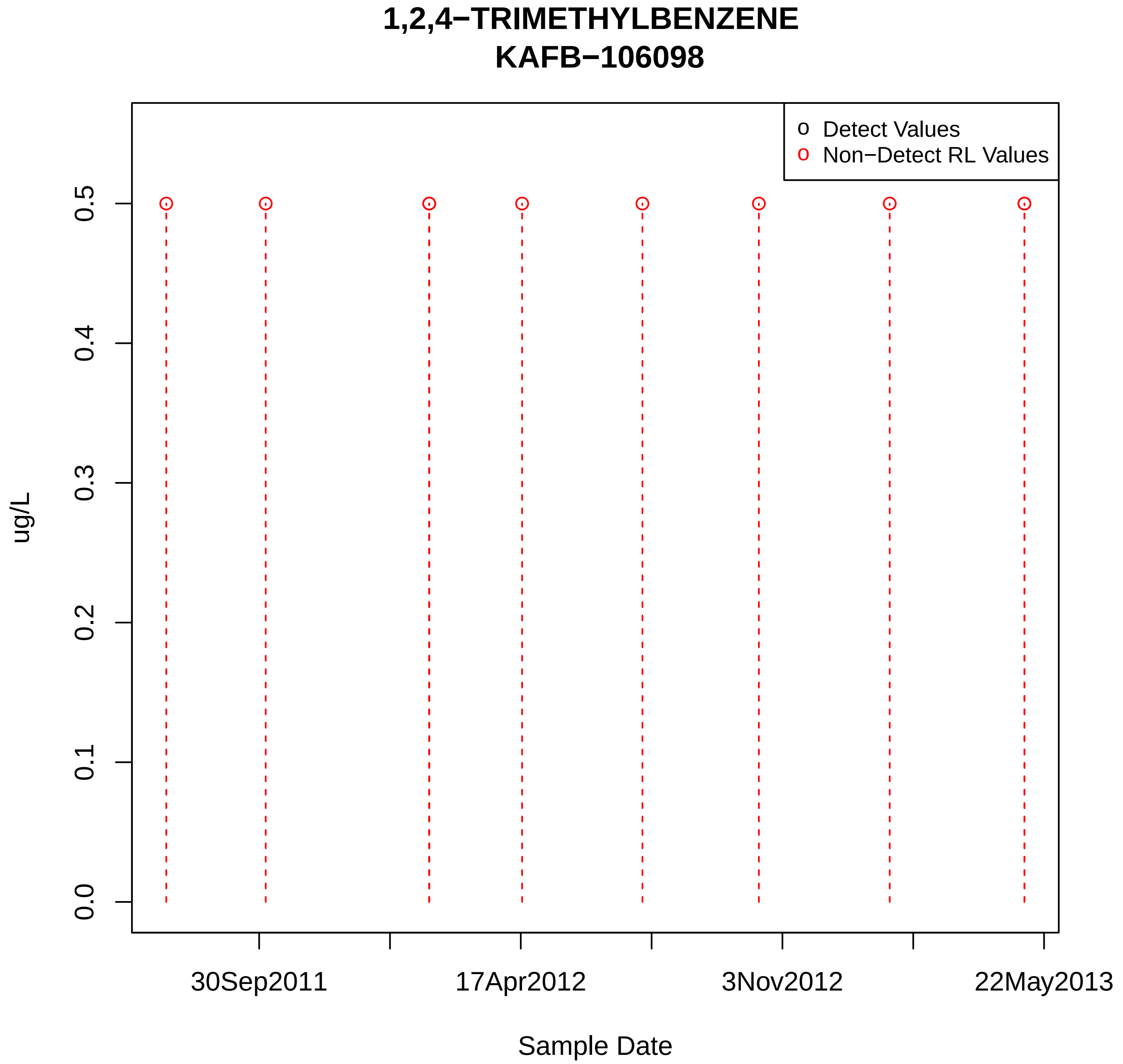
1,2,4−TRIMETHYLBENZENE
KAFB−106096
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



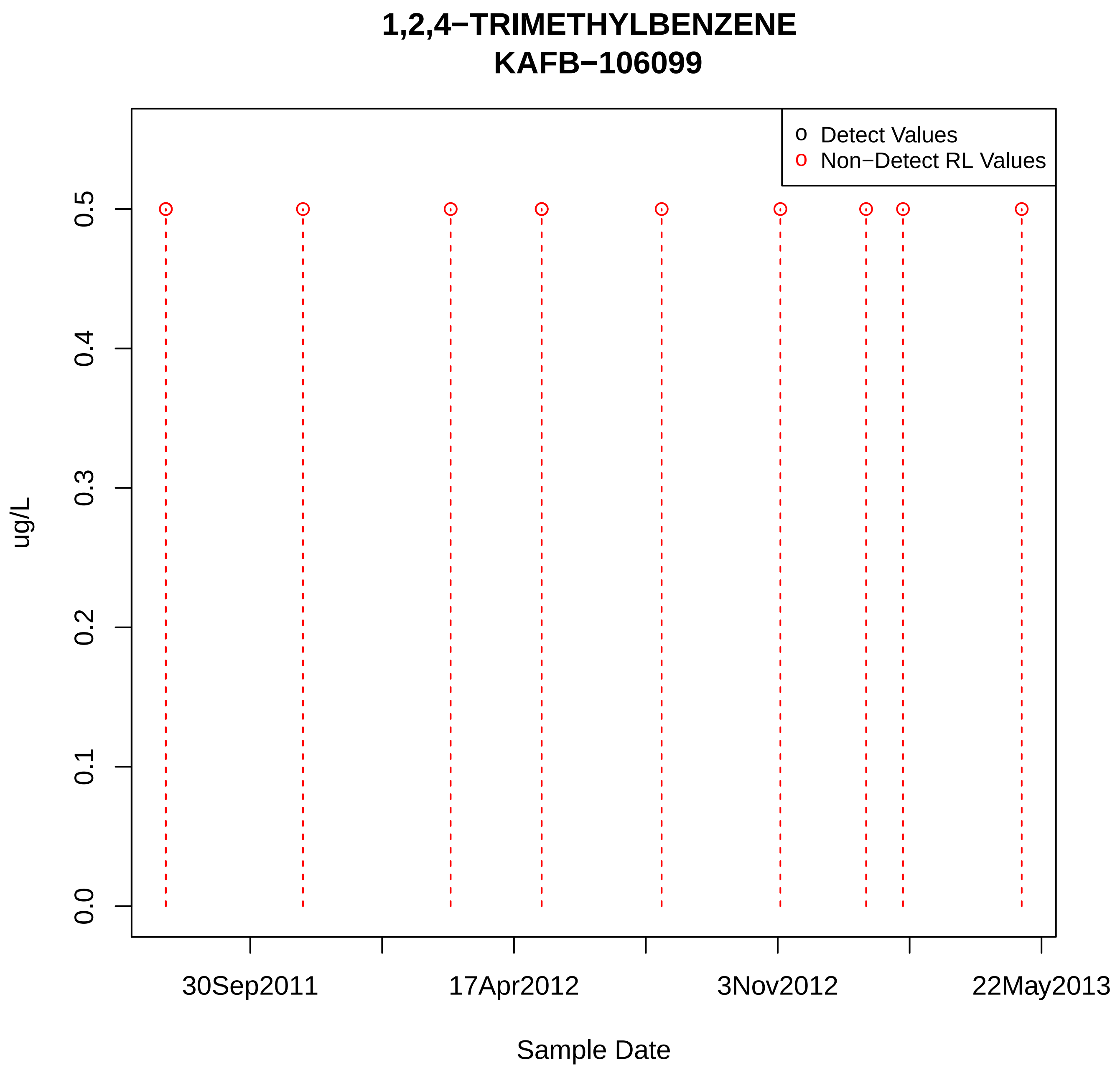
1,2,4−TRIMETHYLBENZENE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

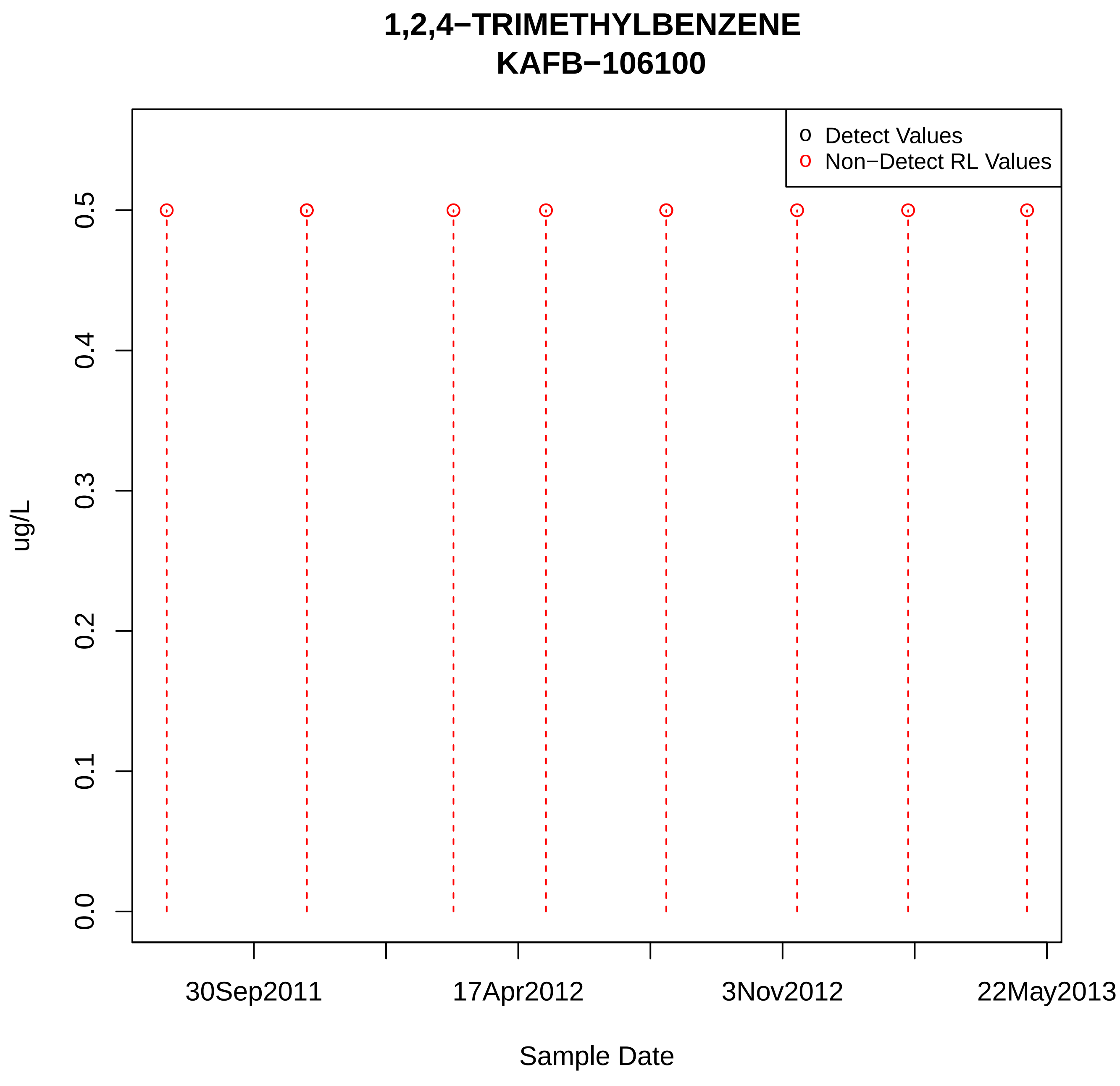


1,2,4−TRIMETHYLBENZENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

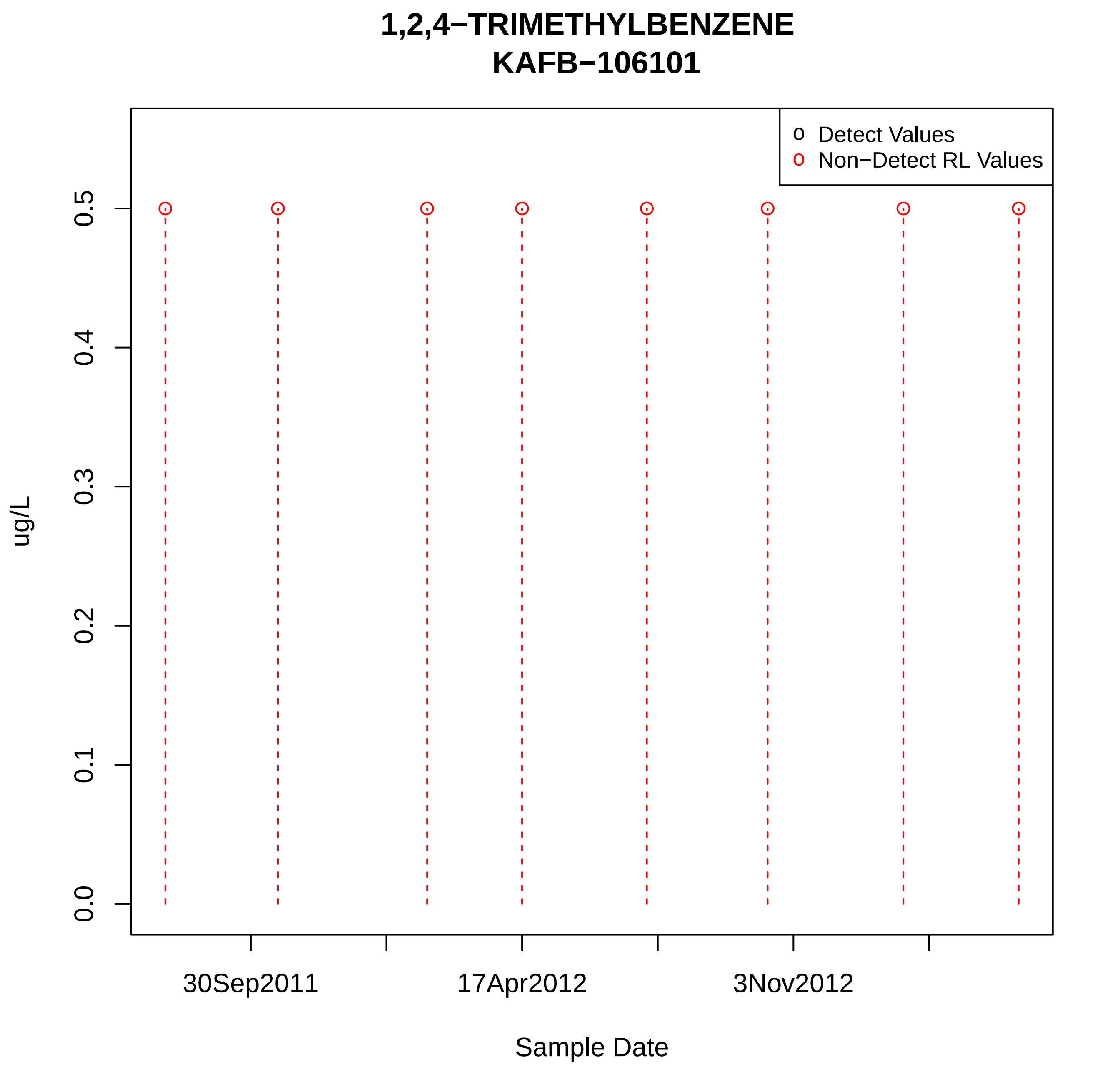


1,2,4−TRIMETHYLBENZENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

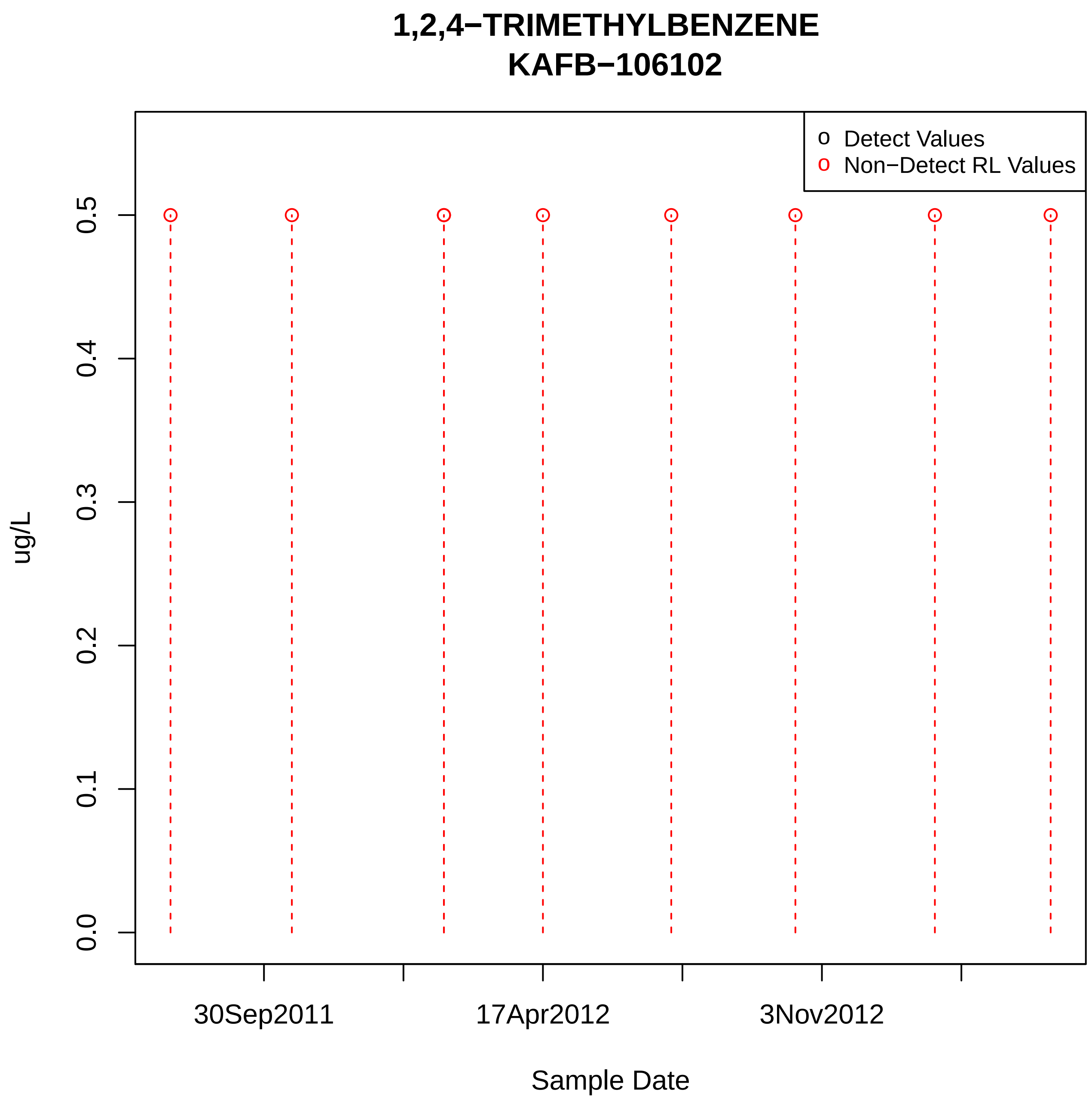

1,2,4−TRIMETHYLBENZENE
KAFB−106099
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

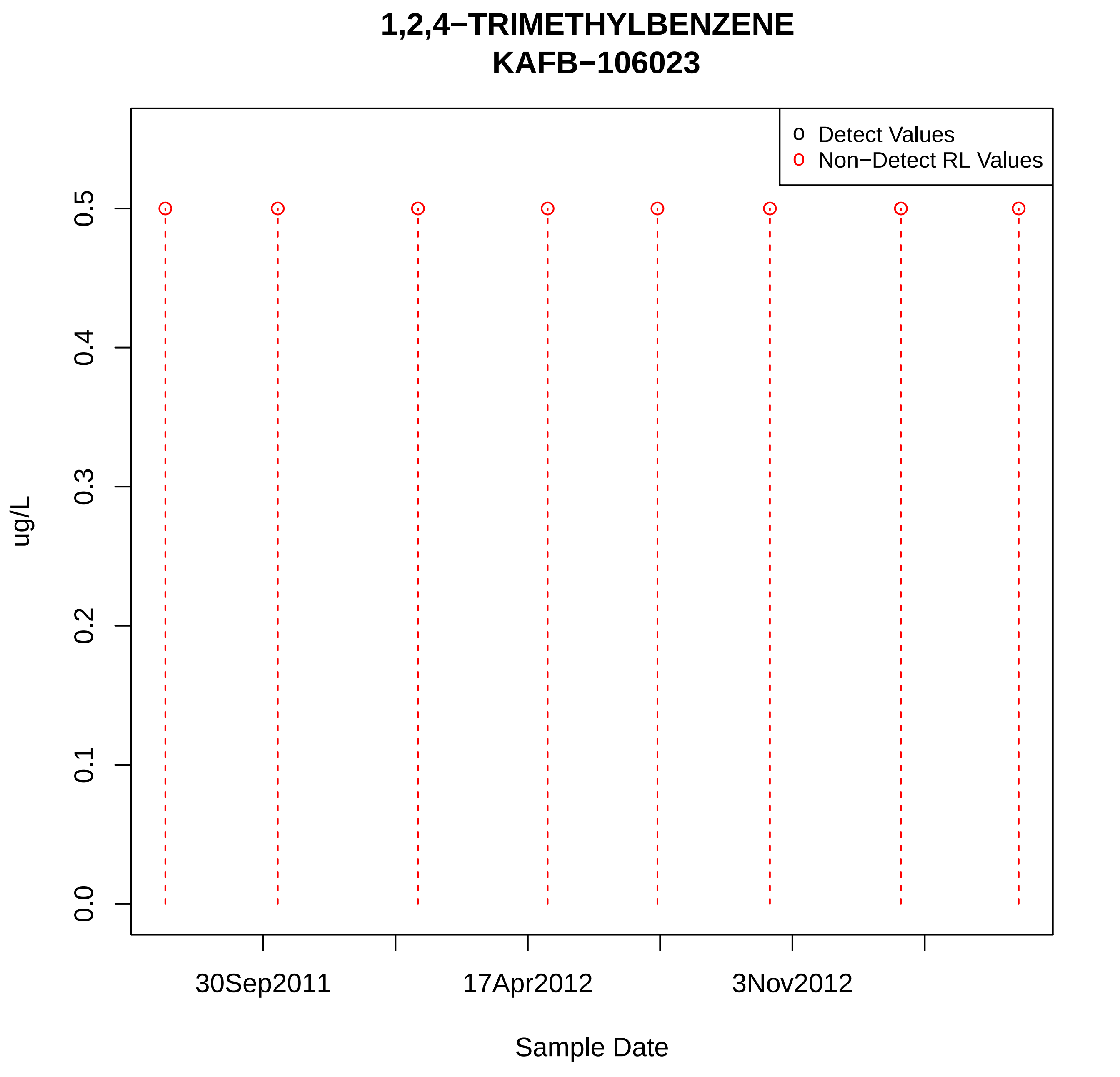


1,2,4−TRIMETHYLBENZENE
KAFB−106100
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

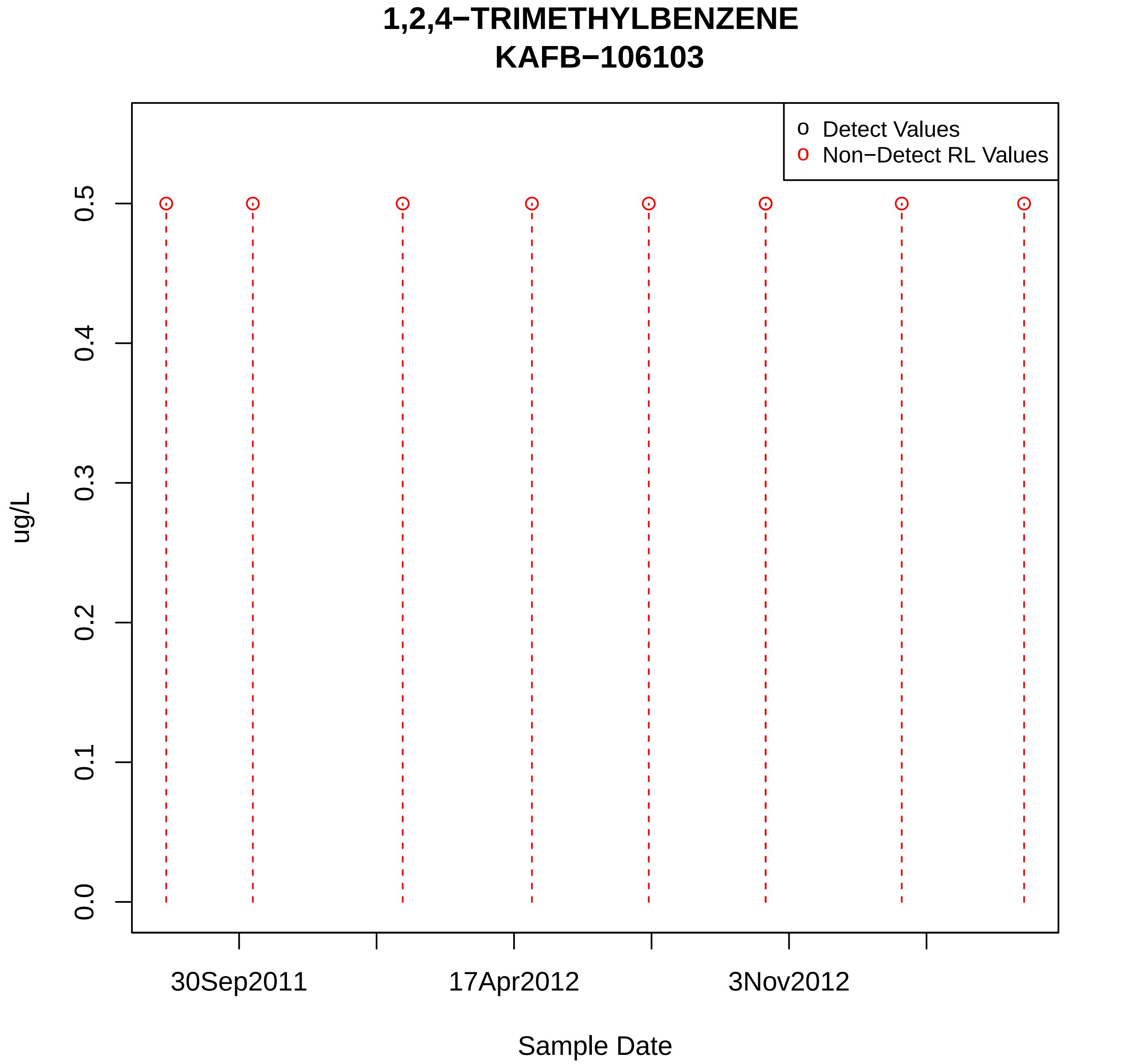


1,2,4−TRIMETHYLBENZENE
KAFB−106101
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

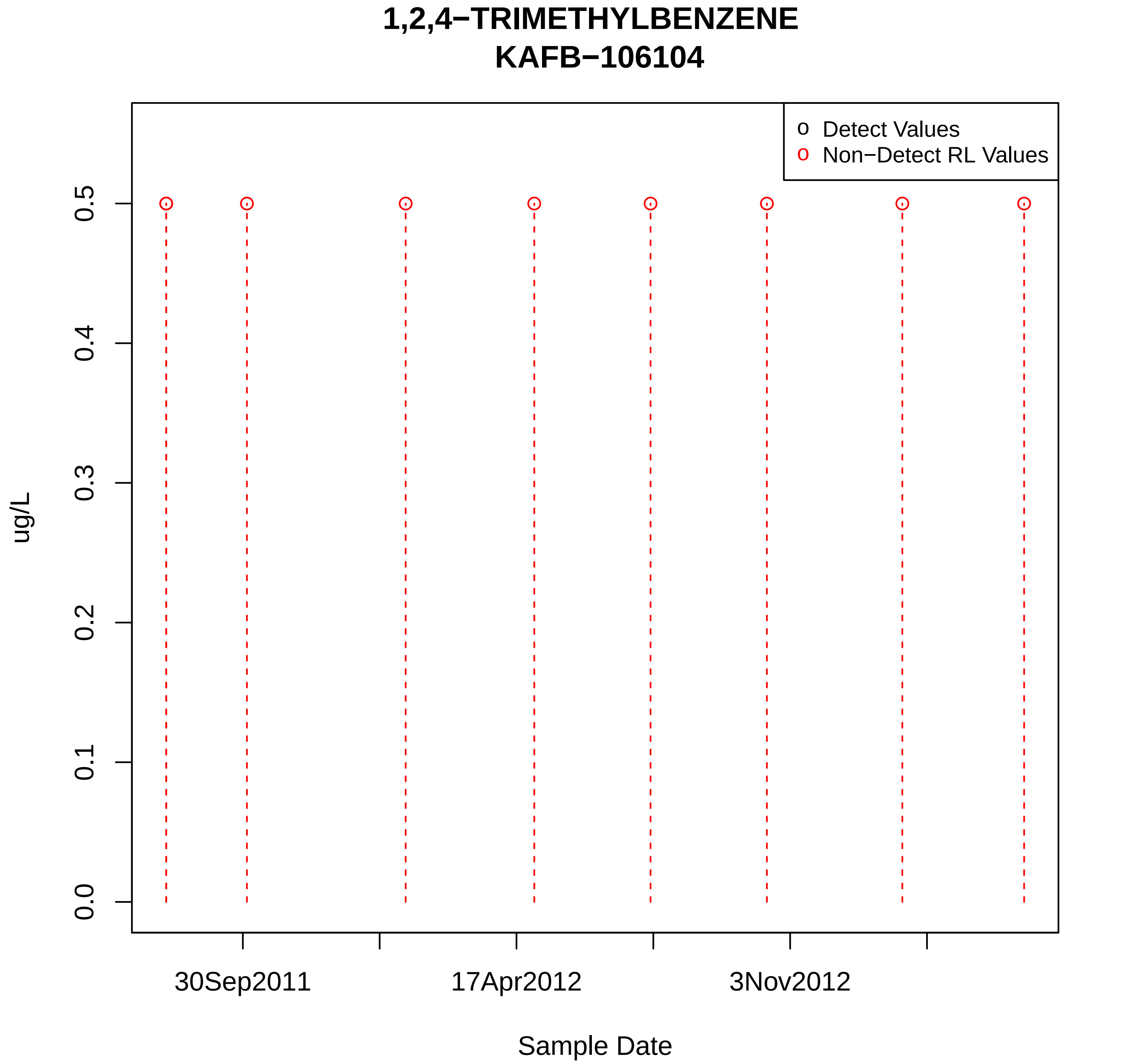

1,2,4−TRIMETHYLBENZENE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

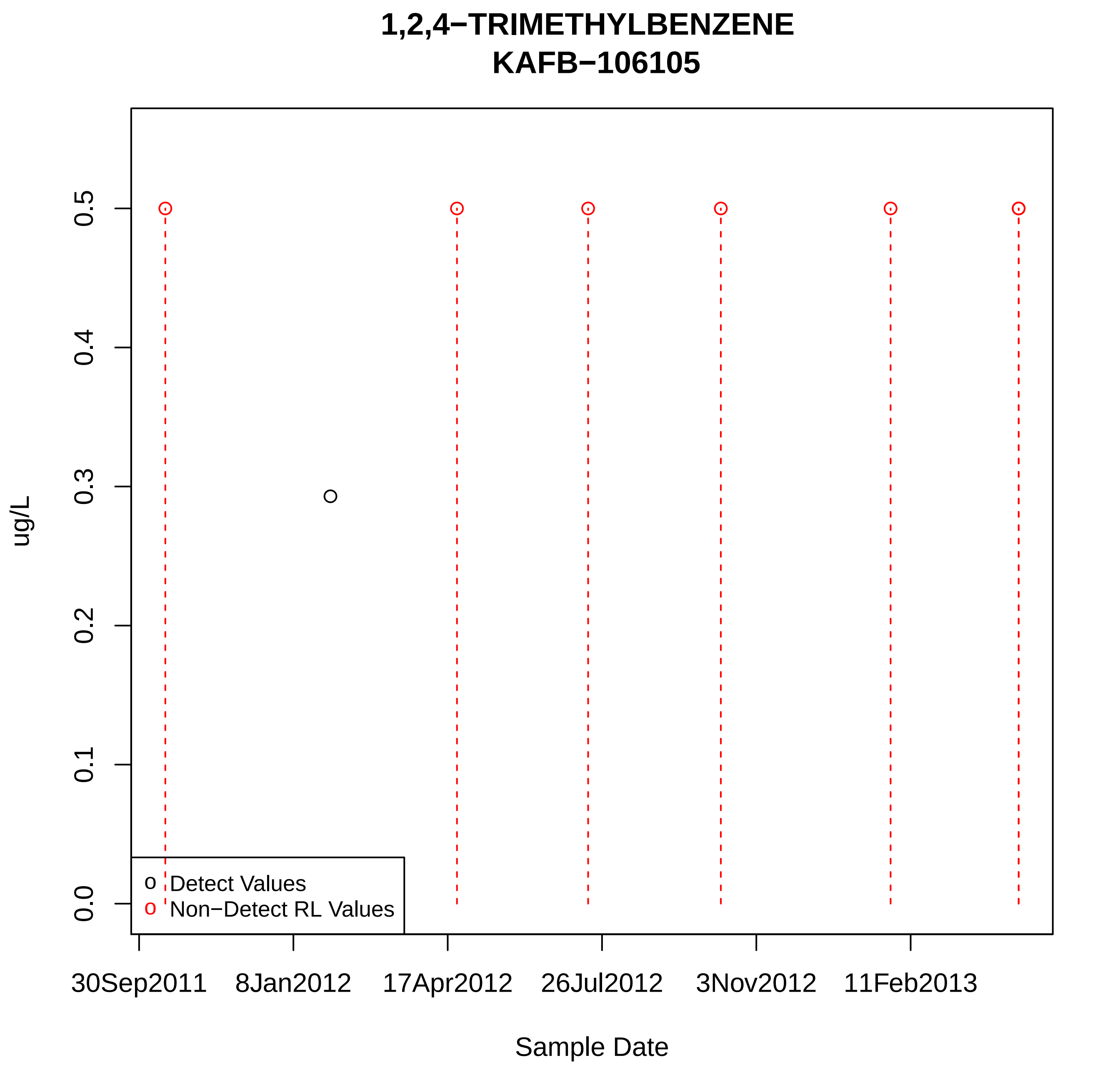


1,2,4−TRIMETHYLBENZENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

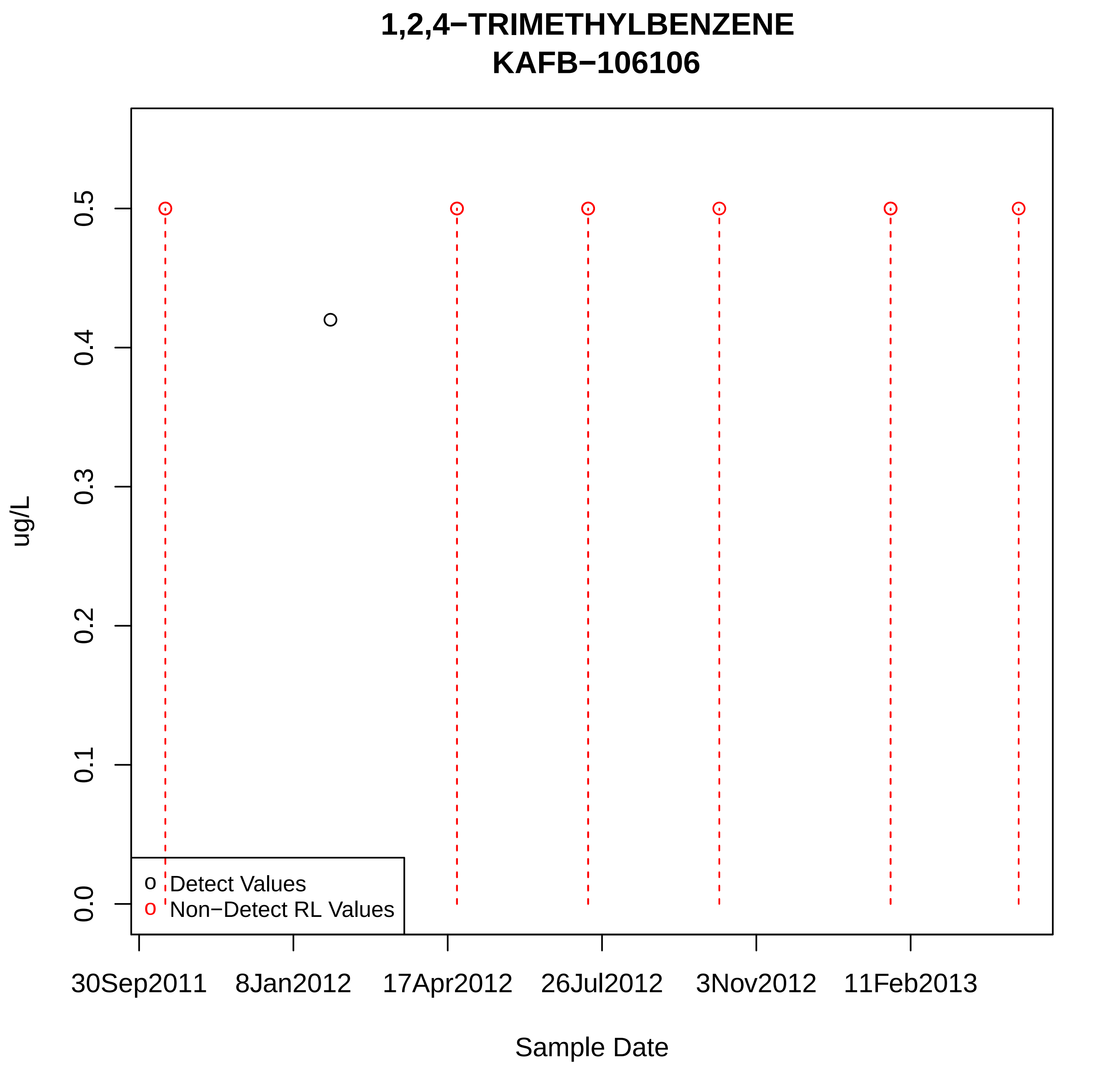


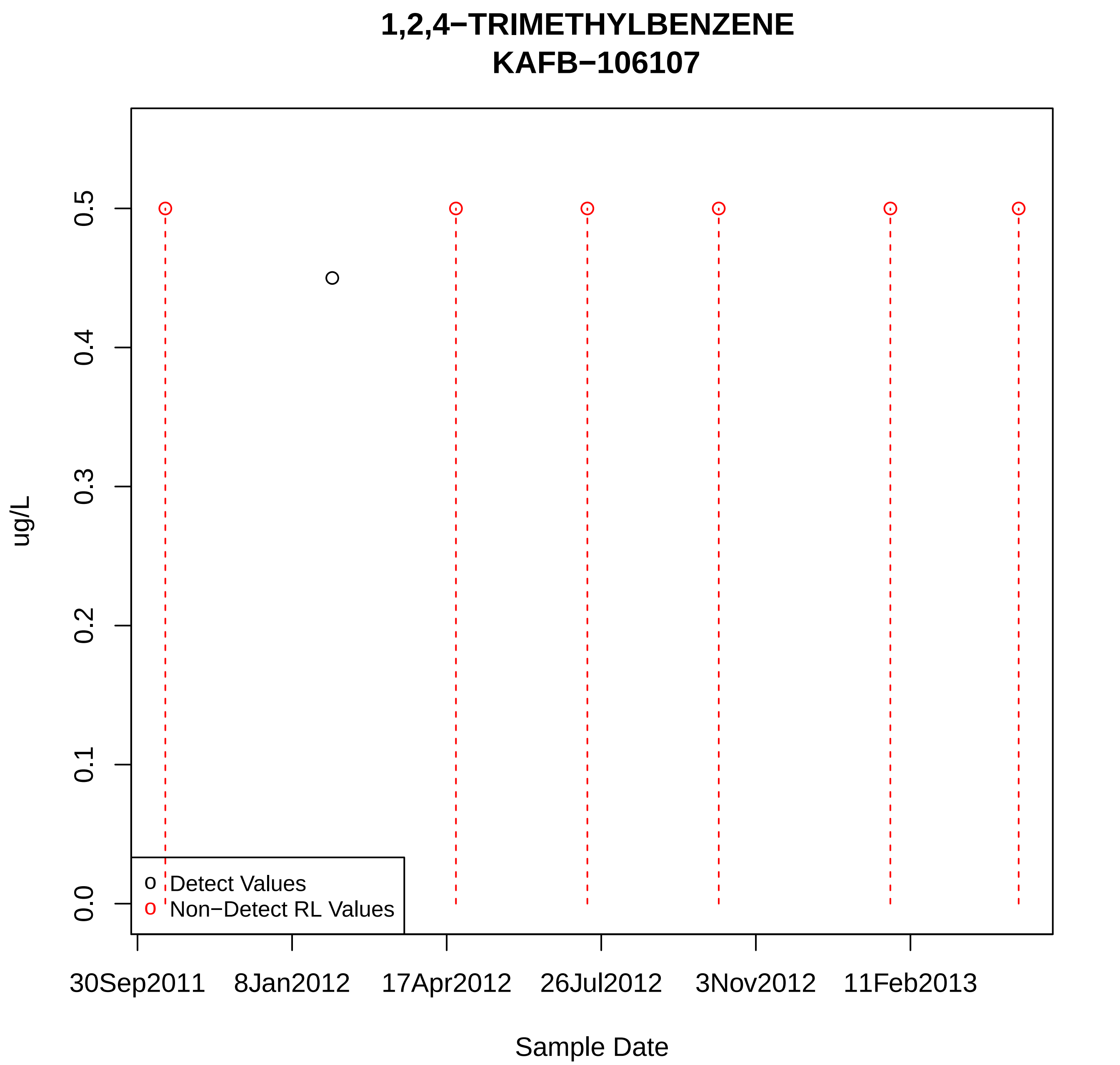
1,2,4−TRIMETHYLBENZENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

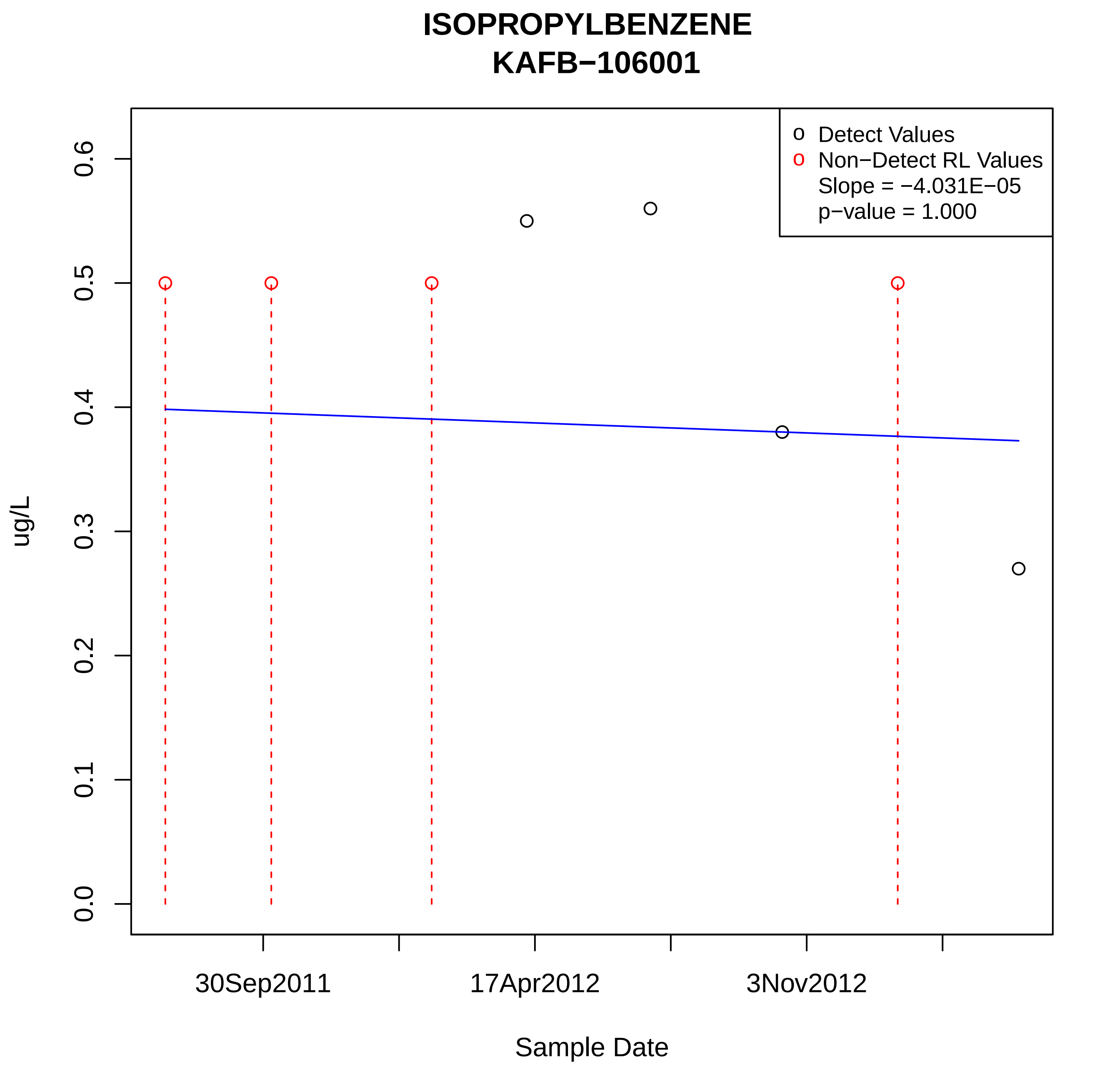

1,2,4−TRIMETHYLBENZENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

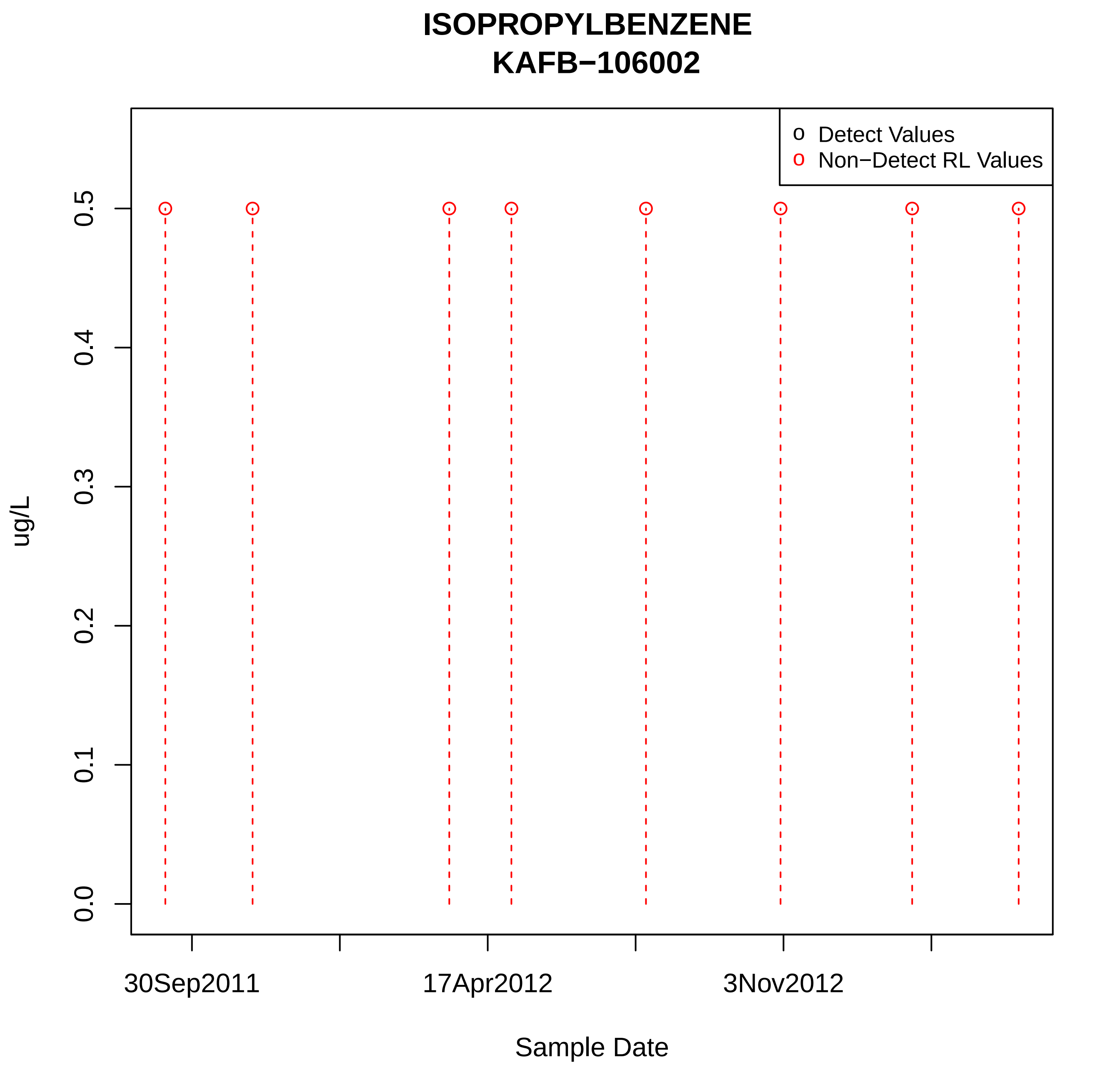


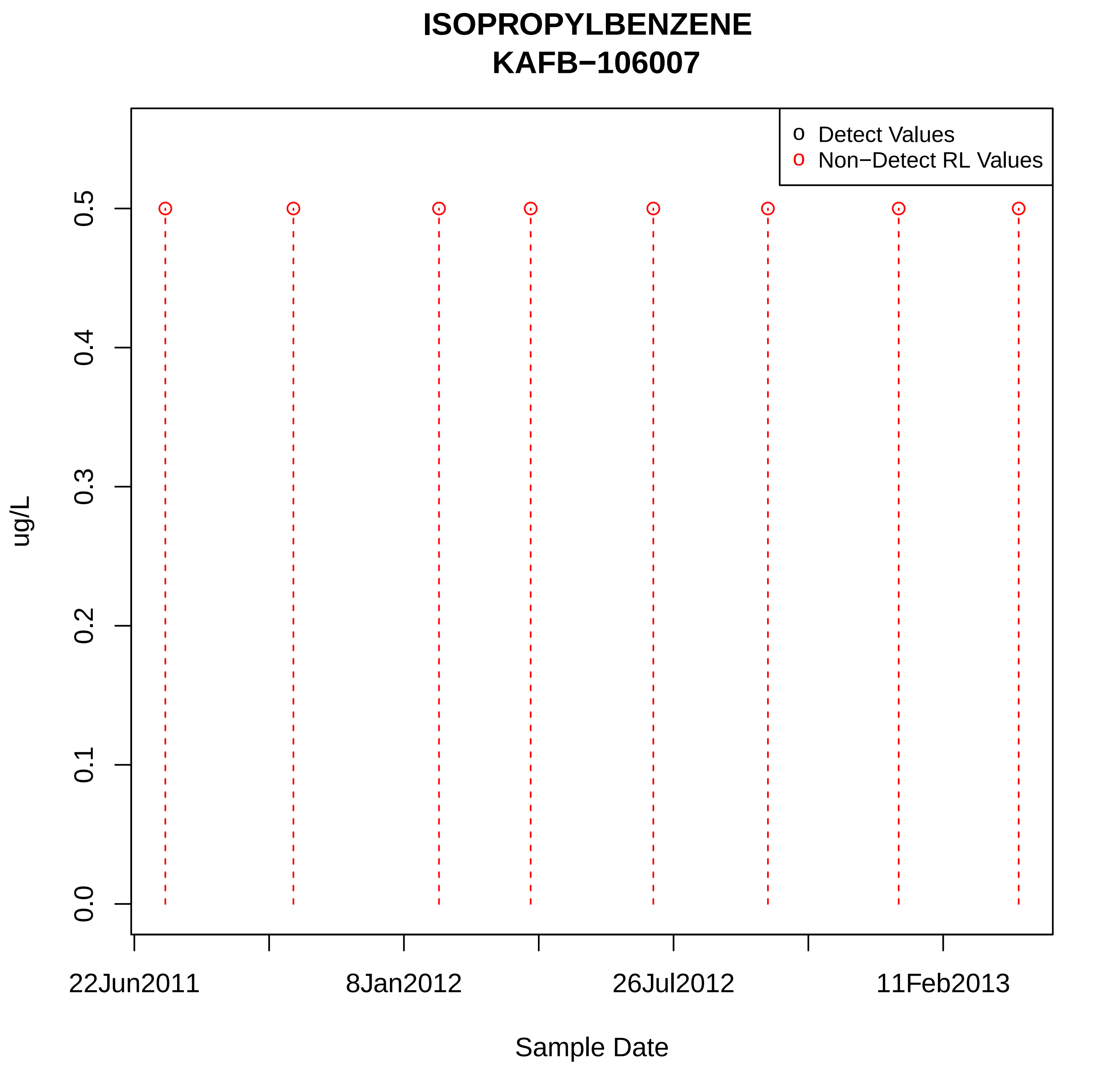
1,2,4−TRIMETHYLBENZENE
KAFB−106105
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
Detect Values
Non−Detect RL Values
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


1,2,4−TRIMETHYLBENZENE
KAFB−106106
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values

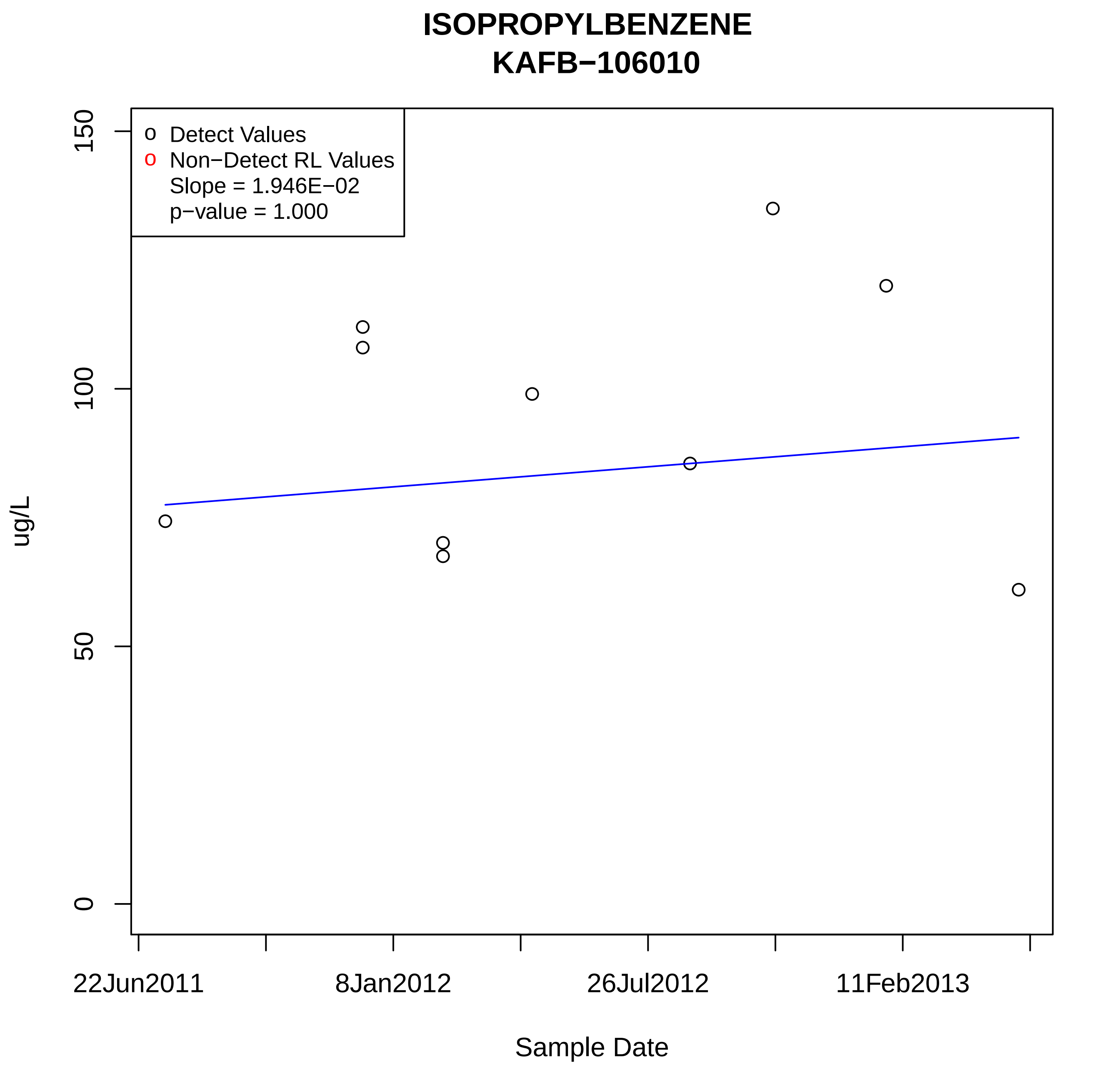

1,2,4−TRIMETHYLBENZENE
KAFB−106107
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date
o Detect Values
o Non−Detect RL Values

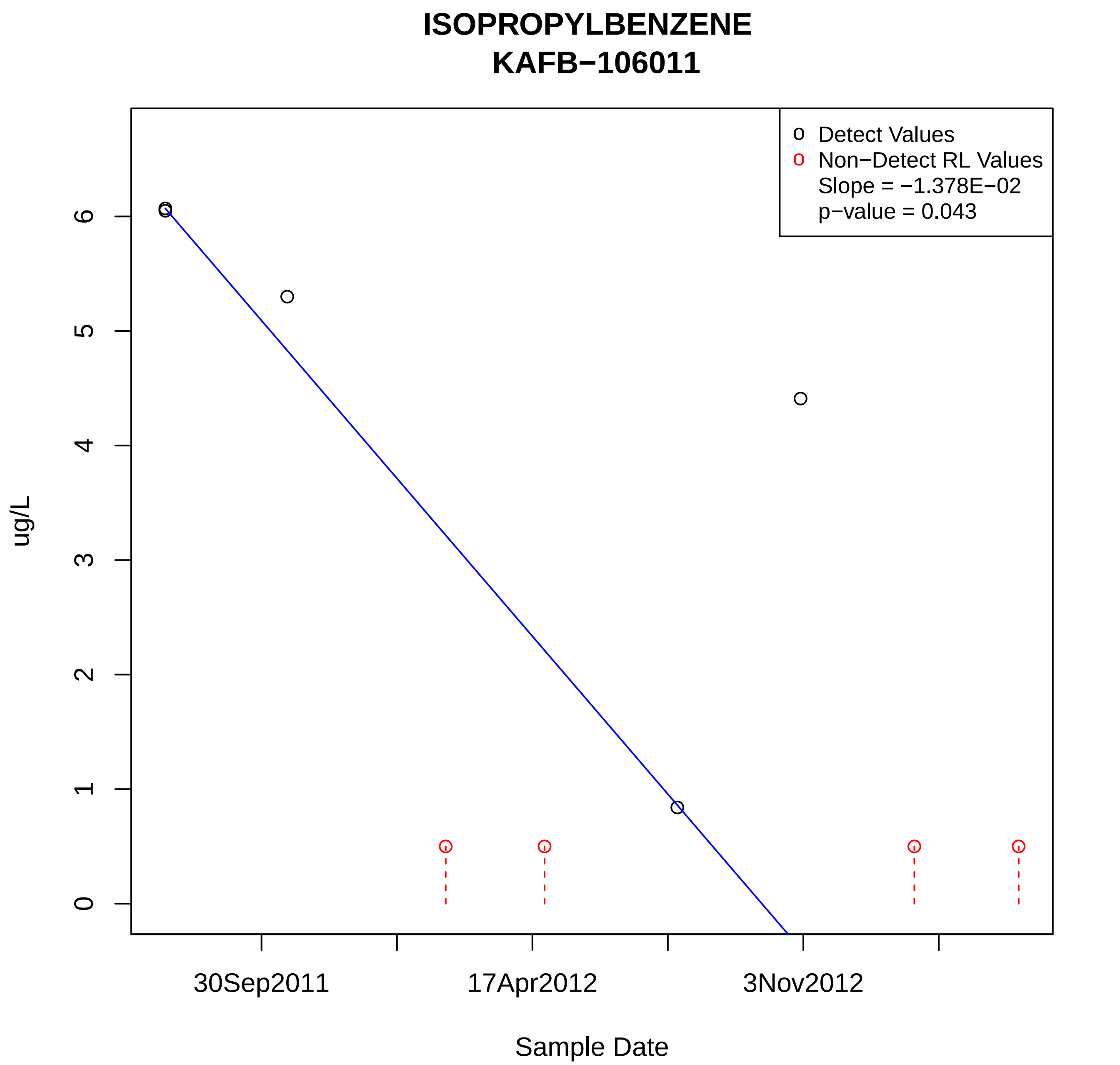

ISOPROPYLBENZENE
KAFB−106001
Detect Values
Non−Detect RL Values
Slope = −4.031E−05
p−value = 1.000
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
Sample Date

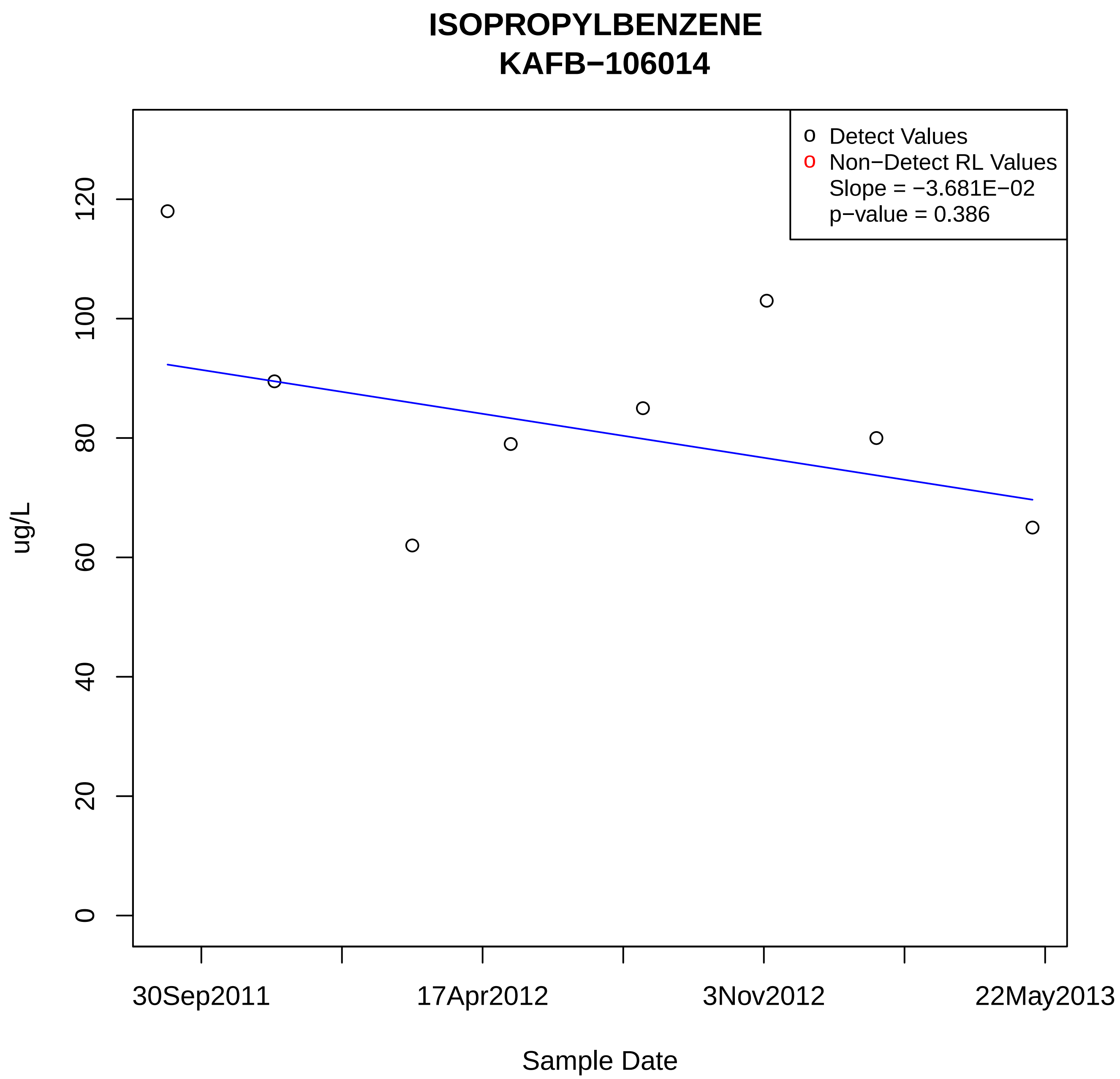

ISOPROPYLBENZENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

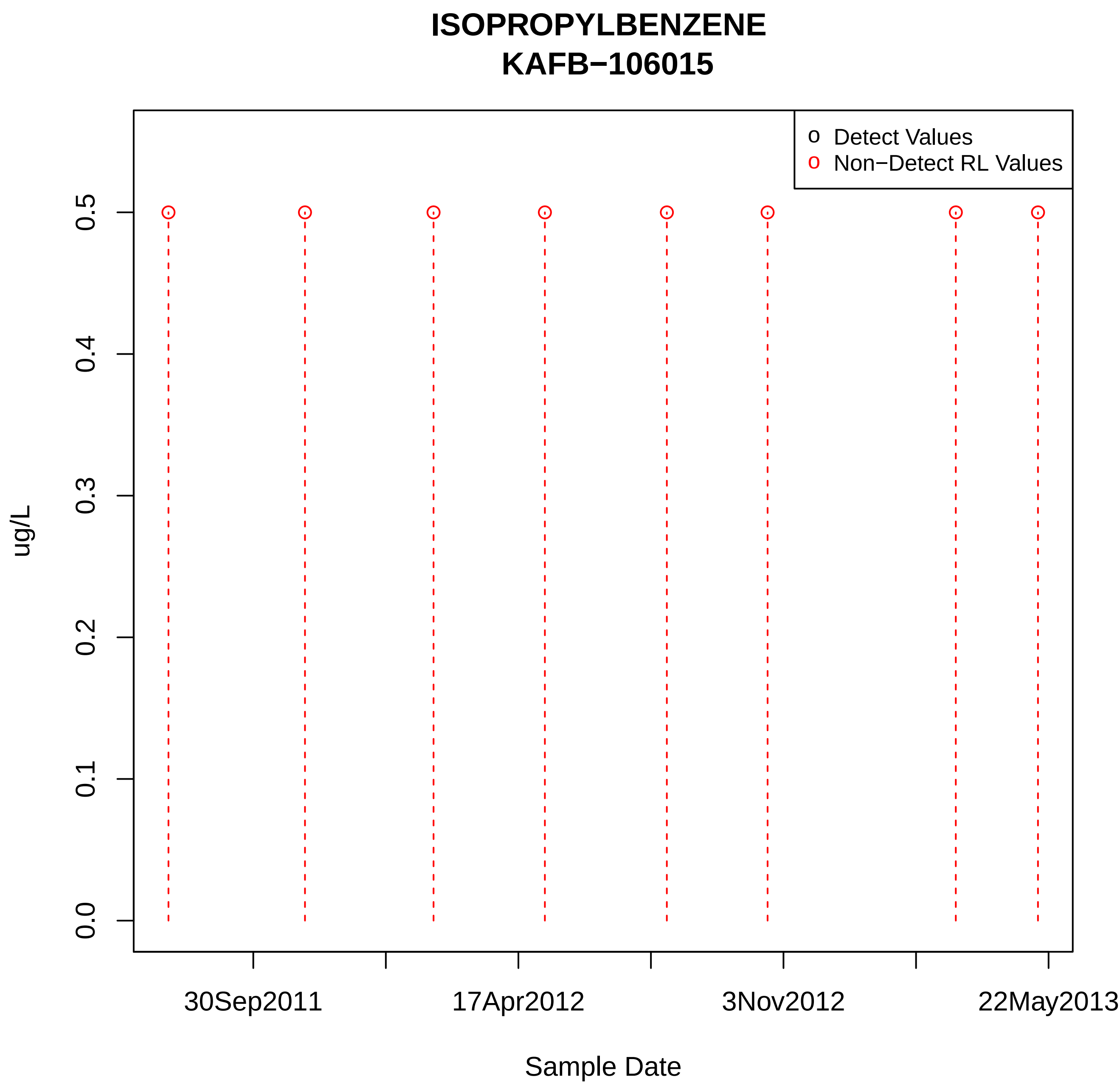


ISOPROPYLBENZENE
KAFB−106007
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

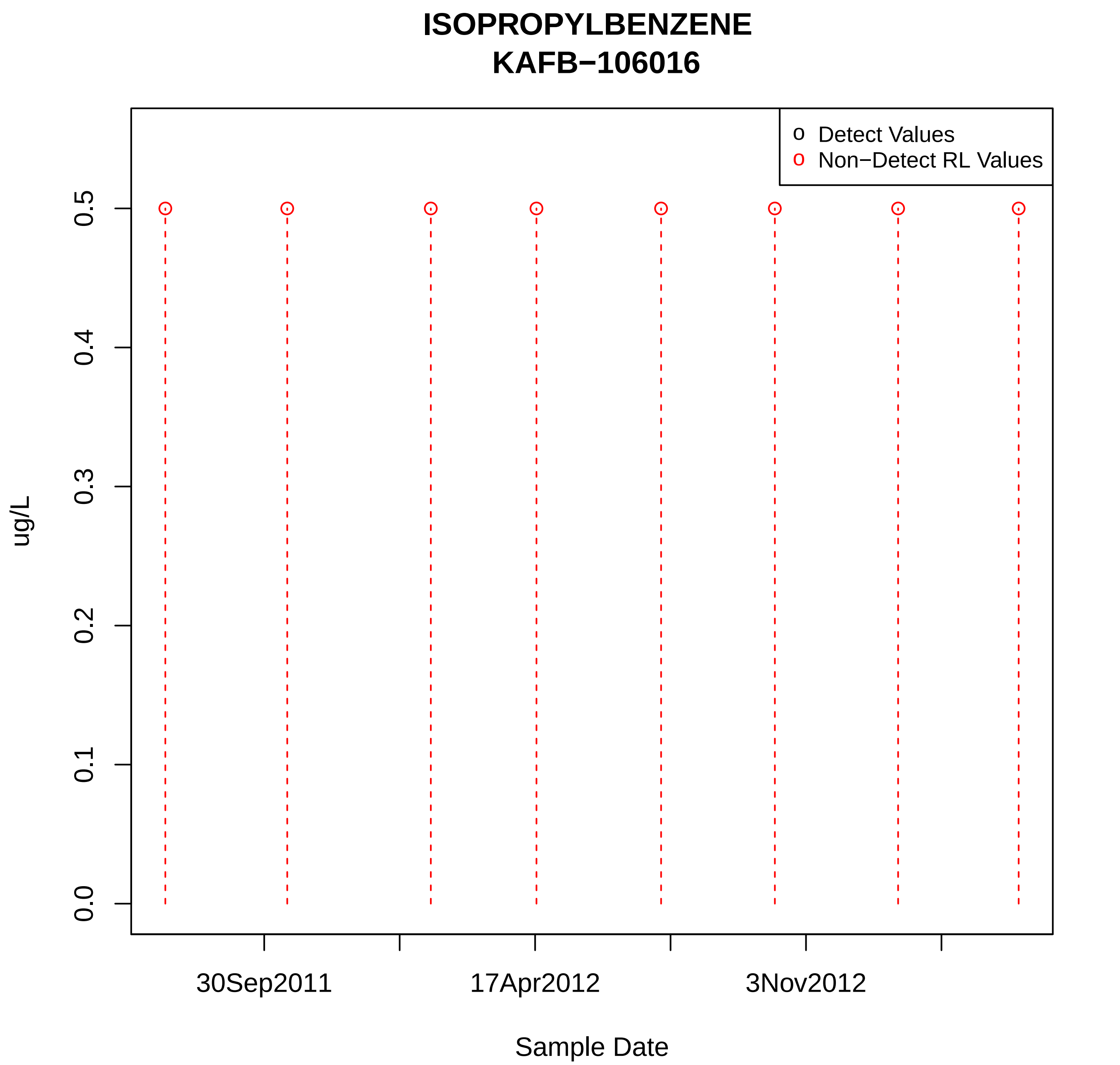

ISOPROPYLBENZENE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = 1.946E−02
p−value = 1.000
ug/L
0
50
100
150
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

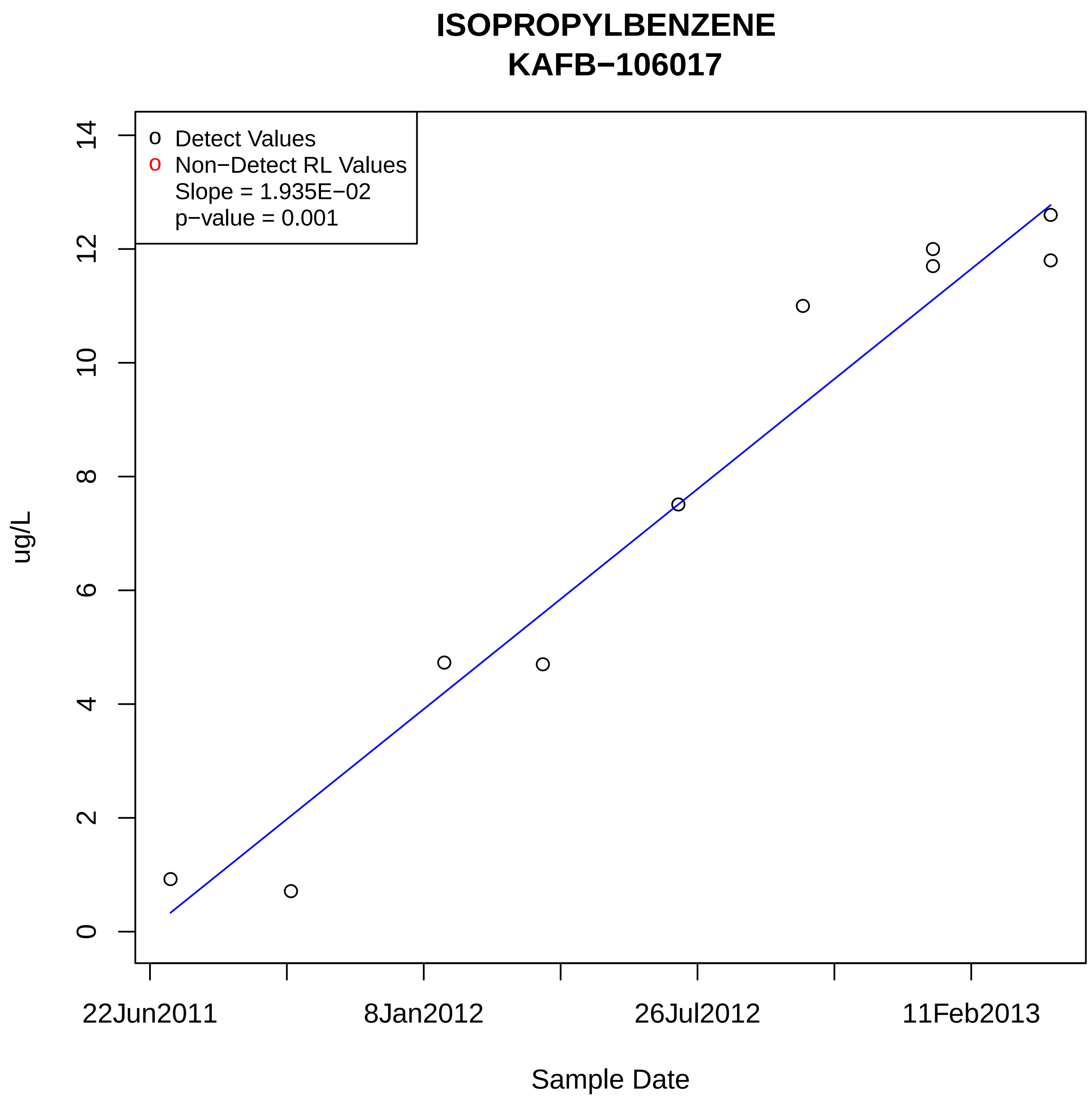

ISOPROPYLBENZENE
KAFB−106011
o Detect Values
o Non−Detect RL Values
Slope = −1.378E−02
p−value = 0.043
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
Sample Date

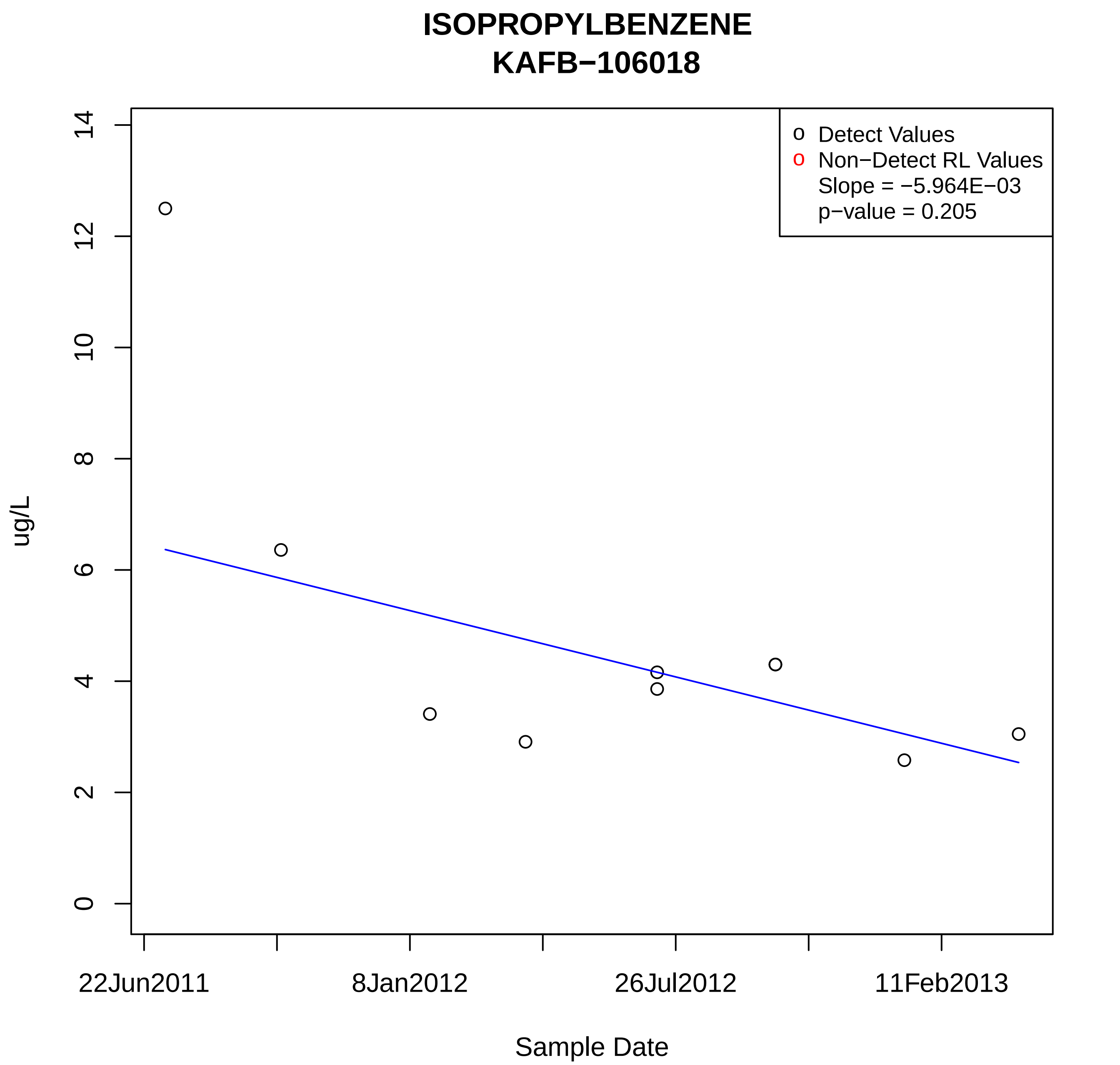

ISOPROPYLBENZENE
KAFB−106014
o Detect Values
o Non−Detect RL Values
Slope = −3.681E−02
p−value = 0.386
ug/L
0
20
40
60
80
100
120
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



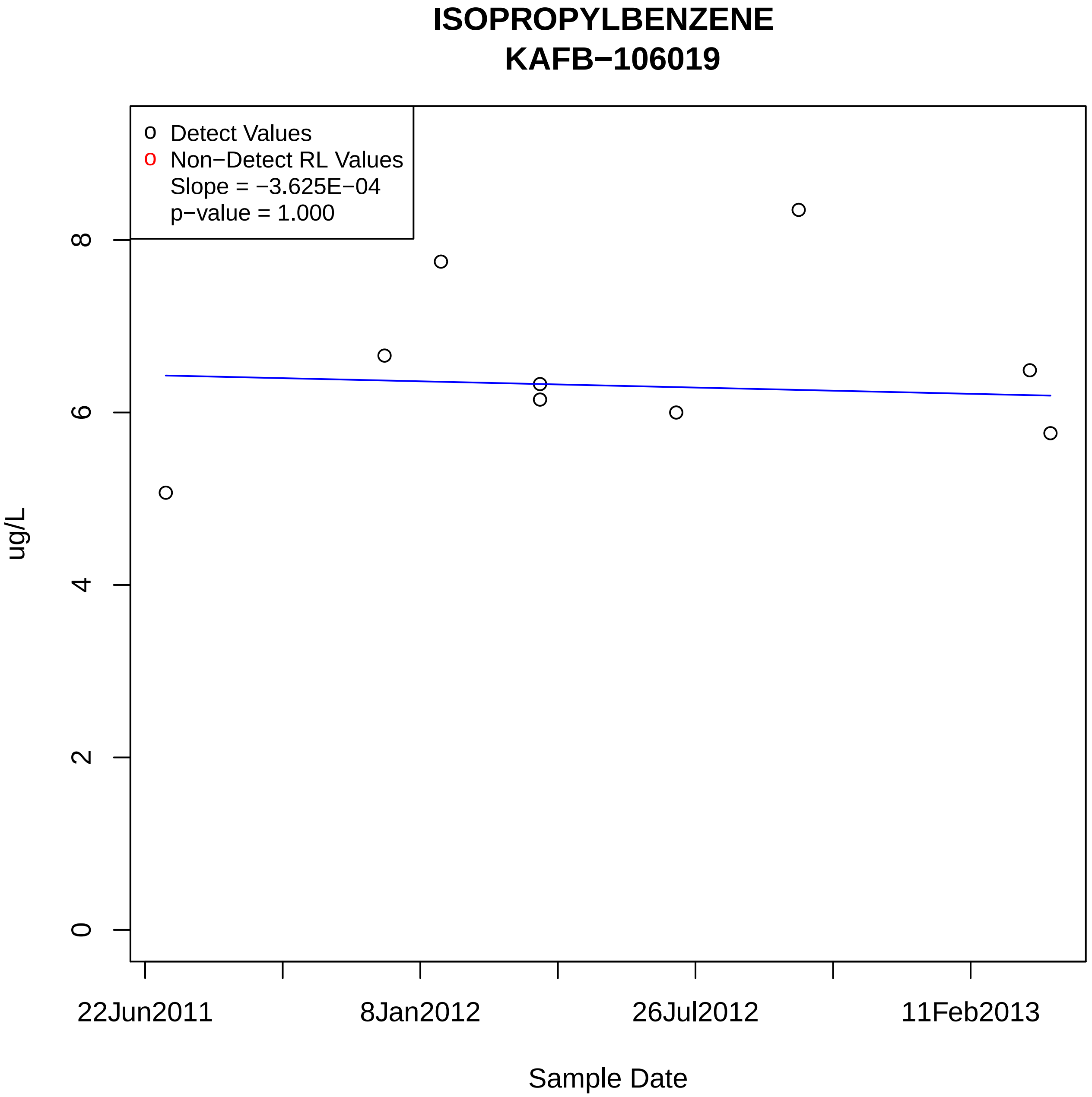
ISOPROPYLBENZENE
KAFB−106015
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

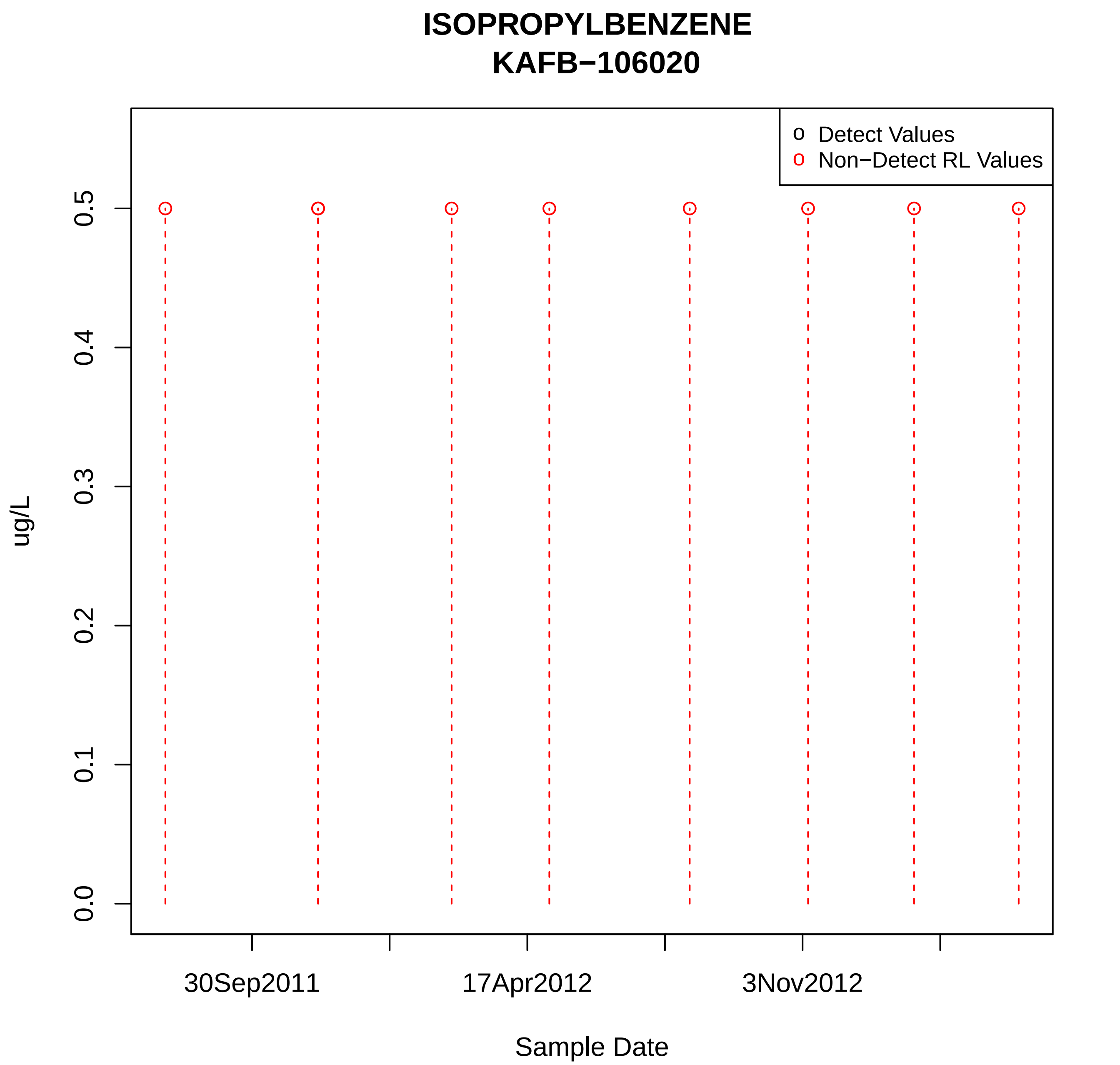

ISOPROPYLBENZENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

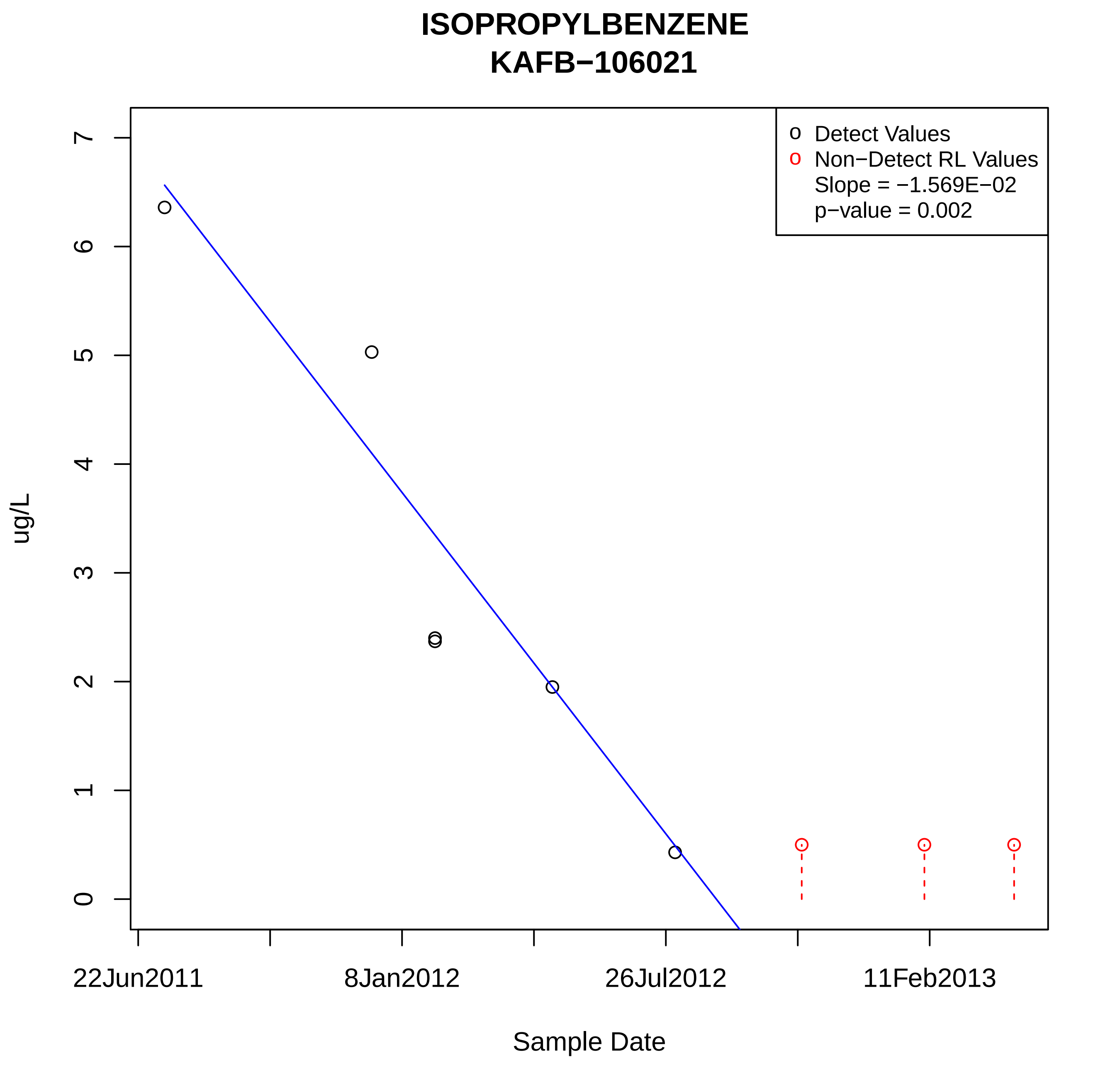

ISOPROPYLBENZENE
KAFB−106017
o Detect Values
o Non−Detect RL Values
Slope = 1.935E−02
p−value = 0.001
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



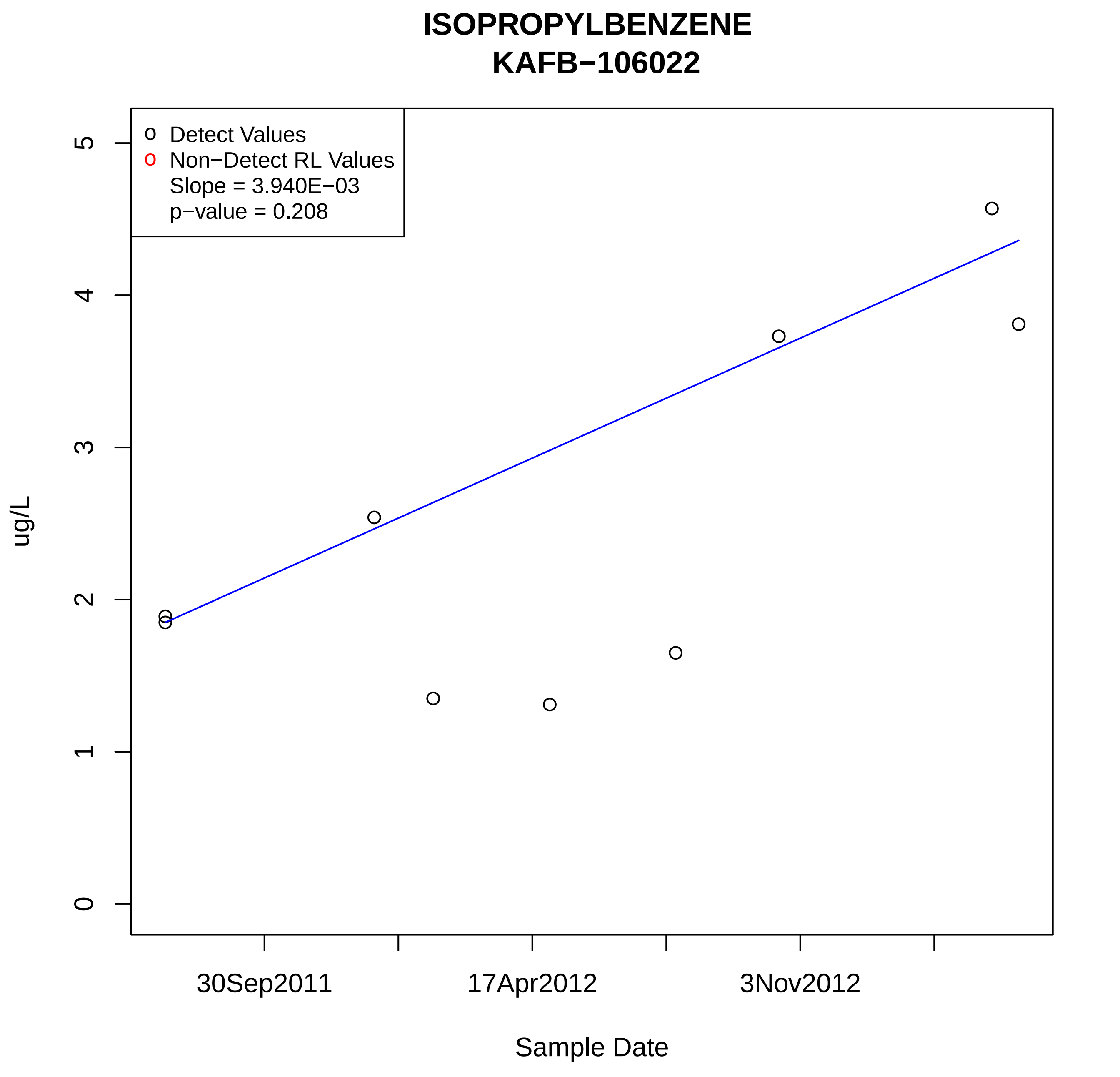
ISOPROPYLBENZENE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −5.964E−03
p−value = 0.205
ug/L
0
2
4
6
8
10
12
14
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

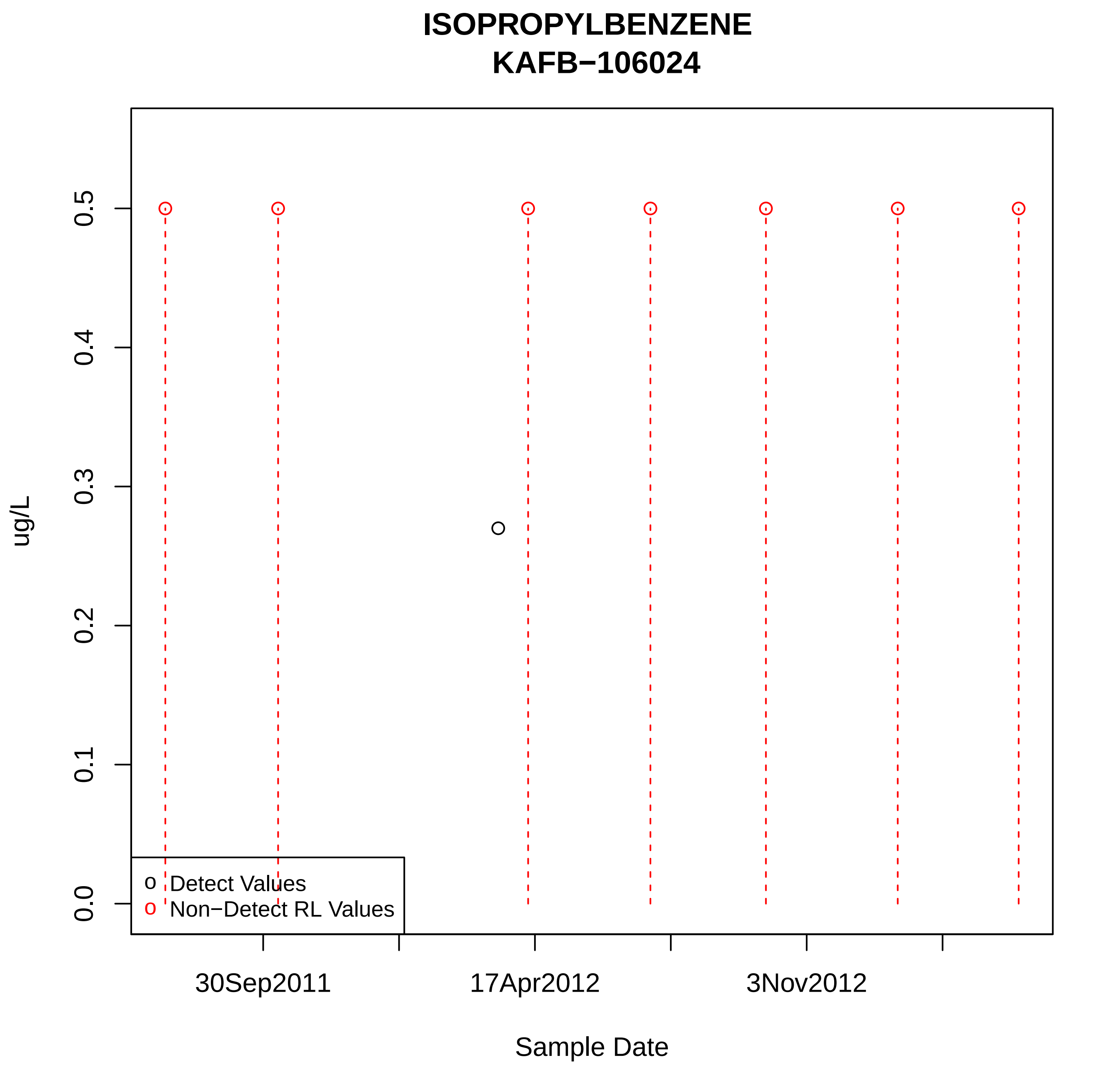

ISOPROPYLBENZENE
KAFB−106019
Detect Values
Non−Detect RL Values
Slope = −3.625E−04
p−value = 1.000
ug/L
0
2
4
6
8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ISOPROPYLBENZENE
KAFB−106020
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

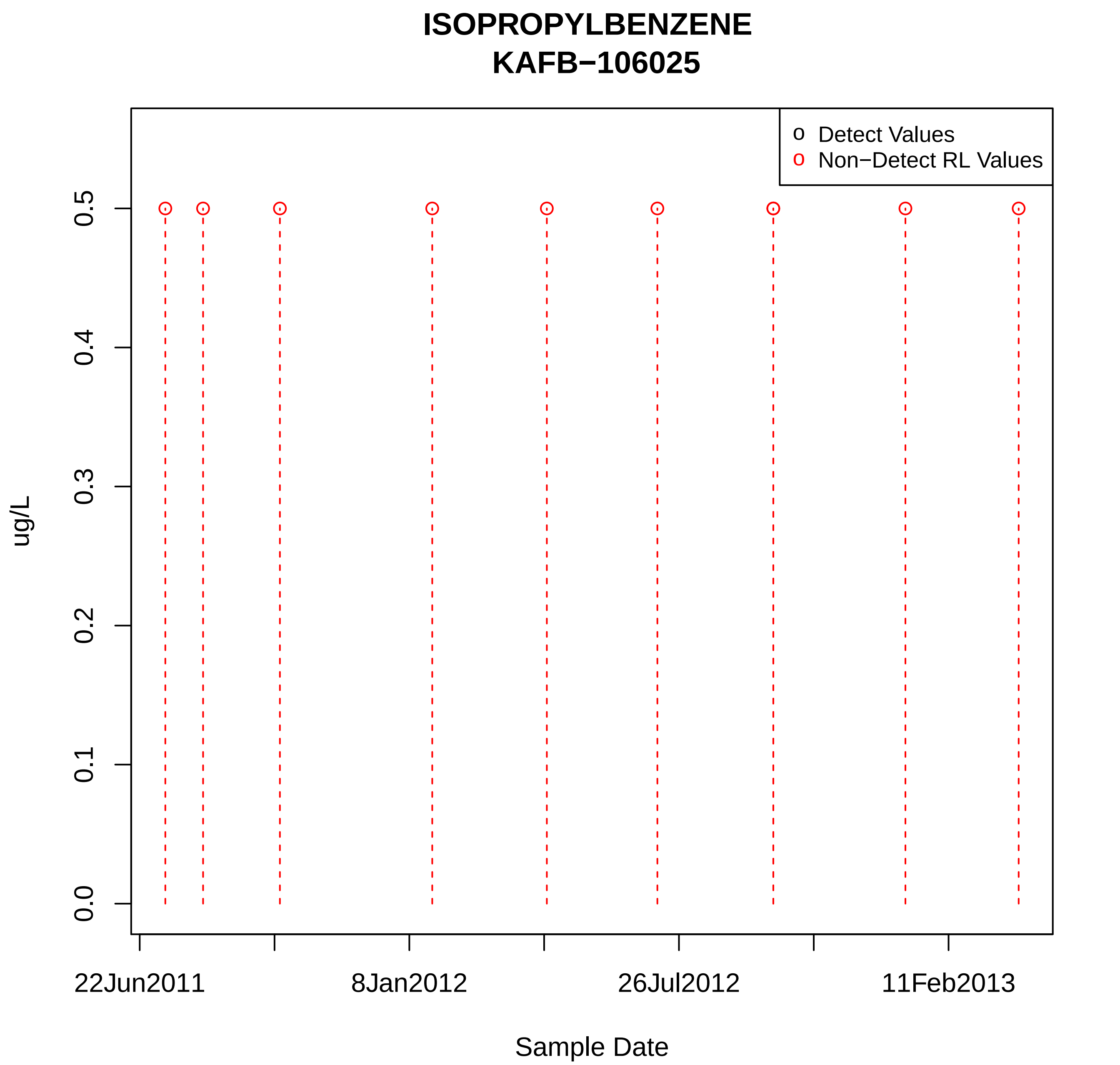


ISOPROPYLBENZENE
KAFB−106021
o Detect Values
o Non−Detect RL Values
Slope = −1.569E−02
p−value = 0.002
ug/L
0
1
2
3
4
5
6
7
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

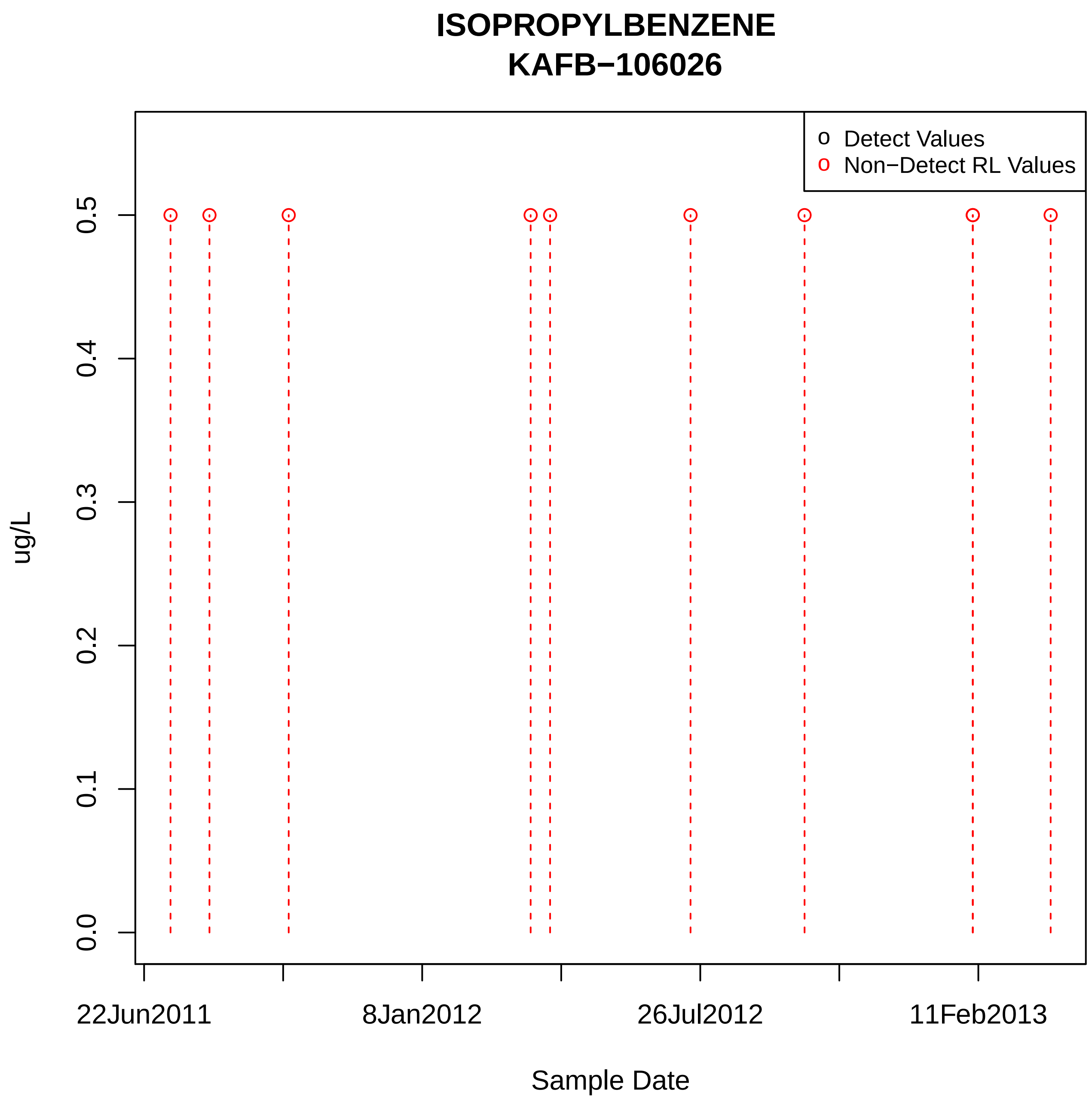

ISOPROPYLBENZENE
KAFB−106022
Detect Values
Non−Detect RL Values
Slope = 3.940E−03
p−value = 0.208
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
Sample Date

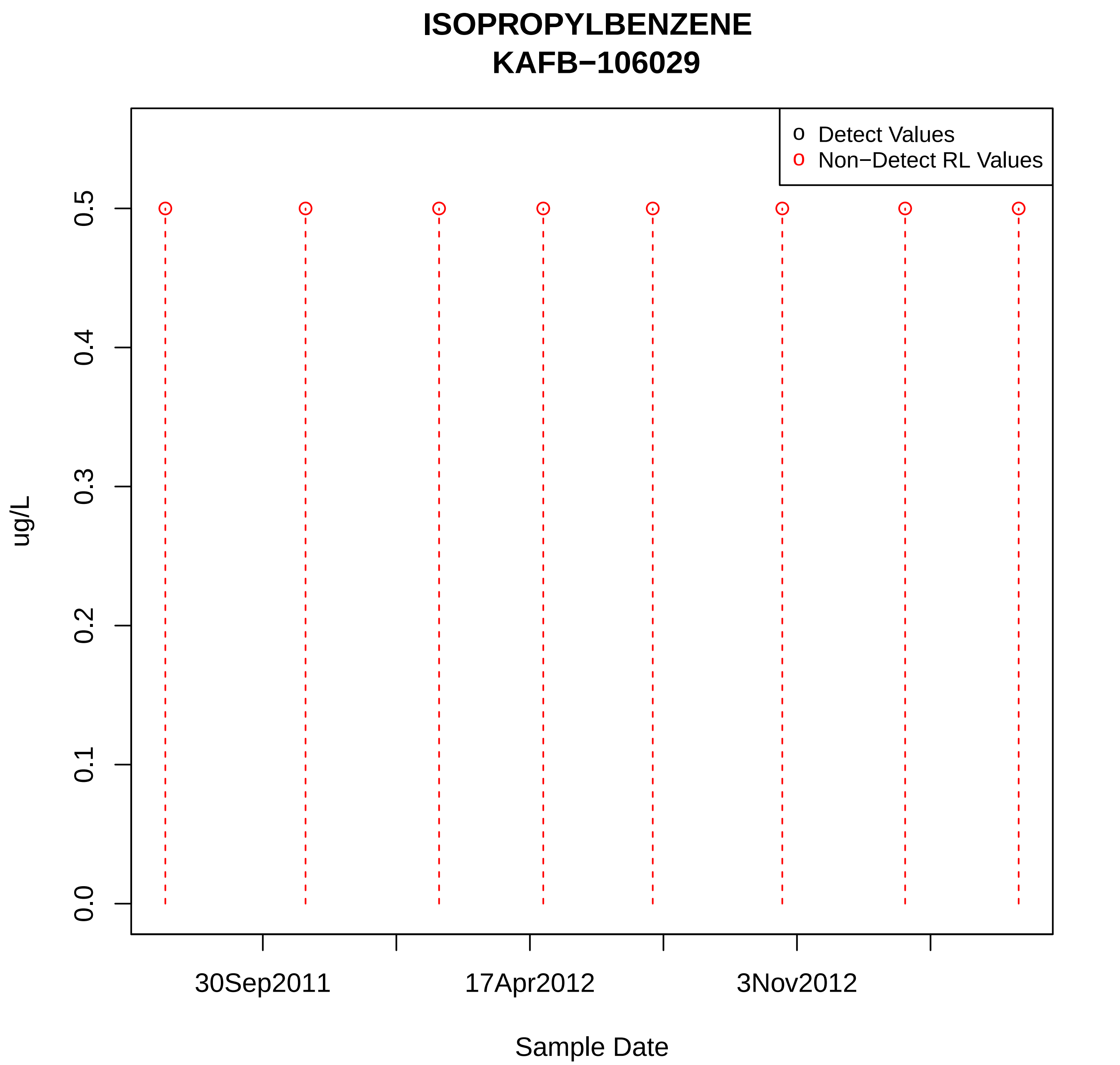


ISOPROPYLBENZENE
KAFB−106024
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
o Detect Values
o Non−Detect RL Values

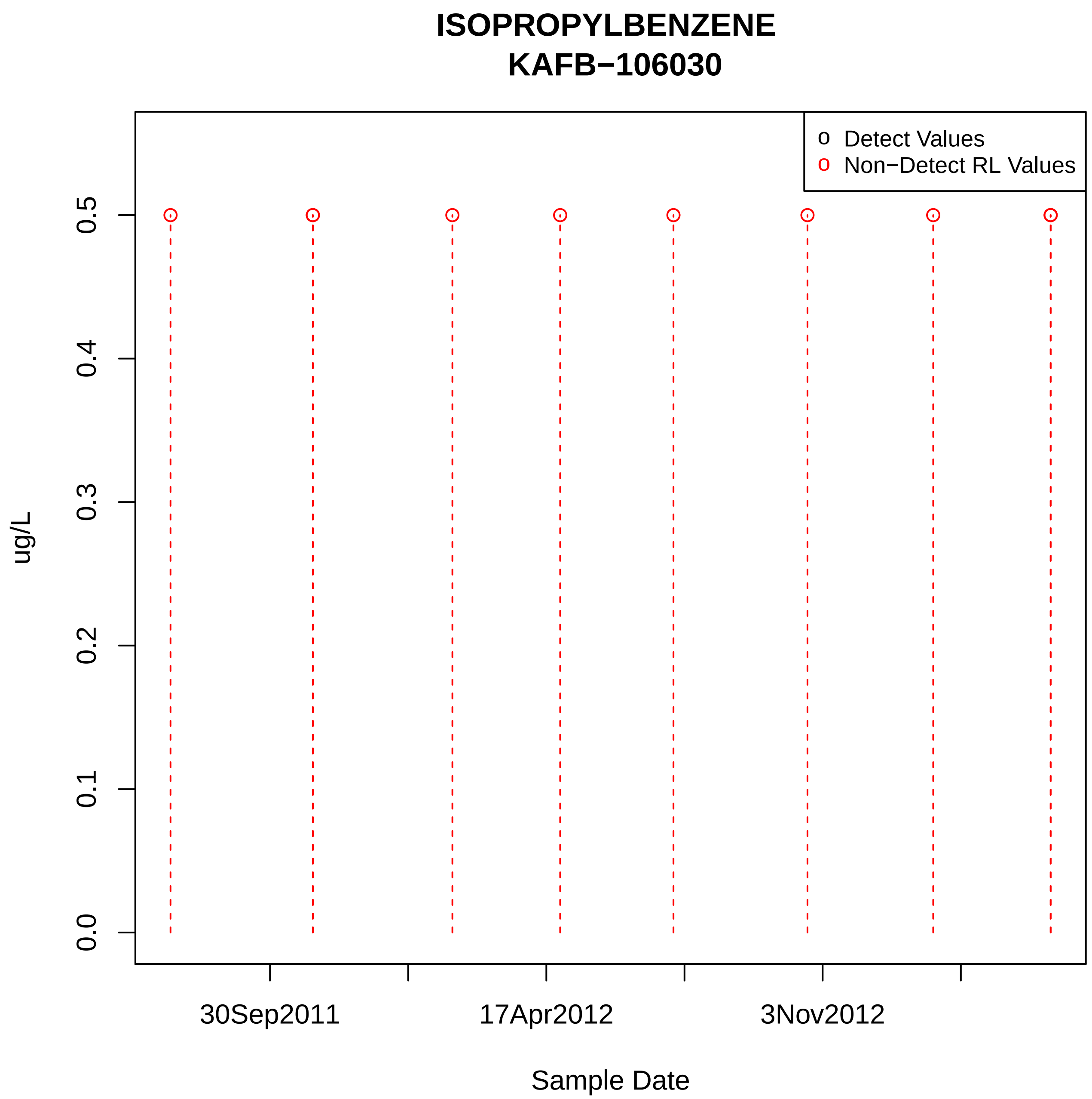


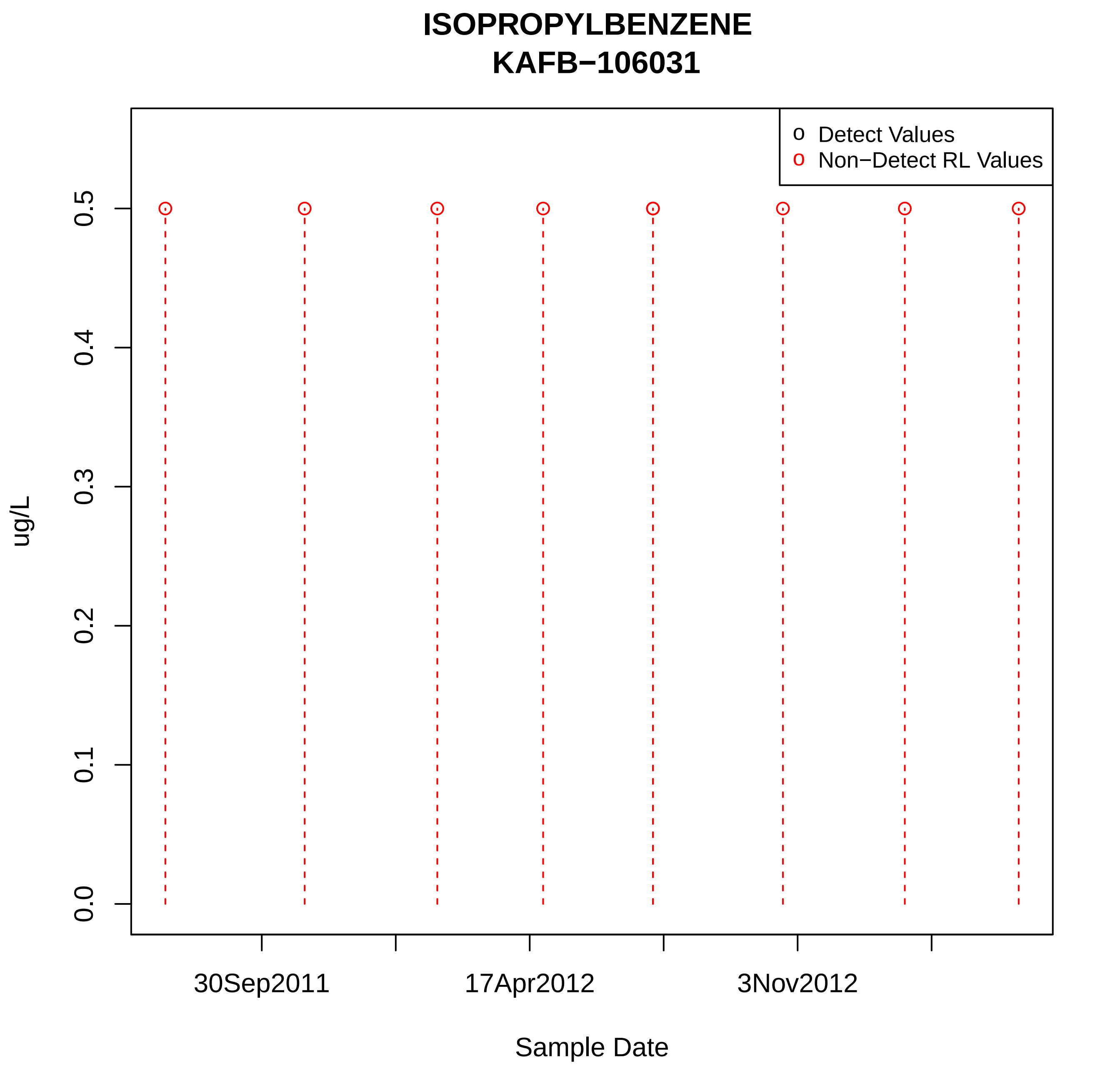
ISOPROPYLBENZENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ISOPROPYLBENZENE
KAFB−106026
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

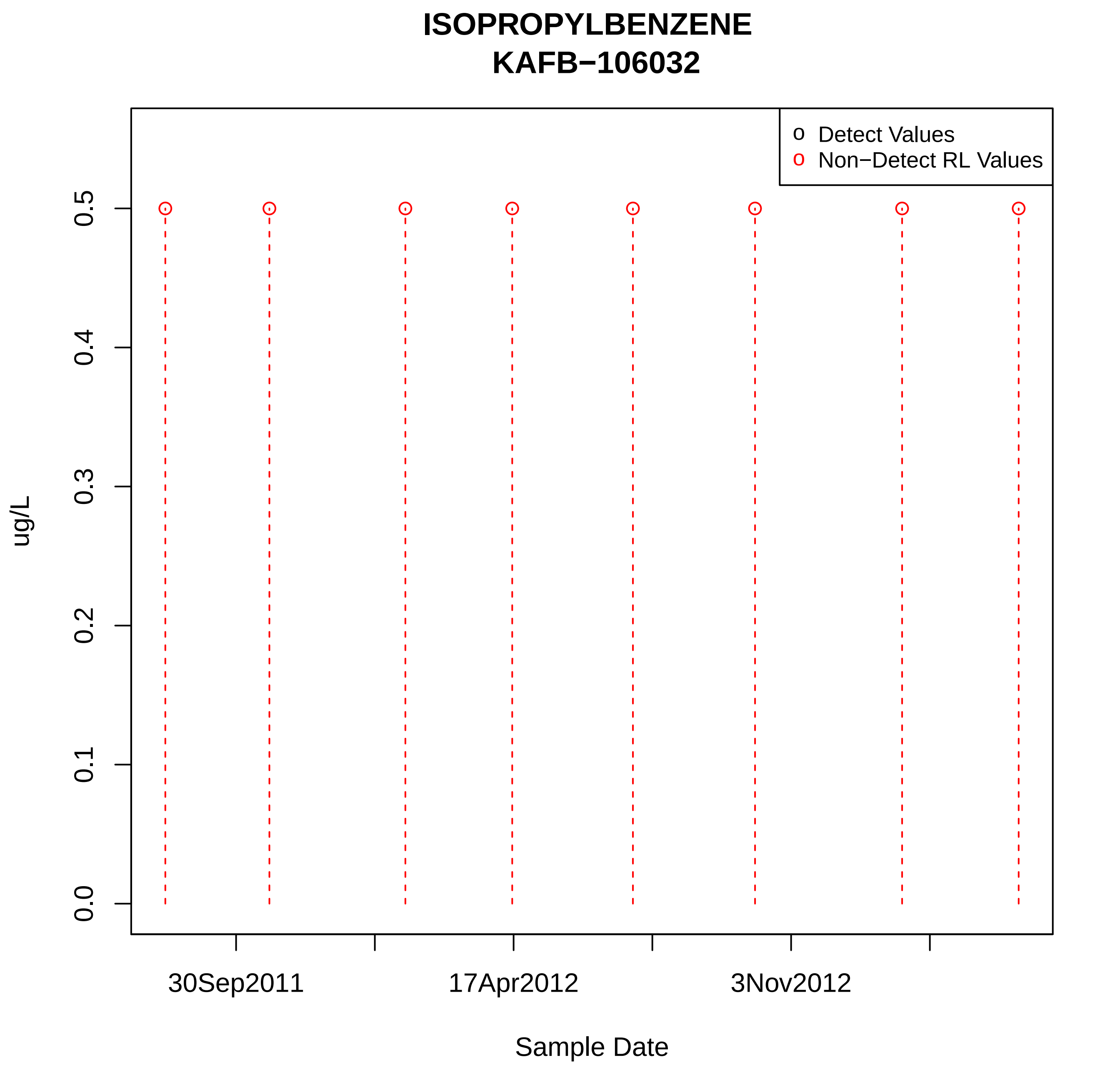


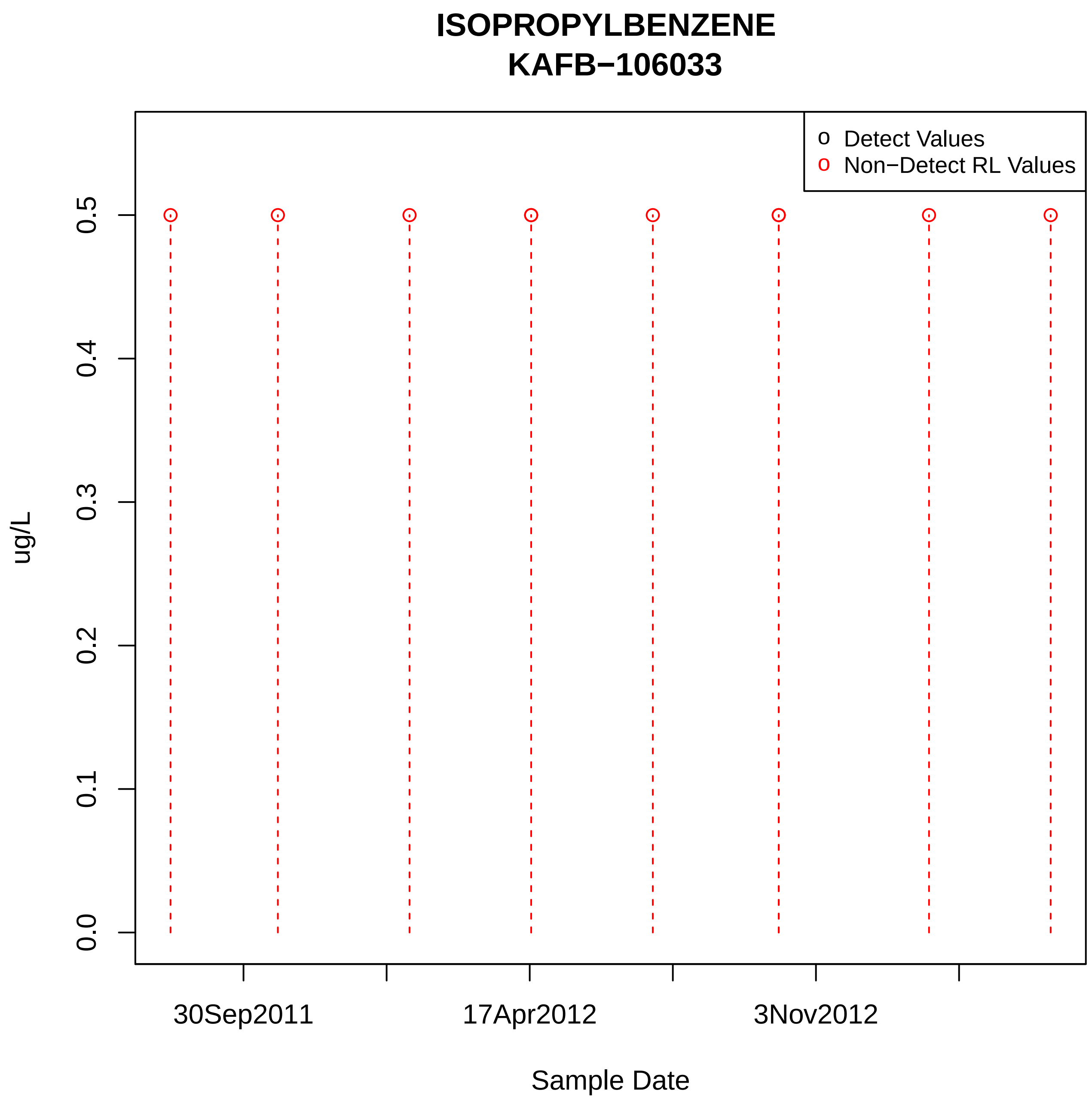
ISOPROPYLBENZENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ISOPROPYLBENZENE
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

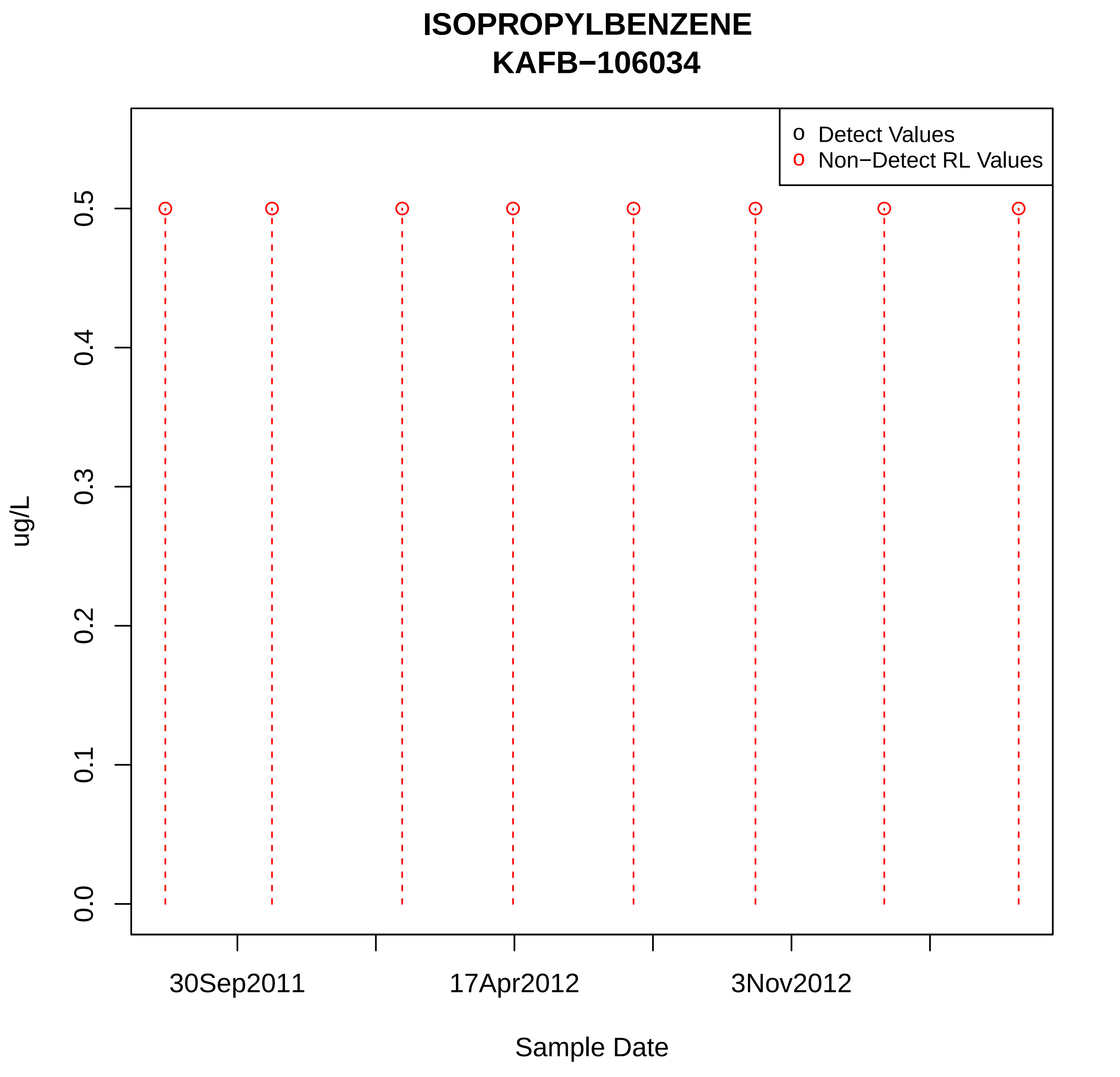


ISOPROPYLBENZENE
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

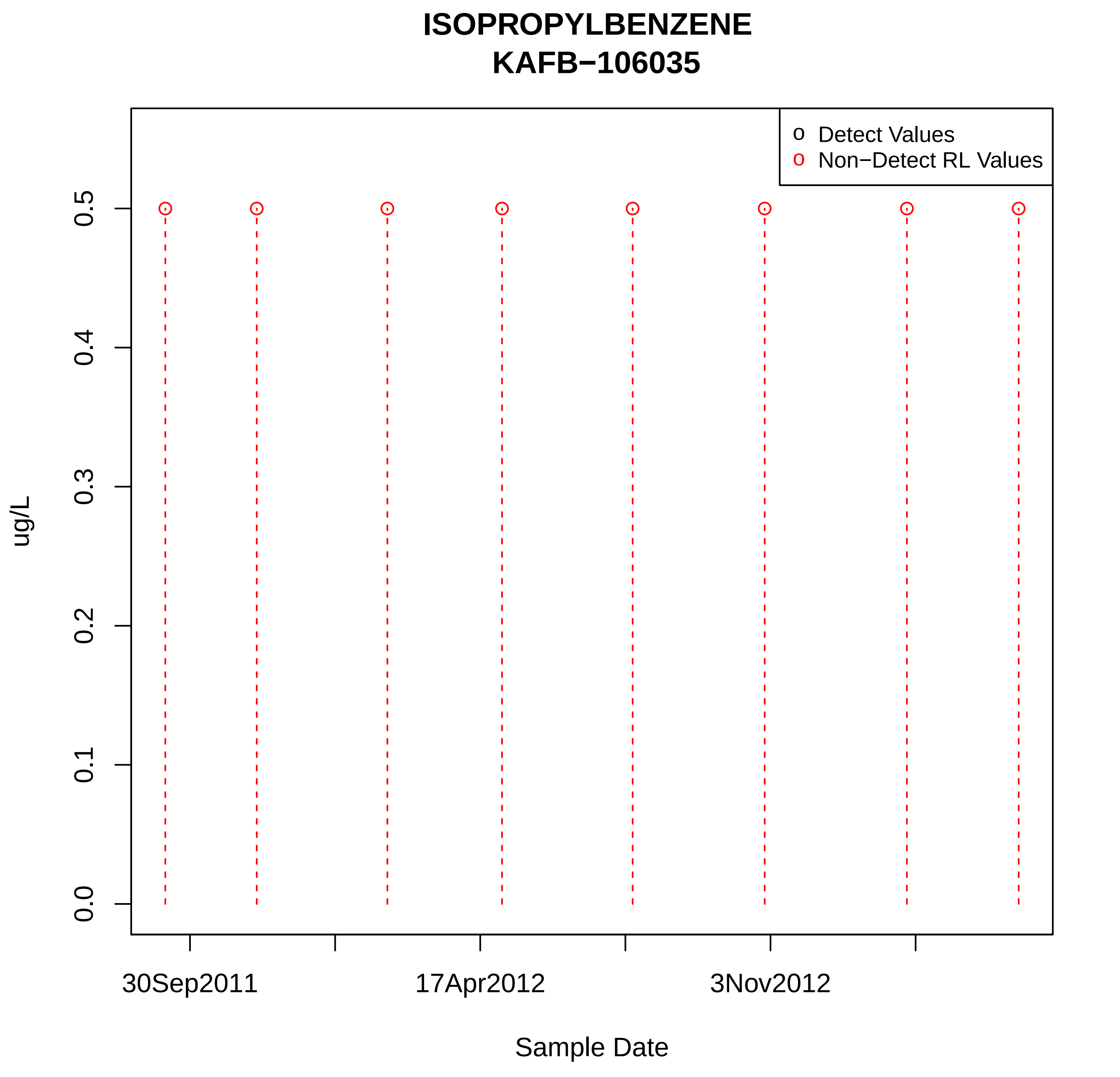

ISOPROPYLBENZENE
KAFB−106032
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



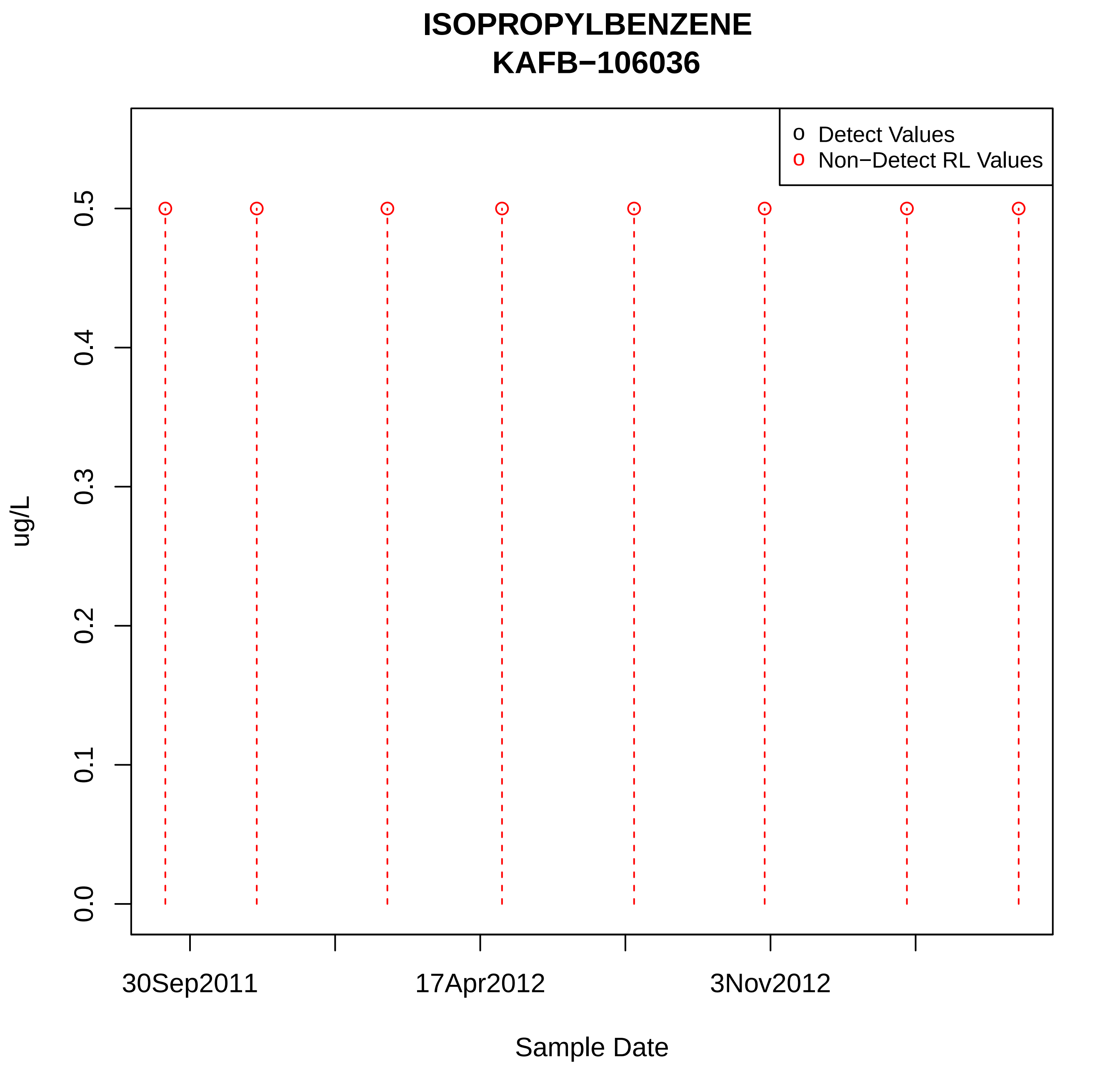
ISOPROPYLBENZENE
KAFB−106033
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



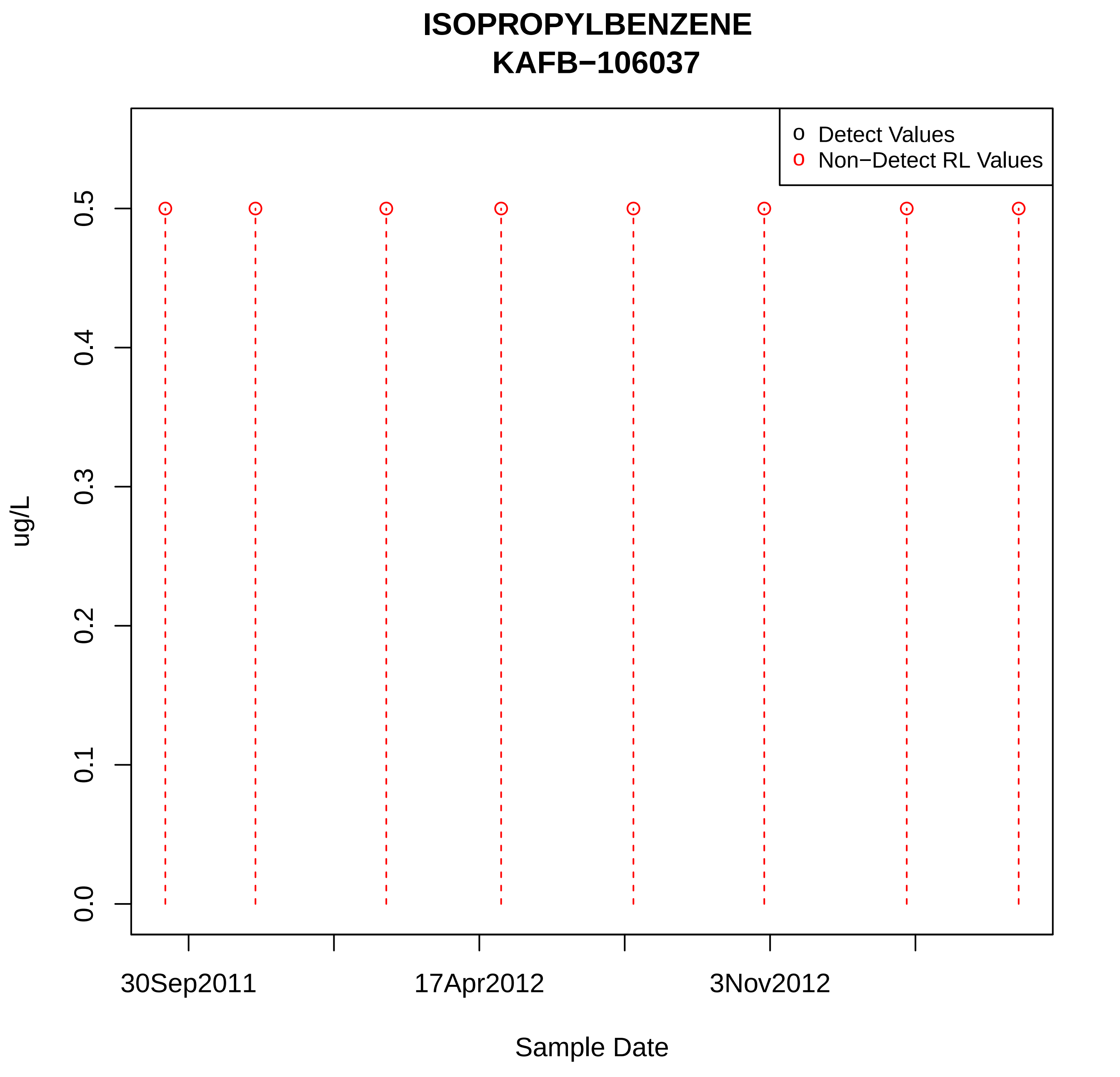
ISOPROPYLBENZENE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



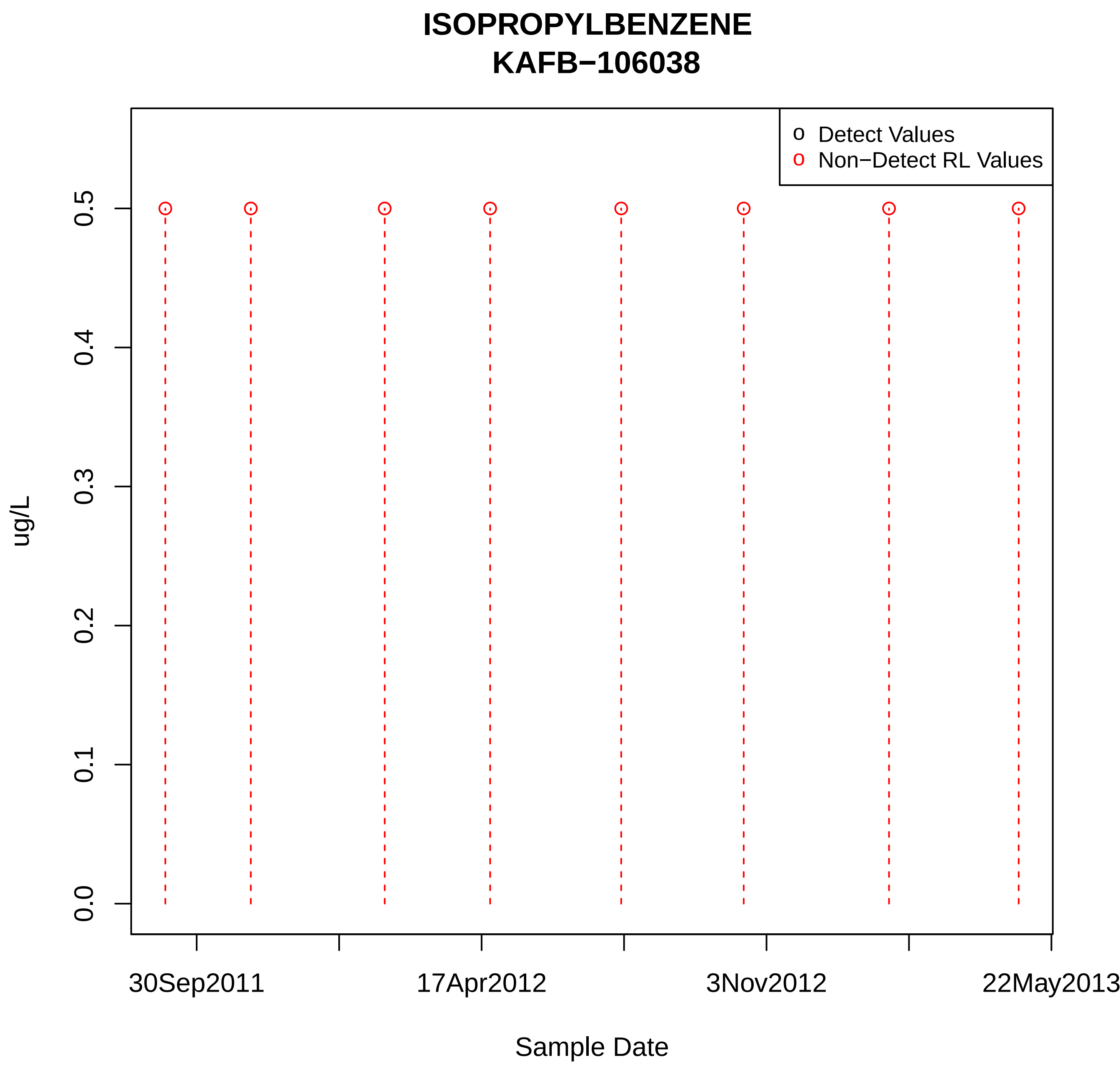
ISOPROPYLBENZENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



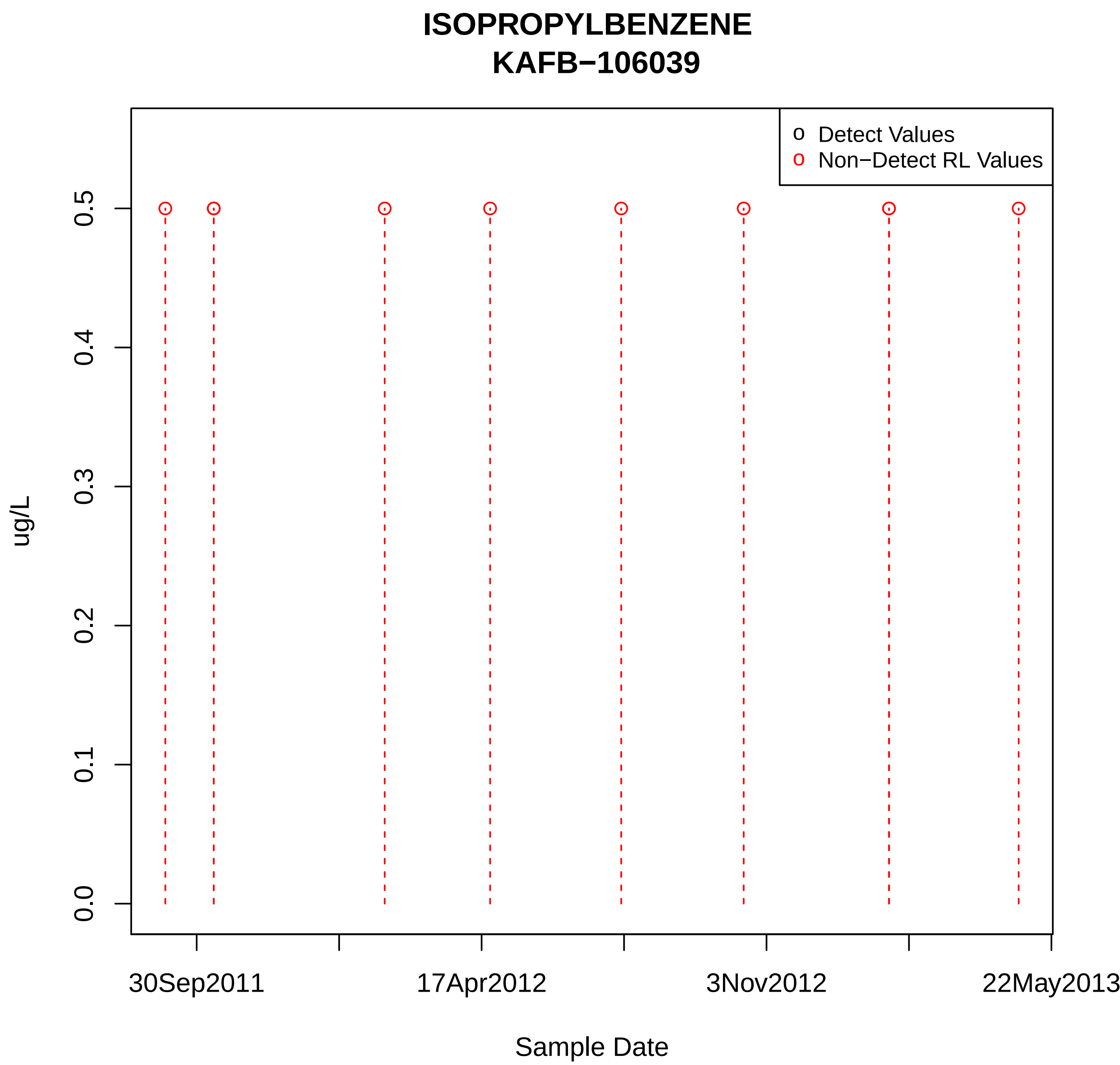
ISOPROPYLBENZENE
KAFB−106036
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



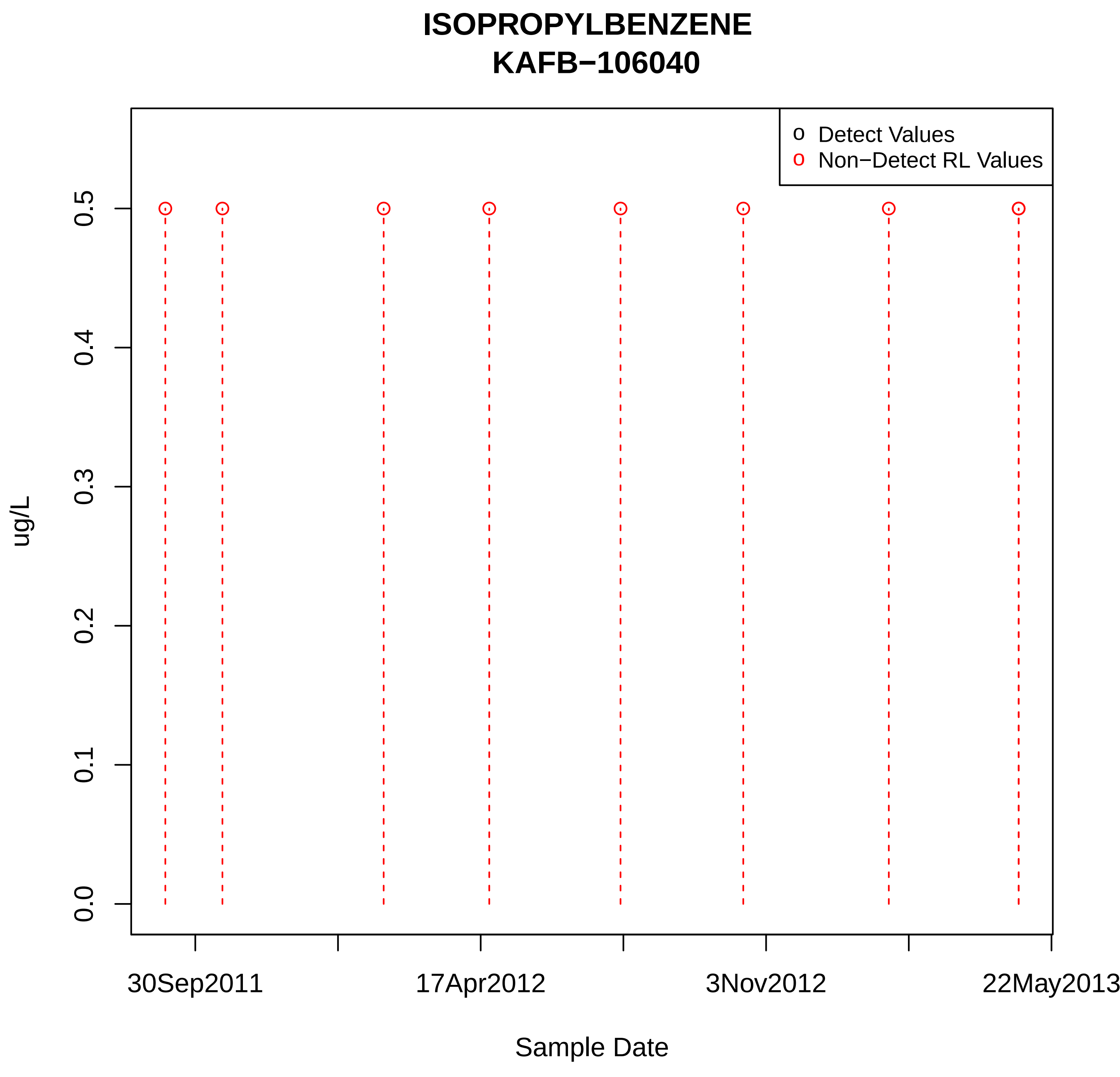
ISOPROPYLBENZENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

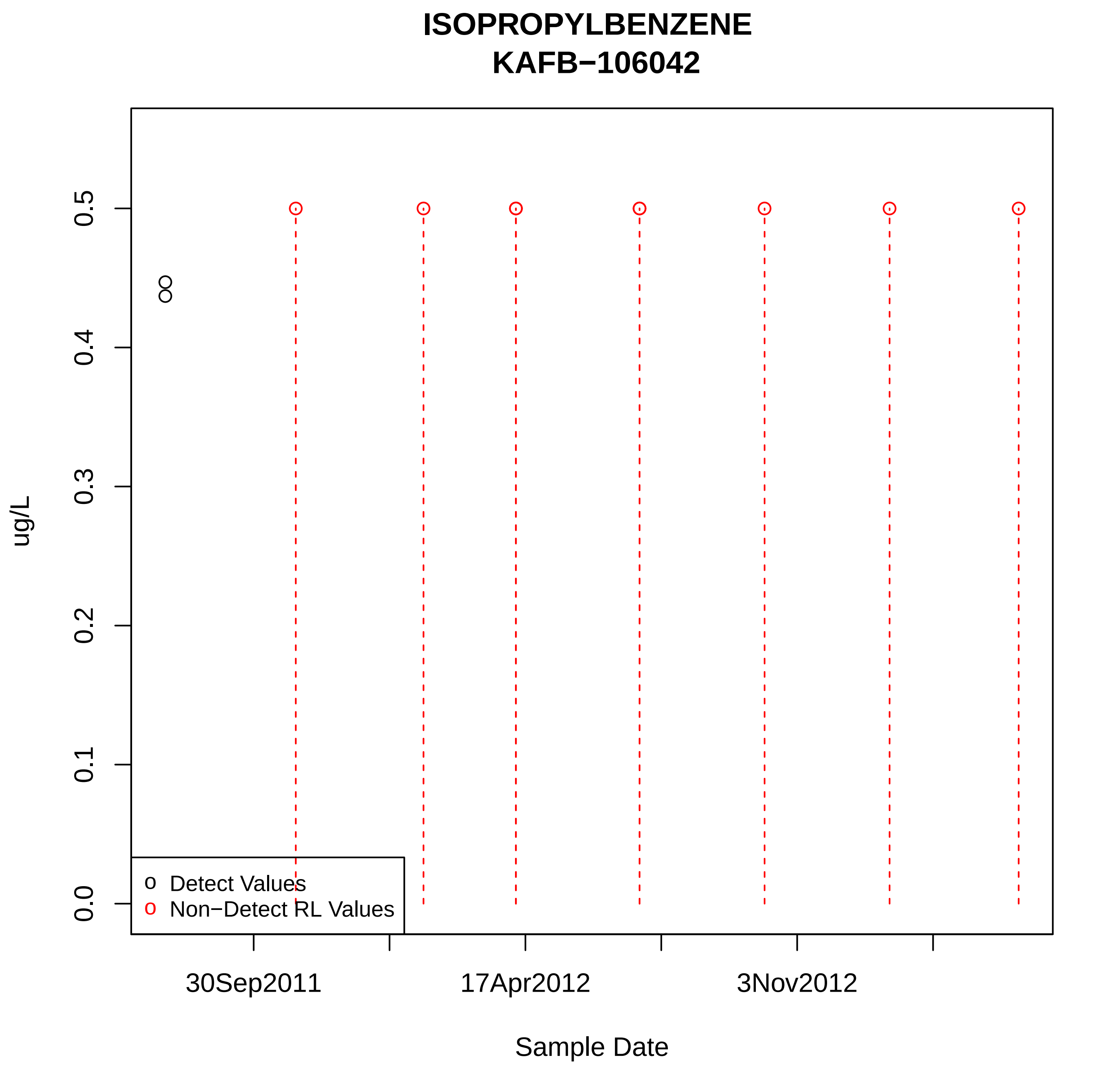


ISOPROPYLBENZENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

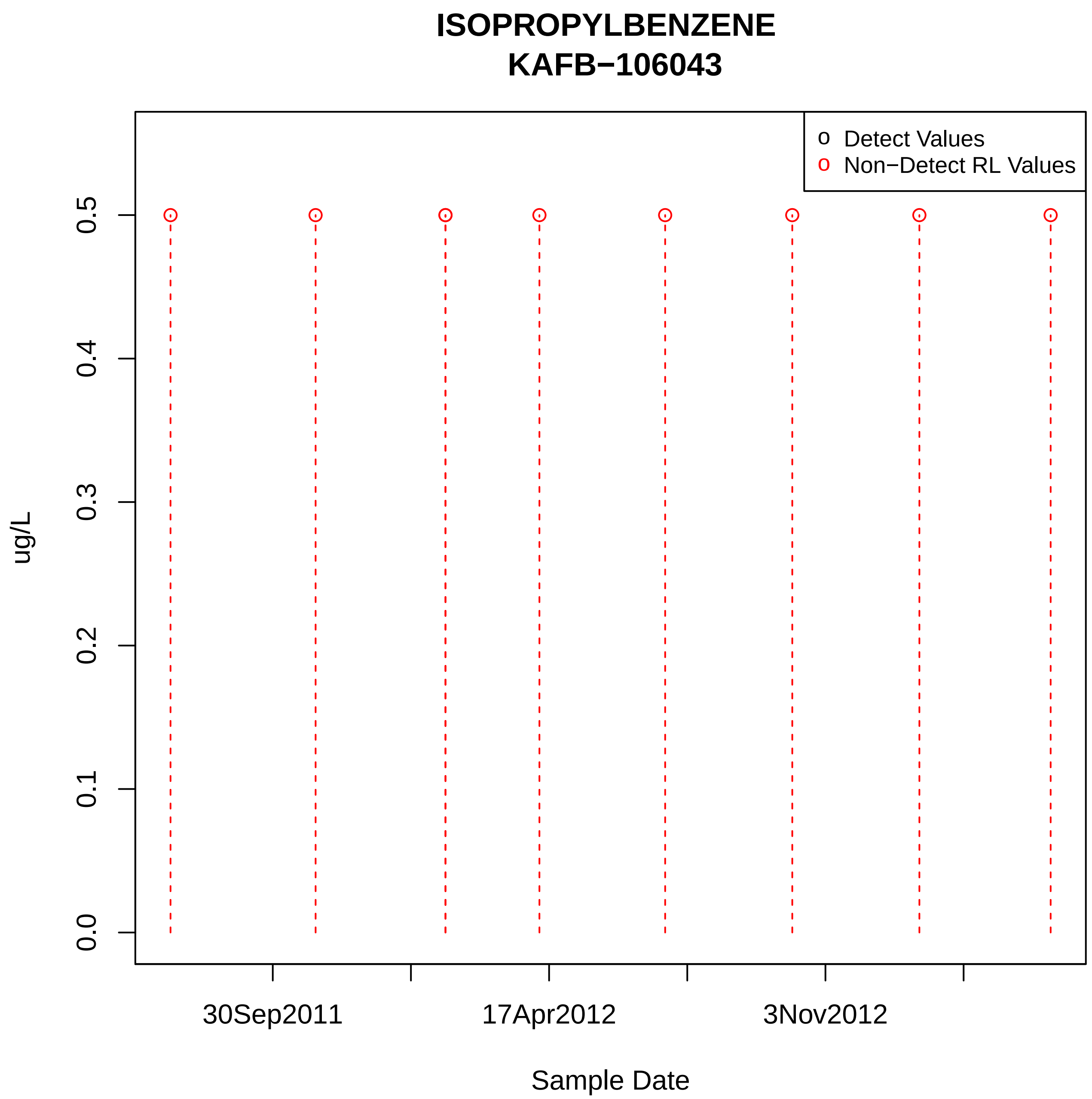


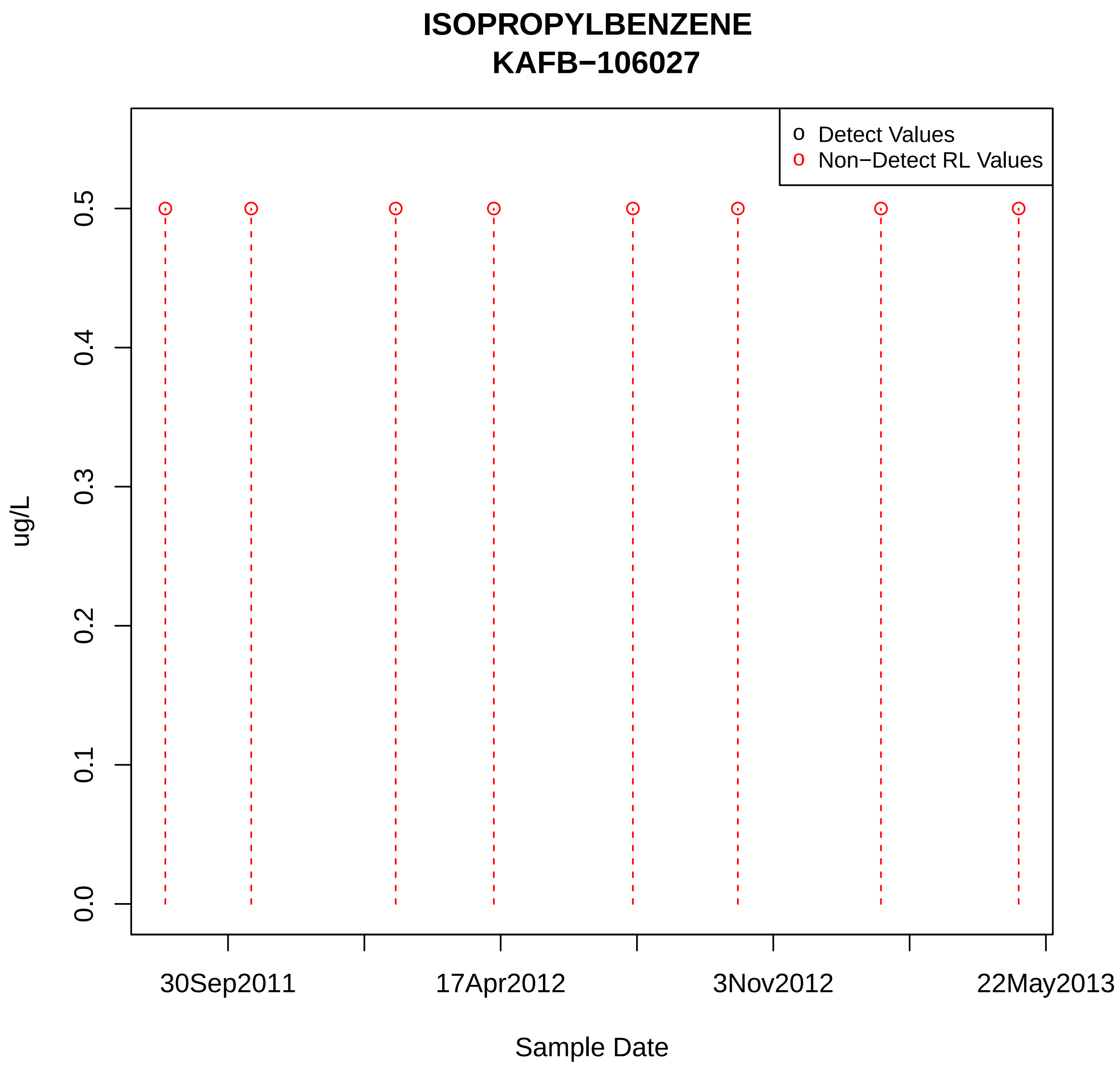
ISOPROPYLBENZENE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

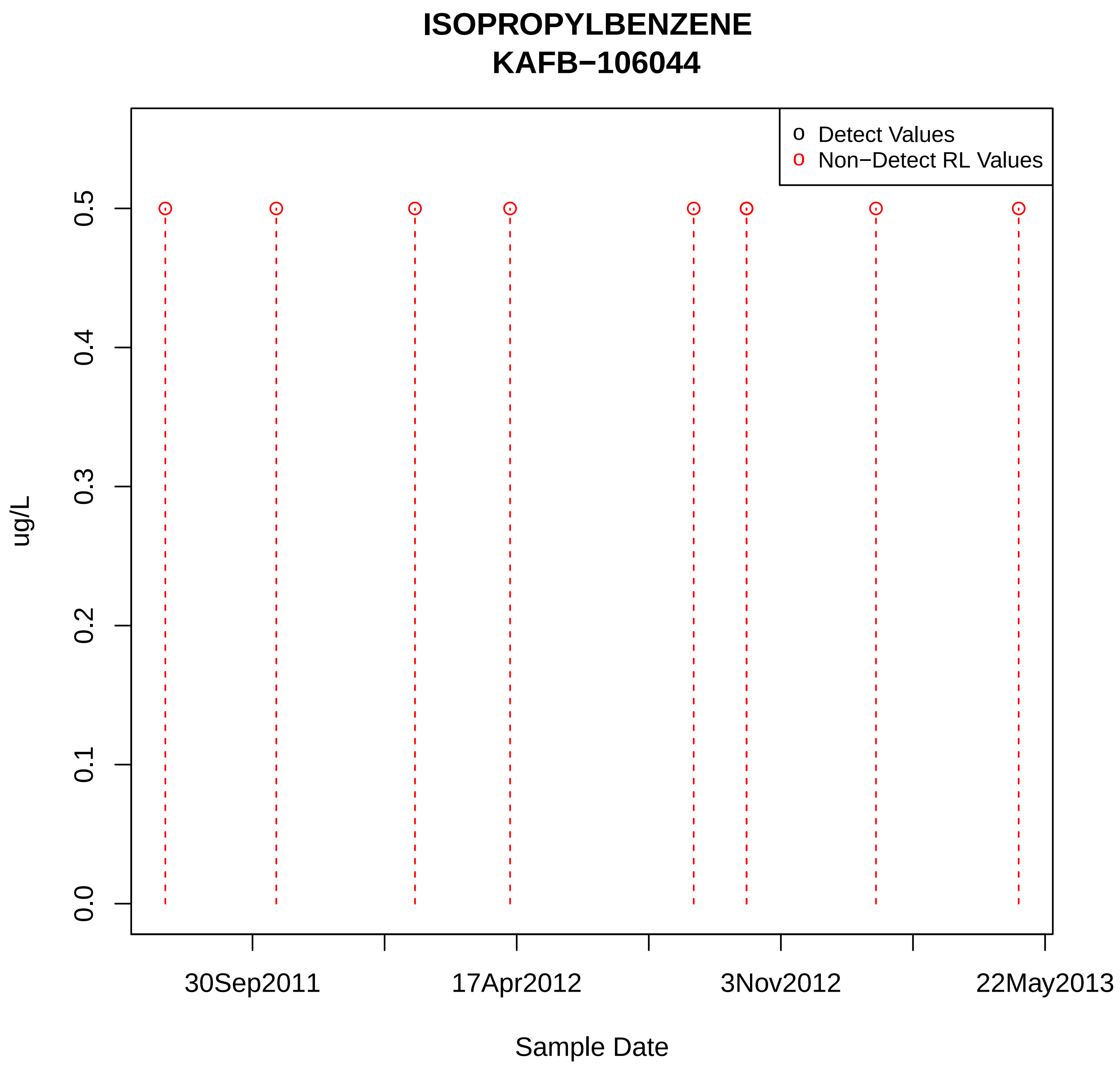

ISOPROPYLBENZENE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



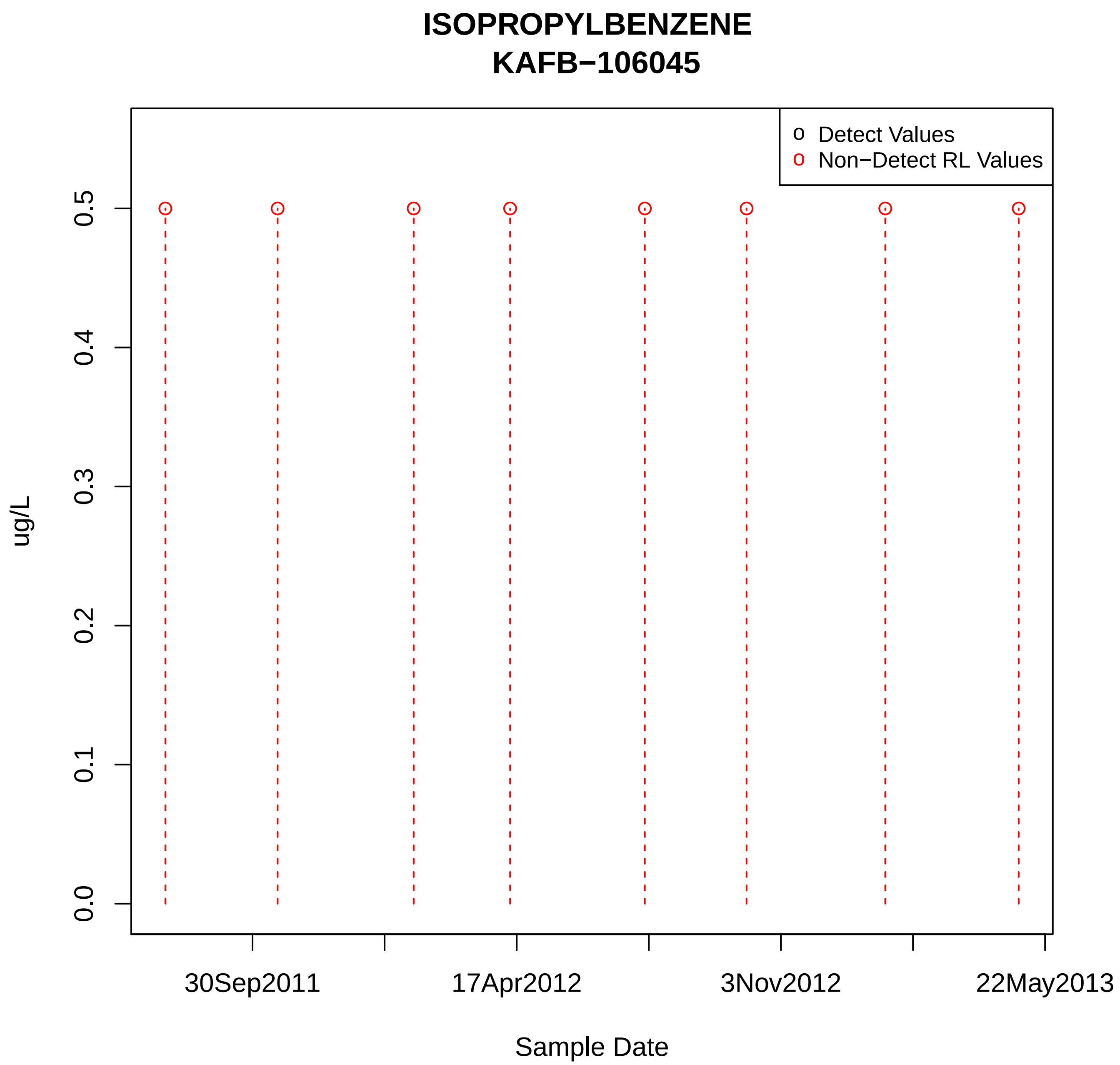
ISOPROPYLBENZENE
KAFB−106042
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
Detect Values
Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

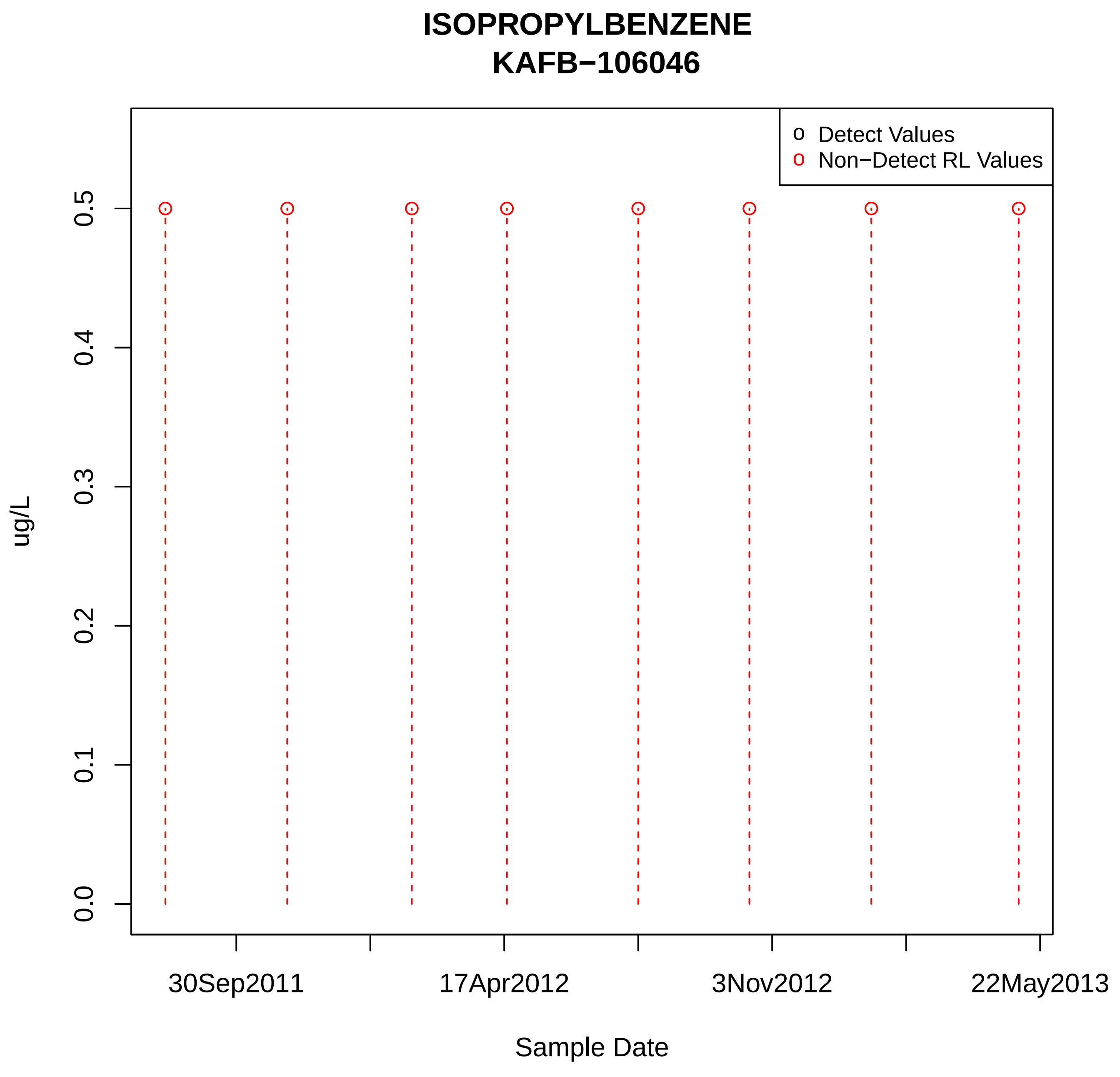

ISOPROPYLBENZENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


ISOPROPYLBENZENE
KAFB−106027
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

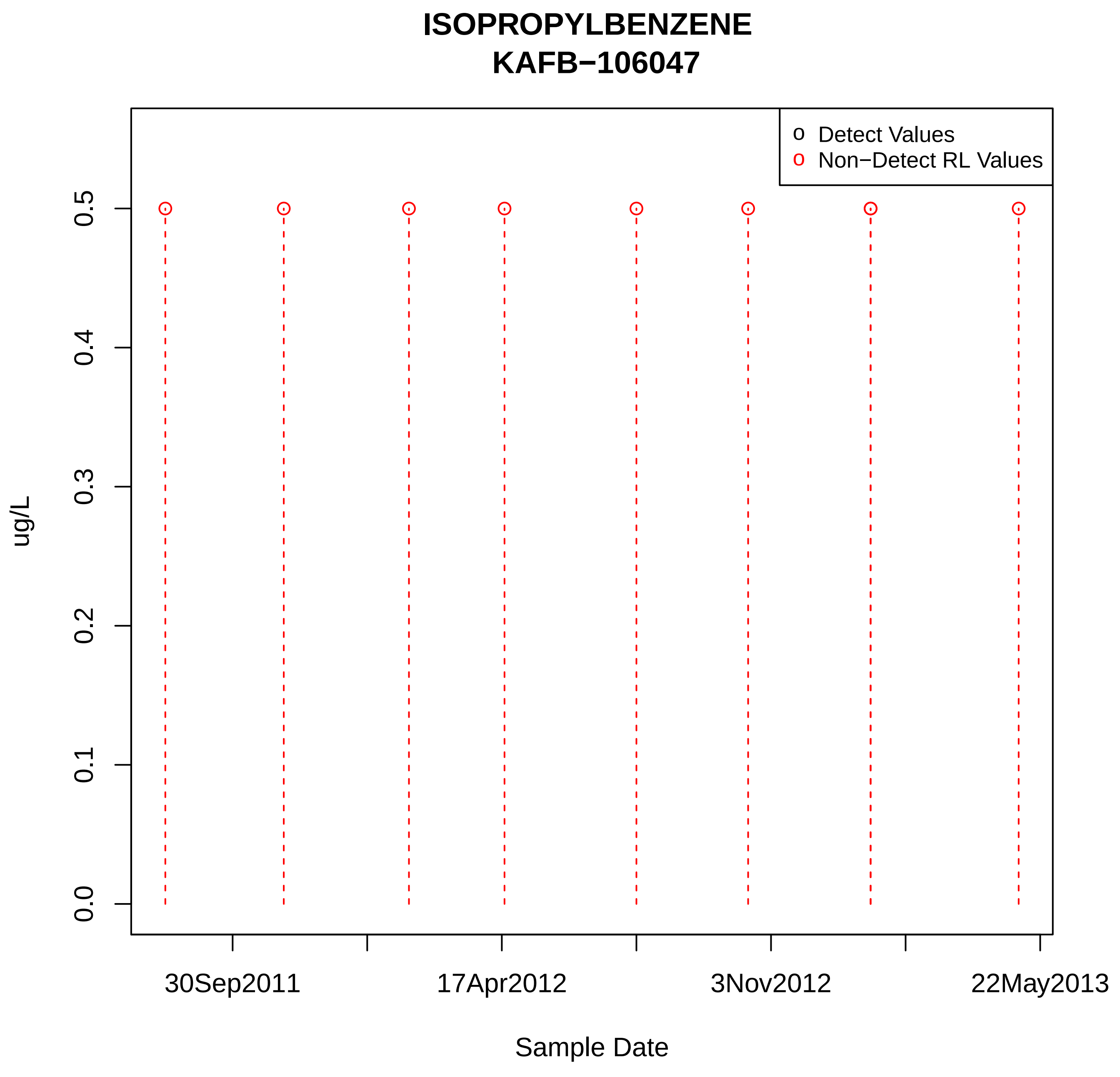


ISOPROPYLBENZENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

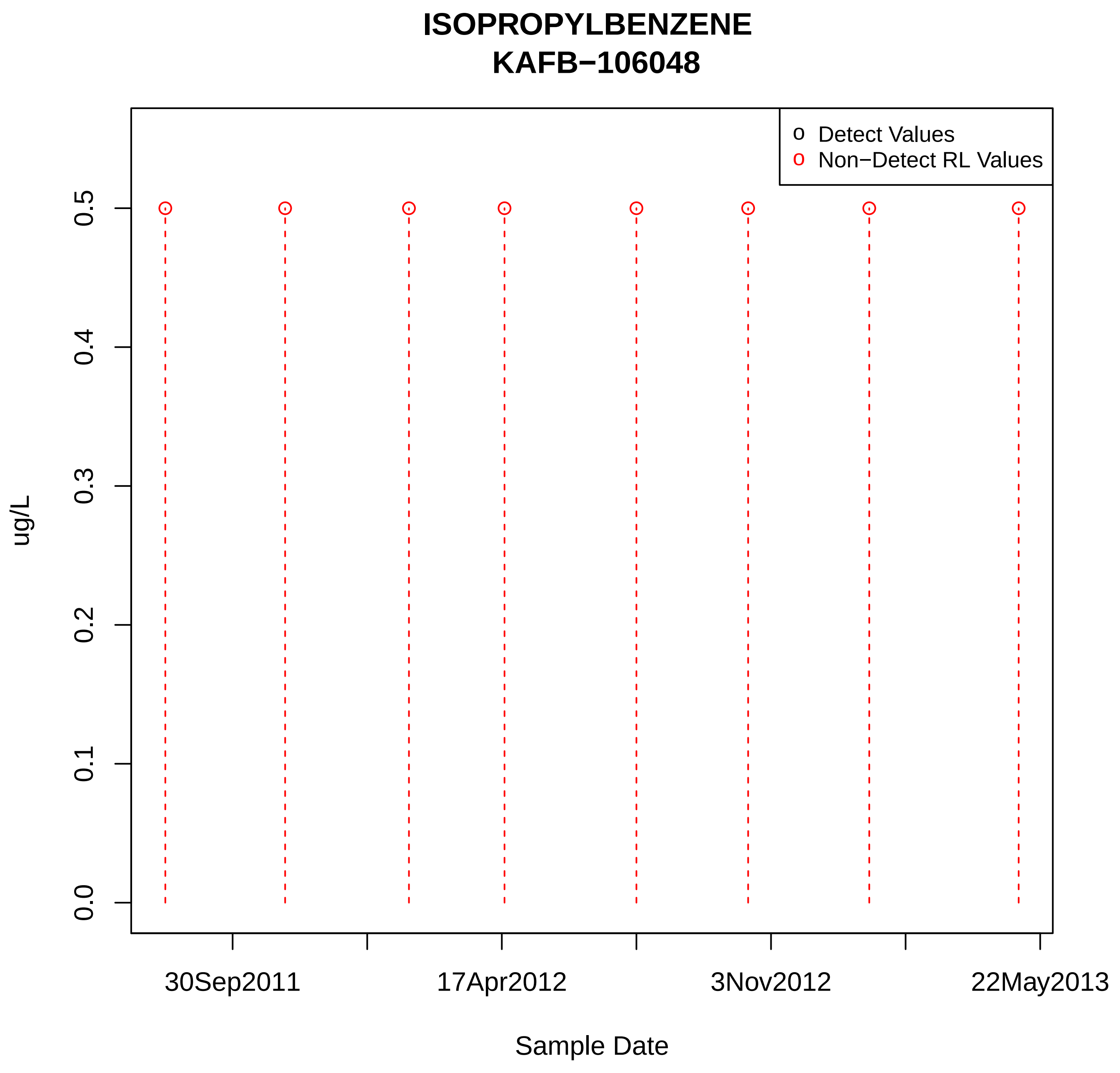

ISOPROPYLBENZENE
KAFB−106045
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

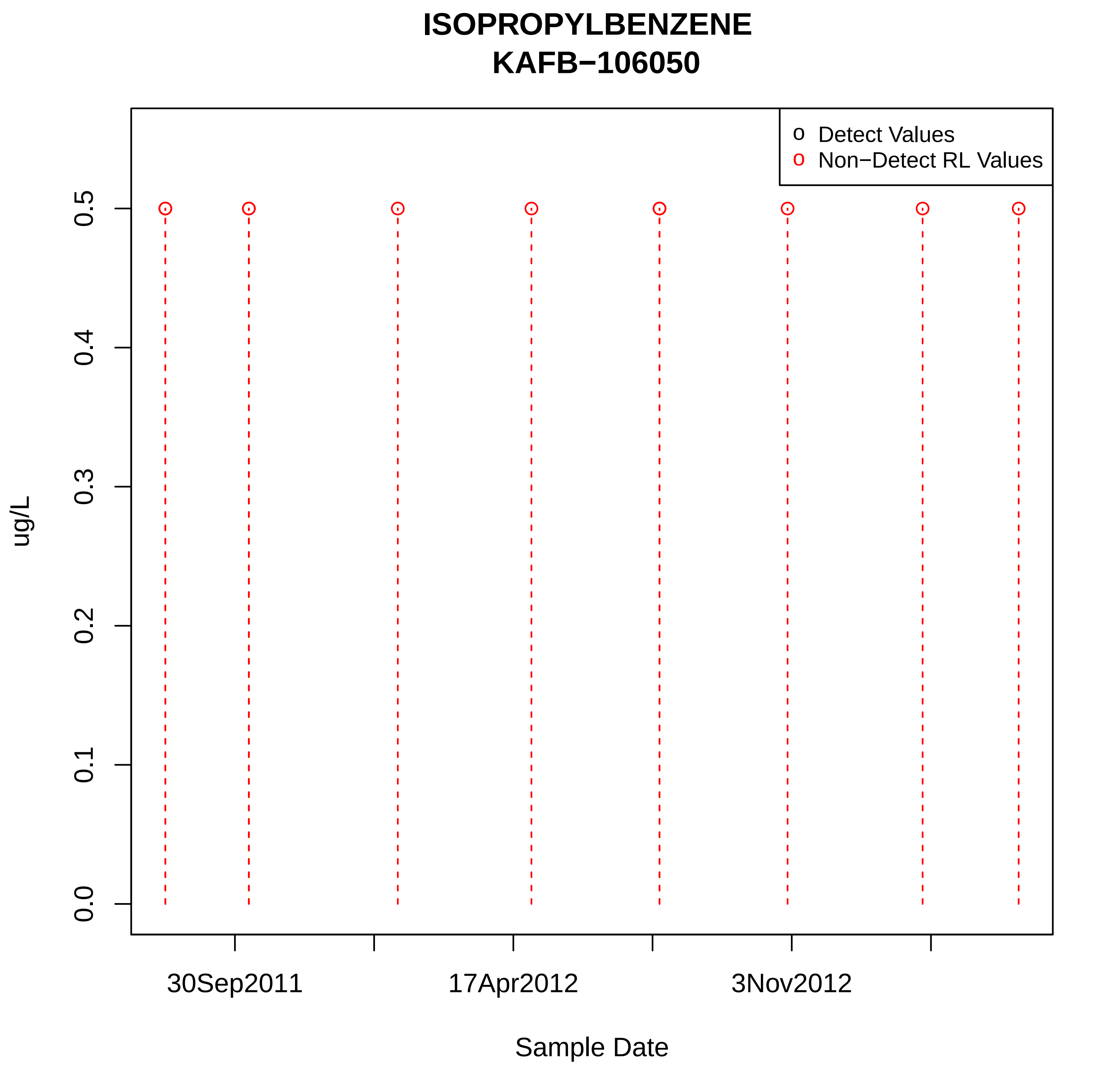


ISOPROPYLBENZENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

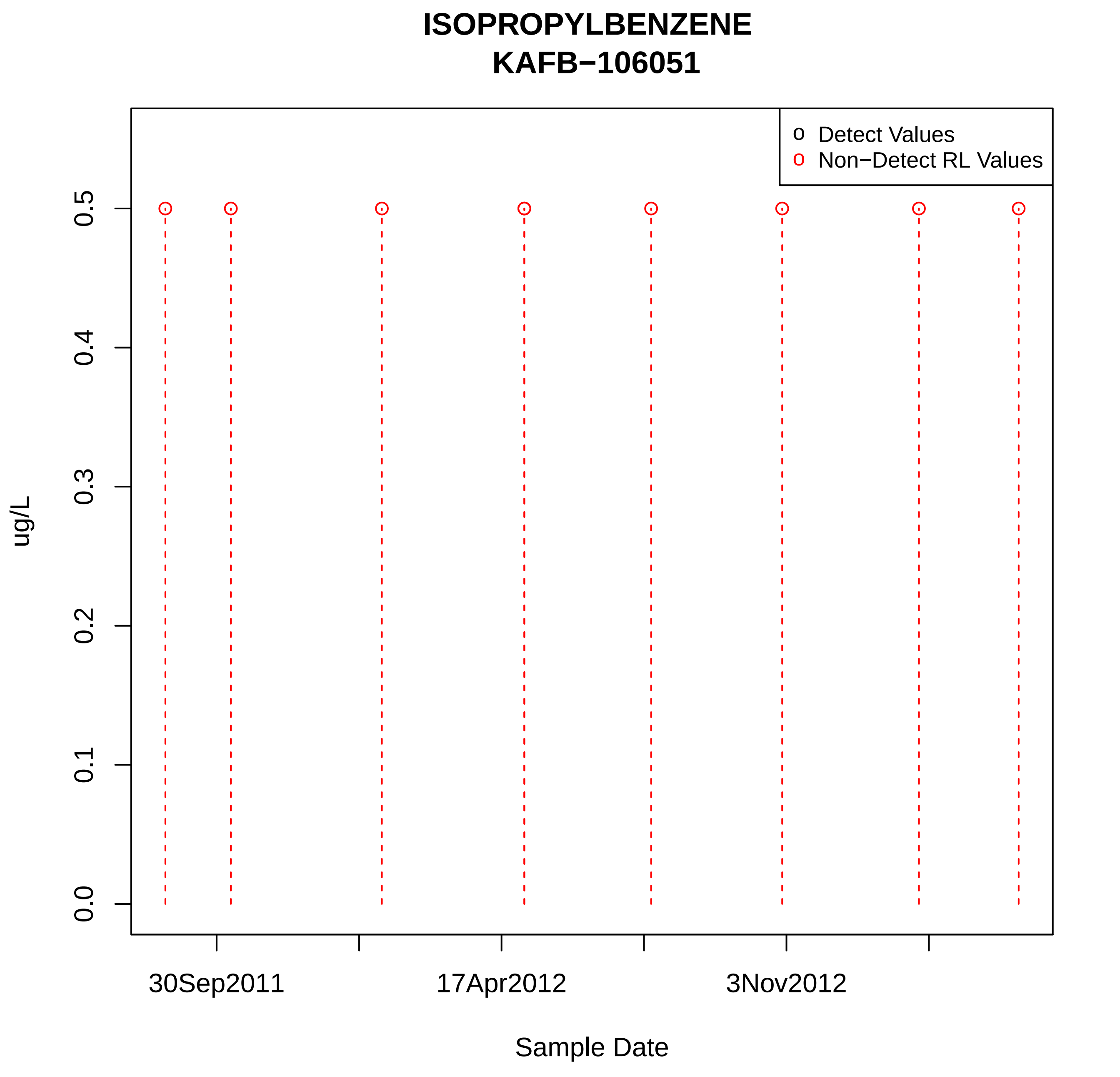


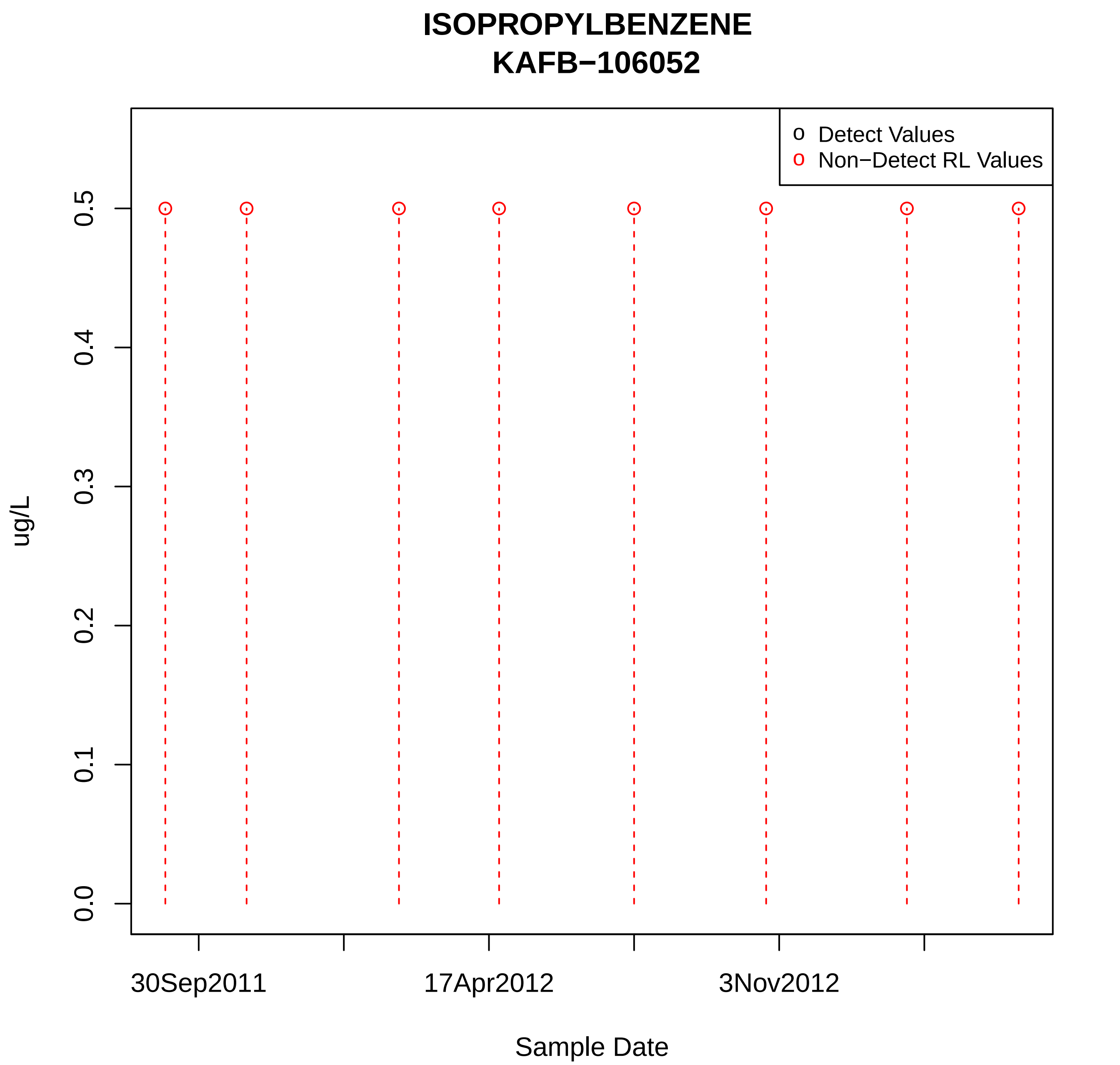
ISOPROPYLBENZENE
KAFB−106047
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

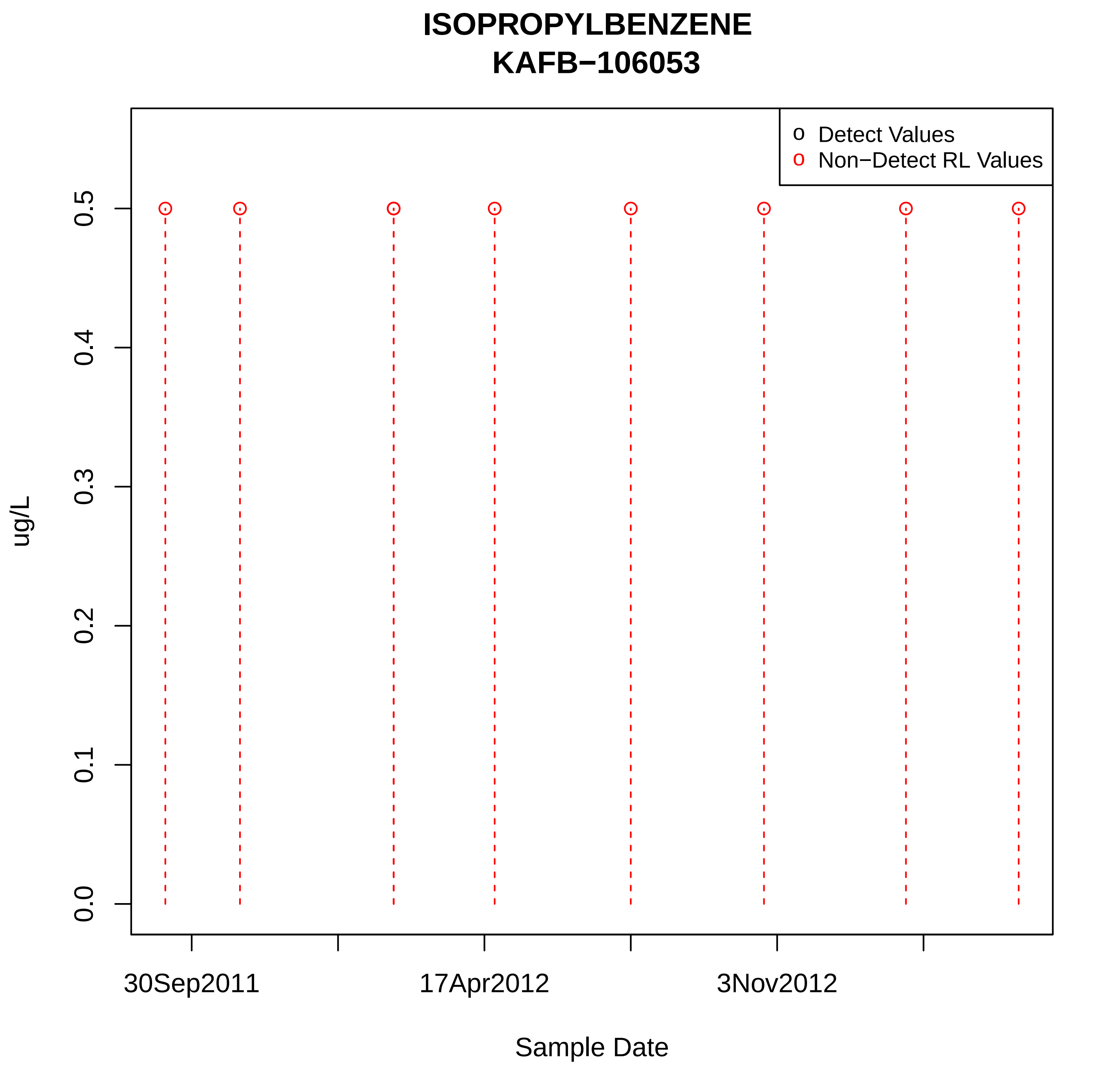

ISOPROPYLBENZENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

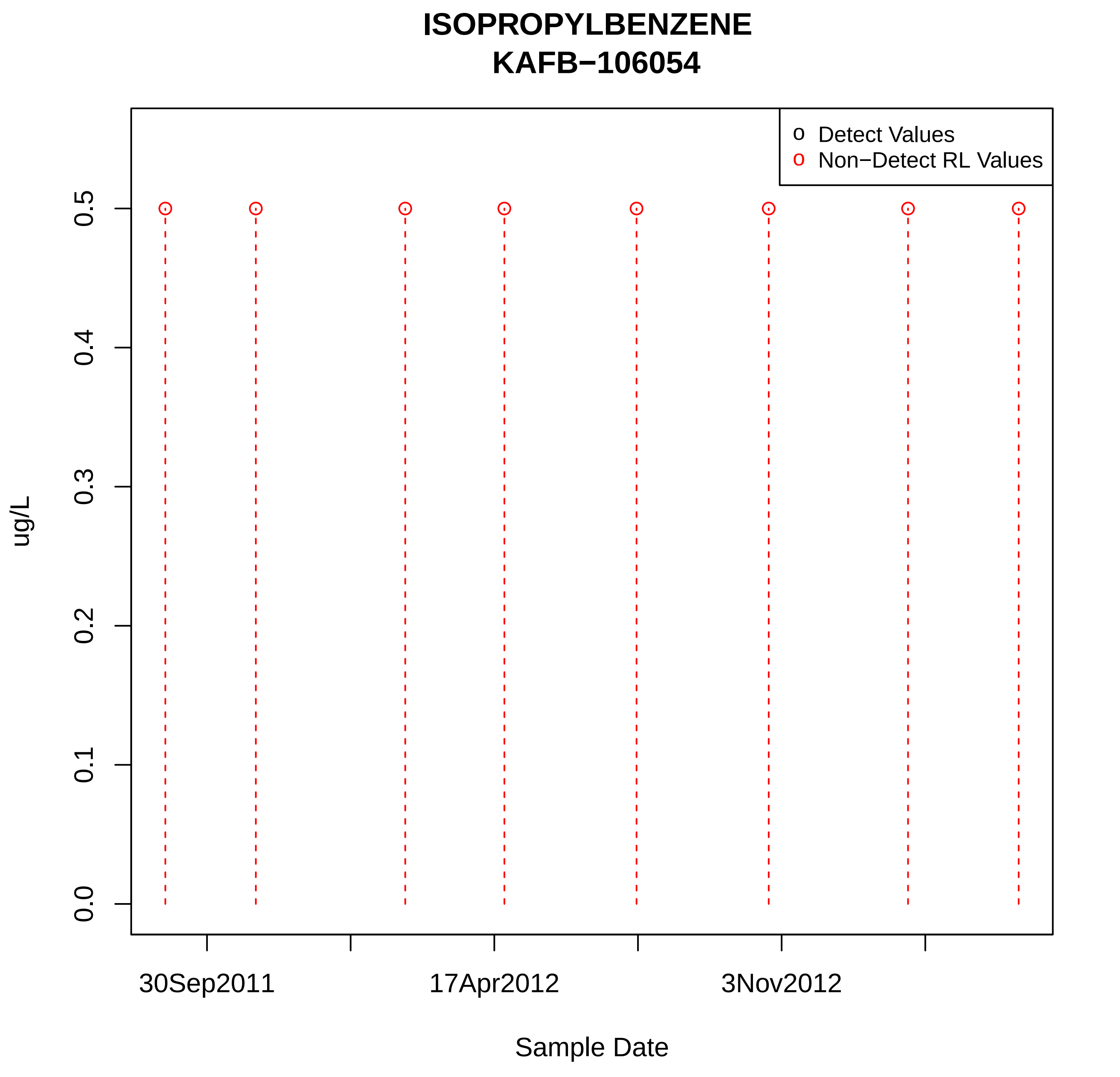


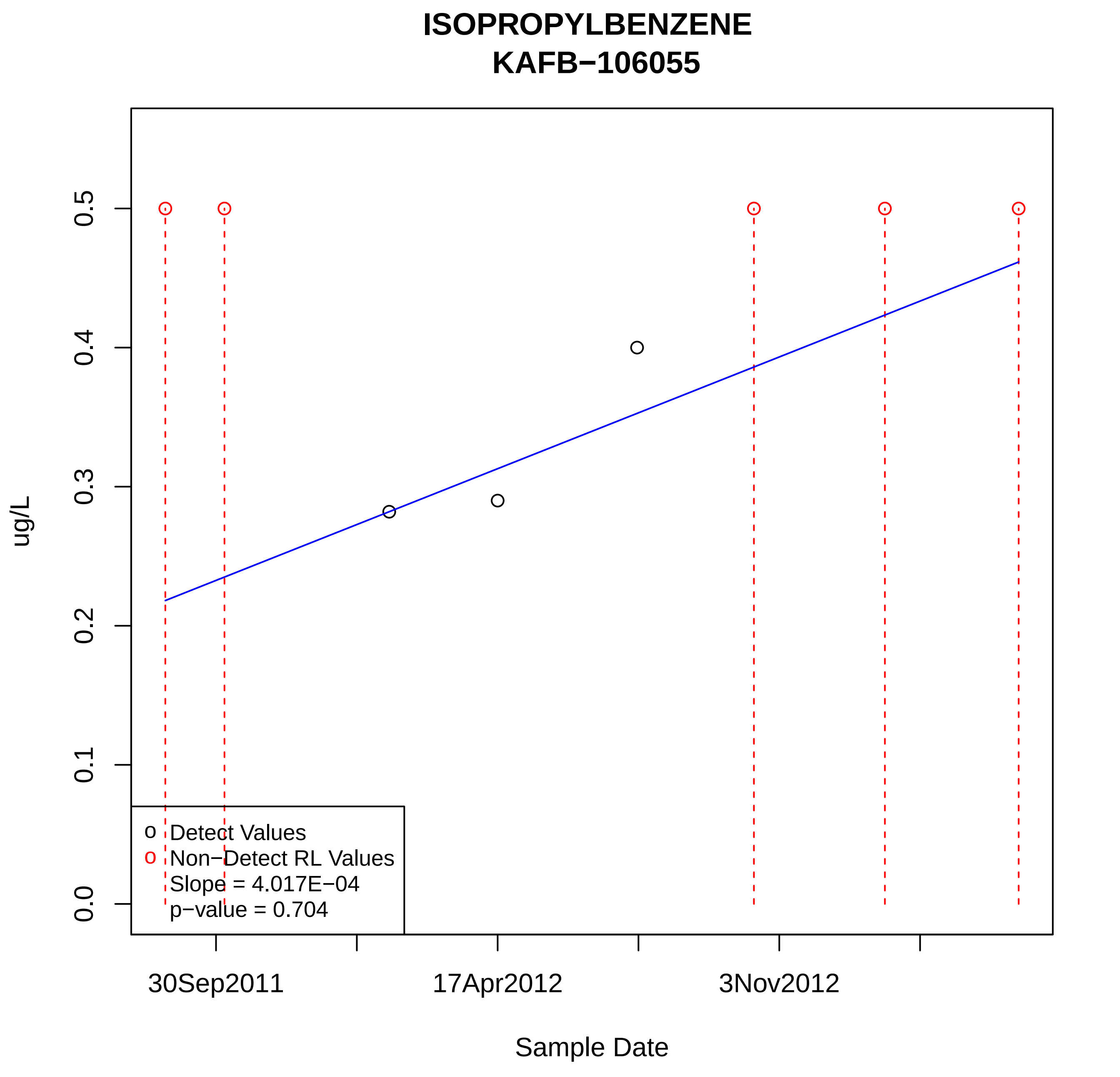
ISOPROPYLBENZENE
KAFB−106050
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

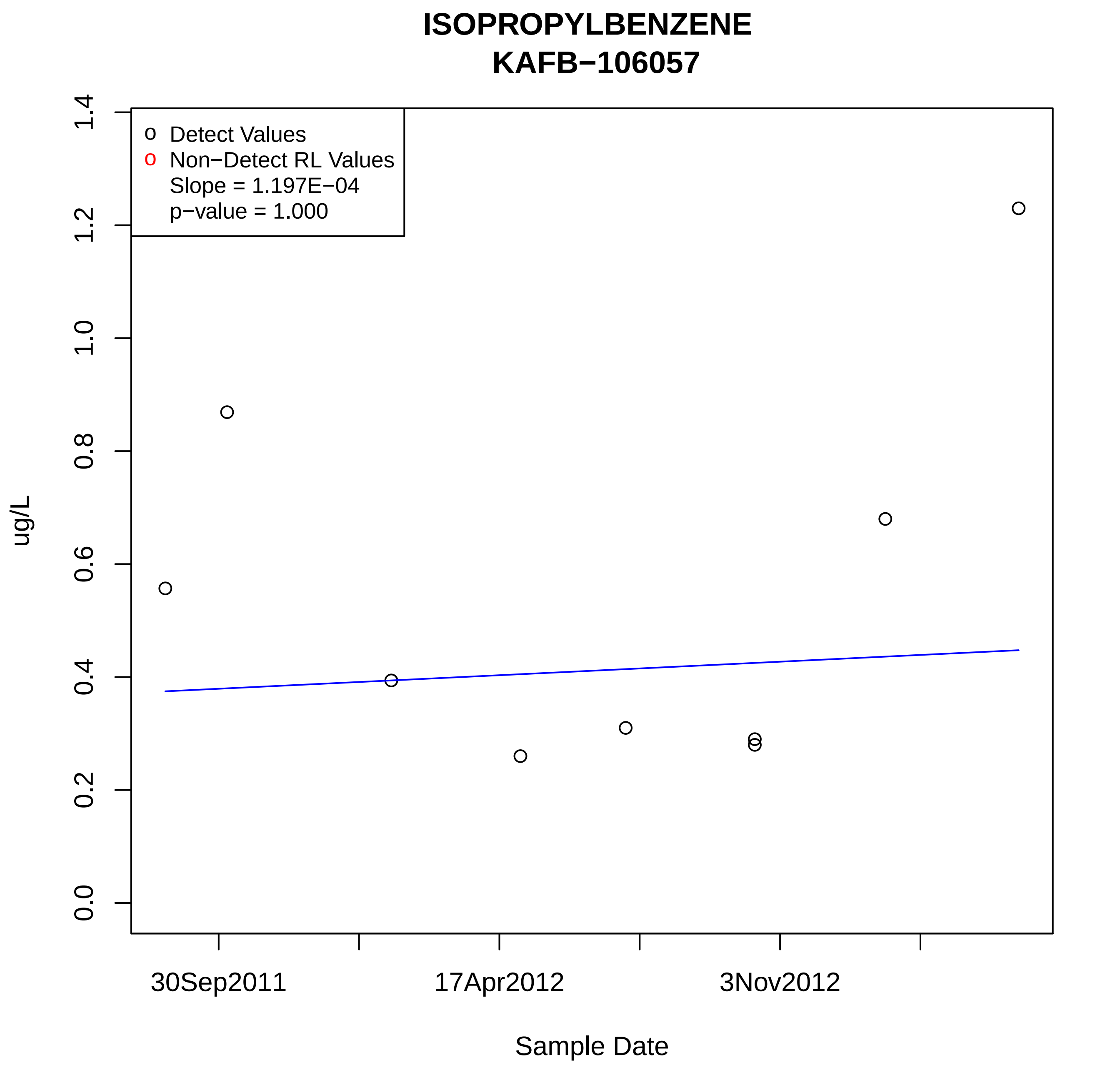

ISOPROPYLBENZENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

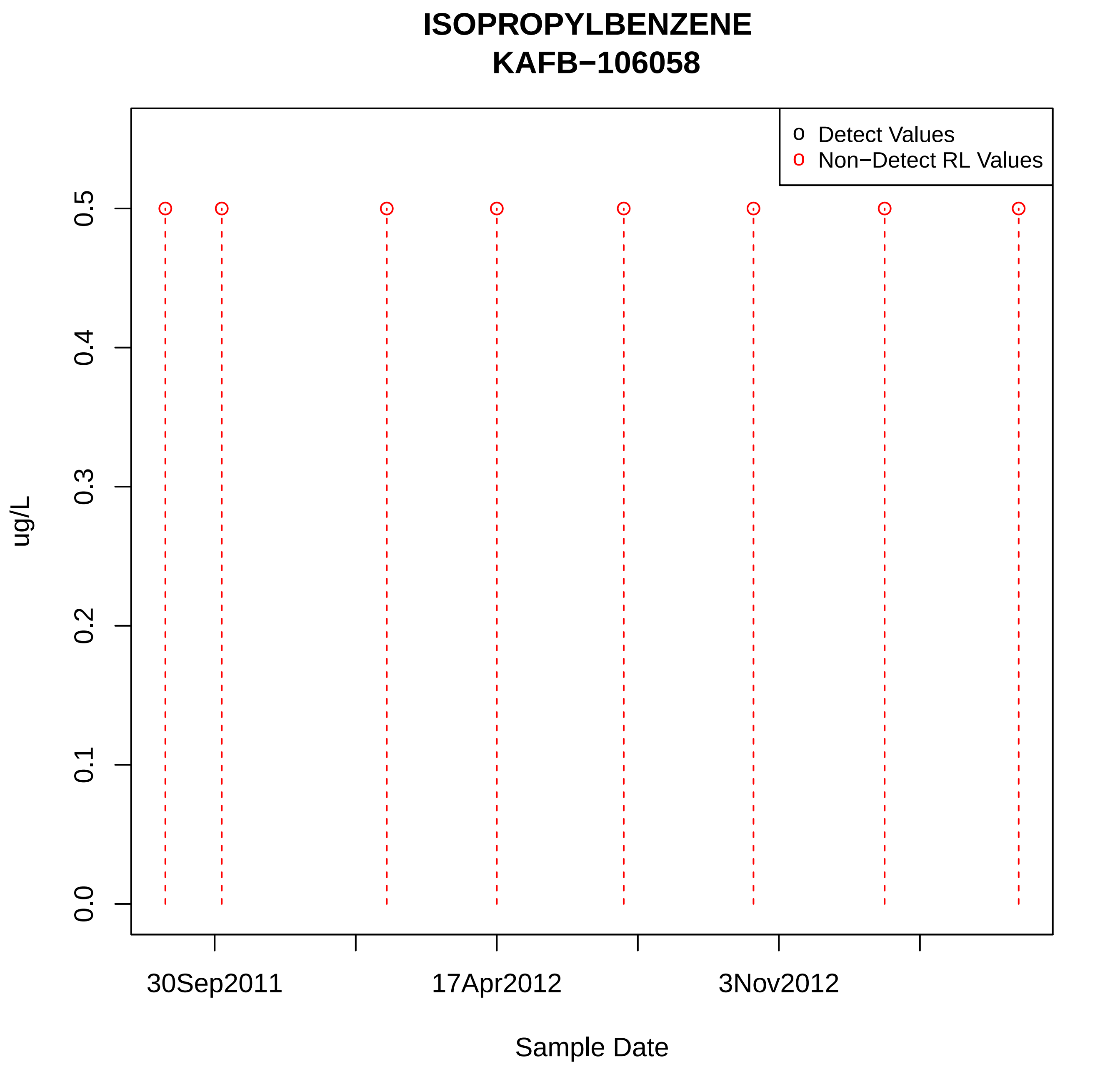

ISOPROPYLBENZENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


ISOPROPYLBENZENE
KAFB−106053
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

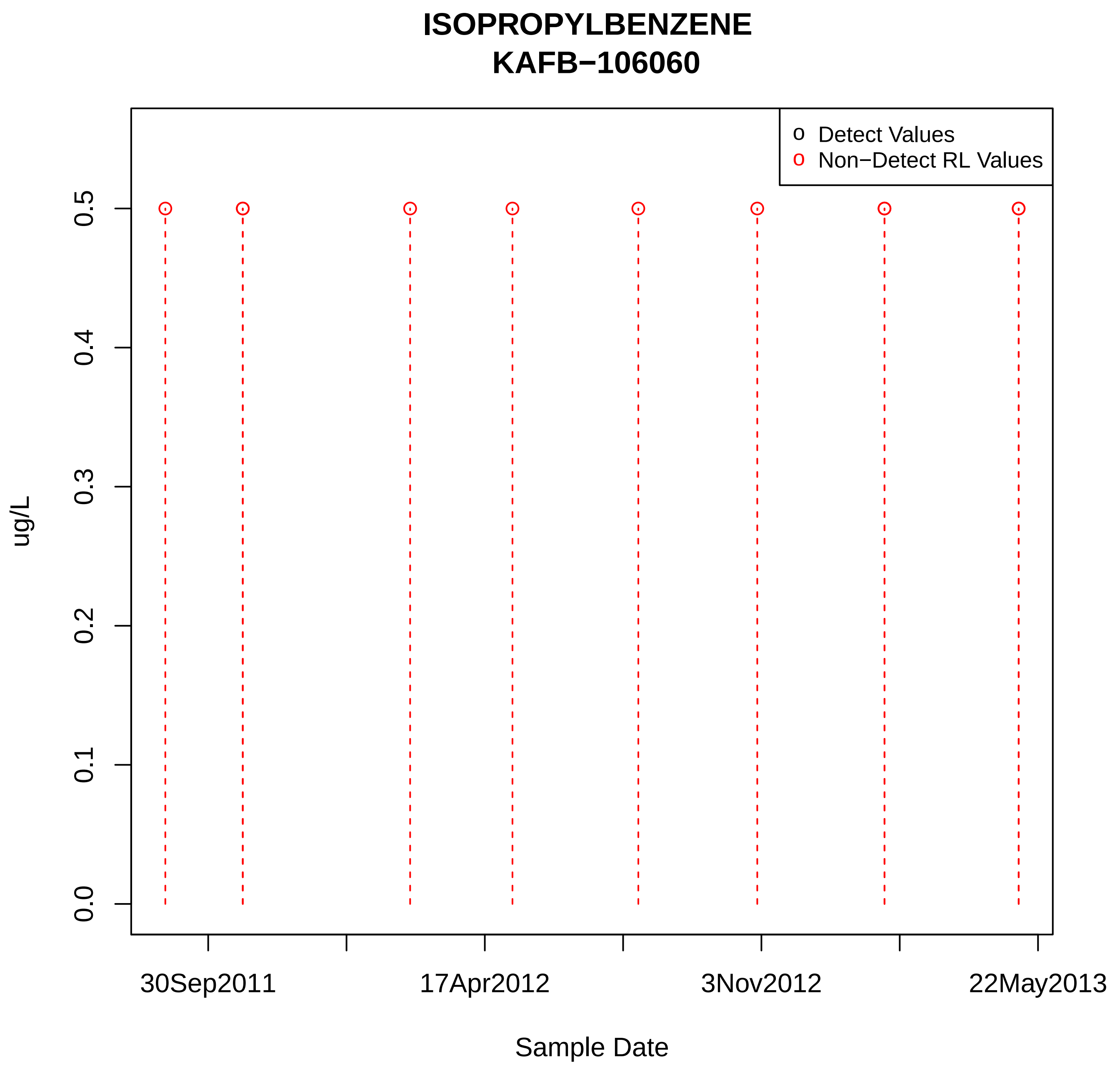

ISOPROPYLBENZENE
KAFB−106054
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

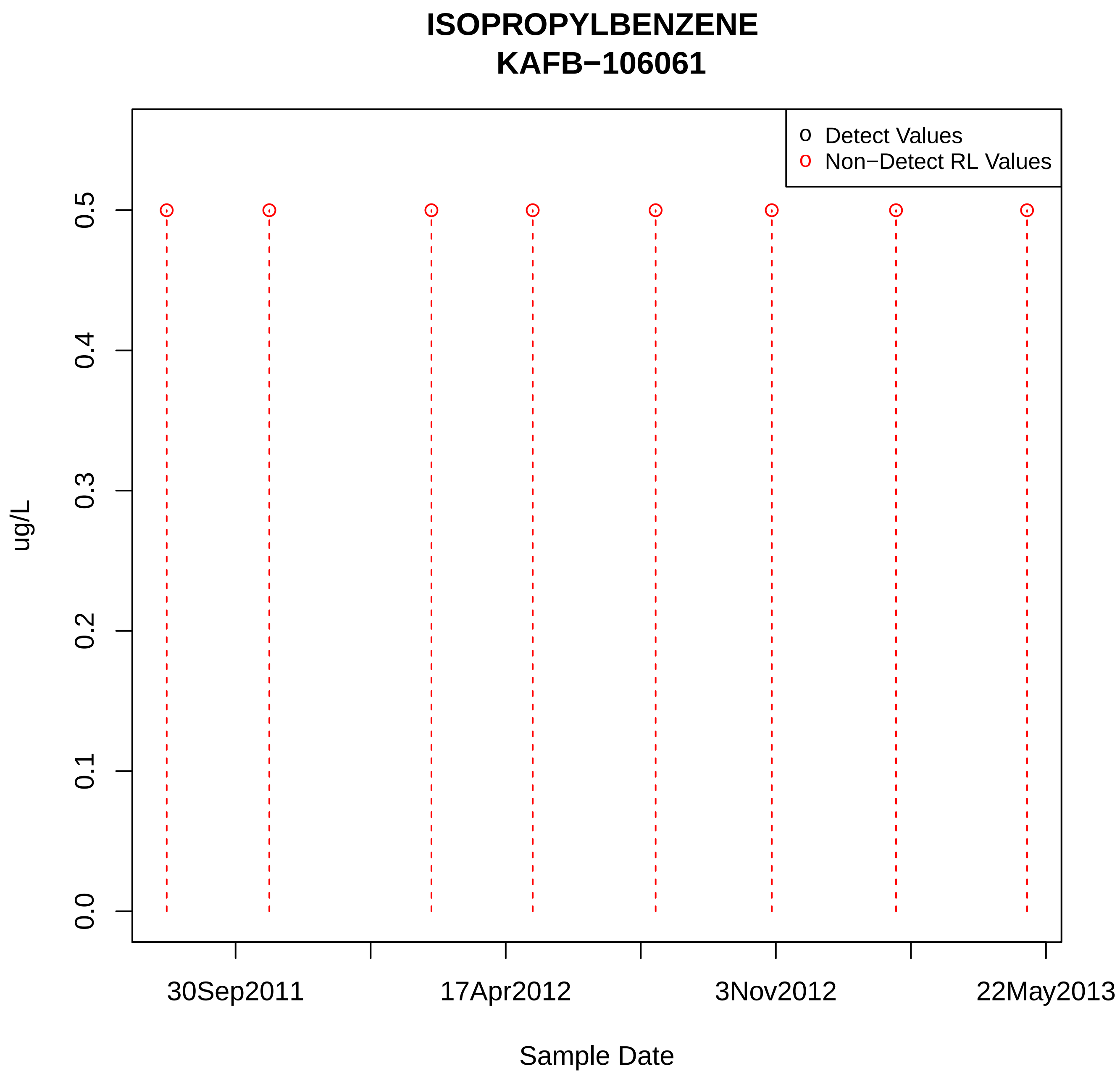

ISOPROPYLBENZENE
KAFB−106055
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values
Slope = 4.017E−04
p−value = 0.704


ISOPROPYLBENZENE
KAFB−106057
o Detect Values
o Non−Detect RL Values
Slope = 1.197E−04
p−value = 1.000
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
30Sep2011
17Apr2012
3Nov2012
Sample Date

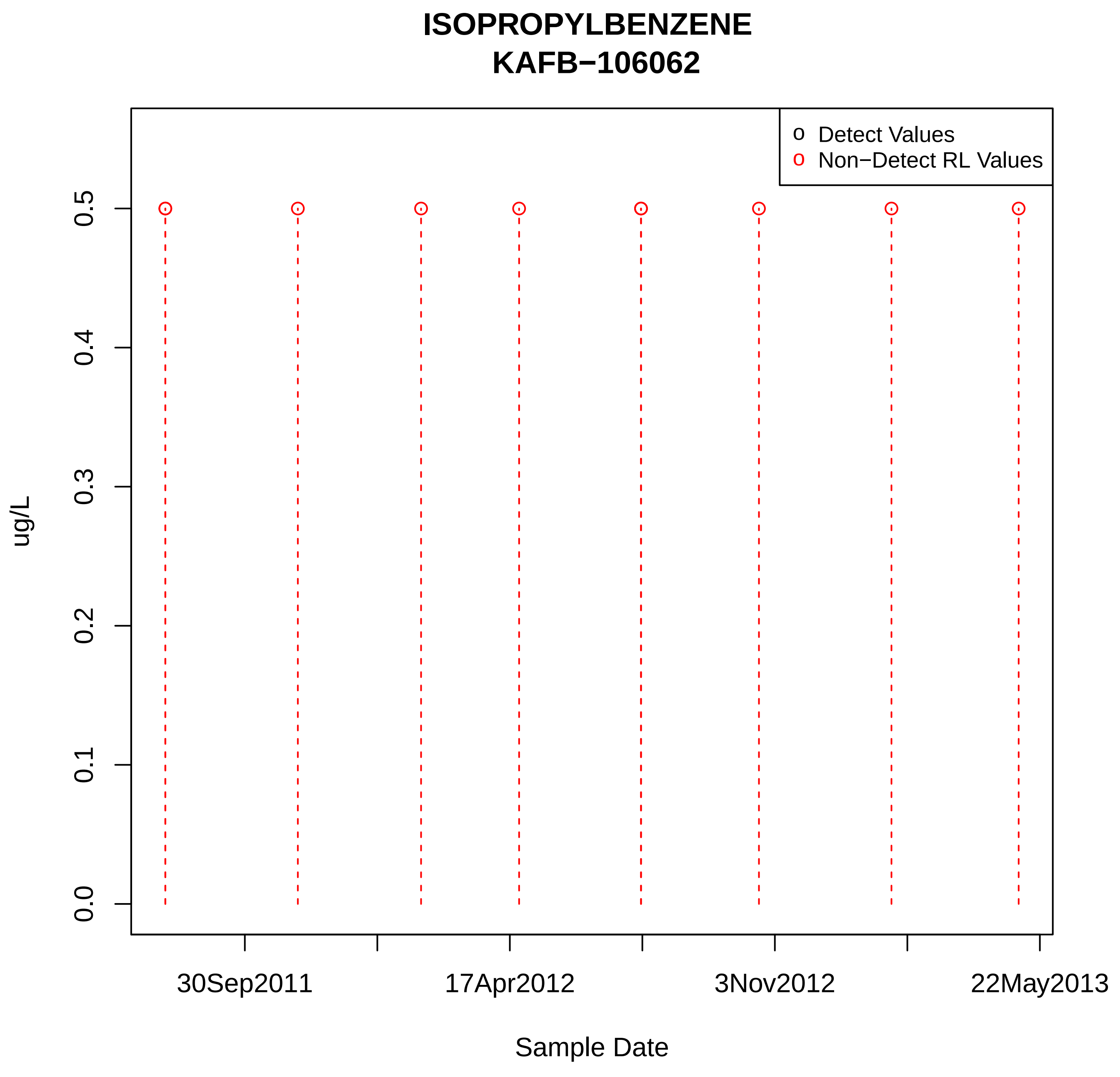


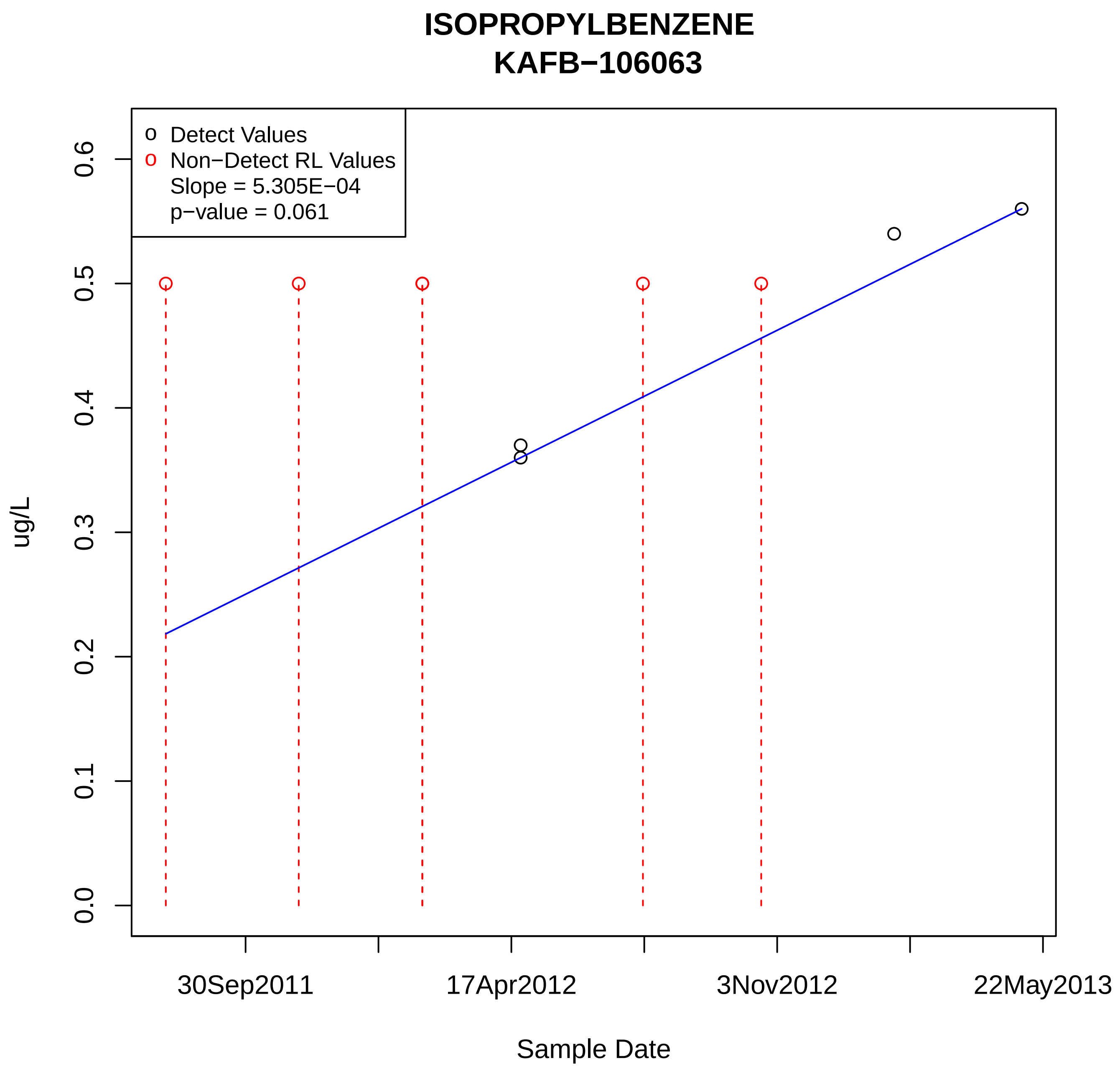
ISOPROPYLBENZENE
KAFB−106058
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

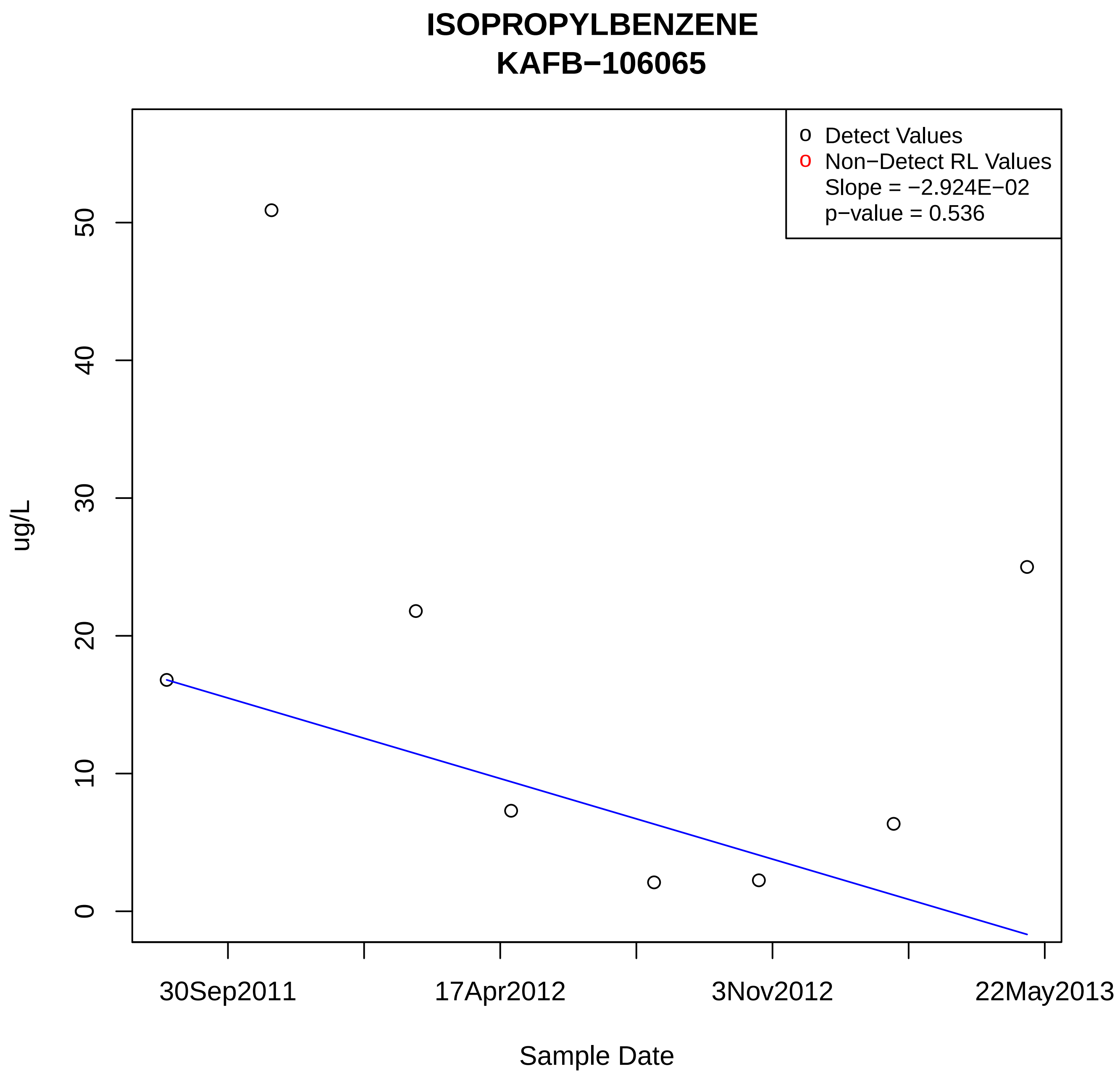

ISOPROPYLBENZENE
KAFB−106060
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



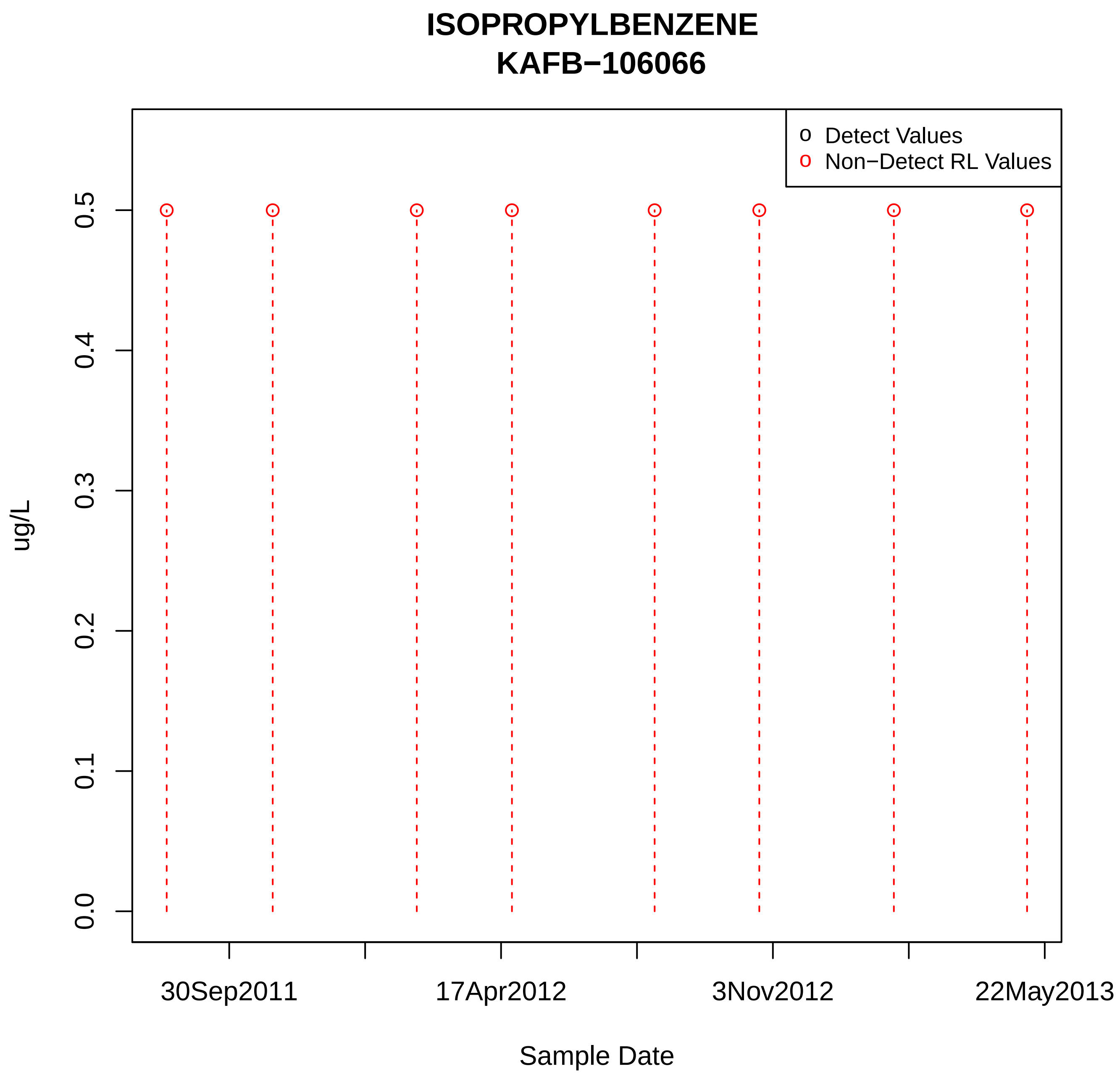
ISOPROPYLBENZENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ISOPROPYLBENZENE
KAFB−106062
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

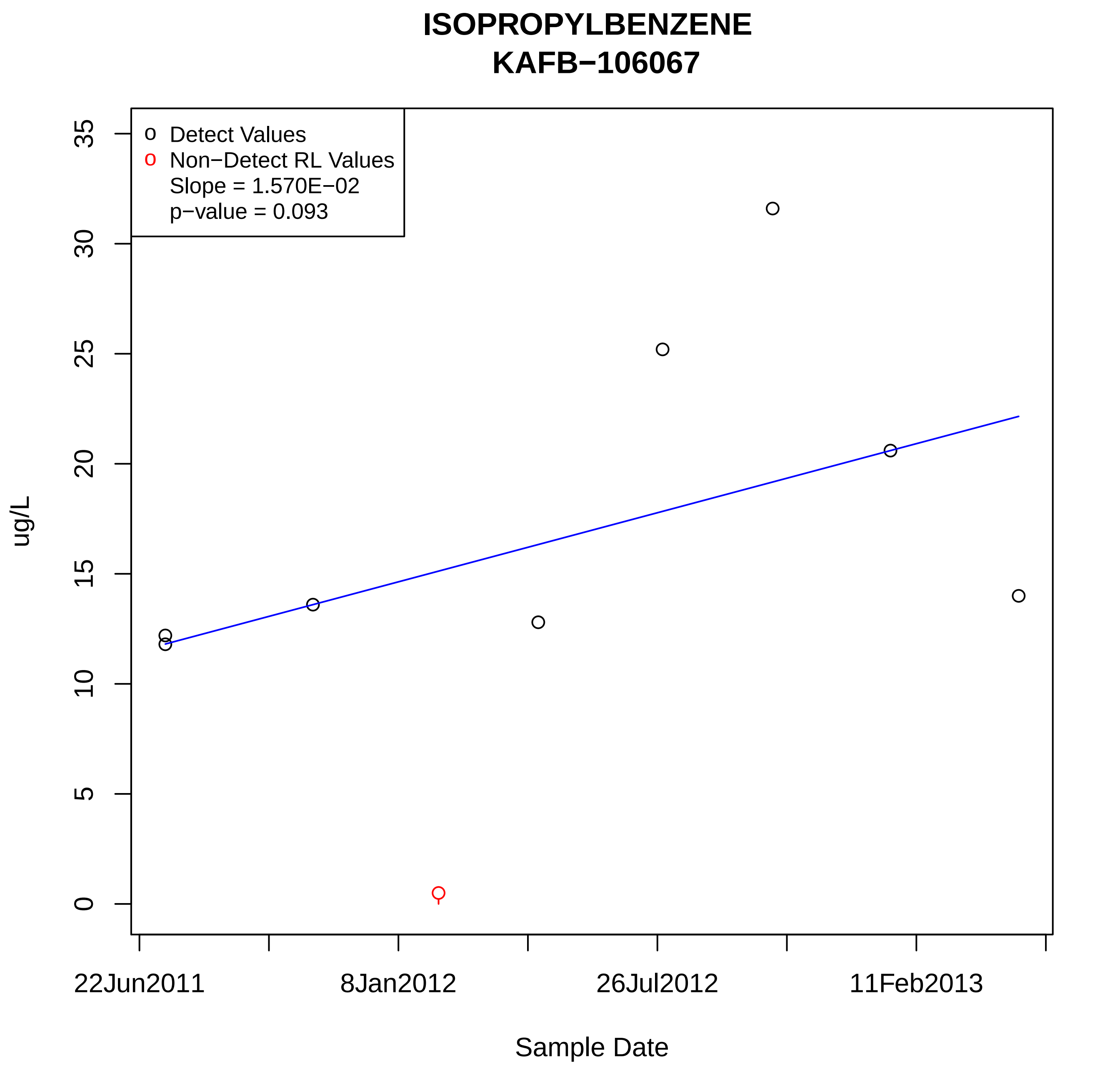

ISOPROPYLBENZENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
Slope = 5.305E−04
p−value = 0.061
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



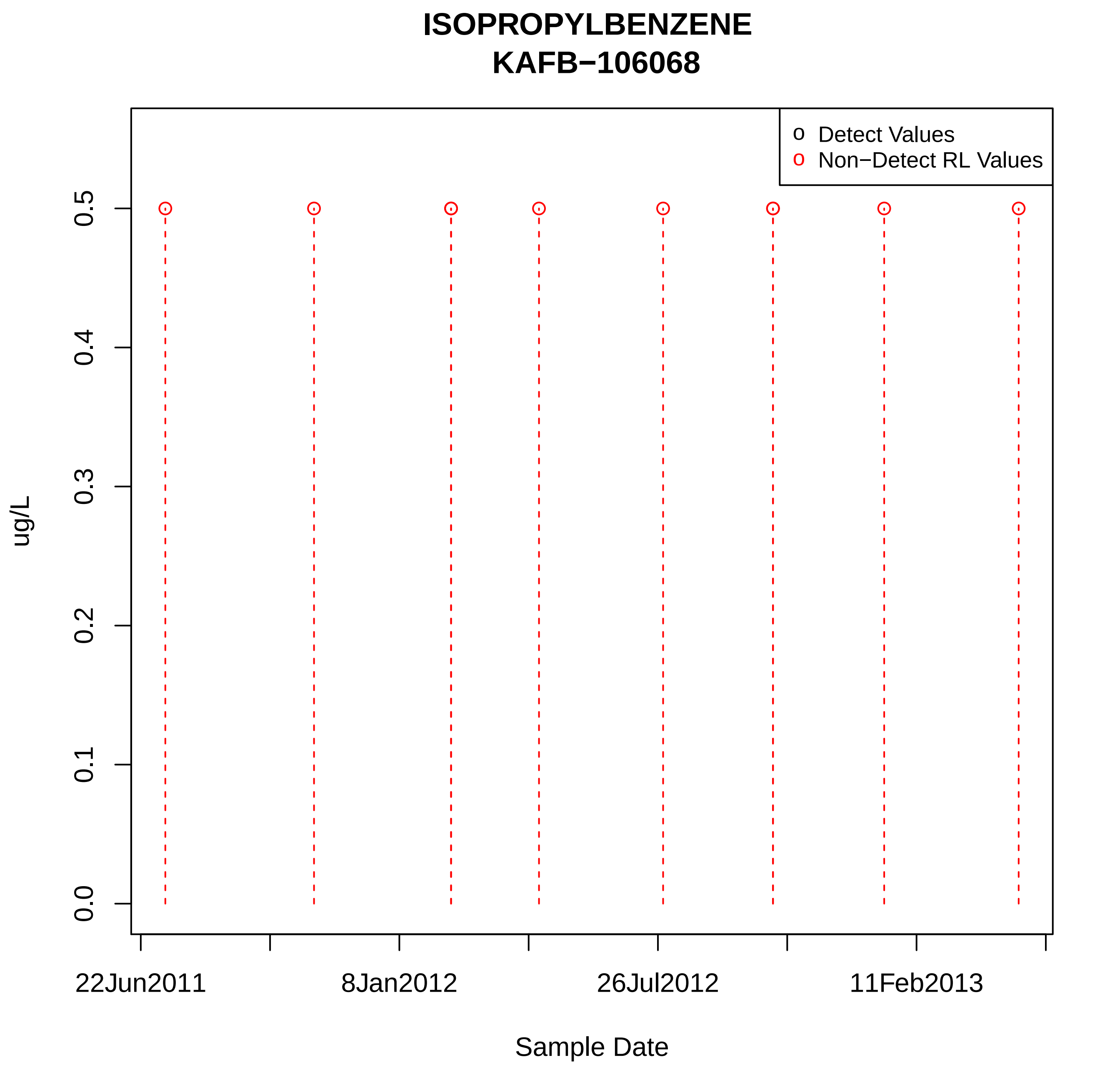
ISOPROPYLBENZENE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = −2.924E−02
p−value = 0.536
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

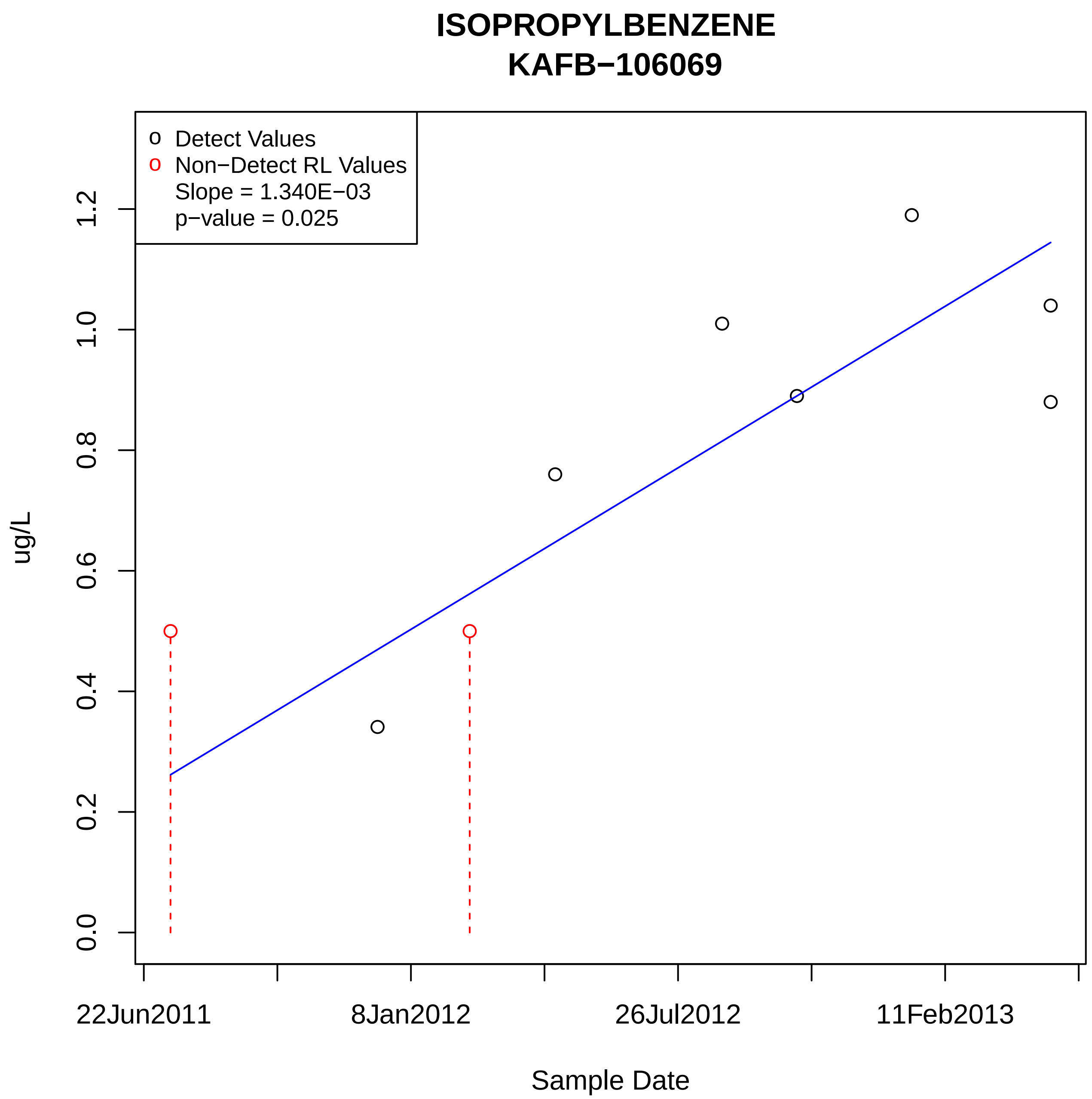


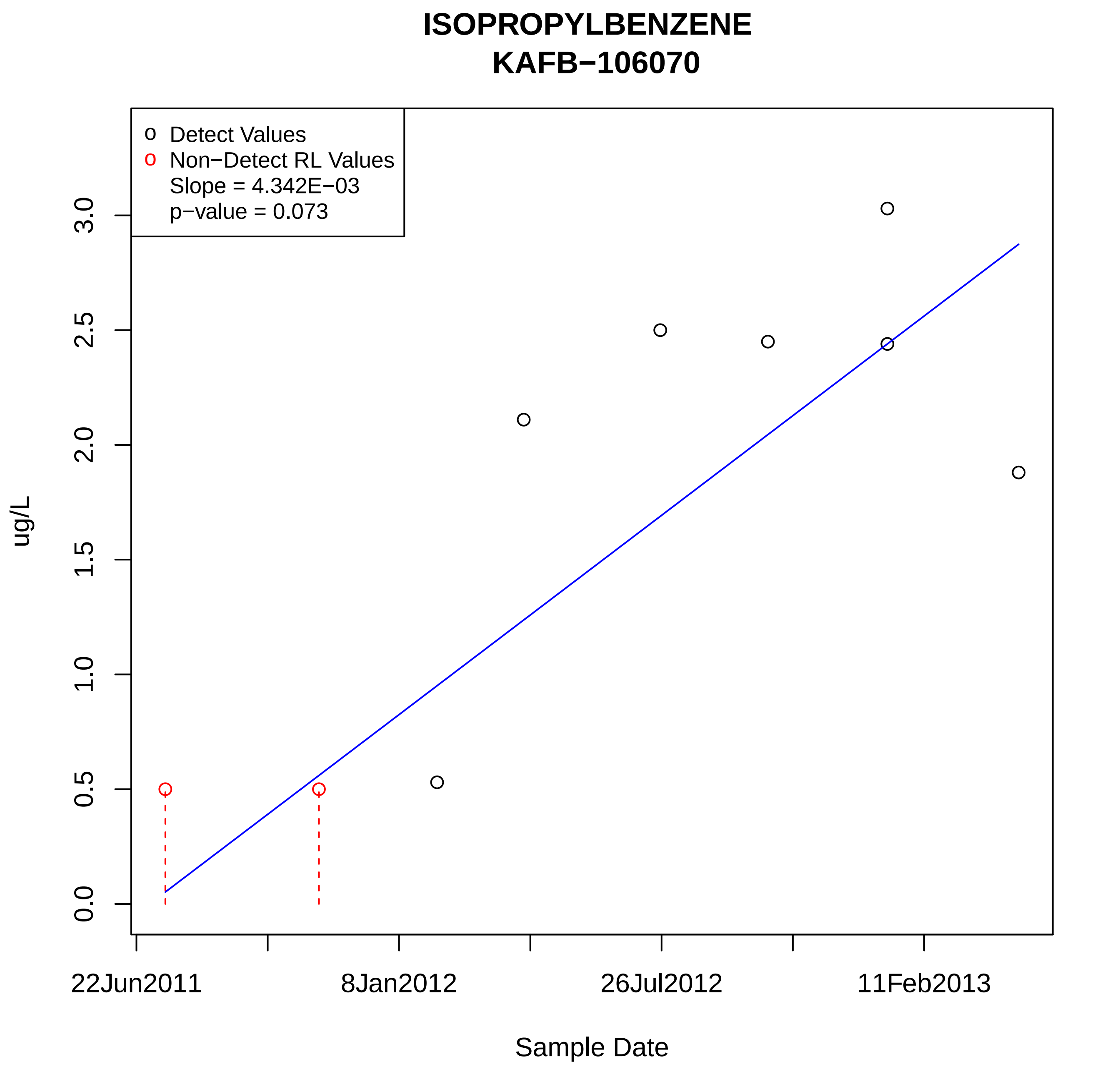
ISOPROPYLBENZENE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

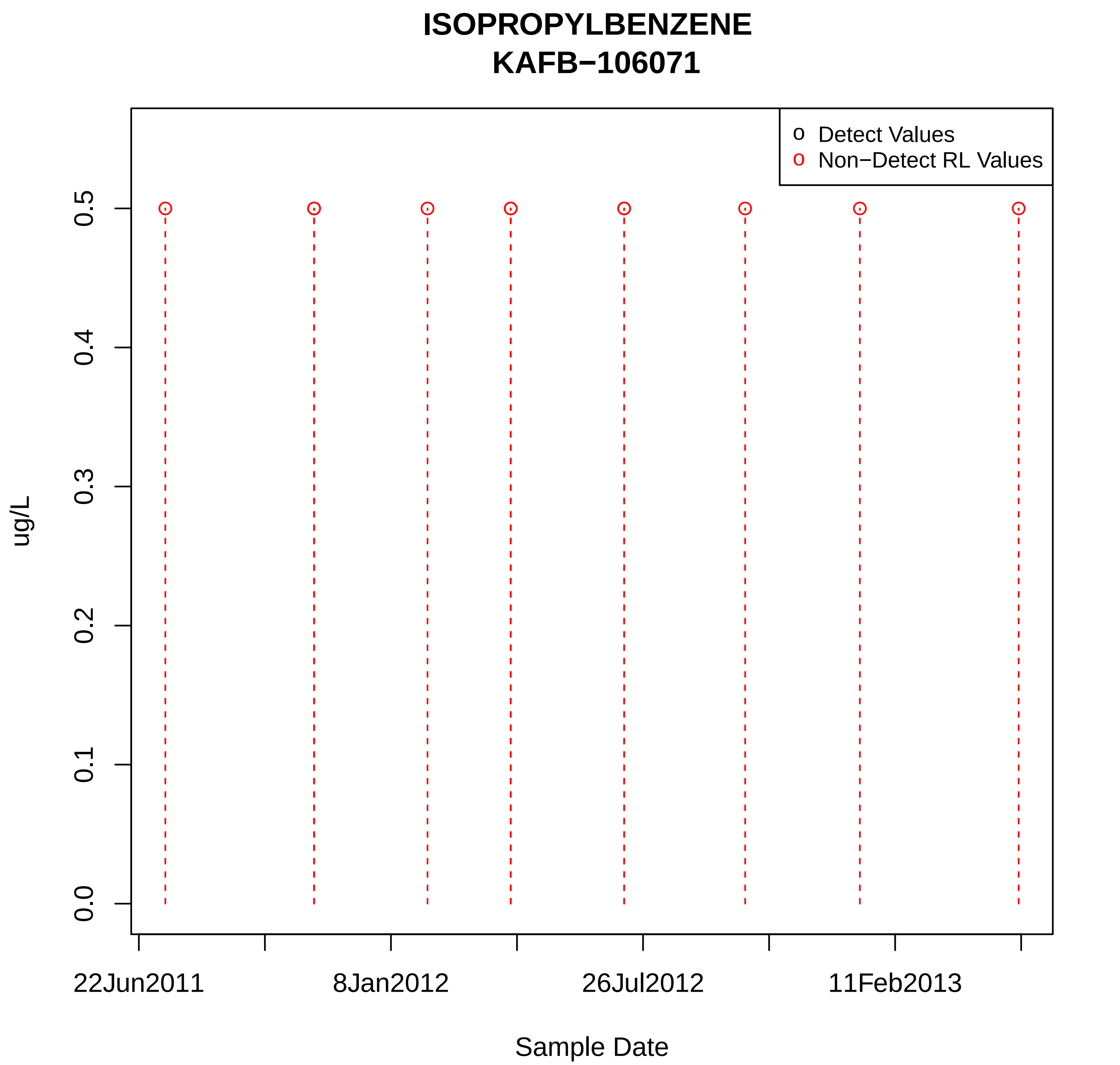


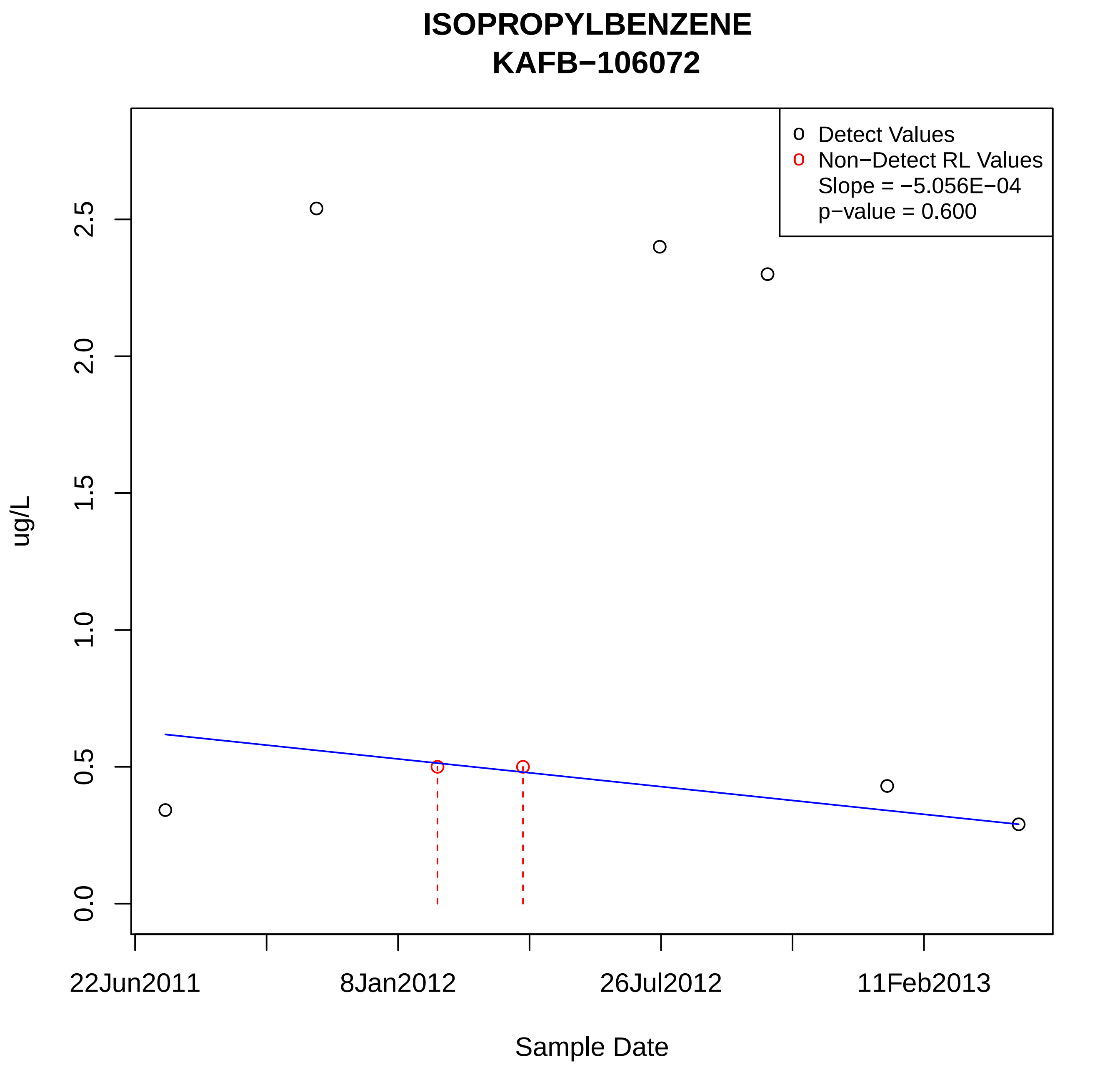
ISOPROPYLBENZENE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = 1.570E−02
p−value = 0.093
ug/L
0
5
10
15
20
25
30
35
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

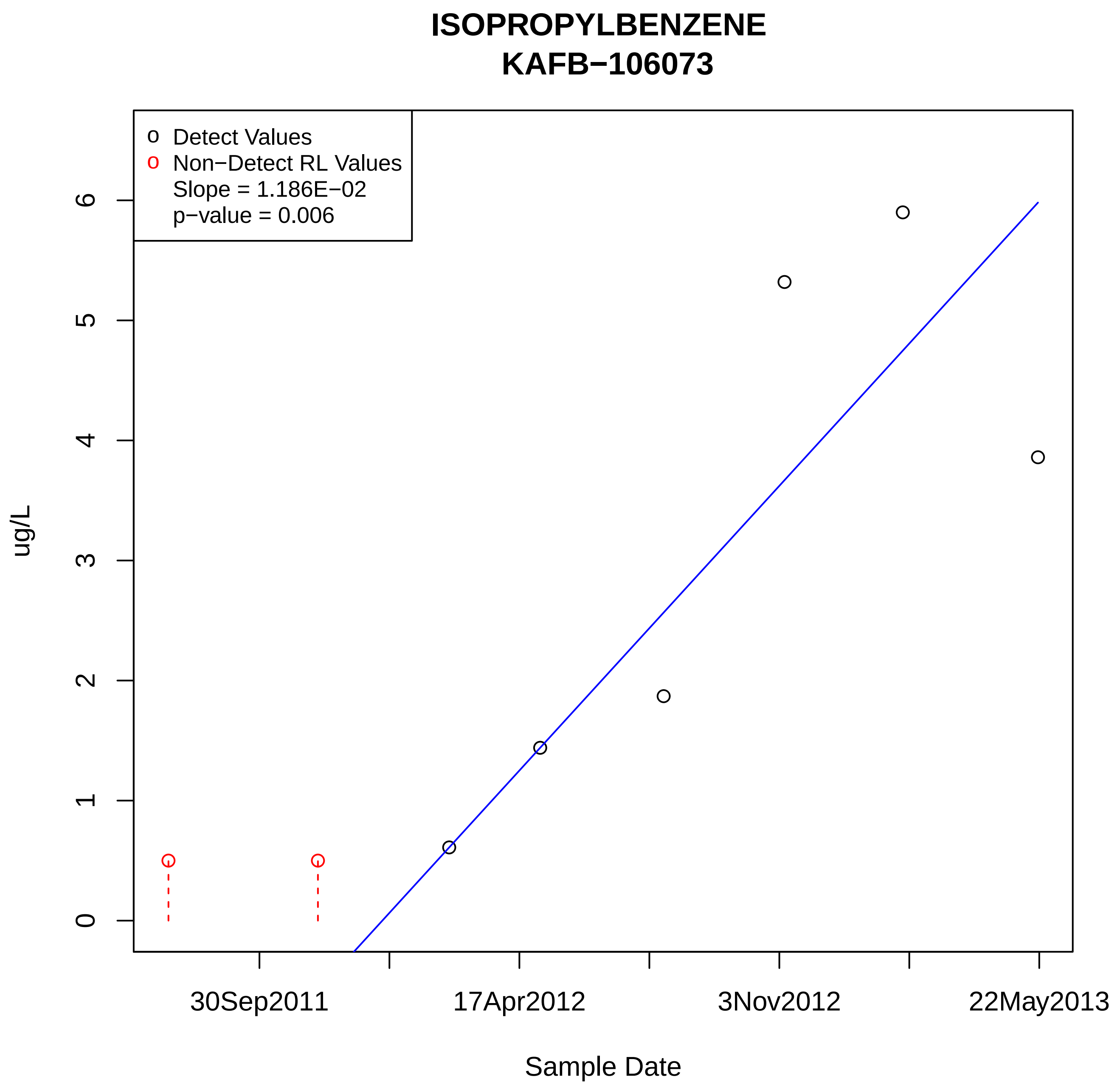

ISOPROPYLBENZENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

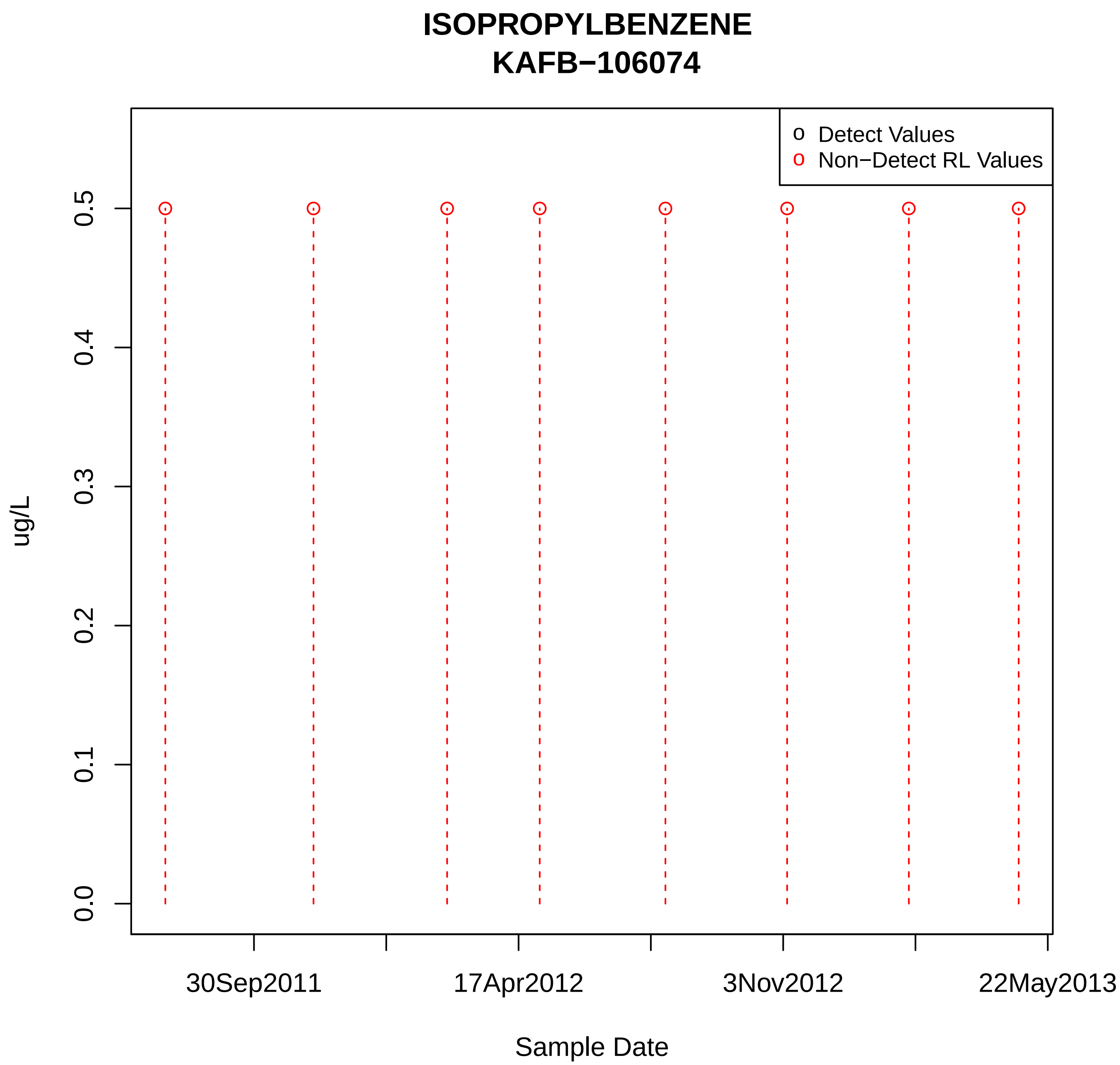

ISOPROPYLBENZENE
KAFB−106069
Detect Values
Non−Detect RL Values
Slope = 1.340E−03
p−value = 0.025
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ISOPROPYLBENZENE
KAFB−106070
Detect Values
Non−Detect RL Values
Slope = 4.342E−03
p−value = 0.073
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

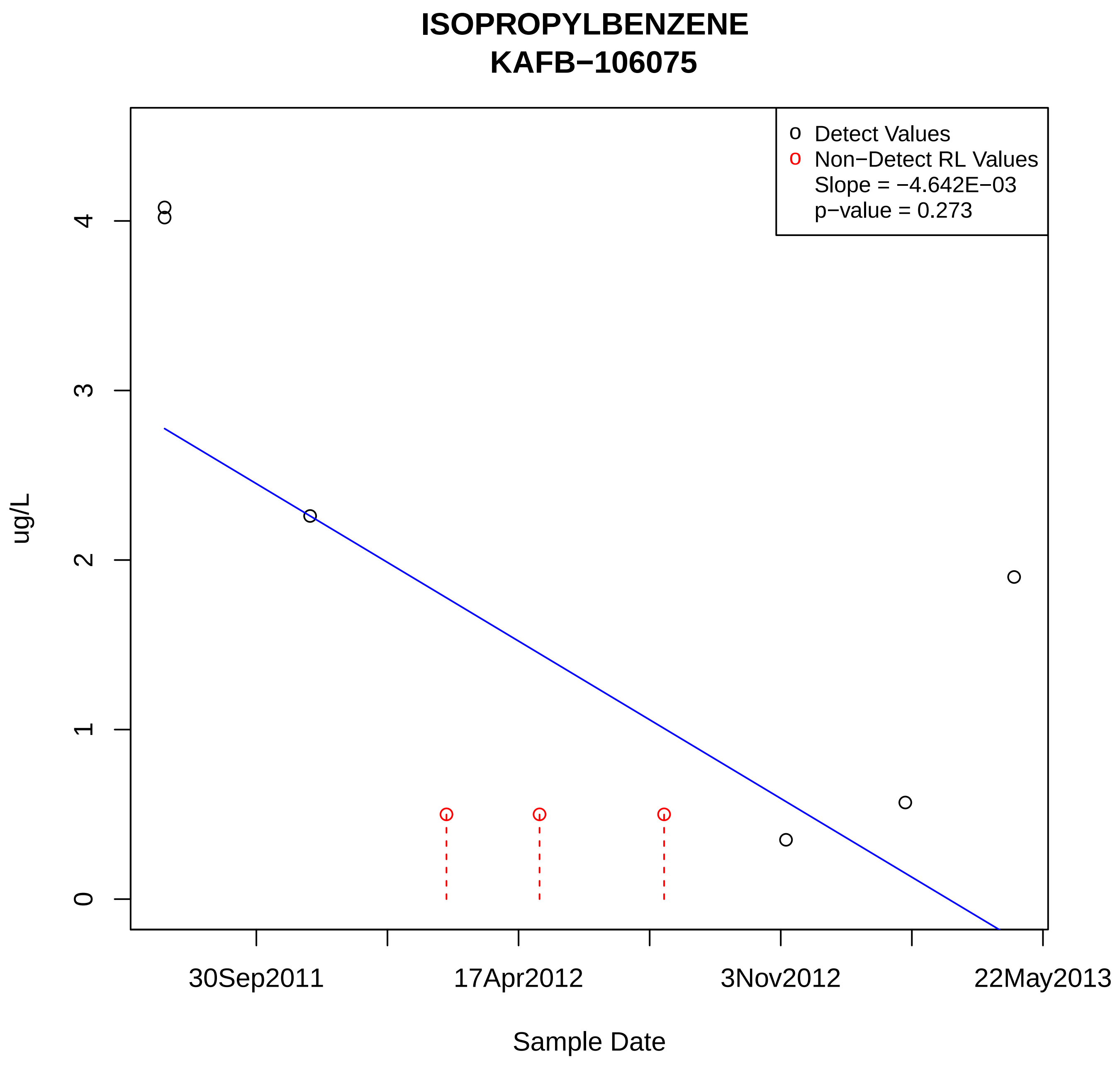

ISOPROPYLBENZENE
KAFB−106071
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


ISOPROPYLBENZENE
KAFB−106072
Detect Values
Non−Detect RL Values
Slope = −5.056E−04
p−value = 0.600
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

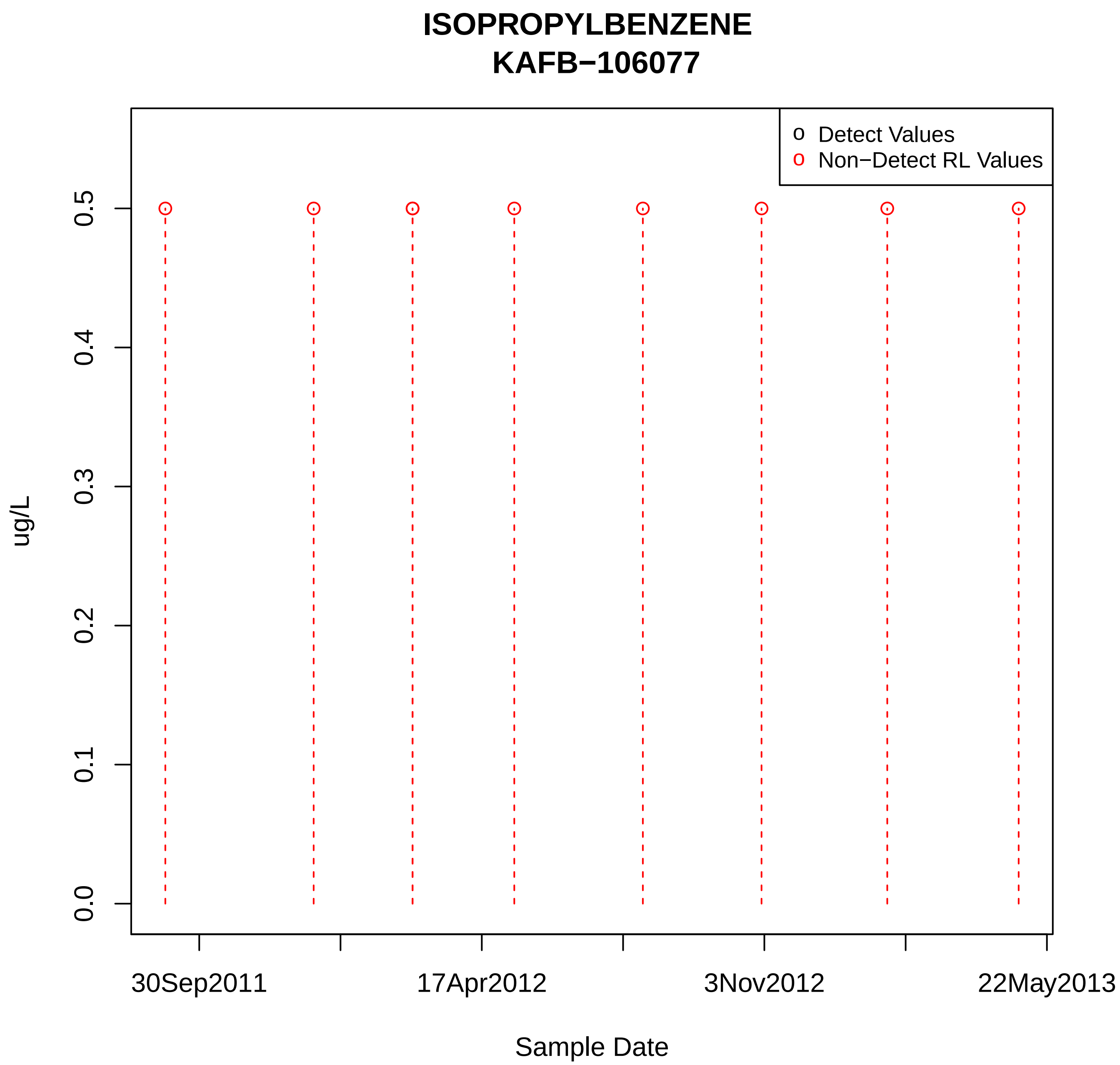

ISOPROPYLBENZENE
KAFB−106073
Detect Values
Non−Detect RL Values
Slope = 1.186E−02
p−value = 0.006
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

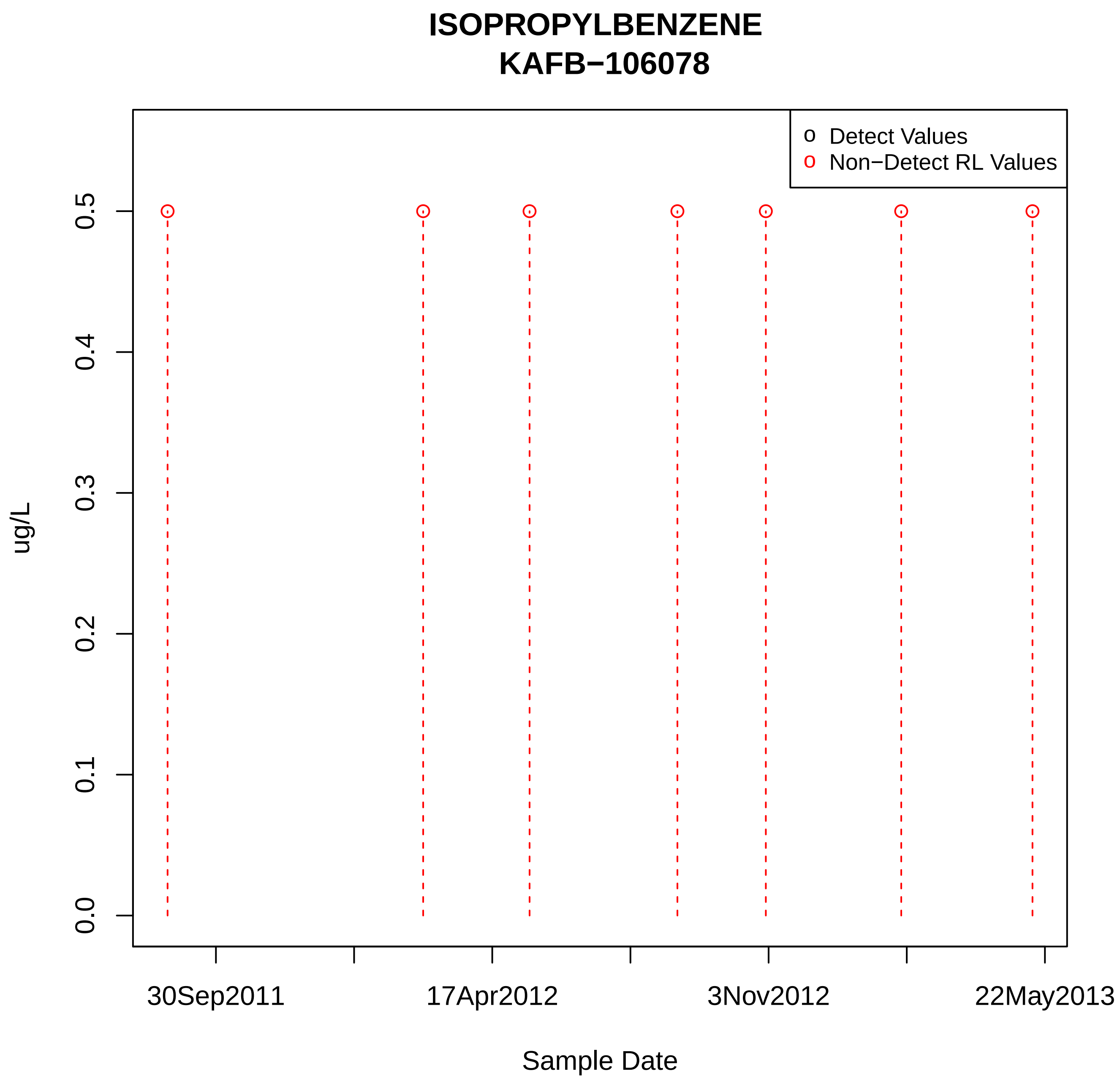


ISOPROPYLBENZENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

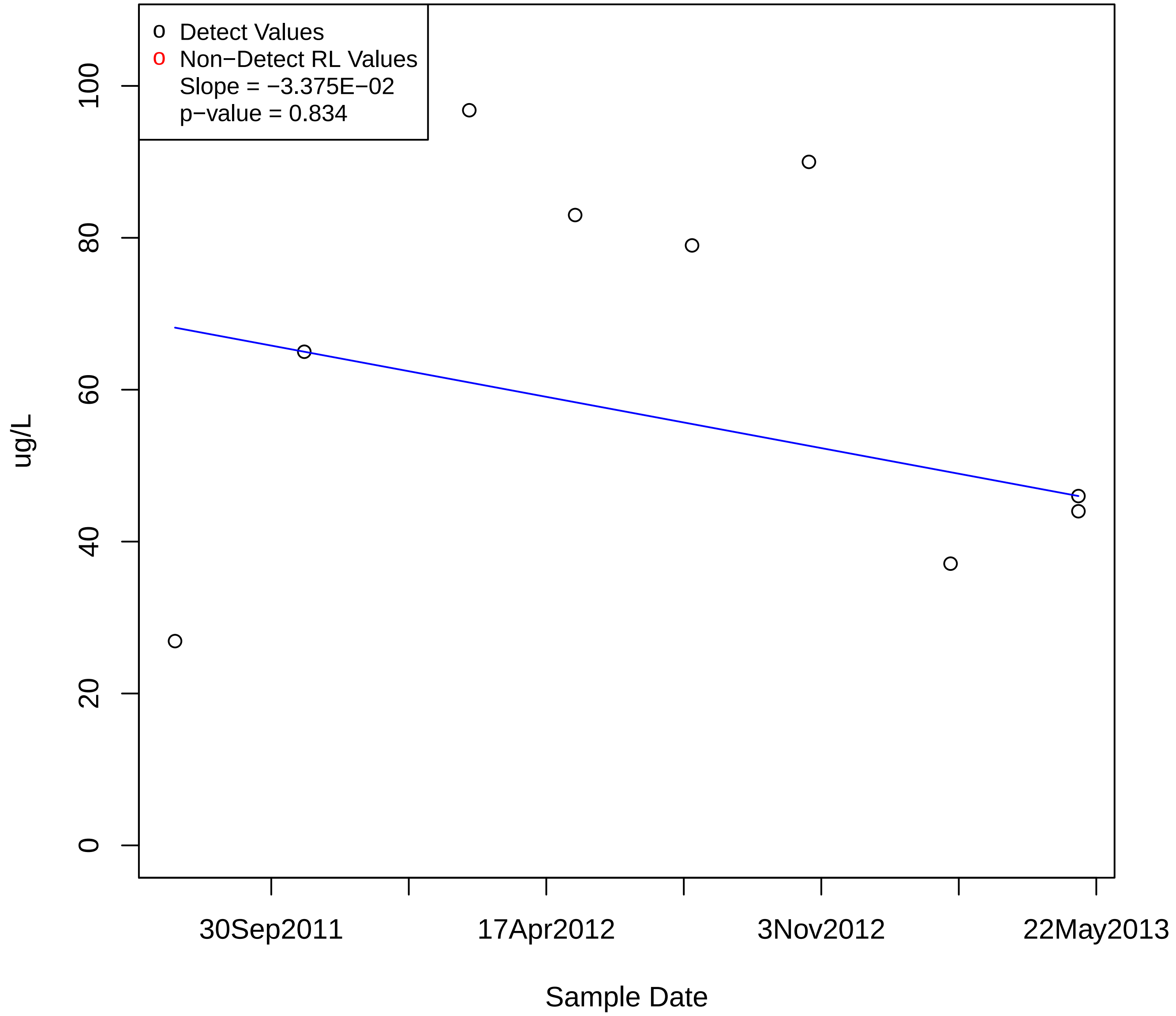


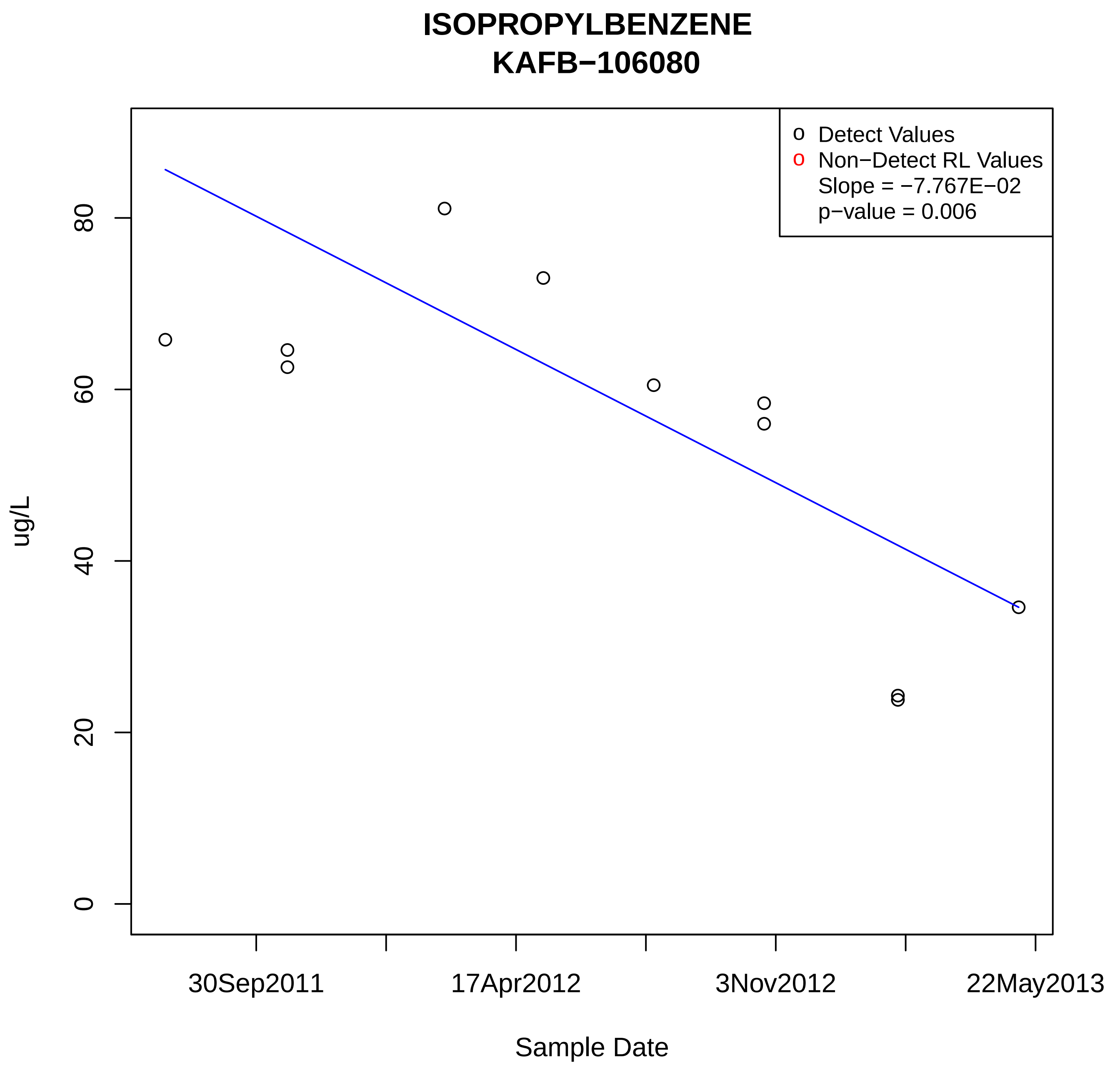
ISOPROPYLBENZENE
KAFB−106075
Detect Values
Non−Detect RL Values
Slope = −4.642E−03
p−value = 0.273
ug/L
0
1
2
3
4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ISOPROPYLBENZENE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

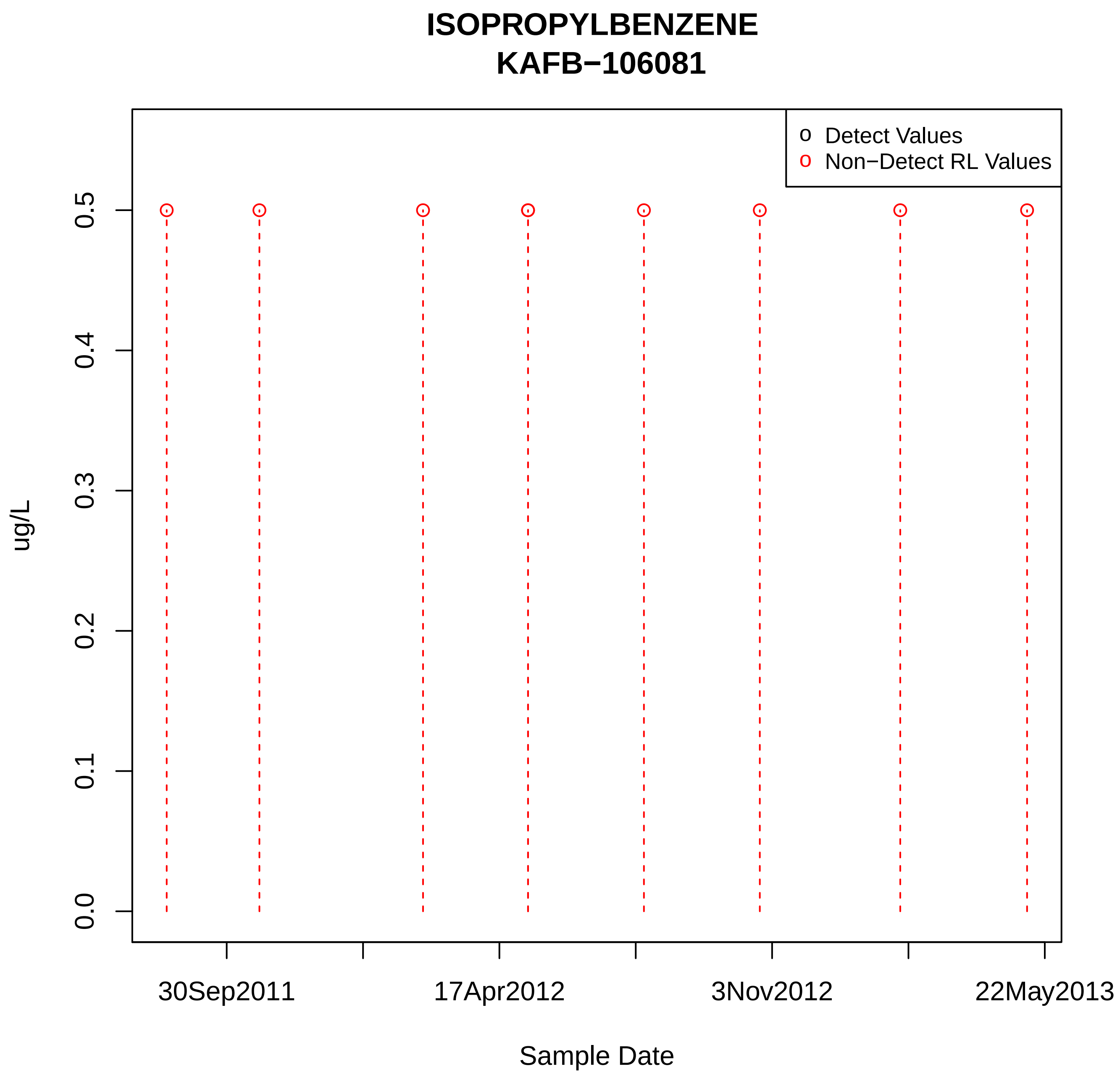

ISOPROPYLBENZENE
KAFB−106078
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

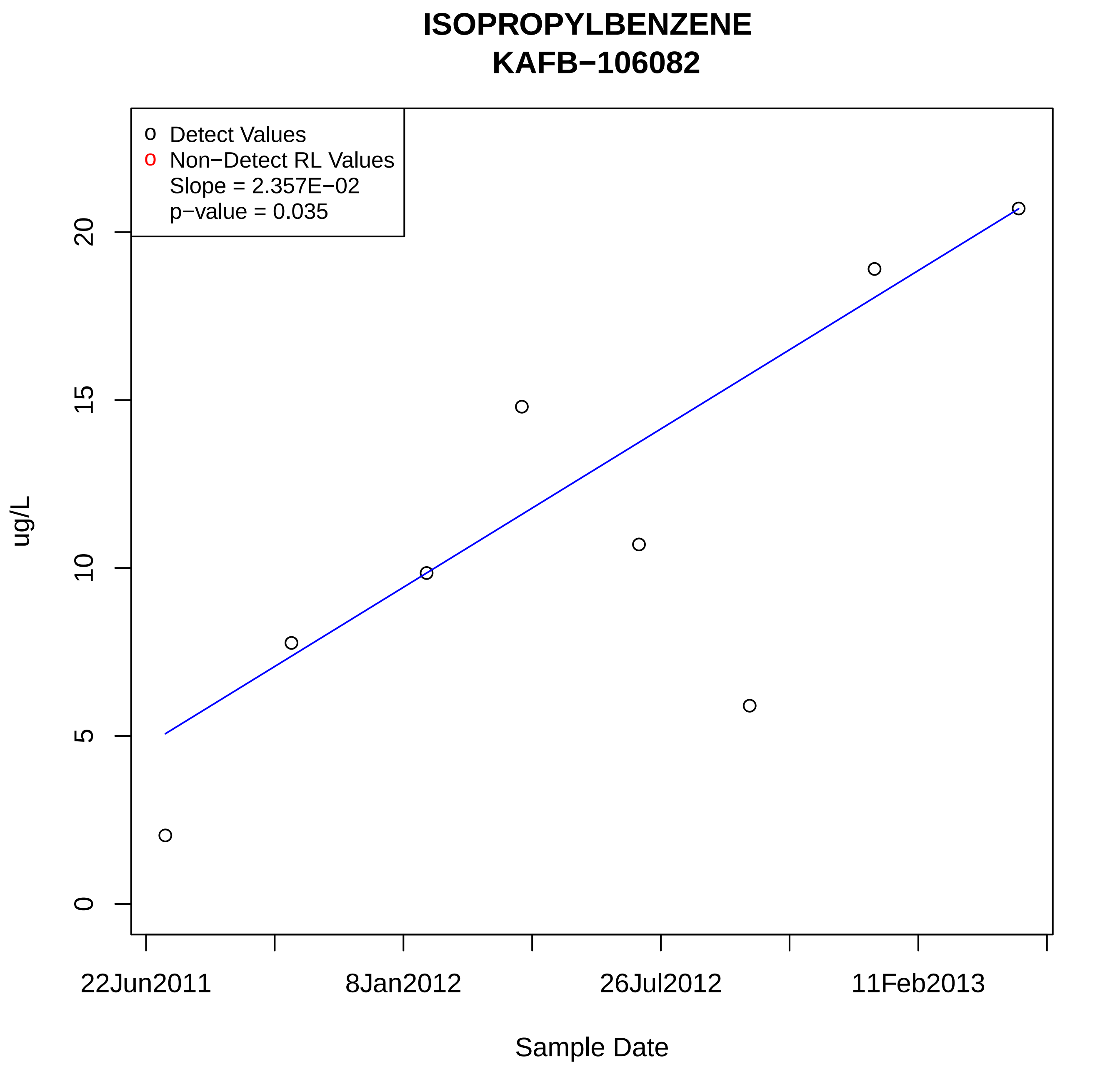
ISOPROPYLBENZENE
KAFB−106079



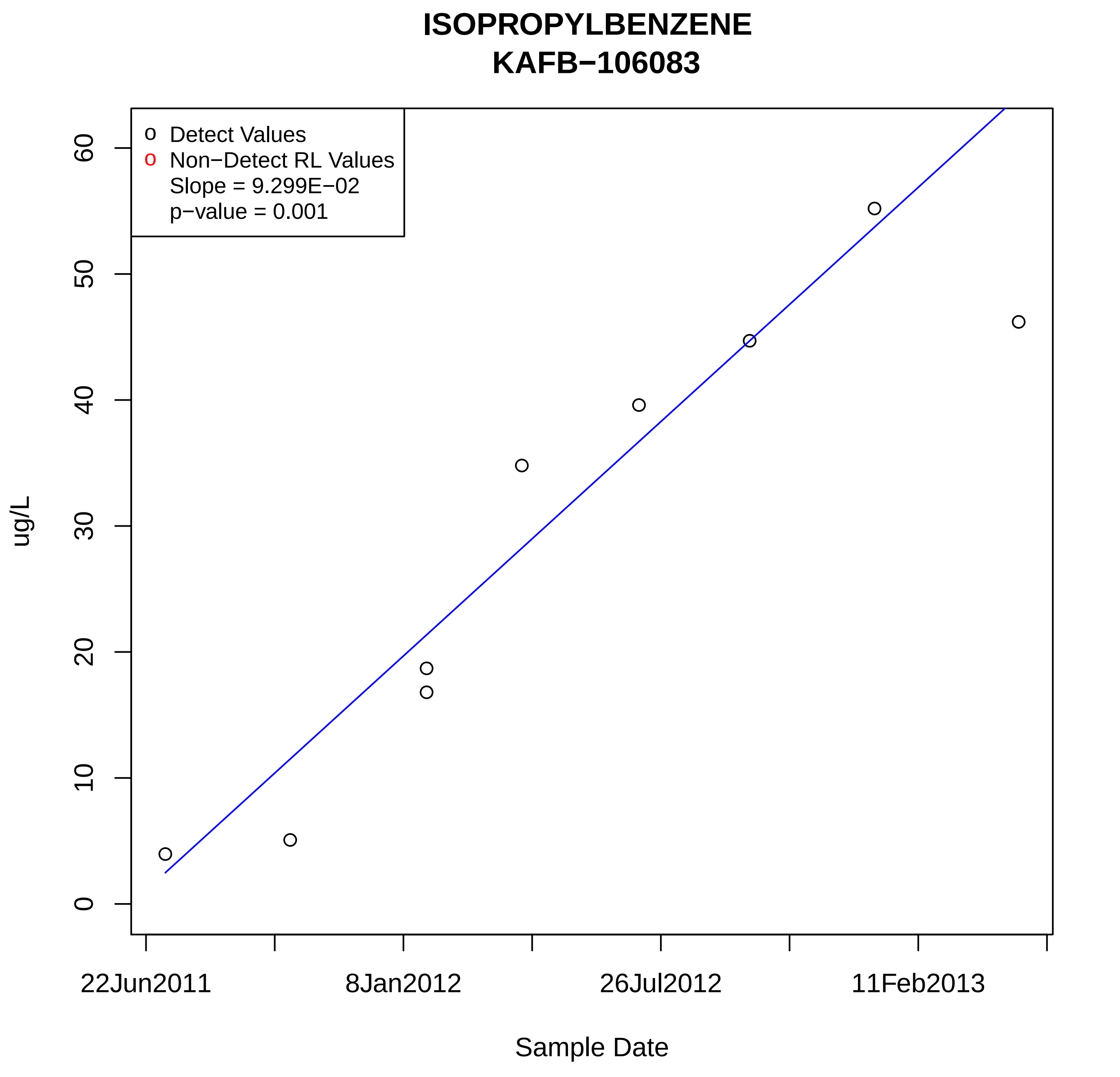


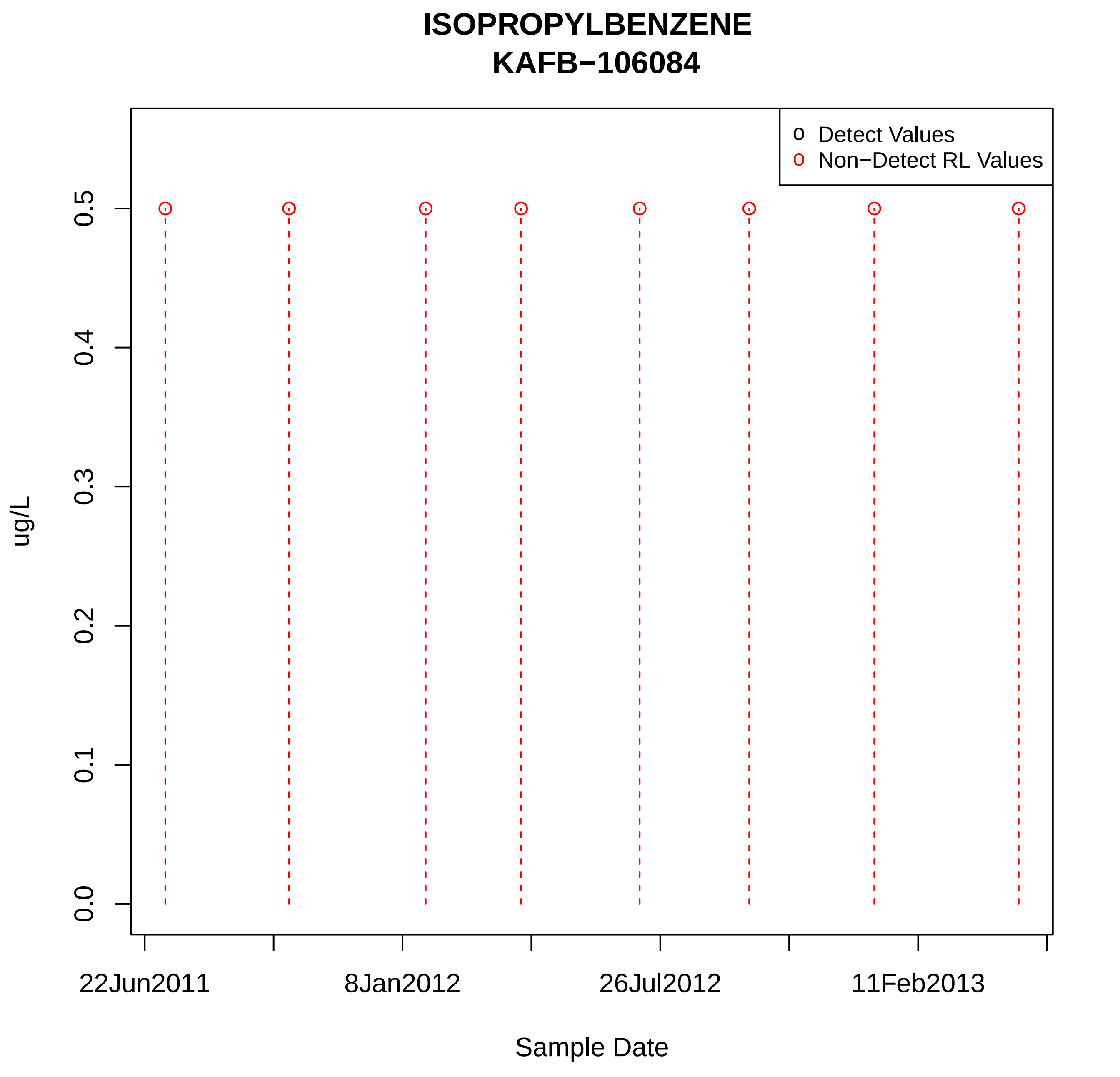
ISOPROPYLBENZENE
KAFB−106080
o Detect Values
o Non−Detect RL Values
Slope = −7.767E−02
p−value = 0.006
0
20
40
60
80
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ISOPROPYLBENZENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

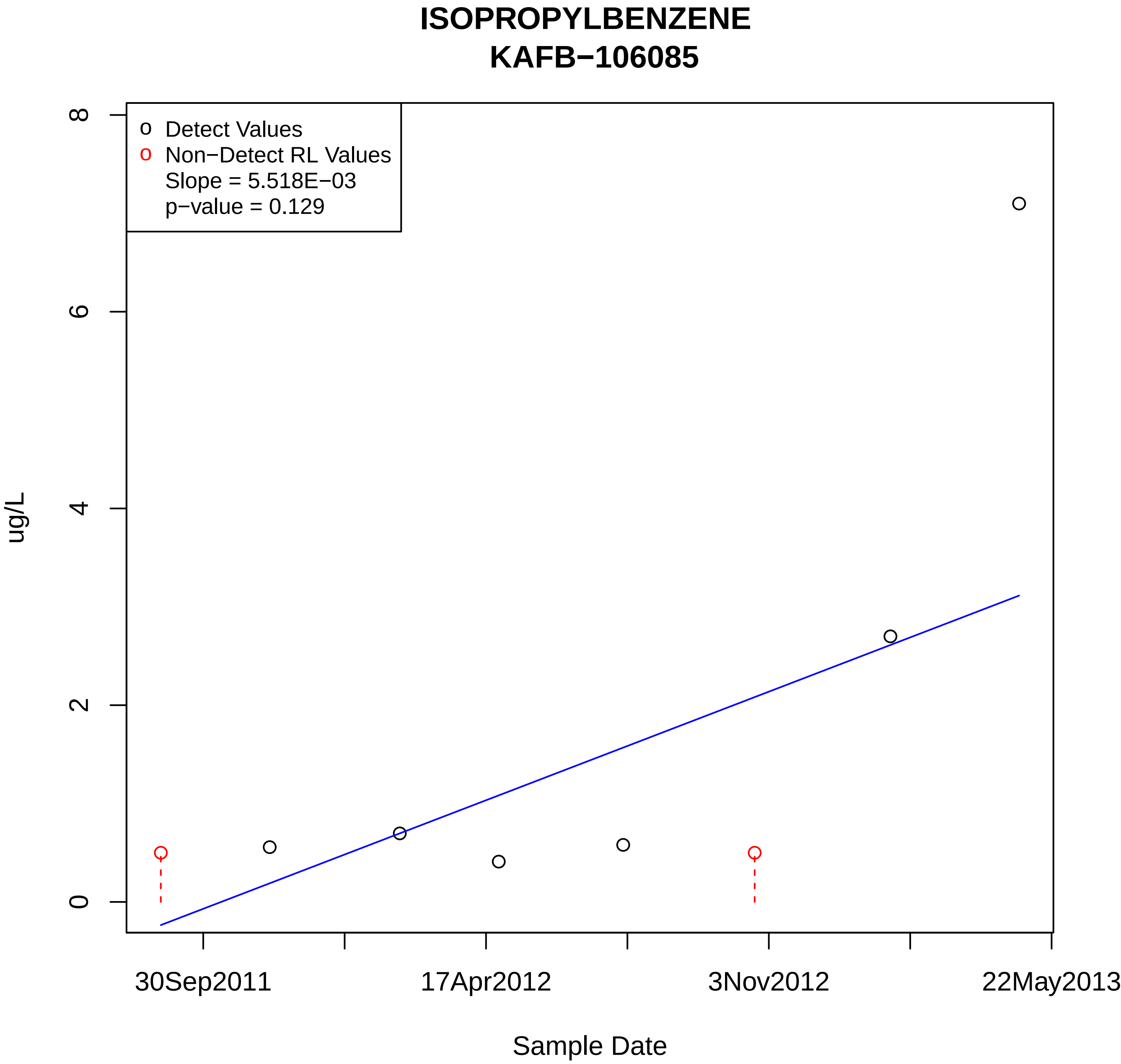


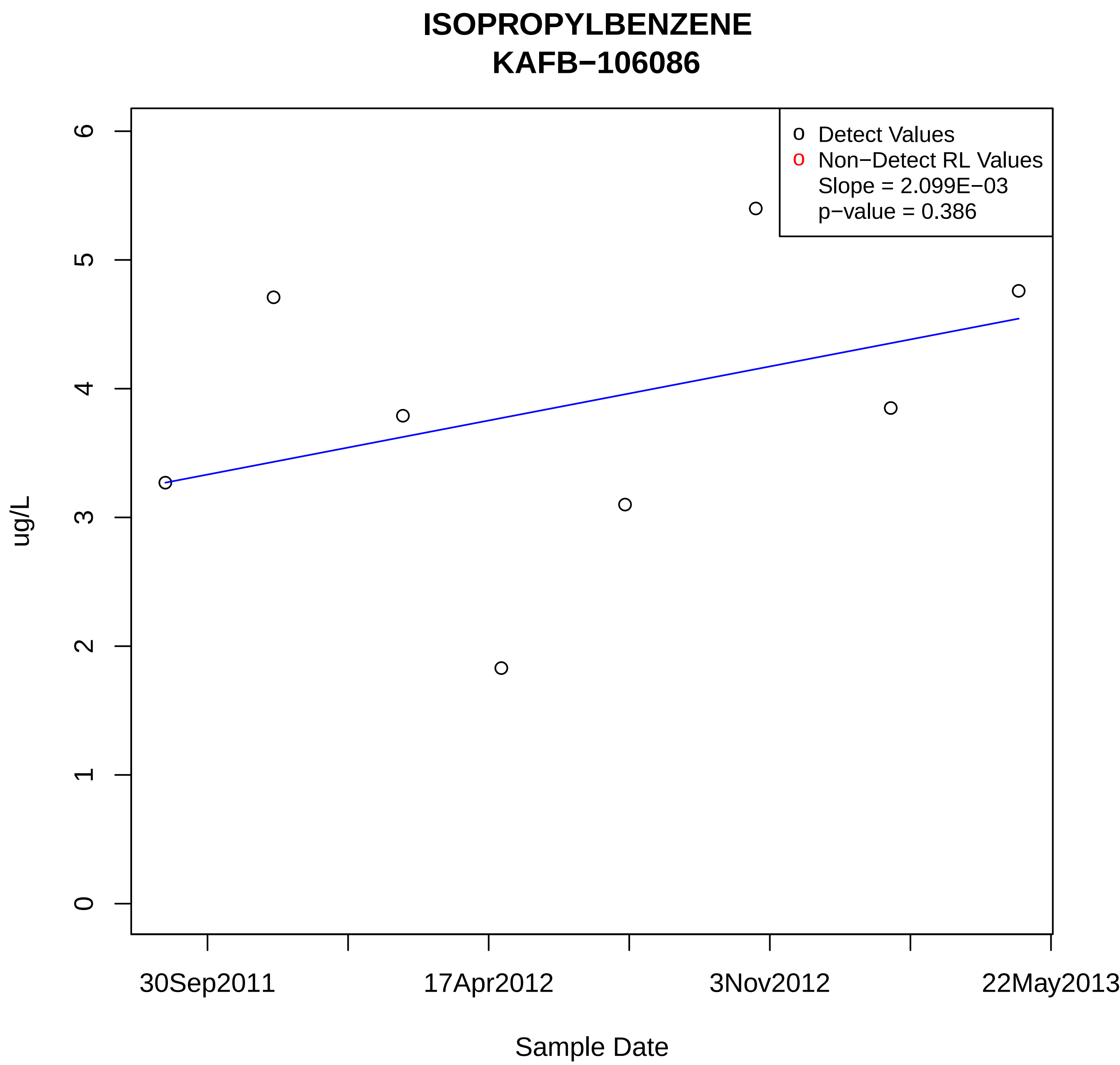
ISOPROPYLBENZENE
KAFB−106082
Detect Values
Non−Detect RL Values
Slope = 2.357E−02
p−value = 0.035
ug/L
0
5
10
15
20
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

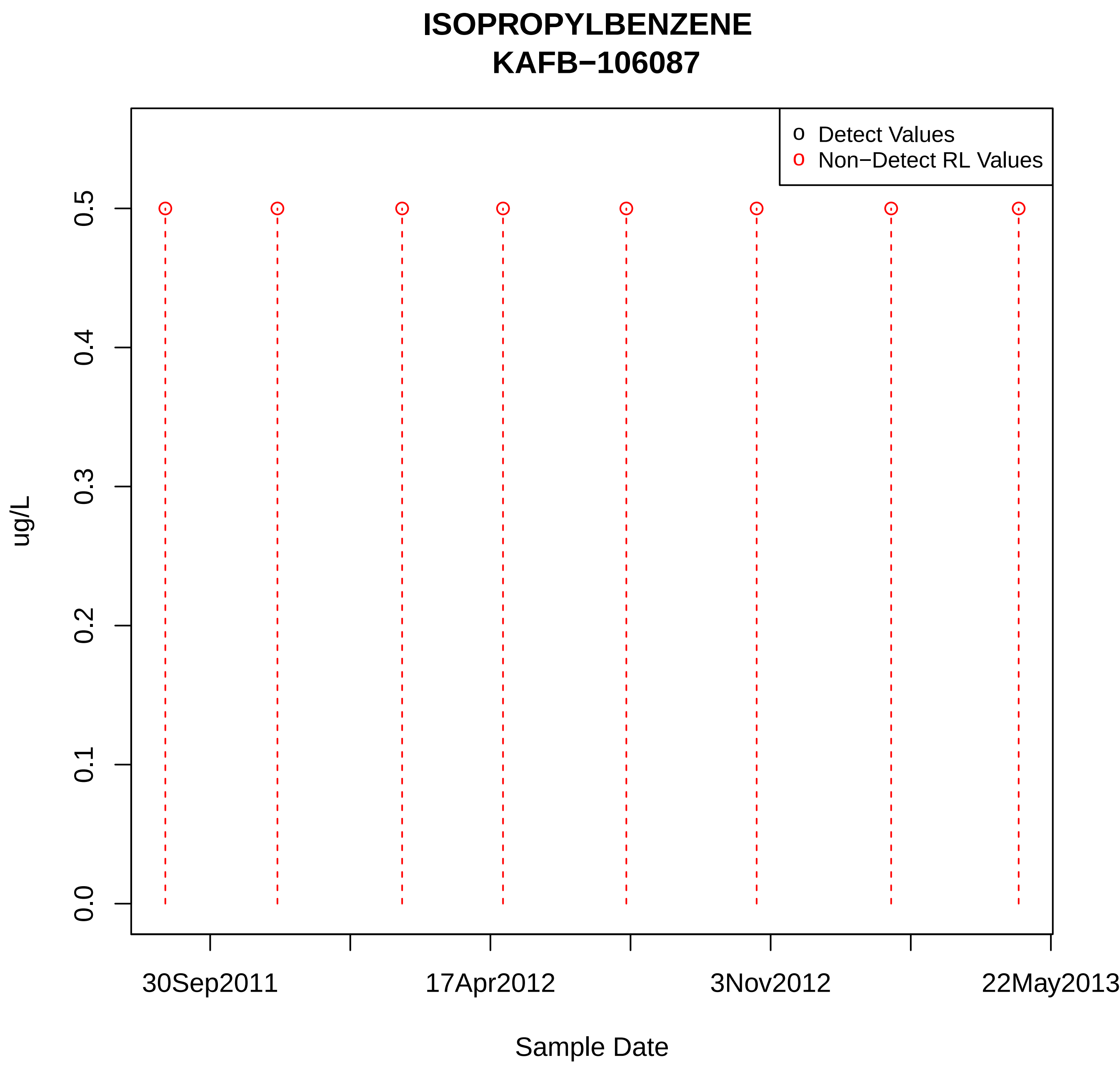

ISOPROPYLBENZENE
KAFB−106083
Detect Values
Non−Detect RL Values
Slope = 9.299E−02
p−value = 0.001
ug/L
0
10
20
30
40
50
60
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



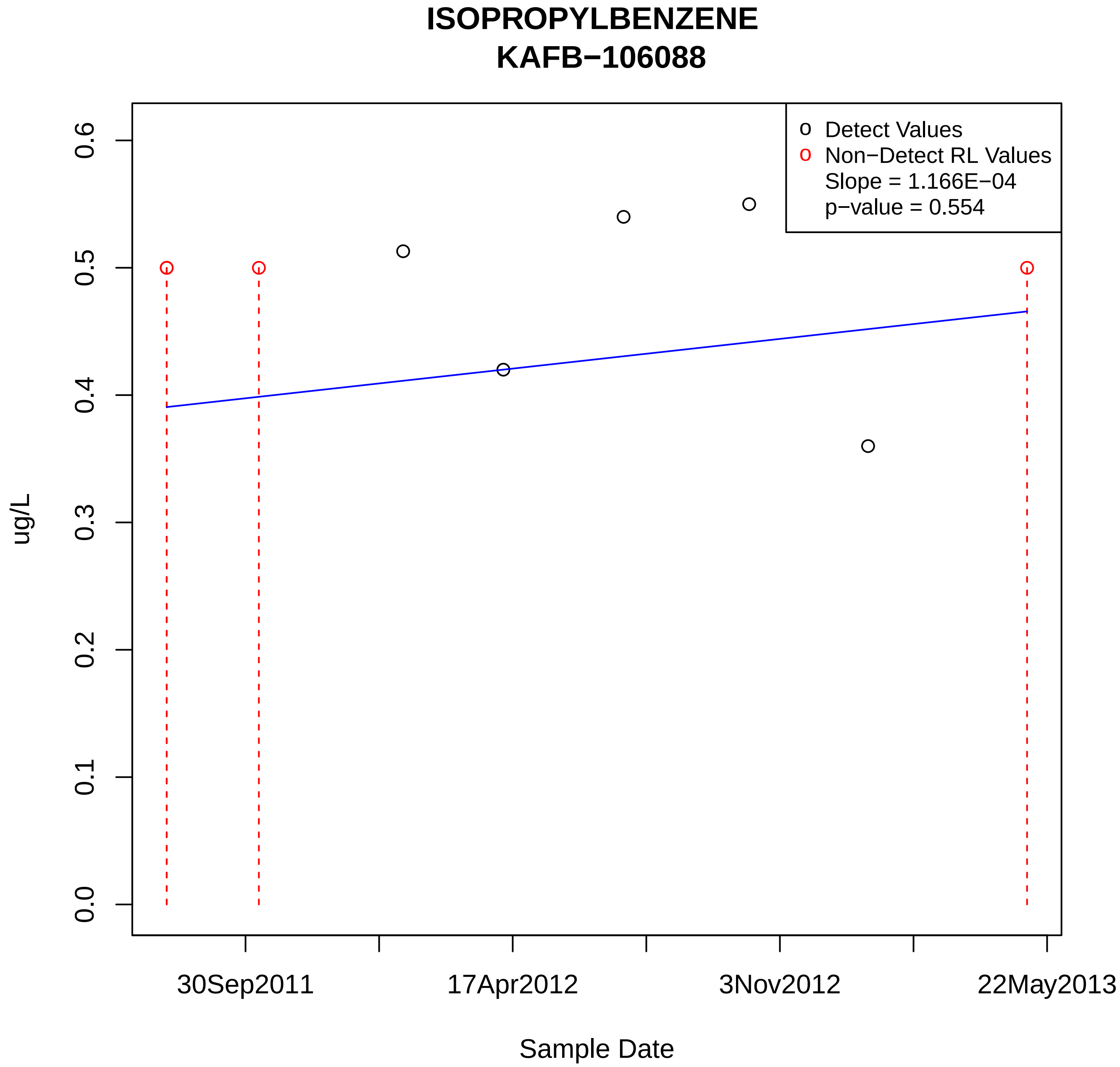
ISOPROPYLBENZENE
KAFB−106084
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

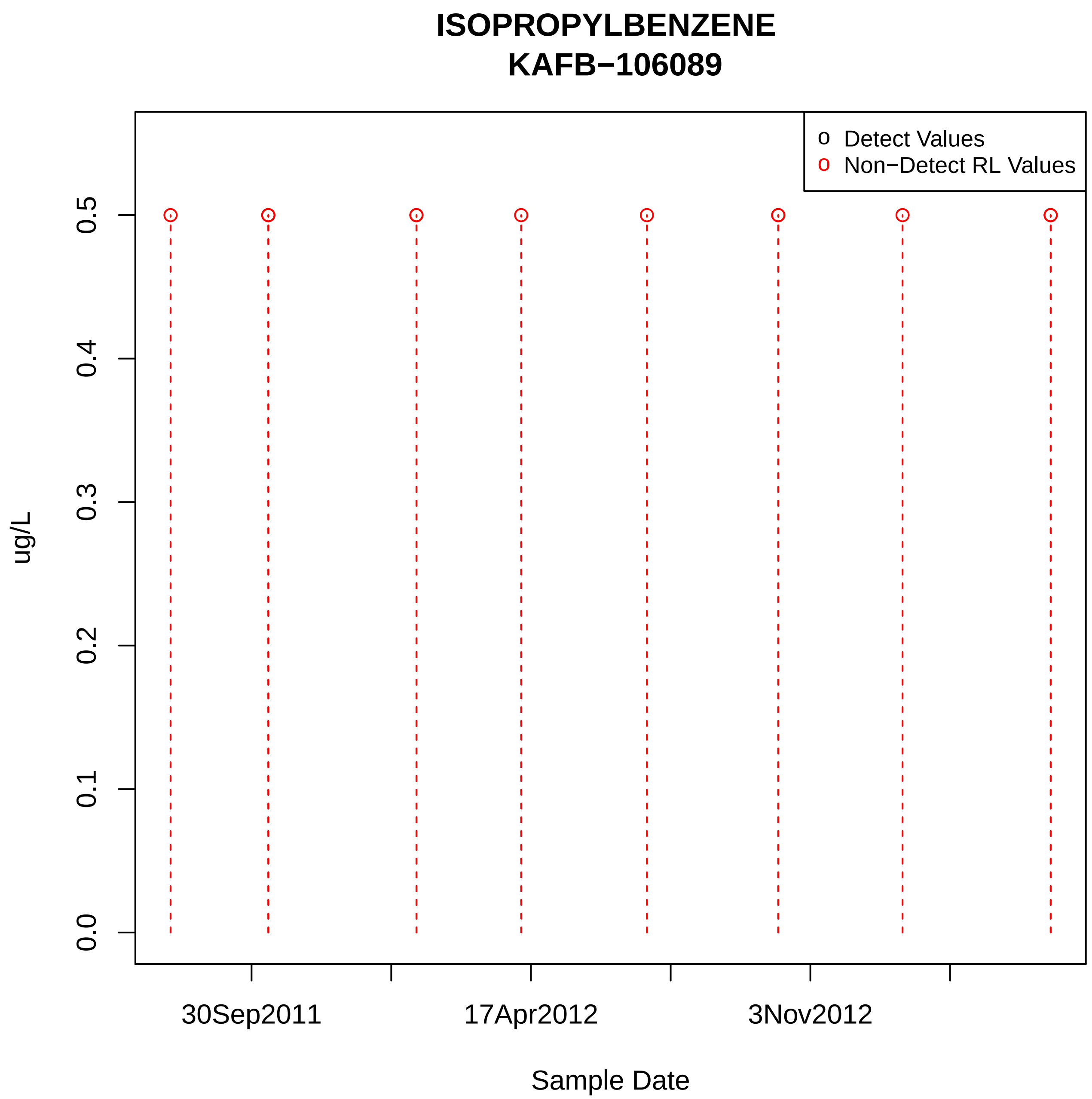

ISOPROPYLBENZENE
KAFB−106085
o Detect Values
o Non−Detect RL Values
Slope = 5.518E−03
p−value = 0.129
ug/L
0
2
4
6
8
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

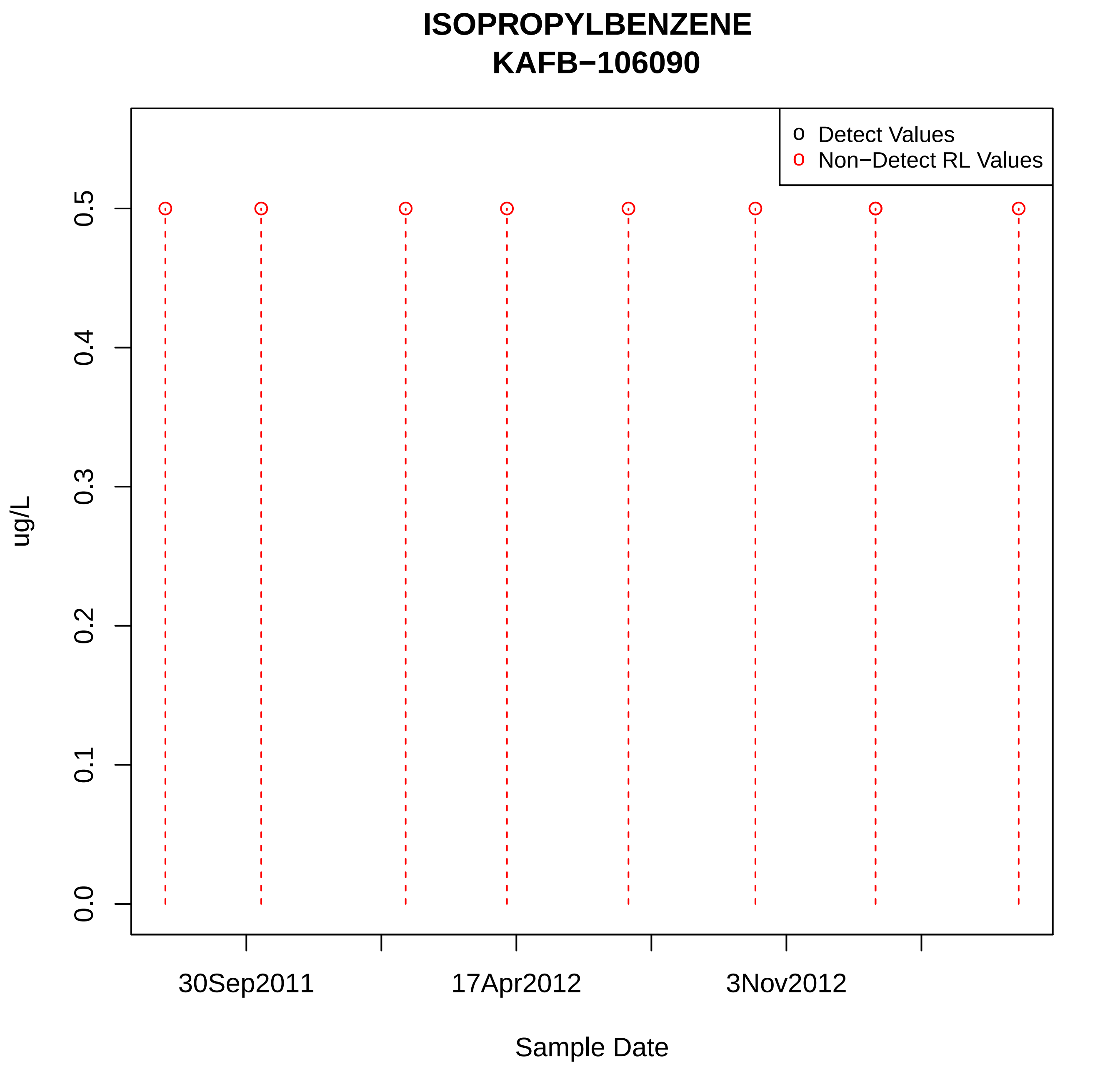

ISOPROPYLBENZENE
KAFB−106086
o Detect Values
o Non−Detect RL Values
Slope = 2.099E−03
p−value = 0.386
ug/L
0
1
2
3
4
5
6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

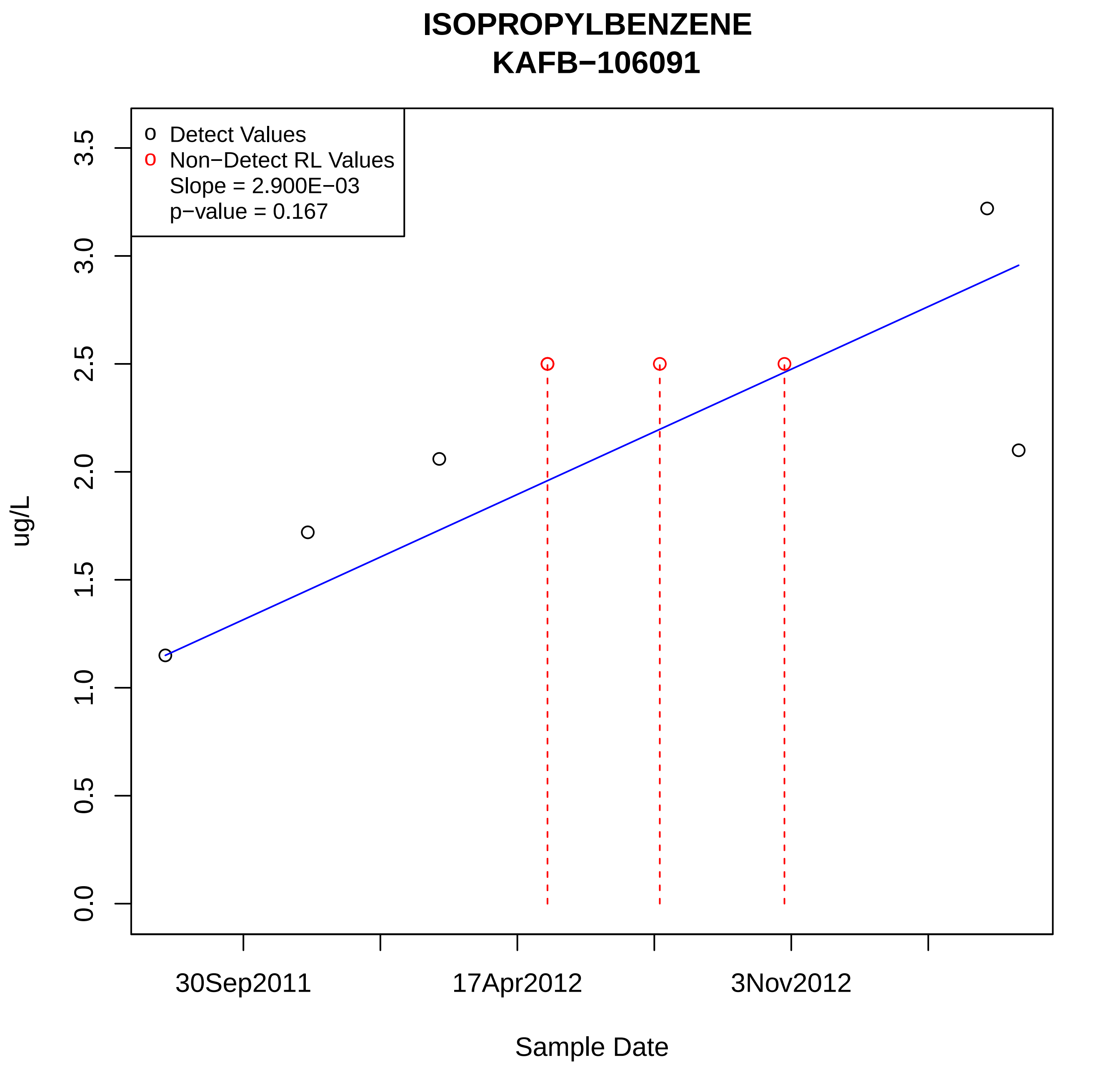


ISOPROPYLBENZENE
KAFB−106087
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

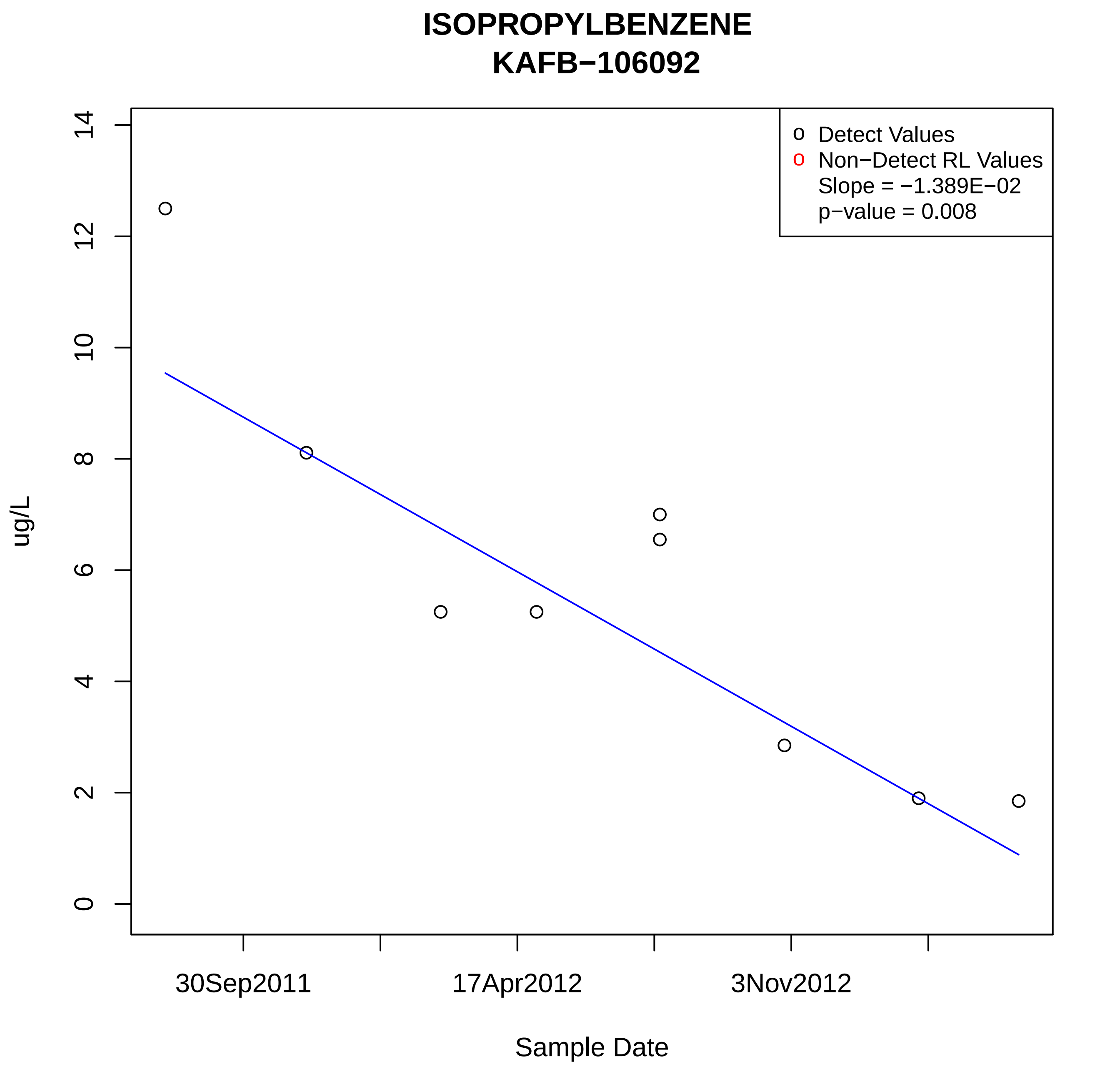

ISOPROPYLBENZENE
KAFB−106088
o Detect Values
o Non−Detect RL Values
Slope = 1.166E−04
p−value = 0.554
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
0.6
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

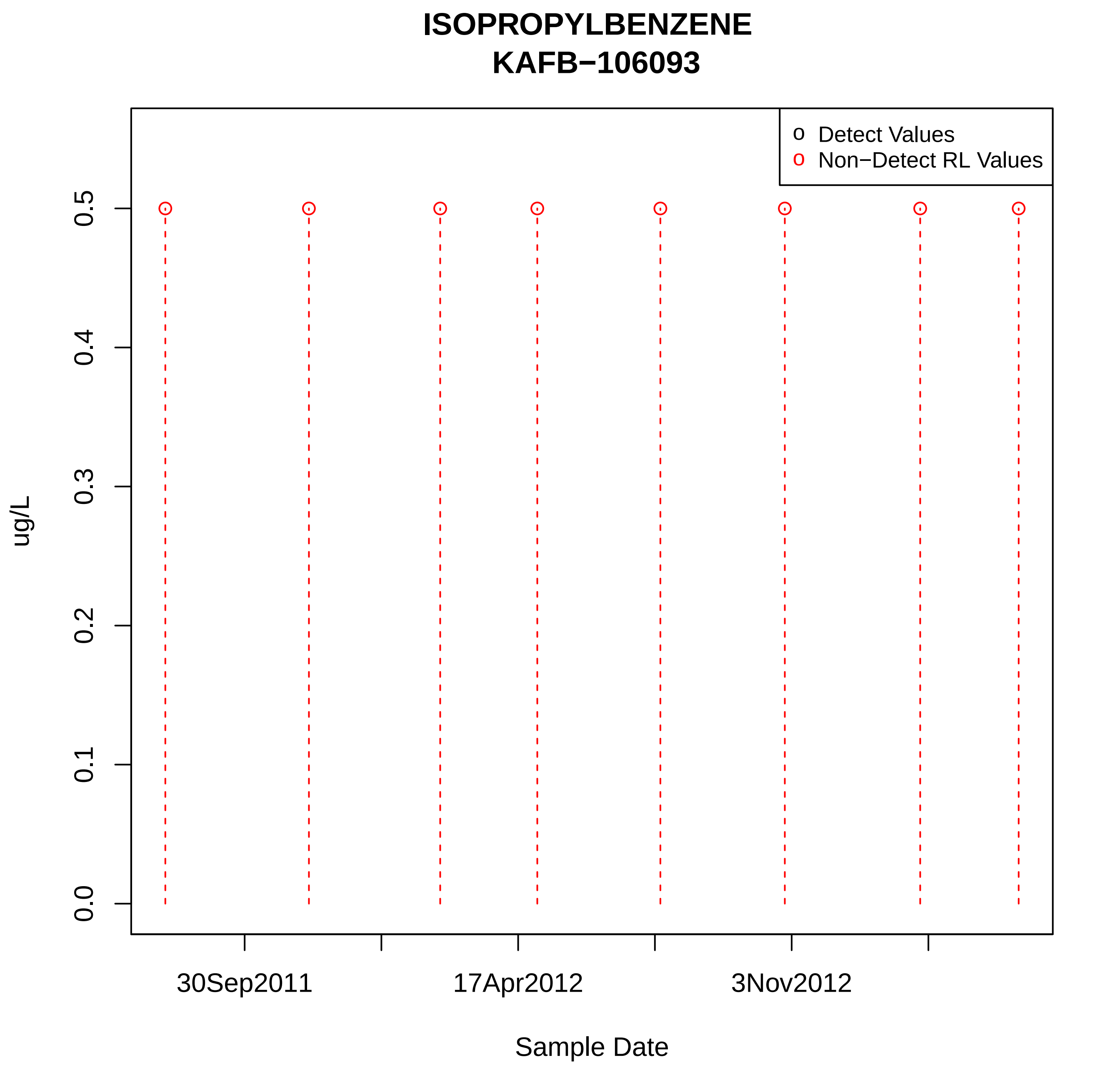

ISOPROPYLBENZENE
KAFB−106089
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
o Detect Values
o Non−Detect RL Values
30Sep2011
17Apr2012
3Nov2012
Sample Date

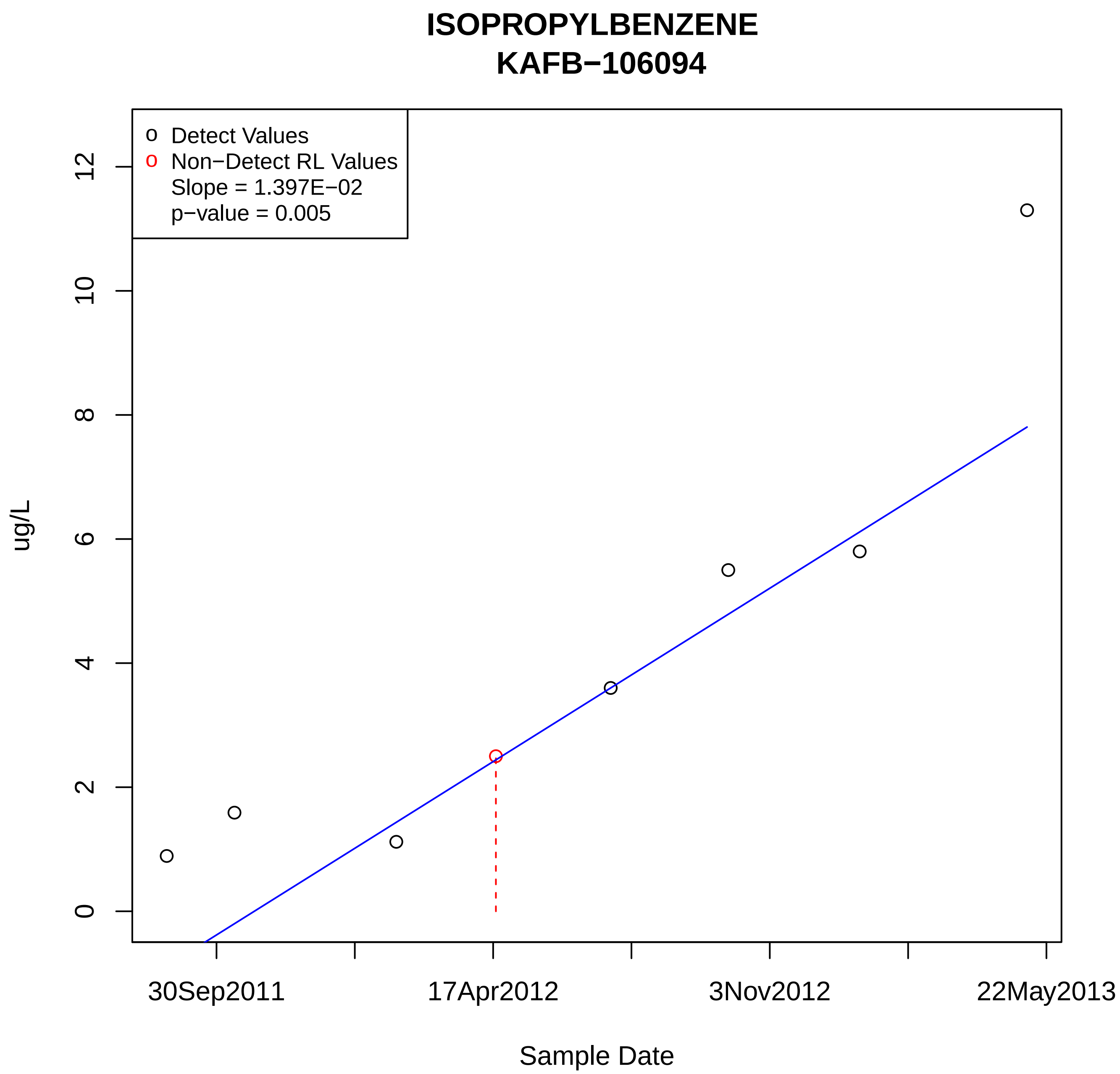

ISOPROPYLBENZENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

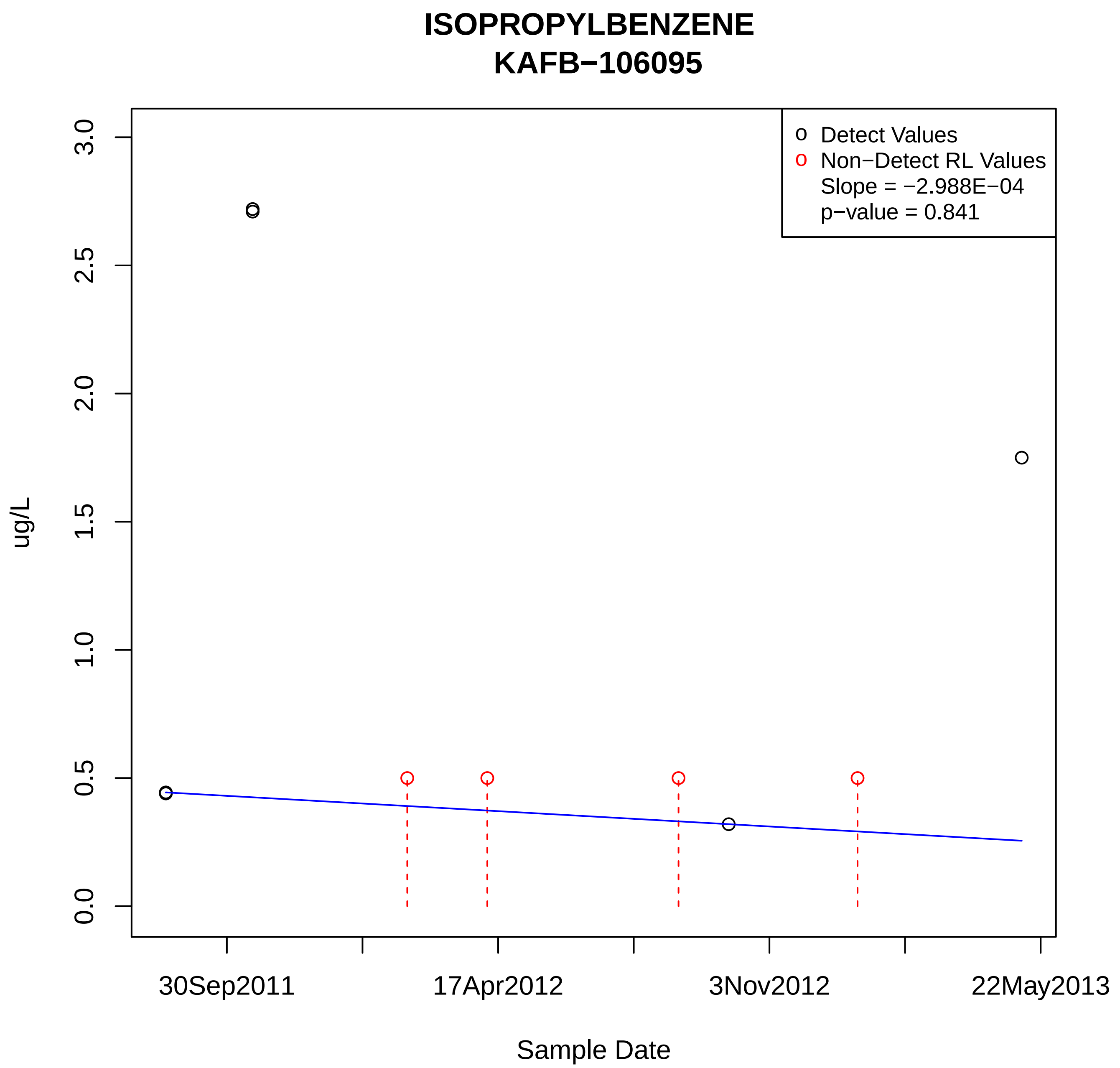


ISOPROPYLBENZENE
KAFB−106091
Detect Values
Non−Detect RL Values
Slope = 2.900E−03
p−value = 0.167
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

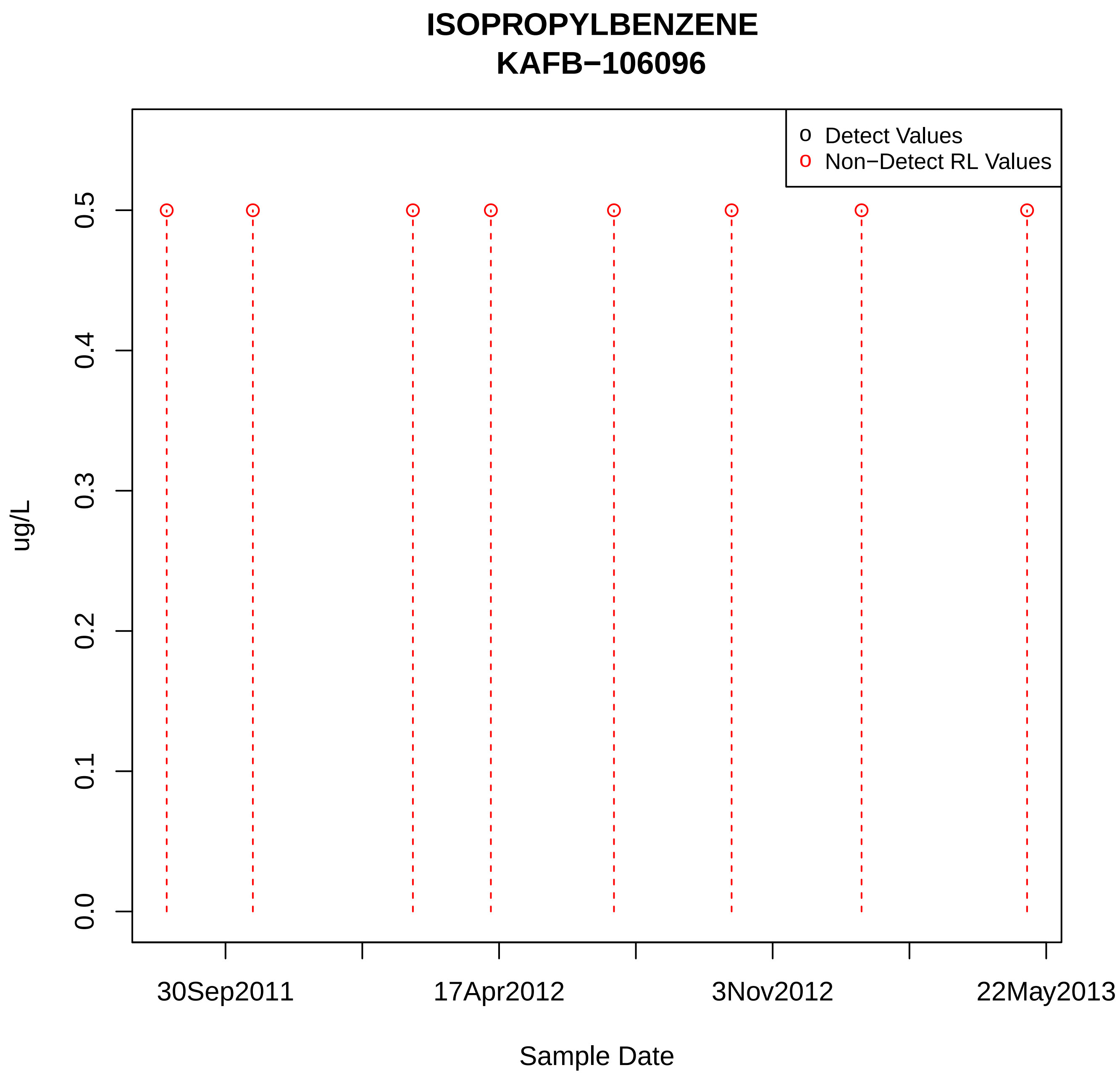

ISOPROPYLBENZENE
KAFB−106092
o Detect Values
o Non−Detect RL Values
Slope = −1.389E−02
p−value = 0.008
ug/L
0
2
4
6
8
10
12
14
30Sep2011
17Apr2012
3Nov2012
Sample Date

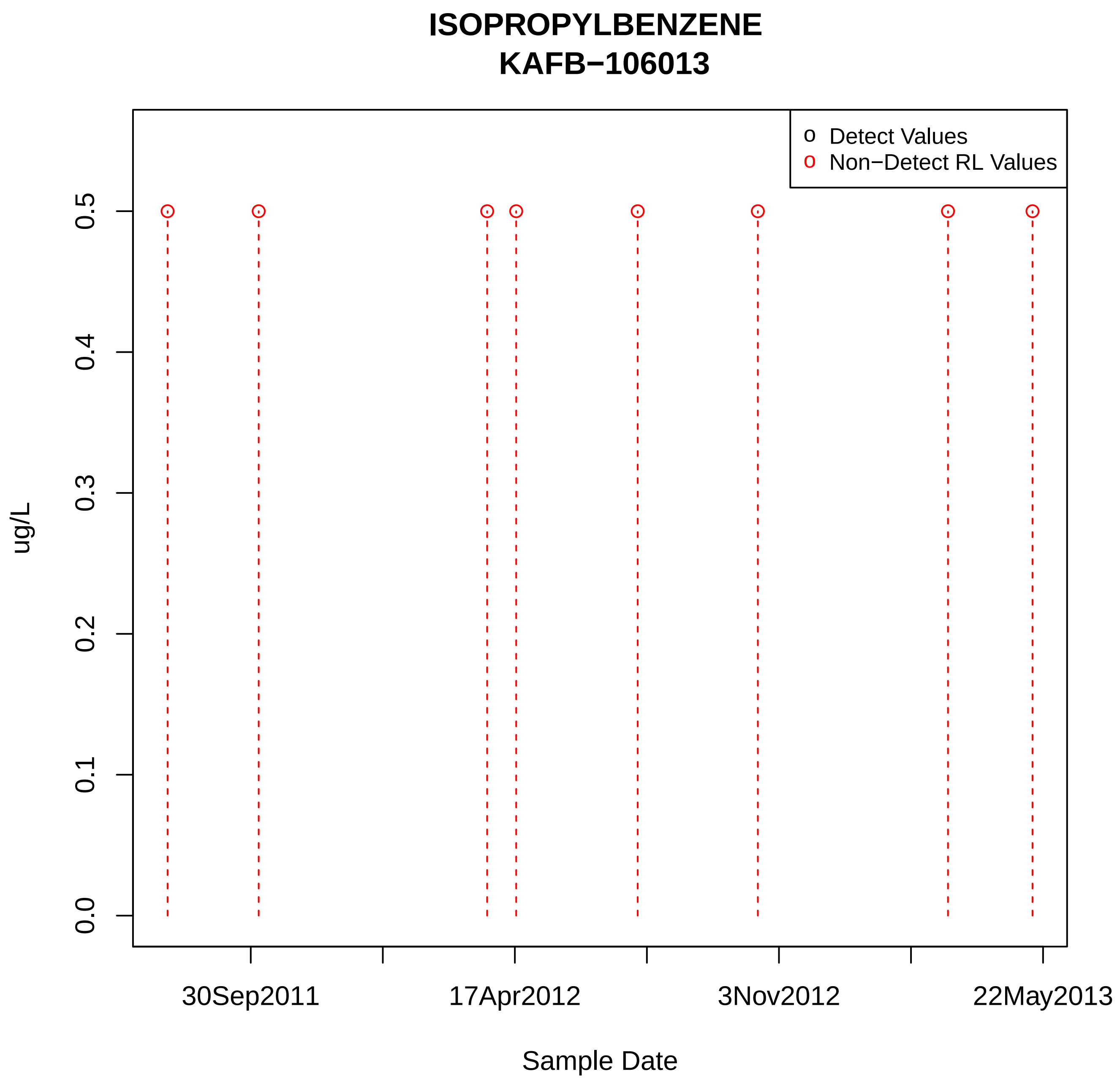

ISOPROPYLBENZENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

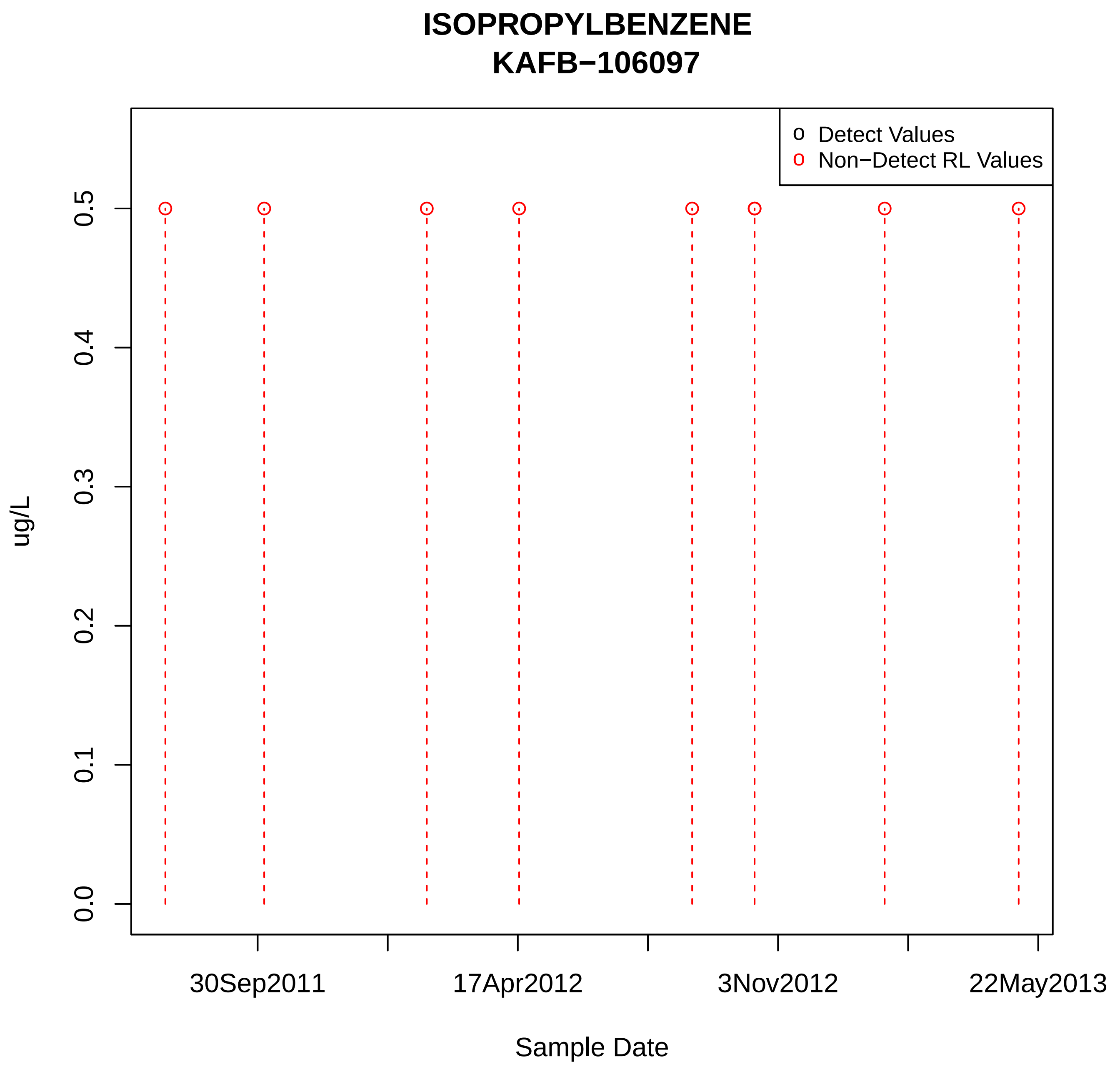

ISOPROPYLBENZENE
KAFB−106094
Detect Values
Non−Detect RL Values
Slope = 1.397E−02
p−value = 0.005
ug/L
0
2
4
6
8
10
12
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

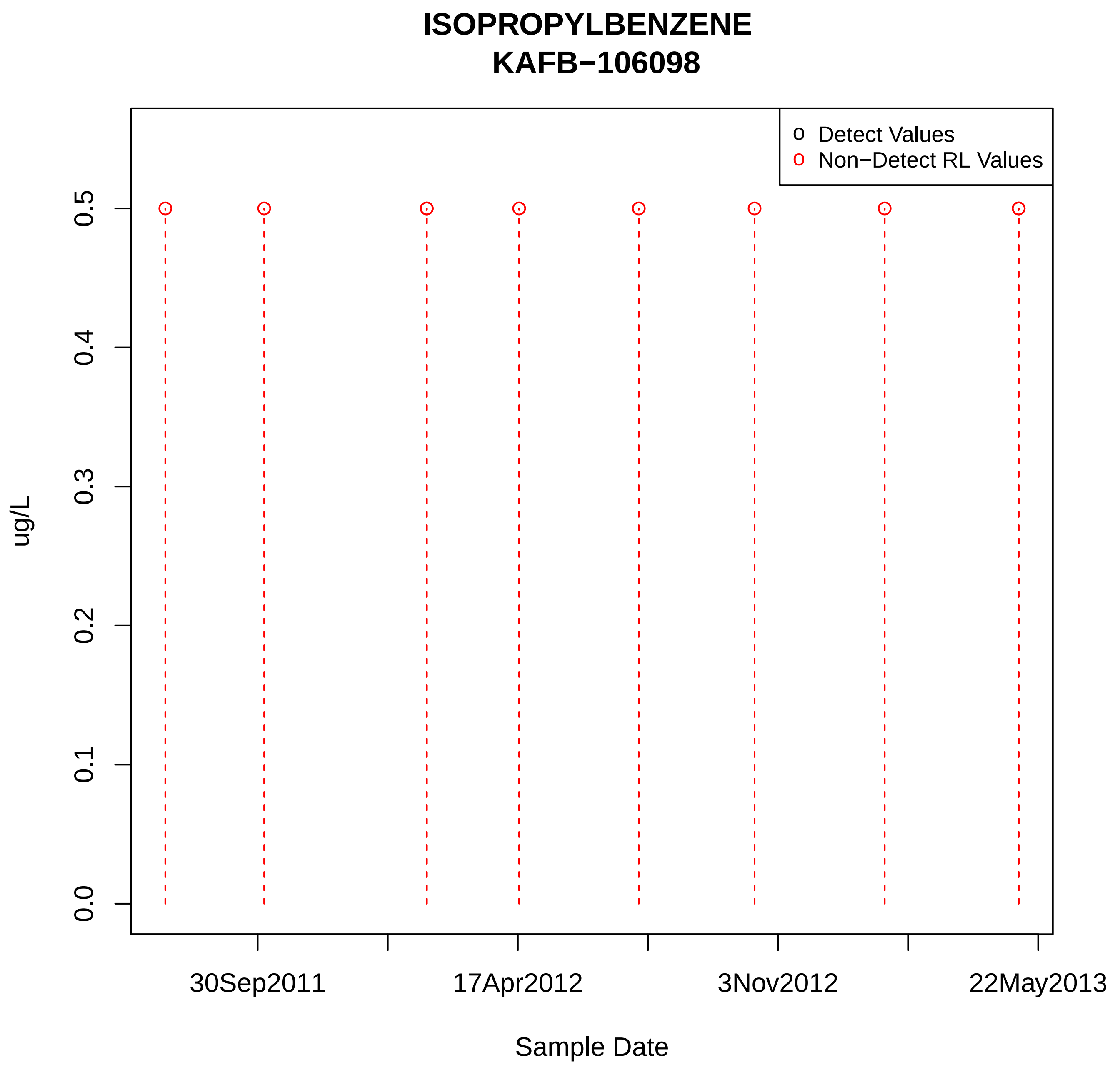


ISOPROPYLBENZENE
KAFB−106095
Detect Values
Non−Detect RL Values
Slope = −2.988E−04
p−value = 0.841
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

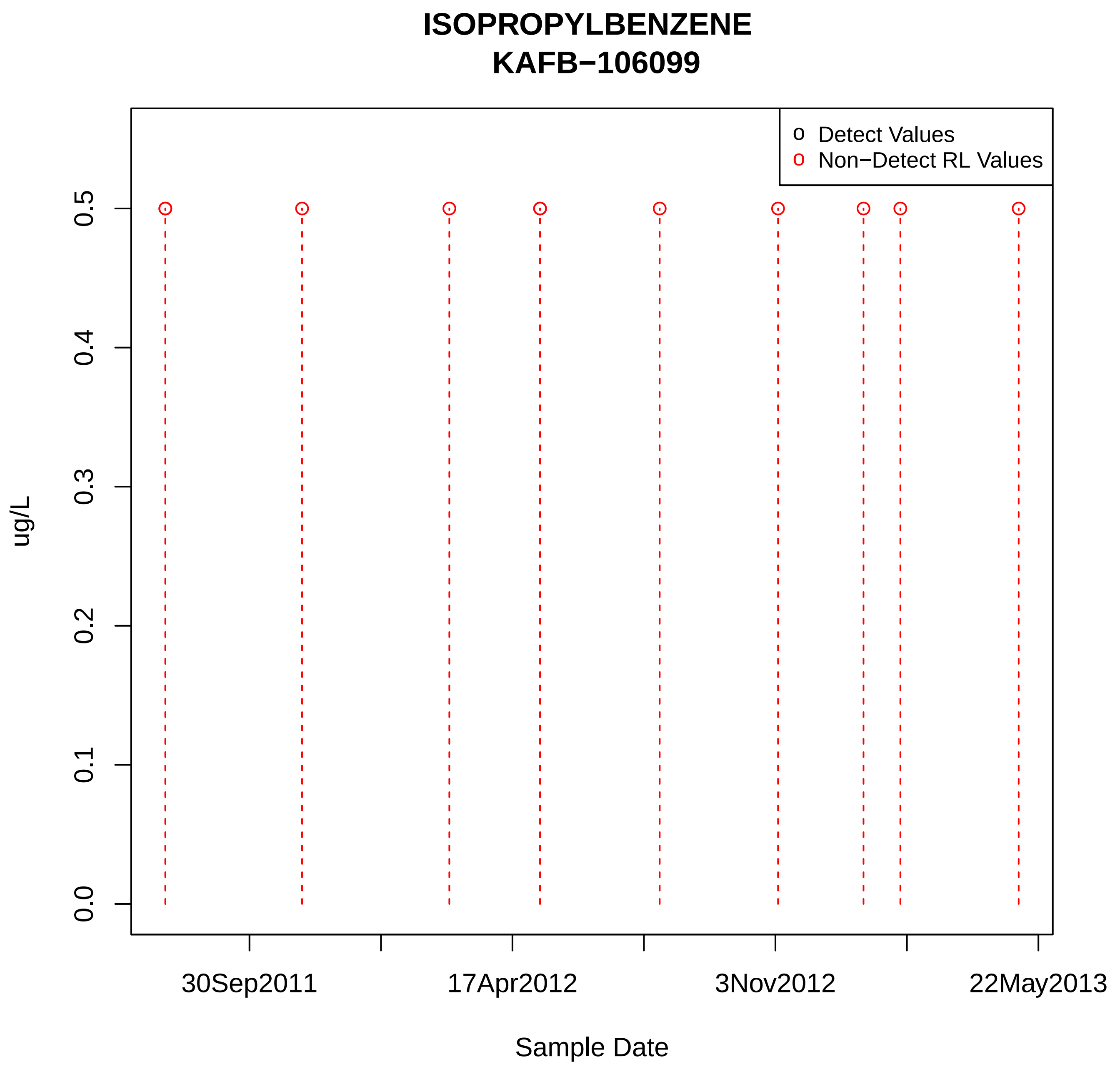

ISOPROPYLBENZENE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


ISOPROPYLBENZENE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

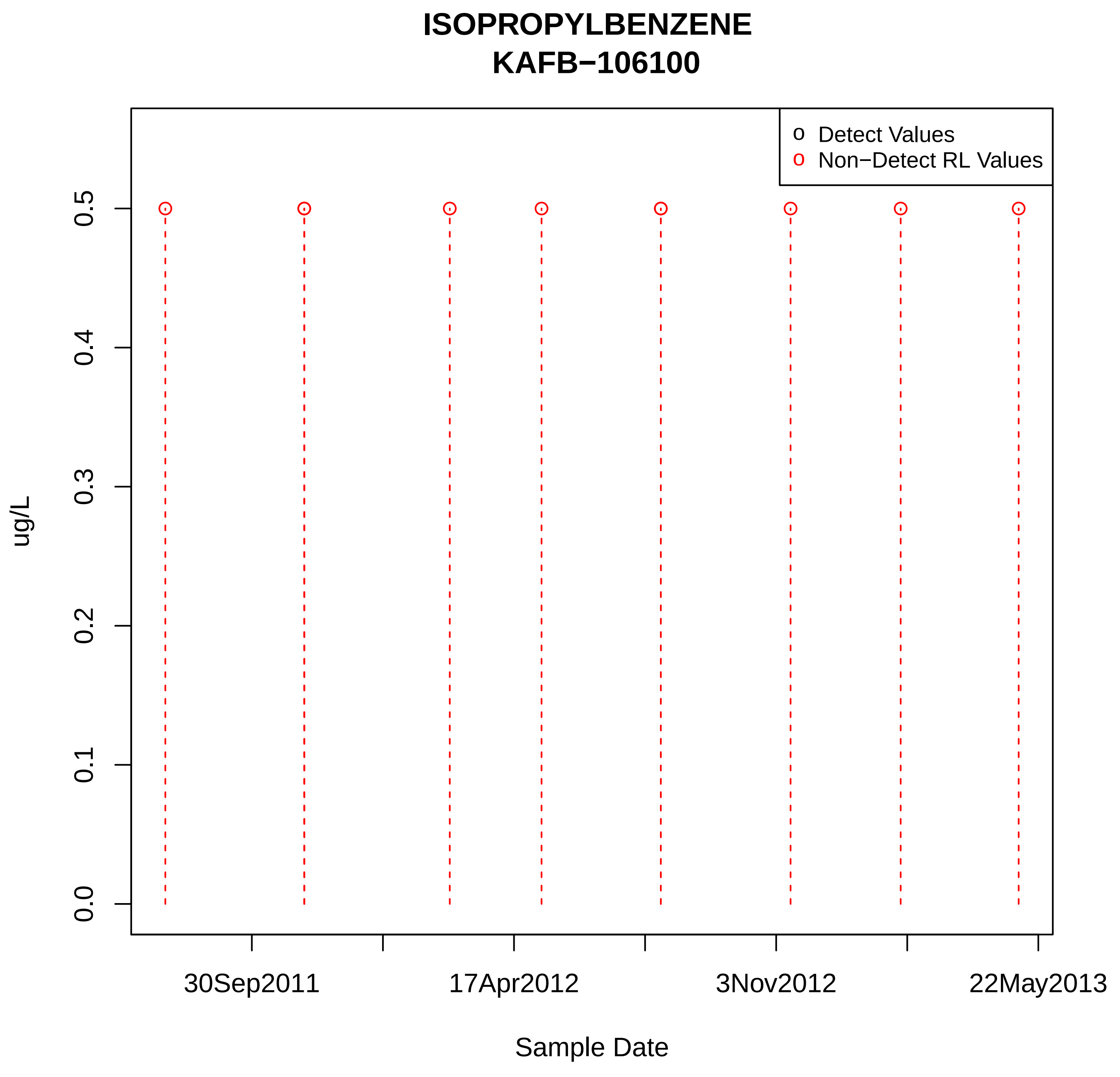

ISOPROPYLBENZENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



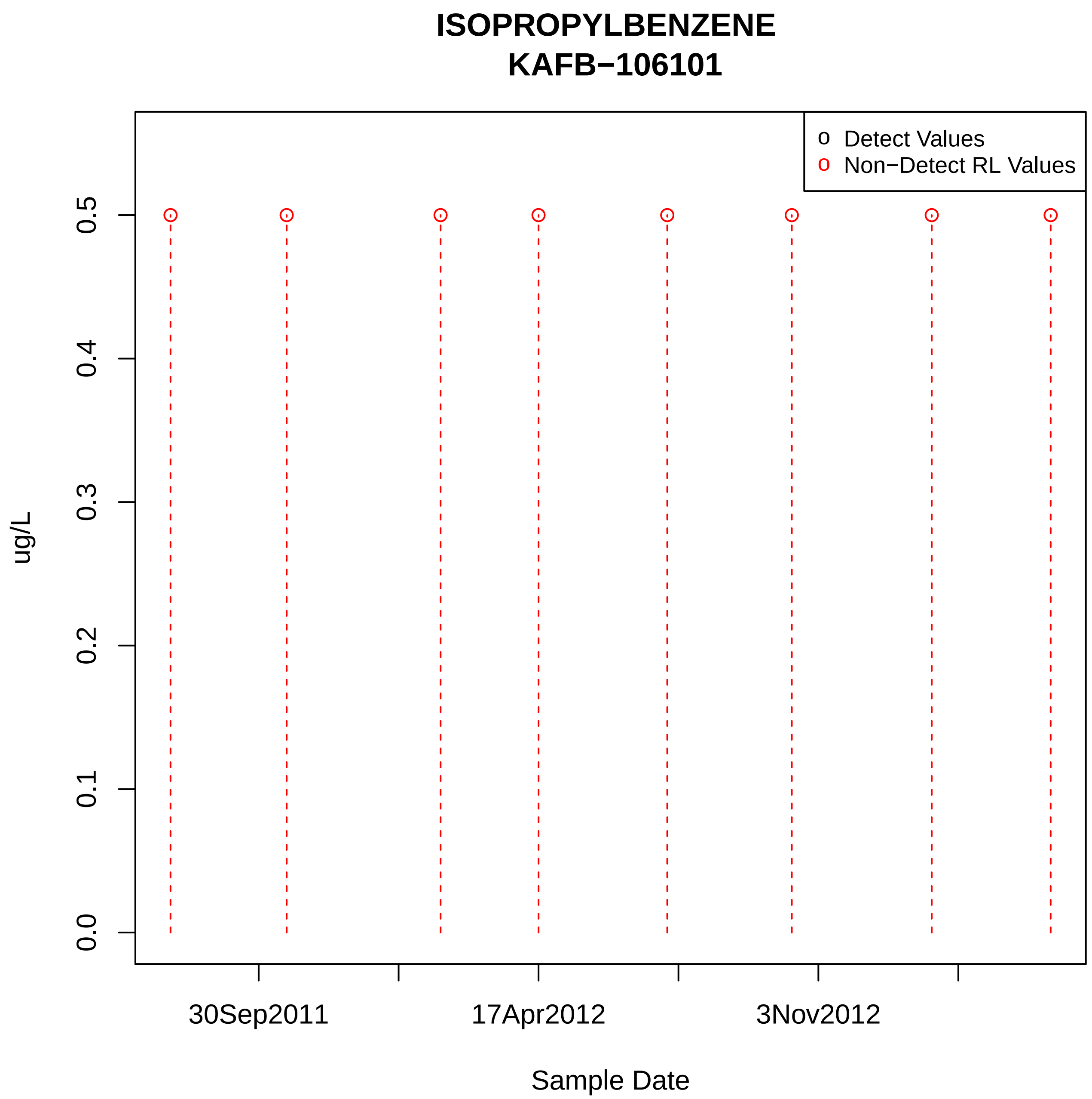
ISOPROPYLBENZENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



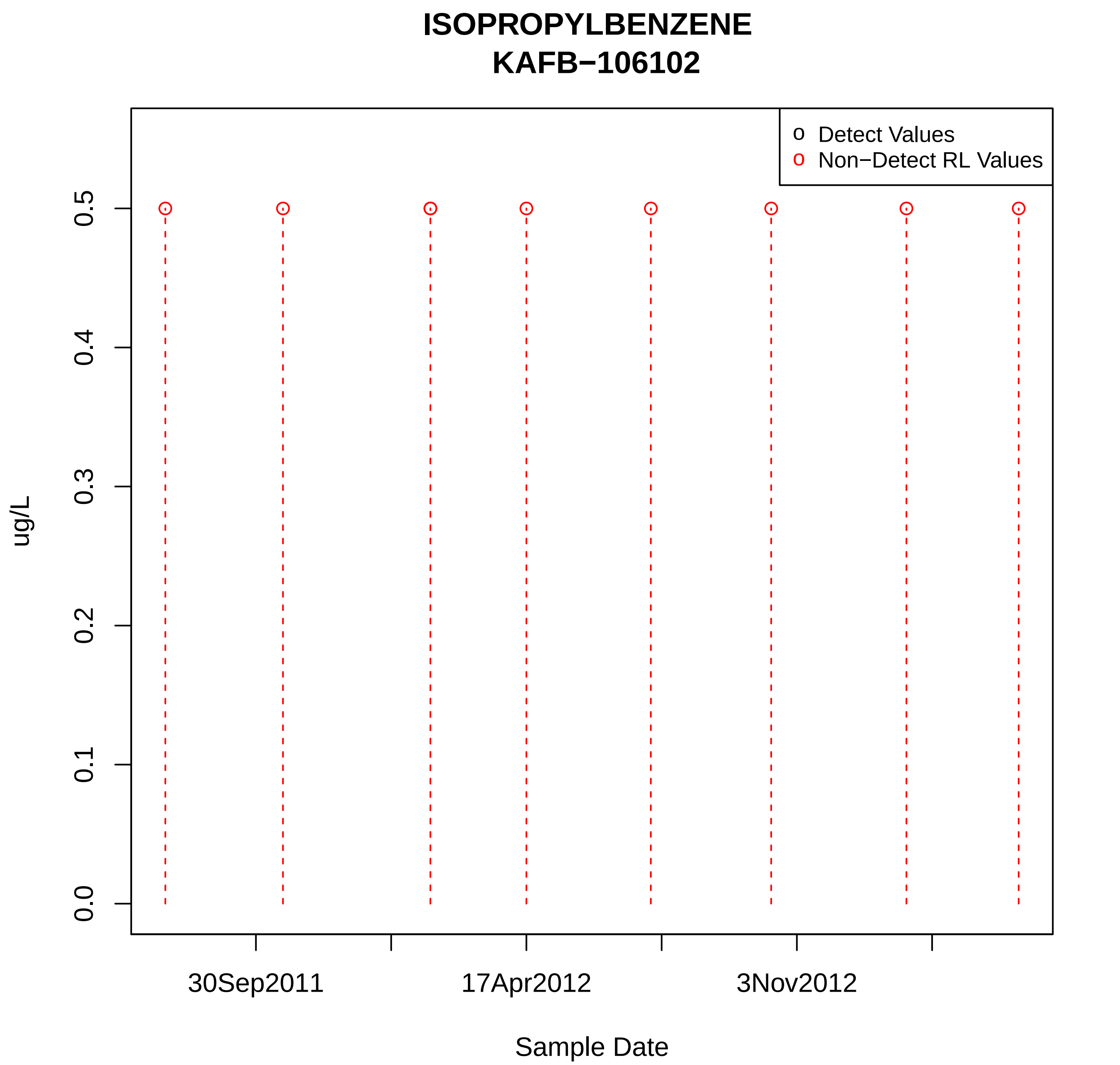
ISOPROPYLBENZENE
KAFB−106099
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



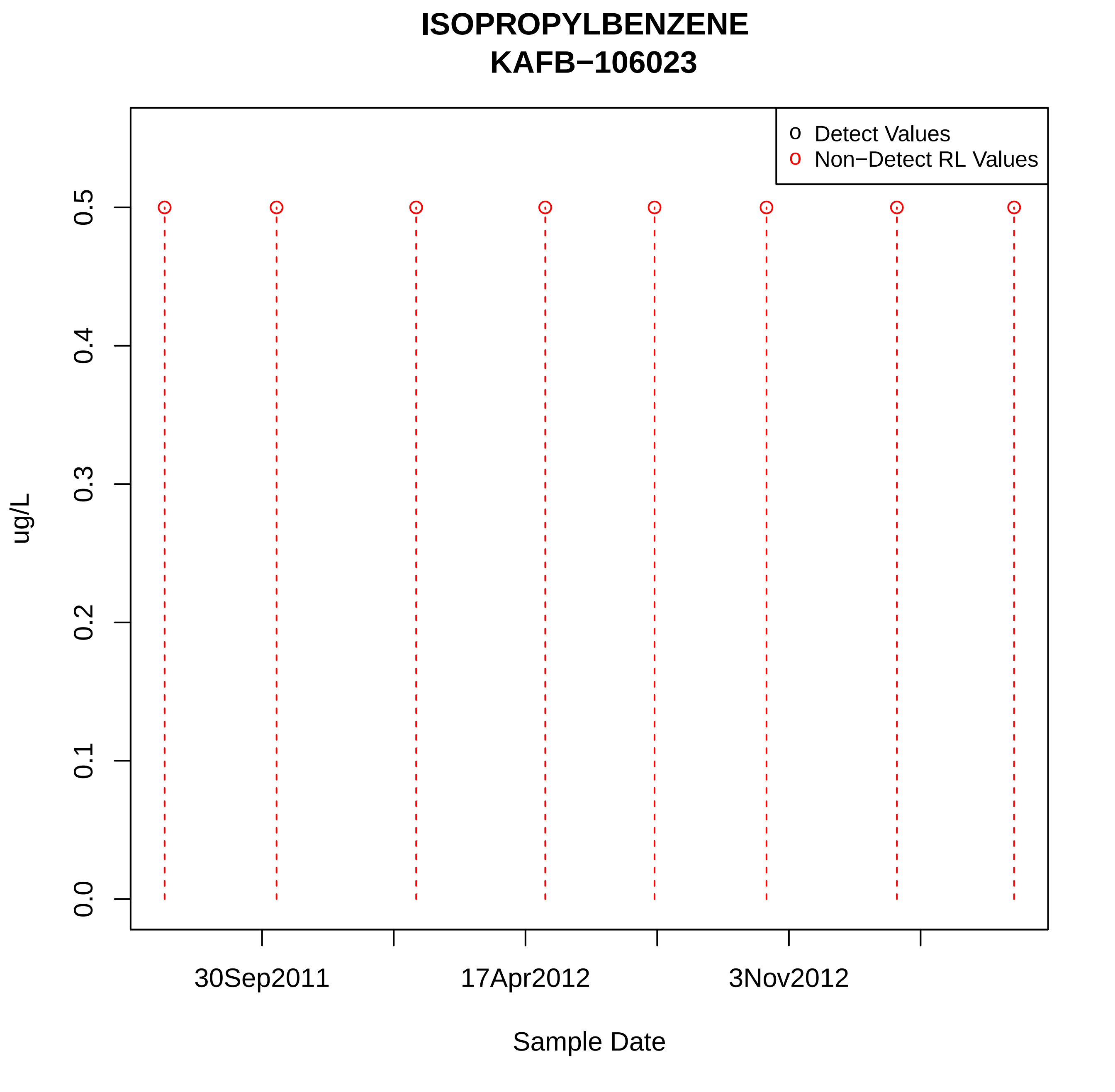
ISOPROPYLBENZENE
KAFB−106100
Detect Values
Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

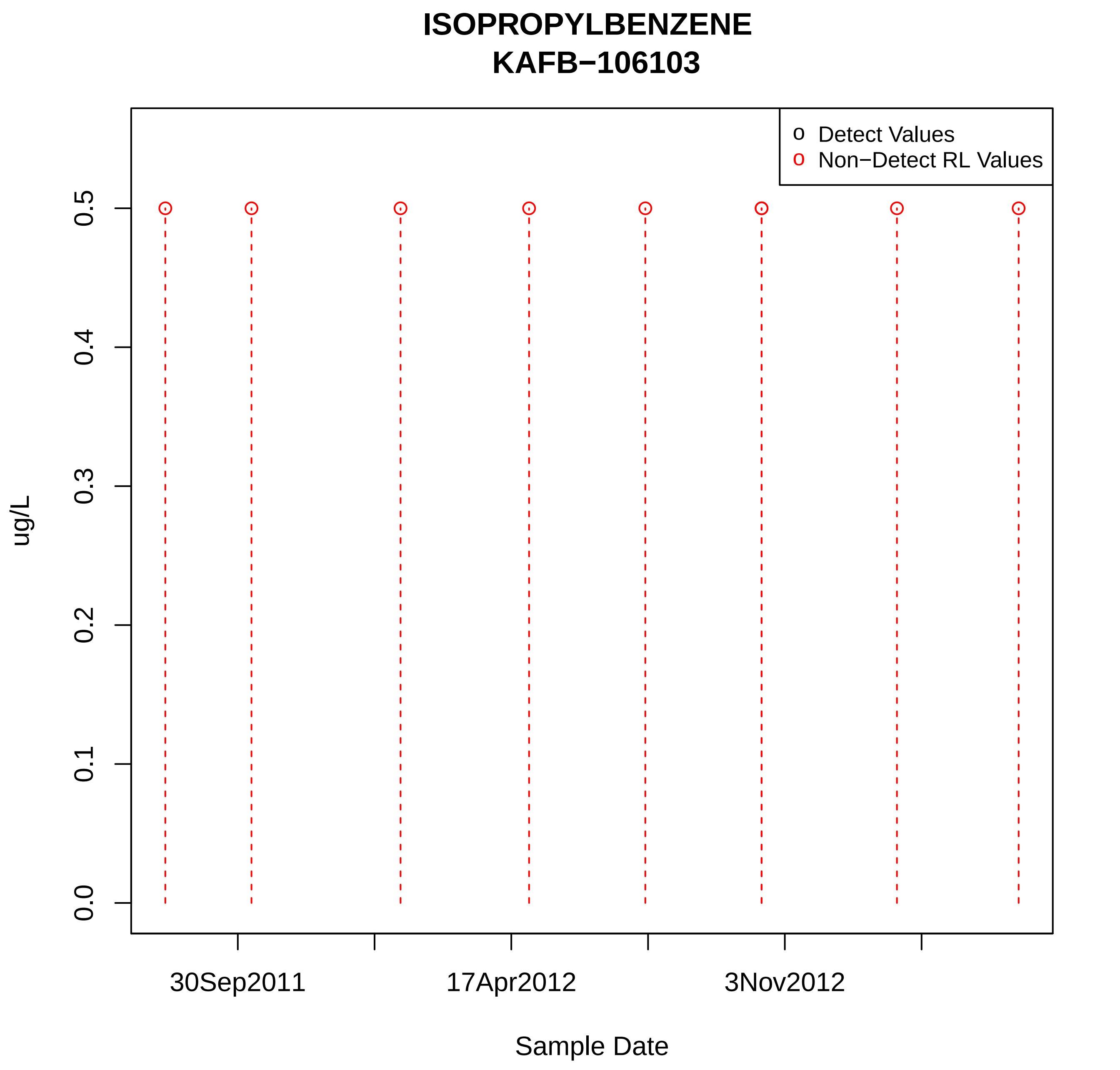


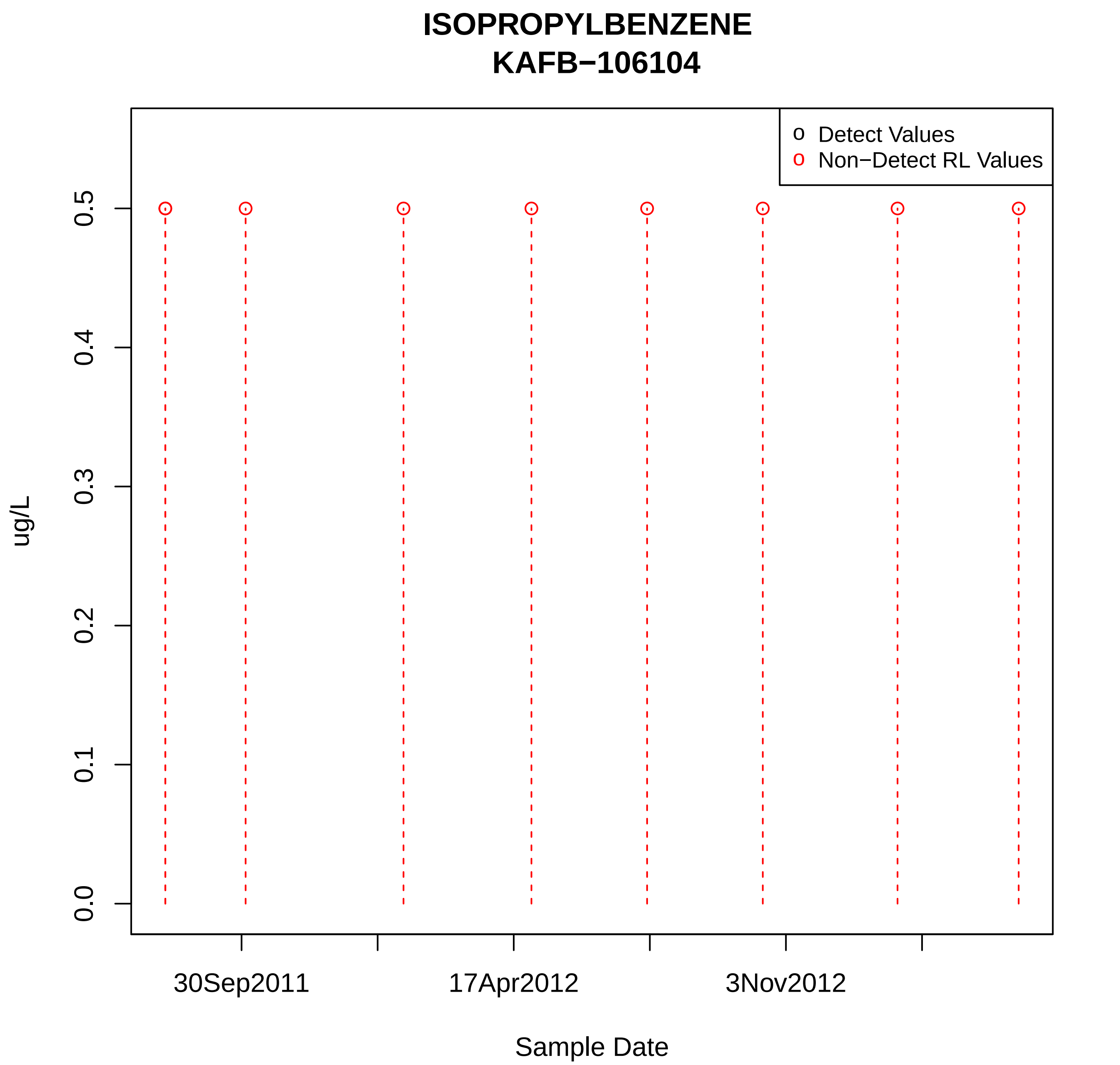
ISOPROPYLBENZENE
KAFB−106101
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

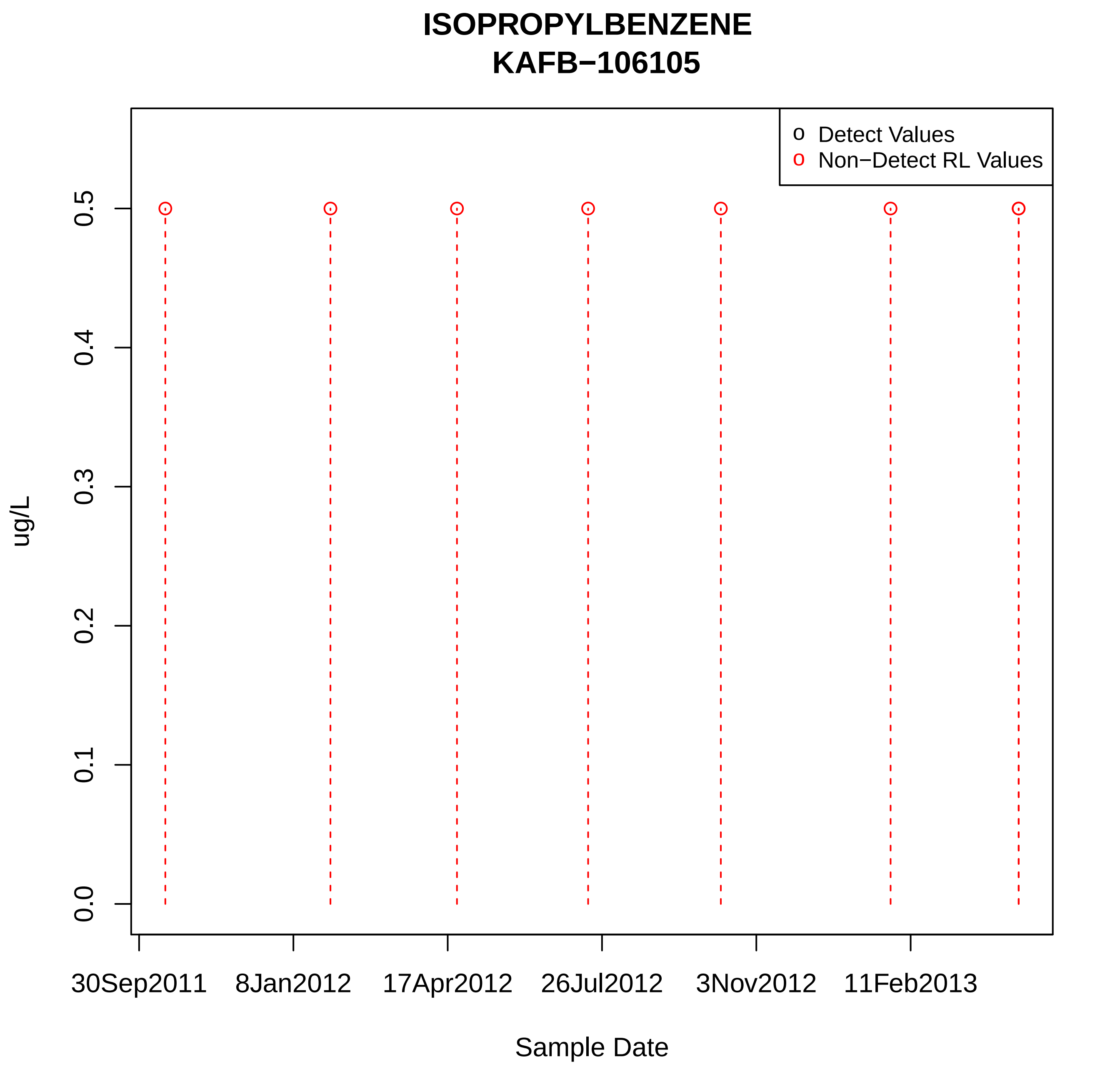


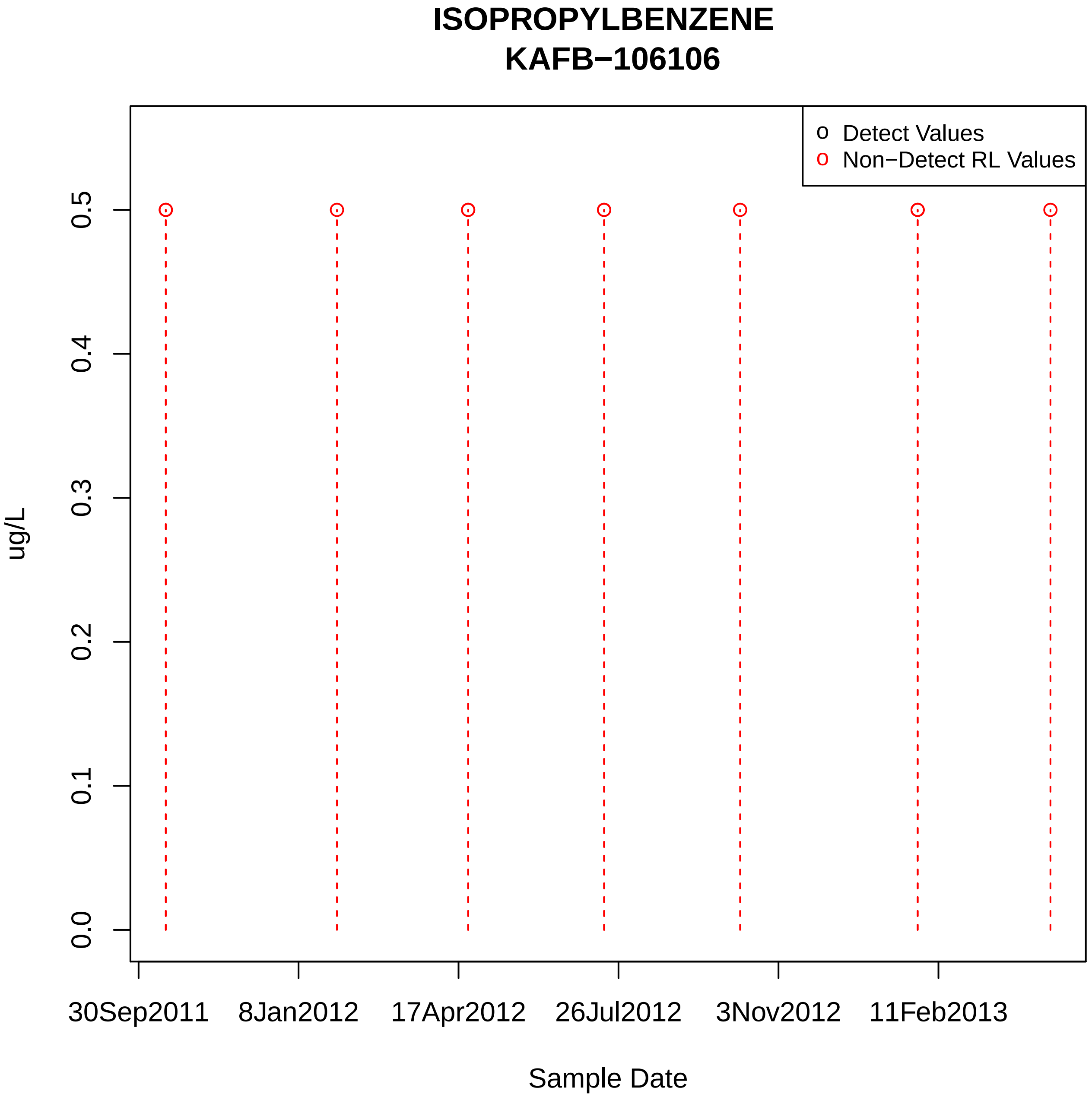
ISOPROPYLBENZENE
KAFB−106102
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

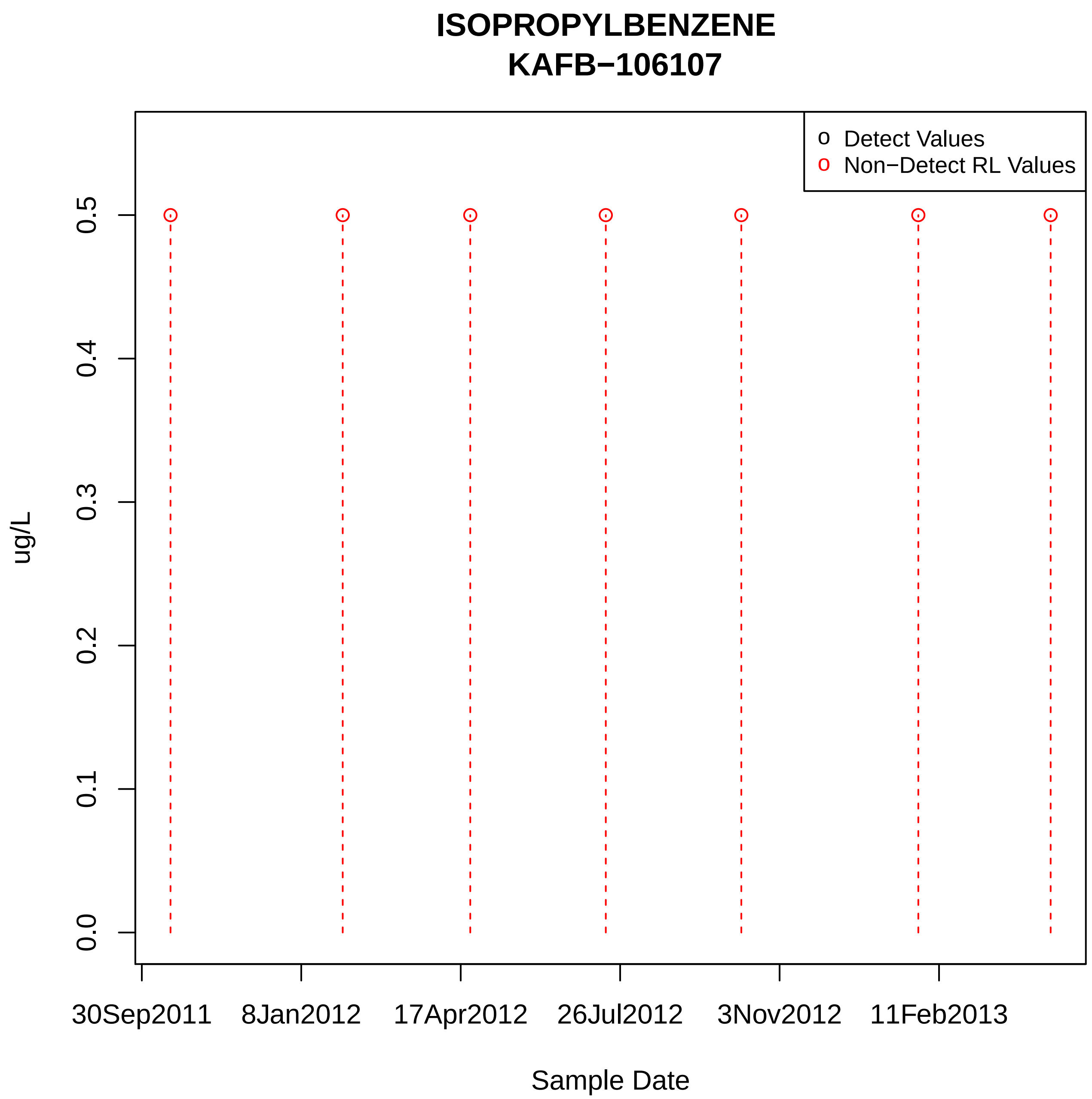

ISOPROPYLBENZENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


ISOPROPYLBENZENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

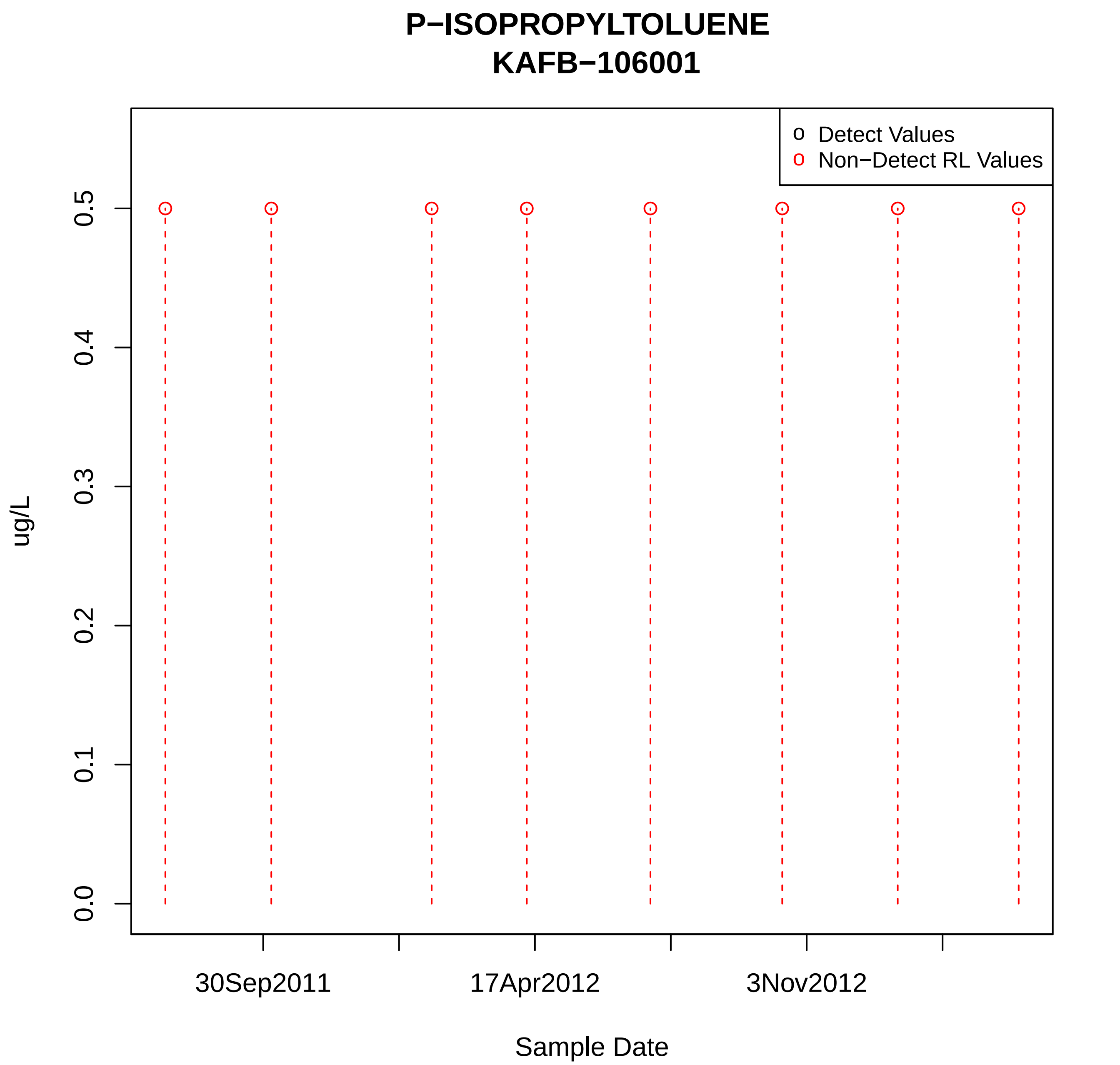

ISOPROPYLBENZENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

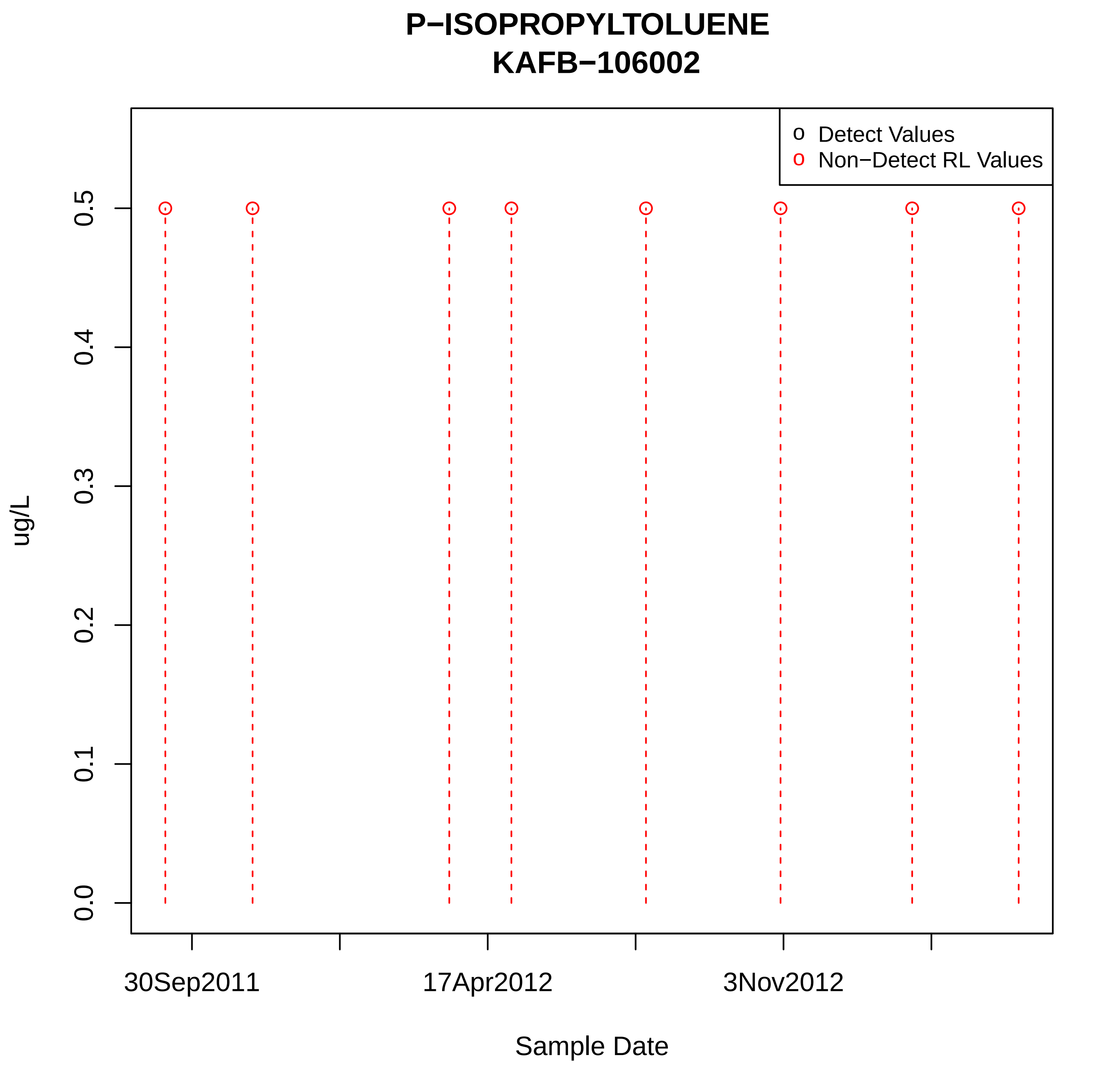

ISOPROPYLBENZENE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


ISOPROPYLBENZENE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

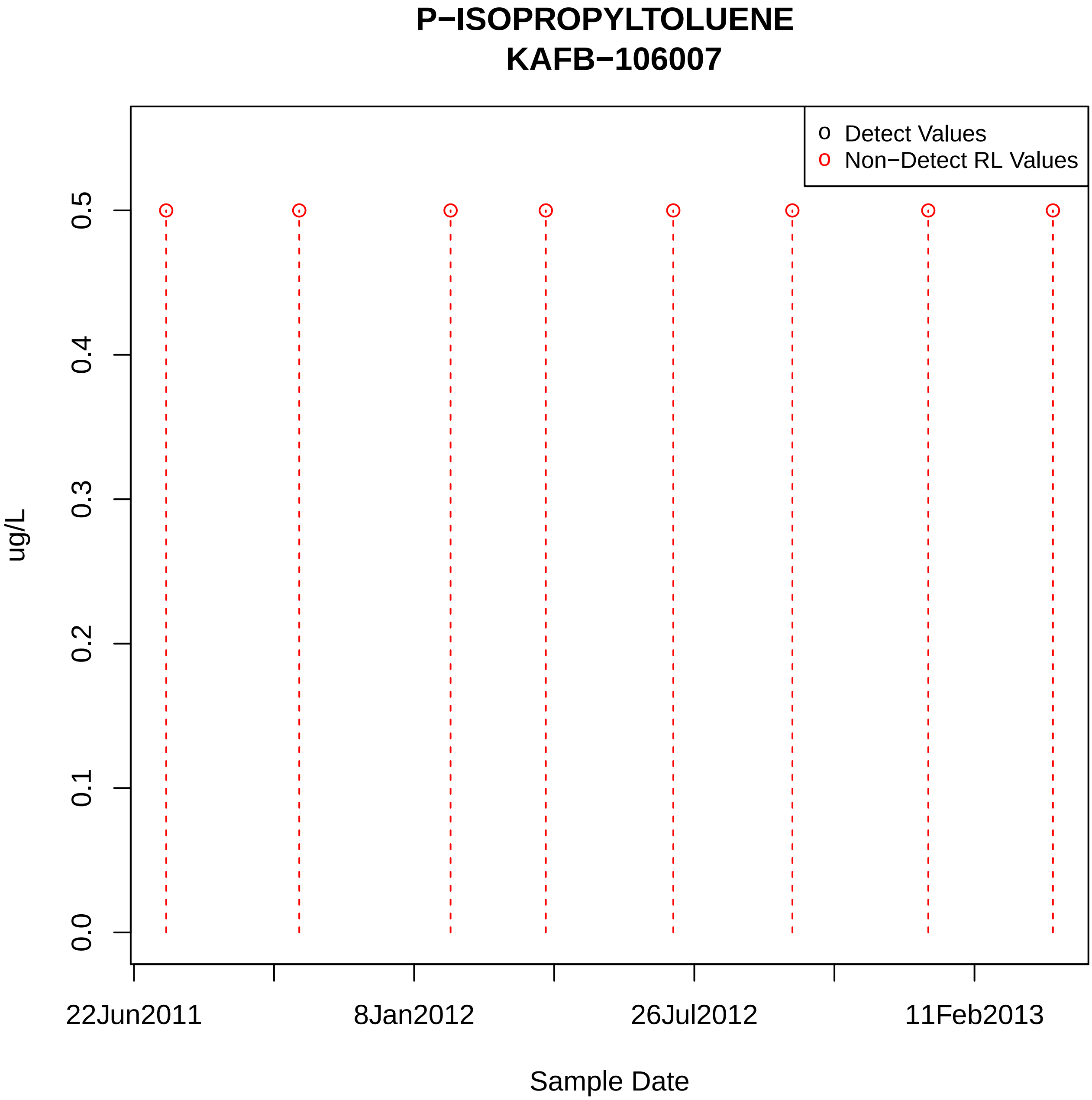


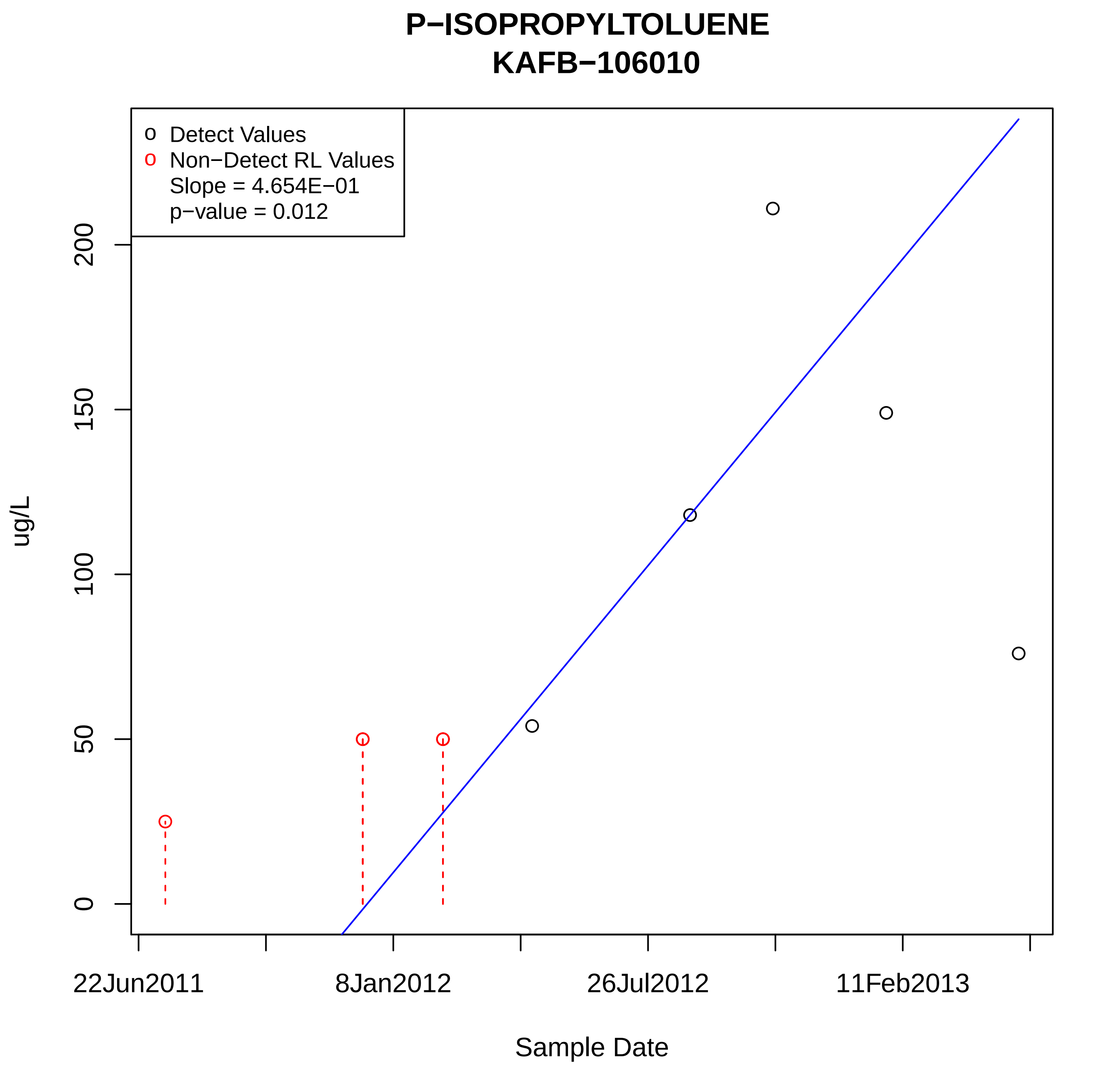
ISOPROPYLBENZENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106001
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

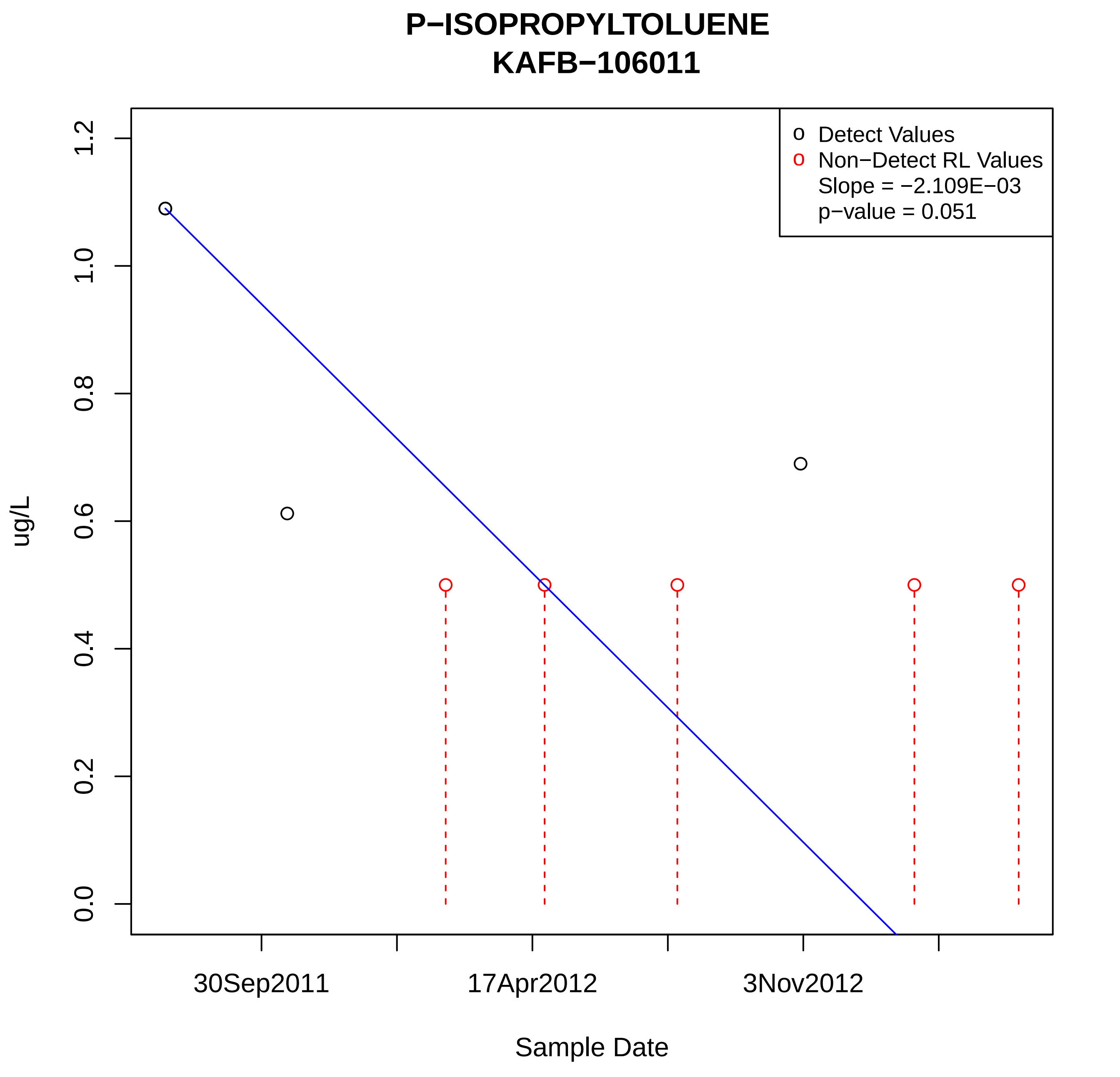


P−ISOPROPYLTOLUENE
KAFB−106002
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

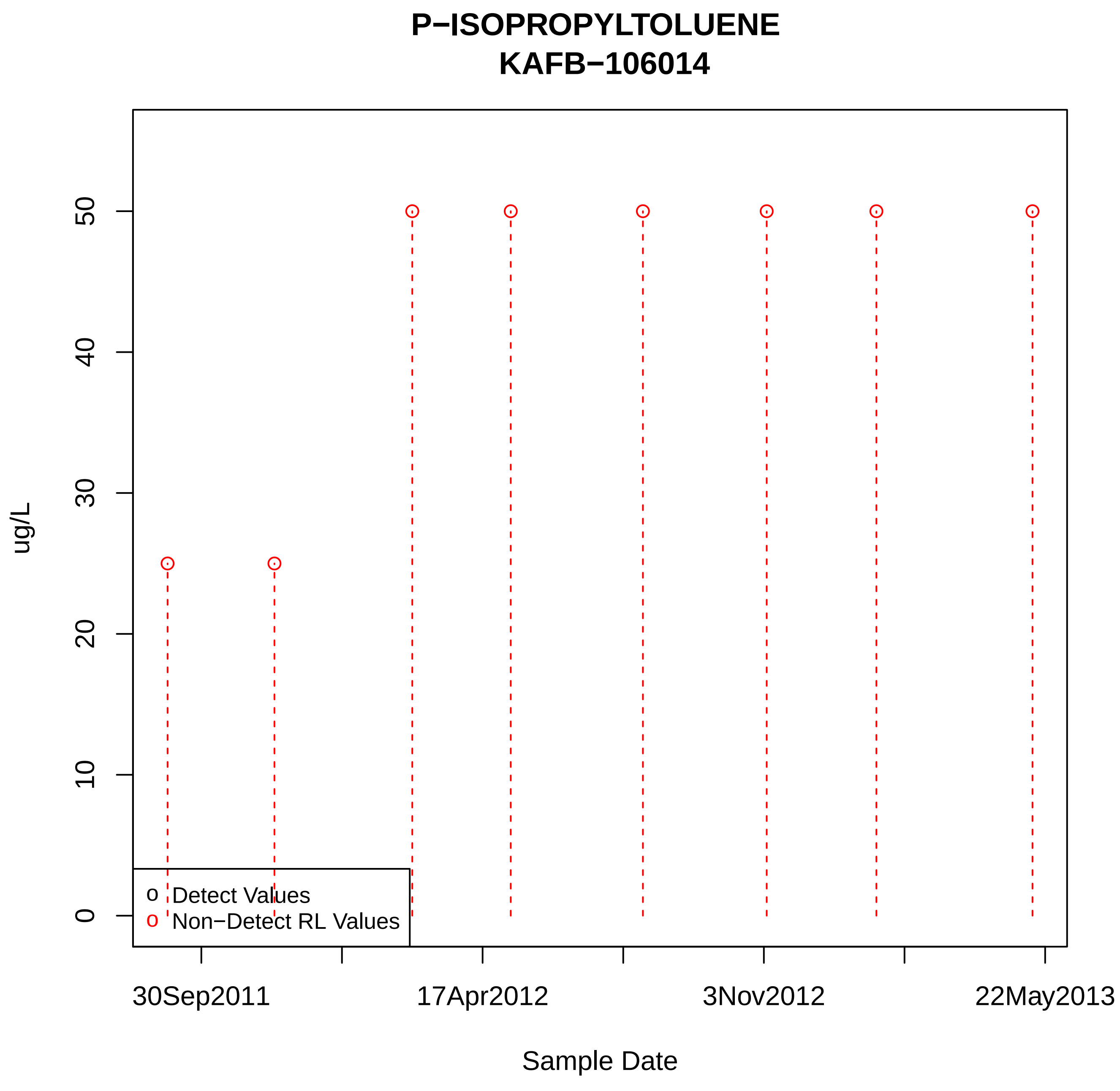

P−ISOPROPYLTOLUENE
KAFB−106007
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



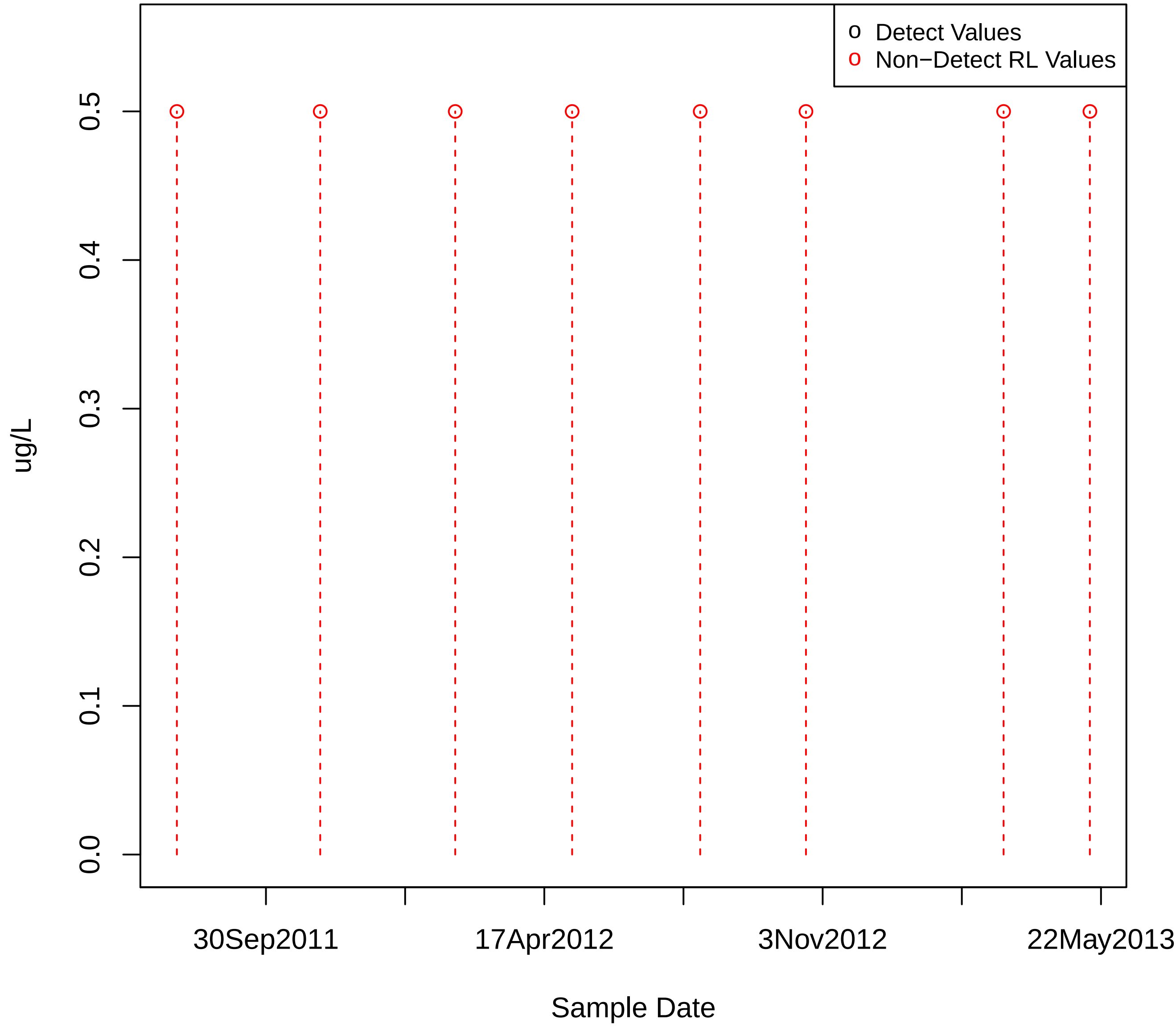
P−ISOPROPYLTOLUENE
KAFB−106010
Detect Values
Non−Detect RL Values
Slope = 4.654E−01
p−value = 0.012
ug/L
0
50
100
150
200
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

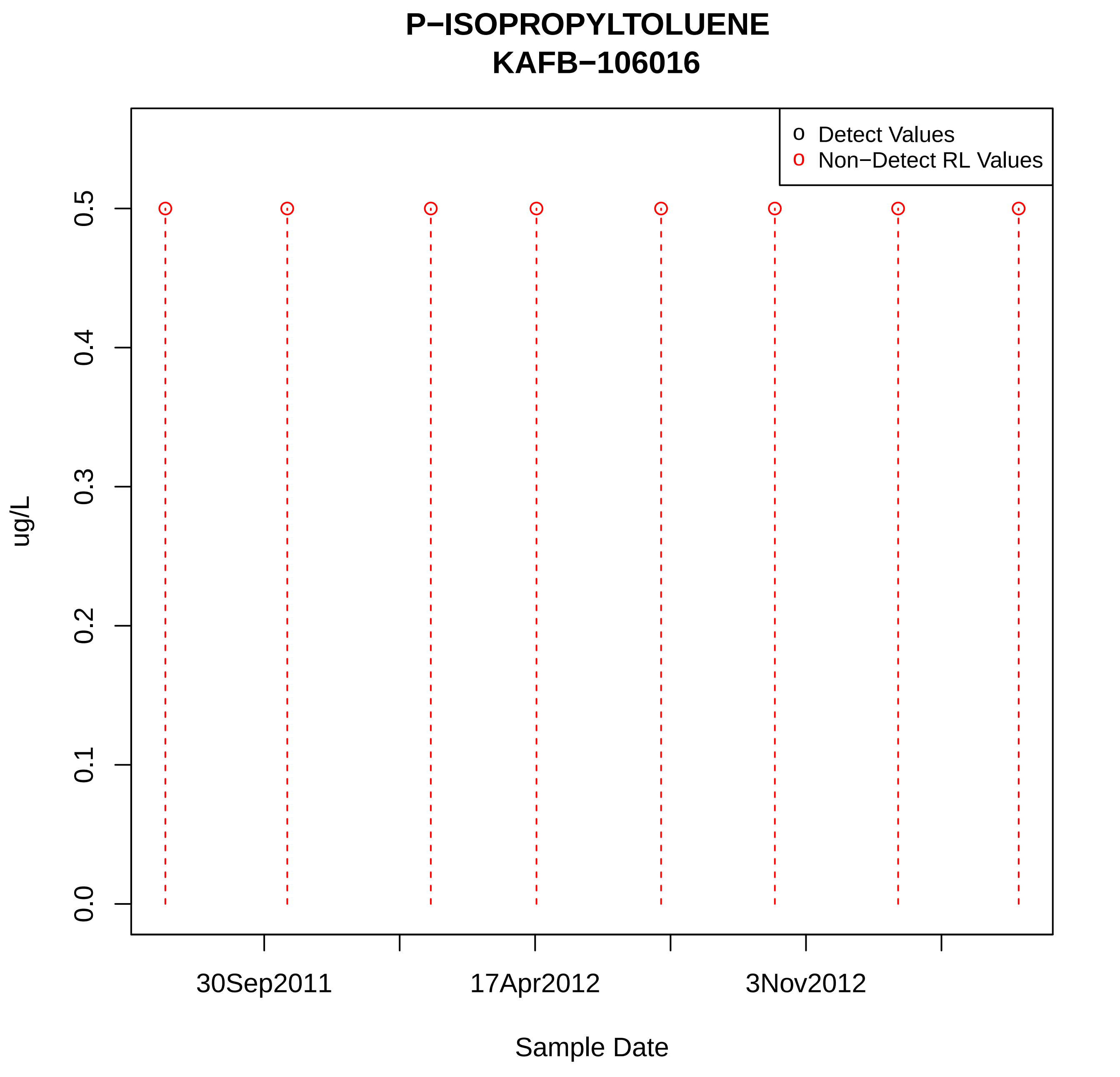


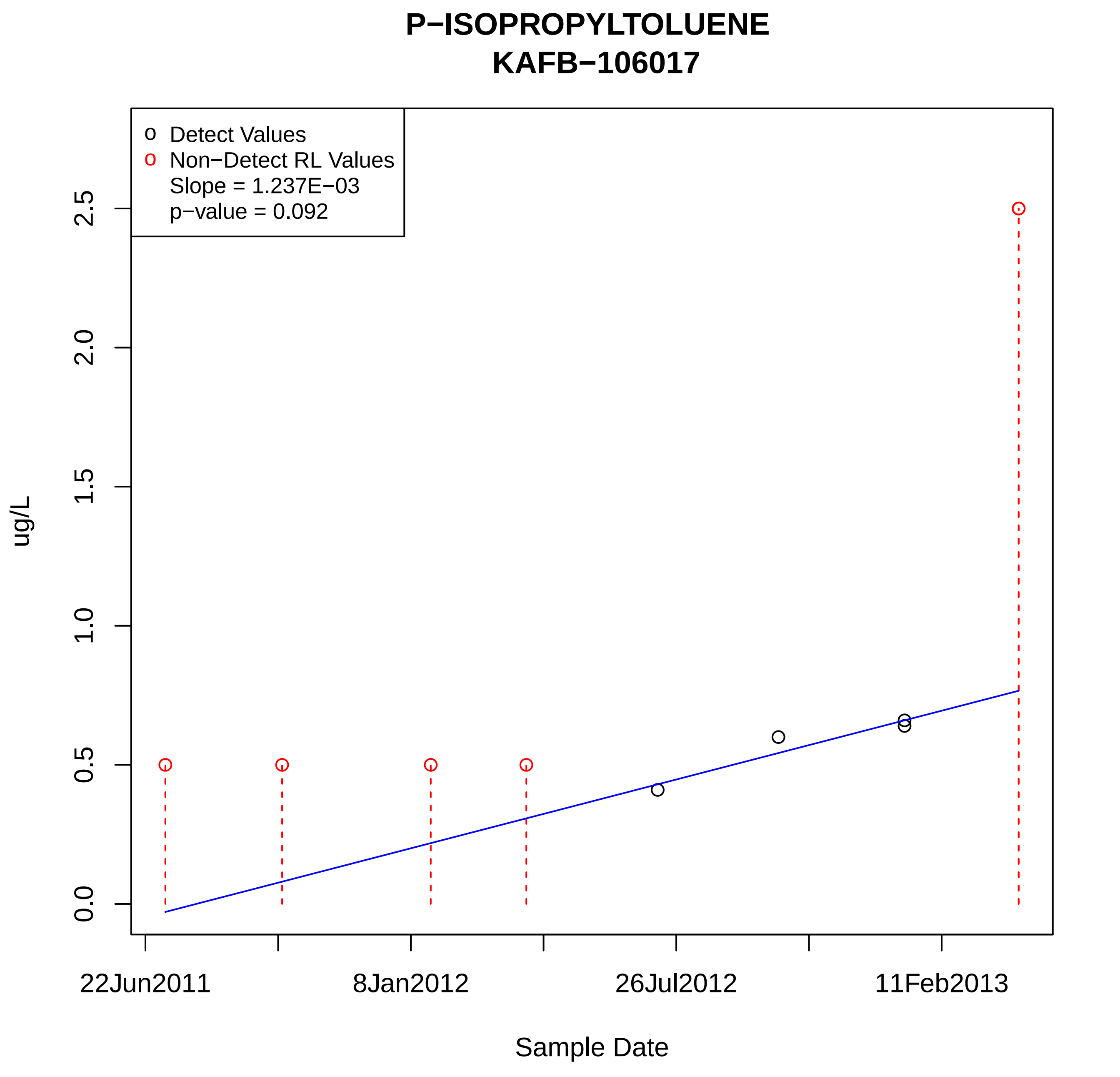
P−ISOPROPYLTOLUENE
KAFB−106011
o Detect Values
o Non−Detect RL Values
Slope = −2.109E−03
p−value = 0.051
ug/L
0.0
0.2
0.4
0.6
0.8
1.0
1.2
30Sep2011
17Apr2012
3Nov2012
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106014
ug/L
0
10
20
30
40
50
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date
o Detect Values
o Non−Detect RL Values

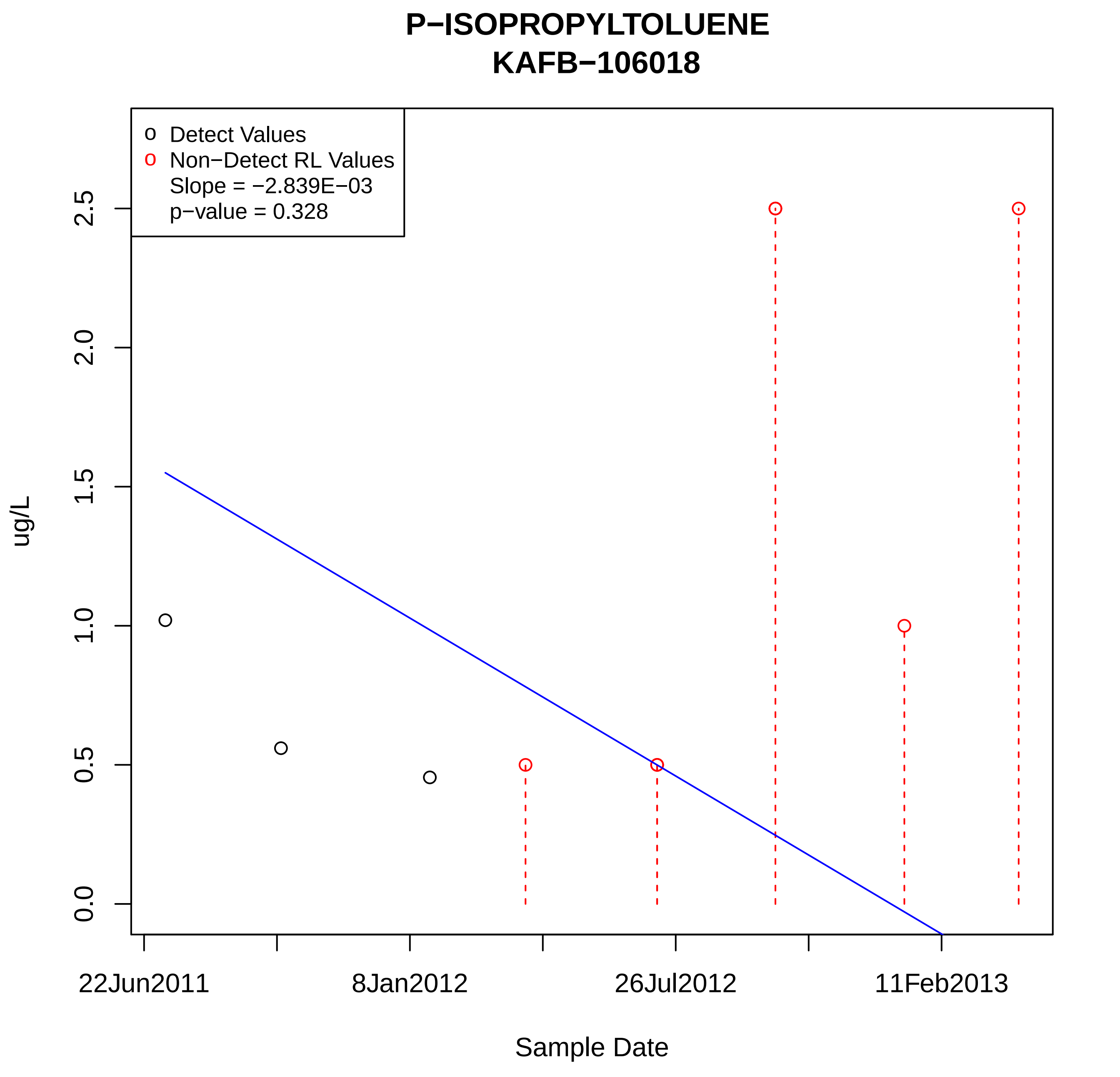
P−ISOPROPYLTOLUENE
KAFB−106015



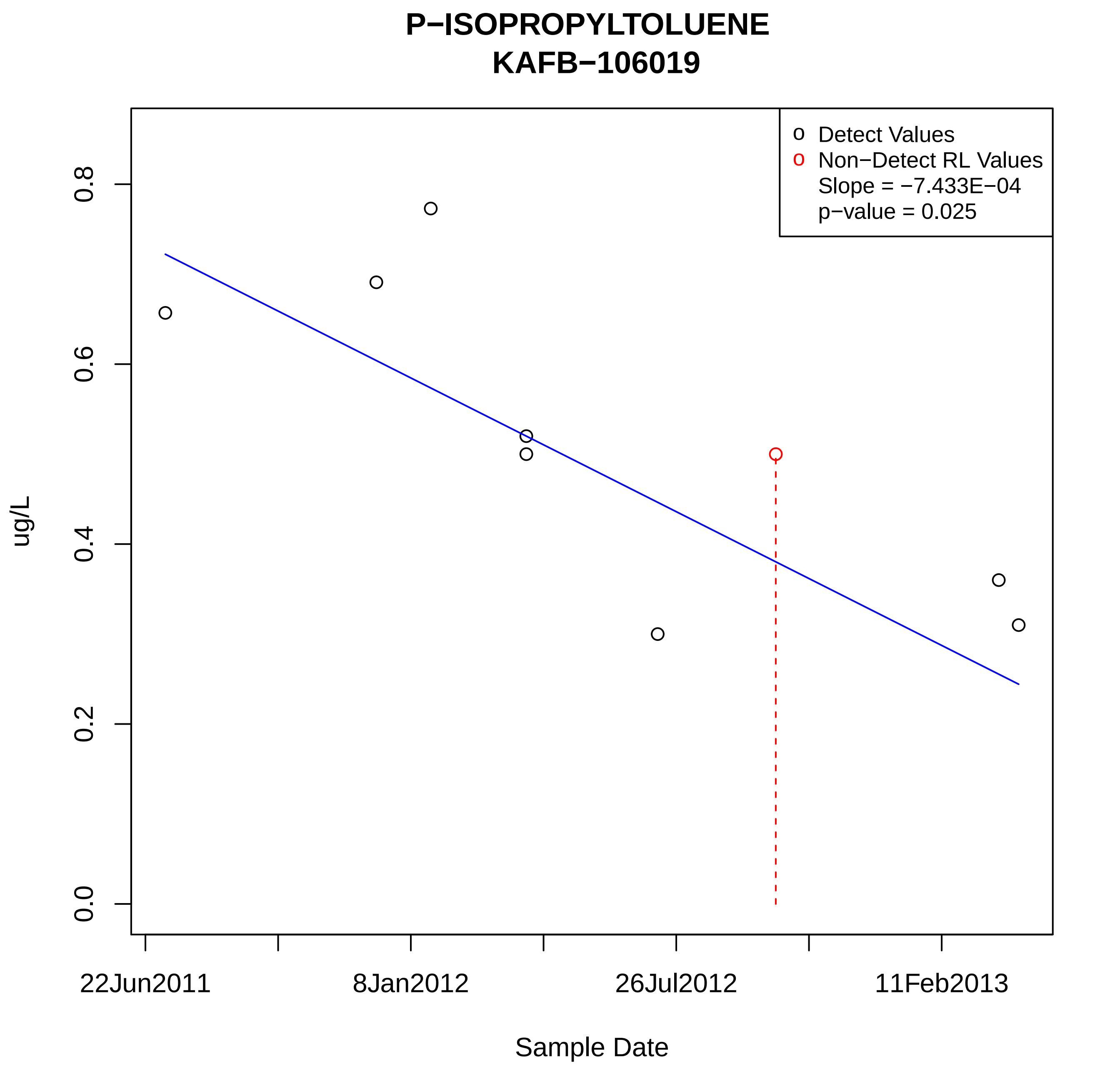

P−ISOPROPYLTOLUENE
KAFB−106016
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

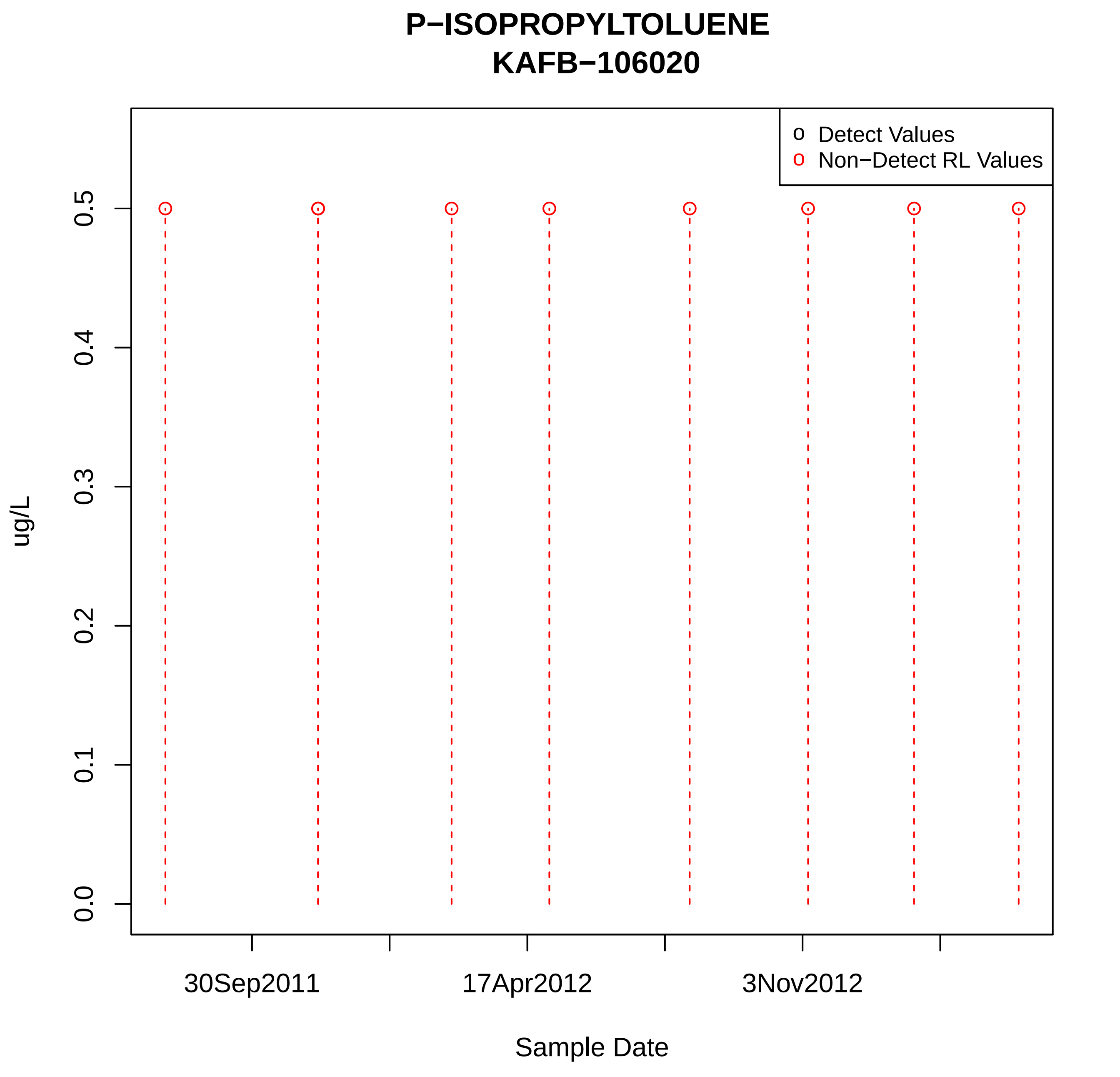


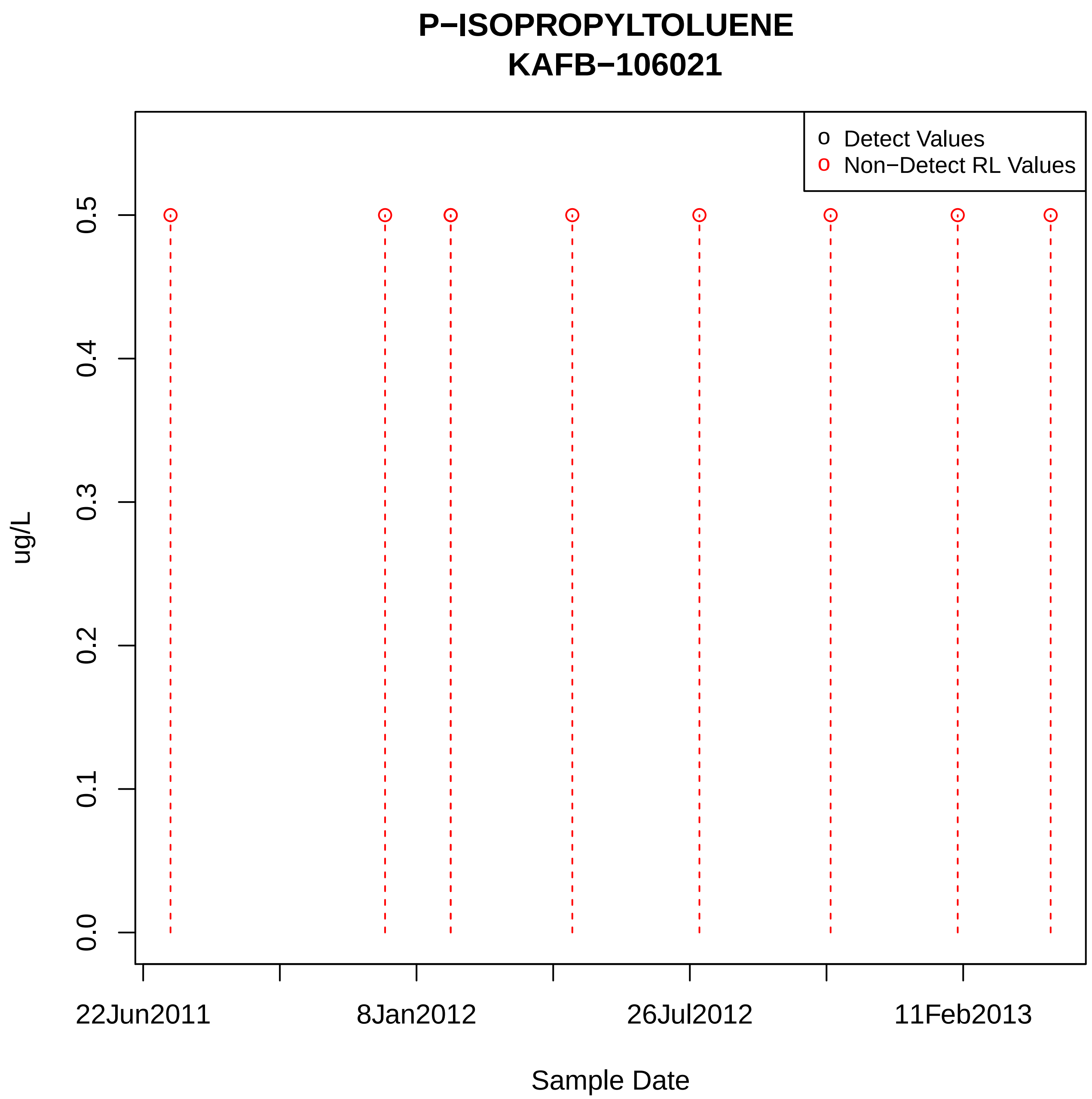
P−ISOPROPYLTOLUENE
KAFB−106017
o Detect Values
o Non−Detect RL Values
Slope = 1.237E−03
p−value = 0.092
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



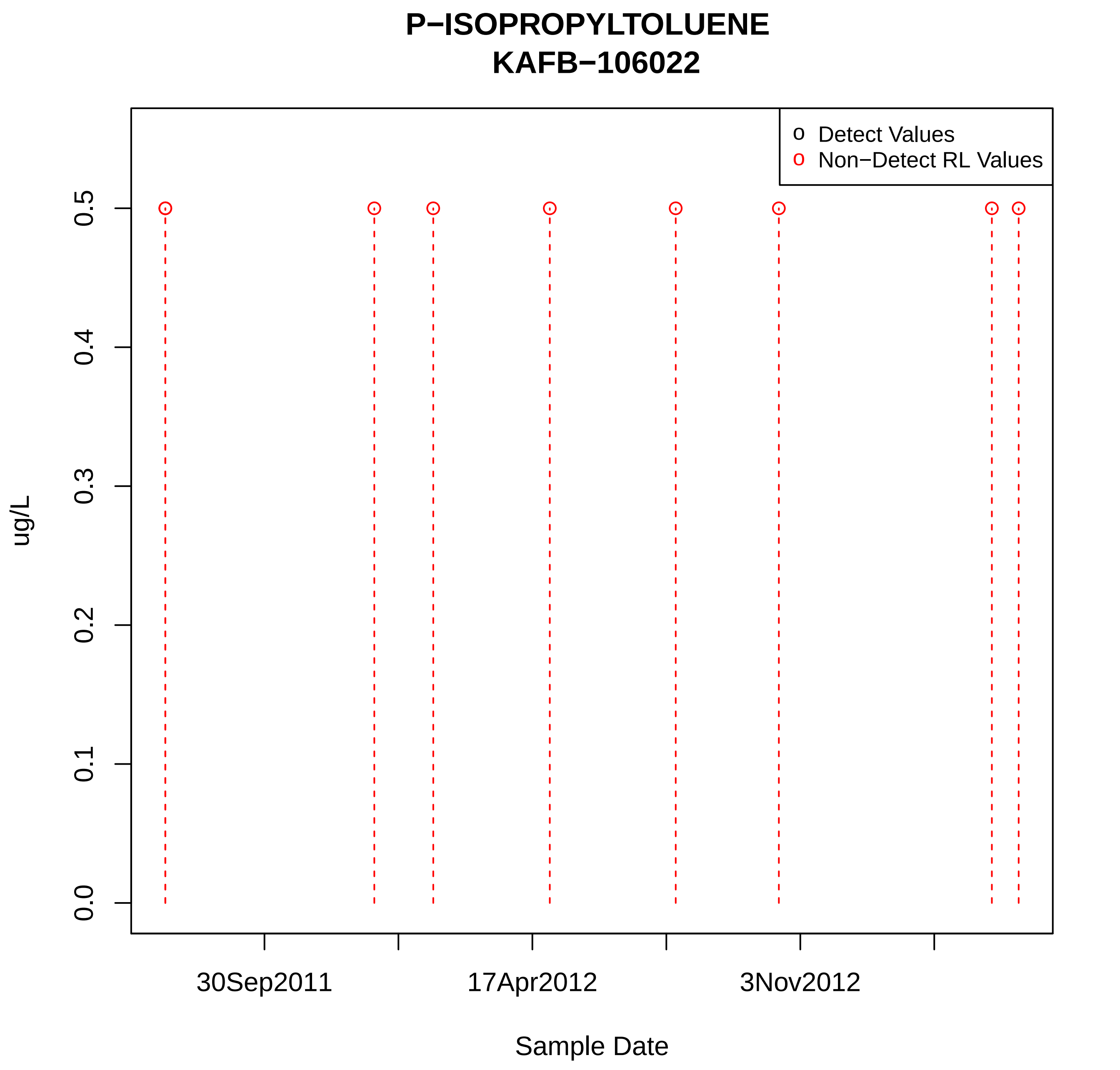
P−ISOPROPYLTOLUENE
KAFB−106018
Detect Values
Non−Detect RL Values
Slope = −2.839E−03
p−value = 0.328
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106019
o Detect Values
o Non−Detect RL Values
Slope = −7.433E−04
p−value = 0.025
ug/L
0.0
0.2
0.4
0.6
0.8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

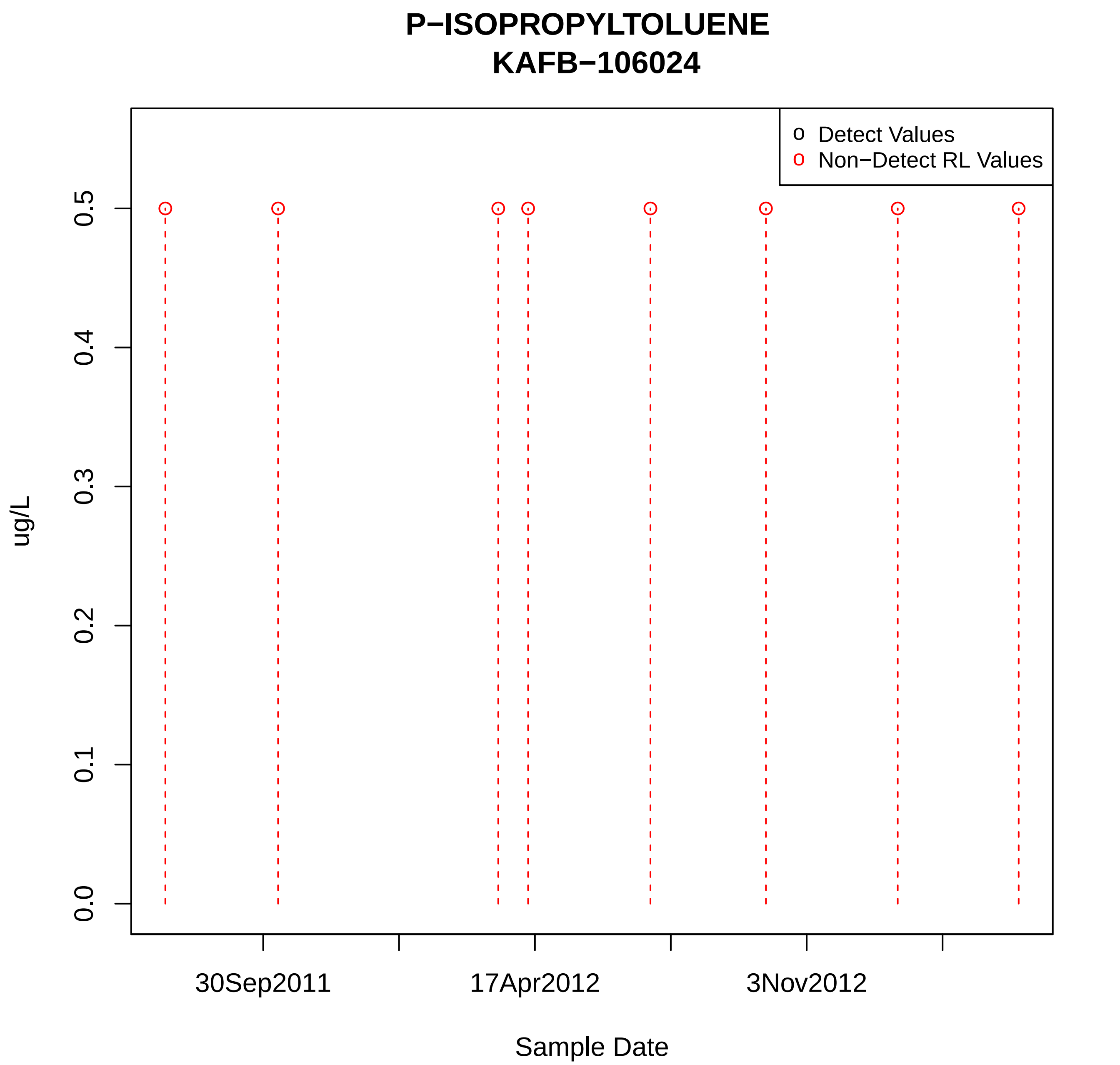

P−ISOPROPYLTOLUENE
KAFB−106020
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



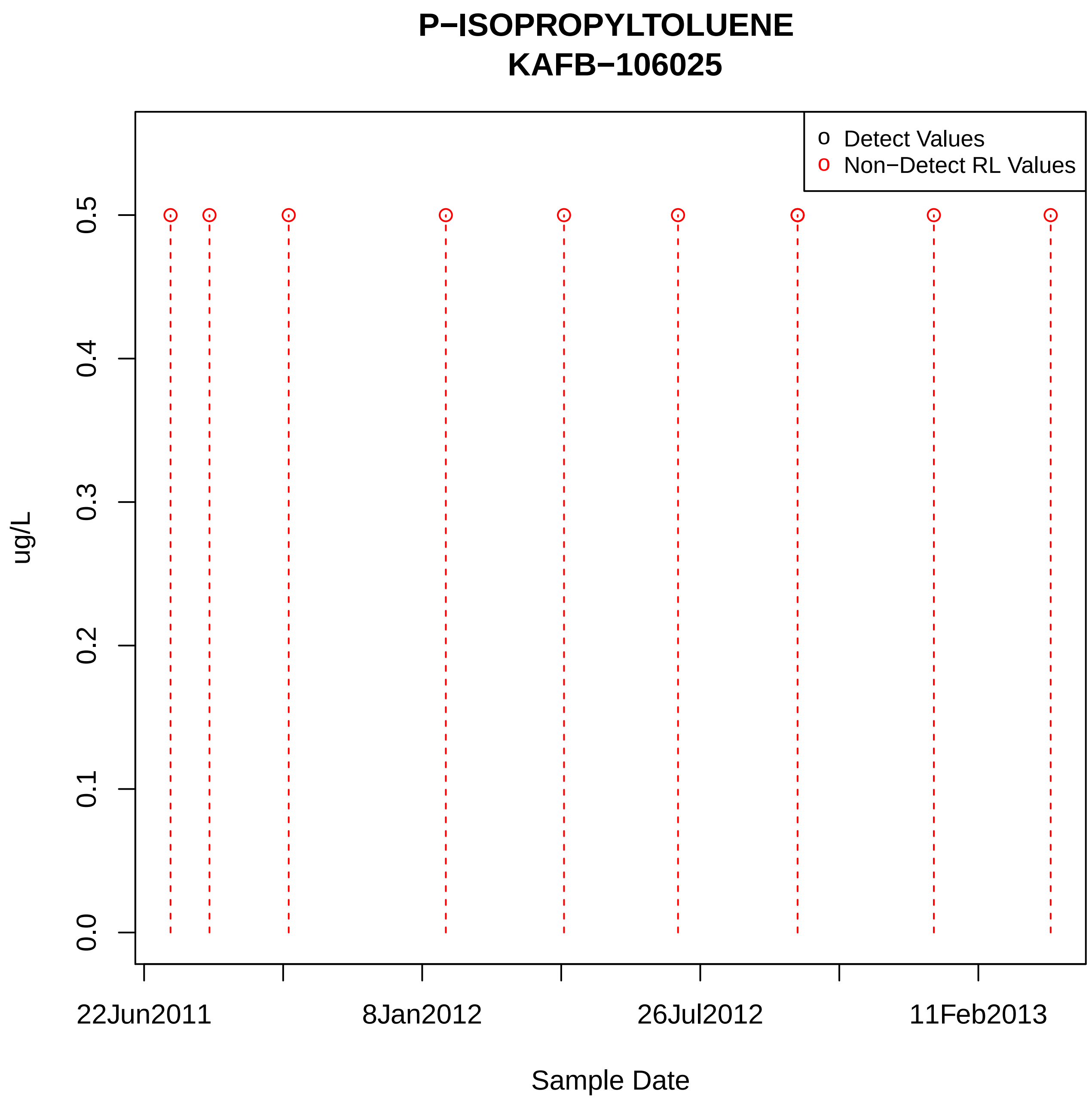
P−ISOPROPYLTOLUENE
KAFB−106021
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

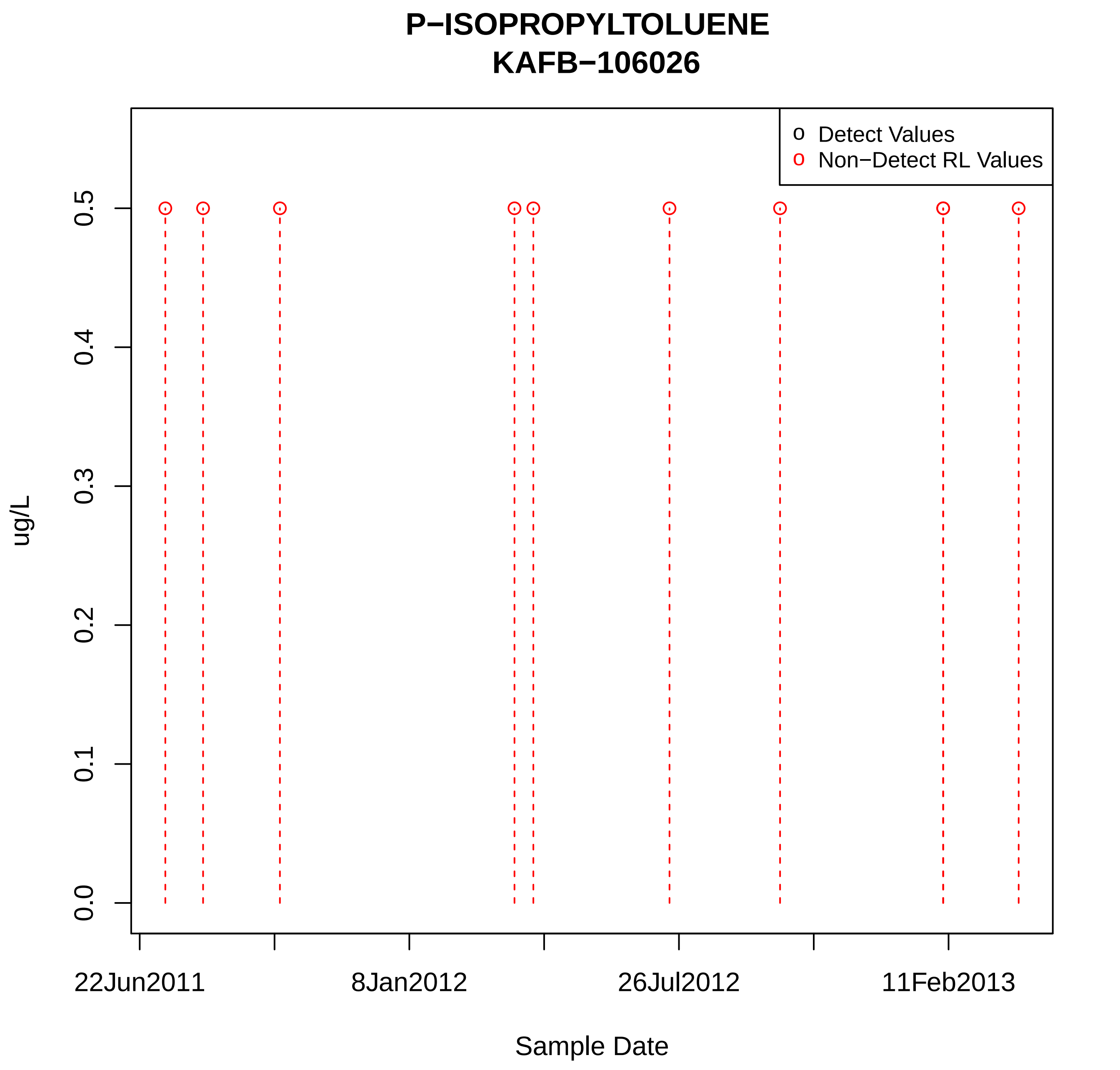


P−ISOPROPYLTOLUENE
KAFB−106022
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

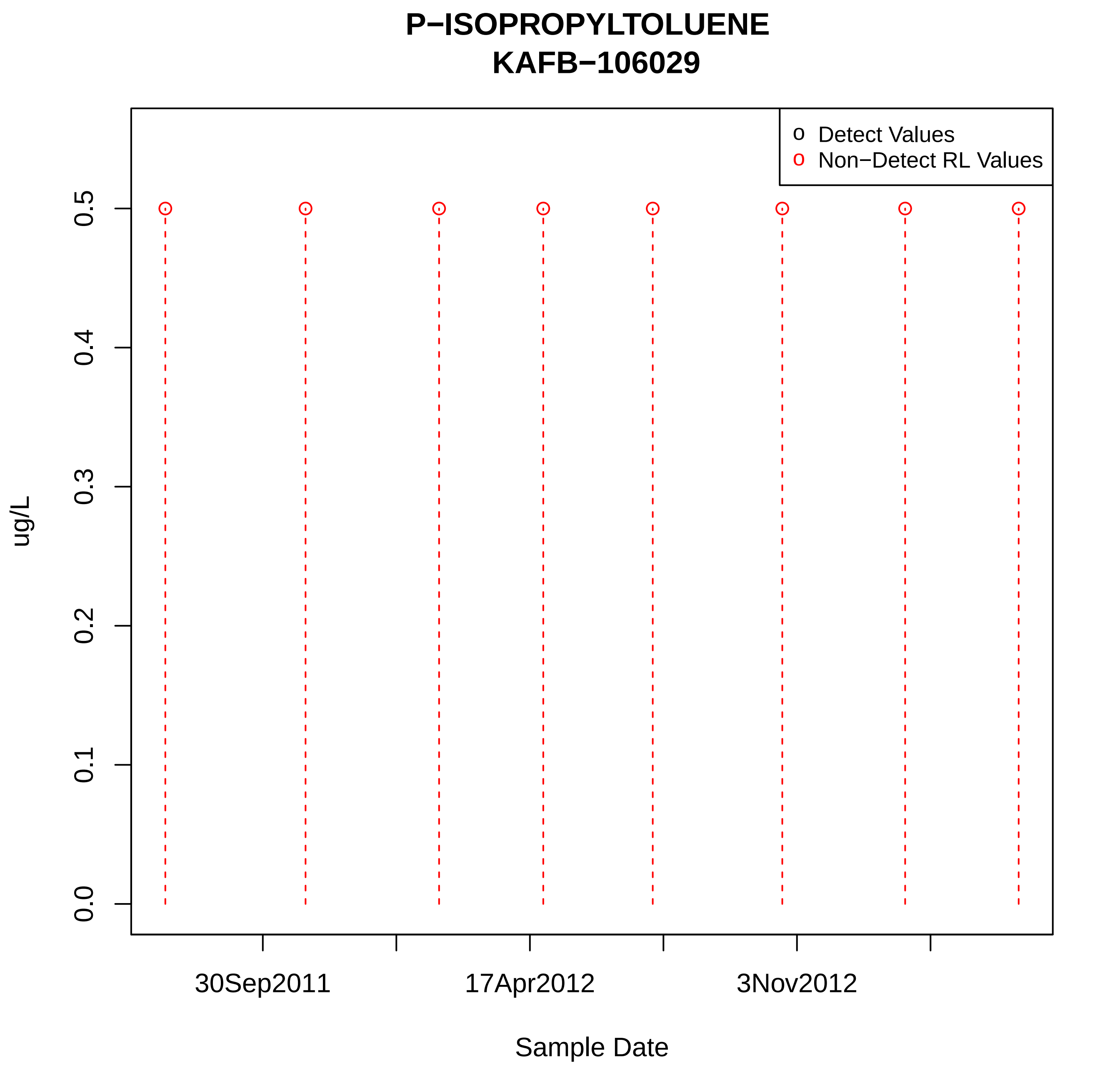


P−ISOPROPYLTOLUENE
KAFB−106024
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

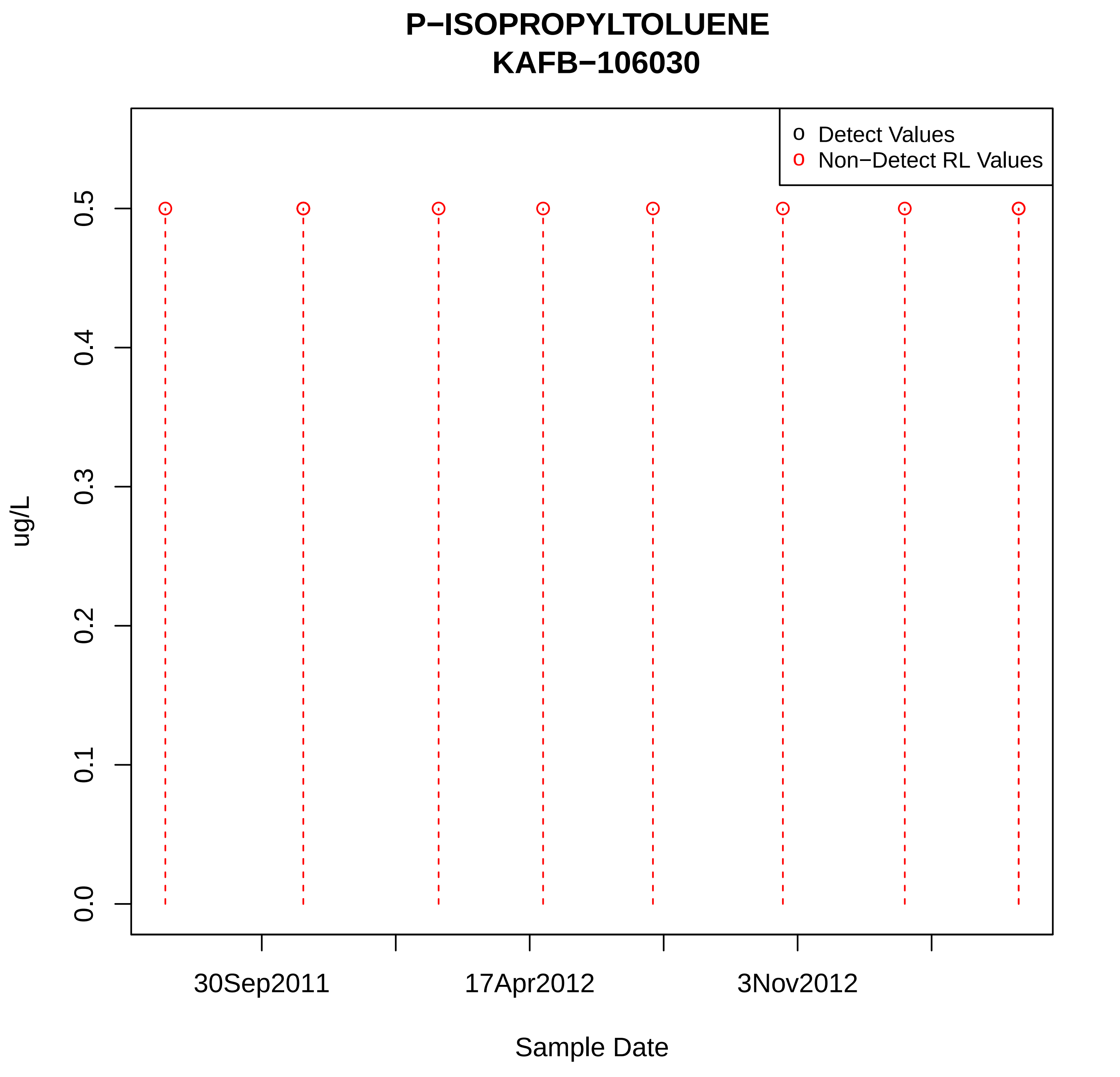

P−ISOPROPYLTOLUENE
KAFB−106025
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



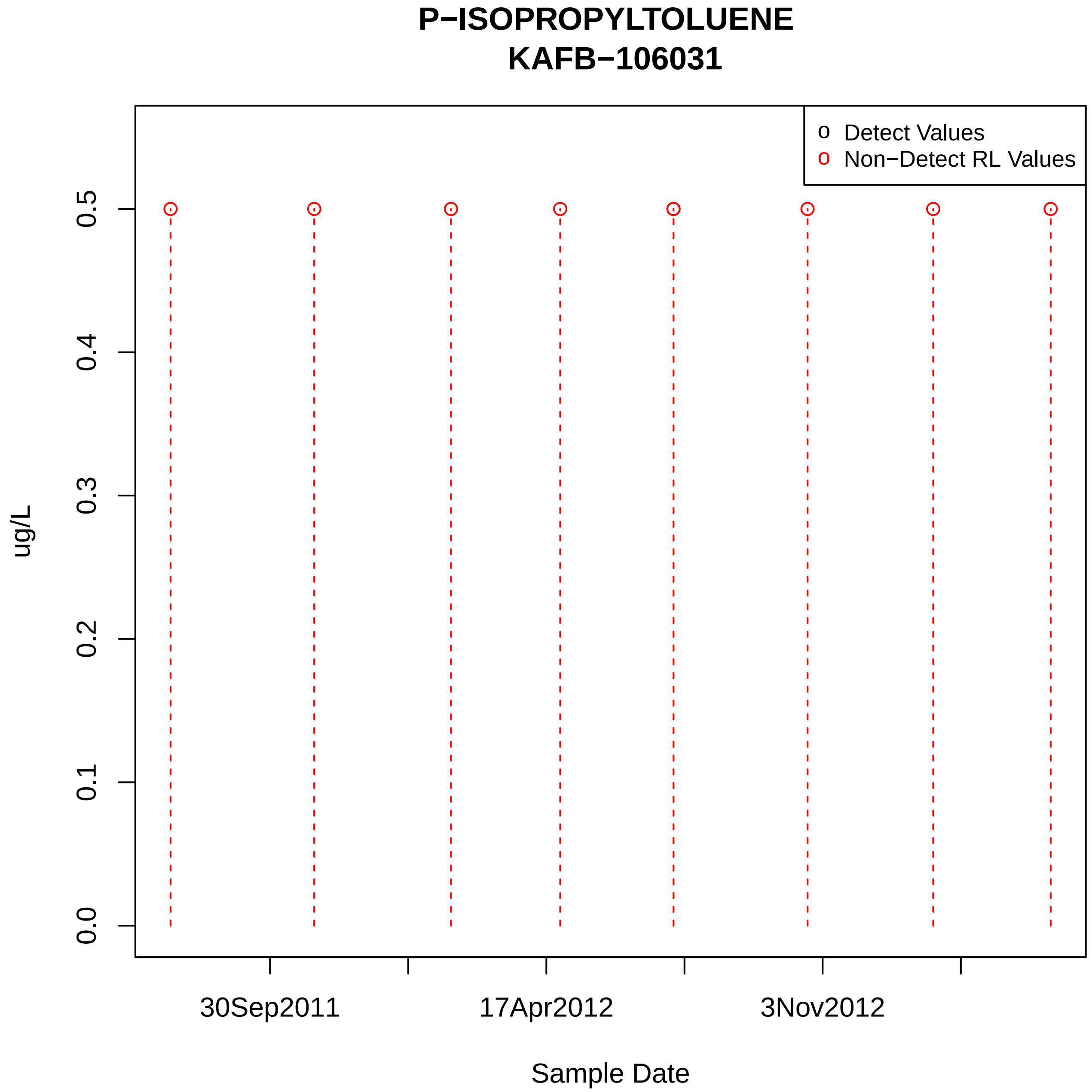
P−ISOPROPYLTOLUENE
KAFB−106026
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

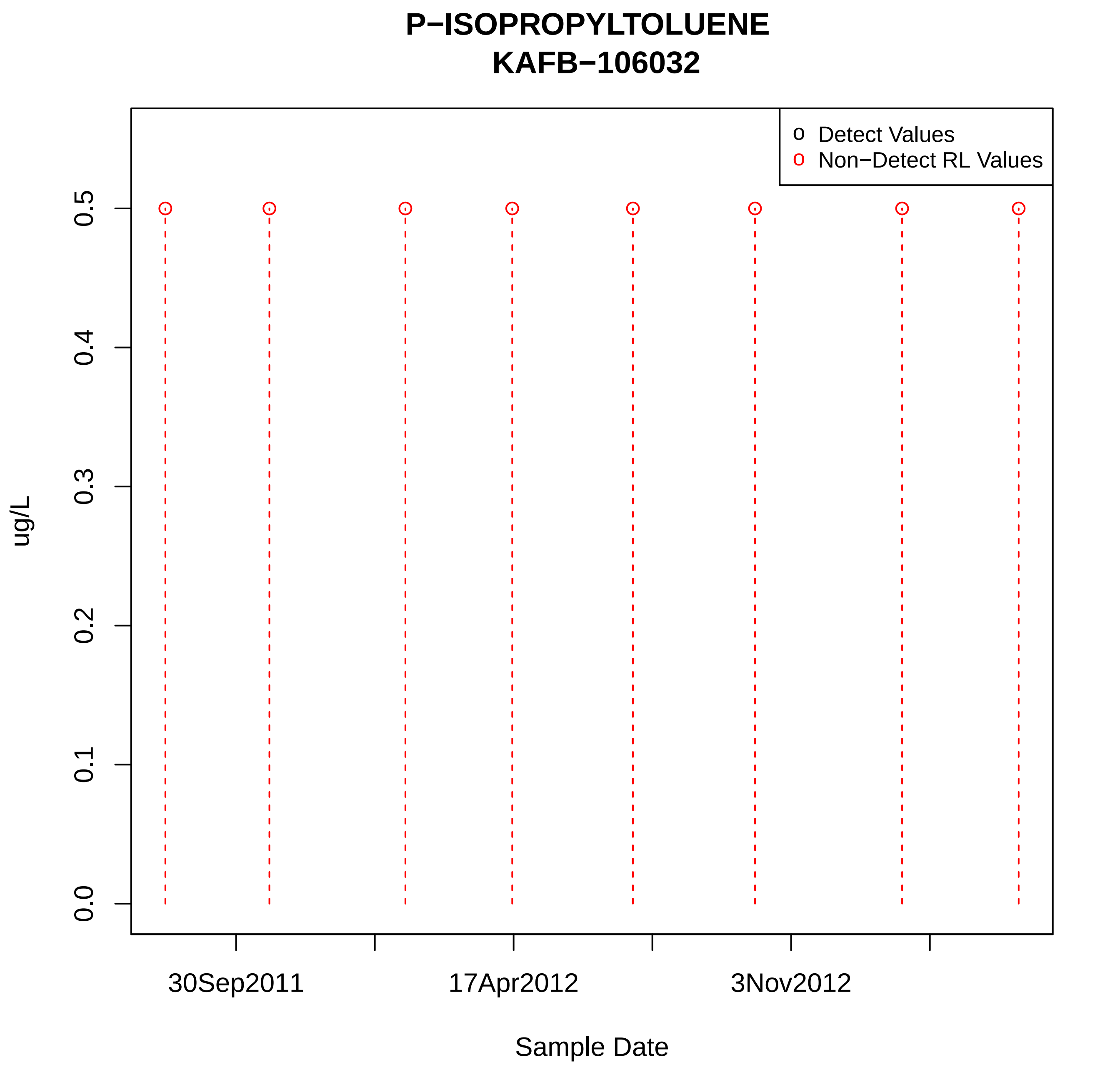


P−ISOPROPYLTOLUENE
KAFB−106029
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

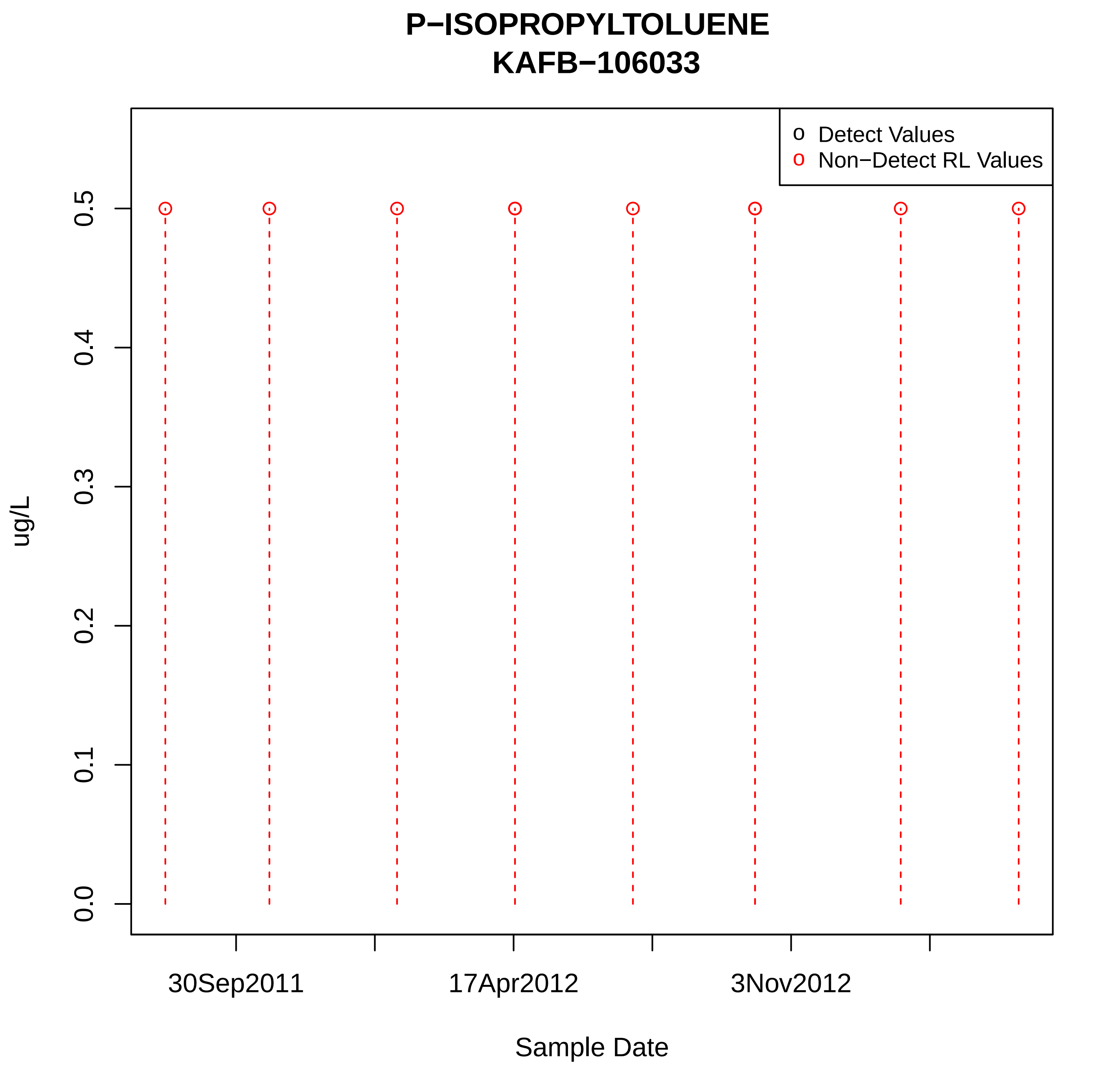


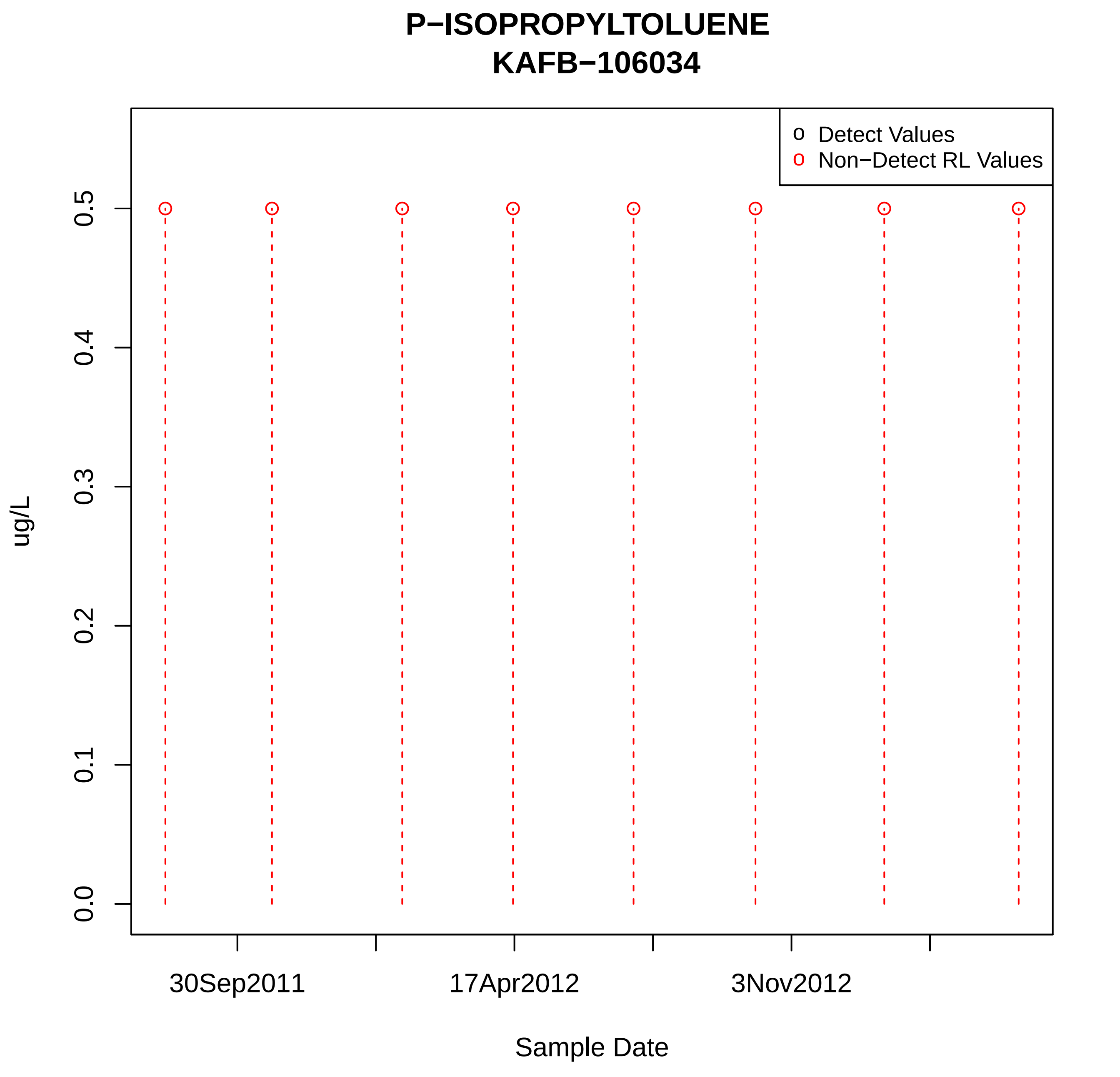
P−ISOPROPYLTOLUENE
KAFB−106030
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106031
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

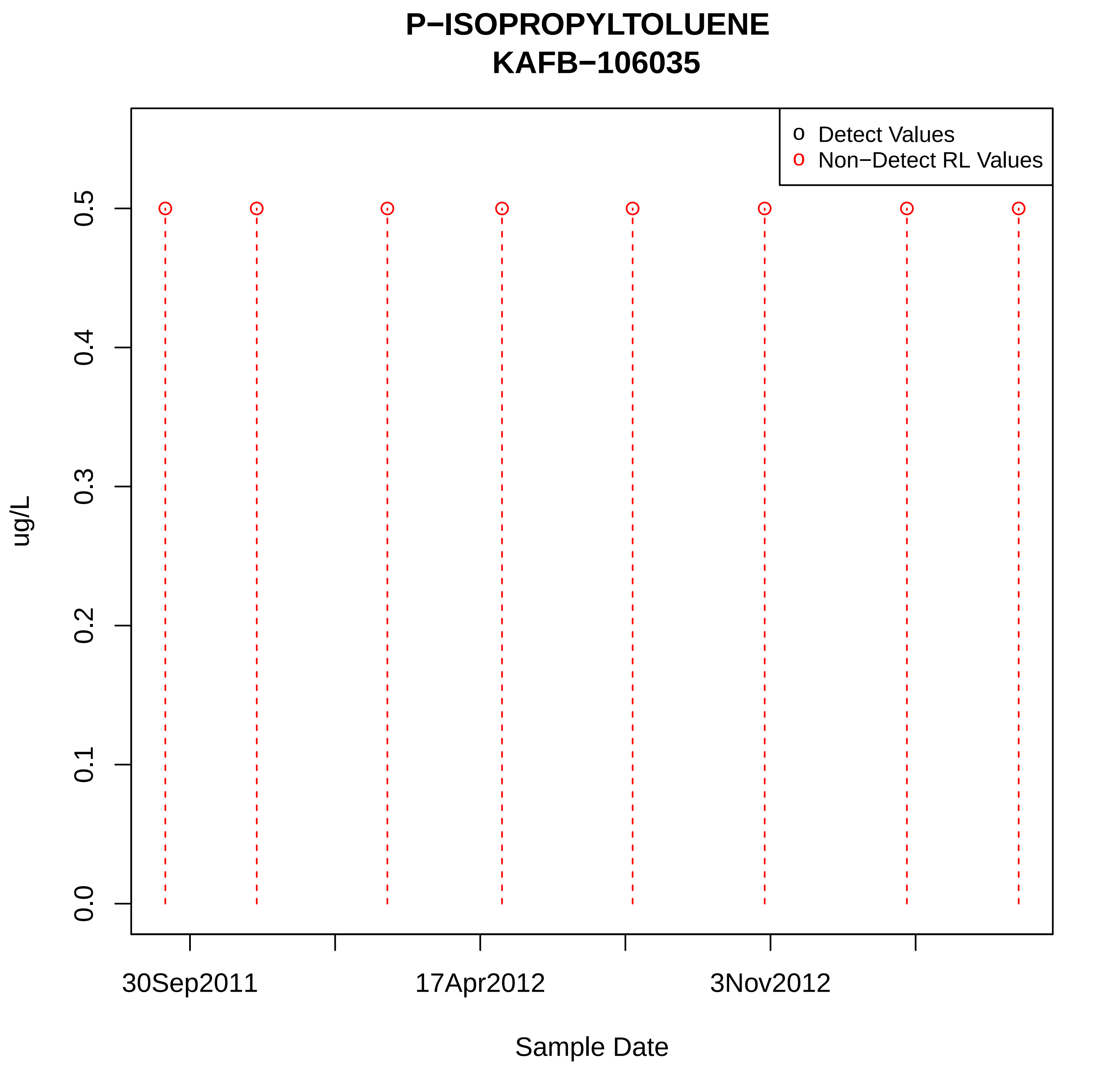


P−ISOPROPYLTOLUENE
KAFB−106032
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

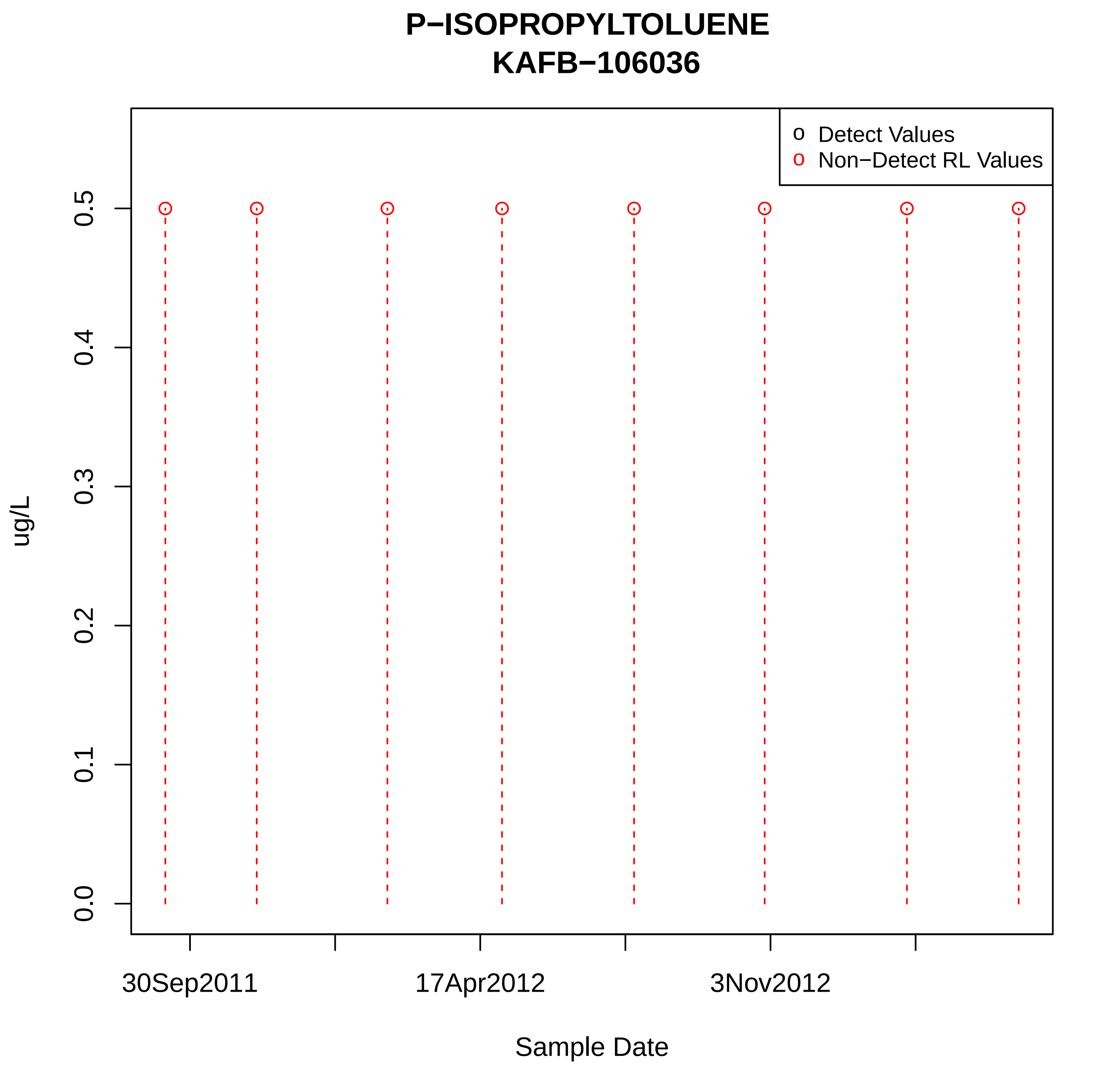

P−ISOPROPYLTOLUENE
KAFB−106033
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



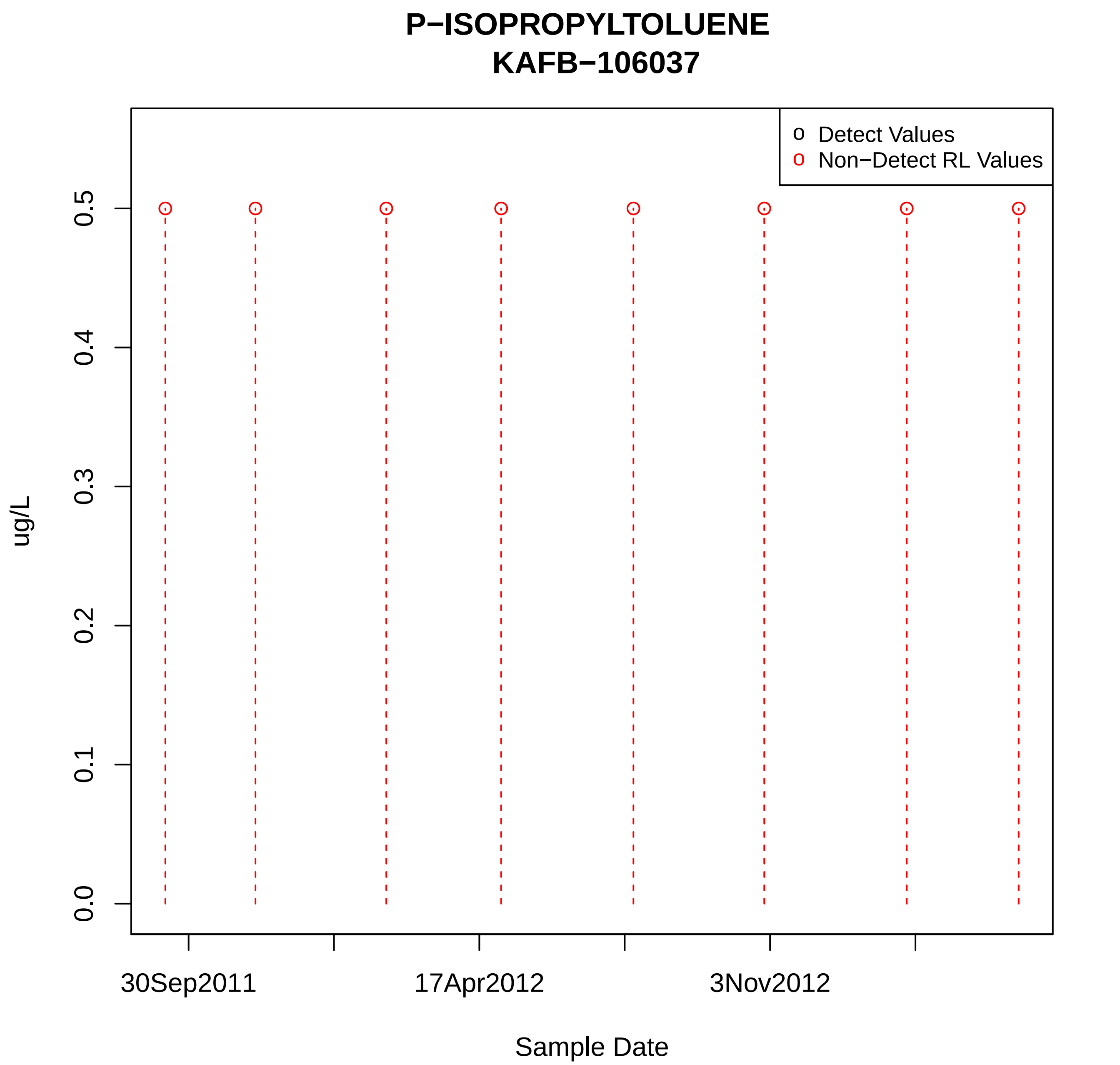
P−ISOPROPYLTOLUENE
KAFB−106034
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

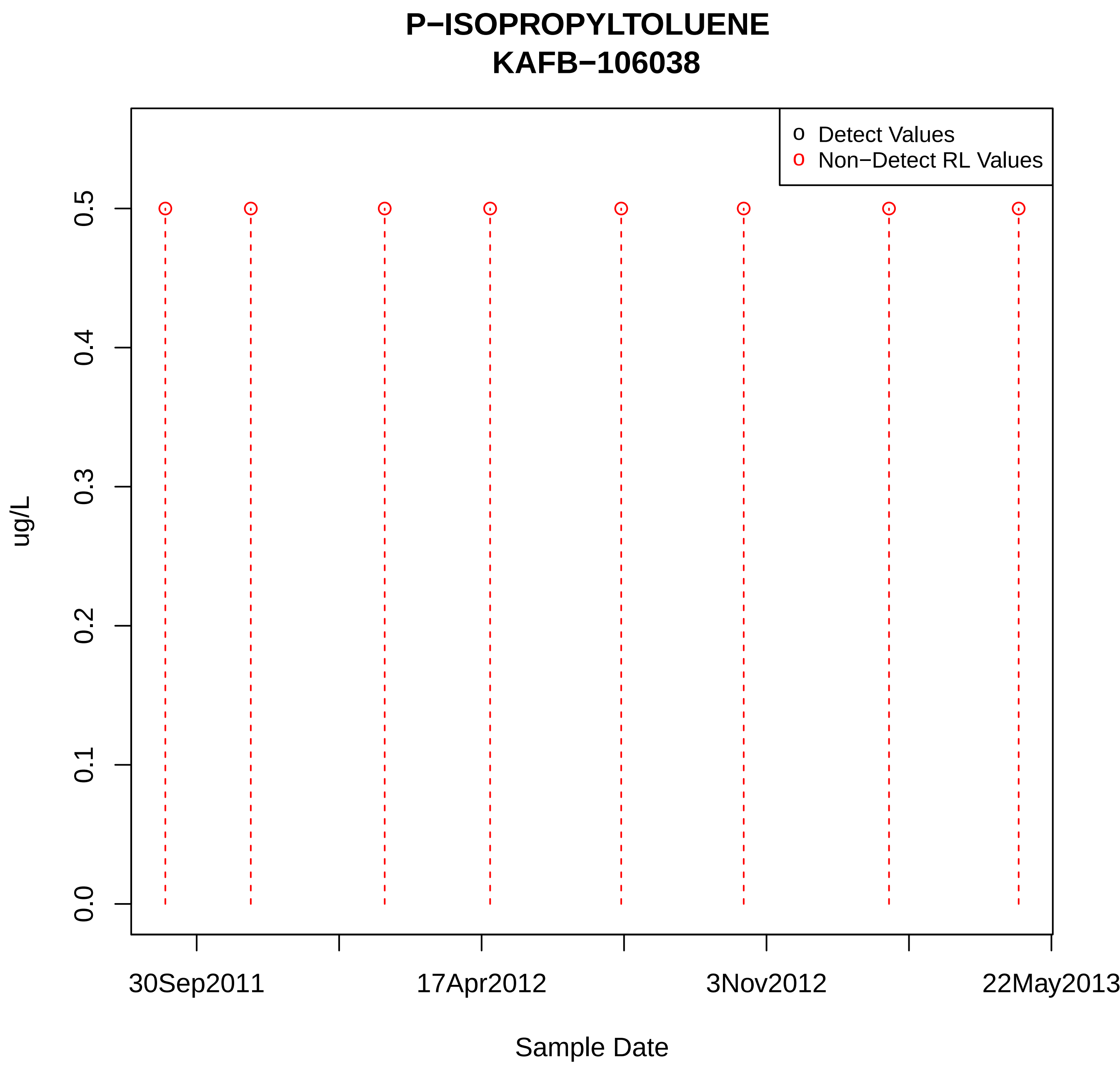


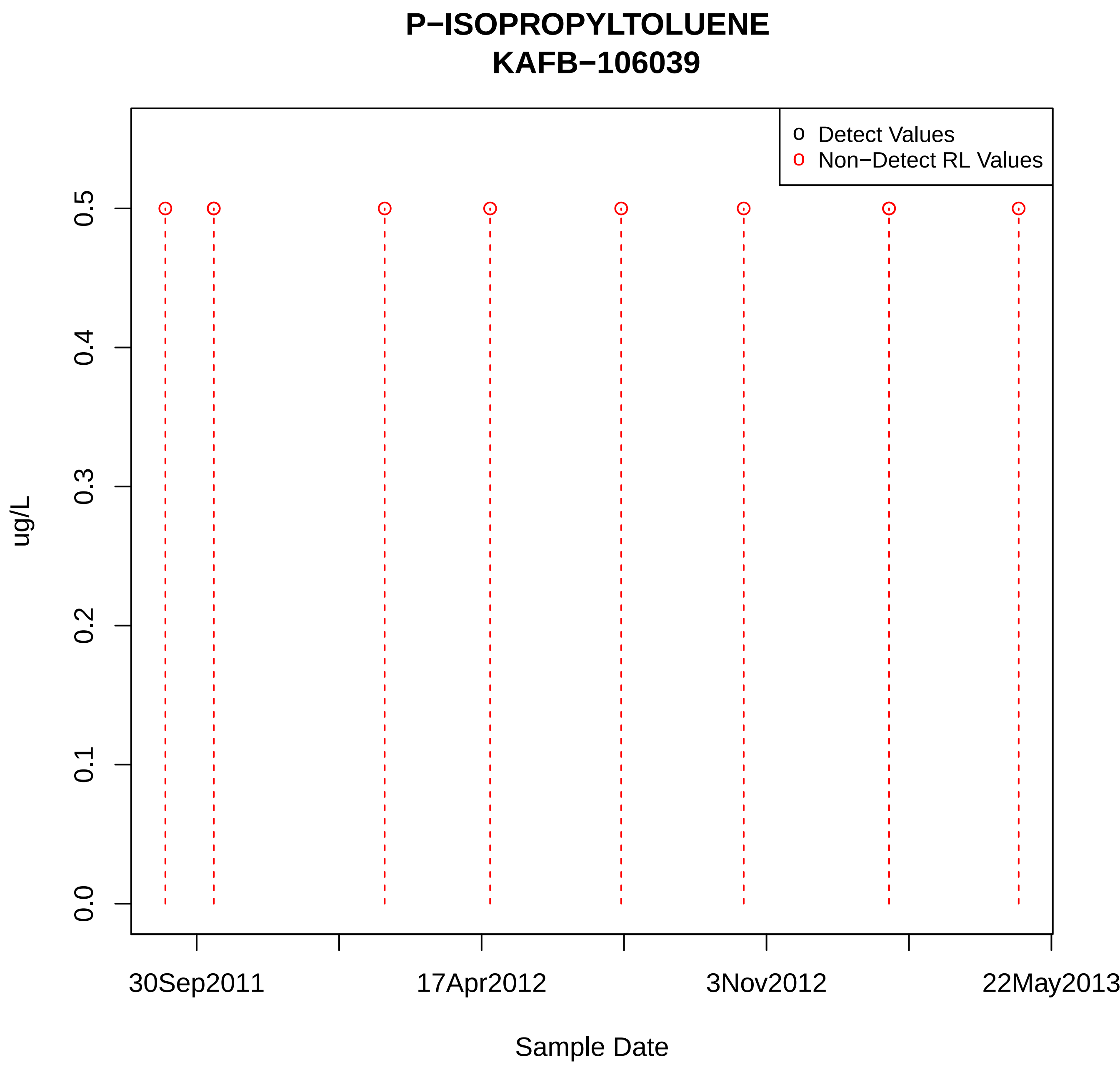
P−ISOPROPYLTOLUENE
KAFB−106035
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

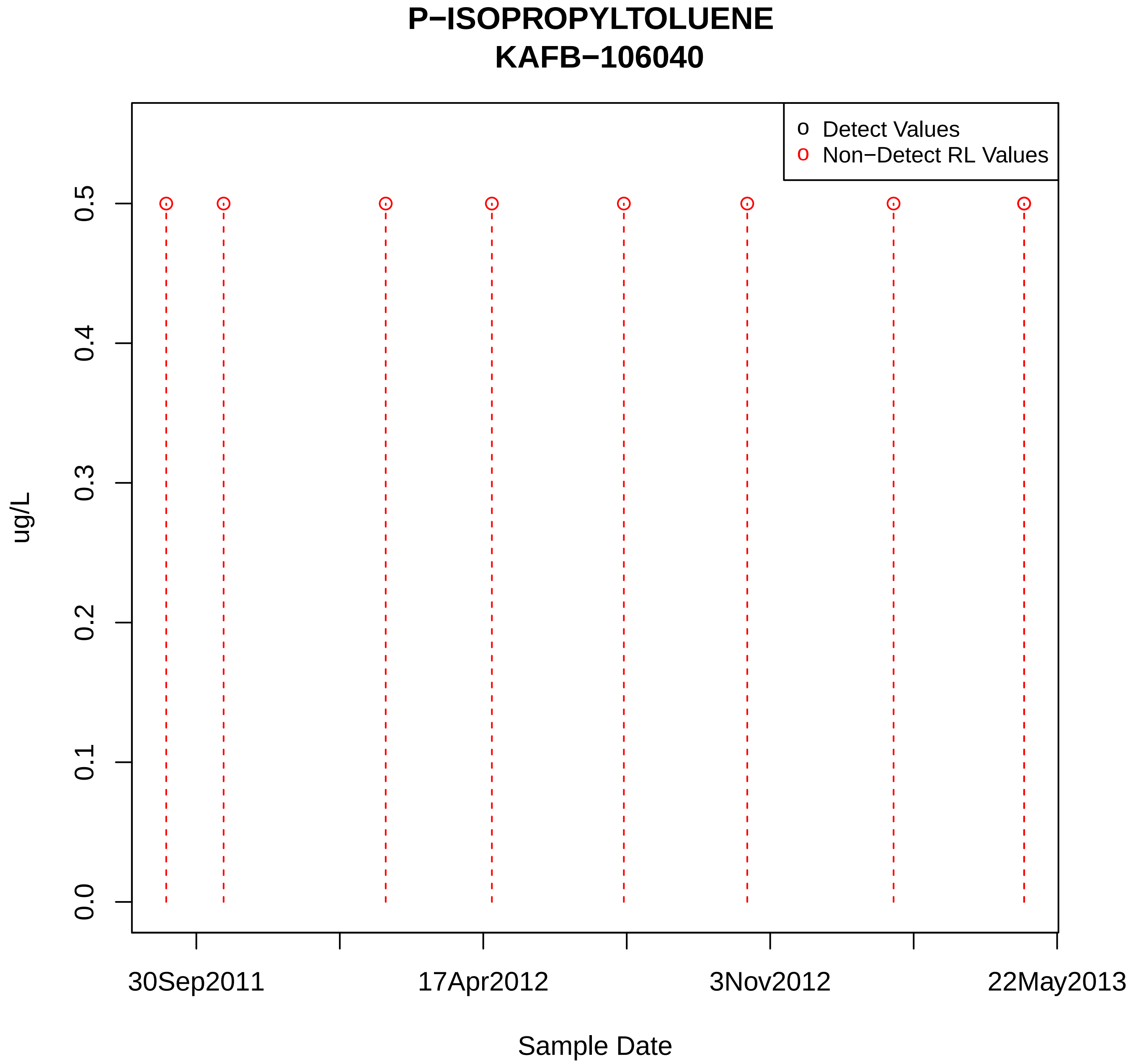


P−ISOPROPYLTOLUENE
KAFB−106036
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

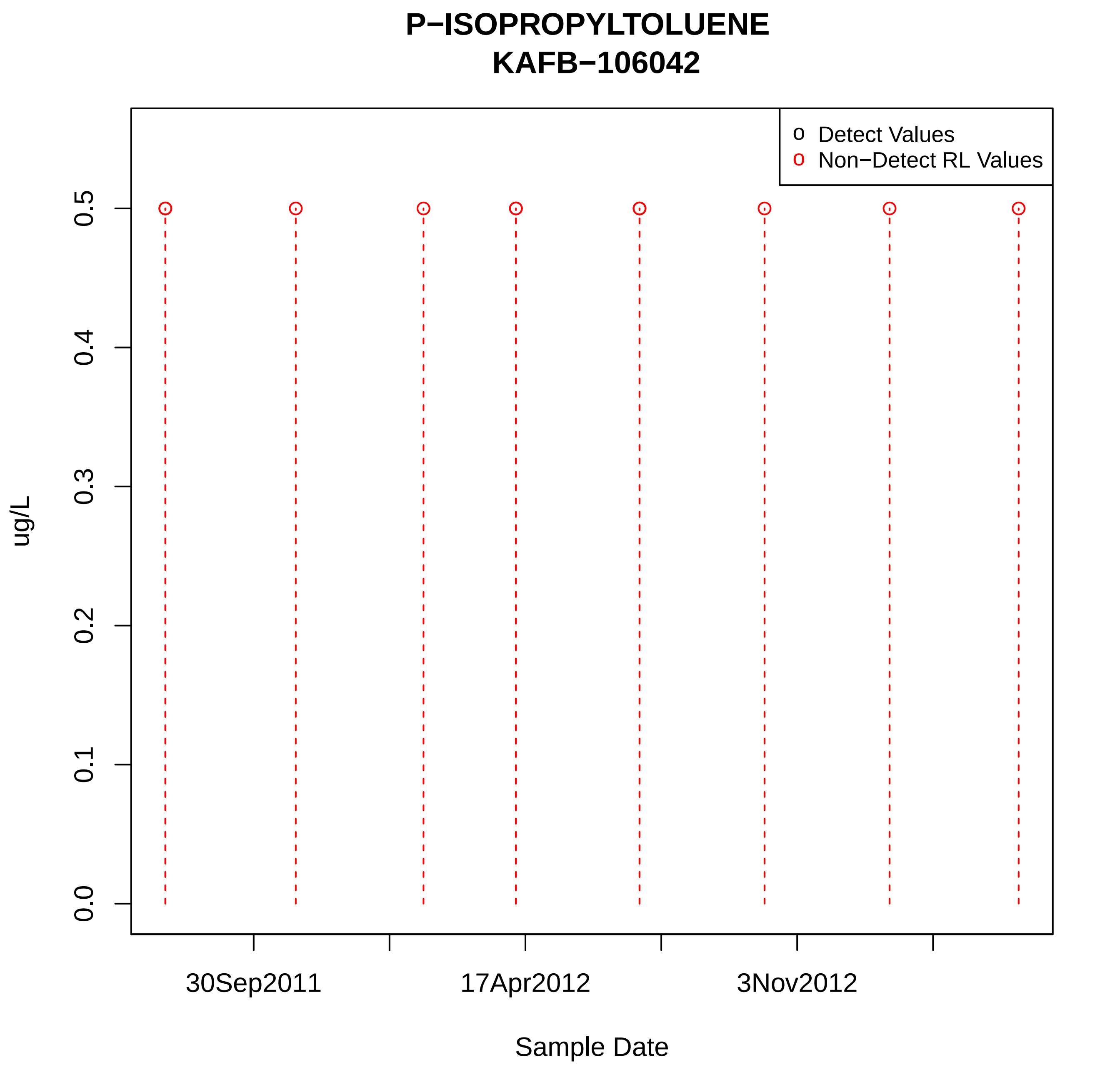

P−ISOPROPYLTOLUENE
KAFB−106037
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106038
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

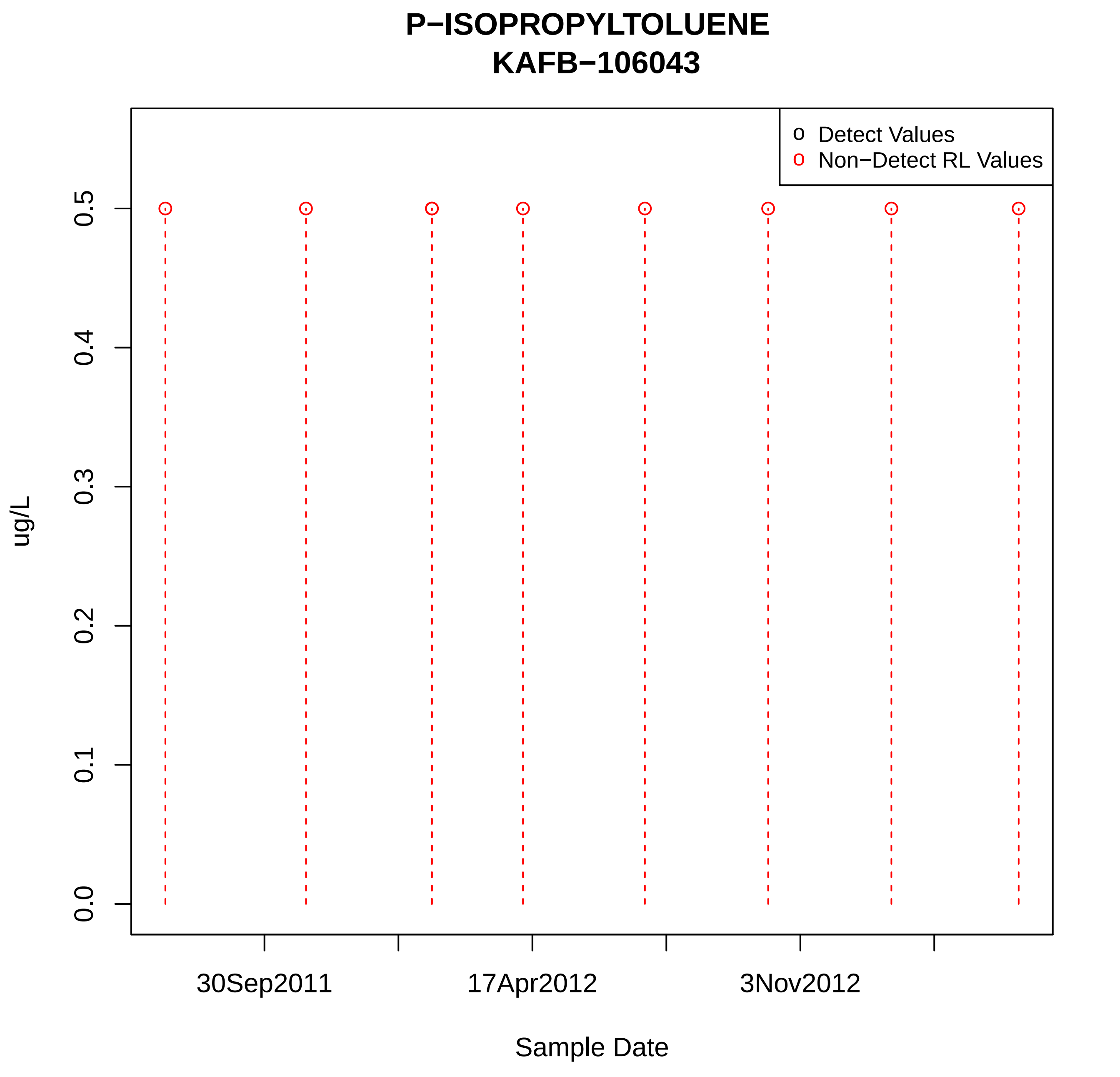

P−ISOPROPYLTOLUENE
KAFB−106039
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



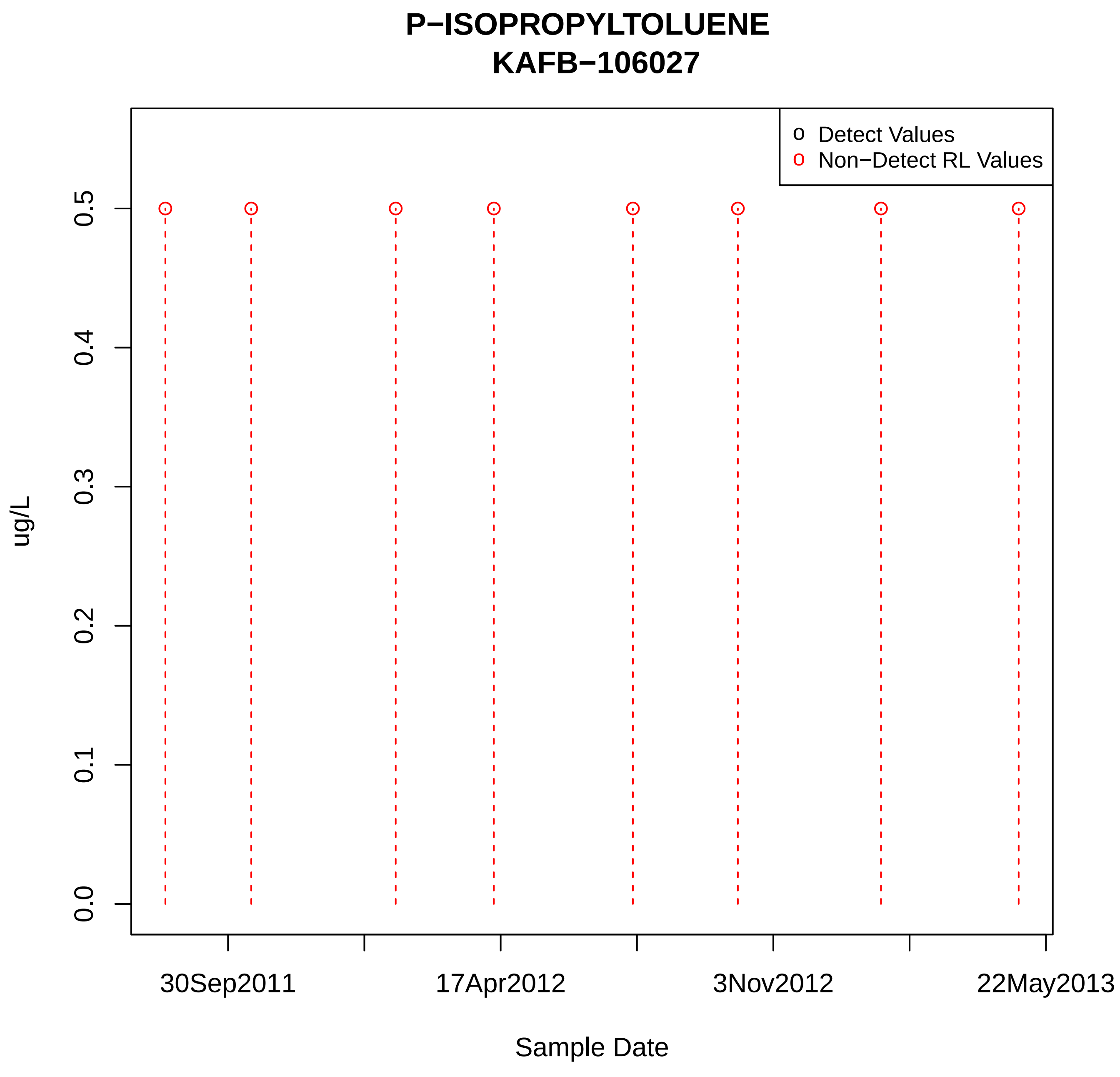
P−ISOPROPYLTOLUENE
KAFB−106040
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



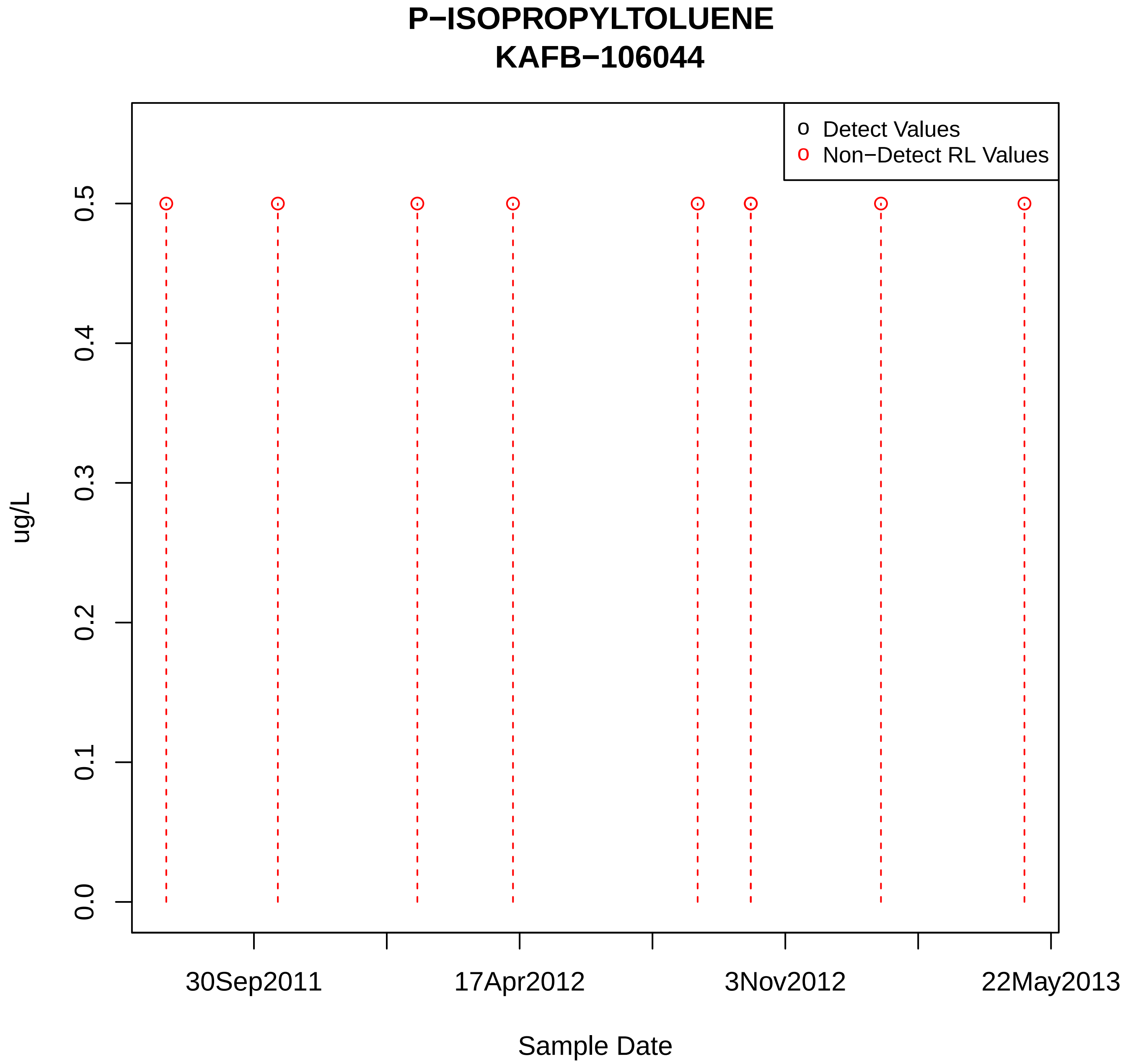
P−ISOPROPYLTOLUENE
KAFB−106042
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

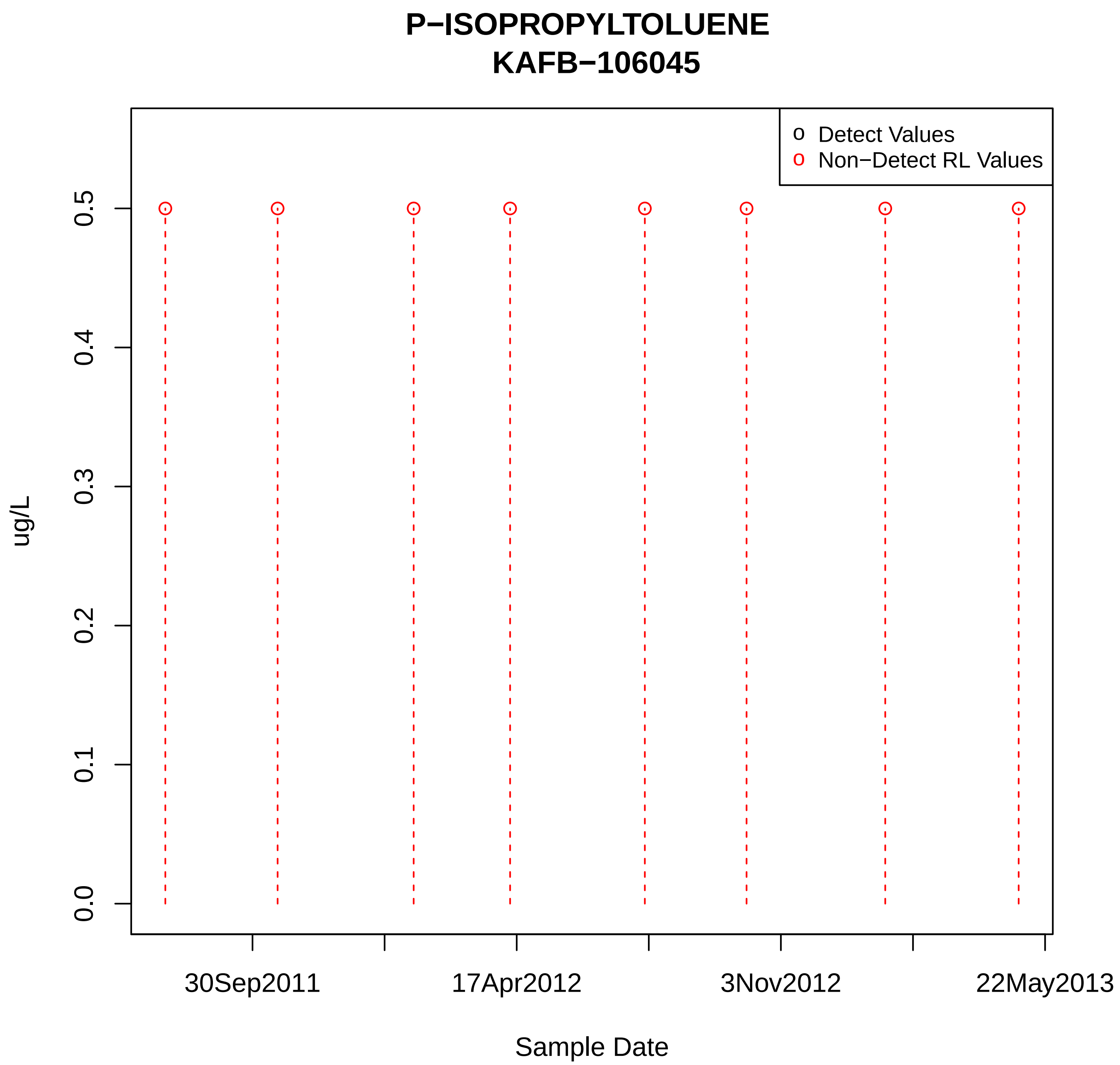


P−ISOPROPYLTOLUENE
KAFB−106043
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

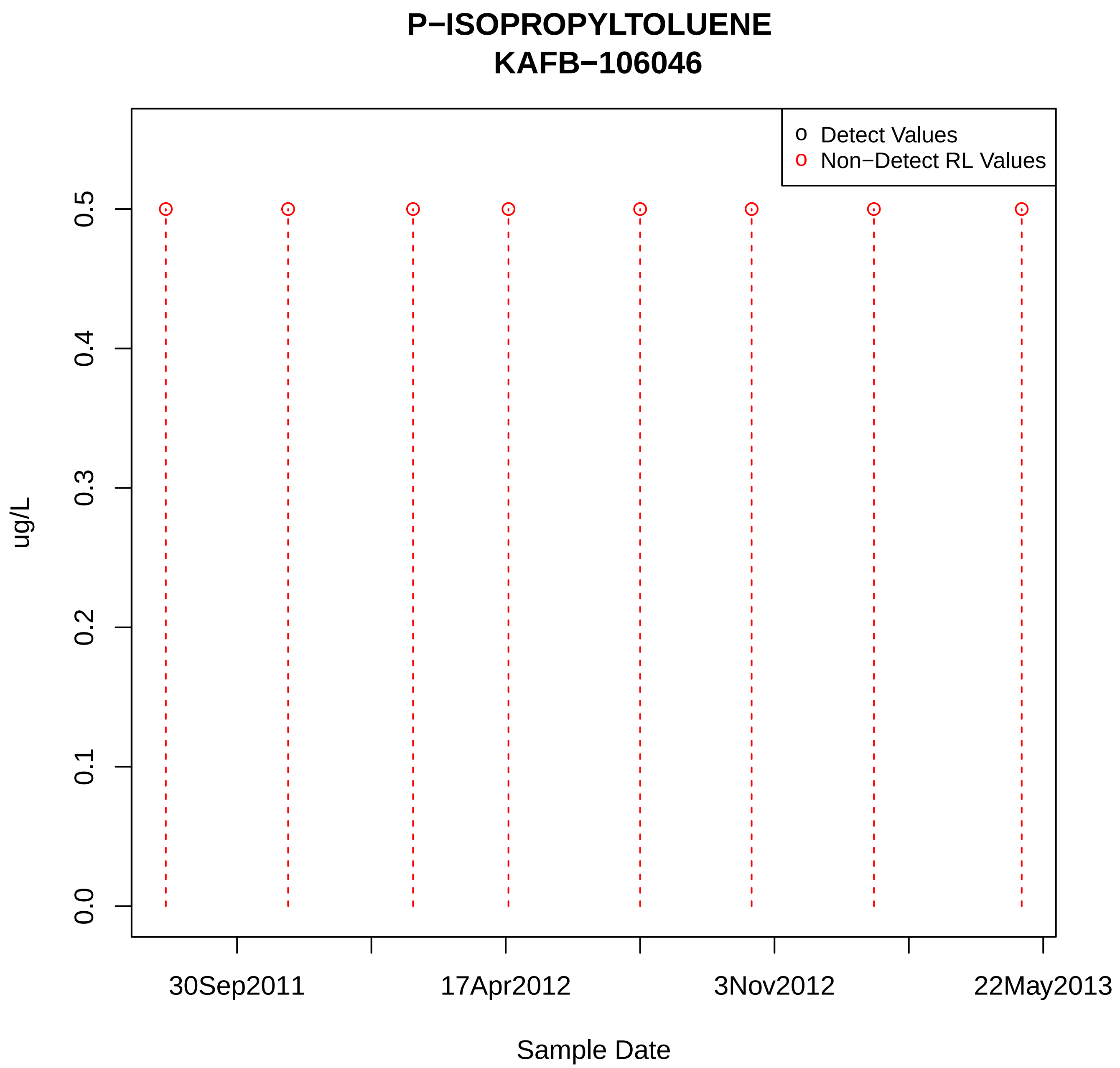


P−ISOPROPYLTOLUENE
KAFB−106027
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

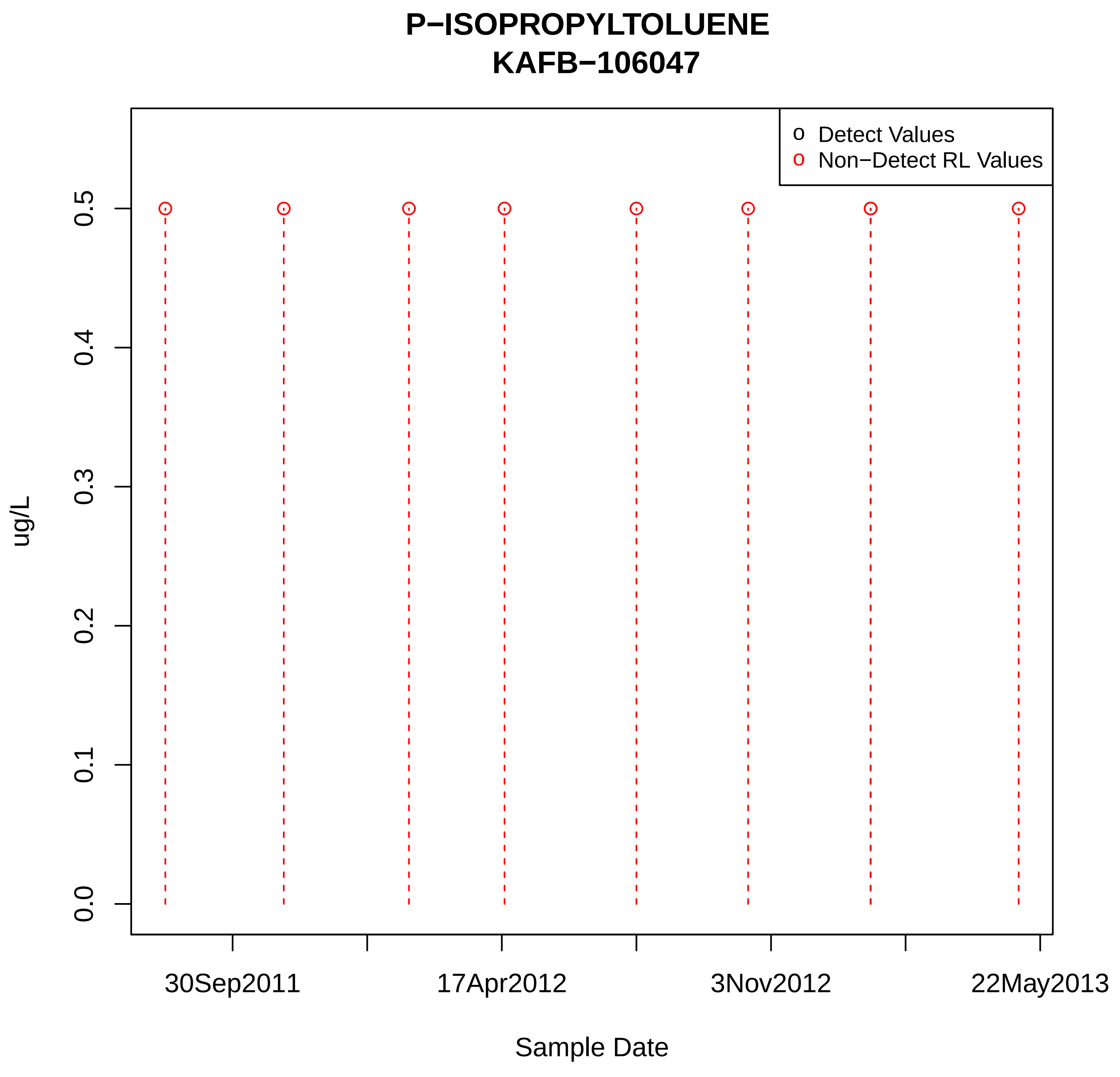

P−ISOPROPYLTOLUENE
KAFB−106044
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



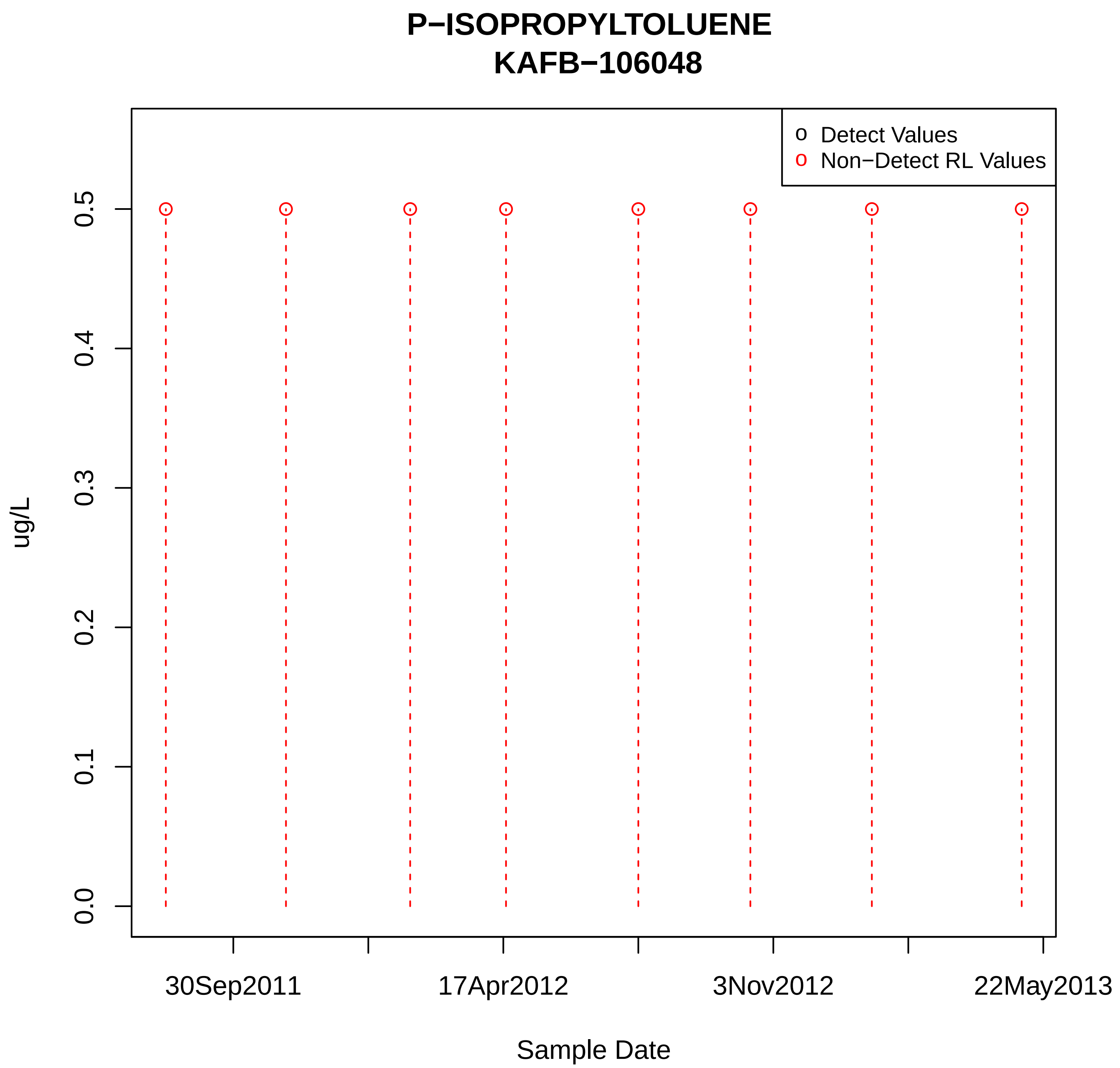
P−ISOPROPYLTOLUENE
KAFB−106045
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



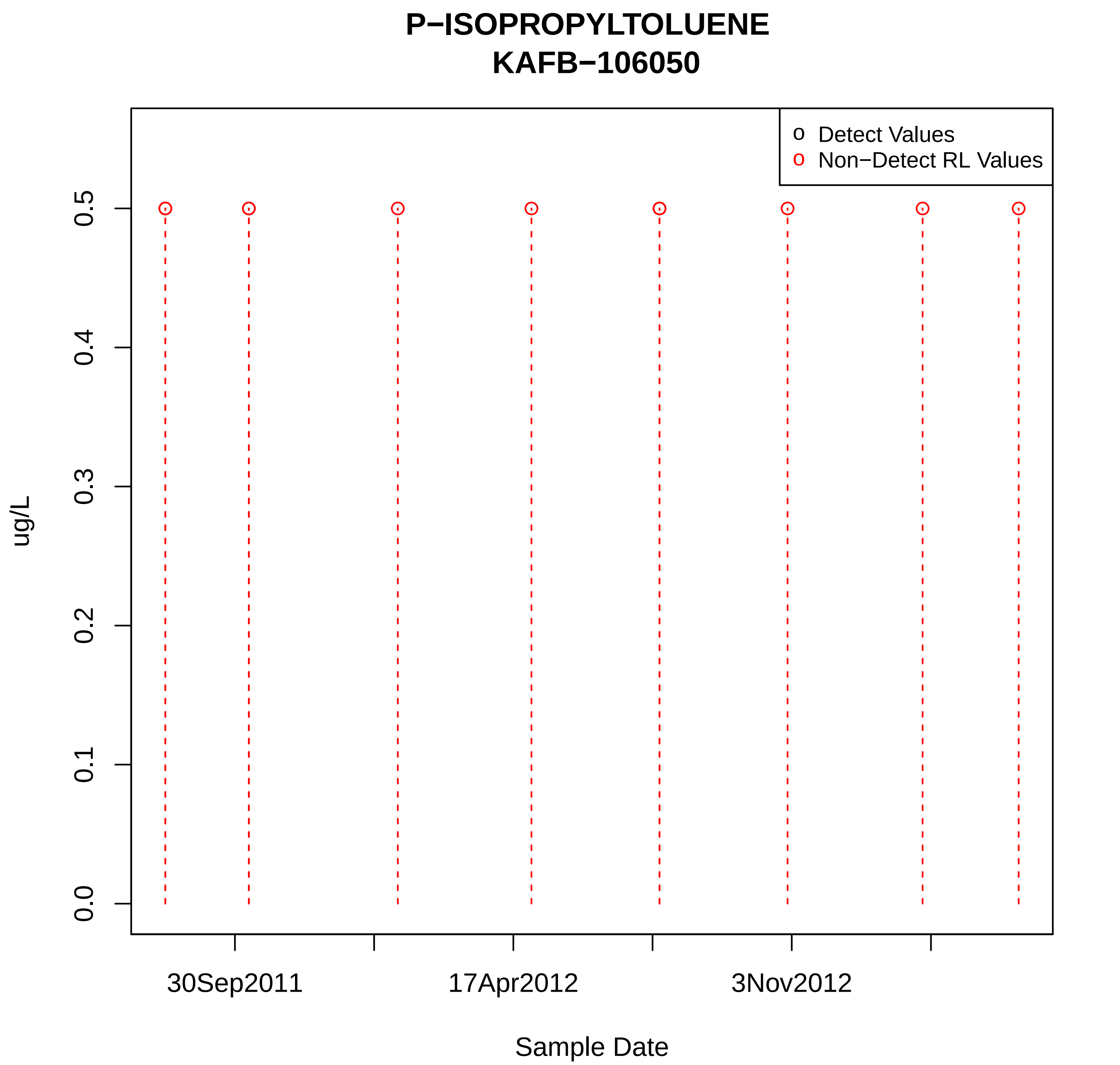
P−ISOPROPYLTOLUENE
KAFB−106046
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



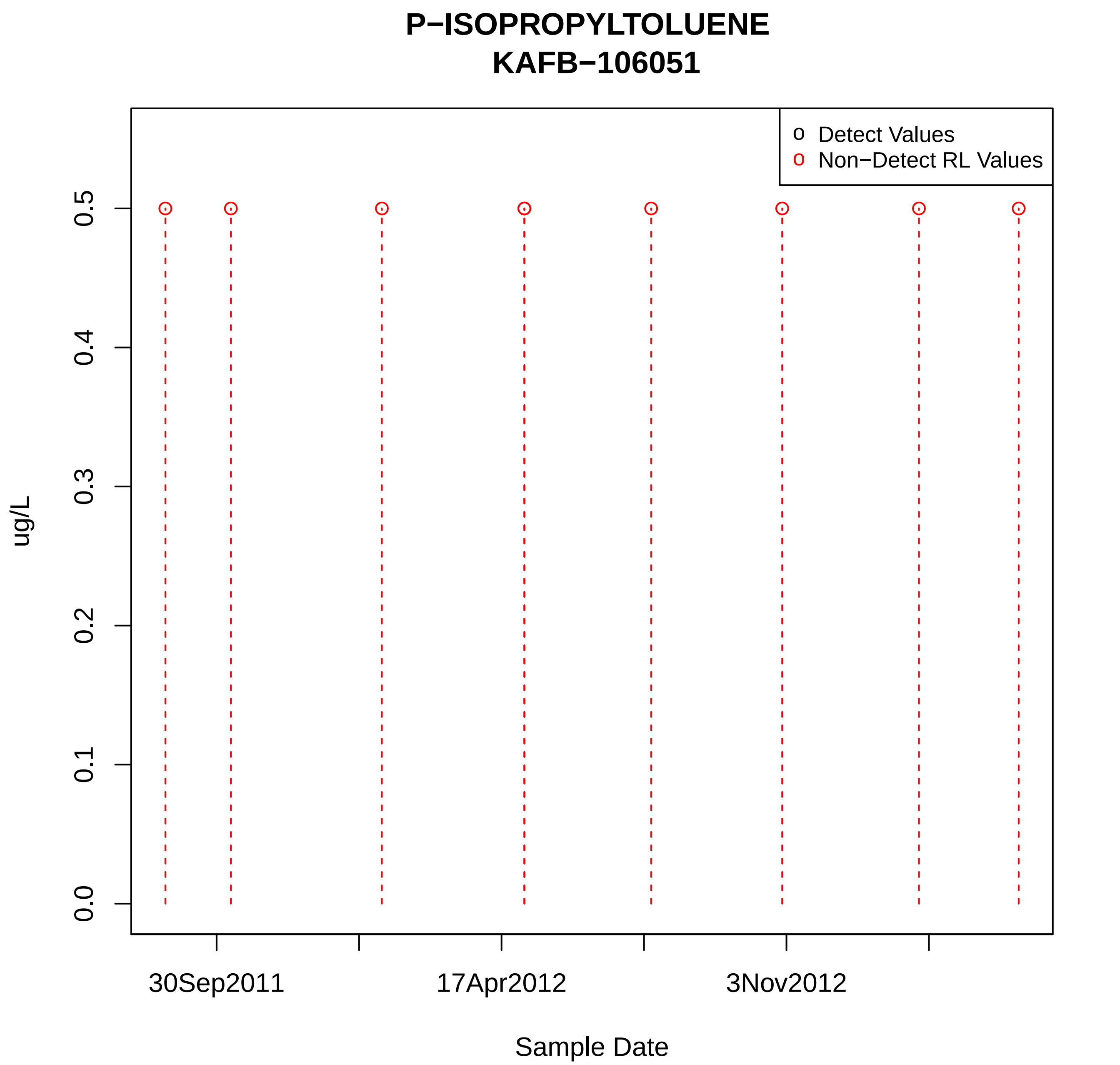
P−ISOPROPYLTOLUENE
KAFB−106047
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

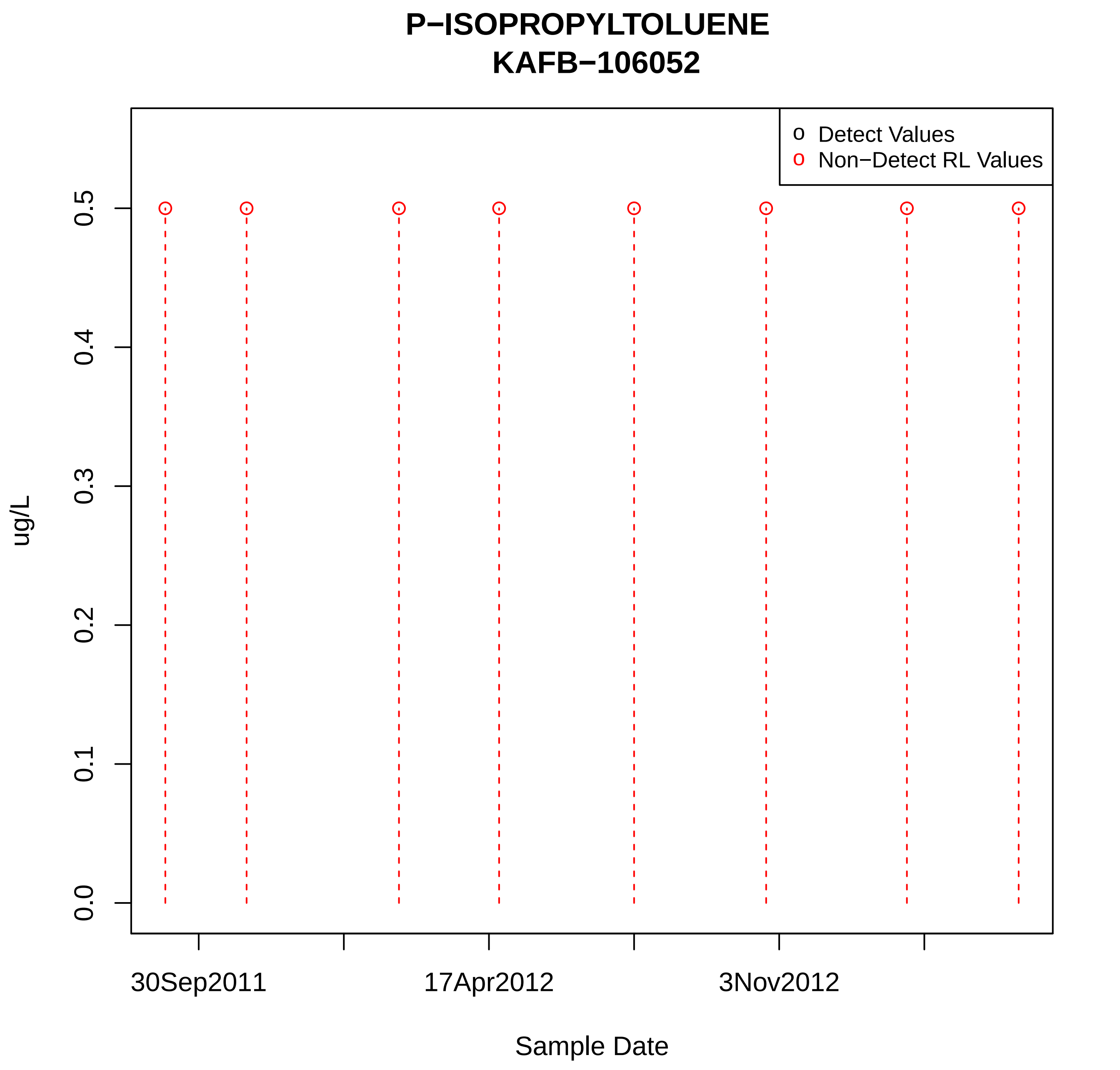


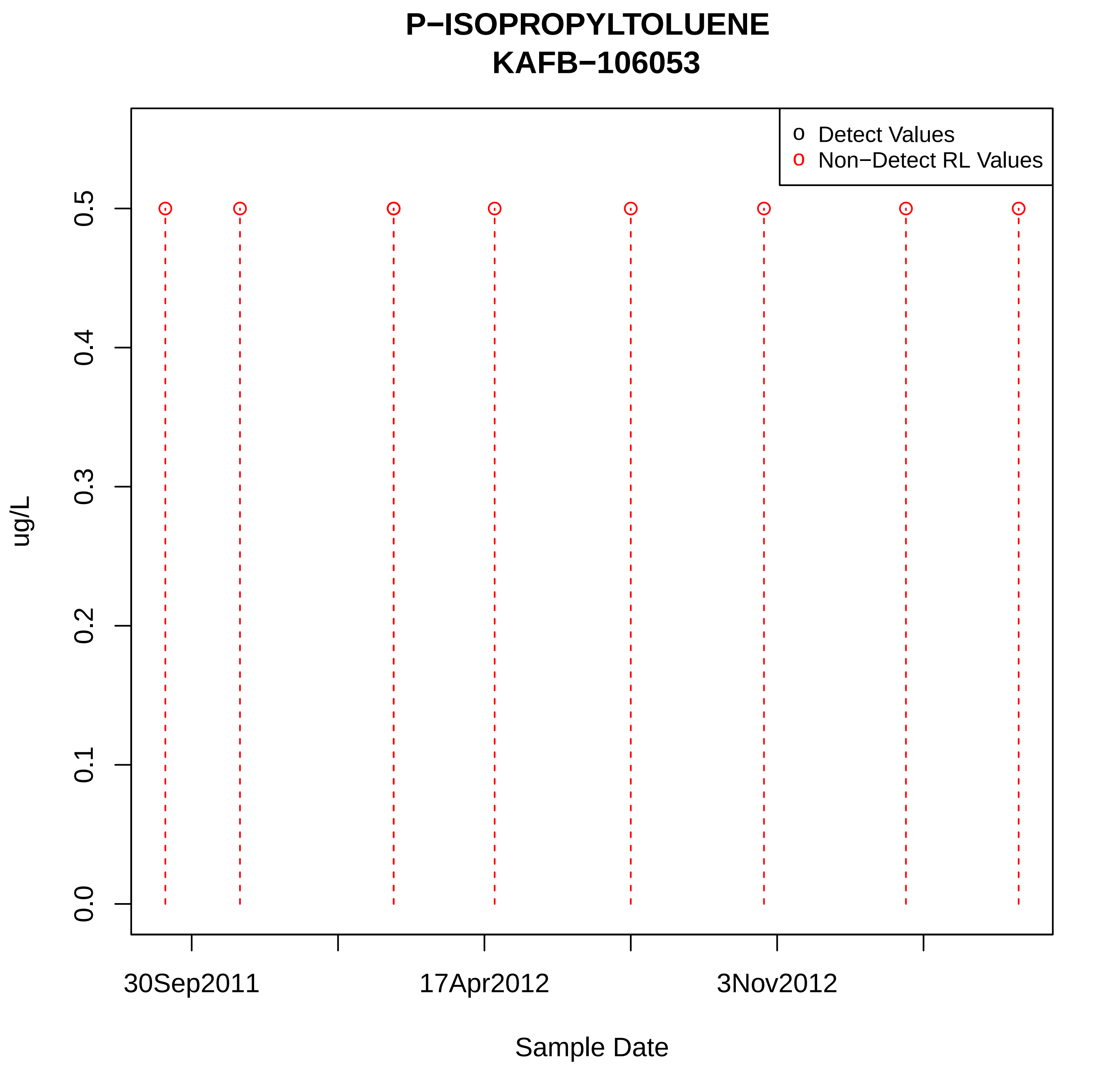
P−ISOPROPYLTOLUENE
KAFB−106048
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



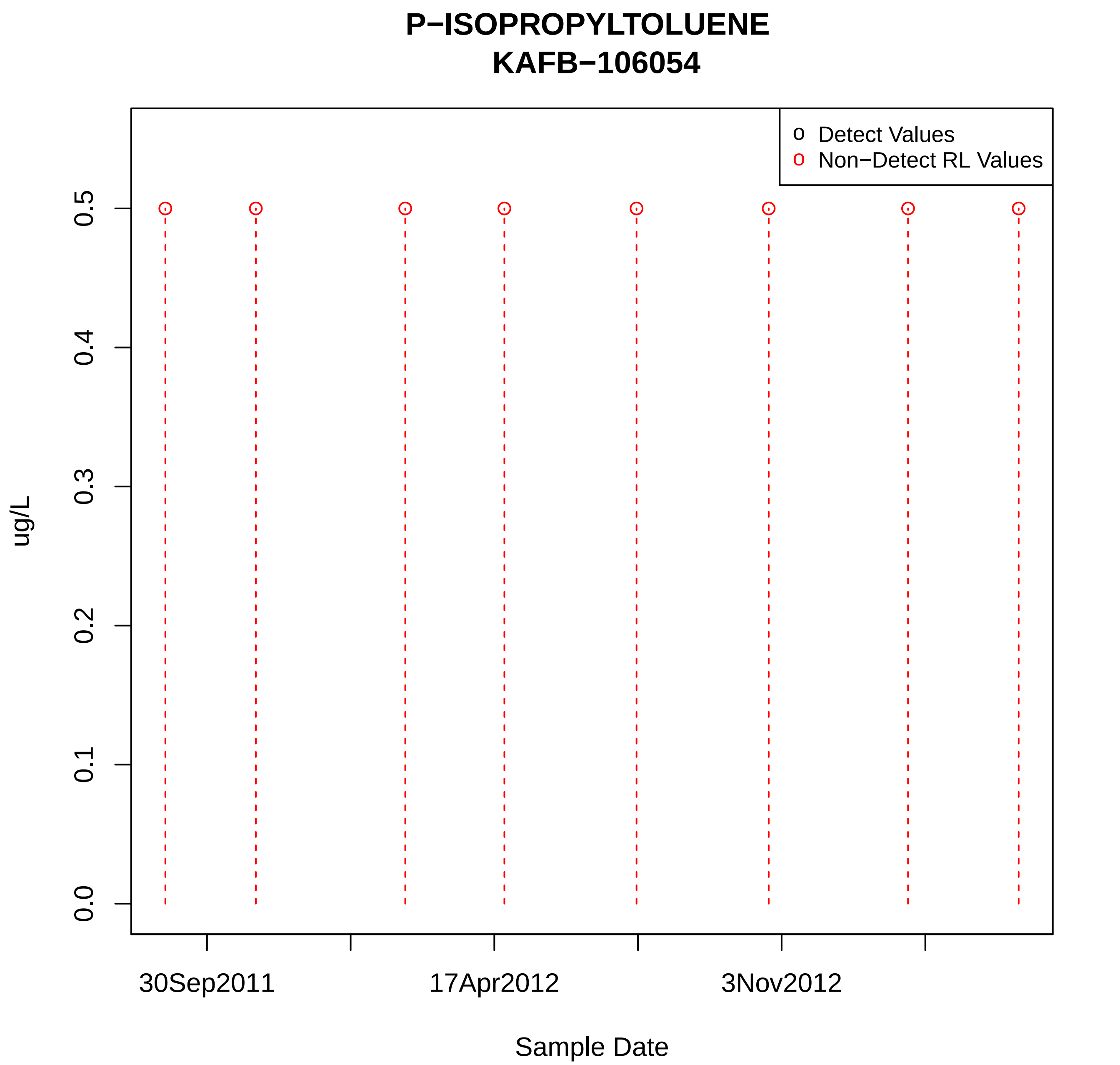
P−ISOPROPYLTOLUENE
KAFB−106050
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106051
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

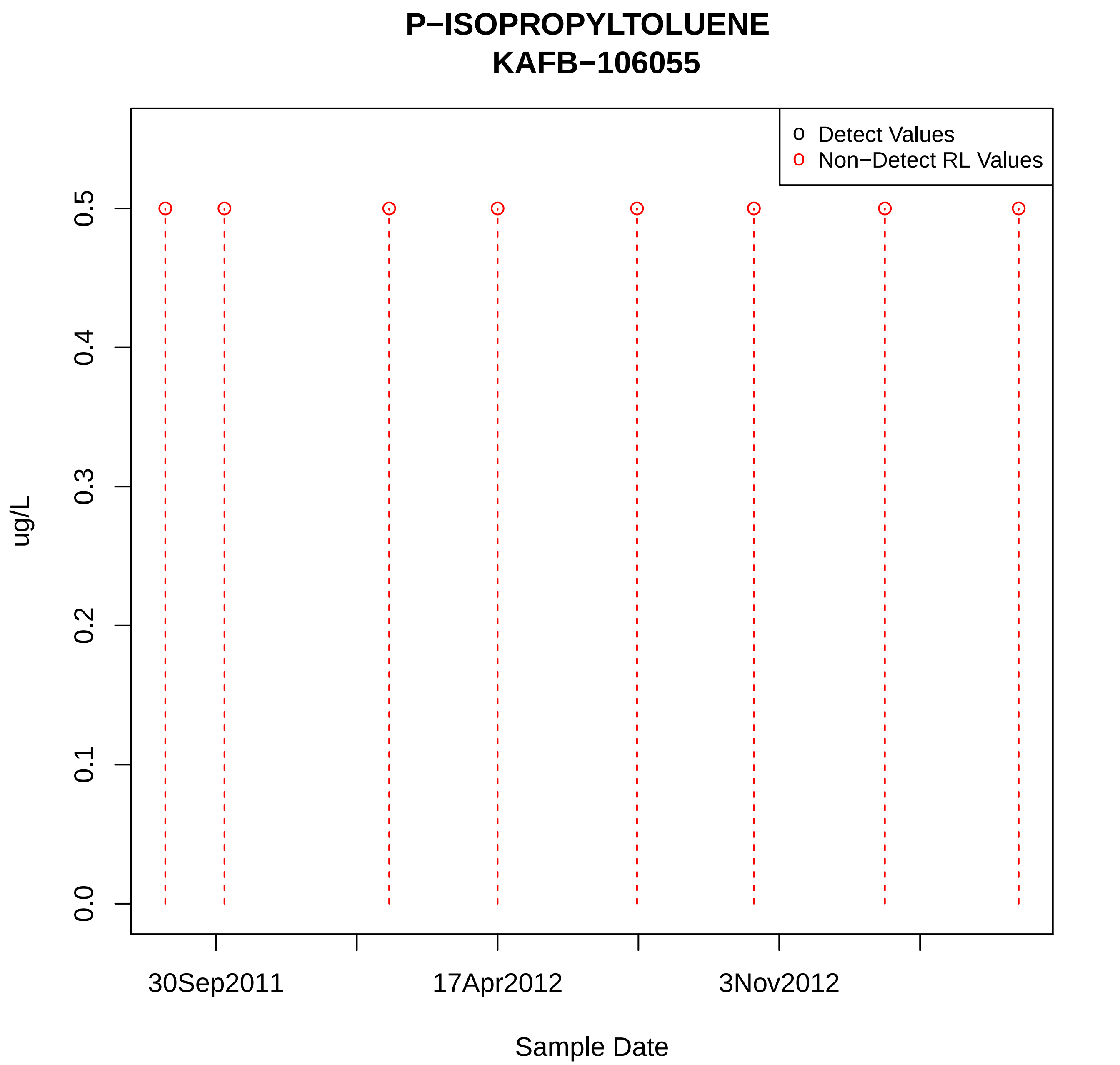

P−ISOPROPYLTOLUENE
KAFB−106052
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



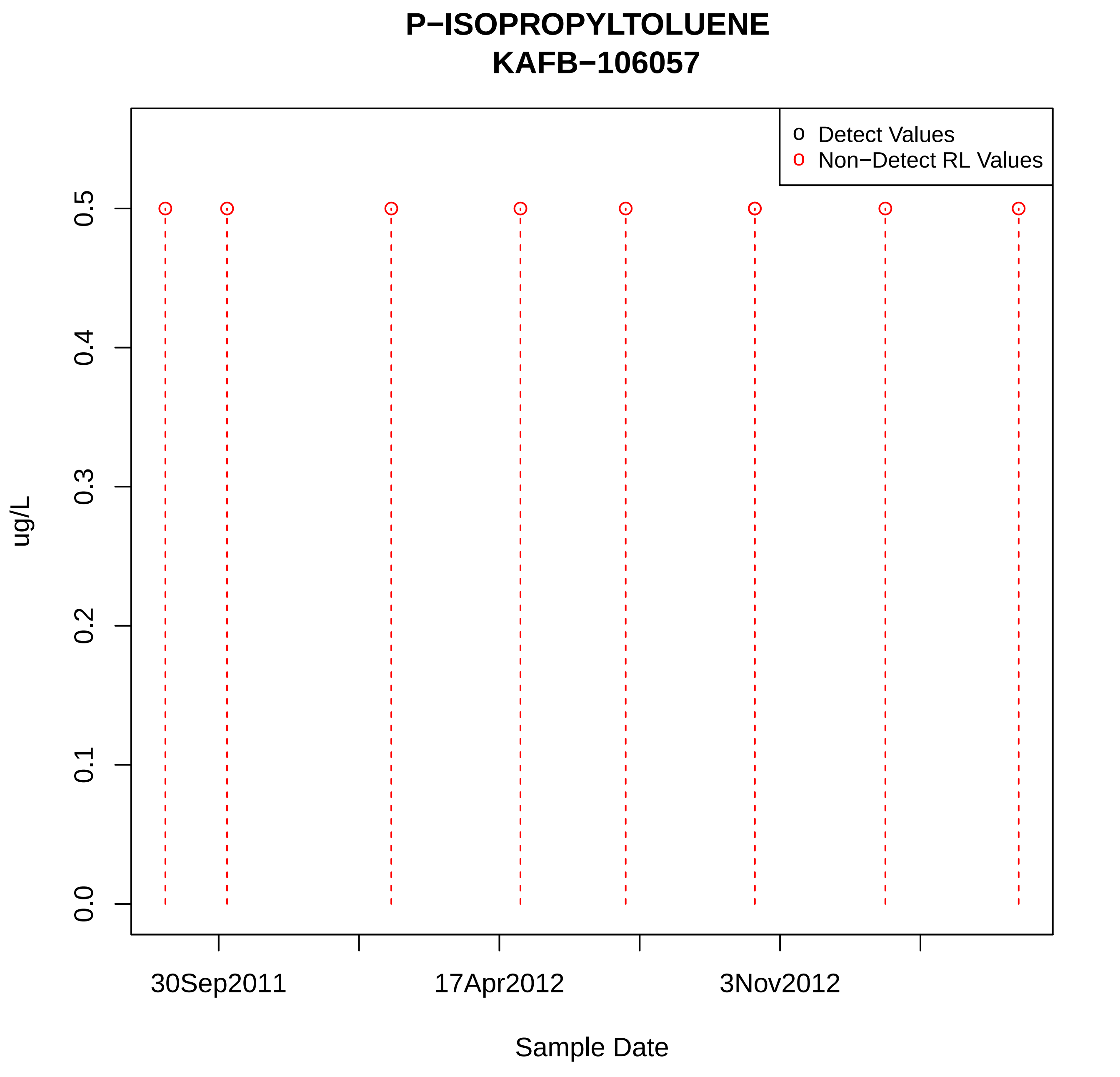
P−ISOPROPYLTOLUENE
KAFB−106053
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



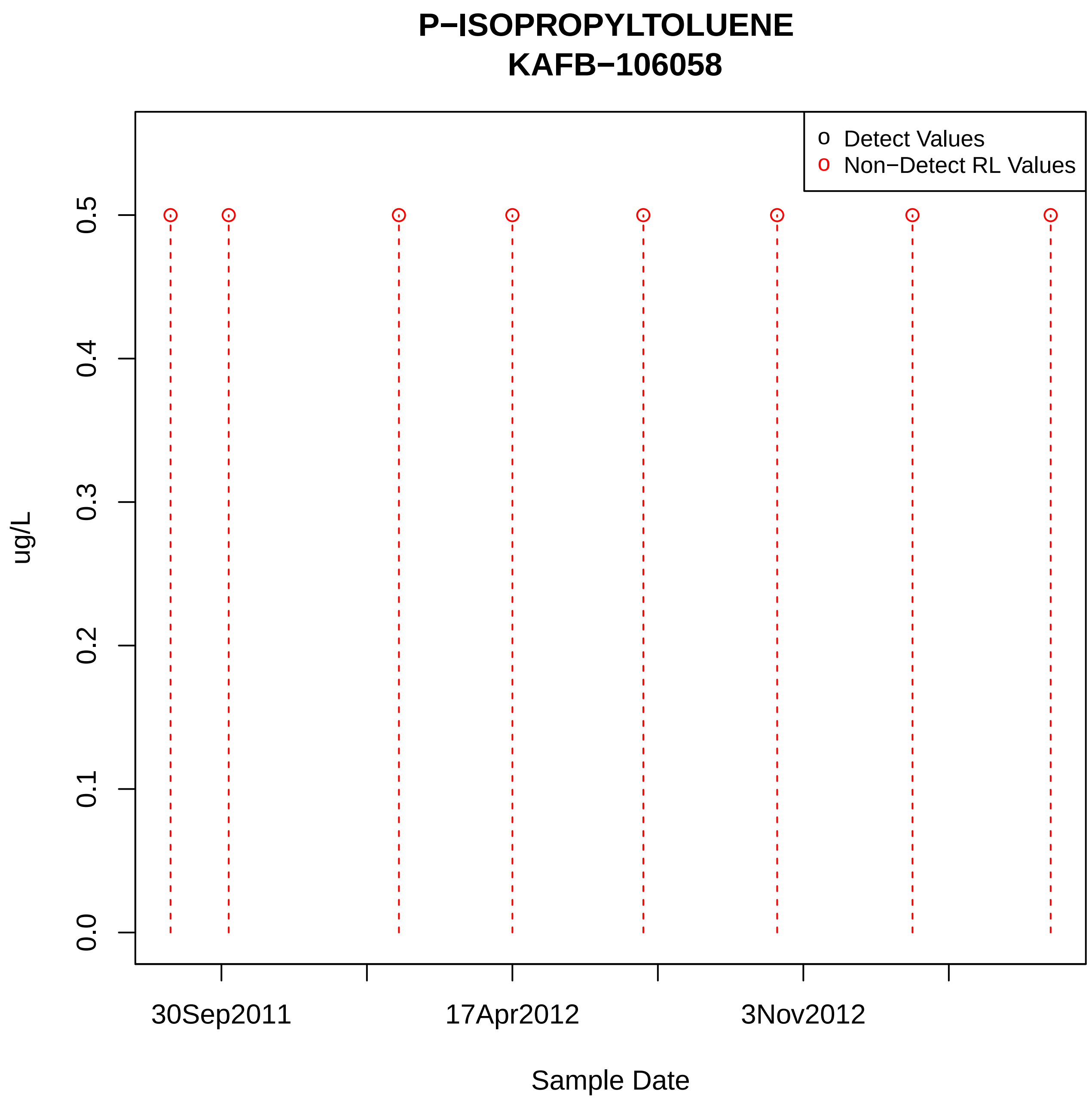
P−ISOPROPYLTOLUENE
KAFB−106054
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



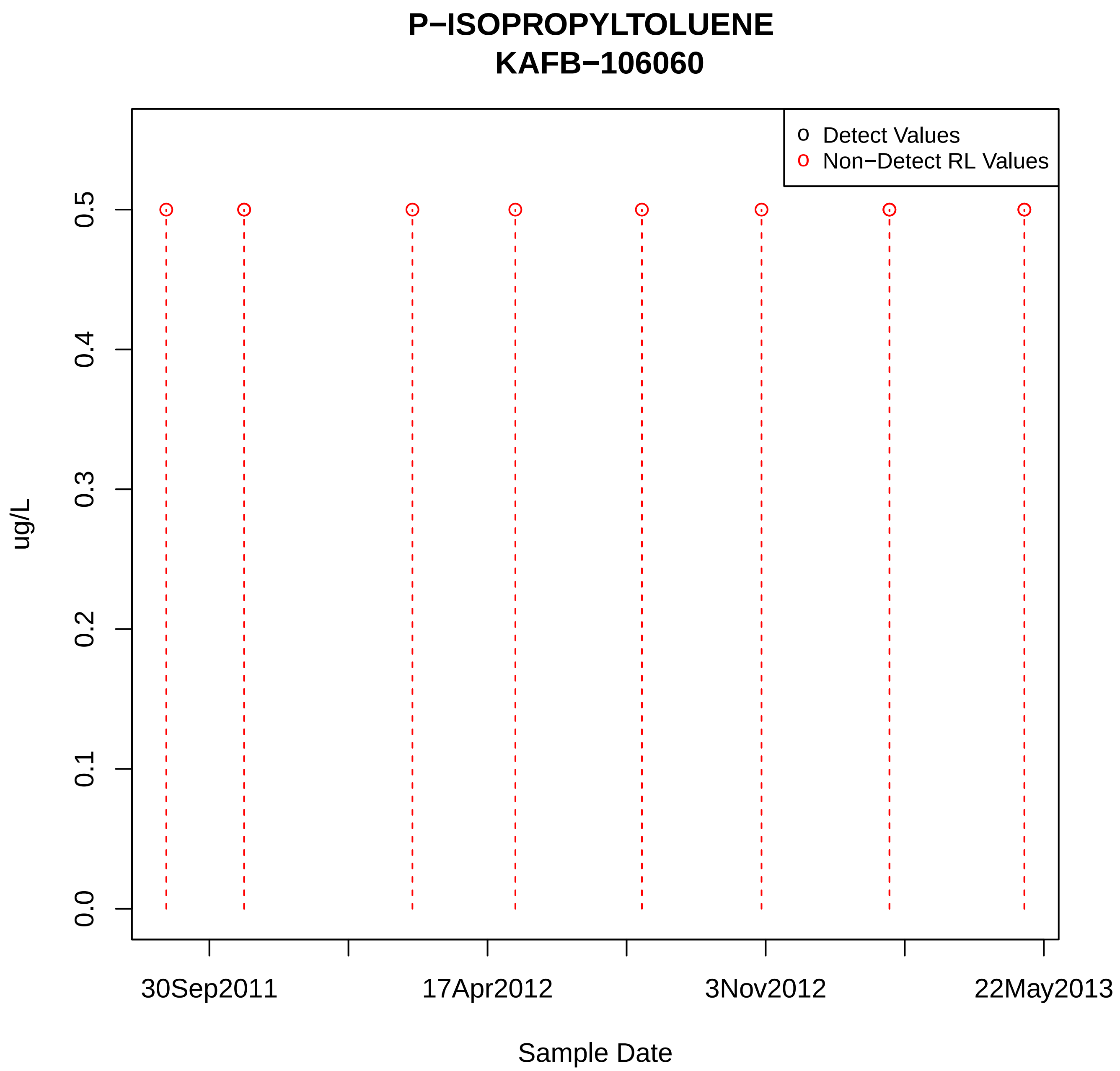
P−ISOPROPYLTOLUENE
KAFB−106055
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



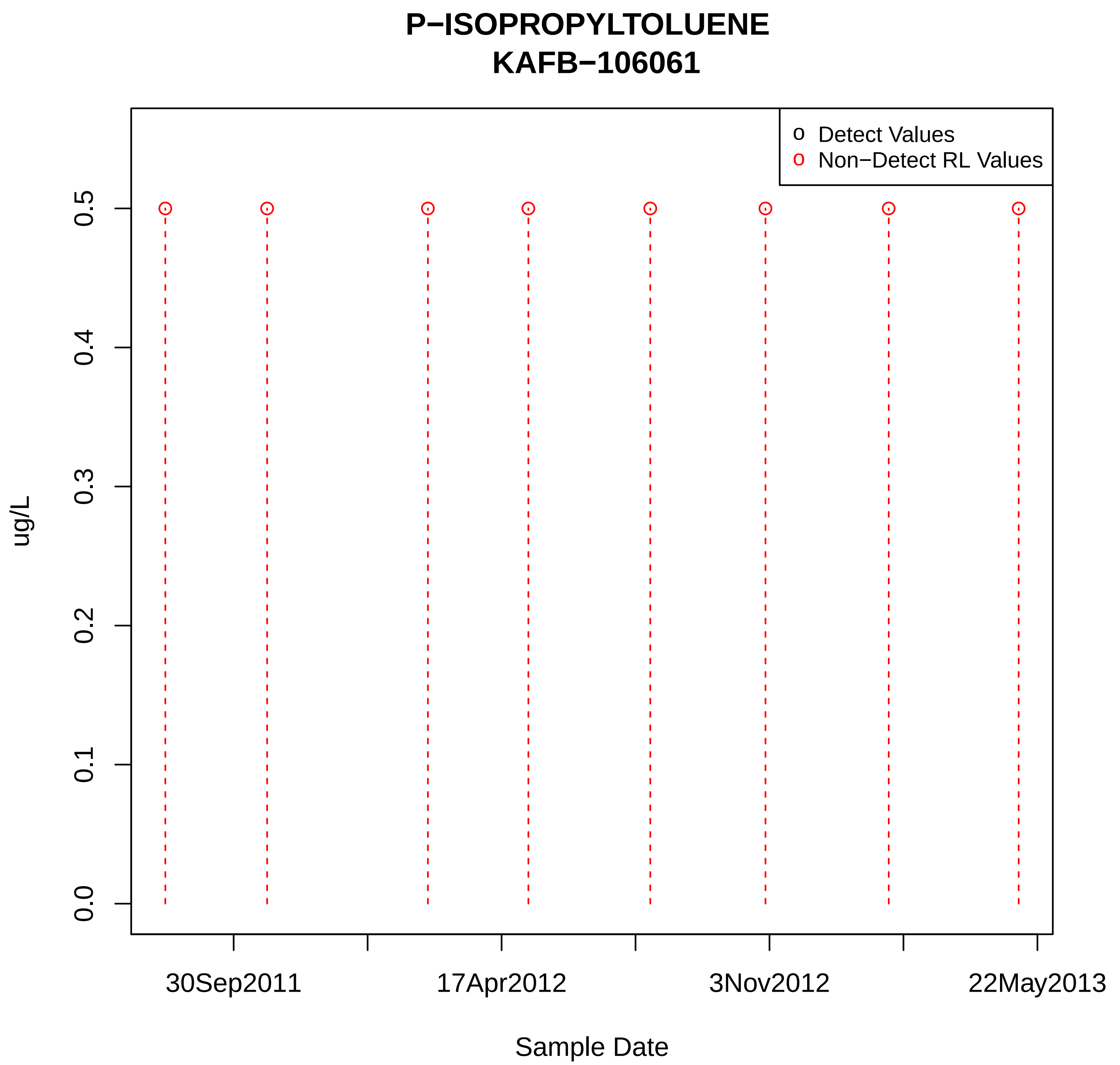
P−ISOPROPYLTOLUENE
KAFB−106057
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

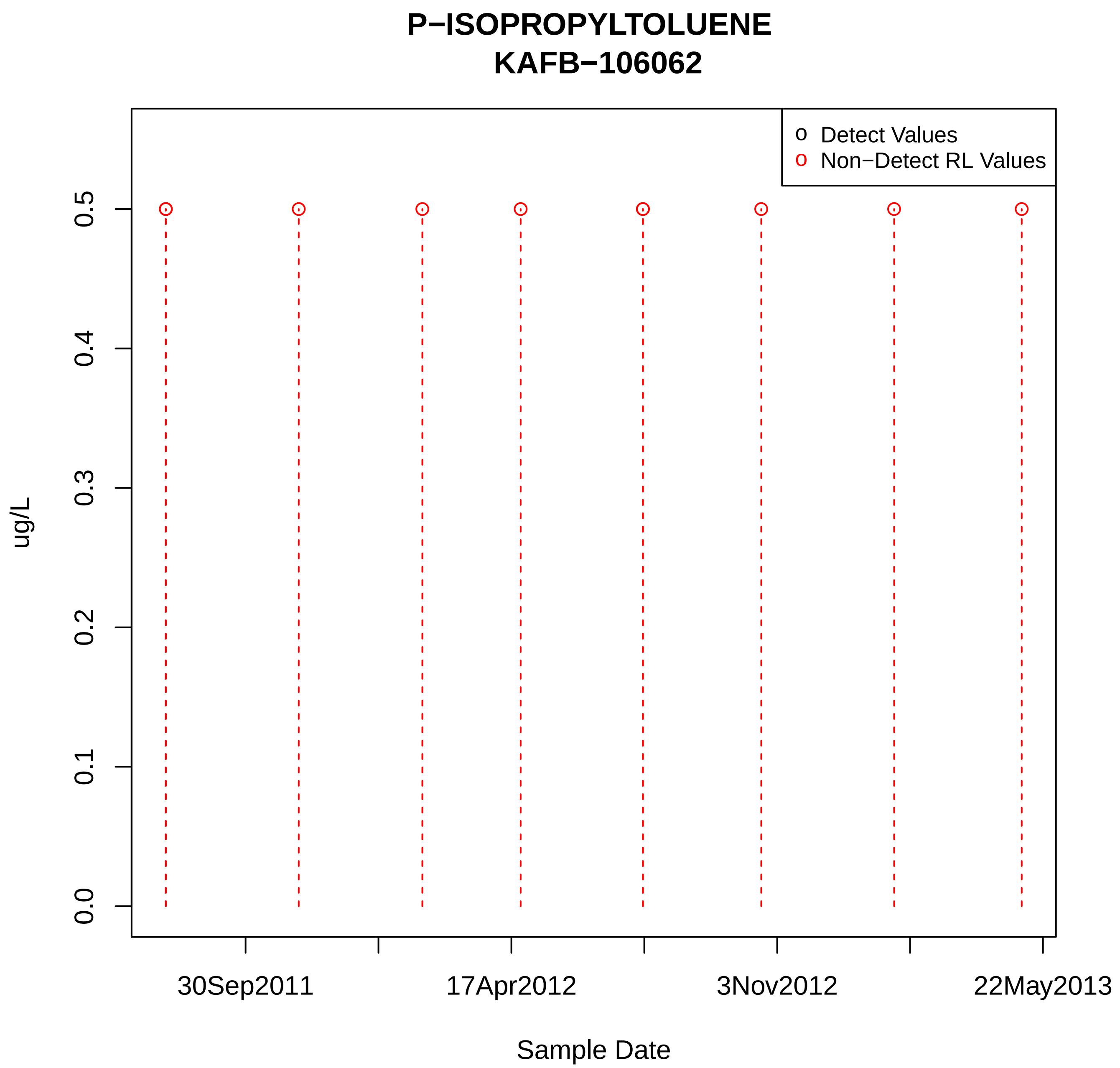


P−ISOPROPYLTOLUENE
KAFB−106058
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

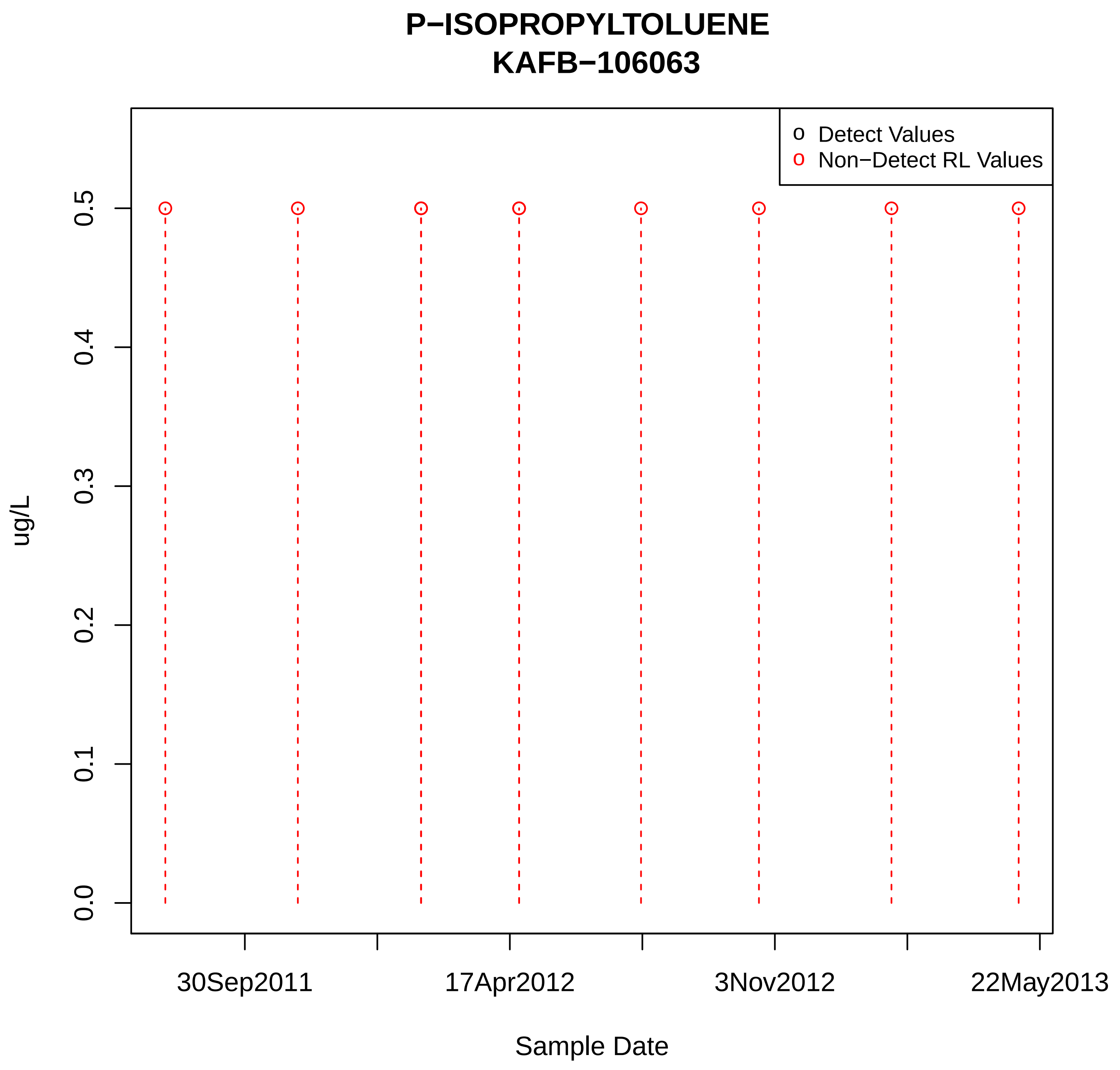


P−ISOPROPYLTOLUENE
KAFB−106060
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

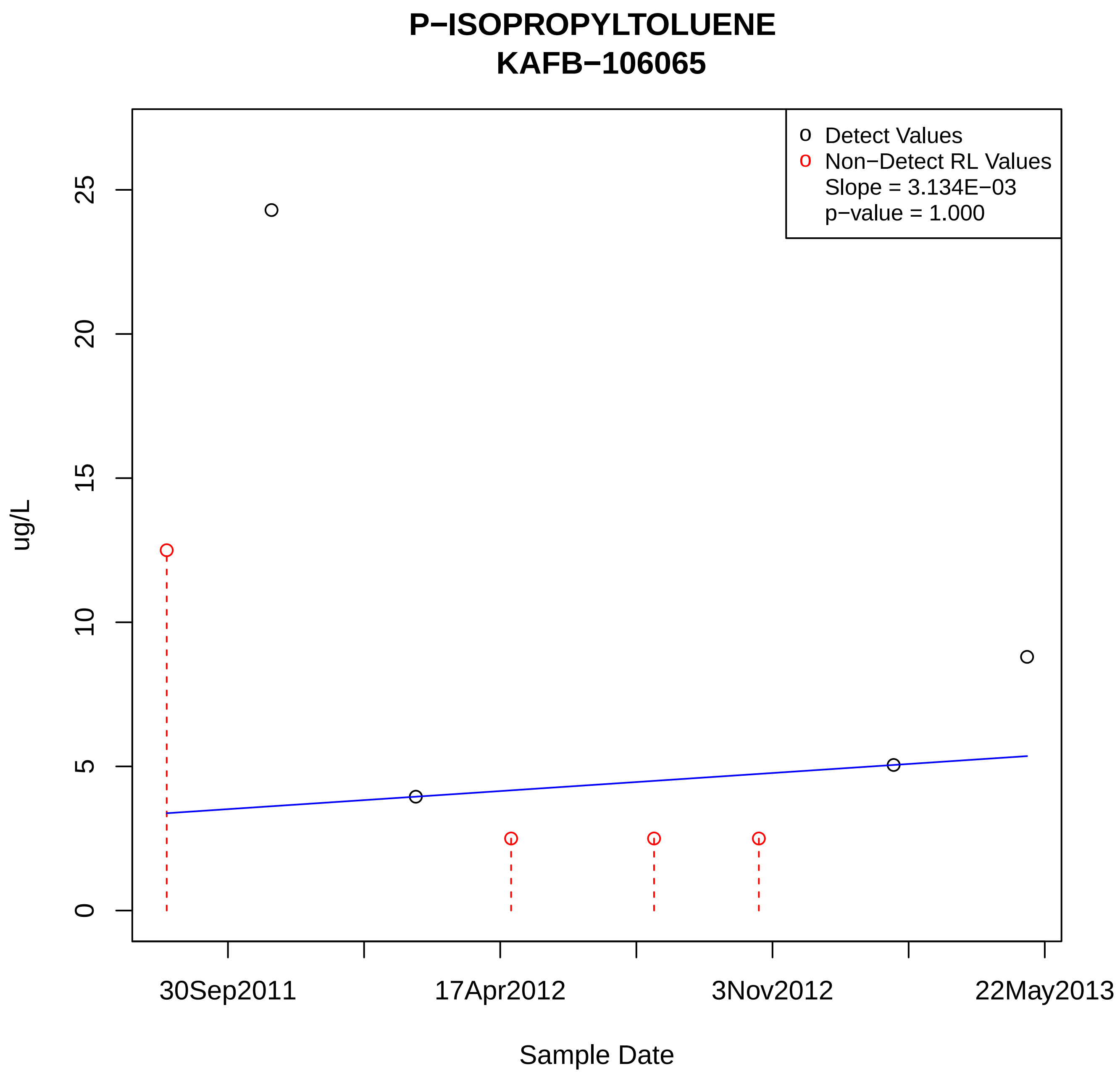

P−ISOPROPYLTOLUENE
KAFB−106061
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



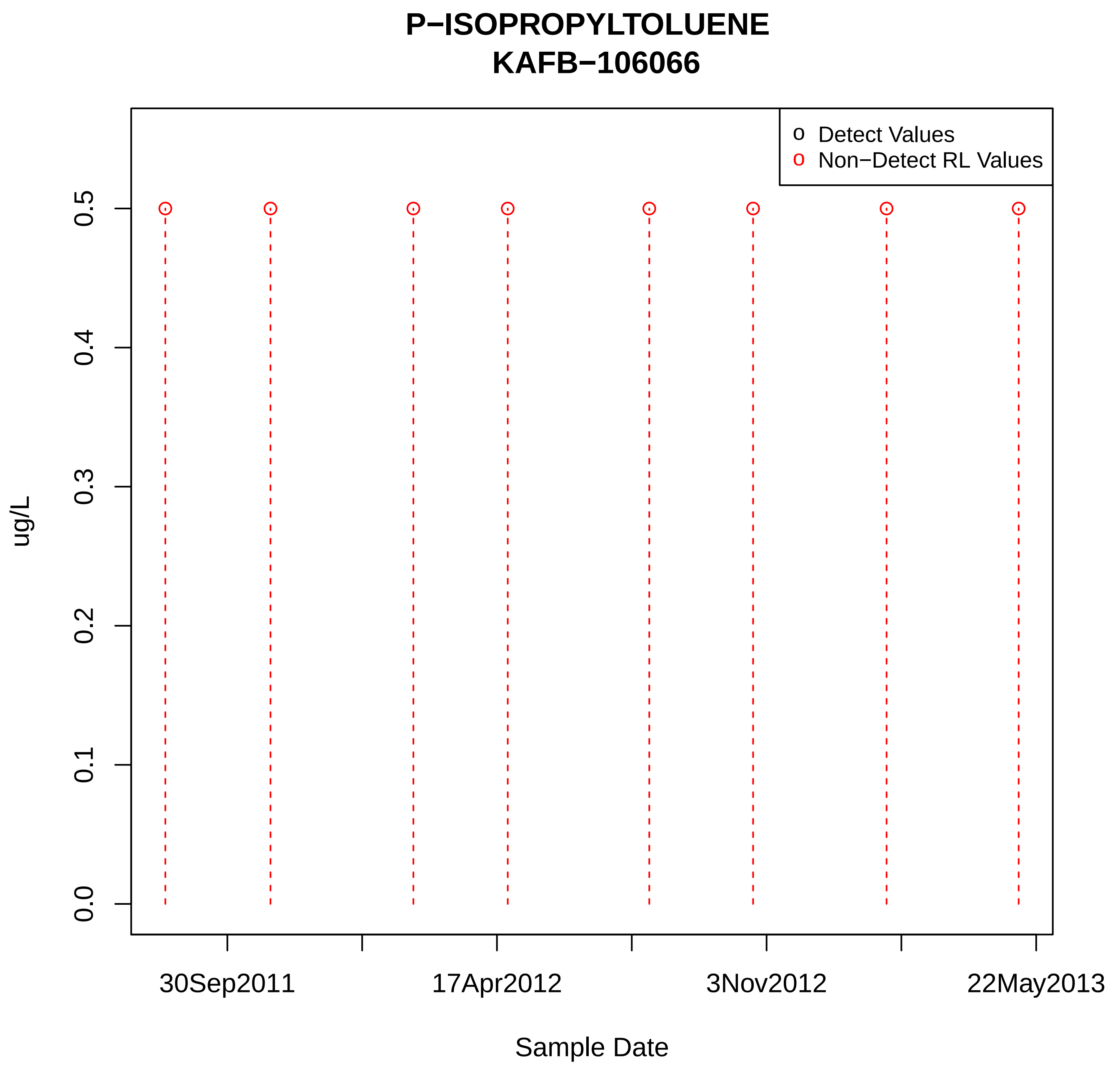
P−ISOPROPYLTOLUENE
KAFB−106062
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

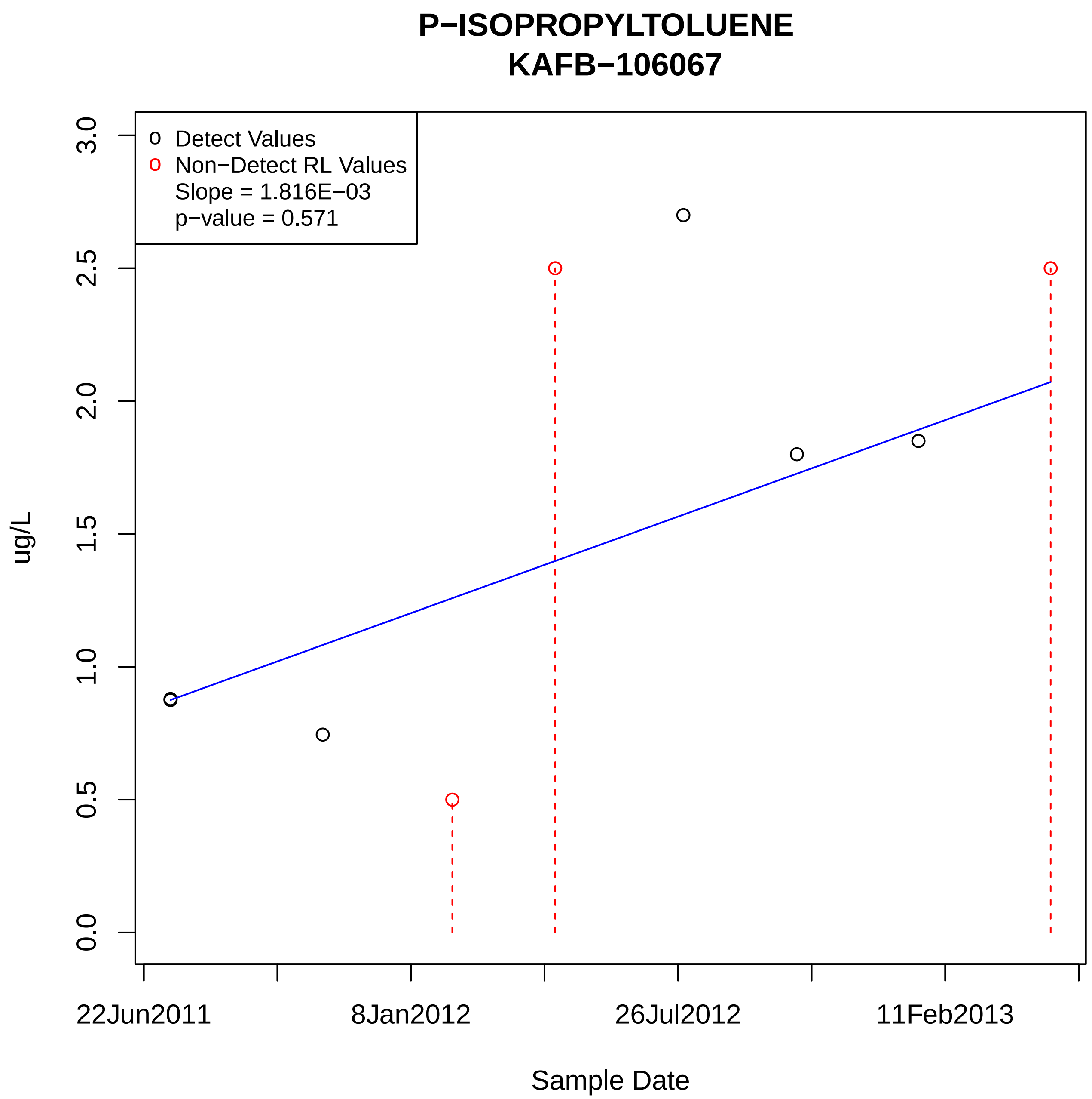


P−ISOPROPYLTOLUENE
KAFB−106063
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

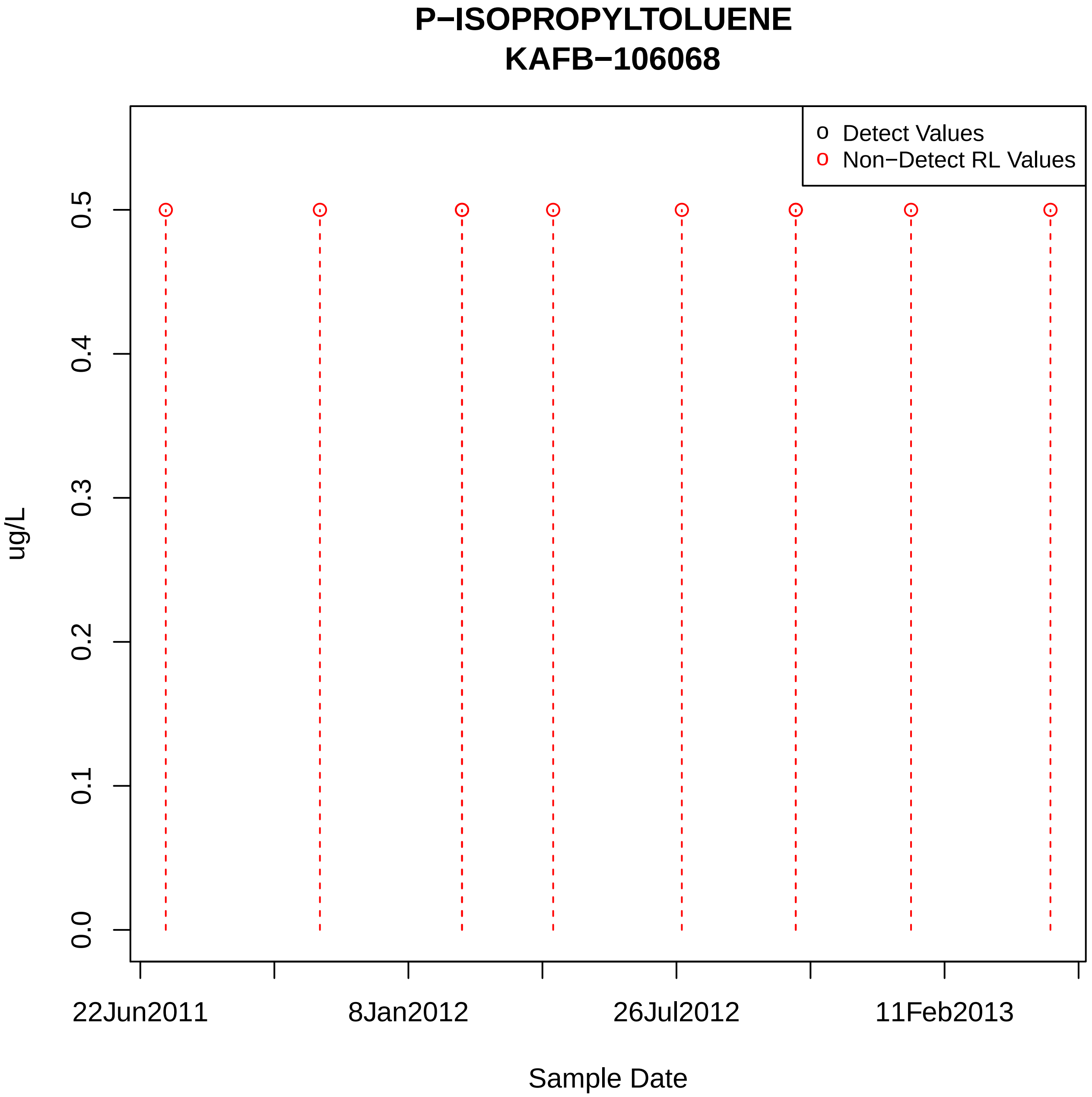


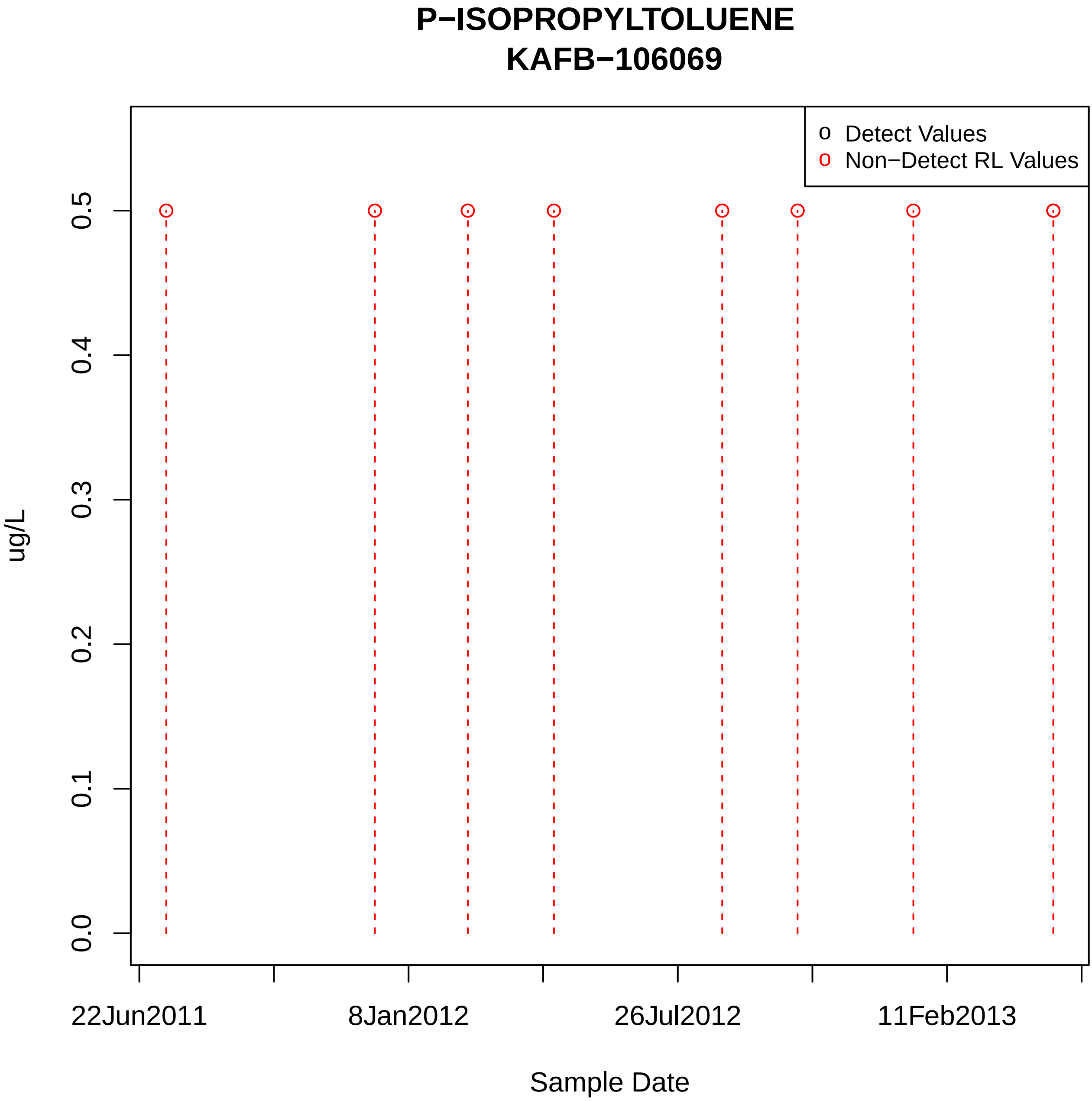
P−ISOPROPYLTOLUENE
KAFB−106065
Detect Values
Non−Detect RL Values
Slope = 3.134E−03
p−value = 1.000
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106066
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

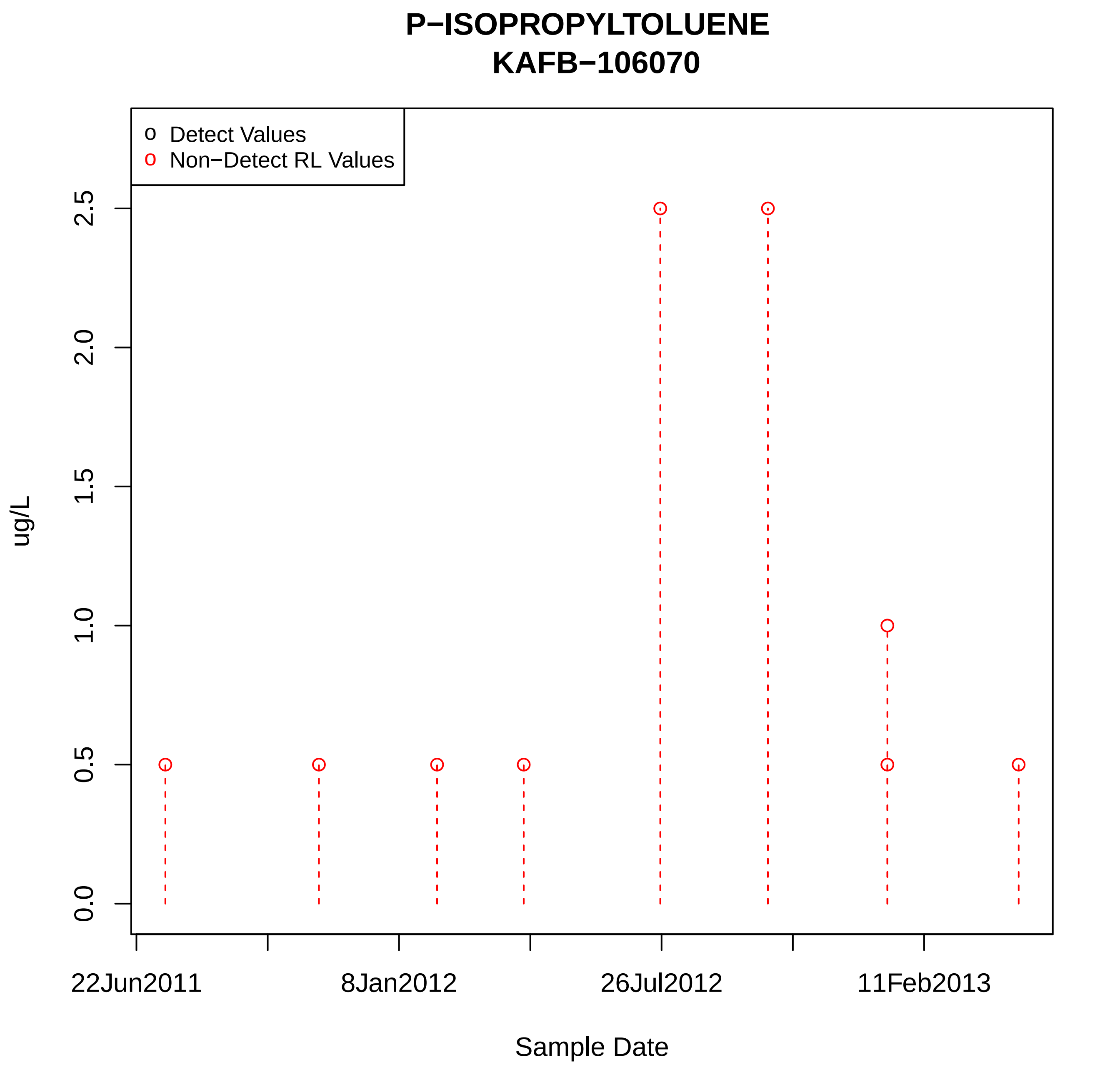


P−ISOPROPYLTOLUENE
KAFB−106067
Detect Values
Non−Detect RL Values
Slope = 1.816E−03
p−value = 0.571
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

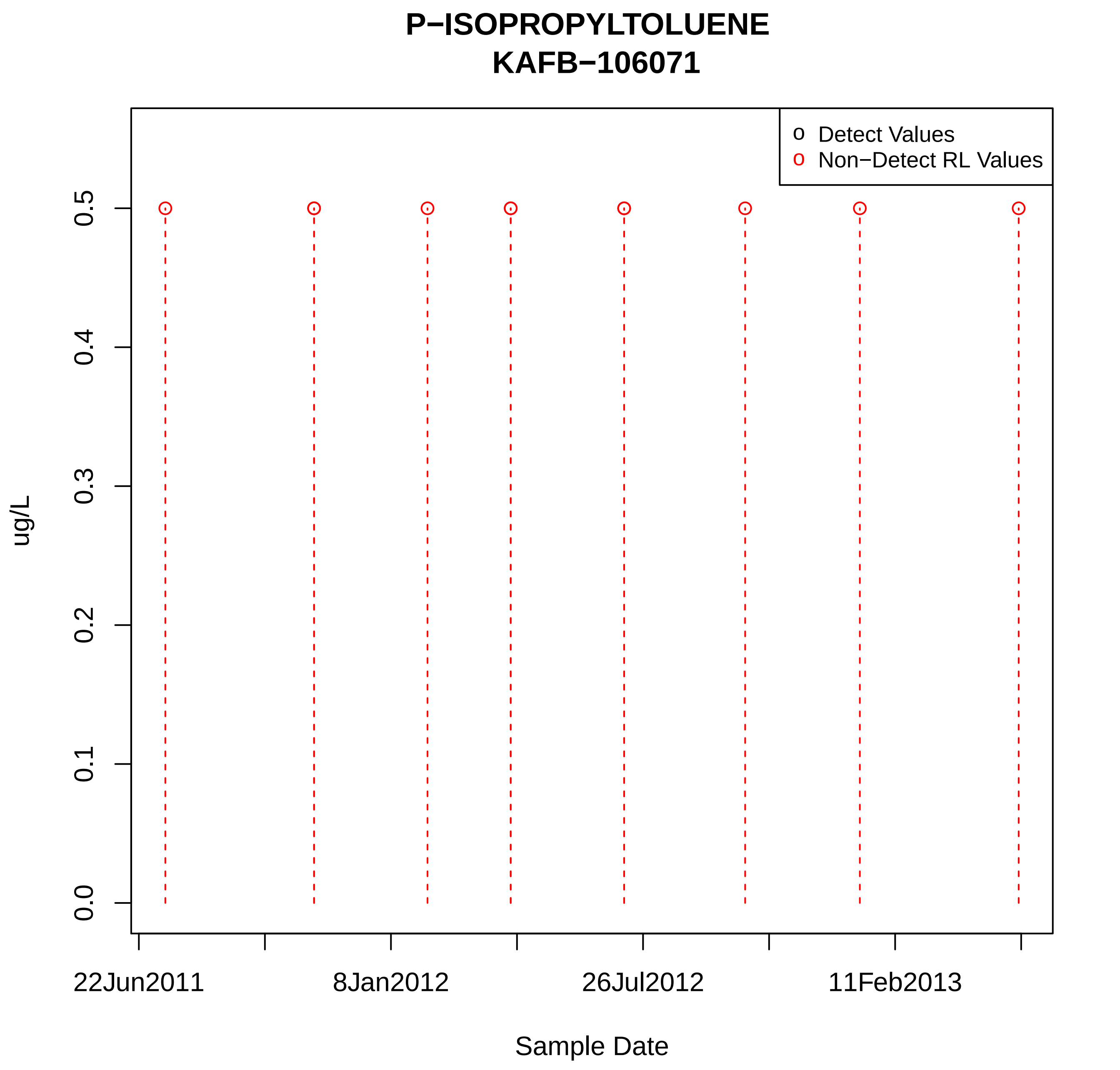

P−ISOPROPYLTOLUENE
KAFB−106068
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

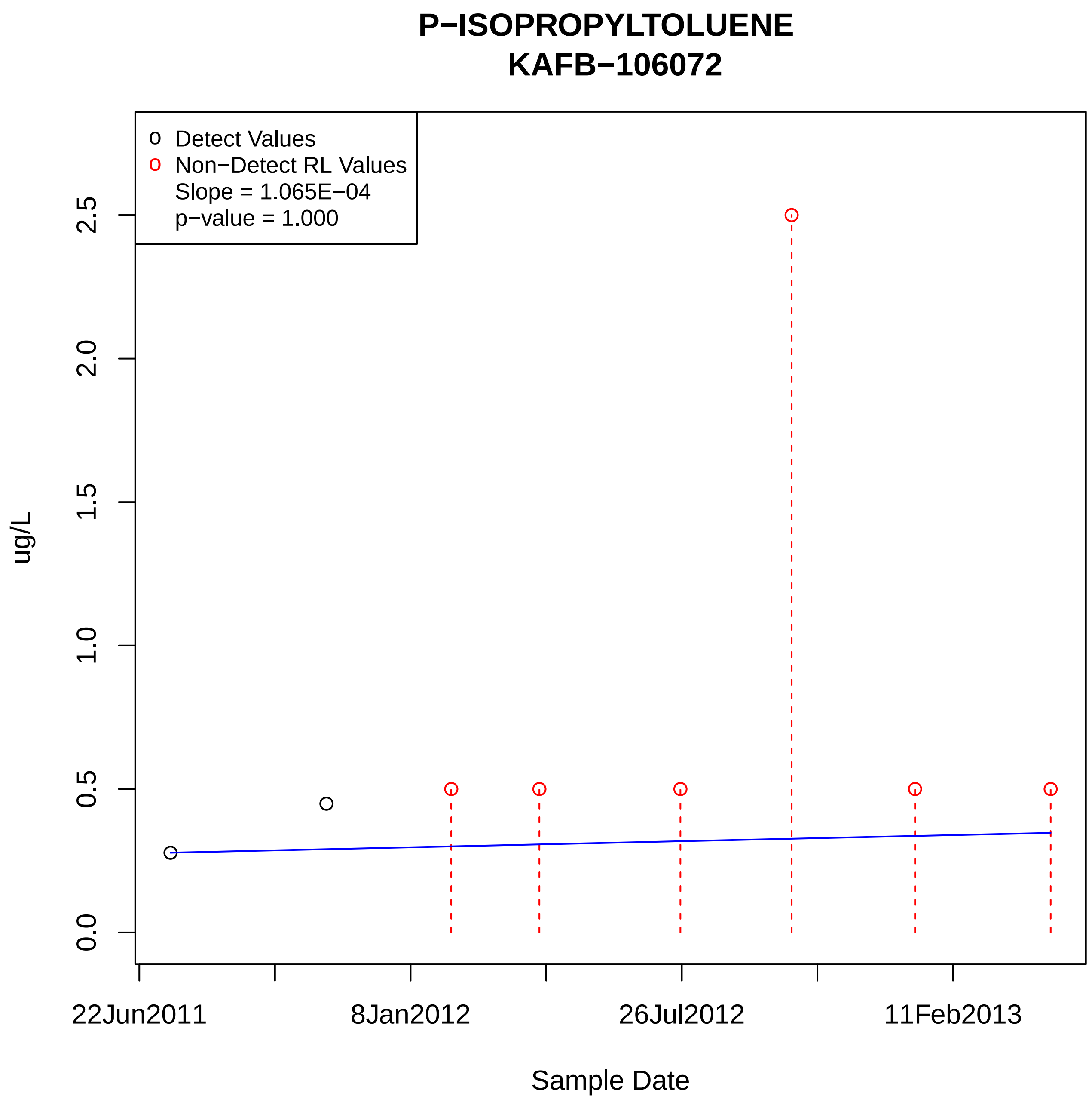


P−ISOPROPYLTOLUENE
KAFB−106069
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

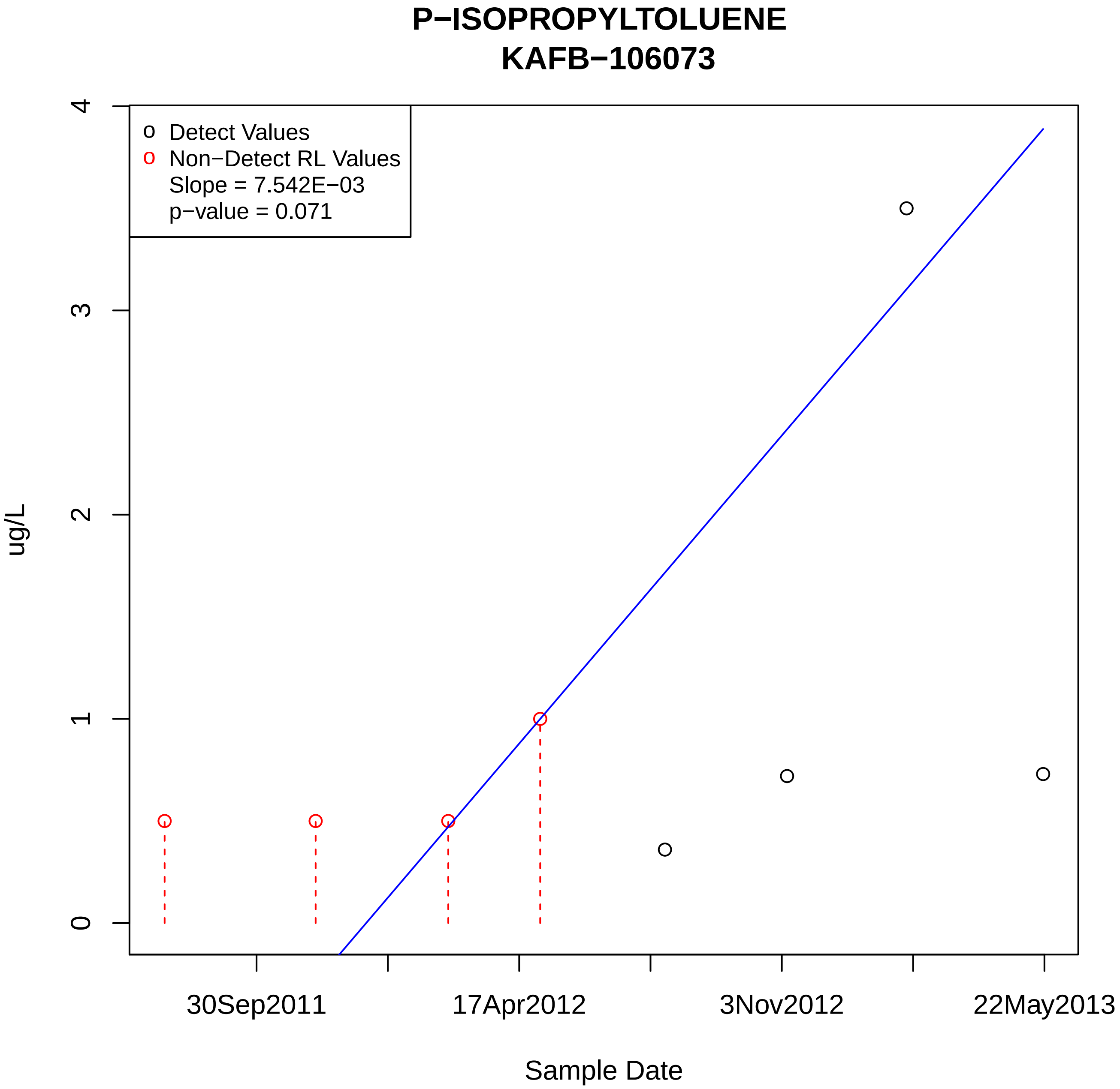


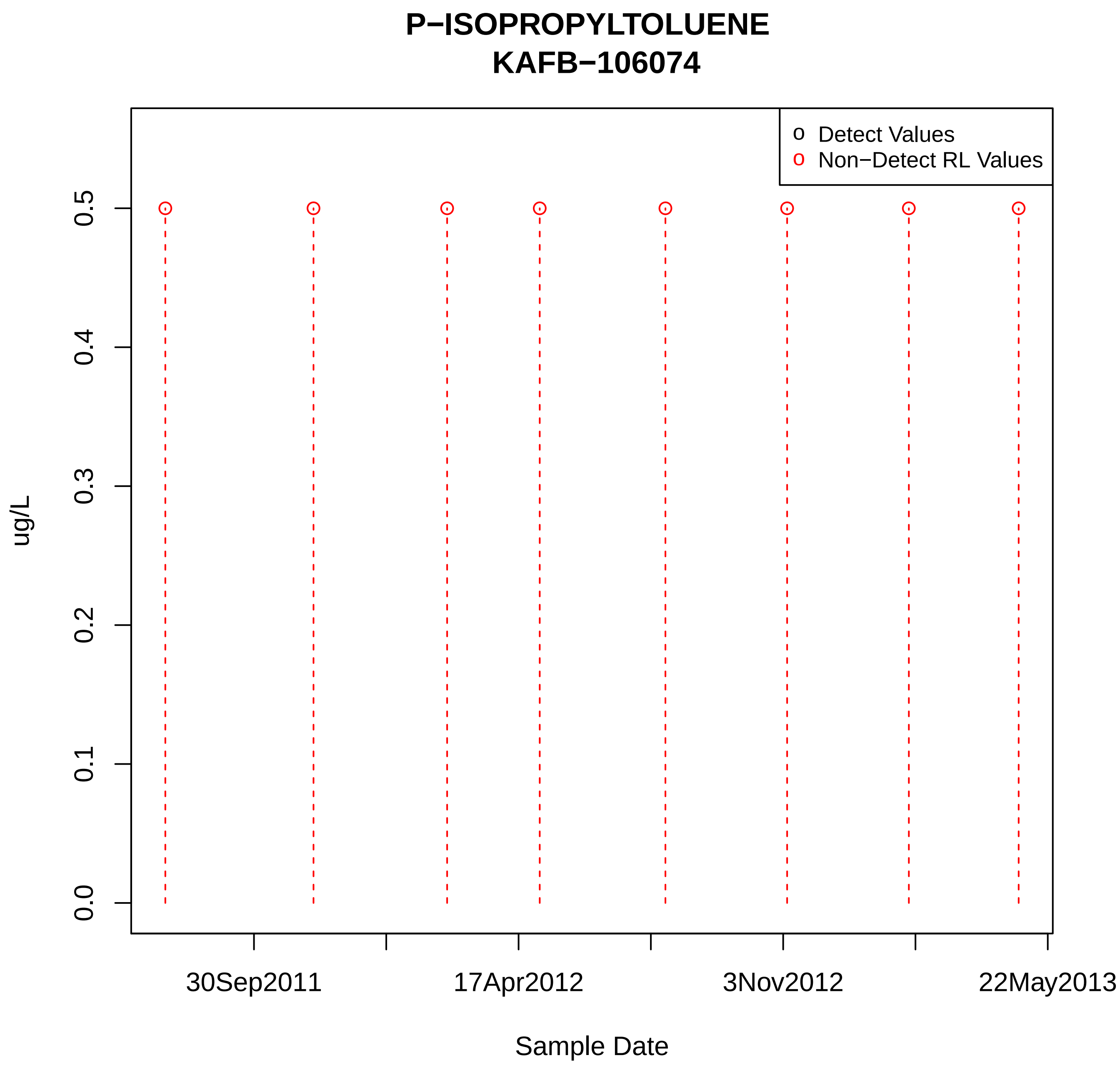
P−ISOPROPYLTOLUENE
KAFB−106070
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

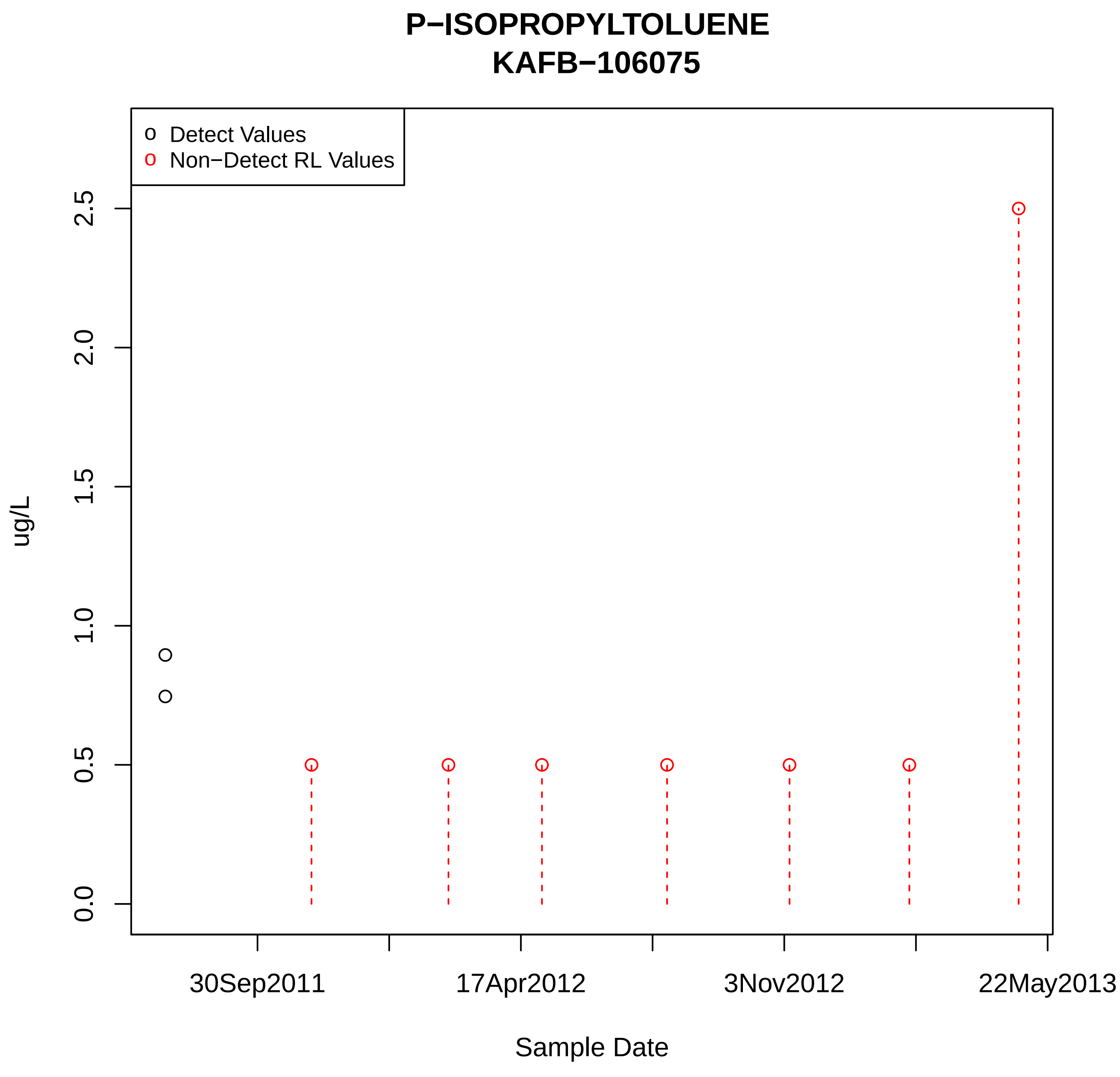

P−ISOPROPYLTOLUENE
KAFB−106071
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date



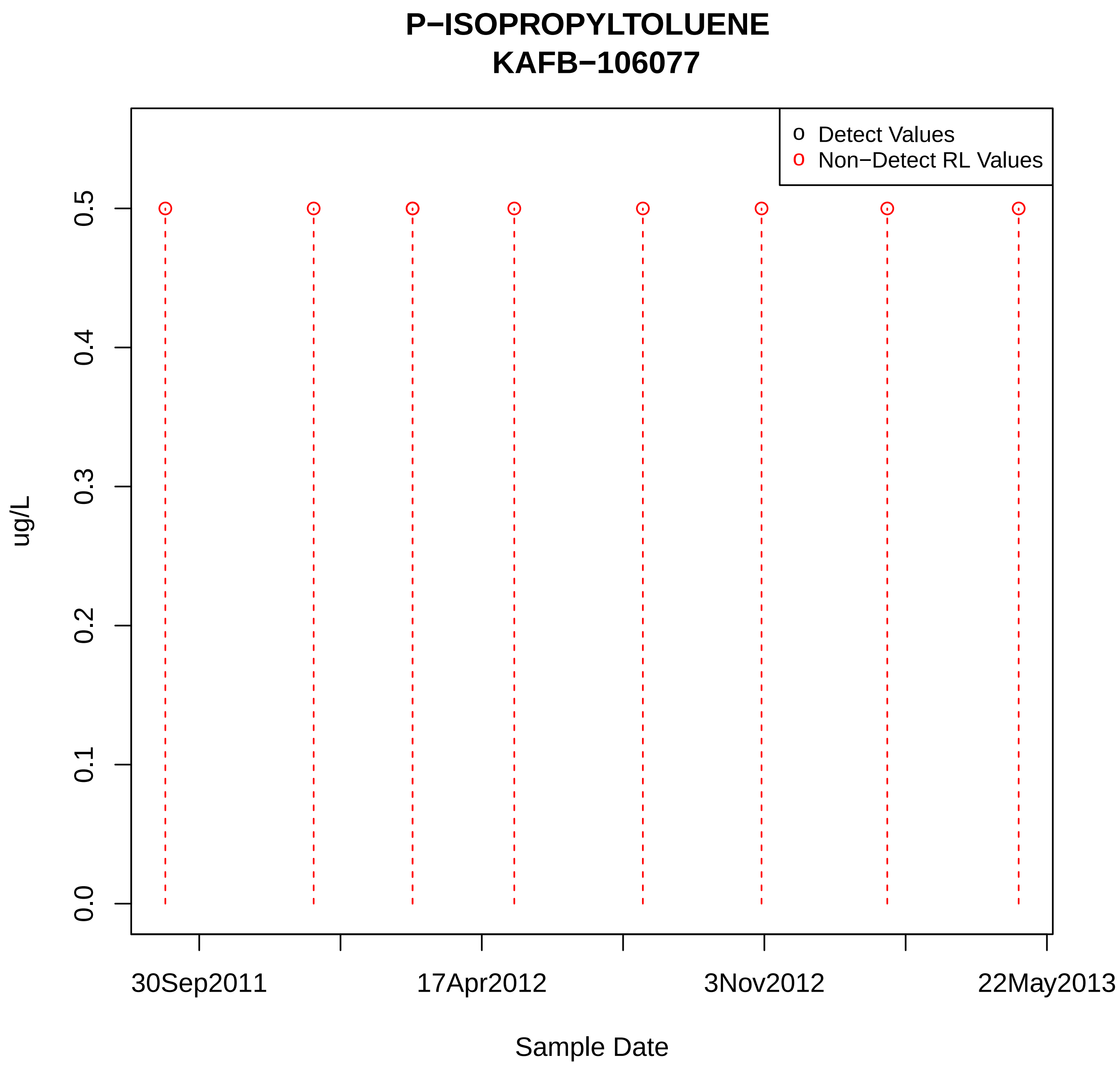
P−ISOPROPYLTOLUENE
KAFB−106072
o Detect Values
o Non−Detect RL Values
Slope = 1.065E−04
p−value = 1.000
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106073
Detect Values
Non−Detect RL Values
Slope = 7.542E−03
p−value = 0.071
ug/L
0
1
2
3
4
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

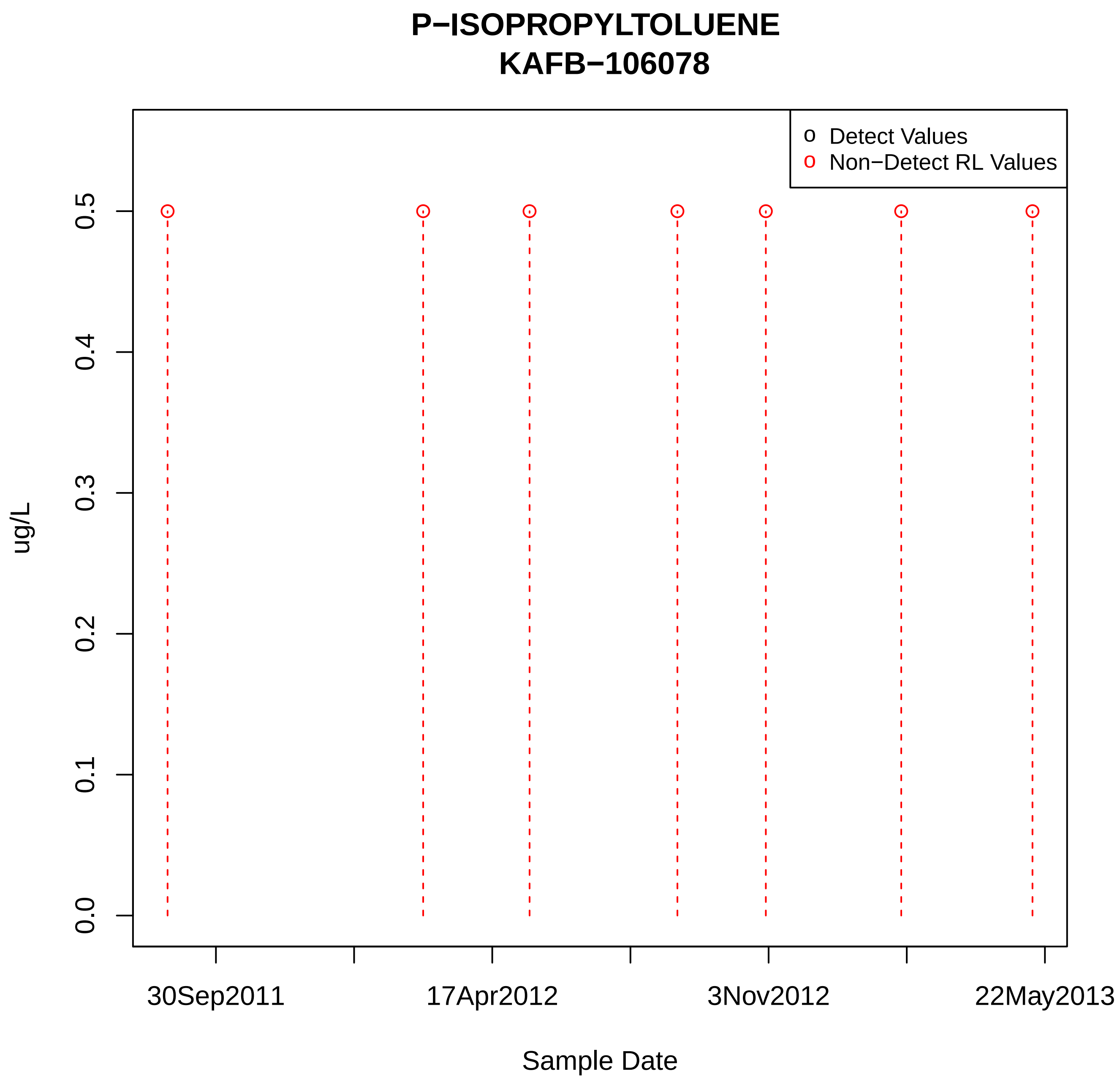

P−ISOPROPYLTOLUENE
KAFB−106074
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

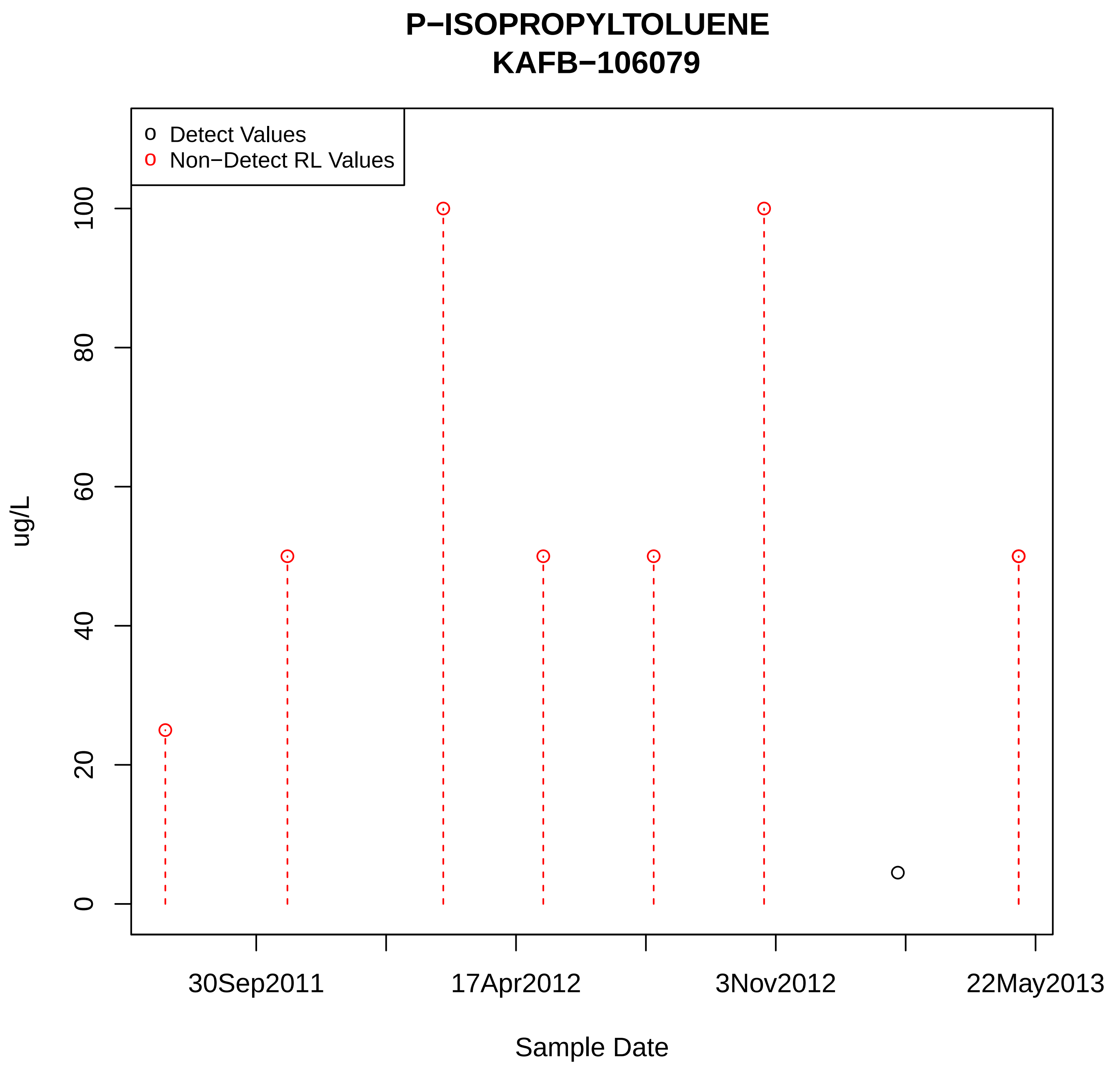


P−ISOPROPYLTOLUENE
KAFB−106075
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

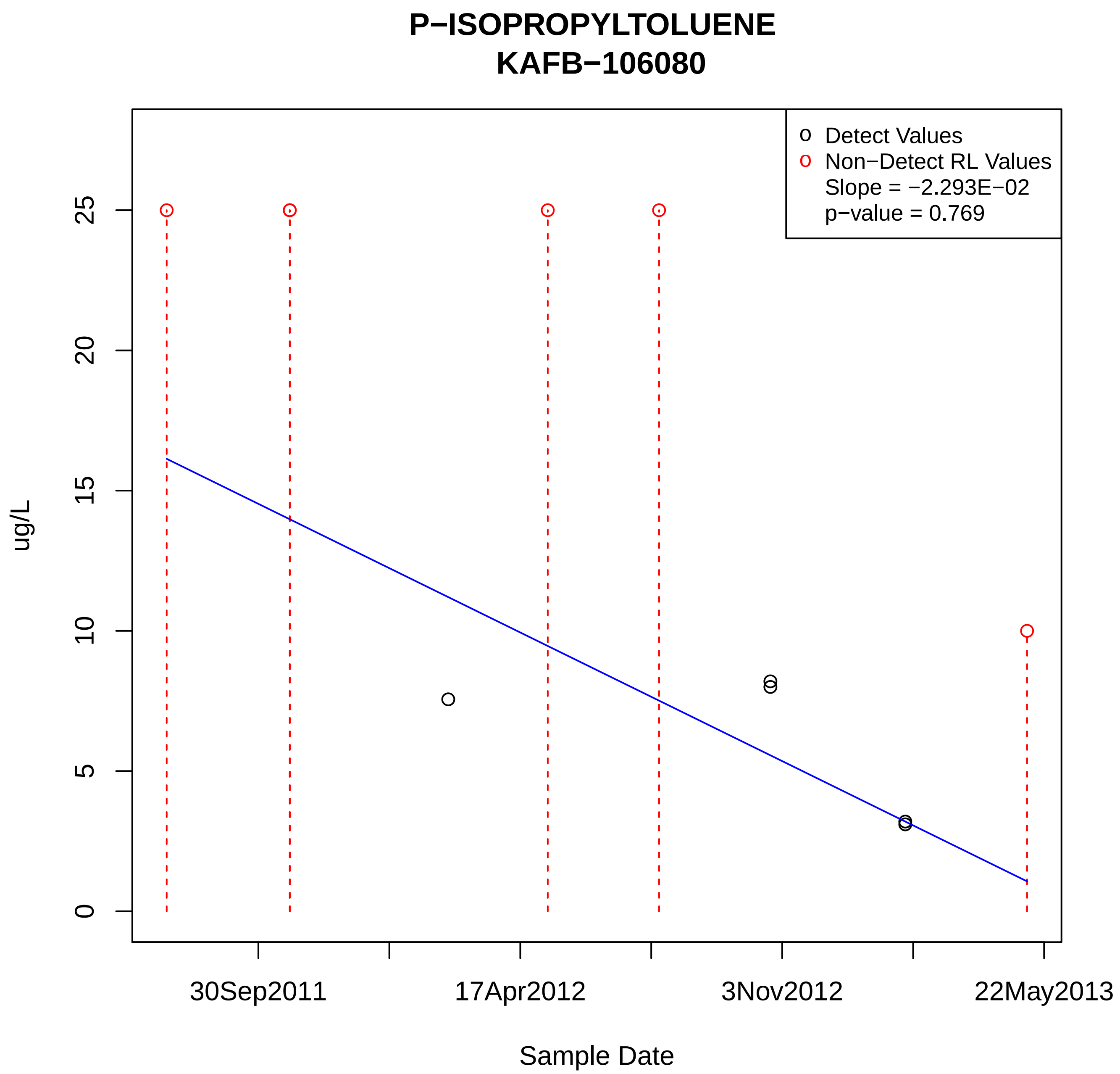


P−ISOPROPYLTOLUENE
KAFB−106077
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

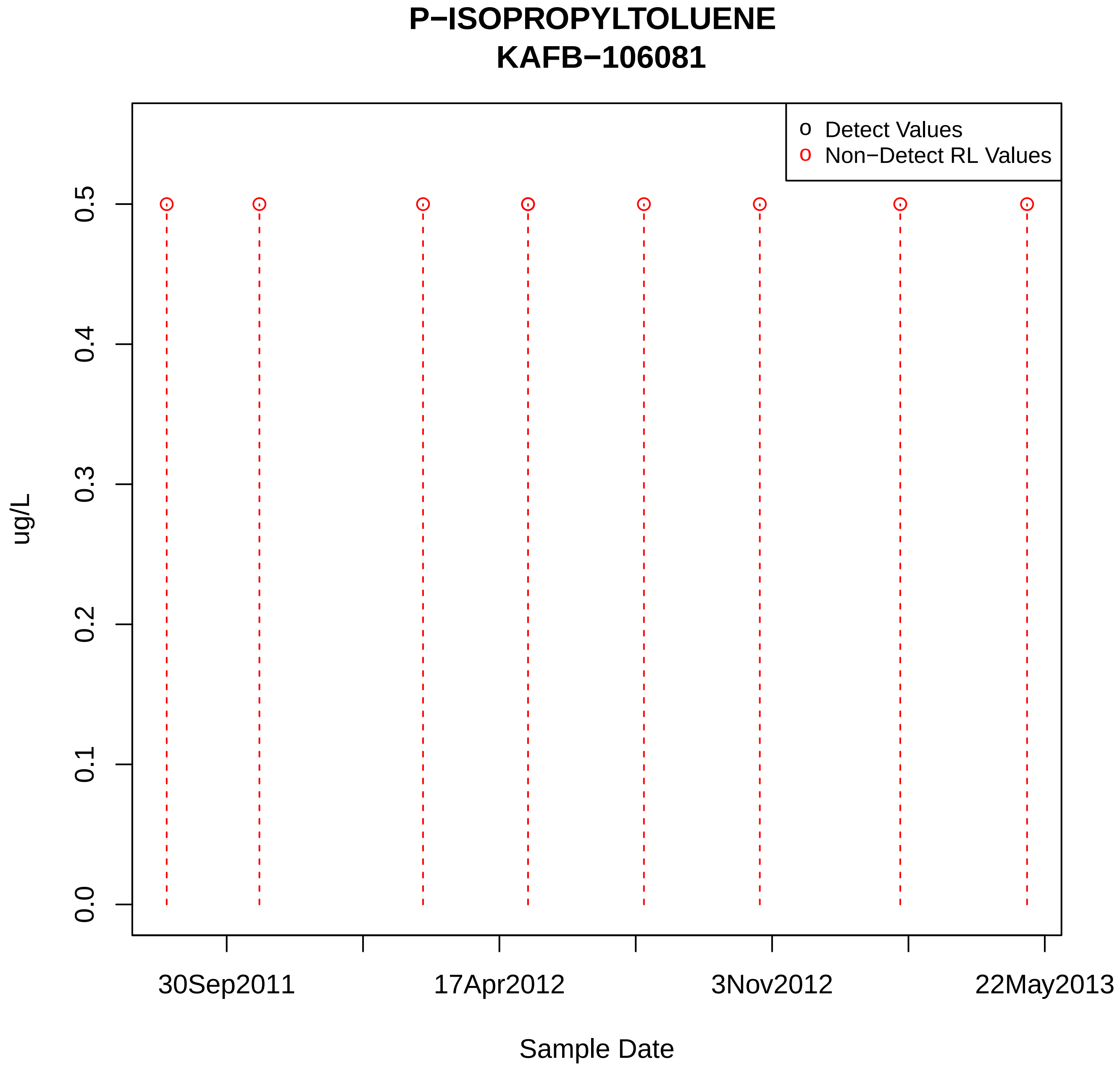

P−ISOPROPYLTOLUENE
KAFB−106078
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



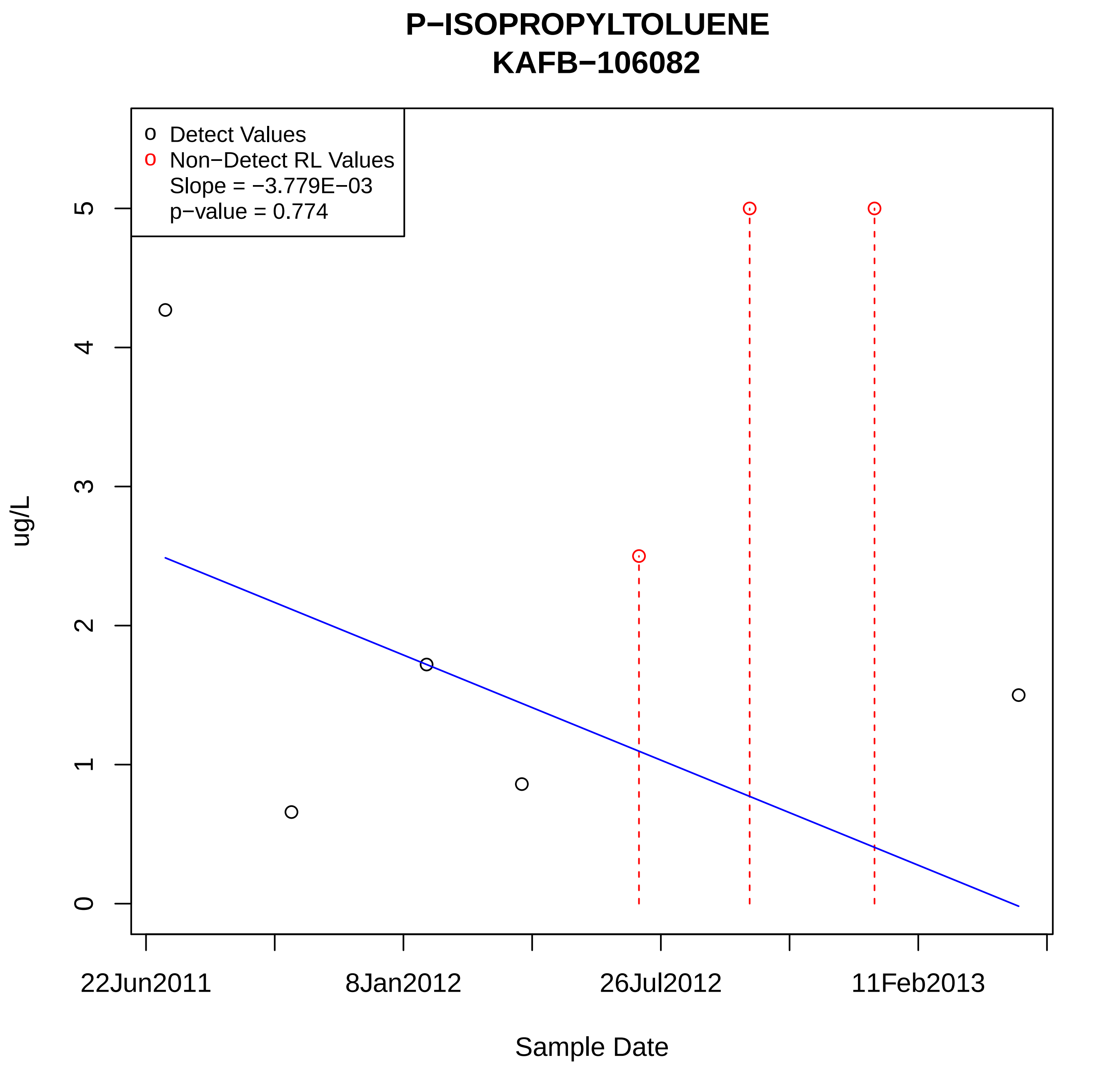
P−ISOPROPYLTOLUENE
KAFB−106079
o Detect Values
o Non−Detect RL Values
ug/L
0
20
40
60
80
100
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



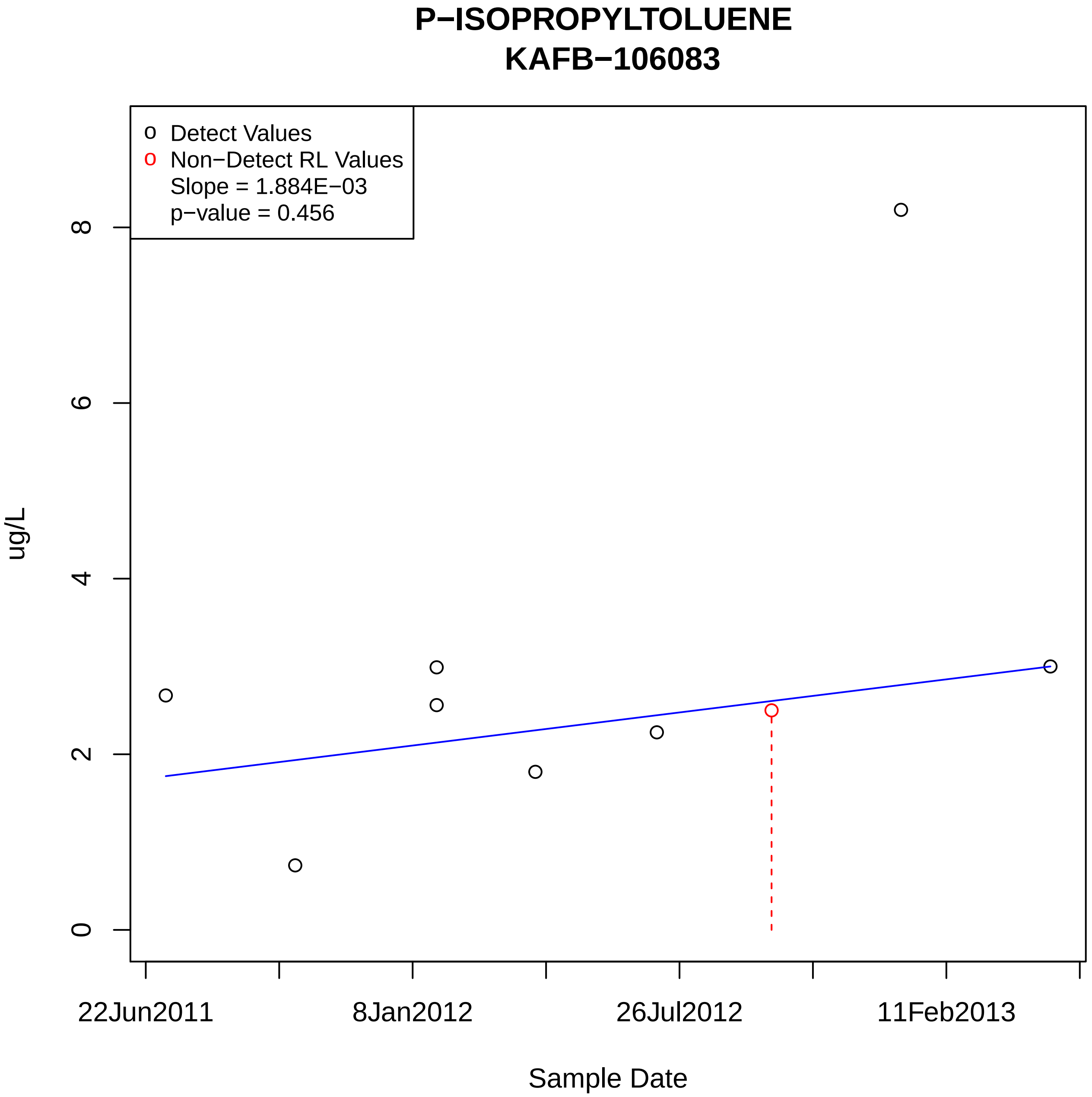
P−ISOPROPYLTOLUENE
KAFB−106080
Detect Values
Non−Detect RL Values
Slope = −2.293E−02
p−value = 0.769
ug/L
0
5
10
15
20
25
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



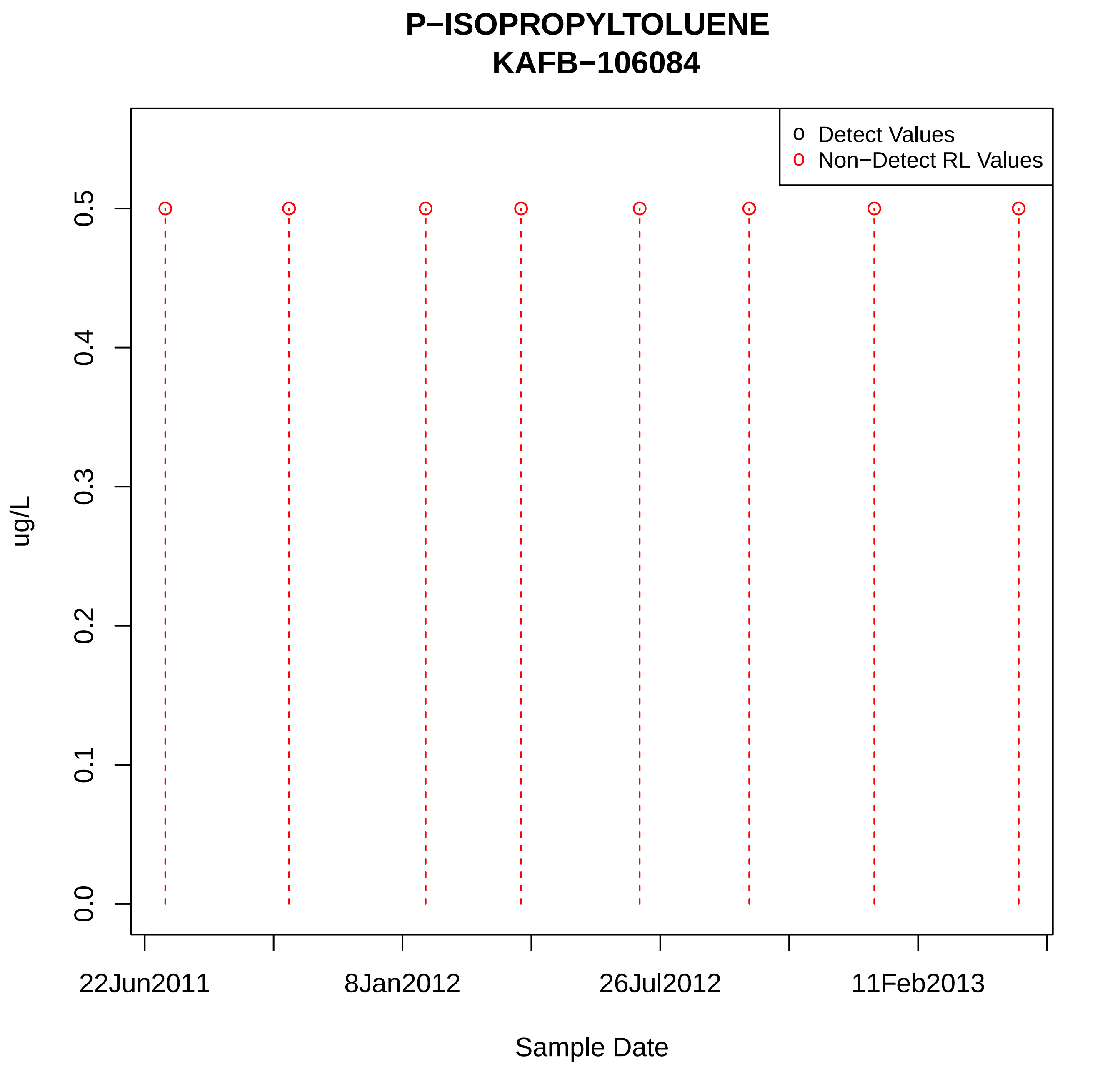
P−ISOPROPYLTOLUENE
KAFB−106081
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

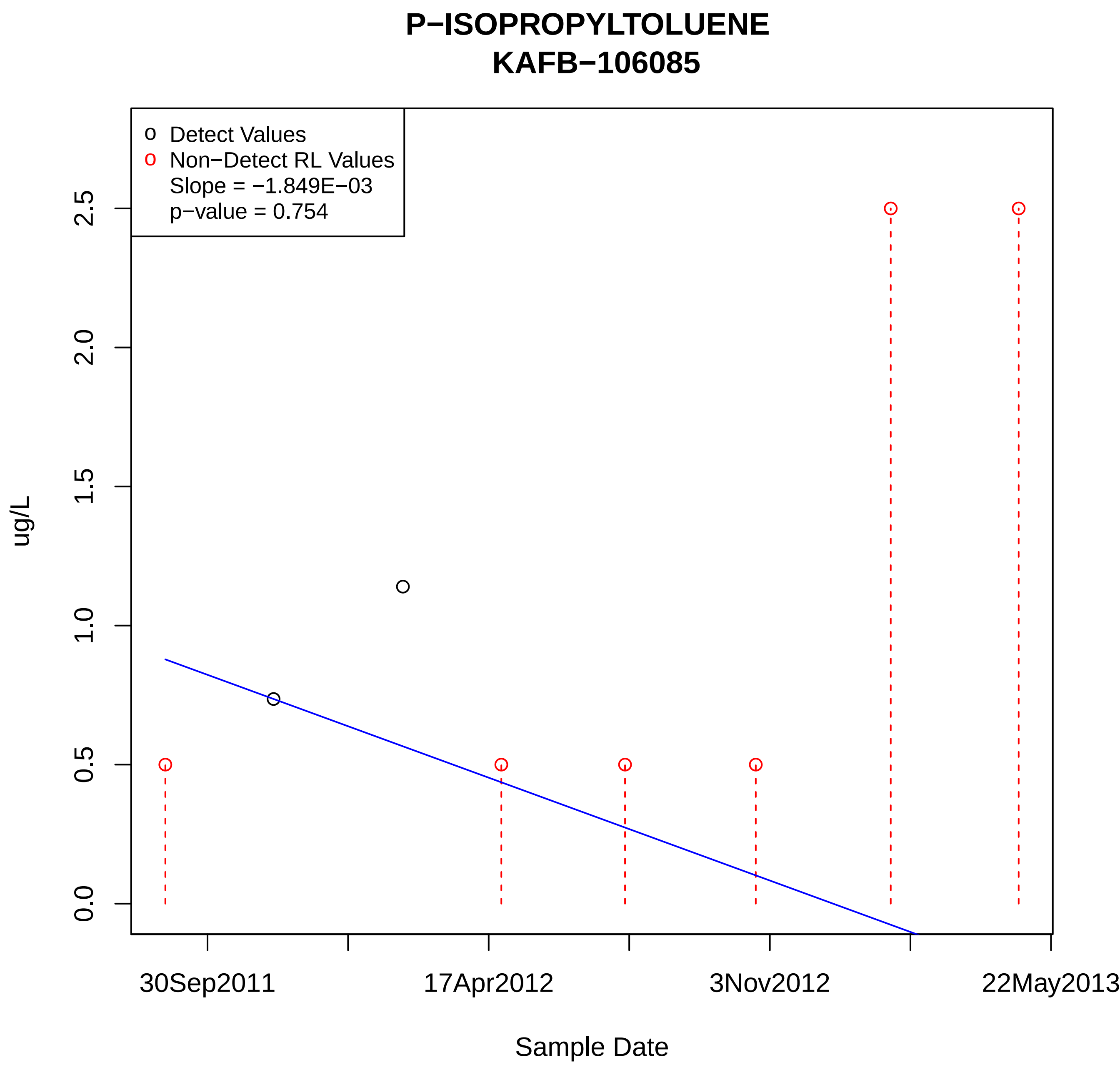


P−ISOPROPYLTOLUENE
KAFB−106082
o Detect Values
o Non−Detect RL Values
Slope = −3.779E−03
p−value = 0.774
ug/L
0
1
2
3
4
5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

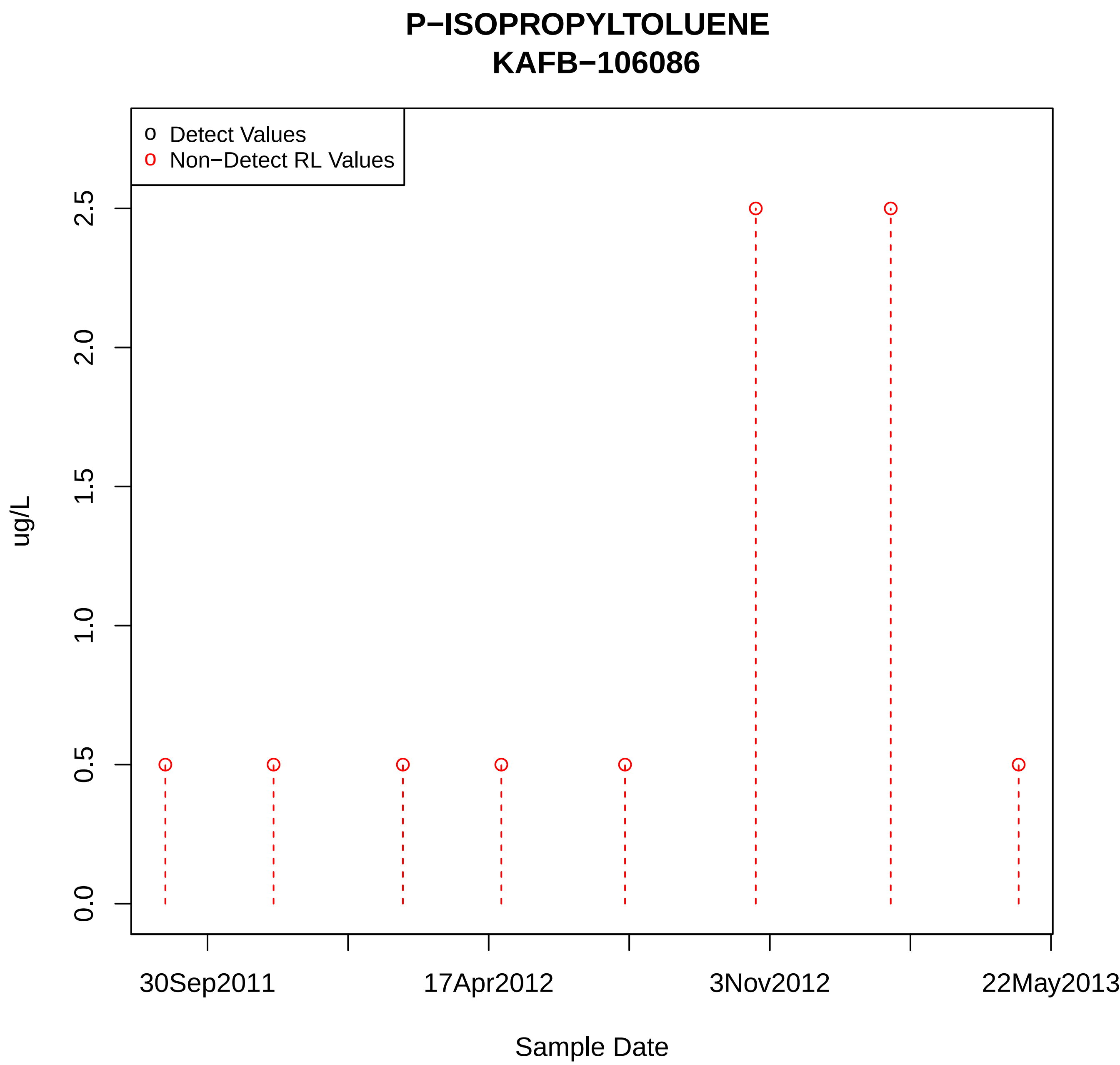


P−ISOPROPYLTOLUENE
KAFB−106083
o Detect Values
o Non−Detect RL Values
Slope = 1.884E−03
p−value = 0.456
ug/L
0
2
4
6
8
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

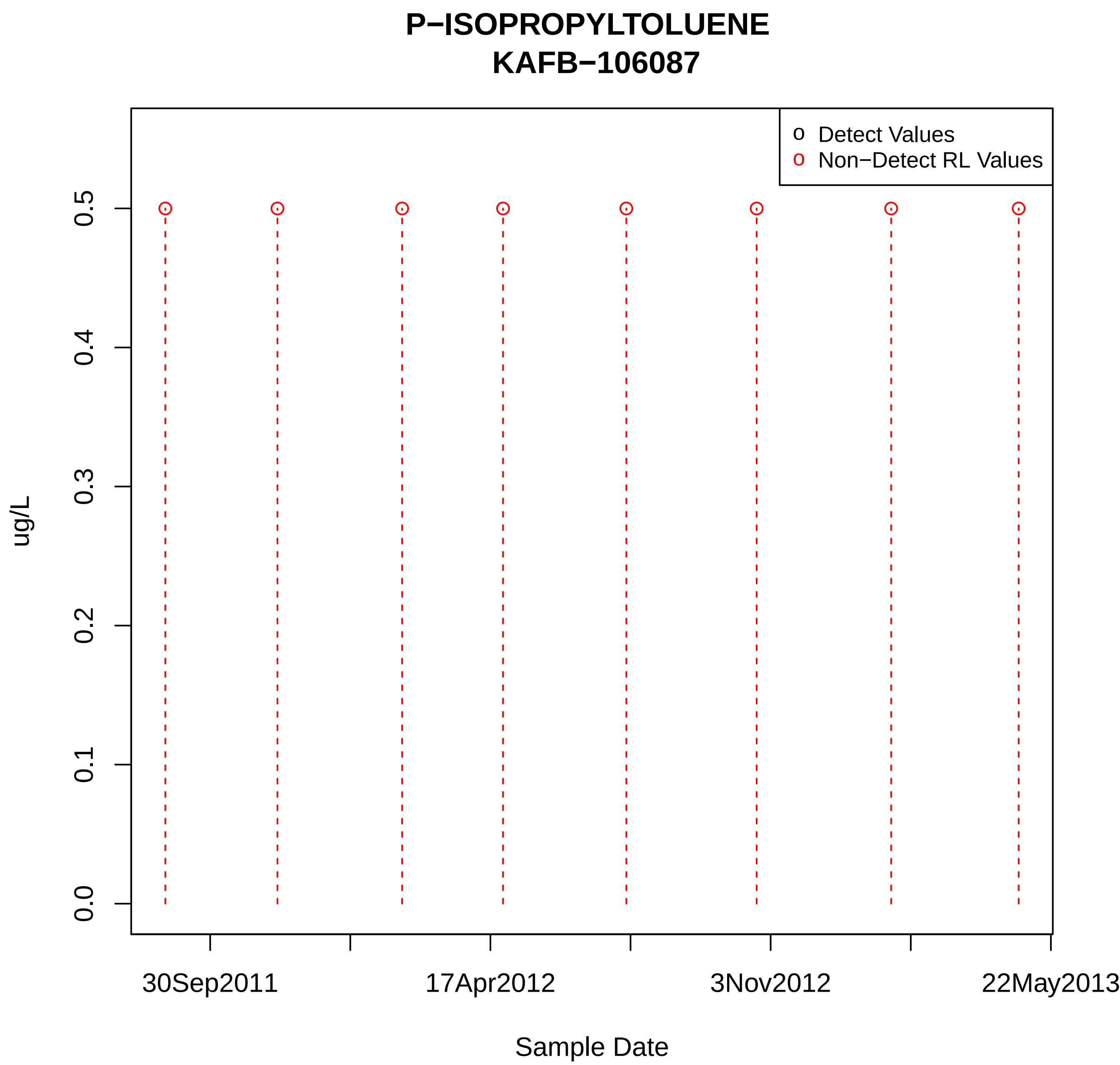

P−ISOPROPYLTOLUENE
KAFB−106084
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
22Jun2011
8Jan2012
26Jul2012
11Feb2013
Sample Date

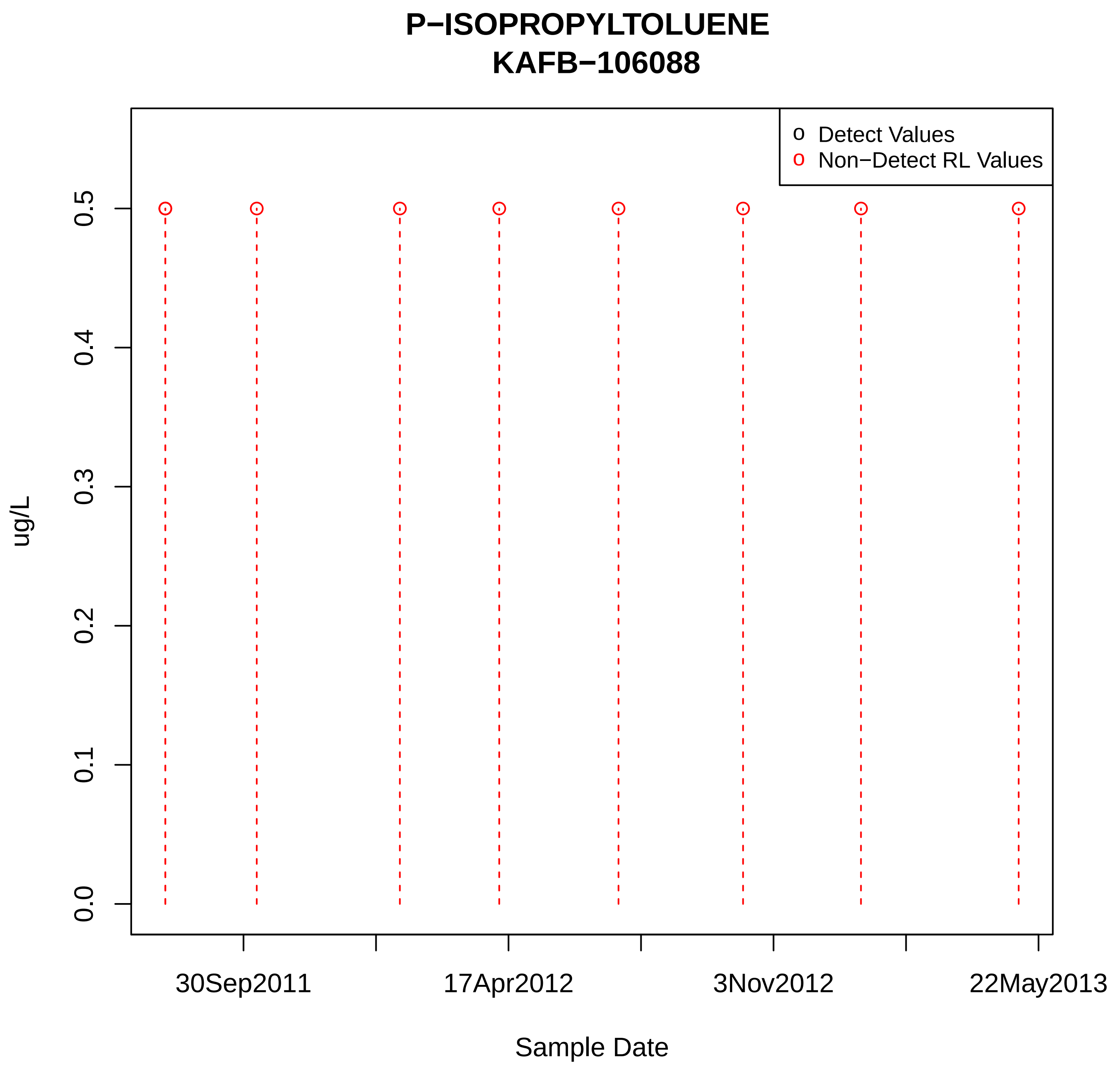


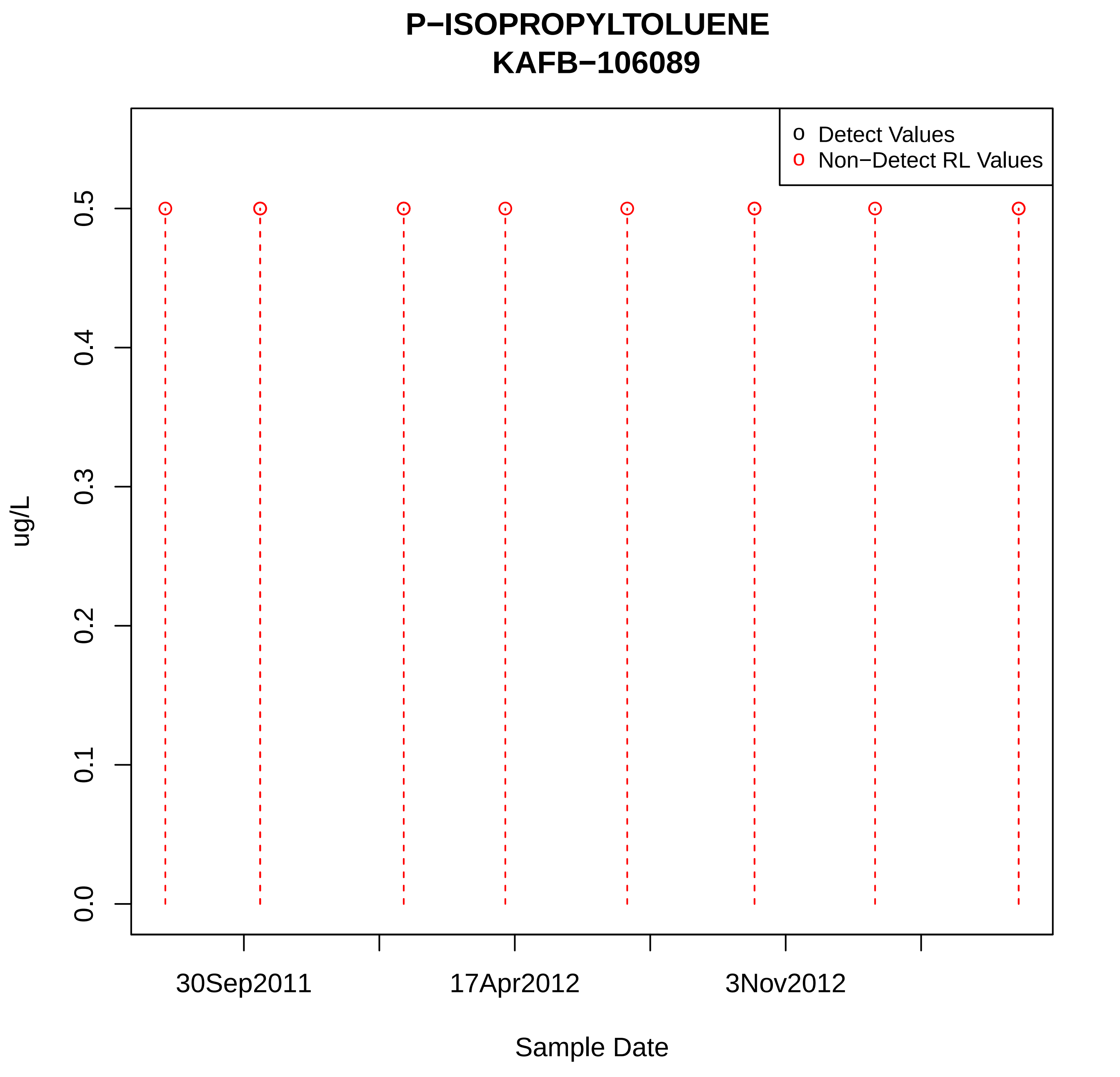
P−ISOPROPYLTOLUENE
KAFB−106085
Detect Values
Non−Detect RL Values
Slope = −1.849E−03
p−value = 0.754
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

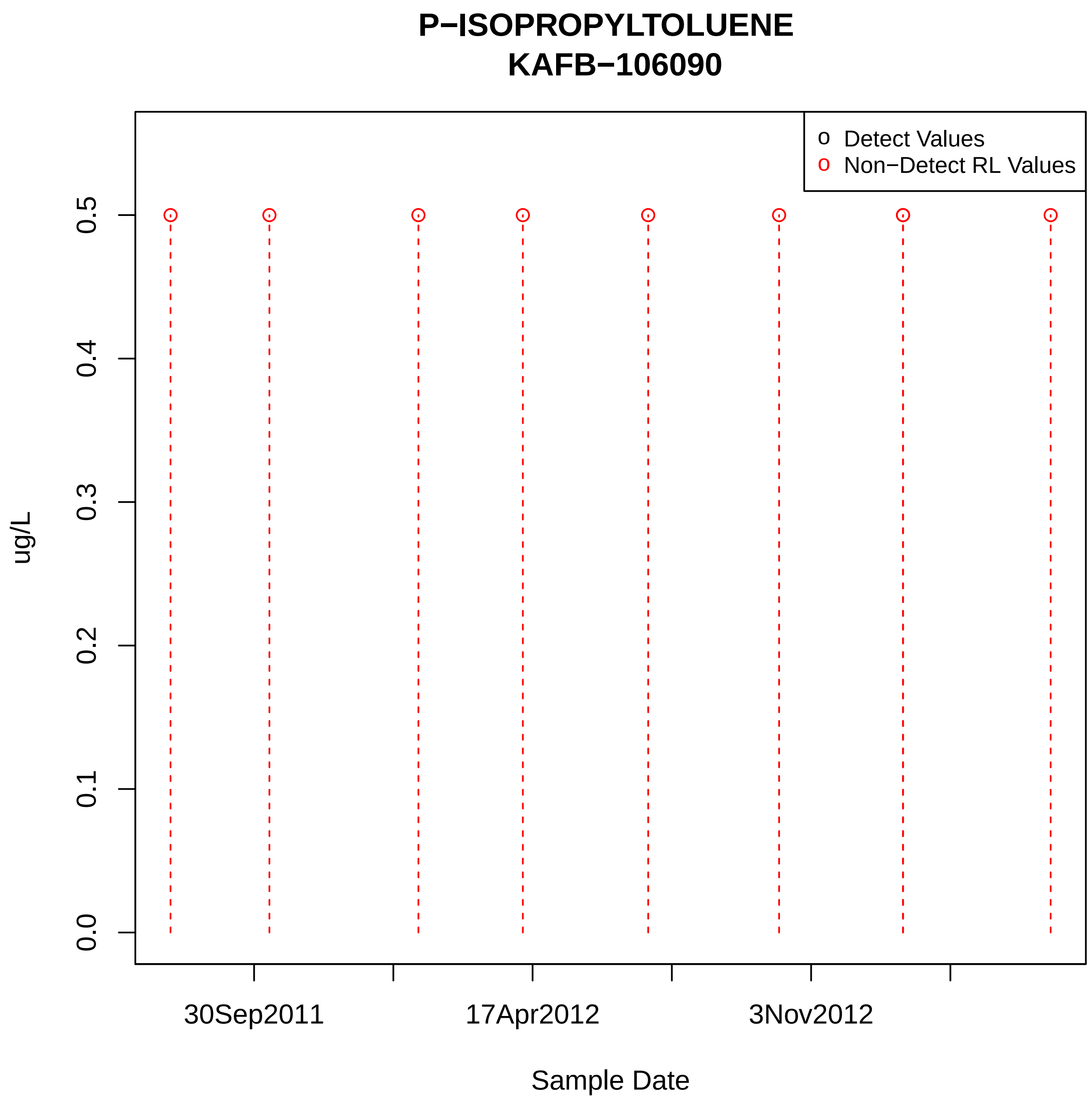


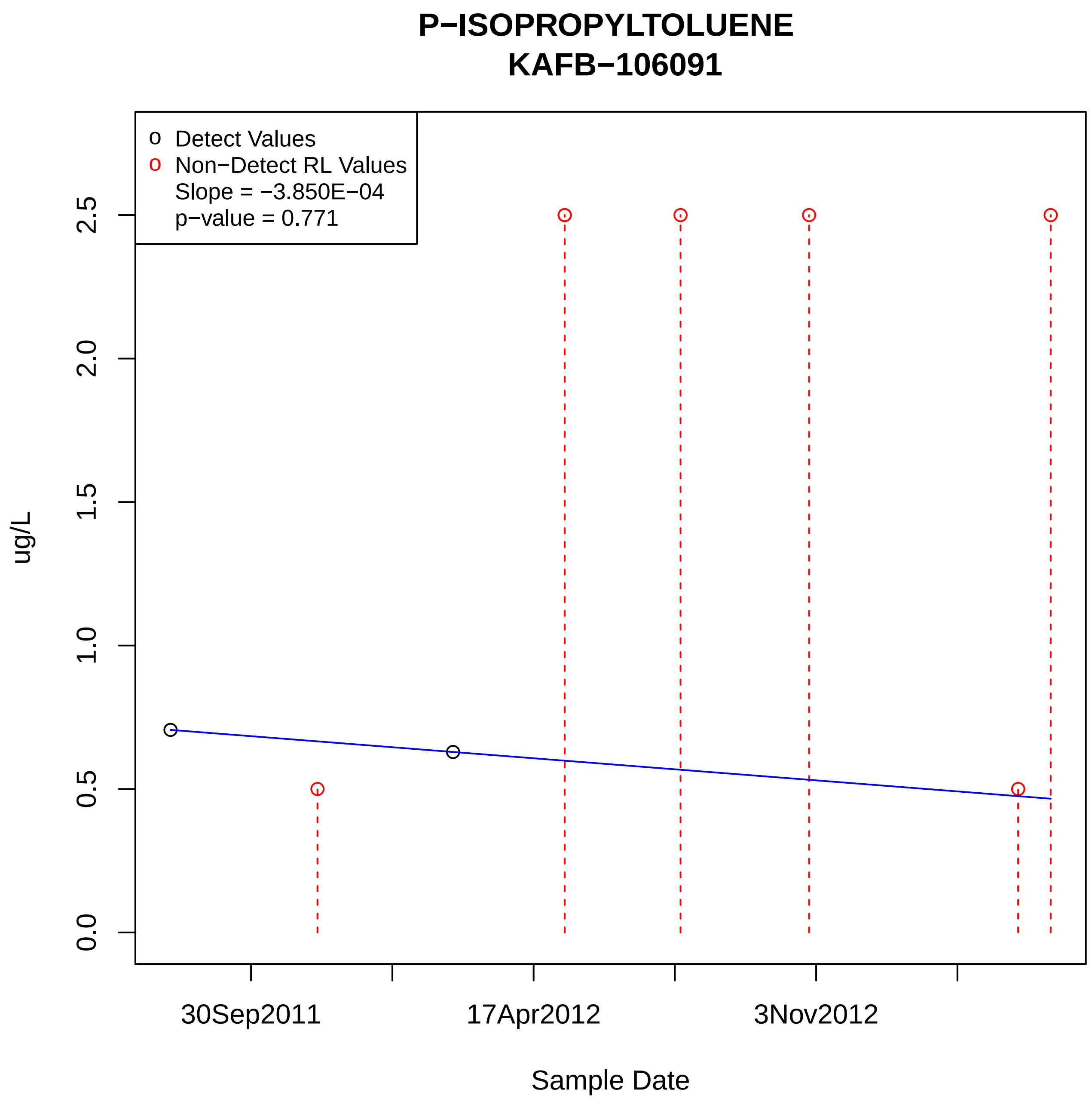
P−ISOPROPYLTOLUENE
KAFB−106086
Detect Values
Non−Detect RL Values
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106087
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

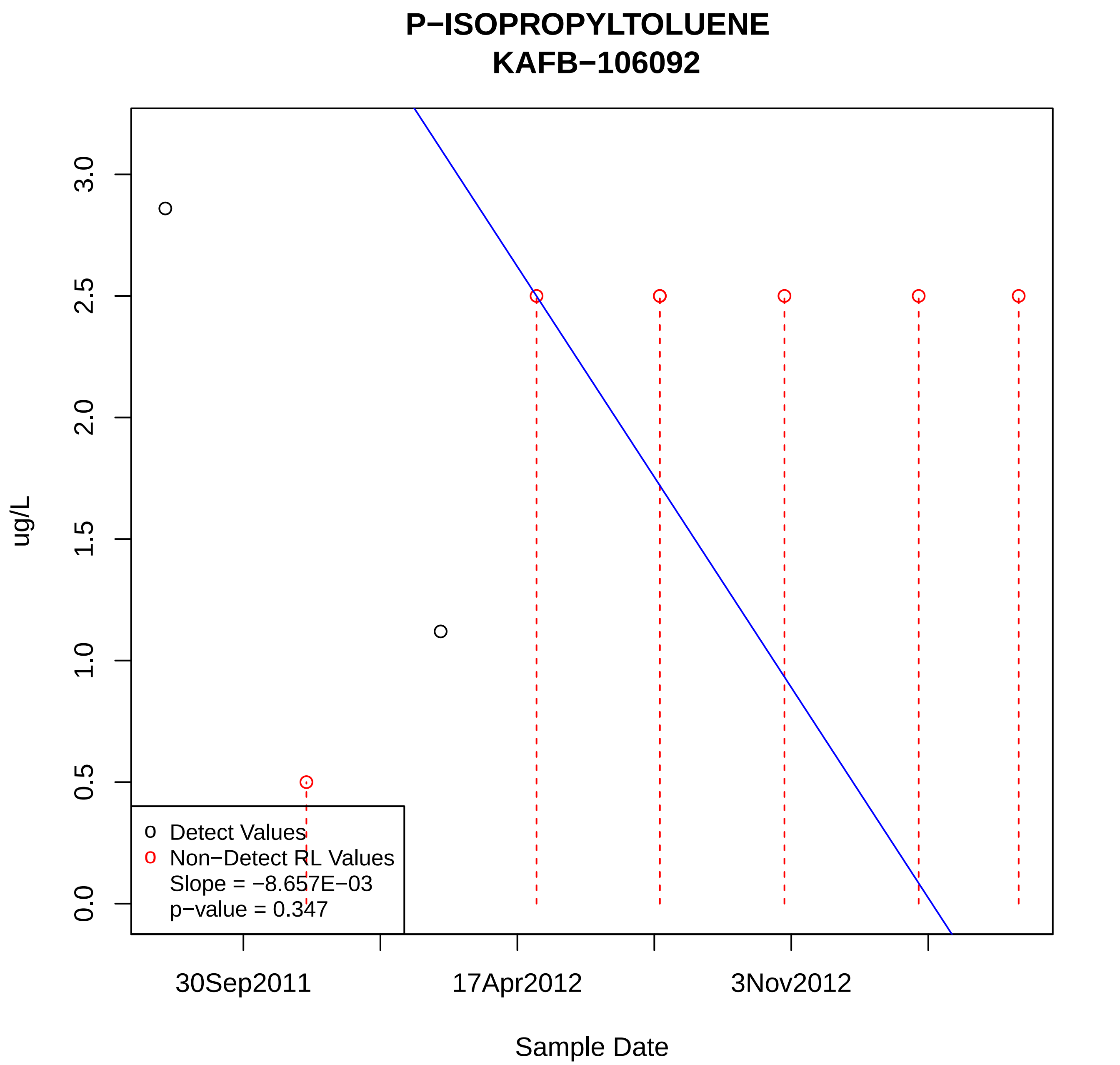

P−ISOPROPYLTOLUENE
KAFB−106088
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106089
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

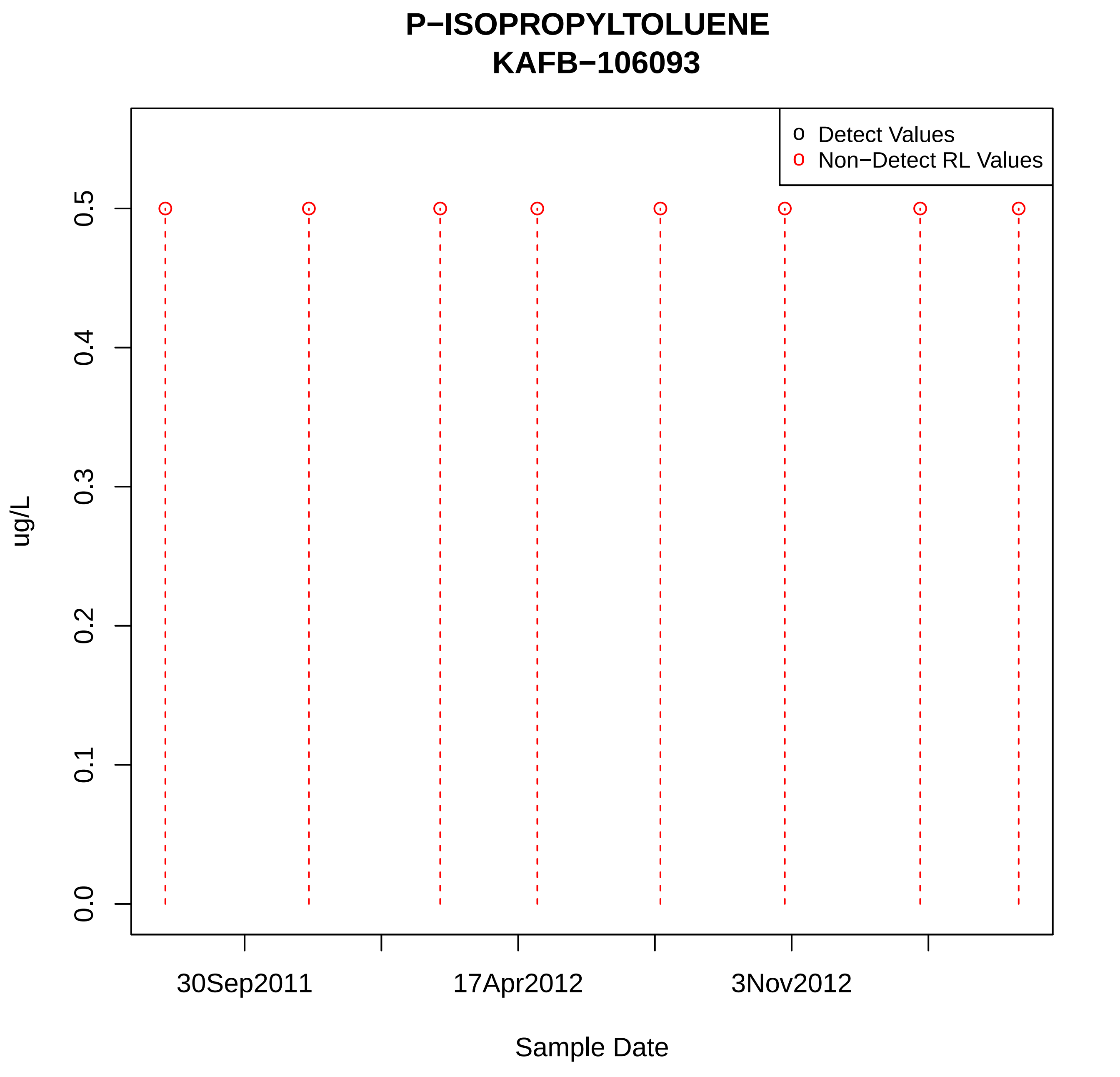

P−ISOPROPYLTOLUENE
KAFB−106090
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

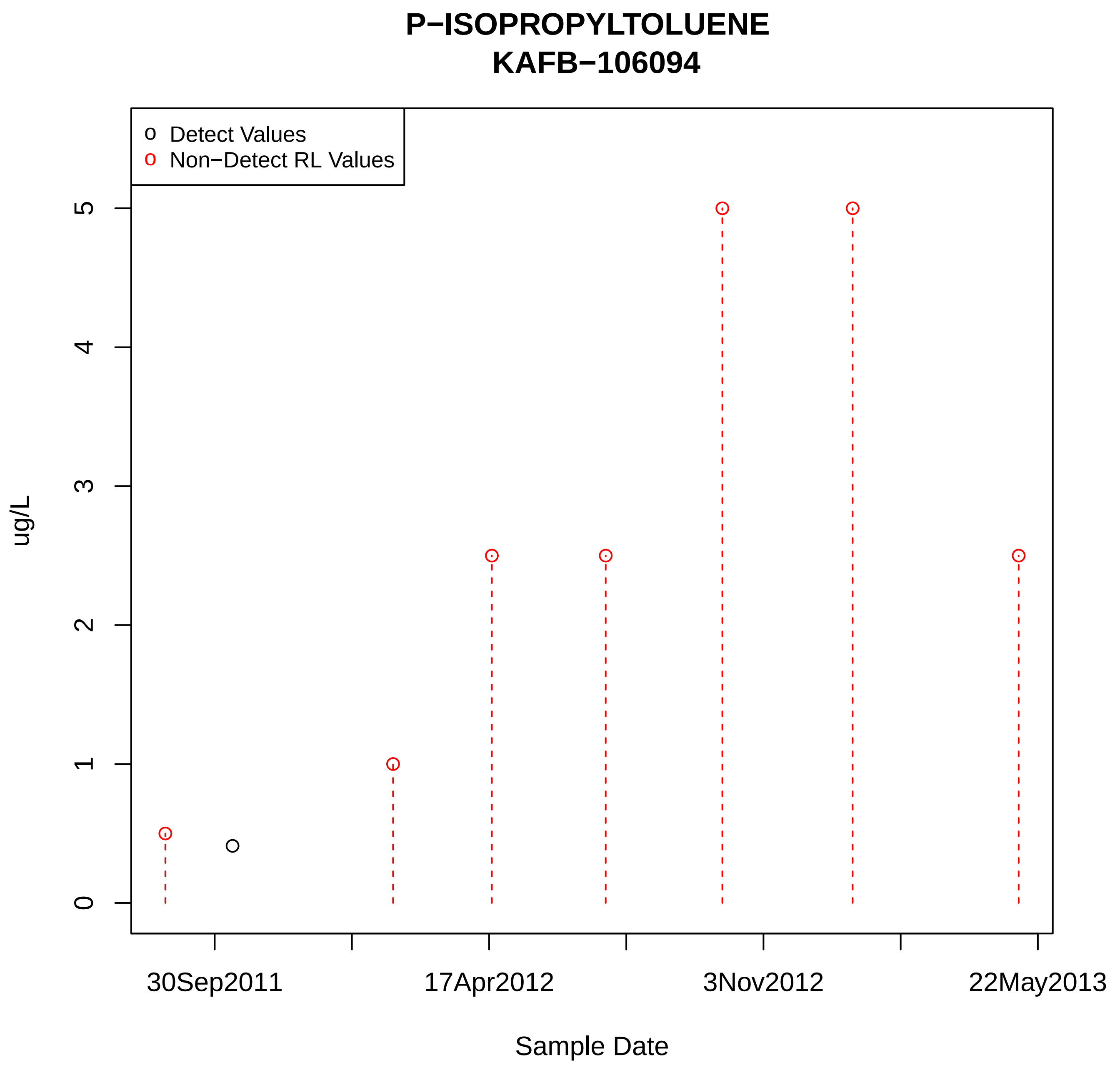


P−ISOPROPYLTOLUENE
KAFB−106091
o Detect Values
o Non−Detect RL Values
Slope = −3.850E−04
p−value = 0.771
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

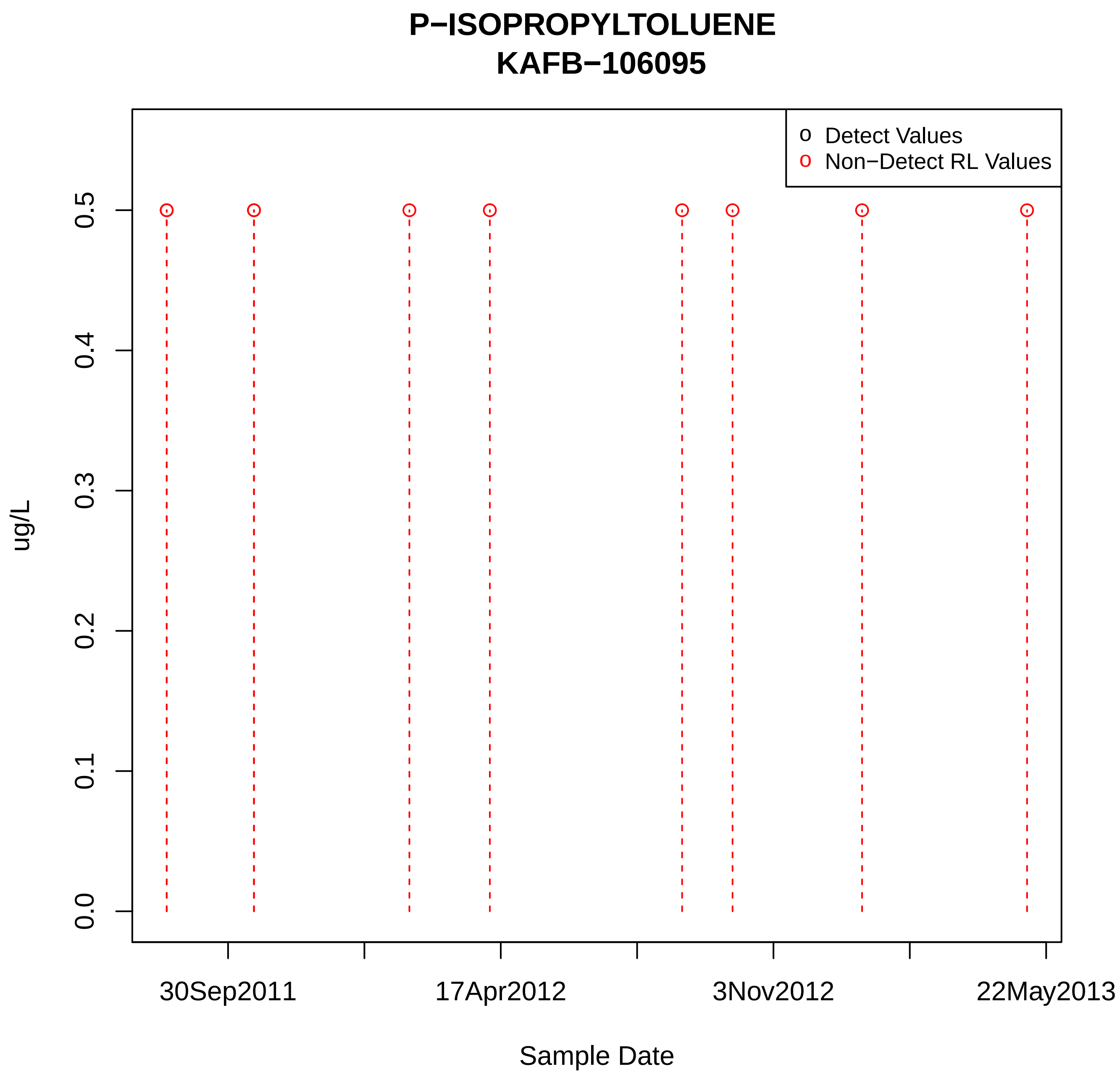


P−ISOPROPYLTOLUENE
KAFB−106092
ug/L
0.0
0.5
1.0
1.5
2.0
2.5
3.0
30Sep2011
17Apr2012
3Nov2012
Sample Date
Detect Values
Non−Detect RL Values
Slope = −8.657E−03
p−value = 0.347

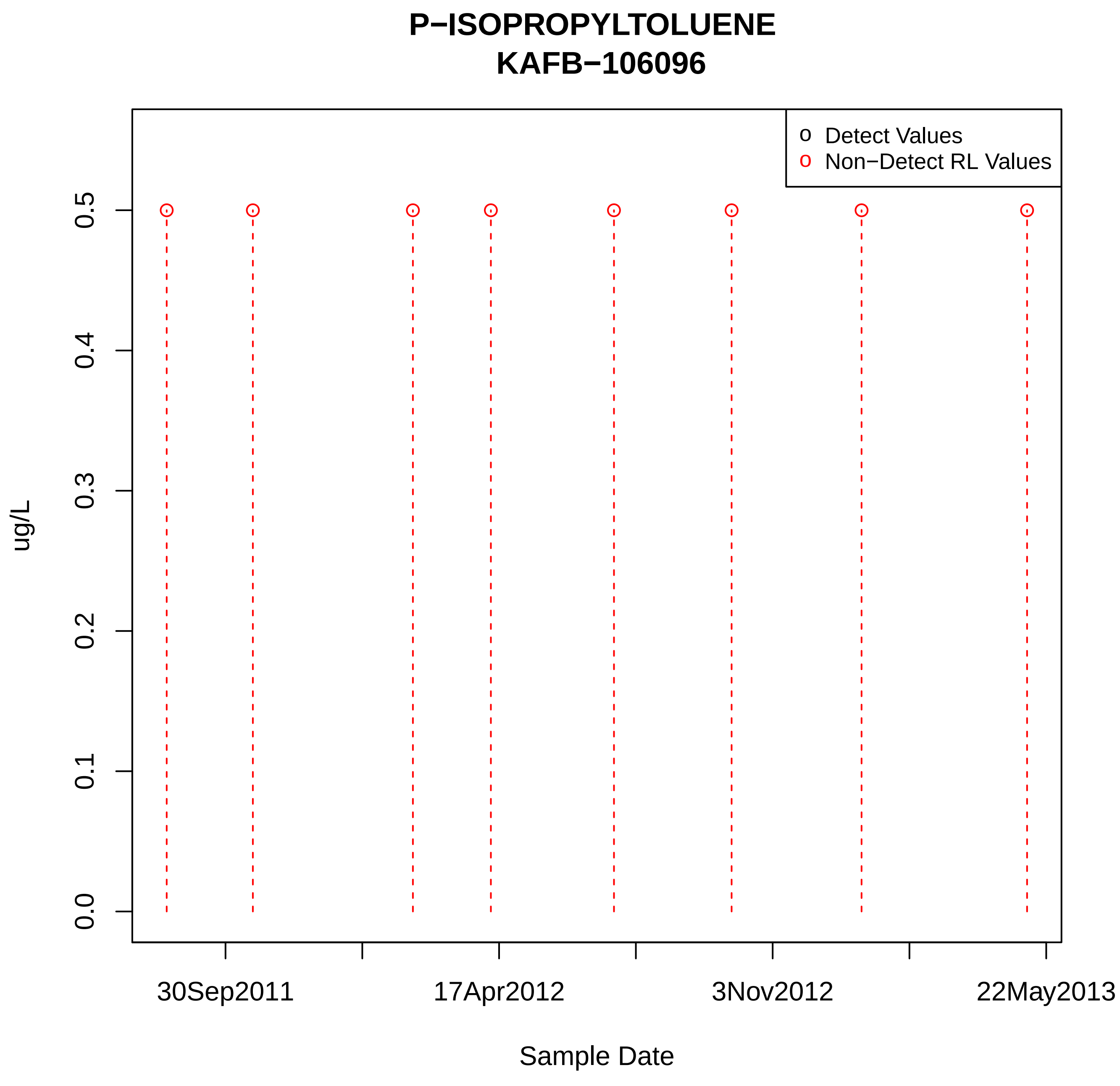

P−ISOPROPYLTOLUENE
KAFB−106093
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



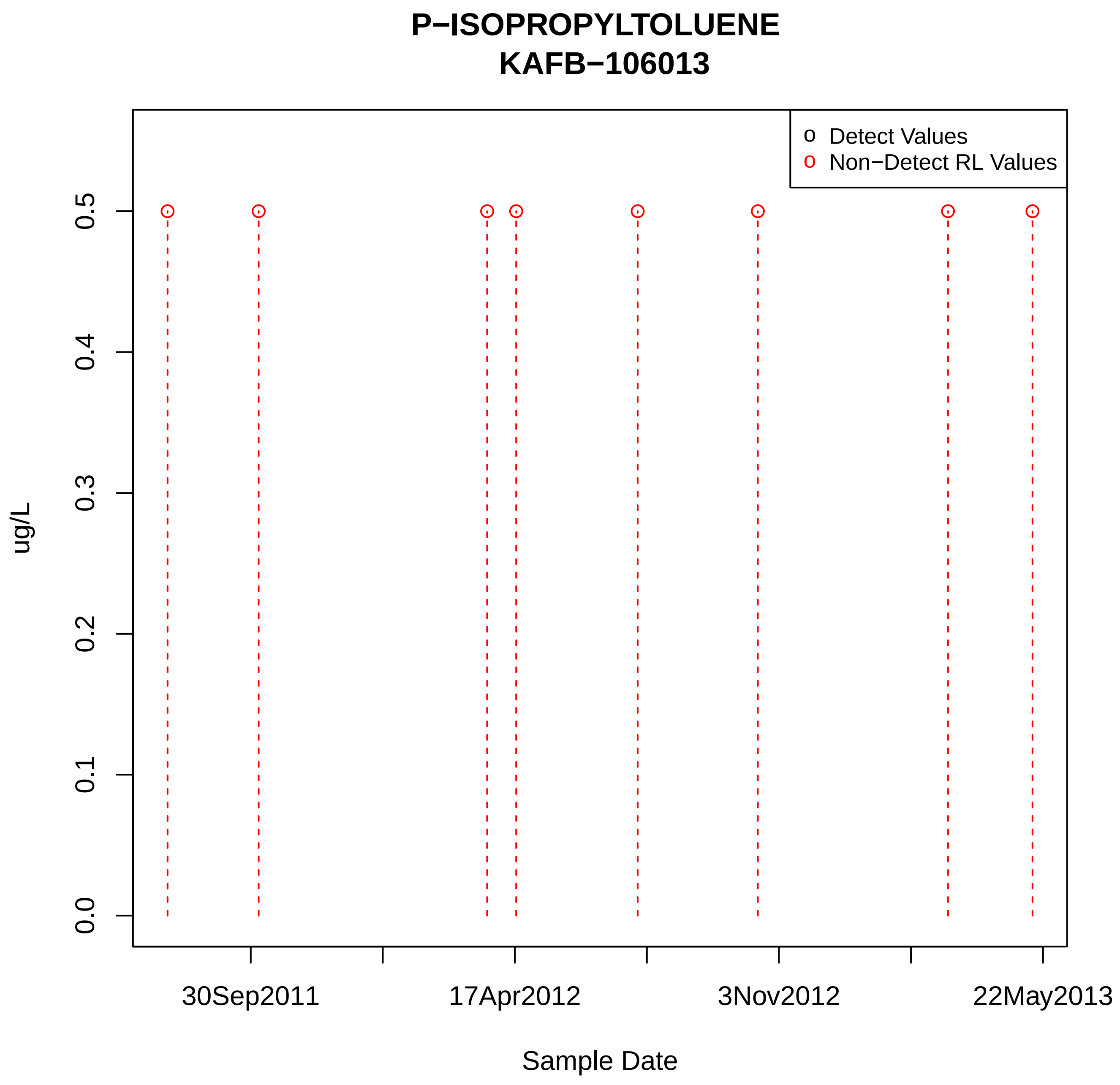
P−ISOPROPYLTOLUENE
KAFB−106094
o Detect Values
o Non−Detect RL Values
ug/L
0
1
2
3
4
5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

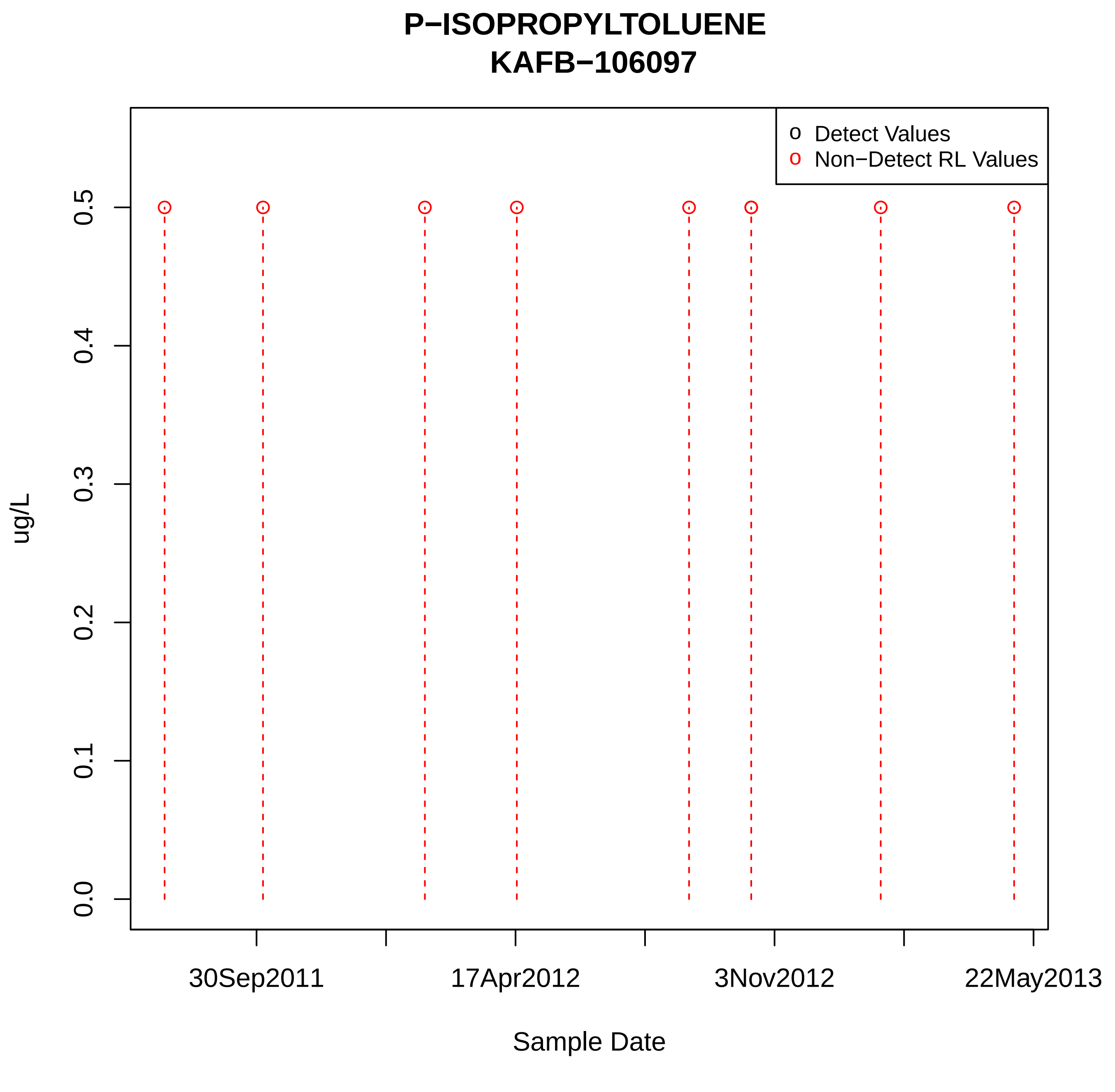


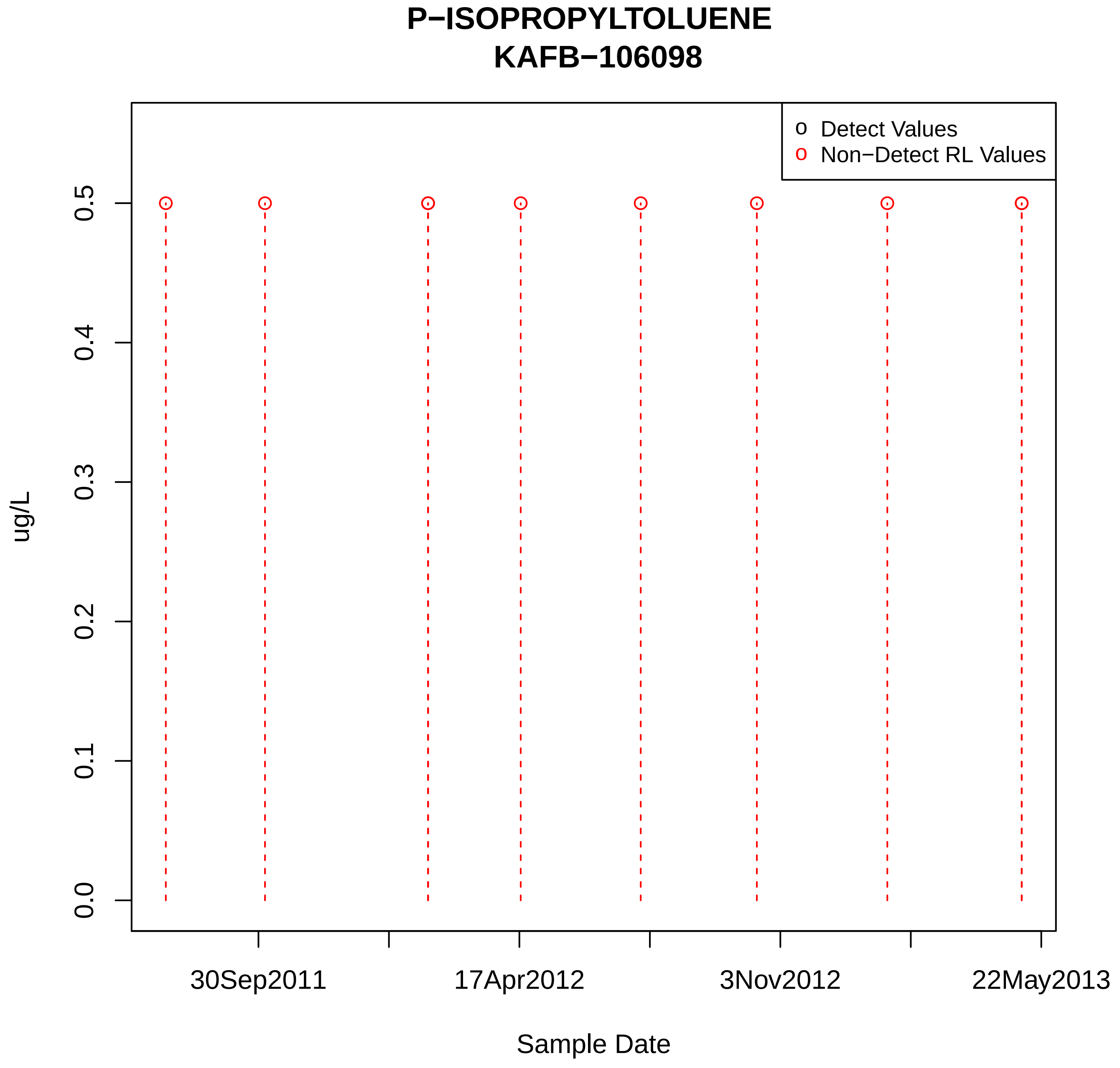
P−ISOPROPYLTOLUENE
KAFB−106095
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date



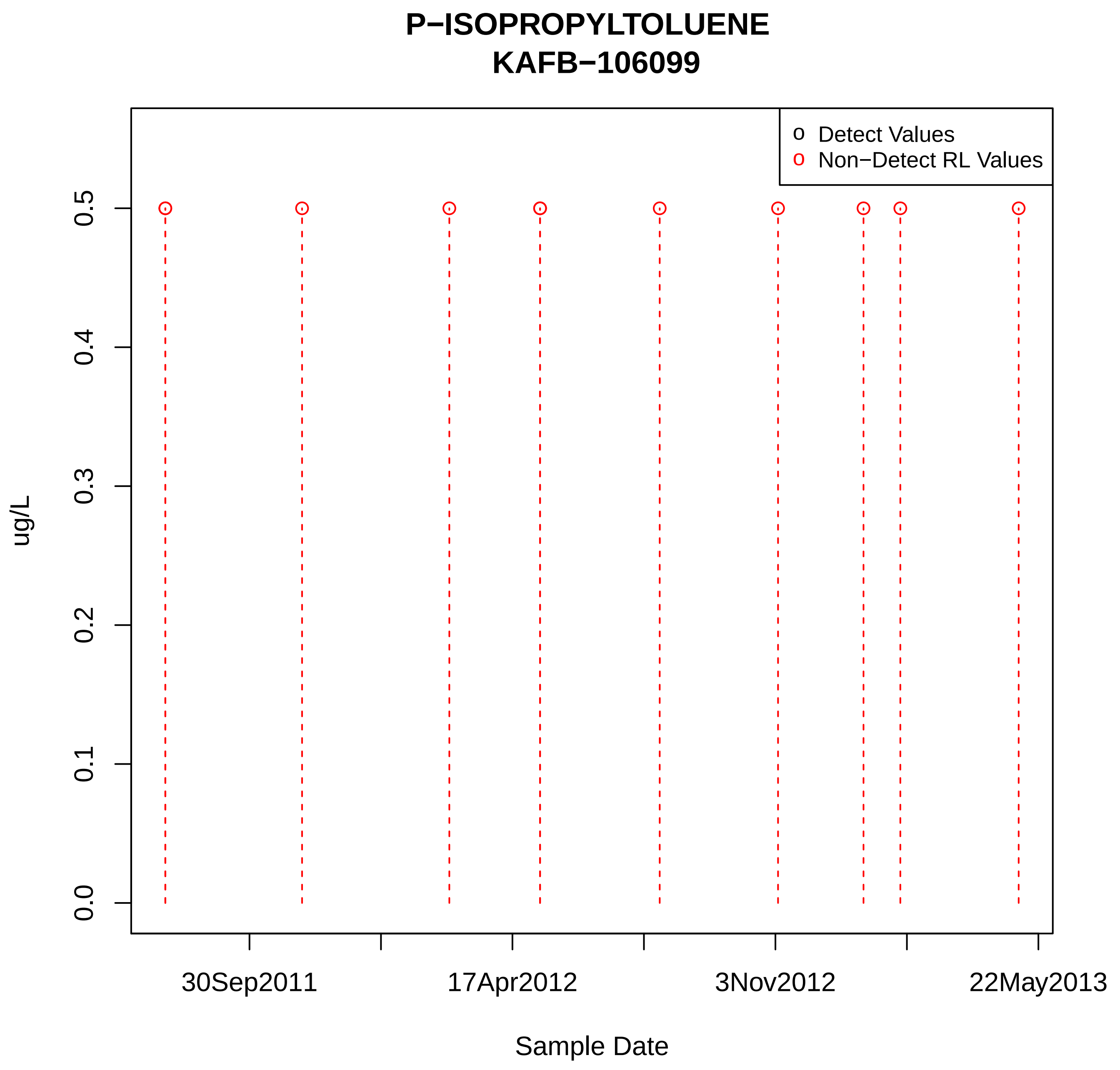
P−ISOPROPYLTOLUENE
KAFB−106096
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

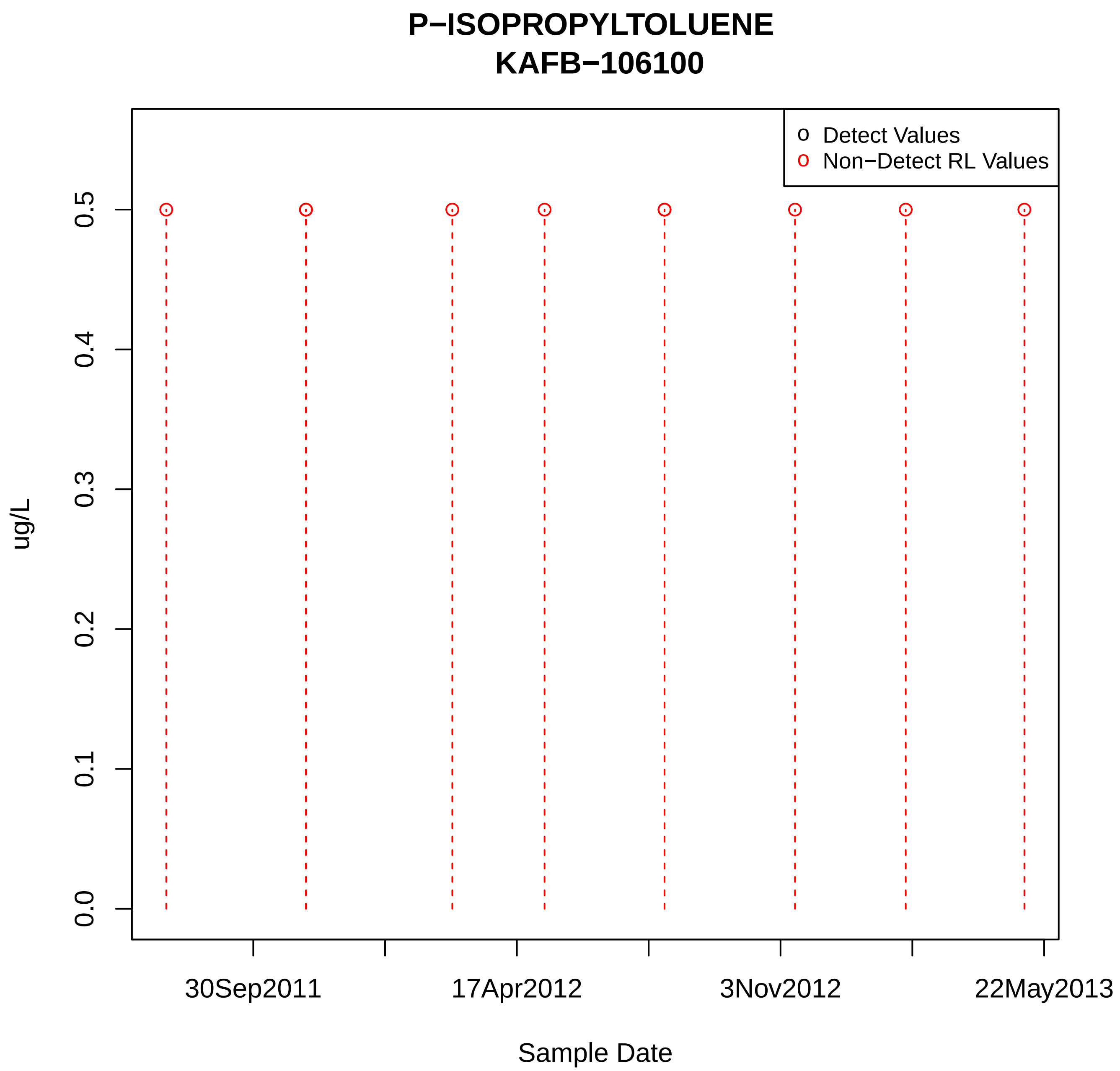

P−ISOPROPYLTOLUENE
KAFB−106013
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106097
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

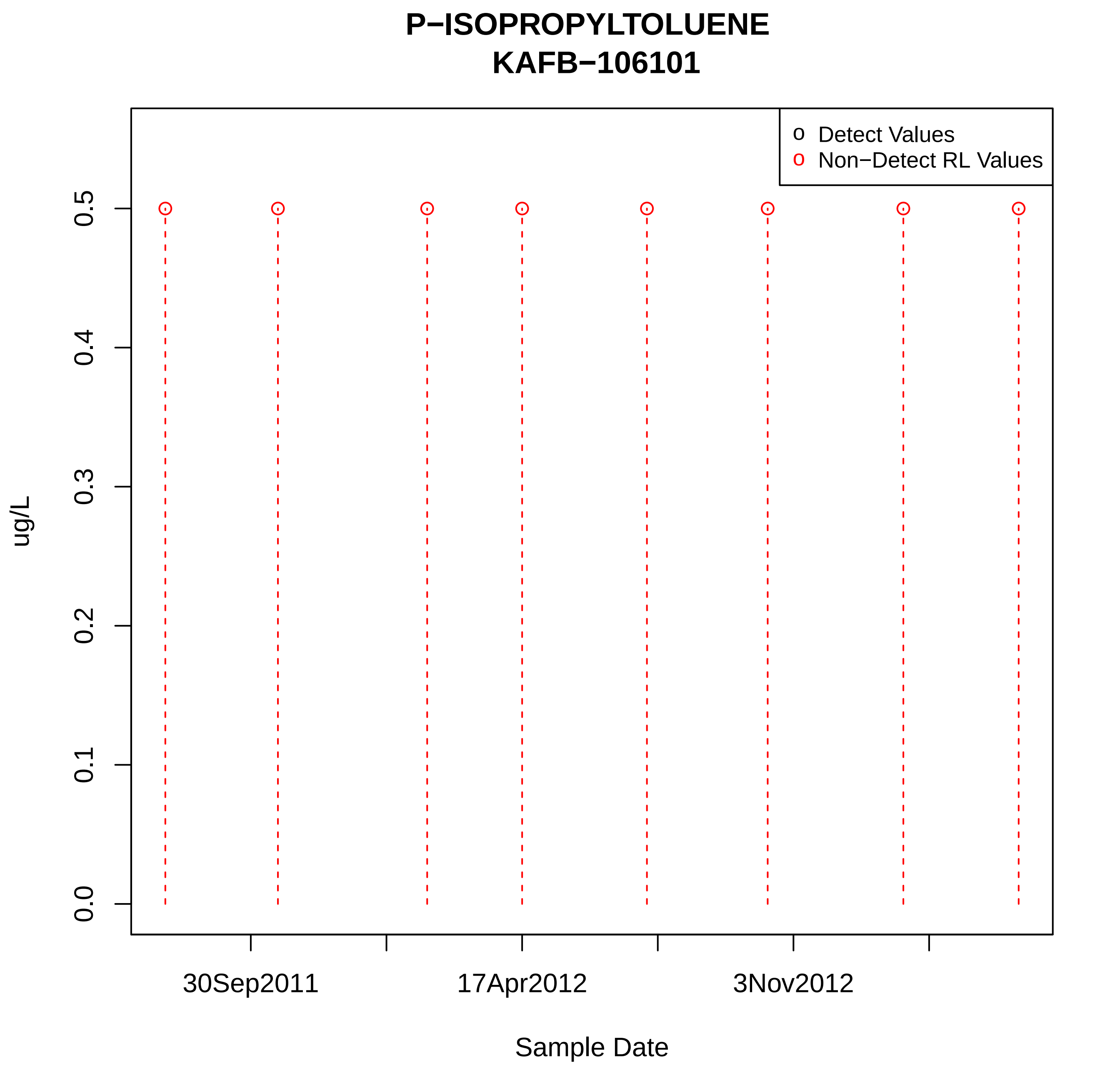


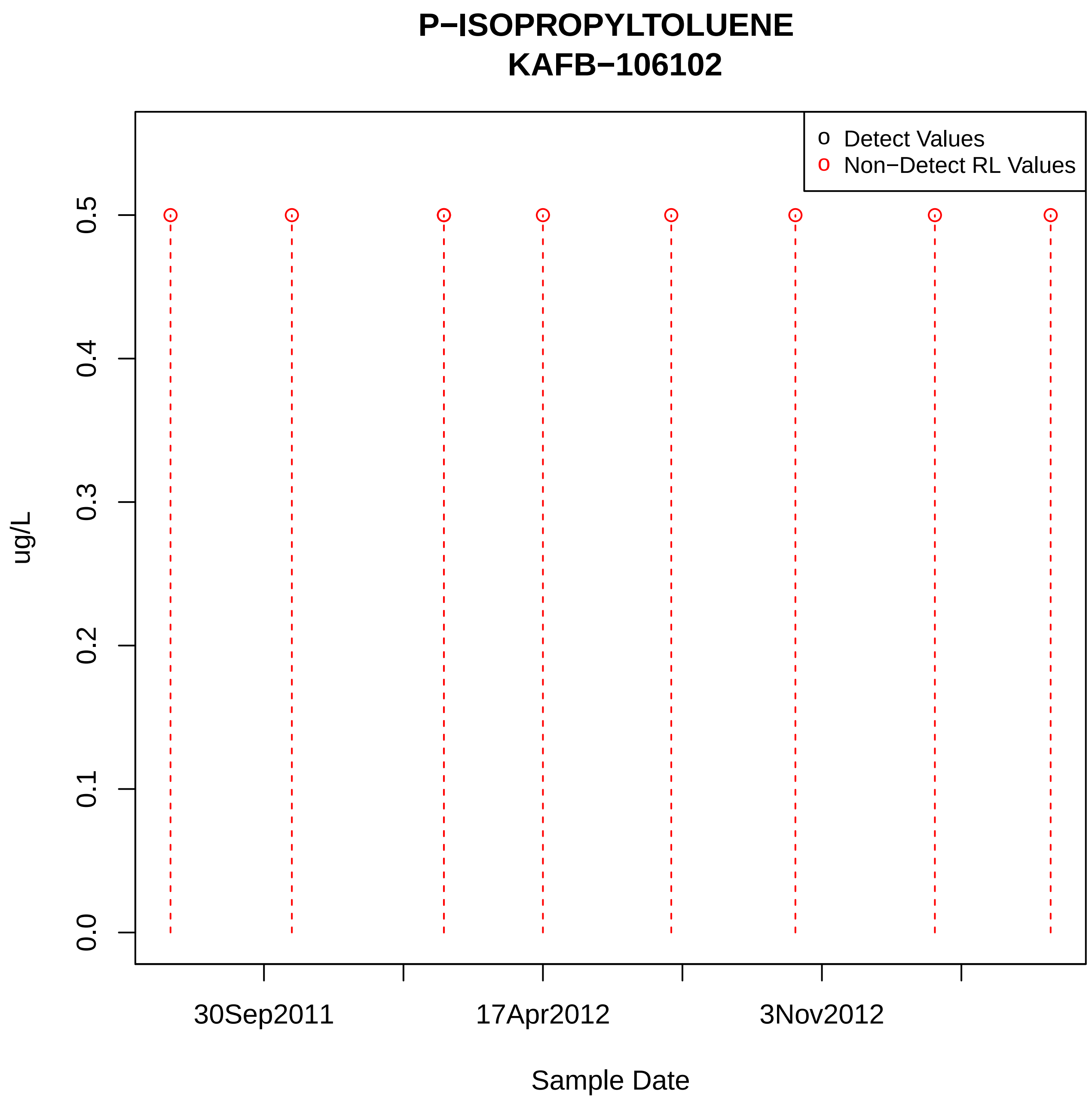
P−ISOPROPYLTOLUENE
KAFB−106098
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

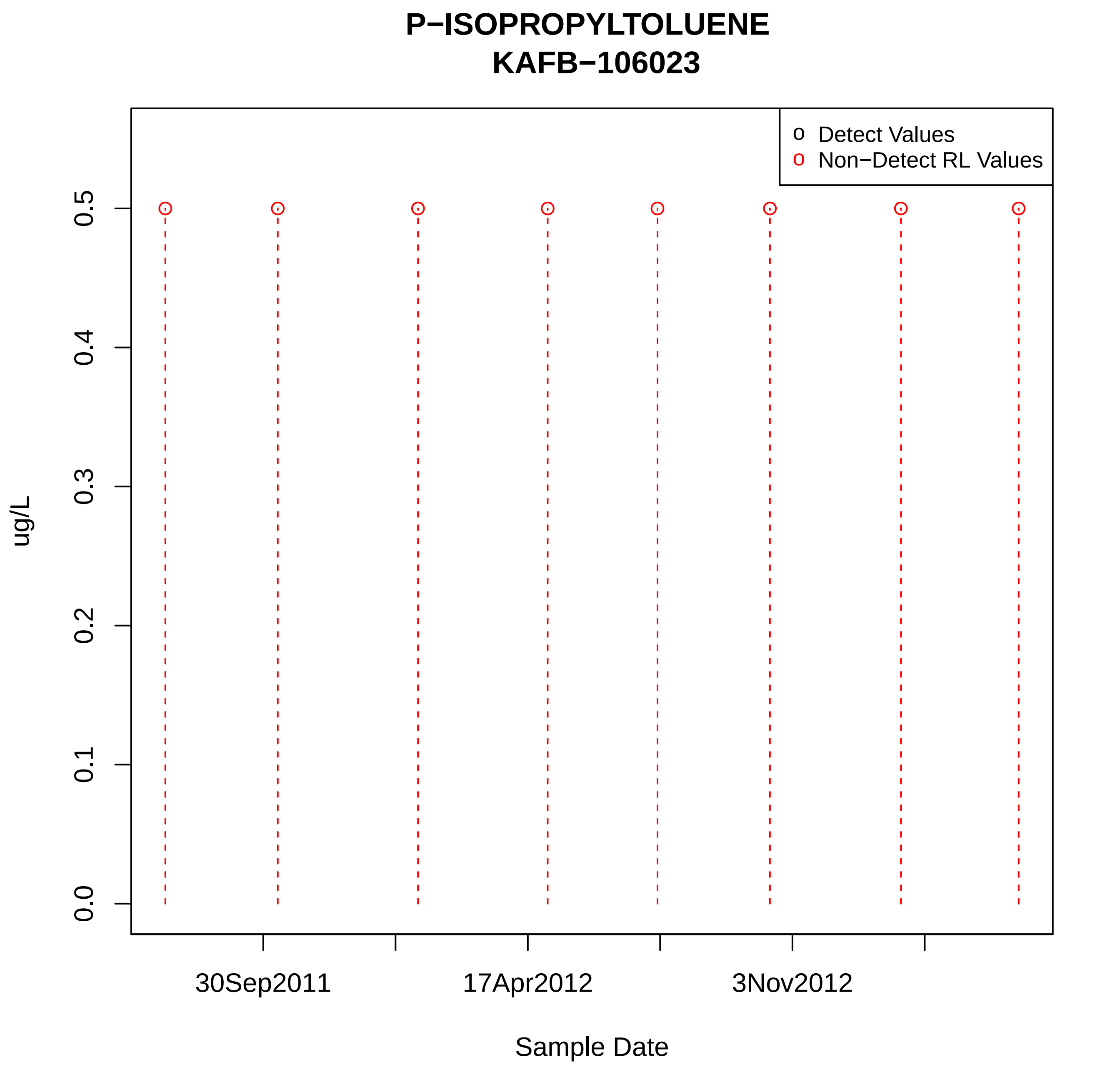

P−ISOPROPYLTOLUENE
KAFB−106099
Detect Values
Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date

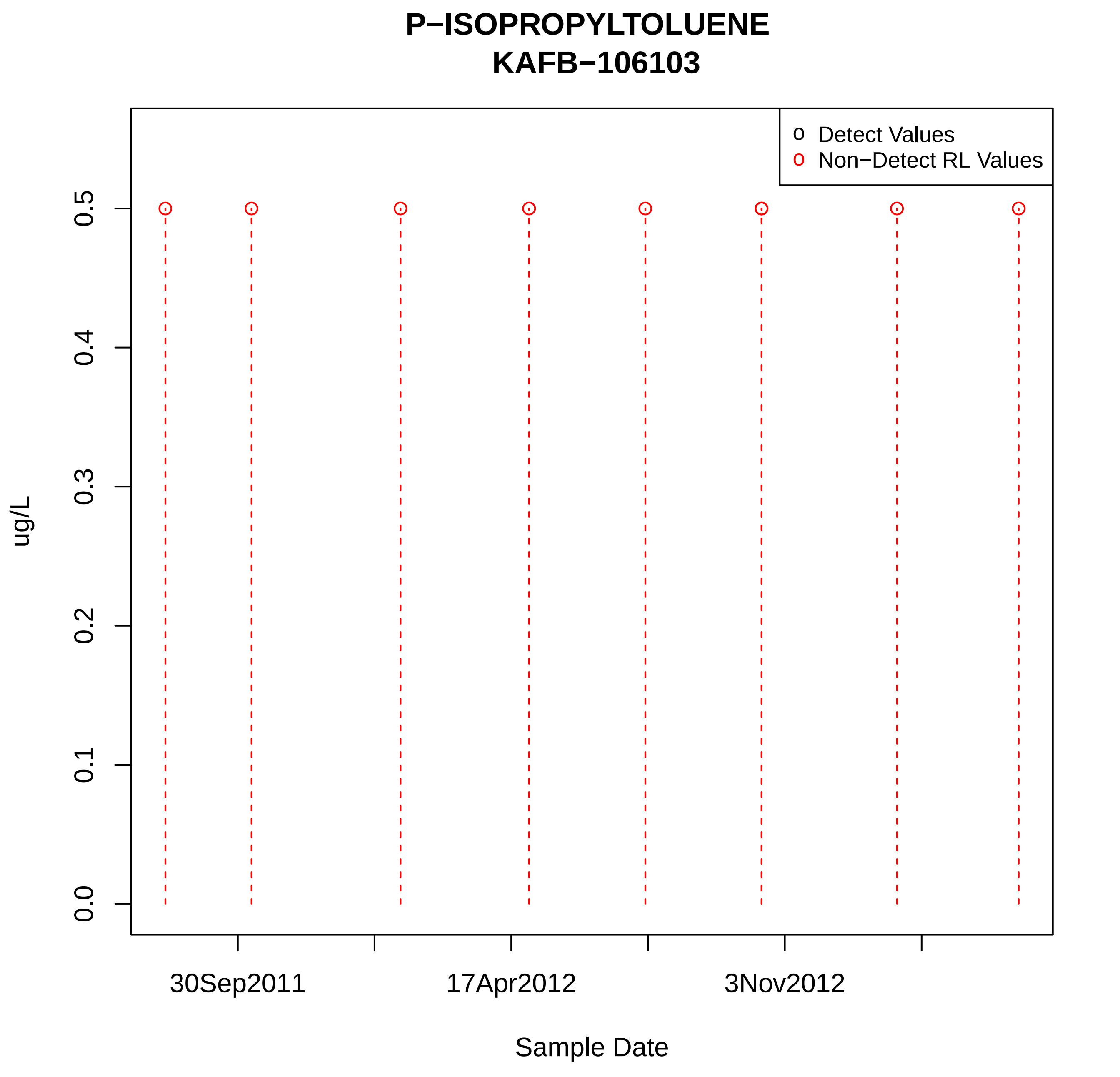


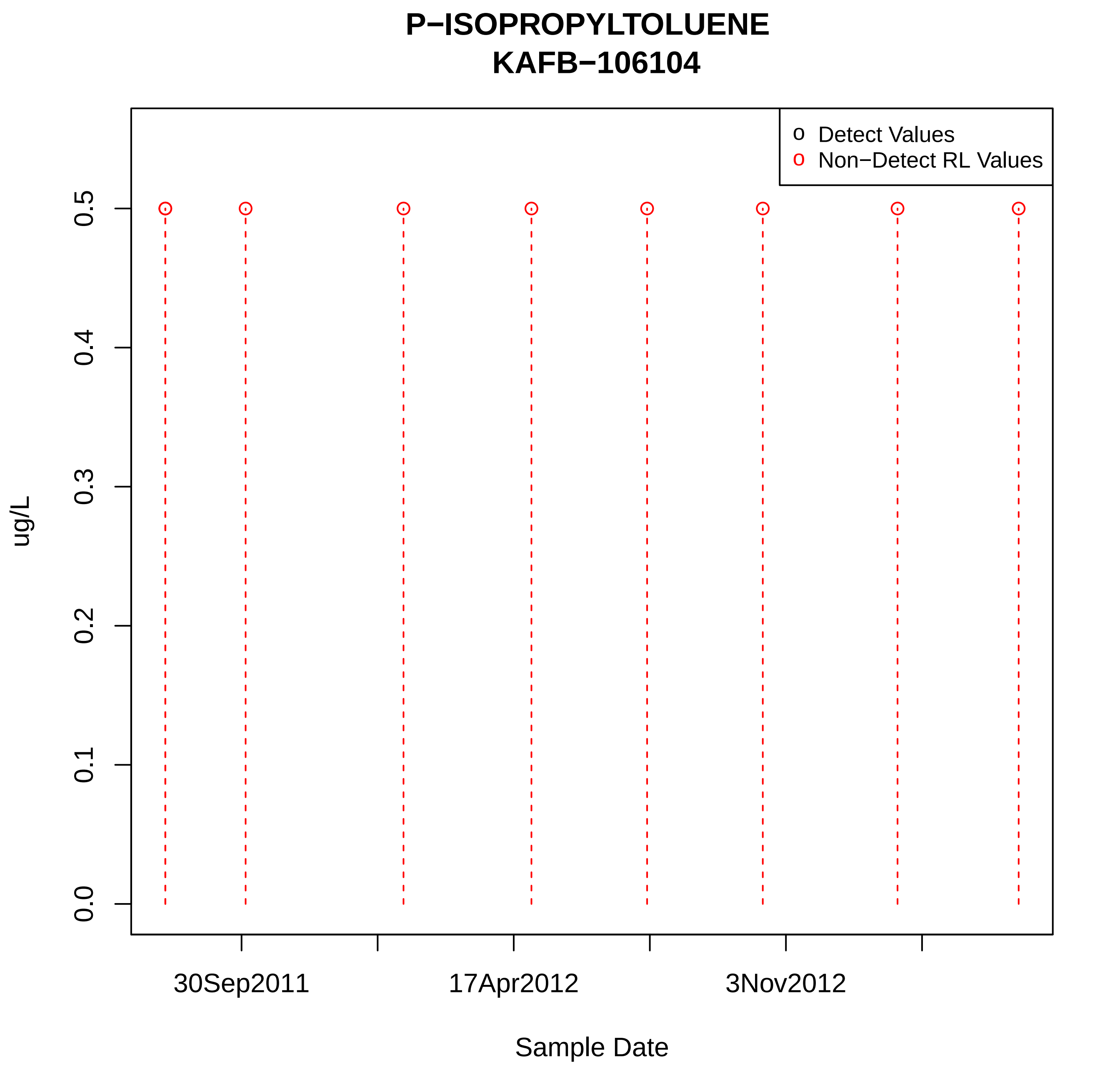
P−ISOPROPYLTOLUENE
KAFB−106100
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
22May2013
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106101
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date

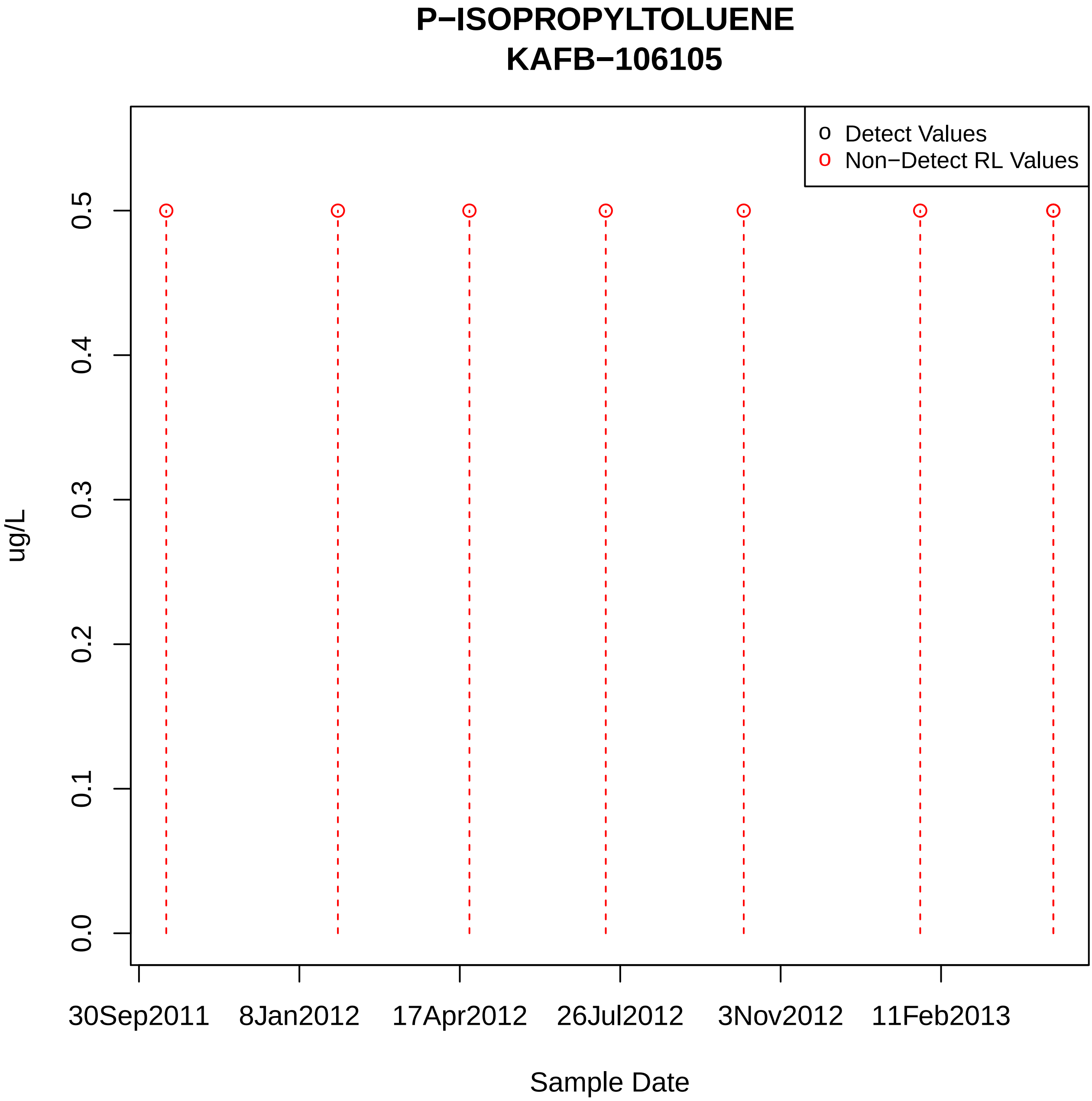

P−ISOPROPYLTOLUENE
KAFB−106102
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date


P−ISOPROPYLTOLUENE
KAFB−106023
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date

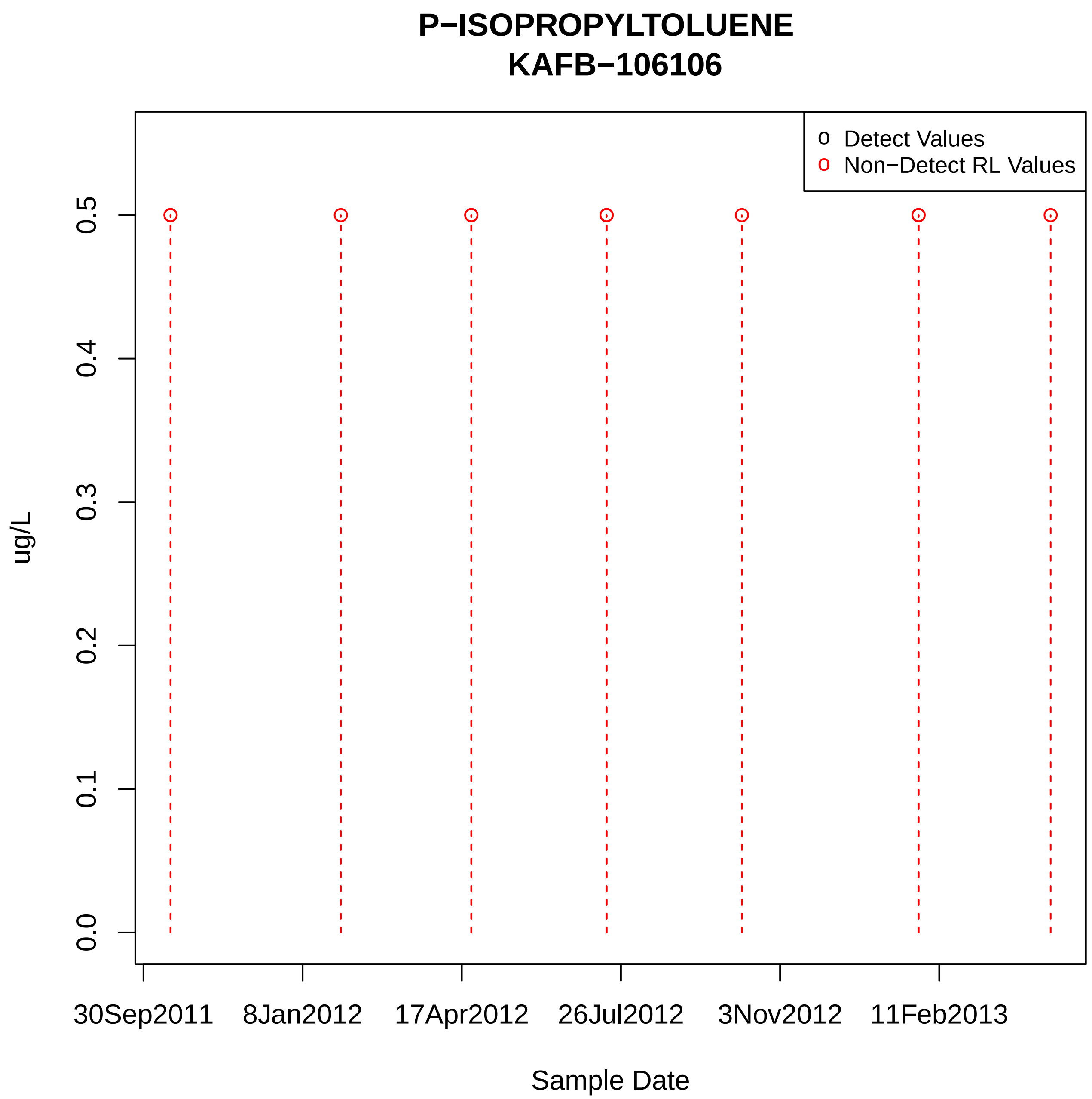

P−ISOPROPYLTOLUENE
KAFB−106103
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
17Apr2012
3Nov2012
Sample Date



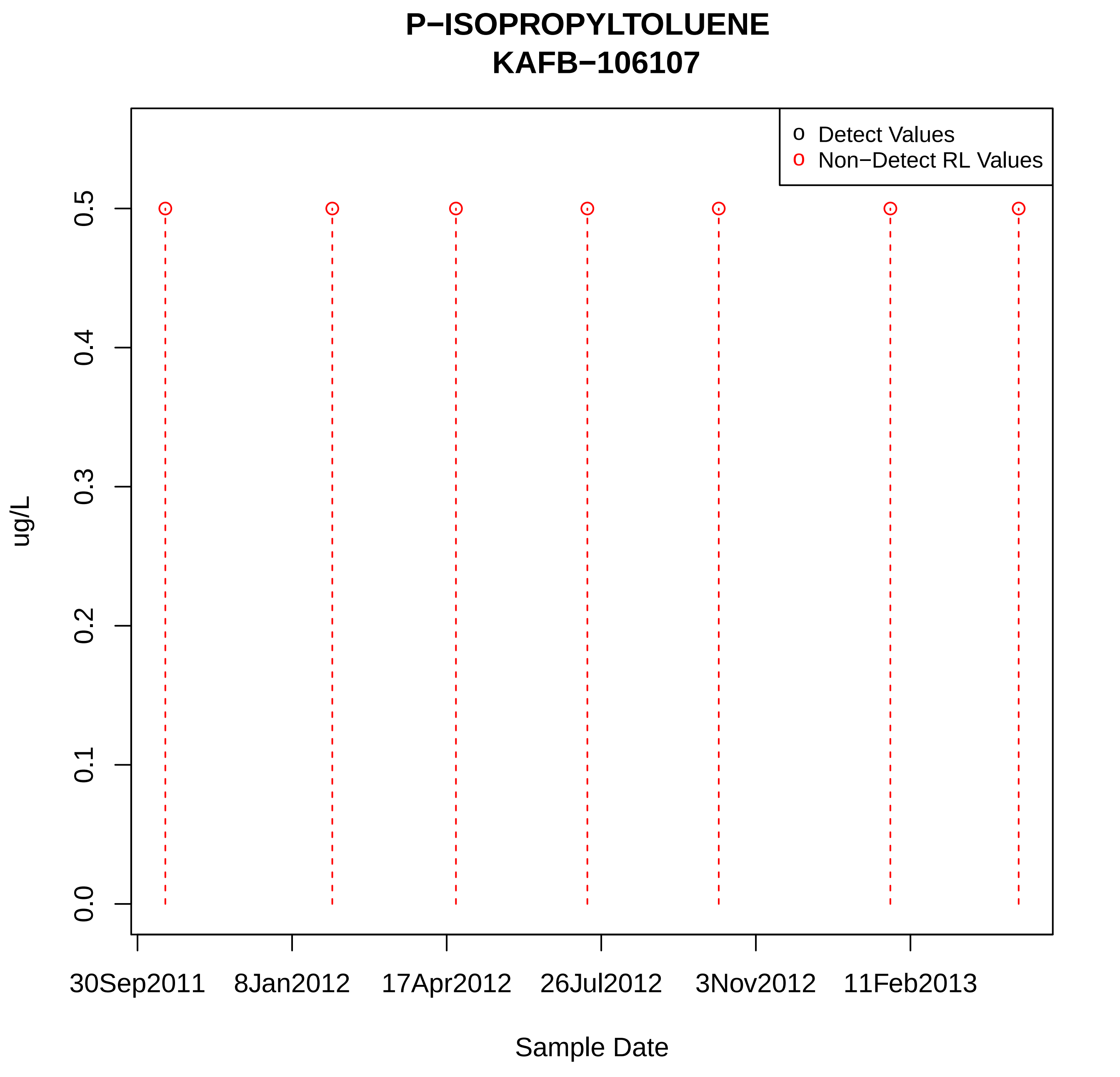
P−ISOPROPYLTOLUENE
KAFB−106104
o Detect Values
o Non−Detect RL Values
0.0
0.1
0.2
0.3
0.4
0.5
ug/L
30Sep2011
17Apr2012
3Nov2012
Sample Date



P−ISOPROPYLTOLUENE
KAFB−106105
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



P−ISOPROPYLTOLUENE
KAFB−106106
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date



P−ISOPROPYLTOLUENE
KAFB−106107
o Detect Values
o Non−Detect RL Values
ug/L
0.0
0.1
0.2
0.3
0.4
0.5
30Sep2011
8Jan2012
17Apr2012
26Jul2012
3Nov2012
11Feb2013
Sample Date

Appendix A-5
Table 1
PEF Calculation - Construction Worker
Bulk Fuel Facility, Kirtland Air Force Base

Site Name: Bulk Fuel Facility, Kirtland AFB

Calculation of Site-Specific Construction Worker PEF:

$$PEF_{sc} = Q/C_{sr} \; x \; \frac{1}{F_D} \; x \left[\frac{T \; x \; A_R}{556 \; x \; (W/3)^{0.4} \; x \; \frac{(365\, day/yr - p)}{365\, day/yr} \; x \; \sum VKT} \right]$$

Variable	Value	Units	Description
Q/C_{sr} =	**18.09**	g/m^2-s per kg/m^3	**calculated below**
Duration of construction =		months	
	50	weeks	
	250	days	assuming 5 days per week
t_c =	2,000	hours	assuming 8 hour days
	120,000	min	
T =	7,200,000	sec	
F_D =	0.185		dispersion correction factor
Surface area of site =	**2.3**	acres	**Site-specific**
Surface area of site =	9,308.1	m^2	
Length of side of area configured as a square =	96.5	m	equal to the square root of the area of the site
L_R =	317	ft	of area configured as a square
W_R =	20	ft	width of roadway segment - default
A_R =	588.2	m^2	surface area of contaminated roadway segment
W =	**5**	tons	mean vehicle weight - default, assuming 2, 2-ton cars and 1, 10-ton trucks
p =	**60**	days/yr	Number of days/yr with at least 0.01 inches of precipitation - value for KAFB area from Exhibit 5-2
Number of vehicles on site =	**2**	cars	value based on assumptions for W
	1	truck	
VKT =	72.4	km	sum of vehicle km traveled during exposure duration - assuming each vehicle travels road once per day and 5 days/week for total time

Variables in **BOLD** are site-specific and should be entered for each site

PEF_{sc} = 1.00E+07 m^3/kg

$$Q/C_{sr} = A \; x \; \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Variable	Value	Units	Description
A_s =	**2.3**	acres	Site specific area
A =	12.9351		default constant
B =	5.7383		default constant
C =	71.7711		default constant

Q/C_{sr} = 18.09 g/m^2-s per kg/m^3

A_s is site-specific and a value should be entered for each site

Appendix A-5
Table 2
PEF Calculation - Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

Site name: Bulk Fuel Facility, Kirtland AFB

Calculation of Site-Specific Commercial/Industrial Worker PEF:
This value can be applied to workers as well as residents unless site area is greater than 0.5 acres.
Equation 4-5 from USEPA, 2002

$$PEF = \frac{Q}{C_{wind}} \; x \; \frac{3{,}600 \;\; sec/hr}{0.036 \;\; x \;\; (1-V) \;\; x \;\; (U_m/U_t)^3 \;\; x \;\; F(x)}$$

Variable	Value	Units	Description
Q/C_{wind} =	62.70	g/m^2-s per kg/m^3	Calculated below
V =	**0.5**	unitless	fraction of vegetative cover
U_m =	**3.5**	m/s	mean annual windspeed
U_t =	**11.32**	m/s	equivalent threshold value of windspeed at 7 m
F(x) =	**0.194**	unitless	function dependent on U_m/U_t derived using Cowherd et al., 1985

Q/C_{wind} can be used for any source size from 0.5 acres to 500 acres using the equation and look up tables in Appendix D, Exhibit D-2. Source of 0.5 acres is the size of a typical exposure unit.

PEF = 2.19E+09 m^3/kg

From Exhibit D-2 from USEPA 2002:

$$Q/C_{wind} = A \, x \, \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	14.9421		Site-specific value
B =	17.9869		Site-specific value
C =	205.1782		Site-specific value
A_s =	**2.3**	acres	**Contaminated site area**

Q/C_{wind} = 62.70 g/m^2-s/kg/m^3

Appendix A-5
Table 3
PEF Calculation - Residents
Bulk Fuel Facility, Kirtland Air Force Base

Site name: Bulk Fuel Facility, Kirtland AFB

Calculation of Site-Specific Residential PEF:
A separate PEF for residents must be calculated if the site in question is greater than 0.5 acres in size.
This residential PEF is based on a 0.5 acre residential site.
Equation 4-5 from USEPA, 2002

$$PEF = \frac{Q}{C_{wind}} \; x \; \frac{3{,}600 \;\; sec/hr}{0.036 \;\; x \;\; (1-V) \;\; x \;\; (U_m/U_t)^3 \;\; x \;\; F(x)}$$

Variable	Value	Units	Description
Q/C_{wind} =	81.85	g/m^2-s per kg/m^3	Calculated below
V =	**0.5**	unitless	fraction of vegetative cover
U_m =	**3.5**	m/s	mean annual windspeed
U_t =	**11.32**	m/s	equivalent threshold value of windspeed at 7 m
F(x) =	**0.194**	unitless	function dependent on U_m/U_t derived using Cowherd et al., 1985

Q/C_{wind} can be used for any source size from 0.5 acres to 500 acres using the equation and look up tables in Appendix D, Exhibit D-2. Source of 0.5 acres is the size of a typical exposure unit for residential exposure.

PEF_R = 2.85E+09 m^3/kg

From Exhibit D-2 from USEPA 2002:

$$Q/C_{wind} = A \, x \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	14.9421		Site-specific value
B =	17.9869		Site-specific value
C =	205.1782		Site-specific value
A_s =	0.5	acres	**Residential exposure**

Q/C_{wind} = 81.85 g/m^2-s/kg/m^3

Appendix A-6
Table 1
VF Calculation - 1,2,4-TMB Construction Worker
Bulk Fuels Facility, Kirtland Air Force Base

Site Name: BFF, KAFB

D_A values calculated using the following equation and values from the Supplemental Guidance for Developing Soil Screening Levels at Superfund Sites. OSWER 9355.4-24. USEPA, 2002.

Equation 4-8 from USEPA, 2002.

This equation is chemical-specific.

$$D_A = \frac{[((\theta_a^{10/3} \, x \, D_i \, x \, H) + (\theta_w^{10/3} \, x \, D_w)) / n^2]}{((\rho_b \, x \, K_d) + \theta_w + (\theta_a \, x \, H))}$$

Chemical name: **1,2,4-Trimethylbenzene**

Variable	Value	Units	Description
θ_a =	0.17	L_{air}/L_{soil}	default
θ_w =	0.26	L_{water}/L_{soil}	default
D_i =	**7.50E-02**	cm^2/s	**chemical-specific from VF table**
D_w =	**7.10E-06**	cm^2/s	**chemical-specific from VF table**
H =	**2.30E-01**	unitless	**chemical-specific from VF table**
n =	0.43	L_{pore}/L_{soil}	default
ρ_b =	1.5	g/cm^3	default
K_d =	**22**	cm^3/g	**chemical-specific from VF table**
K_{oc} =	**3700.0**	cm^3/g	**chemical-specific from VF table**
f_{oc} =	0.0015	g/g	

D_A = 7.6E-06 cm^2/s

This equation is chemical-specific. Bold variables - information is required for each chemical
Copy this worksheet for each volatile COPC to calculate VF.

VF (soil only) values for construction worker were calculated using the following equations from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. USEPA, 2002. Equation 5-14 from USEPA, 2002

$$VF_{sc} = \frac{(3.14 x D_A x T)^{1/2} x CF}{2 x \rho_b x D_A} \; x \; \frac{Q}{C_{sa}} \; x \; \frac{1}{F_D}$$

Variable	Value	Units	Description
Q/C_{sa} =	10.79	$g/m^2\text{-}s/kg/m^3$	calculated below
F_D =	0.185	unitless	default
D_A =	7.6E-06	cm^2/s	**chemical specific - calculated above**
T =	**7,200,000**	**seconds**	Receptor-specific exposure interval (example: T= 1 yr*250 days/yr*8 hr/day*60 min/hr*60 sec/min)
CF =	1.00E-04	m^2/cm^2	default conversion factor
ρ_b =	1.5	g/cm^3	default

VF_{sc} = 3.3E+03 m^3/kg

Equation 5-15 from USEPA, 2002:

$$Q / C_{sa} = A \, x \, \exp\left[\frac{(\ln A_c - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	2.4538		default constant
B =	17.566		default constant
C =	189.0426		default constant
A_c =	**2.3**	acres	**site-specific**

A_c is site specific - area should change for each site

Q/C_{sa} = 10.79 $g/m^2\text{-}s/kg/m^3$

Appendix A-6
Table 2
VF Calculation - Naphthalene Construction Worker
Bulk Fuels Facility, Kirtland Air Force Base

Site Name: BFF, KAFB

D_A values calculated using the following equation and values from the Supplemental Guidance for Developing Soil Screening Levels at Superfund Sites. OSWER 9355.4-24. USEPA, 2002.

Equation 4-8 from USEPA, 2002.

This equation is chemical-specific.

$$D_A = \frac{[((\theta_a^{10/3} \, x \, D_i \, x \, H) + (\theta_w^{10/3} \, x \, D_w)) / n^2]}{((\rho_b \, x \, K_d) + \theta_w + (\theta_a \, x \, H))}$$

Chemical name: **Naphthalene**

Variable	Value	Units	Description
θ_a =	0.17	L_{air}/L_{soil}	default
θ_w =	0.26	L_{water}/L_{soil}	default
D_i =	**5.90E-02**	cm^2/s	**chemical-specific from VF table**
D_w =	**7.50E-06**	cm^2/s	**chemical-specific from VF table**
H =	**2.00E-02**	unitless	**chemical-specific from VF table**
n =	0.43	L_{pore}/L_{soil}	default
ρ_b =	1.5	g/cm^3	default
K_d =	**3.1**	cm^3/g	**chemical-specific from VF table**
K_{oc} =	**2000.0**	cm^3/g	**chemical-specific from VF table**
f_{oc} =	0.0015	g/g	

D_A = 3.6E-06 cm^2/s

This equation is chemical-specific. Bold variables - information is required for each chemical
Copy this worksheet for each volatile COPC to calculate VF.

VF (soil only) values for construction worker were calculated using the following equations from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. USEPA, 2002. Equation 5-14 from USEPA, 2002

$$VF_{sc} = \frac{(3.14 \, x \, D_A \, x \, T)^{1/2} \, x \, CF}{2 \, x \, \rho_b \, x \, D_A} \; x \; \frac{Q}{C_{sa}} \; x \; \frac{1}{F_D}$$

Variable	Value	Units	Description
Q/C_{sa} =	10.79	$g/m^2\text{-}s/kg/m^3$	calculated below
F_D =	0.185	unitless	default
D_A =	3.6E-06	cm^2/s	**chemical specific - calculated above**
T =	**7,200,000**	**seconds**	Receptor-specific exposure interval (example: T= 1 yr*250 days/yr*8 hr/day*60 min/hr*60 sec/min)
CF =	1.00E-04	m^2/cm^2	default conversion factor
ρ_b =	1.5	g/cm^3	default

VF_{sc} = 4.9E+03 m^3/kg

Equation 5-15 from USEPA, 2002:

$$Q / C_{sa} = A \, x \, \exp\left[\frac{(\ln A_c - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	2.4538		default constant
B =	17.566		default constant
C =	189.0426		default constant
A_c =	**2.3**	acres	**site-specific**

A_c is site specific - area should change for each site

Q/C_{sa} = 10.79 $g/m^2\text{-}s/kg/m^3$

Appendix A-6
Table 3
VF Calculation - 124-TMB Adult Resident
Bulk Fuels Facility, Kirtland Air Force Base

Site Name: KAFB, BFF

D_A values calculated using the following equation and values from the Supplemental Guidance for Developing Soil Screening Levels at Superfund Sites. OSWER 9355.4-24. USEPA, 2002.
Equation 4-8 from USEPA, 2002.
This equation is chemical-specific.

$$D_A = \frac{[(\theta_a^{10/3} \, x \, D_i \, x \, H) + (\theta_w^{10/3} \, x \, D_w)) / n^2]}{((\rho_b \, x \, K_d) + \theta_w + (\theta_a \, x \, H))}$$

Chemical name: **1,2,4-Trimethylbenzene**

Variable	Value	Units	Description
θ_a =	0.17	L_{air}/L_{soil}	default
θ_w =	0.26	L_{water}/L_{soil}	default
D_i =	**7.50E-02**	cm^2/s	**chemical-specific from VF table**
D_w =	**7.10E-06**	cm^2/s	**chemical-specific from VF table**
H	**2.30E-01**	unitless	**chemical-specific from VF table**
n =	0.43	L_{pore}/L_{soil}	default
ρ_b =	1.5	g/cm^3	default
K_d =	**22**	cm^3/g	**chemical-specific from VF table**
K_{oc} =	**3700.0**	cm^3/g	**chemical-specific from VF table**
f_{oc} =	0.0015	g/g	

D_A = 7.6E-06 cm^2/s

VF (soil only) values for commercial/industrial worker, adult resident and child resident were calculated using the following equations from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. USEPA, 2002. Equation 4-8 from USEPA, 2002

$$VF = \frac{Q}{C_{vol}} \; x \; \frac{(3.14 \, x \, D_A \, x \, T)^{1/2} \, x \, CF}{2 \, x \, \rho_b \, x \, D_A}$$

Variable	Value	Units	Description
Q/C_{vol} =	81.85	g/m^2-s)/kg/m^3	calculated below
D_A =	7.6E-06	cm^2/s	chemical specific - calculated above
T =	**756,864,000**	seconds	**Receptor-specific exposure interval (T= 24 yrs*365 days/yr*24hr/day*60 min/hr*60 sec/min)**
CF =	1.00E-04	m^2/cm^2	default
ρ_b =	1.5	g/cm^3	default

VF = 4.81E+04 m^3/kg

From Exhibit D-3 from USEPA 2002:

$$Q / C_{vol} = A \, x \, \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	14.9421		Site-specific value - see tab D-3 for values
B =	17.9869		Site-specific value - see tab D-3 for values
C =	205.1782		Site-specific value - see tab D-3 for values
A_s =	0.5	acres	Residential exposure

Q/C_{vol} = 81.85 g/m^2-s/kg/m^3

Appendix A-6
Table 4
VF Calculation - Naphthalene Adult Resident
Bulk Fuels Facility, Kirtland Air Force Base

Site Name: KAFB, BFF

D_A values calculated using the following equation and values from the Supplemental Guidance for Developing Soil Screening Levels at Superfund Sites. OSWER 9355.4-24. USEPA, 2002.
Equation 4-8 from USEPA, 2002.
This equation is chemical-specific.

$$D_A = \frac{[((\theta_a^{10/3} x D_i x H) + (\theta_w^{10/3} x D_w))/n^2]}{((\rho_b x K_d) + \theta_w + (\theta_a x H))}$$

Chemical name: **Naphthalene**

Variable	Value	Units	Description
θ_a =	0.17	L_{air}/L_{soil}	default
θ_w =	0.26	L_{water}/L_{soil}	default
D_i =	**5.90E-02**	cm^2/s	**chemical-specific from VF table**
D_w =	**7.50E-06**	cm^2/s	**chemical-specific from VF table**
H	**2.00E-02**	unitless	**chemical-specific from VF table**
n =	0.43	L_{pore}/L_{soil}	default
ρ_b =	1.5	g/cm^3	default
K_d =	**3.1**	cm^3/g	**chemical-specific from VF table**
K_{oc} =	**2000.0**	cm^3/g	**chemical-specific from VF table**
f_{oc} =	0.0015	g/g	

D_A = 3.6E-06 cm^2/s

VF (soil only) values for commercial/industrial worker, adult resident and child resident were calculated using the following equations from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. USEPA, 2002. Equation 4-8 from USEPA, 2002

$$VF = \frac{Q}{C_{vol}} \; x \; \frac{(3.14 x D_A x T)^{1/2} x CF}{2 x \rho_b x D_A}$$

Variable	Value	Units	Description
Q/C_{vol} =	81.85	g/m^2-s)/kg/m³	calculated below
D_A =	3.6E-06	cm^2/s	chemical specific - calculated above
T =	**756,864,000**	seconds	**Receptor-specific exposure interval (T= 24 yrs*365 days/yr*24hr/day*60 min/hr*60 sec/min)**
CF =	1.00E-04	m^2/cm^2	default
ρ_b =	1.5	g/cm^3	default

VF = 6.98E+04 m^3/kg

From Exhibit D-3 from USEPA 2002:

$$Q/C_{vol} = A \, x \, \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	14.9421		Site-specific value - see tab D-3 for values
B =	17.9869		Site-specific value - see tab D-3 for values
C =	205.1782		Site-specific value - see tab D-3 for values
A_s =	0.5	acres	Residential exposure

Q/C_{vol} = 81.85 g/m^2-s/kg/m^3

Appendix A-6
Table 5
VF Calculation - 124-TMB Child Resident
Bulk Fuels Facility, Kirtland Air Force Base

Site Name: KAFB, BFF

D_A values calculated using the following equation and values from the Supplemental Guidance for Developing Soil Screening Levels at Superfund Sites. OSWER 9355.4-24. USEPA, 2002.
Equation 4-8 from USEPA, 2002.
This equation is chemical-specific.

$$D_A = \frac{[(\theta_a^{10/3} \, x \, D_i \, x \, H) + (\theta_w^{10/3} \, x \, D_w)) / n^2]}{((\rho_b \, x \, K_d) + \theta_w + (\theta_a \, x \, H))}$$

Chemical name: **1,2,4-Trimethylbenzene**

Variable	Value	Units	Description
θ_a =	0.17	L_{air}/L_{soil}	default
θ_w =	0.26	L_{water}/L_{soil}	default
D_i =	**7.50E-02**	cm^2/s	**chemical-specific from VF table**
D_w =	**7.10E-06**	cm^2/s	**chemical-specific from VF table**
H	**2.30E-01**	unitless	**chemical-specific from VF table**
n =	0.43	L_{pore}/L_{soil}	default
ρ_b =	1.5	g/cm^3	default
K_d =	**22**	cm^3/g	**chemical-specific from VF table**
K_{oc} =	**3700.0**	cm^3/g	**chemical-specific from VF table**
f_{oc} =	0.0015	g/g	

D_A = 7.6E-06 cm^2/s

VF (soil only) values for commercial/industrial worker, adult resident and child resident were calculated using the following equations from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. USEPA, 2002.

$$VF = \frac{Q}{C_{vol}} \; x \; \frac{(3.14 \, x \, D_A \, x \, T)^{1/2} \, x \, CF}{2 \, x \, \rho_b \, x \, D_A}$$

Variable	Value	Units	Description
Q/C_{vol} =	81.85	g/m^2-s)/kg/m^3	calculated below
D_A =	7.6E-06	cm^2/s	chemical specific - calculated above
T =	**189,216,000**	seconds	**Receptor-specific exposure interval (T= 6 yrs*365 days/yr*24hr/day*60 min/hr*60 sec/min)**
CF =	1.00E-04	m^2/cm^2	default
ρ_b =	1.5	g/cm^3	default

VF = 2.41E+04 m^3/kg

From Exhibit D-3 from USEPA 2002:

$$Q / C_{vol} = A \, x \, \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	14.9421		Site-specific value - see tab D-3 for values
B =	17.9869		Site-specific value - see tab D-3 for values
C =	205.1782		Site-specific value - see tab D-3 for values
A_s =	0.5	acres	Residential exposure

Q/C_{vol} = 81.85 g/m^2-s/kg/m^3

Appendix A-6
Table 6
VF Calculation - Naphthalene Child Resident
Bulk Fuels Facility, Kirtland Air Force Base

Site Name: KAFB, BFF

D_A values calculated using the following equation and values from the Supplemental Guidance for Developing Soil Screening Levels at Superfund Sites. OSWER 9355.4-24. USEPA, 2002.
Equation 4-8 from USEPA, 2002.
This equation is chemical-specific.

$$D_A = \frac{[(\theta_a^{10/3} \, x \, D_i \, x \, H) + (\theta_w^{10/3} \, x \, D_w)) / n^2]}{((\rho_b \, x \, K_d) + \theta_w + (\theta_a \, x \, H))}$$

Chemical name: **Naphthalene**

Variable	Value	Units	Description
θ_a =	0.17	L_{air}/L_{soil}	default
θ_w =	0.26	L_{water}/L_{soil}	default
D_i =	**5.90E-02**	cm^2/s	**chemical-specific from VF table**
D_w =	**7.50E-06**	cm^2/s	**chemical-specific from VF table**
H	**2.00E-02**	unitless	**chemical-specific from VF table**
n =	0.43	L_{pore}/L_{soil}	default
ρ_b =	1.5	g/cm^3	default
K_d =	**3.1**	cm^3/g	**chemical-specific from VF table**
K_{oc} =	**2000.0**	cm^3/g	**chemical-specific from VF table**
f_{oc} =	0.0015	g/g	

D_A = 3.6E-06 cm^2/s

VF (soil only) values for commercial/industrial worker, adult resident and child resident were calculated using the following equations from the Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. USEPA, 2002.

$$VF = \frac{Q}{C_{vol}} \; x \; \frac{(3.14 \, x \, D_A \, x \, T)^{1/2} \, x \, CF}{2 \, x \, \rho_b \, x \, D_A}$$

Variable	Value	Units	Description
Q/C_{vol} =	81.85	g/m^2-s)/kg/m^3	calculated below
D_A =	3.6E-06	cm^2/s	chemical specific - calculated above
T =	**189,216,000**	seconds	**Receptor-specific exposure interval (T= 6 yrs*365 days/yr*24hr/day*60 min/hr*60 sec/min)**
CF =	1.00E-04	m^2/cm^2	default
ρ_b =	1.5	g/cm^3	default

VF = 3.49E+04 m^3/kg

From Exhibit D-3 from USEPA 2002:

$$Q / C_{vol} = A \, x \, \exp\left[\frac{(\ln A_s - B)^2}{C}\right]$$

Variable	Value	Units	Description
A =	14.9421		Site-specific value - see tab D-3 for values
B =	17.9869		Site-specific value - see tab D-3 for values
C =	205.1782		Site-specific value - see tab D-3 for values
A_s =	0.5	acres	Residential exposure

Q/C_{vol} = 81.85 g/m^2-s/kg/m^3

Appendix A-7
Table 1
Estimation of Dermal Absorbed Dose for Inorganic COPCs in Groundwater
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

FOR INORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Inorganic Chemicals from Aqueous Media

Enter the Following Exposure Conditions: for site specific conditions, change values for A through AT (Given are default values from Table 8-6)

Conc =	0.001	mg/cm3 (default value for purpose of illustration)
SA=	18000	cm2
t_event =	0.58	hr/event (35 minutes/event)
EV =	1	event/day
EF =	350	days/yr
ED =	24	years
BW =	70	kg
AT =	25550	days

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV
Drinking (mg/day) = Conc * IR * ABSIG

IR: Ingestion rate of drinking water   IR =   2000 (cm3/day = L/day * 1000 cm3/L)
ABSIG: Absorption fraction in GI tract   Chemical specific
Condition for screening: "Y" when Dermal is 10% of Drinking

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/r Q =   1135500 (cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

Refer to Appendix A for equations to evaluate DA_event and DAD

CHEMICAL	Kp (cm/hr)	Source of Kp (exp or default)	Conc (mg/cm3)	DA_event (mg/cm2-event)	DAD (mg/kg-day)	ABSGI (chemical specific)	Screening	Chemicals to be assessed	Derm/ Total Dose
Manganese	1.0E-03	default	3.80E-04	2.2E-07	1.9E-05	4%	13.13%	Y	0.00%
added metals									
Iron	1.0E-03	default	3.16E-04	1.8E-07	1.6E-05	100.0%	0.53%	N	0.00%
Sodium	1.0E-03	default	2.64E-02	1.5E-05	1.3E-03	100.0%	0.53%	N	0.00%

Appendix A-7
Table 2
Estimation of Dermal Absorbed Dose for Inorganic COPCs in Groundwater
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

FOR INORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Inorganic Chemicals from Aqueous Media

Enter the Following Exposure Conditions: for site specific conditions, change values for A through AT (Given are default values from Table 8-6)

Conc =	0.001	mg/cm3 (default value for purpose of illustration)
SA=	6600	cm2
t_event =	1.00	hr/event (60 minutes/event) - default value for child
EV =	1	event/day
EF =	350	days/yr
ED =	6	years
BW =	15	kg
AT =	25550	days

Default conditions for screening purposes:

Compare Dermal to Drinking: Child bathing for 1hour/day, compared to drinking 1L water/day

Dermal (mg/day) = DA_event * A * EV
Drinking (mg/day) = Conc * IR * ABSIG

IR: Ingestion rate of drinking water — IR = 1000 (cm3/day = L/day * 1000 cm3/L)
ABSIG: Absorption fraction in GI tract — Chemical specific
Condition for screening: "Y" when Dermal is 10% of Drinking

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/r Q = 1135500 (cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

Refer to Appendix A for equations to evaluate DA_event and DAD

CHEMICAL	Kp (cm/hr)	Source of Kp (exp or default)	Conc (mg/cm3)	DA_event (mg/cm2-event)	DAD (mg/kg-day)	ABSGI (chemical specific)	Screening	Chemicals to be assessed	Derm/ Total Dose
Manganese	1.0E-03	default	3.80E-04	3.8E-07	1.4E-05	4%	16.50%	Y	0.00%
added metals									
Iron	1.0E-03	default	3.16E-04	3.2E-07	1.1E-05	100.0%	0.66%	N	0.00%
Sodium	1.0E-03	default	2.64E-02	2.6E-05	9.5E-04	100.0%	0.66%	N	0.00%

Appendix A-7
Table 3
Estimation of Dermal Absorbed Dose for Inorganic COPCs in Groundwater
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

FOR INORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Inorganic Chemicals from Aqueous Media

Enter the Following Exposure Conditions: for site specific conditions, change values for A through AT (Given are default values from Table 8-6)

Conc =	0.001	mg/cm3 (default value for purpose of illustration)
SA=	4123	cm2
t_event =	0.25	hr/event (15 minutes/event)
EV =	1	event/day
EF =	225	days/yr
ED =	25	years
BW =	70	kg
AT =	25550	days

Default conditions for screening purposes:

Compare Dermal to Drinking:

Dermal (mg/day) = DA_event * A * EV
Drinking (mg/day) = Conc * IR * ABSIG

IR: Ingestion rate of drinking water IR = 2000 (cm3/day = L/day * 1000 cm3/L)
ABSIG: Absorption fraction in GI tract Chemical specific
Condition for screening: "Y" when Dermal is 10% of Drinking

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/r Q = 1135500 (cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

Refer to Appendix A for equations to evaluate DA_event and DAD

CHEMICAL	Kp (cm/hr)	Source of Kp (exp or default)	Conc (mg/cm3)	DA_event (mg/cm2-event)	DAD (mg/kg-day)	ABSGI (chemical specific)	Screening	Chemicals to be assessed	Derm/ Total Dose
Manganese	1.0E-03	default	3.80E-04	9.5E-08	1.2E-06	4%	1.29%	N	0.00%
added metals									
Iron	1.0E-03	default	3.16E-04	7.9E-08	1.0E-06	100.0%	0.05%	N	0.00%
Sodium	1.0E-03	default	2.64E-02	6.6E-06	8.6E-05	100.0%	0.05%	N	0.00%

Appendix A-7
Table 4
Estimation of Dermal Absorbed Dose for Organic COPCs in Groundwater
Future Adult Resident
Bulk Fuel Facility, Kirtland Air Force Base

FOR ORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Organic Chemicals from Aqueous Media (latest version 04/01)

Enter the Following Exposure Conditions: for site specific conditions, change values in Cells I8-I18
The default exposure conditions used in this spreadsheet assume exposure duration for
carcinogenic effects of chemicals in water through showering

Concentration (mg/L*L/1000 cm3):	Conc =	1E-03 mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm = 1 ug/cm3 = 1000 ppb)
Area exposed (cm2):	SA =	18000 cm2
Event time (hr/event):	t_event =	0.58 hr/event (35 minutes/event)
Event frequency (events/day):	EV =	1.0 event/day
Exposure frequency (days/year):	EF =	350.0 days/yr
Exposure duration (years):	ED =	24.0 years
for carcinogenic effects, ED = 30 years (used in this spreadsheet)		
for noncarcinogenic effects, ED = 9 years		
Body weight (kg):	BW =	70.0 kg
Averaging time (days):	AT =	25550 days
for carcinogenic effects, AT=70 years (25,550 days)		
for noncarcinogenic effects, AT=ED (in days)		
Skin thickness (assumed to be 10 um):	lsc =	1.00E-03 cm

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV	IR =	2000 (cm3/day = L/day * 1000 cm3/L)
Drinking (mg/day) = Conc * IR * ABSIG	ABSGI =	1.0 (assumed 100% GI absorption)

IR: Ingestion rate of drinking water
ABSIG: Absorption fraction in GI tract

Refer to Appendix A for equations to evaluate DA_event and DAD

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/min) Q = 1135500.0 (cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data
as evaluated using MLAB (Civilized Software, Bethesda, MD)
95% LCI and UCI are evaluated using STATA

(**): halogenated chemicals.
Note:

		CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Special Chemicals (*) or (**)	Derm/ Drink	Chem Assess	Derm/ Total Dose	B	tau (hr)	t_star (hr)	FA	Conc (mg/cm3)	Kp used in DA_event	DA_event (mg/cm2-evt)
	17	Benzene	71432	78.1	2.13	5.9E-04	1.5E-02		3.7E-01		15%	Y	0%	0.1	0.29	0.70	1.0	5.7E-04	1.5E-02	9.6E-06
	35	Carbon disulfide	75150	80.0	2.24	6.9E-04	1.7E-02		4.3E-01		18%	Y	0%	0.1	0.30	0.72	1.0	4.4E-06	1.7E-02	8.6E-08
**	7(	Dichloroethane, 1,2-	107062	99.0	1.48	1.7E-04	4.2E-03		1.0E-01	**	5%	N	0%	0.0	0.38	0.92	1.0	5.4E-07	4.2E-03	3.0E-09
	109	Ethylbenzene	100414	106.2	3.15	1.9E-03	4.9E-02		1.2E+00		60%	Y	0%	0.2	0.42	1.01	1.0	1.0E-04	4.9E-02	6.9E-06
	133	Methyl ethyl ketone	78933	72.0	0.29	3.8E-05	9.6E-04		2.4E-02		1%	N	0%	0.0	0.27	0.65	1.0	1.2E-04	9.6E-04	1.2E-07
	143	Naphthalene	91203	128.2	3.30	1.8E-03	4.7E-02		1.2E+00		66%	Y	0%	0.2	0.56	1.34	1.0	1.0E-05	4.7E-02	7.3E-07
	193	Toluene	108883	92.1	2.73	1.2E-03	3.1E-02		7.8E-01		35%	Y	0%	0.1	0.35	0.84	1.0	7.0E-04	3.1E-02	2.7E-05
	209	Xylene, m-	108383	106.2	3.20	2.1E-03	5.3E-02		1.4E+00		65%	Y	0%	0.2	0.42	1.01	1.0	3.2E-04	5.3E-02	2.3E-05
Added																				
		n-Propylbenzene	103651	120.2	3.69		9.4E-02		3.7E-01		126%	Y	0%	0.4	0.50	1.21	1.0	7.6E-06	9.4E-02	1.1E-06
		1,2-Dibromoethane	106934	187.9	1.96		2.8E-03		3.7E-01		6%	N	0%	0.0	1.21	2.89	1.0	8.3E-06	2.8E-03	5.3E-08
		1,3,5-Trimethylbenzene	108678	120.2	3.42		6.2E-02		3.7E-01		83%	Y	0%	0.3	0.50	1.21	1.0	7.1E-06	6.2E-02	6.5E-07
		Xylene (Total)	1330207	106.2	3.16		5.0E-02		3.7E-01		61%	Y	0%	0.2	0.42	1.01	1.0	1.7E-04	5.0E-02	1.2E-05
		Acetone	67641	58.1	-0.24		5.1E-04		3.7E-01		0%	N	0%	0.0	0.23	0.54	1.0	3.3E-04	5.1E-04	1.7E-07
		1-Methylnaphthalene	90120	142.2	3.87		9.3E-02		3.7E-01		144%	Y	0%	0.4	0.67	1.60	1.0	2.7E-06	9.3E-02	4.4E-07
		2-Methylnaphthalene	91576	142.2	3.86		9.2E-02		3.7E-01		142%	Y	0%	0.4	0.67	1.60	1.0	2.5E-06	9.2E-02	3.9E-07
		o-Xylene	95476	106.2	3.12		5.0E-02		3.7E-01		61%	Y	0%	0.2	0.42	1.01	1.0	1.4E-04	5.0E-02	9.2E-06
		1,2,4-Trimethylbenzene	95636	120.2	3.63		8.6E-02		3.7E-01		115%	Y	0%	0.4	0.50	1.21	1.0	1.8E-05	8.6E-02	2.4E-06
		Isopropylbenzene	98828	120.2	3.66		9.0E-02		3.7E-01		121%	Y	0%	0.4	0.50	1.21	1.0	7.6E-06	9.0E-02	1.0E-06
		Acetophenone	98862	120.15	1.58		3.7E-03		3.7E-01		5%	N	0%	0.0	0.50	1.21	1.0	3.5E-04	3.7E-03	1.9E-06
		p-Isopropyltoluene	99876	134.2	4.10		1.5E-01		3.7E-01		216%	Y	1%	0.7	0.60	2.37	1.0	3.1E-06	1.5E-01	7.4E-07
		2-Hexanone	591786	100.2	1.38		3.6E-03		3.7E-01		4%	N	0%	0.0	0.39	0.93	1.0	1.0E-05	3.6E-03	4.6E-08
		2-Methylphenol	95487	108.1	1.95		7.7E-03		3.7E-01		10%	N	0%	0.0	0.43	1.03	1.0	2.2E-06	7.7E-03	2.3E-08
		3&4-Methylphenol		108.1	1.96		7.8E-03		3.7E-01		10%	N	0%	0.0	0.43	1.03	1.0	2.4E-06	7.8E-03	2.5E-08
		4-Methyl-2-Pentanone	108101	100.2	1.31		3.2E-03		3.7E-01		4%	N	0%	0.0	0.39	0.93	1.0	8.6E-06	3.2E-03	3.6E-08

Appendix A-7
Table 5
Estimation of Dermal Absorbed Dose for Organic COPCs in Groundwater
Future Child Resident
Bulk Fuel Facility, Kirtland Air Force Base

FOR ORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Organic Chemicals from Aqueous Media (latest version 04/01)

Enter the Following Exposure Conditions: for site specific conditions, change values in Cells I8-I18
The default exposure conditions used in this spreadsheet assume exposure duration for
carcinogenic effects of chemicals in water through showering

Concentration (mg/L*L/1000 cm3):	Conc =	1E-03	mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm = 1 ug/cm3 = 1000 ppb)	
Area exposed (cm2):	SA =	6600	cm2
Event time (hr/event):	t_event =	1.00	hr/event (60 minutes/event) - default for child
Event frequency (events/day):	EV =	1.0	event/day
Exposure frequency (days/year):	EF =	350.0	days/yr
Exposure duration (years):	ED =	6.0	years
for carcinogenic effects, ED = 30 years (used in this spreadsheet)			
for noncarcinogenic effects, ED = 9 years			
Body weight (kg):	BW =	15.0	kg
Averaging time (days):	AT =	25550	days
for carcinogenic effects, AT=70 years (25,550 days)			
for noncarcinogenic effects, AT=ED (in days)			
Skin thickness (assumed to be 10 um):	lsc =	1.00E-03	cm

Default conditions for screening purposes:

Compare Dermal to Drinking: Child bathing for 1 hour/day, compared to drinking 1L water/day

Dermal (mg/day) = DA_event * A * EV	IR =	1000	(cm3/day = L/day * 1000 cm3/L)
Drinking (mg/day) = Conc * IR * ABSIG	ABSGI =	1.0	(assumed 100% GI absorption)

IR: Ingestion rate of drinking water
ABSIG: Absorption fraction in GI tract

Refer to Appendix A for equations to evaluate DA_event and DAD

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/min)	Q =	1135500.0	(cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data
as evaluated using MLAB (Civilized Software, Bethesda, MD)
95% LCI and UCI are evaluated using STATA

(**): halogenated chemicals.
Note:

	CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Special Chemicals (*) or (**)	Derm/ Drink	Chem Assess	Derm/ Total Dose	B	tau (hr)	t_star (hr)	FA	Conc (mg/cm3)	Kp used in DA_event	DA_event (mg/cm2-evt)
17	Benzene	71432	78.1	2.13	5.9E-04	1.5E-02		3.7E-01		15%	Y	0%	0.1	0.29	0.70	1.0	5.7E-04	1.5E-02	1.3E-05
35	Carbon disulfide	75150	80.0	2.24	6.9E-04	1.7E-02		4.3E-01		18%	Y	0%	0.1	0.30	0.72	1.0	4.4E-06	1.7E-02	1.2E-07
** 7(	Dichloroethane, 1,2-	107062	99.0	1.48	1.7E-04	4.2E-03		1.0E-01	**	5%	N	0%	0.0	0.38	0.92	1.0	5.4E-07	4.2E-03	4.0E-09
109	Ethylbenzene	100414	106.2	3.15	1.9E-03	4.9E-02		1.2E+00		58%	Y	0%	0.2	0.42	1.01	1.0	1.0E-04	4.9E-02	9.0E-06
133	Methyl ethyl ketone	78933	72.0	0.29	3.8E-05	9.6E-04		2.4E-02		1%	N	0%	0.0	0.27	0.65	1.0	1.2E-04	9.6E-04	1.7E-07
143	Naphthalene	91203	128.2	3.30	1.8E-03	4.7E-02		1.2E+00		64%	Y	0%	0.2	0.56	1.34	1.0	1.0E-05	4.7E-02	9.6E-07
193	Toluene	108883	92.1	2.73	1.2E-03	3.1E-02		7.8E-01		34%	Y	0%	0.1	0.35	0.84	1.0	7.0E-04	3.1E-02	3.7E-05
209	Xylene, m-	108383	106.2	3.20	2.1E-03	5.3E-02		1.4E+00		63%	Y	0%	0.2	0.42	1.01	1.0	3.2E-04	5.3E-02	3.0E-05
Added																			
	n-Propylbenzene	103651	120.2	3.69		9.4E-02				121%	Y	0%	0.4	0.50	1.21	1.0	7.6E-06	9.4E-02	1.4E-06
	1,2-Dibromoethane	106934	187.9	1.96		2.8E-03				6%	N	0%	0.0	1.21	2.89	1.0	8.3E-06	2.8E-03	7.0E-08
	1,3,5-Trimethylbenzene	108678	120.2	3.42		6.2E-02				80%	Y	0%	0.3	0.50	1.21	1.0	7.1E-06	6.2E-02	8.6E-07
	Xylene (Total)	1330207	106.2	3.16		5.0E-02				59%	Y	0%	0.2	0.42	1.01	1.0	1.7E-04	5.0E-02	1.5E-05
	Acetone	67641	58.1	-0.24		5.1E-04				0%	N	0%	0.0	0.23	0.54	1.0	3.3E-04	5.1E-04	2.4E-07
	1-Methylnaphthalene	90120	142.2	3.87		9.3E-02				139%	Y	0%	0.4	0.67	1.60	1.0	2.7E-06	9.3E-02	5.7E-07
	2-Methylnaphthalene	91576	142.2	3.86		9.2E-02				137%	Y	0%	0.4	0.67	1.60	1.0	2.5E-06	9.2E-02	5.1E-07
	o-Xylene	95476	106.2	3.12		5.0E-02				59%	Y	0%	0.2	0.42	1.01	1.0	1.4E-04	5.0E-02	1.2E-05
	1,2,4-Trimethylbenzene	95636	120.2	3.63		8.6E-02				111%	Y	0%	0.4	0.50	1.21	1.0	1.8E-05	8.6E-02	3.1E-06
	Isopropylbenzene	98828	120.2	3.66		9.0E-02				116%	Y	0%	0.4	0.50	1.21	1.0	7.6E-06	9.0E-02	1.3E-06
	Acetophenone	98862	120.15	1.58		3.7E-03				5%	N	0%	0.0	0.50	1.21	1.0	3.5E-04	3.7E-03	2.5E-06
	p-Isopropyltoluene	99876	134.2	4.10		1.5E-01				208%	Y	0%	0.7	0.60	2.37	1.0	3.1E-06	1.5E-01	9.7E-07
	2-Hexanone	591786	100.2	1.38		3.6E-03				4%	N	0%	0.0	0.39	0.93	1.0	1.0E-05	3.6E-03	6.3E-08
	2-Methylphenol	95487	108.1	1.95		7.7E-03				9%	N	0%	0.0	0.43	1.03	1.0	2.2E-06	7.7E-03	3.0E-08
	3&4-Methylphenol		108.1	1.96		7.8E-03				9%	N	0%	0.0	0.43	1.03	1.0	2.4E-06	7.8E-03	3.3E-08
	4-Methyl-2-Pentanone	108101	100.2	1.31		3.2E-03				4%	N	0%	0.0	0.39	0.93	1.0	8.6E-06	3.2E-03	4.9E-08

Appendix A-7
Table 6
Estimation of Dermal Absorbed Dose for Organic COPCs in Groundwater
Future Routine Worker
Bulk Fuel Facility, Kirtland Air Force Base

FOR ORGANIC CHEMICALS IN WATER (latest version 04/01)

Worksheet to Calculate Dermal Absorption of Organic Chemicals from Aqueous Media (latest version 04/01)

Enter the Following Exposure Conditions: for site specific conditions, change values in Cells I8-I18
The default exposure conditions used in this spreadsheet assume exposure duration for
carcinogenic effects of chemicals in water through showering

Concentration (mg/L*L/1000 cm3):	Conc =	1E-03	mg/cm3 (default value for purpose of illustration)
Input site specific concentrations in Column marked "Conc"		= 1 mg/L (1 ppm = 1 ug/cm3 = 1000 ppb)	
Area exposed (cm2):	SA =	4123	cm2
Event time (hr/event):	t_event =	0.25	hr/event (15 minutes/event)
Event frequency (events/day):	EV =	1.0	event/day
Exposure frequency (days/year):	EF =	225.0	days/yr
Exposure duration (years):	ED =	25.0	years
for carcinogenic effects, ED = 30 years (used in this spreadsheet)			
for noncarcinogenic effects, ED = 9 years			
Body weight (kg):	BW =	70.0	kg
Averaging time (days):	AT =	25550	days
for carcinogenic effects, AT=70 years (25,550 days)			
for noncarcinogenic effects, AT=ED (in days)			
Skin thickness (assumed to be 10 um):	lsc =	1.00E-03	cm

Default conditions for screening purposes:

Compare Dermal to Drinking: Adults showering for 35 minutes/day, compared to drinking 2L water/day

Dermal (mg/day) = DA_event * A * EV	IR =	2000	(cm3/day = L/day * 1000 cm3/L)
Drinking (mg/day) = Conc * IR * ABSIG	ABSGI =	1.0	(assumed 100% GI absorption)

IR: Ingestion rate of drinking water
ABSIG: Absorption fraction in GI tract

Refer to Appendix A for equations to evaluate DA_event and DAD

Compare Dermal to Total dose exposed during adult showering assuming 5 gal/min of water flow rate

Total dose (mg/day) = Q * T_event * EV

Q: Shower flow rate (5-15 gal/min; here using 5 gal/min) Q = 1135500.0 (cm3/hr = gal/min * 3.785 gal/l * 60 min/hr *1000 cm3/hr)

(*): outside of the Effective Prediction Domain (EPD) determined by the Flynn's measured Kp data
as evaluated using MLAB (Civilized Software, Bethesda, MD)
95% LCI and UCI are evaluated using STATA

(**): halogenated chemicals.
Note:

	CHEMICAL	CAS No.	MWT	logKow	Kp 95% LCI	Kp (cm/hr) predicted	Kp (cm/hr) measured	Kp 95% UCI	Special Chemicals (*) or (**)
17	Benzene	71432	78.1	2.13	5.9E-04	1.5E-02		3.7E-01	
35	Carbon disulfide	75150	80.0	2.24	6.9E-04	1.7E-02		4.3E-01	
** 7(	Dichloroethane, 1,2-	107062	99.0	1.48	1.7E-04	4.2E-03		1.0E-01	**
109	Ethylbenzene	100414	106.2	3.15	1.9E-03	4.9E-02		1.2E+00	
133	Methyl ethyl ketone	78933	72.0	0.29	3.8E-05	9.6E-04		2.4E-02	
143	Naphthalene	91203	128.2	3.30	1.8E-03	4.7E-02		1.2E+00	
193	Toluene	108883	92.1	2.73	1.2E-03	3.1E-02		7.8E-01	
209	Xylene, m-	108383	106.2	3.20	2.1E-03	5.3E-02		1.4E+00	
Added									
	n-Propylbenzene	103651	120.2	3.69		9.4E-02		3.7E-01	
	1,2-Dibromoethane	106934	187.9	1.96		2.8E-03		3.7E-01	
	1,3,5-Trimethylbenzene	108678	120.2	3.42		6.2E-02		3.7E-01	
	Xylene (Total)	1330207	106.2	3.16		5.0E-02		3.7E-01	
	Acetone	67641	58.1	-0.24		5.1E-04		3.7E-01	
	1-Methylnaphthalene	90120	142.2	3.87		9.3E-02		3.7E-01	
	2-Methylnaphthalene	91576	142.2	3.86		9.2E-02		3.7E-01	
	o-Xylene	95476	106.2	3.12		5.0E-02		3.7E-01	
	1,2,4-Trimethylbenzene	95636	120.2	3.63		8.6E-02		3.7E-01	
	Isopropylbenzene	98828	120.2	3.66		9.0E-02		3.7E-01	
	Acetophenone	98862	120.15	1.58		3.7E-03		3.7E-01	
	p-Isopropyltoluene	99876	134.2	4.10		1.5E-01		3.7E-01	
	2-Hexanone	591786	100.2	1.38		3.6E-03		3.7E-01	
	2-Methylphenol	95487	108.1	1.95		7.7E-03		3.7E-01	
	3&4-Methylphenol		108.1	1.96		7.8E-03		3.7E-01	
	4-Methyl-2-Pentanone	108101	100.2	1.31		3.2E-03		3.7E-01	

	CHEMICAL	Derm/ Drink	Chem Assess	Derm/ Total Dose	B	tau (hr)	t_star (hr)	FA	Conc (mg/cm3)	Kp used in DA_event	DA_event (mg/cm2-evt)
17	Benzene	2%	N	0%	0.1	0.29	0.70	1.0	5.7E-04	1.5E-02	6.3E-06
35	Carbon disulfide	3%	N	0%	0.1	0.30	0.72	1.0	4.4E-06	1.7E-02	5.7E-08
** 7(	Dichloroethane, 1,2-	1%	N	0%	0.0	0.38	0.92	1.0	5.4E-07	4.2E-03	1.9E-09
109	Ethylbenzene	9%	N	0%	0.2	0.42	1.01	1.0	1.0E-04	4.9E-02	4.5E-06
133	Methyl ethyl ketone	0%	N	0%	0.0	0.27	0.65	1.0	1.2E-04	9.6E-04	8.1E-08
143	Naphthalene	10%	N	0%	0.2	0.56	1.34	1.0	1.0E-05	4.7E-02	4.8E-07
193	Toluene	5%	N	0%	0.1	0.35	0.84	1.0	7.0E-04	3.1E-02	1.8E-05
209	Xylene, m-	10%	N	0%	0.2	0.42	1.01	1.0	3.2E-04	5.3E-02	1.5E-05
Added											
	n-Propylbenzene	19%	Y	0%	0.4	0.50	1.21	1.0	7.6E-06	9.4E-02	7.0E-07
	1,2-Dibromoethane	1%	N	0%	0.0	1.21	2.89	1.0	8.3E-06	2.8E-03	3.5E-08
	1,3,5-Trimethylbenzene	13%	Y	0%	0.3	0.50	1.21	1.0	7.1E-06	6.2E-02	4.3E-07
	Xylene (Total)	9%	N	0%	0.2	0.42	1.01	1.0	1.7E-04	5.0E-02	7.7E-06
	Acetone	0%	N	0%	0.0	0.23	0.54	1.0	3.3E-04	5.1E-04	1.1E-07
	1-Methylnaphthalene	22%	Y	0%	0.4	0.67	1.60	1.0	2.7E-06	9.3E-02	2.9E-07
	2-Methylnaphthalene	21%	Y	0%	0.4	0.67	1.60	1.0	2.5E-06	9.2E-02	2.5E-07
	o-Xylene	9%	N	0%	0.2	0.42	1.01	1.0	1.4E-04	5.0E-02	6.0E-06
	1,2,4-Trimethylbenzene	17%	Y	0%	0.4	0.50	1.21	1.0	1.8E-05	8.6E-02	1.5E-06
	Isopropylbenzene	18%	Y	0%	0.4	0.50	1.21	1.0	7.6E-06	9.0E-02	6.7E-07
	Acetophenone	1%	N	0%	0.0	0.50	1.21	1.0	3.5E-04	3.7E-03	1.3E-06
	p-Isopropyltoluene	33%	Y	0%	0.7	0.60	2.37	1.0	3.1E-06	1.5E-01	4.9E-07
	2-Hexanone	1%	N	0%	0.0	0.39	0.93	1.0	1.0E-05	3.6E-03	3.0E-08
	2-Methylphenol	1%	N	0%	0.0	0.43	1.03	1.0	2.2E-06	7.7E-03	1.5E-08
	3&4-Methylphenol	1%	N	0%	0.0	0.43	1.03	1.0	2.4E-06	7.8E-03	1.7E-08
	4-Methyl-2-Pentanone	1%	N	0%	0.0	0.39	0.93	1.0	8.6E-06	3.2E-03	2.4E-08

Appendix A-8
Trench Model Inputs, BFF Site, KAFB

For Effective Diffusion Coefficients

Hv	12108	cm
ACvad	0.25	cm3/cm3
PorVad	0.44	cm3/cm3
T	**54.5**	F
T	286	K
R	8.20E-05	atm-m3/mol-K

For Emission Flux and Concentration in Trench

CF1	1.00E-03	L/cm3
CF2	1.00E+04	cm2/m2
CF3	3600	s/hr
Lgw	**419**	ft
Lgw	12771	cm
F	**1**	
ACH	2	hr-1

Trench dimensions

Length	**8**	ft
	2.44	m
Width	**3**	ft
	0.91	m
Depth	**15**	ft
	4.57	m
Width/Depth	0.20	

Monitoring wells used in the HHRA had wells screened as shallow as 434 ft bgs; therefore, the distance between the bottom of a trench and groundwater (Lgw) is conservatively set at 419 ft.

T = 54.5 F, based on site location and Figure 8 in *User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings* (EQM, Inc. 2004).

Appendix A-8
Trench Model Output, BFF Site, KAFB

Table 3.7 Exposure-point concentrations (inhalation) for construction/utility workers in a trench: Groundwater greater than 15 feet deep	CAS No.	Molecular Weight MWi g/mol	Henry's Law Constant Hi atm-m3/mol	Diffusion Coefficient in Air Dair cm2/s	Concentration of Contaminant in Groundwater Cgw ug/L	Volatilization Factor VF L/m3	Concentration of Contaminant in Trench Ctrench ug/m3	Concentration of Contaminant in Trench Ctrench mg/m3
TCL Volatile Organic Compounds (VOCs)								
Acetone	67-64-1	58.08	3.88E-05	1.24E-01	3.26E+02	3.33E-06	1.09E-03	1.09E-06
Benzene	71-43-2	78.11	5.55E-03	8.80E-02	5.67E+02	3.39E-04	1.92E-01	1.92E-04
2-Butanone (methyl ethyl ketone)	78-93-3	72.11	5.59E-05	8.08E-02	1.17E+02	3.13E-06	3.66E-04	3.66E-07
Carbon disulfide	75-15-0	76.14	3.03E-02	1.04E-01	4.36E+00	2.18E-03	9.52E-03	9.52E-06
1,2-Dibromoethane	106-93-4	187.86	7.43E-04	4.31E-02	8.30E+00	2.22E-05	1.84E-04	1.84E-07
1,2-Dichloroethane	107-06-2	98.96	9.79E-04	1.04E-01	5.41E-01	7.06E-05	3.82E-05	3.82E-08
Ethylbenzene	100-41-4	106.17	7.88E-03	7.50E-02	1.02E+02	4.10E-04	4.18E-02	4.18E-05
2-Hexanone	591-78-6	100.16	9.32E-05	7.04E-02	9.95E+00	4.55E-06	4.52E-05	4.52E-08
Isopropylbenzene	98-82-8	120.19	1.16E+00	6.50E-02	7.58E+00	5.23E-02	3.96E-01	3.96E-04
4-Methyl-2-pentanone (methyl isobutyl ketone)	108-10-1	100.16	1.38E-04	7.50E-02	8.62E+00	7.17E-06	6.18E-05	6.18E-08
Toluene	108-88-3	92.14	6.64E-03	8.70E-02	7.03E+02	4.00E-04	2.81E-01	2.81E-04
Total Xylenes	1330-20-7	106.16	5.18E-03	6.85E-02	1.71E+02	2.46E-04	4.21E-02	4.21E-05
Other VOCs								
isopropyltoluene	99-87-6	134.22	1.10E-02	5.60E-02	3.09E+00	4.27E-04	1.32E-03	1.32E-06
n-propylbenzene	103-65-1	120.19	1.05E-02	6.03E-02	7.63E+00	4.39E-04	3.35E-03	3.35E-06
1,2,4-trimethylbenzene	95-63-6	120.19	6.16E-03	6.05E-02	1.84E+01	2.58E-04	4.75E-03	4.75E-06
1,3,5-trimethylbenzene	108-67-8	120.19	8.77E-03	6.02E-02	7.06E+00	3.66E-04	2.58E-03	2.58E-06
o-xylene	95-47-6	106.17	5.19E-03	8.70E-02	1.35E+02	3.13E-04	4.23E-02	4.23E-05
p-xylene	106-42-3	106.17	7.66E-03	7.69E-02	3.18E+02	4.08E-04	1.30E-01	1.30E-04
TCL Semivolatile Organic Compounds (SVOCs)								
Acetophenone	98-86-2	120.15	1.07E-05	6.00E-02	3.49E+02	4.45E-07	1.55E-04	1.55E-07
1-Methylnaphthalene	90-12-0	142.20	5.14E-04	5.28E-02	2.72E+00	1.88E-05	5.11E-05	5.11E-08
2-Methylnaphthalene	91-57-6	142.20	5.18E-04	5.24E-02	2.45E+00	1.88E-05	4.61E-05	4.61E-08
2-Methylphenol	95-48-7	108.14	1.20E-06	7.40E-02	2.19E+00	6.16E-08	1.35E-07	1.35E-10
3-Methylphenol	108-39-4	108.14	8.65E-07	7.40E-02	2.36E+00	4.44E-08	1.05E-07	1.05E-10
Naphthalene	91-20-3	128.17	4.83E-04	5.90E-02	9.98E+00	1.98E-05	1.97E-04	1.97E-07

Appendix A-9 Table 1
Results of Vapor Intrusion Modeling Using Soil Gas COPC EPCs, for Current Exposure Scenario
Site Name: Bulk Fuels Facility, Kirtland Air Force Base

CAS Number	Chemical [a]	Maximum Concentration (ppbv)	Location of Maximum Concentration (Sample ID)	Location of Maximum Concentration	Sample Date of Maximum Concentration	Start Depth	Average of Start Depths (ft)	95% UCL (ppbv) [b]	Molecular Weight	Concentration Used for JEM (µg/m^3) [c]	JEM Indoor Air Results (µg/m^3) [d]
75-27-4	Bromodichloromethane	8.20E+03	VA0696-FQ	SVMW-03-050	19-Oct-11	50	43	8.20E+03	163.83	5.49E+04	5.27
71-43-2	Benzene	2.20E+05	VA0696-FQ	SVMW-03-050	19-Oct-11	50		7.87E+04	78.11	2.51E+05	66.1
110-54-3	n-Hexane	5.20E+05	VA0696-FQ	SVMW-03-050	19-Oct-11	50		2.01E+05	86.18	7.08E+05	373
67-64-1	Acetone	6.00E+05	VA2301	SVMW-11-050	27-Feb-13	50		1.25E+05	58.08	2.97E+05	106
75-09-2	Methylene chloride	5.40E+03	VA2100	KAFB-106119-025	12-Dec-12	15		1.98E+03	84.93	6.88E+03	2.05

Shallowest soil gas results from three sampling locations (SVMW-03 [50-52.5 ft bgs], SVMW-11 [50-52.5 ft bgs], and KAFB-106119 [15-25 ft bgs]) within 100 ft of Bldg. 1033, for Rounds 03-10

[a] Chemicals of potential concern (COPC) from Appendix N-2b Table 4, and represent risk (≥ 1E-6) and hazard (≥ 1.0) drivers at the three locations listed above.

[b] 95% UCL on the mean estimated using EPA ProUCL software, for eight rounds of sampling at 3 locations within 100 ft of Bldg 1033 (see Appendix A-3 for ProUCL output).

[c] 95% UCL concentration converted from parts per billion by volume (ppbv) to µg/m^3 by multiplying by molecular weight and dividing by 24.45 (MWt values from EPA's EpiSuite version 4.1.1)

[d] JEM indoor air results based on 95% UCL concentration and average depth of 43 ft, for conservative default building dimensions (JEM input and output data in Appendix A-9).

Indoor air concentration from "C-Building" column in INTERCALCS sheet in JEM output.

ppbv = parts per billion, by volume.

bgs = below ground surface

Appendix A-9 Table 2
Results of Vapor Intrusion Modeling Using Soil Gas COPC EPCs, for Future Exposure Scenario
Site Name: Bulk Fuels Facility, Kirtland Air Force Base

CAS Number	Chemical [a]	Maximum Concentration (ppbv)	Location of Maximum Concentration (Sample ID)	Location of Maximum Concentration	Sample Date of Maximum Concentration	Start (ft)	Average Start Depth of Sample (ft)	95% UCL (ppbv) [b]	Molecular Weight	Concentration Used for JEM (µg/m^3) [c]	JEM Indoor Air Results (µg/m^3) [d]
95-63-6	1,2,4-Trimethylbenzene	5.60E+04	VA0838	KAFB-106118-025	10-Nov-11	15	15	5.60E+04	120.19	2.75E+05	132
67-66-3	Chloroform	1.40E+03	VA0561	KAFB-106124-025	19-Jul-11	15		1.09E+03	119.38	5.32E+03	3.84
124-48-1	Dibromochloromethane	2.30E+01	VA0549	KAFB-106122-025	11-Jul-11	15		2.30E+01	208.28	1.96E+02	0.0350
1330-20-7	Xylenes (total)	2.10E+05	VA0838	KAFB-106118-025	10-Nov-11	15		2.10E+05	106.17	9.12E+05	579
75-27-4	Bromodichloromethane	8.20E+03	VA0696-FQ	SVMW-03-050	19-Oct-11	50	50	8.20E+03	163.83	5.49E+04	4.56
71-43-2	Benzene	1.40E+06	VA1359	SVMW-11-100	30-May-12	100	100	8.56E+05	78.11	2.73E+06	327
110-54-3	n-Hexane	5.30E+06	VA1359	SVMW-11-100	30-May-12	100		3.47E+06	86.18	1.22E+07	3131
56-23-5	Carbon tetrachloride	4.00E+02	VA479	KAFB-106111-250	6-Sep-11	240.3	245.1	2.27E+02	153.82	1.43E+03	0.0638
106-93-4	1,2-Dibromoethane	1.80E+03	VA1986	SVMW-10-250	26-Nov-12	250.0		1.80E+03	187.86	1.38E+04	0.174
67-64-1	Acetone	2.90E+06	VA1991	SVMW-11-260	6-Dec-12	260	260	1.33E+06	58.08	3.16E+06	210
110-82-7	Cyclohexane	5.10E+06	VA1991	SVMW-11-260	6-Dec-12	260		2.44E+06	84.16	8.40E+06	363
106-99-0	1,3-Butadiene	2.30E+02	VA0815	KAFB-106114-350	31-Oct-11	340	340.3	2.30E+02	54.09	5.09E+02	0.0510
79-34-5	1,1,2,2-Tetrachloroethane	4.30E+01	VA1594	KAFB-106137-350	16-May-12	340.5		4.30E+01	167.85	2.95E+02	0.00868
75-09-2	Methylene chloride	5.30E+05	VA1477	KAFB-106119-450	13-Jun-12	440	440	2.11E+05	84.93	7.33E+05	23.7

[a] Chemicals of Potential Concern (COPC) from Appendix N-2b Table 4, and represent those VOCs with estimated residential indoor air risk ≥ 1E-7 and/or hazard ≥ 0.1, based on maximum detected concentration and site-specific sample collection depth.

[b] 95% UCL on the mean estimated using EPA ProUCL software, for eight rounds of sampling at location of maximum detected concentration (see Appendix A-3 for details).

[c] 95% UCL concentration converted from parts per billion by volume (ppbv) to µg/m^3 by multiplying by molecular weight and dividing by 24.45 (MWt values from EPA's EpiSuite version 4.1.1).

[d] JEM indoor air results based on 95% UCL concentration and site-specific sample depth, for conservative default residential exposure scenario (JEM input and output data in Appendix A-9).
Indoor air concentration from "C-Building" column in INTERCALCS sheet in JEM output.

ppbv= parts per billion, by volume.

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
1.24E-01	1.14E-05	3.87E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.5E-01	Acetone
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	84.93	1.0E-08	6.0E-01	Methylene chloride
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75274	5.49E+04			Bromodichloromethane
71432	2.51E+05			Benzene
110543	7.08E+05			Hexane
67641	2.97E+05			Acetone
75092	6.88E+03			Methylene chloride
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (^{o}C)	ENTER (Totals must add up to value of Ls (cell F24)) Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	1311	12.5	1311			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
7.88E+08	1296	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	5.49E+04	3.39E+04
										2.51E+05	
										7.08E+05	
										2.97E+05	
										6.88E+03	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	1296
			8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			7,528	2.22E-05	9.47E-04	1.76E-04	1.72E-02	0.00E+00	0.00E+00	1.72E-02	
			7,007	1.30E-03	5.55E-02	1.76E-04	1.40E-02	0.00E+00	0.00E+00	1.40E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	5.49E+04	1.33	8.33E+01	4.14E-03	5.30E+03	3.15E+16	9.60E-05	5.27E+00	3.7E-05	NA	Bromodichloromethane	9.60E-05
	2.51E+05			1.22E-02		3.87E+05	2.63E-04	6.61E+01	7.8E-06	3.0E-02	Benzene	2.63E-04
	7.08E+05			2.78E-02		2.87E+02	5.27E-04	3.73E+02	NA	7.0E-01	Hexane	5.27E-04
	2.97E+05			1.72E-02		9.16E+03	3.56E-04	1.06E+02	NA	3.5E-01	Acetone	3.56E-04
	6.88E+03			1.40E-02		7.38E+04	2.98E-04	2.05E+00	1.0E-08	6.0E-01	Methylene chloride	2.98E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
4.8E-05	NA	Bromodichloromethane
1.3E-04	1.5E+00	Benzene
NA	3.7E-01	Hexane
NA	2.1E-01	Acetone
5.0E-09	2.3E-03	Methylene chloride
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	1.0E-08	6.0E-01	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	1.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dib	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	5.0E+00	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110827	Cyclohexane	1.46E+02	8.00E-02	9.11E-06	5.50E+01	6.13E+00	1.50E-01	25	354.00	553.00	7,154	0.0E+00	6.0E+00	8.42E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.0E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	6.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			2.80
		1.0E-04	7.0E-04			3.40
?	X	3.7E-04	1.1E-03	X	X	0.84
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	1.00
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			1.00
	X	4.0E-06	3.5E-03		X	2.75
		7.8E-06	0.0E+00			1.00
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		1.00
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			8.86
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			1.23
		4.7E-07	3.0E+00			0.02
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			0.88
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	2.09
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			CalEPA only
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	1.23
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		0.52
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	1.00
?		1.1E-04	4.0E-02	X		0.02
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	1.00
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical	
95636	2.75E+05			1,2,4-Trimethylbenzene	
0	1.00E+00			CAS No. not found	
67663	5.32E+03			Chloroform	
124481	1.96E+02			Chlorodibromomethane	
0	1.00E+00			CAS No. not found	m&p xylenes
95476	9.12E+05			o-Xylene	
0	1.00E+00			CAS No. not found	total xylenes
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
			Totals must add up to value of Ls (cell F24)								
15	457	12.5	457			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm-m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound	
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.8E-02	Chloroform	
1.96E-02	1.05E-05	7.81E-04	25	5,900	416.14	678.20	208.28	2.7E-05	0.0E+00	Chlorodibromomethane	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	m&p xylenes
8.70E-02	1.00E-05	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01	o-Xylene	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	total xylenes
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	442	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	2.75E+05	3.39E+04
										1.00E+00	
										5.32E+03	
										1.96E+02	
										1.00E+00	
										9.12E+05	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	442
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			6,764	4.74E-04	2.02E-02	1.76E-04	2.72E-03	0.00E+00	0.00E+00	2.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			10,376	2.41E-03	1.03E-01	1.76E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	2.75E+05	1.33	8.33E+01	8.42E-03	5.30E+03	1.30E+08	4.79E-04	1.32E+02	NA	7.0E-03	1,2,4-Trimethylbenzene	4.79E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	5.32E+03			1.44E-02		5.34E+04	7.22E-04	3.84E+00	2.3E-05	9.8E-02	Chloroform	7.22E-04
	1.96E+02			2.72E-03		1.20E+25	1.79E-04	3.50E-02	2.7E-05	NA	Chlorodibromomethane	1.79E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	9.12E+05			1.21E-02		4.48E+05	6.34E-04	5.79E+02	NA	1.0E-01	o-Xylene	6.34E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	
NA	1.81E+01	1,2,4-Trimethylbenzene	
ERROR	ERROR	CAS No. not found	
3.6E-05	3.8E-02	Chloroform	
3.9E-07	NA	Chlorodibromomethane	
ERROR	ERROR	CAS No. not found	m&p xylenes
NA	5.5E+00	o-Xylene	
ERROR	ERROR	CAS No. not found	total xylenes
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**2.9E-05**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	7.0E-02	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	2.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**3.72**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical	
95636	2.75E+05			1,2,4-Trimethylbenzene	
108678	1.13E+05			1,3,5-Trimethylbenzene	
67663	6.84E+03			Chloroform	
124481	1.96E+02			Chlorodibromomethane	
106423	6.51E+05			p-Xylene	m&p xylenes
95476	2.26E+05			o-Xylene	
108383	9.12E+05			m-Xylene	total xylenes
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	
0	1.00E+00			CAS No. not found	

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm) (Totals must add up to value of Ls (cell F24))	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	457	12.5	457			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound	
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene	
6.02E-02	8.67E-06	5.87E-03	25	9,321	437.89	637.25	120.20	0.0E+00	0.0E+00	1,3,5-Trimethylbenzene	
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.8E-02	Chloroform	
1.96E-02	1.05E-05	7.81E-04	25	5,900	416.14	678.20	208.28	2.7E-05	0.0E+00	Chlorodibromomethane	
7.69E-02	8.44E-06	7.64E-03	25	8,525	411.52	616.20	106.17	0.0E+00	1.0E-01	p-Xylene	m&p xylenes
8.70E-02	1.00E-05	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01	o-Xylene	
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01	m-Xylene	total xylenes
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	442	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	2.75E+05	3.39E+04
										1.13E+05	
										6.84E+03	
										1.96E+02	
										6.51E+05	
										2.26E+05	
										9.12E+05	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	442
			11,646	2.48E-03	1.06E-01	1.76E-04	8.36E-03	0.00E+00	0.00E+00	8.36E-03	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			6,764	4.74E-04	2.02E-02	1.76E-04	2.72E-03	0.00E+00	0.00E+00	2.72E-03	
			10,219	3.59E-03	1.53E-01	1.76E-04	1.07E-02	0.00E+00	0.00E+00	1.07E-02	
			10,376	2.41E-03	1.03E-01	1.76E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	
			10,226	3.44E-03	1.47E-01	1.76E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	2.75E+05	1.33	8.33E+01	8.42E-03	5.30E+03	1.30E+08	4.79E-04	1.32E+02	NA	7.0E-03	1,2,4-Trimethylbenzene	4.79E-04
	1.13E+05			8.36E-03		1.47E+08	4.77E-04	5.39E+01	NA	NA	1,3,5-Trimethylbenzene	4.77E-04
	6.84E+03			1.44E-02		5.34E+04	7.22E-04	4.94E+00	2.3E-05	9.8E-02	Chloroform	7.22E-04
	1.96E+02			2.72E-03		1.20E+25	1.79E-04	3.50E-02	2.7E-05	NA	Chlorodibromomethane	1.79E-04
	6.51E+05			1.07E-02		2.48E+06	5.78E-04	3.77E+02	NA	1.0E-01	p-Xylene	5.78E-04
	2.26E+05			1.21E-02		4.48E+05	6.34E-04	1.43E+02	NA	1.0E-01	o-Xylene	6.34E-04
	9.12E+05			9.72E-03		1.06E+07	5.38E-04	4.90E+02	NA	1.0E-01	m-Xylene	5.38E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	
NA	1.81E+01	1,2,4-Trimethylbenzene	
NA	NA	1,3,5-Trimethylbenzene	
4.7E-05	4.8E-02	Chloroform	
3.9E-07	NA	Chlorodibromomethane	
NA	3.6E+00	p-Xylene	m&p xylenes
NA	1.4E+00	o-Xylene	
NA	4.7E+00	m-Xylene	total xylenes
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**2.9E-05**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	7.0E-02	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	2.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**3.72**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75274	5.49E+04			Bromodichloromethane
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	1524	12.5	1524			LS					

Totals must add up to value of Ls (cell F24)

MORE

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	1509	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	5.49E+04	3.39E+04
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	1509
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	5.49E+04	1.33	8.33E+01	4.14E-03	5.30E+03	3.15E+16	8.29E-05	4.56E+00	3.7E-05	NA	Bromodichloromethane	8.29E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
6.9E-05	NA	Bromodichloromethane
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
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ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**2.9E-05**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dib	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	2.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropr	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**3.72**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		1.00
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			CalEPA only
		6.0E-04	9.0E-03			0.12
		3.0E-05	0.0E+00			1.00
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			0.81
		6.8E-05	2.0E-03			4.26
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			2.15
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	1.11
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	1.13
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			0.09
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		0.53
?		2.1E-06	0.0E+00	X		5.26
	X	4.9E-03	1.1E-04		X	1.00
		1.8E-03	0.0E+00			0.43
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			4.00
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			CalEPA only
		0.0E+00	3.0E-04			NC

DATA ENTRY SHEET

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75274	5.49E+04			Bromodichloromethane
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A, L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	1524	12.5	1524			LS					

ENTER Stratum A SCS soil type	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	1509	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	5.49E+04	3.39E+04
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	1509
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	5.49E+04	1.33	8.33E+01	4.14E-03	5.30E+03	3.15E+16	8.29E-05	4.56E+00	3.7E-05	NA	Bromodichloromethane	8.29E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
6.9E-05	NA	Bromodichloromethane
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
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ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**2.9E-05**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	2.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropr	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			2.80
		1.0E-04	7.0E-04			3.40
?	X	3.7E-04	1.1E-03	X	X	0.84
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	1.00
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			1.00
	X	4.0E-06	3.5E-03		X	2.75
		7.8E-06	0.0E+00			3.72
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		1.00
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			8.86
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			1.23
		4.7E-07	3.0E+00			2.13
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			0.88
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	2.09
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			CalEPA only
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	1.23
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		0.52
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	1.00
?		1.1E-04	4.0E-02	X		0.02
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	1.00
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

DATA ENTRY SHEET

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	2.73E+06			Benzene
110543	1.22E+07			Hexane
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (^{o}C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	3048	12.5	3048			LS					

MORE ↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5		5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	3033	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	2.73E+06	3.39E+04
										1.22E+07	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	3033
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	2.73E+06	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	1.20E-04	3.27E+02	7.8E-06	3.0E-02	Benzene	1.20E-04
	1.22E+07			2.78E-02		2.87E+02	2.57E-04	3.13E+03	NA	7.0E-01	Hexane	2.57E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
1.0E-03	1.05E+01	Benzene
NA	4.3E+00	Hexane
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
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ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			2.80
		1.0E-04	7.0E-04			3.40
?	X	3.7E-04	1.1E-03	X	X	0.84
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	1.00
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			1.00
	X	4.0E-06	3.5E-03		X	2.75
		7.8E-06	0.0E+00			1.00
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		1.00
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			8.86
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			1.23
		4.7E-07	3.0E+00			2.13
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			0.88
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	2.09
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			CalEPA only
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	1.23
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		0.52
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	1.00
?		1.1E-04	4.0E-02	X		0.02
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	1.00
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	4.47E+06			Benzene
110543	1.87E+07			Hexane
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	3048	12.5	3048			LS					

Totals must add up to value of Ls (cell F24) (applies to h_A, h_B, h_C)

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	3033	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	4.47E+06	3.39E+04
										1.87E+07	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	3033
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	4.47E+06	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	1.20E-04	5.36E+02	7.8E-06	3.0E-02	Benzene	1.20E-04
	1.87E+07			2.78E-02		2.87E+02	2.57E-04	4.79E+03	NA	7.0E-01	Hexane	2.57E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
1.7E-03	1.71E+01	Benzene
NA	6.6E+00	Hexane
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibi	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

URF extrapolated (X)	RfC extrapolated (X)	Original EPA Values Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	CalEPA / USEPA Potency Ratio
		1.5E-05	0.0E+00			2.80
		1.0E-04	7.0E-04			3.40
?	X	3.7E-04	1.1E-03	X	X	0.84
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	1.00
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			1.00
	X	4.0E-06	3.5E-03		X	2.75
		7.8E-06	0.0E+00			1.00
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		1.00
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			8.86
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			1.23
		4.7E-07	3.0E+00			2.13
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			0.88
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	2.09
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			CalEPA only
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	1.23
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		0.52
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	1.00
?		1.1E-04	4.0E-02	X		0.02
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	1.00
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
127184	3.05E+02			Tetrachloroethylene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
			Totals must add up to value of Ls (cell F24)								
15	4724	12.5	4724			LS					

MORE ↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Compound
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	165.83	2.6E-07	4.0E-02	Tetrachloroethylene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	4709	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.00E+00	3.39E+04
										1.00E+00	
										1.00E+00	
										3.05E+02	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	4709
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			9,528	9.08E-03	3.87E-01	1.76E-04	1.00E-02	0.00E+00	0.00E+00	1.00E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.00E+00	1.33	8.33E+01	#N/A	5.30E+03	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	3.05E+02			1.00E-02		6.74E+06	6.47E-05	1.97E-02	2.6E-07	4.0E-02	Tetrachloroethylene	6.47E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
2.1E-09	4.7E-04	Tetrachloroethylene
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: CAS No. not found.

SCROLL DOWN TO "END"

ERROR: Data entry/entries are missing, or entered data is out of range.

END

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	Soil Properties Lookup Table N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	**5.3E-06**	**3.0E-01**	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**2.9E-05**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	7.0E-02	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	6.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dib	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	6.0E-03	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	2.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	7.0E-02	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropr	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**0.23**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**3.72**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
56235	1.43E+03			Carbon tetrachloride
106934	1.38E+04			1,2-Dibromoethane (ethylene dibromide)
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

Totals must add up to value of Ls (cell F24)

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (^{o}C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	7468	12.5	7471			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5		5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
7.80E-02	8.80E-06	3.03E-02	25	7,127	349.90	556.60	153.82	4.2E-05	4.0E-02	Carbon tetrachloride
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	7.1E-05	8.0E-04	1,2-Dibromoethane (ethylene dibromide)
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	7453	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.00E+00	3.39E+04
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.43E+03	
										1.38E+04	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	7453
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			7,833	1.70E-02	7.25E-01	1.76E-04	1.08E-02	0.00E+00	0.00E+00	1.08E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.00E+00	1.33	8.33E+01	#N/A	5.30E+03	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.43E+03			1.08E-02		2.01E+06	4.46E-05	6.38E-02	4.2E-05	4.0E-02	Carbon tetrachloride	4.46E-05
	1.38E+04			3.01E-03		4.47E+22	1.26E-05	1.74E-01	7.1E-05	8.0E-04	1,2-Dibromoethane (ethylene c	1.26E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
1.1E-06	1.5E-03	Carbon tetrachloride
5.08E-06	2.1E-01	1,2-Dibromoethane (ethylene dibromide)
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: CAS No. not found.

SCROLL DOWN TO "END"

ERROR: Stratum A must be = sampling depth.

ERROR: Data entry/entries are missing, or entered data is out of range.

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		1.00
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			CalEPA only
		6.0E-04	9.0E-03			0.12
		3.0E-05	0.0E+00			1.00
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			0.81
		6.8E-05	2.0E-03			4.26
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			2.15
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	1.11
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	1.13
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			0.09
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		0.53
?		2.1E-06	0.0E+00	X		5.26
	X	4.9E-03	1.1E-04		X	1.00
		1.8E-03	0.0E+00			0.43
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			4.00
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			CalEPA only
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
0	1.00E+00			CAS No. not found
74873	1.69E+03			Methyl chloride (chloromethane)
91203	1.10E+01			Naphthalene
109999	1.15E+05			Tetrahydrofuran
79016	2.31E+03			Trichloroethylene
56235	2.52E+03			Carbon tetrachloride
106934	1.38E+04			1,2-Dibromoethane (ethylene dibromide)
591786	1.47E+04			2-Hexanone
108101	1.84E+04			Methylisobutylketone (4-methyl-2-pentanone)
115071	1.17E+05			Propene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
			Totals must add up to value of Ls (cell F24)								
15	7468	12.5	7468			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
1.26E-01	6.50E-06	8.80E-03	25	5,115	249.00	416.25	50.49	1.0E-06	9.0E-02	Methyl chloride (chloromethane)
5.90E-02	7.50E-06	4.82E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03	Naphthalene
9.54E-02	1.08E-05	7.05E-05	25	7,074	339.00	541.00	72.11	0.0E+00	2.0E+00	Tetrahydrofuran
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	131.39	2.0E-06	6.0E-01	Trichloroethylene
7.80E-02	8.80E-06	3.03E-02	25	7,127	349.90	556.60	153.82	4.2E-05	4.0E-02	Carbon tetrachloride
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	7.1E-05	8.0E-04	1,2-Dibromoethane (ethylene dibromide)
7.04E-02	8.44E-06	9.32E-05	25	8,610	410.00	601.00	100.16	0.0E+00	3.0E-02	2-Hexanone
7.50E-02	7.80E-06	1.38E-04	25	8,243	389.50	571.00	100.16	0.0E+00	8.0E-02	Methylisobutylketone (4-methyl-2-pentanone)
1.10E-01	1.07E-05	1.96E-01	25	4,400	226.00	365.00	42.08	0.0E+00	3.0E+00	Propene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	7453	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.00E+00	3.39E+04
										1.69E+03	
										1.10E+01	
										1.15E+05	
										2.31E+03	
										2.52E+03	
										1.38E+04	
										1.47E+04	
										1.84E+04	
										1.17E+05	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	7453
			4,718	6.21E-03	2.65E-01	1.76E-04	1.75E-02	0.00E+00	0.00E+00	1.75E-02	
			12,887	1.86E-04	7.93E-03	1.76E-04	8.20E-03	0.00E+00	0.00E+00	8.20E-03	
			7,675	4.00E-05	1.71E-03	1.76E-04	1.33E-02	0.00E+00	0.00E+00	1.33E-02	
			8,526	5.47E-03	2.34E-01	1.76E-04	1.10E-02	0.00E+00	0.00E+00	1.10E-02	
			7,833	1.70E-02	7.25E-01	1.76E-04	1.08E-02	0.00E+00	0.00E+00	1.08E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			10,463	4.30E-05	1.84E-03	1.76E-04	9.78E-03	0.00E+00	0.00E+00	9.78E-03	
			9,828	6.66E-05	2.84E-03	1.76E-04	1.04E-02	0.00E+00	0.00E+00	1.04E-02	
			3,632	1.50E-01	6.39E+00	1.76E-04	1.53E-02	0.00E+00	0.00E+00	1.53E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.00E+00	1.33	8.33E+01	#N/A	5.30E+03	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.69E+03			1.75E-02		7.98E+03	7.13E-05	1.21E-01	1.0E-06	9.0E-02	Methyl chloride (chloromethane	7.13E-05
	1.10E+01			8.20E-03		2.15E+08	3.39E-05	3.73E-04	3.4E-05	3.0E-03	Naphthalene	3.39E-05
	1.15E+05			1.33E-02		1.42E+05	5.44E-05	6.26E+00	NA	2.0E+00	Tetrahydrofuran	5.44E-05
	2.31E+03			1.10E-02		1.67E+06	4.52E-05	1.04E-01	2.0E-06	6.0E-01	Trichloroethylene	4.52E-05
	2.52E+03			1.08E-02		2.01E+06	4.46E-05	1.12E-01	4.2E-05	4.0E-02	Carbon tetrachloride	4.46E-05
	1.38E+04			3.01E-03		4.47E+22	1.26E-05	1.74E-01	7.1E-05	8.0E-04	1,2-Dibromoethane (ethylene c	1.26E-05
	1.47E+04			9.78E-03		9.55E+06	4.04E-05	5.96E-01	NA	3.0E-02	2-Hexanone	4.04E-05
	1.84E+04			1.04E-02		3.58E+06	4.30E-05	7.92E-01	NA	8.0E-02	Methylisobutylketone (4-methy	4.30E-05
	1.17E+05			1.53E-02		2.95E+04	6.25E-05	7.31E+00	NA	3.0E+00	Propene	6.25E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
ERROR	ERROR	CAS No. not found
5.0E-08	1.3E-03	Methyl chloride (chloromethane)
5.2E-09	1.2E-04	Naphthalene
NA	3.0E-03	Tetrahydrofuran
8.6E-08	1.7E-04	Trichloroethylene
1.9E-06	2.7E-03	Carbon tetrachloride
5.08E-06	2.1E-01	1,2-Dibromoethane (ethylene dibromide)
NA	1.9E-02	2-Hexanone
NA	9.5E-03	Methylisobutylketone (4-methyl-2-pentanone)
NA	2.3E-03	Propene
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: CAS No. not found.

SCROLL DOWN TO "END"

ERROR: Data entry/entries are missing, or entered data is out of range.

END

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
			Soil Properties Lookup Table							
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
					Chemical Properties Lookup Table							**CalEPA Toxicity Criteria in bold**		
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	3.4E-05	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	9.0E-01	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	4.9E-05	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	1.1E-05	8.0E-01	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	8.0E-04	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	4.0E-01	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	2.9E-04	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	2.0E-01	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	3.0E-01	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	1.0E+00	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	7.1E-04	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	0.0E+00	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	5.1E-04	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	2.7E-05	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	1.1E-05	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	4.9E-03	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	1.6E-05	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	2.6E-07	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	9.0E-05	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		1.00
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			CalEPA only
		6.0E-04	9.0E-03			0.12
		3.0E-05	0.0E+00			1.00
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			0.81
		6.8E-05	2.0E-03			4.26
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			2.15
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	1.11
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	1.13
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			0.09
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		0.53
?		2.1E-06	0.0E+00	X		5.26
	X	4.9E-03	1.1E-04		X	1.00
		1.8E-03	0.0E+00			0.43
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			4.00
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			CalEPA only
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
0	1.00E+00			CAS No. not found
67641	3.16E+06			Acetone
110827	8.40E+06			Cyclohexane
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	7925	12.5	7925			LS					

Totals must add up to value of Ls (cell F24)

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
1.24E-01	1.14E-05	3.87E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.5E-01	Acetone
8.00E-02	9.11E-06	1.50E-01	25	7,154	354.00	553.00	84.16	0.0E+00	6.0E+00	Cyclohexane
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	7910	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.00E+00	3.39E+04
										3.16E+06	
										8.40E+06	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	7910
			7,528	2.22E-05	9.47E-04	1.76E-04	1.72E-02	0.00E+00	0.00E+00	1.72E-02	
			7,951	8.34E-02	3.56E+00	1.76E-04	1.11E-02	0.00E+00	0.00E+00	1.11E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.00E+00	1.33	8.33E+01	#N/A	5.30E+03	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	3.16E+06			1.72E-02		9.16E+03	6.63E-05	2.10E+02	NA	3.5E-01	Acetone	6.63E-05
	8.40E+06			1.11E-02		1.40E+06	4.32E-05	3.63E+02	NA	6.0E+00	Cyclohexane	4.32E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
ERROR	ERROR	CAS No. not found
NA	5.7E-01	Acetone
NA	5.8E-02	Cyclohexane
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: CAS No. not found.

SCROLL DOWN TO "END"

ERROR: Data entry/entries are missing, or entered data is out of range.

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dib	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110827	Cyclohexane	1.46E+02	8.00E-02	9.11E-06	5.50E+01	6.13E+00	1.50E-01	25	354.00	553.00	7,154	0.0E+00	6.0E+00	8.42E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

URF extrapolated (X)	RfC extrapolated (X)	Original EPA Values Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	CalEPA / USEPA Potency Ratio
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
78933	1.80E+06			Methylethylketone (2-butanone)
67641	6.89E+06			Acetone
110827	1.76E+07			Cyclohexane
100414	2.61E+05			Ethylbenzene
108883	7.54E+06			Toluene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	7925	12.5	7925			LS					

Note: ENTER columns for h_A, h_B, h_C: Totals must add up to value of Ls (cell F24)

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound
8.08E-02	9.80E-06	5.58E-05	25	7,481	352.50	536.78	72.11	0.0E+00	5.0E+00	Methylethylketone (2-butanone)
1.24E-01	1.14E-05	3.87E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.5E-01	Acetone
8.00E-02	9.11E-06	1.50E-01	25	7,154	354.00	553.00	84.16	0.0E+00	6.0E+00	Cyclohexane
7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	106.17	0.0E+00	1.0E+00	Ethylbenzene
8.70E-02	8.60E-06	6.62E-03	25	7,930	383.78	591.79	92.14	0.0E+00	5.0E+00	Toluene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	7910	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.80E+06	3.39E+04
										6.89E+06	
										1.76E+07	
										2.61E+05	
										7.54E+06	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,388	3.00E-05	1.28E-03	1.76E-04	1.12E-02	0.00E+00	0.00E+00	1.12E-02	7910
			7,528	2.22E-05	9.47E-04	1.76E-04	1.72E-02	0.00E+00	0.00E+00	1.72E-02	
			7,951	8.34E-02	3.56E+00	1.76E-04	1.11E-02	0.00E+00	0.00E+00	1.11E-02	
			10,127	3.72E-03	1.59E-01	1.76E-04	1.04E-02	0.00E+00	0.00E+00	1.04E-02	
			9,127	3.38E-03	1.44E-01	1.76E-04	1.21E-02	0.00E+00	0.00E+00	1.21E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.80E+06	1.33	8.33E+01	1.12E-02	5.30E+03	1.20E+06	4.36E-05	7.85E+01	NA	5.0E+00	Methylethylketone (2-butanone	4.36E-05
	6.89E+06			1.72E-02		9.16E+03	6.63E-05	4.57E+02	NA	3.5E-01	Acetone	6.63E-05
	1.76E+07			1.11E-02		1.40E+06	4.32E-05	7.58E+02	NA	6.0E+00	Cyclohexane	4.32E-05
	2.61E+05			1.04E-02		3.59E+06	4.05E-05	1.06E+01	NA	1.0E+00	Ethylbenzene	4.05E-05
	7.54E+06			1.21E-02		4.48E+05	4.69E-05	3.53E+02	NA	5.0E+00	Toluene	4.69E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
NA	1.51E-02	Methylethylketone (2-butanone)
NA	1.3E+00	Acetone
NA	1.2E-01	Cyclohexane
NA	1.0E-02	Ethylbenzene
NA	6.8E-02	Toluene
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	5.0E+00	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110827	Cyclohexane	1.46E+02	8.00E-02	9.11E-06	5.50E+01	6.13E+00	1.50E-01	25	354.00	553.00	7,154	0.0E+00	6.0E+00	8.42E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			2.80
		1.0E-04	7.0E-04			3.40
?	X	3.7E-04	1.1E-03	X	X	0.84
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	1.00
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			1.00
	X	4.0E-06	3.5E-03		X	2.75
		7.8E-06	0.0E+00			1.00
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		1.00
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			8.86
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			1.23
		4.7E-07	3.0E+00			2.13
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			0.88
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	2.09
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			CalEPA only
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	1.23
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		0.52
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	1.00
?		1.1E-04	4.0E-02	X		0.02
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	1.00
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
0	1.00E+00			CAS No. not found
79345	2.95E+02			1,1,2,2-Tetrachloroethane
106990	5.09E+02			1,3-Butadiene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

Totals must add up to value of Ls (cell F24)

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	10372	12.5	10372			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
7.10E-02	7.90E-06	3.44E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00	1,1,2,2-Tetrachloroethane
2.49E-01	1.08E-05	7.34E-02	25	5,370	268.60	425.00	54.09	3.0E-05	2.0E-03	1,3-Butadiene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	10357	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.00E+00	3.39E+04
										2.95E+02	
										5.09E+02	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	10357
			10,515	1.58E-04	6.75E-03	1.76E-04	9.86E-03	0.00E+00	0.00E+00	9.86E-03	
			5,157	5.02E-02	2.14E+00	1.76E-04	3.46E-02	0.00E+00	0.00E+00	3.46E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.00E+00	1.33	8.33E+01	#N/A	5.30E+03	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	2.95E+02			9.86E-03		8.40E+06	2.94E-05	8.68E-03	5.8E-05	NA	1,1,2,2-Tetrachloroethane	2.94E-05
	5.09E+02			3.46E-02		9.43E+01	1.00E-04	5.10E-02	3.0E-05	2.0E-03	1,3-Butadiene	1.00E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
ERROR	ERROR	CAS No. not found
2.1E-07	NA	1,1,2,2-Tetrachloroethane
6.3E-07	2.4E-02	1,3-Butadiene
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
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ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: CAS No. not found.

SCROLL DOWN TO "END"

ERROR: Data entry/entries are missing, or entered data is out of range.

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	0.0E+00	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	3.4E-05	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	9.0E-01	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	4.9E-05	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	1.1E-05	8.0E-01	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	8.0E-04	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	4.0E-01	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	2.9E-04	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	2.0E-01	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	3.0E-01	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	1.0E+00	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110827	Cyclohexane	1.46E+02	8.00E-02	9.11E-06	5.50E+01	6.13E+00	1.50E-01	25	354.00	553.00	7,154	0.0E+00	6.0E+00	8.42E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	7.1E-04	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	0.0E+00	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	5.1E-04	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	2.7E-05	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropr	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	6.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	1.1E-05	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	4.9E-03	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	1.6E-05	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	2.6E-07	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	9.0E-05	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			2.80
		1.0E-04	7.0E-04			3.40
?	X	3.7E-04	1.1E-03	X	X	0.84
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	1.00
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			1.00
	X	4.0E-06	3.5E-03		X	2.75
		7.8E-06	0.0E+00			1.00
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		1.00
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			8.86
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			1.23
		4.7E-07	3.0E+00			2.13
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			0.88
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	2.09
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			CalEPA only
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	1.23
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		0.52
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	1.00
?		1.1E-04	4.0E-02	X		0.02
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	1.00
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		1.00
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			CalEPA only
		6.0E-04	9.0E-03			0.12
		3.0E-05	0.0E+00			1.00
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			0.81
		6.8E-05	2.0E-03			4.26
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			2.15
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	1.11
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	1.13
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			0.09
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		0.53
?		2.1E-06	0.0E+00	X		5.26
	X	4.9E-03	1.1E-04		X	1.00
		1.8E-03	0.0E+00			0.43
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			4.00
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			CalEPA only
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156605	1.75E+03			trans-1,2-Dichloroethylene
79345	2.95E+02			1,1,2,2-Tetrachloroethane
106990	5.09E+02			1,3-Butadiene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
			Totals must add up to value of Ls (cell F24)								
15	10470	12.5	10470			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5		5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Compound
7.07E-02	1.19E-05	9.36E-03	25	6,717	320.85	516.50	96.94	0.0E+00	6.0E-02	trans-1,2-Dichloroethylene
7.10E-02	7.90E-06	3.44E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00	1,1,2,2-Tetrachloroethane
2.49E-01	1.08E-05	7.34E-02	25	5,370	268.60	425.00	54.09	3.0E-05	2.0E-03	1,3-Butadiene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	10455	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.75E+03	3.39E+04
										2.95E+02	
										5.09E+02	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	7,110	5.53E-03	2.36E-01	1.76E-04	9.82E-03	0.00E+00	0.00E+00	9.82E-03	10455
			10,515	1.58E-04	6.75E-03	1.76E-04	9.86E-03	0.00E+00	0.00E+00	9.86E-03	
			5,157	5.02E-02	2.14E+00	1.76E-04	3.46E-02	0.00E+00	0.00E+00	3.46E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.75E+03	1.33	8.33E+01	9.82E-03	5.30E+03	9.00E+06	2.90E-05	5.07E-02	NA	6.0E-02	trans-1,2-Dichloroethylene	2.90E-05
	2.95E+02			9.86E-03		8.40E+06	2.92E-05	8.60E-03	5.8E-05	NA	1,1,2,2-Tetrachloroethane	2.92E-05
	5.09E+02			3.46E-02		9.43E+01	9.93E-05	5.06E-02	3.0E-05	2.0E-03	1,3-Butadiene	9.93E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
NA	8.10E-04	trans-1,2-Dichloroethylene
2.1E-07	NA	1,1,2,2-Tetrachloroethane
6.2E-07	2.4E-02	1,3-Butadiene
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm³/cm³)	θ_r (cm³/cm³)	Mean Grain Diameter (cm)	Bulk Density (g/cm³)	θ_w (cm³/cm³)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm³/g)	Diffusivity in air, D_a (cm²/s)	Diffusivity in water, D_w (cm²/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m³/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF (µg/m³)$^{-1}$	Reference conc., RfC (mg/m³)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	0.0E+00	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dib	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	**8.0E-04**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110827	Cyclohexane	1.46E+02	8.00E-02	9.11E-06	5.50E+01	6.13E+00	1.50E-01	25	354.00	553.00	7,154	0.0E+00	6.0E+00	8.42E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	6.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
0	1.00E+00			CAS No. not found
75092	7.33E+05			Methylene chloride
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

Totals must add up to value of Ls (cell F24)

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)	#N/A	#N/A	#N/A
15	13411	12.5	13411			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	84.93	1.0E-08	6.0E-01	Methylene chloride
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm³/cm³)	Stratum B soil air-filled porosity, θ_a^B (cm³/cm³)	Stratum C soil air-filled porosity, θ_a^C (cm³/cm³)	Stratum A effective total fluid saturation, S_{te} (cm³/cm³)	Stratum A soil intrinsic permeability, k_i (cm²)	Stratum A soil relative air permeability, k_{rg} (cm²)	Stratum A soil effective vapor permeability, k_v (cm²)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. (μg/m³)	Bldg. ventilation rate, $Q_{building}$ (cm³/s)
9.46E+08	13396	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.00E+00	3.39E+04
										7.33E+05	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m³/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm²/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm²/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm²/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm²/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	13396
			7,007	1.30E-03	5.55E-02	1.76E-04	1.40E-02	0.00E+00	0.00E+00	1.40E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm³/s)	Crack effective diffusion coefficient, D^{crack} (cm²/s)	Area of crack, A_{crack} (cm²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m³)	Unit risk factor, URF (μg/m³)⁻¹	Reference conc., RfC (mg/m³)	Compound

15	1.00E+00	1.33	8.33E+01	#N/A	5.30E+03	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	7.33E+05			1.40E-02		7.38E+04	3.23E-05	2.37E+01	1.0E-08	6.0E-01	Methylene chloride	3.23E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
ERROR	ERROR	CAS No. not found
9.7E-08	3.8E-02	Methylene chloride
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)
MESSAGE: CAS No. not found.

SCROLL DOWN TO "END"

ERROR: Data entry/entries are missing, or entered data is out of range.

END

VLOOKUP TABLES

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	Soil Properties Lookup Table N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table — **CalEPA Toxicity Criteria in bold**

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	1.0E-08	6.0E-01	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	1.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	3.4E-05	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	9.0E-01	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	4.9E-05	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	1.1E-05	8.0E-01	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	8.0E-04	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	4.0E-01	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	2.9E-04	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	2.0E-01	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	3.0E-01	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	1.0E+00	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110827	Cyclohexane	1.46E+02	8.00E-02	9.11E-06	5.50E+01	6.13E+00	1.50E-01	25	354.00	553.00	7,154	0.0E+00	6.0E+00	8.42E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	7.1E-04	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	0.0E+00	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	5.1E-04	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	2.7E-05	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.0E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	6.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	1.1E-05	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	4.9E-03	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	1.6E-05	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	2.6E-07	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	9.0E-05	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**0.02**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

DATA ENTRY SHEET

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75718	1.53E+03			Dichlorodifluoromethane
75092	1.84E+06			Methylene chloride
141786	2.20E+03			Ethylacetate
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (^oC)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	13512	12.5	13512			LS					

(Totals must add up to value of Ls (cell F24) — applies to thickness columns h_A, h_B, h_C)

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound
6.65E-02	9.92E-06	3.42E-01	25	9,421	243.20	384.95	120.92	0.0E+00	1.0E-01	Dichlorodifluoromethane
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	84.93	1.0E-08	6.0E-01	Methylene chloride
7.32E-02	9.70E-06	1.38E-04	25	7,634	350.26	523.30	88.12	0.0E+00	7.0E-02	Ethylacetate
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	13497	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.53E+03	3.39E+04
										1.84E+06	
										2.20E+03	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,313	1.85E-01	7.90E+00	1.76E-04	9.24E-03	0.00E+00	0.00E+00	9.24E-03	13497
			7,007	1.30E-03	5.55E-02	1.76E-04	1.40E-02	0.00E+00	0.00E+00	1.40E-02	
			8,610	7.29E-05	3.11E-03	1.76E-04	1.02E-02	0.00E+00	0.00E+00	1.02E-02	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound

15	1.53E+03	1.33	8.33E+01	9.24E-03	5.30E+03	2.48E+07	2.12E-05	3.25E-02	NA	1.0E-01	Dichlorodifluoromethane	2.12E-05
	1.84E+06			1.40E-02		7.38E+04	3.21E-05	5.91E+01	1.0E-08	6.0E-01	Methylene chloride	3.21E-05
	2.20E+03			1.02E-02		5.18E+06	2.33E-05	5.13E-02	NA	7.0E-02	Ethylacetate	2.33E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound
NA	3.12E-04	Dichlorodifluoromethane
2.4E-07	9.4E-02	Methylene chloride
NA	7.0E-04	Ethylacetate
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
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ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found
ERROR	ERROR	CAS No. not found

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
			Soil Properties Lookup Table							
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	3.1E-04	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	7.8E-06	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	1.0E-08	6.0E-01	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	8.8E-05	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	1.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroetha	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	1.0E-05	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	2.0E-06	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	3.4E-05	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	9.0E-01	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	4.9E-05	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	1.1E-05	8.0E-01	1.47E+02
106934	1,2-Dibromoethane (ethylene dibı	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	7.1E-05	8.0E-04	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	2.1E-05	4.0E-01	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	2.9E-04	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	2.0E-01	8.61E+01
108101	Methylisobutylketone (4-methyl-2	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	3.0E-01	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	1.0E+00	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110827	Cyclohexane	1.46E+02	8.00E-02	9.11E-06	5.50E+01	6.13E+00	1.50E-01	25	354.00	553.00	7,154	0.0E+00	6.0E+00	8.42E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	7.1E-04	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	0.0E+00	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	5.1E-04	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	2.7E-05	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.0E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	6.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	1.1E-04	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	1.1E-05	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	4.9E-03	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	7.7E-04	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	1.6E-05	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
109999	Tetrahydrofuran	1.08E+01	9.54E-02	1.08E-05	1.00E+06	2.88E-03	7.05E-05	25	339	541	7074	0.0E+00	2.0E+00	7.21E+01
591786	2-Hexanone		7.04E-02	8.44E-06	1.72E+04	3.81E-03	9.32E-05	25	410	601	8610	0.0E+00	3.0E-02	1.00E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	2.6E-07	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	9.0E-05	2.01E+02

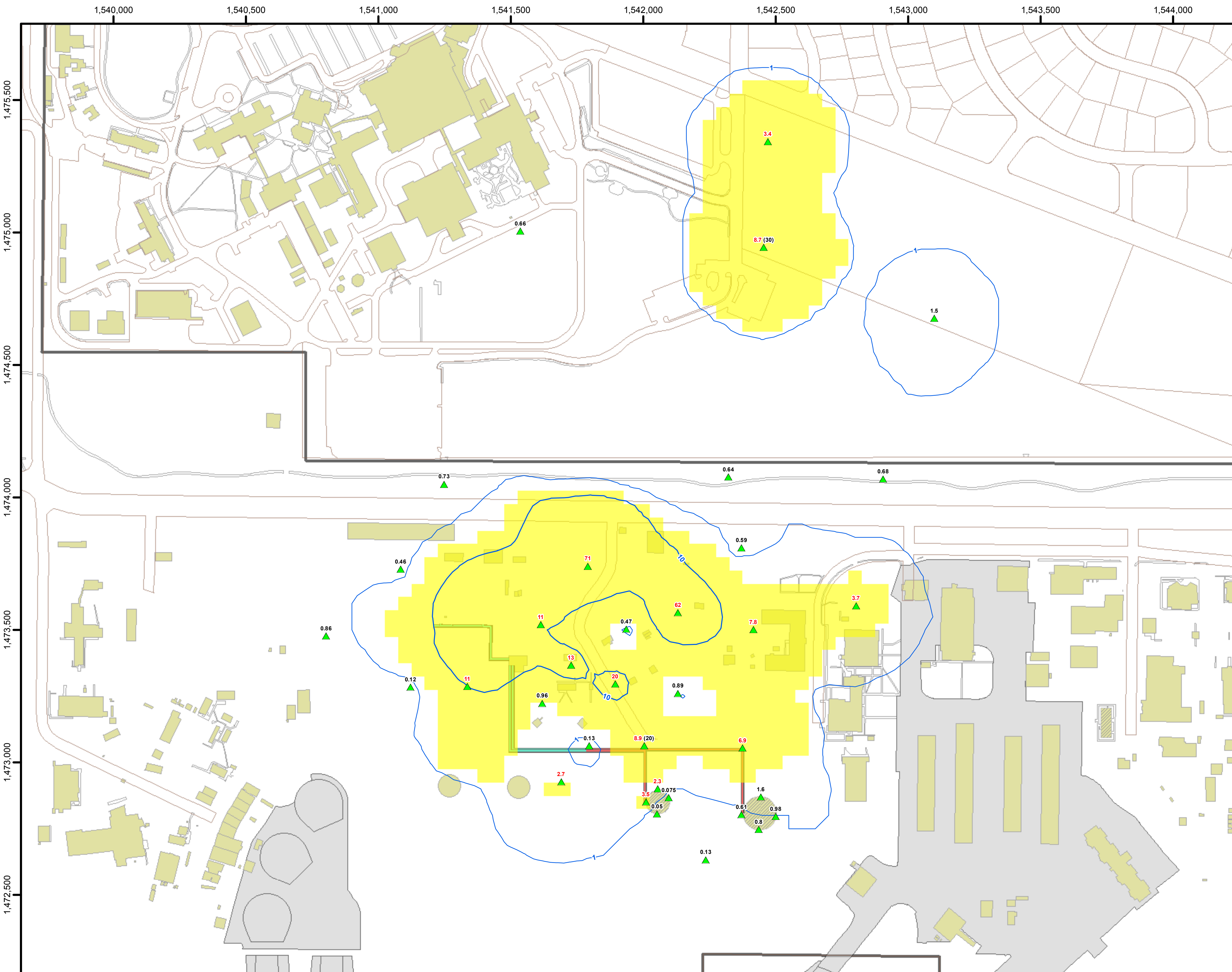
URF extrapolated (X)	RfC extrapolated (X)	Original EPA Values: Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	CalEPA / USEPA Potency Ratio
		1.5E-05	0.0E+00			2.80
		1.0E-04	7.0E-04			3.40
?	X	3.7E-04	1.1E-03	X	X	0.84
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	1.00
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			1.00
	X	4.0E-06	3.5E-03		X	2.75
		7.8E-06	0.0E+00			1.00
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		1.00
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			8.86
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			1.23
		4.7E-07	3.0E+00			0.02
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			0.88
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	2.09
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			CalEPA only
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	1.23
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		0.52
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	1.00
?		1.1E-04	4.0E-02	X		0.02
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	1.00
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**0.12**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

Appendix A-10
Soil Dermal Absorption Factors for Constituents of Potential Concern
Bulk Fuel Facility, Kirtland Air Force Base

SOIL DERMAL ABSORPTION FACTORS	
Chemical	**Dermal Absorption Factors**
Organics:	
Benzo(a)anthracene	13%
Benzo(a)pyrene	13%
Benzo(b)fluoranthene	13%
Carbazole	13%
Dibenz(a,h)anthracene	13%
Diesel Range Organics (DRO)	0%
Gasoline Range Organics (GRO)	0%
Indeno(1,2,3-cd)pyrene	13%
p-Isopropyltoluene	10%
2-Methylnaphthalene	13%
Naphthalene	13%
1,2,4-Trimethylbenzene	0%

Dermal Absorption Factors are from the USEPA Regional Screening Level Table, November 2013.



Legend

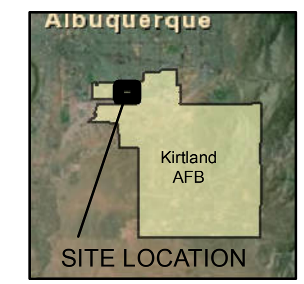
SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours
- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)
- 0 - 2.29
- 2.3 - 71

Estimated Exceedance Area of PRG: ~38 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) Preliminary Remediation Goal (PRG) for planning purposes only, based on depth-specific Johnson & Ettinger Vapor Intrusion Model, future hypothetical residential exposure scenario, conservatively assuming vadose zone soil type is uniformly loamy sand. PRG is depth-specific soil gas concentration protective of indoor air; see text for further details.



Revision Date: 3/18/2014

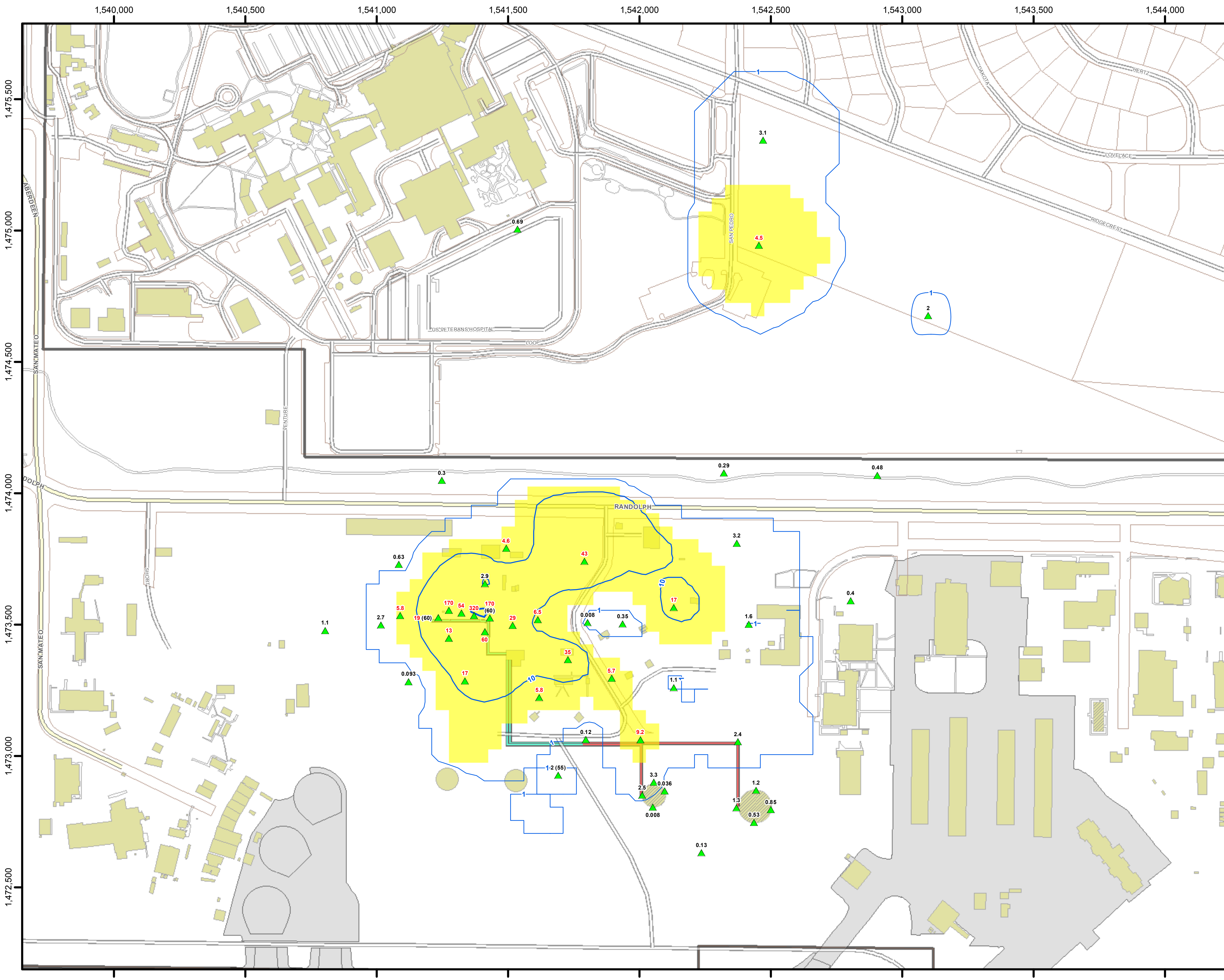
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 1

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1] — 2 (55)

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

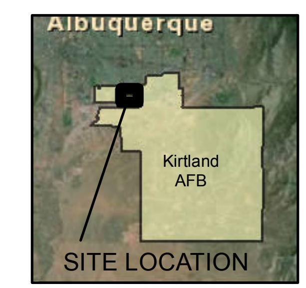
Benzene Concentration Exceeds PRG (4.25 ppmv)

- 0 - 4.24
- 4.25 - 109.5

Estimated Exceedance Area of PRG: ~21.7 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) Preliminary Remediation Goal (PRG) for planning purposes only, based on depth-specific Johnson & Ettinger Vapor Intrusion Model, future hypothetical residential exposure scenario, conservatively assuming vadose zone soil type is uniformly loamy sand. PRG is depth-specific soil gas concentration protective of indoor air; see text for further details.



Revision Date: 3/19/2014

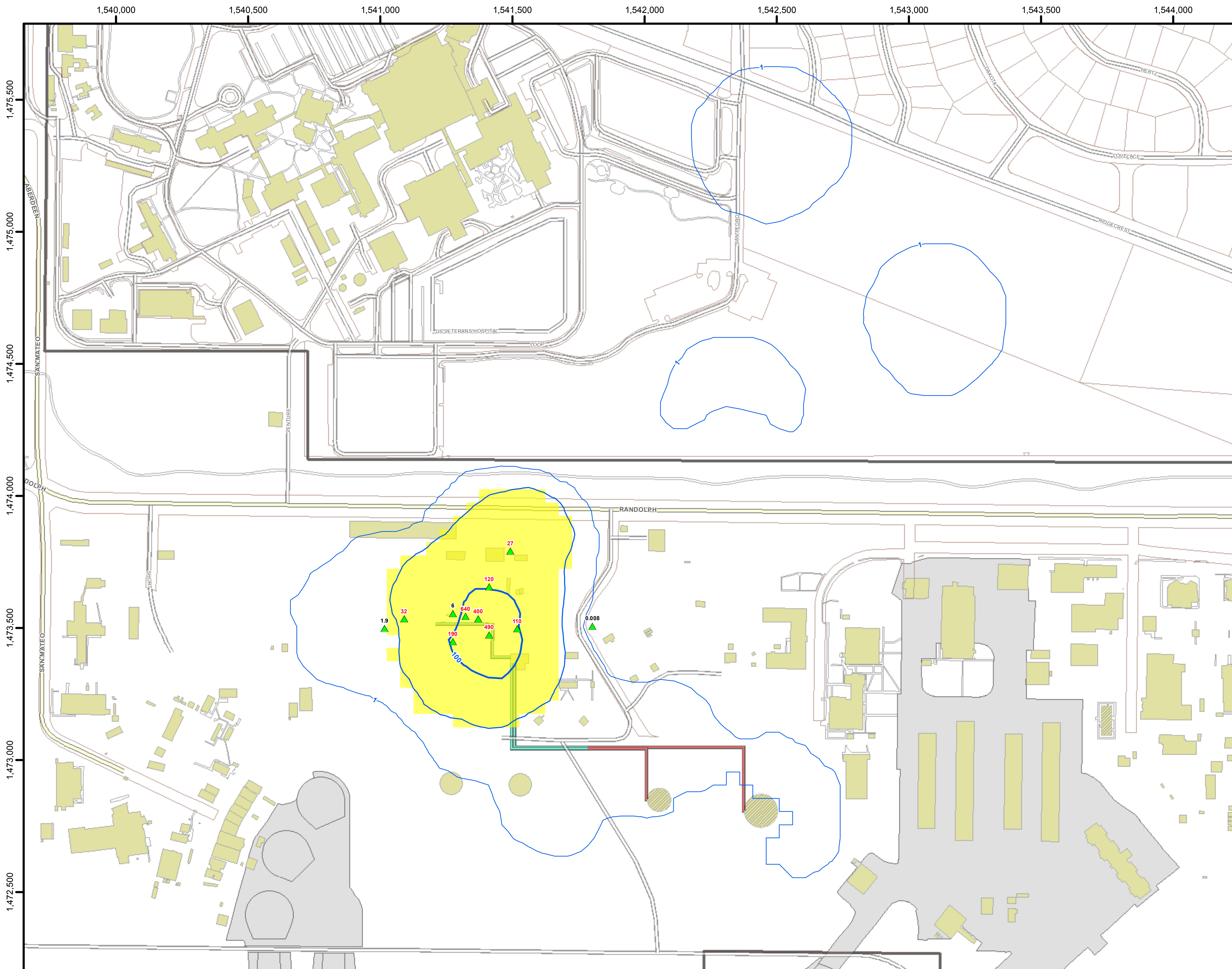
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 2

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.09
- 8.1 - 296.5

Estimated Exceedance Area of PRG: ~11.2 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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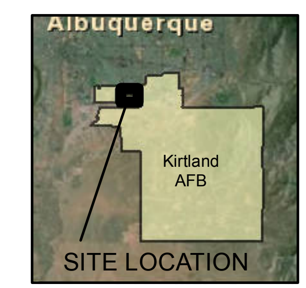
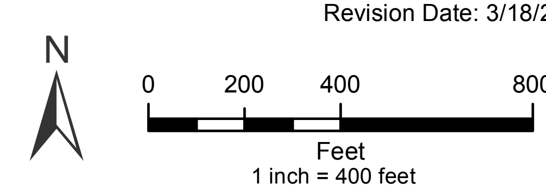


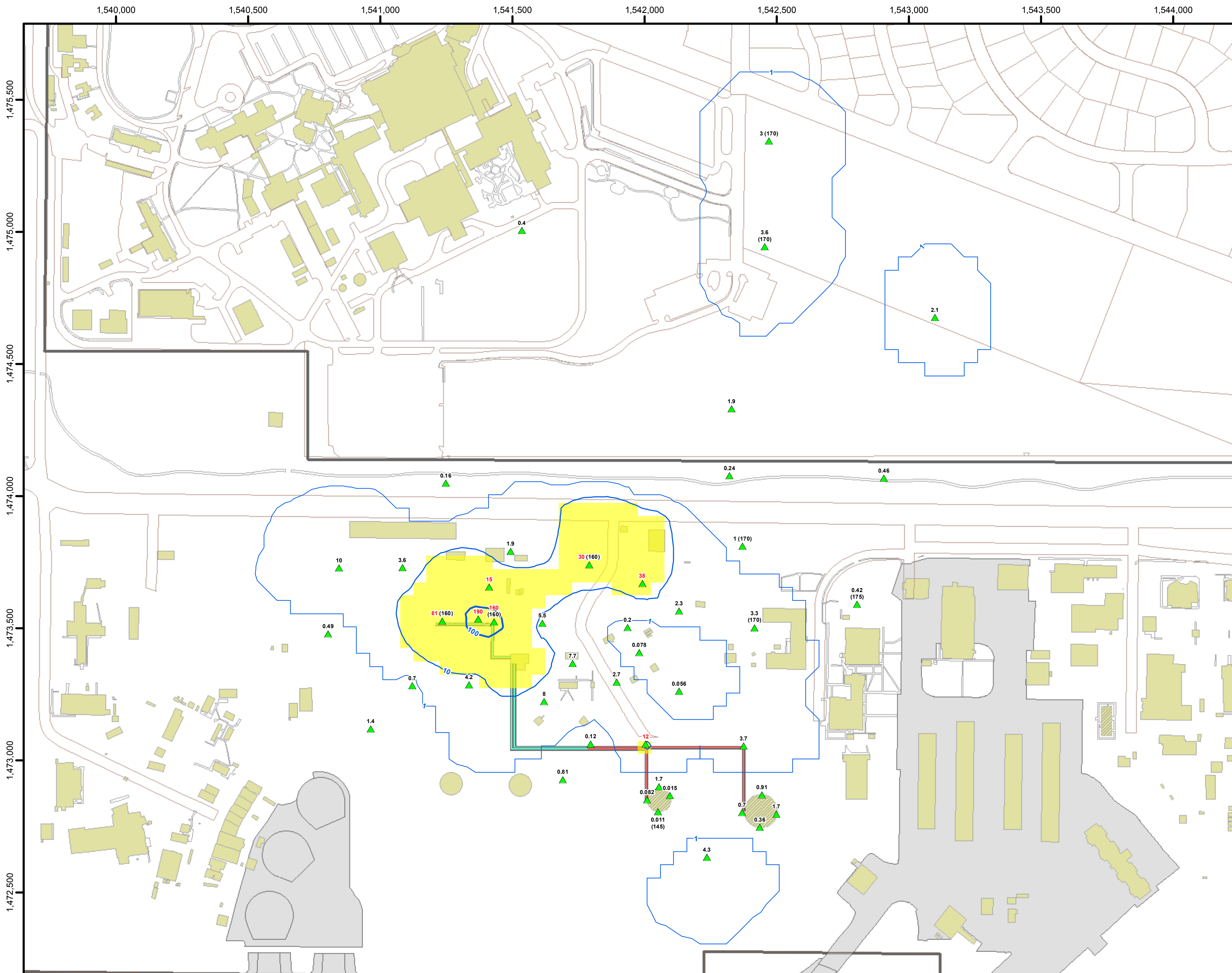
Revision Date: 3/18/2014



FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 3

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)

- 0 - 11.9
- 12 - 138

Estimated Exceedance Area of PRG: ~8 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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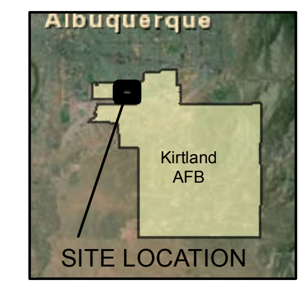


Revision Date: 3/19/2014

N

0 200 400 800

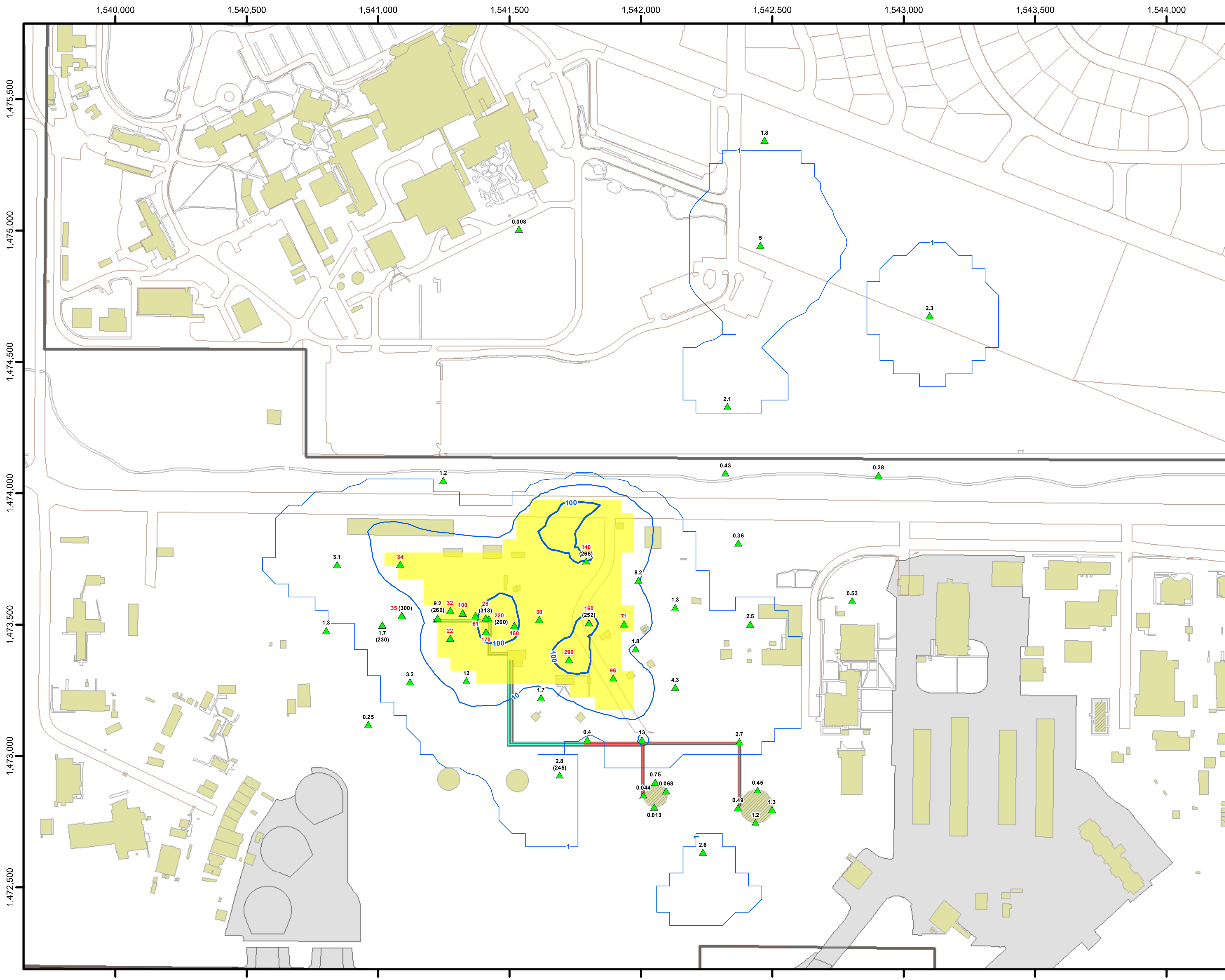
Feet

1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 4

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 290

Estimated Exceedance Area of PRG: ~11 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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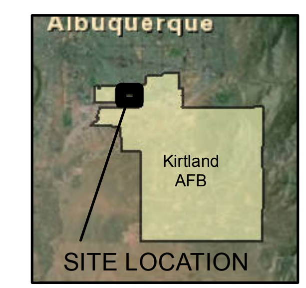

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

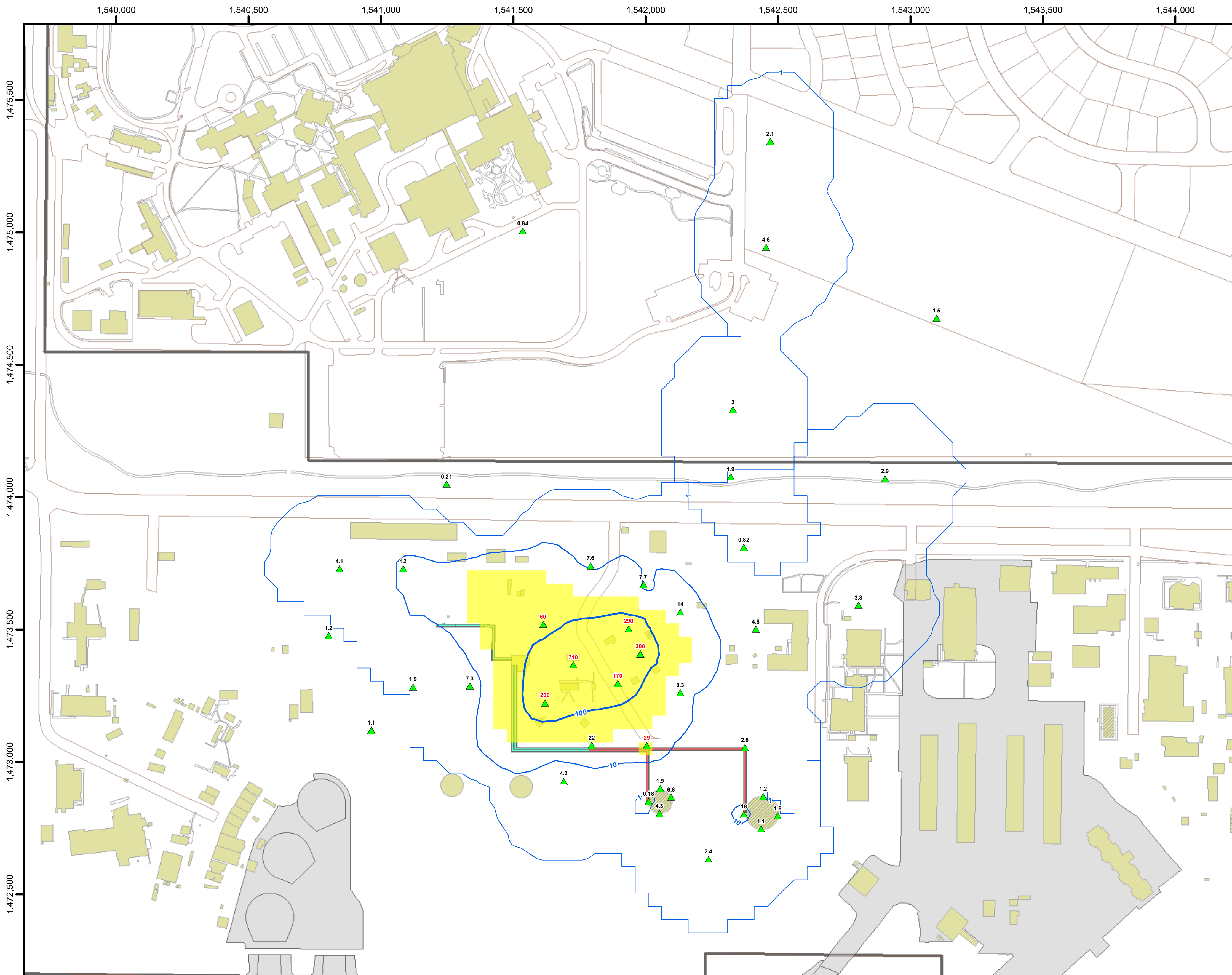
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 5

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) ▲ SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 710

Estimated Exceedance Area of PRG: ~9.3 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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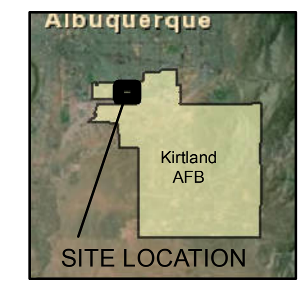


Revision Date: 3/19/2014

N

0 200 400 800

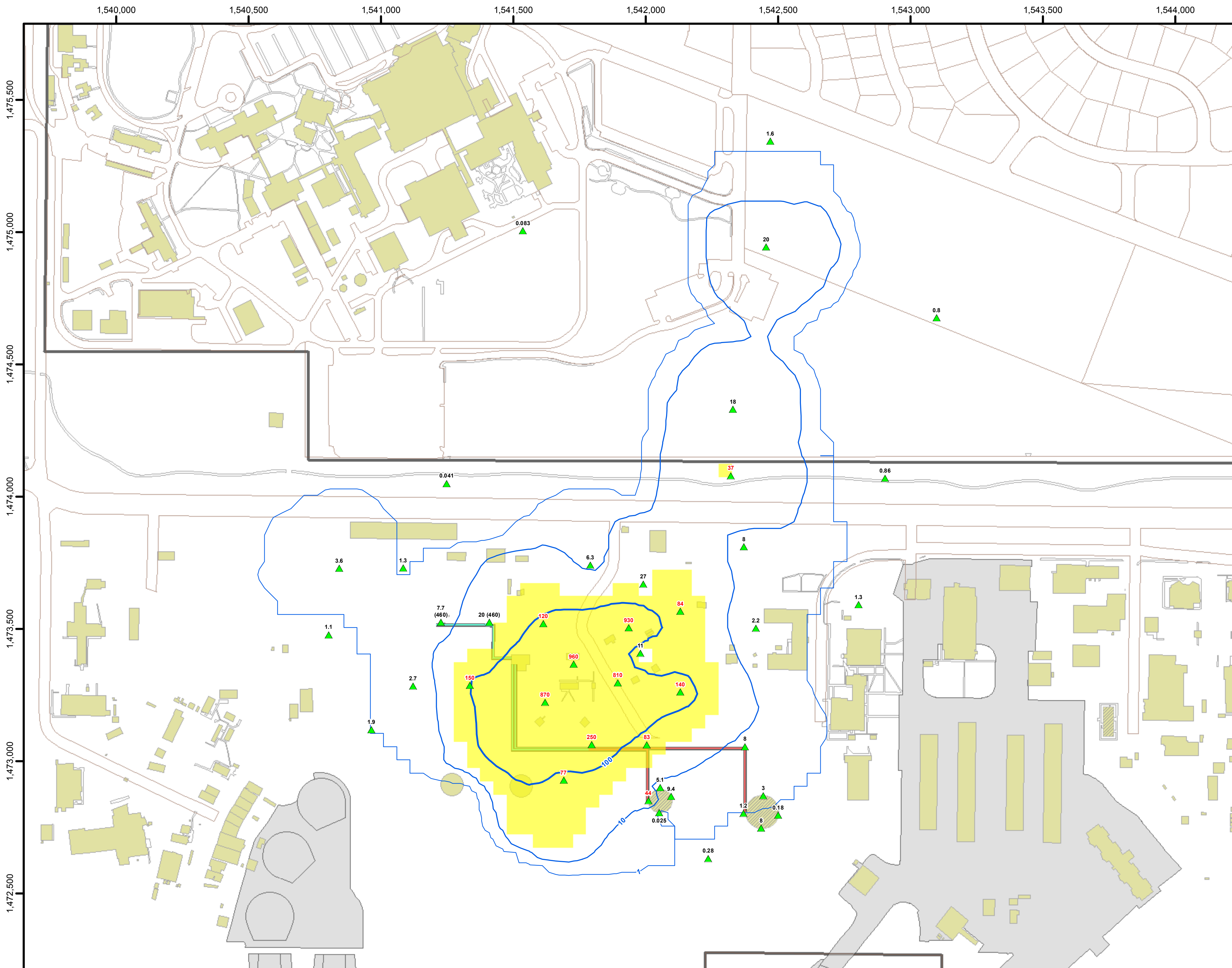
Feet

1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 6

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (35.4 ppmv)

- 0 - 35.3
- 35.4 - 960

Estimated Exceedance Area of PRG: ~16 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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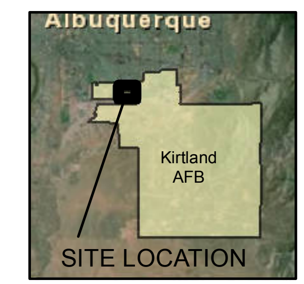


Revision Date: 3/19/2014

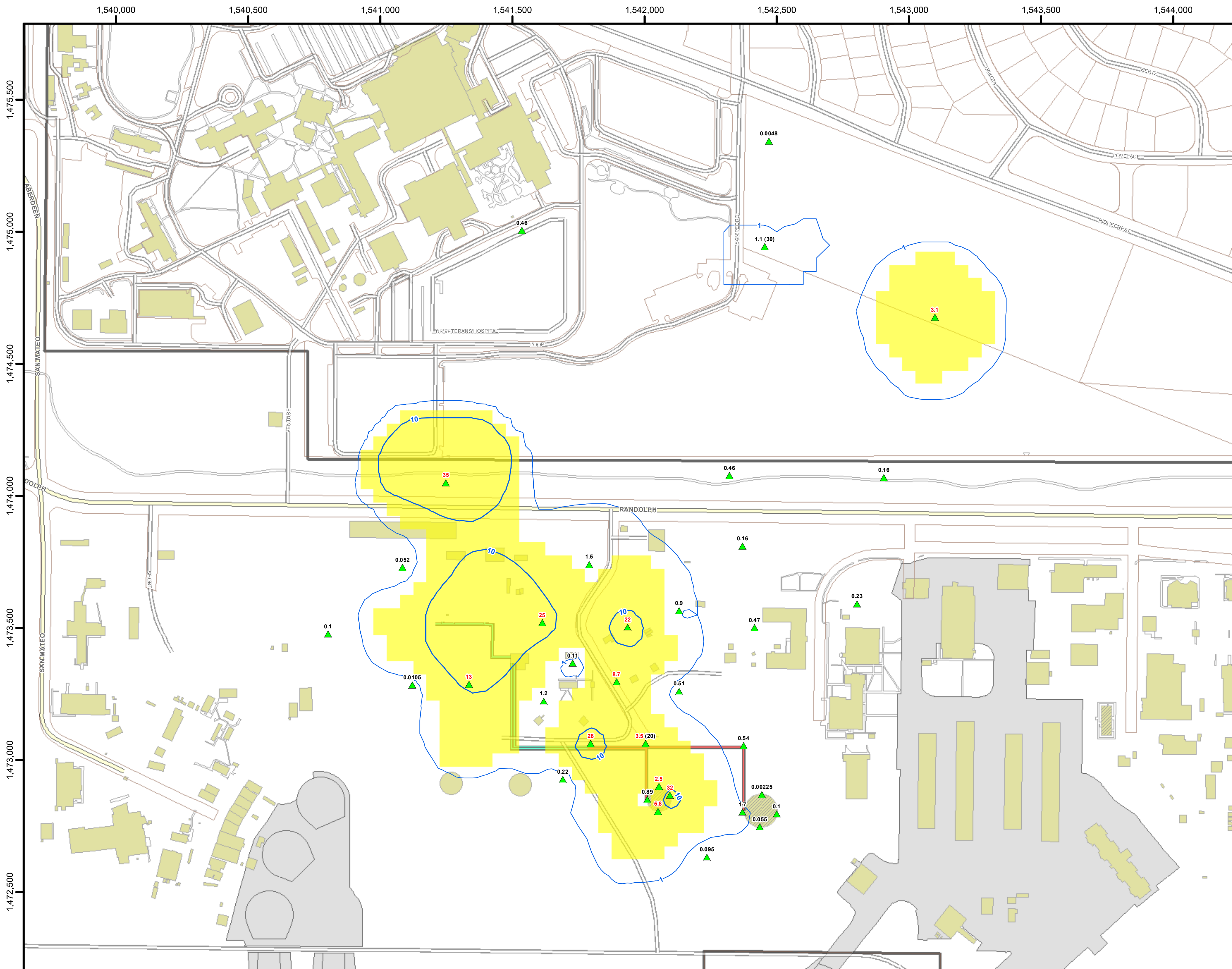
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 7

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)

- 0 - 2.2
- 2.3 - 51.4

Estimated Exceedance Area of PRG: ~27.4 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parentheses.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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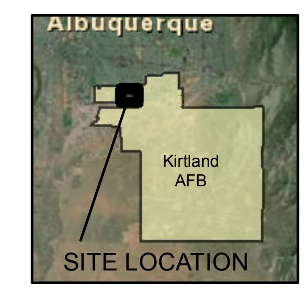


Revision Date: 3/19/2014

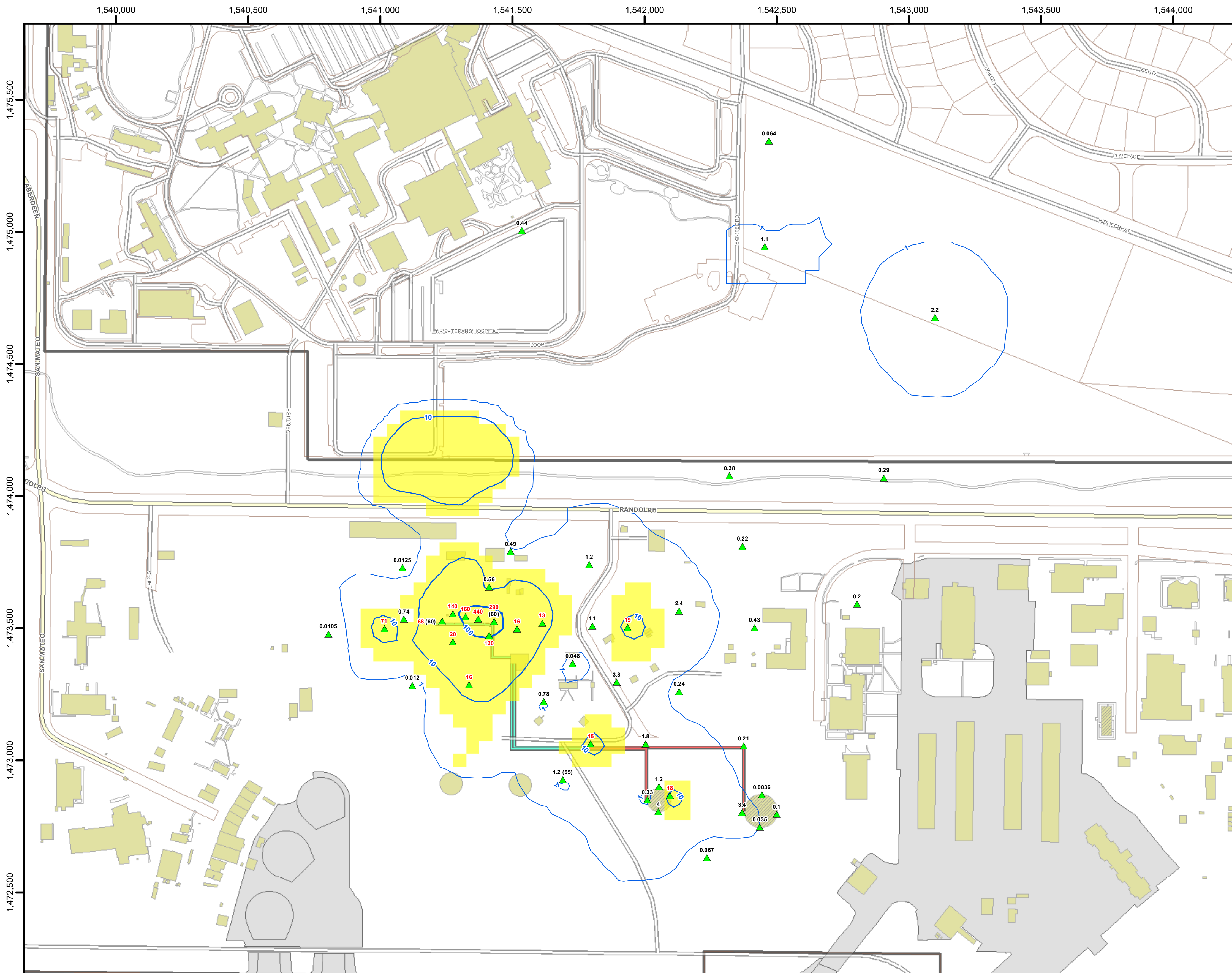
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 8

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (4.25 ppmv)

- 0 - 4.24
- 4.25 - 169.3

Estimated Exceedance Area of PRG: ~13.4 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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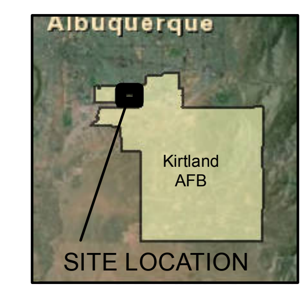

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

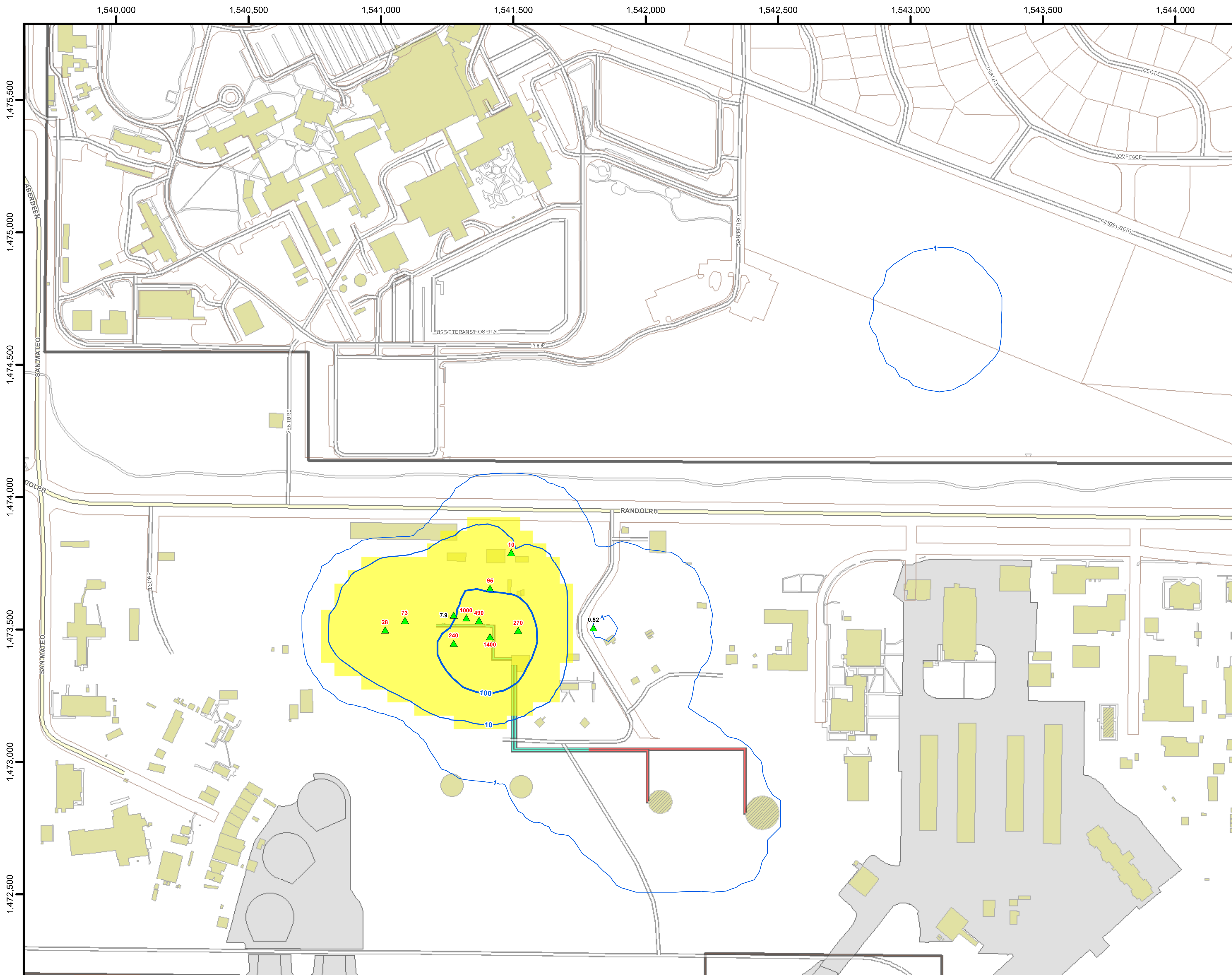
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 9

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.0
- 8.1 - 565

Estimated Exceedance Area of PRG: ~12 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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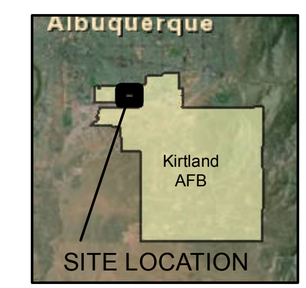

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

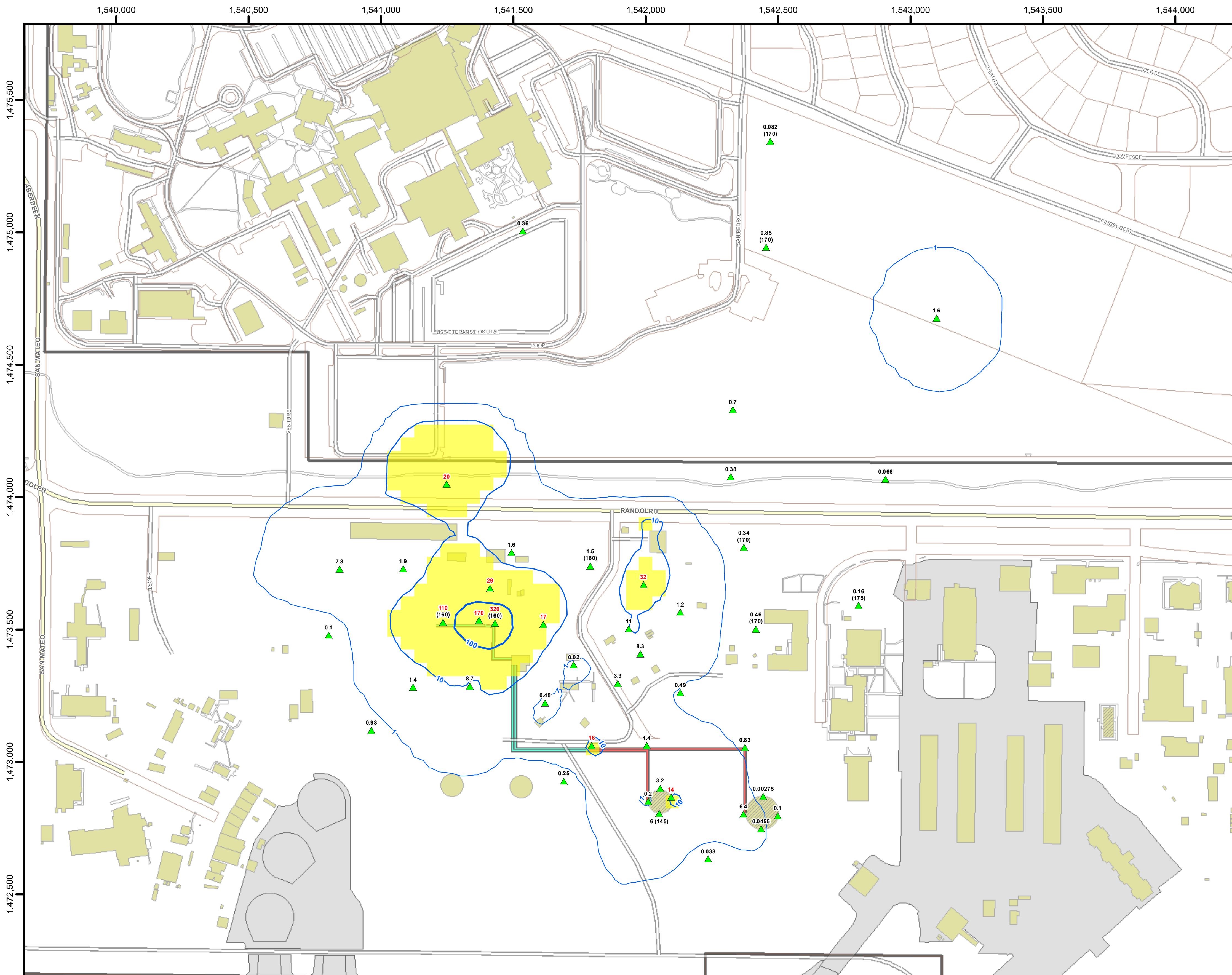
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 10

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)

- 0 - 11.9
- 12 - 217.3

Estimated Exceedance Area of PRG: ~8.1 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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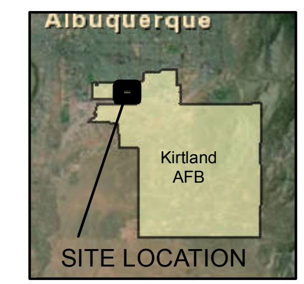


Service Layer Credits: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

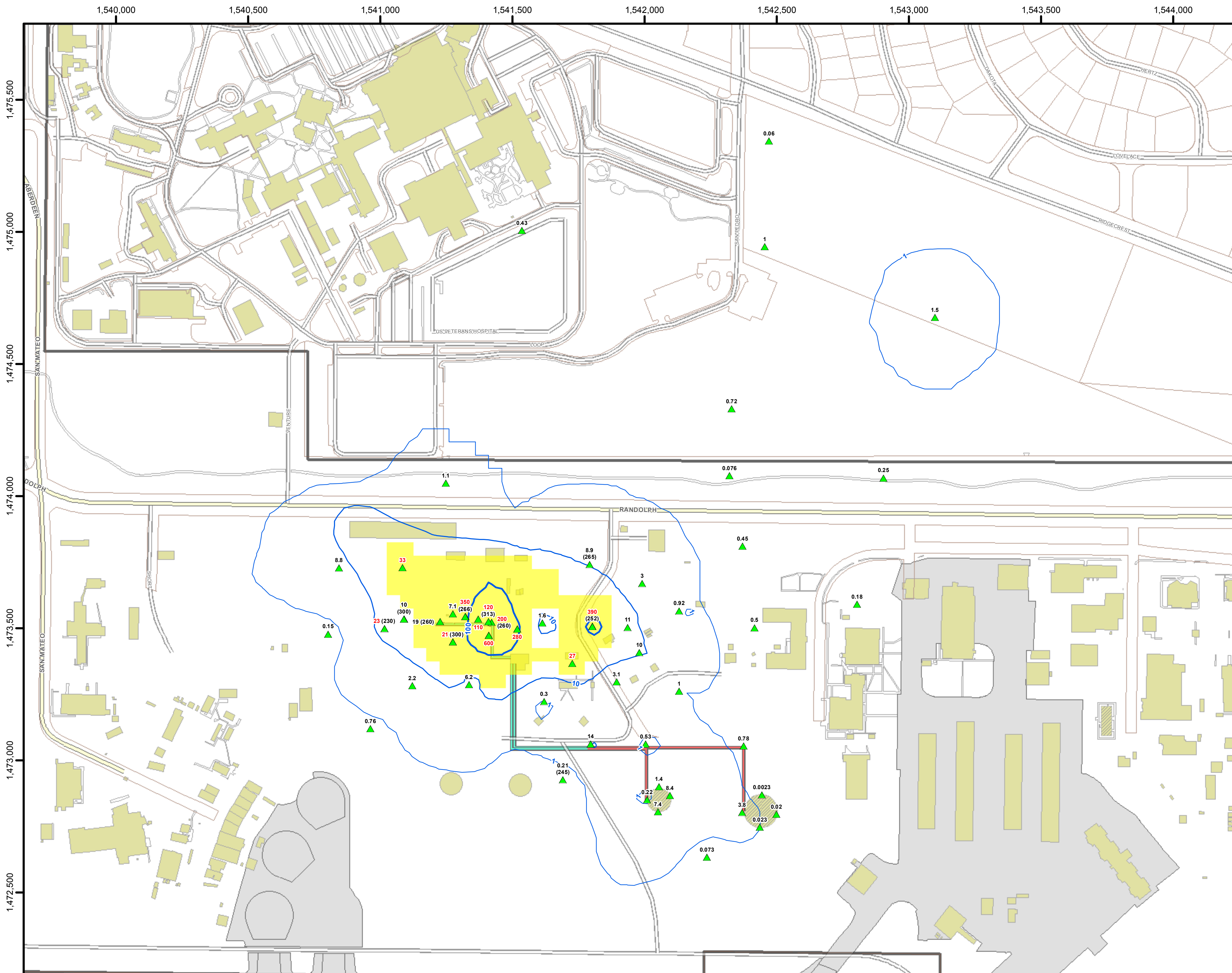
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 11

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 241.3

Estimated Exceedance Area of PRG: ~6.6 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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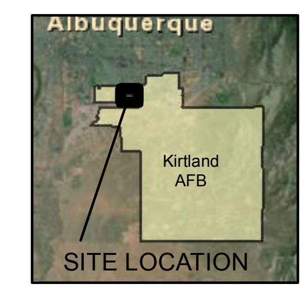


Revision Date: 3/19/2014

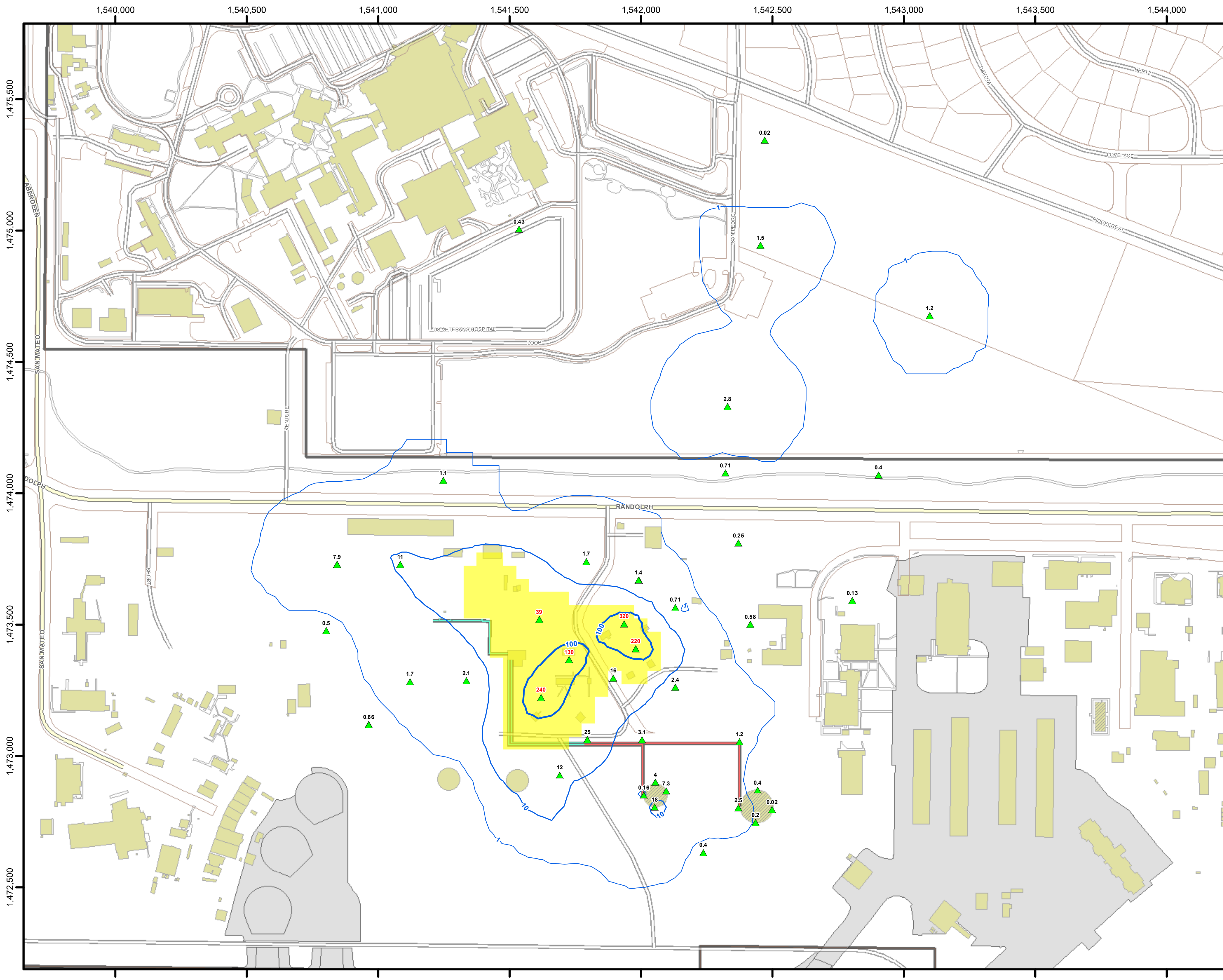
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 12

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 320

Estimated Exceedance Area of PRG: ~7.2 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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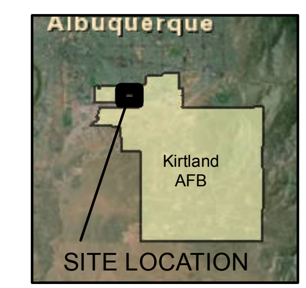


Revision Date: 3/19/2014

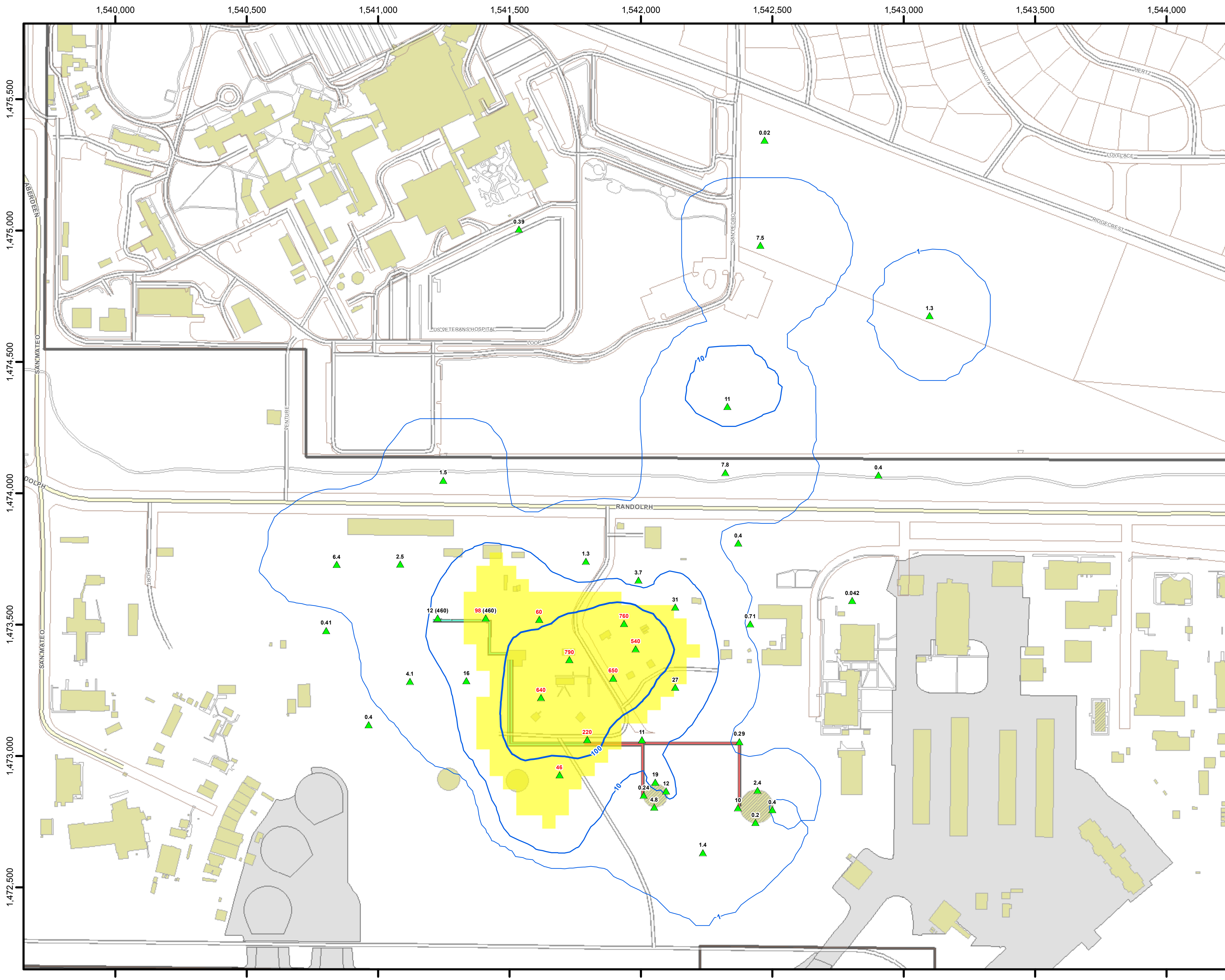
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 13

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (35.4 ppmv)

- 0 - 35.3
- 35.4 - 790

Estimated Exceedance Area of PRG: ~12 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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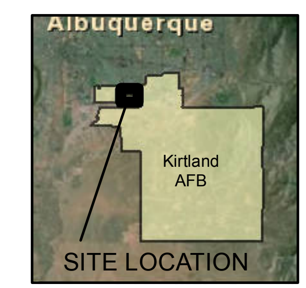


Revision Date: 3/19/2014

N

0 200 400 800

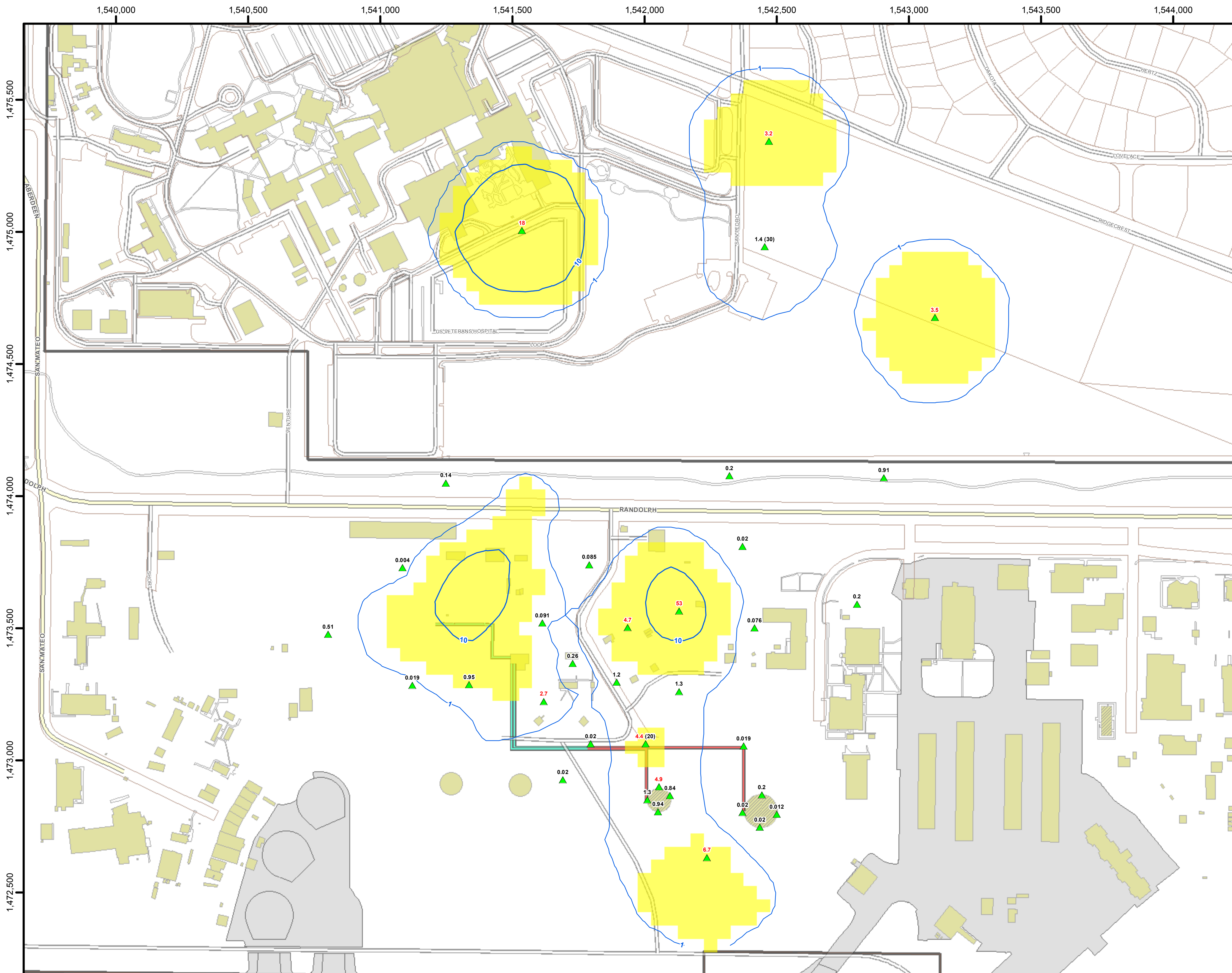
Feet

1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 14

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55)

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)

- 0 - 2.2
- 2.3 - 25.4

Estimated Exceedance Area of PRG: ~28.1 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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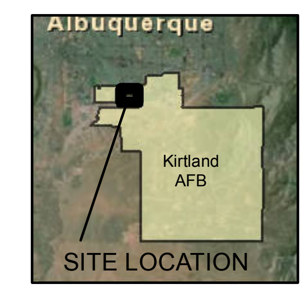


Revision Date: 3/19/2014

N

0 200 400 800

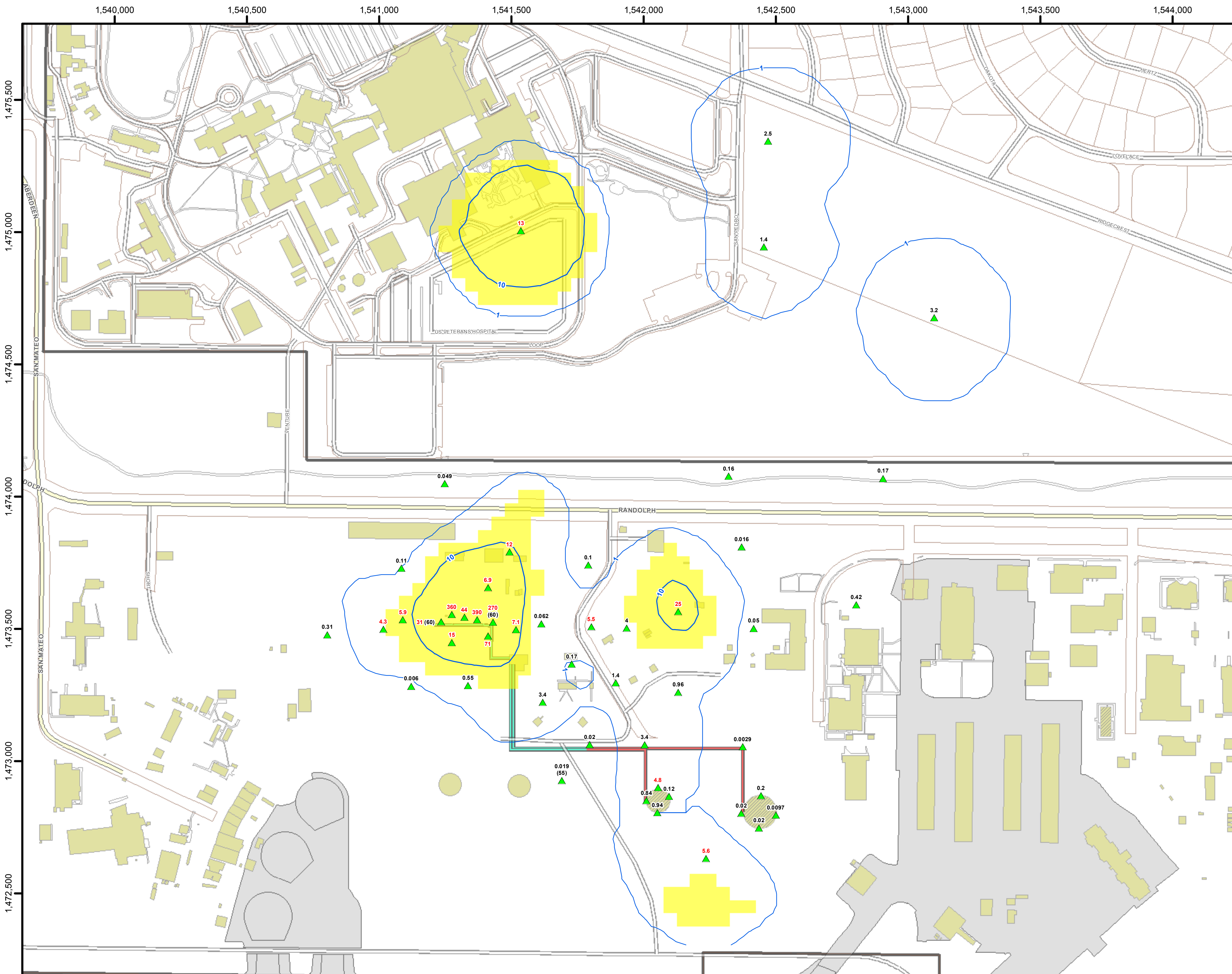
Feet

1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 15

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (4.25 ppmv)

- 0 - 4.24
- 4.25 - 64.7

Estimated Exceedance Area of PRG: ~15.1 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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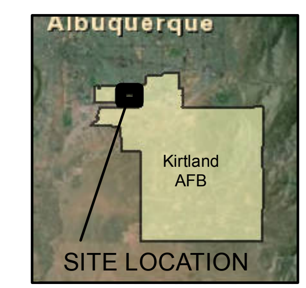


Revision Date: 3/19/2014

N

0 200 400 800

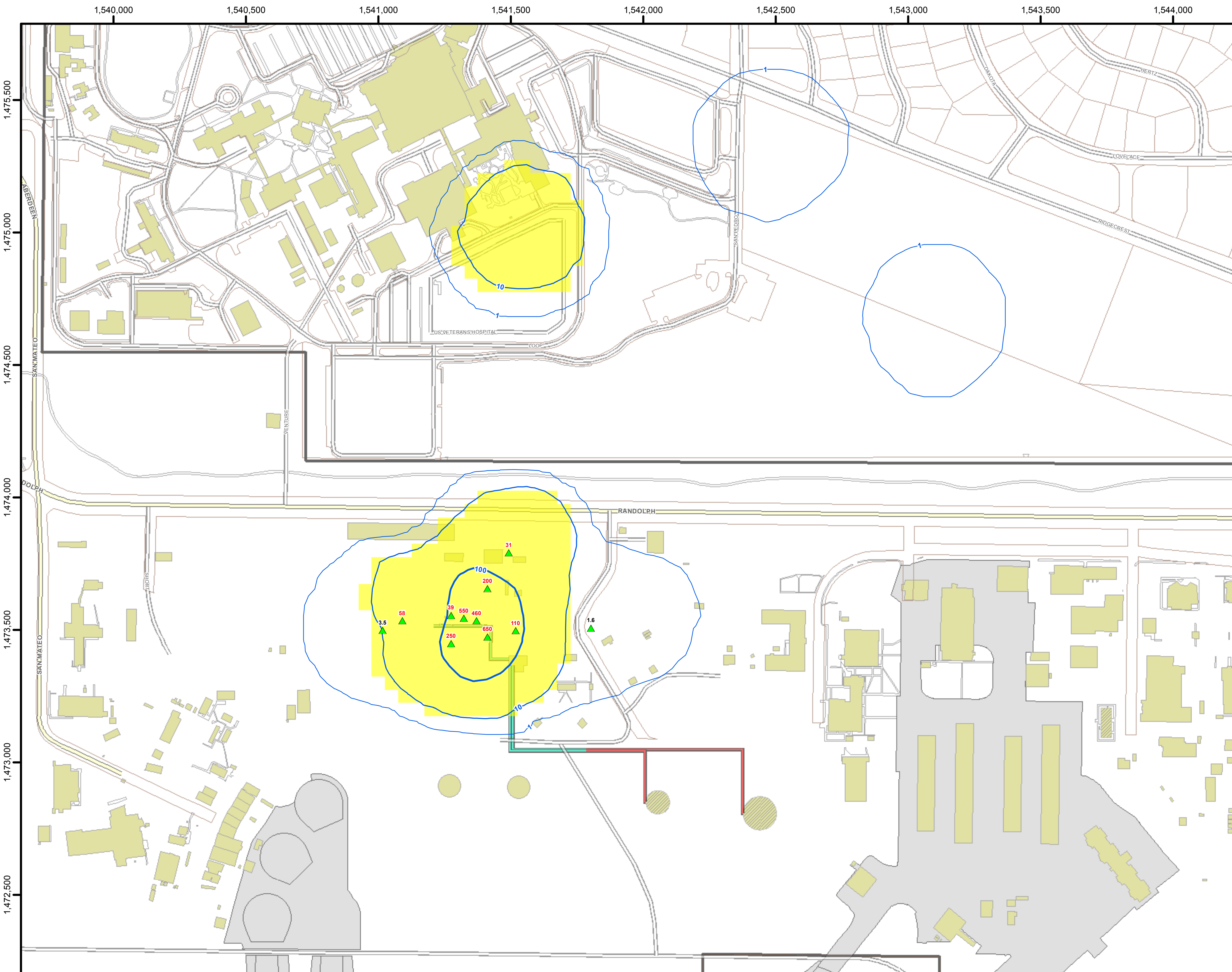
Feet

1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 16

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.0
- 8.1 - 230.9

Estimated Exceedance Area of PRG: ~16.8 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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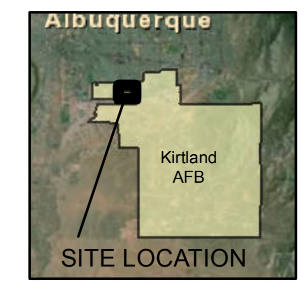


Revision Date: 3/19/2014

N

0 200 400 800

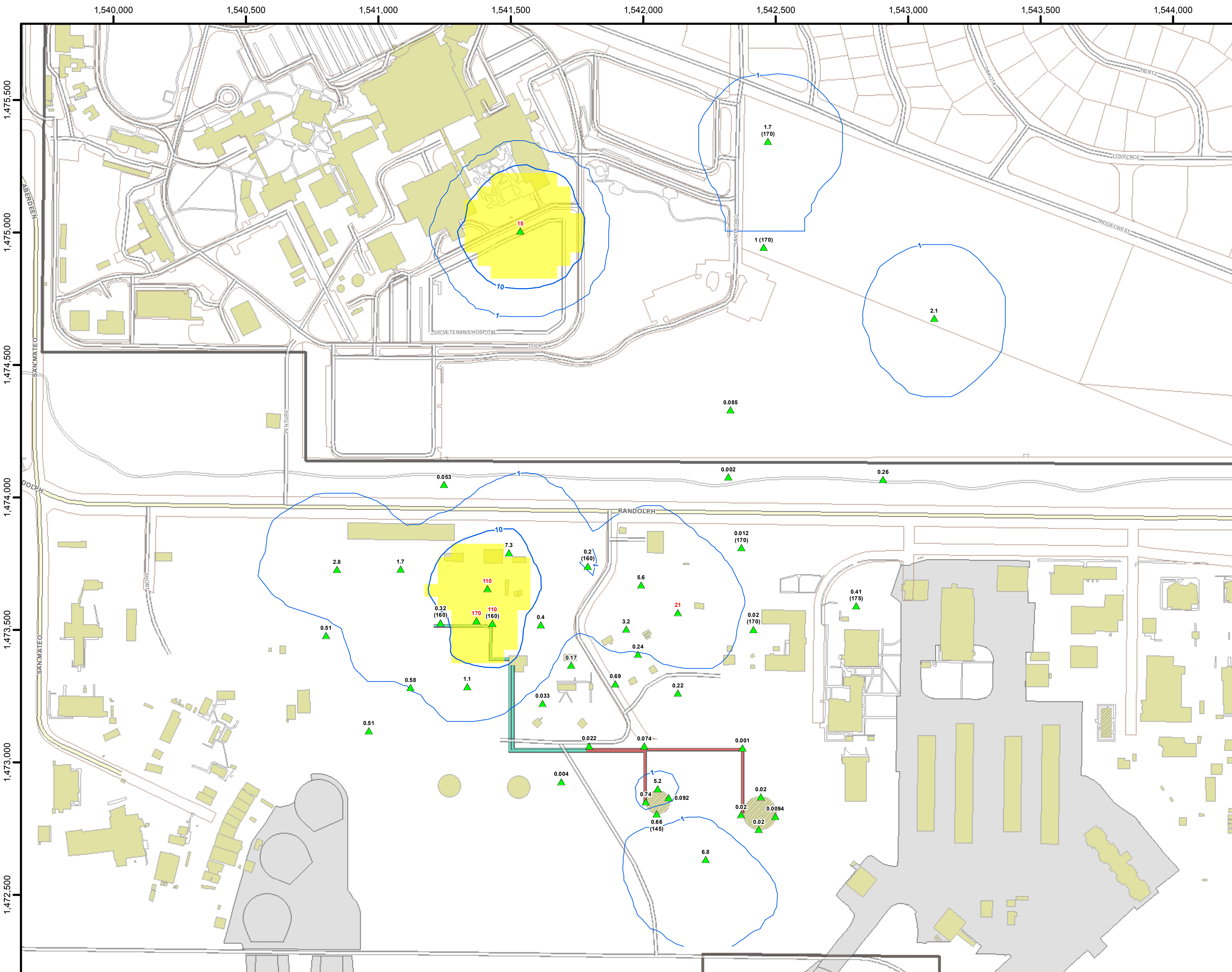
Feet

1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 17

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)

- 0 - 11.9
- 12 - 59.9

Estimated Exceedance Area of PRG: ~6.2 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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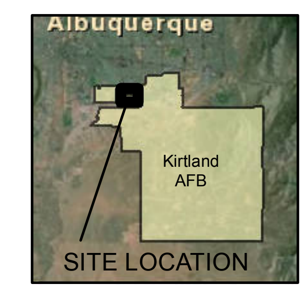


Revision Date: 3/19/2014

N

0 200 400 800

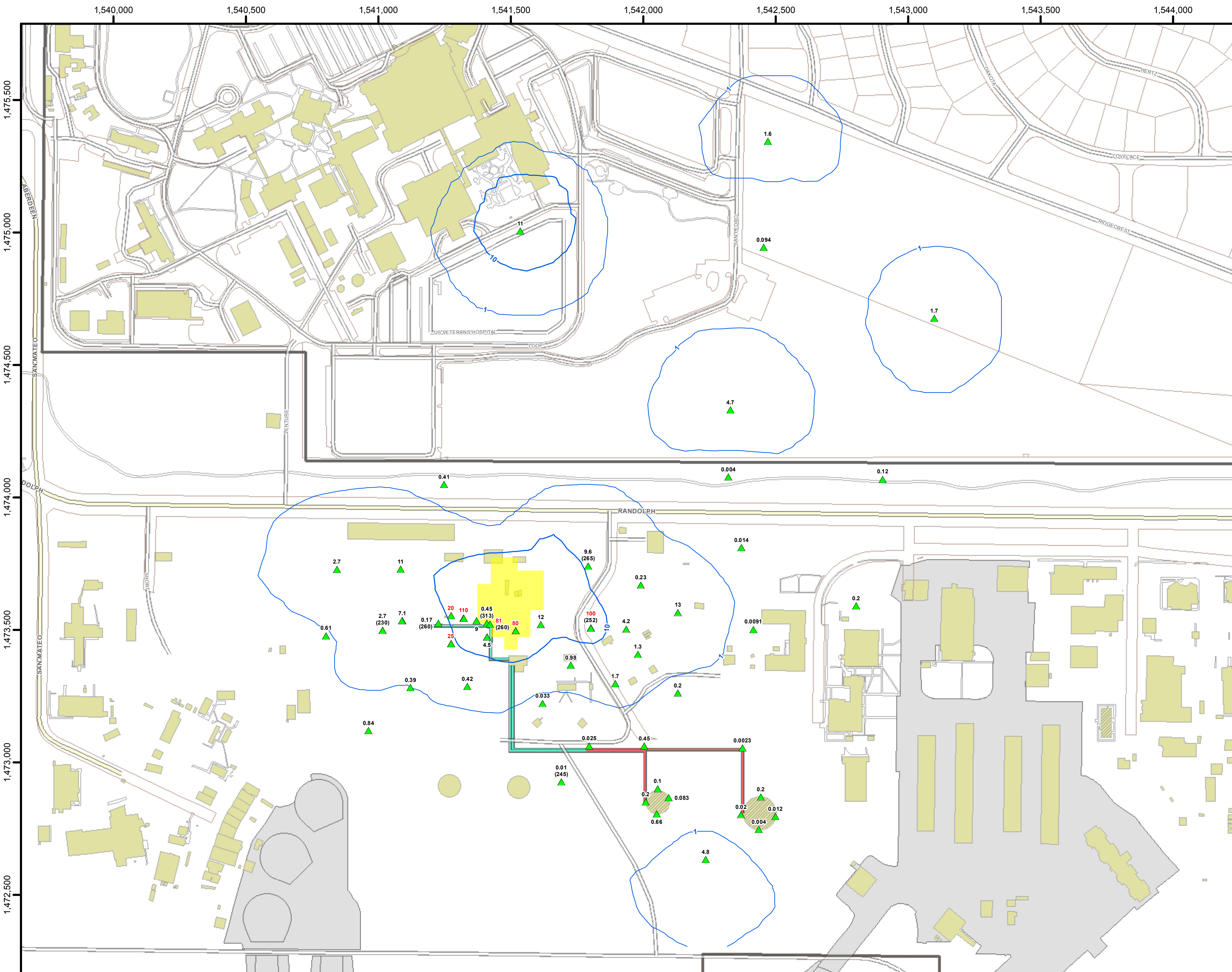
Feet

1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 18

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 24.8

Estimated Exceedance Area of PRG: ~1.3 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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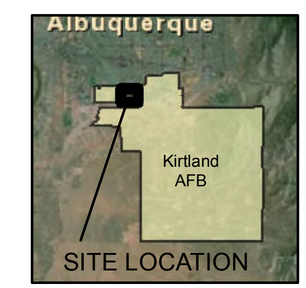


Revision Date: 3/19/2014

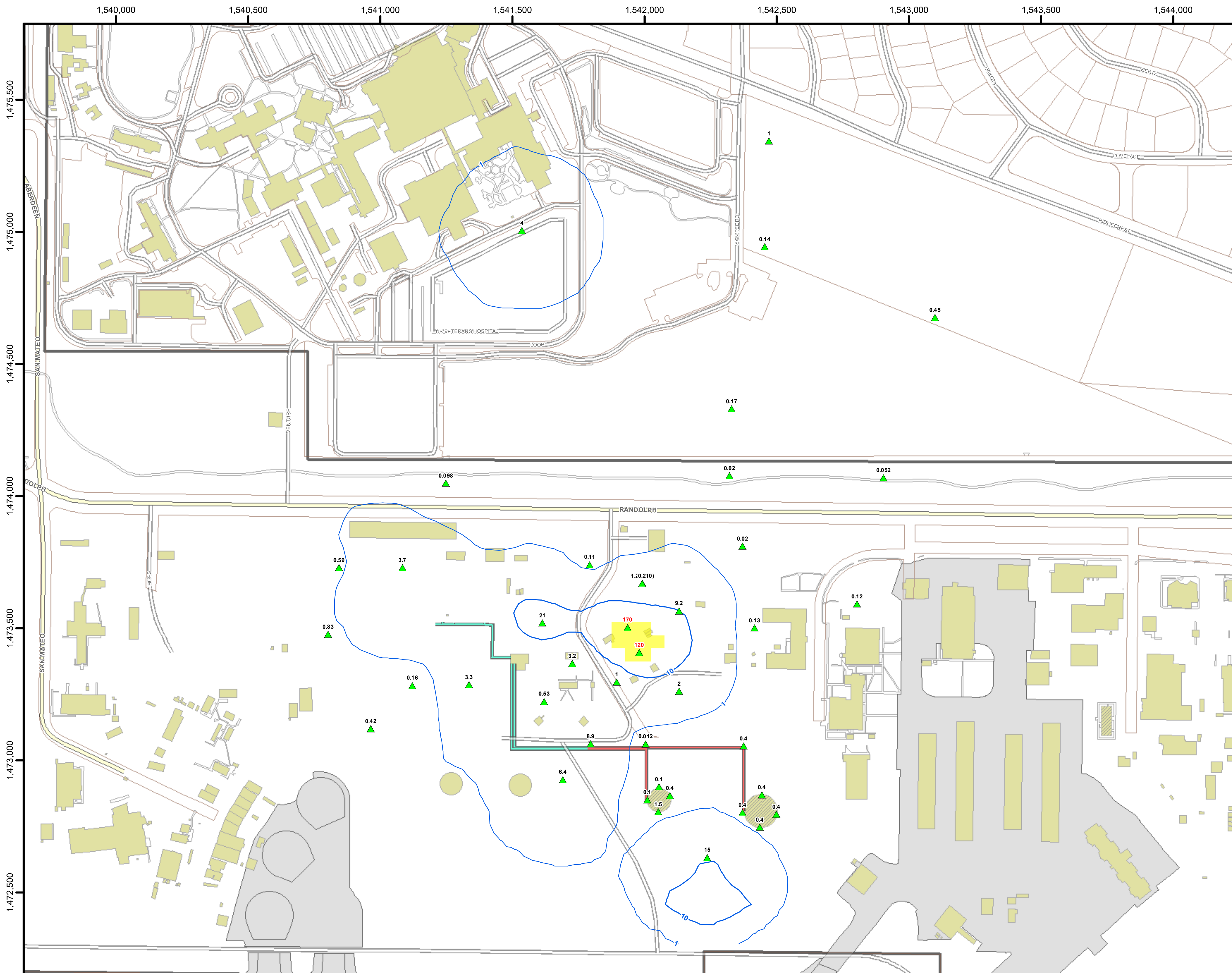
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 19

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 54

Estimated Exceedance Area of PRG: ~0.5 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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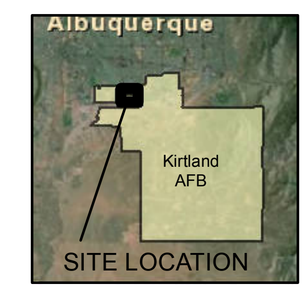

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

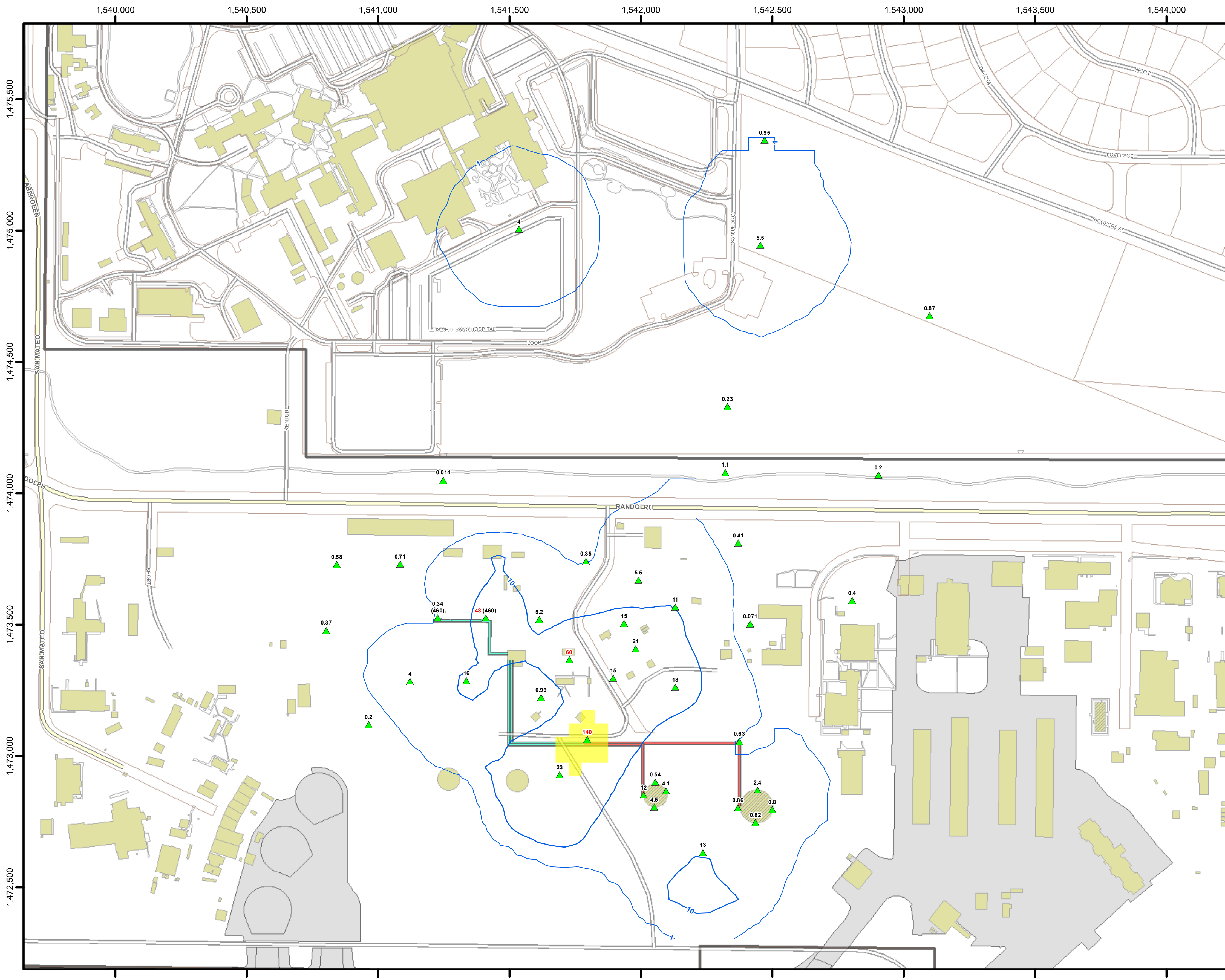
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 20

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours
- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (35.4 ppmv)
- 0 - 35.3
- 35.4 - 72.3

Estimated Exceedance Area of PRG: ~0.75 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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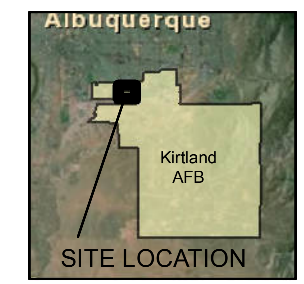


Revision Date: 3/19/2014

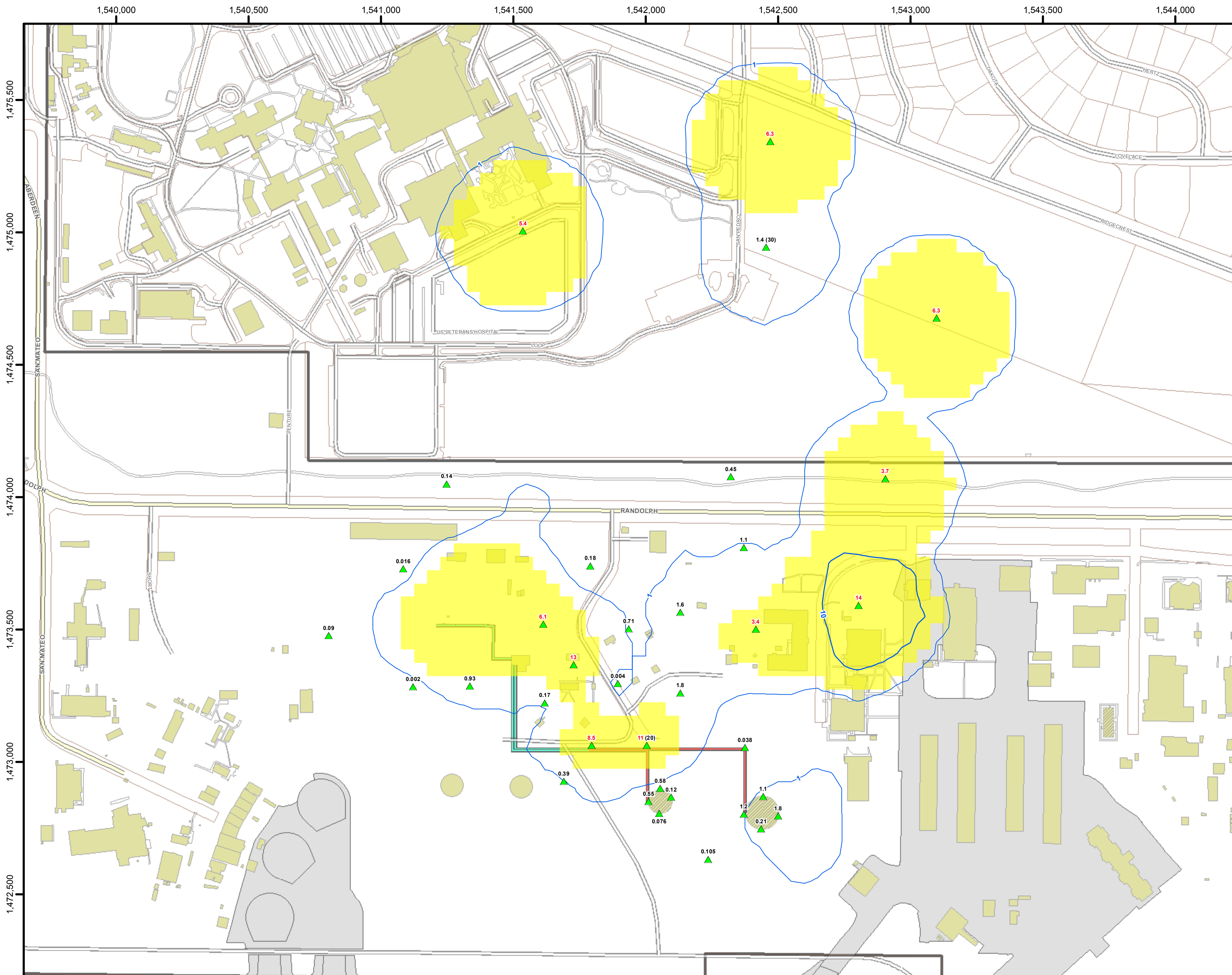
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 21

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)

- 0 - 2.2
- 2.3 - 14.4

Estimated Exceedance Area of PRG: ~36.5 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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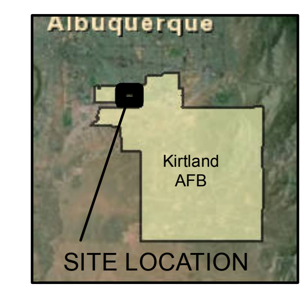


Revision Date: 3/19/2014

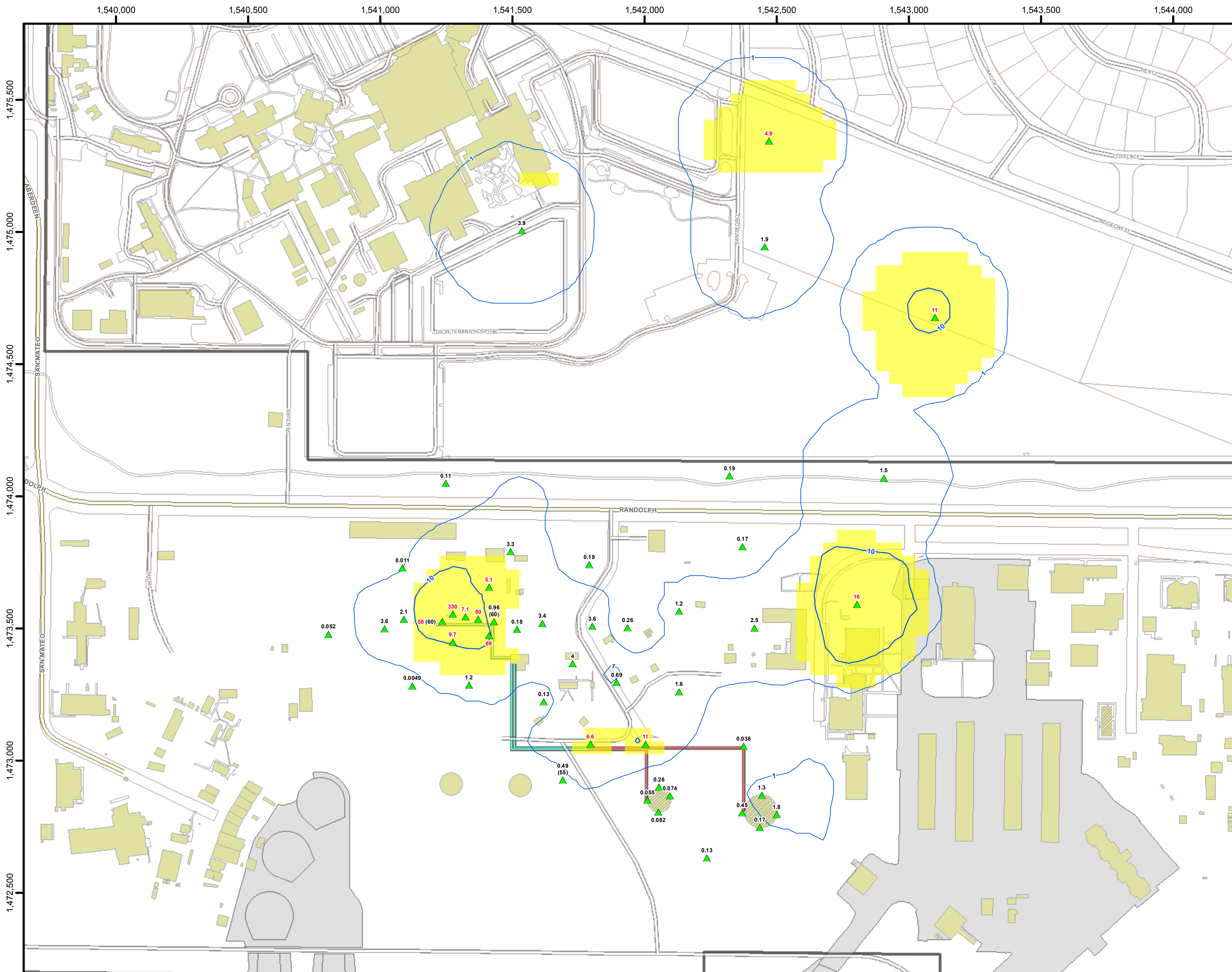
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 22

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1] — symbol label example: 2 (55)

Benzene Vapor Concentration Contours
- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (4.25 ppmv)
- 0 - 4.24
- 4.25 - 51.2

Estimated Exceedance Area of PRG: ~17.3 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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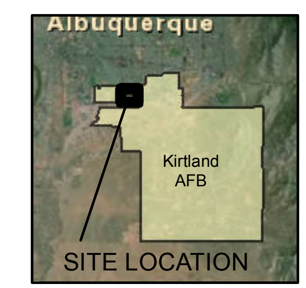

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 23

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG

Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.0
- 8.1 - 218.6

Estimated Exceedance Area of PRG: ~11.7 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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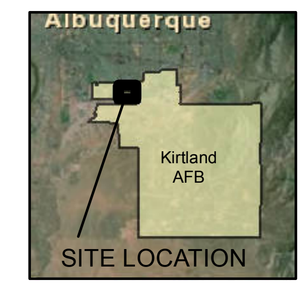


Revision Date: 3/19/2014

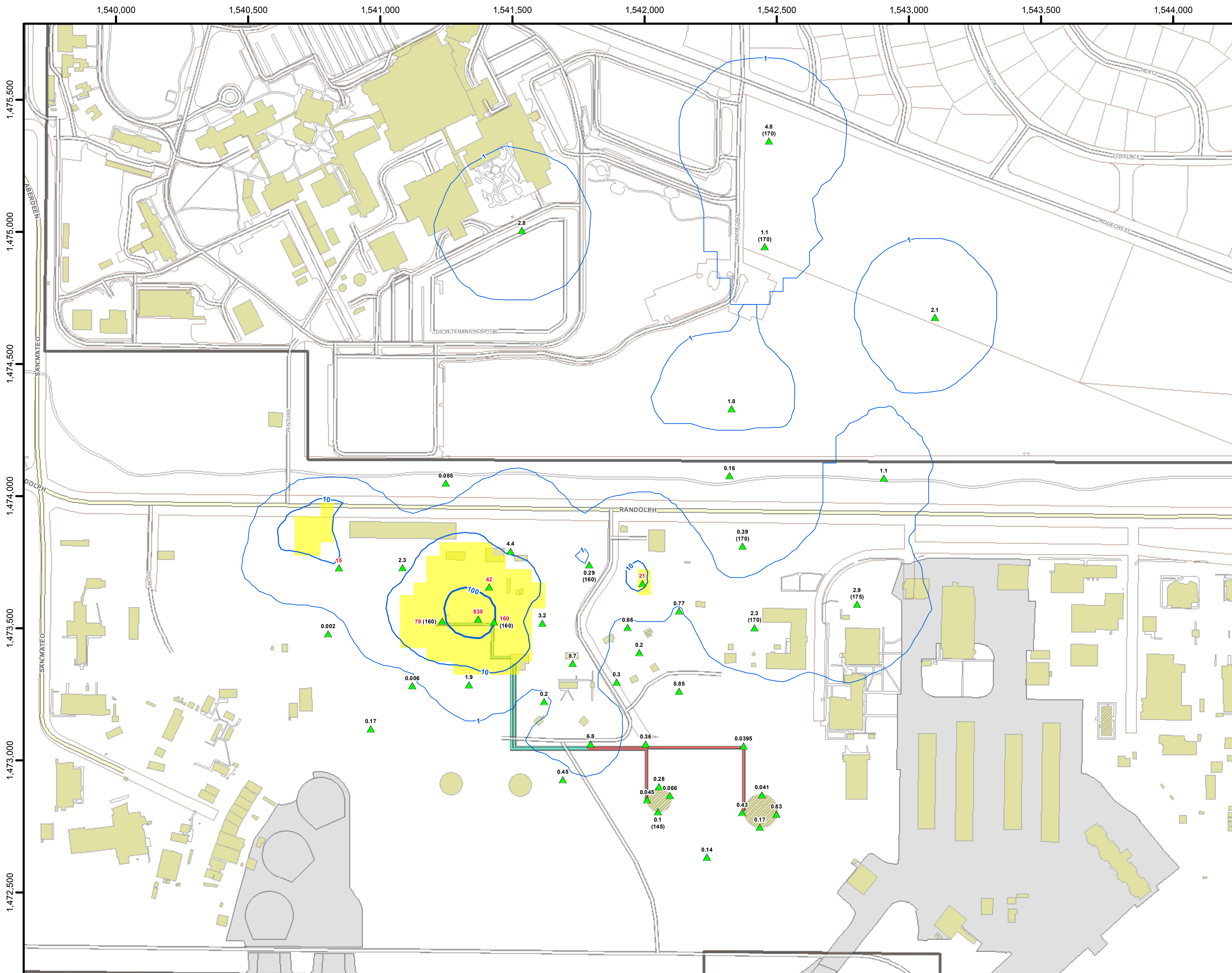
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 24

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)

- 0 - 11.9
- 12 - 273

Estimated Exceedance Area of PRG: ~4.9 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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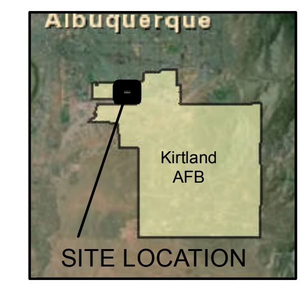


Revision Date: 3/19/2014

N

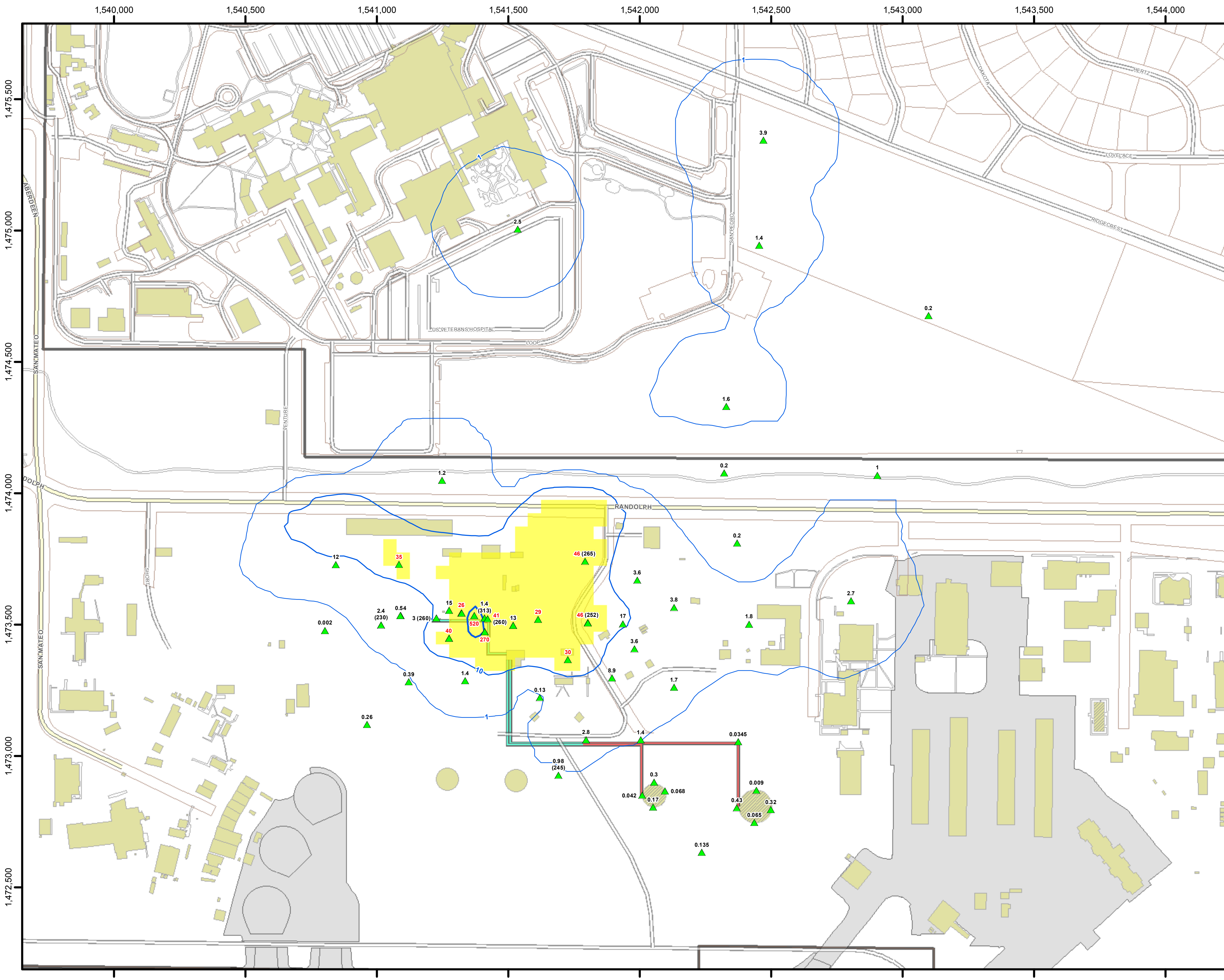
0 200 400 800 Feet

1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 25

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

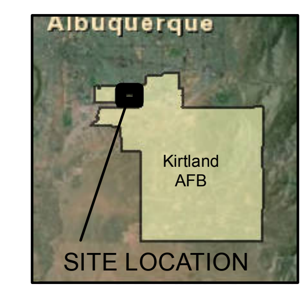
Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 141.7

Estimated Exceedance Area of PRG: ~7.1 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) Preliminary Remediation Goal (PRG) for planning purposes only, based on depth-specific Johnson & Ettinger Vapor Intrusion Model, future hypothetical residential exposure scenario, conservatively assuming vadose zone soil type is uniformly loamy sand. PRG is depth-specific soil gas concentration protective of indoor air; see text for further details.



Revision Date: 3/19/2014

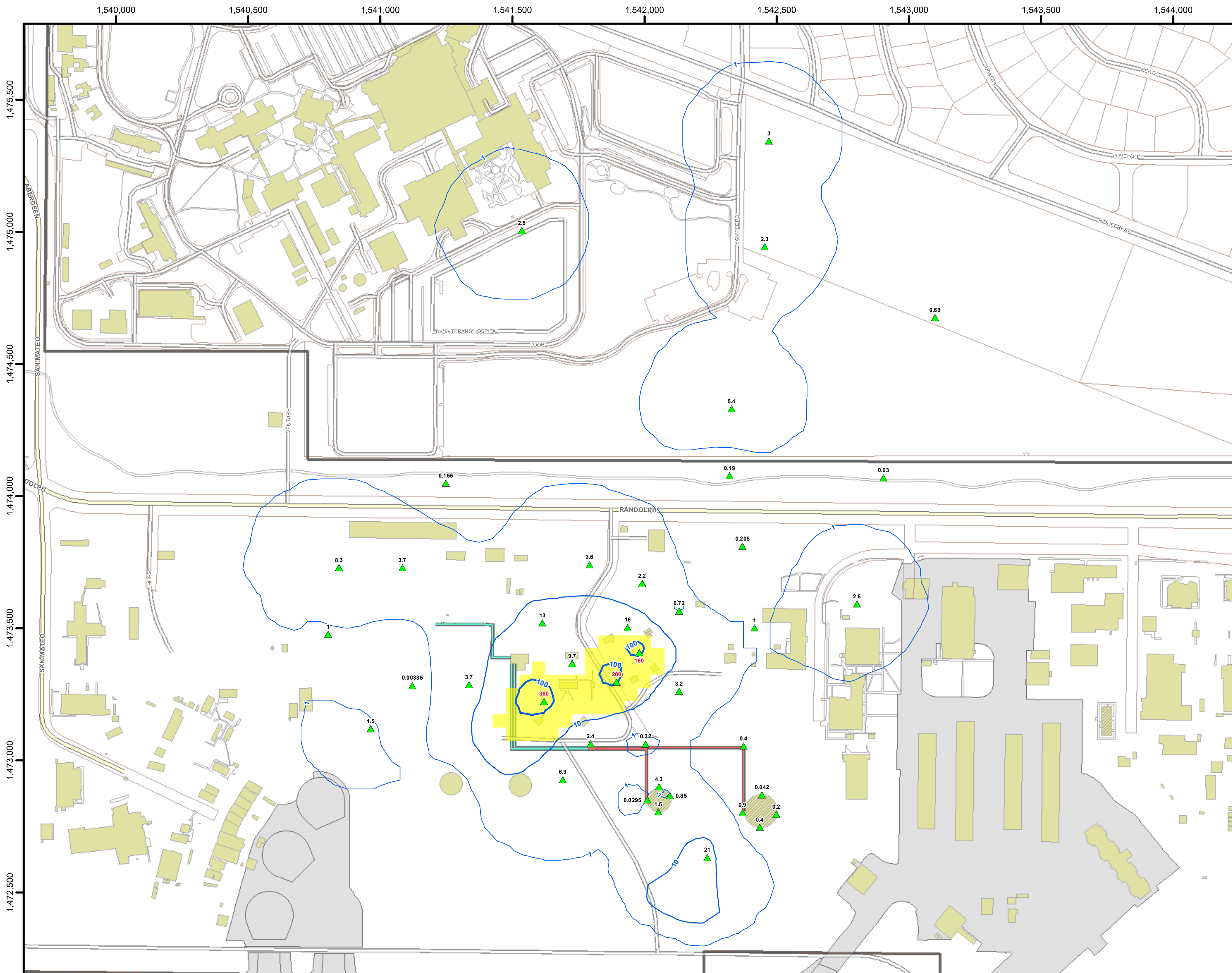
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 26

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 360

Estimated Exceedance Area of PRG: ~3.2 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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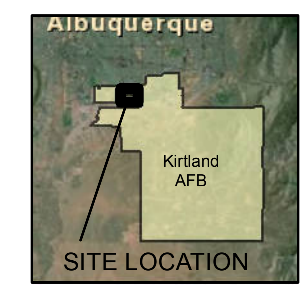


Revision Date: 3/19/2014

N

0 200 400 800

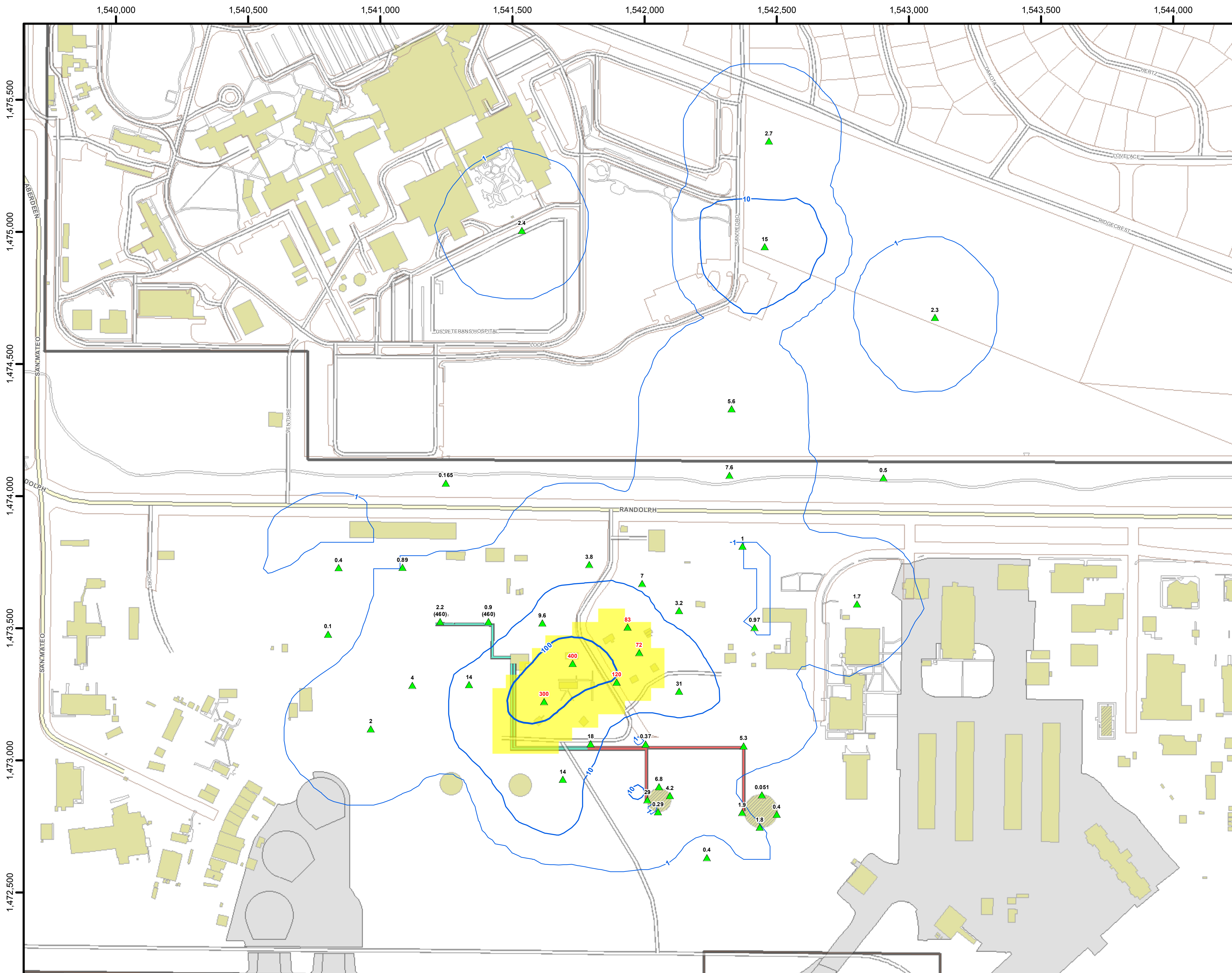
Feet

1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 27

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (35.4 ppmv)

- 0 - 35.3
- 35.4 - 398

Estimated Exceedance Area of PRG: ~5.2 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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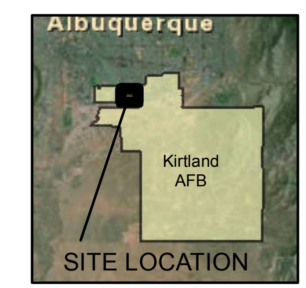

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

N

0 200 400 800

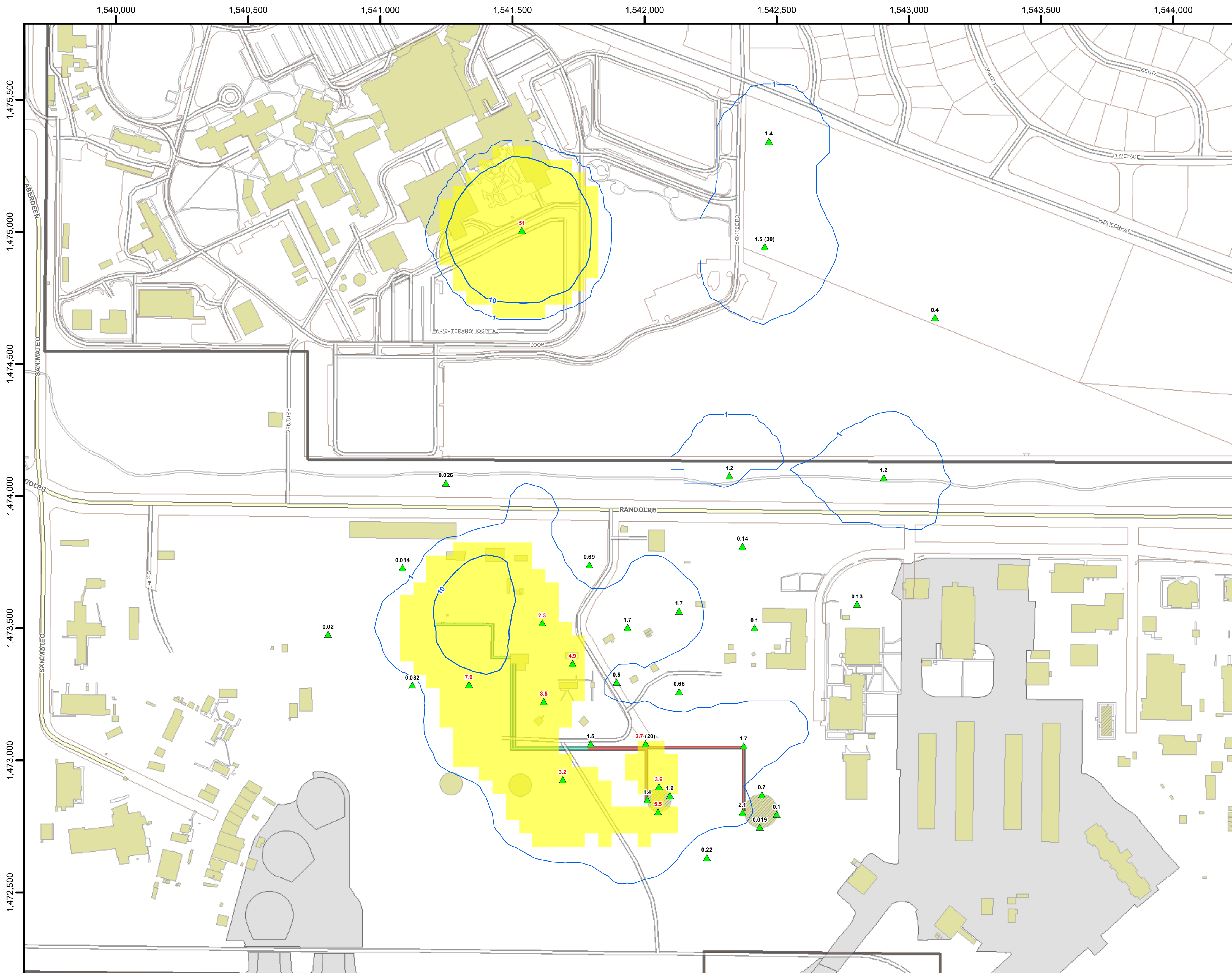
Feet

1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 28

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)

- 0 - 2.2
- 2.3 - 51

Estimated Exceedance Area of PRG: ~20.2 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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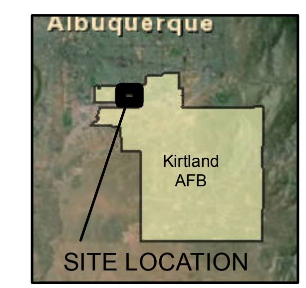


Revision Date: 3/19/2014

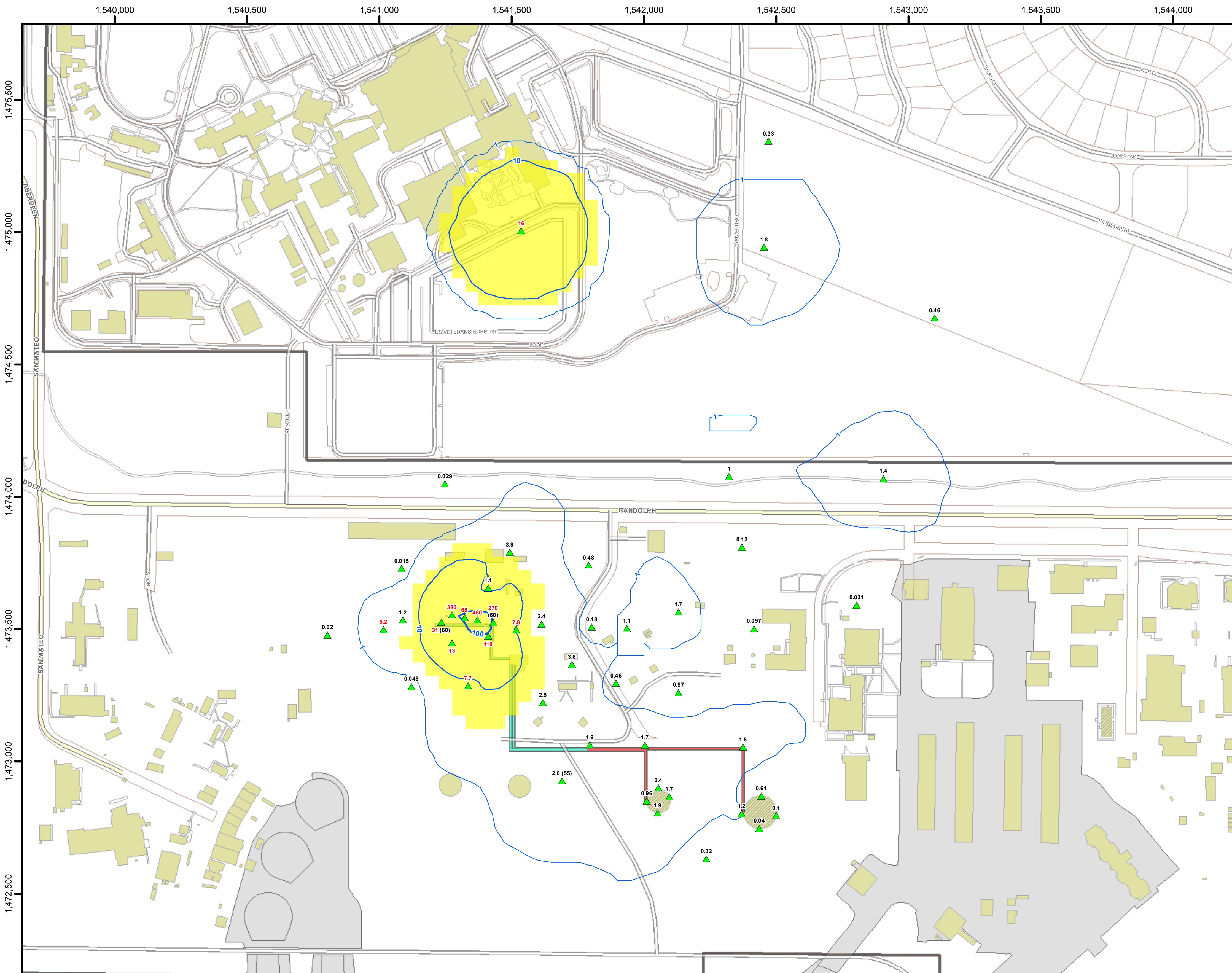
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 29

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (4.25 ppmv)

- 0 - 4.24
- 4.25 - 128.8

Estimated Exceedance Area of PRG: ~11.9 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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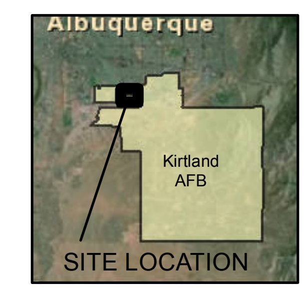


Revision Date: 3/19/2014

N

0 200 400 800

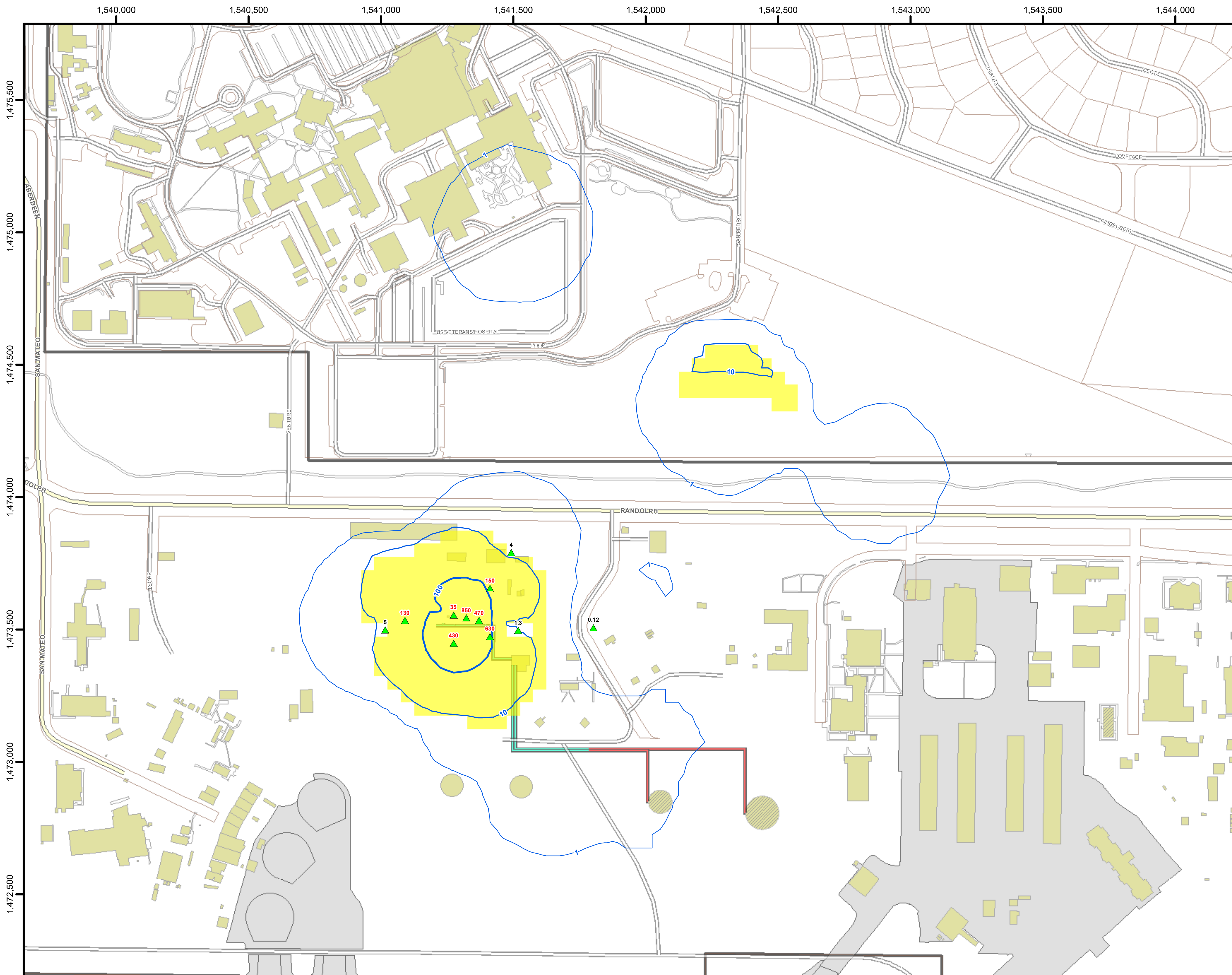
Feet

1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 30

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.0
- 8.1 - 311.5

Estimated Exceedance Area of PRG: ~10.5 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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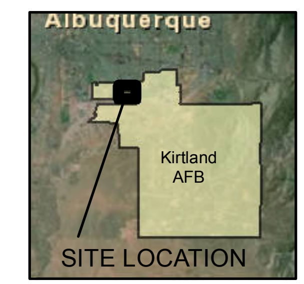

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

N

0 200 400 800

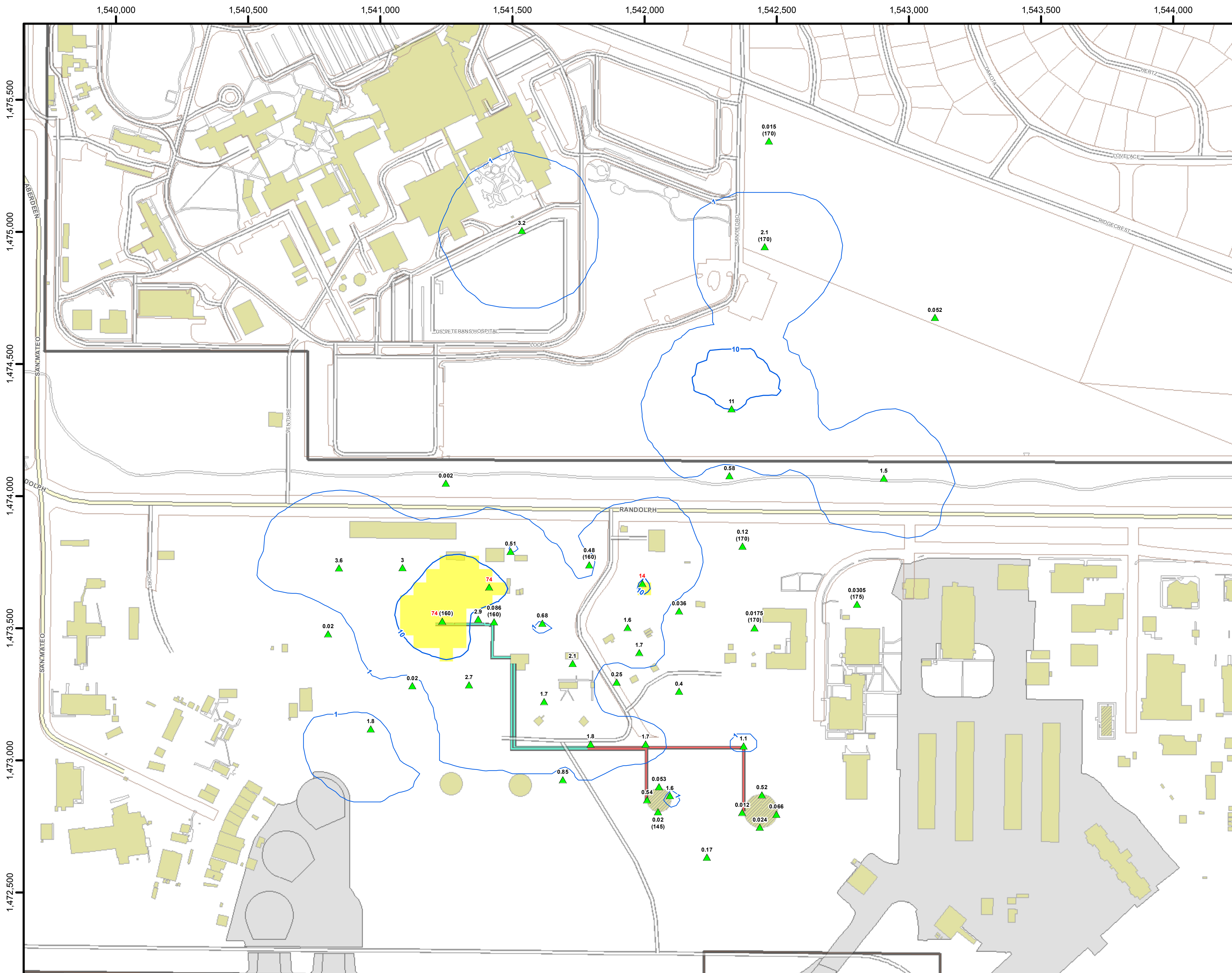
Feet

1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 31

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)

- 0 - 11.9
- 12 - 41.3

Estimated Exceedance Area of PRG: ~2.1 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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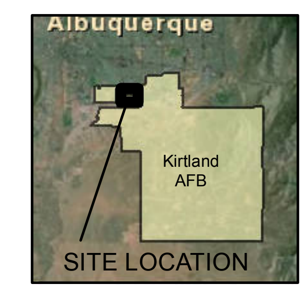


Revision Date: 3/19/2014

N

0 200 400 800

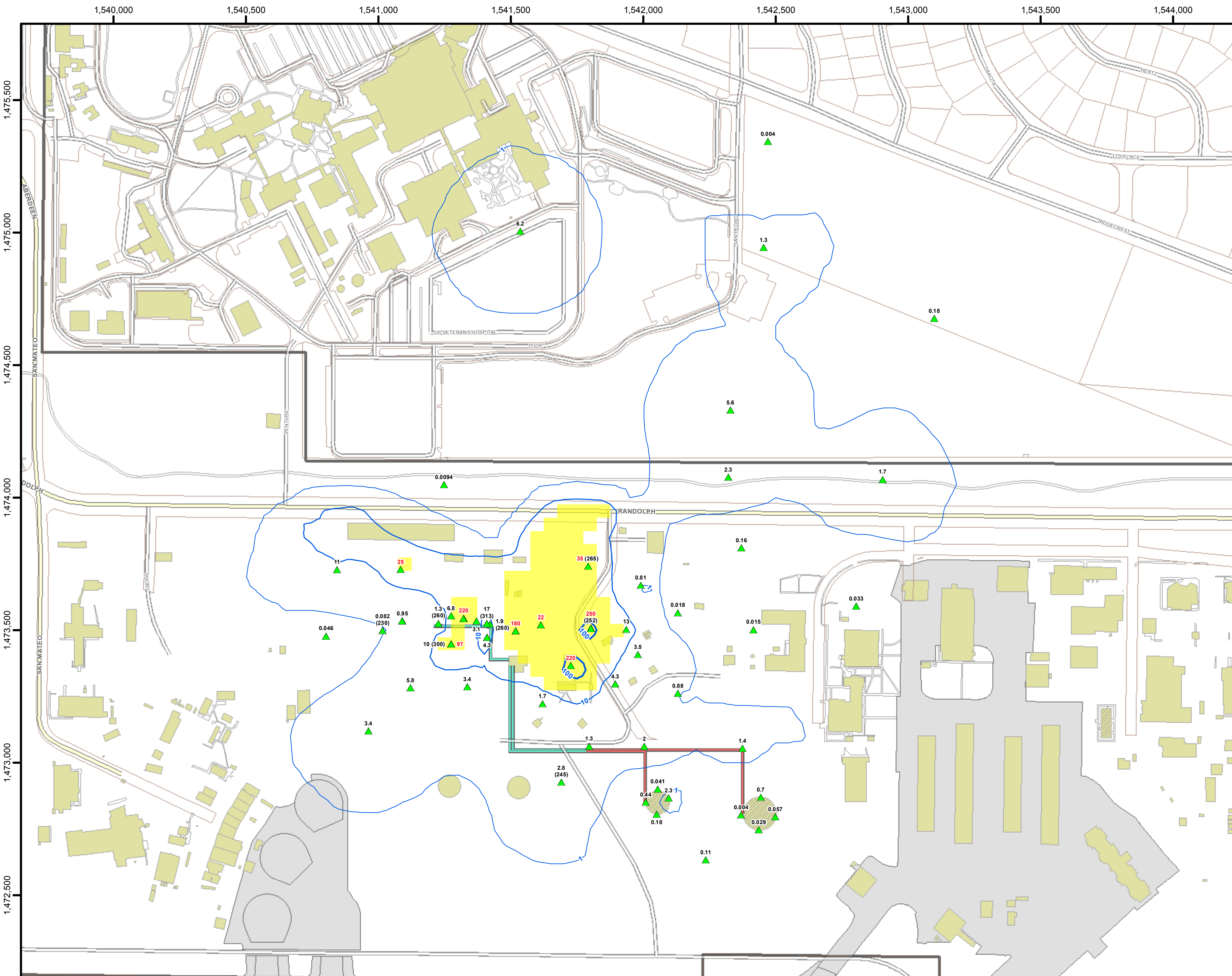
Feet

1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 32

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 220

Estimated Exceedance Area of PRG: ~5.3 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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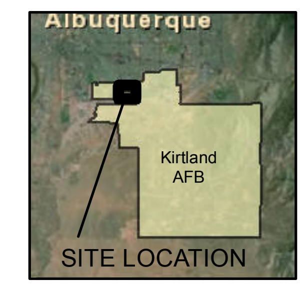


Revision Date: 3/19/2014

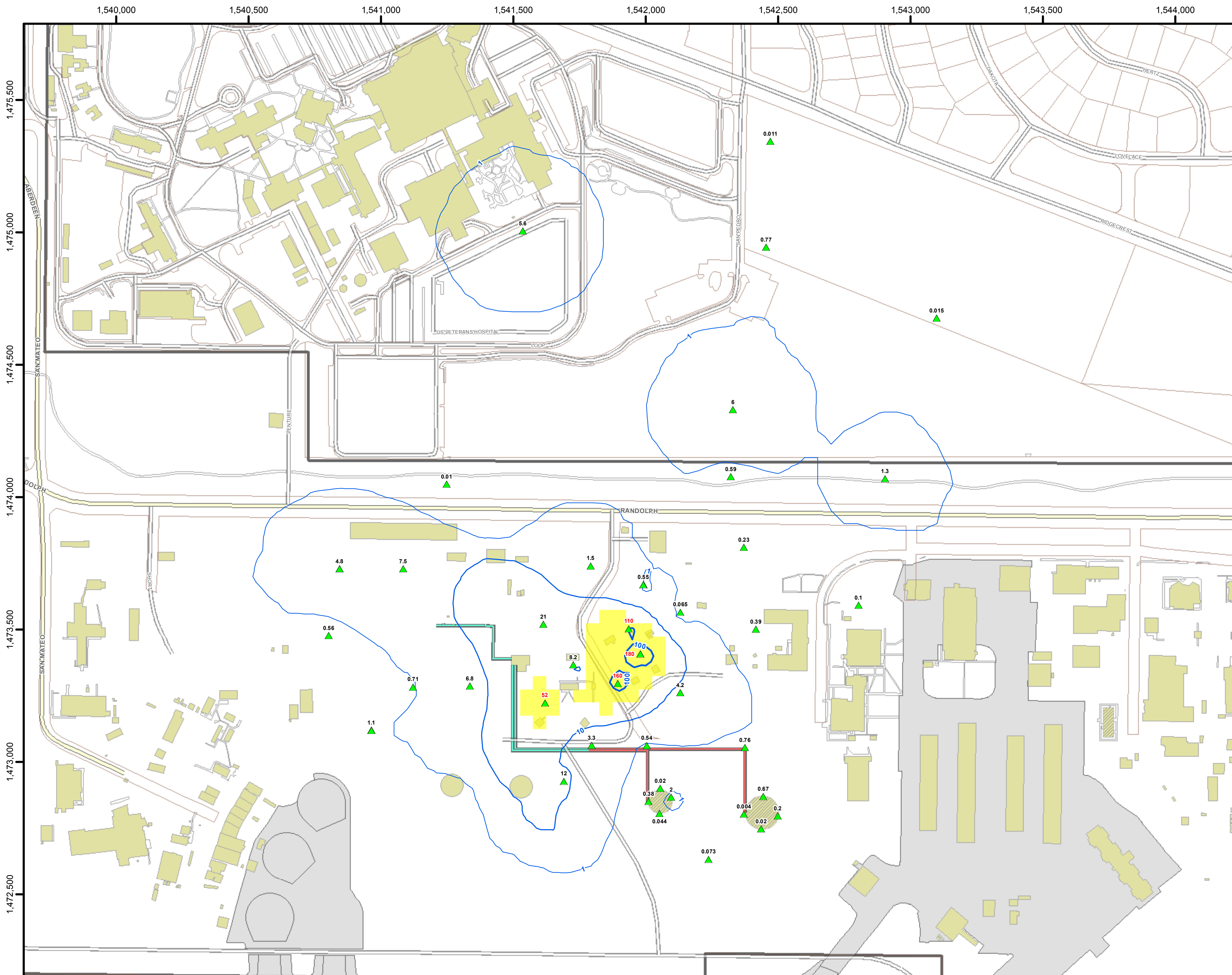
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 33

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 180

Estimated Exceedance Area of PRG: ~2.4 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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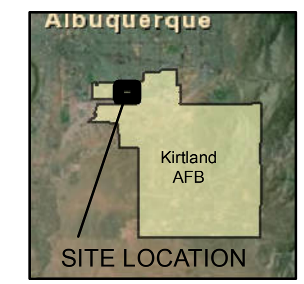

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

N

0 200 400 800

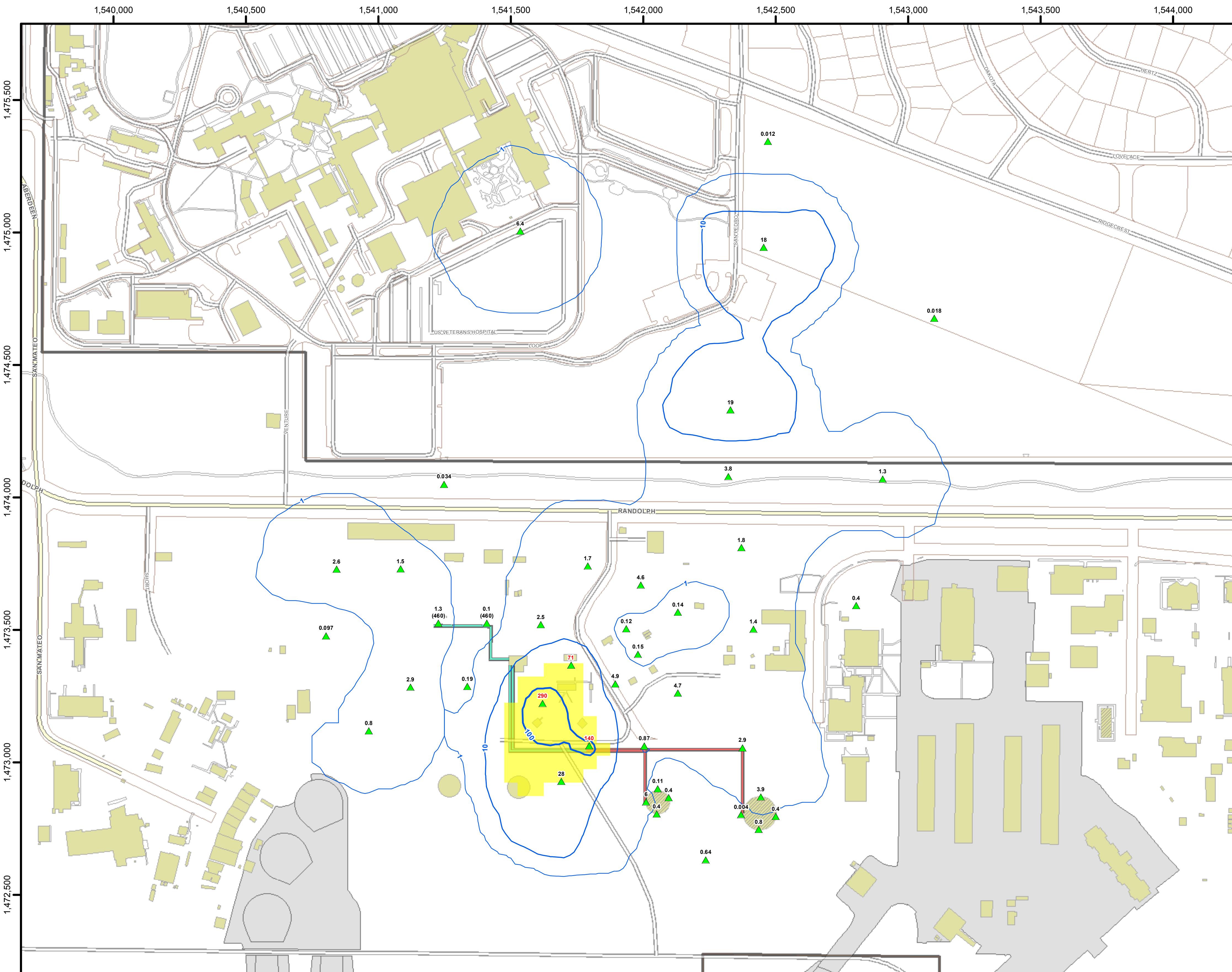
Feet

1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 34

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (35.4 ppmv)

- 0 - 35.3
- 35.4 - 290

Estimated Exceedance Area of PRG: ~3.2 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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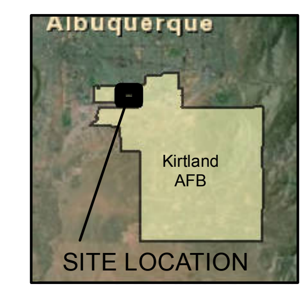


Revision Date: 3/19/2014

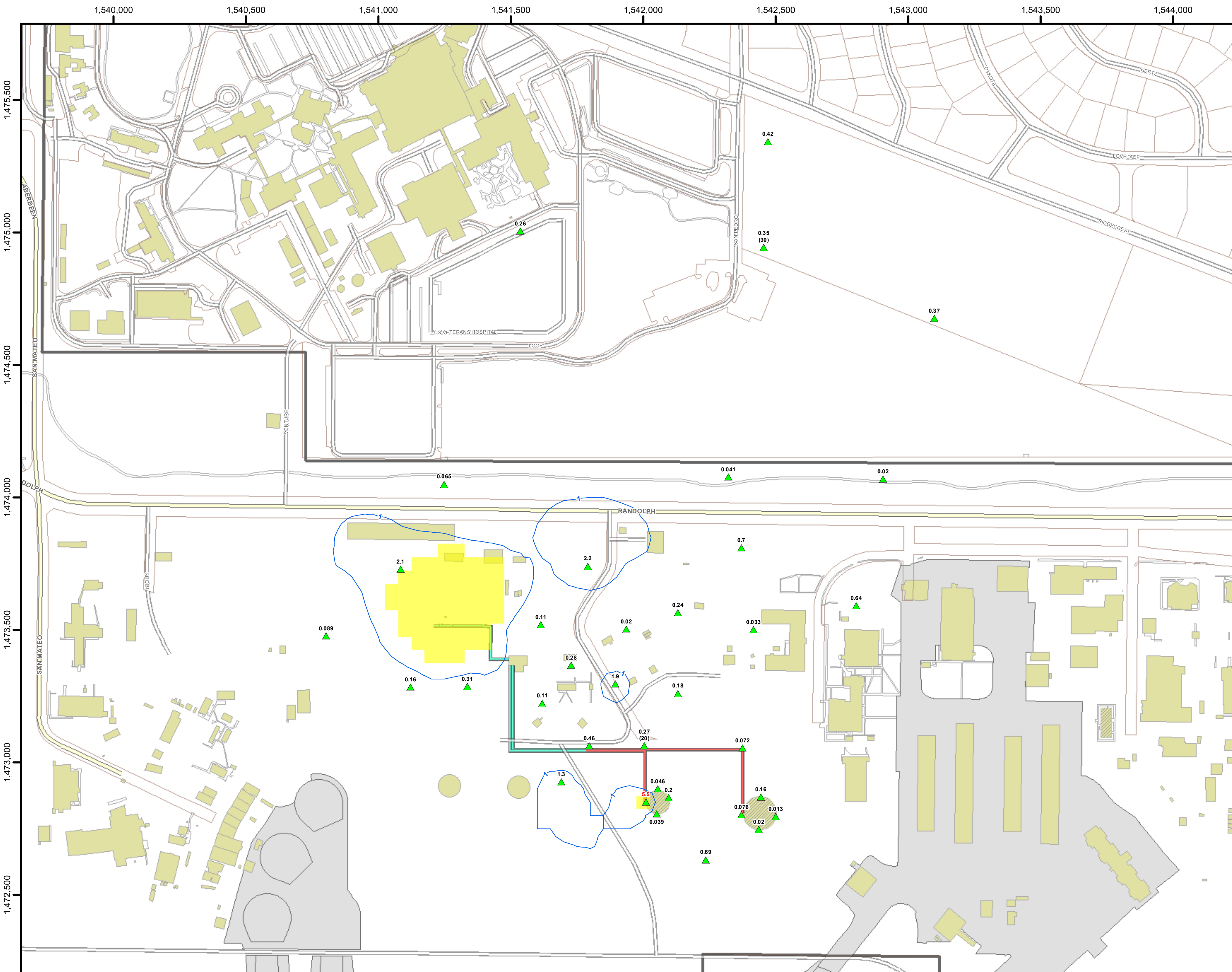
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 35

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)

- 0 - 2.2
- 2. - 8.1

Estimated Exceedance Area of PRG: ~3.3 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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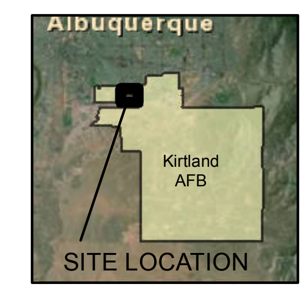


Revision Date: 3/20/2014

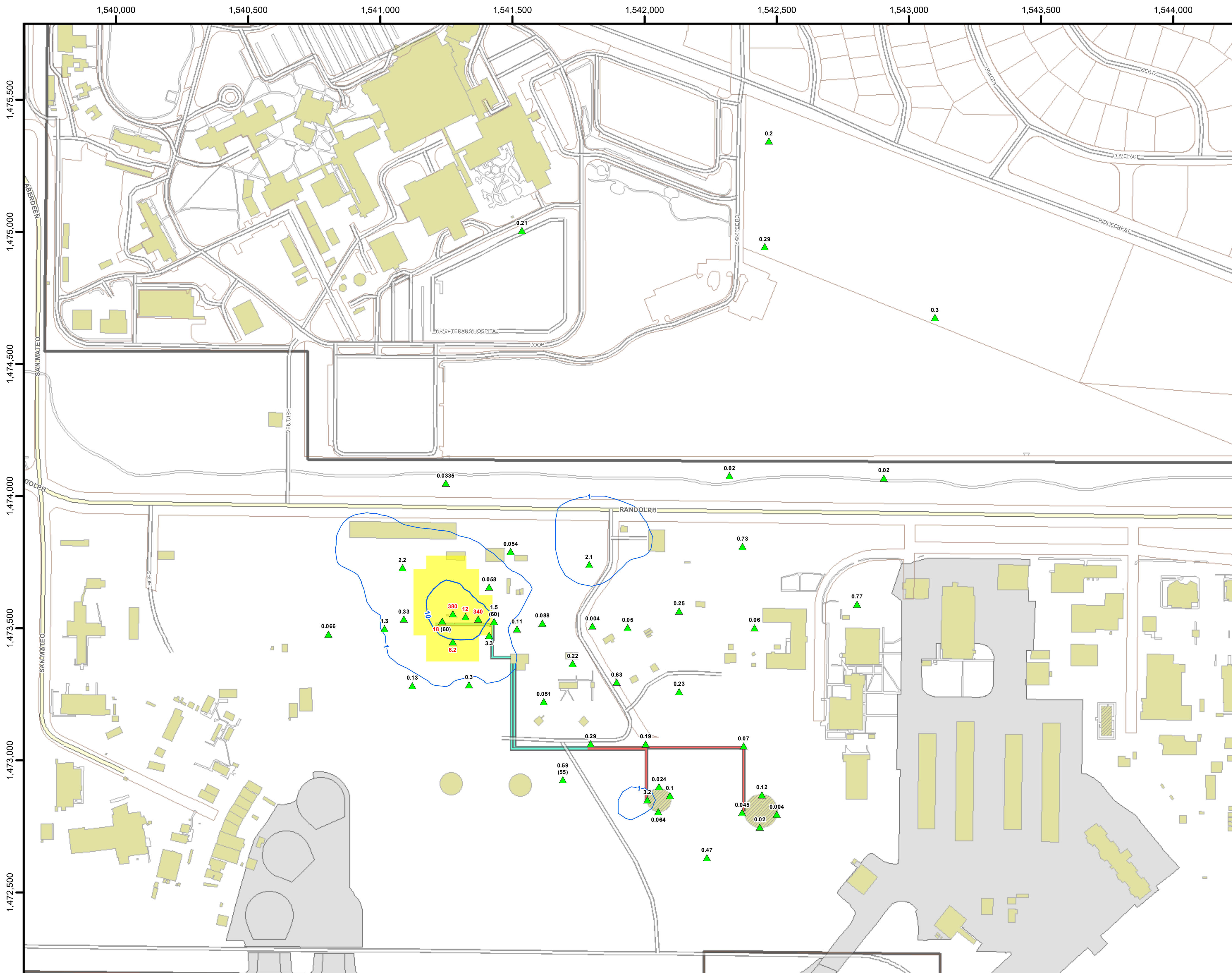
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 36

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (4.25 ppmv)

- 0 - 4.24
- 4.25 - 34.5

Estimated Exceedance Area of PRG: ~2.2 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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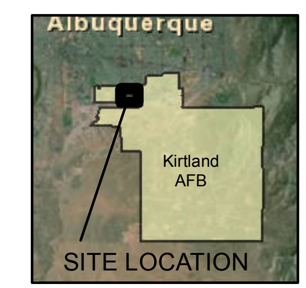


Revision Date: 3/19/2014

N

0 200 400 800

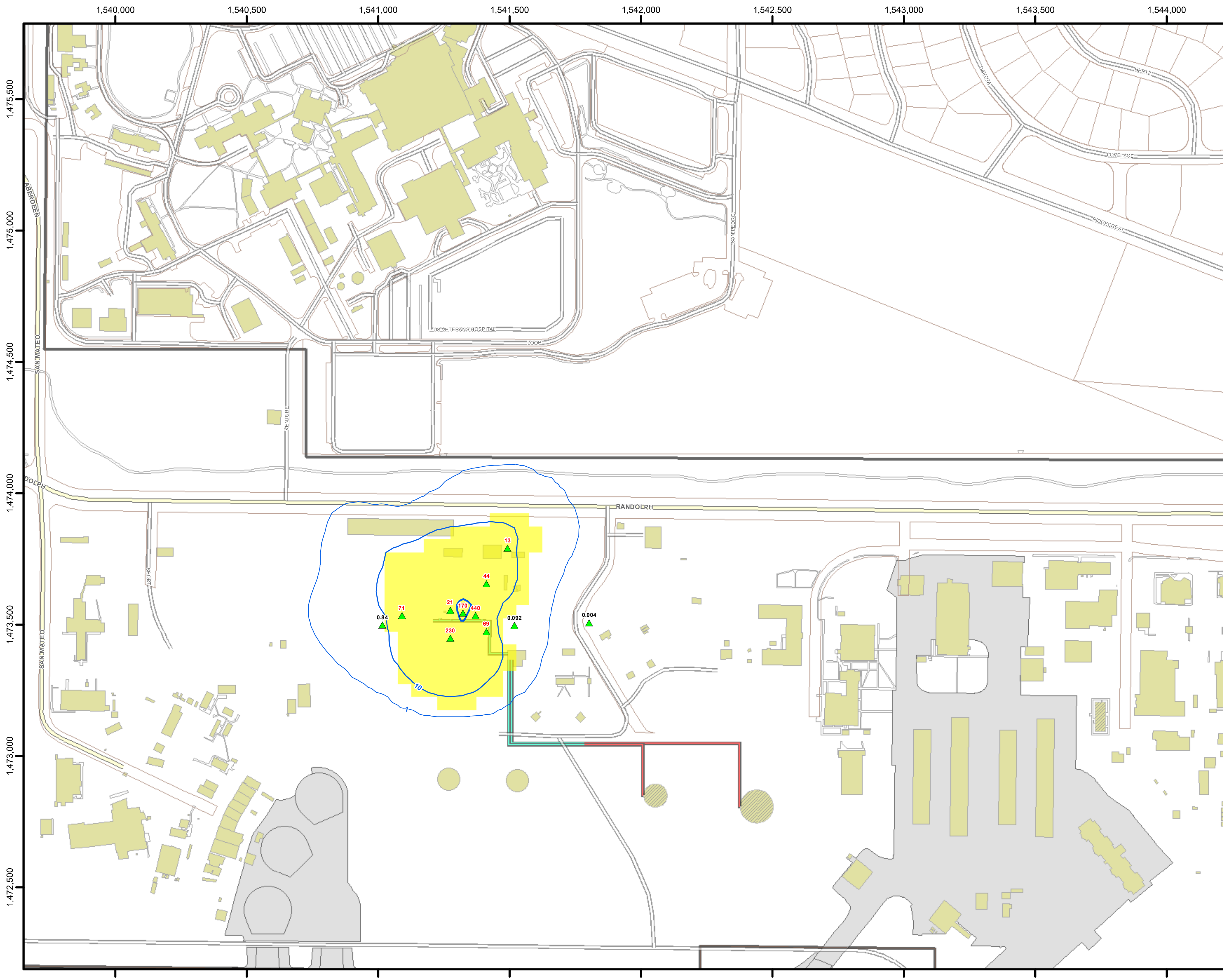
Feet

1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 37

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) ▲ SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.0
- 8.1 - 129.1

Estimated Exceedance Area of PRG: ~7.2 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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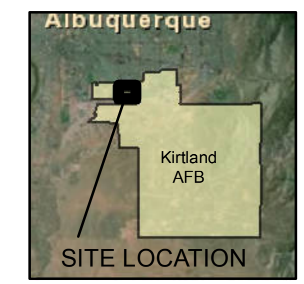


Revision Date: 3/19/2014

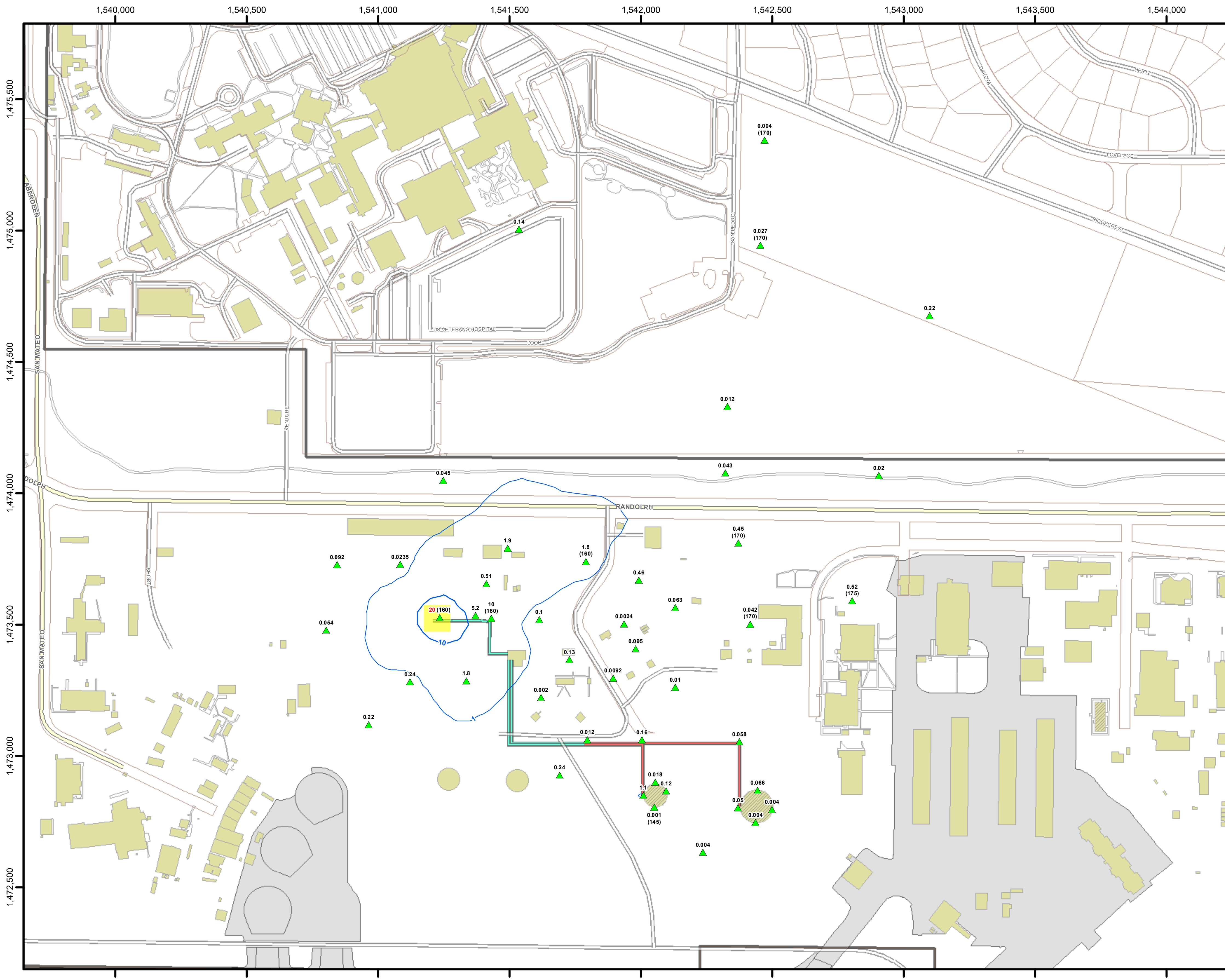
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 38

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

1 ppmv

10 ppmv

100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)

0 - 11.9

12 - 15.7

Estimated Exceedance Area of PRG: ~0.23 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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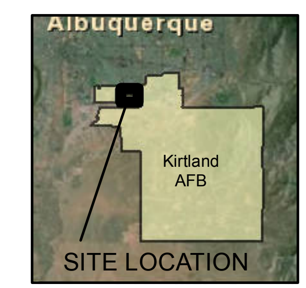


Revision Date: 3/19/2014

N

0 200 400 800

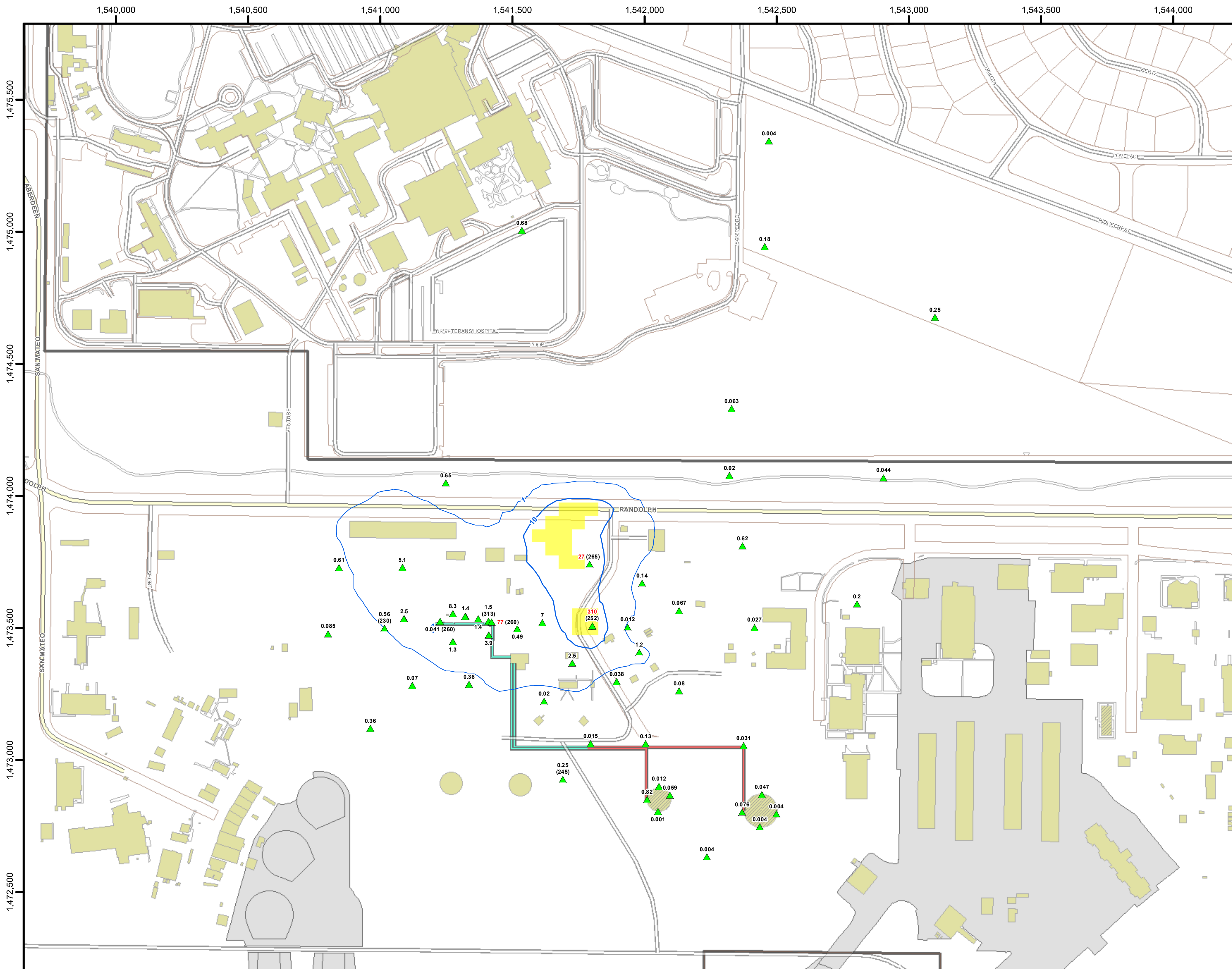
Feet

1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 39

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 107.3

Estimated Exceedance Area of PRG: ~1 acre

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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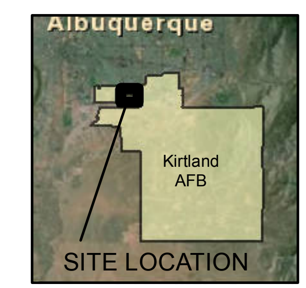

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

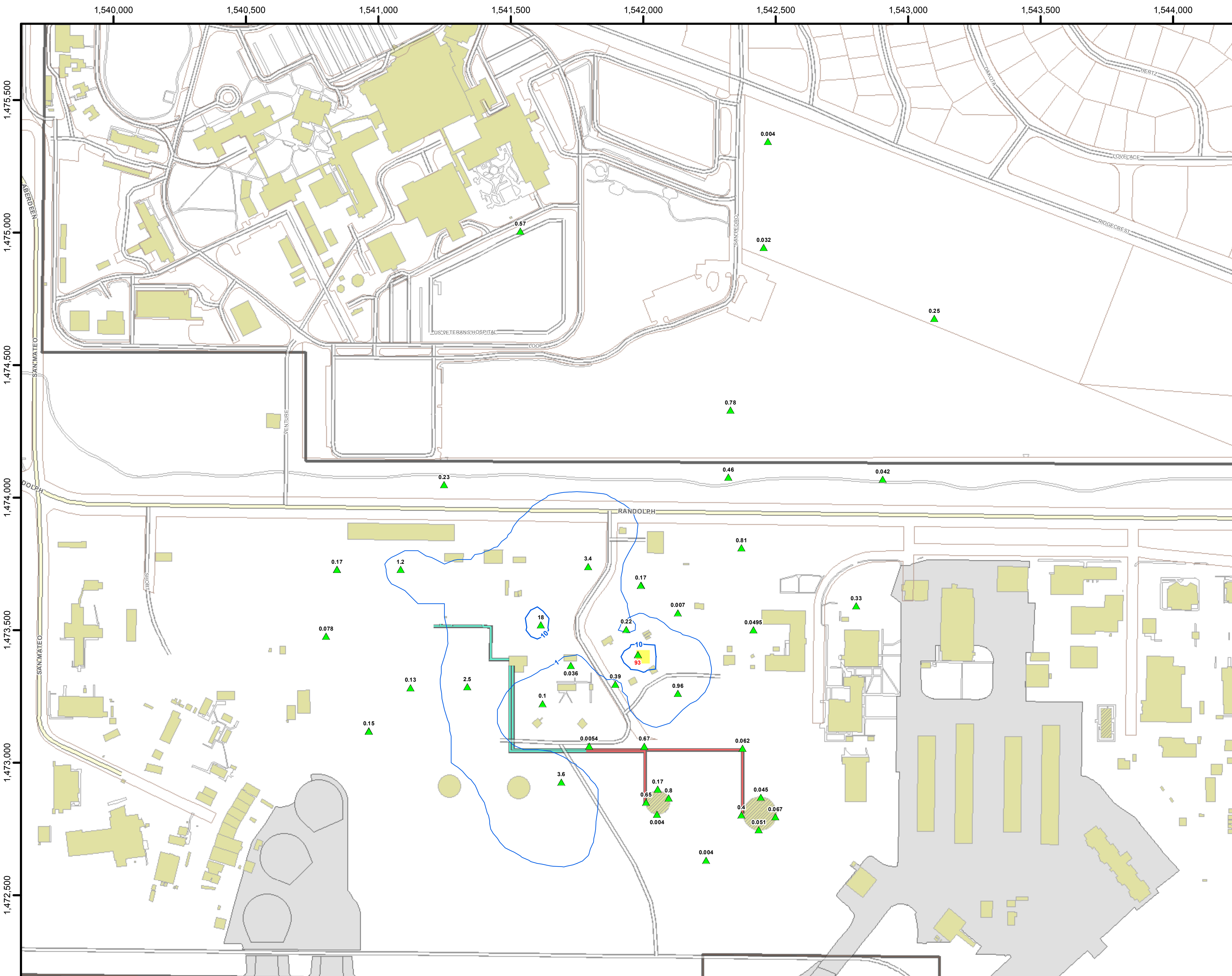
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 40

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 92.6

Estimated Exceedance Area of PRG: ~0.05 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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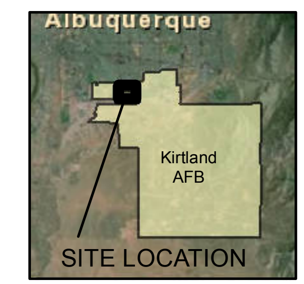

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

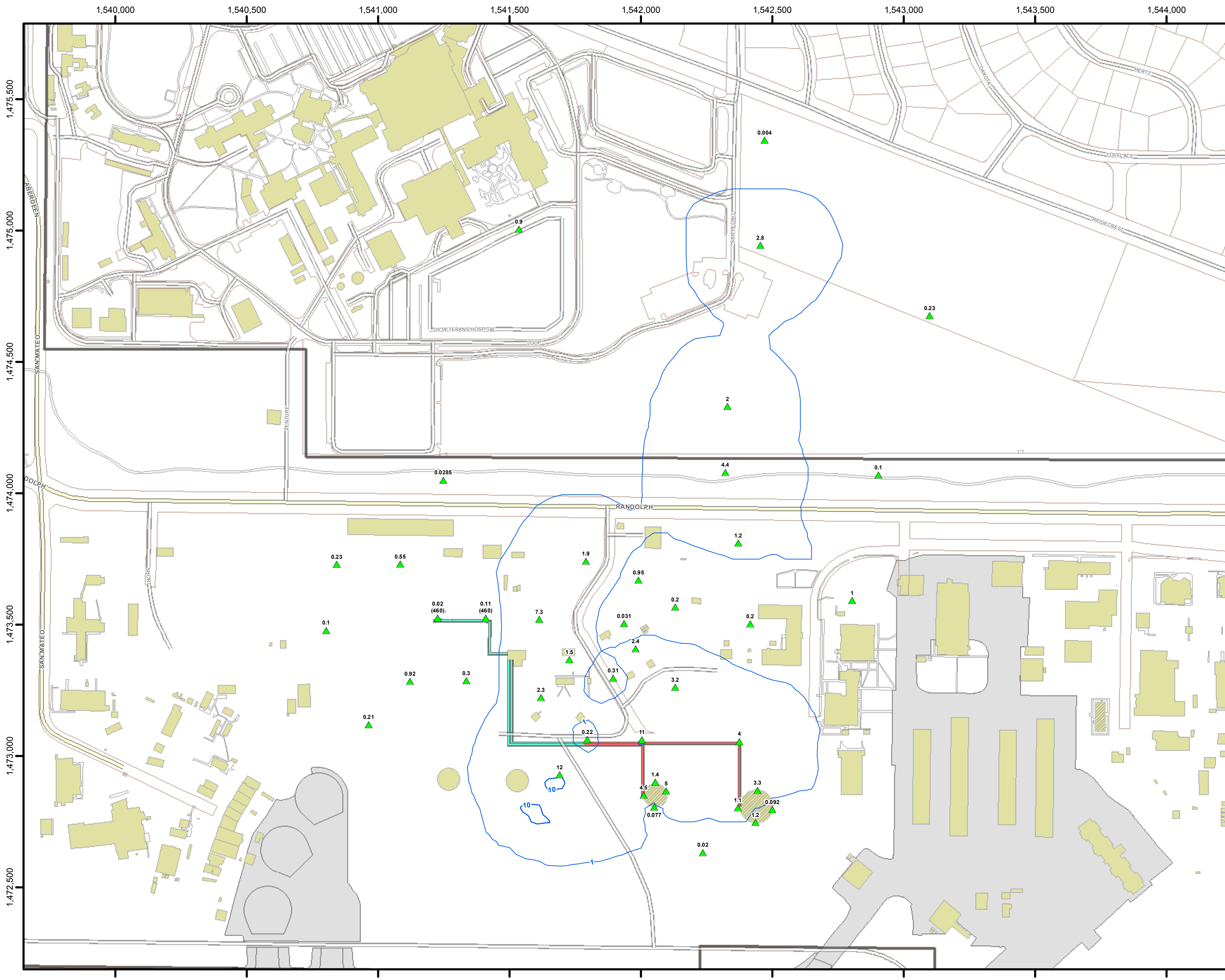
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 41

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (35.4 ppmv)

- 0 - 35.3
- 35.4

Estimated Exceedance Area of PRG: 0 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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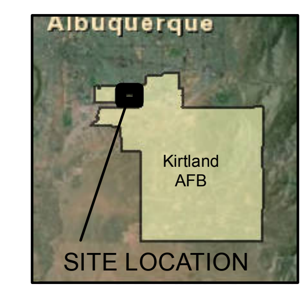

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/19/2014

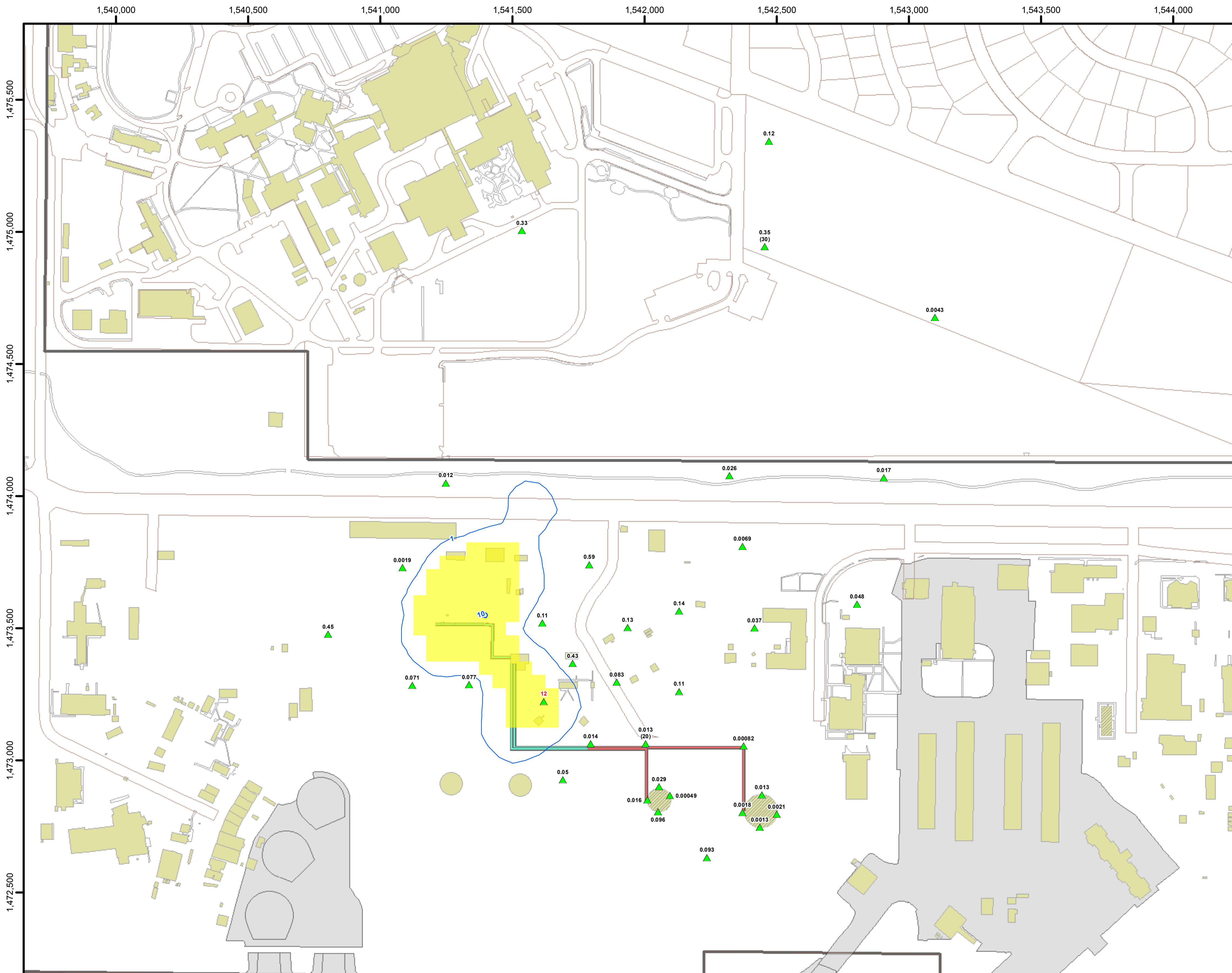
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 42

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)

- 0 - 2.2
- 2.3 - 10.4

Estimated Exceedance Area of PRG: ~4.6 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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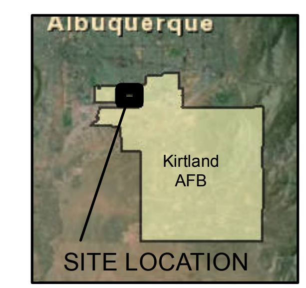


Revision Date: 3/21/2014

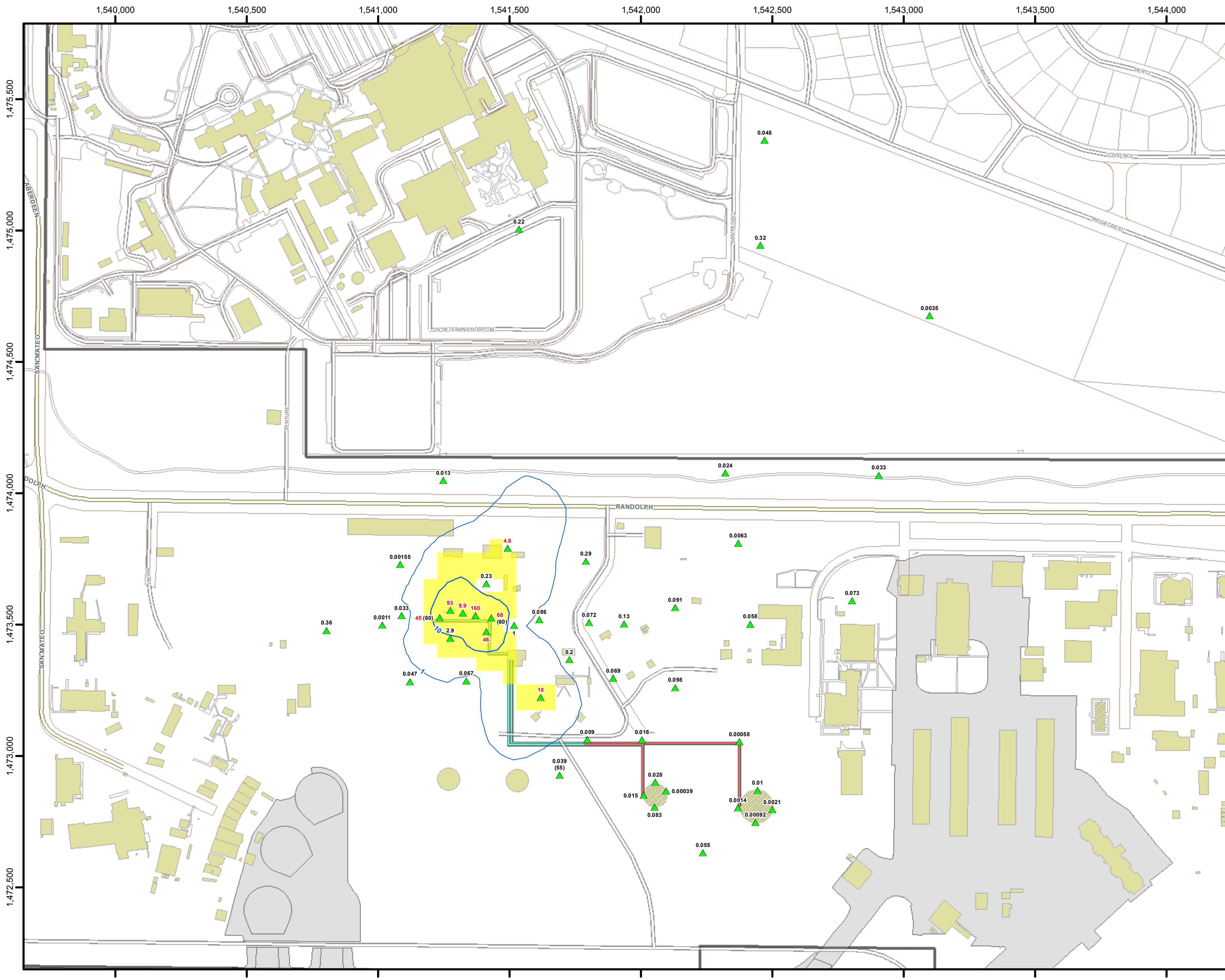
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 43

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (4.25 ppmv)

- 0 - 4.24
- 4.25 - 37.7

Estimated Exceedance Area of PRG: ~3.5 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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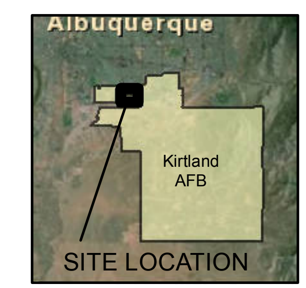

Revision Date: 3/20/2014

N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 44

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG

Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.0
- 8.1 - 97.5

Estimated Exceedance Area of PRG: ~5.9 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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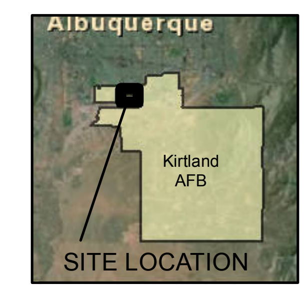

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/20/2014

N

0 200 400 800

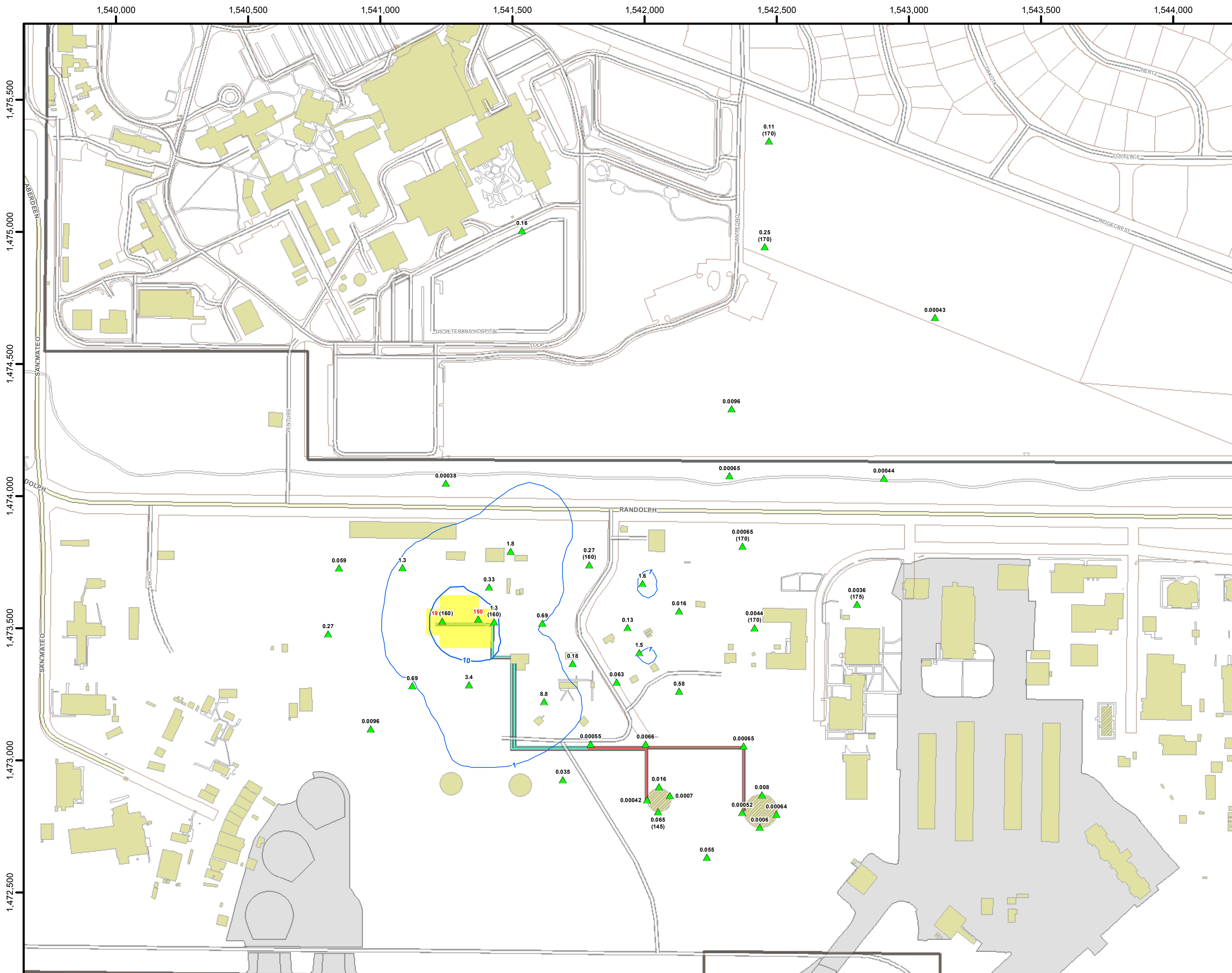
Feet

1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 45

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1] — 2 (55)

Benzene Vapor Concentration Contours
- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)
- 0 - 11.9
- 12 - 38.9

Estimated Exceedance Area of PRG: ~1 acre

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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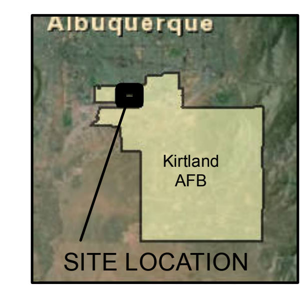


Revision Date: 3/20/2014

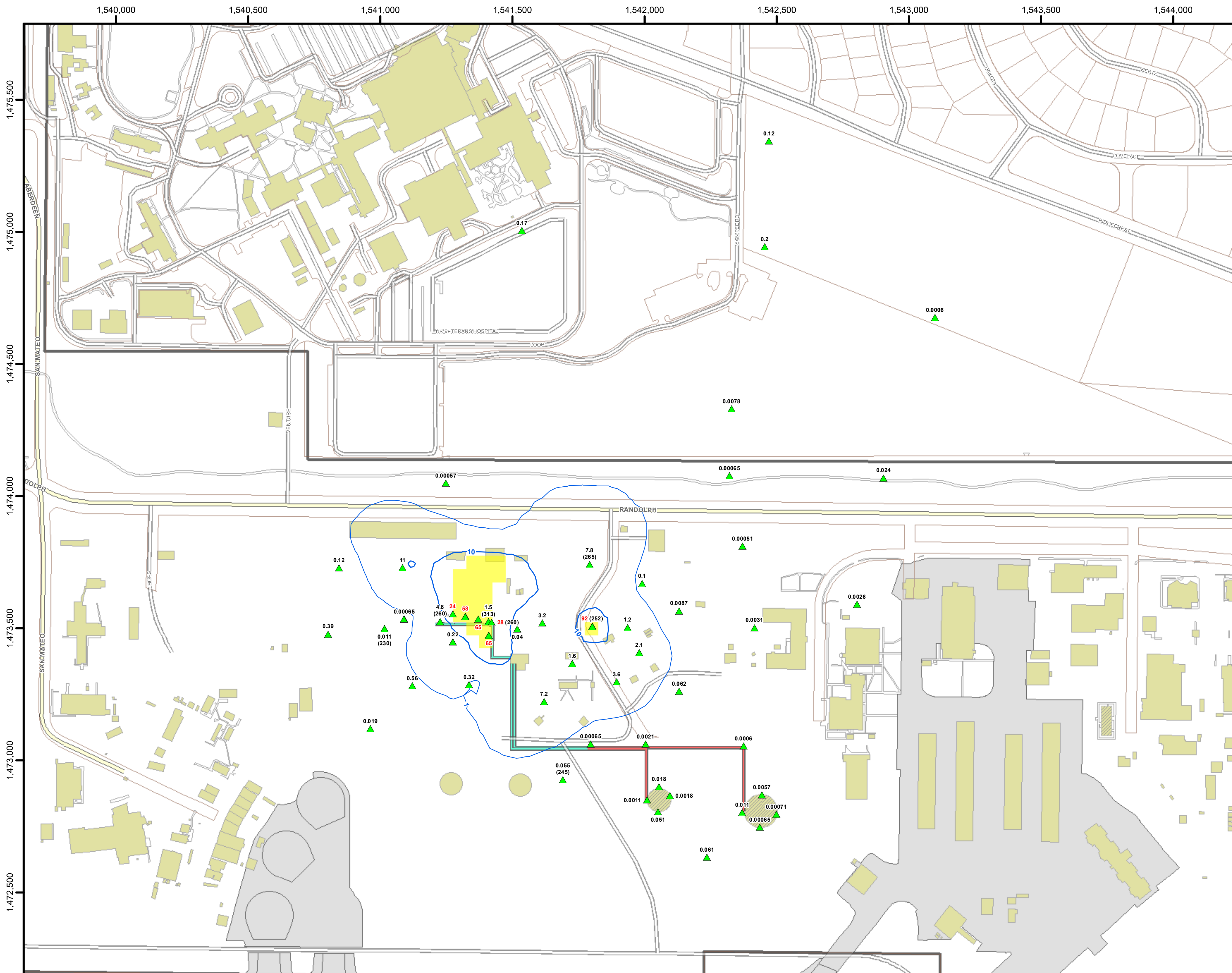
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 46

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 47.5

Estimated Exceedance Area of PRG: ~1.1 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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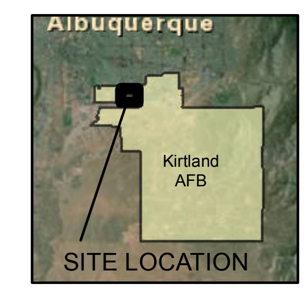

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/20/2014

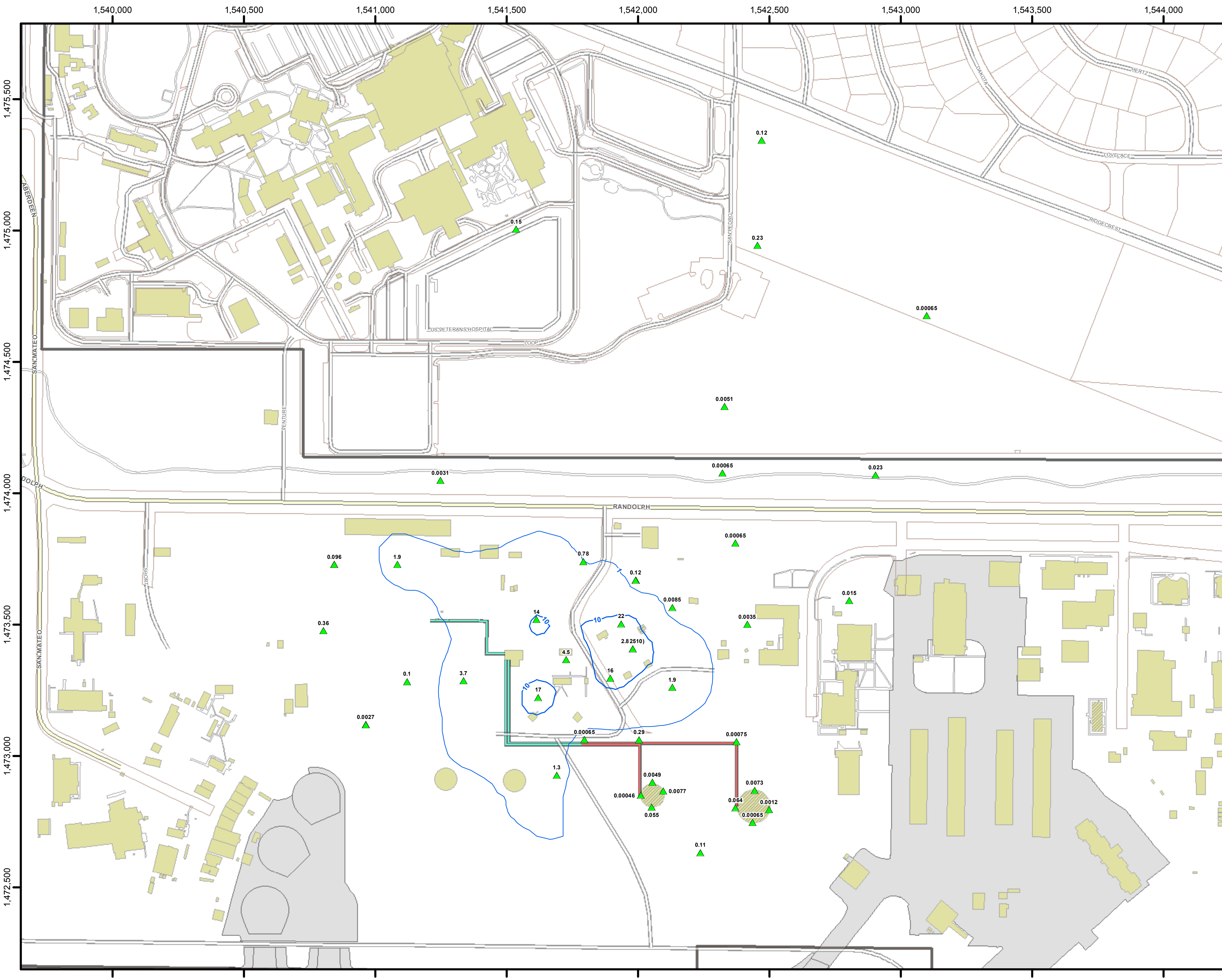
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 47

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 100

Estimated Exceedance Area of PRG: 0 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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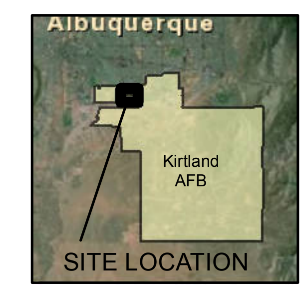

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/20/2014

N

0 200 400 800

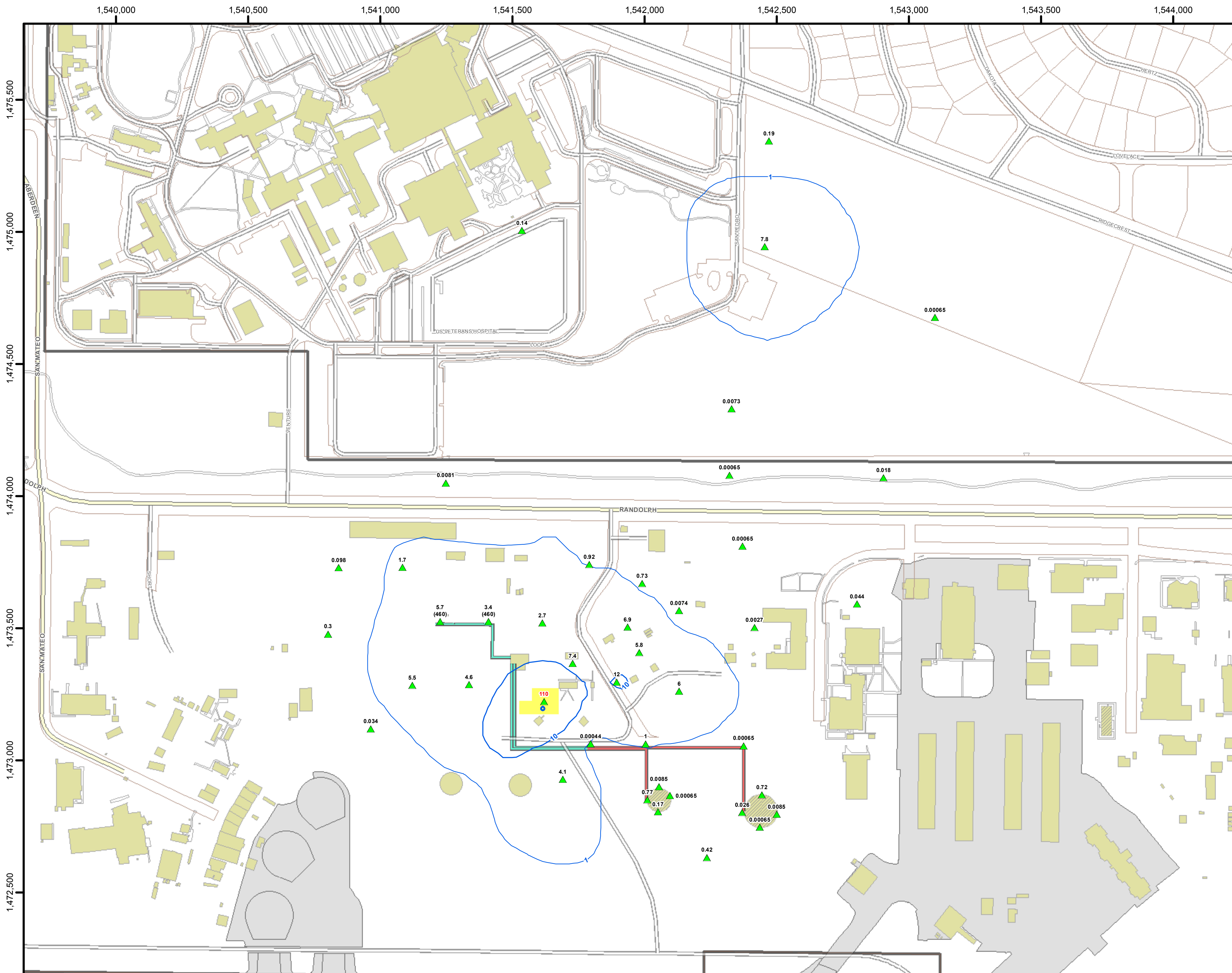
Feet

1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 48

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (35.4 ppmv)

- 0 - 35.3
- 35.4 - 110

Estimated Exceedance Area of PRG: ~0.3 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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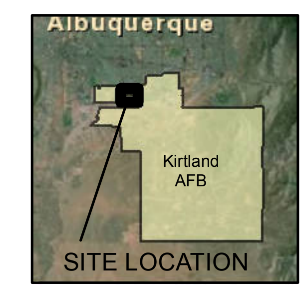


Revision Date: 3/20/2014

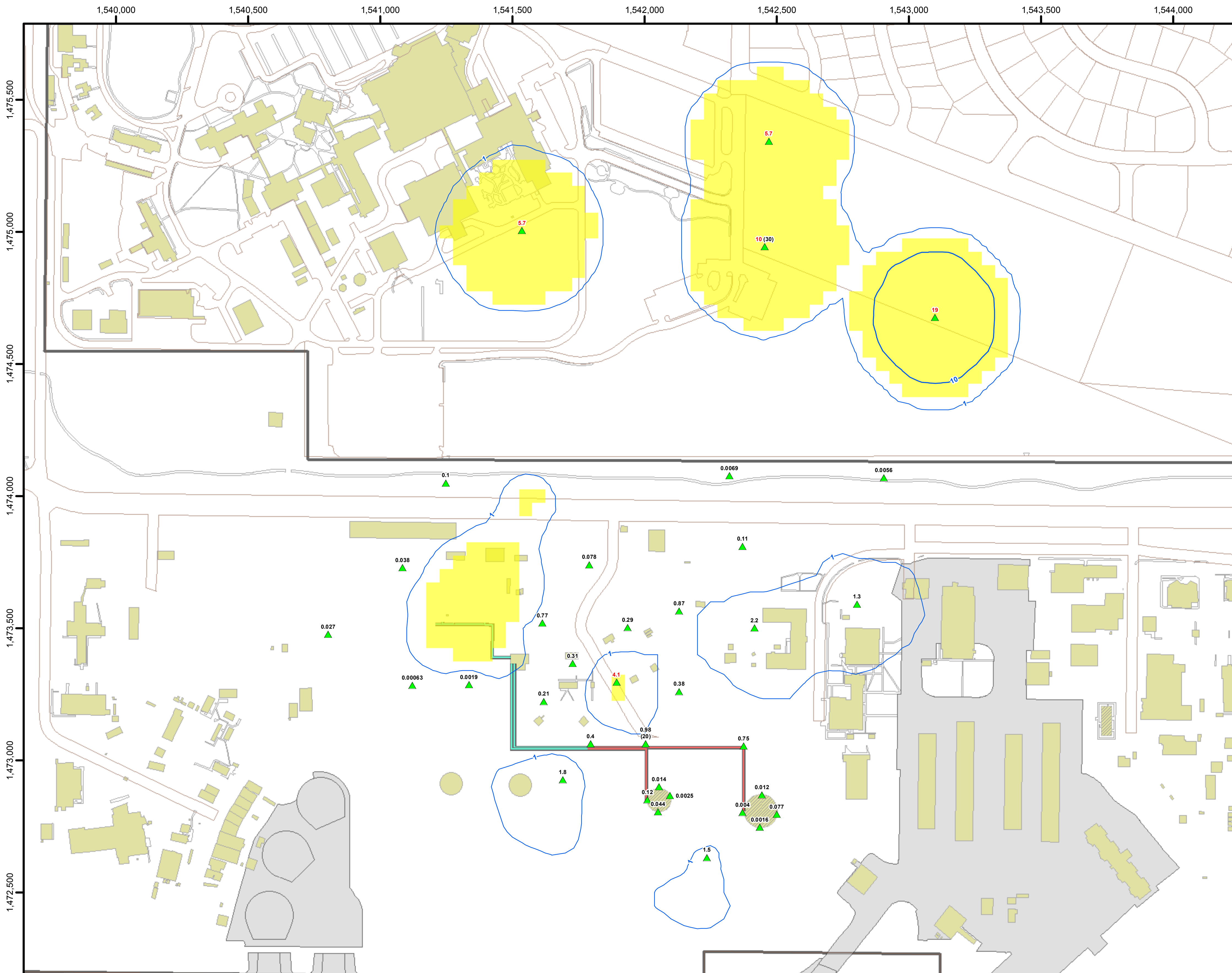
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 49

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (2.3 ppmv)

- 0 - 2.2
- 2.3 - 19

Estimated Exceedance Area of PRG: ~14.1 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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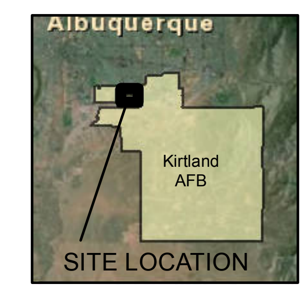


Revision Date: 3/21/2014

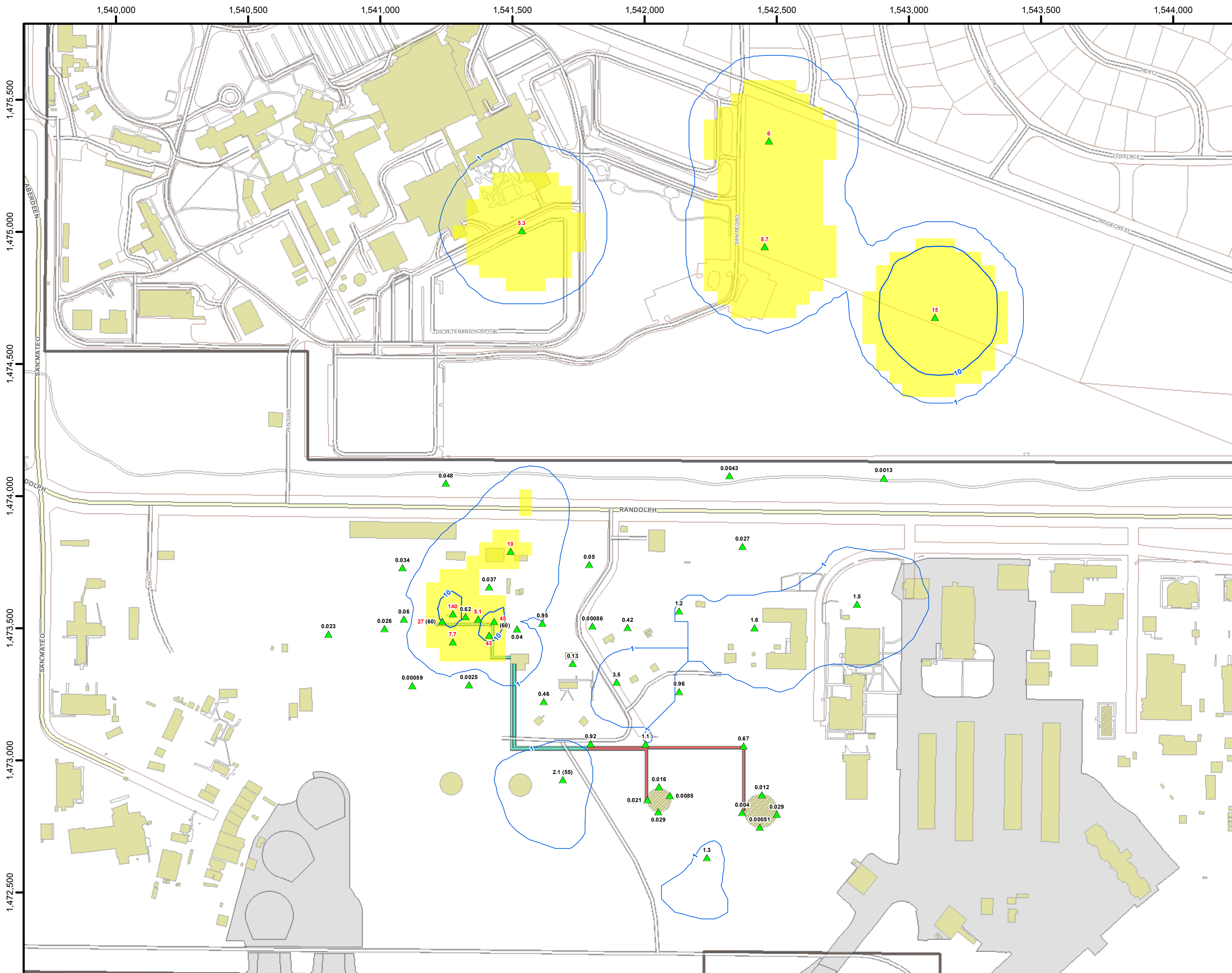
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 50

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (4.25 ppmv)

- 0 - 4.24
- 4.25 - 22

Estimated Exceedance Area of PRG: ~20.8 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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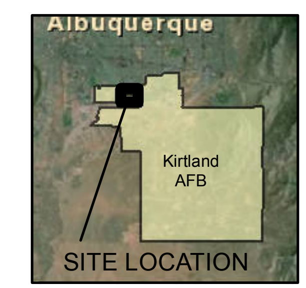


Revision Date: 3/20/2014

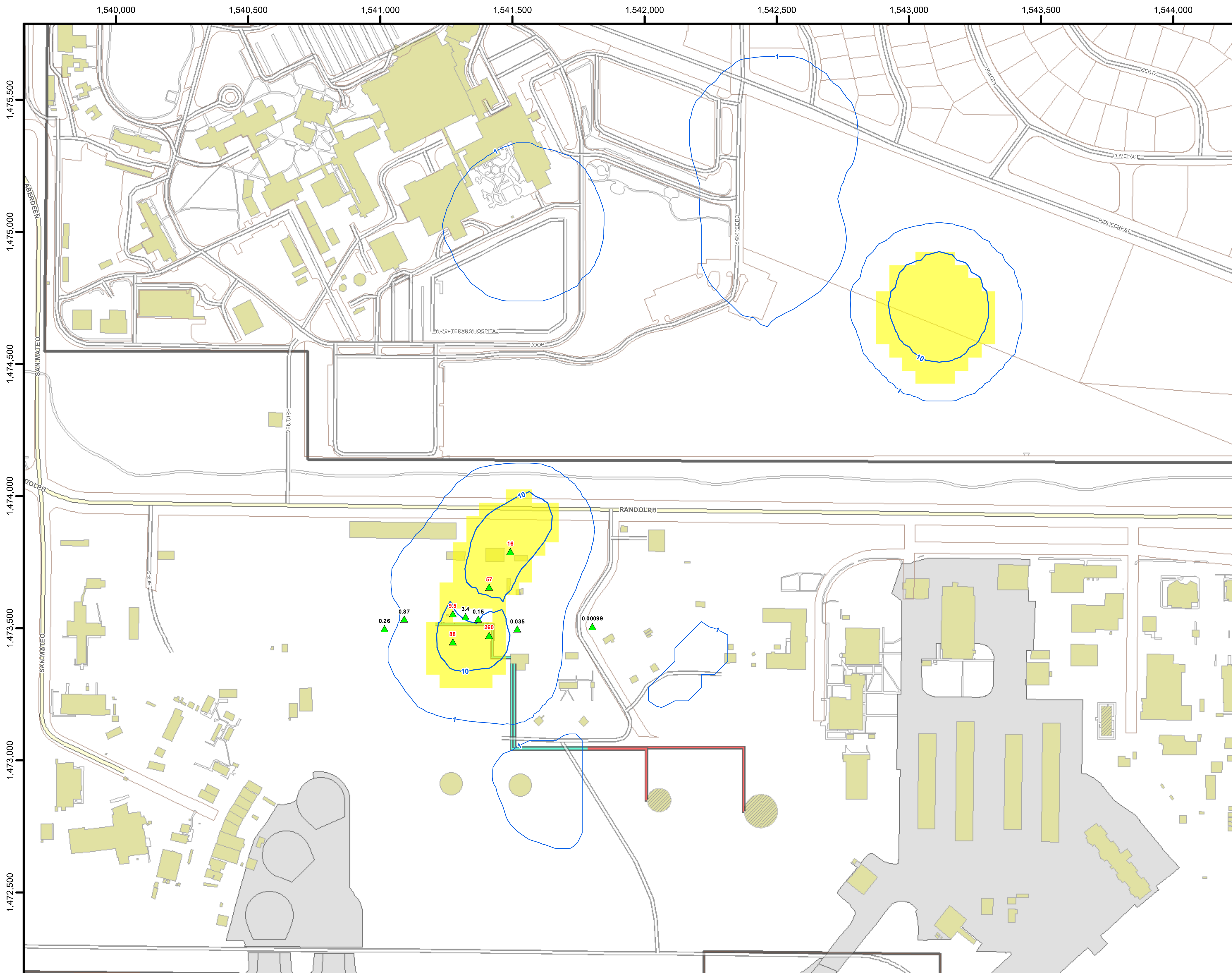
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 51

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

▲ SVE Well with Benzene Vapor Concentration (ppmv)[1] — 2 (55)

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (8.1 ppmv)

- 0 - 8.0
- 8.1 - 37.5

Estimated Exceedance Area of PRG: ~8.4 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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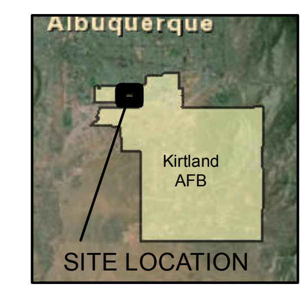


Revision Date: 3/20/2014

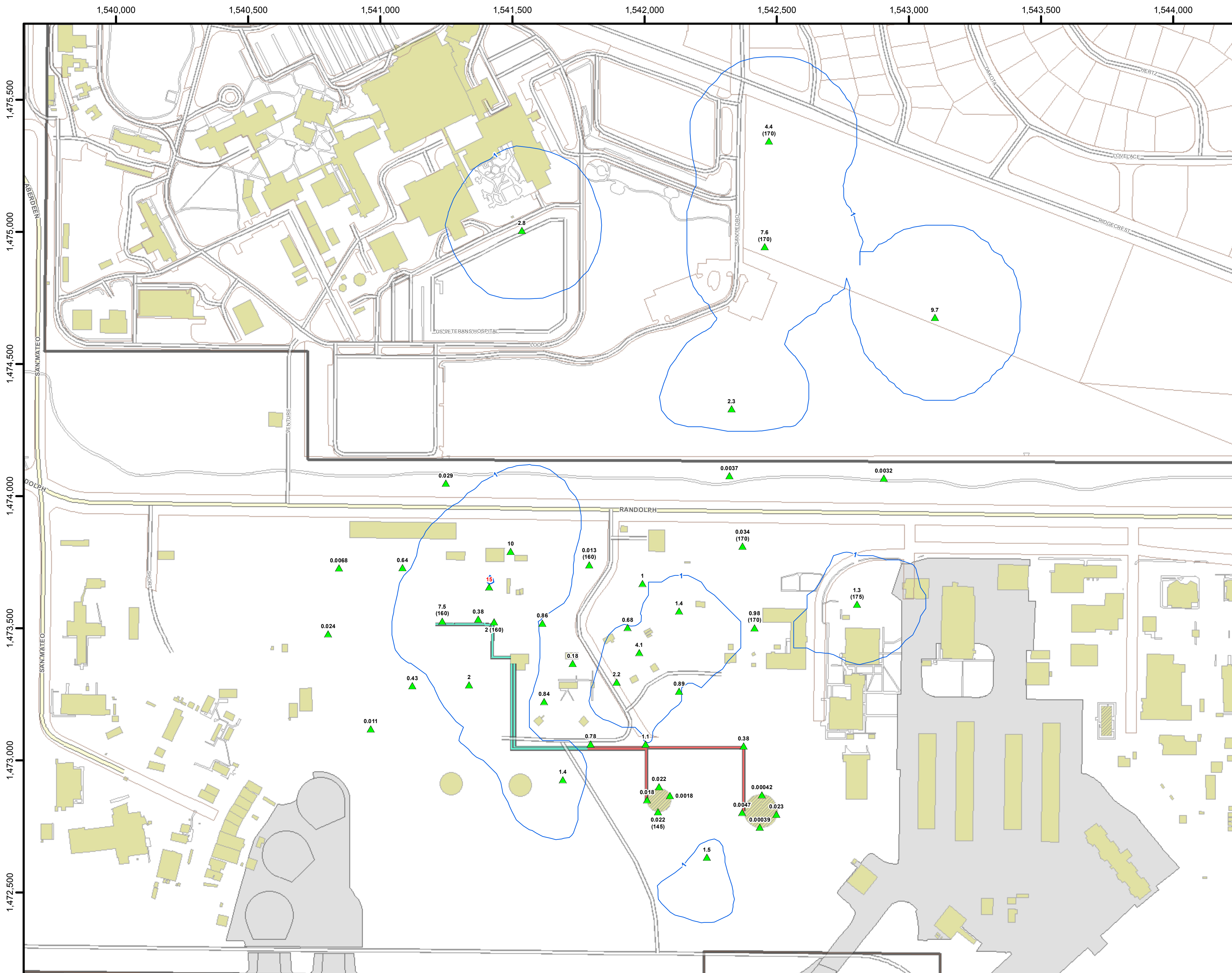
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 52

BENZENE SOIL GAS CONTOURS, ~100-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (12 ppmv)

- 0 - 11.9
- 12 - 100

Estimated Exceedance Area of PRG: 0 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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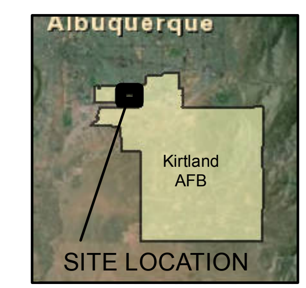


Revision Date: 3/20/2014

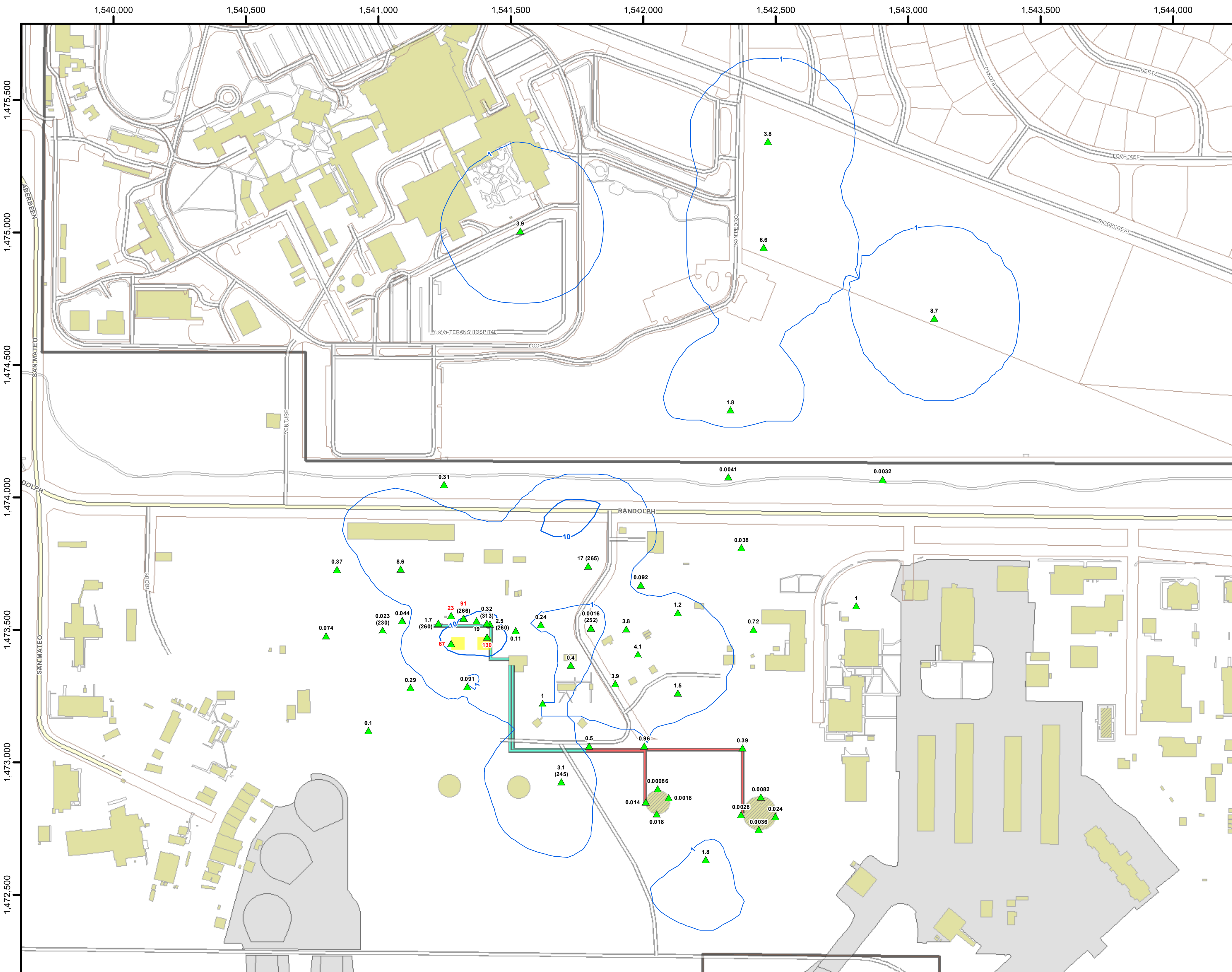
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 53

BENZENE SOIL GAS CONTOURS, ~150-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1] — 2 (55)

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (19.8 ppmv)

- 0 - 19.7
- 19.8 - 31.9

Estimated Exceedance Area of PRG: ~0.1 acres

Note:
1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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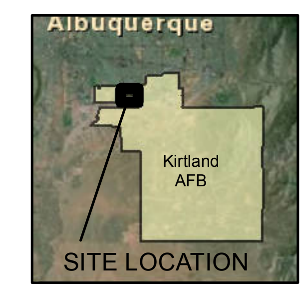


Revision Date: 3/20/2014

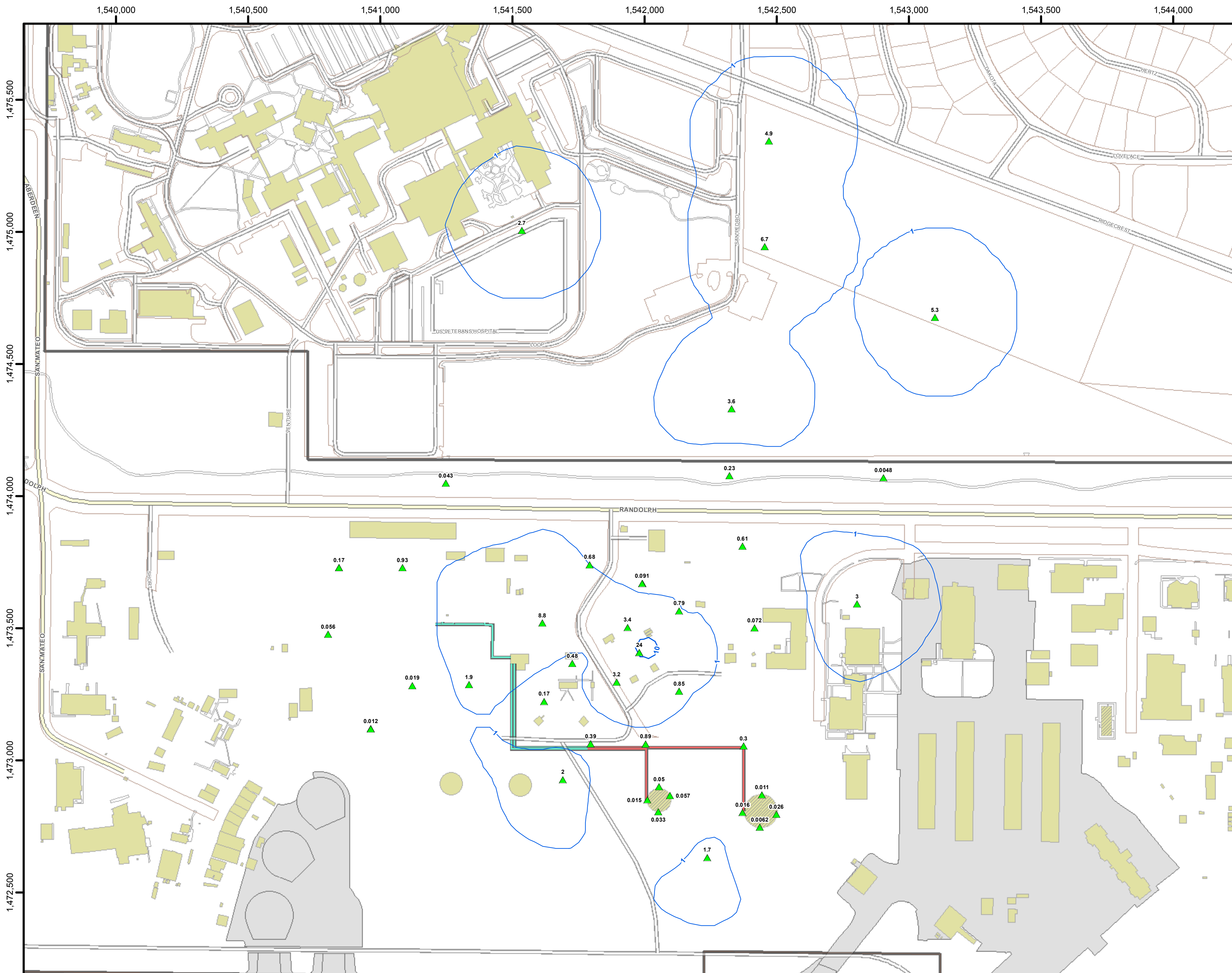
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 54

BENZENE SOIL GAS CONTOURS, ~250-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1] — 2 (55)

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 27.5
- 27.6 - 100

Estimated Exceedance Area of PRG: 0 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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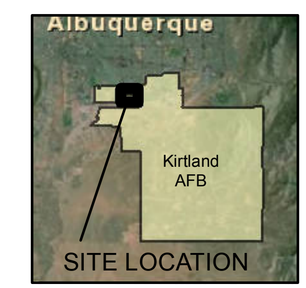


Revision Date: 3/20/2014

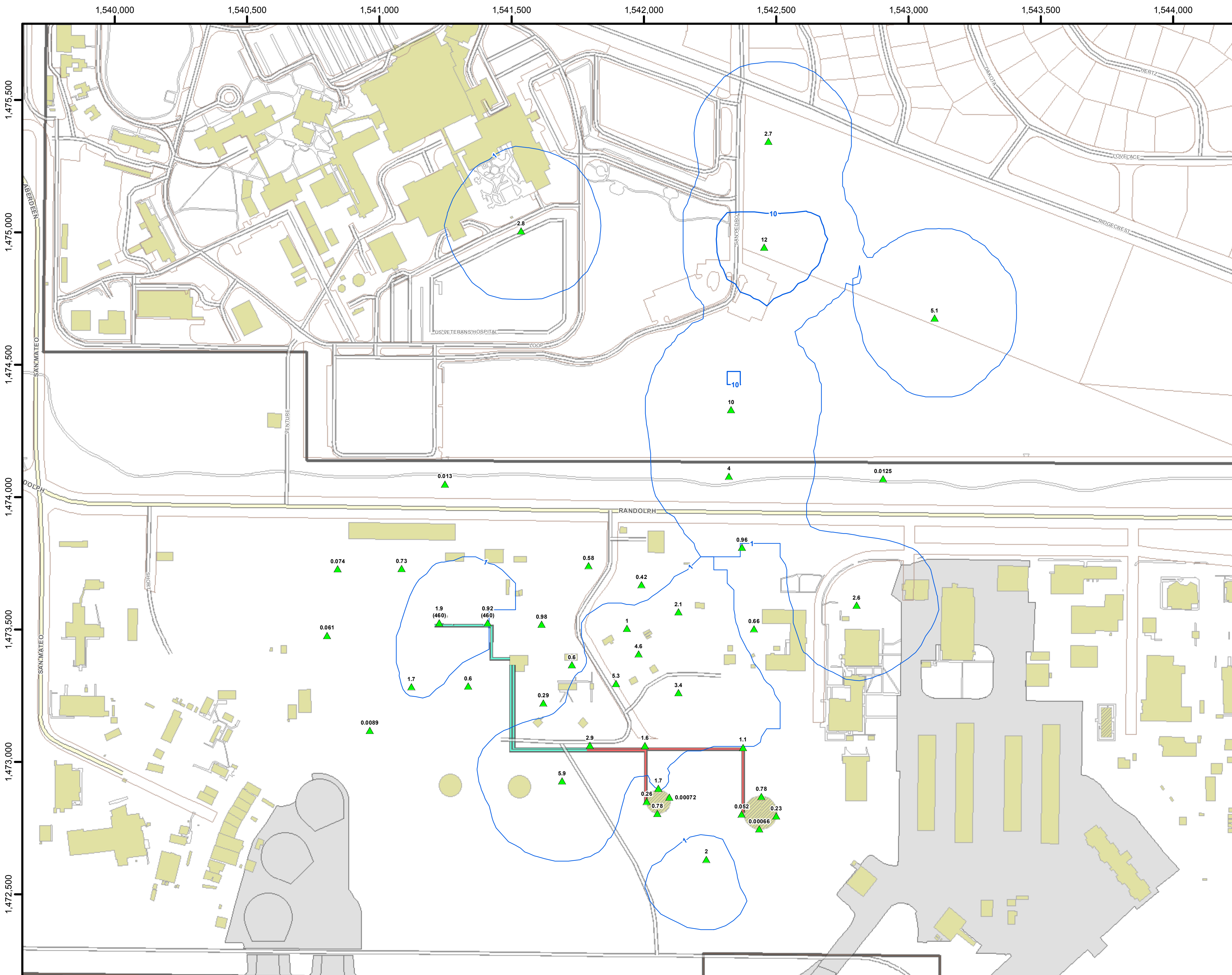
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 55

BENZENE SOIL GAS CONTOURS, ~350-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds PRG (27.6 ppmv)

- 0 - 35.3
- 35.4 - 100

Estimated Exceedance Area of PRG: 0 acres

Note:

1) Red indicates Human Health PRG exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used, and results from Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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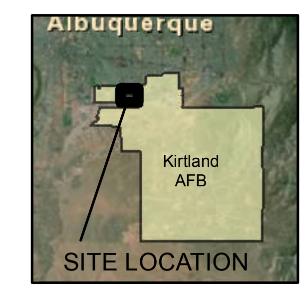


Revision Date: 3/20/2014

N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX A-11, FIGURE 56

BENZENE SOIL GAS CONTOURS, ~450-FT DEPTH, COMPARED WITH SITE-SPECIFIC HUMAN HEALTH PRG

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (µg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	7.36E+03			Benzene
75274	4.06E+03			Bromodichloromethane
67663	2.18E+03			Chloroform
106934	3.38E+02			1,2-Dibromoethane (ethylene dibromide)
110543	9.23E+05			Hexane
95636	2.37E+04			1,2,4-Trimethylbenzene
108383	2.99E+05			m-Xylene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	762	12.5	762			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.77E-02	Chloroform
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene dibromide)
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01	m-Xylene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	747	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	7.36E+03	3.39E+04
										4.06E+03	
										2.18E+03	
										3.38E+02	
										9.23E+05	
										2.37E+04	
										2.99E+05	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	747
			8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	
			10,226	3.44E-03	1.47E-01	1.76E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

INTERMEDIATE CALCULATIONS SHEET

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound	
15	7.36E+03	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	4.24E-04	3.12E+00	7.8E-06	3.0E-02	Benzene	4.24E-04
	4.06E+03			4.14E-03		3.15E+16	1.62E-04	6.57E-01	3.7E-05	NA	Bromodichloromethane	1.62E-04
	2.18E+03			1.44E-02		5.34E+04	4.85E-04	1.06E+00	2.3E-05	9.8E-02	Chloroform	4.85E-04
	3.38E+02			3.01E-03		4.47E+22	1.20E-04	4.06E-02	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene (	1.20E-04
	9.23E+05			2.78E-02		2.87E+02	7.90E-04	7.30E+02	NA	7.0E-01	Hexane	7.90E-04
	2.37E+04			8.42E-03		1.30E+08	3.08E-04	7.30E+00	NA	7.0E-03	1,2,4-Trimethylbenzene	3.08E-04
	2.99E+05			9.72E-03		1.06E+07	3.49E-04	1.04E+02	NA	1.0E-01	m-Xylene	3.49E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	Soil gas conc., C_g ($\mu g/m^3$)
1.0E-05	1.0E-01	Benzene	7.36E+03
1.0E-05	NA	Bromodichloromethane	4.06E+03
1.0E-05	1.0E-02	Chloroform	2.18E+03
1.0E-05	4.3E-03	1,2-Dibromoethane (ethylene dibromide)	3.38E+02
NA	1.00E+00	Hexane	9.23E+05
NA	1.00E+00	1,2,4-Trimethylbenzene	2.37E+04
NA	1.00E+00	m-Xylene	2.99E+05
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

VLOOKUP TABLES

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
			Soil Properties Lookup Table							
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table — **CalEPA Toxicity Criteria in bold**

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**7.8E-06**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroethar	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibr	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	**6.0E-04**	**9.0E-03**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	**2.1E-05**	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2-	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	**1.1E-04**	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	**7.7E-04**	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

URF extrapolated (X)	RfC extrapolated (X)	Original EPA Values Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	CalEPA / USEPA Potency Ratio
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**1.00**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.36E+04			Benzene
75274	7.93E+03			Bromodichloromethane
67663	3.96E+03			Chloroform
106934	6.65E+02			1,2-Dibromoethane (ethylene dibromide)
110543	1.56E+06			Hexane
95636	4.48E+04			1,2,4-Trimethylbenzene
108383	5.60E+05			m-Xylene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

Totals must add up to value of Ls (cell F24)

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (^oC)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	1524	12.5	1524			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.77E-02	Chloroform
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene dibromide)
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01	m-Xylene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	1509	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.36E+04	3.39E+04
										7.93E+03	
										3.96E+03	
										6.65E+02	
										1.56E+06	
										4.48E+04	
										5.60E+05	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	1509
			8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	
			10,226	3.44E-03	1.47E-01	1.76E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

INTERMEDIATE CALCULATIONS SHEET

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm³/s)	Crack effective diffusion coefficient, D^{crack} (cm²/s)	Area of crack, A_{crack} (cm²)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m³)	Unit risk factor, URF (μg/m³)⁻¹	Reference conc., RfC (mg/m³)	Compound	
15	1.36E+04	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	2.30E-04	3.12E+00	7.8E-06	3.0E-02	Benzene	2.30E-04
	7.93E+03			4.14E-03		3.15E+16	8.29E-05	6.57E-01	3.7E-05	NA	Bromodichloromethane	8.29E-05
	3.96E+03			1.44E-02		5.34E+04	2.67E-04	1.06E+00	2.3E-05	9.8E-02	Chloroform	2.67E-04
	6.65E+02			3.01E-03		4.47E+22	6.09E-05	4.05E-02	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene (	6.09E-05
	1.56E+06			2.78E-02		2.87E+02	4.67E-04	7.30E+02	NA	7.0E-01	Hexane	4.67E-04
	4.48E+04			8.42E-03		1.30E+08	1.63E-04	7.30E+00	NA	7.0E-03	1,2,4-Trimethylbenzene	1.63E-04
	5.60E+05			9.72E-03		1.06E+07	1.86E-04	1.04E+02	NA	1.0E-01	m-Xylene	1.86E-04
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	Soil gas conc., C_g ($\mu g/m^3$)
1.0E-05	1.0E-01	Benzene	1.36E+04
1.0E-05	NA	Bromodichloromethane	7.93E+03
1.0E-05	1.0E-02	Chloroform	3.96E+03
1.0E-05	4.3E-03	1,2-Dibromoethane (ethylene dibromide)	6.65E+02
NA	1.00E+00	Hexane	1.56E+06
NA	1.00E+00	1,2,4-Trimethylbenzene	4.48E+04
NA	1.00E+00	m-Xylene	5.60E+05
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**7.8E-06**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroethar	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibr	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	**6.0E-04**	**9.0E-03**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	**2.1E-05**	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2-	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	**1.1E-04**	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	**7.7E-04**	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**1.00**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

DATA ENTRY SHEET

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	3.85E+04			Benzene
75274	2.34E+04			Bromodichloromethane
67663	1.11E+04			Chloroform
106934	1.97E+03			1,2-Dibromoethane (ethylene dibromide)
110543	4.12E+06			Hexane
95636	1.29E+05			1,2,4-Trimethylbenzene
108383	1.61E+06			m-Xylene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
			Totals must add up to value of Ls (cell F24)								
15	4572	12.5	4572			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.77E-02	Chloroform
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene dibromide)
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01	m-Xylene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	4557	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	3.85E+04	3.39E+04
										2.34E+04	
										1.11E+04	
										1.97E+03	
										4.12E+06	
										1.29E+05	
										1.61E+06	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	4557
			8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	
			10,226	3.44E-03	1.47E-01	1.76E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

INTERMEDIATE CALCULATIONS SHEET

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)	Unit risk factor, URF (μg/m^3)$^{-1}$	Reference conc., RfC (mg/m^3)	Compound	
15	3.85E+04	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	8.11E-05	3.12E+00	7.8E-06	3.0E-02	Benzene	8.11E-05
	2.34E+04			4.14E-03		3.15E+16	2.81E-05	6.57E-01	3.7E-05	NA	Bromodichloromethane	2.81E-05
	1.11E+04			1.44E-02		5.34E+04	9.53E-05	1.06E+00	2.3E-05	9.8E-02	Chloroform	9.53E-05
	1.97E+03			3.01E-03		4.47E+22	2.05E-05	4.05E-02	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene (	2.05E-05
	4.12E+06			2.78E-02		2.87E+02	1.77E-04	7.30E+02	NA	7.0E-01	Hexane	1.77E-04
	1.29E+05			8.42E-03		1.30E+08	5.64E-05	7.30E+00	NA	7.0E-03	1,2,4-Trimethylbenzene	5.64E-05
	1.61E+06			9.72E-03		1.06E+07	6.50E-05	1.04E+02	NA	1.0E-01	m-Xylene	6.50E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	Soil gas conc., C_g ($\mu g/m^3$)
1.0E-05	1.0E-01	Benzene	3.85E+04
1.0E-05	NA	Bromodichloromethane	2.34E+04
1.0E-05	1.0E-02	Chloroform	1.11E+04
1.0E-05	4.3E-03	1,2-Dibromoethane (ethylene dibromide)	1.97E+03
NA	1.00E+00	Hexane	4.12E+06
NA	1.00E+00	1,2,4-Trimethylbenzene	1.29E+05
NA	1.00E+00	m-Xylene	1.61E+06
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**7.8E-06**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroethar	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibr	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	**6.0E-04**	**9.0E-03**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	**2.1E-05**	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2-	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	**1.1E-04**	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	**7.7E-04**	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**1.00**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	6.33E+04			Benzene
75274	3.89E+04			Bromodichloromethane
67663	1.82E+04			Chloroform
106934	3.29E+03			1,2-Dibromoethane (ethylene dibromide)
110543	6.69E+06			Hexane
95636	2.14E+05			1,2,4-Trimethylbenzene
108383	2.65E+06			m-Xylene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (^{o}C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	7620	12.5	7620			LS					

(Totals must add up to value of Ls (cell F24) — applies to the thickness columns h_A, h_B, h_C)

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5		5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.77E-02	Chloroform
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene dibromide)
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01	m-Xylene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	7605	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	6.33E+04	3.39E+04
										3.89E+04	
										1.82E+04	
										3.29E+03	
										6.69E+06	
										2.14E+05	
										2.65E+06	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	7605
			8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	
			10,226	3.44E-03	1.47E-01	1.76E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

INTERMEDIATE CALCULATIONS SHEET

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound	
15	6.33E+04	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	4.93E-05	3.12E+00	7.8E-06	3.0E-02	Benzene	4.93E-05
	3.89E+04			4.14E-03		3.15E+16	1.69E-05	6.57E-01	3.7E-05	NA	Bromodichloromethane	1.69E-05
	1.82E+04			1.44E-02		5.34E+04	5.80E-05	1.06E+00	2.3E-05	9.8E-02	Chloroform	5.80E-05
	3.29E+03			3.01E-03		4.47E+22	1.23E-05	4.06E-02	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene (	1.23E-05
	6.69E+06			2.78E-02		2.87E+02	1.09E-04	7.30E+02	NA	7.0E-01	Hexane	1.09E-04
	2.14E+05			8.42E-03		1.30E+08	3.41E-05	7.30E+00	NA	7.0E-03	1,2,4-Trimethylbenzene	3.41E-05
	2.65E+06			9.72E-03		1.06E+07	3.93E-05	1.04E+02	NA	1.0E-01	m-Xylene	3.93E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	Soil gas conc., C_g ($\mu g/m^3$)
1.0E-05	1.0E-01	Benzene	6.33E+04
1.0E-05	NA	Bromodichloromethane	3.89E+04
1.0E-05	1.0E-02	Chloroform	1.82E+04
1.0E-05	4.3E-03	1,2-Dibromoethane (ethylene dibromide)	3.29E+03
NA	1.00E+00	Hexane	6.69E+06
NA	1.00E+00	1,2,4-Trimethylbenzene	2.14E+05
NA	1.00E+00	m-Xylene	2.65E+06
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**7.8E-06**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroethar	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibr	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	**6.0E-04**	**9.0E-03**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	**2.1E-05**	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2-	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	**1.1E-04**	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	**7.7E-04**	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**1.00**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	8.81E+04			Benzene
75274	5.43E+04			Bromodichloromethane
67663	2.54E+04			Chloroform
106934	4.60E+03			1,2-Dibromoethane (ethylene dibromide)
110543	9.25E+06			Hexane
95636	2.98E+05			1,2,4-Trimethylbenzene
108383	3.70E+06			m-Xylene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (°C)	ENTER Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	10668	12.5	10668			LS					

Totals must add up to value of Ls (cell F24)

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.77E-02	Chloroform
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene dibromide)
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01	m-Xylene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	10653	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	8.81E+04	3.39E+04
										5.43E+04	
										2.54E+04	
										4.60E+03	
										9.25E+06	
										2.98E+05	
										3.70E+06	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	10653
			8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	
			10,226	3.44E-03	1.47E-01	1.76E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

INTERMEDIATE CALCULATIONS SHEET

Convection path length, L_p (cm)	Source vapor conc., C_{source} (μg/m^3)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ (μg/m^3)	Unit risk factor, URF (μg/m^3)$^{-1}$	Reference conc., RfC (mg/m^3)	Compound	
15	8.81E+04	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	3.54E-05	3.12E+00	7.8E-06	3.0E-02	Benzene	3.54E-05
	5.43E+04			4.14E-03		3.15E+16	1.21E-05	6.57E-01	3.7E-05	NA	Bromodichloromethane	1.21E-05
	2.54E+04			1.44E-02		5.34E+04	4.17E-05	1.06E+00	2.3E-05	9.8E-02	Chloroform	4.17E-05
	4.60E+03			3.01E-03		4.47E+22	8.82E-06	4.06E-02	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene (	8.82E-06
	9.25E+06			2.78E-02		2.87E+02	7.89E-05	7.30E+02	NA	7.0E-01	Hexane	7.89E-05
	2.98E+05			8.42E-03		1.30E+08	2.45E-05	7.30E+00	NA	7.0E-03	1,2,4-Trimethylbenzene	2.45E-05
	3.70E+06			9.72E-03		1.06E+07	2.82E-05	1.04E+02	NA	1.0E-01	m-Xylene	2.82E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	Soil gas conc., C_g ($\mu g/m^3$)
1.0E-05	1.0E-01	Benzene	8.81E+04
1.0E-05	NA	Bromodichloromethane	5.43E+04
1.0E-05	1.0E-02	Chloroform	2.54E+04
1.0E-05	4.3E-03	1,2-Dibromoethane (ethylene dibromide)	4.60E+03
NA	1.00E+00	Hexane	9.25E+06
NA	1.00E+00	1,2,4-Trimethylbenzene	2.98E+05
NA	1.00E+00	m-Xylene	3.70E+06
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

VLOOKUP TABLES

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**7.8E-06**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroethar	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibr	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	**6.0E-04**	**9.0E-03**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	**2.1E-05**	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2-	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	**1.1E-04**	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	**7.7E-04**	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**1.00**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

SG-ADV
Version 2.0; 02/03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g (μg/m^3)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.13E+05			Benzene
75274	6.98E+04			Bromodichloromethane
67663	3.25E+04			Chloroform
106934	5.91E+03			1,2-Dibromoethane (ethylene dibromide)
110543	1.18E+07			Hexane
95636	3.83E+05			1,2,4-Trimethylbenzene
108383	4.74E+06			m-Xylene
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found
0	1.00E+00			CAS No. not found

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth #N/A L_s (cm)	ENTER Average soil #N/A T_S (^{o}C)	ENTER Totals must add up to value of Ls (cell F24) Thickness of soil #N/A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, #N/A h_C (cm)	ENTER Soil stratum A SCS soil type #N/A soil vapor permeability)	#N/A	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)	#N/A	#N/A	#N/A
15	13716	12.5	13716			LS					

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
LS	1.62	0.39	0.076								

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)		ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
10	40	1000	1000	244	0.1	0.5		5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($atm\text{-}m^3/mol$)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Molecular weight, MW (g/mol)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	78.11	7.8E-06	3.0E-02	Benzene
2.98E-02	1.06E-05	1.60E-03	25	7,800	363.15	585.85	163.83	3.7E-05	0.0E+00	Bromodichloromethane
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	119.38	2.3E-05	9.77E-02	Chloroform
2.17E-02	1.19E-05	7.41E-04	25	8,310	404.60	583.00	187.86	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene dibromide)
2.00E-01	7.77E-06	1.66E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01	Hexane
6.06E-02	7.92E-06	6.14E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03	1,2,4-Trimethylbenzene
7.00E-02	7.80E-06	7.32E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01	m-Xylene
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found

END

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
9.46E+08	13701	0.314	ERROR	ERROR	0.079	1.63E-08	0.957	1.56E-08	4,000	1.13E+05	3.39E+04
										6.98E+04	
										3.25E+04	
										5.91E+03	
										1.18E+07	
										3.83E+05	
										4.74E+06	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	
										1.00E+00	

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} ($atm\text{-}m^3/mol$)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
1.06E+06	5.00E-03	15	8,096	3.04E-03	1.30E-01	1.76E-04	1.22E-02	0.00E+00	0.00E+00	1.22E-02	13701
			8,641	8.43E-04	3.60E-02	1.76E-04	4.14E-03	0.00E+00	0.00E+00	4.14E-03	
			7,528	2.10E-03	8.96E-02	1.76E-04	1.44E-02	0.00E+00	0.00E+00	1.44E-02	
			10,181	3.49E-04	1.49E-02	1.76E-04	3.01E-03	0.00E+00	0.00E+00	3.01E-03	
			7,704	9.41E-01	4.01E+01	1.76E-04	2.78E-02	0.00E+00	0.00E+00	2.78E-02	
			11,661	2.60E-03	1.11E-01	1.76E-04	8.42E-03	0.00E+00	0.00E+00	8.42E-03	
			10,226	3.44E-03	1.47E-01	1.76E-04	9.72E-03	0.00E+00	0.00E+00	9.72E-03	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	
			#N/A	#N/A	#N/A	1.76E-04	#N/A	0.00E+00	0.00E+00	#N/A	

INTERMEDIATE CALCULATIONS SHEET

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Compound	
15	1.13E+05	1.33	8.33E+01	1.22E-02	5.30E+03	3.87E+05	2.76E-05	3.12E+00	7.8E-06	3.0E-02	Benzene	2.76E-05
	6.98E+04			4.14E-03		3.15E+16	9.41E-06	6.57E-01	3.7E-05	NA	Bromodichloromethane	9.41E-06
	3.25E+04			1.44E-02		5.34E+04	3.25E-05	1.06E+00	2.3E-05	9.8E-02	Chloroform	3.25E-05
	5.91E+03			3.01E-03		4.47E+22	6.86E-06	4.06E-02	6.0E-04	9.0E-03	1,2-Dibromoethane (ethylene (	6.86E-06
	1.18E+07			2.78E-02		2.87E+02	6.18E-05	7.30E+02	NA	7.0E-01	Hexane	6.18E-05
	3.83E+05			8.42E-03		1.30E+08	1.91E-05	7.30E+00	NA	7.0E-03	1,2,4-Trimethylbenzene	1.91E-05
	4.74E+06			9.72E-03		1.06E+07	2.20E-05	1.04E+02	NA	1.0E-01	m-Xylene	2.20E-05
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A
	1.00E+00			#N/A		#N/A	#N/A	#N/A	#N/A	#N/A	CAS No. not found	#N/A

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	Compound	Soil gas conc., C_g ($\mu g/m^3$)
1.0E-05	1.0E-01	Benzene	1.13E+05
1.0E-05	NA	Bromodichloromethane	6.98E+04
1.0E-05	1.0E-02	Chloroform	3.25E+04
1.0E-05	4.3E-03	1,2-Dibromoethane (ethylene dibromide)	5.91E+03
NA	1.00E+00	Hexane	1.18E+07
NA	1.00E+00	1,2,4-Trimethylbenzene	3.83E+05
NA	1.00E+00	m-Xylene	4.74E+06
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	
ERROR	ERROR	CAS No. not found	

MESSAGE AND ERROR SUMMARY BELOW: (DO NOT USE RESULTS IF ERRORS ARE PRESENT)

SCROLL DOWN TO "END"

END

Soil Properties Lookup Table

SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	Bulk Density (g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table

CalEPA Toxicity Criteria in bold

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	3.5E-01	5.81E+01
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	2.3E-05	9.8E-02	1.19E+02
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**7.8E-06**	3.0E-02	7.81E+01
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**1.0E+00**	1.33E+02
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	1.0E-06	9.0E-02	5.05E+01
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	0.0E+00	1.64E+02
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	5.0E-01	9.90E+01
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02
76131	1,1,2-Trichloro-1,2,2-trifluoroethar	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.6E-03**	1.8E-03	3.73E+02
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	2.1E-01	1.68E+02
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02

86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	7.0E-04	2.61E+02
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	3.5E-02	1.37E+02
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	7.0E-02	1.42E+02
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	7.0E-03	1.20E+02
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	5.7E-04	4.9E-03	1.47E+02
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	0.0E+00	1.0E+00	1.06E+02
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	0.0E+00	1.27E+02
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02
106934	1,2-Dibromoethane (ethylene dibr	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	**6.0E-04**	**9.0E-03**	1.88E+02
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	3.0E-05	2.0E-03	5.41E+01
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	**2.1E-05**	**4.0E-01**	9.90E+01
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01
108101	Methylisobutylketone (4-methyl-2-	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	8.0E-02	1.00E+02
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	0.0E+00	1.20E+02
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	1.4E+00	9.26E+01
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	7.0E-01	8.62E+01
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02
115071	Propene	2.17E+01	1.10E-01	1.07E-05	2.00E+02	8.01E+00	1.96E-01	25	226.00	365.00	4,400	**0.0E+00**	3.0E+00	4.21E+01
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	0.0E+00	2.0E-01	1.81E+02
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	0.0E+00	2.08E+02
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	2.6E-07	4.0E-02	1.66E+02
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	7.2E-02	8.81E+01
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	7.0E-02	9.69E+01
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	**1.1E-04**	0.0E+00	2.52E+02
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	**7.7E-04**	0.0E+00	2.91E+02
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**9.0E-05**	2.01E+02

		Original EPA Values				CalEPA / USEPA Potency Ratio
URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)	
		1.5E-05	0.0E+00			**2.80**
		1.0E-04	7.0E-04			**3.40**
?	X	3.7E-04	1.1E-03	X	X	**0.84**
	X	0.0E+00	7.0E-01		X	NC
	X	4.6E-03	1.8E-04		X	**1.00**
	X	0.0E+00	3.5E-01		X	NC
		2.3E-05	0.0E+00			**1.00**
	X	4.0E-06	3.5E-03		X	**2.75**
		7.8E-06	0.0E+00			**1.00**
		0.0E+00	2.2E+00			NC
	X	0.0E+00	1.8E-02		X	NC
?		9.7E-05	0.0E+00	X		**1.00**
		0.0E+00	5.0E-03			NC
		1.0E-06	9.0E-02			1.00
		0.0E+00	3.0E-03			NC
	X	0.0E+00	3.5E-02		X	NC
X		8.3E-07	1.0E+01	X		1.00
		8.8E-06	1.0E-01			**8.86**
		0.0E+00	6.0E-02			NC
		2.2E-06	9.0E-03			**1.23**
		4.7E-07	3.0E+00			**2.13**
		0.0E+00	7.0E-01			NC
		1.0E-04	0.0E+00			**0.88**
	X	1.1E-06	7.0E-02		X	1.00
?	X	1.8E-05	7.0E-02	X	X	**2.09**
		0.0E+00	1.0E-01			NC
		0.0E+00	5.0E-01			**CalEPA only**
		0.0E+00	2.0E-01			NC
		0.0E+00	5.0E+01			NC
		0.0E+00	7.0E-01			NC
		0.0E+00	2.0E-01			NC
		0.0E+00	3.0E+01			NC
	X	1.3E-03	1.8E-03		X	**1.23**
		0.0E+00	2.0E-04			NC
	X	0.0E+00	1.1E+00		X	NC
?		1.9E-05	4.0E-03	X		**0.52**
		0.0E+00	1.0E+00			NC
	X	1.6E-05	1.4E-02		X	**1.00**
?		1.1E-04	4.0E-02	X		**0.02**
	X	0.0E+00	3.5E+00		X	NC
	X	5.8E-05	2.1E-01		X	**1.00**
		2.7E-03	2.0E-02			1.00
		0.0E+00	7.0E-01			NC
	X	0.0E+00	2.1E-01		X	NC

	X	0.0E+00	1.4E-01		X	NC
	X	2.2E-05	7.0E-04		X	1.00
	X	0.0E+00	3.5E-02		X	NC
		0.0E+00	3.0E-03			NC
	X	0.0E+00	7.0E-02		X	NC
	X	0.0E+00	1.8E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	2.0E-01			NC
	X	0.0E+00	1.8E-02		X	NC
		0.0E+00	6.0E-03			NC
X		5.7E-04	4.9E-03	X		1.00
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	3.2E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
		0.0E+00	4.0E-01			NC
	X	0.0E+00	3.5E-01		X	NC
		0.0E+00	2.0E-03			NC
		0.0E+00	1.0E+00			NC
		0.0E+00	1.0E+00			NC
?		4.9E-05	0.0E+00	X		**1.00**
	X	0.0E+00	3.5E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	1.4E-01		X	NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	8.0E-01			**CalEPA only**
		6.0E-04	9.0E-03			**1.00**
		3.0E-05	0.0E+00			**1.00**
		0.0E+00	2.0E-05			NC
		2.6E-05	0.0E+00			**0.81**
		6.8E-05	2.0E-03			**4.26**
		0.0E+00	2.0E-01			NC
		0.0E+00	8.0E-02			NC
	?	0.0E+00	1.0E-01			NC
		0.0E+00	6.0E-03			NC
		0.0E+00	3.0E+00			NC
		0.0E+00	4.0E-01			NC
		0.0E+00	6.0E-02			NC
	X	0.0E+00	1.4E+00		X	NC
	X	0.0E+00	3.5E-03		X	NC
		0.0E+00	2.0E-01			NC
		3.3E-04	0.0E+00			**2.15**
	X	0.0E+00	2.1E-02		X	NC
	X	4.6E-04	2.8E-03		X	**1.11**
		0.0E+00	2.0E-01			NC
X		5.4E-04	0.0E+00	X		1.00
?	X	2.4E-05	7.0E-02	X	X	**1.13**
		0.0E+00	7.0E-04			NC
		0.0E+00	7.0E-03			NC
		3.0E-06	0.0E+00			**0.09**
	X	0.0E+00	1.1E-01		X	NC
	X	0.0E+00	1.4E-02		X	NC
	X	0.0E+00	1.4E-01		X	NC
	X	0.0E+00	3.2E+00		X	NC
	X	0.0E+00	3.5E-02		X	NC
	X	0.0E+00	7.0E-02		X	NC
?		2.1E-04	0.0E+00	X		**0.53**
?		2.1E-06	0.0E+00	X		**5.26**
	X	4.9E-03	1.1E-04		X	**1.00**
		1.8E-03	0.0E+00			**0.43**
	X	0.0E+00	1.1E-01		X	NC
		4.0E-06	2.0E-02			**4.00**
	X	7.4E-06	1.1E-01		X	1.00
		0.0E+00	3.0E+00			**CalEPA only**
		0.0E+00	3.0E-04			NC

Estimated Soil Gas PRGs, by Depth, Protective of Indoor Air - Future Residential Scenario

BFF Soil Gas Risk Driver [a]	Soil Gas PRG[b] Concentration (µg/m³), by Depth (ft bgs) Protective of Indoor Air (Hypothetical Future Residential Exposure)						Molecular Weight
	450	350	250	150	50	25	
Benzene	1.13E+05	8.81E+04	6.33E+04	3.85E+04	1.36E+04	7.36E+03	78.11
Bromodichloromethane	6.98E+04	5.43E+04	3.89E+04	2.34E+04	7.93E+03	4.06E+03	163.83
Chloroform	3.25E+04	2.54E+04	1.82E+04	1.11E+04	3.96E+03	2.18E+03	119.38
1,2-Dibromoethane (EDB)	5.91E+03	4.60E+03	3.29E+03	1.97E+03	6.65E+02	3.38E+02	187.86
Hexane	1.18E+07	9.25E+06	6.69E+06	4.12E+06	1.56E+06	9.23E+05	86.18
1,2,4-Trimethylbenzene	3.83E+05	2.98E+05	2.14E+05	1.29E+05	4.48E+04	2.37E+04	120.19
Xylene	4.74E+06	3.70E+06	2.65E+06	1.61E+06	5.60E+05	2.99E+05	106.17

BFF Soil Gas Risk Driver [a]	Soil Gas PRG[b] Concentration (ppm-v[c]), by Depth, Protective of Indoor Air (Hypothetical Future Residential Exposure)					
	450	350	250	150	50	25
Benzene	3.5E+01	2.8E+01	2.0E+01	1.2E+01	4.2E+00	2.3E+00
Bromodichloromethane	1.0E+01	8.1E+00	5.8E+00	3.5E+00	1.2E+00	6.1E-01
Chloroform	6.7E+00	5.2E+00	3.7E+00	2.3E+00	8.1E-01	4.5E-01
1,2-Dibromoethane (EDB)	7.7E-01	6.0E-01	4.3E-01	2.6E-01	8.7E-02	4.4E-02
Hexane	3.3E+03	2.6E+03	1.9E+03	1.2E+03	4.4E+02	2.6E+02
1,2,4-Trimethylbenzene	7.8E+01	6.1E+01	4.4E+01	2.6E+01	9.1E+00	4.8E+00
Xylene	1.1E+03	8.5E+02	6.1E+02	3.7E+02	1.3E+02	6.9E+01

[a] Risk and hazard drivers, estimated to have a residential cancer risk > 1E-6 or noncancer hazard > 1, for soil gas to indoor air vapor intrusion pathway, modeled using Johnson & Ettinger VI Model, based on depth of maximum measured VOC concentration in soil gas, EPC = 95% UCL of 8 quarters of soil gas monitoring data, and site-specific soil type (loamy sand) and mean subsurface temp (12.5 C).

[b] Preliminary remediation goal (PRG) based on target cancer risk of 1E-5 or target hazard quotient threshold of 1.0, whichever was lower, from J&E Model.

[c] Concentration in ppm-v estimated using the following equation:

ppm-v = µg/m^3 x 24.45/(Molecular Weight x 1000)

Note

As PRGs decrease linearly with depth, the PRG for 100 ft is the average of the 50 and 150 ft PRGs.

Appendix A-13 Table 1
Bulk Fuels Facility Soil Gas Risk Drivers, PRGs, and Estimated Equivalent Benzene Concentrations

Soil Gas Risk Drivers from HHRA [a]	Nondetect Frequency [b]	Sample Size for Regression [c]	Statistical Significance of Benzene Linear Regressions [d]	Power Regression Equation [e] Ben = (m × VOC)^variable	Power Regression r^2 value [f]
Benzene	10.8% (374/3450)	--	--	--	--
Bromodichloromethane	98.4% (3398/3452)	53	<0.00001	$y = 2.02\ x^{0.915}$	0.51
Chloroform	90.5% (3126/3455)	235	0.72	$y = 36.0\ x^{0.139}$	0.027
1,2-Dibromoethane (EDB)	91.3% (3152/345)	294	<0.00001	$y = 223\ x^{0.872}$	0.77
Hexane	12.3% (424/3451)	1363	<0.00001	$y = 1.77\ x^{0.880}$	0.91
1,2,4-Trimethylbenzene	82.4% (2848/3455)	602	0.22	$y = 32.9\ x^{0.755}$	0.49
Xylene	25.6% (866/3388)	2522	<0.00001	$y = 1.46\ x^{1.09}$	0.84

Risk Drivers and Benzene Equivalent [g]	Soil Gas PRG Concentration (ppm-v), by Depth, Protective of Indoor Air [h] (Hypothetical Future Residential Exposure)					
Depth===>	450 ft	350 ft	250 ft	150 ft	50 ft	25 ft
Benzene	3.54E+01	2.76E+01	1.98E+01	1.20E+01	4.25E+00	2.30E+00
Bromodichloromethane	1.04E+01	8.11E+00	5.80E+00	3.49E+00	1.18E+00	6.06E-01
Equivalent Benzene Conc	1.72E+01	1.37E+01	1.01E+01	6.34E+00	2.36E+00	1.28E+00
Chloroform	6.65E+00	5.19E+00	3.73E+00	2.27E+00	8.11E-01	4.46E-01
Equivalent Benzene Conc	Not Applicable (r^2 value from power regression equation too low)					
1,2-Dibromoethane (EDB)	7.70E-01	5.99E-01	4.28E-01	2.57E-01	8.65E-02	4.40E-02
Equivalent Benzene Conc	1.78E+02	1.43E+02	1.06E+02	6.82E+01	2.64E+01	1.46E+01
Hexane	3.35E+03	2.62E+03	1.90E+03	1.17E+03	4.44E+02	2.62E+02
Equivalent Benzene Conc	2.24E+03	1.81E+03	1.36E+03	8.87E+02	3.78E+02	2.38E+02
1,2,4-Trimethylbenzene	7.79E+01	6.07E+01	4.35E+01	2.63E+01	9.12E+00	4.82E+00
Equivalent Benzene Conc	8.82E+02	7.30E+02	5.68E+02	3.88E+02	1.75E+02	1.08E+02
Xylene	1.09E+03	8.51E+02	6.10E+02	3.70E+02	1.29E+02	6.88E+01
Equivalent Benzene Conc	2.99E+03	2.28E+03	1.59E+03	9.19E+02	2.92E+02	1.47E+02

[a] Risk and hazard drivers, estimated to have a residential cancer risk > 1E-6 or noncancer hazard > 1, for soil gas to indoor air vapor intrusion pathway, modeled using Johnson & Ettinger (J&E) VI Model, based on depth of maximum measured VOC concentration in soil gas, EPC = 95% UCL of 8 quarters of soil gas monitoring data (QTR3-QTR10), and site-specific soil type (loamy sand) and mean subsurface temp (12.5 C).

[b] Number of soil gas samples in vapor wells that were nondetect (and percentage), for 12 quarters of data (2011 through 2013).

Appendix A-13 Table 1
Bulk Fuels Facility Soil Gas Risk Drivers, PRGs, and Estimated Equivalent Benzene Concentrations

[c] Sample size used to generate regression statistics; nondetect results for each VOC removed to limit the influence of nondetect detection limits.
[d] From Excel linear regressions; statistical significance (p-values) less than 0.05 are considered statistically significant.
[e] Regression Equation from Excel statistical function, for power relationship; m = slope, variable = power exponent.
[f] From Excel power regressions; the closer the r^2 value is to 1.0, the greater the estimating power of the equation.
[g] VOC concentrations equivalent to benzene estimated using power regression equation, when appropriate.
[h] Preliminary remediation goal (PRG) based on target cancer risk of 1E-5 or target hazard quotient of 1.0, whichever was lower, from J&E Model.

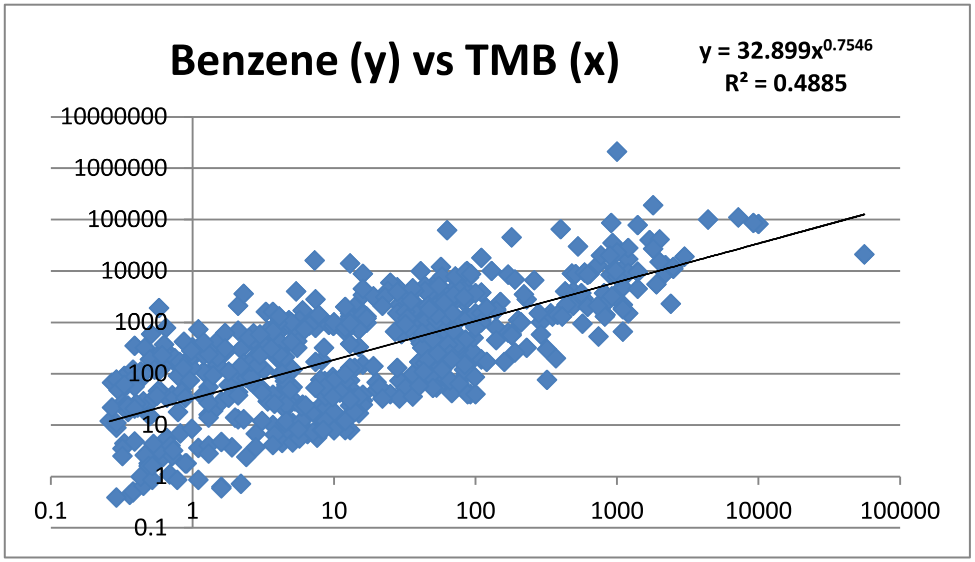
SUMMARY OUTPUT

Linear Regression Statistics	
Multiple R	0.050395123
R Square	0.002539668
Adjusted R Square	0.000877235
Standard Error	2392.226631
Observations	602

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	8742532.856	8742532.856	1.527680839	0.216944505
Residual	600	3433648954	5722748.256		
Total	601	3442391486			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	279.148328	97.80523901	2.854124491	0.004464565	87.06612192	471.2305341	87.06612192	471.2305341
160	0.001395054	0.00112869	1.235993867	0.216944505	-0.000821609	0.003611716	-0.000821609	0.003611716



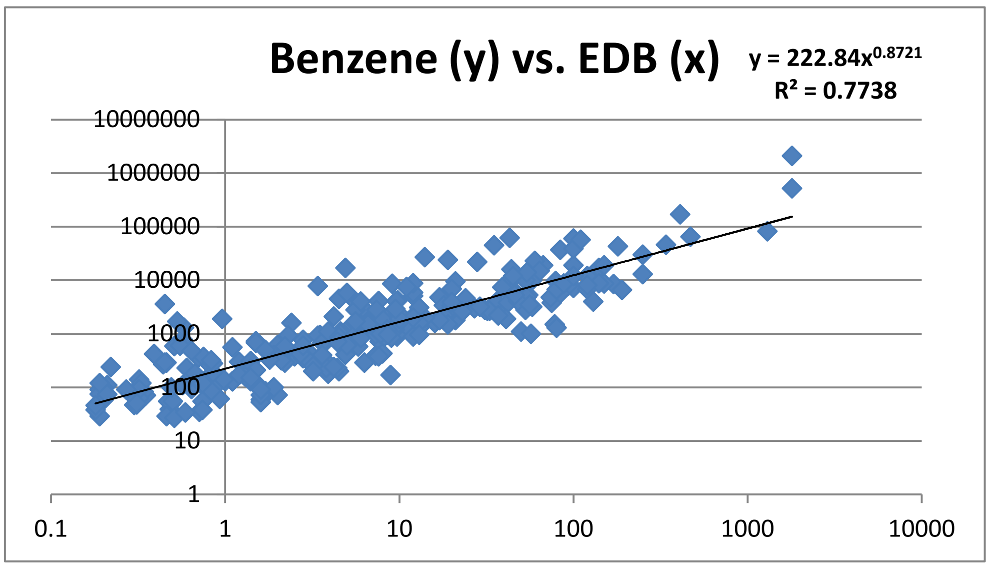
SUMMARY OUTPUT

Linear Regression Statistics	
Multiple R	0.756254185
R Square	0.571920392
Adjusted R Square	0.570454366
Standard Error	82917.86255
Observations	294

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.68219E+12	2.68219E+12	390.1161172	9.81054E-56
Residual	292	2.00761E+12	6875371930		
Total	293	4.6898E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-9890.812071	4986.756901	-1.983415728	0.04825749	-19705.35477	-76.26937521	-19705.35477	-76.26937521
0.32	554.1869145	28.05816859	19.75135735	9.81054E-56	498.965034	609.408795	498.965034	609.408795



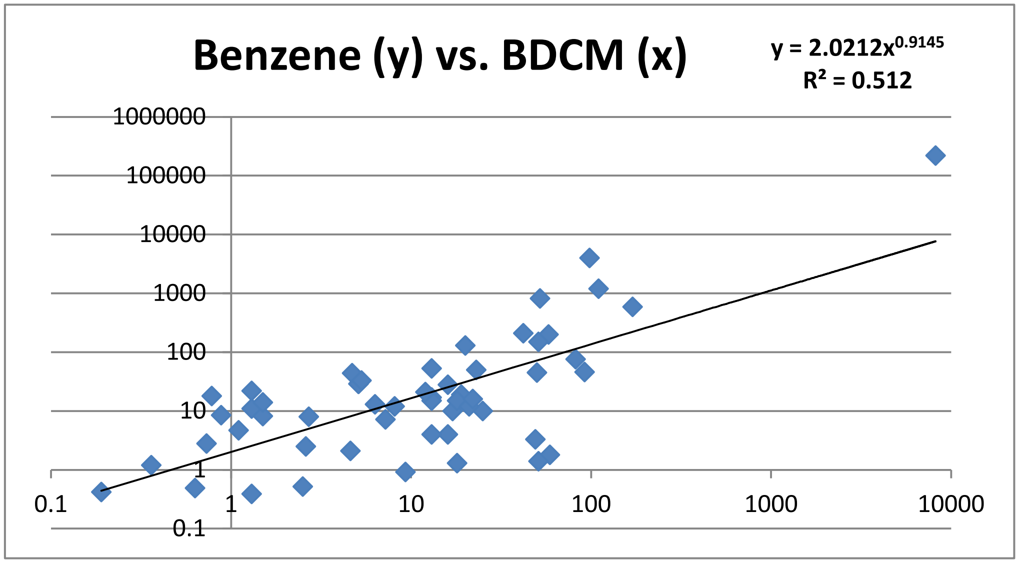
SUMMARY OUTPUT

Liinear Regression Statistics	
Multiple R	0.999655732
R Square	0.999311583
Adjusted R Square	0.999298085
Standard Error	800.2062527
Observations	53

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	47404944893	47404944893	74032.04821	2.57857E-82
Residual	51	32656832.39	640330.0468		
Total	52	47437601725			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-524.2957719	111.3389893	-4.709004233	1.94946E-05	-747.8181152	-300.7734287	-747.8181152	-300.7734287
0.36	26.87707609	0.098780709	272.0883096	2.57857E-82	26.67876555	27.07538664	26.67876555	27.07538664



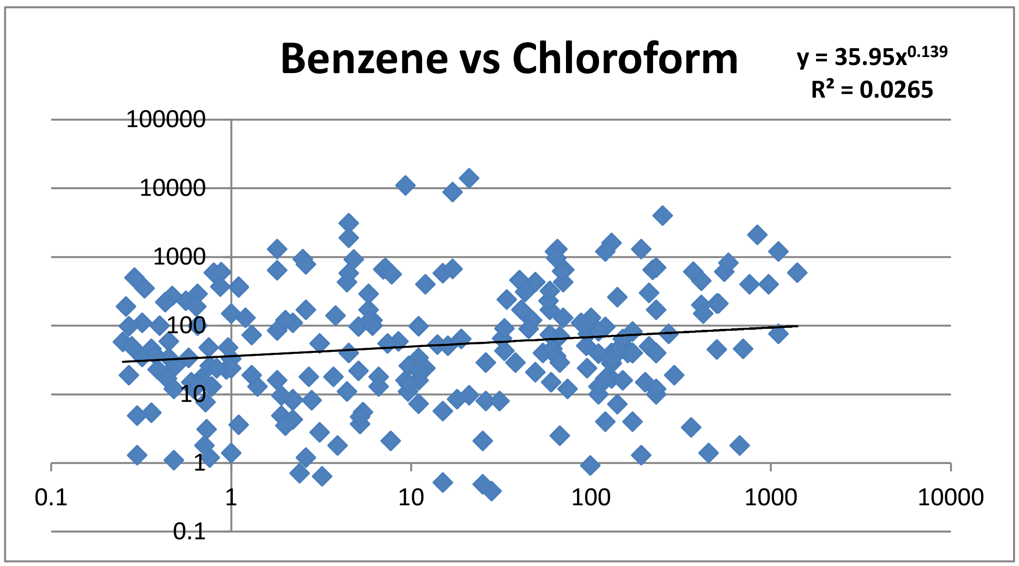
SUMMARY OUTPUT

Linear Regression Statistics	
Multiple R	0.023163627
R Square	0.000536554
Adjusted R Square	-0.003752989
Standard Error	1347.69699
Observations	235

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	227188.6611	227188.6611	0.125084108	0.72390428
Residual	233	423194912.1	1816287.176		
Total	234	423422100.7			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	345.6532283	98.09081487	3.523808307	0.000511893	152.3949456	538.9115111	152.3949456	538.9115111
0.3	0.157277567	0.444698552	0.353672317	0.72390428	-0.718866429	1.033421564	-0.718866429	1.033421564



SUMMARY OUTPUT

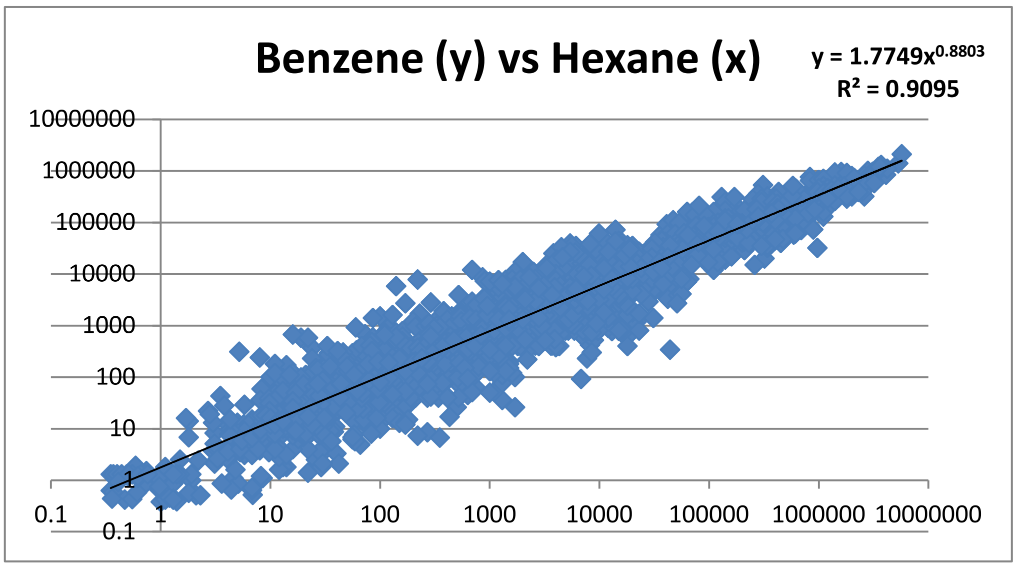
Linear Regression Statistics	
Multiple R	0.922677818
R Square	0.851334356
Adjusted R Square	0.851225123
Standard Error	32729.76746
Observations	1363

For QTR8 thru QTR12 only due to Exel limit on number of data points.

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	8.34898E+12	8.34898E+12	7793.771479	0
Residual	1361	1.45795E+12	1071237678		
Total	1362	9.80694E+12			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	4552.122772	903.465835	5.038511249	5.32185E-07	2779.786167	6324.459378	2779.786167	6324.459378
X Variable 1	0.276880814	0.00313631	88.28233957	0	0.270728288	0.283033341	0.270728288	0.283033341



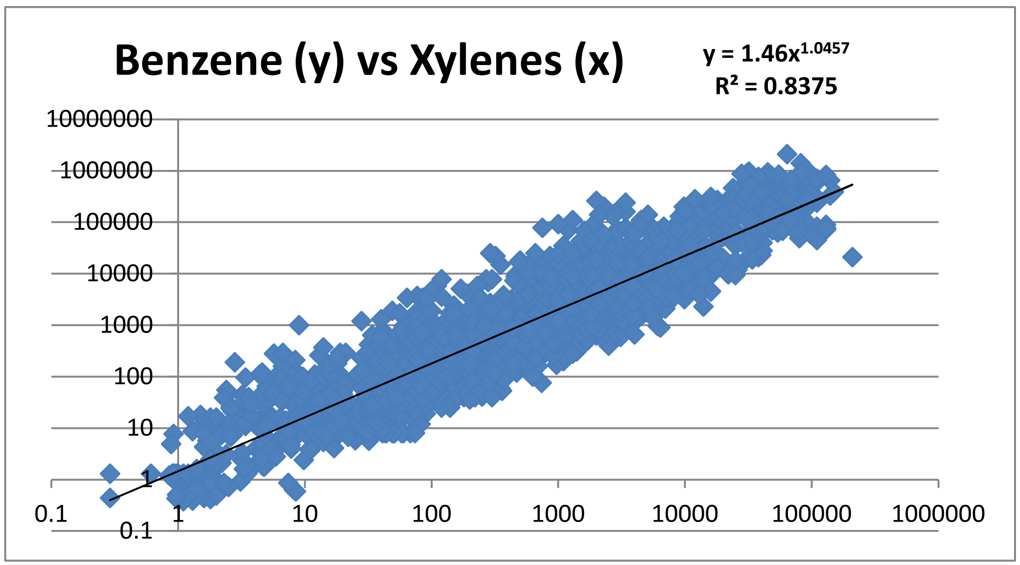
SUMMARY OUTPUT

Linear Regression Statistics	
Multiple R	0.623112908
R Square	0.388269697
Adjusted R Square	0.388026946
Standard Error	81203.92769
Observations	2522

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1.0547E+13	1.0547E+13	1599.462426	2.9645E-271
Residual	2520	1.66171E+13	6594077872		
Total	2521	2.71641E+13			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	4370.340344	1706.36007	2.561206407	0.010488676	1024.329063	7716.351625	1024.329063	7716.351625
X Variable 1	4.101954747	0.1025661	39.99327976	2.9645E-271	3.900832291	4.303077204	3.900832291	4.303077204



INTEROFFICE CORRESPONDENCE

TO: Tom Cooper

FROM: Mark Weisberg

SUBJECT: Kirtland AFB Indoor Air Sampling Results Evaluation

DATE: 3/8/2013

CC: Diane Agnew, Kim Kendall

Per your request, I have reviewed and evaluated the indoor air volatile organic compound (VOC) sample results collected from Buildings (Bldgs) 1026, 1032, and 1033 on July 17, 2012 and January 14, 2013, along with ambient air, at the Bulk Fuels Facility area.

For the 30 detected VOCs in indoor air, all but four (2-hexanone, carbon tetrachloride, Freon-113, and trichlorofluoromethane) were found to be statistically greater (at the P 0.05 level) within the Bldgs compared with ambient concentrations measured outside the Bldgs (**Table 1**). For this statistical analyses, I used detection limit (DL) values for non-detect sample results, and for purposes of the background (ambient) statistical comparisons, I ignored duplicate results. Detailed statistical results are presented in **Attachment 1** and **Attachment 2**, and box plots comparing concentrations in the Bldgs with ambient air are presented in **Attachment 3**. Twenty six of the VOCs failed the quantile background test that evaluates concentrations at the upper end of the concentration distribution (i.e., hot spots), while only seven failed the Gehans background test that evaluates central tendencies (i.e., the mean and median). Elevated VOC concentrations in Bldg. 1026 on July 17, 2012 appear to be causing the statistical excursions above background using the Quantile test.

Three VOCs (1,2,4-trimethylbenzene [1,2,4-TMB], benzene, and ethylbenzene), of the 26 VOCs that were statistically above ambient, had maximum detected concentrations (MDCs) that exceed USEPA's (Nov. 2012) residential and/or industrial Regional Screening Levels (RSLs). All these MDCs occurred at Bldg. 1026 during the July 17, 2012 indoor air sampling event.

Based on the MDC, the estimated combined cancer risk (for benzene and ethylbenzene) for an industrial land use scenario would be about 1.7E-5, and if the two seasonal samples at Bldg. 1026 are averaged together, the estimated cancer risk would be about 1E-5. Note: USEPA's target risk range is 1E-4 to 1E-6, with 1E-6 being the point of departure (i.e., triggering further evaluation). This industrial cancer risk estimate assumes 25 years of exposure 250 days per year, for 8 hours a day. Based on current Site land use, Bldg. 1026 is not typically occupied; therefore, estimated cancer risks would drop linearly with reductions in both exposure frequency and exposure duration. Thus, exposure once a month for 10 years by a worker would drop the estimated cancer risk by about 52-fold (to below 1E-6). Note that benzene concentrations were above the residential RSL in all the indoor air samples, and above the industrial RSL in several of the samples. Also note that the MDC for benzene appears to be a statistical outlier (see box plot in **Attachment 3**), but this does not mean this sample result can be thrown out. Ethylbenzene indoor air concentrations appear to be more convincingly above ambient (see box plot in **Attachment 3**).

For 1,2,4-TMB, the RSLs are based on a non-cancer health endpoint (adverse normal clotting of blood); however, the toxicity value is provisional and therefore very uncertain. An uncertainty factor of 3,000 was used by USEPA in deriving the reference concentration (RfC) toxicity value. The estimated hazard quotient for an industrial land use scenario (using the MDC), is 1.7, and assumes chronic exposure (7 years or more). Note: the hazard quotient needs to be below 1.0 for a no further action recommendation. If exposure is actually subchronic (less than 7 years), the subchronic RfC could be used for this VOC, and the estimated hazard would drop below 1.0. If the two seasonal samples at Bldg. 1026 are averaged together, the estimated chronic hazard for 1,2,4-TMB would also drop below 1.0.

Given that only one indoor sample results is generally causing benzene and ethylbenzene to fail the background Quantile statistical test, it is possible these two VOCs are actually related to ambient (background) conditions, and are failing the statistical quantile test as a result of the small sample size (8 indoor air samples and 5 ambient air samples). Therefore, an evaluation of nearby soil vapor sample results was performed, to try and determine if benzene and ethylbenzene (and 1,2,4-TMB) are actually related to subsurface contamination and vapor intrusion.

Soil vapor sample results (KAFB-106111, -106112, -106116, -106117, and -106128) from the five closest soil vapor monitoring (SVM) points to the Bldgs for the last seven sampling events (May, September, and October, 2011, and January, May, September, and November, 2012) were reviewed, including data from all sampling depths (25 feet below ground surface [bgs], 50 ft bgs, 150 ft bgs, 250 ft bgs, 350 ft bgs, and 450 ft bgs; **Table 2**).

Based on these soil vapor data, benzene was detected in 220 out of 231 samples (95% of the time), while ethylbenzene was detected 41% of the time, and 1,2,4-TMB only 8% of the time. The MDC for these three VOCs occurred at SVM points KAFB-106116 (for benzene and ethylbenzene) and KAFB-10617 for 1,2,4-TMB, the date of the maximum detection varied (occurring on April 14, 2011, November 9, 2011, and November 29, 2012, respectively), and the MDC was from the deepest samples -- either 350 or 450 ft bgs (**Table 2**). Even the minimum detected concentration in these soil vapor samples exceeded the maximum measured indoor air concentrations at Bldg. 1026 (converting units, as needed). As SVM point KAFB-106117 is approximately 30 ft due south of Bldg. 1026 (and much closer than the four other SVM points; **Figure 1),** the results from this location were evaluated in more detail.

As shown in **Table 3**, soil vapor results from KAFB-106117 show that benzene was detected in 41 out of 42 samples (98% of the time), while ethylbenzene was detected 40% of the time, and 1,2,4-TMB only 14% of the time. As detection limits for nondetect results for ethylbenzene and 1,2,4-TMB were quite elevated, benzene was selected for a detailed evaluation of trends over time and over varying depths.

As shown in **Figure 2**, benzene concentrations in soil vapor increased with increasing depth, regardless of the season (note the log scale on the Y-axis for concentrations). While there was a slight reduction in this concentration trend at the 150 ft bgs sample depth during some seasons, the reason for this finding is unknown. As shown in **Figure 2**, benzene concentrations increased up to five orders of magnitude as depth increased, and mean seasonal concentrations (for all depth results combined) varied from a low of 10,800 parts per billion by volume (ppbv) in September 2012 to a high of 334,283 ppbv in January 2012. Benzene concentrations varied considerably over time at each sample depth (**Figure 3**), ranging up to about 2 ½ orders of magnitude over the seven sampling events (at a fixed depth). As discussed previously, the benzene concentration increased with depth, with seasonal means showing the following trend:

Soil Vapor Sample Depth at (KAFB-106117 (ft bgs)	Seasonal Mean Benzene Concentration (ppbv)
25	5,486
50	9,245
150	2,724
250	65,997
350	242,250
450	571,428

Soil vapor, as represented by results from KAFB-106117, may be migrating into nearby Bldg 1026 (where the highest indoor air benzene concentration was measured). However, it is also possible that the benzene measured in indoor air may be related to ambient background concentrations. Two approaches are used to evaluation this issue further: (1) Modeling; and (2) VOC proportional analysis, presented as follows.

Vapor intrusion may be estimated using the Johnson and Ettinger Vapor Intrusion Model (USEPA freeware). A shallow soil vapor concentration is entered into the interactive Excel ® spreadsheet and the modeled concentration in indoor air is estimated. A site-specific vadose zone soil type of loamy sand (equivalent to silty sand) was entered, along with a depth to the shallowest measured benzene concentration (25 ft, or 762 cm). Other USEPA-recommended model defaults were used, such as the Bldg dimensions for a generic house and the default air exchange rate. Modeled indoor results for the seven seasonal soil vapor results from KAFB-106117 are as follows:

Benzene Soil Vapor Concentration (25 ft bgs) ppbv	Sample Date	Modeled Indoor Air Concentration (µg/m^3)
9,800	May 10, 2011	26.6
930	September 9, 2011	2.52
1,300	October 11, 2011	3.53
13,000	January 12, 2012	35.3
110	May 29, 2012	0.30
260	September 12, 2012	0.71
13,000	November 28, 2012	35.3

As the actual measured indoor air benzene concentrations at Bldg. 1026 were 23 µg/m^3 on July 17, 2012 and 4.8 µg/m^3 on January 14, 2013, these indoor air results are within the range of modeled results (0.30 to 35.3 µg/m^3) based on the shallowest soil vapor data. Therefore, benzene in shallow soil vapor proximate to Bldg. 1026 may be migrating into indoor air.

Given the many uncertainties in the Johnson and Ettinger Vapor Intrusion Model, a second evaluation approach may be used: Proportional Analysis. This approach calculates the proportion (or relative composition) of each VOC constituent in a sample, and compares these proportions among the shallow vapor samples results, indoor air sample results, and ambient air sample results. If vapor intrusion from the subsurface is primarily responsible for the VOCs measured in indoor air, then these two proportions should be more similar than the proportions of VOCs seen in ambient air compared with the indoor air samples. Detected VOC results are summarized in **Table 4**, with backup data presented in **Attachment 4**.

As shown in **Table 4**, 19 VOCs were detected in the shallow soil vapor samples collected from KAFB-106117, while 23 VOCs were detected in indoor air from Bldg. 1026, and 15 VOCs were detected in ambient air collected outside Bldg. 1026 (note that dates vary). Using the mean soil vapor data, the VOCs with the highest relative percent composition were toluene, cyclohexane, hexane, and benzene. Based on the indoor air data, the VOCs with the highest relative percent composition during the July 2012 event were 1,2,4-TMB, heptane, toluene, and 2,2,4-trimethylpentane, and during the January 2013 event were hexane, 2,2,4-trimethylpentane, heptanes, and toluene. Using the ambient air data (collected in January 2013), the VOCs with the highest relative percent composition were,2,4-trimethylpentane, hexane, heptane, and toluene. Based on this information, and inspection of all the VOC compositional percentages in **Table 4**, there is limited evidence that the VOCs measured in Bldg. 1026 are originating from the subsurface, and the data generally support a conclusion that the indoor air results are more similar to ambient air. This proportional analysis; however, is limited by several factors, including dissimilar sample collection dates, different samples sizes (16 soil vapor samples compared with two indoor air samples and just one ambient air sample), and the fact that several VOCs were measured in soil vapor but not in indoor /ambient air (cyclohexane, meta, para-xlyenes, propylene, and xylenes) or were measured in indoor/ambient air, but not soil vapor (1,3-dimethylbenzene, isopropylbenzene, and n-propylbenzene).

Conclusions

Many VOCs measured in indoor air were found to be statistically greater than ambient (background) concentrations; however, sample numbers were small and most VOCs failed the hotspot (quantile) statistical test, not the central tendency (Gehans) statistical test. In addition, while the highest concentrations were detected during the July 17, 2012 indoor air sampling event at Bldg. 1026, a corresponding ambient air sample was not collected on this date proximate to the Bldg.

Using indoor air data, only three VOCs were identified as being potential risk or hazard drivers via the inhalation pathway (1,2,4-TMB, benzene, and ethylbenzene), based on an assumed routine occupancy of Bldgs. However, as the Bldg. with the highest VOC concentrations (Bldg. 1026) is not routinely occupied (it is a storage area, not a work area), actual risks and hazards are expected to be acceptable.

The source of the VOCs in indoor air is uncertain, and may be from (1) ambient air, (2) contamination in the subsurface, and/or (3) from sources within the Bldg. itself. Modeled benzene concentrations in indoor air at Bldg. 1026 (based on shallow soil vapor data from the nearest SVM probe) bracketed the range of measured indoor air concentrations at this Bldg. Concentrations of benzene in soil vapor decrease at shallower depths, and (for a given depth) are quite variable over time. A proportional analysis of VOC constituent data, using relative percentages, suggests vapor intrusion may be more likely from ambient air than subsurface contamination; however, there are several limitations with this approach, as discussed previously.

Recommendations

Workers should not routinely occupy Bldg. 1026; however, limited exposure (i.e., a few times per month for many years, or daily during the work week for a few months) would not be expected to result in unacceptable health risks.

Future monitoring performed should collect concurrent soil vapor, indoor air, and ambient air samples, and samples should be analyzed for the identical suite of VOCs.

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: 1,2,4-TRIMETHYLBENZENE(site)
Background Data: 1,2,4-TRIMETHYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	3	5
Number of Detect Data	5	0
Minimum Non-Detect	0.44	0.27
Maximum Non-Detect	0.49	0.45
Percent Non detects	37.50%	100.00%
Minimum Detected	0.46	N/A
Maximum Detected	52	N/A
Mean of Detected Data	10.95	N/A
Median of Detected Data	0.88	N/A
SD of Detected Data	22.95	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	2.145
Critical z (0.95)	1.645
P-Value	0.016

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

	Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects
User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: 1,3,5-TRIMETHYLBENZENE(site)
Background Data: 1,3,5-TRIMETHYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	6	5
Number of Detect Data	2	0
Minimum Non-Detect	0.15	0.18
Maximum Non-Detect	0.54	0.5
Percent Non detects	75.00%	100.00%
Minimum Detected	0.25	N/A
Maximum Detected	11	N/A
Mean of Detected Data	5.625	N/A
Median of Detected Data	5.625	N/A
SD of Detected Data	7.601	N/A

Site vs Background Gehan Test

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.042
Critical z (0.95)	1.645
P-Value	0.149

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: 1,3-DIMETHYLBENZENE(site)
Background Data: 1,3-DIMETHYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.39	0.28
Maximum Detected	26	2.5
Mean of Detected Data	5.666	1.02

Median of Detected Data	1.35	0.9
SD of Detected Data	9.054	0.882

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.464
Critical z (0.95)	1.645
P-Value	0.0716

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: 224-TRIMETHYLPENTANE(site)
Background Data: 224-TRIMETHYLPENTANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	1	1
Number of Detect Data	7	4
Minimum Non-Detect	0.52	0.53

Maximum Non-Detect	0.52	0.53
Percent Non detects	12.50%	20.00%
Minimum Detected	1.1	1.2
Maximum Detected	35	25
Mean of Detected Data	9.229	10.93
Median of Detected Data	5.8	8.75
SD of Detected Data	11.83	10.38

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	-0.22
Critical z (0.95)	1.645
P-Value	0.587

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: 2-BUTANONE(site)
Background Data: 2-BUTANONE(ambient)

Raw Statistics

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	1.2	0.82
Maximum Detected	5.9	2
Mean of Detected Data	2.838	1.238
Median of Detected Data	2.2	1.1
SD of Detected Data	1.633	0.461

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	2.342
Critical z (0.95)	1.645
P-Value	0.00959

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Area of Concern Data: 2-HEXANONE(site)
Background Data: 2-HEXANONE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	8	4
Number of Detect Data	0	1
Minimum Non-Detect	0.21	0.2
Maximum Non-Detect	0.3	0.31
Percent Non detects	100.00%	80.00%
Minimum Detected	N/A	0.26
Maximum Detected	N/A	0.26
Mean of Detected Data	N/A	0.26
Median of Detected Data	N/A	0.26
SD of Detected Data	N/A	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	-1.219
Critical z (0.95)	1.645
P-Value	0.889

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: 4-METHYL-2-PENTANONE(site)
Background Data: 4-METHYL-2-PENTANONE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	4	5
Number of Detect Data	4	0
Minimum Non-Detect	0.21	0.19
Maximum Non-Detect	0.23	0.21
Percent Non detects	50.00%	100.00%
Minimum Detected	0.41	N/A
Maximum Detected	0.59	N/A
Mean of Detected Data	0.483	N/A
Median of Detected Data	0.465	N/A
SD of Detected Data	0.0846	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.788
Critical z (0.95)	1.645
P-Value	0.0369

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: ACETONE(site)
Background Data: ACETONE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	2
Number of Detect Data	8	3
Minimum Non-Detect	N/A	0.29
Maximum Non-Detect	N/A	0.3
Percent Non detects	0.00%	40.00%
Minimum Detected	5.5	6.9
Maximum Detected	25	9.1
Mean of Detected Data	14.68	7.867
Median of Detected Data	14.5	7.6
SD of Detected Data	6.655	1.124

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	2.052
Critical z (0.95)	1.645
P-Value	0.0201

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

	Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects
User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: BENZENE(site)
Background Data: BENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.67	0.53
Maximum Detected	23	8.8
Mean of Detected Data	5.684	4.246
Median of Detected Data	3.7	3
SD of Detected Data	7.305	3.828

Site vs Background Gehan Test

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	0.146
Critical z (0.95)	1.645
P-Value	0.442

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: BROMOMETHANE(site)
Background Data: BROMOMETHANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	5	3
Number of Detect Data	3	2
Minimum Non-Detect	0.3	0.29
Maximum Non-Detect	0.33	0.3
Percent Non detects	62.50%	60.00%
Minimum Detected	0.72	0.7
Maximum Detected	1.3	0.78
Mean of Detected Data	0.967	0.74

Median of Detected Data	0.88	0.74
SD of Detected Data	0.3	0.0566

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	0.25
Critical z (0.95)	1.645
P-Value	0.401

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: CARBON TETRACHLORIDE(site)
Background Data: CARBON TETRACHLORIDE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	3	0
Number of Detect Data	5	5
Minimum Non-Detect	0.45	N/A

Maximum Non-Detect	0.49	N/A
Percent Non detects	37.50%	0.00%
Minimum Detected	0.39	0.33
Maximum Detected	0.66	0.9
Mean of Detected Data	0.472	0.552
Median of Detected Data	0.44	0.54
SD of Detected Data	0.108	0.217

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	-1.158
Critical z (0.95)	1.645
P-Value	0.877

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: CHLOROMETHANE(site)
Background Data: CHLOROMETHANE(ambient)

Raw Statistics

Attachment 1

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.88	0.85
Maximum Detected	1.3	1.1
Mean of Detected Data	1.17	0.964
Median of Detected Data	1.3	0.97
SD of Detected Data	0.183	0.0961

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.757
Critical z (0.95)	1.645
P-Value	0.0395

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Area of Concern Data: DICHLORODIFLUOROMETHANE(site)
Background Data: DICHLORODIFLUOROMETHANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	1.9	1.9
Maximum Detected	2.8	2.6
Mean of Detected Data	2.3	2.26
Median of Detected Data	2.25	2.2
SD of Detected Data	0.321	0.329

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	-0.146
Critical z (0.95)	1.645
P-Value	0.558

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

	Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects
User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: ERYTHRENE(site)
Background Data: ERYTHRENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	2	4
Number of Detect Data	6	1
Minimum Non-Detect	0.12	0.11
Maximum Non-Detect	0.17	0.18
Percent Non detects	25.00%	80.00%
Minimum Detected	0.28	1.4
Maximum Detected	4	1.4
Mean of Detected Data	1.227	1.4
Median of Detected Data	0.74	1.4
SD of Detected Data	1.415	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.386
Critical z (0.95)	1.645
P-Value	0.0829

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

	Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects
User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: ETHANOL(site)
Background Data: ETHANOL(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	1.9	1.3
Maximum Detected	280	3.3
Mean of Detected Data	49.46	2.04
Median of Detected Data	11.45	1.7
SD of Detected Data	94.71	0.817

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	2.489
Critical z (0.95)	1.645

P-Value	0.00641

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: ETHYLBENZENE(site)
Background Data: ETHYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	2
Number of Detect Data	8	3
Minimum Non-Detect	N/A	0.2
Maximum Non-Detect	N/A	0.36
Percent Non detects	0.00%	40.00%
Minimum Detected	0.2	0.44
Maximum Detected	14	0.88
Mean of Detected Data	2.528	0.597
Median of Detected Data	0.66	0.47
SD of Detected Data	4.735	0.246

Site vs Background Gehan Test

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.033
Critical z (0.95)	1.645
P-Value	0.151

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: FREON 113(site)
Background Data: FREON 113(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	3	2
Number of Detect Data	5	3
Minimum Non-Detect	0.41	0.42
Maximum Non-Detect	0.55	0.5
Percent Non detects	37.50%	40.00%
Minimum Detected	0.45	0.61
Maximum Detected	0.63	0.83

Mean of Detected Data	0.552	0.703
Median of Detected Data	0.57	0.67
SD of Detected Data	0.0838	0.114

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	-0.941
Critical z (0.95)	1.645
P-Value	0.827

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: HEPTANE(site)
Background Data: HEPTANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	1	0
Number of Detect Data	7	5

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Minimum Non-Detect	0.3	N/A
Maximum Non-Detect	0.3	N/A
Percent Non detects	12.50%	0.00%
Minimum Detected	1.3	0.35
Maximum Detected	39	16
Mean of Detected Data	9.686	7.13
Median of Detected Data	5.7	4.9
SD of Detected Data	13.26	7.016

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	-0.293
Critical z (0.95)	1.645
P-Value	0.615

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: HEXANE(site)
Background Data: HEXANE(ambient)

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.34	0.54
Maximum Detected	34	18
Mean of Detected Data	8.793	7.528
Median of Detected Data	6.3	6.6
SD of Detected Data	10.76	6.906

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	0
Critical z (0.95)	1.645
P-Value	0.5

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Area of Concern Data: ISOPROPANOL(site)
Background Data: ISOPROPANOL(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	1	1
Number of Detect Data	7	4
Minimum Non-Detect	0.32	0.32
Maximum Non-Detect	0.32	0.32
Percent Non detects	12.50%	20.00%
Minimum Detected	0.68	0.37
Maximum Detected	33	6.9
Mean of Detected Data	7.947	2.523
Median of Detected Data	4.5	1.41
SD of Detected Data	11.42	2.998

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.099
Critical z (0.95)	1.645
P-Value	0.136

Conclusion with Alpha = 0.05
  Do Not Reject H0, Conclude Site <= Background
  P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options
From File ProUCL Input.wst

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: ISOPROPYLBENZENE(site)
Background Data: ISOPROPYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5
Number of Detect Data	1	0
Minimum Non-Detect	0.23	0.22
Maximum Non-Detect	0.26	0.27
Percent Non detects	87.50%	100.00%
Minimum Detected	5.4	N/A
Maximum Detected	5.4	N/A
Mean of Detected Data	5.4	N/A
Median of Detected Data	5.4	N/A
SD of Detected Data	N/A	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	0.791
Critical z (0.95)	1.645
P-Value	0.215

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: METHYLENE CHLORIDE(site)
Background Data: METHYLENE CHLORIDE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5
Number of Detect Data	1	0
Minimum Non-Detect	0.22	0.21
Maximum Non-Detect	0.24	0.24
Percent Non detects	87.50%	100.00%
Minimum Detected	4.2	N/A
Maximum Detected	4.2	N/A
Mean of Detected Data	4.2	N/A
Median of Detected Data	4.2	N/A
SD of Detected Data	N/A	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value 0.791

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Critical z (0.95)	1.645
P-Value	0.215

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: N-PROPYLBENZENE(site)
Background Data: N-PROPYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5
Number of Detect Data	1	0
Minimum Non-Detect	0.21	0.24
Maximum Non-Detect	0.58	0.53
Percent Non detects	87.50%	100.00%
Minimum Detected	11	N/A
Maximum Detected	11	N/A
Mean of Detected Data	11	N/A
Median of Detected Data	11	N/A
SD of Detected Data	N/A	N/A

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	0.791
Critical z (0.95)	1.645
P-Value	0.215

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

	Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects
User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: O-XYLENE(site)
Background Data: O-XYLENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	2
Number of Detect Data	8	3
Minimum Non-Detect	N/A	0.2
Maximum Non-Detect	N/A	0.22
Percent Non detects	0.00%	40.00%
Minimum Detected	0.26	0.29

Maximum Detected	13	0.77
Mean of Detected Data	2.33	0.467
Median of Detected Data	0.455	0.34
SD of Detected Data	4.423	0.264

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.319
Critical z (0.95)	1.645
P-Value	0.0935

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: P-ETHYLTOLUENE(site)
Background Data: P-ETHYLTOLUENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	4	5

Number of Detect Data	4	0
Minimum Non-Detect	0.15	0.17
Maximum Non-Detect	0.44	0.41
Percent Non detects	50.00%	100.00%
Minimum Detected	0.38	N/A
Maximum Detected	1	N/A
Mean of Detected Data	0.613	N/A
Median of Detected Data	0.535	N/A
SD of Detected Data	0.272	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.642
Critical z (0.95)	1.645
P-Value	0.0503

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: STYRENE(site)
Background Data: STYRENE(ambient)

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	5	5
Number of Detect Data	3	0
Minimum Non-Detect	0.18	0.21
Maximum Non-Detect	0.38	0.35
Percent Non detects	62.50%	100.00%
Minimum Detected	0.61	N/A
Maximum Detected	5.4	N/A
Mean of Detected Data	2.33	N/A
Median of Detected Data	0.98	N/A
SD of Detected Data	2.665	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.485
Critical z (0.95)	1.645
P-Value	0.0688

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Alternative Hypothesis   Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: TETRACHLOROETHENE(site)
Background Data: TETRACHLOROETHENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5
Number of Detect Data	1	0
Minimum Non-Detect	0.24	0.23
Maximum Non-Detect	0.27	0.28
Percent Non detects	87.50%	100.00%
Minimum Detected	0.49	N/A
Maximum Detected	0.49	N/A
Mean of Detected Data	0.49	N/A
Median of Detected Data	0.49	N/A
SD of Detected Data	N/A	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	0.791
Critical z (0.95)	1.645
P-Value	0.215

Conclusion with Alpha = 0.05
  Do Not Reject H0, Conclude Site <= Background
  P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: THF(site)
Background Data: THF(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	4	5
Number of Detect Data	4	0
Minimum Non-Detect	0.19	0.18
Maximum Non-Detect	0.44	0.48
Percent Non detects	50.00%	100.00%
Minimum Detected	0.43	N/A
Maximum Detected	1.5	N/A
Mean of Detected Data	0.748	N/A
Median of Detected Data	0.53	N/A
SD of Detected Data	0.504	N/A

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	1.695
Critical z (0.95)	1.645
P-Value	0.0451

Conclusion with Alpha = 0.05

Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: TOLUENE(site)
Background Data: TOLUENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.82	0.84
Maximum Detected	37	15
Mean of Detected Data	10.82	6.628
Median of Detected Data	7.45	5.7
SD of Detected Data	11.56	5.939

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Gehan z Test Value	0.439
Critical z (0.95)	1.645
P-Value	0.33

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value >= alpha (0.05)

Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: TRICHLOROFLUOROMETHANE(site)
Background Data: TRICHLOROFLUOROMETHANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	1.1	1.1
Maximum Detected	1.4	1.4
Mean of Detected Data	1.275	1.22
Median of Detected Data	1.3	1.2
SD of Detected Data	0.128	0.13

Attachment 1
Gehan Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

Site vs Background Gehan Test

H0: Mean/Median of Site or AOC <= Mean/Median of background

Gehan z Test Value	0
Critical z (0.95)	1.645
P-Value	0.5

Conclusion with Alpha = 0.05

Do Not Reject H0, Conclude Site <= Background

P-Value >= alpha (0.05)

Attachment 2
Indoor Air vs. Ambient Air Statistical Tests (Quantile 2-Population Tests), Detected VOC, Kirtland AFB

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: 1,2,4-TRIMETHYLBENZENE(site)
Background Data: 1,2,4-TRIMETHYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	3	5
Number of Detect Data	5	0
Minimum Non-Detect	0.44	0.27
Maximum Non-Detect	0.49	0.45
Percent Non detects	37.50%	100.00%
Minimum Detected	0.46	N/A
Maximum Detected	52	N/A
Mean of Detected Data	10.95	N/A
Median of Detected Data	0.88	N/A
SD of Detected Data	22.95	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1

Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: 1,3,5-TRIMETHYLBENZENE(site)
Background Data: 1,3,5-TRIMETHYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	6	5
Number of Detect Data	2	0
Minimum Non-Detect	0.15	0.18
Maximum Non-Detect	0.54	0.5
Percent Non detects	75.00%	100.00%
Minimum Detected	0.25	N/A
Maximum Detected	11	N/A
Mean of Detected Data	5.625	N/A
Median of Detected Data	5.625	N/A
SD of Detected Data	7.601	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: 1,3-DIMETHYLBENZENE(site)
Background Data: 1,3-DIMETHYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.39	0.28
Maximum Detected	26	2.5

Mean of Detected Data	5.666	1.02
Median of Detected Data	1.35	0.9
SD of Detected Data	9.054	0.882

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: 224-TRIMETHYLPENTANE(site)
Background Data: 224-TRIMETHYLPENTANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	1	1

Number of Detect Data	7	4
Minimum Non-Detect	0.52	0.53
Maximum Non-Detect	0.52	0.53
Percent Non detects	12.50%	20.00%
Minimum Detected	1.1	1.2
Maximum Detected	35	25
Mean of Detected Data	9.229	10.93
Median of Detected Data	5.8	8.75
SD of Detected Data	11.83	10.38

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: 2-BUTANONE(site)

Attachment 2
Indoor Air vs. Ambient Air Statistical Tests (Quantile 2-Population Tests), Detected VOC, Kirtland AFB

Background Data: 2-BUTANONE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	1.2	0.82
Maximum Detected	5.9	2
Mean of Detected Data	2.838	1.238
Median of Detected Data	2.2	1.1
SD of Detected Data	1.633	0.461

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0

Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

From File ProUCL Input.wst

Full Precision OFF

Attachment 2

Indoor Air vs. Ambient Air Statistical Tests (Quantile 2-Population Tests), Detected VOC, Kirtland AFB

Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: 2-HEXANONE(site)
Background Data: 2-HEXANONE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	8	4
Number of Detect Data	0	1
Minimum Non-Detect	0.21	0.2
Maximum Non-Detect	0.3	0.31
Percent Non detects	100.00%	80.00%
Minimum Detected	N/A	0.26
Maximum Detected	N/A	0.26
Mean of Detected Data	N/A	0.26
Median of Detected Data	N/A	0.26
SD of Detected Data	N/A	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	2
K Value Adjusted for Ties in Data	2
Number of Site Observations in 'R' Largest	0

Non-Detect Values in the 'R' Largest - Cannot complete Quantile Test

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: 4-METHYL-2-PENTANONE(site)
Background Data: 4-METHYL-2-PENTANONE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	4	5
Number of Detect Data	4	0
Minimum Non-Detect	0.21	0.19
Maximum Non-Detect	0.23	0.21
Percent Non detects	50.00%	100.00%
Minimum Detected	0.41	N/A
Maximum Detected	0.59	N/A
Mean of Detected Data	0.483	N/A
Median of Detected Data	0.465	N/A
SD of Detected Data	0.0846	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1

Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: ACETONE(site)
Background Data: ACETONE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	2
Number of Detect Data	8	3
Minimum Non-Detect	N/A	0.29
Maximum Non-Detect	N/A	0.3
Percent Non detects	0.00%	40.00%
Minimum Detected	5.5	6.9
Maximum Detected	25	9.1
Mean of Detected Data	14.68	7.867
Median of Detected Data	14.5	7.6
SD of Detected Data	6.655	1.124

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: BENZENE(site)
Background Data: BENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.67	0.53
Maximum Detected	23	8.8

Mean of Detected Data	5.684	4.246
Median of Detected Data	3.7	3
SD of Detected Data	7.305	3.828

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: BROMOMETHANE(site)
Background Data: BROMOMETHANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	5	3

Number of Detect Data	3	2
Minimum Non-Detect	0.3	0.29
Maximum Non-Detect	0.33	0.3
Percent Non detects	62.50%	60.00%
Minimum Detected	0.72	0.7
Maximum Detected	1.3	0.78
Mean of Detected Data	0.967	0.74
Median of Detected Data	0.88	0.74
SD of Detected Data	0.3	0.0566

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: CARBON TETRACHLORIDE(site)

Background Data: CARBON TETRACHLORIDE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	3	0
Number of Detect Data	5	5
Minimum Non-Detect	0.45	N/A
Maximum Non-Detect	0.49	N/A
Percent Non detects	37.50%	0.00%
Minimum Detected	0.39	0.33
Maximum Detected	0.66	0.9
Mean of Detected Data	0.472	0.552
Median of Detected Data	0.44	0.54
SD of Detected Data	0.108	0.217

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	0
Calculated Alpha	1

Conclusion with Alpha = 0
Do Not Reject H0, Perform Wilcoxon-Mann-Whitney or Gehan Test

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF

Attachment 2
Indoor Air vs. Ambient Air Statistical Tests (Quantile 2-Population Tests), Detected VOC, Kirtland AFB

Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: CHLOROMETHANE(site)
Background Data: CHLOROMETHANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.88	0.85
Maximum Detected	1.3	1.1
Mean of Detected Data	1.17	0.964
Median of Detected Data	1.3	0.97
SD of Detected Data	0.183	0.0961

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	5
K Value Adjusted for Ties in Data	5
Number of Site Observations in 'R' Largest	5
Calculated Alpha	1

Conclusion with Alpha = 0

Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: DICHLORODIFLUOROMETHANE(site)
Background Data: DICHLORODIFLUOROMETHANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	1.9	1.9
Maximum Detected	2.8	2.6
Mean of Detected Data	2.3	2.26
Median of Detected Data	2.25	2.2
SD of Detected Data	0.321	0.329

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0

R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: ERYTHRENE(site)
Background Data: ERYTHRENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	2	4
Number of Detect Data	6	1
Minimum Non-Detect	0.12	0.11
Maximum Non-Detect	0.17	0.18
Percent Non detects	25.00%	80.00%
Minimum Detected	0.28	1.4
Maximum Detected	4	1.4
Mean of Detected Data	1.227	1.4
Median of Detected Data	0.74	1.4
SD of Detected Data	1.415	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: ETHANOL(site)
Background Data: ETHANOL(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%

Minimum Detected	1.9	1.3
Maximum Detected	280	3.3
Mean of Detected Data	49.46	2.04
Median of Detected Data	11.45	1.7
SD of Detected Data	94.71	0.817

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: ETHYLBENZENE(site)
Background Data: ETHYLBENZENE(ambient)

Raw Statistics

	Site	Background

Number of Valid Data	8	5
Number of Non-Detect Data	0	2
Number of Detect Data	8	3
Minimum Non-Detect	N/A	0.2
Maximum Non-Detect	N/A	0.36
Percent Non detects	0.00%	40.00%
Minimum Detected	0.2	0.44
Maximum Detected	14	0.88
Mean of Detected Data	2.528	0.597
Median of Detected Data	0.66	0.47
SD of Detected Data	4.735	0.246

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: FREON 113(site)
Background Data: FREON 113(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	3	2
Number of Detect Data	5	3
Minimum Non-Detect	0.41	0.42
Maximum Non-Detect	0.55	0.5
Percent Non detects	37.50%	40.00%
Minimum Detected	0.45	0.61
Maximum Detected	0.63	0.83
Mean of Detected Data	0.552	0.703
Median of Detected Data	0.57	0.67
SD of Detected Data	0.0838	0.114

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	0
Calculated Alpha	1

Conclusion with Alpha = 0
Do Not Reject H0, Perform Wilcoxon-Mann-Whitney or Gehan Test

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: HEPTANE(site)
Background Data: HEPTANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	1	0
Number of Detect Data	7	5
Minimum Non-Detect	0.3	N/A
Maximum Non-Detect	0.3	N/A
Percent Non detects	12.50%	0.00%
Minimum Detected	1.3	0.35
Maximum Detected	39	16
Mean of Detected Data	9.686	7.13
Median of Detected Data	5.7	4.9
SD of Detected Data	13.26	7.016

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: HEXANE(site)
Background Data: HEXANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.34	0.54
Maximum Detected	34	18
Mean of Detected Data	8.793	7.528
Median of Detected Data	6.3	6.6
SD of Detected Data	10.76	6.906

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: ISOPROPANOL(site)
Background Data: ISOPROPANOL(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	1	1
Number of Detect Data	7	4
Minimum Non-Detect	0.32	0.32
Maximum Non-Detect	0.32	0.32
Percent Non detects	12.50%	20.00%
Minimum Detected	0.68	0.37
Maximum Detected	33	6.9
Mean of Detected Data	7.947	2.523
Median of Detected Data	4.5	1.41

SD of Detected Data	11.42	2.998

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: ISOPROPYLBENZENE(site)
Background Data: ISOPROPYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5
Number of Detect Data	1	0
Minimum Non-Detect	0.23	0.22

Maximum Non-Detect	0.26	0.27
Percent Non detects	87.50%	100.00%
Minimum Detected	5.4	N/A
Maximum Detected	5.4	N/A
Mean of Detected Data	5.4	N/A
Median of Detected Data	5.4	N/A
SD of Detected Data	N/A	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: METHYLENE CHLORIDE(site)
Background Data: METHYLENE CHLORIDE(ambient)

Attachment 2
Indoor Air vs. Ambient Air Statistical Tests (Quantile 2-Population Tests), Detected VOC, Kirtland AFB

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5
Number of Detect Data	1	0
Minimum Non-Detect	0.22	0.21
Maximum Non-Detect	0.24	0.24
Percent Non detects	87.50%	100.00%
Minimum Detected	4.2	N/A
Maximum Detected	4.2	N/A
Mean of Detected Data	4.2	N/A
Median of Detected Data	4.2	N/A
SD of Detected Data	N/A	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0

Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)

Alternative Hypothesis   Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: N-PROPYLBENZENE(site)
Background Data: N-PROPYLBENZENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5
Number of Detect Data	1	0
Minimum Non-Detect	0.21	0.24
Maximum Non-Detect	0.58	0.53
Percent Non detects	87.50%	100.00%
Minimum Detected	11	N/A
Maximum Detected	11	N/A
Mean of Detected Data	11	N/A
Median of Detected Data	11	N/A
SD of Detected Data	N/A	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Attachment 2

Indoor Air vs. Ambient Air Statistical Tests (Quantile 2-Population Tests), Detected VOC, Kirtland AFB

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: O-XYLENE(site)
Background Data: O-XYLENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	2
Number of Detect Data	8	3
Minimum Non-Detect	N/A	0.2
Maximum Non-Detect	N/A	0.22
Percent Non detects	0.00%	40.00%
Minimum Detected	0.26	0.29
Maximum Detected	13	0.77
Mean of Detected Data	2.33	0.467
Median of Detected Data	0.455	0.34
SD of Detected Data	4.423	0.264

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1

Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0

Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: P-ETHYLTOLUENE(site)

Background Data: P-ETHYLTOLUENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	4	5
Number of Detect Data	4	0
Minimum Non-Detect	0.15	0.17
Maximum Non-Detect	0.44	0.41
Percent Non detects	50.00%	100.00%
Minimum Detected	0.38	N/A
Maximum Detected	1	N/A
Mean of Detected Data	0.613	N/A
Median of Detected Data	0.535	N/A
SD of Detected Data	0.272	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: STYRENE(site)
Background Data: STYRENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	5	5
Number of Detect Data	3	0
Minimum Non-Detect	0.18	0.21
Maximum Non-Detect	0.38	0.35
Percent Non detects	62.50%	100.00%
Minimum Detected	0.61	N/A
Maximum Detected	5.4	N/A

Mean of Detected Data	2.33	N/A
Median of Detected Data	0.98	N/A
SD of Detected Data	2.665	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options

From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: TETRACHLOROETHENE(site)
Background Data: TETRACHLOROETHENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	7	5

Number of Detect Data	1	0
Minimum Non-Detect	0.24	0.23
Maximum Non-Detect	0.27	0.28
Percent Non detects	87.50%	100.00%
Minimum Detected	0.49	N/A
Maximum Detected	0.49	N/A
Mean of Detected Data	0.49	N/A
Median of Detected Data	0.49	N/A
SD of Detected Data	N/A	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: THF(site)

Background Data: THF(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	4	5
Number of Detect Data	4	0
Minimum Non-Detect	0.19	0.18
Maximum Non-Detect	0.44	0.48
Percent Non detects	50.00%	100.00%
Minimum Detected	0.43	N/A
Maximum Detected	1.5	N/A
Mean of Detected Data	0.748	N/A
Median of Detected Data	0.53	N/A
SD of Detected Data	0.504	N/A

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0
Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF

Attachment 2
Indoor Air vs. Ambient Air Statistical Tests (Quantile 2-Population Tests), Detected VOC, Kirtland AFB

Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: TOLUENE(site)
Background Data: TOLUENE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	0.82	0.84
Maximum Detected	37	15
Mean of Detected Data	10.82	6.628
Median of Detected Data	7.45	5.7
SD of Detected Data	11.56	5.939

Quantile Test

H0: Site Concentration <= Background Concentration (Form 1)

Approximate R Value (0)	0
Approximate K Value (0)	0
R Value Adjusted for Ties in Data	1
K Value Adjusted for Ties in Data	1
Number of Site Observations in 'R' Largest	1
Calculated Alpha	1

Conclusion with Alpha = 0

Reject H0, Conclude Site Concentration > Background Concentration

Quantile Site vs Background Comparison Hypothesis Test for Data Sets with Non-Detects

User Selected Options	
From File	ProUCL Input.wst
Full Precision	OFF
Confidence Coefficient	95%
Null Hypothesis	Site or AOC Concentration Less Than or Equal to Background Concentration (Form 1)
Alternative Hypothesis	Site or AOC Concentration Greater Than Background Concentration

Area of Concern Data: TRICHLOROFLUOROMETHANE(site)
Background Data: TRICHLOROFLUOROMETHANE(ambient)

Raw Statistics

	Site	Background
Number of Valid Data	8	5
Number of Non-Detect Data	0	0
Number of Detect Data	8	5
Minimum Non-Detect	N/A	N/A
Maximum Non-Detect	N/A	N/A
Percent Non detects	0.00%	0.00%
Minimum Detected	1.1	1.1
Maximum Detected	1.4	1.4
Mean of Detected Data	1.275	1.22
Median of Detected Data	1.3	1.2
SD of Detected Data	0.128	0.13

Quantile Test

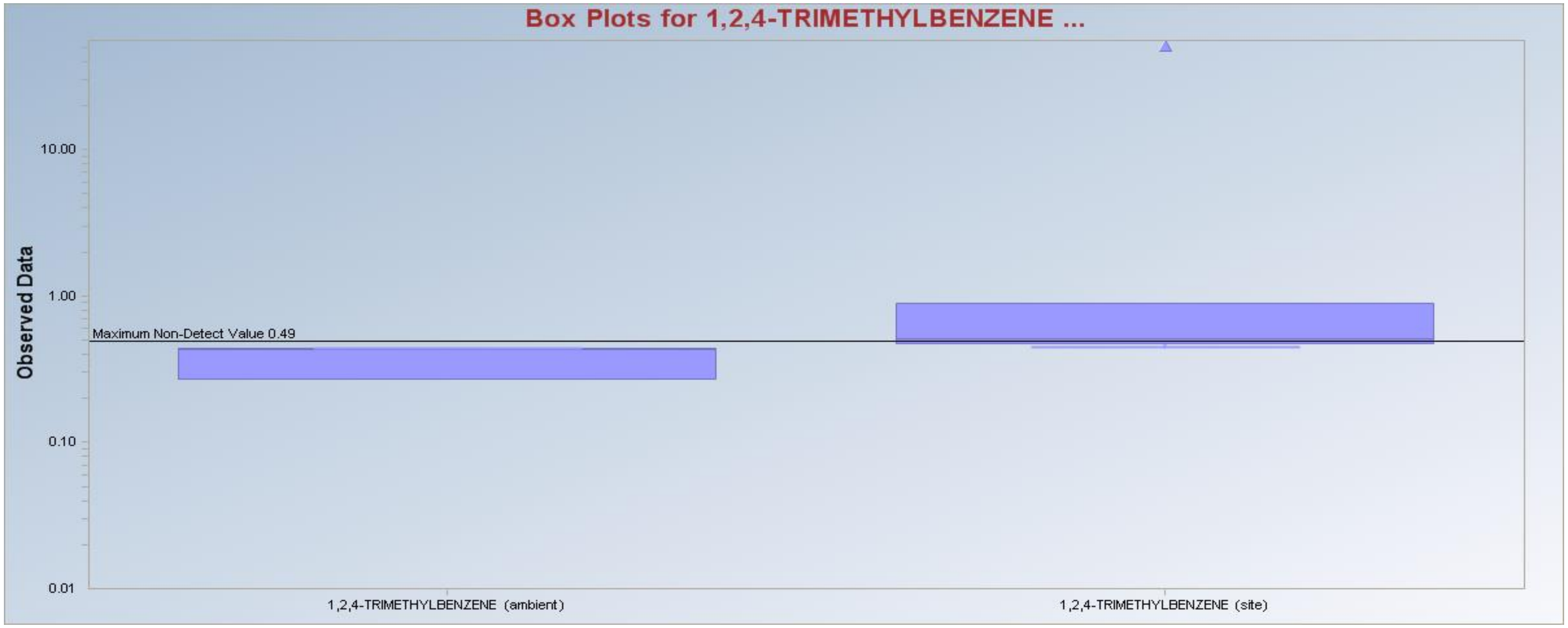
H0: Site Concentration <= Background Concentration (Form 1)

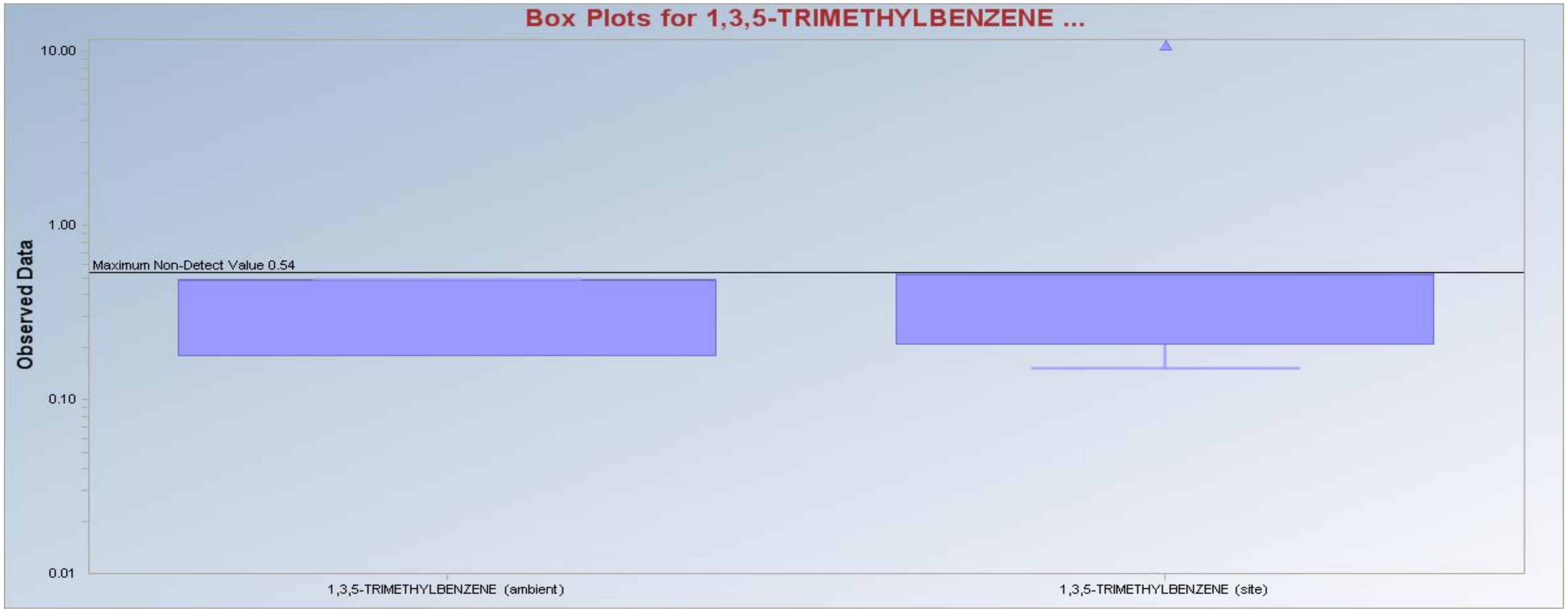
Approximate R Value (0)	0
Approximate K Value (0)	0

R Value Adjusted for Ties in Data	4
K Value Adjusted for Ties in Data	4
Number of Site Observations in 'R' Largest	3
Calculated Alpha	1

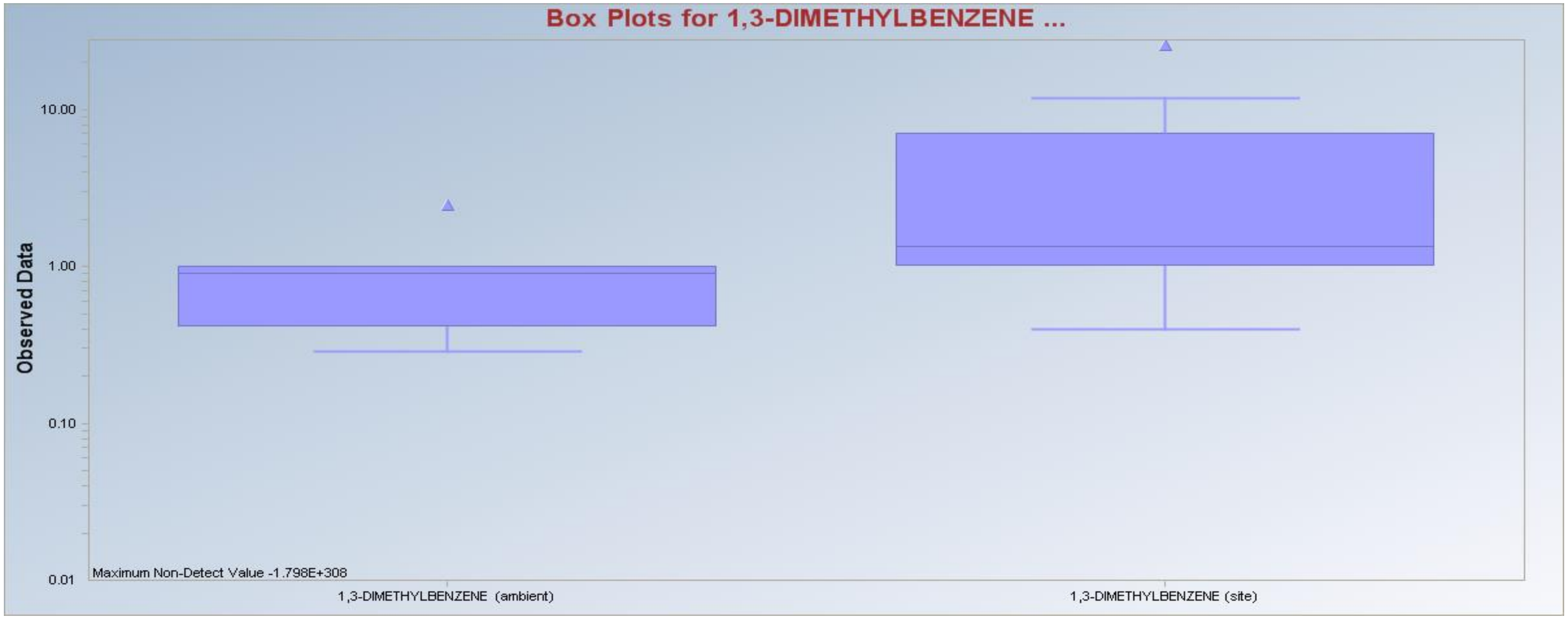
Conclusion with Alpha = 0
Do Not Reject H0, Perform Wilcoxon-Mann-Whitney or Gehan Test

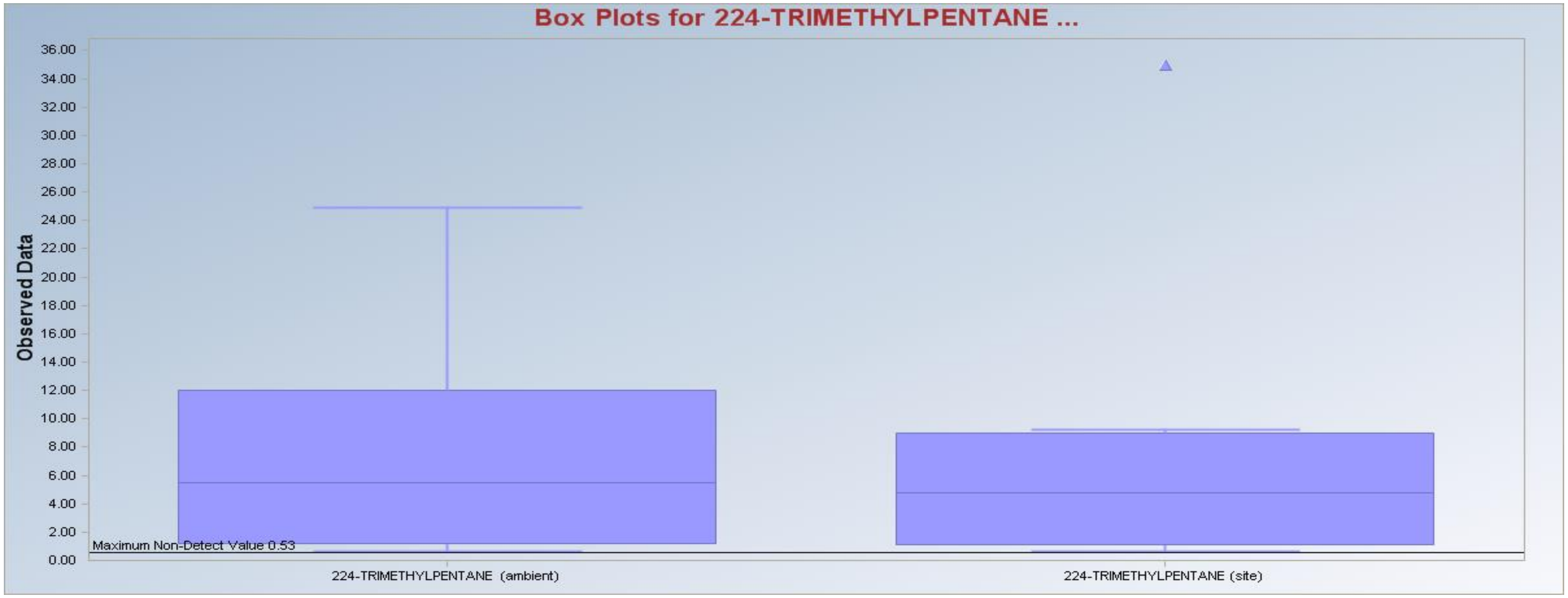
Attachment 3
Box Plots





Attachment 3
Box Plots





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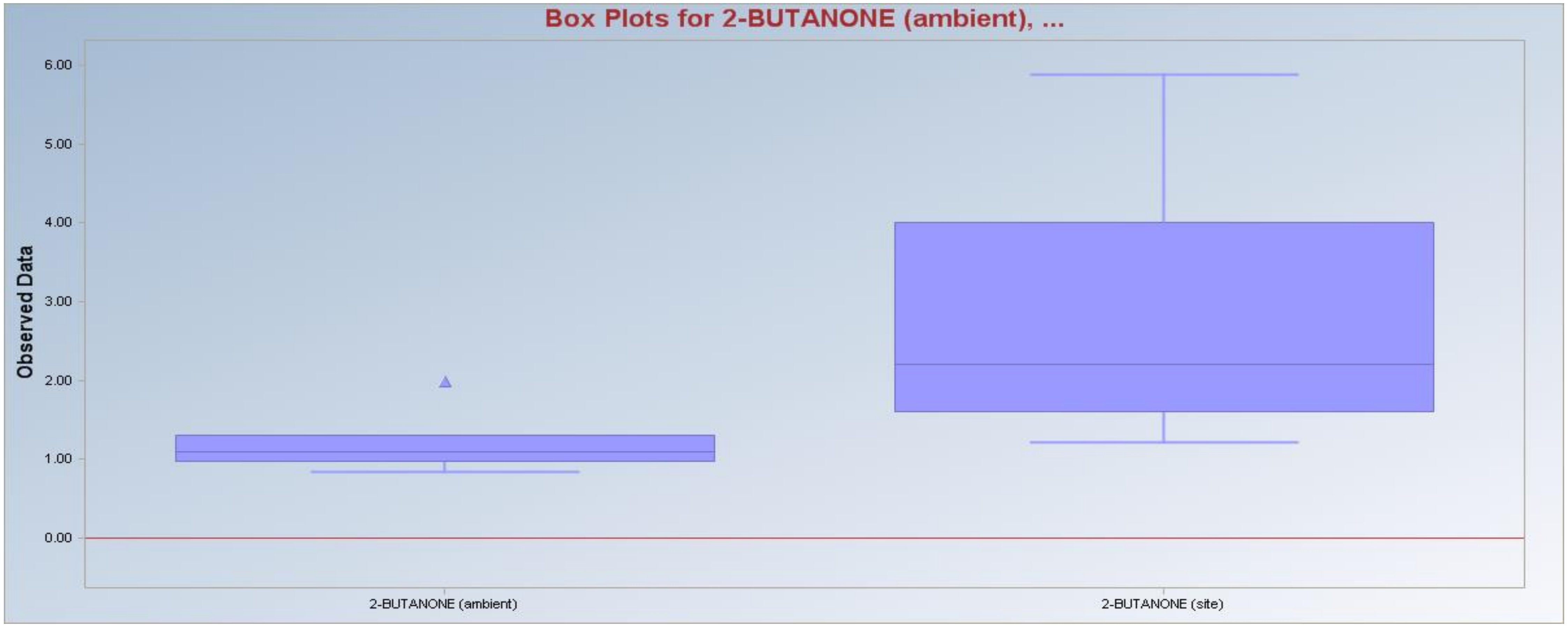
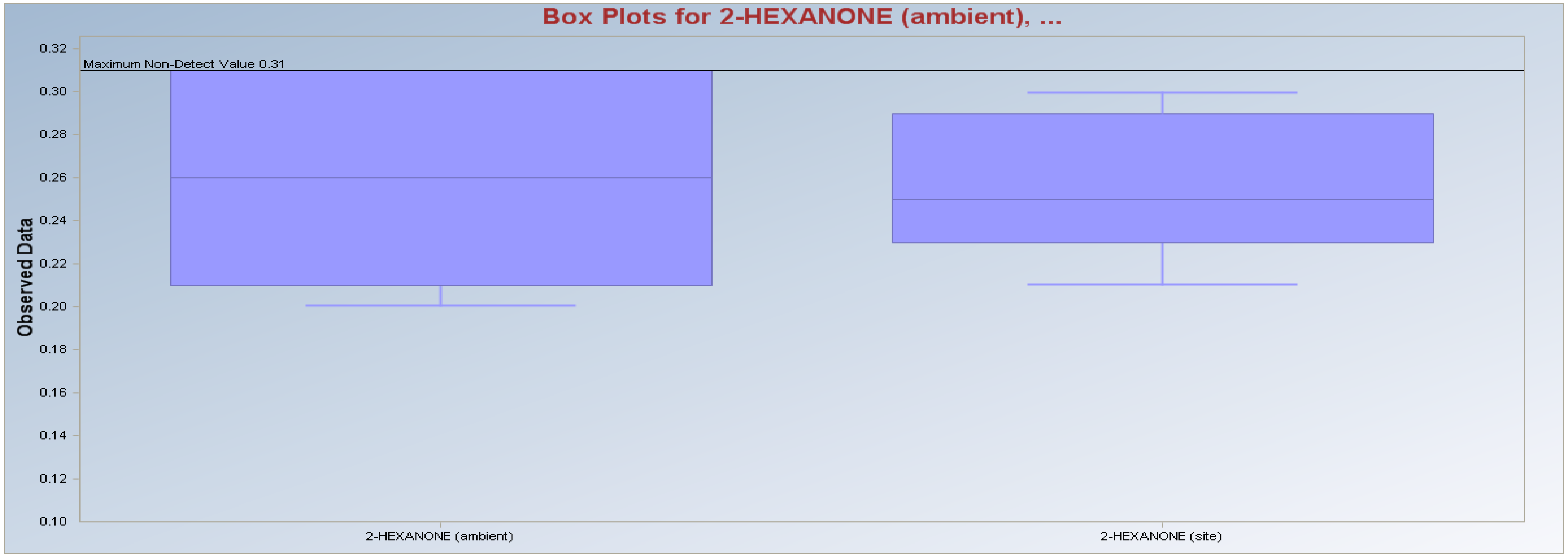
Box Plots





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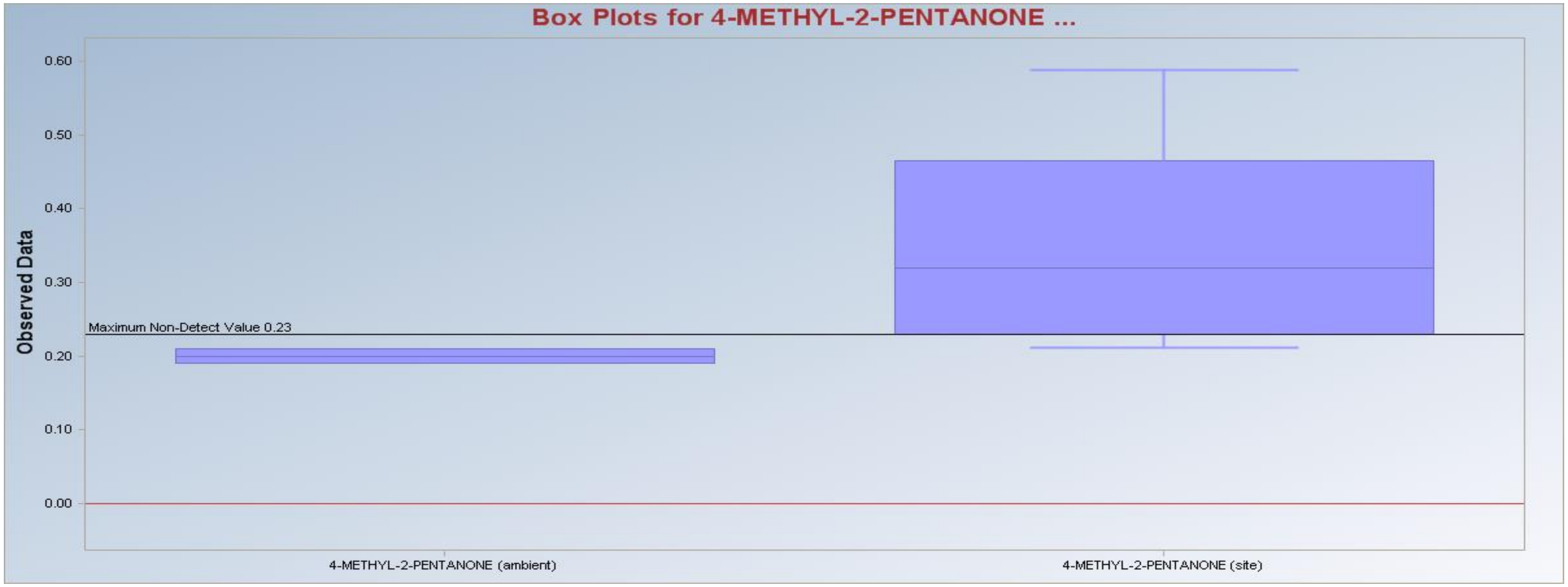
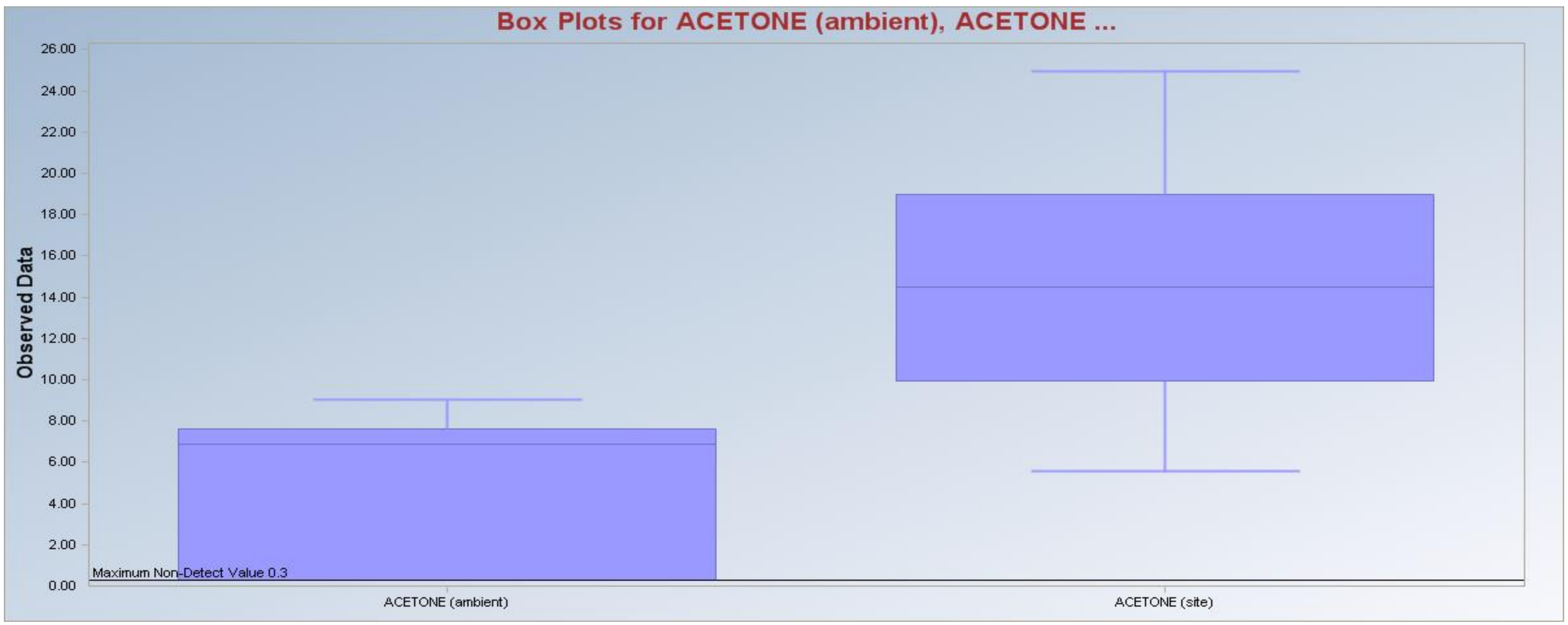
Box Plots





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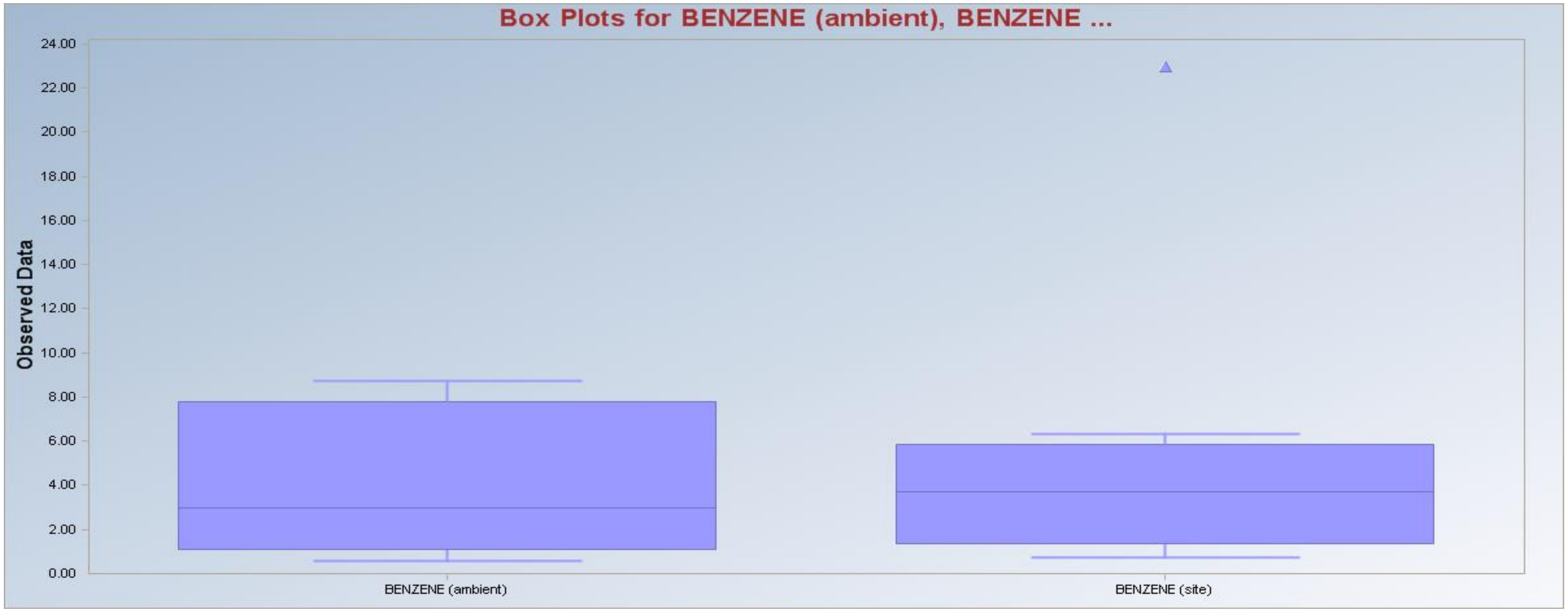
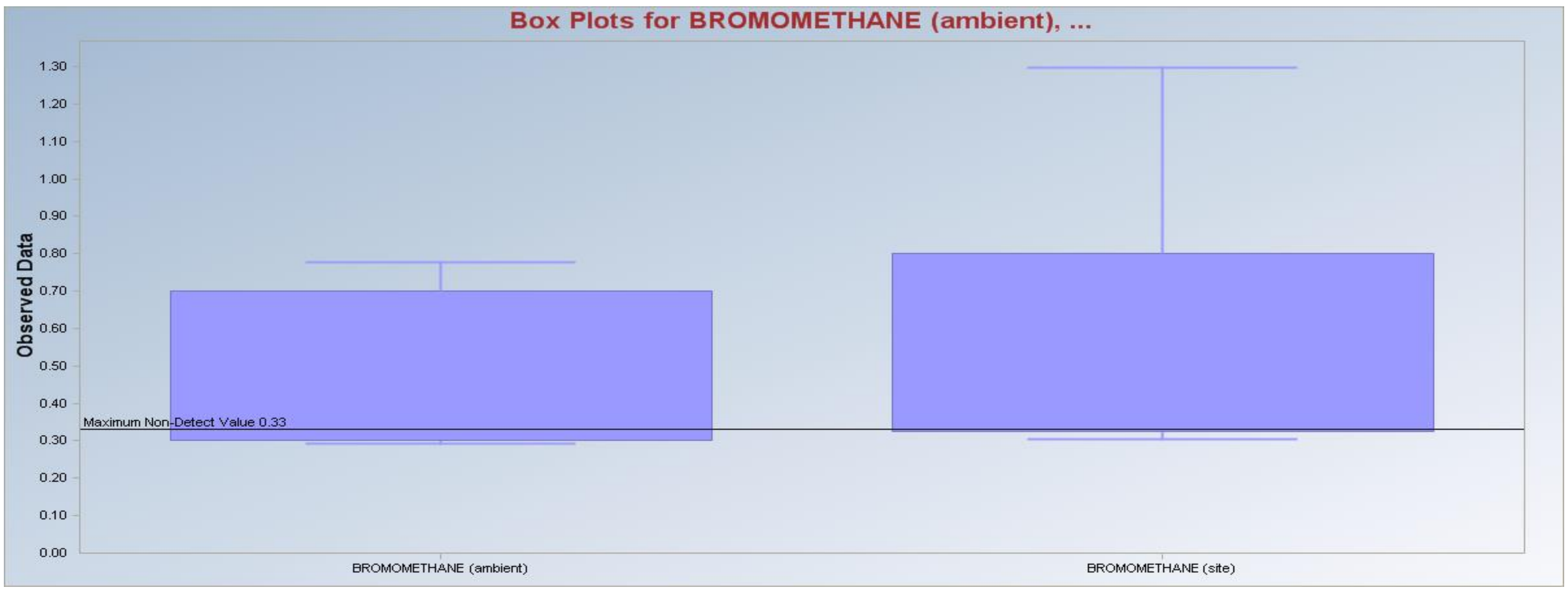
Box Plots





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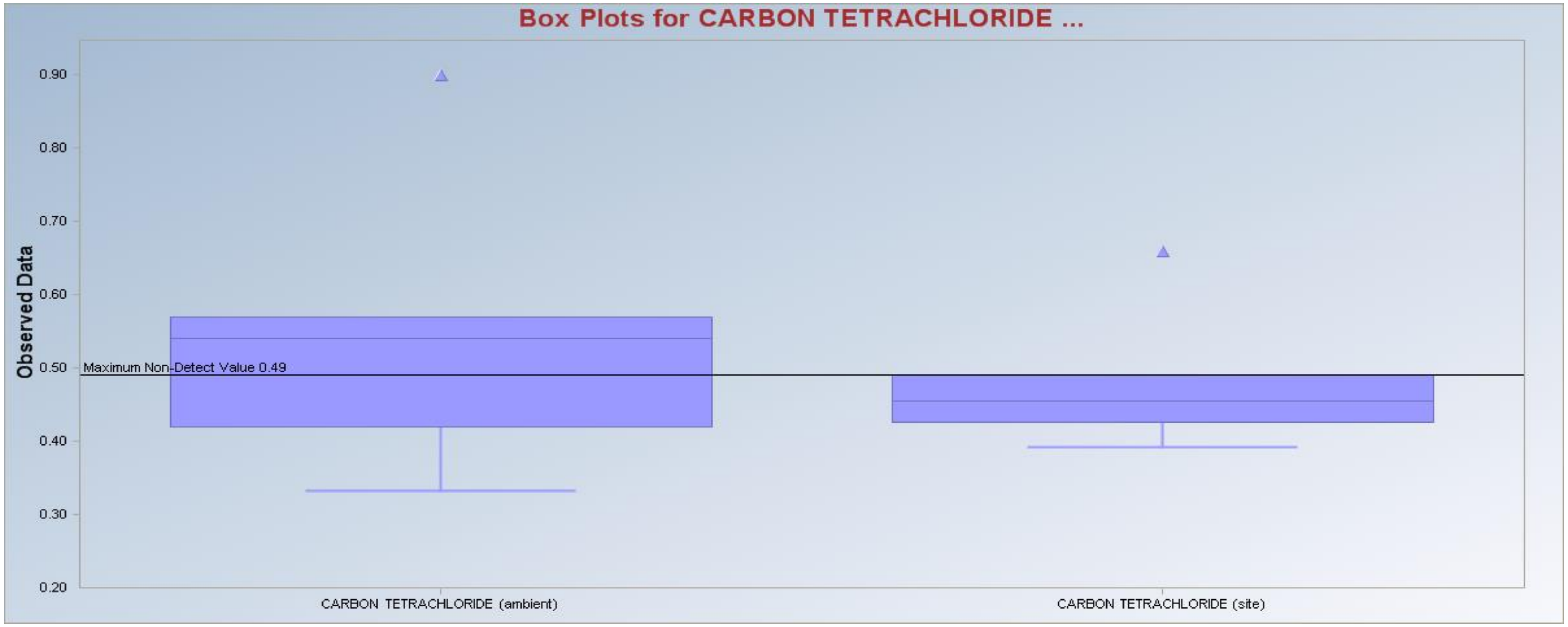
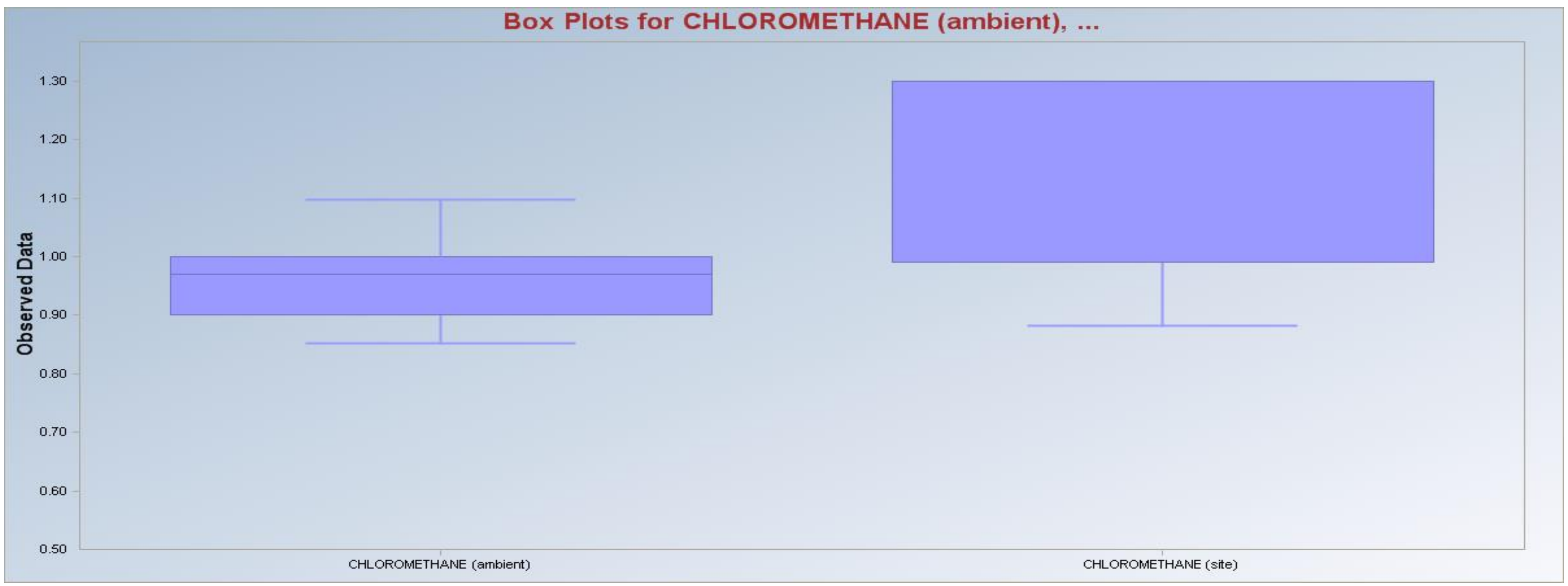
Box Plots





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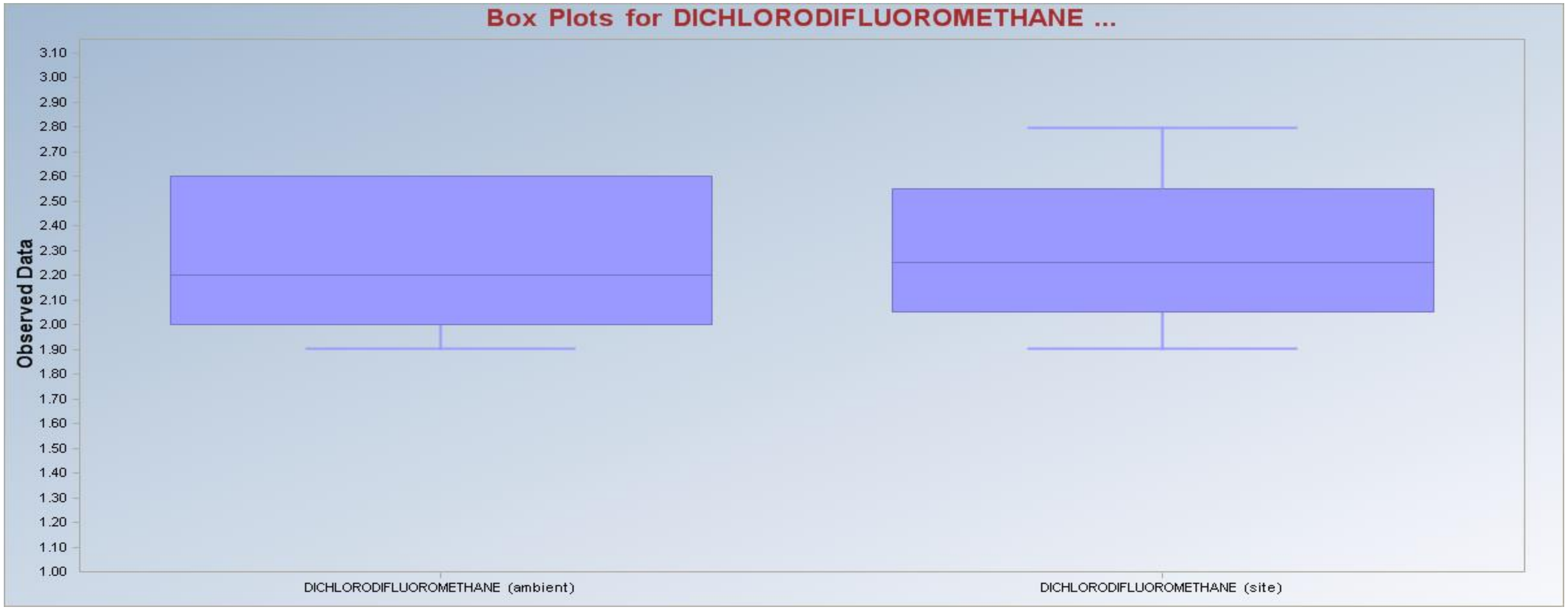

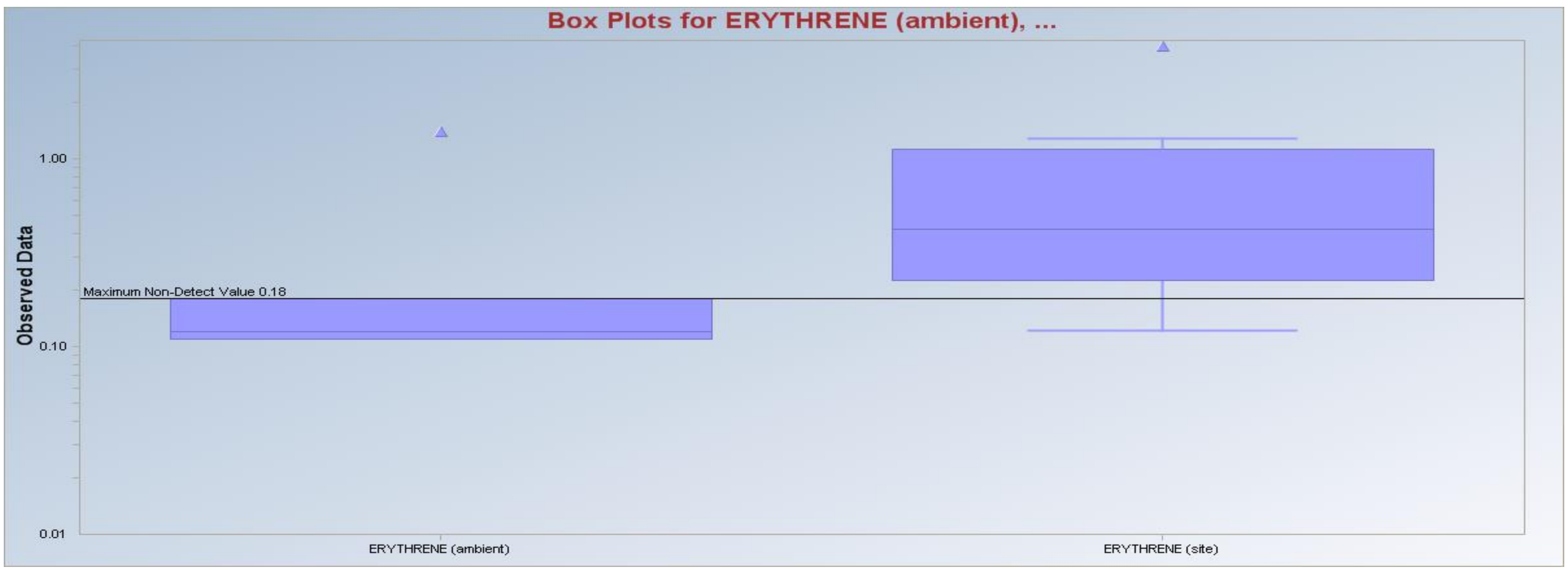

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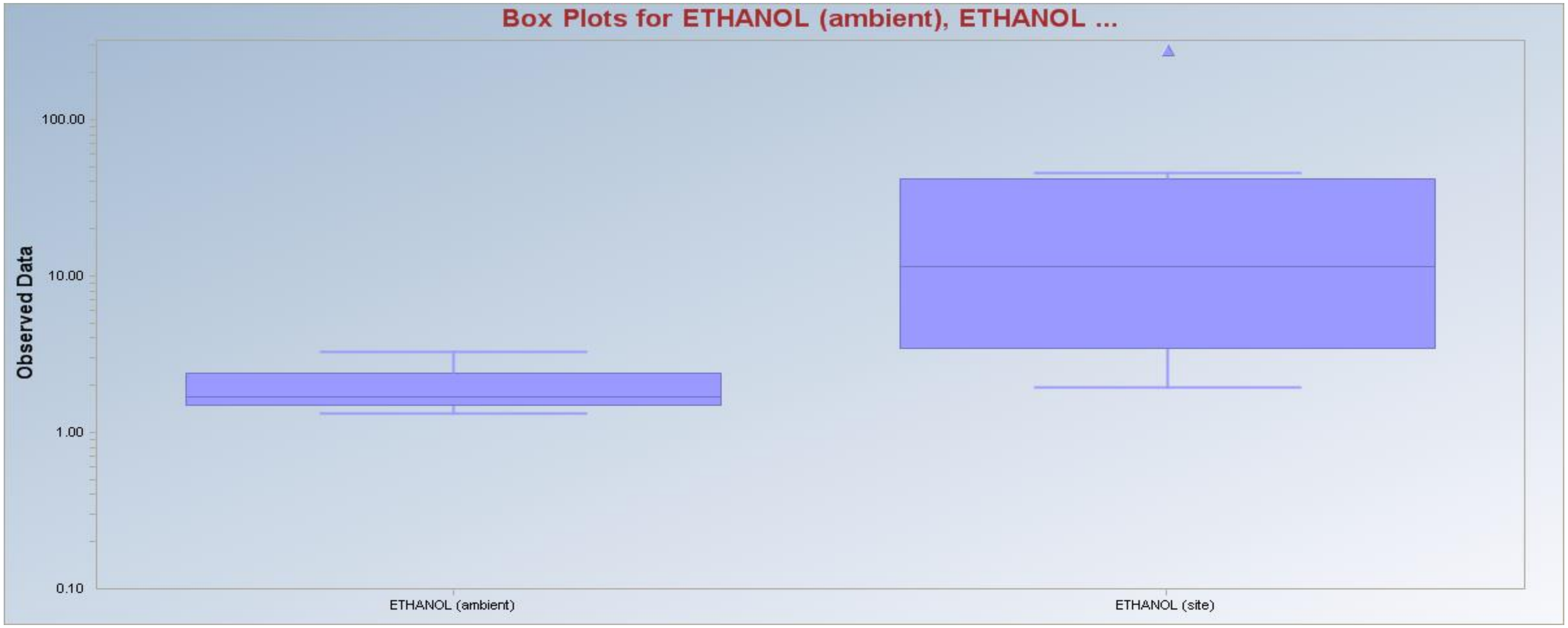

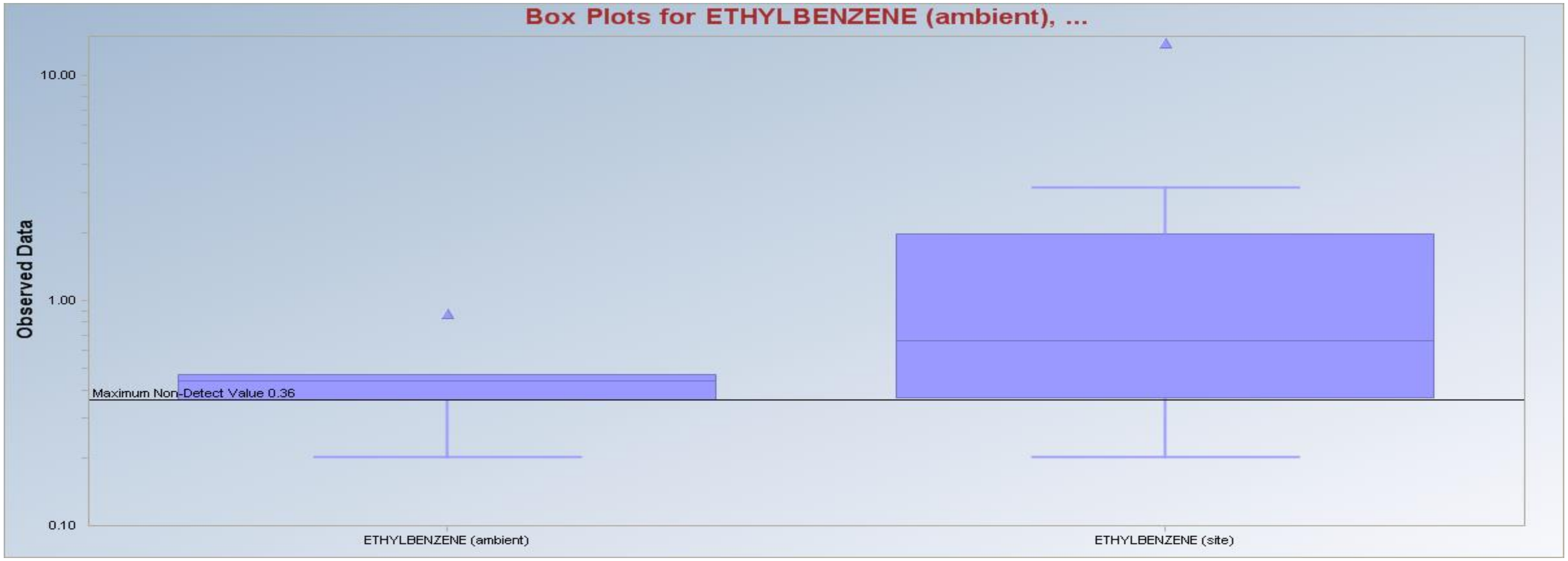

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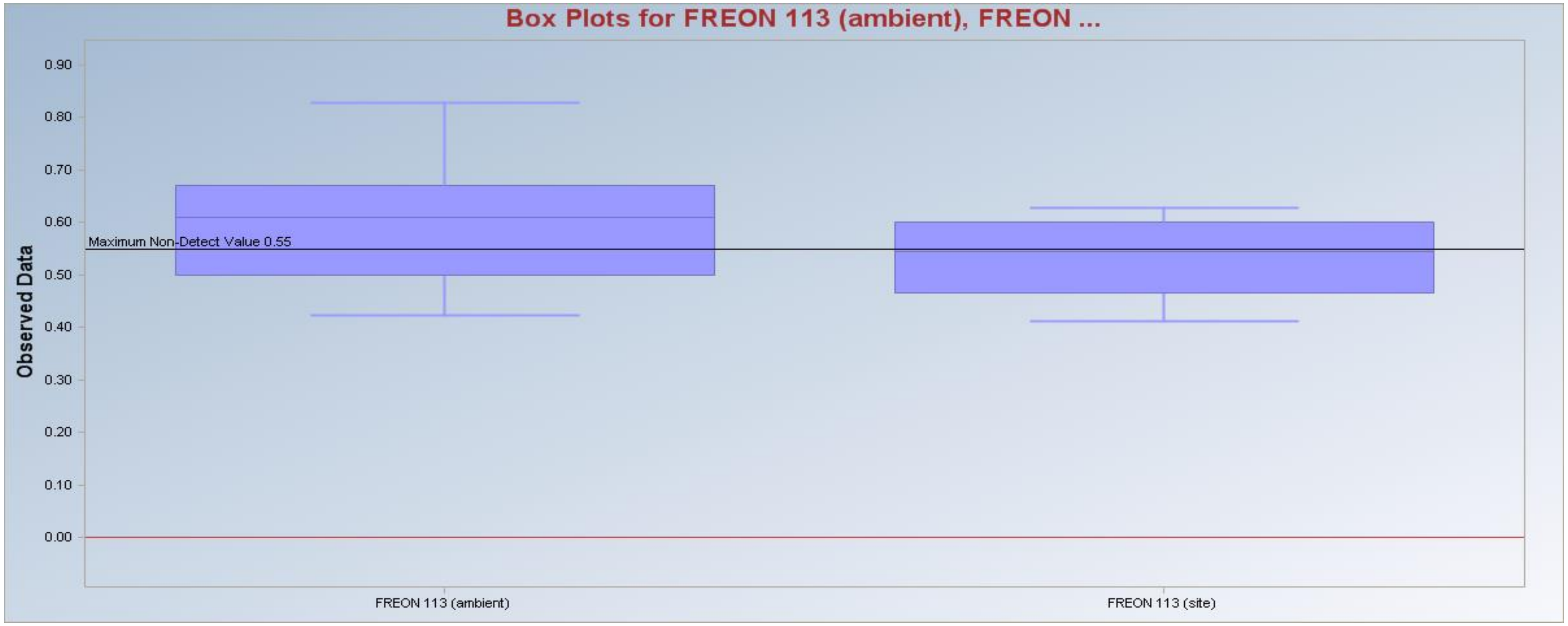

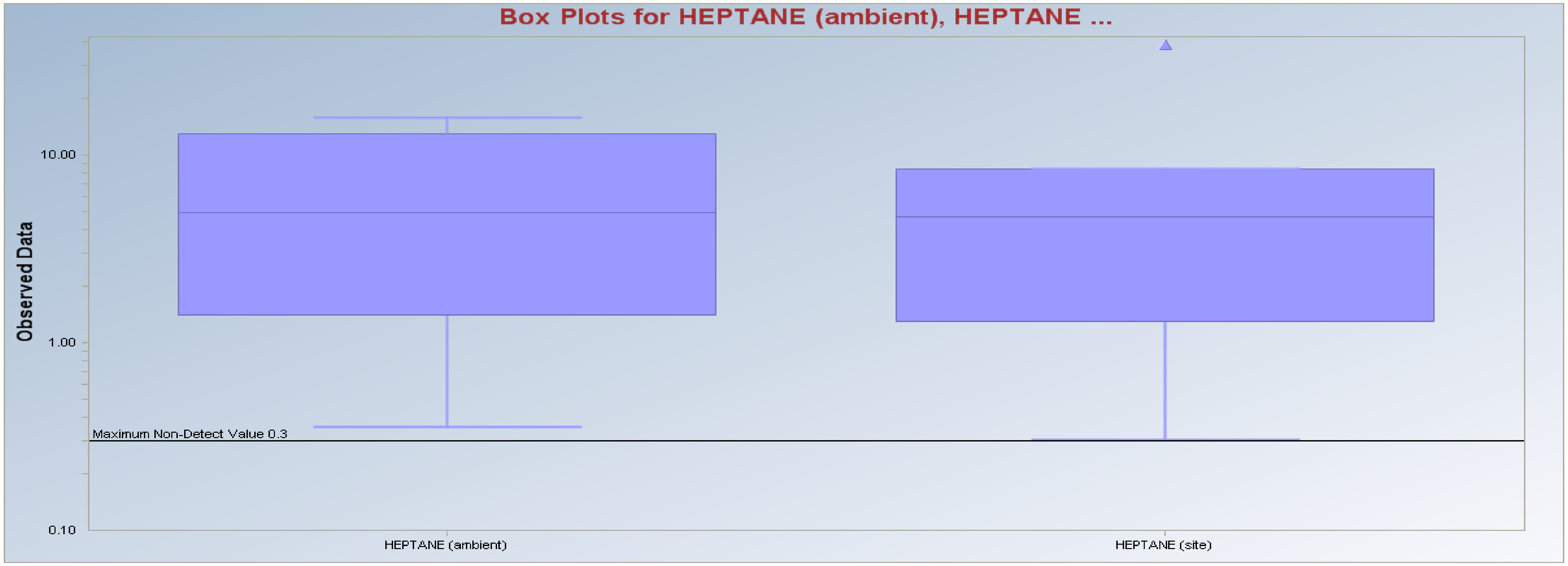

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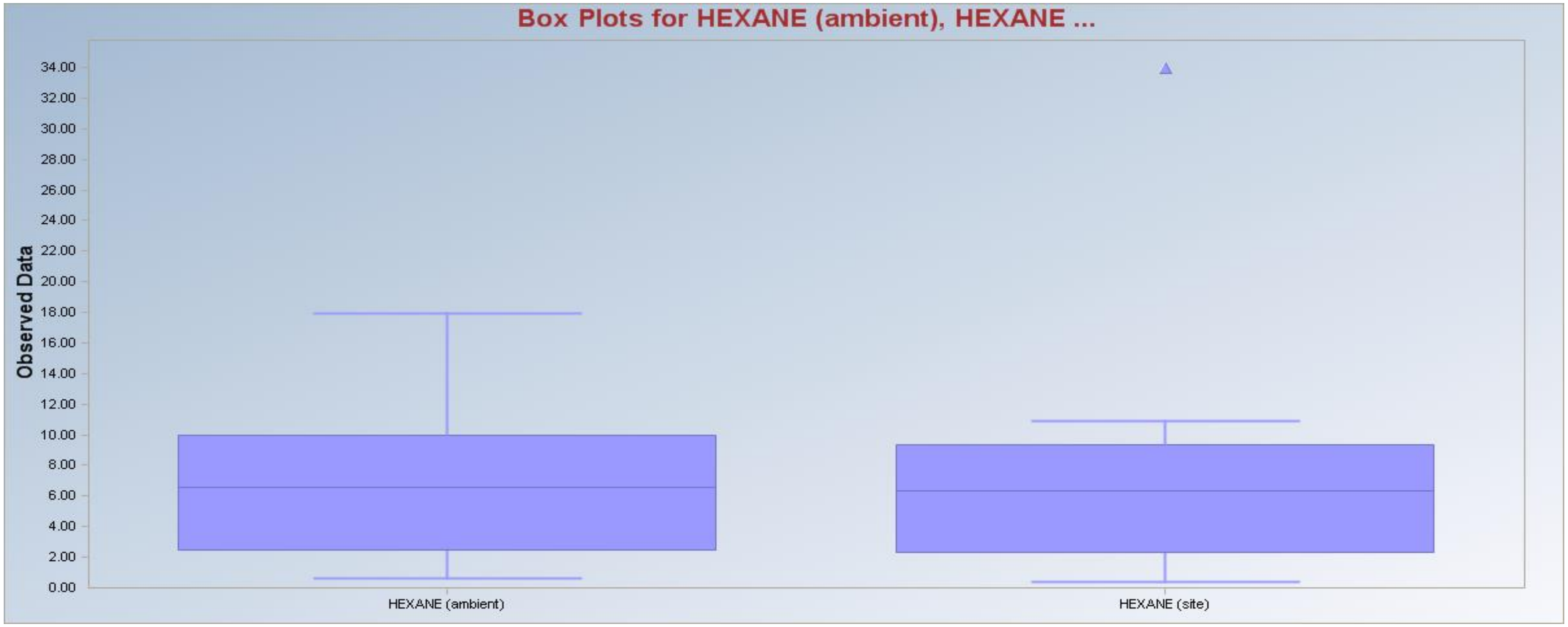

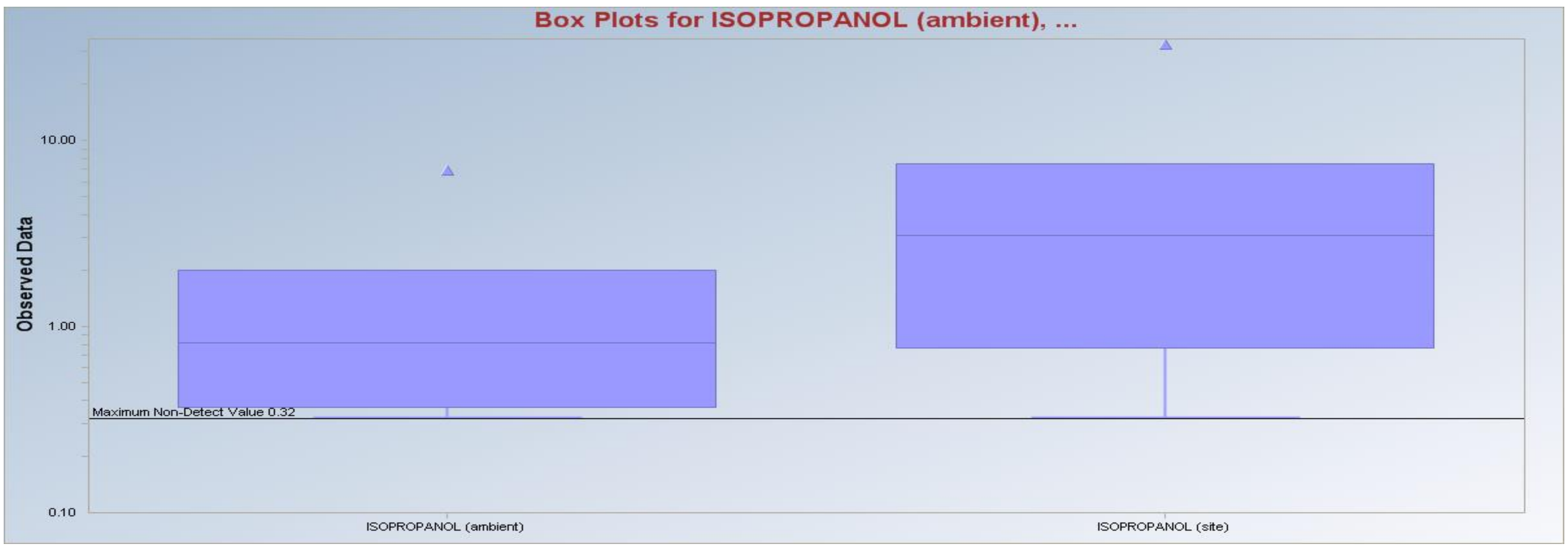

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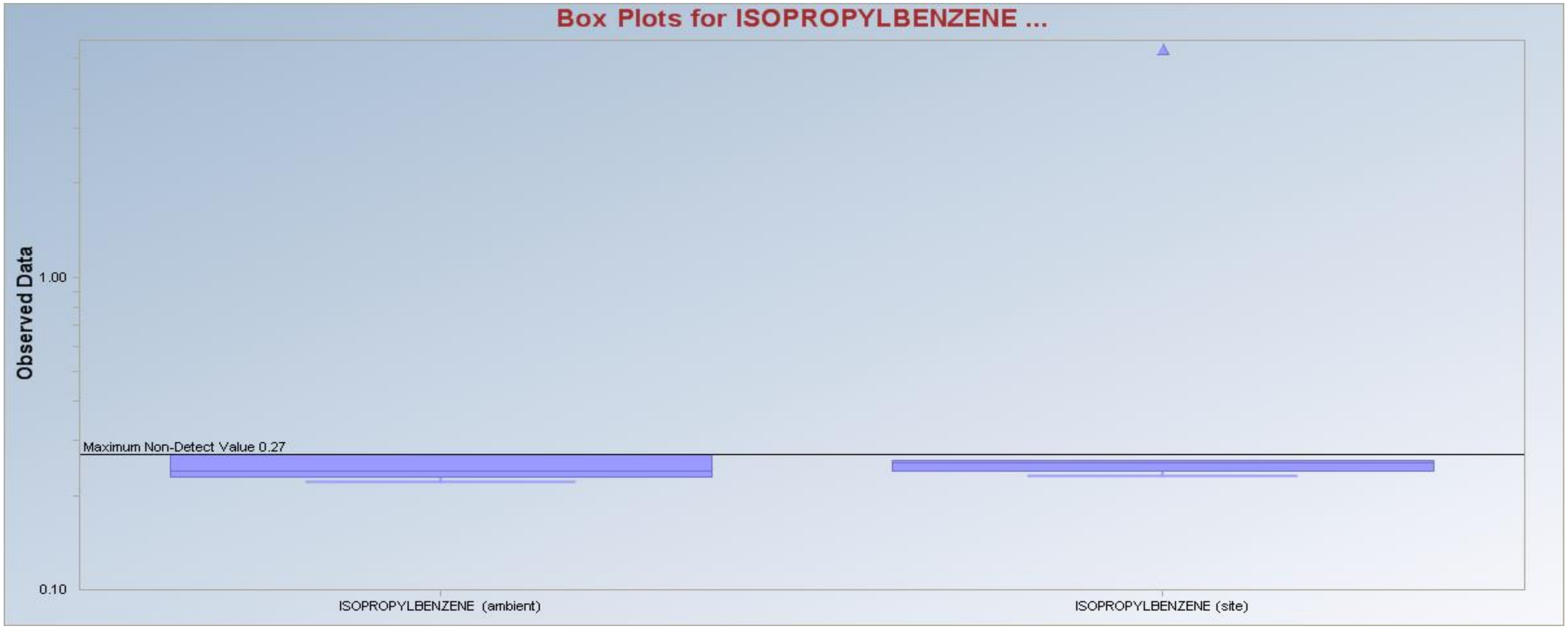

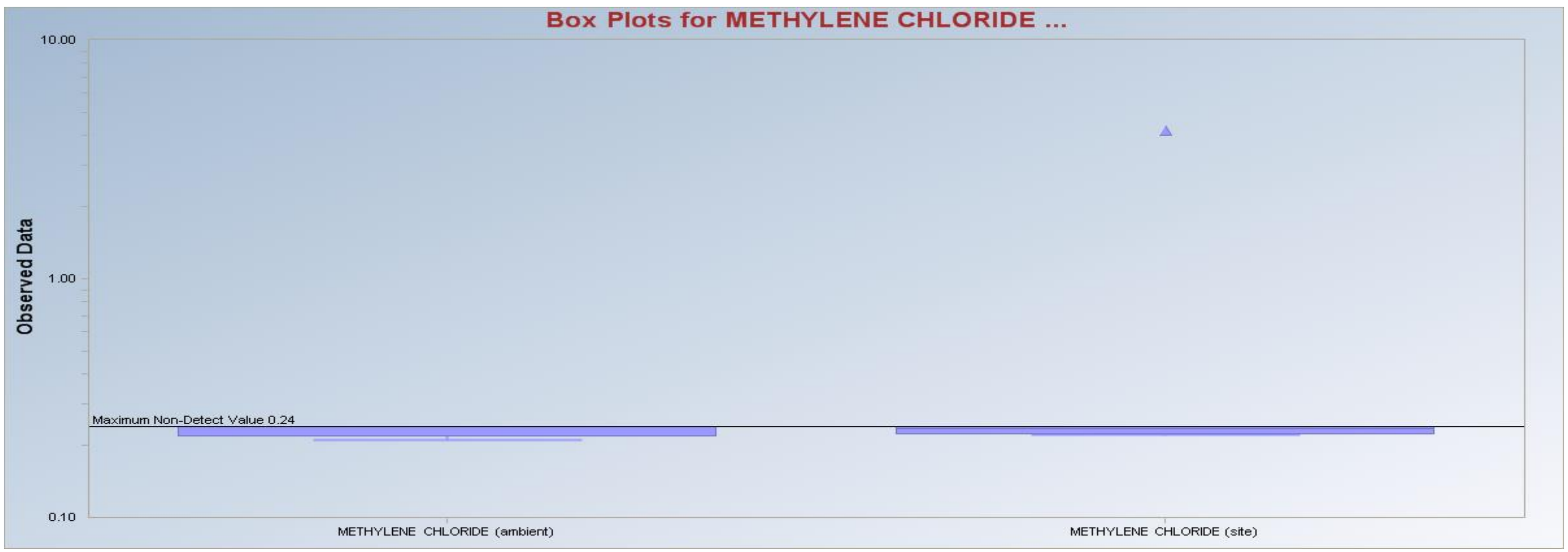

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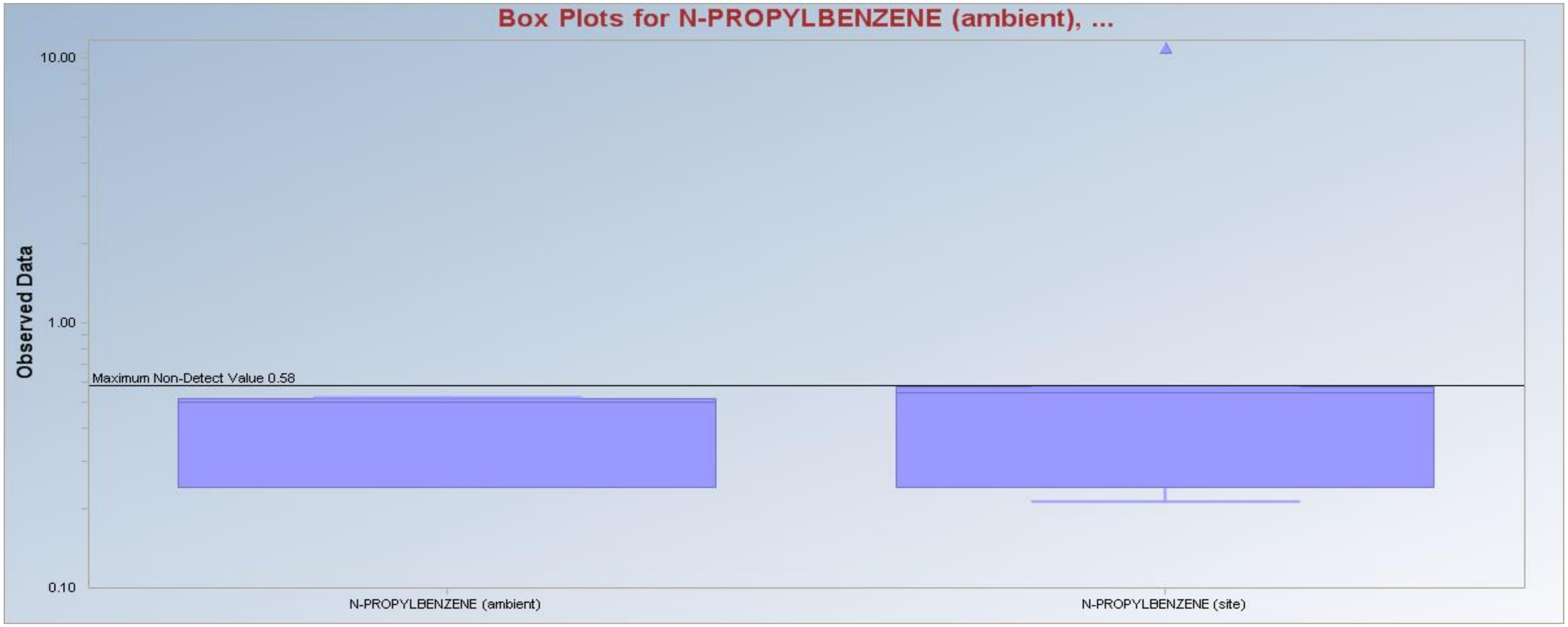

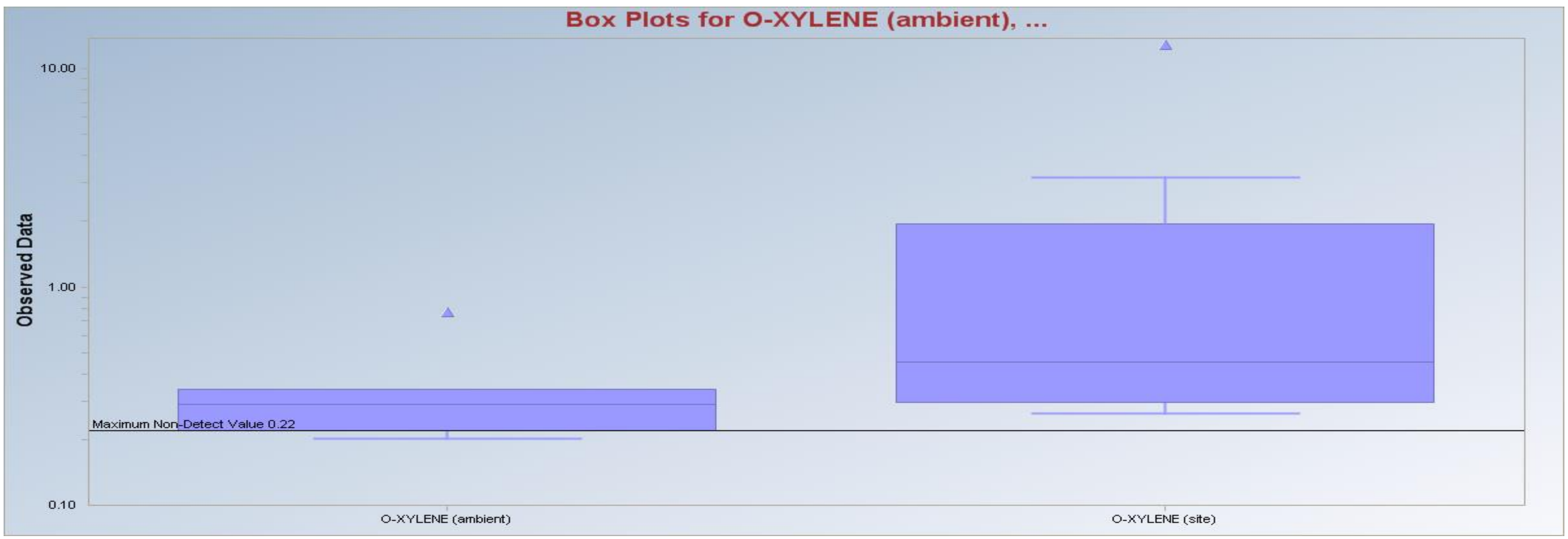

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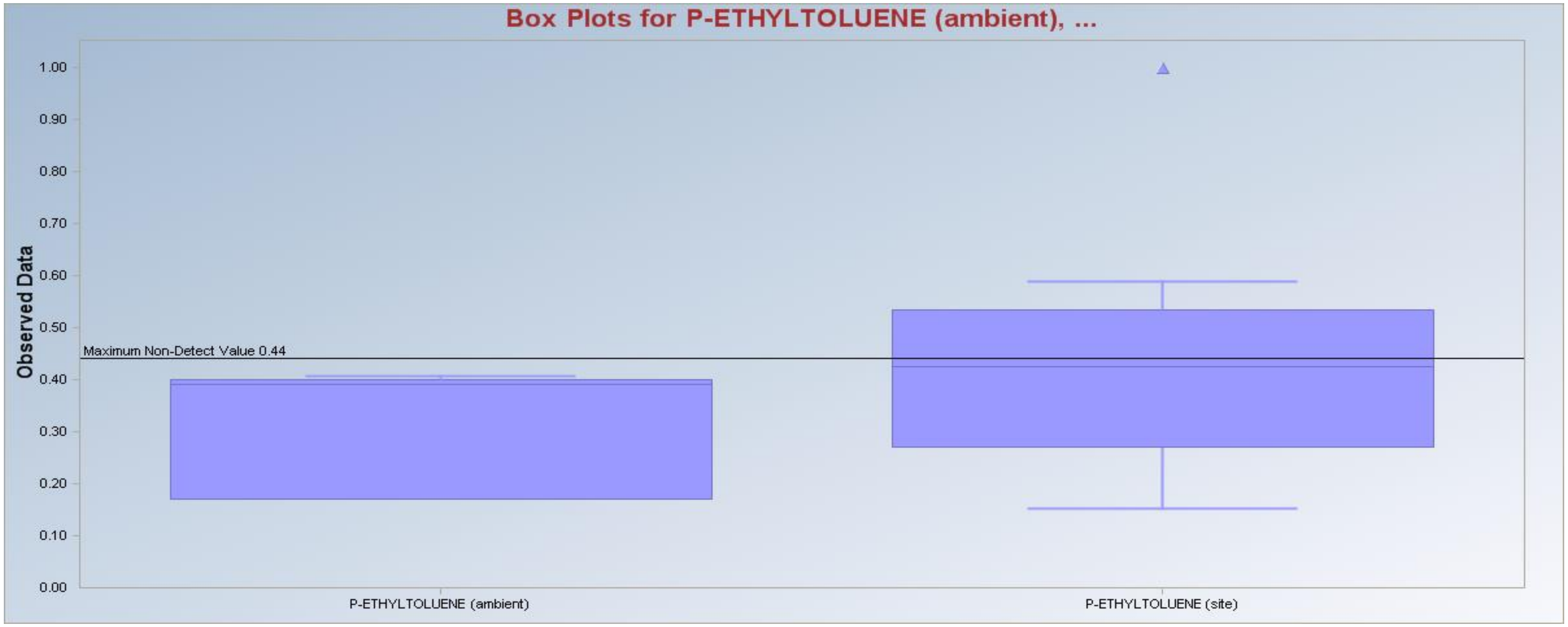

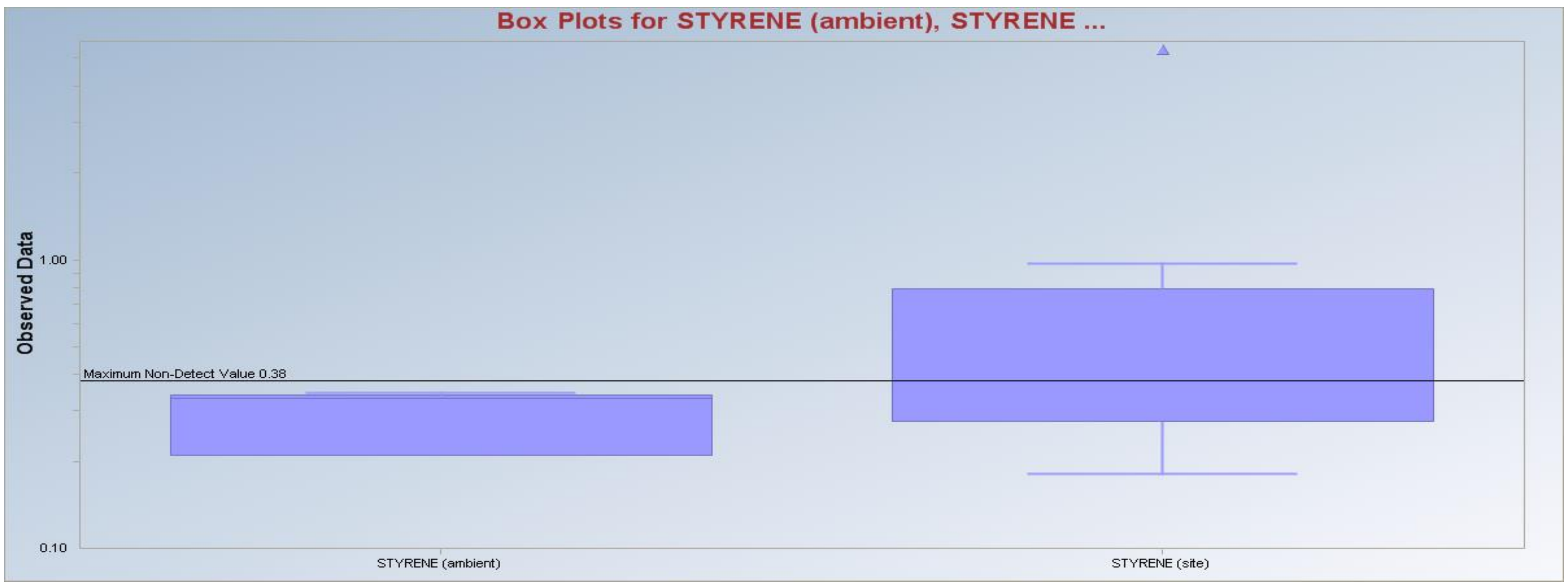

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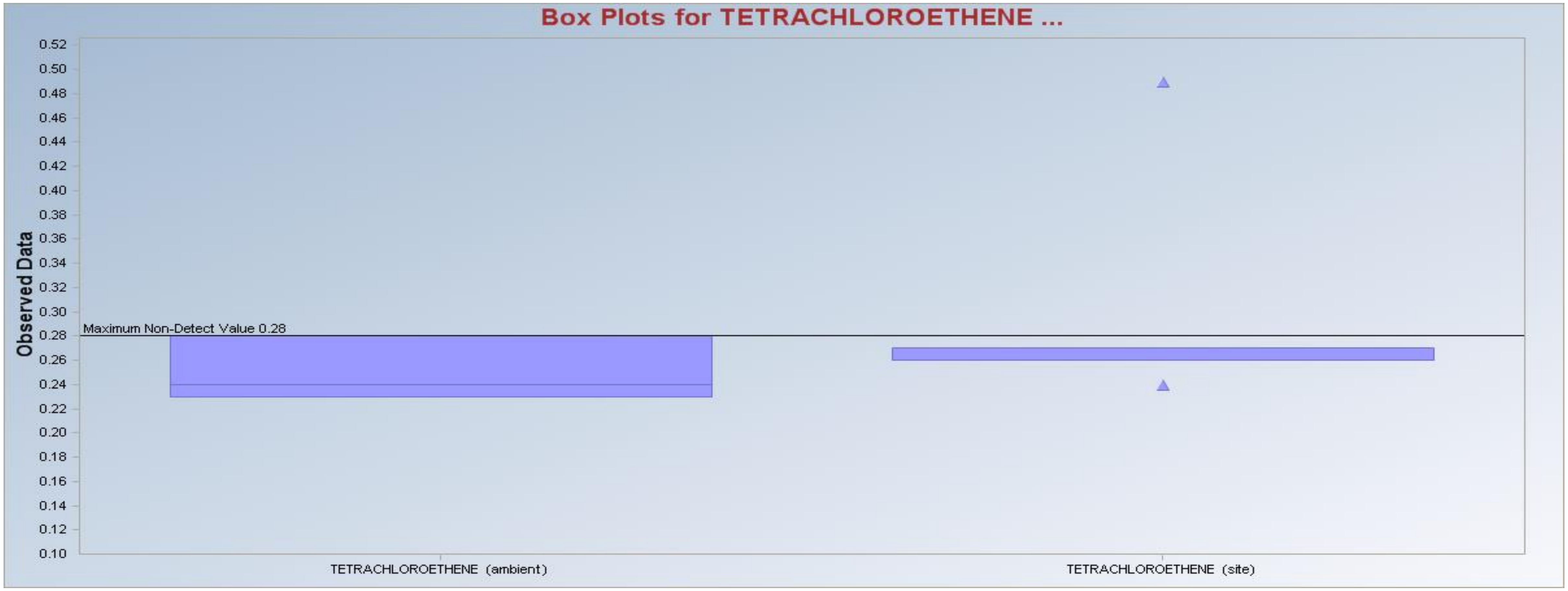

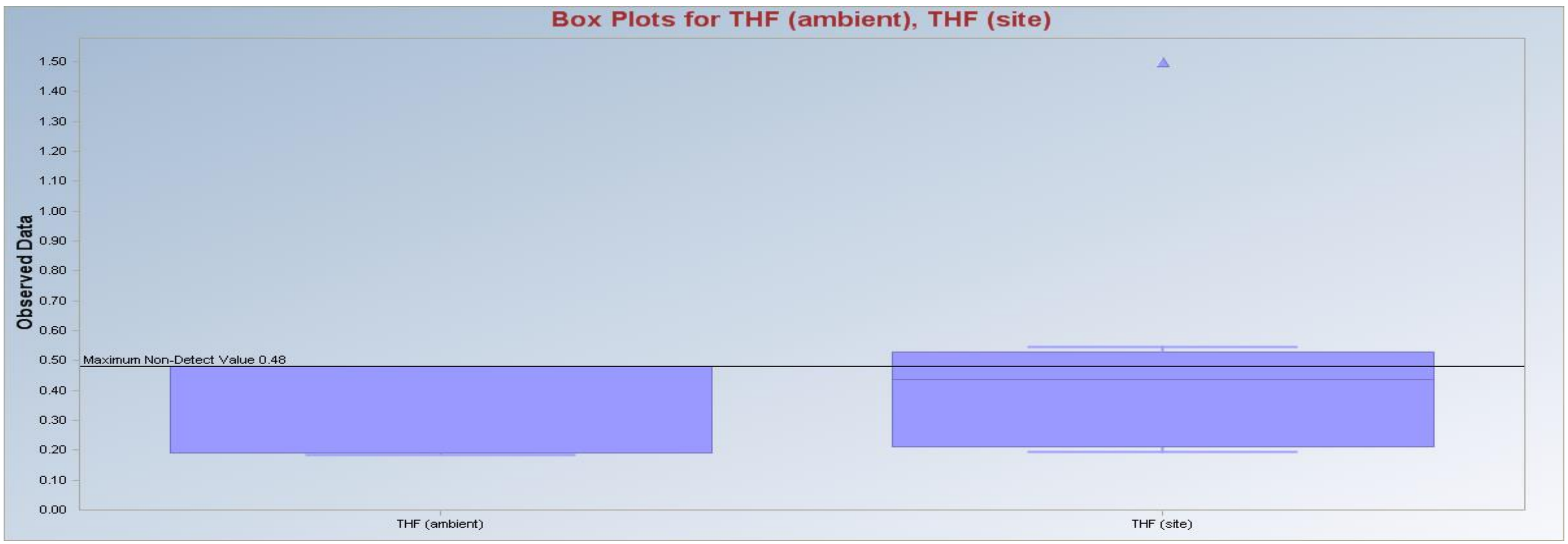

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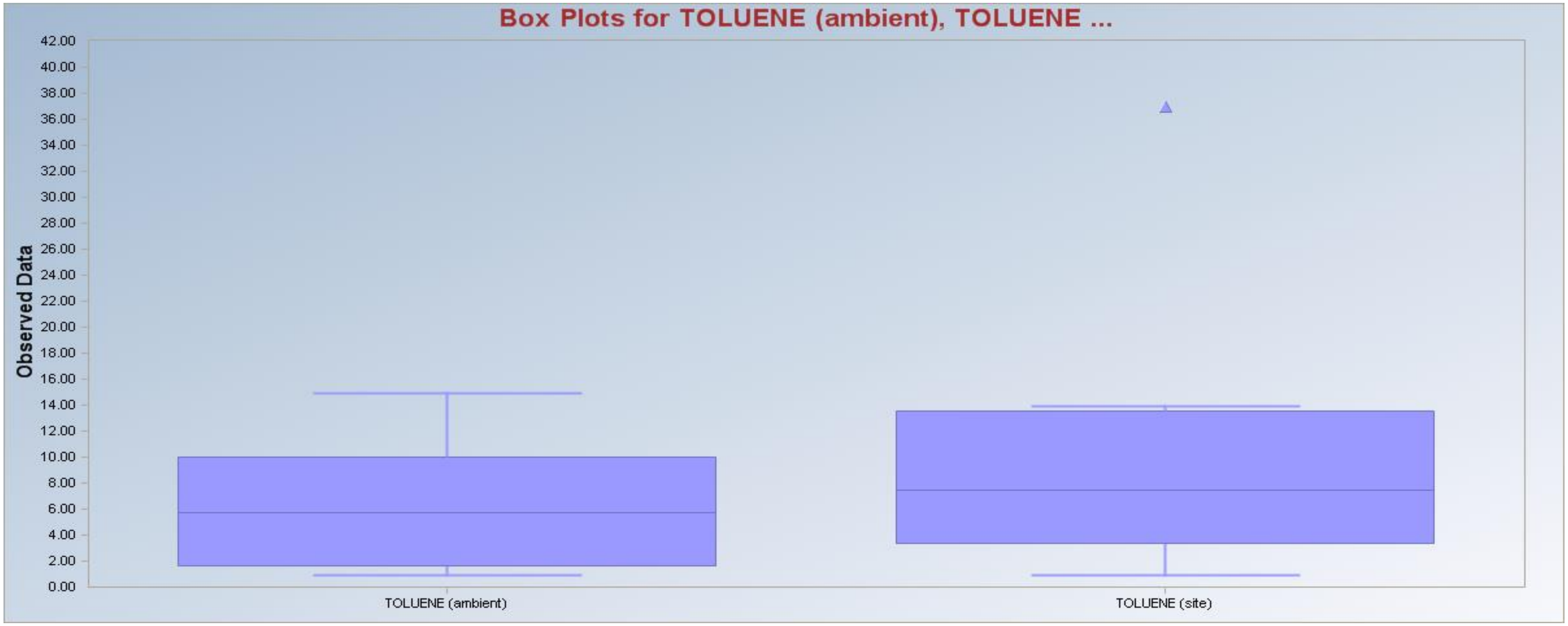
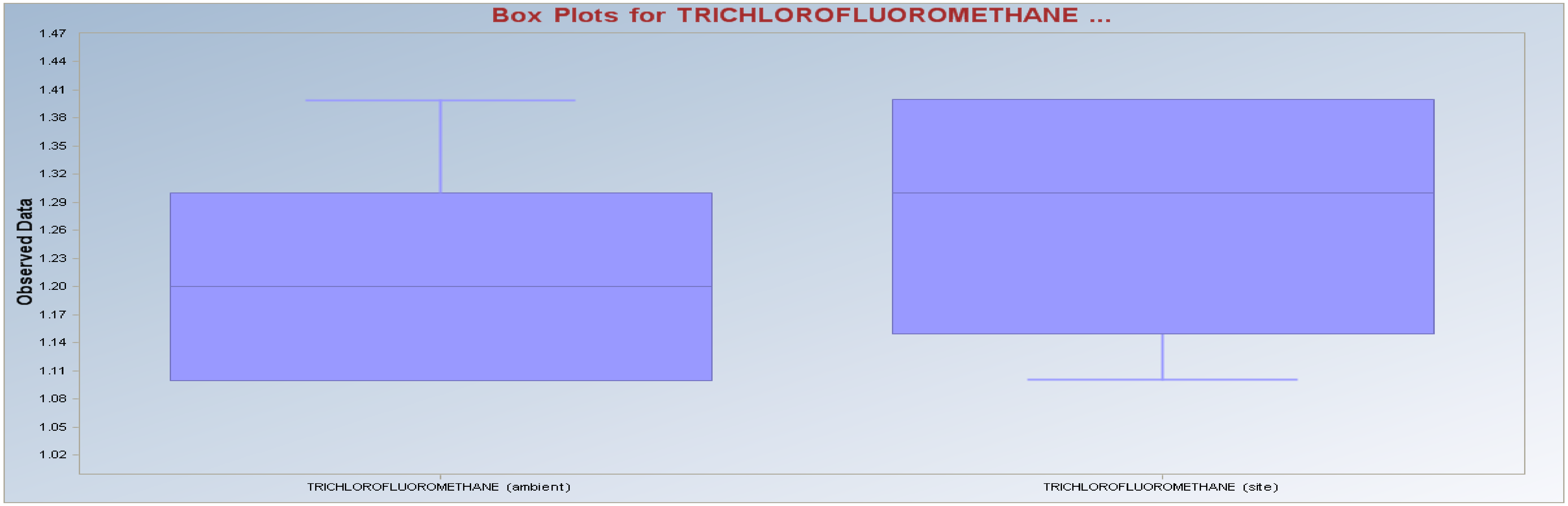
Box Plots





Attachment 4 - VOC Hits

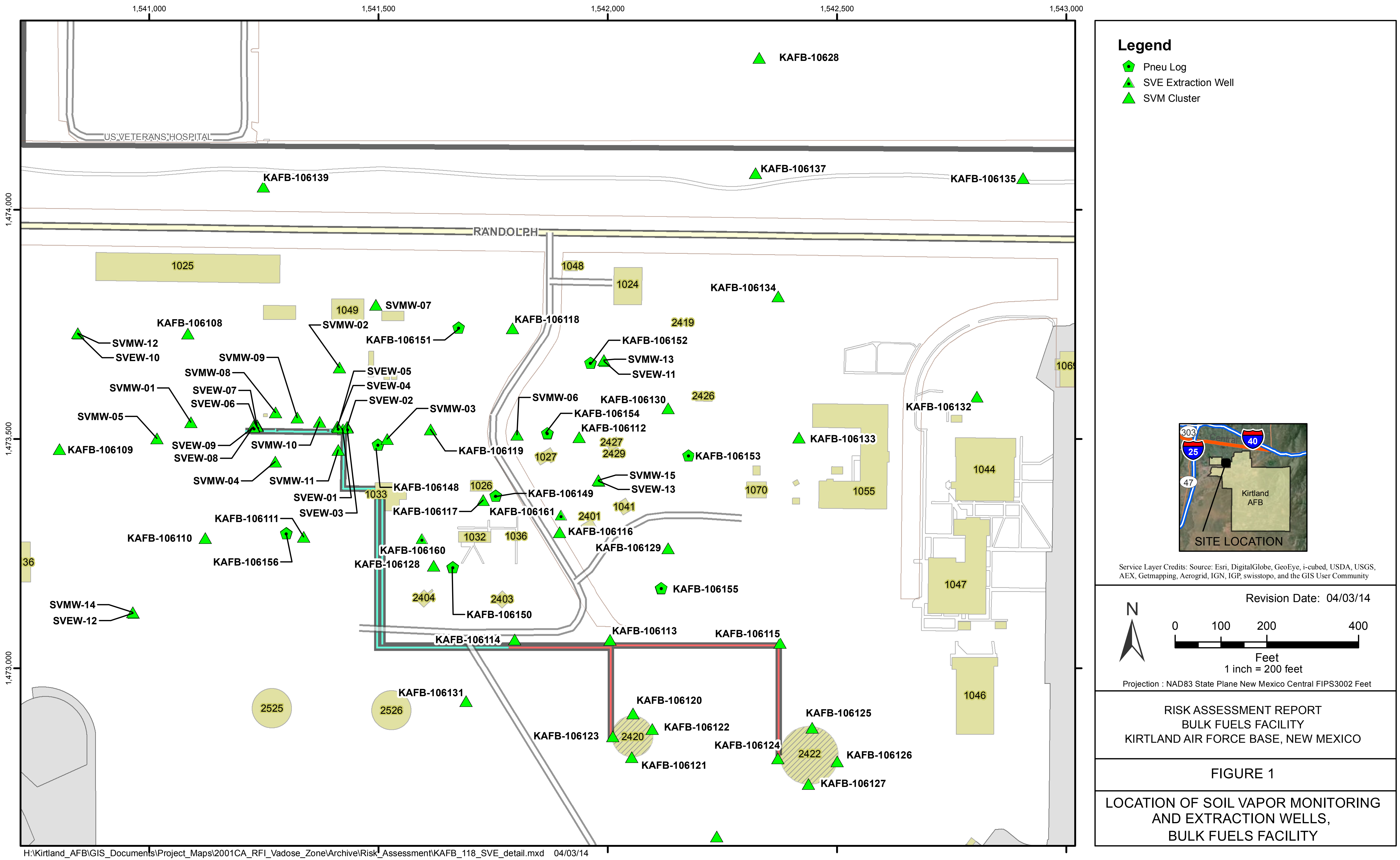
LOCATION_CODE				KAFB-106117-025		KAFB-106117-025		KAFB-106117-025		KAFB-106117-025		KAFB-106117-025		KAFB-106117-025		KAFB-106117-025			KAFB-106117-050	KAF
SAMPLE_NO				VA0195		VA0516		VA0831		VA1144		VA1458		VA1773		VA2087			VA0196	
SAMPLE_DATE				10-May-11		9-Sep-11		11-Oct-11		12-Jan-12		29-May-12		12-Sep-12		28-Nov-12			10-May-11	
PURP				REG		REG		REG		REG		REG		REG		REG			REG	
DEPTH				15-25 FT		15-25 FT		15-25 FT		15-25 Ft		15-25 FT		15-25 FT		15-25 FT			40-50 FT	
Test Group	METHOD	Parameter	Units	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**		Result	**% Comp**
TPH	MA APH	C5-C8 ALIPHATIC HYDROCARBONS	ug/m3	820000		160000		660000		560000		15000		14000		3000000			420000	
TPH	MA APH	C9-C10 AROMATIC HYDROCARBONS	ug/m3	ND		ND		ND		ND		ND		ND		ND			ND	
TPH	MA APH	C9-C12 ALIPHATIC HYDROCARBONS	ug/m3	ND		26000		100000		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,1,1-TRICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,1,2,2-TETRACHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,1,2-TRICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,1-DICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,1-DICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,2,4-TRICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,2,4-TRIMETHYLBENZENE	ppbv	ND		ND		820	2%	ND		ND		ND		730	0%		ND	
VOLATILES	TO15	1,2-DIBROMOETHANE	ppbv	ND		ND		ND		ND		ND		ND		250	0%		ND	
VOLATILES	TO15	1,2-DICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,2-DICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,2-DICHLOROPROPANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,3,5-TRIMETHYLBENZENE	ppbv	ND		ND		ND		ND		ND		ND		350	0%		ND	
VOLATILES	TO15	1,3-DICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,4-DICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	1,4-DIOXANE	ppbv	ND			0%		0%		0%		0%		0%		0%		ND	
VOLATILES	TO15	2-BUTANONE	ppbv	ND		ND		ND		ND		ND		ND		660	0%		ND	
VOLATILES	TO15	2-HEXANONE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	4-METHYL-2-PENTANONE	ppbv	ND		ND		ND		ND		ND		ND		140	0%		ND	
VOLATILES	TO15	ACETONE	ppbv	ND		ND		ND		ND		ND		ND		570	0%		ND	
VOLATILES	TO15	BENZENE	ppbv	9800	11%	930	16%	1300	3%	13000	13%	110	12%	260	13%	13000	9%		6700	13%
VOLATILES	TO15	BENZENE, (CHLOROMETHYL)-	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	BROMODICHLOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	BROMOFORM	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	BROMOMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CARBON DISULFIDE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CARBON TETRACHLORIDE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CHLOROFORM	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CHLOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CIS-1,2-DICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CIS-1,3-DICHLOROPROPENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	CYCLOHEXANE	ppbv	28000	32%	680	12%	13000	32%	19000	19%	420	45%	240	12%	24000	16%		20000	40%
VOLATILES	TO15	DIBROMOCHLOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	DICHLORODIFLUOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	ERYTHRENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	ETHANOL	ppbv	ND			0%		0%		0%		0%		0%		0%		ND	
VOLATILES	TO15	ETHYL ACETATE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	ETHYLBENZENE	ppbv	350	0%	62	1%	940	2%	1300	1%	ND		ND		4400	3%		220	0%
VOLATILES	TO15	FREON 113	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	HEPTANE	ppbv	7600	9%	560	10%	3300	8%	15000	15%	170	18%	130	7%	19000	13%		1400	3%
VOLATILES	TO15	HEXACHLOROBUTADIENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	HEXANE	ppbv	25000	29%	350	6%	6500	16%	14000	14%	170	18%	240	12%	24000	16%		14000	28%
VOLATILES	TO15	ISOPROPANOL	ppbv	ND			0%		0%		0%		0%		0%		0%		ND	
VOLATILES	TO15	M,P-XYLENES	ppbv	580	1%	200	4%	2500	6%	3900	4%	ND		69	3%	9800	7%		380	1%
VOLATILES	TO15	METHYL TERT-BUTYL ETHER	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	METHYLENE CHLORIDE	ppbv	ND		ND		2100	5%	ND		ND		ND		ND			ND	
VOLATILES	TO15	NAPHTHALENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	O-XYLENE	ppbv	260	0%	56	1%	920	2%	1000	1%	ND		ND		3000	2%		190	0%
VOLATILES	TO15	PROPYLENE	ppbv	200	0%	ND		ND		1400	1%	54	6%	ND		ND			82	0%
VOLATILES	TO15	STYRENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	TETRACHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	THF	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	TOLUENE	ppbv	15000	17%	2600	46%	6200	15%	24000	25%	ND		970	49%	36000	24%		6400	13%
VOLATILES	TO15	TRANS-1,2-DICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	TRANS-1,3-DICHLOROPROPENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	TRICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	TRICHLOROFLUOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	VINYL ACETATE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	VINYL CHLORIDE	ppbv	ND		ND		ND		ND		ND		ND		ND			ND	
VOLATILES	TO15	XYLENES	ppbv	840	1%	260	5%	3400	8%	4900	5%	ND		69	3%	13000	9%		580	1%
	Sum of Detected VOCs (Soil Vapor)			**87,630**		**5,698**		**40,980**		**97,500**		**924**		**1,978**		**148,900**			**49,952**	

Attachment 4 - VOC Hits

LOCATION_CODE				KA̸B-106117-050		KAFB-106117-050		KAFB-106117-050		KAFB-106117-050		KAFB-106117-050		KAFB-106117-050		KAFB-106117-050		KAFB-106117-050				
SAMPLE_NO				VA0517		VA0518		VA0832		VA1145		VA1459		VA1774		VA1775		VA2088				
SAMPLE_DATE				9-Sep-11		9-Sep-11		11-Oct-11		12-Jan-12		29-May-12		12-Sep-12		12-Sep-12		28-Nov-12				
PURP				REG		FD		REG		REG		REG		REG		FD		REG				
DEPTH				40-50 FT		40-50 FT		40-50 FT		40-50 Ft		40-50 FT		40-50 FT		40-50 FT		40-50 FT				
Test Group	METHOD	Parameter	Units	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**	**Min Comp**	**Mean Comp**	**Max Comp**
TPH	MA APH	C5-C8 ALIPHATIC HYDROCARBONS	ug/m3	130000		99000		3300000		3100000		18000		21000		29000		270000				
TPH	MA APH	C9-C10 AROMATIC HYDROCARBONS	ug/m3	ND		ND		ND		ND		ND		ND		ND		ND				
TPH	MA APH	C9-C12 ALIPHATIC HYDROCARBONS	ug/m3	22000		ND		ND		ND		ND		ND		ND		ND				
VOLATILES	TO15	1,1,1-TRICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,1,2,2-TETRACHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,1,2-TRICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,1-DICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,1-DICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,2,4-TRICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,2,4-TRIMETHYLBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND		430	1%	0.49%	1.06%	2.00%
VOLATILES	TO15	1,2-DIBROMOETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		130	0%	0.17%	0.19%	0.21%
VOLATILES	TO15	1,2-DICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,2-DICHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,2-DICHLOROPROPANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,3,5-TRIMETHYLBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND		210	0%	0.24%	0.28%	0.33%
VOLATILES	TO15	1,3-DICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,4-DICHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	1,4-DIOXANE	ppbv		0%		0%		0%		0%		0%		0%		0%		0%	0.00%	0.00%	0.00%
VOLATILES	TO15	2-BUTANONE	ppbv	ND		ND		ND		ND		ND		ND		ND		310	0%	0.44%	0.47%	0.49%
VOLATILES	TO15	2-HEXANONE	ppbv	ND		ND		ND		ND		ND		ND		ND		110	0%	0.18%	0.18%	0.18%
VOLATILES	TO15	4-METHYL-2-PENTANONE	ppbv	ND		ND		ND		ND		ND		ND		ND		56	0%	0.09%	0.09%	0.09%
VOLATILES	TO15	ACETONE	ppbv	ND		ND		ND		ND		ND		ND		ND		200	0%	0.32%	0.35%	0.38%
VOLATILES	TO15	BENZENE	ppbv	880	16%	680	11%	18000	8%	35000	11%	48	11%	170	15%	210	13%	4000	6%	3.17%	11.39%	16.32%
VOLATILES	TO15	BENZENE, (CHLOROMETHYL)-	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	BROMODICHLOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		98	0%	0.16%	0.16%	0.16%
VOLATILES	TO15	BROMOFORM	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	BROMOMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CARBON DISULFIDE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CARBON TETRACHLORIDE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CHLOROBENZENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CHLOROETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CHLOROFORM	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CHLOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CIS-1,2-DICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CIS-1,3-DICHLOROPROPENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	CYCLOHEXANE	ppbv	620	11%	520	9%	87000	40%	110000	33%	300	67%	180	16%	260	16%	7200	11%	8.54%	25.77%	67.42%
VOLATILES	TO15	DIBROMOCHLOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	DICHLORODIFLUOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	ERYTHRENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	ETHANOL	ppbv		0%		0%		0%		0%		0%		0%		0%		0%	0.00%	0.00%	0.00%
VOLATILES	TO15	ETHYL ACETATE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	ETHYLBENZENE	ppbv	82	1%	90	1%	ND		ND		ND		ND		ND		1800	3%	0.40%	1.59%	2.96%
VOLATILES	TO15	FREON 113	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	HEPTANE	ppbv	540	10%	500	8%	29000	13%	34000	10%	97	22%	90	8%	120	8%	7700	12%	2.80%	10.83%	21.80%
VOLATILES	TO15	HEXACHLOROBUTADIENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	HEXANE	ppbv	310	6%	280	5%	66000	30%	82000	25%	ND		170	15%	230	15%	16000	25%	4.60%	17.29%	30.14%
VOLATILES	TO15	ISOPROPANOL	ppbv		0%		0%		0%		0%		0%		0%		0%		0%	0.00%	0.00%	0.00%
VOLATILES	TO15	M,P-XYLENES	ppbv	290	5%	320	5%	ND		ND		ND		ND		50	3%	3400	5%	0.66%	4.01%	6.58%
VOLATILES	TO15	METHYL TERT-BUTYL ETHER	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	METHYLENE CHLORIDE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		5.12%	5.12%	5.12%
VOLATILES	TO15	NAPHTHALENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	O-XYLENE	ppbv	77	1%	89	1%	ND		ND		ND		ND		ND		1400	2%	0.30%	1.34%	2.24%
VOLATILES	TO15	PROPYLENE	ppbv	ND		ND		ND		16000	5%	ND		ND		ND		ND		0.16%	2.50%	5.84%
VOLATILES	TO15	STYRENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	TETRACHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	THF	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	TOLUENE	ppbv	2400	43%	3200	53%	19000	9%	55000	17%	ND		540	47%	660	42%	15000	24%	8.68%	30.15%	52.55%
VOLATILES	TO15	TRANS-1,2-DICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	TRANS-1,3-DICHLOROPROPENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	TRICHLOROETHENE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	TRICHLOROFLUOROMETHANE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	VINYL ACETATE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	VINYL CHLORIDE	ppbv	ND		ND		ND		ND		ND		ND		ND		ND		0.00%	0.00%	0.00%
VOLATILES	TO15	XYLENES	ppbv	360	6%	410	7%	ND		ND		ND		ND		50	3%	4800	8%	0.96%	5.11%	8.73%
	Sum of Detected VOCs (Soil Vapor)			**5,559**		**6,089**		**219,000**		**332,000**		**445**		**1,150**		**1,580**		**62,844**				

Attachment 4 - VOC Hits

LOCATION_CODE				KA	LOCATION_CODE				KAFB-AMBIENT-1026		KAFB-INDOOR-1026		KAFB-INDOOR-1026	
SAMPLE_NO					SAMPLE_NO				AIR8003-AB		AIR0001		AIR0007	
SAMPLE_DATE					SAMPLE_DATE				14-Jan-13		17-Jul-12		14-Jan-13	
PURP					PURP				**AMBIENT**		REG		REG	
DEPTH														
Test Group	METHOD	Parameter	Units		Test Group	METHOD	Parameter	Units	Result	**% Comp**	Result	**% Comp**	Result	**% Comp**
TPH	MA APH	C5-C8 ALIPHATIC HYDROCARBONS	ug/m3											
TPH	MA APH	C9-C10 AROMATIC HYDROCARBONS	ug/m3											
TPH	MA APH	C9-C12 ALIPHATIC HYDROCARBONS	ug/m3											
VOLATILES	TO15	1,1,1-TRICHLOROETHANE	ppbv		VOLATILES	TO15	1,1,1-TRICHLOROETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,1,2,2-TETRACHLOROETHANE	ppbv		VOLATILES	TO15	1,1,2,2-TETRACHLOROETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,1,2-TRICHLOROETHANE	ppbv		VOLATILES	TO15	1,1,2-TRICHLOROETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,1-DICHLOROETHANE	ppbv		VOLATILES	TO15	1,1-DICHLOROETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,1-DICHLOROETHENE	ppbv		VOLATILES	TO15	1,1-DICHLOROETHENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,2,4-TRICHLOROBENZENE	ppbv		VOLATILES	TO15	1,2,4-TRICHLOROBENZENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,2,4-TRIMETHYLBENZENE	ppbv		VOLATILES	TO15	1,2,4-TRIMETHYLBENZENE	ug/m3	ND		52	15.50%	ND	
VOLATILES	TO15	1,2-DIBROMOETHANE	ppbv		VOLATILES	TO15	1,2-DIBROMOETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,2-DICHLOROBENZENE	ppbv		VOLATILES	TO15	1,2-DICHLOROBENZENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,2-DICHLOROETHANE	ppbv		VOLATILES	TO15	1,2-DICHLOROETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,2-DICHLOROPROPANE	ppbv		VOLATILES	TO15	1,2-DICHLOROPROPANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,3,5-TRIMETHYLBENZENE	ppbv		VOLATILES	TO15	1,3,5-TRIMETHYLBENZENE	ug/m3	ND		11	3.28%	ND	
VOLATILES	TO15	1,3-DICHLOROBENZENE	ppbv		VOLATILES	TO15	1,3-DICHLOROBENZENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,4-DICHLOROBENZENE	ppbv		VOLATILES	TO15	1,4-DICHLOROBENZENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	1,4-DIOXANE	ppbv		VOLATILES	TO15	1,4-DIOXANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	2-BUTANONE	ppbv		VOLATILES	TO15	2-BUTANONE	ug/m3	0.97	1.01%	4	1.19%	1.2	1.98%
VOLATILES	TO15	2-HEXANONE	ppbv		VOLATILES	TO15	2-HEXANONE	ug/m3	ND		ND		ND	
VOLATILES	TO15	4-METHYL-2-PENTANONE	ppbv		VOLATILES	TO15	4-METHYL-2-PENTANONE	ug/m3	ND		0.59	0.18%	ND	
VOLATILES	TO15	ACETONE	ppbv		VOLATILES	TO15	ACETONE	ug/m3	ND		16	4.77%	5.5	9.08%
VOLATILES	TO15	BENZENE	ppbv		VOLATILES	TO15	BENZENE	ug/m3	7.8	8.14%	23	6.85%	4.8	7.93%
VOLATILES	TO15	BENZENE, (CHLOROMETHYL)-	ppbv		VOLATILES	TO15	BENZENE, (CHLOROMETHYL)-	ug/m3	ND		ND		ND	
VOLATILES	TO15	BROMODICHLOROMETHANE	ppbv		VOLATILES	TO15	BROMODICHLOROMETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	BROMOFORM	ppbv		VOLATILES	TO15	BROMOFORM	ug/m3	ND		ND		ND	
VOLATILES	TO15	BROMOMETHANE	ppbv		VOLATILES	TO15	BROMOMETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	CARBON DISULFIDE	ppbv		VOLATILES	TO15	CARBON DISULFIDE	ug/m3	ND		ND		ND	
VOLATILES	TO15	CARBON TETRACHLORIDE	ppbv		VOLATILES	TO15	CARBON TETRACHLORIDE	ug/m3	0.57	0.59%	0.39	0.12%	ND	
VOLATILES	TO15	CHLOROBENZENE	ppbv		VOLATILES	TO15	CHLOROBENZENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	CHLOROETHANE	ppbv		VOLATILES	TO15	CHLOROETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	CHLOROFORM	ppbv		VOLATILES	TO15	CHLOROFORM	ug/m3	ND		ND		ND	
VOLATILES	TO15	CHLOROMETHANE	ppbv		VOLATILES	TO15	CHLOROMETHANE	ug/m3	0.97	1.01%	0.88	0.26%	0.98	1.62%
VOLATILES	TO15	CIS-1,2-DICHLOROETHENE	ppbv		VOLATILES	TO15	CIS-1,2-DICHLOROETHENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	CIS-1,3-DICHLOROPROPENE	ppbv		VOLATILES	TO15	CIS-1,3-DICHLOROPROPENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	CYCLOHEXANE	ppbv		VOLATILES	TO15								
VOLATILES	TO15	DIBROMOCHLOROMETHANE	ppbv		VOLATILES	TO15	DIBROMOCHLOROMETHANE	ug/m3	ND		ND		ND	
VOLATILES	TO15	DICHLORODIFLUOROMETHANE	ppbv		VOLATILES	TO15	DICHLORODIFLUOROMETHANE	ug/m3	2.6	2.71%	2.1	0.63%	2.6	4.29%
VOLATILES	TO15	ERYTHRENE	ppbv		VOLATILES	TO15	ERYTHRENE	ug/m3	ND		4	1.19%	0.3	0.50%
VOLATILES	TO15	ETHANOL	ppbv		VOLATILES	TO15	ETHANOL	ug/m3	1.5	1.56%	3.7	1.10%	1.9	3.14%
VOLATILES	TO15	ETHYL ACETATE	ppbv		VOLATILES	TO15				0.00%		0.00%		0.00%
VOLATILES	TO15	ETHYLBENZENE	ppbv		VOLATILES	TO15	ETHYLBENZENE	ug/m3	0.88	0.92%	14	4.17%	0.58	0.96%
VOLATILES	TO15	FREON 113	ppbv		VOLATILES	TO15	FREON 113	ug/m3	ND		0.48	0.14%	0.63	1.04%
VOLATILES	TO15	HEPTANE	ppbv		VOLATILES	TO15	HEPTANE	ug/m3	16	16.69%	39	11.62%	8.5	14.04%
VOLATILES	TO15	HEXACHLOROBUTADIENE	ppbv		VOLATILES	TO15	HEXACHLOROBUTADIENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	HEXANE	ppbv		VOLATILES	TO15	HEXANE	ug/m3	18	18.78%	34	10.13%	11	18.16%
VOLATILES	TO15	ISOPROPANOL	ppbv		VOLATILES	TO15	ISOPROPANOL	ug/m3	2	2.09%	0.85	0.25%	1.7	2.81%
VOLATILES	TO15	M,P-XYLENES	ppbv		VOLATILES	TO15				0.00%		0.00%		0.00%
VOLATILES	TO15	METHYL TERT-BUTYL ETHER	ppbv		VOLATILES	TO15	METHYL TERT-BUTYL ETHER	ug/m3	ND		ND		ND	
VOLATILES	TO15	METHYLENE CHLORIDE	ppbv		VOLATILES	TO15	METHYLENE CHLORIDE	ug/m3	ND		ND		ND	
VOLATILES	TO15	NAPHTHALENE	ppbv		VOLATILES	TO15								
VOLATILES	TO15	O-XYLENE	ppbv		VOLATILES	TO15	O-XYLENE	ug/m3	0.77	0.80%	13	3.87%	0.47	0.78%
VOLATILES	TO15	PROPYLENE	ppbv		VOLATILES	TO15								
VOLATILES	TO15	STYRENE	ppbv		VOLATILES	TO15	STYRENE	ug/m3	ND		0.98	0.29%	ND	
VOLATILES	TO15	TETRACHLOROETHENE	ppbv		VOLATILES	TO15	TETRACHLOROETHENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	THF	ppbv		VOLATILES	TO15	THF	ug/m3	ND		ND		ND	
VOLATILES	TO15	TOLUENE	ppbv		VOLATILES	TO15	TOLUENE	ug/m3	15	15.65%	37	11.03%	8.4	13.87%
VOLATILES	TO15	TRANS-1,2-DICHLOROETHENE	ppbv		VOLATILES	TO15	TRANS-1,2-DICHLOROETHENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	TRANS-1,3-DICHLOROPROPENE	ppbv		VOLATILES	TO15	TRANS-1,3-DICHLOROPROPENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	TRICHLOROETHENE	ppbv		VOLATILES	TO15	TRICHLOROETHENE	ug/m3	ND		ND		ND	
VOLATILES	TO15	TRICHLOROFLUOROMETHANE	ppbv		VOLATILES	TO15	TRICHLOROFLUOROMETHANE	ug/m3	1.3	1.36%	1.2	0.36%	1.4	2.31%
VOLATILES	TO15	VINYL ACETATE	ppbv		VOLATILES	TO15								
VOLATILES	TO15	VINYL CHLORIDE	ppbv		VOLATILES	TO15	VINYL CHLORIDE	ug/m3	ND		ND		ND	
VOLATILES	TO15	XYLENES	ppbv		VOLATILES	TO15								
	Sum of Detected VOCs (Soil Vapor)						1,3-DIMETHYLBENZENE	ug/m3	2.5	2.61%	26	7.75%	1.3	2.15%
							2,2,4-TRIMETHYLPENTANE	ug/m3	25	26.08%	35	10.43%	9.3	15.36%
							ALLYL CHLORIDE	ug/m3	ND		ND		ND	
							FREON 114	ug/m3	ND		ND		ND	
							ISOPROPYLBENZENE	ug/m3	ND		5.4	1.61%	ND	
							N-PROPYLBENZENE	ug/m3	ND		11	3.28%	ND	
							P-ETHYLTOLUENE	ug/m3	ND		ND		ND	
					Sum of Detected VOCs (Ambient or Indoor Air)				**96**		**336**		**61**	

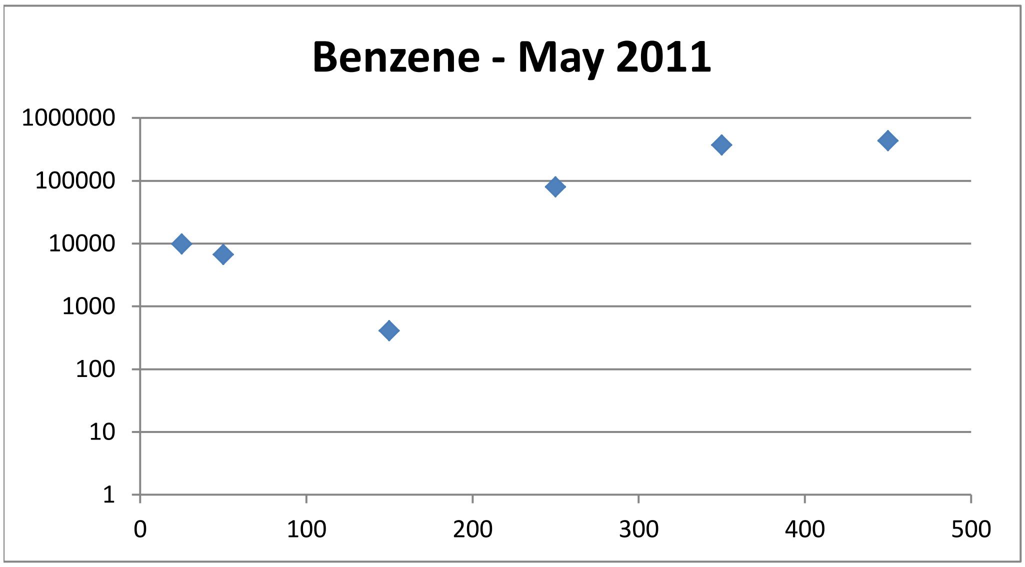


RISK ASSESSMENT REPORT
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

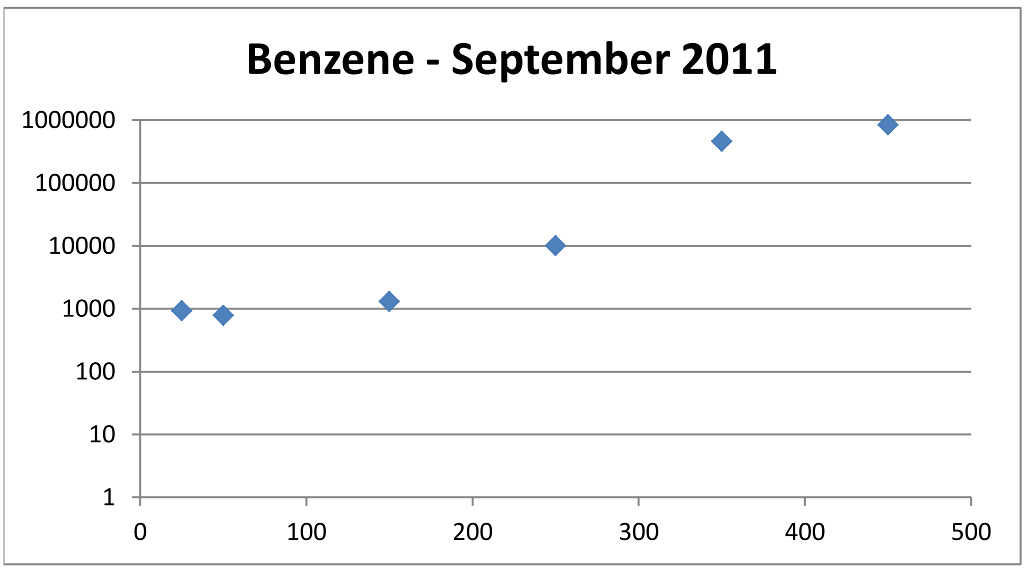
FIGURE 1

LOCATION OF SOIL VAPOR MONITORING AND EXTRACTION WELLS, BULK FUELS FACILITY

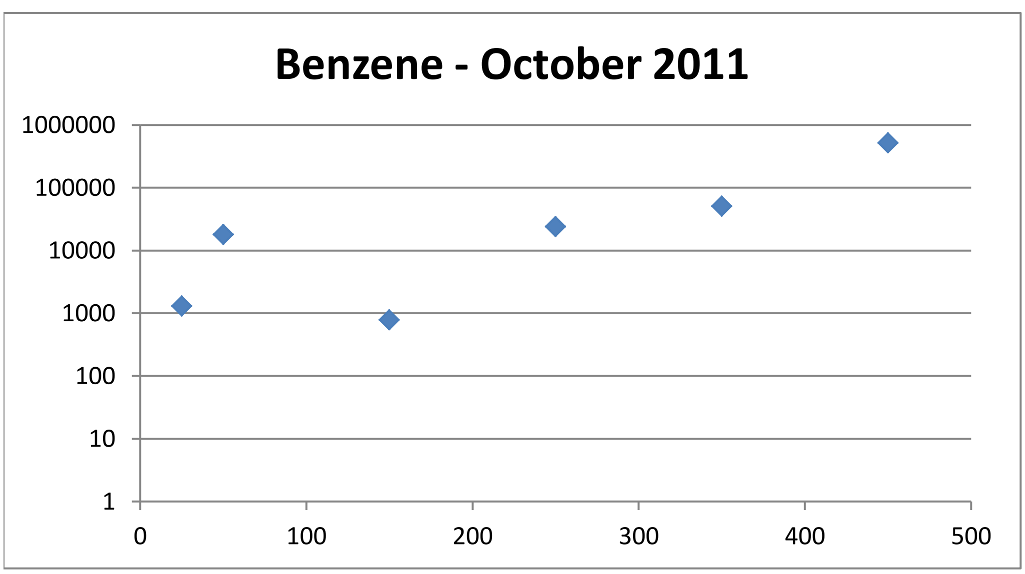
Figure 2. Soil Vapor Plots for Location Closest to Bldg. 1026 (Conc in ppbv vs. Depth in ft) for 7 Qtrs
KAFB-106117, Kirtland AFB



Mean Conc = 149,485 ppbv

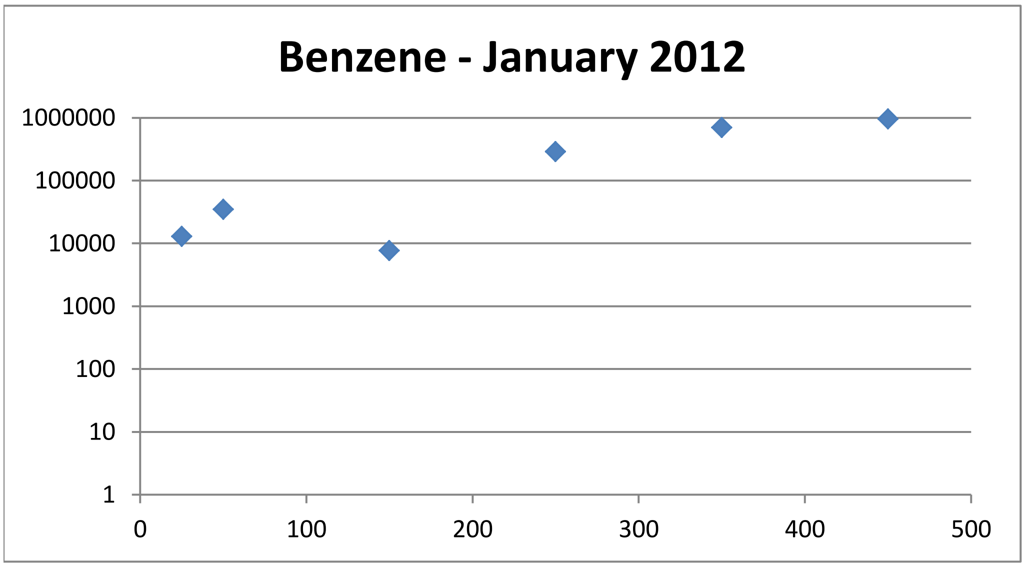


Mean Conc = 218,835 ppbv

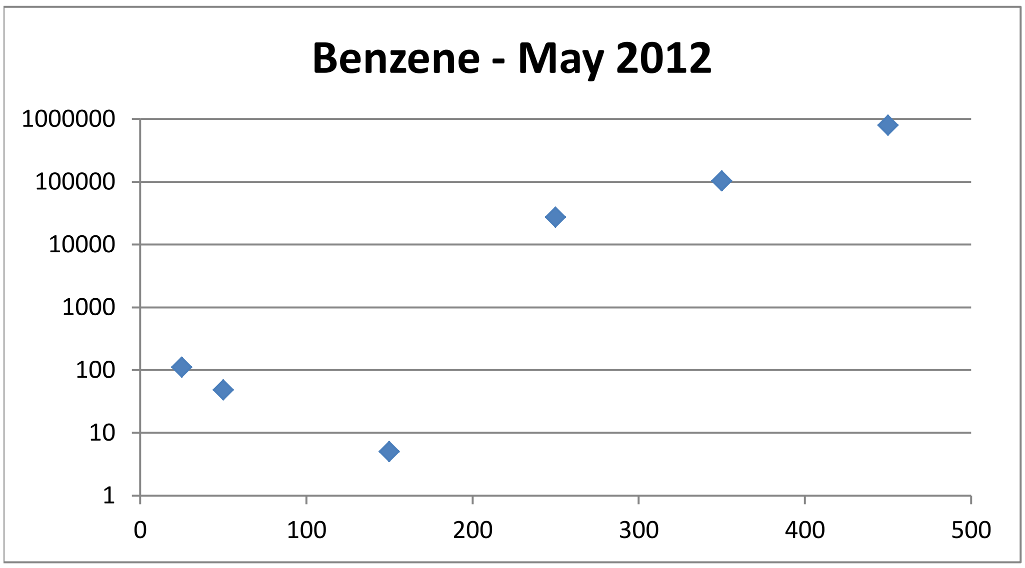


Mean Conc = 102,513 ppbv

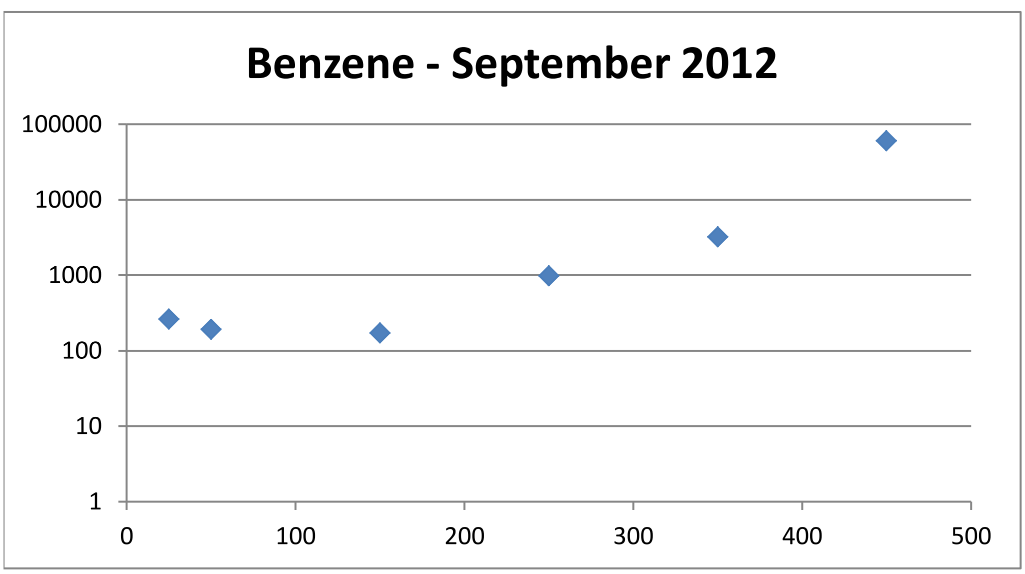
Figure 2. Soil Vapor Plots for Location Closest to Bldg. 1026 (Conc in ppbv vs. Depth in ft) for 7 Qtrs
KAFB-106117, Kirtland AFB



Mean Conc = 334,283 ppbv



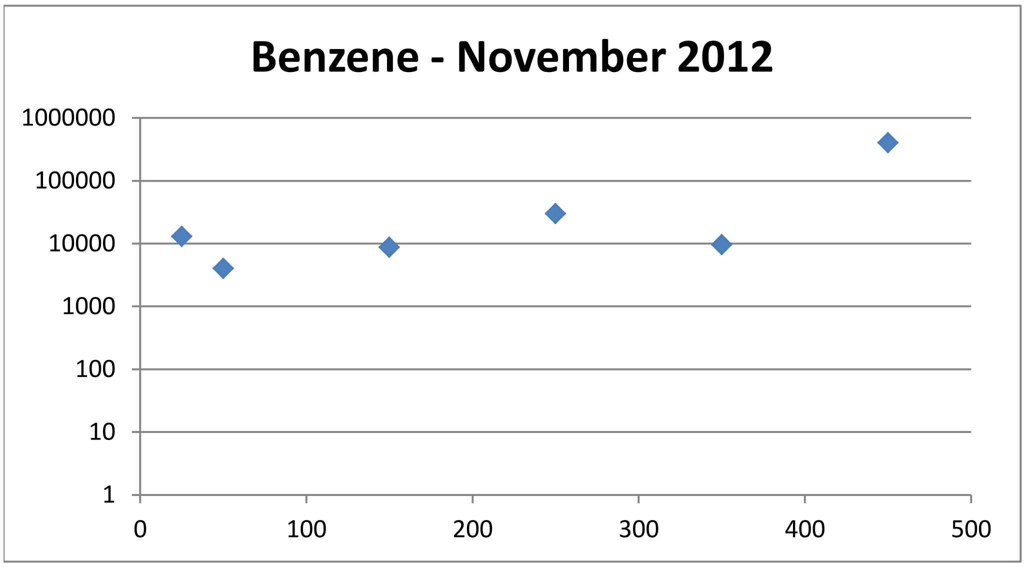
Mean Conc = 153,194 ppbv



Mean Conc = 10,800 ppbv

Figure 2. Soil Vapor Plots for Location Closest to Bldg. 1026 (Conc in ppbv vs. Depth in ft) for 7 Qtrs

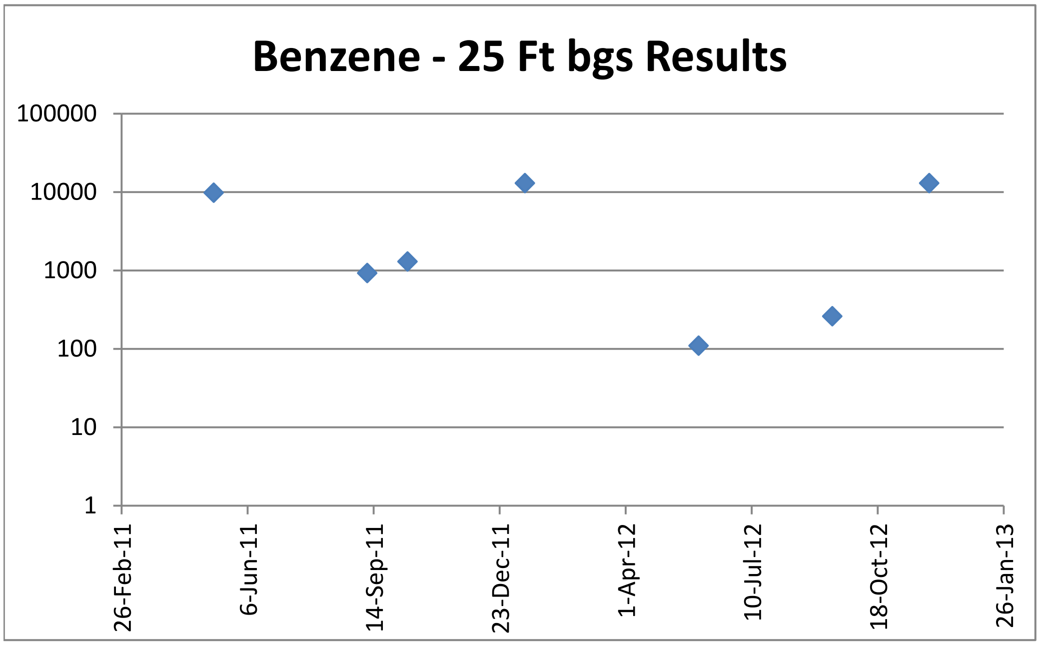
KAFB-106117, Kirtland AFB



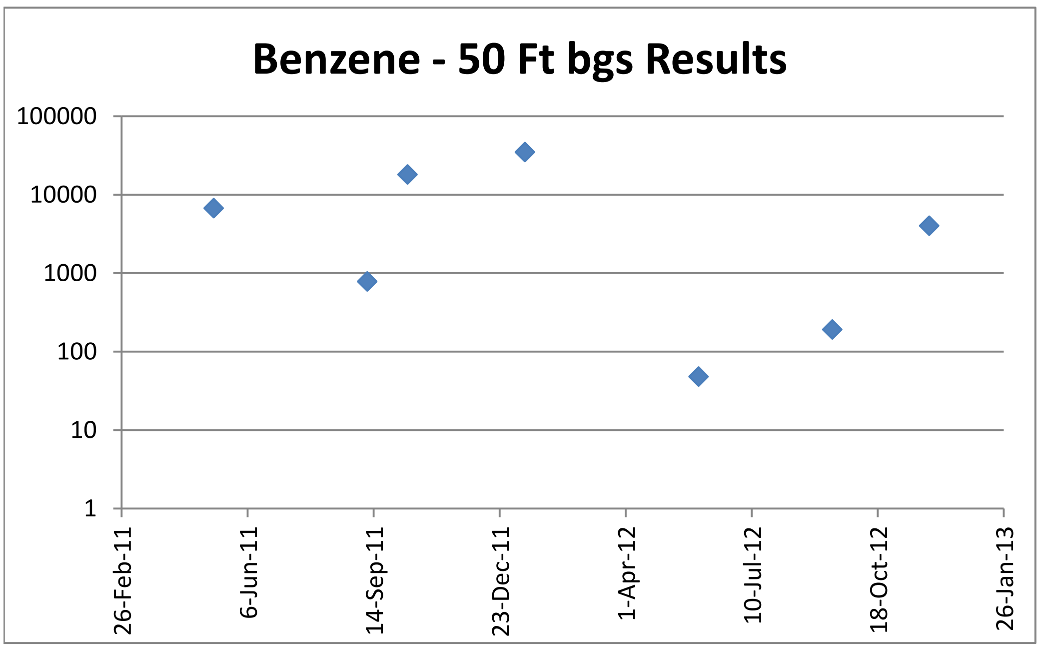
Mean Conc = 77,541 ppbv

Figure 3. Soil Vapor Plots for Location Closest to Bldg. 1026 (Conc in ppbv vs. Date) for 7 Qtrs

KAFB-106117, Kirtland AFB

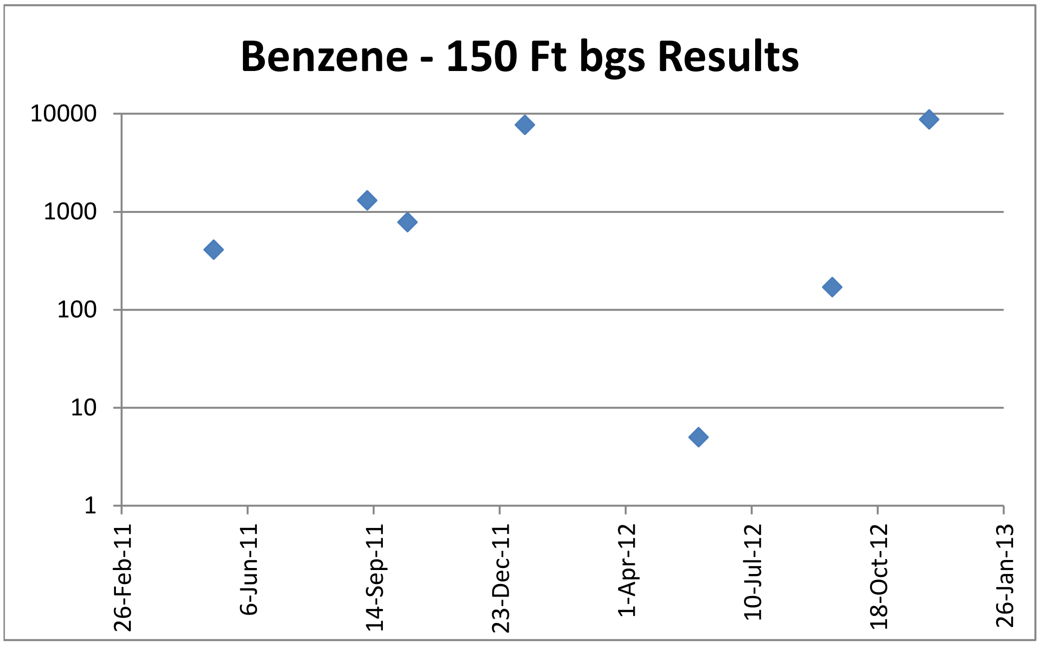


Mean Conc = 5,486 ppbv

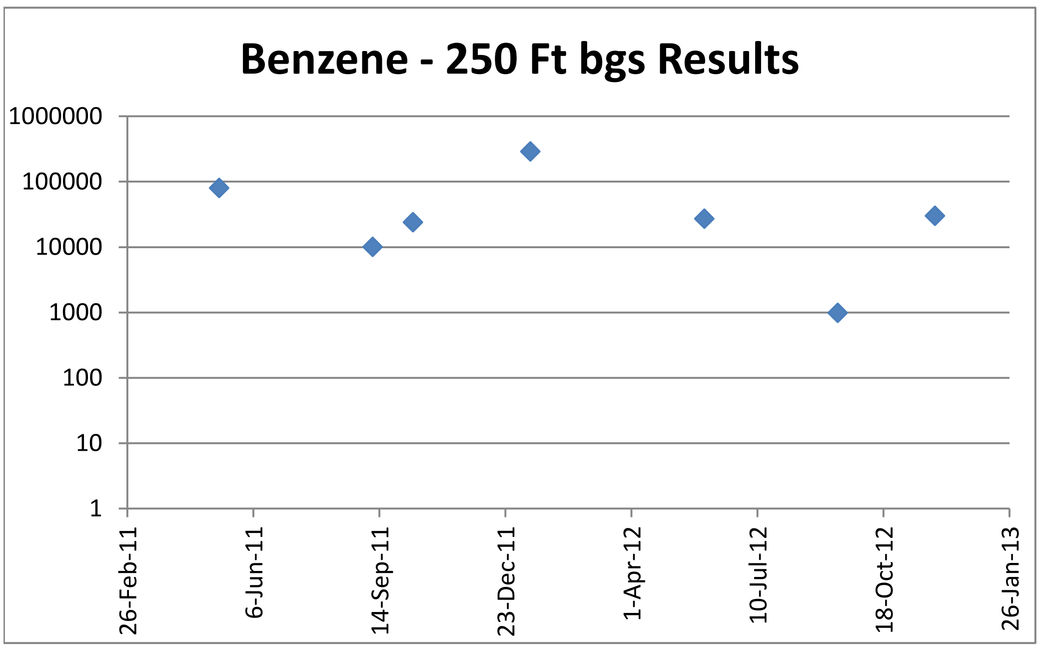


Mean Conc = 9,245 ppbv

Figure 3. Soil Vapor Plots for Location Closest to Bldg. 1026 (Conc in ppbv vs. Date) for 7 Qtrs
KAFB-106117, Kirtland AFB



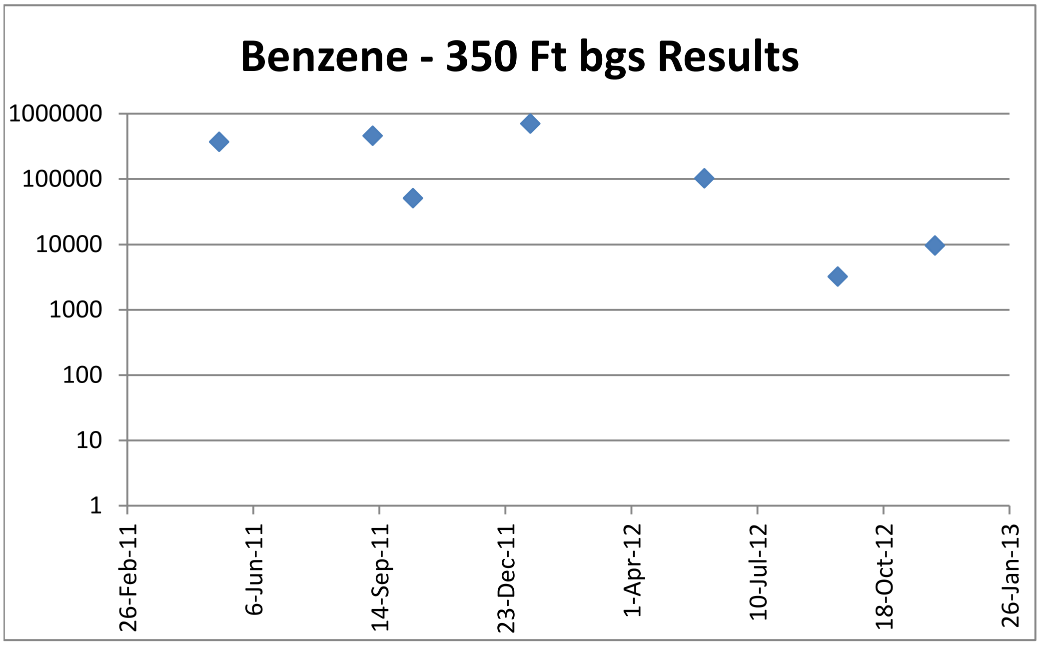
Mean Conc = 2,724 ppbv



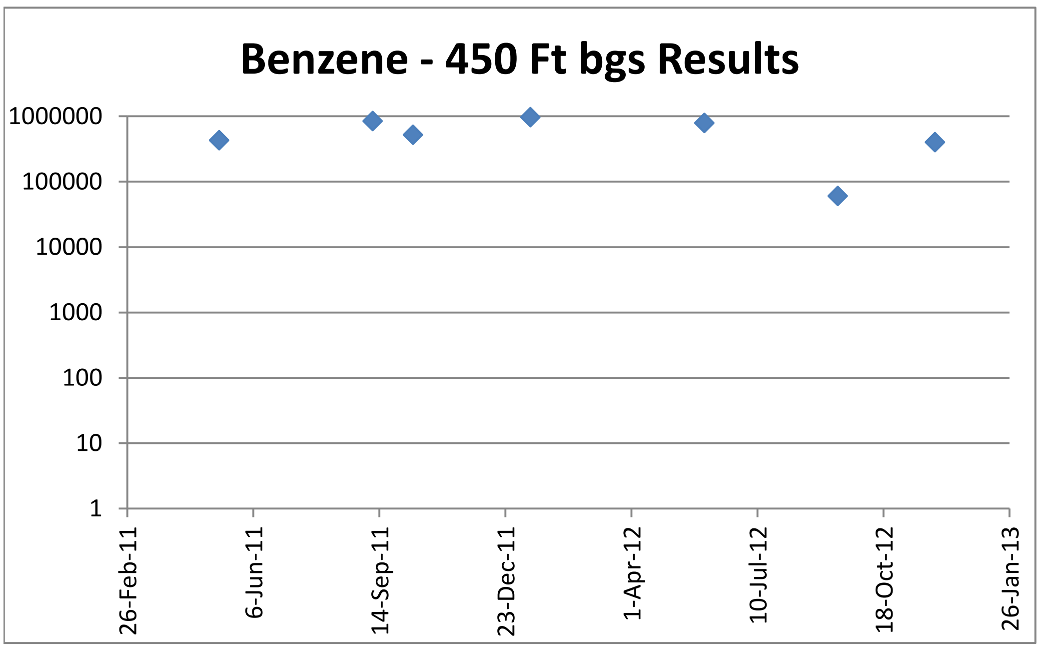
Mean Conc = 65,997 ppbv

Figure 3. Soil Vapor Plots for Location Closest to Bldg. 1026 (Conc in ppbv vs. Date) for 7 Qtrs

KAFB-106117, Kirtland AFB



Mean Conc = 242,250 ppbv



Mean Conc = 571,428 ppbv

Table 1. Statistical Summary of Kirtland AFB Indoor Air VOC Results vs. Ambient (Outdoor) Air Concentrations

Detected VOCs	Results of Background Statistical Tests			Box Plot Supports Statistical Findings?
	Gehans	P-Value	Quantile	
1,2,4-TRIMETHYLBENZENE	**Site > Ambient**	0.016	**Site > Ambient**	Yes
1,3,5-TRIMETHYLBENZENE	Site ≤ Ambient	0.149	**Site > Ambient**	Yes
1,3-DIMETHYLBENZENE	Site ≤ Ambient	0.072	**Site > Ambient**	Yes
2,2,4-TRIMETHYLPENTANE	Site ≤ Ambient	0.587	**Site > Ambient**	Yes
2-BUTANONE	**Site > Ambient**	0.0096	**Site > Ambient**	Yes
2-HEXANONE	Site ≤ Ambient	0.889	Inconclusive	Yes
4-METHYL-2-PENTANONE	**Site > Ambient**	0.037	**Site > Ambient**	Yes
ACETONE	**Site > Ambient**	0.020	**Site > Ambient**	Yes
BENZENE	Site ≤ Ambient	0.442	**Site > Ambient**	Yes
BROMOMETHANE	Site ≤ Ambient	0.401	**Site > Ambient**	Yes
CARBON TETRACHLORIDE	Site ≤ Ambient	0.877	Site ≤ Ambient	Yes
CHLOROMETHANE	**Site > Ambient**	0.0395	**Site > Ambient**	Yes
DICHLORODIFLUOROMETHA	Site ≤ Ambient	0.558	**Site > Ambient**	Yes
ERYTHRENE	Site ≤ Ambient	0.083	**Site > Ambient**	Yes
ETHANOL	**Site > Ambient**	0.0064	**Site > Ambient**	Yes
ETHYLBENZENE	Site ≤ Ambient	0.151	**Site > Ambient**	Yes
FREON 113	Site ≤ Ambient	0.827	Site ≤ Ambient	Yes
HEPTANE	Site ≤ Ambient	0.615	**Site > Ambient**	Yes
HEXANE	Site ≤ Ambient	0.500	**Site > Ambient**	Yes
ISOPROPANOL	Site ≤ Ambient	0.136	**Site > Ambient**	Yes
ISOPROPYLBENZENE	Site ≤ Ambient	0.215	**Site > Ambient**	Yes
METHYLENE CHLORIDE	Site ≤ Ambient	0.215	**Site > Ambient**	Yes
N-PROPYLBENZENE	Site ≤ Ambient	0.215	**Site > Ambient**	Yes
O-XYLENE	Site ≤ Ambient	0.0935	**Site > Ambient**	Yes
P-ETHYLTOLUENE	Site ≤ Ambient	0.0503	**Site > Ambient**	Yes
STYRENE	Site ≤ Ambient	0.0688	**Site > Ambient**	Yes
TETRACHLOROETHENE	Site ≤ Ambient	0.215	**Site > Ambient**	Yes
THF	**Site > Ambient**	0.0451	**Site > Ambient**	Yes
TOLUENE	Site ≤ Ambient	0.330	**Site > Ambient**	Yes
TRICHLOROFLUOROMETHAN	Site ≤ Ambient	0.500	Site ≤ Ambient	Yes

Notes:

Statistical tests run using USEPA's ProUCL Program (4.1.01).

Gehans test compares means and medians (central tendency of populations).

Quantile text compare Site maximum values with ambient (hot spot test)

Table 2. Kirtland AFB Soil Vapor Data
(5 closest monitoring points to Bldgs sampled for Indoor Air, last 7 quarters)

Location Code	Sample Number	Sample Date	PURP	Depth		1,2,4-Trimethylbenzene	Benzene	Ethylbenzene
					Test Group	VOCs	VOCs	VOCs
					METHOD	T015	T015	T015
					Units	ppbv	ppbv	ppbv
KAFB-106111-025	VA0155	18-Apr-11	REG	15.23-25.23 FT	Result	ND	21000	890
KAFB-106111-025	VA0476	6-Sep-11	REG	15.23-25.23 FT	Result	ND	11000	670
KAFB-106111-025	VA0790	15-Nov-11	REG	15.23-25.23 FT	Result	ND	44	ND
KAFB-106111-025	VA1104	15-Mar-12	REG	15.23-25.23 FT	Result	ND	11000	1500
KAFB-106111-025	VA1418	13-Jun-12	REG	15.23-25.23 FT	Result	ND	13000	1900
KAFB-106111-025	VA1734	10-Sep-12	REG	15.23-25.23 FT	Result	ND	950	ND
KAFB-106111-025	VA2048	11-Dec-12	REG	15.23-25.23 FT	Result	ND	930	ND
KAFB-106111-050	VA0156	18-Apr-11	REG	40.06-50.06 FT	Result	ND	10000	ND
KAFB-106111-050	VA0477	6-Sep-11	REG	40.06-50.06 FT	Result	ND	5300	490
KAFB-106111-050	VA0791	15-Nov-11	REG	40.06-50.06 FT	Result	ND	330	ND
KAFB-106111-050	VA1105	15-Mar-12	REG	40.06-50.06 FT	Result	ND	17000	5200
KAFB-106111-050	VA1106	15-Mar-12	FD	40.06-50.06 FT	Result	400	65000	6300
KAFB-106111-050	VA1419	13-Jun-12	REG	40.06-50.06 FT	Result	ND	16000	3500
KAFB-106111-050	VA1420	13-Jun-12	FD	40.06-50.06 FT	Result	ND	6700	1000
KAFB-106111-050	VA1735	10-Sep-12	REG	40.06-50.06 FT	Result	ND	550	ND
KAFB-106111-050	VA2049	11-Dec-12	REG	40.06-50.06 FT	Result	ND	1200	49
KAFB-106111-150	VA0157	18-Apr-11	REG	140.27-150.27 FT	Result	ND	3200	ND
KAFB-106111-150	VA0478	6-Sep-11	REG	140.27-150.27 FT	Result	ND	7500	ND
KAFB-106111-150	VA0792	15-Nov-11	REG	140.27-150.27 FT	Result	ND	170	ND
KAFB-106111-150	VA1107	15-Mar-12	REG	140.27-150.27 FT	Result	ND	4200	ND
KAFB-106111-150	VA1421	13-Jun-12	REG	140.27-150.27 FT	Result	ND	8700	2200
KAFB-106111-150	VA1736	11-Sep-12	REG	140.27-150.27 FT	Result	ND	1100	ND
KAFB-106111-150	VA2050	11-Dec-12	REG	140.27-150.27 FT	Result	ND	1900	ND
KAFB-106111-250	VA0158	18-Apr-11	REG	240.27-250.27 FT	Result	ND	6400	ND
KAFB-106111-250	VA0479	6-Sep-11	REG	240.27-250.27 FT	Result	ND	7600	ND
KAFB-106111-250	VA0793	15-Nov-11	REG	240.27-250.27 FT	Result	ND	4600	ND
KAFB-106111-250	VA1108	15-Mar-12	REG	240.27-250.27 FT	Result	ND	12000	1600
KAFB-106111-250	VA1422	13-Jun-12	REG	240.27-250.27 FT	Result	ND	6200	1600
KAFB-106111-250	VA1737	11-Sep-12	REG	240.27-250.27 FT	Result	ND	420	ND
KAFB-106111-250	VA2051	11-Dec-12	REG	240.27-250.27 FT	Result	ND	1400	ND
KAFB-106111-350	VA0159	18-Apr-11	REG	340.4-350.4 FT	Result	ND	5000	ND
KAFB-106111-350	VA0480	6-Sep-11	REG	340.39-350.39 FT	Result	ND	5900	ND
KAFB-106111-350	VA0794	16-Nov-11	REG	340.39-350.39 FT	Result	ND	3600	ND
KAFB-106111-350	VA0795	16-Nov-11	FD	340.39-350.39 FT	Result	ND		ND
KAFB-106111-350	VA1109	19-Mar-12	REG	340.39-350.39 FT	Result	ND	7300	ND
KAFB-106111-350	VA1423	14-Jun-12	REG	340.39-350.39 FT	Result	ND	2100	ND
KAFB-106111-350	VA1738	11-Sep-12	REG	340.39-350.39 FT	Result	ND	3300	ND
KAFB-106111-350	VA2052	11-Dec-12	REG	340.39-350.39 FT	Result	ND	3700	ND
KAFB-106111-450	VA0160	18-Apr-11	REG	440.3-450.3 FT	Result	ND	94000	ND
KAFB-106111-450	VA0481	7-Sep-11	REG	440.33-450.33 FT	Result	ND	94000	ND
KAFB-106111-450	VA0796	16-Nov-11	REG	440.33-450.33 FT	Result	ND	130000	ND
KAFB-106111-450	VA1110	19-Mar-12	REG	440.33-450.33 FT	Result	ND	150000	ND
KAFB-106111-450	VA1424	14-Jun-12	REG	440.33-450.33 FT	Result	ND	16000	ND
KAFB-106111-450	VA1739	11-Sep-12	REG	440.33-450.33 FT	Result	ND	16000	490
KAFB-106111-450	VA2053	11-Dec-12	REG	440.33-450.33 FT	Result	ND	14000	ND
KAFB-106112-025	VA0161	27-Apr-11	REG	15-25 FT	Result	ND	92000	ND
KAFB-106112-025	VA0482	8-Sep-11	REG	15-25 FT	Result	ND	610	ND
KAFB-106112-025	VA0797	9-Nov-11	REG	15-25 FT	Result	ND	ND	520
KAFB-106112-025	VA1111	12-Jan-12	REG	15-25 FT	Result	ND	470	72
KAFB-106112-025	VA1425	6-Jun-12	REG	15-25 FT	Result	ND	22000	2200
KAFB-106112-025	VA1740	21-Aug-12	REG	15-25 FT	Result	ND	4700	910
KAFB-106112-025	VA2054	12-Dec-12	REG	15-25 FT	Result	ND	710	ND

Table 2. Kirtland AFB Soil Vapor Data
(5 closest monitoring points to Bldgs sampled for Indoor Air, last 7 quarters)

Location Code	Sample Number	Sample Date	PURP	Depth	Test Group / METHOD / Units	1,2,4-Trimethylbenzene VOCs T015 ppbv	Benzene VOCs T015 ppbv	Ethylbenzene VOCs T015 ppbv
KAFB-106112-050	VA0162	27-Apr-11	REG	40-50 FT	Result	ND	73000	ND
KAFB-106112-050	VA0163	27-Apr-11	FD	40-50 FT	Result	ND	74000	ND
KAFB-106112-050	VA0483	8-Sep-11	REG	40-50 FT	Result	ND	1000	ND
KAFB-106112-050	VA0484	8-Sep-11	FD	40-50 FT	Result	ND	590	ND
KAFB-106112-050	VA0798	9-Nov-11	REG	40-50 FT	Result	730	2100	2000
KAFB-106112-050	VA1112	12-Jan-12	REG	40-50 FT	Result	ND	350	66
KAFB-106112-050	VA1426	6-Jun-12	REG	40-50 FT	Result	ND	19000	2600
KAFB-106112-050	VA1741	21-Aug-12	REG	40-50 FT	Result	ND	4000	910
KAFB-106112-050	VA1742	21-Aug-12	FD	40-50 FT	Result	ND	4400	1000
KAFB-106112-050	VA2055	12-Dec-12	REG	40-50 FT	Result	ND	ND	ND
KAFB-106112-150	VA0164	27-Apr-11	REG	140-150 FT	Result	ND	2600	810
KAFB-106112-150	VA0485	8-Sep-11	REG	140-150 FT	Result	ND	370	50
KAFB-106112-150	VA0799	9-Nov-11	REG	140-150 FT	Result	ND	ND	ND
KAFB-106112-150	VA1113	12-Jan-12	REG	140-150 FT	Result	ND	200	44
KAFB-106112-150	VA1427	6-Jun-12	REG	140-150 FT	Result	ND	11000	1400
KAFB-106112-150	VA1743	21-Aug-12	REG	140-150 FT	Result	ND	3200	ND
KAFB-106112-150	VA2056	12-Dec-12	REG	140-150 FT	Result	ND	660	ND
KAFB-106112-150	VA2057	12-Dec-12	FD	140-150 FT	Result	ND	ND	ND
KAFB-106112-250	VA0165	2-May-11	REG	240-250 FT	Result	ND	80	ND
KAFB-106112-250	VA0486	8-Sep-11	REG	240-250 FT	Result	ND	1200	ND
KAFB-106112-250	VA0800	9-Nov-11	REG	240-250 FT	Result	ND	47000	ND
KAFB-106112-250	VA1114	12-Jan-12	REG	240-250 FT	Result	ND	71000	ND
KAFB-106112-250	VA1428	7-Jun-12	REG	240-250 FT	Result	ND	11000	560
KAFB-106112-250	VA1744	21-Aug-12	REG	240-250 FT	Result	ND	4200	ND
KAFB-106112-250	VA2058	12-Dec-12	REG	240-250 FT	Result	ND	17000	ND
KAFB-106112-350	VA0166	2-May-11	REG	339-349 FT	Result	ND	23000	ND
KAFB-106112-350	VA0487	8-Sep-11	REG	339-349 FT	Result	56	83	65
KAFB-106112-350	VA0801	9-Nov-11	REG	339-349 FT	Result	ND	170000	8700
KAFB-106112-350	VA1115	12-Jan-12	REG	339-349 FT	Result	ND	290000	8200
KAFB-106112-350	VA1429	7-Jun-12	REG	339-349 FT	Result	ND	320000	ND
KAFB-106112-350	VA1745	21-Aug-12	REG	339-349 FT	Result	ND	170000	ND
KAFB-106112-350	VA2059	12-Dec-12	REG	339-349 FT	Result	ND	16000	ND
KAFB-106112-450	VA0167	2-May-11	REG	439-449 FT	Result	ND	31000	1700
KAFB-106112-450	VA0488	8-Sep-11	REG	439-449 FT	Result	66	74	62
KAFB-106112-450	VA0802	9-Nov-11	REG	439-449 FT	Result	ND	660000	23000
KAFB-106112-450	VA1116	12-Jan-12	REG	439-449 FT	Result	ND	930000	ND
KAFB-106112-450	VA1430	7-Jun-12	REG	439-449 FT	Result	ND	760000	ND
KAFB-106112-450	VA1746	22-Aug-12	REG	439-449 FT	Result	ND	15000	ND
KAFB-106112-450	VA2060	12-Dec-12	REG	439-449 FT	Result	ND	83000	ND
KAFB-106116-025	VA0189	12-Apr-11	REG	15-25 FT	Result	ND	15000	1200
KAFB-106116-025	VA0510	10-Aug-11	REG	10-19.45 FT	Result	ND	550	56
KAFB-106116-025	VA0824	9-Nov-11	REG	10-19.45 FT	Result	560	3700	1200
KAFB-106116-025	VA1137	19-Mar-12	REG	10-19.45 FT	Result	ND	20000	1300
KAFB-106116-025	VA1451	29-May-12	REG	10-19.45 FT	Result	ND	8700	1300
KAFB-106116-025	VA1767	28-Aug-12	REG	10-19.45 FT	Result	ND	1200	ND
KAFB-106116-025	VA2080	26-Nov-12	REG	10-19.45 FT	Result	ND	ND	ND
KAFB-106116-050	VA0190	12-Apr-11	REG	40-50 FT	Result	ND	16000	1100
KAFB-106116-050	VA0511	10-Aug-11	REG	40-49.45 FT	Result	ND	2200	ND
KAFB-106116-050	VA0825	9-Nov-11	REG	40-49.45 FT	Result	440	2200	830
KAFB-106116-050	VA1138	19-Mar-12	REG	40-49.45 FT	Result	ND	5700	1600
KAFB-106116-050	VA1139	19-Mar-12	FD	40-49.45 FT	Result	ND	9300	2200
KAFB-106116-050	VA1452	29-May-12	REG	40-49.45 FT	Result	ND	3800	ND

Table 2. Kirtland AFB Soil Vapor Data
(5 closest monitoring points to Bldgs sampled for Indoor Air, last 7 quarters)

Location Code	Sample Number	Sample Date	PURP	Depth		1,2,4-Trimethylbenzene	Benzene	Ethylbenzene
					Test Group	VOCs	VOCs	VOCs
					METHOD	T015	T015	T015
					Units	ppbv	ppbv	ppbv
KAFB-106116-050	VA1768	28-Aug-12	REG	40-49.45 FT	Result	ND	1400	ND
KAFB-106116-050	VA2081	26-Nov-12	REG	40-49.45 FT	Result	ND	690	ND
KAFB-106116-050	VA2082	26-Nov-12	FD	40-49.45 FT	Result	ND	880	ND
KAFB-106116-150	VA0191	14-Apr-11	REG	140-150 FT	Result	ND	1300	ND
KAFB-106116-150	VA0512	10-Aug-11	REG	140-149.45 FT	Result	ND	950	ND
KAFB-106116-150	VA0826	9-Nov-11	REG	140-149.45 FT	Result	380	1400	770
KAFB-106116-150	VA1140	20-Mar-12	REG	140-149.45 FT	Result	ND	2700	ND
KAFB-106116-150	VA1453	29-May-12	REG	140-149.45 FT	Result	ND	3300	ND
KAFB-106116-150	VA1769	28-Aug-12	REG	140-149.45 FT	Result	ND	690	ND
KAFB-106116-150	VA2083	26-Nov-12	REG	140-149.45 FT	Result	ND	300	ND
KAFB-106116-250	VA0192	14-Apr-11	REG	240-250 FT	Result			
KAFB-106116-250	VA0192-R	13-May-11	REG	240-249.45	Result	ND	9400	ND
KAFB-106116-250	VA0513	11-Aug-11	REG	240-249.45 FT	Result	ND	5900	ND
KAFB-106116-250	VA0827	9-Nov-11	REG	240-249.45 FT	Result	ND	27000	ND
KAFB-106116-250	VA1141	20-Mar-12	REG	240-249.45 FT	Result	ND	96000	ND
KAFB-106116-250	VA1454	29-May-12	REG	240-249.45 FT	Result	ND	3100	570
KAFB-106116-250	VA1770	28-Aug-12	REG	240-249.45 FT	Result	ND	1700	ND
KAFB-106116-250	VA2084	26-Nov-12	REG	240-249.45 FT	Result	ND	8900	240
KAFB-106116-350	VA0193	14-Apr-11	REG	340-350 FT	Result	ND	41000	1400
KAFB-106116-350	VA0514	11-Aug-11	REG	340-349.45 FT	Result	ND	110000	ND
KAFB-106116-350	VA0828	9-Nov-11	REG	340-349.45 FT	Result	ND	54000	ND
KAFB-106116-350	VA0829	9-Nov-11	FD	340-349.45 FT	Result	ND	91000	ND
KAFB-106116-350	VA1142	20-Mar-12	REG	340-349.45 FT	Result	ND	170000	ND
KAFB-106116-350	VA1455	29-May-12	REG	340-349.45 FT	Result	ND	16000	ND
KAFB-106116-350	VA1456	29-May-12	FD	340-349.45 FT	Result	ND	8800	820
KAFB-106116-350	VA1771	28-Aug-12	REG	340-349.45 FT	Result	ND	1000	ND
KAFB-106116-350	VA2085	26-Nov-12	REG	340-349.45 FT	Result	ND	200000	4600
KAFB-106116-450	VA0194	14-Apr-11	REG	440-450 FT	Result	1000	2100000	21000
KAFB-106116-450	VA0515	11-Aug-11	REG	440-448.95 FT	Result	ND	910000	ND
KAFB-106116-450	VA0830	9-Nov-11	REG	440-448.95 FT	Result	ND	700000	28000
KAFB-106116-450	VA1143	20-Mar-12	REG	440-448.95 FT	Result	ND	810000	ND
KAFB-106116-450	VA1457	30-May-12	REG	440-448.95 FT	Result	ND	650000	ND
KAFB-106116-450	VA1772	29-Aug-12	REG	440-448.95 FT	Result	ND	15000	840
KAFB-106116-450	VA2086	26-Nov-12	REG	440-448.95 FT	Result	ND	120000	6600
KAFB-106117-025	VA0195	10-May-11	REG	15-25 FT	Result	ND	9800	350
KAFB-106117-025	VA0516	9-Sep-11	REG	15-25 FT	Result	ND	930	62
KAFB-106117-025	VA0831	11-Oct-11	REG	15-25 FT	Result	820	1300	940
KAFB-106117-025	VA1144	12-Jan-12	REG	15-25 Ft	Result	ND	13000	1300
KAFB-106117-025	VA1458	29-May-12	REG	15-25 FT	Result	ND	110	ND
KAFB-106117-025	VA1773	12-Sep-12	REG	15-25 FT	Result	ND	260	ND
KAFB-106117-025	VA2087	28-Nov-12	REG	15-25 FT	Result	730	13000	4400
KAFB-106117-050	VA0196	10-May-11	REG	40-50 FT	Result	ND	6700	220
KAFB-106117-050	VA0517	9-Sep-11	REG	40-50 FT	Result	ND	880	82
KAFB-106117-050	VA0518	9-Sep-11	FD	40-50 FT	Result	ND	680	90
KAFB-106117-050	VA0832	11-Oct-11	REG	40-50 FT	Result	ND	18000	ND
KAFB-106117-050	VA1145	12-Jan-12	REG	40-50 Ft	Result	ND	35000	ND
KAFB-106117-050	VA1459	29-May-12	REG	40-50 FT	Result	ND	48	ND
KAFB-106117-050	VA1774	12-Sep-12	REG	40-50 FT	Result	ND	170	ND
KAFB-106117-050	VA1775	12-Sep-12	FD	40-50 FT	Result	ND	210	ND
KAFB-106117-050	VA2088	28-Nov-12	REG	40-50 FT	Result	430	4000	1800
KAFB-106117-150	VA0197	10-May-11	REG	140-150 FT	Result	ND	410	74
KAFB-106117-150	VA0519	9-Sep-11	REG	140-150 FT	Result	ND	1300	ND

Table 2. Kirtland AFB Soil Vapor Data
(5 closest monitoring points to Bldgs sampled for Indoor Air, last 7 quarters)

						1,2,4-Trimethylbenzene	Benzene	Ethylbenzene
					Test Group	VOCs	VOCs	VOCs
					METHOD	T015	T015	T015
Location Code	Sample Number	Sample Date	PURP	Depth	Units	ppbv	ppbv	ppbv
KAFB-106117-150	VA0833	11-Oct-11	REG	140-150 FT	Result	ND	780	510
KAFB-106117-150	VA1146	18-Jan-12	REG	140-150 FT	Result	ND	7700	ND
KAFB-106117-150	VA1460	29-May-12	REG	140-150 FT	Result	ND	ND	ND
KAFB-106117-150	VA1776	12-Sep-12	REG	140-150 FT	Result	ND	170	ND
KAFB-106117-150	VA2089	28-Nov-12	REG	140-150 FT	Result	510	8700	2000
KAFB-106117-250	VA0198	10-May-11	REG	240-250 FT	Result	ND	80000	ND
KAFB-106117-250	VA0520	9-Sep-11	REG	240-250 FT	Result	ND	10000	ND
KAFB-106117-250	VA0834	12-Oct-11	REG	240-250 FT	Result	ND	24000	ND
KAFB-106117-250	VA1147	18-Jan-12	REG	240-250 FT	Result	ND	290000	11000
KAFB-106117-250	VA1461	30-May-12	REG	240-250 FT	Result	ND	27000	ND
KAFB-106117-250	VA1777	12-Sep-12	REG	240-250 FT	Result	ND	980	ND
KAFB-106117-250	VA2090	29-Nov-12	REG	240-250 FT	Result	530	30000	3400
KAFB-106117-350	VA0199	10-May-11	REG	340-350 FT	Result	ND	370000	27000
KAFB-106117-350	VA0521	9-Sep-11	REG	340-350 FT	Result	ND	460000	ND
KAFB-106117-350	VA0835	12-Oct-11	REG	340-350 FT	Result	ND	58000	ND
KAFB-106117-350	VA0836	12-Oct-11	FD	340-350 FT	Result	ND	44000	ND
KAFB-106117-350	VA1148	18-Jan-12	REG	340-350 FT	Result	ND	710000	ND
KAFB-106117-350	VA1149	18-Jan-12	FD	340-350 FT	Result	ND	690000	ND
KAFB-106117-350	VA1462	30-May-12	REG	340-350 FT	Result	ND	130000	ND
KAFB-106117-350	VA1463	30-May-12	FD	340-350 FT	Result	ND	74000	ND
KAFB-106117-350	VA1778	12-Sep-12	REG	340-350 FT	Result	ND	3200	2000
KAFB-106117-350	VA2091	29-Nov-12	REG	340-350 FT	Result	1400	9700	5300
KAFB-106117-350	VA2092	29-Nov-12	FD	340-350 FT	Result	1400	9400	6200
KAFB-106117-450	VA0200	10-May-11	REG	440-450 FT	Result	ND	430000	25000
KAFB-106117-450	VA0522	9-Sep-11	REG	440-450 FT	Result	ND	840000	ND
KAFB-106117-450	VA0837	12-Oct-11	REG	440-450 FT	Result	ND	520000	ND
KAFB-106117-450	VA1150	18-Jan-12	REG	440-450 FT	Result	ND	960000	ND
KAFB-106117-450	VA1464	30-May-12	REG	440-450 FT	Result	ND	790000	ND
KAFB-106117-450	VA1779	12-Sep-12	REG	440-450 FT	Result	ND	60000	ND
KAFB-106117-450	VA2093	29-Nov-12	REG	440-450 FT	Result	ND	400000	ND
KAFB-106128-025	VA0268	12-Apr-11	REG	15-25 FT	Result	ND	530	44
KAFB-106128-025	VA0585	29-Aug-11	REG	15.04-25.04 FT	Result	ND	ND	ND
KAFB-106128-025	VA0586	29-Aug-11	FD	15.04-25.04 FT	Result	ND	ND	ND
KAFB-106128-025	VA0904	20-Oct-11	REG	15.04-25.04 FT	Result	ND	1900	600
KAFB-106128-025	VA1217	6-Mar-12	REG	15.04-25.04 FT	Result	ND	960	430
KAFB-106128-025	VA1530	5-Jun-12	REG	15.04-25.04 FT	Result	ND	1200	ND
KAFB-106128-025	VA1846	27-Aug-12	REG	15.04-25.04 FT	Result	ND	2700	1100
KAFB-106128-025	VA2159	5-Dec-12	REG	15.04-25.04 FT	Result	ND	170	47
KAFB-106128-050	VA0269	12-Apr-11	REG	40.1-50.1 FT	Result	ND	ND	ND
KAFB-106128-050	VA0270	12-Apr-11	FD	40.1-50.1 FT	Result	ND	33	ND
KAFB-106128-050	VA0587	6-Sep-11	REG	40.07-50.07 FT	Result			
KAFB-106128-050	VA0905	20-Oct-11	REG	40.07-50.07 FT	Result	ND	870	ND
KAFB-106128-050	VA1218	6-Mar-12	REG	40.07-50.07 FT	Result	ND	5800	ND
KAFB-106128-050	VA1531	5-Jun-12	REG	40.07-50.07 FT	Result	ND	780	ND
KAFB-106128-050	VA1847	27-Aug-12	REG	40.07-50.07 FT	Result	ND	3400	1200
KAFB-106128-050	VA2160	5-Dec-12	REG	40.07-50.07 FT	Result	ND	130	42
KAFB-106128-150	VA0271	12-Apr-11	REG	140.2-150.2 FT	Result	ND	130	57
KAFB-106128-150	VA0588	6-Sep-11	REG	140.19-150.19 FT	Result	ND	170000	ND
KAFB-106128-150	VA0906	20-Oct-11	REG	140.19-150.19 FT	Result	ND	540	420
KAFB-106128-150	VA1219	6-Mar-12	REG	140.19-150.19 FT	Result	ND	ND	ND
KAFB-106128-150	VA1532	6-Jun-12	REG	140.19-150.19 FT	Result	ND	450	84
KAFB-106128-150	VA1533	6-Jun-12	FD	140.19-150.19 FT	Result	ND	580	95

Table 2. Kirtland AFB Soil Vapor Data
(5 closest monitoring points to Bldgs sampled for Indoor Air, last 7 quarters)

Location Code	Sample Number	Sample Date	PURP	Depth		1,2,4-Trimethylbenzene	Benzene	Ethylbenzene
					Test Group	VOCs	VOCs	VOCs
					METHOD	T015	T015	T015
					Units	ppbv	ppbv	ppbv
KAFB-106128-150	VA1848	27-Aug-12	REG	140.19-150.19 FT	Result	29	33	39
KAFB-106128-150	VA2161	5-Dec-12	REG	140.19-150.19 FT	Result	ND	200	62
KAFB-106128-250	VA0272	12-Apr-11	REG	240.3-250.3 FT	Result	ND	54	ND
KAFB-106128-250	VA0589	6-Sep-11	REG	240.29-250.29 TF	Result	53	54	48
KAFB-106128-250	VA0907	20-Oct-11	REG	240.29-250.29 FT	Result	ND	1000	ND
KAFB-106128-250	VA1220	6-Mar-12	REG	240.29-250.29 FT	Result	ND	1700	ND
KAFB-106128-250	VA1534	6-Jun-12	REG	240.29-250.29 FT	Result	ND	300	ND
KAFB-106128-250	VA1849	27-Aug-12	REG	240.29-250.29 FT	Result	22	33	29
KAFB-106128-250	VA2162	5-Dec-12	REG	240.29-250.29 FT	Result	ND	130	46
KAFB-106128-250	VA2163	5-Dec-12	FD	240.29-250.29 FT	Result	ND	160	52
KAFB-106128-350	VA0273	12-Apr-11	REG	340.4-350.4 FT	Result	ND	3100	66
KAFB-106128-350	VA0590	6-Sep-11	REG	340.39-350.39 FT	Result	ND	82000	1700
KAFB-106128-350	VA0908	20-Oct-11	REG	340.39-350.39 FT	Result	ND	99000	ND
KAFB-106128-350	VA1221	6-Mar-12	REG	340.39-350.39 FT	Result	ND	200000	ND
KAFB-106128-350	VA1222	6-Mar-12	FD	340.39-350.39 FT	Result	ND	250000	ND
KAFB-106128-350	VA1535	6-Jun-12	REG	340.39-350.39 FT	Result	ND	240000	ND
KAFB-106128-350	VA1850	27-Aug-12	REG	340.39-350.39 FT	Result	ND	530	ND
KAFB-106128-350	VA2164	5-Dec-12	REG	340.39-350.39 FT	Result	ND	360000	19000
KAFB-106128-450	VA0274	12-Apr-11	REG	440.1-450.1 FT	Result	ND	500000	ND
KAFB-106128-450	VA0591	6-Sep-11	REG	440.06-450.06 FT	Result	ND	410000	ND
KAFB-106128-450	VA0909	20-Oct-11	REG	440.06-450.06 FT	Result	ND	350000	15000
KAFB-106128-450	VA1223	6-Mar-12	REG	440.06-450.06 FT	Result	ND	870000	9000
KAFB-106128-450	VA1536	6-Jun-12	REG	440.06-450.06 FT	Result	ND	640000	ND
KAFB-106128-450	VA1851	27-Aug-12	REG	440.06-450.06 FT	Result	ND	990	130
KAFB-106128-450	VA2165	5-Dec-12	REG	440.06-450.06 FT	Result	ND	300000	ND
Summary of Soil Vapor Sample Results (concentration in ppbv)								
No. of Samples						231	231	231
Hits						18	220	95
FOD						8%	95%	41%
Min Detect						22	33	29
Max Detect						1,400	2,100,000	28,000
Mean Detection						531	102,821	3,146
Mean DL						1,368	1,074	3,534
DL Range						2 - 40,000	1 - 40,000	5.9 - 59,000
Location of Max						KAFB-106117	KAFB-106116	KAFB-106116
Date of Max						29-Nov-12	14-Apr-11	9-Nov-11
Depth of Max						350	450	450
Summary of Indoor Air Sample Results and Risk Based Screening Values								
Max Detect (ug/m^3)						52	23	14
Residential RSL (ug/m^3)						7.3	0.31	0.97
Industrial RSL (ug/m^3)						31	1.6	4.9
Conversion of ug/m^3 to ppbv (for 25° C; divide by x):						4.91	3.19	4.34
Molecular Weight (g/mol)						120.19	78.11	106.17
Max Detect (ppbv)						11	7.2	3.2
Residential RSL (ppbv)						1.5	0.097	0.22
Industrial RSL (ppbv)						6.3	0.50	1.1
Number of Soil Vapor Detections Above Max Indoor Air Detect (ppbv):						18 (100%)	220 (100%)	95 (100%)

Table 3. Kirtland AFB Soil Vapor Data

(Closest monitoring point to Bldg 1026 sampled for Indoor Air, last 7 quarters)

Location Code	Sample Number	Sample Date	Depth Range	Depth (bottom of interval)	1,2,4-Trimethylbenzene	d_1,2,4-Trimethylbenzene	Benzene	d_Benzene	Ethylbenzene	d_Ethylbenzene
KAFB-106117-025	VA0195	10-May-11	15-25 FT	25	9.8	0	9800	1	350	1
KAFB-106117-050	VA0196	10-May-11	40-50 FT	50	9.8	0	6700	1	220	1
KAFB-106117-150	VA0197	10-May-11	140-150 FT	150	9.8	0	410	1	74	1
KAFB-106117-250	VA0198	10-May-11	240-250 FT	250	2000	0	80000	1	5900	0
KAFB-106117-350	VA0199	10-May-11	340-350 FT	350	2000	0	370000	1	27000	1
KAFB-106117-450	VA0200	10-May-11	440-450 FT	450	2000	0	430000	1	25000	1
KAFB-106117-025	VA0516	9-Sep-11	15-25 FT	25	9.8	0	930	1	62	1
KAFB-106117-050	VA0517	9-Sep-11	40-50 FT	50	9.8	0	780	1	86	1
KAFB-106117-150	VA0519	9-Sep-11	140-150 FT	150	98	0	1300	1	290	0
KAFB-106117-250	VA0520	9-Sep-11	240-250 FT	250	98	0	10000	1	290	0
KAFB-106117-350	VA0521	9-Sep-11	340-350 FT	350	4900	0	460000	1	15000	0
KAFB-106117-450	VA0522	9-Sep-11	440-450 FT	450	9800	0	840000	1	29000	0
KAFB-106117-025	VA0831	11-Oct-11	15-25 FT	25	820	1	1300	1	940	1
KAFB-106117-050	VA0832	11-Oct-11	40-50 FT	50	2000	0	18000	1	5900	0
KAFB-106117-150	VA0833	11-Oct-11	140-150 FT	150	98	0	780	1	510	1
KAFB-106117-250	VA0834	12-Oct-11	240-250 FT	250	2000	0	24000	1	5900	0
KAFB-106117-350	VA0835	12-Oct-11	340-350 FT	350	2000	0	51000	1	5900	0
KAFB-106117-450	VA0837	12-Oct-11	440-450 FT	450	4900	0	520000	1	15000	0
KAFB-106117-025	VA1144	12-Jan-12	15-25 Ft	25	200	0	13000	1	1300	1
KAFB-106117-050	VA1145	12-Jan-12	40-50 Ft	50	2000	0	35000	1	5900	0
KAFB-106117-150	VA1146	18-Jan-12	140-150 FT	150	200	0	7700	1	590	0
KAFB-106117-250	VA1147	18-Jan-12	240-250 FT	250	2000	0	290000	1	11000	1
KAFB-106117-350	VA1148	18-Jan-12	340-350 FT	350	4900	0	700000	1	15000	0
KAFB-106117-450	VA1150	18-Jan-12	440-450 FT	450	4900	0	960000	1	15000	0
KAFB-106117-025	VA1458	29-May-12	15-25 FT	25	9.8	0	110	1	29	0
KAFB-106117-050	VA1459	29-May-12	40-50 FT	50	9.8	0	48	1	29	0
KAFB-106117-150	VA1460	29-May-12	140-150 FT	150	9.8	0	5	0	29	0
KAFB-106117-250	VA1461	30-May-12	240-250 FT	250	390	0	27000	1	1200	0
KAFB-106117-350	VA1462	30-May-12	340-350 FT	350	9800	0	102000	1	29000	0
KAFB-106117-450	VA1464	30-May-12	440-450 FT	450	9800	0	790000	1	29000	0
KAFB-106117-025	VA1773	12-Sep-12	15-25 FT	25	9.8	0	260	1	29	0
KAFB-106117-050	VA1774	12-Sep-12	40-50 FT	50	9.8	0	190	1	29	0
KAFB-106117-150	VA1776	12-Sep-12	140-150 FT	150	9.8	0	170	1	29	0
KAFB-106117-250	VA1777	12-Sep-12	240-250 FT	250	9.8	0	980	1	29	0
KAFB-106117-350	VA1778	12-Sep-12	340-350 FT	350	200	0	3200	1	2000	1
KAFB-106117-450	VA1779	12-Sep-12	440-450 FT	450	9800	0	60000	1	29000	0
KAFB-106117-025	VA2087	28-Nov-12	15-25 FT	25	730	1	13000	1	4400	1
KAFB-106117-050	VA2088	28-Nov-12	40-50 FT	50	430	1	4000	1	1800	1

Table 3. Kirtland AFB Soil Vapor Data

(Closest monitoring point to Bldg 1026 sampled for Indoor Air, last 7 quarters)

Location Code	Sample Number	Sample Date	Depth Range	Depth (bottom of interval)	1,2,4-Trimethylbenzene	d_1,2,4-Trimethylbenzene	Benzene	d_Benzene	Ethylbenzene	d_Ethylbenzene
KAFB-106117-150	VA2089	28-Nov-12	140-150 FT	150	510	1	8700	1	2000	1
KAFB-106117-250	VA2090	29-Nov-12	240-250 FT	250	530	1	30000	1	3400	1
KAFB-106117-350	VA2091	29-Nov-12	340-350 FT	350	1400	1	9550	1	5750	1
KAFB-106117-450	VA2093	29-Nov-12	440-450 FT	450	9800	0	400000	1	29000	0

	1,2,4-Trimethylbenzene	Benzene	Ethylbenzene
Summary of Soil Vapor Sample Results (concentration in ppbv)			
No. of Samples	42	42	42
Hits	6	41	17
FOD	14%	98%	40%
Min Detect	430	48	62
Max Detect	1,400	960,000	27,000
Mean Detection	737	153,168	5,052
Mean DL	2,389	5	9,483
DL Range	9.8 - 9,800	5 - 5	29 - 29,000
Location of Max	106177	106177	106177
Date of Max	29-Nov-12	18-Jan-12	10-May-11
Depth of Max	350	450	350
Summary of Indoor Air Sample Results and Risk Based Screening Values			
Max Detect (ug/m^3)	52	23	14
Residential RSL (ug/m^3)	7.3	0.31	0.97
Industrial RSL (ug/m^3)	31	1.6	4.9
Conversion of ug/m^3 to ppbv (for 25^o C; divide by x):	4.91	3.19	4.34
Molecular Weight (g/mol)	120.19	78.11	106.17
Max Detect (ppbv)	11	7.2	3.2
Residential RSL (ppbv)	1.5	0.097	0.22
Industrial RSL (ppbv)	6.3	0.50	1.1
Number of Soil Vapor Detections Above Max Indoor Air Detect (ppbv):	6 (100%)	41 (100%)	17 (100%)

Table 4. Comparison of VOC Composition Between Soil Vapor (KAFB-106117), Indoor Air (Bldg 1026), and Ambient Air
Kirtland Air Force Base Bulk Fuels Factility

LOCATION_CODE(S)	KAFB-106117-025 and KAFB-106177-050			KAFB-AMBIENT-1026	KAFB-INDOOR-1026	KAFB-INDOOR-1026
SAMPLE_NO	Various Soil Vapor Samples (n = 16)			AIR8003-AB	AIR0001	AIR0007
SAMPLE_DATES	May, Sept, Oct 2011; Jan, May, Sept, Nov 2012			14-Jan-13	17-Jul-12	14-Jan-13
PURP	SOIL VAPR (REG and FD samples)			AMBIENT AIR	INDOOR AIR	INDOOR AIR
DEPTH	15-25 FT and 40-50 FT			--	--	--
Parameter	**Min % Comp**	**Mean % Comp**	**Max % Comp**	**% Comp**	**% Comp**	**% Comp**
1,2,4-TRIMETHYLBENZENE	0.49%	1.06%	2.00%		15.50%	
1,2-DIBROMOETHANE	0.17%	0.19%	0.21%			
1,3,5-TRIMETHYLBENZENE	0.24%	0.28%	0.33%		3.28%	
1,3-DIMETHYLBENZENE	NA	NA	NA	2.61%	7.75%	2.15%
2,2,4-TRIMETHYLPENTANE	NA	NA	NA	26.08%	10.43%	15.36%
2-BUTANONE	0.44%	0.47%	0.49%	1.01%	1.19%	1.98%
2-HEXANONE	0.18%	0.18%	0.18%			
4-METHYL-2-PENTANONE	0.09%	0.09%	0.09%		0.18%	
ACETONE	0.32%	0.35%	0.38%		4.77%	9.08%
BENZENE	3.17%	11.39%	16.32%	8.14%	6.85%	7.93%
BROMODICHLOROMETHANE	0.16%	0.16%	0.16%			
CARBON TETRACHLORIDE				0.59%	0.12%	
CHLOROMETHANE				1.01%	0.26%	1.62%
CYCLOHEXANE	8.54%	25.77%	67.42%	NA	NA	NA
DICHLORODIFLUOROMETHANE				2.71%	0.63%	4.29%
ETHANOL				1.56%	1.10%	3.14%
ETHYLBENZENE	0.40%	1.59%	2.96%	0.92%	4.17%	0.96%
FREON 113					0.14%	1.04%
HEPTANE	2.80%	10.83%	21.80%	16.69%	11.62%	14.04%
HEXANE	4.60%	17.29%	30.14%	18.78%	10.13%	18.16%
ISOPROPANOL				2.09%	0.25%	2.81%
ISOPROPYLBENZENE	NA	NA	NA		1.61%	
M,P-XYLENES	0.66%	4.01%	6.58%	NA	NA	NA
METHYLENE CHLORIDE	5.12%	5.12%	5.12%			
N-PROPYLBENZENE	NA	NA	NA		3.28%	
O-XYLENE	0.30%	1.34%	2.24%	0.80%	3.87%	0.78%
PROPYLENE	0.16%	2.50%	5.84%	NA	NA	NA
STYRENE					0.29%	
TOLUENE	8.68%	30.15%	52.55%	15.65%	11.03%	13.87%
TRICHLOROFLUOROMETHANE				1.36%	0.36%	2.31%
XYLENES	0.96%	5.11%	8.73%	NA	NA	NA

% Comp - Percent Composition (constituent sample result divided by total sample VOC concentration)
Detections only (blank - nondetect result)
NA - Not analyzed
Percentages greater than 10% highlighted

Photo 1. Pipe to 106160 - 2

Photo 2. Pipe to 106160 - 3

Photo 3. Pipe 106160 - North

Photo 4. Pipe to SVE System

Photo 5. Pipe to SVE System2

Photo 6. SVE System - East

Photo 7. UBend - Pipe to SVE System

Photo 8. Trench - South

Appendix C-2 - Table 1

Data Used to Model Exposure[a] in the Indicator Wildlife Species

Indicator Species	Soil Depth Exposure Interval (ft BGS)	Body Weight Range (average) (kg)	Average Home Range (ha) [ac]	Maximum Dietary Intake [b] (kg[dw]/day)	Average Dietary Intake[c] (kg[dw]/day)	Soil Intake [d] (%Diet) (Avg - Max) (kg[dw]/day)	Maximum Water Intake [e] (L/day)	Average Water Intake [e] (L/day)	Trophic Level	Dietary Composition
Desert cottontail *(Sylvilagus audubonii)*	0 - 10 (burrowing)	0.6-1.2 (0.9)	3.24 [f] [8]	0.737	0.616	(2.4%) 0.0148-0.0177	NA	NA	Herbivore	Plants: 100%
Montane shrew *(Sorex monticolus)*	0 - 10 (burrowing)	0.0055-0.0070[g] (0.0062)	0.26 [g] [0.65]	0.0013	0.0012	(10.4%) 0.000125-0.000135	NA	NA	Insectivore	Terr. Inverts: 100%
American robin *(Turdus migratorius)*	0 - 5 (non-burrowing)	0.0635-0.103 (0.0773)	0.48 [1.2]	0.0122	0.0102	(4%) 0.00041-0.00049	NA	NA	Omnivore	Plants: 62% Terr. Inverts: 38%
Red fox *(Vulpes vulpes)*	0 - 10 (burrowing)	2.95-7.04 (4.53)	892 [2204]	0.2475	0.1713	(2.8%) 0.0048-0.0069	NA	NA	Carnivore	Mammals: 65% Birds: 14% Plants: 17% Terr. Inverts: 4%
American kestrel (*Falco sparverius*)	0 - 5 (non-burrowing)	0.103-0.138 (0.120)	127 [314]	0.0223	0.0203	(2.8%) 0.00057-0.00062	NA	NA	Carnivore	Mammals: 35% Terr. Inverts: 34% Birds: 31%

[a] From USEPA (1993), except as noted.

[b] Dietary intake based on receptor-specific dry matter intake (DMI) value, using maximum body weight and class/guild appropriate regression equation as presented in Nagy (2001) [see details on next page].

[c] Dietary intake based on receptor-specific dry matter intake (DMI) value, using average body weight and class/guild appropriate regression equation as presented in Nagy (2001) [see details on next page].

[d] Soil ingestion rates based on estimated percent soil in diet (dry weight) and dietary intake (DMI).

- The soil ingestion rate for the desert cottontail set equal to the rate for the meadow vole (2.4% of diet), as it is a grazing mammalian herbivore.
- The soil ingestion rate for the montane shrew set equal to the rate for the American woodcock (10.4% of diet), as it feeds predominantly on invertebrates.
- The soil ingestion rate for the American robin set equal to 48% of the American woodcock value (0.38 x 10.4% = 4%), based on a robin diet of 38% invertebrates.
- The soil ingestion rate for the American kestrel set equal to the red fox value (2.8% of diet), as they are both primarily carnivores.

[e] Water intake from the site is expected to be negligible.

[f] University of Michigan Museum of Zoology Animal Diversity Web. Website accessed on 01/15/14.

[g] Smith, M.E. and M.C. Belk, 1996, *Sorex monticolus*, Mammalian Species, No. 528, pp. 1-5.

ft BGS = feet below ground surface

ha = hectare, ac = acre (1.0 hectare = 2.471 acres).

NA = not applicable

Note: Summary of Tier 1 and Tier 2 Food Intake Rates from Nagy (2001) are presented on the following page.

Appendix C-2 - Table 1

Data Used to Model Exposure[a] in the Indicator Wildlife Species

Summary of Food Intake Rates for Tier 1 (maximum body weight):

Receptor	Class	Feeding Guild/Group	Regression Equation Input a	b	body mass (g)	Food Intake Result y (g DMI/d)
Desert Cottontail	Mammal	Herbivore	0.859	0.628	1200	73.7
Montane shrew	Mammal	Insectivore	0.373	0.622	7	1.3
American Robin	Bird	Omnivore	0.67	0.627	103	12.2
Red Fox	Mammal	Carnivore	0.153	0.834	7040	247.5
American kestrel	Bird	Carnivore	0.849	0.663	138	22.3

Regression equation and input values from Tables 2 (mammal) and 3 (bird): $y = a*(\text{maximum body mass})^b$ from Nagy 2001.

Summary of Food Intake Rates for Tier 2 (average body weight):

Receptor	Class	Feeding Guild/Group	Regression Equation Input a	b	body mass (g)	Food Intake Result y (g DMI/d)
Desert Cottontail	Mammal	Herbivore	0.859	0.628	900	61.6
Montane shrew	Mammal	Insectivore	0.373	0.622	6.2	1.2
American Robin	Bird	Omnivore	0.67	0.627	77.3	10.2
Red Fox	Mammal	Carnivore	0.153	0.834	4530	171.3
American kestrel	Bird	Carnivore	0.849	0.663	120	20.3

Regression equation and input values from Tables 2 (mammal) and 3 (bird): $y = a*(\text{average body mass})^b$ from Nagy 2001.

Nagy, K. A. (2001) Food requirements of wild animals: Predictive equations for free-living mammals, reptiles, and birds. Nutrition Abstracts and Reviews, Series B 71:21R-32R. (Invited review article)

Appendix C-2 - Table 12
Recommended Bioaccumulation/Bioconcentration Factors or Regression Equations Utilized for the Soil-to-Plant Pathway at Kirtland AFB

Constituent	USEPA (2007) Eco-SSL Uptake Equation or BAF/BCF [a, b]	Recommended Tier 1 BAF/BCF	Rationale for Recommended Tier 1 BAF/BCF	Recommended Tier 2 BAF/BCF	Rationale for Recommended Tier 2 BAF/BCF
1,2,4-Trimethylbenzene	ln (PC)= -0.4057(ln[Kow])+1.781	2.03	USEPA Kow Regression Eq. (USEPA, 2007)	2.03	USEPA Kow Regression Eq. (USEPA, 2007)
1,3,5-Trimethylbenzene	ln (PC)= -0.4057(ln[Kow])+1.781	2.03	USEPA Kow Regression Eq. (USEPA, 2007)	2.03	USEPA Kow Regression Eq. (USEPA, 2007)
2-Methylnaphthalene	ln (PC)= -0.4057(ln[Kow])+1.781	1.87	USEPA Kow Regression Eq. (USEPA, 2007)	1.87	USEPA Kow Regression Eq. (USEPA, 2007)
Acenaphthene	ln (Pc)= -0.8556(ln[soil])-5.562	Regression Eq.	Recommended Equation (USEPA 2007)	Regression Eq.	Recommended Equation (USEPA 2007)
Benzo(a)anthracene	ln (Pc)= 0.5944(ln[soil])-2.7078	Regression Eq.	Recommended Equation (USEPA 2007)	Regression Eq.	Recommended Equation (USEPA 2007)
bis(2-Ethylhexyl) phthalate	ln (PC)= -0.4057(ln[Kow])+1.781	0.024	USEPA Kow Regression Eq. (USEPA, 2007)	0.024	USEPA Kow Regression Eq. (USEPA, 2007)
Chrysene	ln (Pc)= 0.5944(ln[soil])-2.7078	Regression Eq.	Recommended Equation (USEPA 2007)	Regression Eq.	Recommended Equation (USEPA 2007)
Di-n-butyl phthalate	ln (PC)= -0.4057(ln[Kow])+1.781	0.81	USEPA Kow Regression Eq. (USEPA, 2007)	0.81	USEPA Kow Regression Eq. (USEPA, 2007)
Fluoranthene	Pc= 0.50(soil)	0.50	Recommended BAF from USEPA (2007)	0.50	Recommended BAF from USEPA (2007)
m&p-Xylenes	ln (PC)= -0.4057(ln[Kow])+1.781	3.37	USEPA Kow Regression Eq. (USEPA, 2007)	3.37	USEPA Kow Regression Eq. (USEPA, 2007)
n-Butylbenzene	ln (PC)= -0.4057(ln[Kow])+1.781	1.43	USEPA Kow Regression Eq. (USEPA, 2007)	1.43	USEPA Kow Regression Eq. (USEPA, 2007)
Naphthalene	Pc= 12.2(soil)	12.2	Recommended BAF from USEPA (2007)	12.2	Recommended BAF from USEPA (2007)
o-Xylene	ln (PC)= -0.4057(ln[Kow])+1.781	3.37	USEPA Kow Regression Eq. (USEPA, 2007)	3.37	USEPA Kow Regression Eq. (USEPA, 2007)
Phenanthrene	ln (Pc)= 0.6203(ln[soil])-0.1665	Regression Eq.	Recommended Equation (USEPA 2007)	Regression Eq.	Recommended Equation (USEPA 2007)
Pyrene	Pc= 0.72(soil)	0.72	Recommended BAF from USEPA (2007)	0.72	Recommended BAF from USEPA (2007)
TPH - Diesel Range Organics	-- [c]	--	--	--	--
TPH - Gasoline Range Organics	--	--	--	--	--
Xylenes (total)	ln (PC)= -0.4057(ln[Kow])+1.781	3.37	USEPA Kow Regression Eq. (USEPA, 2007)	3.37	USEPA Kow Regression Eq. (USEPA, 2007)
Lead	ln (Pc)= 0.561(ln[soil])-1.328	Regression Eq.	Recommended Equation (USEPA 2007)	Regression Eq.	Recommended Equation (USEPA 2007)

Notes: Pc (plant tissue concentration [mg/kg d.w.]); soil (concentration in soil [mg/kg d.w.]); BAF/BCF (bioaccumulation/bioconcentration factor); log K_{ow} (octanol/water partition coefficient).

If a soil to plant uptake equation or factor was not available from USEPA, 2007, Ecological Soil Screening Level Guidance, an alternate value was used (see below).

[a] USEPA, 2007, Ecological Soil Screening Level Guidance, Soil to Plant Uptake Equations and Factors, OSWER Directive 9285.7-55.

[b] for organic chemicals: BAF estimated using USEPA (2007) K_{ow} regression equation, with the log K_{ow} from USEPA, 2012, KOWWIN value, Estimation Programs Interface (EPI) Suite, v4.11.

Appendix C-2 - Table 12
Recommended Bioaccumulation/Bioconcentration Factors or Regression Equations Utilized for the Soil-to-Plant Pathway at Kirtland AFB

Constituent	USEPA (2007) Eco-SSL Uptake Equation or BAF/BCF [a, b]	Recommended Tier 1 BAF/BCF	Rationale for Recommended Tier 1 BAF/BCF	Recommended Tier 2 BAF/BCF	Rationale for Recommended Tier 2 BAF/BCF

Constituent	Log K_{ow}	Reference
1,2,4-Trimethylbenzene	3.63	USEPA EPI Suite, 2012
1,3,5-Trimethylbenzene	3.63	USEPA EPI Suite, 2012
2-Methylnaphthalene	3.72	USEPA EPI Suite, 2012
bis(2-Ethylhexyl) phthalate	8.39	USEPA EPI Suite, 2012
Di-n-butyl phthalate	4.61	USEPA EPI Suite, 2012
m&p-Xylenes	3.09	USEPA EPI Suite, 2012
Naphthalene	3.17	USEPA EPI Suite, 2012
o-Xylene	3.09	USEPA EPI Suite, 2012
n-Butylbenzene	4.01	USEPA EPI Suite, 2012
Xylenes (total)	3.09	USEPA EPI Suite, 2012

[c] -- indicates that a value is not available or not applicable.

Appendix C-2 - Table 13
Recommended Bioaccumulation/Bioconcentration Factors or Regression Equations Utilized for the Soil-to-Invertebrate Pathway at Kirtland AFB

Constituent	USEPA (2007) Eco-SSL Uptake Equation [a]	Sample, et al. 1998 [b]			Recommended Tier 1 BAF/BCF	Rationale for Recommended Tier 1 BAF/BCF	Recommended Tier 2 BAF/BCF	Rationale for Recommended Tier 2 BAF/BCF
		Median BAF/BCF	90th Percentile BAF/BCF	Maximum BAF/BCF				
1,2,4-Trimethylbenzene	--	--	--	--	0.1 (VOC)	Default value of 0.1, see footnote "c"	0.1 (VOC)	Default value of 0.1, see footnote "c"
1,3,5-Trimethylbenzene	--	--	--	--	0.1 (VOC)	Default value of 0.1, see footnote "c"	0.1 (VOC)	Default value of 0.1, see footnote "c"
2-Methylnaphthalene	--	--	--	--	1.0 (SVOC)	Default value of 1.0, see footnote "c"	1.0 (SVOC)	Default value of 1.0, see footnote "c"
Acenaphthene	(EW)= 1.47(soil)	--	--	--	1.47	Recommended BAF (USEPA 2007)	1.47	Recommended BAF (USEPA 2007)
Benzo(a)anthracene	(EW)= 1.59(soil)	--	--	--	1.59	Recommended BAF (USEPA 2007)	1.59	Recommended BAF (USEPA 2007)
bis(2-Ethylhexyl) phthalate	--	--	--	--	1.0 (SVOC)	Default value of 1.0, see footnote "c"	1.0 (SVOC)	Default value of 1.0, see footnote "c"
Chrysene	(EW)= 2.29(soil)	--	--	--	2.29	Recommended BAF (USEPA 2007)	2.29	Recommended BAF (USEPA 2007)
Di-n-butyl phthalate	--	--	--	--	1.0 (SVOC)	Default value of 1.0, see footnote "c"	1.0 (SVOC)	Default value of 1.0, see footnote "c"
Fluoranthene	(EW)= 3.04(soil)	--	--	--	3.04	Recommended BAF (USEPA 2007)	3.04	Recommended BAF (USEPA 2007)
m&p-Xylenes	--	--	--	--	0.1 (VOC)	Default value of 0.1, see footnote "c"	0.1 (VOC)	Default value of 0.1, see footnote "c"
Naphthalene	(EW)= 4.40(soil)	--	--	--	4.40	Recommended BAF (USEPA 2007)	4.40	Recommended BAF (USEPA 2007)
o-Xylene	--	--	--	--	0.1 (VOC)	Default value of 0.1, see footnote "c"	0.1 (VOC)	Default value of 0.1, see footnote "c"
Phenanthrene	(EW)= 1.72(soil)	--	--	--	1.72	Recommended BAF (USEPA 2007)	1.72	Recommended BAF (USEPA 2007)
Pyrene	(EW)= 1.75(soil)	--	--	--	1.75	Recommended BAF (USEPA 2007)	1.75	Recommended BAF (USEPA 2007)
n-Butylbenzene	--	--	--	--	0.1 (VOC)	Default value of 0.1, see footnote "c"	0.1 (VOC)	Default value of 0.1, see footnote "c"
TPH - Diesel Range Organics	--	--	--	--	--	--	--	--
TPH - Gasoline Range Organics	--	--	--	--	--	--	--	--
Xylenes (total)	--	--	--	--	0.1 (VOC)	Default value of 0.1, see footnote "c"	0.1 (VOC)	Default value of 0.1, see footnote "c"
Lead	ln (EW)= 0.807(ln[soil])-0.218	--	--	--	Regression Eq.	Recommended Equation (USEPA 2007)	Regression Eq.	Recommended Equation (USEPA 2007)

Notes: EW (earthworm tissue concentration [mg/kg d.w.]); soil (concentration in soil [mg/kg d.w.]); BAF/BCF (bioaccumulation/bioconcentration factor); Kow (octanol/water partition coefficient); -- indicates that a BAF/BCF or regression equation is not available or not applicable.

Hierarchy for Selection of BAFs:

[a] USEPA, 2007, Ecological Soil Screening Level Guidance (Eco-SSL), Soil to Earthworm Uptake Equations, OSWER Directive 9285.7-55.

[b] Sample, B. E, et. al., 1998. Development and Validation of Bioaccumulation Models for Earthworms, ES/ER/TM-220.

[c] Extremely low organic carbon content in soil samples results in the USEPA (2007) Kow regression BAF equation delivering unrealistically high BAFs. Default BAFs of 0.1 and 1.0 are used for VOCs and SVOCs, respectively. See text for additional details.

No total organic carbon data for the BFF were available. The arithmetic mean of three detected fraction of organic carbon (foc) results from historic soil data at other locations at KAFB were extracted from the ERPIMS database. The mean foc value of samples [ST105-SB0524(7); ST105-SB0525(7); ST105-SB0524(2)] collected in soil (0-10 ft bgs) was 0.00000049 (0.49 mg/kg). Earthworms are not expected in site soils, but BAFs for earthworms conservatively used for insects.

Appendix C-2 - Table 14
Recommended Bioaccumulation/Bioconcentration Factors Utilized for the Soil-to-Small Mammal and Bird Pathways at Kirtland AFB

Constituent	USEPA (2007) Eco-SSL Uptake Equation [a]	Sample et al., 1998 [b] Insectivore Median BAF/BCF	Herbivore Median BAF/BCF	Omnivore Median BAF/BCF	General [c] Median BAF/BCF	General [c] Maximum BAF/BCF	General [c] 90th percentile BAF/BCF	Recommended Tier 1 BAF/BCF	Rationale for Recommended Tier 1 BAF/BCF	Recommended Tier 2 BAF/BCF	Rationale for Recommended Tier 2 BAF/BCF
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
1,3,5-Trimethylbenzene	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
2-Methylnaphthalene	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
Acenaphthene	Mam = 0 [e]	--	--	--	--	--	--	0	Uptake assumed to be negligible (USEPA 2007)	0	Uptake assumed to be negligible (USEPA 2007)
Benzo(a)anthracene	Mam = 0 [e]	--	--	--	--	--	--	0	Uptake assumed to be negligible (USEPA 2007)	0	Uptake assumed to be negligible (USEPA 2007)
bis(2-Ethylhexyl) phthalate	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
Chrysene	Mam = 0 [e]	--	--	--	--	--	--	0	Uptake assumed to be negligible (USEPA 2007)	0	Uptake assumed to be negligible (USEPA 2007)
Di-n-butyl phthalate	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
Fluoranthene	Mam = 0 [e]	--	--	--	--	--	--	0	Uptake assumed to be negligible (USEPA 2007)	0	Uptake assumed to be negligible (USEPA 2007)
m&p-Xylenes	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
Naphthalene	Mam = 0 [e]	--	--	--	--	--	--	0	Uptake assumed to be negligible (USEPA 2007)	0	Uptake assumed to be negligible (USEPA 2007)
o-Xylene	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
Phenanthrene	Mam = 0 [e]	--	--	--	--	--	--	0	Uptake assumed to be negligible (USEPA 2007)	0	Uptake assumed to be negligible (USEPA 2007)
Pyrene	Mam = 0 [e]	--	--	--	--	--	--	0	Uptake assumed to be negligible (USEPA 2007)	0	Uptake assumed to be negligible (USEPA 2007)
n-Butylbenzene	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
TPH - Diesel Range Organics	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
TPH - Gasoline Range Organics	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
Xylenes (total)	--	--	--	--	--	--	--	1 [f]	Conservative value for Tier 1 organics see footnote "f"	0.5 [f]	Conservative value for Tier 2 organics see footnote "f"
Lead	ln(mam)= 0.4422(ln[soil])+0.0761	--	--	--	--	--	--	Regression Eq.	Recommended Regression Eq. (USEPA 2007)	Regression Eq.	Recommended Regression Eq. (USEPA 2007)

Notes: mam (mammal or bird tissue concentration [mg/kg d.w.]); diet (concentration in diet [mg/kg d.w.] assuming 100% earthworm consumption); soil (concentration in soil [mg/kg d.w.]); BAF/BCF (bioaccumulation/bioconcentration factor).
Bird BAF/BCF values were based on the recommended small mammal BAF/BCF values, as bird uptake values are not readily available.

[a] USEPA, 2007, Ecological Soil Screening Level Guidance, Soil to Small Mammal Uptake Equations, OSWER Directive 9285.7-55.

[b] Sample et al., 1998, Development and Validation of Bioaccumulation Models for Small Mammals, ES/ER/TM-219.

[c] General = combination dataset used for insectivore, herbivore, and omnivore receptors to estimate a "general" receptor BAF/BCF value.

[d] "--" indicates that a BAF/BCF is not available or not applicable.

[e] Uptake assumed to be negligible (USEPA 2005).

[f] Known bioaccumulative organics (TCDD and TCDF) have BAFs/BCFs of 1.1 and 0.13 (median) and 2.2 and 0.16 (maximum) from Sample et al. (1998).
Conservative BAF/BCF default values of 1 and 0.5 were selected for other organics (besides PAHs) at the site, as they are not expected to be as bioaccumulative as TCDD/TCDF.

Appendix C-2 - Table 15
NOAEL Toxicity Reference Values Used to Derive
Wildlife Toxicity Benchmarks for COPECs at Kirtland AFB

COPEC	Mammalian Data				Avian Data			
	Toxicity Value	NOAEL (mg/kg/d)	Test Species	Reference	Toxicity Value	NOAEL (mg/kg/d)	Test Species	Reference
Organics								
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	--	--	--	--	--	--	--	--
2-Methylnaphthalene	--	6.56E+01	rat	LMW PAH; EcoSSL (EPA, 2007)	--	5.53E+02	mallard duck	Based on B(a)P, Eisler (1987)
Acenaphthene	--	6.56E+01	rat	LMW PAH; EcoSSL (EPA, 2007)	--	5.53E+02	mallard duck	Based on B(a)P, Eisler (1987)
Benzo(a)anthracene	--	6.15E-01	mouse	HMW PAH; EcoSSL (EPA, 2007)	--	1.07E-01	bobwhite quail	LANL (2012)
bis(2-Ethylhexyl) phthalate	--	1.83E+01	mouse	LANL (2012)	--	1.10E+00	ringed dove	LANL (2012)
Chrysene	--	6.15E-01	mouse	HMW PAH; EcoSSL (EPA, 2007)	--	5.53E+02	mallard duck	Based on B(a)P, Eisler (1987)
Di-n-butyl phthalate	--	1.34E+03	multiple species	geo mean, (LANL, 2012)	--	1.40E-01	ringed dove	LANL (2012)
Fluoranthene	--	6.15E-01	mouse	HMW PAH; EcoSSL (EPA, 2007)	--	5.53E+02	mallard duck	Based on B(a)P, Eisler (1987)
m&p-Xylenes	--	2.10E+00	mouse	Based on total xylenes; LANL (2012)	--	1.07E+02	Japanese quail	Based on total xylenes; LANL (2012)
Naphthalene	--	6.56E+01	rat	LMW PAH; EcoSSL (EPA, 2007)	--	1.50E+01	bobwhite quail	LANL (2012)
o-Xylene	--	2.10E+00	mouse	Based on total xylenes; LANL (2012)	--	1.07E+02	Japanese quail	Based on total xylenes; LANL (2012)
Phenanthrene	--	6.56E+01	rat	LMW PAH; EcoSSL (EPA, 2007)	--	5.53E+02	mallard duck	Based on B(a)P, Eisler (1987)
Pyrene	--	6.15E-01	mouse	HMW PAH; EcoSSL (EPA, 2007)	--	2.05E+01	bobwhite quail	LANL (2012)
n-Butylbenzene	--	--	--	--	--	--	--	--
TPH - Diesel Range Organics	--	--	--	--	--	--	--	--
TPH - Gasoline Range Organics	--	--	--	--	--	--	--	--
Xylenes (total)	--	2.10E+00	mouse	LANL (2012)	--	1.07E+02	Japanese quail	LANL (2012)
Inorganics								
Lead	--	4.70E+00	rat	EcoSSL (EPA, 2005)	--	1.63E+00	chicken	EcoSSL (EPA, 2005)

"--" indicates that the information is not available.

As recommended by Wentsel, et. al. (1996), Tri-Service Procedural Guidelines for Ecological Risk Assessments, the following adjustments were made to toxicity data when NOAEL or LOAEL data were not available:

- Subchronic LOAELs were converted to chronic NOAELs by dividing by a factor of 20.
- Chronic NOAELs were converted to chronic LOAELs by multiplying by a factor of 5.0.
- Subchronic NOAELs/LOAELs were converted to chronic NOAELs/LOAELs by dividing by a factor of 10.
- Chronic LOAELs were converted to chronic NOAELs by dividing by a factor of 10.
- LD_{50} concentrations were converted to chronic NOAELs by dividing by a factor of 100.
- LD_{50} concentrations were converted to chronic LOAELs by dividing by a factor of 20.

Methodology for Selection of TRVs:
(1) USEPA, 2007, Ecological Screening Levels (Eco-SSL). Low molecular weigh (LMW) PAH NOAELs based on Verschuuren et al., 1976; high molecular weight (HMW) PAH NOAELs based on Culp, et al., 1998; LMW LOAELs based on Murata et al., 1997; HMW PAH LOAELs based on Culp, et al., 1998.

Appendix C-2 - Table 15
NOAEL Toxicity Reference Values Used to Derive
Wildlife Toxicity Benchmarks for COPECs at Kirtland AFB

COPEC	Mammalian Data				Avian Data			
	Toxicity Value	NOAEL (mg/kg/d)	Test Species	Reference	Toxicity Value	NOAEL (mg/kg/d)	Test Species	Reference

(2) LANL (2012). Ecorisk Database, Release 3.1, Los Alamos National Laboratory.
(3) Sample, et al., 1996, Toxicological Benchmarks for Wildlife.
(4) Others as listed below:
Eisler, 1987, PAH Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review.
TERRETOX, http://www.epa.gov/ecotox.
USEPA, 1999, SLERA Protocol for Hazardous Waste Combustion Facilties.
USEPA, 2014, Integrated Risk Information System (IRIS).

Appendix C-2 - Table 16
LOAEL Toxicity Reference Values Used to Derive
Wildlife Toxicity Benchmarks for COPECs at Kirtland AFB

COPEC	Mammalian Data				Avian Data			
	Toxicity Value	LOAEL (mg/kg/d)	Test Species	Reference	Toxicity Value	LOAEL (mg/kg/d)	Test Species	Reference
Organics								
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	--	--	--	--	--	--	--	--
2-Methylnaphthalene	--	1.10E+02	mouse	LMW PAH; EcoSSL (EPA, 2007)	553 (NOAEL)	2.77E+03	mallard duck	Based on B(a)P, Eisler (1987)
Acenaphthene	--	1.10E+02	mouse	LMW PAH; EcoSSL (EPA, 2007)	553 (NOAEL)	2.77E+03	mallard duck	Based on B(a)P, Eisler (1987)
Benzo(a)anthracene	--	3.07E+00	mouse	HMW PAH; EcoSSL (EPA, 2007)	--	1.07E+00	bobwhite quail	LANL (2012)
bis(2-Ethylhexyl) phthalate	--	1.83E+02	mouse	LANL (2012)	--	1.10E+01	ringed dove	LANL (2012)
Chrysene	--	3.07E+00	mouse	HMW PAH; EcoSSL (EPA, 2007)	553 (NOAEL)	2.77E+03	mallard duck	Based on B(a)P, Eisler (1987)
Di-n-butyl phthalate	--	3.18E+03	multiple species	geo mean, (LANL, 2012)	--	1.40E+00	ringed dove	LANL (2012)
Fluoranthene	--	3.07E+00	mouse	HMW PAH; EcoSSL (EPA, 2007)	553 (NOAEL)	2.77E+03	mallard duck	Based on B(a)P, Eisler (1987)
m&p-Xylenes	--	2.60E+00	mouse	Based on total xylenes; LANL (2012)	--	1.07E+03	Japanese quail	Based on total xylenes; LANL (2012)
Naphthalene	--	1.10E+02	mouse	LMW PAH; EcoSSL (EPA, 2007)	--	1.50E+02	bobwhite quail	LANL (2012)
o-Xylene	--	2.60E+00	mouse	Based on total xylenes; LANL (2012)	--	1.07E+03	Japanese quail	Based on total xylenes; LANL (2012)
Phenanthrene	--	1.10E+02	mouse	LMW PAH; EcoSSL (EPA, 2007)	553 (NOAEL)	2.77E+03	mallard duck	Based on B(a)P, Eisler (1987)
Pyrene	--	3.07E+00	mouse	HMW PAH; EcoSSL (EPA, 2007)	--	2.05E+02	bobwhite quail	LANL (2012)
n-Butylbenzene	--	--	--	--	--	--	--	--
TPH - Diesel Range Organics	--	--	--	--	--	--	--	--
TPH - Gasoline Range Organics	--	--	--	--	--	--	--	--
Xylenes (total)	--	2.60E+00	mouse	LANL (2012)	--	1.07E+03	Japanese quail	LANL (2012)
Inorganics								
Lead	--	5.00E+00	rat	EcoSSL (EPA, 2005)	--	1.94E+00	quail	EcoSSL (EPA, 2005)

"--" indicates that the information is not available.

As recommended by Wentsel, et. al. (1996), Tri-Service Procedural Guidelines for Ecological Risk Assessments, the following adjustments were made to toxicity data when NOAEL or LOAEL data were not available:
- Subchronic LOAELs were converted to chronic NOAELs by dividing by a factor of 20.
- Chronic NOAELs were converted to chronic LOAELs by multiplying by a factor of 5.0.
- Subchronic NOAELs/LOAELs were converted to chronic NOAELs/LOAELs by dividing by a factor of 10.
- Chronic LOAELs were converted to chronic NOAELs by dividing by a factor of 10.
- LD_{50} concentrations were converted to chronic NOAELs by dividing by a factor of 100.
- LD_{50} concentrations were converted to chronic LOAELs by dividing by a factor of 20.

Methodology for Selection of TRVs:
(1) USEPA, 2007, Ecological Screening Levels (Eco-SSL). Low molecular weigh (LMW) PAH NOAELs based on Verschuuren et al., 1976; high molecular weight (HMW) PAH NOAELs based on Culp, et al., 1998; LMW LOAELs based on Murata et al., 1997; HMW PAH LOAELs based on Culp, et al., 1998.

Appendix C-2 - Table 16
LOAEL Toxicity Reference Values Used to Derive
Wildlife Toxicity Benchmarks for COPECs at Kirtland AFB

COPEC	Mammalian Data				Avian Data			
	Toxicity Value	LOAEL (mg/kg/d)	Test Species	Reference	Toxicity Value	LOAEL (mg/kg/d)	Test Species	Reference

(2) LANL (2012). Ecorisk Database, Release 3.1, Los Alamos National Laboratory.
(3) Sample, et al., 1996, Toxicological Benchmarks for Wildlife.
(4) Others as listed below:
Eisler, 1987, PAH Hazards to Fish, Wildlife, and Invertebrates: A Synoptic Review.
TERRETOX, http://www.epa.gov/ecotox.
USEPA, 1999, SLERA Protocol for Hazardous Waste Combustion Facilties.
USEPA, 2014, Integrated Risk Information System (IRIS).

APPENDIX C-2 - TABLE 17
(EXAMPLE CALCULATION) TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR MONTANE SHREWS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4	**Hazard Estimate - Tier 2**									
5	**Montane Shrew**									
6										
7										
8		**Surface Water Exposure**		**Sediment Exposure**		**Soil (0-10 ft BGS) Exposure**		**Fish BAF**	**Aq. Invert. BAF**	**Terr. Invert. BAF**
9	**Chemical**	**Point Concentration**	**Units**	**Point Concentration**	**Units**	**Point Concentration**	**Units**			
10										
11	Lead	0	mg/L	0	mg/kg	13.14	mg/kg	NA	NA	=EXP(0.807*LN(F11)-0.218)/F11
12	1,2,4-Trimethylbenzene	0	mg/L	0	mg/kg	1.144	mg/kg	NA	NA	0.1
13	1,3,5-Trimethylbenzene	0	mg/L	0	mg/kg	0.303	mg/kg	NA	NA	0.1
14	2-Methylnaphthalene	0	mg/L	0	mg/kg	0.803	mg/kg	NA	NA	1
15	Acenaphthene	0	mg/L	0	mg/kg	0.0274	mg/kg	NA	NA	1.47
16	Benzo(a)anthracene	0	mg/L	0	mg/kg	0.112	mg/kg	NA	NA	1.59
17	bis(2-Ethylhexyl) phthalate	0	mg/L	0	mg/kg	0.048	mg/kg	NA	NA	1
18	Chrysene	0	mg/L	0	mg/kg	0.125	mg/kg	NA	NA	2.29
19	Diesel Range Organics	0	mg/L	0	mg/kg	177.6	mg/kg	NA	NA	NA
20	Di-n-butyl phthalate	0	mg/L	0	mg/kg	0.0167	mg/kg	NA	NA	1
21	Fluoranthene	0	mg/L	0	mg/kg	0.173	mg/kg	NA	NA	3.04
22	Gasoline Range Organics	0	mg/L	0	mg/kg	42.48	mg/kg	NA	NA	NA
23	m&p-Xylenes	0	mg/L	0	mg/kg	0.2	mg/kg	NA	NA	0.1
24	Naphthalene	0	mg/L	0	mg/kg	0.799	mg/kg	NA	NA	4.4
25	n-Butylbenzene	0	mg/L	0	mg/kg	0.609	mg/kg	NA	NA	0.1
26	o-Xylene	0	mg/L	0	mg/kg	0.118	mg/kg	NA	NA	0.1
27	Phenanthrene	0	mg/L	0	mg/kg	0.0978	mg/kg	NA	NA	1.72
28	Pyrene	0	mg/L	0	mg/kg	0.155	mg/kg	NA	NA	1.75
29	Xylenes (total)	0	mg/L	0	mg/kg	0.317	mg/kg	NA	NA	0.1
30										
31										
32										

Intake Equation:

$$Ej = \left(\frac{A}{HR} \left[\sum_{i=1}^{m} \left(\frac{IRi \, x Cij}{BW} \right) \right] \right)$$

<u>Where:</u>
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

APPENDIX C-2 - TABLE 17
(EXAMPLE CALCULATION) TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR MONTANE SHREWS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

	K	L	M	N	O	P
1						
2						
3						
4						
5						
6						
7						
8	**Plant BAF**	**Mammal BAF**	**Bird BAF**	**PDE Surface Water**	**PDE Sediment**	**PDE Soil**
9	---------------------------- **unitless** --			**mg/kg-d**	**mg/kg-d**	**mg/kg-d**
10						
11	=EXP(0.561*LN(F11)-1.328)/F11	=EXP(0.4422*LN(F11)+0.0761)/F11	=EXP(0.4422*LN(F11)+0.0761)/F11	=$AA$46*B11*$AA$48/$AA$44	=$AA$42*D11*$AA$48/$AA$44	=$AA$41*F11*$AA$48/$AA$44
12	2.03	0.5	0.5	=$AA$46*B12*$AA$48/$AA$44	=$AA$42*D12*$AA$48/$AA$44	=$AA$41*F12*$AA$48/$AA$44
13	2.03	0.5	0.5	=$AA$46*B13*$AA$48/$AA$44	=$AA$42*D13*$AA$48/$AA$44	=$AA$41*F13*$AA$48/$AA$44
14	1.87	0.5	0.5	=$AA$46*B14*$AA$48/$AA$44	=$AA$42*D14*$AA$48/$AA$44	=$AA$41*F14*$AA$48/$AA$44
15	=EXP(-0.8556*LN(F15)-5.562)/F15	0	0	=$AA$46*B15*$AA$48/$AA$44	=$AA$42*D15*$AA$48/$AA$44	=$AA$41*F15*$AA$48/$AA$44
16	=EXP(0.5944*LN(F16)-2.7078)/F16	0	0	=$AA$46*B16*$AA$48/$AA$44	=$AA$42*D16*$AA$48/$AA$44	=$AA$41*F16*$AA$48/$AA$44
17	0.024	0.5	0.5	=$AA$46*B17*$AA$48/$AA$44	=$AA$42*D17*$AA$48/$AA$44	=$AA$41*F17*$AA$48/$AA$44
18	=EXP(0.5944*LN(F18)-2.7078)/F18	0	0	=$AA$46*B18*$AA$48/$AA$44	=$AA$42*D18*$AA$48/$AA$44	=$AA$41*F18*$AA$48/$AA$44
19	NA	0.5	0.5	=$AA$46*B19*$AA$48/$AA$44	=$AA$42*D19*$AA$48/$AA$44	=$AA$41*F19*$AA$48/$AA$44
20	0.81	0.5	0.5	=$AA$46*B20*$AA$48/$AA$44	=$AA$42*D20*$AA$48/$AA$44	=$AA$41*F20*$AA$48/$AA$44
21	0.5	0	0	=$AA$46*B21*$AA$48/$AA$44	=$AA$42*D21*$AA$48/$AA$44	=$AA$41*F21*$AA$48/$AA$44
22	NA	0.5	0.5	=$AA$46*B22*$AA$48/$AA$44	=$AA$42*D22*$AA$48/$AA$44	=$AA$41*F22*$AA$48/$AA$44
23	3.37	0.5	0.5	=$AA$46*B23*$AA$48/$AA$44	=$AA$42*D23*$AA$48/$AA$44	=$AA$41*F23*$AA$48/$AA$44
24	12.2	0	0	=$AA$46*B24*$AA$48/$AA$44	=$AA$42*D24*$AA$48/$AA$44	=$AA$41*F24*$AA$48/$AA$44
25	1.43	0.5	0.5	=$AA$46*B25*$AA$48/$AA$44	=$AA$42*D25*$AA$48/$AA$44	=$AA$41*F25*$AA$48/$AA$44
26	3.37	0.5	0.5	=$AA$46*B26*$AA$48/$AA$44	=$AA$42*D26*$AA$48/$AA$44	=$AA$41*F26*$AA$48/$AA$44
27	=EXP(0.6203*LN(F27)-0.1665)/F27	0	0	=$AA$46*B27*$AA$48/$AA$44	=$AA$42*D27*$AA$48/$AA$44	=$AA$41*F27*$AA$48/$AA$44
28	0.72	0	0	=$AA$46*B28*$AA$48/$AA$44	=$AA$42*D28*$AA$48/$AA$44	=$AA$41*F28*$AA$48/$AA$44
29	3.37	0.5	0.5	=$AA$46*B29*$AA$48/$AA$44	=$AA$42*D29*$AA$48/$AA$44	=$AA$41*F29*$AA$48/$AA$44
30						
31						
32						
33						
34	**Notes:**					
35	Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.					
36	Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.					
37	BAF = Bioaccumulation Factor (may be BCF if this is the only value available)					
38	HQ = Hazard Quotient.					
39	L = LOAEL based; N = NOAEL based					
40	LOAEL = Lowest Observed Adverse Effect Level					
41	NOAEL = No Observed Adverse Effect Level					
42	NA = Not applicable/Not available					
43	PDE = Predicted Daily Exposure					
44	BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)					
45	Some BAF (or BCF) values based on media regression equations (value in box):					
46	If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used as default.					
47	LOAEL and NOAEL values from appropriate toxicity summary tables in the text.					
48	UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF					
49	A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.					
50	Receptor diet data and home range data from appropriate text table.					
51	Exposure point concentrations (EPCs) from appropriate text tables.					

APPENDIX C-2 - TABLE 17
(EXAMPLE CALCULATION) TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR MONTANE SHREWS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

	Q	R	S	T
1				
2				
3				
4				
5				
6				
7				
8	**PDE Fish**	**PDE Aq. Invert.**	**PDE Terr. Invert.**	**PDE Plants**
9	**mg/kg-d**	**mg/kg-d**	**mg/kg-d**	**mg/kg-d**
10				
11	=IF(H11="NA","NA",$AA$36*B11*H11*$AA$43*$AA$48/$AA$44)	=IF(I11="NA","NA",$AA$37*D11*I11*$AA$43*$AA$48/$AA$44)	=IF(J11="NA","NA",$AA$38*F11*J11*$AA$43*$AA$48/$AA$44)	=IF(K11="NA","NA",$AA$35*F11*K11*$AA$43*$AA$48/$AA$44)
12	=IF(H12="NA","NA",$AA$36*B12*H12*$AA$43*$AA$48/$AA$44)	=IF(I12="NA","NA",$AA$37*D12*I12*$AA$43*$AA$48/$AA$44)	=IF(J12="NA","NA",$AA$38*F12*J12*$AA$43*$AA$48/$AA$44)	=IF(K12="NA","NA",$AA$35*F12*K12*$AA$43*$AA$48/$AA$44)
13	=IF(H13="NA","NA",$AA$36*B13*H13*$AA$43*$AA$48/$AA$44)	=IF(I13="NA","NA",$AA$37*D13*I13*$AA$43*$AA$48/$AA$44)	=IF(J13="NA","NA",$AA$38*F13*J13*$AA$43*$AA$48/$AA$44)	=IF(K13="NA","NA",$AA$35*F13*K13*$AA$43*$AA$48/$AA$44)
14	=IF(H14="NA","NA",$AA$36*B14*H14*$AA$43*$AA$48/$AA$44)	=IF(I14="NA","NA",$AA$37*D14*I14*$AA$43*$AA$48/$AA$44)	=IF(J14="NA","NA",$AA$38*F14*J14*$AA$43*$AA$48/$AA$44)	=IF(K14="NA","NA",$AA$35*F14*K14*$AA$43*$AA$48/$AA$44)
15	=IF(H15="NA","NA",$AA$36*B15*H15*$AA$43*$AA$48/$AA$44)	=IF(I15="NA","NA",$AA$37*D15*I15*$AA$43*$AA$48/$AA$44)	=IF(J15="NA","NA",$AA$38*F15*J15*$AA$43*$AA$48/$AA$44)	=IF(K15="NA","NA",$AA$35*F15*K15*$AA$43*$AA$48/$AA$44)
16	=IF(H16="NA","NA",$AA$36*B16*H16*$AA$43*$AA$48/$AA$44)	=IF(I16="NA","NA",$AA$37*D16*I16*$AA$43*$AA$48/$AA$44)	=IF(J16="NA","NA",$AA$38*F16*J16*$AA$43*$AA$48/$AA$44)	=IF(K16="NA","NA",$AA$35*F16*K16*$AA$43*$AA$48/$AA$44)
17	=IF(H17="NA","NA",$AA$36*B17*H17*$AA$43*$AA$48/$AA$44)	=IF(I17="NA","NA",$AA$37*D17*I17*$AA$43*$AA$48/$AA$44)	=IF(J17="NA","NA",$AA$38*F17*J17*$AA$43*$AA$48/$AA$44)	=IF(K17="NA","NA",$AA$35*F17*K17*$AA$43*$AA$48/$AA$44)
18	=IF(H18="NA","NA",$AA$36*B18*H18*$AA$43*$AA$48/$AA$44)	=IF(I18="NA","NA",$AA$37*D18*I18*$AA$43*$AA$48/$AA$44)	=IF(J18="NA","NA",$AA$38*F18*J18*$AA$43*$AA$48/$AA$44)	=IF(K18="NA","NA",$AA$35*F18*K18*$AA$43*$AA$48/$AA$44)
19	=IF(H19="NA","NA",$AA$36*B19*H19*$AA$43*$AA$48/$AA$44)	=IF(I19="NA","NA",$AA$37*D19*I19*$AA$43*$AA$48/$AA$44)	=IF(J19="NA","NA",$AA$38*F19*J19*$AA$43*$AA$48/$AA$44)	=IF(K19="NA","NA",$AA$35*F19*K19*$AA$43*$AA$48/$AA$44)
20	=IF(H20="NA","NA",$AA$36*B20*H20*$AA$43*$AA$48/$AA$44)	=IF(I20="NA","NA",$AA$37*D20*I20*$AA$43*$AA$48/$AA$44)	=IF(J20="NA","NA",$AA$38*F20*J20*$AA$43*$AA$48/$AA$44)	=IF(K20="NA","NA",$AA$35*F20*K20*$AA$43*$AA$48/$AA$44)
21	=IF(H21="NA","NA",$AA$36*B21*H21*$AA$43*$AA$48/$AA$44)	=IF(I21="NA","NA",$AA$37*D21*I21*$AA$43*$AA$48/$AA$44)	=IF(J21="NA","NA",$AA$38*F21*J21*$AA$43*$AA$48/$AA$44)	=IF(K21="NA","NA",$AA$35*F21*K21*$AA$43*$AA$48/$AA$44)
22	=IF(H22="NA","NA",$AA$36*B22*H22*$AA$43*$AA$48/$AA$44)	=IF(I22="NA","NA",$AA$37*D22*I22*$AA$43*$AA$48/$AA$44)	=IF(J22="NA","NA",$AA$38*F22*J22*$AA$43*$AA$48/$AA$44)	=IF(K22="NA","NA",$AA$35*F22*K22*$AA$43*$AA$48/$AA$44)
23	=IF(H23="NA","NA",$AA$36*B23*H23*$AA$43*$AA$48/$AA$44)	=IF(I23="NA","NA",$AA$37*D23*I23*$AA$43*$AA$48/$AA$44)	=IF(J23="NA","NA",$AA$38*F23*J23*$AA$43*$AA$48/$AA$44)	=IF(K23="NA","NA",$AA$35*F23*K23*$AA$43*$AA$48/$AA$44)
24	=IF(H24="NA","NA",$AA$36*B24*H24*$AA$43*$AA$48/$AA$44)	=IF(I24="NA","NA",$AA$37*D24*I24*$AA$43*$AA$48/$AA$44)	=IF(J24="NA","NA",$AA$38*F24*J24*$AA$43*$AA$48/$AA$44)	=IF(K24="NA","NA",$AA$35*F24*K24*$AA$43*$AA$48/$AA$44)
25	=IF(H25="NA","NA",$AA$36*B25*H25*$AA$43*$AA$48/$AA$44)	=IF(I25="NA","NA",$AA$37*D25*I25*$AA$43*$AA$48/$AA$44)	=IF(J25="NA","NA",$AA$38*F25*J25*$AA$43*$AA$48/$AA$44)	=IF(K25="NA","NA",$AA$35*F25*K25*$AA$43*$AA$48/$AA$44)
26	=IF(H26="NA","NA",$AA$36*B26*H26*$AA$43*$AA$48/$AA$44)	=IF(I26="NA","NA",$AA$37*D26*I26*$AA$43*$AA$48/$AA$44)	=IF(J26="NA","NA",$AA$38*F26*J26*$AA$43*$AA$48/$AA$44)	=IF(K26="NA","NA",$AA$35*F26*K26*$AA$43*$AA$48/$AA$44)
27	=IF(H27="NA","NA",$AA$36*B27*H27*$AA$43*$AA$48/$AA$44)	=IF(I27="NA","NA",$AA$37*D27*I27*$AA$43*$AA$48/$AA$44)	=IF(J27="NA","NA",$AA$38*F27*J27*$AA$43*$AA$48/$AA$44)	=IF(K27="NA","NA",$AA$35*F27*K27*$AA$43*$AA$48/$AA$44)
28	=IF(H28="NA","NA",$AA$36*B28*H28*$AA$43*$AA$48/$AA$44)	=IF(I28="NA","NA",$AA$37*D28*I28*$AA$43*$AA$48/$AA$44)	=IF(J28="NA","NA",$AA$38*F28*J28*$AA$43*$AA$48/$AA$44)	=IF(K28="NA","NA",$AA$35*F28*K28*$AA$43*$AA$48/$AA$44)
29	=IF(H29="NA","NA",$AA$36*B29*H29*$AA$43*$AA$48/$AA$44)	=IF(I29="NA","NA",$AA$37*D29*I29*$AA$43*$AA$48/$AA$44)	=IF(J29="NA","NA",$AA$38*F29*J29*$AA$43*$AA$48/$AA$44)	=IF(K29="NA","NA",$AA$35*F29*K29*$AA$43*$AA$48/$AA$44)
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				
41				
42				
43				
44				
45	n	See appropriate text tables for equations.		
46				
47				
48				
49				
50				
51				

APPENDIX C-2 - TABLE 17

(EXAMPLE CALCULATION) TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR MONTANE SHREWS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

	U	V	W	X	Y	Z	AA
1							
2							
3							
4							
5							
6							
7							
8	**PDE Mammals**	**PDE Birds**	**Total PDE**	**NOAEL Chemical-Specific Toxicity Value UF**	**NOAEL**	**Adjusted NOAEL**	
9	**mg/kg-d**	**mg/kg-d**	**mg/kg-d**		**mg/kg-d**	**mg/kg-d**	**HQ N**
10							
11	=IF(L11="NA","NA",$AA$39*F11*L11*$AA$43*$AA$48/$AA$44)	=IF(M11="NA","NA",$AA$40*F11*M11*$AA$43*$AA$48/$AA$44)	=SUM(N11:V11)	8	4.7	=IF(Y11="NA","NA",Y11/X11)	=IF(Y11="NA","NA",W11/Z11)
12	=IF(L12="NA","NA",$AA$39*F12*L12*$AA$43*$AA$48/$AA$44)	=IF(M12="NA","NA",$AA$40*F12*M12*$AA$43*$AA$48/$AA$44)	=SUM(N12:V12)	8	NA	=IF(Y12="NA","NA",Y12/X12)	=IF(Y12="NA","NA",W12/Z12)
13	=IF(L13="NA","NA",$AA$39*F13*L13*$AA$43*$AA$48/$AA$44)	=IF(M13="NA","NA",$AA$40*F13*M13*$AA$43*$AA$48/$AA$44)	=SUM(N13:V13)	8	NA	=IF(Y13="NA","NA",Y13/X13)	=IF(Y13="NA","NA",W13/Z13)
14	=IF(L14="NA","NA",$AA$39*F14*L14*$AA$43*$AA$48/$AA$44)	=IF(M14="NA","NA",$AA$40*F14*M14*$AA$43*$AA$48/$AA$44)	=SUM(N14:V14)	8	65.6	=IF(Y14="NA","NA",Y14/X14)	=IF(Y14="NA","NA",W14/Z14)
15	=IF(L15="NA","NA",$AA$39*F15*L15*$AA$43*$AA$48/$AA$44)	=IF(M15="NA","NA",$AA$40*F15*M15*$AA$43*$AA$48/$AA$44)	=SUM(N15:V15)	8	65.6	=IF(Y15="NA","NA",Y15/X15)	=IF(Y15="NA","NA",W15/Z15)
16	=IF(L16="NA","NA",$AA$39*F16*L16*$AA$43*$AA$48/$AA$44)	=IF(M16="NA","NA",$AA$40*F16*M16*$AA$43*$AA$48/$AA$44)	=SUM(N16:V16)	8	0.615	=IF(Y16="NA","NA",Y16/X16)	=IF(Y16="NA","NA",W16/Z16)
17	=IF(L17="NA","NA",$AA$39*F17*L17*$AA$43*$AA$48/$AA$44)	=IF(M17="NA","NA",$AA$40*F17*M17*$AA$43*$AA$48/$AA$44)	=SUM(N17:V17)	8	18.3	=IF(Y17="NA","NA",Y17/X17)	=IF(Y17="NA","NA",W17/Z17)
18	=IF(L18="NA","NA",$AA$39*F18*L18*$AA$43*$AA$48/$AA$44)	=IF(M18="NA","NA",$AA$40*F18*M18*$AA$43*$AA$48/$AA$44)	=SUM(N18:V18)	8	0.615	=IF(Y18="NA","NA",Y18/X18)	=IF(Y18="NA","NA",W18/Z18)
19	=IF(L19="NA","NA",$AA$39*F19*L19*$AA$43*$AA$48/$AA$44)	=IF(M19="NA","NA",$AA$40*F19*M19*$AA$43*$AA$48/$AA$44)	=SUM(N19:V19)	8	NA	=IF(Y19="NA","NA",Y19/X19)	=IF(Y19="NA","NA",W19/Z19)
20	=IF(L20="NA","NA",$AA$39*F20*L20*$AA$43*$AA$48/$AA$44)	=IF(M20="NA","NA",$AA$40*F20*M20*$AA$43*$AA$48/$AA$44)	=SUM(N20:V20)	8	1340	=IF(Y20="NA","NA",Y20/X20)	=IF(Y20="NA","NA",W20/Z20)
21	=IF(L21="NA","NA",$AA$39*F21*L21*$AA$43*$AA$48/$AA$44)	=IF(M21="NA","NA",$AA$40*F21*M21*$AA$43*$AA$48/$AA$44)	=SUM(N21:V21)	8	0.615	=IF(Y21="NA","NA",Y21/X21)	=IF(Y21="NA","NA",W21/Z21)
22	=IF(L22="NA","NA",$AA$39*F22*L22*$AA$43*$AA$48/$AA$44)	=IF(M22="NA","NA",$AA$40*F22*M22*$AA$43*$AA$48/$AA$44)	=SUM(N22:V22)	8	NA	=IF(Y22="NA","NA",Y22/X22)	=IF(Y22="NA","NA",W22/Z22)
23	=IF(L23="NA","NA",$AA$39*F23*L23*$AA$43*$AA$48/$AA$44)	=IF(M23="NA","NA",$AA$40*F23*M23*$AA$43*$AA$48/$AA$44)	=SUM(N23:V23)	8	2.1	=IF(Y23="NA","NA",Y23/X23)	=IF(Y23="NA","NA",W23/Z23)
24	=IF(L24="NA","NA",$AA$39*F24*L24*$AA$43*$AA$48/$AA$44)	=IF(M24="NA","NA",$AA$40*F24*M24*$AA$43*$AA$48/$AA$44)	=SUM(N24:V24)	8	65.6	=IF(Y24="NA","NA",Y24/X24)	=IF(Y24="NA","NA",W24/Z24)
25	=IF(L25="NA","NA",$AA$39*F25*L25*$AA$43*$AA$48/$AA$44)	=IF(M25="NA","NA",$AA$40*F25*M25*$AA$43*$AA$48/$AA$44)	=SUM(N25:V25)	8	NA	=IF(Y25="NA","NA",Y25/X25)	=IF(Y25="NA","NA",W25/Z25)
26	=IF(L26="NA","NA",$AA$39*F26*L26*$AA$43*$AA$48/$AA$44)	=IF(M26="NA","NA",$AA$40*F26*M26*$AA$43*$AA$48/$AA$44)	=SUM(N26:V26)	8	2.1	=IF(Y26="NA","NA",Y26/X26)	=IF(Y26="NA","NA",W26/Z26)
27	=IF(L27="NA","NA",$AA$39*F27*L27*$AA$43*$AA$48/$AA$44)	=IF(M27="NA","NA",$AA$40*F27*M27*$AA$43*$AA$48/$AA$44)	=SUM(N27:V27)	8	65.6	=IF(Y27="NA","NA",Y27/X27)	=IF(Y27="NA","NA",W27/Z27)
28	=IF(L28="NA","NA",$AA$39*F28*L28*$AA$43*$AA$48/$AA$44)	=IF(M28="NA","NA",$AA$40*F28*M28*$AA$43*$AA$48/$AA$44)	=SUM(N28:V28)	8	0.615	=IF(Y28="NA","NA",Y28/X28)	=IF(Y28="NA","NA",W28/Z28)
29	=IF(L29="NA","NA",$AA$39*F29*L29*$AA$43*$AA$48/$AA$44)	=IF(M29="NA","NA",$AA$40*F29*M29*$AA$43*$AA$48/$AA$44)	=SUM(N29:V29)	8	2.1	=IF(Y29="NA","NA",Y29/X29)	=IF(Y29="NA","NA",W29/Z29)
30							
31					**Hazard Index (Total HQ):**		**=SUM(AA11:AA29)**
32							
33							
34						***Species-Specific Factors***	
35						Plant diet fraction =	0
36						Fish diet fraction =	0
37						Aq. Invert diet fraction =	0
38						Terr. Invert diet fraction =	1
39						Mammal diet fraction =	0
40						Bird diet fraction =	0
41						Soil ingestion rate =	0.000125
42						Sediment ingestion rate =	0
43						Food ingestion rate =	0.0012
44						Body weight =	0.0062
45						Home range =	0.65
46						Water intake rate =	0
47						Site Area =	2.3
48						Frac. home range (FHR) =	=IF(((AA47/AA45)>1),1,(AA47/AA45))
49							
50							
51							

APPENDIX C-2 - TABLE 17
(EXAMPLE CALCULATION) TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR MONTANE SHREWS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

	AB	AC	AD	AE	AF	AG
1						
2						
3						
4						
5						
6						
7						
8	**LOAEL Chemical-Specific Toxicity Value UF**	**LOAEL**	**Adjusted LOAEL**		**Percent Contribution to**	**Percent Contribution to**
9		**mg/kg-d**	**mg/kg-d**	**HQ L**	**HQ N**	**HQ L**
10						
11	8	5	=IF(AC11="NA","NA",AC11/AB11)	=IF(AC11="NA","NA",W11/AD11)	=IF(Y11="NA","NA",AA11/$AA$31)	=IF(AC11="NA","NA",AE11/$AE$31)
12	8	NA	=IF(AC12="NA","NA",AC12/AB12)	=IF(AC12="NA","NA",W12/AD12)	=IF(Y12="NA","NA",AA12/$AA$31)	=IF(AC12="NA","NA",AE12/$AE$31)
13	8	NA	=IF(AC13="NA","NA",AC13/AB13)	=IF(AC13="NA","NA",W13/AD13)	=IF(Y13="NA","NA",AA13/$AA$31)	=IF(AC13="NA","NA",AE13/$AE$31)
14	8	110	=IF(AC14="NA","NA",AC14/AB14)	=IF(AC14="NA","NA",W14/AD14)	=IF(Y14="NA","NA",AA14/$AA$31)	=IF(AC14="NA","NA",AE14/$AE$31)
15	8	110	=IF(AC15="NA","NA",AC15/AB15)	=IF(AC15="NA","NA",W15/AD15)	=IF(Y15="NA","NA",AA15/$AA$31)	=IF(AC15="NA","NA",AE15/$AE$31)
16	8	3.07	=IF(AC16="NA","NA",AC16/AB16)	=IF(AC16="NA","NA",W16/AD16)	=IF(Y16="NA","NA",AA16/$AA$31)	=IF(AC16="NA","NA",AE16/$AE$31)
17	8	183	=IF(AC17="NA","NA",AC17/AB17)	=IF(AC17="NA","NA",W17/AD17)	=IF(Y17="NA","NA",AA17/$AA$31)	=IF(AC17="NA","NA",AE17/$AE$31)
18	8	3.07	=IF(AC18="NA","NA",AC18/AB18)	=IF(AC18="NA","NA",W18/AD18)	=IF(Y18="NA","NA",AA18/$AA$31)	=IF(AC18="NA","NA",AE18/$AE$31)
19	8	NA	=IF(AC19="NA","NA",AC19/AB19)	=IF(AC19="NA","NA",W19/AD19)	=IF(Y19="NA","NA",AA19/$AA$31)	=IF(AC19="NA","NA",AE19/$AE$31)
20	8	3180	=IF(AC20="NA","NA",AC20/AB20)	=IF(AC20="NA","NA",W20/AD20)	=IF(Y20="NA","NA",AA20/$AA$31)	=IF(AC20="NA","NA",AE20/$AE$31)
21	8	3.07	=IF(AC21="NA","NA",AC21/AB21)	=IF(AC21="NA","NA",W21/AD21)	=IF(Y21="NA","NA",AA21/$AA$31)	=IF(AC21="NA","NA",AE21/$AE$31)
22	8	NA	=IF(AC22="NA","NA",AC22/AB22)	=IF(AC22="NA","NA",W22/AD22)	=IF(Y22="NA","NA",AA22/$AA$31)	=IF(AC22="NA","NA",AE22/$AE$31)
23	8	2.6	=IF(AC23="NA","NA",AC23/AB23)	=IF(AC23="NA","NA",W23/AD23)	=IF(Y23="NA","NA",AA23/$AA$31)	=IF(AC23="NA","NA",AE23/$AE$31)
24	8	110	=IF(AC24="NA","NA",AC24/AB24)	=IF(AC24="NA","NA",W24/AD24)	=IF(Y24="NA","NA",AA24/$AA$31)	=IF(AC24="NA","NA",AE24/$AE$31)
25	8	NA	=IF(AC25="NA","NA",AC25/AB25)	=IF(AC25="NA","NA",W25/AD25)	=IF(Y25="NA","NA",AA25/$AA$31)	=IF(AC25="NA","NA",AE25/$AE$31)
26	8	2.6	=IF(AC26="NA","NA",AC26/AB26)	=IF(AC26="NA","NA",W26/AD26)	=IF(Y26="NA","NA",AA26/$AA$31)	=IF(AC26="NA","NA",AE26/$AE$31)
27	8	110	=IF(AC27="NA","NA",AC27/AB27)	=IF(AC27="NA","NA",W27/AD27)	=IF(Y27="NA","NA",AA27/$AA$31)	=IF(AC27="NA","NA",AE27/$AE$31)
28	8	3.07	=IF(AC28="NA","NA",AC28/AB28)	=IF(AC28="NA","NA",W28/AD28)	=IF(Y28="NA","NA",AA28/$AA$31)	=IF(AC28="NA","NA",AE28/$AE$31)
29	8	2.6	=IF(AC29="NA","NA",AC29/AB29)	=IF(AC29="NA","NA",W29/AD29)	=IF(Y29="NA","NA",AA29/$AA$31)	=IF(AC29="NA","NA",AE29/$AE$31)
30						
31				**=SUM(AE11:AE29)**	**=SUM(AF11:AF29)**	**=SUM(AG11:AG29)**
32						
33						
34						
35	unitless					
36	unitless					
37	unitless					
38	unitless					
39	unitless					
40	unitless					
41	kg/d					
42	kg/d					
43	kg/d					
44	kg					
45	acres					
46	L/d					
47	acres					
48	unitless					
49						
50						
51						

Appendix C-2 - Table 18
Uncertainty Factors[a] for Ecological TRV[b] Extrapolations[c]

Laboratory Animals (toxicity data base)		Selected Site Receptor Species	
Mouse	G: *Mus* F: Muridae O: Rodentia	Desert Cottontail	G: *Sylvilagus* F: Leporidae O: Lagomorpha
Rat	G: *Rattus* F: Muridae O: Rodentia	Montane shrew	G: *Sorex* F: Soricidae O: Soricomorpha
Chicken	G: *Gallus* F: Phasianidae O: Galliformes	Red fox	G: *Vulpes* F: Canidae O: Carnivora
Japanese/ Common quail	G: *Coturnix* F: Phasianidae O: Galliformes	American robin	G: *Turdus* F: Muscicapidae O: Passeriformes
Ringed dove	G: *Streptopelia* F: Columbidae O: Columbiformes	American kestrel	G: *Falco* F: Falconidae O: Falconiformes
Bobwhite quail	G: *Colinus* F: Odontophoridae O: Galliformes		
Mallard/ Black duck	G: *Anas* F: Anatidae O: Anseriformes		

[a] From ***Tri-Service Procedural Guidelines for Ecological Risk Assessment*** (Wentsel et al. 1996)
[b] TRV = Toxicity Reference Value
[c] Interclass extrapolations not performed; only within bird class or within mammal class.

The Uncertainty Factors Used for TRV Extrapolations are Summarized Below:

- Extrapolation between two different species = uncertainty factor of 2
- Extrapolation between two different genera (G) = uncertainty factor of 4
- Extrapolation between two different families (F) or orders (O) = uncertainty factor of 8
- Thus, for all extrapolations used in the SLERA food chain model an uncertainty factor of 8 was used.

APPENDIX C-2 - TABLE 2

TIER 1 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR DESERT COTTONTAILS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

Hazard Estimate - Tier 1
Desert Cottontails

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-10 ft BGS) Exposure Point Concentration	Units	Fish BAF (unitless)	Aq. Invert. BAF (unitless)	Terr. Invert. BAF (unitless)	Plant BAF (unitless)	Mammal BAF (unitless)	Bird BAF (unitless)
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.40E+02	mg/kg	NA	NA	3.10E-01	3.03E-02	6.85E-02	6.85E-02
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	5.92E+01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.55E+01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	3.24E+01	mg/kg	NA	NA	1.00E+00	1.87E+00	1.00E+00	1.00E+00
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	6.20E-01	mg/kg	NA	NA	1.47E+00	9.33E-03	0.00E+00	0.00E+00
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	9.00E+00	mg/kg	NA	NA	1.59E+00	2.74E-02	0.00E+00	0.00E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	2.45E+00	mg/kg	NA	NA	1.00E+00	2.40E-02	1.00E+00	1.00E+00
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	9.38E+00	mg/kg	NA	NA	2.29E+00	2.69E-02	0.00E+00	0.00E+00
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	8.38E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	8.99E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	1.00E+00	1.00E+00
Fluoranthene	0.00E+00	mg/L	0.00E+00	mg/kg	1.82E+01	mg/kg	NA	NA	3.04E+00	5.00E-01	0.00E+00	0.00E+00
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.75E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00
m&p-Xylenes	0.00E+00	mg/L	0.00E+00	mg/kg	1.14E+01	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	4.50E+01	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00
n-Butylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	4.16E+01	mg/kg	NA	NA	1.00E-01	1.43E+00	1.00E+00	1.00E+00
o-Xylene	0.00E+00	mg/L	0.00E+00	mg/kg	6.75E+00	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00
Phenanthrene	0.00E+00	mg/L	0.00E+00	mg/kg	7.73E+00	mg/kg	NA	NA	1.72E+00	3.89E-01	0.00E+00	0.00E+00
Pyrene	0.00E+00	mg/L	0.00E+00	mg/kg	1.19E+01	mg/kg	NA	NA	1.75E+00	7.20E-01	0.00E+00	0.00E+00
Xylenes (total)	0.00E+00	mg/L	0.00E+00	mg/kg	1.81E+01	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00

Chemical	PDE Surface Water mg/kg-d	PDE Sediment mg/kg-d	PDE Soil mg/kg-d	PDE Fish mg/kg-d	PDE Aq. Invert. mg/kg-d	PDE Terr. Invert. mg/kg-d	PDE Plants mg/kg-d	PDE Mammals mg/kg-d	PDE Birds mg/kg-d	Total PDE mg/kg-d	NOAEL Chemical-Specific Toxicity Value UF	NOAEL mg/kg-d	Adjusted NOAEL mg/kg-d	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL mg/kg-d	Adjusted LOAEL mg/kg-d	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
Lead	0.00E+00	0.00E+00	4.13E+00	NA	NA	0.00E+00	5.21E+00	0.00E+00	0.00E+00	9.34E+00	8	4.70E+00	5.88E-01	1.59E+01	8	5.00E+00	6.25E-01	1.49E+01	1.60%	2.50%
1,2,4-Trimethylbenzene	0.00E+00	0.00E+00	1.75E+00	NA	NA	0.00E+00	1.48E+02	0.00E+00	0.00E+00	1.49E+02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.00E+00	0.00E+00	4.56E-01	NA	NA	0.00E+00	3.85E+01	0.00E+00	0.00E+00	3.90E+01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	0.00E+00	0.00E+00	9.56E-01	NA	NA	0.00E+00	7.44E+01	0.00E+00	0.00E+00	7.54E+01	8	6.56E+01	8.20E+00	9.19E+00	8	1.10E+02	1.38E+01	5.48E+00	0.93%	0.92%
Acenaphthene	0.00E+00	0.00E+00	1.83E-02	NA	NA	0.00E+00	7.10E-03	0.00E+00	0.00E+00	2.54E-02	8	6.56E+01	8.20E+00	3.10E-03	8	1.10E+02	1.38E+01	1.85E-03	0.00%	0.00%
Benzo(a)anthracene	0.00E+00	0.00E+00	2.66E-01	NA	NA	0.00E+00	3.02E-01	0.00E+00	0.00E+00	5.68E-01	8	6.15E-01	7.69E-02	7.39E+00	8	3.07E+00	3.84E-01	1.48E+00	0.74%	0.25%
bis(2-Ethylhexyl) phthalate	0.00E+00	0.00E+00	7.23E-02	NA	NA	0.00E+00	7.22E-02	0.00E+00	0.00E+00	1.45E-01	8	1.83E+01	2.29E+00	6.32E-02	8	1.83E+02	2.29E+01	6.32E-03	0.01%	0.00%
Chrysene	0.00E+00	0.00E+00	2.77E-01	NA	NA	0.00E+00	3.10E-01	0.00E+00	0.00E+00	5.87E-01	8	6.15E-01	7.69E-02	7.63E+00	8	3.07E+00	3.84E-01	1.53E+00	0.77%	0.26%
Diesel Range Organics	0.00E+00	0.00E+00	2.47E+02	NA	NA	NA	NA	0.00E+00	0.00E+00	2.47E+02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	0.00E+00	0.00E+00	2.65E-03	NA	NA	0.00E+00	8.94E-02	0.00E+00	0.00E+00	9.21E-02	8	1.34E+03	1.68E+02	5.50E-04	8	3.18E+03	3.98E+02	2.32E-04	0.00%	0.00%
Fluoranthene	0.00E+00	0.00E+00	5.37E-01	NA	NA	0.00E+00	1.12E+01	0.00E+00	0.00E+00	1.17E+01	8	6.15E-01	7.69E-02	1.52E+02	8	3.07E+00	3.84E-01	3.05E+01	15.35%	5.12%
Gasoline Range Organics	0.00E+00	0.00E+00	5.16E+01	NA	NA	NA	NA	0.00E+00	0.00E+00	5.16E+01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
m&p-Xylenes	0.00E+00	0.00E+00	3.36E-01	NA	NA	0.00E+00	4.72E+01	0.00E+00	0.00E+00	4.75E+01	8	2.10E+00	2.63E-01	1.81E+02	8	2.60E+00	3.25E-01	1.46E+02	18.24%	24.51%
Naphthalene	0.00E+00	0.00E+00	1.33E+00	NA	NA	0.00E+00	6.74E+02	0.00E+00	0.00E+00	6.76E+02	8	6.56E+01	8.20E+00	8.24E+01	8	1.10E+02	1.38E+01	4.91E+01	8.30%	8.23%
n-Butylbenzene	0.00E+00	0.00E+00	1.23E+00	NA	NA	0.00E+00	7.31E+01	0.00E+00	0.00E+00	7.43E+01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
o-Xylene	0.00E+00	0.00E+00	1.99E-01	NA	NA	0.00E+00	2.79E+01	0.00E+00	0.00E+00	2.81E+01	8	2.10E+00	2.63E-01	1.07E+02	8	2.60E+00	3.25E-01	8.66E+01	10.80%	14.51%
Phenanthrene	0.00E+00	0.00E+00	2.28E-01	NA	NA	0.00E+00	3.70E+00	0.00E+00	0.00E+00	3.93E+00	8	6.56E+01	8.20E+00	4.79E-01	8	1.10E+02	1.38E+01	2.86E-01	0.05%	0.05%
Pyrene	0.00E+00	0.00E+00	3.51E-01	NA	NA	0.00E+00	1.05E+01	0.00E+00	0.00E+00	1.09E+01	8	6.15E-01	7.69E-02	1.41E+02	8	3.07E+00	3.84E-01	2.83E+01	14.25%	4.75%
Xylenes (total)	0.00E+00	0.00E+00	5.34E-01	NA	NA	0.00E+00	7.49E+01	0.00E+00	0.00E+00	7.55E+01	8	2.10E+00	2.63E-01	2.87E+02	8	2.60E+00	3.25E-01	2.32E+02	28.96%	38.91%
Hazard Index (Total HQ):														**9.9E+02**				**6.0E+02**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR} \left[\sum_{i=1}^{m} \left(\frac{IRi\,x\,Cij}{BW} \right) \right] \right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used a default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	1	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0	unitless
Mammal diet fraction =	0	unitless
Bird diet fraction =	0	unitless
Soil ingestion rate =	0.0177	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.737	kg/d
Body weight =	0.6	kg
Home range =	8	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.00E+00	unitless

APPENDIX C-2 - TABLE 3
TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR DESERT COTTONTAILS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

Hazard Estimate - Tier 2
Desert Cottontails

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-10 ft BGS) Exposure Point Concentration	Units	Fish BAF (unitless)	Aq. Invert. BAF (unitless)	Terr. Invert. BAF (unitless)	Plant BAF (unitless)	Mammal BAF (unitless)	Bird BAF (unitless)
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.31E+01	mg/kg	NA	NA	4.89E-01	8.55E-02	2.57E-01	2.57E-01
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.14E+00	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	3.03E-01	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	8.03E-01	mg/kg	NA	NA	1.00E+00	1.87E+00	5.00E-01	5.00E-01
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	2.74E-02	mg/kg	NA	NA	1.47E+00	3.04E+00	0.00E+00	0.00E+00
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	1.12E-01	mg/kg	NA	NA	1.59E+00	1.62E-01	0.00E+00	0.00E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	4.80E-02	mg/kg	NA	NA	1.00E+00	2.40E-02	5.00E-01	5.00E-01
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	1.25E-01	mg/kg	NA	NA	2.29E+00	1.55E-01	0.00E+00	0.00E+00
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.78E+02	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	1.67E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	5.00E-01	5.00E-01
Fluoranthene	0.00E+00	mg/L	0.00E+00	mg/kg	1.73E-01	mg/kg	NA	NA	3.04E+00	5.00E-01	0.00E+00	0.00E+00
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	4.25E+01	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
m&p-Xylenes	0.00E+00	mg/L	0.00E+00	mg/kg	2.00E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	7.99E-01	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00
n-Butylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	6.09E-01	mg/kg	NA	NA	1.00E-01	1.43E+00	5.00E-01	5.00E-01
o-Xylene	0.00E+00	mg/L	0.00E+00	mg/kg	1.18E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01
Phenanthrene	0.00E+00	mg/L	0.00E+00	mg/kg	9.78E-02	mg/kg	NA	NA	1.72E+00	2.05E+00	0.00E+00	0.00E+00
Pyrene	0.00E+00	mg/L	0.00E+00	mg/kg	1.55E-01	mg/kg	NA	NA	1.75E+00	7.20E-01	0.00E+00	0.00E+00
Xylenes (total)	0.00E+00	mg/L	0.00E+00	mg/kg	3.17E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01

Chemical	PDE Surface Water mg/kg-d	PDE Sediment mg/kg-d	PDE Soil mg/kg-d	PDE Fish mg/kg-d	PDE Aq. Invert. mg/kg-d	PDE Terr. Invert. mg/kg-d	PDE Plants mg/kg-d	PDE Mammals mg/kg-d	PDE Birds mg/kg-d	Total PDE mg/kg-d
Lead	0.00E+00	0.00E+00	6.21E-02	NA	NA	0.00E+00	2.21E-01	0.00E+00	0.00E+00	2.83E-01
1,2,4-Trimethylbenzene	0.00E+00	0.00E+00	5.41E-03	NA	NA	0.00E+00	4.57E-01	0.00E+00	0.00E+00	4.62E-01
1,3,5-Trimethylbenzene	0.00E+00	0.00E+00	1.43E-03	NA	NA	0.00E+00	1.21E-01	0.00E+00	0.00E+00	1.22E-01
2-Methylnaphthalene	0.00E+00	0.00E+00	3.80E-03	NA	NA	0.00E+00	2.95E-01	0.00E+00	0.00E+00	2.99E-01
Acenaphthene	0.00E+00	0.00E+00	1.30E-04	NA	NA	0.00E+00	1.64E-02	0.00E+00	0.00E+00	1.65E-02
Benzo(a)anthracene	0.00E+00	0.00E+00	5.30E-04	NA	NA	0.00E+00	3.57E-03	0.00E+00	0.00E+00	4.10E-03
bis(2-Ethylhexyl) phthalate	0.00E+00	0.00E+00	2.27E-04	NA	NA	0.00E+00	2.27E-04	0.00E+00	0.00E+00	4.54E-04
Chrysene	0.00E+00	0.00E+00	5.91E-04	NA	NA	0.00E+00	3.81E-03	0.00E+00	0.00E+00	4.40E-03
Diesel Range Organics	0.00E+00	0.00E+00	8.40E-01	NA	NA	NA	NA	0.00E+00	0.00E+00	8.40E-01
Di-n-butyl phthalate	0.00E+00	0.00E+00	7.90E-05	NA	NA	0.00E+00	2.66E-03	0.00E+00	0.00E+00	2.74E-03
Fluoranthene	0.00E+00	0.00E+00	8.18E-04	NA	NA	0.00E+00	1.70E-02	0.00E+00	0.00E+00	1.78E-02
Gasoline Range Organics	0.00E+00	0.00E+00	2.01E-01	NA	NA	NA	NA	0.00E+00	0.00E+00	2.01E-01
m&p-Xylenes	0.00E+00	0.00E+00	9.46E-04	NA	NA	0.00E+00	1.33E-01	0.00E+00	0.00E+00	1.34E-01
Naphthalene	0.00E+00	0.00E+00	3.78E-03	NA	NA	0.00E+00	1.92E+00	0.00E+00	0.00E+00	1.92E+00
n-Butylbenzene	0.00E+00	0.00E+00	2.88E-03	NA	NA	0.00E+00	1.71E-01	0.00E+00	0.00E+00	1.74E-01
o-Xylene	0.00E+00	0.00E+00	5.58E-04	NA	NA	0.00E+00	7.83E-02	0.00E+00	0.00E+00	7.88E-02
Phenanthrene	0.00E+00	0.00E+00	4.62E-04	NA	NA	0.00E+00	3.94E-02	0.00E+00	0.00E+00	3.99E-02
Pyrene	0.00E+00	0.00E+00	7.33E-04	NA	NA	0.00E+00	2.20E-02	0.00E+00	0.00E+00	2.27E-02
Xylenes (total)	0.00E+00	0.00E+00	1.50E-03	NA	NA	0.00E+00	2.10E-01	0.00E+00	0.00E+00	2.12E-01

Chemical	NOAEL Chemical-Specific Toxicity Value UF	NOAEL mg/kg-d	Adjusted NOAEL mg/kg-d	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL mg/kg-d	Adjusted LOAEL mg/kg-d	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
Lead	8	4.70E+00	5.88E-01	4.82E-01	8	5.00E+00	6.25E-01	4.53E-01	16.00%	22.09%
1,2,4-Trimethylbenzene	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	8	6.56E+01	8.20E+00	3.65E-02	8	1.10E+02	1.38E+01	2.18E-02	1.21%	1.06%
Acenaphthene	8	6.56E+01	8.20E+00	2.02E-03	8	1.10E+02	1.38E+01	1.20E-03	0.07%	0.06%
Benzo(a)anthracene	8	6.15E-01	7.69E-02	5.33E-02	8	3.07E+00	3.84E-01	1.07E-02	1.77%	0.52%
bis(2-Ethylhexyl) phthalate	8	1.83E+01	2.29E+00	1.98E-04	8	1.83E+02	2.29E+01	1.98E-05	0.01%	0.00%
Chrysene	8	6.15E-01	7.69E-02	5.73E-02	8	3.07E+00	3.84E-01	1.15E-02	1.90%	0.56%
Diesel Range Organics	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	8	1.34E+03	1.68E+02	1.64E-05	8	3.18E+03	3.98E+02	6.90E-06	0.00%	0.00%
Fluoranthene	8	6.15E-01	7.69E-02	2.32E-01	8	3.07E+00	3.84E-01	4.65E-02	7.70%	2.27%
Gasoline Range Organics	8	NA	NA	NA	8	NA	NA	NA	NA	NA
m&p-Xylenes	8	2.10E+00	2.63E-01	5.09E-01	8	2.60E+00	3.25E-01	4.11E-01	16.88%	20.03%
Naphthalene	8	6.56E+01	8.20E+00	2.34E-01	8	1.10E+02	1.38E+01	1.40E-01	7.78%	6.81%
n-Butylbenzene	8	NA	NA	NA	8	NA	NA	NA	NA	NA
o-Xylene	8	2.10E+00	2.63E-01	3.00E-01	8	2.60E+00	3.25E-01	2.42E-01	9.96%	11.82%
Phenanthrene	8	6.56E+01	8.20E+00	4.86E-03	8	1.10E+02	1.38E+01	2.90E-03	0.16%	0.14%
Pyrene	8	6.15E-01	7.69E-02	2.95E-01	8	3.07E+00	3.84E-01	5.91E-02	9.80%	2.88%
Xylenes (total)	8	2.10E+00	2.63E-01	8.07E-01	8	2.60E+00	3.25E-01	6.51E-01	26.76%	31.75%
Hazard Index (Total HQ):				**3.0E+00**				**2.1E+00**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR}\left[\sum_{i=1}^{m}\left(\frac{IRi\,x\,Cij}{BW}\right)\right]\right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used as default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	1	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0	unitless
Mammal diet fraction =	0	unitless
Bird diet fraction =	0	unitless
Soil ingestion rate =	0.0148	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.616	kg/d
Body weight =	0.9	kg
Home range =	8	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	2.88E-01	unitless

APPENDIX C-2 - TABLE 4

TIER 1 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR MONTANE SHREWS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

Hazard Estimate - Tier 1
Montane Shrew

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-10 ft BGS) Exposure Point Concentration	Units	Fish BAF	Aq. Invert. BAF	Terr. Invert. BAF	Plant BAF	Mammal BAF	Bird BAF	PDE Surface Water	PDE Sediment	PDE Soil	PDE Fish
							unitless	unitless	unitless	unitless	unitless	unitless	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.40E+02	mg/kg	NA	NA	3.10E-01	3.03E-02	6.85E-02	6.85E-02	0.00E+00	0.00E+00	3.44E+00	NA
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	5.92E+01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.45E+00	NA
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.55E+01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	3.79E-01	NA
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	3.24E+01	mg/kg	NA	NA	1.00E+00	1.87E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	7.95E-01	NA
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	6.20E-01	mg/kg	NA	NA	1.47E+00	9.33E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-02	NA
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	9.00E+00	mg/kg	NA	NA	1.59E+00	2.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.21E-01	NA
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	2.45E+00	mg/kg	NA	NA	1.00E+00	2.40E-02	1.00E+00	1.00E+00	0.00E+00	0.00E+00	6.01E-02	NA
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	9.38E+00	mg/kg	NA	NA	2.29E+00	2.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-01	NA
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	8.38E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	2.06E+02	NA
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	8.99E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	1.00E+00	1.00E+00	0.00E+00	0.00E+00	2.21E-03	NA
Fluoranthene	0.00E+00	mg/L	0.00E+00	mg/kg	1.82E+01	mg/kg	NA	NA	3.04E+00	5.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.47E-01	NA
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.75E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	4.30E+01	NA
m&p-Xylenes	0.00E+00	mg/L	0.00E+00	mg/kg	1.14E+01	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	2.80E-01	NA
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	4.50E+01	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.10E+00	NA
n-Butylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	4.16E+01	mg/kg	NA	NA	1.00E-01	1.43E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.02E+00	NA
o-Xylene	0.00E+00	mg/L	0.00E+00	mg/kg	6.75E+00	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.66E-01	NA
Phenanthrene	0.00E+00	mg/L	0.00E+00	mg/kg	7.73E+00	mg/kg	NA	NA	1.72E+00	3.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.90E-01	NA
Pyrene	0.00E+00	mg/L	0.00E+00	mg/kg	1.19E+01	mg/kg	NA	NA	1.75E+00	7.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.92E-01	NA
Xylenes (total)	0.00E+00	mg/L	0.00E+00	mg/kg	1.81E+01	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	4.44E-01	NA

Chemical	PDE Aq. Invert. (mg/kg-d)	PDE Terr. Invert. (mg/kg-d)	PDE Plants (mg/kg-d)	PDE Mammals (mg/kg-d)	PDE Birds (mg/kg-d)	Total PDE (mg/kg-d)	NOAEL Chemical-Specific Toxicity Value UF	NOAEL (mg/kg-d)	Adjusted NOAEL (mg/kg-d)	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL (mg/kg-d)	Adjusted LOAEL (mg/kg-d)	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
Lead	NA	1.03E+01	0.00E+00	0.00E+00	0.00E+00	1.37E+01	8	4.70E+00	5.88E-01	2.33E+01	8	5.00E+00	6.25E-01	2.19E+01	5.87%	21.12%
1,2,4-Trimethylbenzene	NA	1.40E+00	0.00E+00	0.00E+00	0.00E+00	2.85E+00	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	3.65E-01	0.00E+00	0.00E+00	0.00E+00	7.44E-01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	7.66E+00	0.00E+00	0.00E+00	0.00E+00	8.45E+00	8	6.56E+01	8.20E+00	1.03E+00	8	1.10E+02	1.38E+01	6.15E-01	0.26%	0.59%
Acenaphthene	NA	2.15E-01	0.00E+00	0.00E+00	0.00E+00	2.31E-01	8	6.56E+01	8.20E+00	2.81E-02	8	1.10E+02	1.38E+01	1.68E-02	0.01%	0.02%
Benzo(a)anthracene	NA	3.38E+00	0.00E+00	0.00E+00	0.00E+00	3.60E+00	8	6.15E-01	7.69E-02	4.69E+01	8	3.07E+00	3.84E-01	9.39E+00	11.80%	9.05%
bis(2-Ethylhexyl) phthalate	NA	5.79E-01	0.00E+00	0.00E+00	0.00E+00	6.39E-01	8	1.83E+01	2.29E+00	2.79E-01	8	1.83E+02	2.29E+01	2.79E-02	0.07%	0.03%
Chrysene	NA	5.08E+00	0.00E+00	0.00E+00	0.00E+00	5.31E+00	8	6.15E-01	7.69E-02	6.90E+01	8	3.07E+00	3.84E-01	1.38E+01	17.38%	13.34%
Diesel Range Organics	NA	NA	NA	0.00E+00	0.00E+00	2.06E+02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	NA	2.12E-02	0.00E+00	0.00E+00	0.00E+00	2.35E-02	8	1.34E+03	1.68E+02	1.40E-04	8	3.18E+03	3.98E+02	5.90E-05	0.00%	0.00%
Fluoranthene	NA	1.31E+01	0.00E+00	0.00E+00	0.00E+00	1.35E+01	8	6.15E-01	7.69E-02	1.76E+02	8	3.07E+00	3.84E-01	3.52E+01	44.29%	33.98%
Gasoline Range Organics	NA	NA	NA	0.00E+00	0.00E+00	4.30E+01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
m&p-Xylenes	NA	2.69E-01	0.00E+00	0.00E+00	0.00E+00	5.49E-01	8	2.10E+00	2.63E-01	2.09E+00	8	2.60E+00	3.25E-01	1.69E+00	0.53%	1.63%
Naphthalene	NA	4.68E+01	0.00E+00	0.00E+00	0.00E+00	4.79E+01	8	6.56E+01	8.20E+00	5.84E+00	8	1.10E+02	1.38E+01	3.48E+00	1.47%	3.36%
n-Butylbenzene	NA	9.83E-01	0.00E+00	0.00E+00	0.00E+00	2.00E+00	8	NA	NA	NA	8	NA	NA	NA	NA	NA
o-Xylene	NA	1.60E-01	0.00E+00	0.00E+00	0.00E+00	3.25E-01	8	2.10E+00	2.63E-01	1.24E+00	8	2.60E+00	3.25E-01	1.00E+00	0.31%	0.96%
Phenanthrene	NA	3.14E+00	0.00E+00	0.00E+00	0.00E+00	3.33E+00	8	6.56E+01	8.20E+00	4.06E-01	8	1.10E+02	1.38E+01	2.42E-01	0.10%	0.23%
Pyrene	NA	4.92E+00	0.00E+00	0.00E+00	0.00E+00	5.21E+00	8	6.15E-01	7.69E-02	6.78E+01	8	3.07E+00	3.84E-01	1.36E+01	17.08%	13.10%
Xylenes (total)	NA	4.28E-01	0.00E+00	0.00E+00	0.00E+00	8.72E-01	8	2.10E+00	2.63E-01	3.32E+00	8	2.60E+00	3.25E-01	2.68E+00	0.84%	2.59%
Hazard Index (Total HQ):										**4.0E+02**				**1.0E+02**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR}\left[\sum_{i=1}^{m}\left(\frac{IRi\,x\,Cij}{BW}\right)\right]\right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used a default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	1	unitless
Mammal diet fraction =	0	unitless
Bird diet fraction =	0	unitless
Soil ingestion rate =	0.000135	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.0013	kg/d
Body weight =	0.0055	kg
Home range =	0.65	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.00E+00	unitless

APPENDIX C-2 - TABLE 5

TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR MONTANE SHREWS AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

Hazard Estimate - Tier 2
Montane Shrew

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-10 ft BGS) Exposure Point Concentration	Units	Fish BAF (unitless)	Aq. Invert. BAF (unitless)	Terr. Invert. BAF (unitless)	Plant BAF (unitless)	Mammal BAF (unitless)	Bird BAF (unitless)
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.31E+01	mg/kg	NA	NA	4.89E-01	8.55E-02	2.57E-01	2.57E-01
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.14E+00	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	3.03E-01	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	8.03E-01	mg/kg	NA	NA	1.00E+00	1.87E+00	5.00E-01	5.00E-01
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	2.74E-02	mg/kg	NA	NA	1.47E+00	3.04E+00	0.00E+00	0.00E+00
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	1.12E-01	mg/kg	NA	NA	1.59E+00	1.62E-01	0.00E+00	0.00E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	4.80E-02	mg/kg	NA	NA	1.00E+00	2.40E-02	5.00E-01	5.00E-01
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	1.25E-01	mg/kg	NA	NA	2.29E+00	1.55E-01	0.00E+00	0.00E+00
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.78E+02	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	1.67E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	5.00E-01	5.00E-01
Fluoranthene	0.00E+00	mg/L	0.00E+00	mg/kg	1.73E-01	mg/kg	NA	NA	3.04E+00	5.00E-01	0.00E+00	0.00E+00
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	4.25E+01	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
m&p-Xylenes	0.00E+00	mg/L	0.00E+00	mg/kg	2.00E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	7.99E-01	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00
n-Butylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	6.09E-01	mg/kg	NA	NA	1.00E-01	1.43E+00	5.00E-01	5.00E-01
o-Xylene	0.00E+00	mg/L	0.00E+00	mg/kg	1.18E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01
Phenanthrene	0.00E+00	mg/L	0.00E+00	mg/kg	9.78E-02	mg/kg	NA	NA	1.72E+00	2.05E+00	0.00E+00	0.00E+00
Pyrene	0.00E+00	mg/L	0.00E+00	mg/kg	1.55E-01	mg/kg	NA	NA	1.75E+00	7.20E-01	0.00E+00	0.00E+00
Xylenes (total)	0.00E+00	mg/L	0.00E+00	mg/kg	3.17E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01

Chemical	PDE Surface Water mg/kg-d	PDE Sediment mg/kg-d	PDE Soil mg/kg-d	PDE Fish mg/kg-d	PDE Aq. Invert. mg/kg-d	PDE Terr. Invert. mg/kg-d	PDE Plants mg/kg-d	PDE Mammals mg/kg-d	PDE Birds mg/kg-d	Total PDE mg/kg-d	NOAEL Chemical-Specific Toxicity Value UF	NOAEL mg/kg-d	Adjusted NOAEL mg/kg-d	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL mg/kg-d	Adjusted LOAEL mg/kg-d	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
Lead	0.00E+00	0.00E+00	2.65E-01	NA	NA	1.24E+00	0.00E+00	0.00E+00	0.00E+00	1.51E+00	8	4.70E+00	5.88E-01	2.57E+00	8	5.00E+00	6.25E-01	2.41E+00	42.08%	74.88%
1,2,4-Trimethylbenzene	0.00E+00	0.00E+00	2.31E-02	NA	NA	2.21E-02	0.00E+00	0.00E+00	0.00E+00	4.52E-02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.00E+00	0.00E+00	6.11E-03	NA	NA	5.86E-03	0.00E+00	0.00E+00	0.00E+00	1.20E-02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	0.00E+00	0.00E+00	1.62E-02	NA	NA	1.55E-01	0.00E+00	0.00E+00	0.00E+00	1.72E-01	8	6.56E+01	8.20E+00	2.09E-02	8	1.10E+02	1.38E+01	1.25E-02	0.34%	0.39%
Acenaphthene	0.00E+00	0.00E+00	5.52E-04	NA	NA	7.80E-03	0.00E+00	0.00E+00	0.00E+00	8.35E-03	8	6.56E+01	8.20E+00	1.02E-03	8	1.10E+02	1.38E+01	6.07E-04	0.02%	0.02%
Benzo(a)anthracene	0.00E+00	0.00E+00	2.26E-03	NA	NA	3.45E-02	0.00E+00	0.00E+00	0.00E+00	3.67E-02	8	6.15E-01	7.69E-02	4.78E-01	8	3.07E+00	3.84E-01	9.57E-02	7.83%	2.97%
bis(2-Ethylhexyl) phthalate	0.00E+00	0.00E+00	9.68E-04	NA	NA	9.29E-03	0.00E+00	0.00E+00	0.00E+00	1.03E-02	8	1.83E+01	2.29E+00	4.48E-03	8	1.83E+02	2.29E+01	4.48E-04	0.07%	0.01%
Chrysene	0.00E+00	0.00E+00	2.52E-03	NA	NA	5.54E-02	0.00E+00	0.00E+00	0.00E+00	5.79E-02	8	6.15E-01	7.69E-02	7.53E-01	8	3.07E+00	3.84E-01	1.51E-01	12.34%	4.68%
Diesel Range Organics	0.00E+00	0.00E+00	3.58E+00	NA	NA	NA	NA	0.00E+00	0.00E+00	3.58E+00	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	0.00E+00	0.00E+00	3.37E-04	NA	NA	3.23E-03	0.00E+00	0.00E+00	0.00E+00	3.57E-03	8	1.34E+03	1.68E+02	2.13E-05	8	3.18E+03	3.98E+02	8.98E-06	0.00%	0.00%
Fluoranthene	0.00E+00	0.00E+00	3.49E-03	NA	NA	1.02E-01	0.00E+00	0.00E+00	0.00E+00	1.05E-01	8	6.15E-01	7.69E-02	1.37E+00	8	3.07E+00	3.84E-01	2.74E-01	22.44%	8.51%
Gasoline Range Organics	0.00E+00	0.00E+00	8.56E-01	NA	NA	NA	NA	0.00E+00	0.00E+00	8.56E-01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
m&p-Xylenes	0.00E+00	0.00E+00	4.03E-03	NA	NA	3.87E-03	0.00E+00	0.00E+00	0.00E+00	7.90E-03	8	2.10E+00	2.63E-01	3.01E-02	8	2.60E+00	3.25E-01	2.43E-02	0.49%	0.75%
Naphthalene	0.00E+00	0.00E+00	1.61E-02	NA	NA	6.80E-01	0.00E+00	0.00E+00	0.00E+00	6.97E-01	8	6.56E+01	8.20E+00	8.49E-02	8	1.10E+02	1.38E+01	5.07E-02	1.39%	1.57%
n-Butylbenzene	0.00E+00	0.00E+00	1.23E-02	NA	NA	1.18E-02	0.00E+00	0.00E+00	0.00E+00	2.41E-02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
o-Xylene	0.00E+00	0.00E+00	2.38E-03	NA	NA	2.28E-03	0.00E+00	0.00E+00	0.00E+00	4.66E-03	8	2.10E+00	2.63E-01	1.78E-02	8	2.60E+00	3.25E-01	1.43E-02	0.29%	0.45%
Phenanthrene	0.00E+00	0.00E+00	1.97E-03	NA	NA	3.26E-02	0.00E+00	0.00E+00	0.00E+00	3.45E-02	8	6.56E+01	8.20E+00	4.21E-03	8	1.10E+02	1.38E+01	2.51E-03	0.07%	0.08%
Pyrene	0.00E+00	0.00E+00	3.13E-03	NA	NA	5.25E-02	0.00E+00	0.00E+00	0.00E+00	5.56E-02	8	6.15E-01	7.69E-02	7.24E-01	8	3.07E+00	3.84E-01	1.45E-01	11.85%	4.50%
Xylenes (total)	0.00E+00	0.00E+00	6.39E-03	NA	NA	6.14E-03	0.00E+00	0.00E+00	0.00E+00	1.25E-02	8	2.10E+00	2.63E-01	4.77E-02	8	2.60E+00	3.25E-01	3.85E-02	0.78%	1.20%
Hazard Index (Total HQ):														**6.1E+00**				**3.2E+00**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR} \left[\sum_{i=1}^{m} \left(\frac{IRi \, x \, Cij}{BW} \right) \right] \right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used as default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	1	unitless
Mammal diet fraction =	0	unitless
Bird diet fraction =	0	unitless
Soil ingestion rate =	0.000125	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.0012	kg/d
Body weight =	0.0062	kg
Home range =	0.65	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.00E+00	unitless

APPENDIX C-2 - TABLE 6

TIER 1 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR RED FOXES AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

Hazard Estimate - Tier 1
Red Fox

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-10 ft BGS) Exposure Point Concentration	Units	Fish BAF	Aq. Invert. BAF	Terr. Invert. BAF	Plant BAF	Mammal BAF	Bird BAF	PDE Surface Water	PDE Sediment	PDE Soil
							---- unitless ----						mg/kg-d	mg/kg-d	mg/kg-d
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.40E+02	mg/kg	NA	NA	3.10E-01	3.03E-02	6.85E-02	6.85E-02	0.00E+00	0.00E+00	3.27E-01
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	5.92E+01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.38E-01
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.55E+01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	3.61E-02
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	3.24E+01	mg/kg	NA	NA	1.00E+00	1.87E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	7.58E-02
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	6.20E-01	mg/kg	NA	NA	1.47E+00	9.33E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.45E-03
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	9.00E+00	mg/kg	NA	NA	1.59E+00	2.74E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.11E-02
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	2.45E+00	mg/kg	NA	NA	1.00E+00	2.40E-02	1.00E+00	1.00E+00	0.00E+00	0.00E+00	5.73E-03
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	9.38E+00	mg/kg	NA	NA	2.29E+00	2.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.19E-02
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	8.38E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.96E+01
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	8.99E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	1.00E+00	1.00E+00	0.00E+00	0.00E+00	2.10E-04
Fluoranthene	0.00E+00	mg/L	0.00E+00	mg/kg	1.82E+01	mg/kg	NA	NA	3.04E+00	5.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.26E-02
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.75E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	4.09E+00
m&p-Xylenes	0.00E+00	mg/L	0.00E+00	mg/kg	1.14E+01	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	2.67E-02
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	4.50E+01	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E-01
n-Butylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	4.16E+01	mg/kg	NA	NA	1.00E-01	1.43E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	9.73E-02
o-Xylene	0.00E+00	mg/L	0.00E+00	mg/kg	6.75E+00	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.58E-02
Phenanthrene	0.00E+00	mg/L	0.00E+00	mg/kg	7.73E+00	mg/kg	NA	NA	1.72E+00	3.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-02
Pyrene	0.00E+00	mg/L	0.00E+00	mg/kg	1.19E+01	mg/kg	NA	NA	1.75E+00	7.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.78E-02
Xylenes (total)	0.00E+00	mg/L	0.00E+00	mg/kg	1.81E+01	mg/kg	NA	NA	1.00E-01	3.37E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	4.23E-02

Chemical	PDE Fish	PDE Aq. Invert.	PDE Terr. Invert.	PDE Plants	PDE Mammals	PDE Birds	Total PDE	NOAEL Chemical-Specific Toxicity Value UF	NOAEL	Adjusted NOAEL	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL	Adjusted LOAEL	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d		mg/kg-d	mg/kg-d			mg/kg-d	mg/kg-d			
Lead	NA	NA	1.46E-01	6.05E-02	5.23E-01	1.13E-01	1.17E+00	8	4.70E+00	5.88E-01	1.99E+00	8	5.00E+00	6.25E-01	1.87E+00	6.77%	10.54%
1,2,4-Trimethylbenzene	NA	NA	1.99E-02	1.71E+00	3.23E+00	6.95E-01	5.80E+00	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	5.18E-03	4.47E-01	8.43E-01	1.81E-01	1.51E+00	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	1.09E-01	8.64E-01	1.77E+00	3.81E-01	3.20E+00	8	6.56E+01	8.20E+00	3.90E-01	8	1.10E+02	1.38E+01	2.32E-01	1.33%	1.31%
Acenaphthene	NA	NA	3.06E-03	8.25E-05	0.00E+00	0.00E+00	4.59E-03	8	6.56E+01	8.20E+00	5.60E-04	8	1.10E+02	1.38E+01	3.34E-04	0.00%	0.00%
Benzo(a)anthracene	NA	NA	4.80E-02	3.51E-03	0.00E+00	0.00E+00	7.26E-02	8	6.15E-01	7.69E-02	9.44E-01	8	3.07E+00	3.84E-01	1.89E-01	3.21%	1.07%
bis(2-Ethylhexyl) phthalate	NA	NA	8.22E-03	8.39E-04	1.34E-01	2.88E-02	1.77E-01	8	1.83E+01	2.29E+00	7.75E-02	8	1.83E+02	2.29E+01	7.75E-03	0.26%	0.04%
Chrysene	NA	NA	7.21E-02	3.60E-03	0.00E+00	0.00E+00	9.76E-02	8	6.15E-01	7.69E-02	1.27E+00	8	3.07E+00	3.84E-01	2.54E-01	4.32%	1.43%
Diesel Range Organics	NA	NA	NA	NA	4.57E+02	9.84E+01	5.75E+02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	NA	NA	3.02E-04	1.04E-03	4.90E-03	1.06E-03	7.51E-03	8	1.34E+03	1.68E+02	4.48E-05	8	3.18E+03	3.98E+02	1.89E-05	0.00%	0.00%
Fluoranthene	NA	NA	1.86E-01	1.30E-01	0.00E+00	0.00E+00	3.58E-01	8	6.15E-01	7.69E-02	4.66E+00	8	3.07E+00	3.84E-01	9.33E-01	15.83%	5.26%
Gasoline Range Organics	NA	NA	NA	NA	9.54E+01	2.06E+01	1.20E+02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
m&p-Xylenes	NA	NA	3.83E-03	5.48E-01	6.22E-01	1.34E-01	1.33E+00	8	2.10E+00	2.63E-01	5.08E+00	8	2.60E+00	3.25E-01	4.10E+00	17.28%	23.13%
Naphthalene	NA	NA	6.64E-01	7.83E+00	0.00E+00	0.00E+00	8.60E+00	8	6.56E+01	8.20E+00	1.05E+00	8	1.10E+02	1.38E+01	6.25E-01	3.57%	3.52%
n-Butylbenzene	NA	NA	1.40E-02	8.48E-01	2.27E+00	4.89E-01	3.72E+00	8	NA	NA	NA	8	NA	NA	NA	NA	NA
o-Xylene	NA	NA	2.27E-03	3.24E-01	3.68E-01	7.93E-02	7.90E-01	8	2.10E+00	2.63E-01	3.01E+00	8	2.60E+00	3.25E-01	2.43E+00	10.23%	13.70%
Phenanthrene	NA	NA	4.46E-02	4.29E-02	0.00E+00	0.00E+00	1.06E-01	8	6.56E+01	8.20E+00	1.29E-02	8	1.10E+02	1.38E+01	7.68E-03	0.04%	0.04%
Pyrene	NA	NA	6.99E-02	1.22E-01	0.00E+00	0.00E+00	2.20E-01	8	6.15E-01	7.69E-02	2.86E+00	8	3.07E+00	3.84E-01	5.73E-01	9.73%	3.23%
Xylenes (total)	NA	NA	6.07E-03	8.70E-01	9.87E-01	2.13E-01	2.12E+00	8	2.10E+00	2.63E-01	8.07E+00	8	2.60E+00	3.25E-01	6.52E+00	27.43%	36.72%
								Hazard Index (Total HQ):			**2.9E+01**				**1.8E+01**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR} \left[\sum_{i=1}^{m} \left(\frac{IRi\,xCij}{BW} \right) \right] \right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used a default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0.17	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0.04	unitless
Mammal diet fraction =	0.65	unitless
Bird diet fraction =	0.14	unitless
Soil ingestion rate =	0.0069	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.2475	kg/d
Body weight =	2.95	kg
Home range =	2204	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.00E+00	unitless

APPENDIX C-2 - TABLE 7
TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR RED FOXES AT KIRTLAND AFB BULK FUEL FACILITY (0-10 FT BGS)

Hazard Estimate - Tier 2
Red Fox

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-10 ft BGS) Exposure Point Concentration	Units	Fish BAF	Aq. Invert. BAF	Terr. Invert. BAF	Plant BAF	Mammal BAF	Bird BAF
							---- unitless					----
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.31E+01	mg/kg	NA	NA	4.89E-01	8.55E-02	2.57E-01	2.57E-01
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.14E+00	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	3.03E-01	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	8.03E-01	mg/kg	NA	NA	1.00E+00	1.87E+00	5.00E-01	5.00E-01
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	2.74E-02	mg/kg	NA	NA	1.47E+00	3.04E+00	0.00E+00	0.00E+00
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	1.12E-01	mg/kg	NA	NA	1.59E+00	1.62E-01	0.00E+00	0.00E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	4.80E-02	mg/kg	NA	NA	1.00E+00	2.40E-02	5.00E-01	5.00E-01
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	1.25E-01	mg/kg	NA	NA	2.29E+00	1.55E-01	0.00E+00	0.00E+00
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.78E+02	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	1.67E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	5.00E-01	5.00E-01
Fluoranthene	0.00E+00	mg/L	0.00E+00	mg/kg	1.73E-01	mg/kg	NA	NA	3.04E+00	5.00E-01	0.00E+00	0.00E+00
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	4.25E+01	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
m&p-Xylenes	0.00E+00	mg/L	0.00E+00	mg/kg	2.00E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	7.99E-01	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00
n-Butylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	6.09E-01	mg/kg	NA	NA	1.00E-01	1.43E+00	5.00E-01	5.00E-01
o-Xylene	0.00E+00	mg/L	0.00E+00	mg/kg	1.18E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01
Phenanthrene	0.00E+00	mg/L	0.00E+00	mg/kg	9.78E-02	mg/kg	NA	NA	1.72E+00	2.05E+00	0.00E+00	0.00E+00
Pyrene	0.00E+00	mg/L	0.00E+00	mg/kg	1.55E-01	mg/kg	NA	NA	1.75E+00	7.20E-01	0.00E+00	0.00E+00
Xylenes (total)	0.00E+00	mg/L	0.00E+00	mg/kg	3.17E-01	mg/kg	NA	NA	1.00E-01	3.37E+00	5.00E-01	5.00E-01

Chemical	PDE Surface Water (mg/kg-d)	PDE Sediment (mg/kg-d)	PDE Soil (mg/kg-d)	PDE Fish (mg/kg-d)	PDE Aq. Invert. (mg/kg-d)	PDE Terr. Invert. (mg/kg-d)	PDE Plants (mg/kg-d)	PDE Mammals (mg/kg-d)	PDE Birds (mg/kg-d)	Total PDE (mg/kg-d)
Lead	0.00E+00	0.00E+00	1.45E-05	NA	NA	1.01E-05	7.54E-06	8.65E-05	1.86E-05	1.37E-04
1,2,4-Trimethylbenzene	0.00E+00	0.00E+00	1.26E-06	NA	NA	1.81E-07	1.56E-05	1.47E-05	3.16E-06	3.49E-05
1,3,5-Trimethylbenzene	0.00E+00	0.00E+00	3.35E-07	NA	NA	4.78E-08	4.13E-06	3.89E-06	8.37E-07	9.23E-06
2-Methylnaphthalene	0.00E+00	0.00E+00	8.88E-07	NA	NA	1.27E-06	1.01E-05	1.03E-05	2.22E-06	2.47E-05
Acenaphthene	0.00E+00	0.00E+00	3.03E-08	NA	NA	6.36E-08	5.59E-07	0.00E+00	0.00E+00	6.53E-07
Benzo(a)anthracene	0.00E+00	0.00E+00	1.24E-07	NA	NA	2.81E-07	1.22E-07	0.00E+00	0.00E+00	5.27E-07
bis(2-Ethylhexyl) phthalate	0.00E+00	0.00E+00	5.31E-08	NA	NA	7.58E-08	7.73E-09	6.16E-07	1.33E-07	8.85E-07
Chrysene	0.00E+00	0.00E+00	1.38E-07	NA	NA	4.52E-07	1.30E-07	0.00E+00	0.00E+00	7.20E-07
Diesel Range Organics	0.00E+00	0.00E+00	1.96E-04	NA	NA	NA	NA	2.28E-03	4.91E-04	2.96E-03
Di-n-butyl phthalate	0.00E+00	0.00E+00	1.85E-08	NA	NA	2.64E-08	9.07E-08	2.14E-07	4.61E-08	3.96E-07
Fluoranthene	0.00E+00	0.00E+00	1.91E-07	NA	NA	8.30E-07	5.80E-07	0.00E+00	0.00E+00	1.60E-06
Gasoline Range Organics	0.00E+00	0.00E+00	4.70E-05	NA	NA	NA	NA	5.45E-04	1.17E-04	7.09E-04
m&p-Xylenes	0.00E+00	0.00E+00	2.21E-07	NA	NA	3.16E-08	4.52E-06	2.57E-06	5.52E-07	7.89E-06
Naphthalene	0.00E+00	0.00E+00	8.83E-07	NA	NA	5.55E-06	6.54E-05	0.00E+00	0.00E+00	7.18E-05
n-Butylbenzene	0.00E+00	0.00E+00	6.73E-07	NA	NA	9.61E-08	5.84E-06	7.81E-06	1.68E-06	1.61E-05
o-Xylene	0.00E+00	0.00E+00	1.30E-07	NA	NA	1.86E-08	2.67E-06	1.51E-06	3.26E-07	4.66E-06
Phenanthrene	0.00E+00	0.00E+00	1.08E-07	NA	NA	2.66E-07	1.34E-06	0.00E+00	0.00E+00	1.72E-06
Pyrene	0.00E+00	0.00E+00	1.71E-07	NA	NA	4.28E-07	7.49E-07	0.00E+00	0.00E+00	1.35E-06
Xylenes (total)	0.00E+00	0.00E+00	3.51E-07	NA	NA	5.00E-08	7.17E-06	4.07E-06	8.76E-07	1.25E-05

Chemical	NOAEL Chemical-Specific Toxicity Value UF	NOAEL (mg/kg-d)	Adjusted NOAEL (mg/kg-d)	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL (mg/kg-d)	Adjusted LOAEL (mg/kg-d)	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
Lead	8	4.70E+00	5.88E-01	2.34E-04	8	5.00E+00	6.25E-01	2.20E-04	58.98%	69.75%
1,2,4-Trimethylbenzene	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	8	6.56E+01	8.20E+00	3.02E-06	8	1.10E+02	1.38E+01	1.80E-06	0.76%	0.57%
Acenaphthene	8	6.56E+01	8.20E+00	7.97E-08	8	1.10E+02	1.38E+01	4.75E-08	0.02%	0.02%
Benzo(a)anthracene	8	6.15E-01	7.69E-02	6.85E-06	8	3.07E+00	3.84E-01	1.37E-06	1.73%	0.44%
bis(2-Ethylhexyl) phthalate	8	1.83E+01	2.29E+00	3.87E-07	8	1.83E+02	2.29E+01	3.87E-08	0.10%	0.01%
Chrysene	8	6.15E-01	7.69E-02	9.37E-06	8	3.07E+00	3.84E-01	1.88E-06	2.36%	0.60%
Diesel Range Organics	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	8	1.34E+03	1.68E+02	2.36E-09	8	3.18E+03	3.98E+02	9.96E-10	0.00%	0.00%
Fluoranthene	8	6.15E-01	7.69E-02	2.08E-05	8	3.07E+00	3.84E-01	4.17E-06	5.26%	1.33%
Gasoline Range Organics	8	NA	NA	NA	8	NA	NA	NA	NA	NA
m&p-Xylenes	8	2.10E+00	2.63E-01	3.01E-05	8	2.60E+00	3.25E-01	2.43E-05	7.59%	7.71%
Naphthalene	8	6.56E+01	8.20E+00	8.76E-06	8	1.10E+02	1.38E+01	5.22E-06	2.21%	1.66%
n-Butylbenzene	8	NA	NA	NA	8	NA	NA	NA	NA	NA
o-Xylene	8	2.10E+00	2.63E-01	1.77E-05	8	2.60E+00	3.25E-01	1.43E-05	4.48%	4.55%
Phenanthrene	8	6.56E+01	8.20E+00	2.09E-07	8	1.10E+02	1.38E+01	1.25E-07	0.05%	0.04%
Pyrene	8	6.15E-01	7.69E-02	1.75E-05	8	3.07E+00	3.84E-01	3.51E-06	4.43%	1.12%
Xylenes (total)	8	2.10E+00	2.63E-01	4.77E-05	8	2.60E+00	3.25E-01	3.85E-05	12.03%	12.22%
Hazard Index (Total HQ):				**4.0E-04**				**3.1E-04**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR}\left[\sum_{i=1}^{m}\left(\frac{IRi\,x\,Cij}{BW}\right)\right]\right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used as default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0.17	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0.04	unitless
Mammal diet fraction =	0.65	unitless
Bird diet fraction =	0.14	unitless
Soil ingestion rate =	0.0048	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.1713	kg/d
Body weight =	4.53	kg
Home range =	2204	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.04E-03	unitless

APPENDIX C-2 - TABLE 8

TIER 1 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR AMERICAN ROBINS AT KIRTLAND AFB BULK FUEL FACILITY (0-5 FT BGS)

Hazard Estimate - Tier 1
American Robin

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-5 ft BGS) Exposure Point Concentration	Units	Fish BAF	Aq. Invert. BAF	Terr. Invert. BAF	Plant BAF	Mammal BAF	Bird BAF	PDE Surface Water	PDE Sediment	PDE Soil	PDE Fish
							---------- unitless					----------	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.40E+02	mg/kg	NA	NA	3.10E-01	3.03E-02	6.85E-02	6.85E-02	0.00E+00	0.00E+00	1.08E+00	NA
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	8.89E-01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	6.86E-03	NA
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	3.02E-01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	2.33E-03	NA
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	2.32E+01	mg/kg	NA	NA	1.00E+00	1.87E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.79E-01	NA
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	4.99E-01	mg/kg	NA	NA	1.47E+00	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.85E-03	NA
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	5.39E+00	mg/kg	NA	NA	1.59E+00	3.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.16E-02	NA
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	2.45E+00	mg/kg	NA	NA	1.00E+00	2.40E-02	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.89E-02	NA
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	6.76E+00	mg/kg	NA	NA	2.29E+00	3.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.22E-02	NA
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	4.52E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	3.49E+01	NA
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	8.99E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	1.00E+00	1.00E+00	0.00E+00	0.00E+00	6.94E-04	NA
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.75E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.35E+01	NA
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	2.45E+00	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.89E-02	NA

Chemical	PDE Aq. Invert. (mg/kg-d)	PDE Terr. Invert. (mg/kg-d)	PDE Plants (mg/kg-d)	PDE Mammals (mg/kg-d)	PDE Birds (mg/kg-d)	Total PDE (mg/kg-d)	NOAEL Chemical-Specific Toxicity Value UF	NOAEL (mg/kg-d)	Adjusted NOAEL (mg/kg-d)	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL (mg/kg-d)	Adjusted LOAEL (mg/kg-d)	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
Lead	NA	3.17E+00	5.05E-01	0.00E+00	0.00E+00	4.75E+00	8	1.63E+00	2.04E-01	2.33E+01	8	1.94E+00	2.43E-01	1.96E+01	29.27%	77.63%
1,2,4-Trimethylbenzene	NA	6.49E-03	2.15E-01	0.00E+00	0.00E+00	2.28E-01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	2.20E-03	7.30E-02	0.00E+00	0.00E+00	7.76E-02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	1.69E+00	5.17E+00	0.00E+00	0.00E+00	7.04E+00	8	5.53E+02	6.91E+01	1.02E-01	8	2.77E+03	3.46E+02	2.03E-02	0.13%	0.08%
Acenaphthene	NA	5.36E-02	8.29E-04	0.00E+00	0.00E+00	5.82E-02	8	5.53E+02	6.91E+01	8.42E-04	8	2.77E+03	3.46E+02	1.68E-04	0.00%	0.00%
Benzo(a)anthracene	NA	6.26E-01	2.16E-02	0.00E+00	0.00E+00	6.89E-01	8	1.07E-01	1.34E-02	5.15E+01	8	1.07E+00	1.34E-01	5.15E+00	64.64%	20.40%
bis(2-Ethylhexyl) phthalate	NA	1.79E-01	7.00E-03	0.00E+00	0.00E+00	2.05E-01	8	1.10E+00	1.38E-01	1.49E+00	8	1.10E+01	1.38E+00	1.49E-01	1.87%	0.59%
Chrysene	NA	1.13E+00	2.47E-02	0.00E+00	0.00E+00	1.21E+00	8	5.53E+02	6.91E+01	1.75E-02	8	2.77E+03	3.46E+02	3.49E-03	0.02%	0.01%
Diesel Range Organics	NA	NA	NA	0.00E+00	0.00E+00	3.49E+01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	NA	6.56E-03	8.67E-03	0.00E+00	0.00E+00	1.59E-02	8	1.40E-01	1.75E-02	9.10E-01	8	1.40E+00	1.75E-01	9.10E-02	1.14%	0.36%
Gasoline Range Organics	NA	NA	NA	0.00E+00	0.00E+00	1.35E+01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Naphthalene	NA	7.87E-01	3.56E+00	0.00E+00	0.00E+00	4.37E+00	8	1.50E+01	1.88E+00	2.33E+00	8	1.50E+02	1.88E+01	2.33E-01	2.92%	0.92%
							Hazard Index (Total HQ):			**8.0E+01**				**2.5E+01**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR} \left[\sum_{i=1}^{m} \left(\frac{IRi\,x\,Cij}{BW} \right) \right] \right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used a default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text tables.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0.62	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0.38	unitless
Mammal diet fraction =	0	unitless
Bird diet fraction =	0	unitless
Soil ingestion rate =	0.00049	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.0122	kg/d
Body weight =	0.0635	kg
Home range =	1.2	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.00E+00	unitless

APPENDIX C-2 - TABLE 9

TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR AMERICAN ROBINS AT KIRTLAND AFB BULK FUEL FACILITY (0-5 FT BGS)

Hazard Estimate - Tier 2
American Robin

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-5 ft BGS) Exposure Point Concentration	Units	Fish BAF	Aq. Invert. BAF	Terr. Invert. BAF	Plant BAF	Mammal BAF	Bird BAF	PDE Surface Water	PDE Sediment	PDE Soil	PDE Fish	PDE Aq. Invert.	PDE Terr. Invert.	PDE Plants	PDE Mammals	PDE Birds	Total PDE	NOAEL Chemical-Specific Toxicity Value UF	NOAEL	Adjusted NOAEL	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL	Adjusted LOAEL	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
							----- unitless					-----	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d		mg/kg-d	mg/kg-d			mg/kg-d	mg/kg-d			
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.59E+01	mg/kg	NA	NA	4.72E-01	7.88E-02	2.31E-01	2.31E-01	0.00E+00	0.00E+00	8.41E-02	NA	NA	3.75E-01	1.02E-01	0.00E+00	0.00E+00	5.61E-01	8	1.63E+00	2.04E-01	2.76E+00	8	1.94E+00	2.43E-01	2.32E+00	72.34%	95.64%
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.49E-02	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01	0.00E+00	0.00E+00	7.90E-05	NA	NA	7.47E-05	2.47E-03	0.00E+00	0.00E+00	2.63E-03	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	7.10E-03	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01	0.00E+00	0.00E+00	3.77E-05	NA	NA	3.56E-05	1.18E-03	0.00E+00	0.00E+00	1.25E-03	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	3.94E-01	mg/kg	NA	NA	1.00E+00	1.87E+00	5.00E-01	5.00E-01	0.00E+00	0.00E+00	2.09E-03	NA	NA	1.98E-02	6.03E-02	0.00E+00	0.00E+00	8.21E-02	8	5.53E+02	6.91E+01	1.19E-03	8	2.77E+03	3.46E+02	2.37E-04	0.03%	0.01%
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	2.84E-02	mg/kg	NA	NA	1.47E+00	2.85E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-04	NA	NA	2.09E-03	6.62E-03	0.00E+00	0.00E+00	8.86E-03	8	5.53E+02	6.91E+01	1.28E-04	8	2.77E+03	3.46E+02	2.56E-05	0.00%	0.00%
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	1.19E-01	mg/kg	NA	NA	1.59E+00	1.58E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.31E-04	NA	NA	9.49E-03	1.54E-03	0.00E+00	0.00E+00	1.17E-02	8	1.07E-01	1.34E-02	8.72E-01	8	1.07E+00	1.34E-01	8.72E-02	22.88%	3.60%
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	6.14E-02	mg/kg	NA	NA	1.00E+00	2.40E-02	5.00E-01	5.00E-01	0.00E+00	0.00E+00	3.26E-04	NA	NA	3.08E-03	1.21E-04	0.00E+00	0.00E+00	3.52E-03	8	1.10E+00	1.38E-01	2.56E-02	8	1.10E+01	1.38E+00	2.56E-03	0.67%	0.11%
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	1.46E-01	mg/kg	NA	NA	2.29E+00	1.46E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.74E-04	NA	NA	1.68E-02	1.74E-03	0.00E+00	0.00E+00	1.93E-02	8	5.53E+02	6.91E+01	2.79E-04	8	2.77E+03	3.46E+02	5.57E-05	0.01%	0.00%
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	9.33E+01	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01	0.00E+00	0.00E+00	4.95E-01	NA	NA	NA	NA	0.00E+00	0.00E+00	4.95E-01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	1.72E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	5.00E-01	5.00E-01	0.00E+00	0.00E+00	9.12E-05	NA	NA	8.62E-04	1.14E-03	0.00E+00	0.00E+00	2.09E-03	8	1.40E-01	1.75E-02	1.20E-01	8	1.40E+00	1.75E-01	1.20E-02	3.14%	0.49%
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.70E+01	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01	0.00E+00	0.00E+00	9.00E-02	NA	NA	NA	NA	0.00E+00	0.00E+00	9.00E-02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	5.41E-02	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-04	NA	NA	1.19E-02	5.40E-02	0.00E+00	0.00E+00	6.62E-02	8	1.50E+01	1.88E+00	3.53E-02	8	1.50E+02	1.88E+01	3.53E-03	0.93%	0.15%
																							Hazard Index (Total HQ):			**3.8E+00**				**2.4E+00**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR}\left[\sum_{i=1}^{m}\left(\frac{IRi\,x\,Cij}{BW}\right)\right]\right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): [n] See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used as default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0.62	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0.38	unitless
Mammal diet fraction =	0	unitless
Bird diet fraction =	0	unitless
Soil ingestion rate =	0.00041	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.0102	kg/d
Body weight =	0.0773	kg
Home range =	1.2	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.00E+00	unitless

APPENDIX C-2 - TABLE 10
TIER 1 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR AMERICAN KESTRELS AT KIRTLAND AFB BULK FUEL FACILITY (0-5 FT BGS)

Hazard Estimate - Tier 1
American Kestrel

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-5 ft BGS) Exposure Point Concentration	Units	Fish BAF	Aq. Invert. BAF	Terr. Invert. BAF	Plant BAF	Mammal BAF	Bird BAF	PDE Surface Water	PDE Sediment	PDE Soil	PDE Fish	PDE Aq. Invert.	PDE Terr. Invert.	PDE Plants	PDE Mammals	PDE Birds	Total PDE	NOAEL Chemical-Specific Toxicity Value UF	NOAEL	Adjusted NOAEL	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL	Adjusted LOAEL	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
							---------- unitless					----------	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d	mg/kg-d		mg/kg-d	mg/kg-d			mg/kg-d	mg/kg-d			
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.40E+02	mg/kg	NA	NA	3.10E-01	3.03E-02	6.85E-02	6.85E-02	0.00E+00	0.00E+00	8.43E-01	NA	NA	3.19E+00	0.00E+00	7.27E-01	6.44E-01	5.41E+00	8	1.63E+00	2.04E-01	2.65E+01	8	1.94E+00	2.43E-01	2.23E+01	32.46%	80.12%
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	8.89E-01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	5.35E-03	NA	NA	6.54E-03	0.00E+00	6.74E-02	5.97E-02	1.39E-01	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	3.02E-01	mg/kg	NA	NA	1.00E-01	2.03E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.82E-03	NA	NA	2.22E-03	0.00E+00	2.29E-02	2.03E-02	4.72E-02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	2.32E+01	mg/kg	NA	NA	1.00E+00	1.87E+00	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.40E-01	NA	NA	1.71E+00	0.00E+00	1.76E+00	1.56E+00	5.16E+00	8	5.53E+02	6.91E+01	7.47E-02	8	2.77E+03	3.46E+02	1.49E-02	0.09%	0.05%
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	4.99E-01	mg/kg	NA	NA	1.47E+00	1.40E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-03	NA	NA	5.40E-02	0.00E+00	0.00E+00	0.00E+00	5.70E-02	8	5.53E+02	6.91E+01	8.25E-04	8	2.77E+03	3.46E+02	1.65E-04	0.00%	0.00%
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	5.39E+00	mg/kg	NA	NA	1.59E+00	3.37E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.24E-02	NA	NA	6.31E-01	0.00E+00	0.00E+00	0.00E+00	6.63E-01	8	1.07E-01	1.34E-02	4.96E+01	8	1.07E+00	1.34E-01	4.96E+00	60.66%	17.82%
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	2.45E+00	mg/kg	NA	NA	1.00E+00	2.40E-02	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.47E-02	NA	NA	1.80E-01	0.00E+00	1.86E-01	1.64E-01	5.45E-01	8	1.10E+00	1.38E-01	3.96E+00	8	1.10E+01	1.38E+00	3.96E-01	4.85%	1.42%
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	6.76E+00	mg/kg	NA	NA	2.29E+00	3.07E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.07E-02	NA	NA	1.14E+00	0.00E+00	0.00E+00	0.00E+00	1.18E+00	8	5.53E+02	6.91E+01	1.71E-02	8	2.77E+03	3.46E+02	3.41E-03	0.02%	0.01%
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	4.52E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	2.72E+01	NA	NA	NA	NA	3.43E+02	3.03E+02	6.73E+02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	8.99E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	1.00E+00	1.00E+00	0.00E+00	0.00E+00	5.41E-04	NA	NA	6.62E-03	0.00E+00	6.81E-03	6.03E-03	2.00E-02	8	1.40E-01	1.75E-02	1.14E+00	8	1.40E+00	1.75E-01	1.14E-01	1.40%	0.41%
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.75E+03	mg/kg	NA	NA	NA	NA	1.00E+00	1.00E+00	0.00E+00	0.00E+00	1.05E+01	NA	NA	NA	NA	1.33E+02	1.17E+02	2.61E+02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	2.45E+00	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-02	NA	NA	7.94E-01	0.00E+00	0.00E+00	0.00E+00	8.08E-01	8	1.50E+01	1.88E+00	4.31E-01	8	1.50E+02	1.88E+01	4.31E-02	0.53%	0.15%
																							Hazard Index (Total HQ):			**8.2E+01**				**2.8E+01**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR} \left[\sum_{i=1}^{m} \left(\frac{IRi\,x\,Cij}{BW} \right) \right] \right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used a default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0.34	unitless
Mammal diet fraction =	0.35	unitless
Bird diet fraction =	0.31	unitless
Soil ingestion rate =	0.00062	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.0223	kg/d
Body weight =	0.103	kg
Home range =	314	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	1.00E+00	unitless

APPENDIX C-2 - TABLE 11

TIER 2 CHEMICALS OF POTENTIAL ECOLOGICAL CONCERN HAZARD QUOTIENTS AND HAZARD INDICES FOR AMERICAN KESTRELS AT KIRTLAND AFB BULK FUEL FACILITY (0-5 FT BGS)

Hazard Estimate - Tier 2
American Kestrel

Chemical	Surface Water Exposure Point Concentration	Units	Sediment Exposure Point Concentration	Units	Soil (0-5 ft BGS) Exposure Point Concentration	Units	Fish BAF (unitless)	Aq. Invert. BAF (unitless)	Terr. Invert. BAF (unitless)	Plant BAF (unitless)	Mammal BAF (unitless)	Bird BAF (unitless)
Lead	0.00E+00	mg/L	0.00E+00	mg/kg	1.59E+01	mg/kg	NA	NA	4.72E-01	7.88E-02	2.31E-01	2.31E-01
1,2,4-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	1.49E-02	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
1,3,5-Trimethylbenzene	0.00E+00	mg/L	0.00E+00	mg/kg	7.10E-03	mg/kg	NA	NA	1.00E-01	2.03E+00	5.00E-01	5.00E-01
2-Methylnaphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	3.94E-01	mg/kg	NA	NA	1.00E+00	1.87E+00	5.00E-01	5.00E-01
Acenaphthene	0.00E+00	mg/L	0.00E+00	mg/kg	2.84E-02	mg/kg	NA	NA	1.47E+00	2.85E+00	0.00E+00	0.00E+00
Benzo(a)anthracene	0.00E+00	mg/L	0.00E+00	mg/kg	1.19E-01	mg/kg	NA	NA	1.59E+00	1.58E-01	0.00E+00	0.00E+00
bis(2-Ethylhexyl) phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	6.14E-02	mg/kg	NA	NA	1.00E+00	2.40E-02	5.00E-01	5.00E-01
Chrysene	0.00E+00	mg/L	0.00E+00	mg/kg	1.46E-01	mg/kg	NA	NA	2.29E+00	1.46E-01	0.00E+00	0.00E+00
Diesel Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	9.33E+01	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
Di-n-butyl phthalate	0.00E+00	mg/L	0.00E+00	mg/kg	1.72E-02	mg/kg	NA	NA	1.00E+00	8.10E-01	5.00E-01	5.00E-01
Gasoline Range Organics	0.00E+00	mg/L	0.00E+00	mg/kg	1.70E+01	mg/kg	NA	NA	NA	NA	5.00E-01	5.00E-01
Naphthalene	0.00E+00	mg/L	0.00E+00	mg/kg	5.41E-02	mg/kg	NA	NA	4.40E+00	1.22E+01	0.00E+00	0.00E+00

Chemical	PDE Surface Water mg/kg-d	PDE Sediment mg/kg-d	PDE Soil mg/kg-d	PDE Fish mg/kg-d	PDE Aq. Invert. mg/kg-d	PDE Terr. Invert. mg/kg-d	PDE Plants mg/kg-d	PDE Mammals mg/kg-d	PDE Birds mg/kg-d	Total PDE mg/kg-d	NOAEL Chemical-Specific Toxicity Value UF	NOAEL mg/kg-d	Adjusted NOAEL mg/kg-d	HQ N	LOAEL Chemical-Specific Toxicity Value UF	LOAEL mg/kg-d	Adjusted LOAEL mg/kg-d	HQ L	Percent Contribution to HQ N	Percent Contribution to HQ L
Lead	0.00E+00	0.00E+00	5.52E-04	NA	NA	3.15E-03	0.00E+00	1.59E-03	1.41E-03	6.70E-03	8	1.63E+00	2.04E-01	3.29E-02	8	1.94E+00	2.43E-01	2.76E-02	81.29%	97.33%
1,2,4-Trimethylbenzene	0.00E+00	0.00E+00	5.18E-07	NA	NA	6.28E-07	0.00E+00	3.23E-06	2.86E-06	7.24E-06	8	NA	NA	NA	8	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.00E+00	0.00E+00	2.47E-07	NA	NA	2.99E-07	0.00E+00	1.54E-06	1.36E-06	3.45E-06	8	NA	NA	NA	8	NA	NA	NA	NA	NA
2-Methylnaphthalene	0.00E+00	0.00E+00	1.37E-05	NA	NA	1.66E-04	0.00E+00	8.54E-05	7.57E-05	3.41E-04	8	5.53E+02	6.91E+01	4.93E-06	8	2.77E+03	3.46E+02	9.84E-07	0.01%	0.00%
Acenaphthene	0.00E+00	0.00E+00	9.88E-07	NA	NA	1.76E-05	0.00E+00	0.00E+00	0.00E+00	1.86E-05	8	5.53E+02	6.91E+01	2.69E-07	8	2.77E+03	3.46E+02	5.37E-08	0.00%	0.00%
Benzo(a)anthracene	0.00E+00	0.00E+00	4.14E-06	NA	NA	7.97E-05	0.00E+00	0.00E+00	0.00E+00	8.39E-05	8	1.07E-01	1.34E-02	6.27E-03	8	1.07E+00	1.34E-01	6.27E-04	15.50%	2.21%
bis(2-Ethylhexyl) phthalate	0.00E+00	0.00E+00	2.14E-06	NA	NA	2.59E-05	0.00E+00	1.33E-05	1.18E-05	5.31E-05	8	1.10E+00	1.38E-01	3.86E-04	8	1.10E+01	1.38E+00	3.86E-05	0.95%	0.14%
Chrysene	0.00E+00	0.00E+00	5.08E-06	NA	NA	1.41E-04	0.00E+00	0.00E+00	0.00E+00	1.46E-04	8	5.53E+02	6.91E+01	2.11E-06	8	2.77E+03	3.46E+02	4.21E-07	0.01%	0.00%
Diesel Range Organics	0.00E+00	0.00E+00	3.25E-03	NA	NA	NA	NA	2.02E-02	1.79E-02	4.14E-02	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Di-n-butyl phthalate	0.00E+00	0.00E+00	5.98E-07	NA	NA	7.25E-06	0.00E+00	3.73E-06	3.30E-06	1.49E-05	8	1.40E-01	1.75E-02	8.50E-04	8	1.40E+00	1.75E-01	8.50E-05	2.10%	0.30%
Gasoline Range Organics	0.00E+00	0.00E+00	5.90E-04	NA	NA	NA	NA	3.68E-03	3.26E-03	7.53E-03	8	NA	NA	NA	8	NA	NA	NA	NA	NA
Naphthalene	0.00E+00	0.00E+00	1.88E-06	NA	NA	1.00E-04	0.00E+00	0.00E+00	0.00E+00	1.02E-04	8	1.50E+01	1.88E+00	5.45E-05	8	1.50E+02	1.88E+01	5.45E-06	0.13%	0.02%
											Hazard Index (Total HQ):			**4.0E-02**				**2.8E-02**	**100.00%**	**100.00%**

Intake Equation:

$$Ej = \left(\frac{A}{HR} \left[\sum_{i=1}^{m} \left(\frac{IRi\,x\,Cij}{BW} \right) \right] \right)$$

Where:
Ej = Total Exposure to Chemical
A = Site Area
HR = Home Range
m = Total number of ingested media
i = counter
IRi = Consumption Rate for Medium
Cij = Chemical concentration (j) in medium (I) (mg/kg or mg/L)
BW = Body Weight

Notes:
Tier 1 = Max HQ using max EPC, max BAF/BCF, max Intake Rates, min BW, and FHR =1.
Tier 2 = HQ using 95% EPC, non-max BAF/BCF, avg Intake Rates, avg BW and calculated FHR.
BAF = Bioaccumulation Factor (may be BCF if this is the only value available)
HQ = Hazard Quotient.
L = LOAEL based; N = NOAEL based
LOAEL = Lowest Observed Adverse Effect Level
NOAEL = No Observed Adverse Effect Level
NA = Not applicable/Not available
PDE = Predicted Daily Exposure
BAF (or BCF) values from appropriate text tables (BCF = bioconcentration factor)
Some BAF (or BCF) values based on media regression equations (value in box): n See appropriate text tables for equations.
If BAF/BCF regression equation produced Tier 2 value exceeding maximum Tier 1 BAF/BCF value, Tier 1 value used as default.
LOAEL and NOAEL values from appropriate toxicity summary tables in the text.
UF = Uncertainty Factor for toxicity factor extrapolation, and Adjusted LOAEL or NOAEL = LOAEL/UF or NOAEL/UF
A "0" entry in the exposure concentration column indicates this chemical not selected as a COPEC for this medium.
Receptor diet data and home range data from appropriate text table.
Exposure point concentrations (EPCs) from appropriate text tables.

Species-Specific Factors

Plant diet fraction =	0	unitless
Fish diet fraction =	0	unitless
Aq. Invert diet fraction =	0	unitless
Terr. Invert diet fraction =	0.34	unitless
Mammal diet fraction =	0.35	unitless
Bird diet fraction =	0.31	unitless
Soil ingestion rate =	0.00057	kg/d
Sediment ingestion rate =	0	kg/d
Food ingestion rate =	0.0203	kg/d
Body weight =	0.12	kg
Home range =	314	acres
Water intake rate =	0	L/d
Site Area =	2.3	acres
Frac. home range (FHR) =	7.32E-03	unitless

UCL Statistics for Data Sets with Non-Detects				
User Selected Options	**KAFB - BFF Surface Soil (0-5 ft bgs)_03-07-14**			
Date/Time of Computation	3/7/2014 3:17:00 PM			
From File	ProUCL input_SS (0-5 ft)_03-07-14.xls			
Full Precision	OFF			
Confidence Coefficient	95%			
Number of Bootstrap Operations	2000			
1,2,4-TRIMETHYLBENZENE				
General Statistics				
Total Number of Observations	346		Number of Distinct Observations	266
Number of Detects	58		Number of Non-Detects	288
Number of Distinct Detects	56		Number of Distinct Non-Detects	215
Minimum Detect	1.0500E-4		Minimum Non-Detect	3.8400E-4
Maximum Detect	0.889		Maximum Non-Detect	0.0288
Variance Detects	0.0139		Percent Non-Detects	83.24%
Mean Detects	0.0196		SD Detects	0.118
Median Detects	4.2650E-4		CV Detects	5.998
Skewness Detects	7.324		Kurtosis Detects	54.73
Mean of Logged Detects	-7.423		SD of Logged Detects	1.714
Normal GOF Test on Detects Only				
Shapiro Wilk Test Statistic	0.177	**Normal GOF Test on Detected Observations Only**		
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level		
Lilliefors Test Statistic	0.478	**Lilliefors GOF Test**		
5% Lilliefors Critical Value	0.116	Detected Data Not Normal at 5% Significance Level		
Detected Data Not Normal at 5% Significance Level				
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs				
Mean	0.00348		Standard Error of Mean	0.00262
SD	0.0483		95% KM (BCA) UCL	0.00877
95% KM (t) UCL	0.0078		95% KM (Percentile Bootstrap) UCL	0.00848
95% KM (z) UCL	0.00779		95% KM Bootstrap t UCL	0.0591
90% KM Chebyshev UCL	0.0113		95% KM Chebyshev UCL	0.0149
97.5% KM Chebyshev UCL	0.0199		99% KM Chebyshev UCL	0.0296
Gamma GOF Tests on Detected Observations Only				
A-D Test Statistic	13.89	**Anderson-Darling GOF Test**		
5% A-D Critical Value	0.909	Detected Data Not Gamma Distributed at 5% Significance Level		
K-S Test Statistic	0.415	**Kolmogrov-Smirnoff GOF**		
5% K-S Critical Value	0.13	Detected Data Not Gamma Distributed at 5% Significance Level		
Detected Data Not Gamma Distributed at 5% Significance Level				
Gamma Statistics on Detected Data Only				
k hat (MLE)	0.209		k star (bias corrected MLE)	0.21

	A	B	C	D	E	F	G	H	I	J	K	L
48					Theta hat (MLE)	0.0939					Theta star (bias corrected MLE)	0.0935
49					nu hat (MLE)	24.27					nu star (bias corrected)	24.35
50					MLE Mean (bias corrected)	0.0196					MLE Sd (bias corrected)	0.0429
51												
52	**Gamma Kaplan-Meier (KM) Statistics**											
53					k hat (KM)	0.00518					nu hat (KM)	3.583
54					Approximate Chi Square Value (3.58, α)	0.564					Adjusted Chi Square Value (3.58, β)	0.56
55					95% Gamma Approximate KM-UCL (use when n>=50)	0.0221					95% Gamma Adjusted KM-UCL (use when n<50)	0.0223
56	Gamma (KM) may not be used when k hat (KM) is < 0.1											
57												
58	**Gamma ROS Statistics using Imputed Non-Detects**											
59	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
60	GROS may not be used when kstar of detected data is small such as < 0.1											
61	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
62	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
63					Minimum	1.0500E-4					Mean	0.0116
64					Maximum	0.889					Median	0.01
65					SD	0.048					CV	4.133
66					k hat (MLE)	0.935					k star (bias corrected MLE)	0.929
67					Theta hat (MLE)	0.0124					Theta star (bias corrected MLE)	0.0125
68					nu hat (MLE)	647.3					nu star (bias corrected)	643
69					MLE Mean (bias corrected)	0.0116					MLE Sd (bias corrected)	0.0121
70											Adjusted Level of Significance (β)	0.0493
71					Approximate Chi Square Value (642.98, α)	585.2					Adjusted Chi Square Value (642.98, β)	584.9
72					95% Gamma Approximate UCL (use when n>=50)	0.0128					95% Gamma Adjusted UCL (use when n<50)	0.0128
73												
74	**Lognormal GOF Test on Detected Observations Only**											
75					Lilliefors Test Statistic	0.202	**Lilliefors GOF Test**					
76					5% Lilliefors Critical Value	0.116	Detected Data Not Lognormal at 5% Significance Level					
77	**Detected Data Not Lognormal at 5% Significance Level**											
78												
79	**Lognormal ROS Statistics Using Imputed Non-Detects**											
80					Mean in Original Scale	0.00348					Mean in Log Scale	-8.279
81					SD in Original Scale	0.0484					SD in Log Scale	0.853
82					95% t UCL (assumes normality of ROS data)	0.00777					95% Percentile Bootstrap UCL	0.00861
83					95% BCA Bootstrap UCL	0.0137					95% Bootstrap t UCL	0.0614
84					95% H-UCL (Log ROS)	4.0070E-4						
85												
86	**DL/2 Statistics**											
87	**DL/2 Normal**						**DL/2 Log-Transformed**					
88					Mean in Original Scale	0.00367					Mean in Log Scale	-7.943
89					SD in Original Scale	0.0484					SD in Log Scale	0.88
90					95% t UCL (Assumes normality)	0.00796					95% H-Stat UCL	5.7587E-4
91	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
92												
93	**Nonparametric Distribution Free UCL Statistics**											
94	**Data do not follow a Discernible Distribution at 5% Significance Level**											

Suggested UCL to Use

95% KM (Chebyshev) UCL	0.0149

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,3,5-TRIMETHYLBENZENE

General Statistics

Total Number of Observations	346	Number of Distinct Observations	246
Number of Detects	23	Number of Non-Detects	323
Number of Distinct Detects	23	Number of Distinct Non-Detects	226
Minimum Detect	1.1200E-4	Minimum Non-Detect	3.1400E-4
Maximum Detect	0.302	Maximum Non-Detect	0.0288
Variance Detects	0.00402	Percent Non-Detects	93.35%
Mean Detects	0.0176	SD Detects	0.0634
Median Detects	3.7600E-4	CV Detects	3.606
Skewness Detects	4.477	Kurtosis Detects	20.7
Mean of Logged Detects	-7.243	SD of Logged Detects	2.022

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.306	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.914	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.47	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.185	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.00141	Standard Error of Mean	9.1101E-4
SD	0.0166	95% KM (BCA) UCL	0.00319
95% KM (t) UCL	0.00292	95% KM (Percentile Bootstrap) UCL	0.00313
95% KM (z) UCL	0.00291	95% KM Bootstrap t UCL	0.0366
90% KM Chebyshev UCL	0.00415	95% KM Chebyshev UCL	0.00539
97.5% KM Chebyshev UCL	0.0071	99% KM Chebyshev UCL	0.0105

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	5.058	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.885	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.429	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.2	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.225	k star (bias corrected MLE)	0.225

	A–E	F	G–K	L
142	Theta hat (MLE)	0.078	Theta star (bias corrected MLE)	0.0782
143	nu hat (MLE)	10.37	nu star (bias corrected)	10.35
144	MLE Mean (bias corrected)	0.0176	MLE Sd (bias corrected)	0.0371
145				
146	**Gamma Kaplan-Meier (KM) Statistics**			
147	k hat (KM)	0.00728	nu hat (KM)	5.041
148	Approximate Chi Square Value (5.04, α)	1.171	Adjusted Chi Square Value (5.04, β)	1.164
149	95% Gamma Approximate KM-UCL (use when n>=50)	0.00609	95% Gamma Adjusted KM-UCL (use when n<50)	0.00613
150	Gamma (KM) may not be used when k hat (KM) is < 0.1			
151				
152	**Gamma ROS Statistics using Imputed Non-Detects**			
153	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
154	GROS may not be used when kstar of detected data is small such as < 0.1			
155	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
156	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
157	Minimum	1.1200E-4	Mean	0.0105
158	Maximum	0.302	Median	0.01
159	SD	0.0161	CV	1.536
160	k hat (MLE)	2.38	k star (bias corrected MLE)	2.361
161	Theta hat (MLE)	0.00441	Theta star (bias corrected MLE)	0.00445
162	nu hat (MLE)	1647	nu star (bias corrected)	1634
163	MLE Mean (bias corrected)	0.0105	MLE Sd (bias corrected)	0.00684
164			Adjusted Level of Significance (β)	0.0493
165	Approximate Chi Square Value (N/A, α)	1541	Adjusted Chi Square Value (N/A, β)	1540
166	95% Gamma Approximate UCL (use when n>=50)	0.0111	95% Gamma Adjusted UCL (use when n<50)	0.0111
167				
168	**Lognormal GOF Test on Detected Observations Only**			
169	Shapiro Wilk Test Statistic	0.697	**Shapiro Wilk GOF Test**	
170	5% Shapiro Wilk Critical Value	0.914	Detected Data Not Lognormal at 5% Significance Level	
171	Lilliefors Test Statistic	0.304	**Lilliefors GOF Test**	
172	5% Lilliefors Critical Value	0.185	Detected Data Not Lognormal at 5% Significance Level	
173	**Detected Data Not Lognormal at 5% Significance Level**			
174				
175	**Lognormal ROS Statistics Using Imputed Non-Detects**			
176	Mean in Original Scale	0.00141	Mean in Log Scale	-8.258
177	SD in Original Scale	0.0166	SD in Log Scale	0.693
178	95% t UCL (assumes normality of ROS data)	0.00288	95% Percentile Bootstrap UCL	0.00316
179	95% BCA Bootstrap UCL	0.00477	95% Bootstrap t UCL	0.00858
180	95% H-UCL (Log ROS)	3.5367E-4		
181				
182	**DL/2 Statistics**			
183	**DL/2 Normal**		**DL/2 Log-Transformed**	
184	Mean in Original Scale	0.00157	Mean in Log Scale	-8.057
185	SD in Original Scale	0.0166	SD in Log Scale	0.726
186	95% t UCL (Assumes normality)	0.00304	95% H-Stat UCL	4.4443E-4
187	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
188				

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	0.0071

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

2-METHYLNAPHTHALENE

General Statistics

Total Number of Observations	346	Number of Distinct Observations	109
Number of Detects	31	Number of Non-Detects	315
Number of Distinct Detects	31	Number of Distinct Non-Detects	78
Minimum Detect	0.00995	Minimum Non-Detect	0.0336
Maximum Detect	23.2	Maximum Non-Detect	0.371
Variance Detects	17.42	Percent Non-Detects	91.04%
Mean Detects	0.894	SD Detects	4.174
Median Detects	0.0217	CV Detects	4.669
Skewness Detects	5.435	Kurtosis Detects	29.9
Mean of Logged Detects	-3.206	SD of Logged Detects	1.718

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.226	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.929	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.475	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.159	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0954	Standard Error of Mean	0.0686
SD	1.254	95% KM (BCA) UCL	0.233
95% KM (t) UCL	0.208	95% KM (Percentile Bootstrap) UCL	0.228
95% KM (z) UCL	0.208	95% KM Bootstrap t UCL	2.788
90% KM Chebyshev UCL	0.301	95% KM Chebyshev UCL	0.394
97.5% KM Chebyshev UCL	0.524	99% KM Chebyshev UCL	0.778

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	7.117	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.888	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.399	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.174	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

	A–E	F	G–K	L
236	**Gamma Statistics on Detected Data Only**			
237	k hat (MLE)	0.232	k star (bias corrected MLE)	0.231
238	Theta hat (MLE)	3.848	Theta star (bias corrected MLE)	3.865
239	nu hat (MLE)	14.4	nu star (bias corrected)	14.34
240	MLE Mean (bias corrected)	0.894	MLE Sd (bias corrected)	1.859
241				
242	**Gamma Kaplan-Meier (KM) Statistics**			
243	k hat (KM)	0.00579	nu hat (KM)	4.003
244	Approximate Chi Square Value (4.00, α)	0.723	Adjusted Chi Square Value (4.00, β)	0.718
245	95% Gamma Approximate KM-UCL (use when n>=50)	0.528	95% Gamma Adjusted KM-UCL (use when n<50)	0.532
246	Gamma (KM) may not be used when k hat (KM) is < 0.1			
247				
248	**Gamma ROS Statistics using Imputed Non-Detects**			
249	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
250	GROS may not be used when kstar of detected data is small such as < 0.1			
251	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
252	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
253	Minimum	0.00995	Mean	0.102
254	Maximum	23.2	Median	0.01
255	SD	1.257	CV	12.36
256	k hat (MLE)	0.332	k star (bias corrected MLE)	0.331
257	Theta hat (MLE)	0.306	Theta star (bias corrected MLE)	0.307
258	nu hat (MLE)	229.9	nu star (bias corrected)	229.3
259	MLE Mean (bias corrected)	0.102	MLE Sd (bias corrected)	0.177
260			Adjusted Level of Significance (β)	0.0493
261	Approximate Chi Square Value (229.28, α)	195.2	Adjusted Chi Square Value (229.28, β)	195.1
262	95% Gamma Approximate UCL (use when n>=50)	0.119	95% Gamma Adjusted UCL (use when n<50)	0.12
263				
264	**Lognormal GOF Test on Detected Observations Only**			
265	Shapiro Wilk Test Statistic	0.728	**Shapiro Wilk GOF Test**	
266	5% Shapiro Wilk Critical Value	0.929	Detected Data Not Lognormal at 5% Significance Level	
267	Lilliefors Test Statistic	0.207	**Lilliefors GOF Test**	
268	5% Lilliefors Critical Value	0.159	Detected Data Not Lognormal at 5% Significance Level	
269	**Detected Data Not Lognormal at 5% Significance Level**			
270				
271	**Lognormal ROS Statistics Using Imputed Non-Detects**			
272	Mean in Original Scale	0.0992	Mean in Log Scale	-4.007
273	SD in Original Scale	1.256	SD in Log Scale	0.863
274	95% t UCL (assumes normality of ROS data)	0.211	95% Percentile Bootstrap UCL	0.233
275	95% BCA Bootstrap UCL	0.368	95% Bootstrap t UCL	5.139
276	95% H-UCL (Log ROS)	0.029		
277				
278	**DL/2 Statistics**			
279	**DL/2 Normal**		**DL/2 Log-Transformed**	
280	Mean in Original Scale	0.102	Mean in Log Scale	-3.862
281	SD in Original Scale	1.256	SD in Log Scale	0.689
282	95% t UCL (Assumes normality)	0.213	95% H-Stat UCL	0.0286

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	0.394		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ACENAPHTHENE

General Statistics

Total Number of Observations	346	Number of Distinct Observations	99
Number of Detects	21	Number of Non-Detects	325
Number of Distinct Detects	21	Number of Distinct Non-Detects	79
Minimum Detect	0.0136	Minimum Non-Detect	0.0336
Maximum Detect	0.499	Maximum Non-Detect	0.371
Variance Detects	0.0164	Percent Non-Detects	93.93%
Mean Detects	0.0832	SD Detects	0.128
Median Detects	0.0284	CV Detects	1.54
Skewness Detects	2.593	Kurtosis Detects	6.265
Mean of Logged Detects	-3.15	SD of Logged Detects	1.042

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.57	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.908	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.345	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.193	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.0244	Standard Error of Mean	0.00231
SD	0.0346	95% KM (BCA) UCL	0.0284
95% KM (t) UCL	0.0282	95% KM (Percentile Bootstrap) UCL	0.0284
95% KM (z) UCL	0.0282	95% KM Bootstrap t UCL	0.0296
90% KM Chebyshev UCL	0.0313	95% KM Chebyshev UCL	0.0344
97.5% KM Chebyshev UCL	0.0388	99% KM Chebyshev UCL	0.0474

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.912	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.776	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.246	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.196	Detected Data Not Gamma Distributed at 5% Significance Level

	A–E	F	G–K	L
330	**Detected Data Not Gamma Distributed at 5% Significance Level**			
331				
332	**Gamma Statistics on Detected Data Only**			
333	k hat (MLE)	0.883	k star (bias corrected MLE)	0.789
334	Theta hat (MLE)	0.0943	Theta star (bias corrected MLE)	0.106
335	nu hat (MLE)	37.09	nu star (bias corrected)	33.12
336	MLE Mean (bias corrected)	0.0832	MLE Sd (bias corrected)	0.0937
337				
338	**Gamma Kaplan-Meier (KM) Statistics**			
339	k hat (KM)	0.495	nu hat (KM)	342.3
340	Approximate Chi Square Value (342.34, α)	300.5	Adjusted Chi Square Value (342.34, β)	300.3
341	95% Gamma Approximate KM-UCL (use when n>=50)	0.0277	95% Gamma Adjusted KM-UCL (use when n<50)	0.0278
342				
343	**Gamma ROS Statistics using Imputed Non-Detects**			
344	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
345	GROS may not be used when kstar of detected data is small such as < 0.1			
346	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
347	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
348	Minimum	0.01	Mean	0.0208
349	Maximum	0.499	Median	0.01
350	SD	0.0375	CV	1.805
351	k hat (MLE)	1.525	k star (bias corrected MLE)	1.514
352	Theta hat (MLE)	0.0136	Theta star (bias corrected MLE)	0.0137
353	nu hat (MLE)	1055	nu star (bias corrected)	1047
354	MLE Mean (bias corrected)	0.0208	MLE Sd (bias corrected)	0.0169
355			Adjusted Level of Significance (β)	0.0493
356	Approximate Chi Square Value (N/A, α)	973.3	Adjusted Chi Square Value (N/A, β)	973
357	95% Gamma Approximate UCL (use when n>=50)	0.0224	95% Gamma Adjusted UCL (use when n<50)	0.0224
358				
359	**Lognormal GOF Test on Detected Observations Only**			
360	Shapiro Wilk Test Statistic	0.867	**Shapiro Wilk GOF Test**	
361	5% Shapiro Wilk Critical Value	0.908	Detected Data Not Lognormal at 5% Significance Level	
362	Lilliefors Test Statistic	0.177	**Lilliefors GOF Test**	
363	5% Lilliefors Critical Value	0.193	Detected Data appear Lognormal at 5% Significance Level	
364	**Detected Data appear Approximate Lognormal at 5% Significance Level**			
365				
366	**Lognormal ROS Statistics Using Imputed Non-Detects**			
367	Mean in Original Scale	0.0264	Mean in Log Scale	-3.844
368	SD in Original Scale	0.0355	SD in Log Scale	0.54
369	95% t UCL (assumes normality of ROS data)	0.0295	95% Percentile Bootstrap UCL	0.0295
370	95% BCA Bootstrap UCL	0.031	95% Bootstrap t UCL	0.0331
371	95% H-UCL (Log ROS)	0.0261		
372				
373	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
374	KM Mean (logged)	-3.865	95% H-UCL (KM -Log)	0.0233
375	KM SD (logged)	0.379	95% Critical H Value (KM-Log)	1.74
376	KM Standard Error of Mean (logged)	0.0683		

	A–E	F	G–K	L
377				
378	**DL/2 Statistics**			
379	**DL/2 Normal**		**DL/2 Log-Transformed**	
380	Mean in Original Scale	0.0275	Mean in Log Scale	-3.881
381	SD in Original Scale	0.0439	SD in Log Scale	0.53
382	95% t UCL (Assumes normality)	0.0314	95% H-Stat UCL	0.025
383	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
384				
385	**Nonparametric Distribution Free UCL Statistics**			
386	**Detected Data appear Approximate Lognormal Distributed at 5% Significance Level**			
387				
388	**Suggested UCL to Use**			
389	95% KM (BCA) UCL	0.0284		
390				
391	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
392	Recommendations are based upon data size, data distribution, and skewness.			
393	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
394	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
395				
396	BENZO(A)ANTHRACENE			
397				
398	**General Statistics**			
399	Total Number of Observations	346	Number of Distinct Observations	139
400	Number of Detects	84	Number of Non-Detects	262
401	Number of Distinct Detects	83	Number of Distinct Non-Detects	68
402	Minimum Detect	0.0222	Minimum Non-Detect	0.0337
403	Maximum Detect	5.39	Maximum Non-Detect	0.705
404	Variance Detects	0.579	Percent Non-Detects	75.72%
405	Mean Detects	0.249	SD Detects	0.761
406	Median Detects	0.056	CV Detects	3.054
407	Skewness Detects	5.732	Kurtosis Detects	34.47
408	Mean of Logged Detects	-2.48	SD of Logged Detects	1.119
409				
410	**Normal GOF Test on Detects Only**			
411	Shapiro Wilk Test Statistic	0.308	**Normal GOF Test on Detected Observations Only**	
412	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
413	Lilliefors Test Statistic	0.383	**Lilliefors GOF Test**	
414	5% Lilliefors Critical Value	0.0967	Detected Data Not Normal at 5% Significance Level	
415	**Detected Data Not Normal at 5% Significance Level**			
416				
417	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
418	Mean	0.082	Standard Error of Mean	0.0208
419	SD	0.385	95% KM (BCA) UCL	0.119
420	95% KM (t) UCL	0.116	95% KM (Percentile Bootstrap) UCL	0.12
421	95% KM (z) UCL	0.116	95% KM Bootstrap t UCL	0.187
422	90% KM Chebyshev UCL	0.144	95% KM Chebyshev UCL	0.173
423	97.5% KM Chebyshev UCL	0.212	99% KM Chebyshev UCL	0.289

	A–E	F	G–K	L
424				
425	**Gamma GOF Tests on Detected Observations Only**			
426	A-D Test Statistic	11.02	**Anderson-Darling GOF Test**	
427	5% A-D Critical Value	0.812	Detected Data Not Gamma Distributed at 5% Significance Level	
428	K-S Test Statistic	0.272	**Kolmogrov-Smirnoff GOF**	
429	5% K-S Critical Value	0.103	Detected Data Not Gamma Distributed at 5% Significance Level	
430	**Detected Data Not Gamma Distributed at 5% Significance Level**			
431				
432	**Gamma Statistics on Detected Data Only**			
433	k hat (MLE)	0.571	k star (bias corrected MLE)	0.558
434	Theta hat (MLE)	0.436	Theta star (bias corrected MLE)	0.446
435	nu hat (MLE)	95.9	nu star (bias corrected)	93.81
436	MLE Mean (bias corrected)	0.249	MLE Sd (bias corrected)	0.333
437				
438	**Gamma Kaplan-Meier (KM) Statistics**			
439	k hat (KM)	0.0454	nu hat (KM)	31.45
440	Approximate Chi Square Value (31.45, α)	19.63	Adjusted Chi Square Value (31.45, β)	19.6
441	95% Gamma Approximate KM-UCL (use when n>=50)	0.131	95% Gamma Adjusted KM-UCL (use when n<50)	0.132
442	Gamma (KM) may not be used when k hat (KM) is < 0.1			
443				
444	**Gamma ROS Statistics using Imputed Non-Detects**			
445	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
446	GROS may not be used when kstar of detected data is small such as < 0.1			
447	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
448	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
449	Minimum	0.01	Mean	0.0681
450	Maximum	5.39	Median	0.01
451	SD	0.387	CV	5.687
452	k hat (MLE)	0.459	k star (bias corrected MLE)	0.457
453	Theta hat (MLE)	0.148	Theta star (bias corrected MLE)	0.149
454	nu hat (MLE)	317.7	nu star (bias corrected)	316.3
455	MLE Mean (bias corrected)	0.0681	MLE Sd (bias corrected)	0.101
456			Adjusted Level of Significance (β)	0.0493
457	Approximate Chi Square Value (316.32, α)	276.1	Adjusted Chi Square Value (316.32, β)	276
458	95% Gamma Approximate UCL (use when n>=50)	0.078	95% Gamma Adjusted UCL (use when n<50)	0.078
459				
460	**Lognormal GOF Test on Detected Observations Only**			
461	Lilliefors Test Statistic	0.197	**Lilliefors GOF Test**	
462	5% Lilliefors Critical Value	0.0967	Detected Data Not Lognormal at 5% Significance Level	
463	**Detected Data Not Lognormal at 5% Significance Level**			
464				
465	**Lognormal ROS Statistics Using Imputed Non-Detects**			
466	Mean in Original Scale	0.0734	Mean in Log Scale	-3.84
467	SD in Original Scale	0.386	SD in Log Scale	1.112
468	95% t UCL (assumes normality of ROS data)	0.108	95% Percentile Bootstrap UCL	0.11
469	95% BCA Bootstrap UCL	0.132	95% Bootstrap t UCL	0.185
470	95% H-UCL (Log ROS)	0.0456		

	A	B	C	D	E	F	G	H	I	J	K	L
471												
472	**DL/2 Statistics**											
473	**DL/2 Normal**						**DL/2 Log-Transformed**					
474	Mean in Original Scale					0.0806	Mean in Log Scale					-3.551
475	SD in Original Scale					0.387	SD in Log Scale					0.934
476	95% t UCL (Assumes normality)					0.115	95% H-Stat UCL					0.0493
477	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
478												
479	**Nonparametric Distribution Free UCL Statistics**											
480	**Data do not follow a Discernible Distribution at 5% Significance Level**											
481												
482	**Suggested UCL to Use**											
483	95% KM (BCA) UCL					0.119						
484												
485	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
486	Recommendations are based upon data size, data distribution, and skewness.											
487	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
488	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
489												
490	BIS(2-ETHYLHEXYL)PHTHALATE											
491												
492	**General Statistics**											
493	Total Number of Observations					346	Number of Distinct Observations					123
494	Number of Detects					50	Number of Non-Detects					296
495	Number of Distinct Detects					49	Number of Distinct Non-Detects					79
496	Minimum Detect					0.0189	Minimum Non-Detect					0.0336
497	Maximum Detect					2.45	Maximum Non-Detect					0.705
498	Variance Detects					0.129	Percent Non-Detects					85.55%
499	Mean Detects					0.161	SD Detects					0.359
500	Median Detects					0.0535	CV Detects					2.234
501	Skewness Detects					5.598	Kurtosis Detects					35.15
502	Mean of Logged Detects					-2.627	SD of Logged Detects					1.096
503												
504	**Normal GOF Test on Detects Only**											
505	Shapiro Wilk Test Statistic					0.397	**Shapiro Wilk GOF Test**					
506	5% Shapiro Wilk Critical Value					0.947	Detected Data Not Normal at 5% Significance Level					
507	Lilliefors Test Statistic					0.346	**Lilliefors GOF Test**					
508	5% Lilliefors Critical Value					0.125	Detected Data Not Normal at 5% Significance Level					
509	**Detected Data Not Normal at 5% Significance Level**											
510												
511	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
512	Mean					0.0452	Standard Error of Mean					0.00785
513	SD					0.143	95% KM (BCA) UCL					0.0614
514	95% KM (t) UCL					0.0581	95% KM (Percentile Bootstrap) UCL					0.0598
515	95% KM (z) UCL					0.0581	95% KM Bootstrap t UCL					0.0762
516	90% KM Chebyshev UCL					0.0687	95% KM Chebyshev UCL					0.0794
517	97.5% KM Chebyshev UCL					0.0942	99% KM Chebyshev UCL					0.123

Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	3.218	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.793	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.17	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.13	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.75	k star (bias corrected MLE)	0.718
Theta hat (MLE)	0.214	Theta star (bias corrected MLE)	0.224
nu hat (MLE)	74.98	nu star (bias corrected)	71.81
MLE Mean (bias corrected)	0.161	MLE Sd (bias corrected)	0.19
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.0991	nu hat (KM)	68.6
Approximate Chi Square Value (68.60, α)	50.54	Adjusted Chi Square Value (68.60, β)	50.47
95% Gamma Approximate KM-UCL (use when n>=50)	0.0613	95% Gamma Adjusted KM-UCL (use when n<50)	0.0614
Gamma (KM) may not be used when k hat (KM) is < 0.1			
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.0324
Maximum	2.45	Median	0.01
SD	0.145	CV	4.488
k hat (MLE)	0.703	k star (bias corrected MLE)	0.699
Theta hat (MLE)	0.046	Theta star (bias corrected MLE)	0.0463
nu hat (MLE)	486.6	nu star (bias corrected)	483.7
MLE Mean (bias corrected)	0.0324	MLE Sd (bias corrected)	0.0387
		Adjusted Level of Significance (β)	0.0493
Approximate Chi Square Value (483.68, α)	433.7	Adjusted Chi Square Value (483.68, β)	433.5
95% Gamma Approximate UCL (use when n>=50)	0.0361	95% Gamma Adjusted UCL (use when n<50)	0.0361
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.909	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.947	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.133	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.125	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.046	Mean in Log Scale	-3.596
SD in Original Scale	0.144	SD in Log Scale	0.756
95% t UCL (assumes normality of ROS data)	0.0587	95% Percentile Bootstrap UCL	0.0606

Row	A–E	F	G–K	L
565	95% BCA Bootstrap UCL	0.0686	95% Bootstrap t UCL	0.0786
566	95% H-UCL (Log ROS)	0.0395		
567				
568	**DL/2 Statistics**			
569	**DL/2 Normal**		**DL/2 Log-Transformed**	
570	Mean in Original Scale	0.0464	Mean in Log Scale	-3.701
571	SD in Original Scale	0.147	SD in Log Scale	0.78
572	95% t UCL (Assumes normality)	0.0595	95% H-Stat UCL	0.0363
573	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
574				
575	**Nonparametric Distribution Free UCL Statistics**			
576	**Data do not follow a Discernible Distribution at 5% Significance Level**			
577				
578	**Suggested UCL to Use**			
579	95% KM (BCA) UCL	0.0614		
580				
581	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
582	Recommendations are based upon data size, data distribution, and skewness.			
583	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
584	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
585				
586	CHRYSENE			
587				
588	**General Statistics**			
589	Total Number of Observations	346	Number of Distinct Observations	181
590	Number of Detects	131	Number of Non-Detects	215
591	Number of Distinct Detects	124	Number of Distinct Non-Detects	64
592	Minimum Detect	0.016	Minimum Non-Detect	0.0337
593	Maximum Detect	6.76	Maximum Non-Detect	0.705
594	Variance Detects	0.642	Percent Non-Detects	62.14%
595	Mean Detects	0.217	SD Detects	0.801
596	Median Detects	0.0441	CV Detects	3.697
597	Skewness Detects	6.917	Kurtosis Detects	50.7
598	Mean of Logged Detects	-2.784	SD of Logged Detects	1.174
599				
600	**Normal GOF Test on Detects Only**			
601	Shapiro Wilk Test Statistic	0.257	**Normal GOF Test on Detected Observations Only**	
602	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
603	Lilliefors Test Statistic	0.401	**Lilliefors GOF Test**	
604	5% Lilliefors Critical Value	0.0774	Detected Data Not Normal at 5% Significance Level	
605	**Detected Data Not Normal at 5% Significance Level**			
606				
607	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
608	Mean	0.0974	Standard Error of Mean	0.027
609	SD	0.5	95% KM (BCA) UCL	0.146
610	95% KM (t) UCL	0.142	95% KM (Percentile Bootstrap) UCL	0.145
611	95% KM (z) UCL	0.142	95% KM Bootstrap t UCL	0.225

	A–E	F	G–K	L
612	90% KM Chebyshev UCL	0.178	95% KM Chebyshev UCL	0.215
613	97.5% KM Chebyshev UCL	0.266	99% KM Chebyshev UCL	0.366
614				
615	**Gamma GOF Tests on Detected Observations Only**			
616	A-D Test Statistic	16.58	**Anderson-Darling GOF Test**	
617	5% A-D Critical Value	0.819	Detected Data Not Gamma Distributed at 5% Significance Level	
618	K-S Test Statistic	0.258	**Kolmogrov-Smirnoff GOF**	
619	5% K-S Critical Value	0.0861	Detected Data Not Gamma Distributed at 5% Significance Level	
620	**Detected Data Not Gamma Distributed at 5% Significance Level**			
621				
622	**Gamma Statistics on Detected Data Only**			
623	k hat (MLE)	0.505	k star (bias corrected MLE)	0.499
624	Theta hat (MLE)	0.429	Theta star (bias corrected MLE)	0.434
625	nu hat (MLE)	132.4	nu star (bias corrected)	130.7
626	MLE Mean (bias corrected)	0.217	MLE Sd (bias corrected)	0.307
627				
628	**Gamma Kaplan-Meier (KM) Statistics**			
629	k hat (KM)	0.038	nu hat (KM)	26.31
630	Approximate Chi Square Value (26.31, α)	15.62	Adjusted Chi Square Value (26.31, β)	15.58
631	95% Gamma Approximate KM-UCL (use when n>=50)	0.164	95% Gamma Adjusted KM-UCL (use when n<50)	0.165
632	Gamma (KM) may not be used when k hat (KM) is < 0.1			
633				
634	**Gamma ROS Statistics using Imputed Non-Detects**			
635	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
636	GROS may not be used when kstar of detected data is small such as < 0.1			
637	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
638	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
639	Minimum	0.01	Mean	0.0882
640	Maximum	6.76	Median	0.01
641	SD	0.502	CV	5.687
642	k hat (MLE)	0.436	k star (bias corrected MLE)	0.434
643	Theta hat (MLE)	0.202	Theta star (bias corrected MLE)	0.203
644	nu hat (MLE)	301.8	nu star (bias corrected)	300.5
645	MLE Mean (bias corrected)	0.0882	MLE Sd (bias corrected)	0.134
646			Adjusted Level of Significance (β)	0.0493
647	Approximate Chi Square Value (300.52, α)	261.4	Adjusted Chi Square Value (300.52, β)	261.2
648	95% Gamma Approximate UCL (use when n>=50)	0.101	95% Gamma Adjusted UCL (use when n<50)	0.102
649				
650	**Lognormal GOF Test on Detected Observations Only**			
651	Lilliefors Test Statistic	0.125	**Lilliefors GOF Test**	
652	5% Lilliefors Critical Value	0.0774	Detected Data Not Lognormal at 5% Significance Level	
653	**Detected Data Not Lognormal at 5% Significance Level**			
654				
655	**Lognormal ROS Statistics Using Imputed Non-Detects**			
656	Mean in Original Scale	0.098	Mean in Log Scale	-3.405
657	SD in Original Scale	0.5	SD in Log Scale	0.957
658	95% t UCL (assumes normality of ROS data)	0.142	95% Percentile Bootstrap UCL	0.148

95% BCA Bootstrap UCL	0.167	95% Bootstrap t UCL	0.228
95% H-UCL (Log ROS)	0.0585		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0984	Mean in Log Scale	-3.477
SD in Original Scale	0.501	SD in Log Scale	0.987
95% t UCL (Assumes normality)	0.143	95% H-Stat UCL	0.0562
DL/2 is not a recommended method, provided for comparisons and historical reasons			
Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (BCA) UCL	0.146		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
DIESEL RANGE ORGANICS			
General Statistics			
Total Number of Observations	346	Number of Distinct Observations	281
Number of Detects	295	Number of Non-Detects	51
Number of Distinct Detects	261	Number of Distinct Non-Detects	27
Minimum Detect	1.34	Minimum Non-Detect	2.09
Maximum Detect	4520	Maximum Non-Detect	4.39
Variance Detects	73497	Percent Non-Detects	14.74%
Mean Detects	40.25	SD Detects	271.1
Median Detects	6.75	CV Detects	6.736
Skewness Detects	15.55	Kurtosis Detects	256
Mean of Logged Detects	2.081	SD of Logged Detects	1.325
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.137	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.443	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0516	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	34.58	Standard Error of Mean	13.48
SD	250.3	95% KM (BCA) UCL	66.47
95% KM (t) UCL	56.81	95% KM (Percentile Bootstrap) UCL	60.22
95% KM (z) UCL	56.75	95% KM Bootstrap t UCL	118.6

706	90% KM Chebyshev UCL	75.01	95% KM Chebyshev UCL	93.32
707	97.5% KM Chebyshev UCL	118.7	99% KM Chebyshev UCL	168.7
708				
709	**Gamma GOF Tests on Detected Observations Only**			
710	A-D Test Statistic	3.390E+28	**Anderson-Darling GOF Test**	
711	5% A-D Critical Value	0.844	Detected Data Not Gamma Distributed at 5% Significance Level	
712	K-S Test Statistic	0.274	**Kolmogrov-Smirnoff GOF**	
713	5% K-S Critical Value	0.0564	Detected Data Not Gamma Distributed at 5% Significance Level	
714	**Detected Data Not Gamma Distributed at 5% Significance Level**			
715				
716	**Gamma Statistics on Detected Data Only**			
717	k hat (MLE)	0.407	k star (bias corrected MLE)	0.405
718	Theta hat (MLE)	98.97	Theta star (bias corrected MLE)	99.43
719	nu hat (MLE)	239.9	nu star (bias corrected)	238.8
720	MLE Mean (bias corrected)	40.25	MLE Sd (bias corrected)	63.26
721				
722	**Gamma Kaplan-Meier (KM) Statistics**			
723	k hat (KM)	0.0191	nu hat (KM)	13.21
724	Approximate Chi Square Value (13.21, α)	6.033	Adjusted Chi Square Value (13.21, β)	6.013
725	95% Gamma Approximate KM-UCL (use when n>=50)	75.7	95% Gamma Adjusted KM-UCL (use when n<50)	75.96
726	Gamma (KM) may not be used when k hat (KM) is < 0.1			
727				
728	**Gamma ROS Statistics using Imputed Non-Detects**			
729	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
730	GROS may not be used when kstar of detected data is small such as < 0.1			
731	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
732	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
733	Minimum	0.01	Mean	34.32
734	Maximum	4520	Median	5.405
735	SD	250.7	CV	7.304
736	k hat (MLE)	0.285	k star (bias corrected MLE)	0.284
737	Theta hat (MLE)	120.4	Theta star (bias corrected MLE)	120.6
738	nu hat (MLE)	197.2	nu star (bias corrected)	196.8
739	MLE Mean (bias corrected)	34.32	MLE Sd (bias corrected)	64.35
740			Adjusted Level of Significance (β)	0.0493
741	Approximate Chi Square Value (196.83, α)	165.4	Adjusted Chi Square Value (196.83, β)	165.3
742	95% Gamma Approximate UCL (use when n>=50)	40.85	95% Gamma Adjusted UCL (use when n<50)	40.88
743				
744	**Lognormal GOF Test on Detected Observations Only**			
745	Lilliefors Test Statistic	0.0953	**Lilliefors GOF Test**	
746	5% Lilliefors Critical Value	0.0516	Detected Data Not Lognormal at 5% Significance Level	
747	**Detected Data Not Lognormal at 5% Significance Level**			
748				
749	**Lognormal ROS Statistics Using Imputed Non-Detects**			
750	Mean in Original Scale	34.53	Mean in Log Scale	1.82
751	SD in Original Scale	250.6	SD in Log Scale	1.382
752	95% t UCL (assumes normality of ROS data)	56.75	95% Percentile Bootstrap UCL	59.52

	A–E	F	G–K	L
753	95% BCA Bootstrap UCL	82.86	95% Bootstrap t UCL	115.3
754	95% H-UCL (Log ROS)	19.26		
755				
756	**DL/2 Statistics**			
757	**DL/2 Normal**		**DL/2 Log-Transformed**	
758	Mean in Original Scale	34.49	Mean in Log Scale	1.793
759	SD in Original Scale	250.6	SD in Log Scale	1.407
760	95% t UCL (Assumes normality)	56.71	95% H-Stat UCL	19.52
761	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
762				
763	**Nonparametric Distribution Free UCL Statistics**			
764	**Data do not follow a Discernible Distribution at 5% Significance Level**			
765				
766	**Suggested UCL to Use**			
767	95% KM (Chebyshev) UCL	93.32		
768				
769	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
770	Recommendations are based upon data size, data distribution, and skewness.			
771	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
772	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
773				
774	**DI-N-BUTYL PHTHALATE**			
775				
776	**General Statistics**			
777	Total Number of Observations	346	Number of Distinct Observations	69
778	Number of Detects	19	Number of Non-Detects	327
779	Number of Distinct Detects	18	Number of Distinct Non-Detects	56
780	Minimum Detect	0.0145	Minimum Non-Detect	0.0168
781	Maximum Detect	0.0899	Maximum Non-Detect	0.342
782	Variance Detects	4.9635E-4	Percent Non-Detects	94.51%
783	Mean Detects	0.0303	SD Detects	0.0223
784	Median Detects	0.0192	CV Detects	0.734
785	Skewness Detects	1.793	Kurtosis Detects	2.269
786	Mean of Logged Detects	-3.68	SD of Logged Detects	0.575
787				
788	**Normal GOF Test on Detects Only**			
789	Shapiro Wilk Test Statistic	0.711	**Shapiro Wilk GOF Test**	
790	5% Shapiro Wilk Critical Value	0.901	Detected Data Not Normal at 5% Significance Level	
791	Lilliefors Test Statistic	0.243	**Lilliefors GOF Test**	
792	5% Lilliefors Critical Value	0.203	Detected Data Not Normal at 5% Significance Level	
793	**Detected Data Not Normal at 5% Significance Level**			
794				
795	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
796	Mean	0.0164	Standard Error of Mean	4.8689E-4
797	SD	0.0063	95% KM (BCA) UCL	0.0173
798	95% KM (t) UCL	0.0172	95% KM (Percentile Bootstrap) UCL	0.0172
799	95% KM (z) UCL	0.0172	95% KM Bootstrap t UCL	0.0175

	A	B	C	D	E	F	G	H	I	J	K	L
800					90% KM Chebyshev UCL	0.0179					95% KM Chebyshev UCL	0.0185
801					97.5% KM Chebyshev UCL	0.0194					99% KM Chebyshev UCL	0.0212
802												
803	**Gamma GOF Tests on Detected Observations Only**											
804					A-D Test Statistic	1.56	**Anderson-Darling GOF Test**					
805					5% A-D Critical Value	0.749	Detected Data Not Gamma Distributed at 5% Significance Level					
806					K-S Test Statistic	0.232	**Kolmogrov-Smirnoff GOF**					
807					5% K-S Critical Value	0.2	Detected Data Not Gamma Distributed at 5% Significance Level					
808	**Detected Data Not Gamma Distributed at 5% Significance Level**											
809												
810	**Gamma Statistics on Detected Data Only**											
811					k hat (MLE)	2.873					k star (bias corrected MLE)	2.455
812					Theta hat (MLE)	0.0106					Theta star (bias corrected MLE)	0.0124
813					nu hat (MLE)	109.2					nu star (bias corrected)	93.28
814					MLE Mean (bias corrected)	0.0303					MLE Sd (bias corrected)	0.0194
815												
816	**Gamma Kaplan-Meier (KM) Statistics**											
817					k hat (KM)	6.774					nu hat (KM)	4688
818					Approximate Chi Square Value (N/A, α)	4530					Adjusted Chi Square Value (N/A, β)	4529
819					95% Gamma Approximate KM-UCL (use when n>=50)	0.017					95% Gamma Adjusted KM-UCL (use when n<50)	0.017
820												
821	**Gamma ROS Statistics using Imputed Non-Detects**											
822	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
823	GROS may not be used when kstar of detected data is small such as < 0.1											
824	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
825	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
826					Minimum	0.01					Mean	0.0135
827					Maximum	0.0899					Median	0.01
828					SD	0.0077					CV	0.572
829					k hat (MLE)	6.521					k star (bias corrected MLE)	6.466
830					Theta hat (MLE)	0.00206					Theta star (bias corrected MLE)	0.00208
831					nu hat (MLE)	4512					nu star (bias corrected)	4475
832					MLE Mean (bias corrected)	0.0135					MLE Sd (bias corrected)	0.00529
833											Adjusted Level of Significance (β)	0.0493
834					Approximate Chi Square Value (N/A, α)	4320					Adjusted Chi Square Value (N/A, β)	4320
835					95% Gamma Approximate UCL (use when n>=50)	0.0139					95% Gamma Adjusted UCL (use when n<50)	0.0139
836												
837	**Lognormal GOF Test on Detected Observations Only**											
838					Shapiro Wilk Test Statistic	0.837	**Shapiro Wilk GOF Test**					
839					5% Shapiro Wilk Critical Value	0.901	Detected Data Not Lognormal at 5% Significance Level					
840					Lilliefors Test Statistic	0.209	**Lilliefors GOF Test**					
841					5% Lilliefors Critical Value	0.203	Detected Data Not Lognormal at 5% Significance Level					
842	**Detected Data Not Lognormal at 5% Significance Level**											
843												
844	**Lognormal ROS Statistics Using Imputed Non-Detects**											
845					Mean in Original Scale	0.0158					Mean in Log Scale	-4.209
846					SD in Original Scale	0.0073					SD in Log Scale	0.321

	A–E	F	G–K	L
847	95% t UCL (assumes normality of ROS data)	0.0164	95% Percentile Bootstrap UCL	0.0165
848	95% BCA Bootstrap UCL	0.0166	95% Bootstrap t UCL	0.0166
849	95% H-UCL (Log ROS)	0.0161		
850				
851	**DL/2 Statistics**			
852	**DL/2 Normal**		**DL/2 Log-Transformed**	
853	Mean in Original Scale	0.0141	Mean in Log Scale	-4.544
854	SD in Original Scale	0.0199	SD in Log Scale	0.551
855	95% t UCL (Assumes normality)	0.0159	95% H-Stat UCL	0.0131
856	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
857				
858	**Nonparametric Distribution Free UCL Statistics**			
859	**Data do not follow a Discernible Distribution at 5% Significance Level**			
860				
861	**Suggested UCL to Use**			
862	95% KM (t) UCL	0.0172	95% KM (% Bootstrap) UCL	0.0172
863				
864	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
865	Recommendations are based upon data size, data distribution, and skewness.			
866	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
867	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
868				
869	GASOLINE RANGE ORGANICS			
870				
871	**General Statistics**			
872	Total Number of Observations	346	Number of Distinct Observations	170
873	Number of Detects	44	Number of Non-Detects	302
874	Number of Distinct Detects	44	Number of Distinct Non-Detects	140
875	Minimum Detect	0.737	Minimum Non-Detect	1.01
876	Maximum Detect	1750	Maximum Non-Detect	8.38
877	Variance Detects	69306	Percent Non-Detects	87.28%
878	Mean Detects	45.04	SD Detects	263.3
879	Median Detects	1.77	CV Detects	5.845
880	Skewness Detects	6.614	Kurtosis Detects	43.82
881	Mean of Logged Detects	1.005	SD of Logged Detects	1.451
882				
883	**Normal GOF Test on Detects Only**			
884	Shapiro Wilk Test Statistic	0.172	**Shapiro Wilk GOF Test**	
885	5% Shapiro Wilk Critical Value	0.944	Detected Data Not Normal at 5% Significance Level	
886	Lilliefors Test Statistic	0.476	**Lilliefors GOF Test**	
887	5% Lilliefors Critical Value	0.134	Detected Data Not Normal at 5% Significance Level	
888	**Detected Data Not Normal at 5% Significance Level**			
889				
890	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
891	Mean	6.758	Standard Error of Mean	5.11
892	SD	93.95	95% KM (BCA) UCL	16.96
893	95% KM (t) UCL	15.18	95% KM (Percentile Bootstrap) UCL	16.84

	A–E	F	G–K	L
894	95% KM (z) UCL	15.16	95% KM Bootstrap t UCL	234.9
895	90% KM Chebyshev UCL	22.09	95% KM Chebyshev UCL	29.03
896	97.5% KM Chebyshev UCL	38.67	99% KM Chebyshev UCL	57.6
897				
898	**Gamma GOF Tests on Detected Observations Only**			
899	A-D Test Statistic	10.41	**Anderson-Darling GOF Test**	
900	5% A-D Critical Value	0.885	Detected Data Not Gamma Distributed at 5% Significance Level	
901	K-S Test Statistic	0.365	**Kolmogrov-Smirnoff GOF**	
902	5% K-S Critical Value	0.146	Detected Data Not Gamma Distributed at 5% Significance Level	
903	**Detected Data Not Gamma Distributed at 5% Significance Level**			
904				
905	**Gamma Statistics on Detected Data Only**			
906	k hat (MLE)	0.253	k star (bias corrected MLE)	0.251
907	Theta hat (MLE)	178	Theta star (bias corrected MLE)	179.5
908	nu hat (MLE)	22.26	nu star (bias corrected)	22.08
909	MLE Mean (bias corrected)	45.04	MLE Sd (bias corrected)	89.92
910				
911	**Gamma Kaplan-Meier (KM) Statistics**			
912	k hat (KM)	0.00517	nu hat (KM)	3.58
913	Approximate Chi Square Value (3.58, α)	0.563	Adjusted Chi Square Value (3.58, β)	0.559
914	95% Gamma Approximate KM-UCL (use when n>=50)	42.96	95% Gamma Adjusted KM-UCL (use when n<50)	43.31
915	Gamma (KM) may not be used when k hat (KM) is < 0.1			
916				
917	**Gamma ROS Statistics using Imputed Non-Detects**			
918	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
919	GROS may not be used when kstar of detected data is small such as < 0.1			
920	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
921	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
922	Minimum	0.01	Mean	5.736
923	Maximum	1750	Median	0.01
924	SD	94.15	CV	16.41
925	k hat (MLE)	0.138	k star (bias corrected MLE)	0.139
926	Theta hat (MLE)	41.58	Theta star (bias corrected MLE)	41.36
927	nu hat (MLE)	95.47	nu star (bias corrected)	95.97
928	MLE Mean (bias corrected)	5.736	MLE Sd (bias corrected)	15.4
929			Adjusted Level of Significance (β)	0.0493
930	Approximate Chi Square Value (95.97, α)	74.38	Adjusted Chi Square Value (95.97, β)	74.3
931	95% Gamma Approximate UCL (use when n>=50)	7.402	95% Gamma Adjusted UCL (use when n<50)	7.41
932				
933	**Lognormal GOF Test on Detected Observations Only**			
934	Shapiro Wilk Test Statistic	0.748	**Shapiro Wilk GOF Test**	
935	5% Shapiro Wilk Critical Value	0.944	Detected Data Not Lognormal at 5% Significance Level	
936	Lilliefors Test Statistic	0.237	**Lilliefors GOF Test**	
937	5% Lilliefors Critical Value	0.134	Detected Data Not Lognormal at 5% Significance Level	
938	**Detected Data Not Lognormal at 5% Significance Level**			
939				
940	**Lognormal ROS Statistics Using Imputed Non-Detects**			

	A–E	F	G–K	L
941	Mean in Original Scale	6.788	Mean in Log Scale	0.21
942	SD in Original Scale	94.09	SD in Log Scale	0.731
943	95% t UCL (assumes normality of ROS data)	15.13	95% Percentile Bootstrap UCL	16.85
944	95% BCA Bootstrap UCL	26.77	95% Bootstrap t UCL	253.7
945	95% H-UCL (Log ROS)	1.738		
946				
947	**DL/2 Statistics**			
948	**DL/2 Normal**		**DL/2 Log-Transformed**	
949	Mean in Original Scale	6.718	Mean in Log Scale	0.217
950	SD in Original Scale	94.09	SD in Log Scale	0.625
951	95% t UCL (Assumes normality)	15.06	95% H-Stat UCL	1.608
952	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
953				
954	**Nonparametric Distribution Free UCL Statistics**			
955	**Data do not follow a Discernible Distribution at 5% Significance Level**			
956				
957	**Suggested UCL to Use**			
958	95% KM (BCA) UCL	16.96		
959				
960	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
961	Recommendations are based upon data size, data distribution, and skewness.			
962	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
963	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
964				
965				
966	LEAD			
967				
968	**General Statistics**			
969	Total Number of Observations	346	Number of Distinct Observations	293
970			Number of Missing Observations	0
971	Minimum	2.12	Mean	12.03
972	Maximum	140	Median	6.57
973	SD	16.35	Std. Error of Mean	0.879
974	Coefficient of Variation	1.359	Skewness	4.033
975				
976	**Normal GOF Test**			
977	Shapiro Wilk Test Statistic	0.548	**Shapiro Wilk GOF Test**	
978	5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level	
979	Lilliefors Test Statistic	0.275	**Lilliefors GOF Test**	
980	5% Lilliefors Critical Value	0.0476	Data Not Normal at 5% Significance Level	
981	**Data Not Normal at 5% Significance Level**			
982				
983	**Assuming Normal Distribution**			
984	**95% Normal UCL**		**95% UCLs (Adjusted for Skewness)**	
985	95% Student's-t UCL	13.48	95% Adjusted-CLT UCL (Chen-1995)	13.68
986			95% Modified-t UCL (Johnson-1978)	13.51
987				

	A–E	F	G–K	L
988	**Gamma GOF Test**			
989	A-D Test Statistic	22.01	**Anderson-Darling Gamma GOF Test**	
990	5% A-D Critical Value	0.776	Data Not Gamma Distributed at 5% Significance Level	
991	K-S Test Statistic	0.18	**Kolmogrov-Smirnoff Gamma GOF Test**	
992	5% K-S Critical Value	0.05	Data Not Gamma Distributed at 5% Significance Level	
993	**Data Not Gamma Distributed at 5% Significance Level**			
994				
995	**Gamma Statistics**			
996	k hat (MLE)	1.33	k star (bias corrected MLE)	1.32
997	Theta hat (MLE)	9.045	Theta star (bias corrected MLE)	9.11
998	nu hat (MLE)	920.2	nu star (bias corrected)	913.6
999	MLE Mean (bias corrected)	12.03	MLE Sd (bias corrected)	10.47
1000			Approximate Chi Square Value (0.05)	844.4
1001	Adjusted Level of Significance	0.0493	Adjusted Chi Square Value	844.2
1002				
1003	**Assuming Gamma Distribution**			
1004	95% Approximate Gamma UCL (use when n>=50))	13.01	95% Adjusted Gamma UCL (use when n<50)	13.02
1005				
1006	**Lognormal GOF Test**			
1007	Shapiro Wilk Test Statistic	0.894	**Shapiro Wilk Lognormal GOF Test**	
1008	5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
1009	Lilliefors Test Statistic	0.118	**Lilliefors Lognormal GOF Test**	
1010	5% Lilliefors Critical Value	0.0476	Data Not Lognormal at 5% Significance Level	
1011	**Data Not Lognormal at 5% Significance Level**			
1012				
1013	**Lognormal Statistics**			
1014	Minimum of Logged Data	0.751	Mean of logged Data	2.066
1015	Maximum of Logged Data	4.942	SD of logged Data	0.799
1016				
1017	**Assuming Lognormal Distribution**			
1018	95% H-UCL	11.83	90% Chebyshev (MVUE) UCL	12.45
1019	95% Chebyshev (MVUE) UCL	13.18	97.5% Chebyshev (MVUE) UCL	14.18
1020	99% Chebyshev (MVUE) UCL	16.16		
1021				
1022	**Nonparametric Distribution Free UCL Statistics**			
1023	**Data do not follow a Discernible Distribution (0.05)**			
1024				
1025	**Nonparametric Distribution Free UCLs**			
1026	95% CLT UCL	13.47	95% Jackknife UCL	13.48
1027	95% Standard Bootstrap UCL	13.45	95% Bootstrap-t UCL	13.71
1028	95% Hall's Bootstrap UCL	13.76	95% Percentile Bootstrap UCL	13.54
1029	95% BCA Bootstrap UCL	13.78		
1030	90% Chebyshev(Mean, Sd) UCL	14.66	95% Chebyshev(Mean, Sd) UCL	15.86
1031	97.5% Chebyshev(Mean, Sd) UCL	17.52	99% Chebyshev(Mean, Sd) UCL	20.77
1032				
1033	**Suggested UCL to Use**			
1034	95% Chebyshev (Mean, Sd) UCL	15.86		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

NAPHTHALENE

General Statistics

Total Number of Observations	346	Number of Distinct Observations	242
Number of Detects	14	Number of Non-Detects	332
Number of Distinct Detects	14	Number of Distinct Non-Detects	229
Minimum Detect	1.9000E-4	Minimum Non-Detect	3.1400E-4
Maximum Detect	2.45	Maximum Non-Detect	0.0288
Variance Detects	0.422	Percent Non-Detects	95.95%
Mean Detects	0.197	SD Detects	0.65
Median Detects	0.00532	CV Detects	3.295
Skewness Detects	3.714	Kurtosis Detects	13.85
Mean of Logged Detects	-4.668	SD of Logged Detects	2.369

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.338	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.874	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.453	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.237	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.00816	Standard Error of Mean	0.00735
SD	0.132	95% KM (BCA) UCL	0.0229
95% KM (t) UCL	0.0203	95% KM (Percentile Bootstrap) UCL	0.0221
95% KM (z) UCL	0.0203	95% KM Bootstrap t UCL	0.342
90% KM Chebyshev UCL	0.0302	95% KM Chebyshev UCL	0.0402
97.5% KM Chebyshev UCL	0.0541	99% KM Chebyshev UCL	0.0813

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.766	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.863	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.296	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.251	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.236	k star (bias corrected MLE)	0.233
Theta hat (MLE)	0.837	Theta star (bias corrected MLE)	0.848
nu hat (MLE)	6.596	nu star (bias corrected)	6.516
MLE Mean (bias corrected)	0.197	MLE Sd (bias corrected)	0.409

	A	B	C	D	E	F	G	H	I	J	K	L
1082												
1083	**Gamma Kaplan-Meier (KM) Statistics**											
1084					k hat (KM)	0.00384					nu hat (KM)	2.655
1085					Approximate Chi Square Value (2.65, α)	0.278					Adjusted Chi Square Value (2.65, β)	0.275
1086					95% Gamma Approximate KM-UCL (use when n>=50)	0.078					95% Gamma Adjusted KM-UCL (use when n<50)	0.0787
1087	Gamma (KM) may not be used when k hat (KM) is < 0.1											
1088												
1089	**Gamma ROS Statistics using Imputed Non-Detects**											
1090	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1091	GROS may not be used when kstar of detected data is small such as < 0.1											
1092	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1093	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1094					Minimum	1.9000E-4					Mean	0.0176
1095					Maximum	2.45					Median	0.01
1096					SD	0.131					CV	7.478
1097					k hat (MLE)	1.017					k star (bias corrected MLE)	1.01
1098					Theta hat (MLE)	0.0173					Theta star (bias corrected MLE)	0.0174
1099					nu hat (MLE)	703.8					nu star (bias corrected)	699
1100					MLE Mean (bias corrected)	0.0176					MLE Sd (bias corrected)	0.0175
1101											Adjusted Level of Significance (β)	0.0493
1102					Approximate Chi Square Value (699.01, α)	638.7					Adjusted Chi Square Value (699.01, β)	638.4
1103					95% Gamma Approximate UCL (use when n>=50)	0.0192					95% Gamma Adjusted UCL (use when n<50)	0.0192
1104												
1105	**Lognormal GOF Test on Detected Observations Only**											
1106					Shapiro Wilk Test Statistic	0.951	**Shapiro Wilk GOF Test**					
1107					5% Shapiro Wilk Critical Value	0.874	Detected Data appear Lognormal at 5% Significance Level					
1108					Lilliefors Test Statistic	0.153	**Lilliefors GOF Test**					
1109					5% Lilliefors Critical Value	0.237	Detected Data appear Lognormal at 5% Significance Level					
1110	**Detected Data appear Lognormal at 5% Significance Level**											
1111												
1112	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1113					Mean in Original Scale	0.00802					Mean in Log Scale	-10.44
1114					SD in Original Scale	0.132					SD in Log Scale	1.615
1115					95% t UCL (assumes normality of ROS data)	0.0197					95% Percentile Bootstrap UCL	0.0222
1116					95% BCA Bootstrap UCL	0.0363					95% Bootstrap t UCL	0.323
1117					95% H-UCL (Log ROS)	1.3652E-4						
1118												
1119	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**											
1120					KM Mean (logged)	-8.409					95% H-UCL (KM -Log)	3.6748E-4
1121					KM SD (logged)	0.897					95% Critical H Value (KM-Log)	2.043
1122					KM Standard Error of Mean (logged)	0.0501						
1123												
1124	**DL/2 Statistics**											
1125	**DL/2 Normal**						**DL/2 Log-Transformed**					
1126					Mean in Original Scale	0.00834					Mean in Log Scale	-7.961
1127					SD in Original Scale	0.132					SD in Log Scale	0.93
1128					95% t UCL (Assumes normality)	0.02					95% H-Stat UCL	5.9602E-4

	A	B	C	D	E	F	G	H	I	J	K	L
1129	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1130												
1131	**Nonparametric Distribution Free UCL Statistics**											
1132	**Detected Data appear Lognormal Distributed at 5% Significance Level**											
1133												
1134	**Suggested UCL to Use**											
1135					97.5% KM (Chebyshev) UCL	0.0541						
1136												
1137	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1138	Recommendations are based upon data size, data distribution, and skewness.											
1139	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1140	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1141												

UCL Statistics for Data Sets with Non-Detects

User Selected Options	**KAFB - BFF Total Soil (0-10 ft bgs)_03-06-14**
Date/Time of Computation	3/6/2014 10:35:31 AM
From File	ProUCL input_TS_03-06-14.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

1,2,4-TRIMETHYLBENZENE

General Statistics

Total Number of Observations	652	Number of Distinct Observations	407
Number of Detects	106	Number of Non-Detects	546
Number of Distinct Detects	101	Number of Distinct Non-Detects	318
Minimum Detect	1.0500E-4	Minimum Non-Detect	3.6900E-4
Maximum Detect	59.2	Maximum Non-Detect	0.383
Variance Detects	77.52	Percent Non-Detects	83.74%
Mean Detects	1.621	SD Detects	8.804
Median Detects	4.0100E-4	CV Detects	5.431
Skewness Detects	6.012	Kurtosis Detects	35.95
Mean of Logged Detects	-6.775	SD of Logged Detects	3.025

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.196	**Normal GOF Test on Detected Observations Only**
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.472	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.0861	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	0.264	Standard Error of Mean	0.141
SD	3.583	95% KM (BCA) UCL	0.525
95% KM (t) UCL	0.496	95% KM (Percentile Bootstrap) UCL	0.521
95% KM (z) UCL	0.496	95% KM Bootstrap t UCL	2.111
90% KM Chebyshev UCL	0.687	95% KM Chebyshev UCL	0.878
97.5% KM Chebyshev UCL	1.144	99% KM Chebyshev UCL	1.667

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	27.14	**Anderson-Darling GOF Test**
5% A-D Critical Value	1.005	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.427	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.101	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.11	k star (bias corrected MLE)	0.114

	A–E	F	G–K	L
48	Theta hat (MLE)	14.67	Theta star (bias corrected MLE)	14.27
49	nu hat (MLE)	23.42	nu star (bias corrected)	24.09
50	MLE Mean (bias corrected)	1.621	MLE Sd (bias corrected)	4.809
51				
52	**Gamma Kaplan-Meier (KM) Statistics**			
53	k hat (KM)	0.00542	nu hat (KM)	7.063
54	Approximate Chi Square Value (7.06, α)	2.205	Adjusted Chi Square Value (7.06, β)	2.199
55	95% Gamma Approximate KM-UCL (use when n>=50)	0.845	95% Gamma Adjusted KM-UCL (use when n<50)	0.847
56	Gamma (KM) may not be used when k hat (KM) is < 0.1			
57				
58	**Gamma ROS Statistics using Imputed Non-Detects**			
59	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
60	GROS may not be used when kstar of detected data is small such as < 0.1			
61	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
62	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
63	Minimum	1.0500E-4	Mean	0.272
64	Maximum	59.2	Median	0.01
65	SD	3.586	CV	13.19
66	k hat (MLE)	0.201	k star (bias corrected MLE)	0.201
67	Theta hat (MLE)	1.352	Theta star (bias corrected MLE)	1.351
68	nu hat (MLE)	262.3	nu star (bias corrected)	262.4
69	MLE Mean (bias corrected)	0.272	MLE Sd (bias corrected)	0.606
70			Adjusted Level of Significance (β)	0.0496
71	Approximate Chi Square Value (262.40, α)	225.9	Adjusted Chi Square Value (262.40, β)	225.8
72	95% Gamma Approximate UCL (use when n>=50)	0.316	95% Gamma Adjusted UCL (use when n<50)	0.316
73				
74	**Lognormal GOF Test on Detected Observations Only**			
75	Lilliefors Test Statistic	0.278	**Lilliefors GOF Test**	
76	5% Lilliefors Critical Value	0.0861	Detected Data Not Lognormal at 5% Significance Level	
77	**Detected Data Not Lognormal at 5% Significance Level**			
78				
79	**Lognormal ROS Statistics Using Imputed Non-Detects**			
80	Mean in Original Scale	0.264	Mean in Log Scale	-8.15
81	SD in Original Scale	3.586	SD in Log Scale	1.509
82	95% t UCL (assumes normality of ROS data)	0.495	95% Percentile Bootstrap UCL	0.502
83	95% BCA Bootstrap UCL	0.617	95% Bootstrap t UCL	1.789
84	95% H-UCL (Log ROS)	0.00105		
85				
86	**DL/2 Statistics**			
87	**DL/2 Normal**		**DL/2 Log-Transformed**	
88	Mean in Original Scale	0.264	Mean in Log Scale	-7.844
89	SD in Original Scale	3.586	SD in Log Scale	1.408
90	95% t UCL (Assumes normality)	0.496	95% H-Stat UCL	0.00121
91	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
92				
93	**Nonparametric Distribution Free UCL Statistics**			
94	**Data do not follow a Discernible Distribution at 5% Significance Level**			

95				
96	**Suggested UCL to Use**			
97	97.5% KM (Chebyshev) UCL	1.144		
98				
99	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
100	Recommendations are based upon data size, data distribution, and skewness.			
101	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
102	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
103				
104	**1,3,5-TRIMETHYLBENZENE**			
105				
106	**General Statistics**			
107	Total Number of Observations	652	Number of Distinct Observations	367
108	Number of Detects	46	Number of Non-Detects	606
109	Number of Distinct Detects	46	Number of Distinct Non-Detects	327
110	Minimum Detect	1.1200E-4	Minimum Non-Detect	3.1400E-4
111	Maximum Detect	15.45	Maximum Non-Detect	1.13
112	Variance Detects	10.83	Percent Non-Detects	92.94%
113	Mean Detects	1.106	SD Detects	3.291
114	Median Detects	4.9100E-4	CV Detects	2.975
115	Skewness Detects	3.502	Kurtosis Detects	12.01
116	Mean of Logged Detects	-5.469	SD of Logged Detects	3.855
117				
118	**Normal GOF Test on Detects Only**			
119	Shapiro Wilk Test Statistic	0.395	**Shapiro Wilk GOF Test**	
120	5% Shapiro Wilk Critical Value	0.945	Detected Data Not Normal at 5% Significance Level	
121	Lilliefors Test Statistic	0.425	**Lilliefors GOF Test**	
122	5% Lilliefors Critical Value	0.131	Detected Data Not Normal at 5% Significance Level	
123	**Detected Data Not Normal at 5% Significance Level**			
124				
125	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
126	Mean	0.0783	Standard Error of Mean	0.036
127	SD	0.91	95% KM (BCA) UCL	0.147
128	95% KM (t) UCL	0.138	95% KM (Percentile Bootstrap) UCL	0.139
129	95% KM (z) UCL	0.138	95% KM Bootstrap t UCL	0.209
130	90% KM Chebyshev UCL	0.186	95% KM Chebyshev UCL	0.235
131	97.5% KM Chebyshev UCL	0.303	99% KM Chebyshev UCL	0.437
132				
133	**Gamma GOF Tests on Detected Observations Only**			
134	A-D Test Statistic	6.038	**Anderson-Darling GOF Test**	
135	5% A-D Critical Value	0.969	Detected Data Not Gamma Distributed at 5% Significance Level	
136	K-S Test Statistic	0.318	**Kolmogrov-Smirnoff GOF**	
137	5% K-S Critical Value	0.148	Detected Data Not Gamma Distributed at 5% Significance Level	
138	**Detected Data Not Gamma Distributed at 5% Significance Level**			
139				
140	**Gamma Statistics on Detected Data Only**			
141	k hat (MLE)	0.139	k star (bias corrected MLE)	0.145

	A–E	F	G–K	L
142	Theta hat (MLE)	7.934	Theta star (bias corrected MLE)	7.638
143	nu hat (MLE)	12.83	nu star (bias corrected)	13.33
144	MLE Mean (bias corrected)	1.106	MLE Sd (bias corrected)	2.907
145				
146	**Gamma Kaplan-Meier (KM) Statistics**			
147	k hat (KM)	0.00741	nu hat (KM)	9.657
148	Approximate Chi Square Value (9.66, α)	3.728	Adjusted Chi Square Value (9.66, β)	3.72
149	95% Gamma Approximate KM-UCL (use when n>=50)	0.203	95% Gamma Adjusted KM-UCL (use when n<50)	0.203
150	Gamma (KM) may not be used when k hat (KM) is < 0.1			
151				
152	**Gamma ROS Statistics using Imputed Non-Detects**			
153	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
154	GROS may not be used when kstar of detected data is small such as < 0.1			
155	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
156	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
157	Minimum	1.1200E-4	Mean	0.0874
158	Maximum	15.45	Median	0.01
159	SD	0.91	CV	10.41
160	k hat (MLE)	0.308	k star (bias corrected MLE)	0.308
161	Theta hat (MLE)	0.284	Theta star (bias corrected MLE)	0.284
162	nu hat (MLE)	401.8	nu star (bias corrected)	401.3
163	MLE Mean (bias corrected)	0.0874	MLE Sd (bias corrected)	0.157
164			Adjusted Level of Significance (β)	0.0496
165	Approximate Chi Square Value (401.27, α)	355.8	Adjusted Chi Square Value (401.27, β)	355.7
166	95% Gamma Approximate UCL (use when n>=50)	0.0985	95% Gamma Adjusted UCL (use when n<50)	0.0985
167				
168	**Lognormal GOF Test on Detected Observations Only**			
169	Shapiro Wilk Test Statistic	0.782	**Shapiro Wilk GOF Test**	
170	5% Shapiro Wilk Critical Value	0.945	Detected Data Not Lognormal at 5% Significance Level	
171	Lilliefors Test Statistic	0.272	**Lilliefors GOF Test**	
172	5% Lilliefors Critical Value	0.131	Detected Data Not Lognormal at 5% Significance Level	
173	**Detected Data Not Lognormal at 5% Significance Level**			
174				
175	**Lognormal ROS Statistics Using Imputed Non-Detects**			
176	Mean in Original Scale	0.0785	Mean in Log Scale	-8.058
177	SD in Original Scale	0.91	SD in Log Scale	1.6
178	95% t UCL (assumes normality of ROS data)	0.137	95% Percentile Bootstrap UCL	0.143
179	95% BCA Bootstrap UCL	0.167	95% Bootstrap t UCL	0.214
180	95% H-UCL (Log ROS)	0.00134		
181				
182	**DL/2 Statistics**			
183	**DL/2 Normal**		**DL/2 Log-Transformed**	
184	Mean in Original Scale	0.0793	Mean in Log Scale	-7.924
185	SD in Original Scale	0.911	SD in Log Scale	1.323
186	95% t UCL (Assumes normality)	0.138	95% H-Stat UCL	9.8060E-4
187	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
188				

	A–E	F	G–K	L
189	**Nonparametric Distribution Free UCL Statistics**			
190	**Data do not follow a Discernible Distribution at 5% Significance Level**			
191				
192	**Suggested UCL to Use**			
193	97.5% KM (Chebyshev) UCL	0.303		
194				
195	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
196	Recommendations are based upon data size, data distribution, and skewness.			
197	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
198	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
199				
200	2-METHYLNAPHTHALENE			
201				
202	**General Statistics**			
203	Total Number of Observations	652	Number of Distinct Observations	153
204	Number of Detects	55	Number of Non-Detects	597
205	Number of Distinct Detects	54	Number of Distinct Non-Detects	99
206	Minimum Detect	0.00995	Minimum Non-Detect	0.0336
207	Maximum Detect	32.4	Maximum Non-Detect	0.385
208	Variance Detects	59.51	Percent Non-Detects	91.56%
209	Mean Detects	2.524	SD Detects	7.714
210	Median Detects	0.0281	CV Detects	3.056
211	Skewness Detects	3.215	Kurtosis Detects	9.208
212	Mean of Logged Detects	-2.674	SD of Logged Detects	2.329
213				
214	**Normal GOF Test on Detects Only**			
215	Shapiro Wilk Test Statistic	0.368	**Normal GOF Test on Detected Observations Only**	
216	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
217	Lilliefors Test Statistic	0.44	**Lilliefors GOF Test**	
218	5% Lilliefors Critical Value	0.119	Detected Data Not Normal at 5% Significance Level	
219	**Detected Data Not Normal at 5% Significance Level**			
220				
221	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
222	Mean	0.228	Standard Error of Mean	0.092
223	SD	2.327	95% KM (BCA) UCL	0.373
224	95% KM (t) UCL	0.38	95% KM (Percentile Bootstrap) UCL	0.391
225	95% KM (z) UCL	0.379	95% KM Bootstrap t UCL	0.495
226	90% KM Chebyshev UCL	0.504	95% KM Chebyshev UCL	0.629
227	97.5% KM Chebyshev UCL	0.803	99% KM Chebyshev UCL	1.143
228				
229	**Gamma GOF Tests on Detected Observations Only**			
230	A-D Test Statistic	10.31	**Anderson-Darling GOF Test**	
231	5% A-D Critical Value	0.911	Detected Data Not Gamma Distributed at 5% Significance Level	
232	K-S Test Statistic	0.382	**Kolmogrov-Smirnoff GOF**	
233	5% K-S Critical Value	0.133	Detected Data Not Gamma Distributed at 5% Significance Level	
234	**Detected Data Not Gamma Distributed at 5% Significance Level**			
235				

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.204	k star (bias corrected MLE)	0.205
Theta hat (MLE)	12.38	Theta star (bias corrected MLE)	12.32
nu hat (MLE)	22.42	nu star (bias corrected)	22.53
MLE Mean (bias corrected)	2.524	MLE Sd (bias corrected)	5.577
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.00962	nu hat (KM)	12.54
Approximate Chi Square Value (12.54, α)	5.586	Adjusted Chi Square Value (12.54, β)	5.576
95% Gamma Approximate KM-UCL (use when n>=50)	0.512	95% Gamma Adjusted KM-UCL (use when n<50)	0.513
Gamma (KM) may not be used when k hat (KM) is < 0.1			
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.00995	Mean	0.264
Maximum	32.4	Median	0.01
SD	2.335	CV	8.833
k hat (MLE)	0.245	k star (bias corrected MLE)	0.245
Theta hat (MLE)	1.078	Theta star (bias corrected MLE)	1.078
nu hat (MLE)	319.9	nu star (bias corrected)	319.8
MLE Mean (bias corrected)	0.264	MLE Sd (bias corrected)	0.534
		Adjusted Level of Significance (β)	0.0496
Approximate Chi Square Value (319.80, α)	279.4	Adjusted Chi Square Value (319.80, β)	279.3
95% Gamma Approximate UCL (use when n>=50)	0.303	95% Gamma Adjusted UCL (use when n<50)	0.303
Lognormal GOF Test on Detected Observations Only			
Lilliefors Test Statistic	0.226	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.119	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.238	Mean in Log Scale	-3.936
SD in Original Scale	2.328	SD in Log Scale	1.238
95% t UCL (assumes normality of ROS data)	0.389	95% Percentile Bootstrap UCL	0.411
95% BCA Bootstrap UCL	0.446	95% Bootstrap t UCL	0.484
95% H-UCL (Log ROS)	0.047		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.234	Mean in Log Scale	-3.837
SD in Original Scale	2.328	SD in Log Scale	0.842
95% t UCL (Assumes normality)	0.384	95% H-Stat UCL	0.0328
DL/2 is not a recommended method, provided for comparisons and historical reasons			

Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
97.5% KM (Chebyshev) UCL	0.803		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
ACENAPHTHENE			
General Statistics			
Total Number of Observations	652	Number of Distinct Observations	134
Number of Detects	33	Number of Non-Detects	619
Number of Distinct Detects	32	Number of Distinct Non-Detects	103
Minimum Detect	0.0128	Minimum Non-Detect	0.0336
Maximum Detect	0.62	Maximum Non-Detect	0.385
Variance Detects	0.0207	Percent Non-Detects	94.94%
Mean Detects	0.0899	SD Detects	0.144
Median Detects	0.0265	CV Detects	1.6
Skewness Detects	2.675	Kurtosis Detects	6.865
Mean of Logged Detects	-3.142	SD of Logged Detects	1.09
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.571	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.931	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.154	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.0244	Standard Error of Mean	0.00179
SD	0.0357	95% KM (BCA) UCL	0.0274
95% KM (t) UCL	0.0274	95% KM (Percentile Bootstrap) UCL	0.0276
95% KM (z) UCL	0.0273	95% KM Bootstrap t UCL	0.0281
90% KM Chebyshev UCL	0.0298	95% KM Chebyshev UCL	0.0322
97.5% KM Chebyshev UCL	0.0356	99% KM Chebyshev UCL	0.0422
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	3.031	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.785	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.258	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.159	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.808	k star (bias corrected MLE)	0.755
Theta hat (MLE)	0.111	Theta star (bias corrected MLE)	0.119
nu hat (MLE)	53.35	nu star (bias corrected)	49.83
MLE Mean (bias corrected)	0.0899	MLE Sd (bias corrected)	0.104
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.468	nu hat (KM)	610.4
Approximate Chi Square Value (610.41, α)	554.1	Adjusted Chi Square Value (610.41, β)	554
95% Gamma Approximate KM-UCL (use when n>=50)	0.0269	95% Gamma Adjusted KM-UCL (use when n<50)	0.0269
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.0233
Maximum	0.62	Median	0.01
SD	0.0405	CV	1.739
k hat (MLE)	1.364	k star (bias corrected MLE)	1.359
Theta hat (MLE)	0.0171	Theta star (bias corrected MLE)	0.0172
nu hat (MLE)	1779	nu star (bias corrected)	1772
MLE Mean (bias corrected)	0.0233	MLE Sd (bias corrected)	0.02
		Adjusted Level of Significance (β)	0.0496
Approximate Chi Square Value (N/A, α)	1675	Adjusted Chi Square Value (N/A, β)	1675
95% Gamma Approximate UCL (use when n>=50)	0.0247	95% Gamma Adjusted UCL (use when n<50)	0.0247
Lognormal GOF Test on Detected Observations Only			
Shapiro Wilk Test Statistic	0.855	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.931	Detected Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.226	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.154	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.0277	Mean in Log Scale	-3.808
SD in Original Scale	0.0371	SD in Log Scale	0.582
95% t UCL (assumes normality of ROS data)	0.0301	95% Percentile Bootstrap UCL	0.0305
95% BCA Bootstrap UCL	0.031	95% Bootstrap t UCL	0.0316
95% H-UCL (Log ROS)	0.0274		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0267	Mean in Log Scale	-3.896
SD in Original Scale	0.0445	SD in Log Scale	0.501
95% t UCL (Assumes normality)	0.0296	95% H-Stat UCL	0.0239
DL/2 is not a recommended method, provided for comparisons and historical reasons			

	A	B	C	D	E	F	G	H	I	J	K	L
377												
378	**Nonparametric Distribution Free UCL Statistics**											
379	**Data do not follow a Discernible Distribution at 5% Significance Level**											
380												
381	**Suggested UCL to Use**											
382					95% KM (BCA) UCL	0.0274						
383												
384	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
385	Recommendations are based upon data size, data distribution, and skewness.											
386	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
387	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
388												
389	BENZO(A)ANTHRACENE											
390												
391	**General Statistics**											
392					Total Number of Observations	652					Number of Distinct Observations	196
393					Number of Detects	125					Number of Non-Detects	527
394					Number of Distinct Detects	119					Number of Distinct Non-Detects	94
395					Minimum Detect	0.0222					Minimum Non-Detect	0.0337
396					Maximum Detect	9					Maximum Non-Detect	0.705
397					Variance Detects	1.018					Percent Non-Detects	80.83%
398					Mean Detects	0.286					SD Detects	1.009
399					Median Detects	0.0603					CV Detects	3.526
400					Skewness Detects	6.865					Kurtosis Detects	51.68
401					Mean of Logged Detects	-2.438					SD of Logged Detects	1.147
402												
403	**Normal GOF Test on Detects Only**											
404					Shapiro Wilk Test Statistic	0.272	**Normal GOF Test on Detected Observations Only**					
405					5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level					
406					Lilliefors Test Statistic	0.397	**Lilliefors GOF Test**					
407					5% Lilliefors Critical Value	0.0792	Detected Data Not Normal at 5% Significance Level					
408	**Detected Data Not Normal at 5% Significance Level**											
409												
410	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
411					Mean	0.0787					Standard Error of Mean	0.0178
412					SD	0.452					95% KM (BCA) UCL	0.112
413					95% KM (t) UCL	0.108					95% KM (Percentile Bootstrap) UCL	0.109
414					95% KM (z) UCL	0.108					95% KM Bootstrap t UCL	0.139
415					90% KM Chebyshev UCL	0.132					95% KM Chebyshev UCL	0.156
416					97.5% KM Chebyshev UCL	0.19					99% KM Chebyshev UCL	0.255
417												
418	**Gamma GOF Tests on Detected Observations Only**											
419					A-D Test Statistic	15.94	**Anderson-Darling GOF Test**					
420					5% A-D Critical Value	0.816	Detected Data Not Gamma Distributed at 5% Significance Level					
421					K-S Test Statistic	0.266	**Kolmogrov-Smirnoff GOF**					
422					5% K-S Critical Value	0.0876	Detected Data Not Gamma Distributed at 5% Significance Level					
423	**Detected Data Not Gamma Distributed at 5% Significance Level**											

Gamma Statistics on Detected Data Only			
k hat (MLE)	0.53	k star (bias corrected MLE)	0.523
Theta hat (MLE)	0.54	Theta star (bias corrected MLE)	0.547
nu hat (MLE)	132.6	nu star (bias corrected)	130.8
MLE Mean (bias corrected)	0.286	MLE Sd (bias corrected)	0.396
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.0303	nu hat (KM)	39.57
Approximate Chi Square Value (39.57, α)	26.16	Adjusted Chi Square Value (39.57, β)	26.14
95% Gamma Approximate KM-UCL (use when n>=50)	0.119	95% Gamma Adjusted KM-UCL (use when n<50)	0.119
Gamma (KM) may not be used when k hat (KM) is < 0.1			
Gamma ROS Statistics using Imputed Non-Detects			
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
GROS may not be used when kstar of detected data is small such as < 0.1			
For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
Minimum	0.01	Mean	0.063
Maximum	9	Median	0.01
SD	0.454	CV	7.206
k hat (MLE)	0.453	k star (bias corrected MLE)	0.452
Theta hat (MLE)	0.139	Theta star (bias corrected MLE)	0.139
nu hat (MLE)	590.6	nu star (bias corrected)	589.2
MLE Mean (bias corrected)	0.063	MLE Sd (bias corrected)	0.0937
		Adjusted Level of Significance (β)	0.0496
Approximate Chi Square Value (589.24, α)	533.9	Adjusted Chi Square Value (589.24, β)	533.8
95% Gamma Approximate UCL (use when n>=50)	0.0695	95% Gamma Adjusted UCL (use when n<50)	0.0695
Lognormal GOF Test on Detected Observations Only			
Lilliefors Test Statistic	0.162	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0792	Detected Data Not Lognormal at 5% Significance Level	
Detected Data Not Lognormal at 5% Significance Level			
Lognormal ROS Statistics Using Imputed Non-Detects			
Mean in Original Scale	0.0718	Mean in Log Scale	-3.774
SD in Original Scale	0.453	SD in Log Scale	1.038
95% t UCL (assumes normality of ROS data)	0.101	95% Percentile Bootstrap UCL	0.103
95% BCA Bootstrap UCL	0.12	95% Bootstrap t UCL	0.139
95% H-UCL (Log ROS)	0.0429		
DL/2 Statistics			
DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	0.0754	Mean in Log Scale	-3.626
SD in Original Scale	0.453	SD in Log Scale	0.877
95% t UCL (Assumes normality)	0.105	95% H-Stat UCL	0.0419
DL/2 is not a recommended method, provided for comparisons and historical reasons			

	A–E	F	G–K	L
471				
472	**Nonparametric Distribution Free UCL Statistics**			
473	**Data do not follow a Discernible Distribution at 5% Significance Level**			
474				
475	**Suggested UCL to Use**			
476	95% KM (BCA) UCL	0.112		
477				
478	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
479	Recommendations are based upon data size, data distribution, and skewness.			
480	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
481	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
482				
483	BIS(2-ETHYLHEXYL)PHTHALATE			
484				
485	**General Statistics**			
486	Total Number of Observations	652	Number of Distinct Observations	175
487	Number of Detects	80	Number of Non-Detects	572
488	Number of Distinct Detects	78	Number of Distinct Non-Detects	108
489	Minimum Detect	0.0189	Minimum Non-Detect	0.0336
490	Maximum Detect	2.45	Maximum Non-Detect	0.705
491	Variance Detects	0.0848	Percent Non-Detects	87.73%
492	Mean Detects	0.132	SD Detects	0.291
493	Median Detects	0.0401	CV Detects	2.214
494	Skewness Detects	6.695	Kurtosis Detects	52.07
495	Mean of Logged Detects	-2.755	SD of Logged Detects	1.036
496				
497	**Normal GOF Test on Detects Only**			
498	Shapiro Wilk Test Statistic	0.386	**Normal GOF Test on Detected Observations Only**	
499	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
500	Lilliefors Test Statistic	0.349	**Lilliefors GOF Test**	
501	5% Lilliefors Critical Value	0.0991	Detected Data Not Normal at 5% Significance Level	
502	**Detected Data Not Normal at 5% Significance Level**			
503				
504	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
505	Mean	0.0395	Standard Error of Mean	0.00429
506	SD	0.107	95% KM (BCA) UCL	0.048
507	95% KM (t) UCL	0.0465	95% KM (Percentile Bootstrap) UCL	0.0472
508	95% KM (z) UCL	0.0465	95% KM Bootstrap t UCL	0.0534
509	90% KM Chebyshev UCL	0.0523	95% KM Chebyshev UCL	0.0582
510	97.5% KM Chebyshev UCL	0.0663	99% KM Chebyshev UCL	0.0822
511				
512	**Gamma GOF Tests on Detected Observations Only**			
513	A-D Test Statistic	5.677	**Anderson-Darling GOF Test**	
514	5% A-D Critical Value	0.79	Detected Data Not Gamma Distributed at 5% Significance Level	
515	K-S Test Statistic	0.219	**Kolmogrov-Smirnoff GOF**	
516	5% K-S Critical Value	0.103	Detected Data Not Gamma Distributed at 5% Significance Level	
517	**Detected Data Not Gamma Distributed at 5% Significance Level**			

	A–E	F	G–K	L
518				
519	**Gamma Statistics on Detected Data Only**			
520	k hat (MLE)	0.815	k star (bias corrected MLE)	0.793
521	Theta hat (MLE)	0.161	Theta star (bias corrected MLE)	0.166
522	nu hat (MLE)	130.4	nu star (bias corrected)	126.8
523	MLE Mean (bias corrected)	0.132	MLE Sd (bias corrected)	0.148
524				
525	**Gamma Kaplan-Meier (KM) Statistics**			
526	k hat (KM)	0.135	nu hat (KM)	176.2
527	Approximate Chi Square Value (176.18, α)	146.5	Adjusted Chi Square Value (176.18, β)	146.4
528	95% Gamma Approximate KM-UCL (use when n>=50)	0.0474	95% Gamma Adjusted KM-UCL (use when n<50)	0.0475
529				
530	**Gamma ROS Statistics using Imputed Non-Detects**			
531	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
532	GROS may not be used when kstar of detected data is small such as < 0.1			
533	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
534	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
535	Minimum	0.01	Mean	0.0285
536	Maximum	2.45	Median	0.01
537	SD	0.109	CV	3.841
538	k hat (MLE)	0.86	k star (bias corrected MLE)	0.857
539	Theta hat (MLE)	0.0331	Theta star (bias corrected MLE)	0.0332
540	nu hat (MLE)	1121	nu star (bias corrected)	1117
541	MLE Mean (bias corrected)	0.0285	MLE Sd (bias corrected)	0.0307
542			Adjusted Level of Significance (β)	0.0496
543	Approximate Chi Square Value (N/A, α)	1041	Adjusted Chi Square Value (N/A, β)	1040
544	95% Gamma Approximate UCL (use when n>=50)	0.0305	95% Gamma Adjusted UCL (use when n<50)	0.0306
545				
546	**Lognormal GOF Test on Detected Observations Only**			
547	Lilliefors Test Statistic	0.181	**Lilliefors GOF Test**	
548	5% Lilliefors Critical Value	0.0991	Detected Data Not Lognormal at 5% Significance Level	
549	**Detected Data Not Lognormal at 5% Significance Level**			
550				
551	**Lognormal ROS Statistics Using Imputed Non-Detects**			
552	Mean in Original Scale	0.0415	Mean in Log Scale	-3.557
553	SD in Original Scale	0.108	SD in Log Scale	0.671
554	95% t UCL (assumes normality of ROS data)	0.0484	95% Percentile Bootstrap UCL	0.0494
555	95% BCA Bootstrap UCL	0.0543	95% Bootstrap t UCL	0.0563
556	95% H-UCL (Log ROS)	0.0375		
557				
558	**DL/2 Statistics**			
559	**DL/2 Normal**		**DL/2 Log-Transformed**	
560	Mean in Original Scale	0.0392	Mean in Log Scale	-3.753
561	SD in Original Scale	0.112	SD in Log Scale	0.702
562	95% t UCL (Assumes normality)	0.0464	95% H-Stat UCL	0.0316
563	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
564				

Nonparametric Distribution Free UCL Statistics			
Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (BCA) UCL	0.048		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
CHRYSENE			
General Statistics			
Total Number of Observations	652	Number of Distinct Observations	260
Number of Detects	206	Number of Non-Detects	446
Number of Distinct Detects	186	Number of Distinct Non-Detects	85
Minimum Detect	0.016	Minimum Non-Detect	0.0337
Maximum Detect	9.38	Maximum Non-Detect	0.705
Variance Detects	0.828	Percent Non-Detects	68.4%
Mean Detects	0.224	SD Detects	0.91
Median Detects	0.0474	CV Detects	4.064
Skewness Detects	7.983	Kurtosis Detects	68.5
Mean of Logged Detects	-2.762	SD of Logged Detects	1.182
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.229	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.41	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0617	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.0873	Standard Error of Mean	0.0204
SD	0.519	95% KM (BCA) UCL	0.125
95% KM (t) UCL	0.121	95% KM (Percentile Bootstrap) UCL	0.125
95% KM (z) UCL	0.121	95% KM Bootstrap t UCL	0.158
90% KM Chebyshev UCL	0.148	95% KM Chebyshev UCL	0.176
97.5% KM Chebyshev UCL	0.215	99% KM Chebyshev UCL	0.29
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	23.9	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.821	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.249	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.0666	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			

	A B C D E	F	G H I J K	L
612	**Gamma Statistics on Detected Data Only**			
613	k hat (MLE)	0.502	k star (bias corrected MLE)	0.498
614	Theta hat (MLE)	0.446	Theta star (bias corrected MLE)	0.45
615	nu hat (MLE)	206.7	nu star (bias corrected)	205
616	MLE Mean (bias corrected)	0.224	MLE Sd (bias corrected)	0.317
617				
618	**Gamma Kaplan-Meier (KM) Statistics**			
619	k hat (KM)	0.0283	nu hat (KM)	36.95
620	Approximate Chi Square Value (36.95, α)	24.03	Adjusted Chi Square Value (36.95, β)	24.01
621	95% Gamma Approximate KM-UCL (use when n>=50)	0.134	95% Gamma Adjusted KM-UCL (use when n<50)	0.134
622	Gamma (KM) may not be used when k hat (KM) is < 0.1			
623				
624	**Gamma ROS Statistics using Imputed Non-Detects**			
625	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
626	GROS may not be used when kstar of detected data is small such as < 0.1			
627	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
628	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
629	Minimum	0.01	Mean	0.0776
630	Maximum	9.38	Median	0.01
631	SD	0.52	CV	6.706
632	k hat (MLE)	0.442	k star (bias corrected MLE)	0.441
633	Theta hat (MLE)	0.176	Theta star (bias corrected MLE)	0.176
634	nu hat (MLE)	576	nu star (bias corrected)	574.7
635	MLE Mean (bias corrected)	0.0776	MLE Sd (bias corrected)	0.117
636			Adjusted Level of Significance (β)	0.0496
637	Approximate Chi Square Value (574.65, α)	520	Adjusted Chi Square Value (574.65, β)	519.9
638	95% Gamma Approximate UCL (use when n>=50)	0.0857	95% Gamma Adjusted UCL (use when n<50)	0.0857
639				
640	**Lognormal GOF Test on Detected Observations Only**			
641	Lilliefors Test Statistic	0.123	**Lilliefors GOF Test**	
642	5% Lilliefors Critical Value	0.0617	Detected Data Not Lognormal at 5% Significance Level	
643	**Detected Data Not Lognormal at 5% Significance Level**			
644				
645	**Lognormal ROS Statistics Using Imputed Non-Detects**			
646	Mean in Original Scale	0.0889	Mean in Log Scale	-3.465
647	SD in Original Scale	0.519	SD in Log Scale	0.953
648	95% t UCL (assumes normality of ROS data)	0.122	95% Percentile Bootstrap UCL	0.124
649	95% BCA Bootstrap UCL	0.14	95% Bootstrap t UCL	0.155
650	95% H-UCL (Log ROS)	0.0532		
651				
652	**DL/2 Statistics**			
653	**DL/2 Normal**		**DL/2 Log-Transformed**	
654	Mean in Original Scale	0.0873	Mean in Log Scale	-3.558
655	SD in Original Scale	0.52	SD in Log Scale	0.929
656	95% t UCL (Assumes normality)	0.121	95% H-Stat UCL	0.0472
657	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
658				

	A–E	F	G–K	L
659	**Nonparametric Distribution Free UCL Statistics**			
660	**Data do not follow a Discernible Distribution at 5% Significance Level**			
661				
662	**Suggested UCL to Use**			
663	95% KM (BCA) UCL	0.125		
664				
665	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
666	Recommendations are based upon data size, data distribution, and skewness.			
667	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
668	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
669				
670	DIESEL RANGE ORGANICS			
671				
672	**General Statistics**			
673	Total Number of Observations	652	Number of Distinct Observations	420
674	Number of Detects	483	Number of Non-Detects	169
675	Number of Distinct Detects	393	Number of Distinct Non-Detects	43
676	Minimum Detect	1.34	Minimum Non-Detect	2.07
677	Maximum Detect	8380	Maximum Non-Detect	6
678	Variance Detects	464768	Percent Non-Detects	25.92%
679	Mean Detects	103.6	SD Detects	681.7
680	Median Detects	6.56	CV Detects	6.583
681	Skewness Detects	9.635	Kurtosis Detects	99.71
682	Mean of Logged Detects	2.109	SD of Logged Detects	1.493
683				
684	**Normal GOF Test on Detects Only**			
685	Shapiro Wilk Test Statistic	0.149	**Normal GOF Test on Detected Observations Only**	
686	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
687	Lilliefors Test Statistic	0.442	**Lilliefors GOF Test**	
688	5% Lilliefors Critical Value	0.0403	Detected Data Not Normal at 5% Significance Level	
689	**Detected Data Not Normal at 5% Significance Level**			
690				
691	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
692	Mean	77.17	Standard Error of Mean	23.05
693	SD	587.9	95% KM (BCA) UCL	123.2
694	95% KM (t) UCL	115.1	95% KM (Percentile Bootstrap) UCL	117.2
695	95% KM (z) UCL	115.1	95% KM Bootstrap t UCL	137.9
696	90% KM Chebyshev UCL	146.3	95% KM Chebyshev UCL	177.6
697	97.5% KM Chebyshev UCL	221.1	99% KM Chebyshev UCL	306.5
698				
699	**Gamma GOF Tests on Detected Observations Only**			
700	A-D Test Statistic	90.45	**Anderson-Darling GOF Test**	
701	5% A-D Critical Value	0.883	Detected Data Not Gamma Distributed at 5% Significance Level	
702	K-S Test Statistic	0.342	**Kolmogrov-Smirnoff GOF**	
703	5% K-S Critical Value	0.045	Detected Data Not Gamma Distributed at 5% Significance Level	
704	**Detected Data Not Gamma Distributed at 5% Significance Level**			
705				

Row	A–E	F	G–K	L
706	**Gamma Statistics on Detected Data Only**			
707	k hat (MLE)	0.276	k star (bias corrected MLE)	0.276
708	Theta hat (MLE)	375.1	Theta star (bias corrected MLE)	375.5
709	nu hat (MLE)	266.8	nu star (bias corrected)	266.4
710	MLE Mean (bias corrected)	103.6	MLE Sd (bias corrected)	197.2
711				
712	**Gamma Kaplan-Meier (KM) Statistics**			
713	k hat (KM)	0.0172	nu hat (KM)	22.47
714	Approximate Chi Square Value (22.47, α)	12.69	Adjusted Chi Square Value (22.47, β)	12.68
715	95% Gamma Approximate KM-UCL (use when n>=50)	136.6	95% Gamma Adjusted KM-UCL (use when n<50)	136.8
716	Gamma (KM) may not be used when k hat (KM) is < 0.1			
717				
718	**Gamma ROS Statistics using Imputed Non-Detects**			
719	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
720	GROS may not be used when kstar of detected data is small such as < 0.1			
721	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
722	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
723	Minimum	0.01	Mean	76.73
724	Maximum	8380	Median	3.74
725	SD	588.4	CV	7.668
726	k hat (MLE)	0.187	k star (bias corrected MLE)	0.187
727	Theta hat (MLE)	409.8	Theta star (bias corrected MLE)	409.5
728	nu hat (MLE)	244.1	nu star (bias corrected)	244.3
729	MLE Mean (bias corrected)	76.73	MLE Sd (bias corrected)	177.3
730			Adjusted Level of Significance (β)	0.0496
731	Approximate Chi Square Value (244.33, α)	209.1	Adjusted Chi Square Value (244.33, β)	209.1
732	95% Gamma Approximate UCL (use when n>=50)	89.64	95% Gamma Adjusted UCL (use when n<50)	89.67
733				
734	**Lognormal GOF Test on Detected Observations Only**			
735	Lilliefors Test Statistic	0.127	**Lilliefors GOF Test**	
736	5% Lilliefors Critical Value	0.0403	Detected Data Not Lognormal at 5% Significance Level	
737	**Detected Data Not Lognormal at 5% Significance Level**			
738				
739	**Lognormal ROS Statistics Using Imputed Non-Detects**			
740	Mean in Original Scale	77.05	Mean in Log Scale	1.583
741	SD in Original Scale	588.3	SD in Log Scale	1.594
742	95% t UCL (assumes normality of ROS data)	115	95% Percentile Bootstrap UCL	118.8
743	95% BCA Bootstrap UCL	127.6	95% Bootstrap t UCL	137.1
744	95% H-UCL (Log ROS)	20.41		
745				
746	**DL/2 Statistics**			
747	**DL/2 Normal**		**DL/2 Log-Transformed**	
748	Mean in Original Scale	77.02	Mean in Log Scale	1.593
749	SD in Original Scale	588.3	SD in Log Scale	1.555
750	95% t UCL (Assumes normality)	115	95% H-Stat UCL	19.28
751	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
752				

	A–E	F	G–K	L
753	**Nonparametric Distribution Free UCL Statistics**			
754	**Data do not follow a Discernible Distribution at 5% Significance Level**			
755				
756	**Suggested UCL to Use**			
757	95% KM (Chebyshev) UCL	177.6		
758				
759	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
760	Recommendations are based upon data size, data distribution, and skewness.			
761	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
762	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
763				
764	**DI-N-BUTYL PHTHALATE**			
765				
766	**General Statistics**			
767	Total Number of Observations	652	Number of Distinct Observations	97
768	Number of Detects	30	Number of Non-Detects	622
769	Number of Distinct Detects	29	Number of Distinct Non-Detects	75
770	Minimum Detect	0.0145	Minimum Non-Detect	0.0168
771	Maximum Detect	0.0899	Maximum Non-Detect	0.357
772	Variance Detects	3.6141E-4	Percent Non-Detects	95.4%
773	Mean Detects	0.0298	SD Detects	0.019
774	Median Detects	0.0226	CV Detects	0.639
775	Skewness Detects	1.854	Kurtosis Detects	3.088
776	Mean of Logged Detects	-3.66	SD of Logged Detects	0.514
777				
778	**Normal GOF Test on Detects Only**			
779	Shapiro Wilk Test Statistic	0.761	**Shapiro Wilk GOF Test**	
780	5% Shapiro Wilk Critical Value	0.927	Detected Data Not Normal at 5% Significance Level	
781	Lilliefors Test Statistic	0.211	**Lilliefors GOF Test**	
782	5% Lilliefors Critical Value	0.162	Detected Data Not Normal at 5% Significance Level	
783	**Detected Data Not Normal at 5% Significance Level**			
784				
785	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
786	Mean	0.0161	Standard Error of Mean	3.7062E-4
787	SD	0.00519	95% KM (BCA) UCL	0.0168
788	95% KM (t) UCL	0.0167	95% KM (Percentile Bootstrap) UCL	0.0168
789	95% KM (z) UCL	0.0167	95% KM Bootstrap t UCL	0.0169
790	90% KM Chebyshev UCL	0.0172	95% KM Chebyshev UCL	0.0177
791	97.5% KM Chebyshev UCL	0.0184	99% KM Chebyshev UCL	0.0198
792				
793	**Gamma GOF Tests on Detected Observations Only**			
794	A-D Test Statistic	1.43	**Anderson-Darling GOF Test**	
795	5% A-D Critical Value	0.751	Detected Data Not Gamma Distributed at 5% Significance Level	
796	K-S Test Statistic	0.156	**Kolmogrov-Smirnoff GOF**	
797	5% K-S Critical Value	0.161	Detected data appear Gamma Distributed at 5% Significance Level	
798	**Detected data follow Appr. Gamma Distribution at 5% Significance Level**			
799				

	A–E	F	G–K	L
800	**Gamma Statistics on Detected Data Only**			
801	k hat (MLE)	3.591	k star (bias corrected MLE)	3.254
802	Theta hat (MLE)	0.00829	Theta star (bias corrected MLE)	0.00915
803	nu hat (MLE)	215.4	nu star (bias corrected)	195.2
804	MLE Mean (bias corrected)	0.0298	MLE Sd (bias corrected)	0.0165
805				
806	**Gamma Kaplan-Meier (KM) Statistics**			
807	k hat (KM)	9.66	nu hat (KM)	12597
808	Approximate Chi Square Value (N/A, α)	12337	Adjusted Chi Square Value (N/A, β)	12337
809	95% Gamma Approximate KM-UCL (use when n>=50)	0.0165	95% Gamma Adjusted KM-UCL (use when n<50)	0.0165
810				
811	**Gamma ROS Statistics using Imputed Non-Detects**			
812	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
813	GROS may not be used when kstar of detected data is small such as < 0.1			
814	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
815	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
816	Minimum	0.01	Mean	0.0128
817	Maximum	0.0899	Median	0.01
818	SD	0.00663	CV	0.516
819	k hat (MLE)	7.636	k star (bias corrected MLE)	7.602
820	Theta hat (MLE)	0.00168	Theta star (bias corrected MLE)	0.00169
821	nu hat (MLE)	9958	nu star (bias corrected)	9913
822	MLE Mean (bias corrected)	0.0128	MLE Sd (bias corrected)	0.00466
823			Adjusted Level of Significance (β)	0.0496
824	Approximate Chi Square Value (N/A, α)	9683	Adjusted Chi Square Value (N/A, β)	9682
825	95% Gamma Approximate UCL (use when n>=50)	0.0131	95% Gamma Adjusted UCL (use when n<50)	0.0131
826				
827	**Lognormal GOF Test on Detected Observations Only**			
828	Shapiro Wilk Test Statistic	0.893	**Shapiro Wilk GOF Test**	
829	5% Shapiro Wilk Critical Value	0.927	Detected Data Not Lognormal at 5% Significance Level	
830	Lilliefors Test Statistic	0.149	**Lilliefors GOF Test**	
831	5% Lilliefors Critical Value	0.162	Detected Data appear Lognormal at 5% Significance Level	
832	**Detected Data appear Approximate Lognormal at 5% Significance Level**			
833				
834	**Lognormal ROS Statistics Using Imputed Non-Detects**			
835	Mean in Original Scale	0.0151	Mean in Log Scale	-4.256
836	SD in Original Scale	0.00651	SD in Log Scale	0.328
837	95% t UCL (assumes normality of ROS data)	0.0155	95% Percentile Bootstrap UCL	0.0155
838	95% BCA Bootstrap UCL	0.0155	95% Bootstrap t UCL	0.0156
839	95% H-UCL (Log ROS)	0.0153		
840				
841	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
842	KM Mean (logged)	-4.148	95% H-UCL (KM -Log)	0.0162
843	KM SD (logged)	0.166	95% Critical H Value (KM-Log)	1.667
844	KM Standard Error of Mean (logged)	0.0208		
845				
846	**DL/2 Statistics**			

	A	B	C	D	E	F	G	H	I	J	K	L
847	DL/2 Normal						DL/2 Log-Transformed					
848					Mean in Original Scale	0.0135					Mean in Log Scale	-4.562
849					SD in Original Scale	0.0186					SD in Log Scale	0.512
850					95% t UCL (Assumes normality)	0.0147					95% H-Stat UCL	0.0123
851	DL/2 is not a recommended method, provided for comparisons and historical reasons											
852												
853	Nonparametric Distribution Free UCL Statistics											
854	Detected Data appear Approximate Gamma Distributed at 5% Significance Level											
855												
856	Suggested UCL to Use											
857					95% KM (t) UCL	0.0167					95% GROS Approximate Gamma UCL	0.0131
858					95% Approximate Gamma KM-UCL	0.0165						
859												
860	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
861	Recommendations are based upon data size, data distribution, and skewness.											
862	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
863	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
864												
865	FLUORANTHENE											
866												
867	General Statistics											
868					Total Number of Observations	652					Number of Distinct Observations	290
869					Number of Detects	267					Number of Non-Detects	385
870					Number of Distinct Detects	239					Number of Distinct Non-Detects	56
871					Minimum Detect	0.00699					Minimum Non-Detect	0.0169
872					Maximum Detect	18.2					Maximum Non-Detect	0.187
873					Variance Detects	1.794					Percent Non-Detects	59.05%
874					Mean Detects	0.277					SD Detects	1.339
875					Median Detects	0.0435					CV Detects	4.833
876					Skewness Detects	10.62					Kurtosis Detects	129
877					Mean of Logged Detects	-2.846					SD of Logged Detects	1.403
878												
879	Normal GOF Test on Detects Only											
880					Shapiro Wilk Test Statistic	0.203	Normal GOF Test on Detected Observations Only					
881					5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level					
882					Lilliefors Test Statistic	0.42	Lilliefors GOF Test					
883					5% Lilliefors Critical Value	0.0542	Detected Data Not Normal at 5% Significance Level					
884	Detected Data Not Normal at 5% Significance Level											
885												
886	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
887					Mean	0.121					Standard Error of Mean	0.034
888					SD	0.865					95% KM (BCA) UCL	0.173
889					95% KM (t) UCL	0.177					95% KM (Percentile Bootstrap) UCL	0.181
890					95% KM (z) UCL	0.176					95% KM Bootstrap t UCL	0.245
891					90% KM Chebyshev UCL	0.222					95% KM Chebyshev UCL	0.269
892					97.5% KM Chebyshev UCL	0.333					99% KM Chebyshev UCL	0.458
893												

	A–E	F	G–K	L
894	**Gamma GOF Tests on Detected Observations Only**			
895	A-D Test Statistic	25.9	**Anderson-Darling GOF Test**	
896	5% A-D Critical Value	0.841	Detected Data Not Gamma Distributed at 5% Significance Level	
897	K-S Test Statistic	0.218	**Kolmogrov-Smirnoff GOF**	
898	5% K-S Critical Value	0.0598	Detected Data Not Gamma Distributed at 5% Significance Level	
899	**Detected Data Not Gamma Distributed at 5% Significance Level**			
900				
901	**Gamma Statistics on Detected Data Only**			
902	k hat (MLE)	0.418	k star (bias corrected MLE)	0.416
903	Theta hat (MLE)	0.663	Theta star (bias corrected MLE)	0.666
904	nu hat (MLE)	223.2	nu star (bias corrected)	222
905	MLE Mean (bias corrected)	0.277	MLE Sd (bias corrected)	0.43
906				
907	**Gamma Kaplan-Meier (KM) Statistics**			
908	k hat (KM)	0.0194	nu hat (KM)	25.33
909	Approximate Chi Square Value (25.33, α)	14.87	Adjusted Chi Square Value (25.33, β)	14.85
910	95% Gamma Approximate KM-UCL (use when n>=50)	0.206	95% Gamma Adjusted KM-UCL (use when n<50)	0.206
911	Gamma (KM) may not be used when k hat (KM) is < 0.1			
912				
913	**Gamma ROS Statistics using Imputed Non-Detects**			
914	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
915	GROS may not be used when kstar of detected data is small such as < 0.1			
916	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
917	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
918	Minimum	0.00699	Mean	0.119
919	Maximum	18.2	Median	0.01
920	SD	0.866	CV	7.255
921	k hat (MLE)	0.377	k star (bias corrected MLE)	0.377
922	Theta hat (MLE)	0.316	Theta star (bias corrected MLE)	0.317
923	nu hat (MLE)	492.2	nu star (bias corrected)	491.3
924	MLE Mean (bias corrected)	0.119	MLE Sd (bias corrected)	0.195
925			Adjusted Level of Significance (β)	0.0496
926	Approximate Chi Square Value (491.31, α)	440.9	Adjusted Chi Square Value (491.31, β)	440.8
927	95% Gamma Approximate UCL (use when n>=50)	0.133	95% Gamma Adjusted UCL (use when n<50)	0.133
928				
929	**Lognormal GOF Test on Detected Observations Only**			
930	Lilliefors Test Statistic	0.0896	**Lilliefors GOF Test**	
931	5% Lilliefors Critical Value	0.0542	Detected Data Not Lognormal at 5% Significance Level	
932	**Detected Data Not Lognormal at 5% Significance Level**			
933				
934	**Lognormal ROS Statistics Using Imputed Non-Detects**			
935	Mean in Original Scale	0.12	Mean in Log Scale	-3.967
936	SD in Original Scale	0.866	SD in Log Scale	1.453
937	95% t UCL (assumes normality of ROS data)	0.176	95% Percentile Bootstrap UCL	0.178
938	95% BCA Bootstrap UCL	0.205	95% Bootstrap t UCL	0.237
939	95% H-UCL (Log ROS)	0.0627		
940				

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	0.121	Mean in Log Scale	-3.893
SD in Original Scale	0.866	SD in Log Scale	1.293
95% t UCL (Assumes normality)	0.176	95% H-Stat UCL	0.0529

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (BCA) UCL	0.173		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

GASOLINE RANGE ORGANICS

General Statistics

Total Number of Observations	652	Number of Distinct Observations	235
Number of Detects	75	Number of Non-Detects	577
Number of Distinct Detects	73	Number of Distinct Non-Detects	180
Minimum Detect	0.737	Minimum Non-Detect	1.01
Maximum Detect	1750	Maximum Non-Detect	8.38
Variance Detects	114743	Percent Non-Detects	88.5%
Mean Detects	106	SD Detects	338.7
Median Detects	1.83	CV Detects	3.196
Skewness Detects	3.888	Kurtosis Detects	14.83
Mean of Logged Detects	1.628	SD of Logged Detects	2.164

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.359	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.409	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.102	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	13.2	Standard Error of Mean	4.689
SD	118.9	95% KM (BCA) UCL	20.91
95% KM (t) UCL	20.92	95% KM (Percentile Bootstrap) UCL	21.62
95% KM (z) UCL	20.91	95% KM Bootstrap t UCL	26.21
90% KM Chebyshev UCL	27.26	95% KM Chebyshev UCL	33.63
97.5% KM Chebyshev UCL	42.48	99% KM Chebyshev UCL	59.85

	A	B	C	D	E	F	G	H	I	J	K	L
988	**Gamma GOF Tests on Detected Observations Only**											
989					A-D Test Statistic	11.91	**Anderson-Darling GOF Test**					
990					5% A-D Critical Value	0.897	Detected Data Not Gamma Distributed at 5% Significance Level					
991					K-S Test Statistic	0.316	**Kolmogrov-Smirnoff GOF**					
992					5% K-S Critical Value	0.114	Detected Data Not Gamma Distributed at 5% Significance Level					
993	**Detected Data Not Gamma Distributed at 5% Significance Level**											
994												
995	**Gamma Statistics on Detected Data Only**											
996					k hat (MLE)	0.236					k star (bias corrected MLE)	0.236
997					Theta hat (MLE)	448.9					Theta star (bias corrected MLE)	450
998					nu hat (MLE)	35.42					nu star (bias corrected)	35.34
999					MLE Mean (bias corrected)	106					MLE Sd (bias corrected)	218.4
1000												
1001	**Gamma Kaplan-Meier (KM) Statistics**											
1002					k hat (KM)	0.0123					nu hat (KM)	16.05
1003					Approximate Chi Square Value (16.05, α)	8.001					Adjusted Chi Square Value (16.05, β)	7.988
1004					95% Gamma Approximate KM-UCL (use when n>=50)	26.48					95% Gamma Adjusted KM-UCL (use when n<50)	26.52
1005	Gamma (KM) may not be used when k hat (KM) is < 0.1											
1006												
1007	**Gamma ROS Statistics using Imputed Non-Detects**											
1008	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1009	GROS may not be used when kstar of detected data is small such as < 0.1											
1010	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1011	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1012					Minimum	0.01					Mean	12.21
1013					Maximum	1750					Median	0.01
1014					SD	119.1					CV	9.759
1015					k hat (MLE)	0.124					k star (bias corrected MLE)	0.124
1016					Theta hat (MLE)	98.63					Theta star (bias corrected MLE)	98.27
1017					nu hat (MLE)	161.4					nu star (bias corrected)	162
1018					MLE Mean (bias corrected)	12.21					MLE Sd (bias corrected)	34.63
1019											Adjusted Level of Significance (β)	0.0496
1020					Approximate Chi Square Value (161.96, α)	133.5					Adjusted Chi Square Value (161.96, β)	133.5
1021					95% Gamma Approximate UCL (use when n>=50)	14.8					95% Gamma Adjusted UCL (use when n<50)	14.81
1022												
1023	**Lognormal GOF Test on Detected Observations Only**											
1024					Lilliefors Test Statistic	0.247	**Lilliefors GOF Test**					
1025					5% Lilliefors Critical Value	0.102	Detected Data Not Lognormal at 5% Significance Level					
1026	**Detected Data Not Lognormal at 5% Significance Level**											
1027												
1028	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1029					Mean in Original Scale	13.51					Mean in Log Scale	0.247
1030					SD in Original Scale	119					SD in Log Scale	1.182
1031					95% t UCL (assumes normality of ROS data)	21.18					95% Percentile Bootstrap UCL	21.99
1032					95% BCA Bootstrap UCL	23.92					95% Bootstrap t UCL	24.93
1033					95% H-UCL (Log ROS)	2.855						
1034												

	A	B	C	D	E	F	G	H	I	J	K	L
1035	**DL/2 Statistics**											
1036	**DL/2 Normal**						**DL/2 Log-Transformed**					
1037					Mean in Original Scale	13.19					Mean in Log Scale	0.278
1038					SD in Original Scale	119					SD in Log Scale	0.895
1039					95% t UCL (Assumes normality)	20.87					95% H-Stat UCL	2.116
1040	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1041												
1042	**Nonparametric Distribution Free UCL Statistics**											
1043	**Data do not follow a Discernible Distribution at 5% Significance Level**											
1044												
1045	**Suggested UCL to Use**											
1046					97.5% KM (Chebyshev) UCL	42.48						
1047												
1048	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1049	Recommendations are based upon data size, data distribution, and skewness.											
1050	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1051	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1052												
1053	LEAD											
1054												
1055	**General Statistics**											
1056					Total Number of Observations	652					Number of Distinct Observations	471
1057											Number of Missing Observations	0
1058					Minimum	2.12					Mean	10.66
1059					Maximum	140					Median	5.23
1060					SD	14.51					Std. Error of Mean	0.568
1061					Coefficient of Variation	1.361					Skewness	3.962
1062												
1063	**Normal GOF Test**											
1064					Shapiro Wilk Test Statistic	0.544	**Shapiro Wilk GOF Test**					
1065					5% Shapiro Wilk P Value	0	Data Not Normal at 5% Significance Level					
1066					Lilliefors Test Statistic	0.281	**Lilliefors GOF Test**					
1067					5% Lilliefors Critical Value	0.0347	Data Not Normal at 5% Significance Level					
1068	**Data Not Normal at 5% Significance Level**											
1069												
1070	**Assuming Normal Distribution**											
1071	**95% Normal UCL**						**95% UCLs (Adjusted for Skewness)**					
1072					95% Student's-t UCL	11.6					95% Adjusted-CLT UCL (Chen-1995)	11.69
1073											95% Modified-t UCL (Johnson-1978)	11.61
1074												
1075	**Gamma GOF Test**											
1076					A-D Test Statistic	53.21	**Anderson-Darling Gamma GOF Test**					
1077					5% A-D Critical Value	0.777	Data Not Gamma Distributed at 5% Significance Level					
1078					K-S Test Statistic	0.208	**Kolmogrov-Smirnoff Gamma GOF Test**					
1079					5% K-S Critical Value	0.0377	Data Not Gamma Distributed at 5% Significance Level					
1080	**Data Not Gamma Distributed at 5% Significance Level**											
1081												

	A–E	F	G–K	L
1082	**Gamma Statistics**			
1083	k hat (MLE)	1.322	k star (bias corrected MLE)	1.317
1084	Theta hat (MLE)	8.066	Theta star (bias corrected MLE)	8.097
1085	nu hat (MLE)	1724	nu star (bias corrected)	1717
1086	MLE Mean (bias corrected)	10.66	MLE Sd (bias corrected)	9.292
1087			Approximate Chi Square Value (0.05)	1622
1088	Adjusted Level of Significance	0.0496	Adjusted Chi Square Value	1622
1089				
1090	**Assuming Gamma Distribution**			
1091	95% Approximate Gamma UCL (use when n>=50))	11.29	95% Adjusted Gamma UCL (use when n<50)	11.29
1092				
1093	**Lognormal GOF Test**			
1094	Shapiro Wilk Test Statistic	0.854	**Shapiro Wilk Lognormal GOF Test**	
1095	5% Shapiro Wilk P Value	0	Data Not Lognormal at 5% Significance Level	
1096	Lilliefors Test Statistic	0.164	**Lilliefors Lognormal GOF Test**	
1097	5% Lilliefors Critical Value	0.0347	Data Not Lognormal at 5% Significance Level	
1098	**Data Not Lognormal at 5% Significance Level**			
1099				
1100	**Lognormal Statistics**			
1101	Minimum of Logged Data	0.751	Mean of logged Data	1.943
1102	Maximum of Logged Data	4.942	SD of logged Data	0.791
1103				
1104	**Assuming Lognormal Distribution**			
1105	95% H-UCL	10.14	90% Chebyshev (MVUE) UCL	10.55
1106	95% Chebyshev (MVUE) UCL	11.01	97.5% Chebyshev (MVUE) UCL	11.65
1107	99% Chebyshev (MVUE) UCL	12.9		
1108				
1109	**Nonparametric Distribution Free UCL Statistics**			
1110	**Data do not follow a Discernible Distribution (0.05)**			
1111				
1112	**Nonparametric Distribution Free UCLs**			
1113	95% CLT UCL	11.6	95% Jackknife UCL	11.6
1114	95% Standard Bootstrap UCL	11.6	95% Bootstrap-t UCL	11.75
1115	95% Hall's Bootstrap UCL	11.68	95% Percentile Bootstrap UCL	11.68
1116	95% BCA Bootstrap UCL	11.69		
1117	90% Chebyshev(Mean, Sd) UCL	12.37	95% Chebyshev(Mean, Sd) UCL	13.14
1118	97.5% Chebyshev(Mean, Sd) UCL	14.21	99% Chebyshev(Mean, Sd) UCL	16.32
1119				
1120	**Suggested UCL to Use**			
1121	95% Chebyshev (Mean, Sd) UCL	13.14		
1122				
1123	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
1124	These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)			
1125	and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.			
1126	For additional insight the user may want to consult a statistician.			
1127				
1128	**M,P-XYLENES**			

General Statistics			
Total Number of Observations	652	Number of Distinct Observations	313
Number of Detects	77	Number of Non-Detects	575
Number of Distinct Detects	74	Number of Distinct Non-Detects	250
Minimum Detect	3.7250E-4	Minimum Non-Detect	6.2800E-4
Maximum Detect	11.4	Maximum Non-Detect	2.25
Variance Detects	3.361	Percent Non-Detects	88.19%
Mean Detects	0.36	SD Detects	1.833
Median Detects	6.4400E-4	CV Detects	5.096
Skewness Detects	5.288	Kurtosis Detects	27.71
Mean of Logged Detects	-6.532	SD of Logged Detects	2.095
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.212	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.517	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.101	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.043	Standard Error of Mean	0.0251
SD	0.637	95% KM (BCA) UCL	0.0899
95% KM (t) UCL	0.0843	95% KM (Percentile Bootstrap) UCL	0.087
95% KM (z) UCL	0.0842	95% KM Bootstrap t UCL	1.74
90% KM Chebyshev UCL	0.118	95% KM Chebyshev UCL	0.152
97.5% KM Chebyshev UCL	0.2	99% KM Chebyshev UCL	0.293
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	23.07	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.974	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.458	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.115	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			
k hat (MLE)	0.141	k star (bias corrected MLE)	0.144
Theta hat (MLE)	2.556	Theta star (bias corrected MLE)	2.5
nu hat (MLE)	21.68	nu star (bias corrected)	22.17
MLE Mean (bias corrected)	0.36	MLE Sd (bias corrected)	0.948
Gamma Kaplan-Meier (KM) Statistics			
k hat (KM)	0.00455	nu hat (KM)	5.939
Approximate Chi Square Value (5.94, α)	1.609	Adjusted Chi Square Value (5.94, β)	1.604
95% Gamma Approximate KM-UCL (use when n>=50)	0.159	95% Gamma Adjusted KM-UCL (use when n<50)	0.159
Gamma (KM) may not be used when k hat (KM) is < 0.1			

	A–E	F	G–K	L
1176	**Gamma ROS Statistics using Imputed Non-Detects**			
1177	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1178	GROS may not be used when kstar of detected data is small such as < 0.1			
1179	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1180	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1181	Minimum	3.7250E-4	Mean	0.0513
1182	Maximum	11.4	Median	0.01
1183	SD	0.637	CV	12.41
1184	k hat (MLE)	0.359	k star (bias corrected MLE)	0.359
1185	Theta hat (MLE)	0.143	Theta star (bias corrected MLE)	0.143
1186	nu hat (MLE)	468.7	nu star (bias corrected)	467.8
1187	MLE Mean (bias corrected)	0.0513	MLE Sd (bias corrected)	0.0857
1188			Adjusted Level of Significance (β)	0.0496
1189	Approximate Chi Square Value (467.84, α)	418.7	Adjusted Chi Square Value (467.84, β)	418.6
1190	95% Gamma Approximate UCL (use when n>=50)	0.0573	95% Gamma Adjusted UCL (use when n<50)	0.0573
1191				
1192	**Lognormal GOF Test on Detected Observations Only**			
1193	Lilliefors Test Statistic	0.258	**Lilliefors GOF Test**	
1194	5% Lilliefors Critical Value	0.101	Detected Data Not Lognormal at 5% Significance Level	
1195	**Detected Data Not Lognormal at 5% Significance Level**			
1196				
1197	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1198	Mean in Original Scale	0.0431	Mean in Log Scale	-7.416
1199	SD in Original Scale	0.637	SD in Log Scale	0.976
1200	95% t UCL (assumes normality of ROS data)	0.0842	95% Percentile Bootstrap UCL	0.0879
1201	95% BCA Bootstrap UCL	0.108	95% Bootstrap t UCL	0.134
1202	95% H-UCL (Log ROS)	0.00105		
1203				
1204	**DL/2 Statistics**			
1205	**DL/2 Normal**		**DL/2 Log-Transformed**	
1206	Mean in Original Scale	0.0501	Mean in Log Scale	-7.227
1207	SD in Original Scale	0.641	SD in Log Scale	1.126
1208	95% t UCL (Assumes normality)	0.0915	95% H-Stat UCL	0.00151
1209	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
1210				
1211	**Nonparametric Distribution Free UCL Statistics**			
1212	**Data do not follow a Discernible Distribution at 5% Significance Level**			
1213				
1214	**Suggested UCL to Use**			
1215	97.5% KM (Chebyshev) UCL	0.2		
1216				
1217	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
1218	Recommendations are based upon data size, data distribution, and skewness.			
1219	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
1220	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
1221				
1222	**NAPHTHALENE**			

Row	A–E	F	G–K	L
1223				
1224	**General Statistics**			
1225	Total Number of Observations	652	Number of Distinct Observations	370
1226	Number of Detects	34	Number of Non-Detects	618
1227	Number of Distinct Detects	34	Number of Distinct Non-Detects	337
1228	Minimum Detect	1.9000E-4	Minimum Non-Detect	3.1400E-4
1229	Maximum Detect	45	Maximum Non-Detect	0.383
1230	Variance Detects	98.15	Percent Non-Detects	94.79%
1231	Mean Detects	3.926	SD Detects	9.907
1232	Median Detects	0.0122	CV Detects	2.523
1233	Skewness Detects	3.127	Kurtosis Detects	9.841
1234	Mean of Logged Detects	-3.091	SD of Logged Detects	3.684
1235				
1236	**Normal GOF Test on Detects Only**			
1237	Shapiro Wilk Test Statistic	0.471	**Shapiro Wilk GOF Test**	
1238	5% Shapiro Wilk Critical Value	0.933	Detected Data Not Normal at 5% Significance Level	
1239	Lilliefors Test Statistic	0.353	**Lilliefors GOF Test**	
1240	5% Lilliefors Critical Value	0.152	Detected Data Not Normal at 5% Significance Level	
1241	**Detected Data Not Normal at 5% Significance Level**			
1242				
1243	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
1244	Mean	0.205	Standard Error of Mean	0.0952
1245	SD	2.394	95% KM (BCA) UCL	0.389
1246	95% KM (t) UCL	0.362	95% KM (Percentile Bootstrap) UCL	0.367
1247	95% KM (z) UCL	0.361	95% KM Bootstrap t UCL	0.541
1248	90% KM Chebyshev UCL	0.49	95% KM Chebyshev UCL	0.62
1249	97.5% KM Chebyshev UCL	0.799	99% KM Chebyshev UCL	1.152
1250				
1251	**Gamma GOF Tests on Detected Observations Only**			
1252	A-D Test Statistic	2.75	**Anderson-Darling GOF Test**	
1253	5% A-D Critical Value	0.935	Detected Data Not Gamma Distributed at 5% Significance Level	
1254	K-S Test Statistic	0.264	**Kolmogrov-Smirnoff GOF**	
1255	5% K-S Critical Value	0.169	Detected Data Not Gamma Distributed at 5% Significance Level	
1256	**Detected Data Not Gamma Distributed at 5% Significance Level**			
1257				
1258	**Gamma Statistics on Detected Data Only**			
1259	k hat (MLE)	0.169	k star (bias corrected MLE)	0.174
1260	Theta hat (MLE)	23.19	Theta star (bias corrected MLE)	22.57
1261	nu hat (MLE)	11.51	nu star (bias corrected)	11.83
1262	MLE Mean (bias corrected)	3.926	MLE Sd (bias corrected)	9.413
1263				
1264	**Gamma Kaplan-Meier (KM) Statistics**			
1265	k hat (KM)	0.00733	nu hat (KM)	9.563
1266	Approximate Chi Square Value (9.56, α)	3.671	Adjusted Chi Square Value (9.56, β)	3.662
1267	95% Gamma Approximate KM-UCL (use when n>=50)	0.534	95% Gamma Adjusted KM-UCL (use when n<50)	0.535
1268	Gamma (KM) may not be used when k hat (KM) is < 0.1			
1269				

	A–E	F	G–K	L
1270	**Gamma ROS Statistics using Imputed Non-Detects**			
1271	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1272	GROS may not be used when kstar of detected data is small such as < 0.1			
1273	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1274	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1275	Minimum	1.9000E-4	Mean	0.214
1276	Maximum	45	Median	0.01
1277	SD	2.395	CV	11.18
1278	k hat (MLE)	0.24	k star (bias corrected MLE)	0.239
1279	Theta hat (MLE)	0.894	Theta star (bias corrected MLE)	0.895
1280	nu hat (MLE)	312.4	nu star (bias corrected)	312.3
1281	MLE Mean (bias corrected)	0.214	MLE Sd (bias corrected)	0.438
1282			Adjusted Level of Significance (β)	0.0496
1283	Approximate Chi Square Value (312.27, α)	272.3	Adjusted Chi Square Value (312.27, β)	272.3
1284	95% Gamma Approximate UCL (use when n>=50)	0.246	95% Gamma Adjusted UCL (use when n<50)	0.246
1285				
1286	**Lognormal GOF Test on Detected Observations Only**			
1287	Shapiro Wilk Test Statistic	0.897	**Shapiro Wilk GOF Test**	
1288	5% Shapiro Wilk Critical Value	0.933	Detected Data Not Lognormal at 5% Significance Level	
1289	Lilliefors Test Statistic	0.172	**Lilliefors GOF Test**	
1290	5% Lilliefors Critical Value	0.152	Detected Data Not Lognormal at 5% Significance Level	
1291	**Detected Data Not Lognormal at 5% Significance Level**			
1292				
1293	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1294	Mean in Original Scale	0.205	Mean in Log Scale	-12.06
1295	SD in Original Scale	2.396	SD in Log Scale	3.027
1296	95% t UCL (assumes normality of ROS data)	0.359	95% Percentile Bootstrap UCL	0.373
1297	95% BCA Bootstrap UCL	0.425	95% Bootstrap t UCL	0.533
1298	95% H-UCL (Log ROS)	9.2162E-4		
1299				
1300	**DL/2 Statistics**			
1301	**DL/2 Normal**		**DL/2 Log-Transformed**	
1302	Mean in Original Scale	0.205	Mean in Log Scale	-7.838
1303	SD in Original Scale	2.395	SD in Log Scale	1.475
1304	95% t UCL (Assumes normality)	0.36	95% H-Stat UCL	0.00135
1305	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
1306				
1307	**Nonparametric Distribution Free UCL Statistics**			
1308	**Data do not follow a Discernible Distribution at 5% Significance Level**			
1309				
1310	**Suggested UCL to Use**			
1311	97.5% KM (Chebyshev) UCL	0.799		
1312				
1313	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
1314	Recommendations are based upon data size, data distribution, and skewness.			
1315	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
1316	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			

	A	B	C	D	E	F	G	H	I	J	K	L
1317												
1318	N-BUTYLBENZENE											
1319												
1320	**General Statistics**											
1321					Total Number of Observations	652					Number of Distinct Observations	351
1322					Number of Detects	11					Number of Non-Detects	641
1323					Number of Distinct Detects	11					Number of Distinct Non-Detects	341
1324					Minimum Detect	2.4500E-4					Minimum Non-Detect	3.1400E-4
1325					Maximum Detect	41.6					Maximum Non-Detect	1.13
1326					Variance Detects	206.5					Percent Non-Detects	98.31%
1327					Mean Detects	6.316					SD Detects	14.37
1328					Median Detects	0.00223					CV Detects	2.275
1329					Skewness Detects	2.125					Kurtosis Detects	3.477
1330					Mean of Logged Detects	-4.59					SD of Logged Detects	4.355
1331												
1332	**Normal GOF Test on Detects Only**											
1333					Shapiro Wilk Test Statistic	0.513	**Shapiro Wilk GOF Test**					
1334					5% Shapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level					
1335					Lilliefors Test Statistic	0.487	**Lilliefors GOF Test**					
1336					5% Lilliefors Critical Value	0.267	Detected Data Not Normal at 5% Significance Level					
1337	**Detected Data Not Normal at 5% Significance Level**											
1338												
1339	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**											
1340					Mean	0.107					Standard Error of Mean	0.0804
1341					SD	1.957					95% KM (BCA) UCL	0.256
1342					95% KM (t) UCL	0.239					95% KM (Percentile Bootstrap) UCL	0.235
1343					95% KM (z) UCL	0.239					95% KM Bootstrap t UCL	91.57
1344					90% KM Chebyshev UCL	0.348					95% KM Chebyshev UCL	0.457
1345					97.5% KM Chebyshev UCL	0.609					99% KM Chebyshev UCL	0.906
1346												
1347	**Gamma GOF Tests on Detected Observations Only**											
1348					A-D Test Statistic	1.772	**Anderson-Darling GOF Test**					
1349					5% A-D Critical Value	0.932	Detected Data Not Gamma Distributed at 5% Significance Level					
1350					K-S Test Statistic	0.359	**Kolmogrov-Smirnoff GOF**					
1351					5% K-S Critical Value	0.289	Detected Data Not Gamma Distributed at 5% Significance Level					
1352	**Detected Data Not Gamma Distributed at 5% Significance Level**											
1353												
1354	**Gamma Statistics on Detected Data Only**											
1355					k hat (MLE)	0.123					k star (bias corrected MLE)	0.15
1356					Theta hat (MLE)	51.4					Theta star (bias corrected MLE)	42.12
1357					nu hat (MLE)	2.703					nu star (bias corrected)	3.299
1358					MLE Mean (bias corrected)	6.316					MLE Sd (bias corrected)	16.31
1359												
1360	**Gamma Kaplan-Meier (KM) Statistics**											
1361					k hat (KM)	0.00298					nu hat (KM)	3.887
1362					Approximate Chi Square Value (3.89, α)	0.677					Adjusted Chi Square Value (3.89, β)	0.675
1363					95% Gamma Approximate KM-UCL (use when n>=50)	0.613					95% Gamma Adjusted KM-UCL (use when n<50)	0.615

	A–E	F	G–K	L
1364	Gamma (KM) may not be used when k hat (KM) is < 0.1			
1365				
1366	**Gamma ROS Statistics using Imputed Non-Detects**			
1367	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1368	GROS may not be used when kstar of detected data is small such as < 0.1			
1369	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1370	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1371	Minimum	2.4500E-4	Mean	0.116
1372	Maximum	41.6	Median	0.01
1373	SD	1.958	CV	16.82
1374	k hat (MLE)	0.284	k star (bias corrected MLE)	0.283
1375	Theta hat (MLE)	0.41	Theta star (bias corrected MLE)	0.411
1376	nu hat (MLE)	369.8	nu star (bias corrected)	369.4
1377	MLE Mean (bias corrected)	0.116	MLE Sd (bias corrected)	0.219
1378			Adjusted Level of Significance (β)	0.0496
1379	Approximate Chi Square Value (369.41, α)	325.9	Adjusted Chi Square Value (369.41, β)	325.8
1380	95% Gamma Approximate UCL (use when n>=50)	0.132	95% Gamma Adjusted UCL (use when n<50)	0.132
1381				
1382	**Lognormal GOF Test on Detected Observations Only**			
1383	Shapiro Wilk Test Statistic	0.791	**Shapiro Wilk GOF Test**	
1384	5% Shapiro Wilk Critical Value	0.85	Detected Data Not Lognormal at 5% Significance Level	
1385	Lilliefors Test Statistic	0.232	**Lilliefors GOF Test**	
1386	5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level	
1387	**Detected Data appear Approximate Lognormal at 5% Significance Level**			
1388				
1389	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1390	Mean in Original Scale	0.107	Mean in Log Scale	-9.697
1391	SD in Original Scale	1.958	SD in Log Scale	1.443
1392	95% t UCL (assumes normality of ROS data)	0.233	95% Percentile Bootstrap UCL	0.256
1393	95% BCA Bootstrap UCL	0.32	95% Bootstrap t UCL	95
1394	95% H-UCL (Log ROS)	2.0009E-4		
1395				
1396	**UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed**			
1397	KM Mean (logged)	-8.21	95% H-UCL (KM -Log)	3.7289E-4
1398	KM SD (logged)	0.724	95% Critical H Value (KM-Log)	1.897
1399	KM Standard Error of Mean (logged)	0.0384		
1400				
1401	**DL/2 Statistics**			
1402	**DL/2 Normal**		**DL/2 Log-Transformed**	
1403	Mean in Original Scale	0.111	Mean in Log Scale	-7.99
1404	SD in Original Scale	1.958	SD in Log Scale	1.109
1405	95% t UCL (Assumes normality)	0.237	95% H-Stat UCL	6.8886E-4
1406	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
1407				
1408	**Nonparametric Distribution Free UCL Statistics**			
1409	**Detected Data appear Approximate Lognormal Distributed at 5% Significance Level**			
1410				

	A	B	C	D	E	F	G	H	I	J	K	L
1411	Suggested UCL to Use											
1412					97.5% KM (Chebyshev) UCL	0.609						
1413												
1414	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1415	Recommendations are based upon data size, data distribution, and skewness.											
1416	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1417	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1418												
1419	O-XYLENE											
1420												
1421	General Statistics											
1422					Total Number of Observations	652					Number of Distinct Observations	374
1423					Number of Detects	50					Number of Non-Detects	602
1424					Number of Distinct Detects	49					Number of Distinct Non-Detects	335
1425					Minimum Detect	1.6000E-4					Minimum Non-Detect	3.1400E-4
1426					Maximum Detect	6.75					Maximum Non-Detect	1.13
1427					Variance Detects	1.789					Percent Non-Detects	92.33%
1428					Mean Detects	0.326					SD Detects	1.338
1429					Median Detects	4.2300E-4					CV Detects	4.099
1430					Skewness Detects	4.197					Kurtosis Detects	17
1431					Mean of Logged Detects	-6.888					SD of Logged Detects	2.546
1432												
1433	Normal GOF Test on Detects Only											
1434					Shapiro Wilk Test Statistic	0.271	Shapiro Wilk GOF Test					
1435					5% Shapiro Wilk Critical Value	0.947	Detected Data Not Normal at 5% Significance Level					
1436					Lilliefors Test Statistic	0.512	Lilliefors GOF Test					
1437					5% Lilliefors Critical Value	0.125	Detected Data Not Normal at 5% Significance Level					
1438	Detected Data Not Normal at 5% Significance Level											
1439												
1440	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs											
1441					Mean	0.0253					Standard Error of Mean	0.0149
1442					SD	0.377					95% KM (BCA) UCL	0.0537
1443					95% KM (t) UCL	0.0498					95% KM (Percentile Bootstrap) UCL	0.0537
1444					95% KM (z) UCL	0.0498					95% KM Bootstrap t UCL	1.81
1445					90% KM Chebyshev UCL	0.07					95% KM Chebyshev UCL	0.0902
1446					97.5% KM Chebyshev UCL	0.118					99% KM Chebyshev UCL	0.174
1447												
1448	Gamma GOF Tests on Detected Observations Only											
1449					A-D Test Statistic	13.16	Anderson-Darling GOF Test					
1450					5% A-D Critical Value	0.974	Detected Data Not Gamma Distributed at 5% Significance Level					
1451					K-S Test Statistic	0.424	Kolmogrov-Smirnoff GOF					
1452					5% K-S Critical Value	0.142	Detected Data Not Gamma Distributed at 5% Significance Level					
1453	Detected Data Not Gamma Distributed at 5% Significance Level											
1454												
1455	Gamma Statistics on Detected Data Only											
1456					k hat (MLE)	0.135					k star (bias corrected MLE)	0.14
1457					Theta hat (MLE)	2.413					Theta star (bias corrected MLE)	2.323

	A–E	F	G–K	L
1458	nu hat (MLE)	13.52	nu star (bias corrected)	14.05
1459	MLE Mean (bias corrected)	0.326	MLE Sd (bias corrected)	0.871
1460				
1461	**Gamma Kaplan-Meier (KM) Statistics**			
1462	k hat (KM)	0.0045	nu hat (KM)	5.863
1463	Approximate Chi Square Value (5.86, α)	1.57	Adjusted Chi Square Value (5.86, β)	1.565
1464	95% Gamma Approximate KM-UCL (use when n>=50)	0.0943	95% Gamma Adjusted KM-UCL (use when n<50)	0.0946
1465	Gamma (KM) may not be used when k hat (KM) is < 0.1			
1466				
1467	**Gamma ROS Statistics using Imputed Non-Detects**			
1468	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1469	GROS may not be used when kstar of detected data is small such as < 0.1			
1470	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1471	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1472	Minimum	1.6000E-4	Mean	0.0343
1473	Maximum	6.75	Median	0.01
1474	SD	0.377	CV	10.99
1475	k hat (MLE)	0.458	k star (bias corrected MLE)	0.457
1476	Theta hat (MLE)	0.0748	Theta star (bias corrected MLE)	0.075
1477	nu hat (MLE)	597.1	nu star (bias corrected)	595.7
1478	MLE Mean (bias corrected)	0.0343	MLE Sd (bias corrected)	0.0507
1479			Adjusted Level of Significance (β)	0.0496
1480	Approximate Chi Square Value (595.69, α)	540.1	Adjusted Chi Square Value (595.69, β)	540
1481	95% Gamma Approximate UCL (use when n>=50)	0.0378	95% Gamma Adjusted UCL (use when n<50)	0.0378
1482				
1483	**Lognormal GOF Test on Detected Observations Only**			
1484	Shapiro Wilk Test Statistic	0.659	**Shapiro Wilk GOF Test**	
1485	5% Shapiro Wilk Critical Value	0.947	Detected Data Not Lognormal at 5% Significance Level	
1486	Lilliefors Test Statistic	0.272	**Lilliefors GOF Test**	
1487	5% Lilliefors Critical Value	0.125	Detected Data Not Lognormal at 5% Significance Level	
1488	**Detected Data Not Lognormal at 5% Significance Level**			
1489				
1490	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1491	Mean in Original Scale	0.0253	Mean in Log Scale	-8.221
1492	SD in Original Scale	0.377	SD in Log Scale	0.977
1493	95% t UCL (assumes normality of ROS data)	0.0496	95% Percentile Bootstrap UCL	0.0526
1494	95% BCA Bootstrap UCL	0.0655	95% Bootstrap t UCL	0.0799
1495	95% H-UCL (Log ROS)	4.6925E-4		
1496				
1497	**DL/2 Statistics**			
1498	**DL/2 Normal**		**DL/2 Log-Transformed**	
1499	Mean in Original Scale	0.0288	Mean in Log Scale	-7.948
1500	SD in Original Scale	0.379	SD in Log Scale	1.127
1501	95% t UCL (Assumes normality)	0.0533	95% H-Stat UCL	7.3433E-4
1502	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
1503				
1504	**Nonparametric Distribution Free UCL Statistics**			

Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
97.5% KM (Chebyshev) UCL	0.118		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
PHENANTHRENE			
General Statistics			
Total Number of Observations	652	Number of Distinct Observations	257
Number of Detects	204	Number of Non-Detects	448
Number of Distinct Detects	179	Number of Distinct Non-Detects	85
Minimum Detect	0.0113	Minimum Non-Detect	0.0337
Maximum Detect	7.73	Maximum Non-Detect	0.372
Variance Detects	0.425	Percent Non-Detects	68.71%
Mean Detects	0.178	SD Detects	0.652
Median Detects	0.0402	CV Detects	3.653
Skewness Detects	8.861	Kurtosis Detects	93.35
Mean of Logged Detects	-2.945	SD of Logged Detects	1.228
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.268	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.399	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.062	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.0701	Standard Error of Mean	0.0146
SD	0.371	95% KM (BCA) UCL	0.0978
95% KM (t) UCL	0.0941	95% KM (Percentile Bootstrap) UCL	0.0951
95% KM (z) UCL	0.094	95% KM Bootstrap t UCL	0.122
90% KM Chebyshev UCL	0.114	95% KM Chebyshev UCL	0.134
97.5% KM Chebyshev UCL	0.161	99% KM Chebyshev UCL	0.215
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	20.72	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.819	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.214	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.0668	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			

	A–E	F	G–K	L
1552	k hat (MLE)	0.517	k star (bias corrected MLE)	0.513
1553	Theta hat (MLE)	0.345	Theta star (bias corrected MLE)	0.348
1554	nu hat (MLE)	211.1	nu star (bias corrected)	209.3
1555	MLE Mean (bias corrected)	0.178	MLE Sd (bias corrected)	0.249
1556				
1557	**Gamma Kaplan-Meier (KM) Statistics**			
1558	k hat (KM)	0.0357	nu hat (KM)	46.52
1559	Approximate Chi Square Value (46.52, α)	31.87	Adjusted Chi Square Value (46.52, β)	31.84
1560	95% Gamma Approximate KM-UCL (use when n>=50)	0.102	95% Gamma Adjusted KM-UCL (use when n<50)	0.102
1561	Gamma (KM) may not be used when k hat (KM) is < 0.1			
1562				
1563	**Gamma ROS Statistics using Imputed Non-Detects**			
1564	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1565	GROS may not be used when kstar of detected data is small such as < 0.1			
1566	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1567	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1568	Minimum	0.01	Mean	0.0636
1569	Maximum	7.73	Median	0.01
1570	SD	0.372	CV	5.853
1571	k hat (MLE)	0.494	k star (bias corrected MLE)	0.492
1572	Theta hat (MLE)	0.129	Theta star (bias corrected MLE)	0.129
1573	nu hat (MLE)	643.5	nu star (bias corrected)	641.9
1574	MLE Mean (bias corrected)	0.0636	MLE Sd (bias corrected)	0.0906
1575			Adjusted Level of Significance (β)	0.0496
1576	Approximate Chi Square Value (641.91, α)	584.1	Adjusted Chi Square Value (641.91, β)	584
1577	95% Gamma Approximate UCL (use when n>=50)	0.0699	95% Gamma Adjusted UCL (use when n<50)	0.0699
1578				
1579	**Lognormal GOF Test on Detected Observations Only**			
1580	Lilliefors Test Statistic	0.105	**Lilliefors GOF Test**	
1581	5% Lilliefors Critical Value	0.062	Detected Data Not Lognormal at 5% Significance Level	
1582	**Detected Data Not Lognormal at 5% Significance Level**			
1583				
1584	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1585	Mean in Original Scale	0.0726	Mean in Log Scale	-3.591
1586	SD in Original Scale	0.371	SD in Log Scale	0.961
1587	95% t UCL (assumes normality of ROS data)	0.0966	95% Percentile Bootstrap UCL	0.0992
1588	95% BCA Bootstrap UCL	0.11	95% Bootstrap t UCL	0.122
1589	95% H-UCL (Log ROS)	0.0473		
1590				
1591	**DL/2 Statistics**			
1592	**DL/2 Normal**		**DL/2 Log-Transformed**	
1593	Mean in Original Scale	0.0723	Mean in Log Scale	-3.619
1594	SD in Original Scale	0.372	SD in Log Scale	0.898
1595	95% t UCL (Assumes normality)	0.0963	95% H-Stat UCL	0.0431
1596	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
1597				
1598	**Nonparametric Distribution Free UCL Statistics**			

Data do not follow a Discernible Distribution at 5% Significance Level			
Suggested UCL to Use			
95% KM (BCA) UCL	0.0978		
Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
Recommendations are based upon data size, data distribution, and skewness.			
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
PYRENE			
General Statistics			
Total Number of Observations	652	Number of Distinct Observations	273
Number of Detects	221	Number of Non-Detects	431
Number of Distinct Detects	202	Number of Distinct Non-Detects	91
Minimum Detect	0.0162	Minimum Non-Detect	0.0337
Maximum Detect	11.9	Maximum Non-Detect	0.705
Variance Detects	1.138	Percent Non-Detects	66.1%
Mean Detects	0.263	SD Detects	1.067
Median Detects	0.0564	CV Detects	4.055
Skewness Detects	8.529	Kurtosis Detects	80.68
Mean of Logged Detects	-2.629	SD of Logged Detects	1.225
Normal GOF Test on Detects Only			
Shapiro Wilk Test Statistic	0.235	**Normal GOF Test on Detected Observations Only**	
5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.408	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.0596	Detected Data Not Normal at 5% Significance Level	
Detected Data Not Normal at 5% Significance Level			
Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs			
Mean	0.106	Standard Error of Mean	0.0247
SD	0.63	95% KM (BCA) UCL	0.155
95% KM (t) UCL	0.147	95% KM (Percentile Bootstrap) UCL	0.151
95% KM (z) UCL	0.147	95% KM Bootstrap t UCL	0.203
90% KM Chebyshev UCL	0.18	95% KM Chebyshev UCL	0.214
97.5% KM Chebyshev UCL	0.261	99% KM Chebyshev UCL	0.352
Gamma GOF Tests on Detected Observations Only			
A-D Test Statistic	24.02	**Anderson-Darling GOF Test**	
5% A-D Critical Value	0.823	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.232	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.0648	Detected Data Not Gamma Distributed at 5% Significance Level	
Detected Data Not Gamma Distributed at 5% Significance Level			
Gamma Statistics on Detected Data Only			

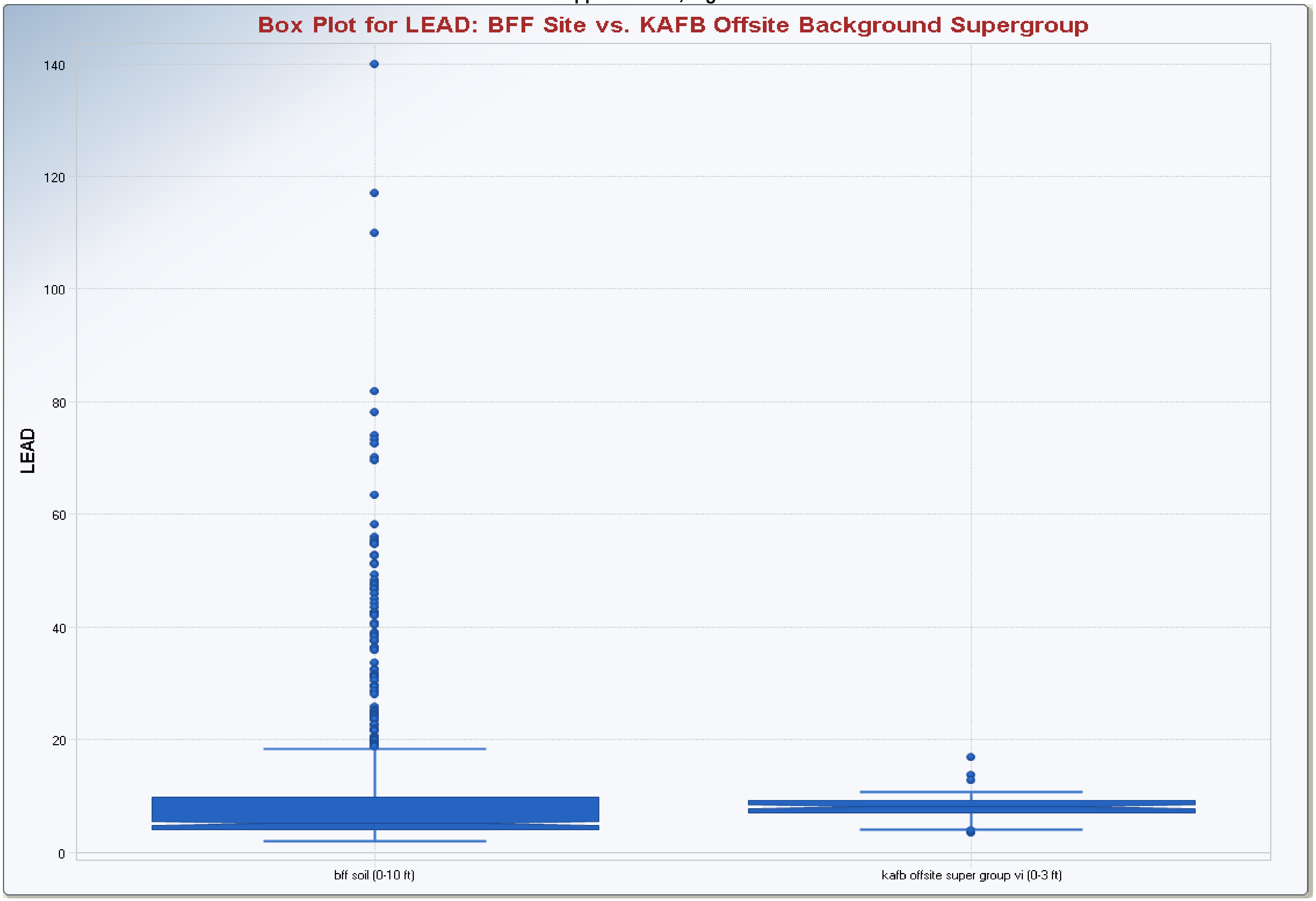
	A–E	F	G–K	L
1646	k hat (MLE)	0.492	k star (bias corrected MLE)	0.488
1647	Theta hat (MLE)	0.534	Theta star (bias corrected MLE)	0.539
1648	nu hat (MLE)	217.5	nu star (bias corrected)	215.9
1649	MLE Mean (bias corrected)	0.263	MLE Sd (bias corrected)	0.376
1650				
1651	**Gamma Kaplan-Meier (KM) Statistics**			
1652	k hat (KM)	0.0285	nu hat (KM)	37.11
1653	Approximate Chi Square Value (37.11, α)	24.16	Adjusted Chi Square Value (37.11, β)	24.14
1654	95% Gamma Approximate KM-UCL (use when n>=50)	0.163	95% Gamma Adjusted KM-UCL (use when n<50)	0.163
1655	Gamma (KM) may not be used when k hat (KM) is < 0.1			
1656				
1657	**Gamma ROS Statistics using Imputed Non-Detects**			
1658	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs			
1659	GROS may not be used when kstar of detected data is small such as < 0.1			
1660	For such situations, GROS method tends to yield inflated values of UCLs and BTVs			
1661	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates			
1662	Minimum	0.01	Mean	0.0958
1663	Maximum	11.9	Median	0.01
1664	SD	0.632	CV	6.59
1665	k hat (MLE)	0.412	k star (bias corrected MLE)	0.412
1666	Theta hat (MLE)	0.232	Theta star (bias corrected MLE)	0.233
1667	nu hat (MLE)	537.8	nu star (bias corrected)	536.6
1668	MLE Mean (bias corrected)	0.0958	MLE Sd (bias corrected)	0.149
1669			Adjusted Level of Significance (β)	0.0496
1670	Approximate Chi Square Value (536.65, α)	483.9	Adjusted Chi Square Value (536.65, β)	483.8
1671	95% Gamma Approximate UCL (use when n>=50)	0.106	95% Gamma Adjusted UCL (use when n<50)	0.106
1672				
1673	**Lognormal GOF Test on Detected Observations Only**			
1674	Lilliefors Test Statistic	0.12	**Lilliefors GOF Test**	
1675	5% Lilliefors Critical Value	0.0596	Detected Data Not Lognormal at 5% Significance Level	
1676	**Detected Data Not Lognormal at 5% Significance Level**			
1677				
1678	**Lognormal ROS Statistics Using Imputed Non-Detects**			
1679	Mean in Original Scale	0.108	Mean in Log Scale	-3.349
1680	SD in Original Scale	0.63	SD in Log Scale	1.01
1681	95% t UCL (assumes normality of ROS data)	0.149	95% Percentile Bootstrap UCL	0.155
1682	95% BCA Bootstrap UCL	0.166	95% Bootstrap t UCL	0.207
1683	95% H-UCL (Log ROS)	0.0635		
1684				
1685	**DL/2 Statistics**			
1686	**DL/2 Normal**		**DL/2 Log-Transformed**	
1687	Mean in Original Scale	0.106	Mean in Log Scale	-3.461
1688	SD in Original Scale	0.631	SD in Log Scale	1.012
1689	95% t UCL (Assumes normality)	0.147	95% H-Stat UCL	0.0569
1690	**DL/2 is not a recommended method, provided for comparisons and historical reasons**			
1691				
1692	**Nonparametric Distribution Free UCL Statistics**			

	A–E	F	G–K	L
1693	Data do not follow a Discernible Distribution at 5% Significance Level			
1694				
1695	**Suggested UCL to Use**			
1696	95% KM (BCA) UCL	0.155		
1697				
1698	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.			
1699	Recommendations are based upon data size, data distribution, and skewness.			
1700	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).			
1701	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.			
1702				
1703	XYLENES			
1704				
1705	**General Statistics**			
1706	Total Number of Observations	652	Number of Distinct Observations	251
1707	Number of Detects	73	Number of Non-Detects	579
1708	Number of Distinct Detects	69	Number of Distinct Non-Detects	195
1709	Minimum Detect	4.2600E-4	Minimum Non-Detect	9.4200E-4
1710	Maximum Detect	18.1	Maximum Non-Detect	3.38
1711	Variance Detects	8.949	Percent Non-Detects	88.8%
1712	Mean Detects	0.602	SD Detects	2.992
1713	Median Detects	0.0011	CV Detects	4.967
1714	Skewness Detects	5.144	Kurtosis Detects	26.14
1715	Mean of Logged Detects	-6.167	SD of Logged Detects	2.192
1716				
1717	**Normal GOF Test on Detects Only**			
1718	Shapiro Wilk Test Statistic	0.218	**Normal GOF Test on Detected Observations Only**	
1719	5% Shapiro Wilk P Value	0	Detected Data Not Normal at 5% Significance Level	
1720	Lilliefors Test Statistic	0.519	**Lilliefors GOF Test**	
1721	5% Lilliefors Critical Value	0.104	Detected Data Not Normal at 5% Significance Level	
1722	**Detected Data Not Normal at 5% Significance Level**			
1723				
1724	**Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs**			
1725	Mean	0.0681	Standard Error of Mean	0.0399
1726	SD	1.012	95% KM (BCA) UCL	0.136
1727	95% KM (t) UCL	0.134	95% KM (Percentile Bootstrap) UCL	0.144
1728	95% KM (z) UCL	0.134	95% KM Bootstrap t UCL	3.519
1729	90% KM Chebyshev UCL	0.188	95% KM Chebyshev UCL	0.242
1730	97.5% KM Chebyshev UCL	0.317	99% KM Chebyshev UCL	0.465
1731				
1732	**Gamma GOF Tests on Detected Observations Only**			
1733	A-D Test Statistic	21.27	**Anderson-Darling GOF Test**	
1734	5% A-D Critical Value	0.977	Detected Data Not Gamma Distributed at 5% Significance Level	
1735	K-S Test Statistic	0.436	**Kolmogrov-Smirnoff GOF**	
1736	5% K-S Critical Value	0.118	Detected Data Not Gamma Distributed at 5% Significance Level	
1737	**Detected Data Not Gamma Distributed at 5% Significance Level**			
1738				
1739	**Gamma Statistics on Detected Data Only**			

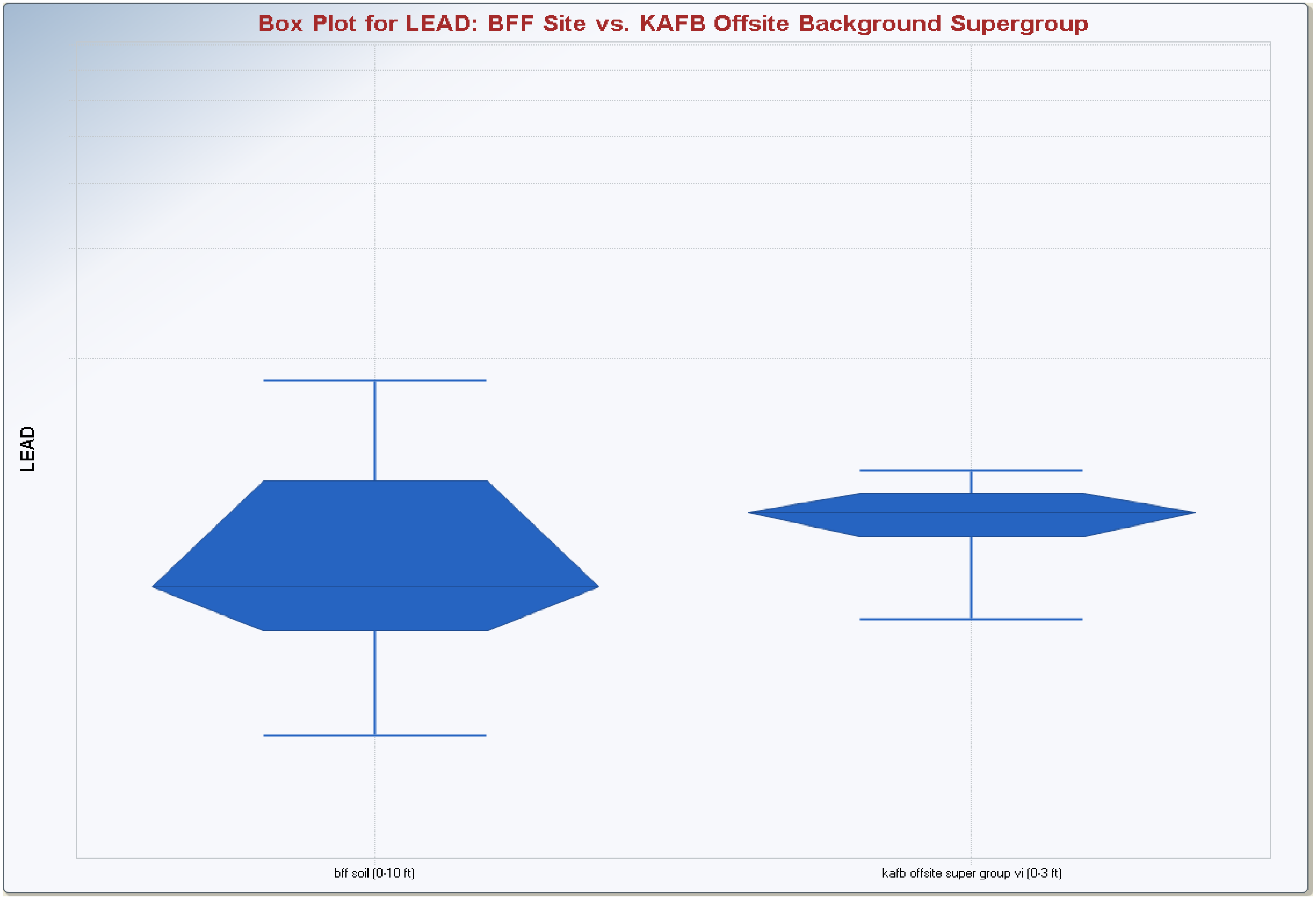
	A	B	C	D	E	F	G	H	I	J	K	L
1740					k hat (MLE)	0.138					k star (bias corrected MLE)	0.141
1741					Theta hat (MLE)	4.38					Theta star (bias corrected MLE)	4.272
1742					nu hat (MLE)	20.08					nu star (bias corrected)	20.58
1743					MLE Mean (bias corrected)	0.602					MLE Sd (bias corrected)	1.604
1744												
1745	**Gamma Kaplan-Meier (KM) Statistics**											
1746					k hat (KM)	0.00453					nu hat (KM)	5.906
1747					Approximate Chi Square Value (5.91, α)	1.592					Adjusted Chi Square Value (5.91, β)	1.587
1748					95% Gamma Approximate KM-UCL (use when n>=50)	0.253					95% Gamma Adjusted KM-UCL (use when n<50)	0.253
1749	Gamma (KM) may not be used when k hat (KM) is < 0.1											
1750												
1751	**Gamma ROS Statistics using Imputed Non-Detects**											
1752	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs											
1753	GROS may not be used when kstar of detected data is small such as < 0.1											
1754	For such situations, GROS method tends to yield inflated values of UCLs and BTVs											
1755	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates											
1756					Minimum	4.2600E-4					Mean	0.0763
1757					Maximum	18.1					Median	0.01
1758					SD	1.012					CV	13.26
1759					k hat (MLE)	0.311					k star (bias corrected MLE)	0.31
1760					Theta hat (MLE)	0.246					Theta star (bias corrected MLE)	0.246
1761					nu hat (MLE)	405.2					nu star (bias corrected)	404.7
1762					MLE Mean (bias corrected)	0.0763					MLE Sd (bias corrected)	0.137
1763											Adjusted Level of Significance (β)	0.0496
1764					Approximate Chi Square Value (404.70, α)	359.1					Adjusted Chi Square Value (404.70, β)	359
1765					95% Gamma Approximate UCL (use when n>=50)	0.086					95% Gamma Adjusted UCL (use when n<50)	0.0861
1766												
1767	**Lognormal GOF Test on Detected Observations Only**											
1768					Lilliefors Test Statistic	0.242	**Lilliefors GOF Test**					
1769					5% Lilliefors Critical Value	0.104	Detected Data Not Lognormal at 5% Significance Level					
1770	**Detected Data Not Lognormal at 5% Significance Level**											
1771												
1772	**Lognormal ROS Statistics Using Imputed Non-Detects**											
1773					Mean in Original Scale	0.0683					Mean in Log Scale	-7.085
1774					SD in Original Scale	1.013					SD in Log Scale	1.046
1775					95% t UCL (assumes normality of ROS data)	0.134					95% Percentile Bootstrap UCL	0.136
1776					95% BCA Bootstrap UCL	0.174					95% Bootstrap t UCL	3.517
1777					95% H-UCL (Log ROS)	0.00158						
1778												
1779	**DL/2 Statistics**											
1780	**DL/2 Normal**						**DL/2 Log-Transformed**					
1781					Mean in Original Scale	0.0789					Mean in Log Scale	-6.824
1782					SD in Original Scale	1.019					SD in Log Scale	1.134
1783					95% t UCL (Assumes normality)	0.145					95% H-Stat UCL	0.00228
1784	**DL/2 is not a recommended method, provided for comparisons and historical reasons**											
1785												
1786	**Nonparametric Distribution Free UCL Statistics**											

	A	B	C	D	E	F	G	H	I	J	K	L
1787	Data do not follow a Discernible Distribution at 5% Significance Level											
1788												
1789	Suggested UCL to Use											
1790	97.5% KM (Chebyshev) UCL					0.317						
1791												
1792	Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.											
1793	Recommendations are based upon data size, data distribution, and skewness.											
1794	These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).											
1795	However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.											
1796												

Appendix C-3, Figure 1



Appendix A-3, Figure 2 (Log Scale)



Appendix C-3
ProUCL Output for Lead Background Evaluation, BFF, KAFB
Wilcoxon-Mann-Whitney Sample 1 vs Sample 2 Comparison Test for Uncensor Full Data Sets without NDs

User Selected Options	
Date/Time of Computation	3/14/2014 9:14:23 AM
From File	Lead BG statistical evaluation_input.xls
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0.000
Selected Null Hypothesis	Sample 1 Mean/Median <= Sample 2 Mean/Median (Form 1)
Alternative Hypothesis	Sample 1 Mean/Median > Sample 2 Mean/Median

Sample 1 Data: LEAD(bff soil (0-10 ft))

Sample 2 Data: LEAD(kafb offsite super group vi (0-3 ft))

Raw Statistics

	Sample 1	Sample 2
Number of Valid Observations	715	54
Number of Distinct Observations	480	39
Minimum	2.12	3.5
Maximum	140	17
Mean	10.64	8.228
Median	5.23	8.2
SD	14.27	2.34
SE of Mean	0.534	0.318

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Sample 1 <= Mean/Median of Sample 2

Sample 1 Rank Sum W-Stat	269328
Standardized WMW U-Stat	-3.779
Mean (U)	19305
SD(U) - Adj ties	1574
Approximate U-Stat Critical Value (0.05)	1.645
P-Value (Adjusted for Ties)	1

Conclusion with Alpha = 0.05

Appendix C-3
ProUCL Output for Lead Background Evaluation, BFF, KAFB
Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects

Goodness-of-Fit Test Statistics for Uncensored Full Data Sets without Non-Detects

User Selected Options

Date/Time of Computation	3/14/2014 9:07:09 AM
From File	Lead BG statistical evaluation_input.xls
Full Precision	OFF
Confidence Coefficient	0.95

LEAD (bff soil (0-10 ft))

Raw Statistics

Number of Valid Observations	715
Number of Distinct Observations	480
Minimum	2.12
Maximum	140
Mean of Raw Data	10.64
Standard Deviation of Raw Data	14.27
Khat	1.332
Theta hat	7.988
Kstar	1.328
Theta star	8.016
Mean of Log Transformed Data	1.945
Standard Deviation of Log Transformed Data	0.791

Normal GOF Test Results

Correlation Coefficient R	0.733
Approximate Shapiro Wilk Test Statistic	0.552
Approximate Shapiro Wilk P Value	0
Lilliefors Test Statistic	0.278
Lilliefors Critical (0.05) Value	0.0331

Data not Normal at (0.05) Significance Level

Gamma GOF Test Results

Correlation Coefficient R	0.921
A-D Test Statistic	57.36
A-D Critical (0.05) Value	0.776
K-S Test Statistic	0.211
K-S Critical(0.05) Value	0.0362

Data not Gamma Distributed at (0.05) Significance Level

Lognormal GOF Test Results

Correlation Coefficient R	0.932
Approximate Shapiro Wilk Test Statistic	0.855
Approximate Shapiro Wilk P Value	0

Lilliefors Test Statistic	0.163
Lilliefors Critical (0.05) Value	0.0331

Data not Lognormal at (0.05) Significance Level

LEAD (kafb offsite super group vi (0-3 ft))

Raw Statistics

Number of Valid Observations	54
Number of Distinct Observations	39
Minimum	3.5
Maximum	17
Mean of Raw Data	8.228
Standard Deviation of Raw Data	2.34
Khat	12.09
Theta hat	0.68
Kstar	11.43
Theta star	0.72
Mean of Log Transformed Data	2.066
Standard Deviation of Log Transformed Data	0.303

Normal GOF Test Results

Correlation Coefficient R	0.949
Approximate Shapiro Wilk Test Statistic	0.918
Approximate Shapiro Wilk P Value	0.00101
Lilliefors Test Statistic	0.135
Lilliefors Critical (0.05) Value	0.121

Data not Normal at (0.05) Significance Level

Gamma GOF Test Results

Correlation Coefficient R	0.957
A-D Test Statistic	1.699
A-D Critical (0.05) Value	0.75
K-S Test Statistic	0.171
K-S Critical(0.05) Value	0.121

Data not Gamma Distributed at (0.05) Significance Level

Lognormal GOF Test Results

Correlation Coefficient R	0.944
Approximate Shapiro Wilk Test Statistic	0.9
Approximate Shapiro Wilk P Value	1.2946E-4
Lilliefors Test Statistic	0.192
Lilliefors Critical (0.05) Value	0.121

UCL Statistics for Data Sets with Non-Detects

Units = pbbv

User Selected Options	Soil Gas (ppbv) Eco_25ft Location/Depth
Date/Time of Computation	1/16/2014 11:30:32 AM
From File	ProUCL Input SG 25ft_eco.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

ACETONE

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	4	Number of Non-Detects	4
Number of Distinct Detects	4	Number of Distinct Non-Detects	3
Minimum Detect	730	Minimum Non-Detect	3.4
Maximum Detect	26000	Maximum Non-Detect	3400
Variance Detects	1.574E+8	Percent Non-Detects	50%
Mean Detects	7180	SD Detects	12548
Median Detects	995	CV Detects	1.748
Skewness Detects	1.999	Kurtosis Detects	3.997
Mean of Logged Detects	7.638	SD of Logged Detects	1.693

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.641	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.436	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	3648	Standard Error of Mean	3454
SD	8459	95% KM (BCA) UCL	N/A
95% KM (t) UCL	10193	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	9330	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	14011	95% KM Chebyshev UCL	18705
97.5% KM Chebyshev UCL	25220	99% KM Chebyshev UCL	38018

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.814	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.68	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.451	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.41	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.51	k star (bias corrected MLE)	0.294
Theta hat (MLE)	14070	Theta star (bias corrected MLE)	24401
nu hat (MLE)	4.083	nu star (bias corrected)	2.354
MLE Mean (bias corrected)	7180	MLE Sd (bias corrected)	13236

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.186	nu hat (KM)	2.976
Approximate Chi Square Value (2.98, α)	0.365	Adjusted Chi Square Value (2.98, β)	0.21
95% Gamma Approximate KM-UCL (use when n>=50)	29721	95% Gamma Adjusted KM-UCL (use when n<50)	51735

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	3590
Maximum	26000	Median	365
SD	9067	CV	2.526
k hat (MLE)	0.119	k star (bias corrected MLE)	0.158
Theta hat (MLE)	30159	Theta star (bias corrected MLE)	22760
nu hat (MLE)	1.905	nu star (bias corrected)	2.524
MLE Mean (bias corrected)	3590	MLE Sd (bias corrected)	9039
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (2.52, α)	0.247	Adjusted Chi Square Value (2.52, β)	0.144
95% Gamma Approximate UCL (use when n>=50)	36751	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.721	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.396	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	3636	Mean in Log Scale	5.892

SD in Original Scale	9046	SD in Log Scale	2.267
95% t UCL (assumes normality of ROS data)	9695	95% Percentile Bootstrap UCL	9988
95% BCA Bootstrap UCL	13198	95% Bootstrap t UCL	89099
95% H-UCL (Log ROS)	1738164		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	4.779	95% H-UCL (KM -Log)	6.791E+9
KM SD (logged)	3.309	95% Critical H Value (KM-Log)	9.903
KM Standard Error of Mean (logged)	1.419		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	3805	Mean in Log Scale	5.35
SD in Original Scale	8989	SD in Log Scale	3.333
95% t UCL (Assumes normality)	9826	95% H-Stat UCL	1.550E+10

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	10193	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

BENZENE

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	85	Minimum Non-Detect	5
Maximum Detect	71000	Maximum Non-Detect	5
Variance Detects	6.843E+8	Percent Non-Detects	12.5%
Mean Detects	14082	SD Detects	26159
Median Detects	2100	CV Detects	1.858
Skewness Detects	2.271	Kurtosis Detects	5.197
Mean of Logged Detects	7.823	SD of Logged Detects	2.203

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use

guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.

For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).

Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.62	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.389	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	12323	Standard Error of Mean	8832
SD	23128	95% KM (BCA) UCL	27512
95% KM (t) UCL	29056	95% KM (Percentile Bootstrap) UCL	27437
95% KM (z) UCL	26850	95% KM Bootstrap t UCL	316848
90% KM Chebyshev UCL	38819	95% KM Chebyshev UCL	50821
97.5% KM Chebyshev UCL	67479	99% KM Chebyshev UCL	100201

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.52	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.771	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.338	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.332	Detected Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.383	k star (bias corrected MLE)	0.314
Theta hat (MLE)	36758	Theta star (bias corrected MLE)	44825
nu hat (MLE)	5.364	nu star (bias corrected)	4.398
MLE Mean (bias corrected)	14082	MLE Sd (bias corrected)	25124

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.284	nu hat (KM)	4.542
Approximate Chi Square Value (4.54, α)	0.947	Adjusted Chi Square Value (4.54, β)	0.603
95% Gamma Approximate KM-UCL (use when n>=50)	59115	95% Gamma Adjusted KM-UCL (use when n<50)	92871

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	12322
Maximum	71000	Median	1800

SD	24725	CV	2.007
k hat (MLE)	0.229	k star (bias corrected MLE)	0.226
Theta hat (MLE)	53866	Theta star (bias corrected MLE)	54449
nu hat (MLE)	3.66	nu star (bias corrected)	3.621
MLE Mean (bias corrected)	12322	MLE Sd (bias corrected)	25902
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (3.62, α)	0.578	Adjusted Chi Square Value (3.62, β)	0.344
95% Gamma Approximate UCL (use when n>=50)	77202	95% Gamma Adjusted UCL (use when n<50)	129659

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.958	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.237	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	12323	Mean in Log Scale	7.144
SD in Original Scale	24724	SD in Log Scale	2.802
95% t UCL (assumes normality of ROS data)	28885	95% Percentile Bootstrap UCL	27261
95% BCA Bootstrap UCL	34521	95% Bootstrap t UCL	324212
95% H-UCL (Log ROS)	4.845E+8		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	7.046	95% H-UCL (KM -Log)	4.491E+8
KM SD (logged)	2.804	95% Critical H Value (KM-Log)	8.439
KM Standard Error of Mean (logged)	1.071		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	12322	Mean in Log Scale	6.96
SD in Original Scale	24725	SD in Log Scale	3.182
95% t UCL (Assumes normality)	28884	95% H-Stat UCL	1.585E+10

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	50821	95% GROS Adjusted Gamma UCL	129659
95% Adjusted Gamma KM-UCL	92871		

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ETHYLBENZENE

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	4	Number of Non-Detects	4
Number of Distinct Detects	4	Number of Distinct Non-Detects	4
Minimum Detect	140	Minimum Non-Detect	5.9
Maximum Detect	36000	Maximum Non-Detect	5900
Variance Detects	3.170E+8	Percent Non-Detects	50%
Mean Detects	9295	SD Detects	17804
Median Detects	520	CV Detects	1.915
Skewness Detects	1.999	Kurtosis Detects	3.997
Mean of Logged Detects	6.974	SD of Logged Detects	2.429

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.64	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.437	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	4681	Standard Error of Mean	4834
SD	11839	95% KM (BCA) UCL	N/A
95% KM (t) UCL	13839	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	12632	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	19182	95% KM Chebyshev UCL	25750
97.5% KM Chebyshev UCL	34867	99% KM Chebyshev UCL	52775

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.643	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.702	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.42	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.417	Detected Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.316	k star (bias corrected MLE)	0.246
Theta hat (MLE)	29412	Theta star (bias corrected MLE)	37835
nu hat (MLE)	2.528	nu star (bias corrected)	1.965
MLE Mean (bias corrected)	9295	MLE Sd (bias corrected)	18753

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.156	nu hat (KM)	2.501
Approximate Chi Square Value (2.50, α)	0.241	Adjusted Chi Square Value (2.50, β)	0.142
95% Gamma Approximate KM-UCL (use when n>=50)	48499	95% Gamma Adjusted KM-UCL (use when n<50)	82506

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4648
Maximum	36000	Median	70.01
SD	12670	CV	2.726
k hat (MLE)	0.11	k star (bias corrected MLE)	0.152
Theta hat (MLE)	42079	Theta star (bias corrected MLE)	30503
nu hat (MLE)	1.767	nu star (bias corrected)	2.438
MLE Mean (bias corrected)	4648	MLE Sd (bias corrected)	11906
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (2.44, α)	0.227	Adjusted Chi Square Value (2.44, β)	0.135
95% Gamma Approximate UCL (use when n>=50)	49820	95% Gamma Adjusted UCL (use when n<50)	N/A

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.853	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.748	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.336	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.443	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	4657	Mean in Log Scale	4.669
SD in Original Scale	12667	SD in Log Scale	3.035
95% t UCL (assumes normality of ROS data)	13141	95% Percentile Bootstrap UCL	13578
95% BCA Bootstrap UCL	18020	95% Bootstrap t UCL	412072
95% H-UCL (Log ROS)	3.658E+8		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	4.78	95% H-UCL (KM -Log)	83016781

KM SD (logged)	2.867	95% Critical H Value (KM-Log)	8.622
KM Standard Error of Mean (logged)	1.246		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	5028	Mean in Log Scale	5.495
SD in Original Scale	12553	SD in Log Scale	2.964
95% t UCL (Assumes normality)	13436	95% H-Stat UCL	4.207E+8

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	13839	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TOLUENE

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	6	Number of Distinct Non-Detects	1
Minimum Detect	210	Minimum Non-Detect	6.3
Maximum Detect	150000	Maximum Non-Detect	6.3
Variance Detects	5.066E+9	Percent Non-Detects	12.5%
Mean Detects	45901	SD Detects	71178
Median Detects	5800	CV Detects	1.551
Skewness Detects	1.222	Kurtosis Detects	-0.846
Mean of Logged Detects	8.933	SD of Logged Detects	2.396

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.637	**Shapiro Wilk GOF Test**	

5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.41	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	40165	Standard Error of Mean	24243
SD	63483	95% KM (BCA) UCL	76939
95% KM (t) UCL	86095	95% KM (Percentile Bootstrap) UCL	77175
95% KM (z) UCL	80041	95% KM Bootstrap t UCL	757732
90% KM Chebyshev UCL	112894	95% KM Chebyshev UCL	145838
97.5% KM Chebyshev UCL	191563	99% KM Chebyshev UCL	281380

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.565	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.773	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.289	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.332	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.37	k star (bias corrected MLE)	0.307
Theta hat (MLE)	124058	Theta star (bias corrected MLE)	149678
nu hat (MLE)	5.18	nu star (bias corrected)	4.293
MLE Mean (bias corrected)	45901	MLE Sd (bias corrected)	82888

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.4	nu hat (KM)	6.405
Approximate Chi Square Value (6.40, α)	1.85	Adjusted Chi Square Value (6.40, β)	1.297
95% Gamma Approximate KM-UCL (use when n>=50)	139049	95% Gamma Adjusted KM-UCL (use when n<50)	198260

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	40164
Maximum	150000	Median	5200
SD	67867	CV	1.69
k hat (MLE)	0.216	k star (bias corrected MLE)	0.219
Theta hat (MLE)	185643	Theta star (bias corrected MLE)	183772
nu hat (MLE)	3.462	nu star (bias corrected)	3.497
MLE Mean (bias corrected)	40164	MLE Sd (bias corrected)	85913
		Adjusted Level of Significance (β)	0.0195

Approximate Chi Square Value (3.50, α)	0.534	Adjusted Chi Square Value (3.50, β)	0.315
95% Gamma Approximate UCL (use when n>=50)	263172	95% Gamma Adjusted UCL (use when n<50)	445937

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.93	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.179	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	40166	Mean in Log Scale	8.197
SD in Original Scale	67865	SD in Log Scale	3.043
95% t UCL (assumes normality of ROS data)	85625	95% Percentile Bootstrap UCL	76939
95% BCA Bootstrap UCL	94378	95% Bootstrap t UCL	775283
95% H-UCL (Log ROS)	1.349E+10		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	8.047	95% H-UCL (KM -Log)	2.825E+10
KM SD (logged)	3.132	95% Critical H Value (KM-Log)	9.388
KM Standard Error of Mean (logged)	1.196		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	40164	Mean in Log Scale	7.96
SD in Original Scale	67867	SD in Log Scale	3.535
95% t UCL (Assumes normality)	85624	95% H-Stat UCL	2.001E+12

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	145838	95% GROS Adjusted Gamma UCL	445937
95% Adjusted Gamma KM-UCL	198260		

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

ProUCL Output for Soil Gas (Max Location w/in 0-50 ft bgs interval) COPECs, BFF, KAFB

UCL Statistics for Data Sets with Non-Detects

Units = pbbv

User Selected Options	Soil Gas (ppbv) Eco_Max Location/Depth
Date/Time of Computation	1/16/2014 11:26:19 AM
From File	ProUCL Input SG 0-50 ft_eco.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

1,2,4-TRIMETHYLBENZENE (25 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	2	Number of Non-Detects	6
Number of Distinct Detects	2	Number of Distinct Non-Detects	5
Minimum Detect	440	Minimum Non-Detect	2
Maximum Detect	56000	Maximum Non-Detect	2000
Variance Detects	1.543E+9	Percent Non-Detects	75%
Mean Detects	28220	SD Detects	39287
Median Detects	28220	CV Detects	1.392
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	8.51	SD of Logged Detects	3.427

Warning: Data set has only 2 Detected Values.

This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	7066	Standard Error of Mean	9248
SD	18496	95% KM (BCA) UCL	N/A
95% KM (t) UCL	24587	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	22277	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	34810	95% KM Chebyshev UCL	47377
97.5% KM Chebyshev UCL	64820	99% KM Chebyshev UCL	99083

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	0.382	k star (bias corrected MLE)	N/A
Theta hat (MLE)	73961	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	1.526	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.146	nu hat (KM)	2.335
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (2.33, α)	0.206	Adjusted Chi Square Value (2.33, β)	0.125
95% Gamma Approximate KM-UCL (use when n>=50)	80028	95% Gamma Adjusted KM-UCL (use when n<50)	131769

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	7055	Mean in Log Scale	0.483
SD in Original Scale	19777	SD in Log Scale	5.294
95% t UCL (assumes normality of ROS data)	20303	95% Percentile Bootstrap UCL	21000
95% BCA Bootstrap UCL	28000	95% Bootstrap t UCL	5.046E+8
95% H-UCL (Log ROS)	8.656E+19		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	7197	Mean in Log Scale	4.364
SD in Original Scale	19723	SD in Log Scale	3.555
95% t UCL (Assumes normality)	20408	95% H-Stat UCL	6.845E+10

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

99% KM (Chebyshev) UCL 99083

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,3,5-TRIMETHYLBENZENE (25 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
Number of Detects	1	Number of Non-Detects	7
Number of Distinct Detects	1	Number of Distinct Non-Detects	6

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable 1,3,5-TRIMETHYLBENZENE (25 ft) was not processed!

ACETONE (60 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	2100	Mean	391175
Maximum	940000	Median	397500
SD	318118	Std. Error of Mean	112472
Coefficient of Variation	0.813	Skewness	0.396

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.947	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.152	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	604261	95% Adjusted-CLT UCL (Chen-1995)	593010
		95% Modified-t UCL (Johnson-1978)	606887

Gamma GOF Test

A-D Test Statistic	0.936	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.759	Data Not Gamma Distributed at 5% Significance Level

K-S Test Statistic	0.313	**Kolmogrov-Smirnoff Gamma GOF Test**	
5% K-S Critical Value	0.308	Data Not Gamma Distributed at 5% Significance Level	

Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	0.546	k star (bias corrected MLE)	0.425
Theta hat (MLE)	716489	Theta star (bias corrected MLE)	921368
nu hat (MLE)	8.735	nu star (bias corrected)	6.793
MLE Mean (bias corrected)	391175	MLE Sd (bias corrected)	600347
		Approximate Chi Square Value (0.05)	2.058
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	1.464

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1291400	95% Adjusted Gamma UCL (use when n<50)	1814697

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.706	**Shapiro Wilk Lognormal GOF Test**	
5% Shapiro Wilk Critical Value	0.818	Data Not Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.359	**Lilliefors Lognormal GOF Test**	
5% Lilliefors Critical Value	0.313	Data Not Lognormal at 5% Significance Level	

Data Not Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	7.65	Mean of logged Data	11.73
Maximum of Logged Data	13.75	SD of logged Data	2.52

Assuming Lognormal Distribution

95% H-UCL	4.226E+9	90% Chebyshev (MVUE) UCL	3955407
95% Chebyshev (MVUE) UCL	5217192	97.5% Chebyshev (MVUE) UCL	6968500
99% Chebyshev (MVUE) UCL	10408606		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	576174	95% Jackknife UCL	604261
95% Standard Bootstrap UCL	561782	95% Bootstrap-t UCL	618711
95% Hall's Bootstrap UCL	677801	95% Percentile Bootstrap UCL	569638
95% BCA Bootstrap UCL	595263		
90% Chebyshev(Mean, Sd) UCL	728590	95% Chebyshev(Mean, Sd) UCL	881427
97.5% Chebyshev(Mean, Sd) UCL	1093560	99% Chebyshev(Mean, Sd) UCL	1510253

Suggested UCL to Use

95% Student's-t UCL	604261

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

BENZENE (50 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	7
		Number of Missing Observations	0
Minimum	80000	Mean	371250
Maximum	590000	Median	415000
SD	158604	Std. Error of Mean	56075
Coefficient of Variation	0.427	Skewness	-0.738

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.948	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.172	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Normal at 5% Significance Level

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	477489	95% Adjusted-CLT UCL (Chen-1995)	447849
		95% Modified-t UCL (Johnson-1978)	475050

Gamma GOF Test

A-D Test Statistic	0.577	**Anderson-Darling Gamma GOF Test**
5% A-D Critical Value	0.719	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.23	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.295	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	3.965	k star (bias corrected MLE)	2.561
Theta hat (MLE)	93641	Theta star (bias corrected MLE)	144951

nu hat (MLE)	63.43	nu star (bias corrected)	40.98
MLE Mean (bias corrected)	371250	MLE Sd (bias corrected)	231977
		Approximate Chi Square Value (0.05)	27.31
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	24.52

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	557096	95% Adjusted Gamma UCL (use when n<50)	620436

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.8	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.239	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level

Data appear Approximate Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	11.29	Mean of logged Data	12.69
Maximum of Logged Data	13.29	SD of logged Data	0.633

Assuming Lognormal Distribution

95% H-UCL	740903	90% Chebyshev (MVUE) UCL	650106
95% Chebyshev (MVUE) UCL	769423	97.5% Chebyshev (MVUE) UCL	935030
99% Chebyshev (MVUE) UCL	1260334		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	463485	95% Jackknife UCL	477489
95% Standard Bootstrap UCL	456414	95% Bootstrap-t UCL	457754
95% Hall's Bootstrap UCL	448978	95% Percentile Bootstrap UCL	455000
95% BCA Bootstrap UCL	442500		
90% Chebyshev(Mean, Sd) UCL	539475	95% Chebyshev(Mean, Sd) UCL	615676
97.5% Chebyshev(Mean, Sd) UCL	721439	99% Chebyshev(Mean, Sd) UCL	929190

Suggested UCL to Use

95% Student's-t UCL	477489

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002) and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be

reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

ETHYLBENZENE (50 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	6
Number of Detects	2	Number of Non-Detects	6
Number of Distinct Detects	2	Number of Distinct Non-Detects	4
Minimum Detect	34000	Minimum Non-Detect	15000
Maximum Detect	44000	Maximum Non-Detect	80000
Variance Detects	50000000	Percent Non-Detects	75%
Mean Detects	39000	SD Detects	7071
Median Detects	39000	CV Detects	0.181
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	10.56	SD of Logged Detects	0.182

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only
Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	24600	Standard Error of Mean	7700
SD	12175	95% KM (BCA) UCL	N/A
95% KM (t) UCL	39189	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	37266	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	47701	95% KM Chebyshev UCL	58165
97.5% KM Chebyshev UCL	72689	99% KM Chebyshev UCL	101218

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	60.5	k star (bias corrected MLE)	N/A
Theta hat (MLE)	644.6	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	242	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	4.082	nu hat (KM)	65.32
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (65.32, α)	47.72	Adjusted Chi Square Value (65.32, β)	43.94
95% Gamma Approximate KM-UCL (use when n>=50)	33671	95% Gamma Adjusted KM-UCL (use when n<50)	36568

Lognormal GOF Test on Detected Observations Only

Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	26035	Mean in Log Scale	10.11
SD in Original Scale	9550	SD in Log Scale	0.348
95% t UCL (assumes normality of ROS data)	32432	95% Percentile Bootstrap UCL	31268
95% BCA Bootstrap UCL	32757	95% Bootstrap t UCL	36199
95% H-UCL (Log ROS)	34623		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	25813	Mean in Log Scale	9.967
SD in Original Scale	14268	SD in Log Scale	0.725
95% t UCL (Assumes normality)	35369	95% H-Stat UCL	59512

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	39189	95% KM (% Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

M,P-XYLENES (25 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	15	Minimum Non-Detect	100
Maximum Detect	150000	Maximum Non-Detect	100

Variance Detects	3.109E+9	Percent Non-Detects	12.5%
Mean Detects	24316	SD Detects	55759
Median Detects	1000	CV Detects	2.293
Skewness Detects	2.582	Kurtosis Detects	6.723
Mean of Logged Detects	6.978	SD of Logged Detects	3.14

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.524	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.409	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	21282	Standard Error of Mean	18694
SD	48952	95% KM (BCA) UCL	56287
95% KM (t) UCL	56698	95% KM (Percentile Bootstrap) UCL	56744
95% KM (z) UCL	52030	95% KM Bootstrap t UCL	1676738
90% KM Chebyshev UCL	77363	95% KM Chebyshev UCL	102766
97.5% KM Chebyshev UCL	138024	99% KM Chebyshev UCL	207282

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.495	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.811	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.286	**Kolmogrov-Smirnoff GOF**
5% K-S Critical Value	0.34	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.231	k star (bias corrected MLE)	0.227
Theta hat (MLE)	105471	Theta star (bias corrected MLE)	107128
nu hat (MLE)	3.228	nu star (bias corrected)	3.178
MLE Mean (bias corrected)	24316	MLE Sd (bias corrected)	51038

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.189	nu hat (KM)	3.024
Approximate Chi Square Value (3.02, α)	0.38	Adjusted Chi Square Value (3.02, β)	0.218
95% Gamma Approximate KM-UCL (use when n>=50)	169543	95% Gamma Adjusted KM-UCL (use when n<50)	294770

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	21276
Maximum	150000	Median	660
SD	52334	CV	2.46
k hat (MLE)	0.17	k star (bias corrected MLE)	0.19
Theta hat (MLE)	125091	Theta star (bias corrected MLE)	112194
nu hat (MLE)	2.721	nu star (bias corrected)	3.034
MLE Mean (bias corrected)	21276	MLE Sd (bias corrected)	48858
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (3.03, α)	0.383	Adjusted Chi Square Value (3.03, β)	0.22
95% Gamma Approximate UCL (use when n>=50)	168722	95% Gamma Adjusted UCL (use when n<50)	293255

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.984	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.149	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	21279	Mean in Log Scale	6.509
SD in Original Scale	52333	SD in Log Scale	3.194
95% t UCL (assumes normality of ROS data)	56333	95% Percentile Bootstrap UCL	56644
95% BCA Bootstrap UCL	75284	95% Bootstrap t UCL	1676151
95% H-UCL (Log ROS)	1.152E+10		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	6.544	95% H-UCL (KM -Log)	1.218E+9
KM SD (logged)	2.965	95% Critical H Value (KM-Log)	8.905
KM Standard Error of Mean (logged)	1.14		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	21282	Mean in Log Scale	6.594
SD in Original Scale	52331	SD in Log Scale	3.103
95% t UCL (Assumes normality)	56336	95% H-Stat UCL	4.924E+9

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	102766	95% GROS Adjusted Gamma UCL	293255
95% Adjusted Gamma KM-UCL	294770		

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

O-XYLENE (25 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	3	Number of Non-Detects	5
Number of Distinct Detects	3	Number of Distinct Non-Detects	5
Minimum Detect	110	Minimum Non-Detect	2.1
Maximum Detect	52000	Maximum Non-Detect	2100
Variance Detects	8.912E+8	Percent Non-Detects	62.5%
Mean Detects	17530	SD Detects	29852
Median Detects	480	CV Detects	1.703
Skewness Detects	1.732	Kurtosis Detects	N/A
Mean of Logged Detects	7.244	SD of Logged Detects	3.216

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.755	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.767	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.383	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.512	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	6587	Standard Error of Mean	7433
SD	17165	95% KM (BCA) UCL	N/A

95% KM (t) UCL	20669	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	18813	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	28886	95% KM Chebyshev UCL	38986
97.5% KM Chebyshev UCL	53005	99% KM Chebyshev UCL	80543

Gamma GOF Tests on Detected Observations Only

Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	0.277	k star (bias corrected MLE)	N/A
Theta hat (MLE)	63399	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	1.659	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.147	nu hat (KM)	2.356
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (2.36, α)	0.21	Adjusted Chi Square Value (2.36, β)	0.127
95% Gamma Approximate KM-UCL (use when n>=50)	73764	95% Gamma Adjusted KM-UCL (use when n<50)	122090

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.917	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.297	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.512	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	6574	Mean in Log Scale	2.156
SD in Original Scale	18356	SD in Log Scale	4.616
95% t UCL (assumes normality of ROS data)	18869	95% Percentile Bootstrap UCL	19542
95% BCA Bootstrap UCL	26041	95% Bootstrap t UCL	3118565
95% H-UCL (Log ROS)	9.087E+15		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	3.376	95% H-UCL (KM -Log)	1.870E+10
KM SD (logged)	3.528	95% Critical H Value (KM-Log)	10.54
KM Standard Error of Mean (logged)	1.572		

DL/2 Statistics

DL/2 Normal		**DL/2 Log-Transformed**	
Mean in Original Scale	6715	Mean in Log Scale	4.69
SD in Original Scale	18301	SD in Log Scale	3.361
95% t UCL (Assumes normality)	18974	95% H-Stat UCL	1.091E+10

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	20669	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TOLUENE (50 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
		Number of Missing Observations	0
Minimum	260000	Mean	726250
Maximum	1500000	Median	630000
SD	392280	Std. Error of Mean	138692
Coefficient of Variation	0.54	Skewness	1.223

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest. For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012). Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test

Shapiro Wilk Test Statistic	0.878	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.317	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.313	Data Not Normal at 5% Significance Level

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	989013	95% Adjusted-CLT UCL (Chen-1995)	1018453
		95% Modified-t UCL (Johnson-1978)	999007

Gamma GOF Test

A-D Test Statistic	0.364	**Anderson-Darling Gamma GOF Test**

5% A-D Critical Value	0.719	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.263	**Kolmogrov-Smirnoff Gamma GOF Test**
5% K-S Critical Value	0.295	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics

k hat (MLE)	4.278	k star (bias corrected MLE)	2.757
Theta hat (MLE)	169762	Theta star (bias corrected MLE)	263410
nu hat (MLE)	68.45	nu star (bias corrected)	44.11
MLE Mean (bias corrected)	726250	MLE Sd (bias corrected)	437380
		Approximate Chi Square Value (0.05)	29.88
Adjusted Level of Significance	0.0195	Adjusted Chi Square Value	26.95

Assuming Gamma Distribution

95% Approximate Gamma UCL (use when n>=50))	1072164	95% Adjusted Gamma UCL (use when n<50)	1188710

Lognormal GOF Test

Shapiro Wilk Test Statistic	0.953	**Shapiro Wilk Lognormal GOF Test**
5% Shapiro Wilk Critical Value	0.818	Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.231	**Lilliefors Lognormal GOF Test**
5% Lilliefors Critical Value	0.313	Data appear Lognormal at 5% Significance Level

Data appear Lognormal at 5% Significance Level

Lognormal Statistics

Minimum of Logged Data	12.47	Mean of logged Data	13.37
Maximum of Logged Data	14.22	SD of logged Data	0.53

Assuming Lognormal Distribution

95% H-UCL	1198833	90% Chebyshev (MVUE) UCL	1139002
95% Chebyshev (MVUE) UCL	1325992	97.5% Chebyshev (MVUE) UCL	1585527
99% Chebyshev (MVUE) UCL	2095332		

Nonparametric Distribution Free UCL Statistics

Data appear to follow a Discernible Distribution at 5% Significance Level

Nonparametric Distribution Free UCLs

95% CLT UCL	954378	95% Jackknife UCL	989013
95% Standard Bootstrap UCL	944908	95% Bootstrap-t UCL	1241424
95% Hall's Bootstrap UCL	2841921	95% Percentile Bootstrap UCL	950000
95% BCA Bootstrap UCL	971250		
90% Chebyshev(Mean, Sd) UCL	1142326	95% Chebyshev(Mean, Sd) UCL	1330795
97.5% Chebyshev(Mean, Sd) UCL	1592382	99% Chebyshev(Mean, Sd) UCL	2106219

Suggested UCL to Use

95% Student's-t UCL 989013

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Singh, and Iaci (2002)
and Singh and Singh (2003). However, simulations results will not cover all Real World data sets.
For additional insight the user may want to consult a statistician.

XYLENES (25 ft)

General Statistics

Total Number of Observations	8	Number of Distinct Observations	8
Number of Detects	7	Number of Non-Detects	1
Number of Distinct Detects	7	Number of Distinct Non-Detects	1
Minimum Detect	15	Minimum Non-Detect	160
Maximum Detect	210000	Maximum Non-Detect	160
Variance Detects	6.132E+9	Percent Non-Detects	12.5%
Mean Detects	32960	SD Detects	78306
Median Detects	1000	CV Detects	2.376
Skewness Detects	2.613	Kurtosis Detects	6.861
Mean of Logged Detects	7.097	SD of Logged Detects	3.218

Note: Sample size is small (e.g., <10), if data are collected using ISM approach, you should use
guidance provided in ITRC Tech Reg Guide on ISM (ITRC, 2012) to compute statistics of interest.
For example, you may want to use Chebyshev UCL to estimate EPC (ITRC, 2012).
Chebyshev UCL can be computed using the Nonparametric and All UCL Options of ProUCL 5.0

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.505	**Shapiro Wilk GOF Test**
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.438	**Lilliefors GOF Test**
5% Lilliefors Critical Value	0.335	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	28845	Standard Error of Mean	26229
SD	68683	95% KM (BCA) UCL	79286
95% KM (t) UCL	78538	95% KM (Percentile Bootstrap) UCL	79062
95% KM (z) UCL	71988	95% KM Bootstrap t UCL	2715587
90% KM Chebyshev UCL	107531	95% KM Chebyshev UCL	143174
97.5% KM Chebyshev UCL	192643	99% KM Chebyshev UCL	289817

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.528	**Anderson-Darling GOF Test**
5% A-D Critical Value	0.815	Detected data appear Gamma Distributed at 5% Significance Level

K-S Test Statistic	0.282	**Kolmogrov-Smirnoff GOF**	
5% K-S Critical Value	0.341	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.219	k star (bias corrected MLE)	0.221
Theta hat (MLE)	150257	Theta star (bias corrected MLE)	149421
nu hat (MLE)	3.071	nu star (bias corrected)	3.088
MLE Mean (bias corrected)	32960	MLE Sd (bias corrected)	70177

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.176	nu hat (KM)	2.822
Approximate Chi Square Value (2.82, α)	0.322	Adjusted Chi Square Value (2.82, β)	0.185
95% Gamma Approximate KM-UCL (use when n>=50)	253019	95% Gamma Adjusted KM-UCL (use when n<50)	440671

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	28840
Maximum	210000	Median	715
SD	73427	CV	2.546
k hat (MLE)	0.164	k star (bias corrected MLE)	0.186
Theta hat (MLE)	176196	Theta star (bias corrected MLE)	155359
nu hat (MLE)	2.619	nu star (bias corrected)	2.97
MLE Mean (bias corrected)	28840	MLE Sd (bias corrected)	66937
		Adjusted Level of Significance (β)	0.0195
Approximate Chi Square Value (2.97, α)	0.364	Adjusted Chi Square Value (2.97, β)	0.209
95% Gamma Approximate UCL (use when n>=50)	235567	95% Gamma Adjusted UCL (use when n<50)	410092

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.986	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.14	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	28843	Mean in Log Scale	6.616
SD in Original Scale	73426	SD in Log Scale	3.274
95% t UCL (assumes normality of ROS data)	78026	95% Percentile Bootstrap UCL	79436
95% BCA Bootstrap UCL	105285	95% Bootstrap t UCL	2730487
95% H-UCL (Log ROS)	2.943E+10		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	6.648	95% H-UCL (KM -Log)	2.850E+9
KM SD (logged)	3.042	95% Critical H Value (KM-Log)	9.128
KM Standard Error of Mean (logged)	1.169		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	28850	Mean in Log Scale	6.757
SD in Original Scale	73423	SD in Log Scale	3.13
95% t UCL (Assumes normality)	78031	95% H-Stat UCL	7.616E+9

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

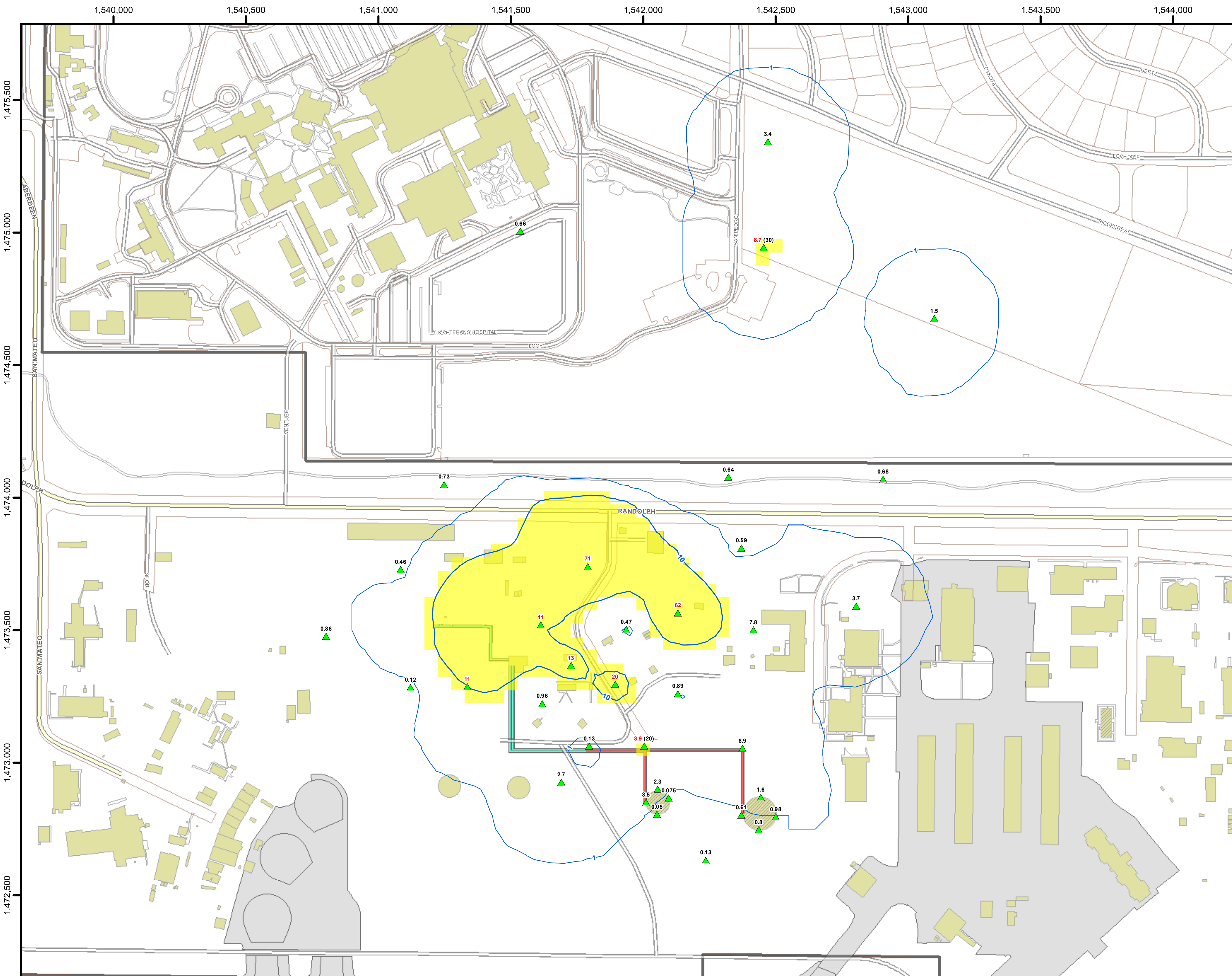
Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (Chebyshev) UCL	143174	95% GROS Adjusted Gamma UCL	410092
95% Adjusted Gamma KM-UCL	440671		

Warning: Recommended UCL exceeds the maximum observation

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

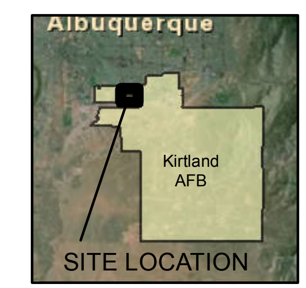
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 71

Estimated Exceedance Area of ESL: ~12.7 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

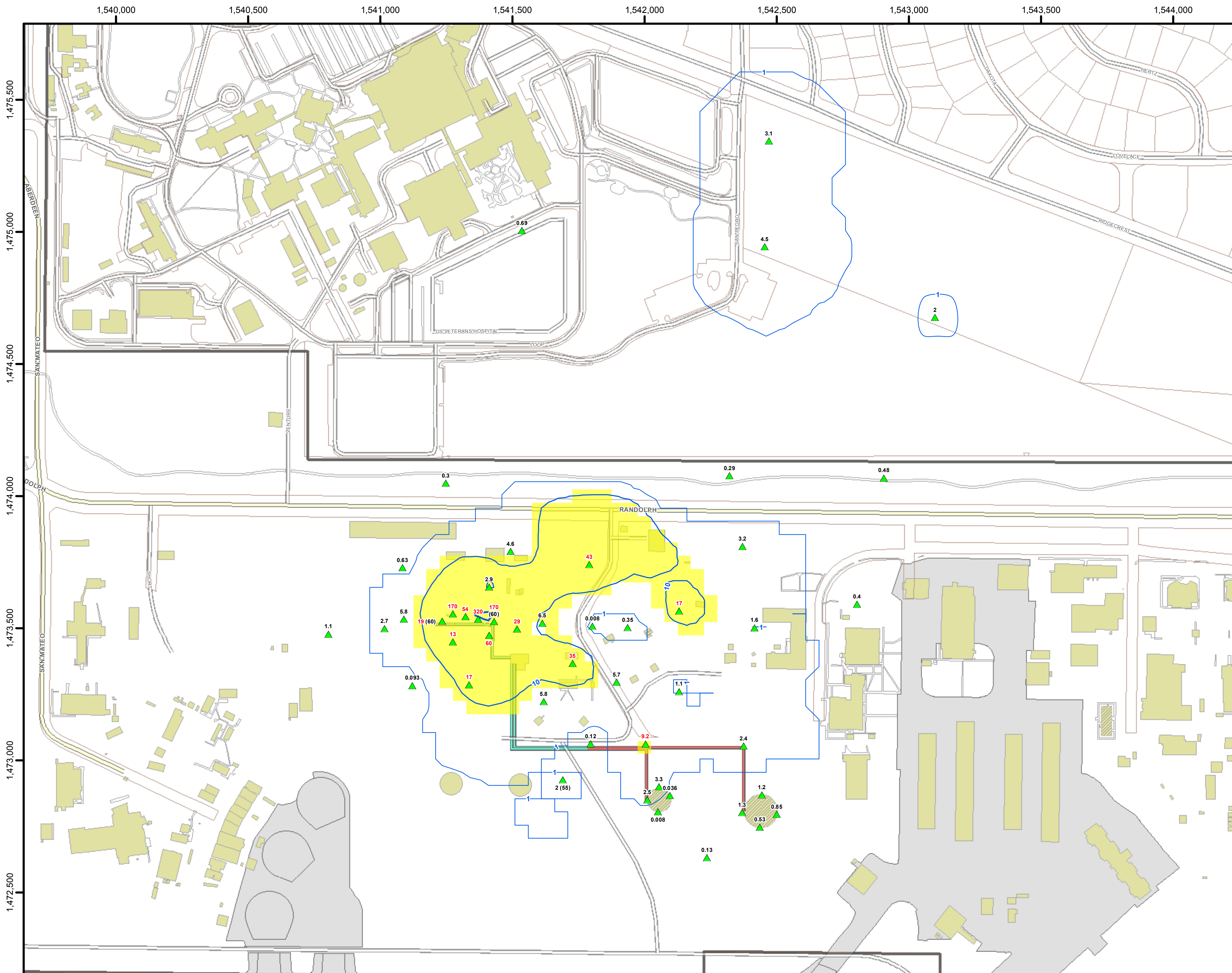
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 1

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

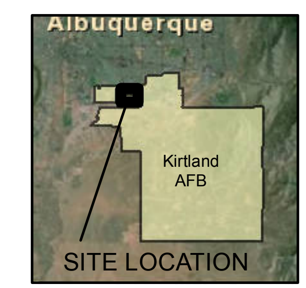
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 109.5

Estimated Exceedance Area of ESL: ~11.4 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Service Layer Credits: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

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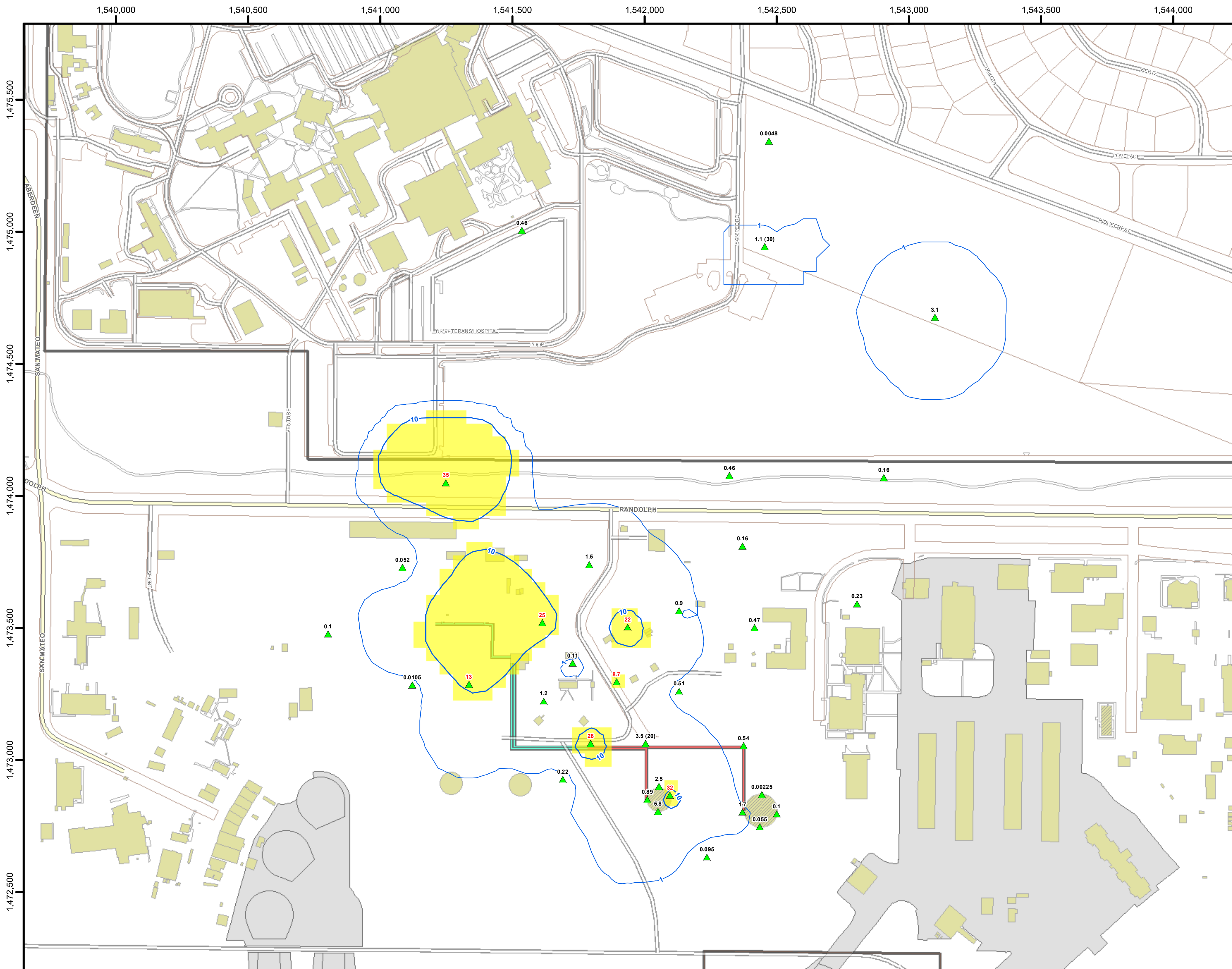
0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 2

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

2 (55)

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

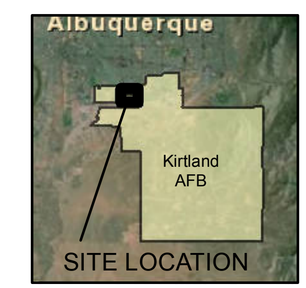
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 51.4

Estimated Exceedance Area of ESL: ~9.9 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

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0 200 400 800

Feet

1 inch = 400 feet

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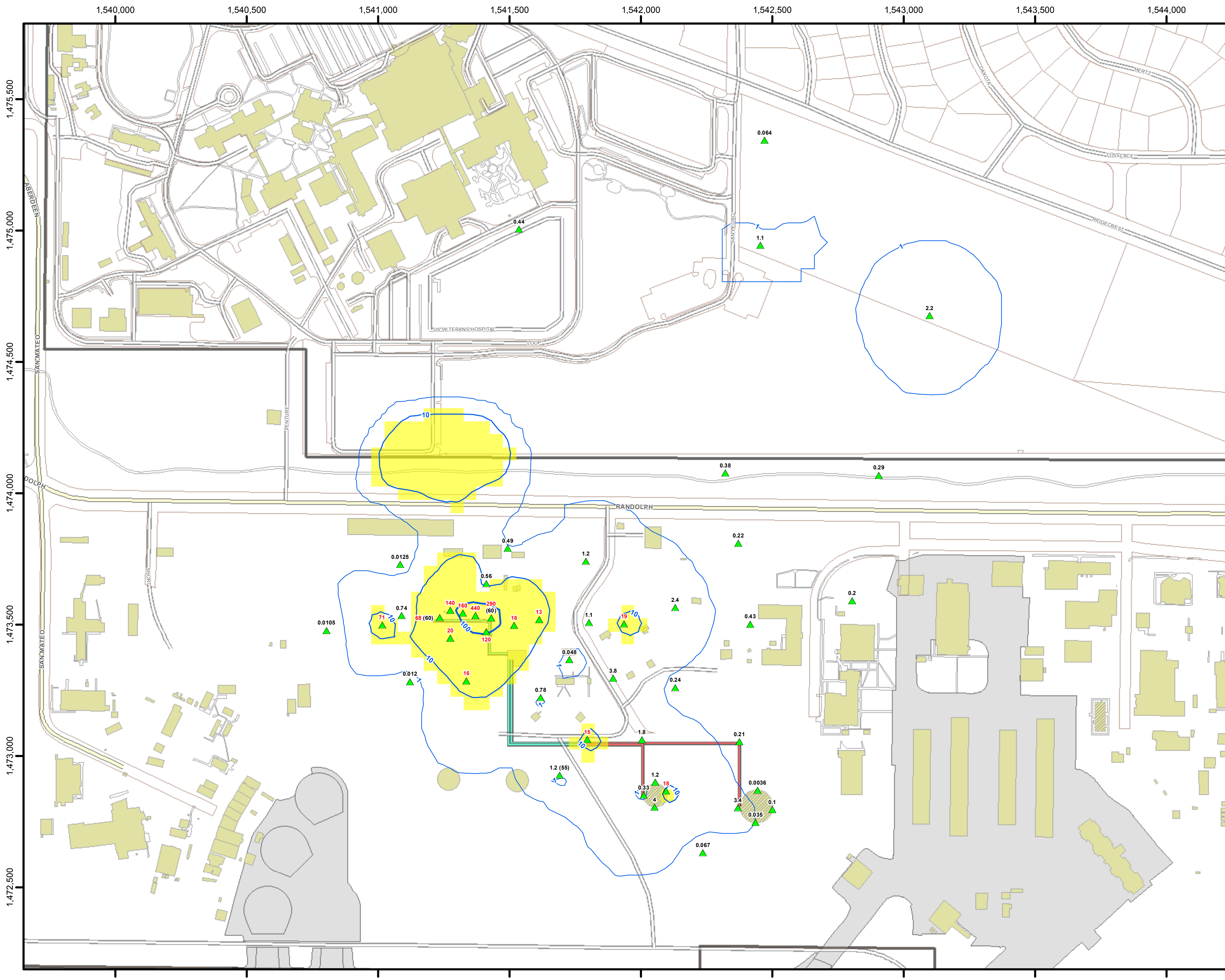
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 3

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

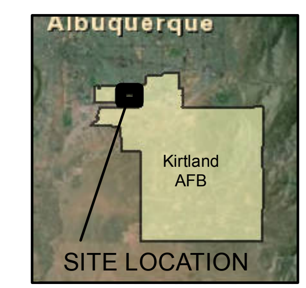
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 169.3

Estimated Exceedance Area of ESL: ~9.1 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

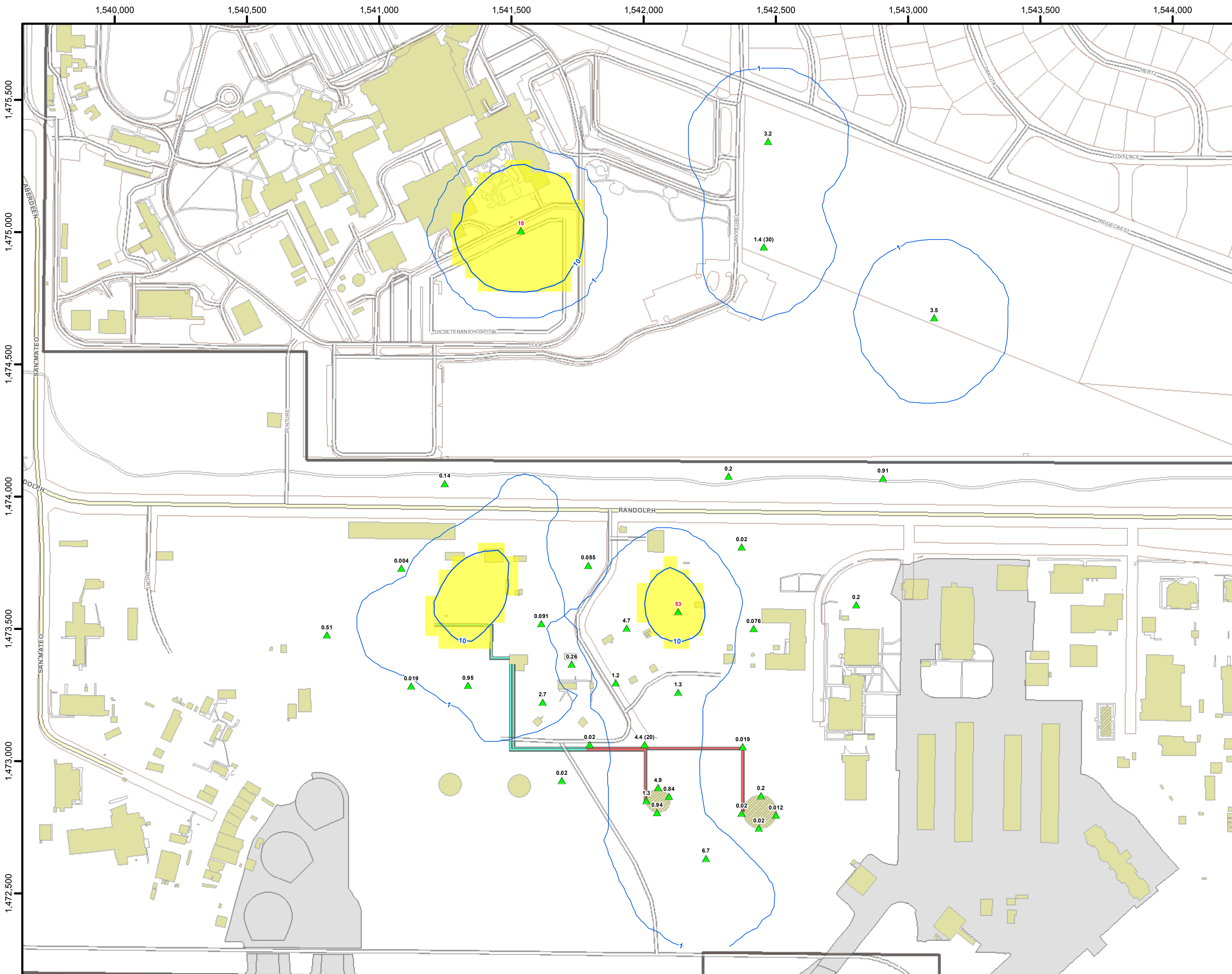
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 4

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

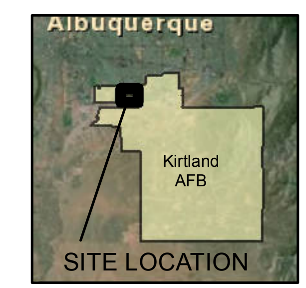
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 25.4

Estimated Exceedance Area of ESL: ~8.4 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

N

0 200 400 800

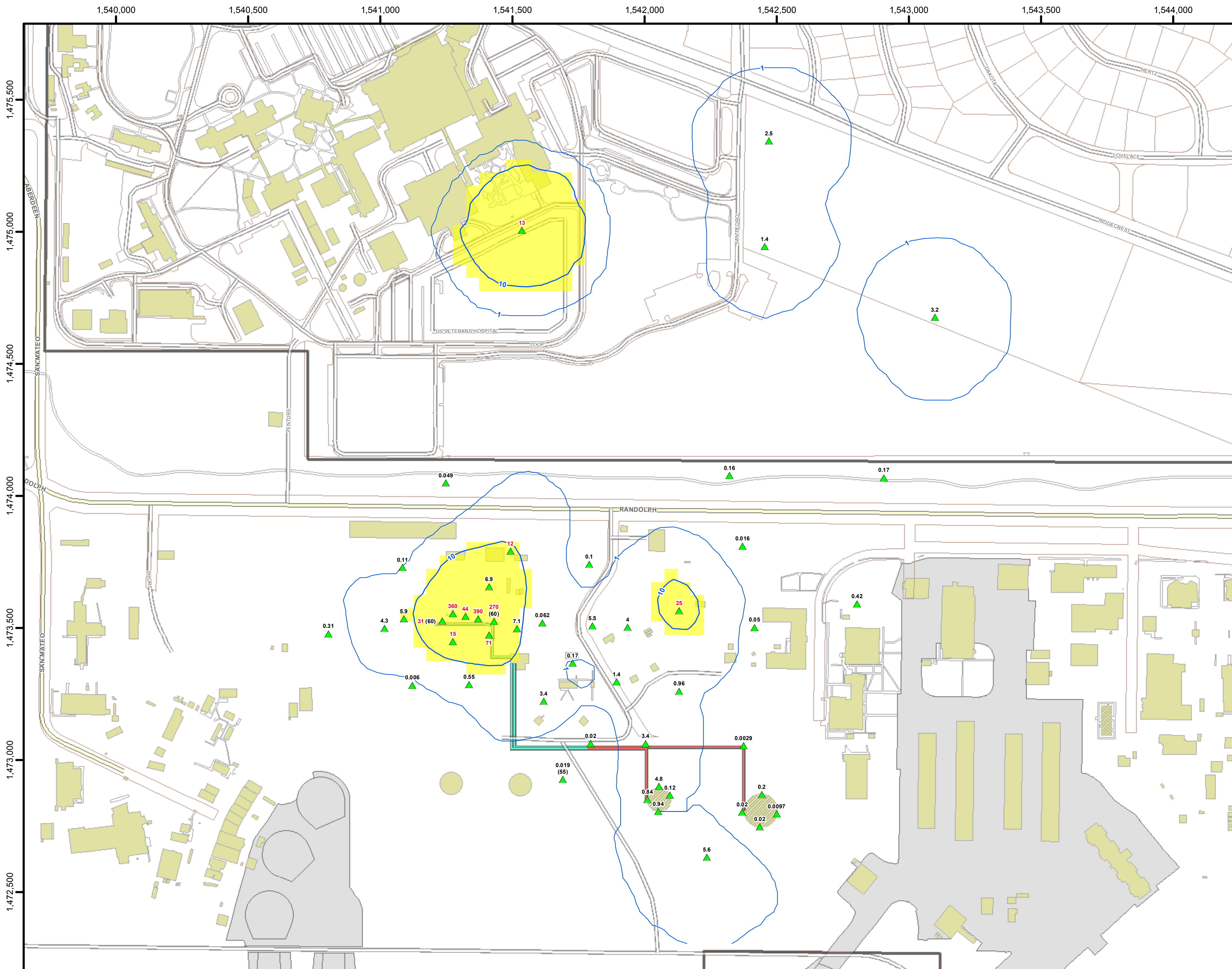
Feet

1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 5

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

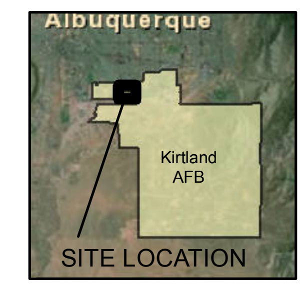
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 64.7

Estimated Exceedance Area of ESL: ~9.5 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

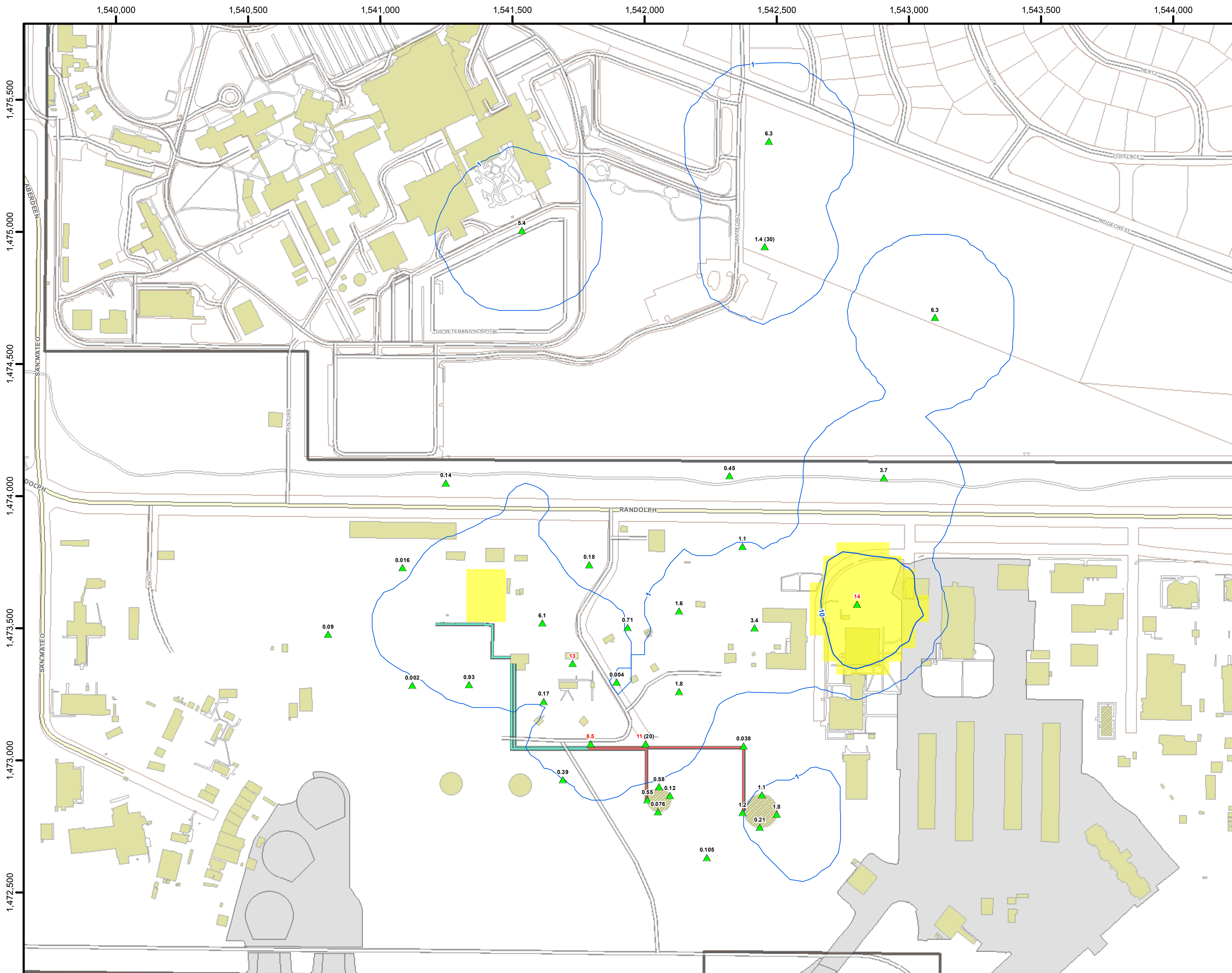
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 6

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

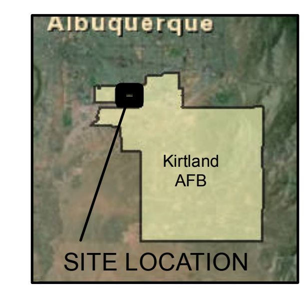
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 14.4

Estimated Exceedance Area of ESL: ~4.6 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Service Layer Credits: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

N

0 200 400 800

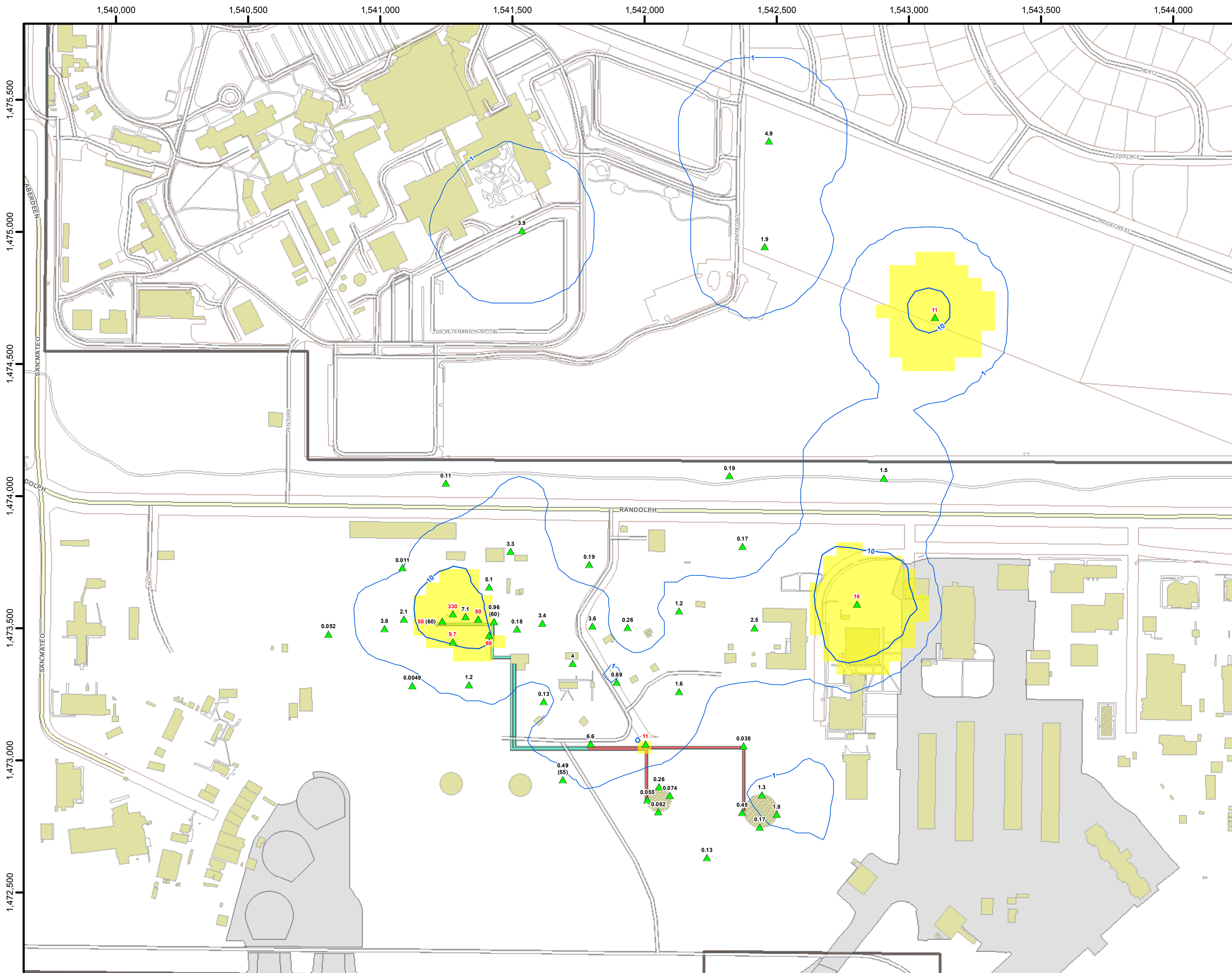
Feet

1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 7

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

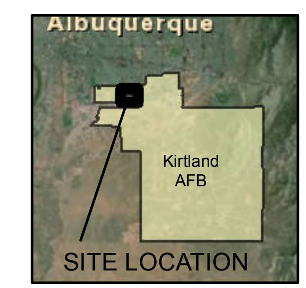
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 51.2

Estimated Exceedance Area of ESL: ~9.2 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

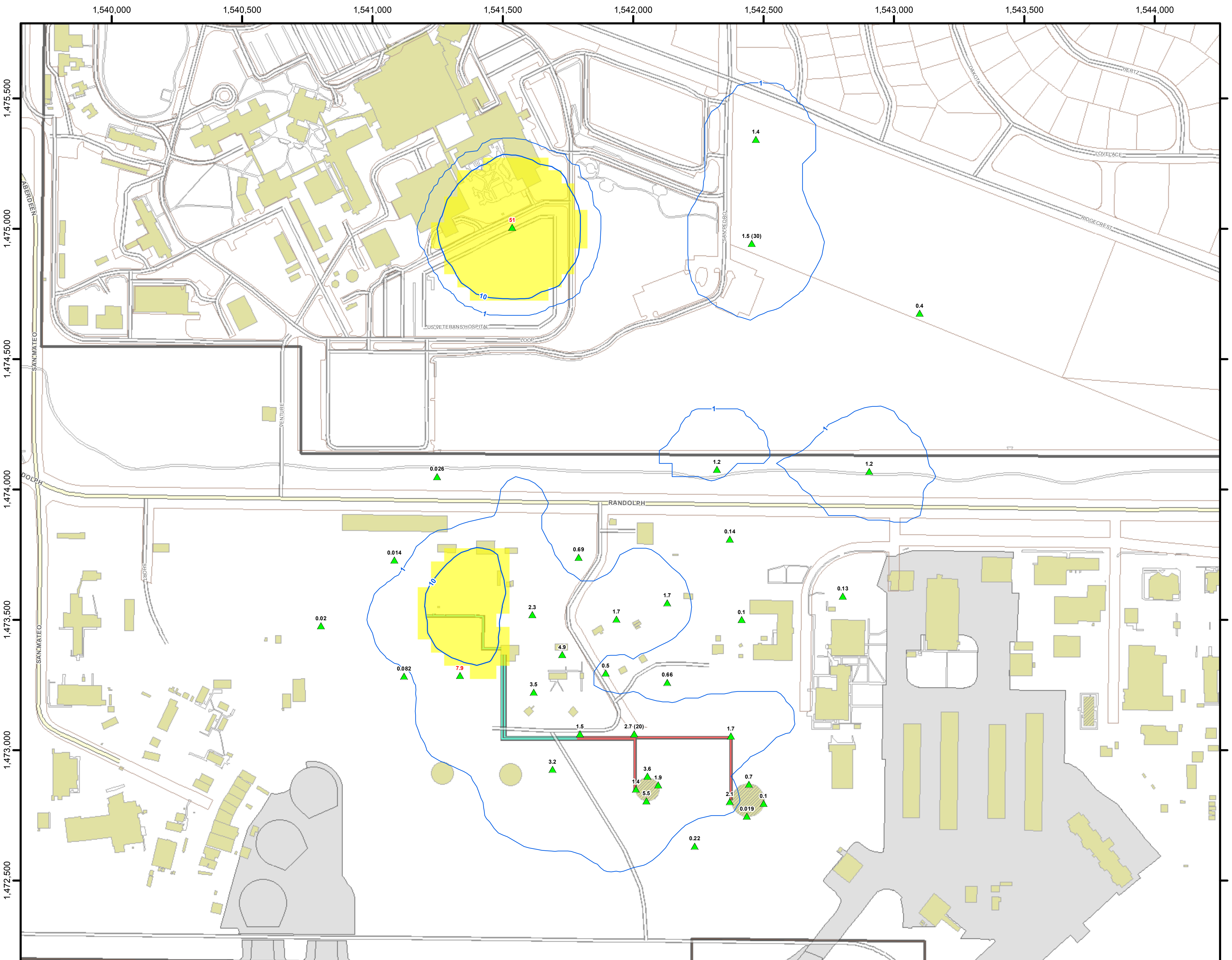
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 8

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

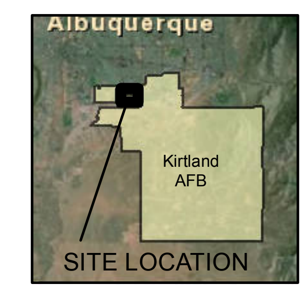
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 51

Estimated Exceedance Area of ESL: ~9.0 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

N

0 200 400 800

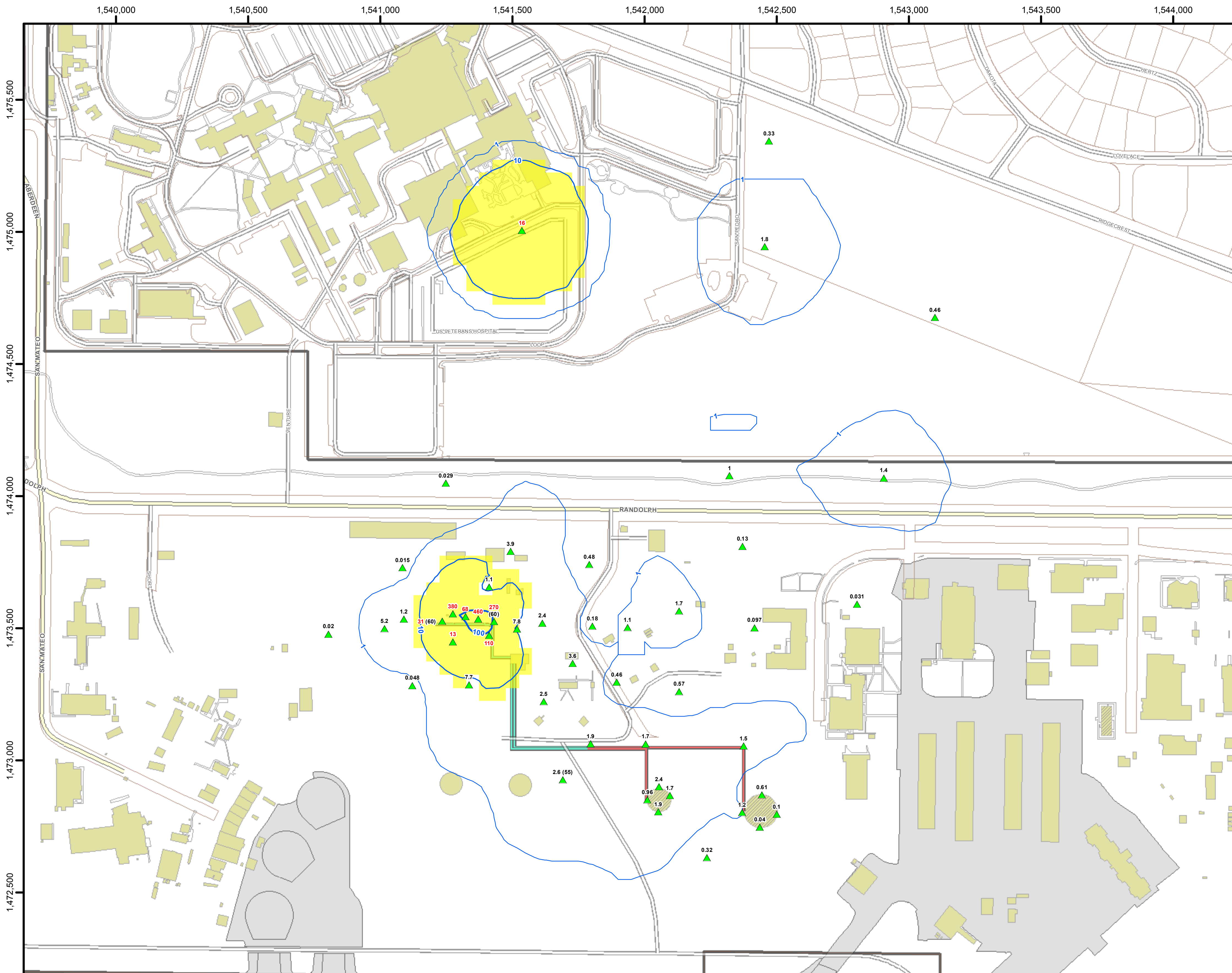
Feet

1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 9

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

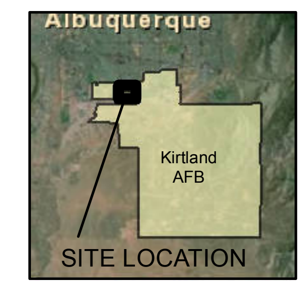
SVE Well with Benzene Vapor Concentration (ppmv)[1] — 2 (55)

Benzene Vapor Concentration Contours
- 1 ppmv
- 10 ppmv
- 100 ppmv

Benzene Concentration Exceeds ESL (7.83 ppmv)
- 0 - 7.82
- 7.83 - 128.8

Estimated Exceedance Area of ESL: ~9.2 acres

Note:
1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

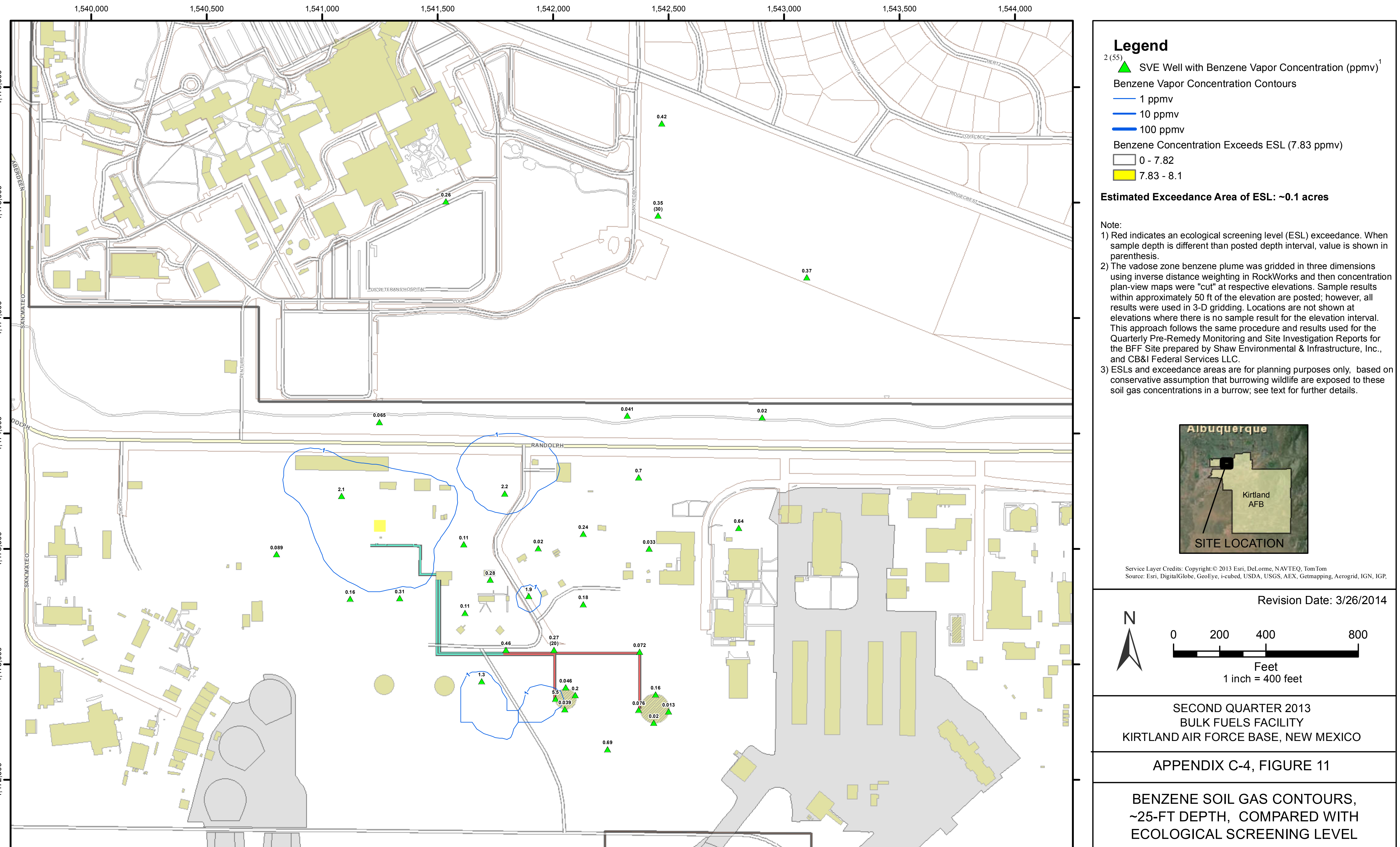
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 10

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



1,540,000
1,540,500
1,541,000
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1,542,000
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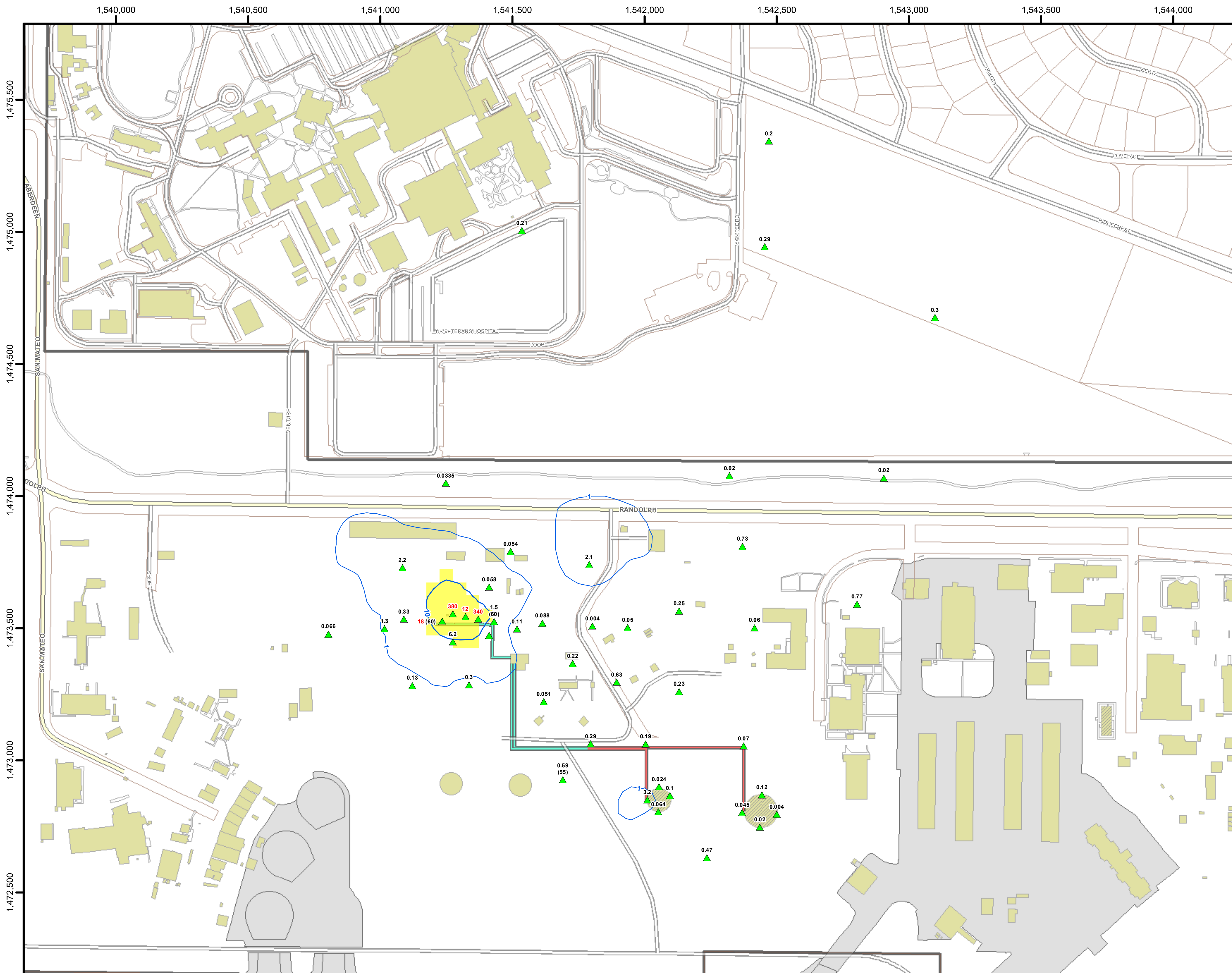
1,543,000
1,543,500
1,544,000
1,475,500
1,475,000
1,474,500
1,474,000
1,473,500
1,473,000
1,472,500
RANDOLPH
SAN MATEO
Legend
SVE Well with Benzene Vapor Concentration (ppmv)[1]
Benzene Vapor Concentration Contours
1 ppmv
10 ppmv
100 ppmv
Benzene Concentration Exceeds ESL (7.83 ppmv)
0 - 7.82
7.83 - 8.1
Estimated Exceedance Area of ESL: ~0.1 acres
Note:
1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.
Albuquerque
Kirtland AFB
SITE LOCATION
Service Layer Credits: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,
Revision Date: 3/26/2014
N
0
200
400
800
Feet
1 inch = 400 feet
SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO
APPENDIX C-4, FIGURE 11
BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

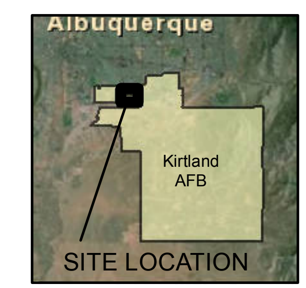
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 34.5

Estimated Exceedance Area of ESL: ~1.1 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Service Layer Credits: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

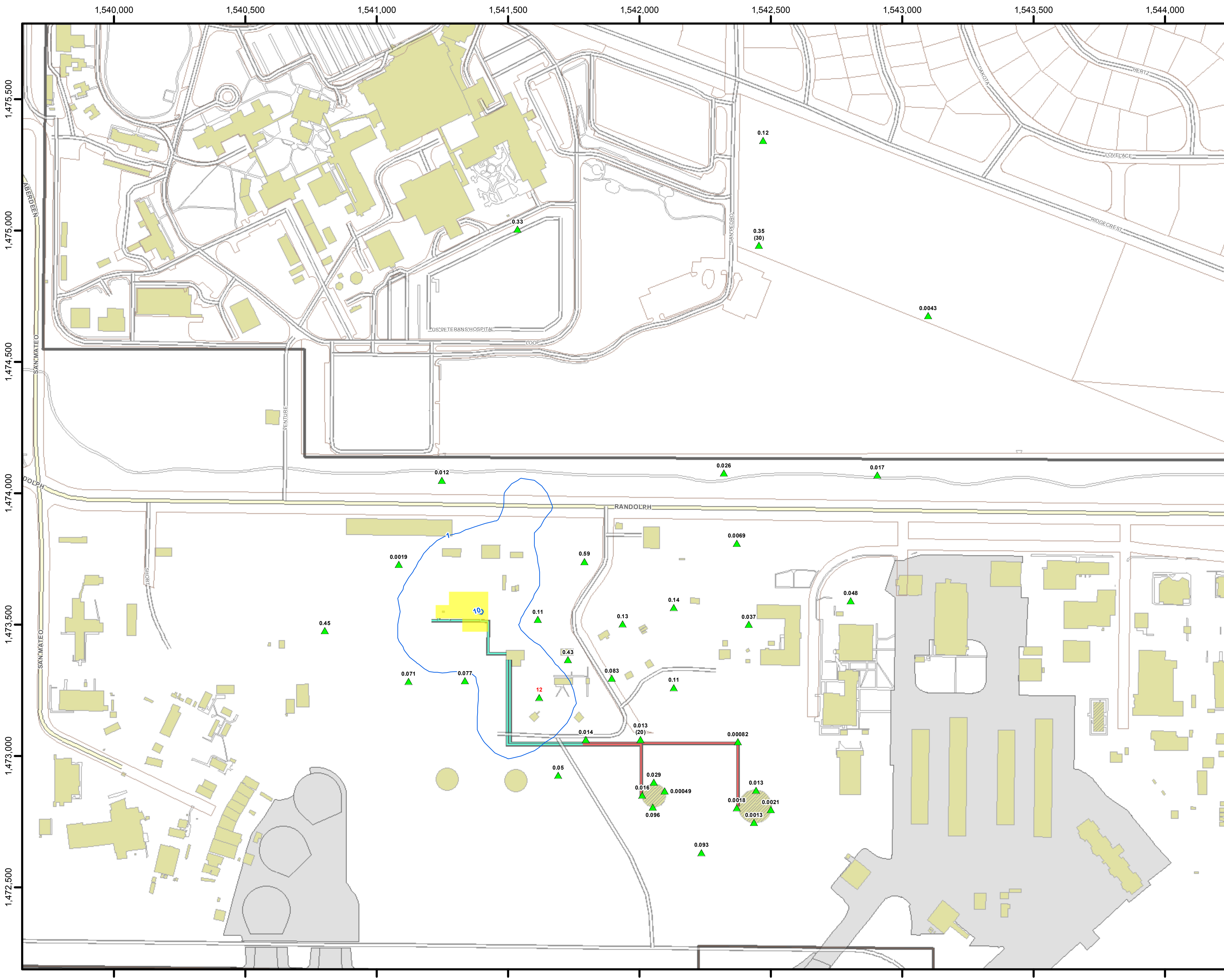
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 12

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

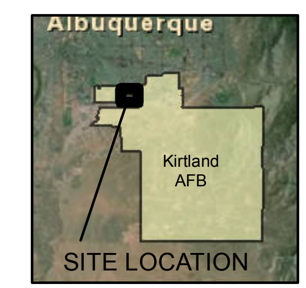
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 10.4

Estimated Exceedance Area of ESL: ~0.5 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

N

0 200 400 800

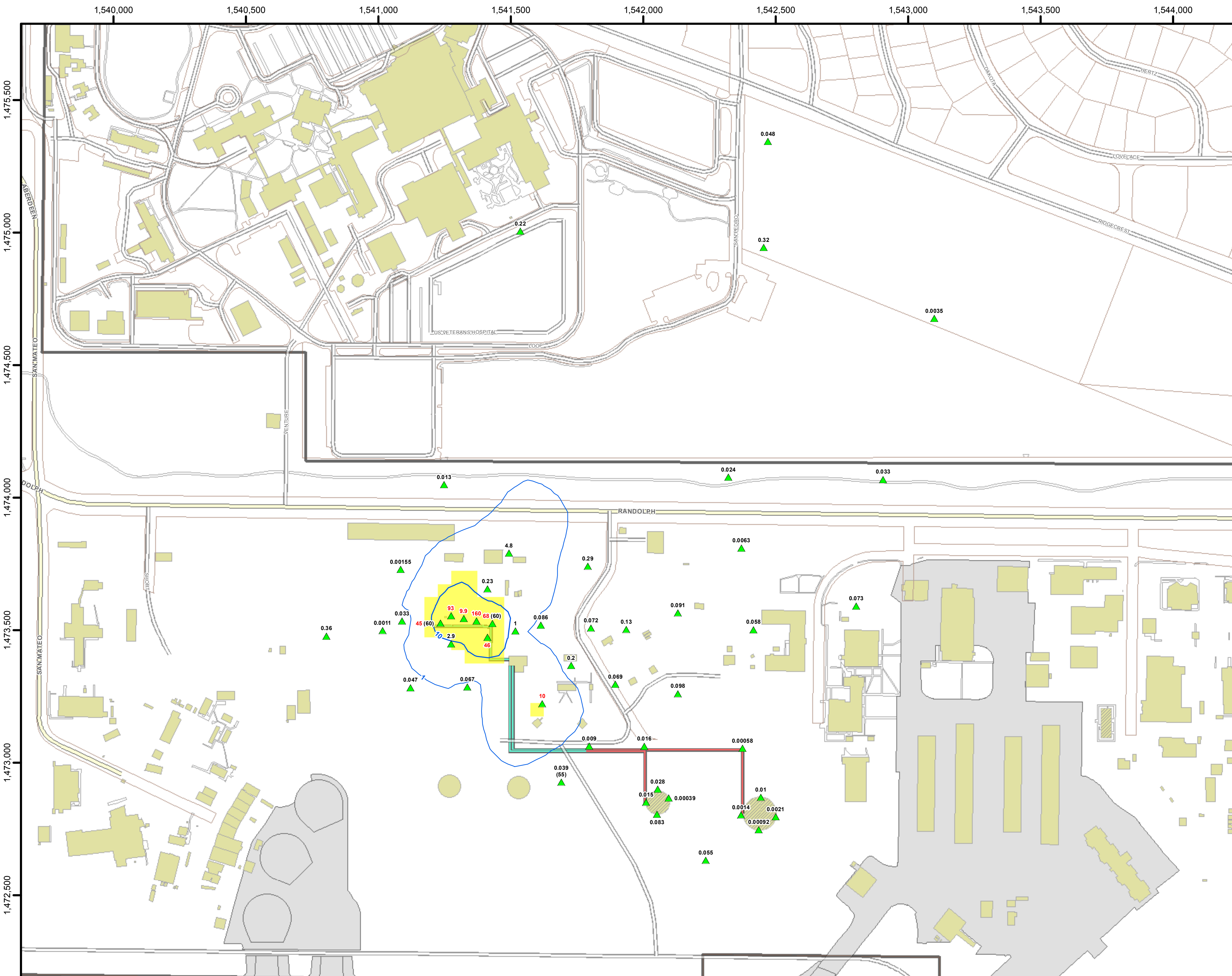
Feet

1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 13

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

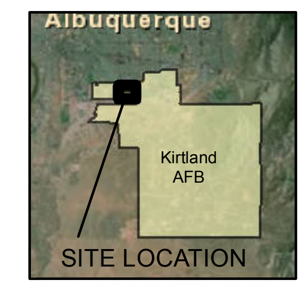
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 37.7

Estimated Exceedance Area of ESL: ~1.8 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Service Layer Credits: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

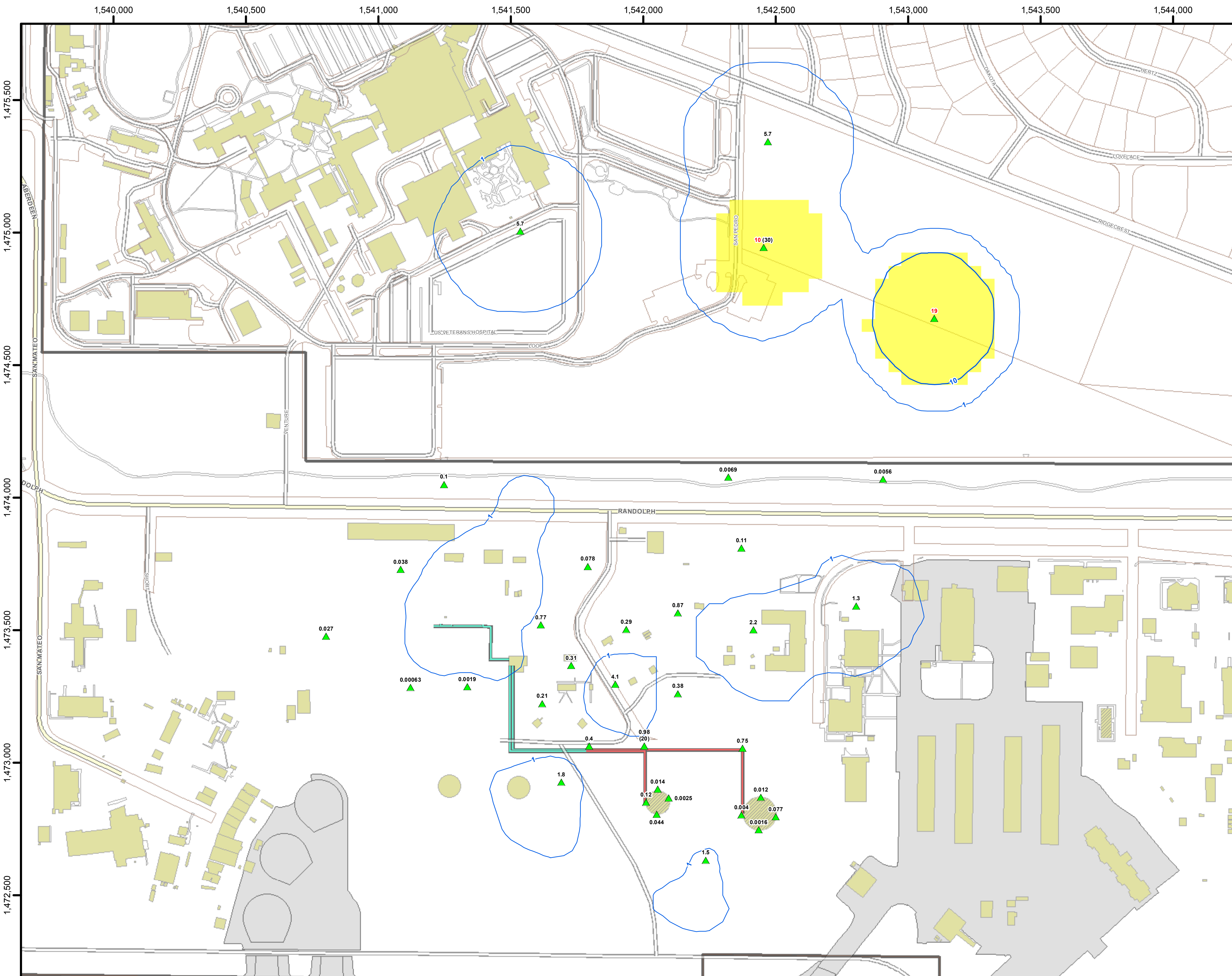
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 14

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

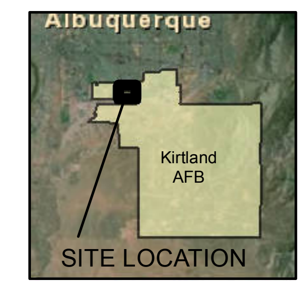
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 19

Estimated Exceedance Area of ESL: ~7.8 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

N

0 200 400 800

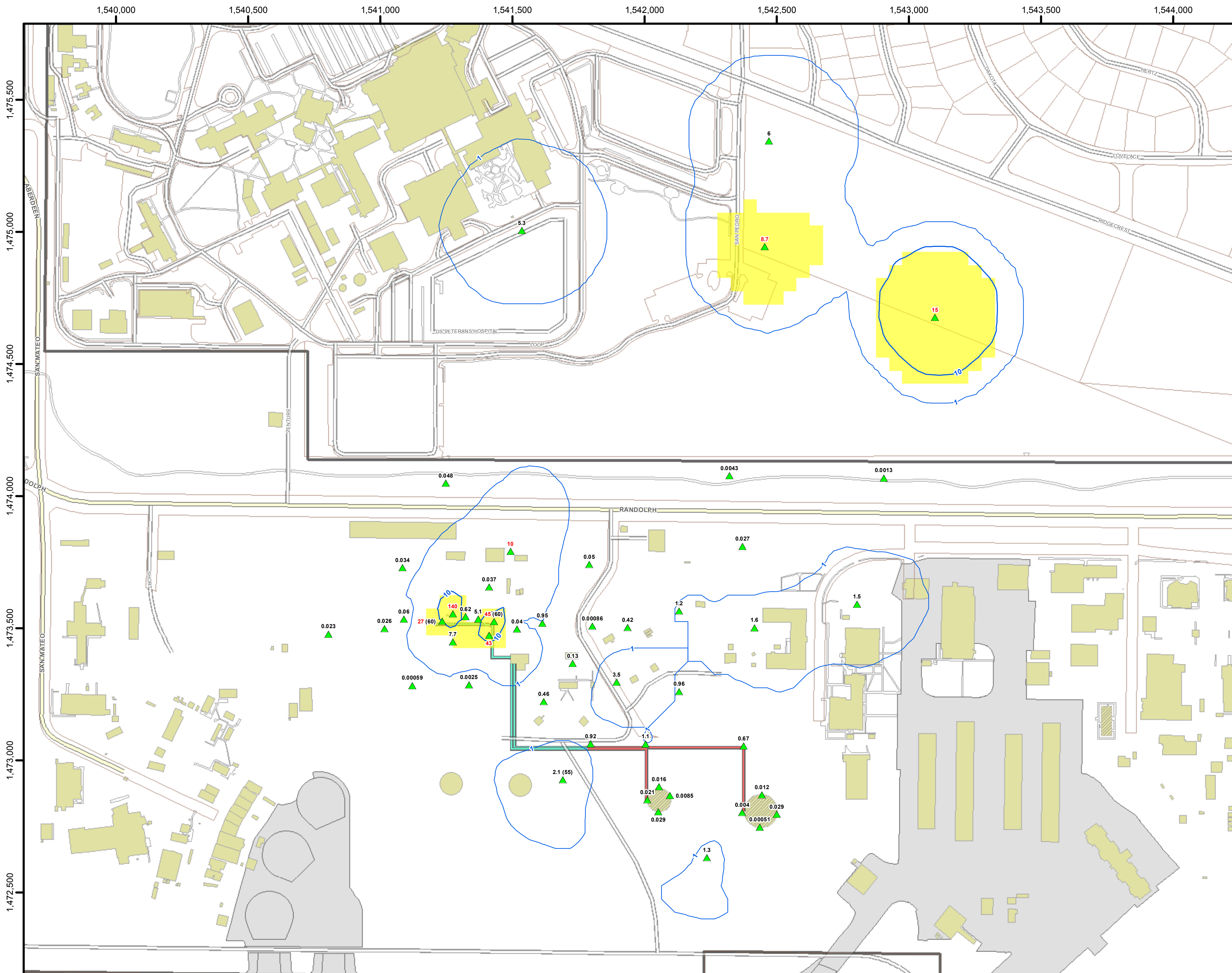
Feet

1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 15

BENZENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Benzene Vapor Concentration (ppmv)[1]

Benzene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

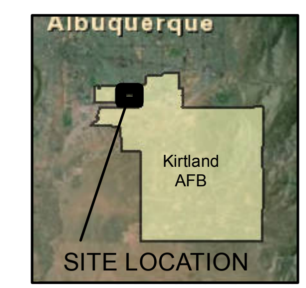
Benzene Concentration Exceeds ESL (7.83 ppmv)

- 0 - 7.82
- 7.83 - 22

Estimated Exceedance Area of ESL: ~8.1 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure and results used for the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

N

0 200 400 800

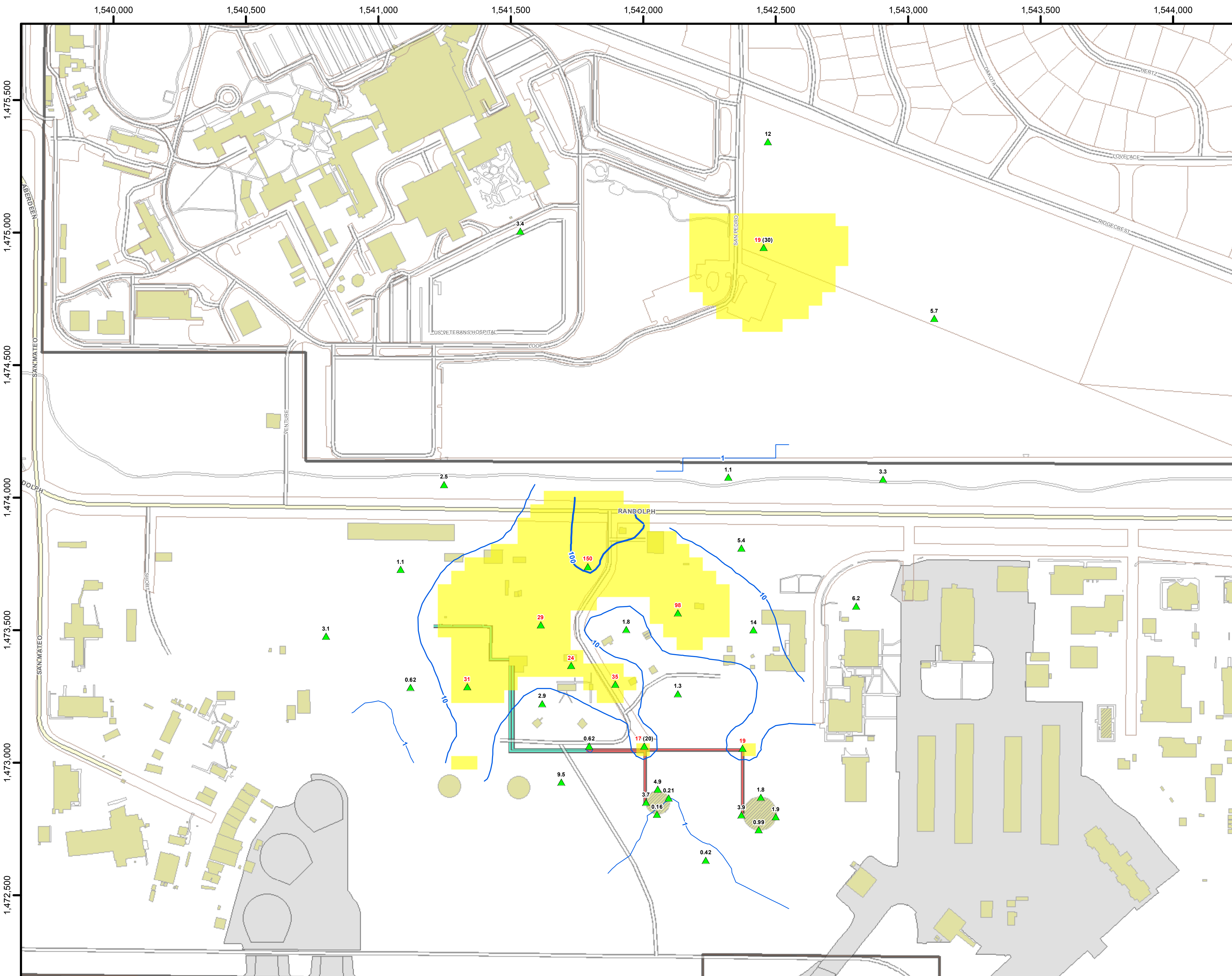
Feet

1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 16

BENZENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

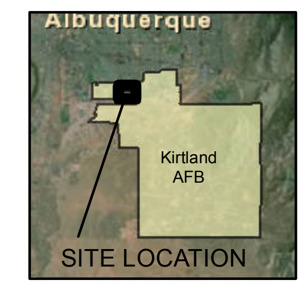
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 150

Estimated Exceedance Area of ESL: ~17.3 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone benzene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

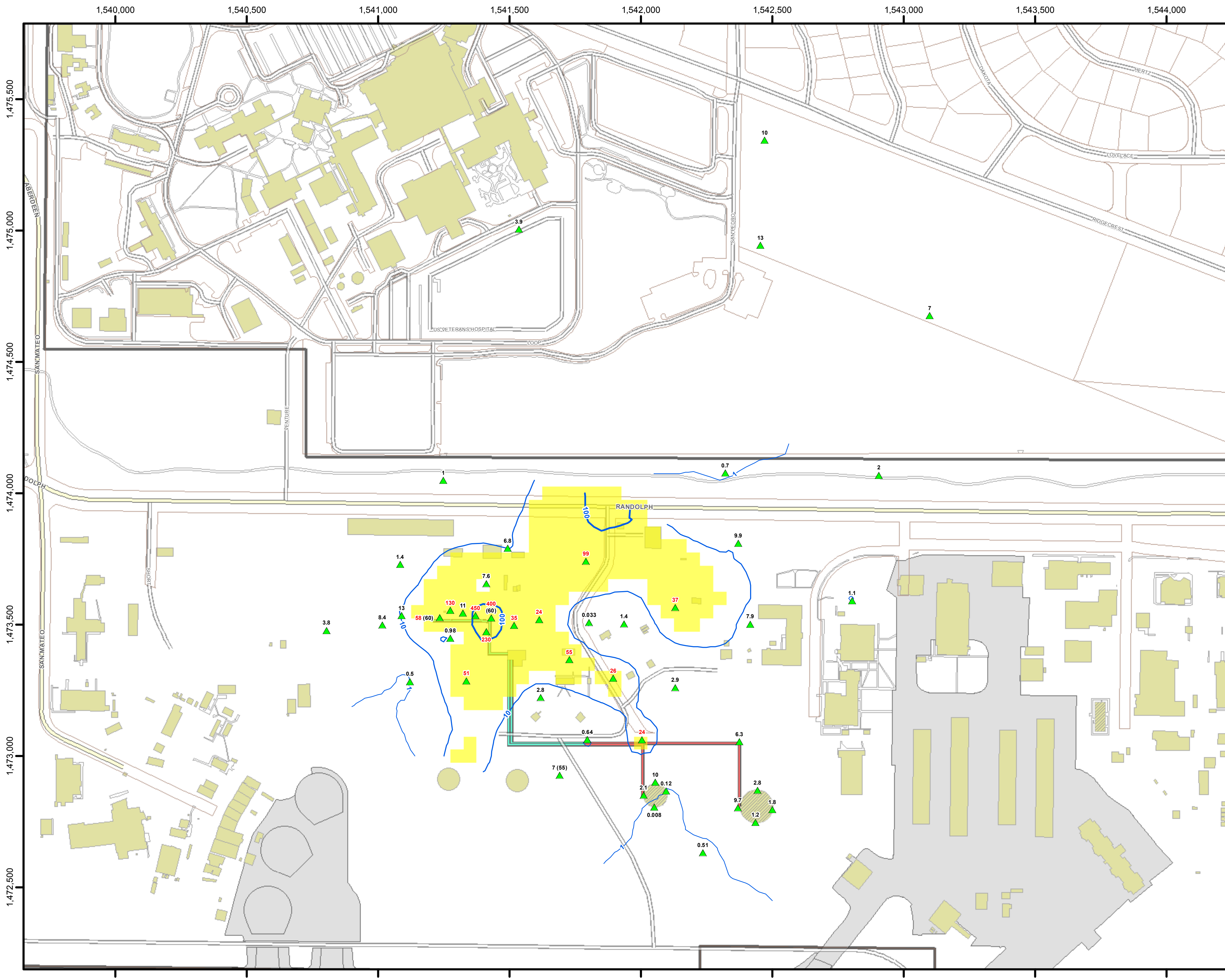
N

0 200 400 800
Feet
1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 17

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

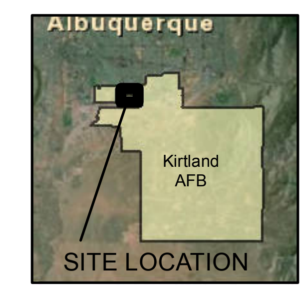
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 161.8

Estimated Exceedance Area of ESL: ~11.2 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

N

0 200 400 800

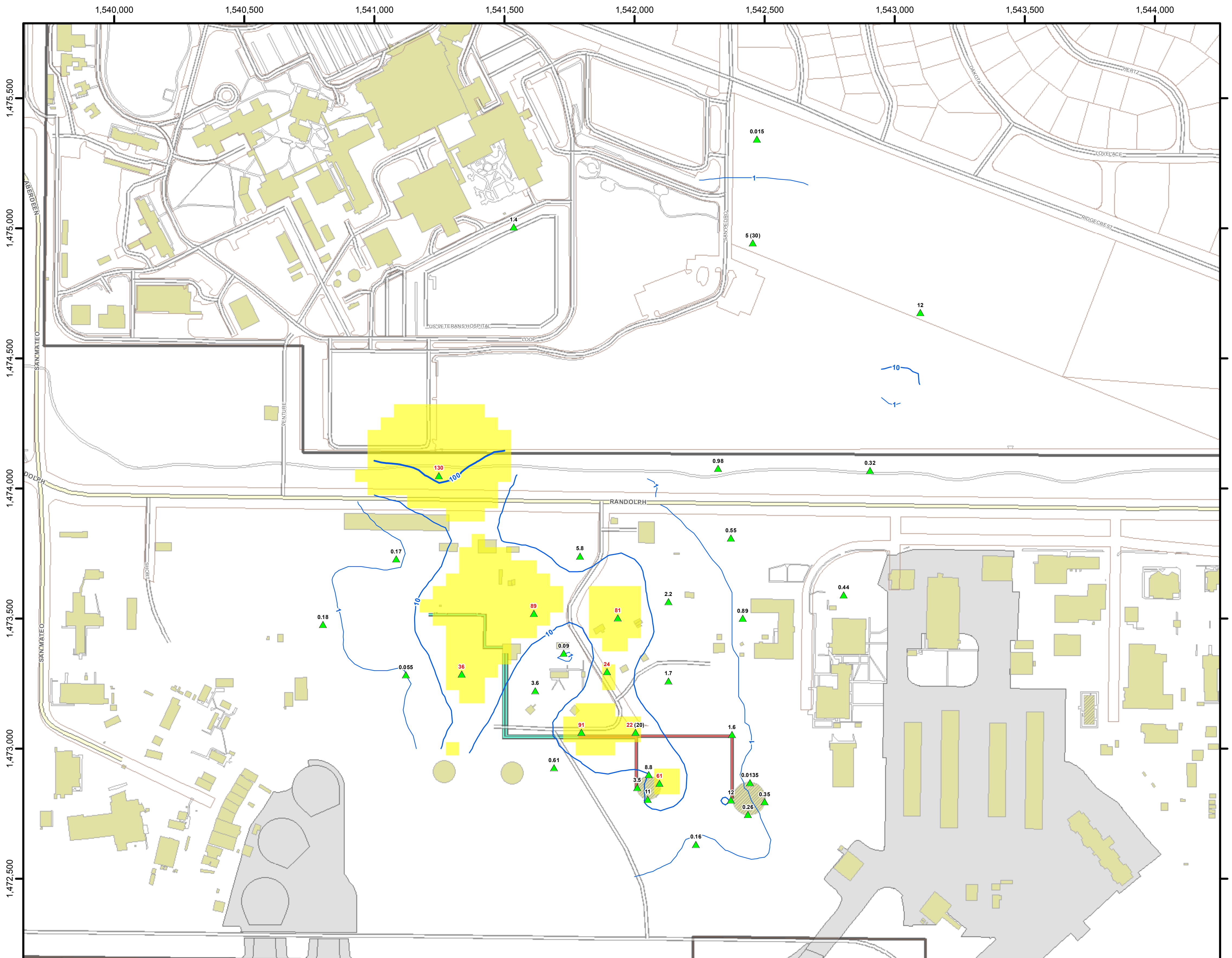
Feet

1 inch = 400 feet

FIRST QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 18

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

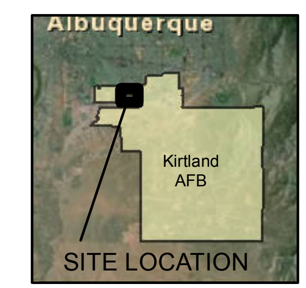
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 132.1

Estimated Exceedance Area of ESL: ~11.4 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

N

0 200 400 800

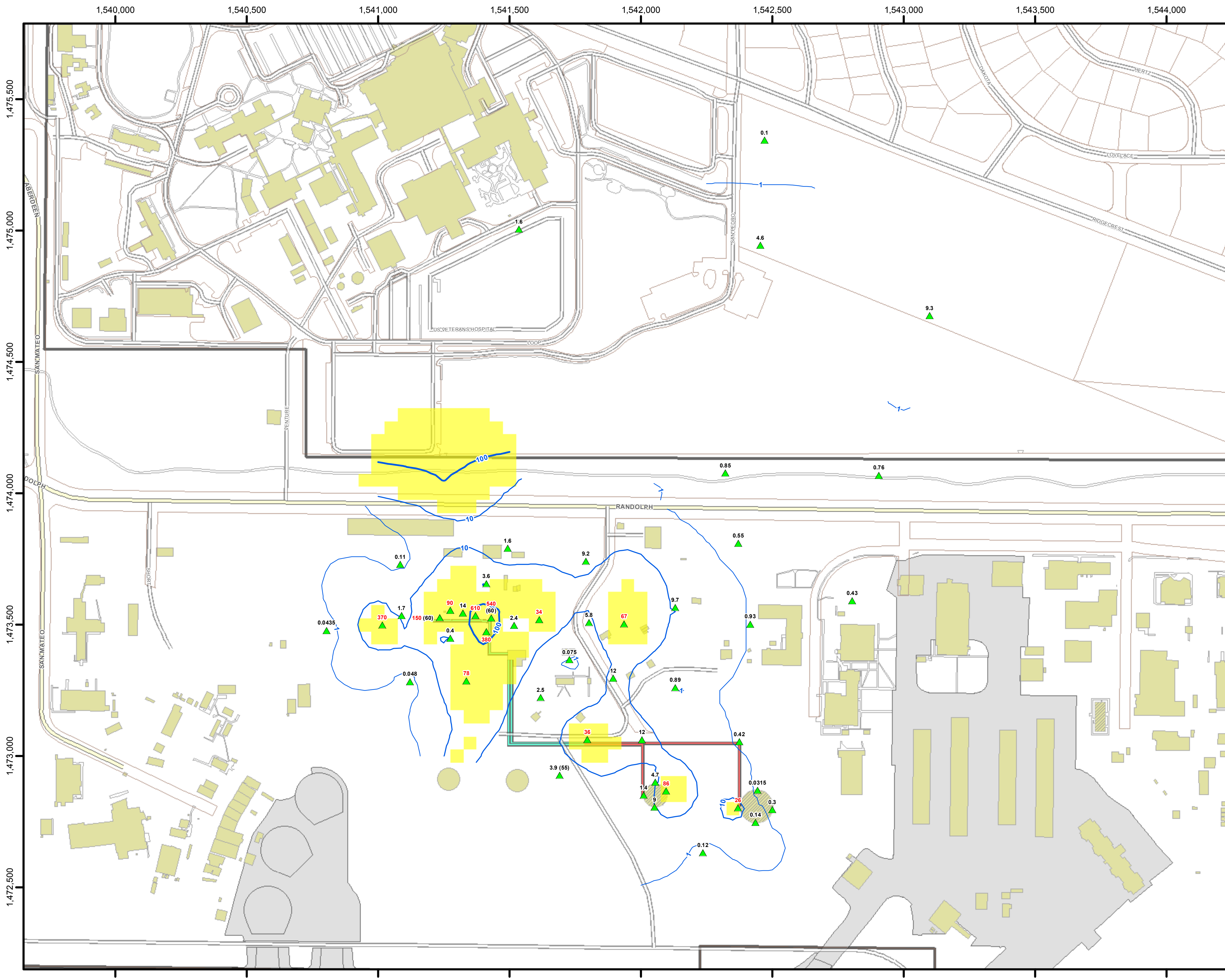
Feet

1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 19

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

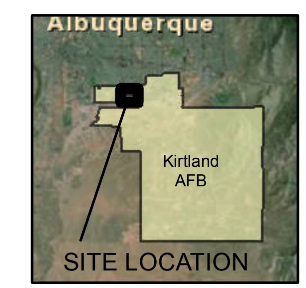
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 199.3

Estimated Exceedance Area of ESL: ~9.8 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

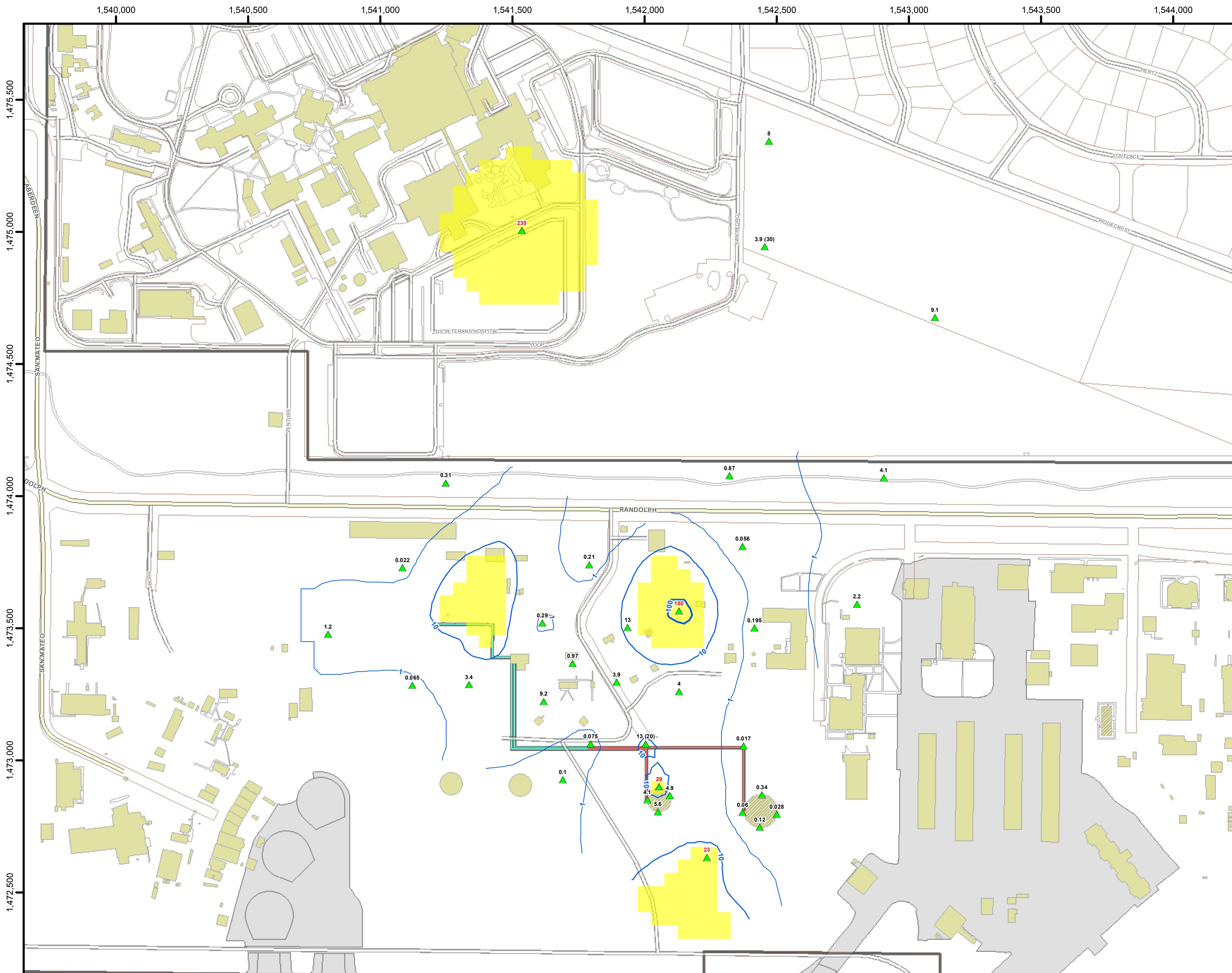
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 20

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1] — 2 (55)

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

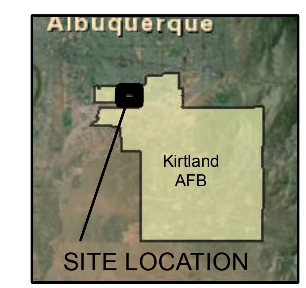
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 230

Estimated Exceedance Area of ESL: ~11.2 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

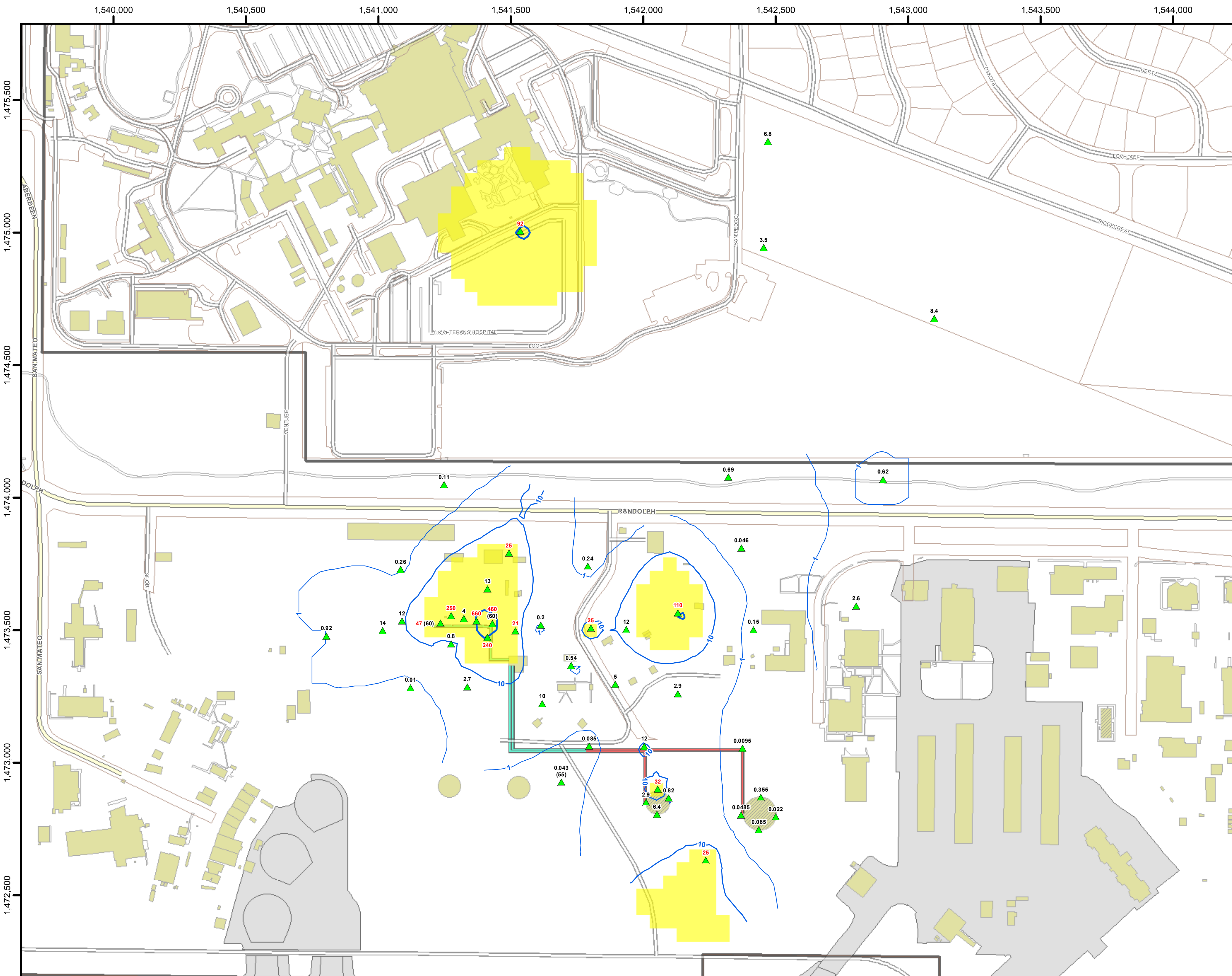
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 21

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1] — example: 2 (55)

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

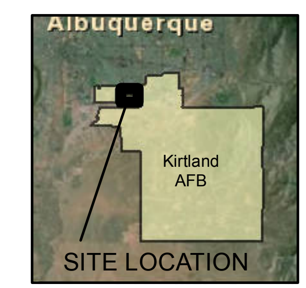
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 145.1

Estimated Exceedance Area of ESL: ~12.6 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

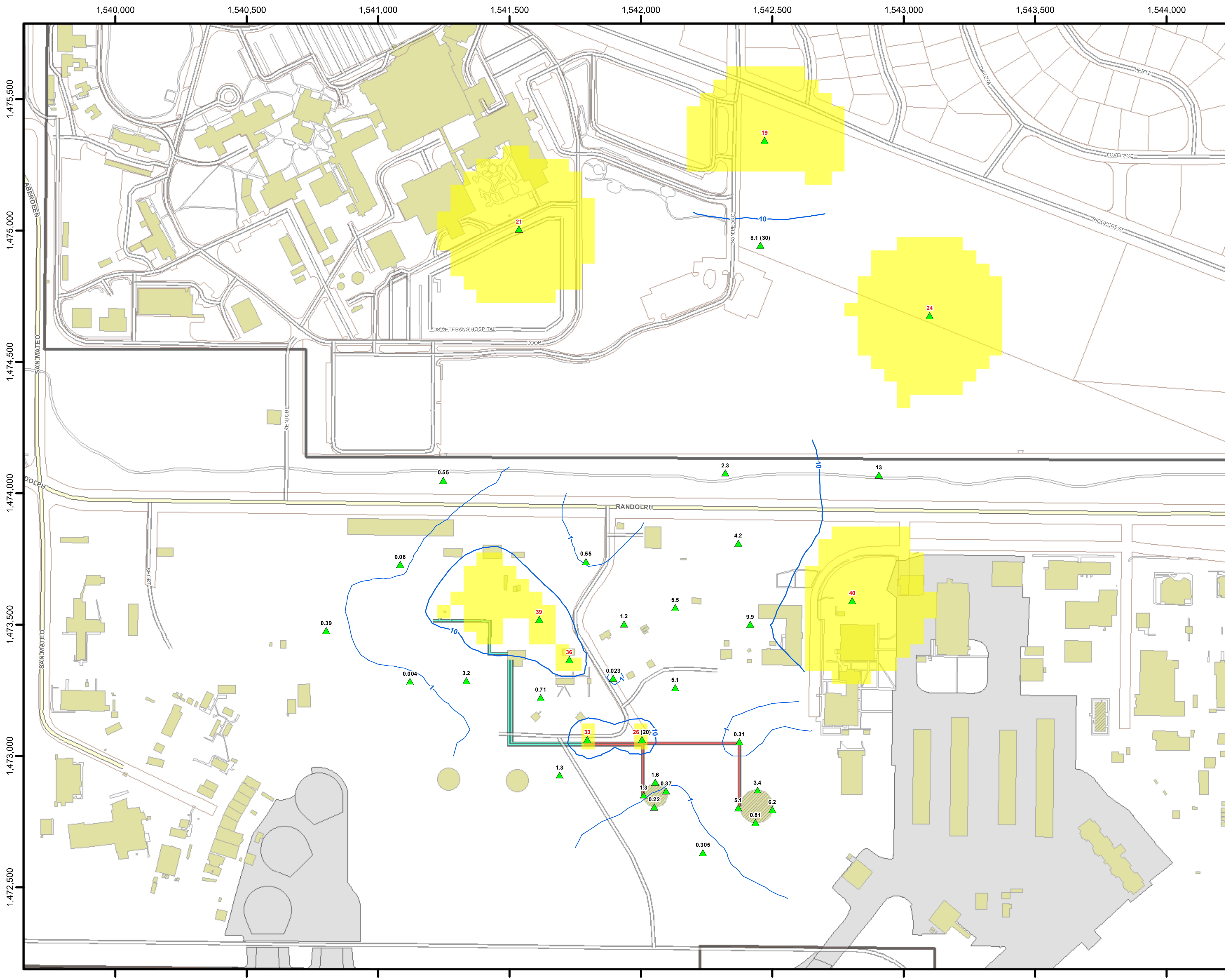
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 22

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 40

Estimated Exceedance Area of ESL: ~25.5 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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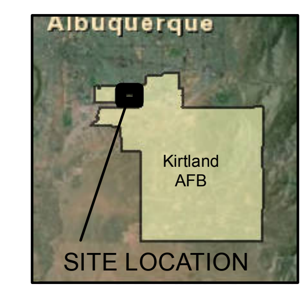


Revision Date: 3/26/2014

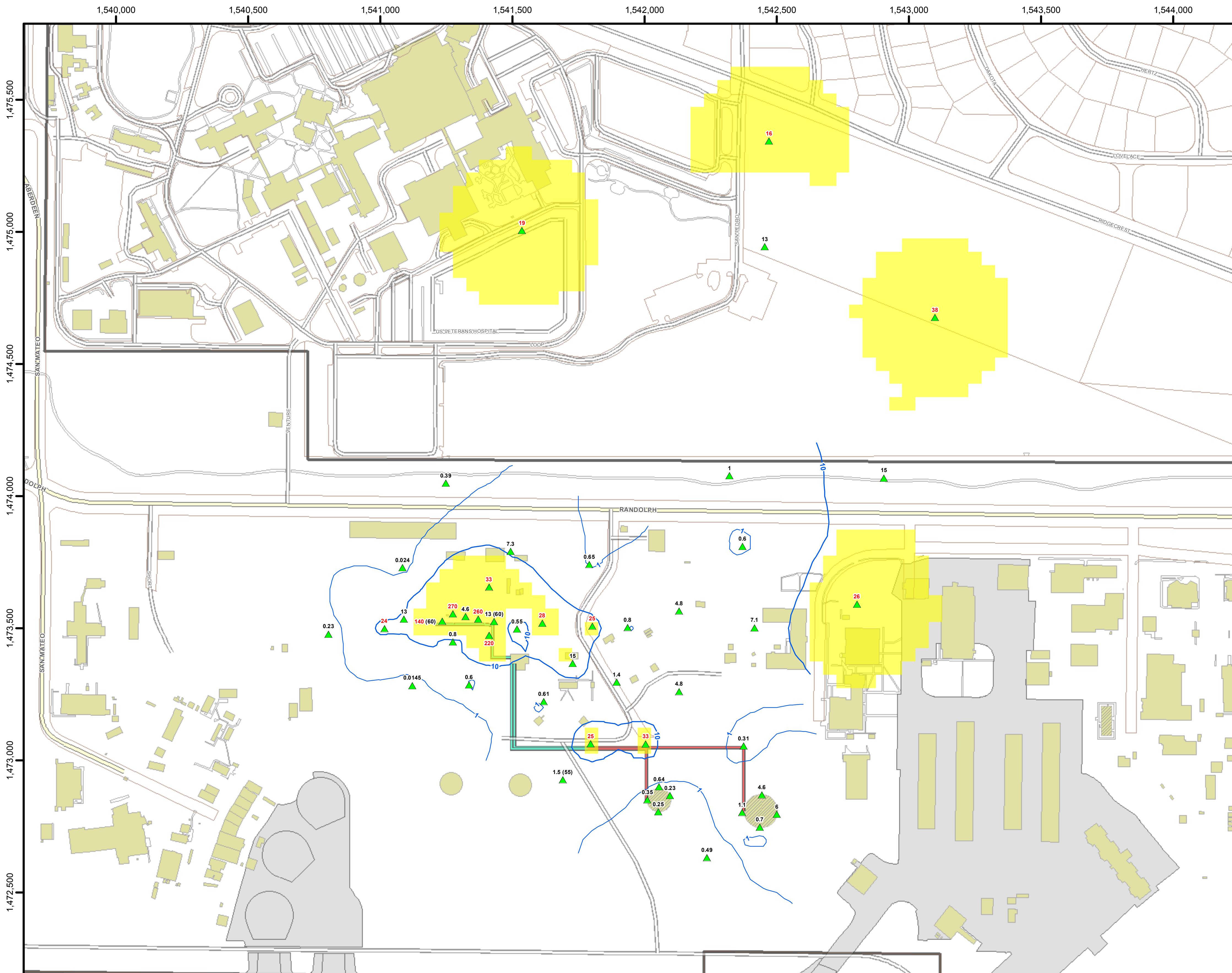
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 23

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 71.5

Estimated Exceedance Area of ESL: ~26.2 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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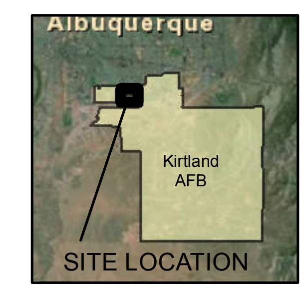

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

N

0 200 400 800

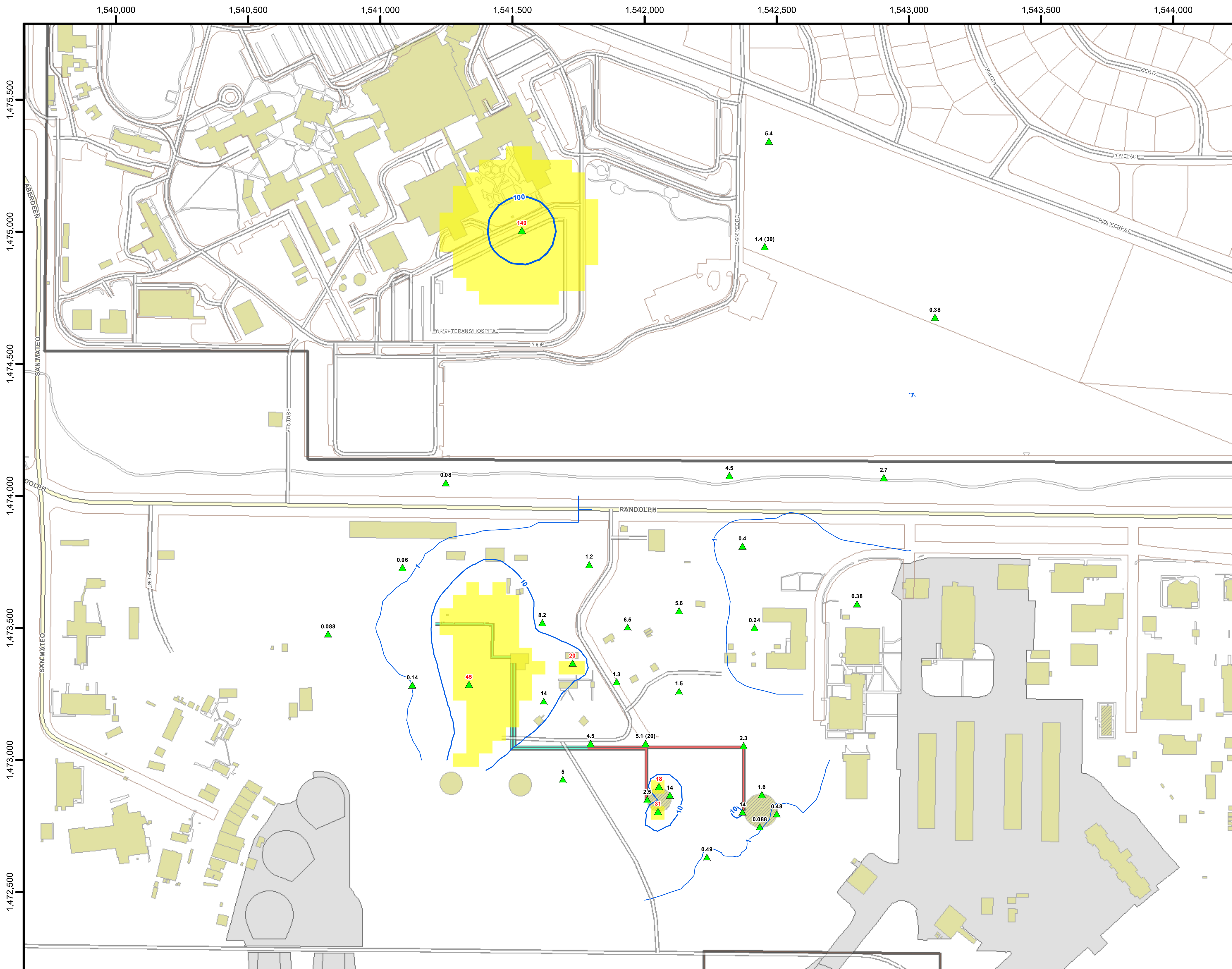
Feet

1 inch = 400 feet

FOURTH QUARTER 2012
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 24

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 140

Estimated Exceedance Area of ESL: ~10.3 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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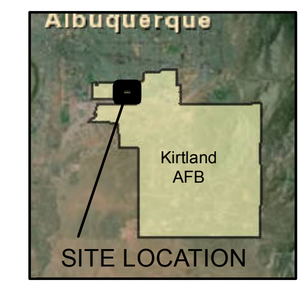


Revision Date: 3/26/2014

N

0 200 400 800

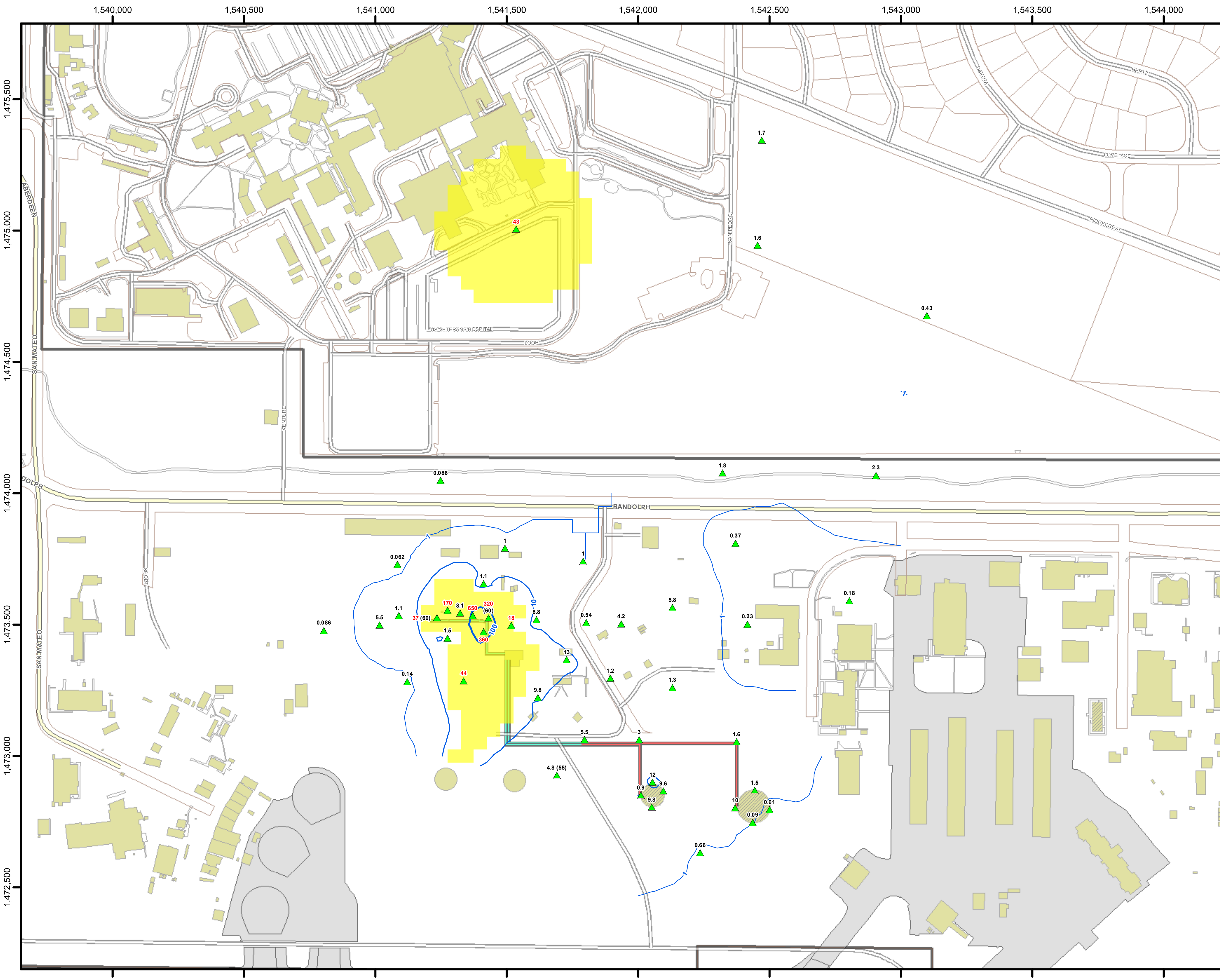
Feet

1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 25

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 167.2

Estimated Exceedance Area of ESL: ~10.2 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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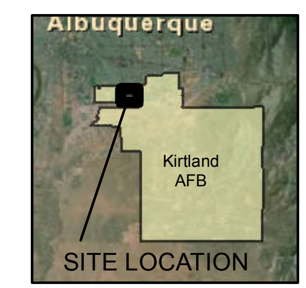

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

N

0 200 400 800

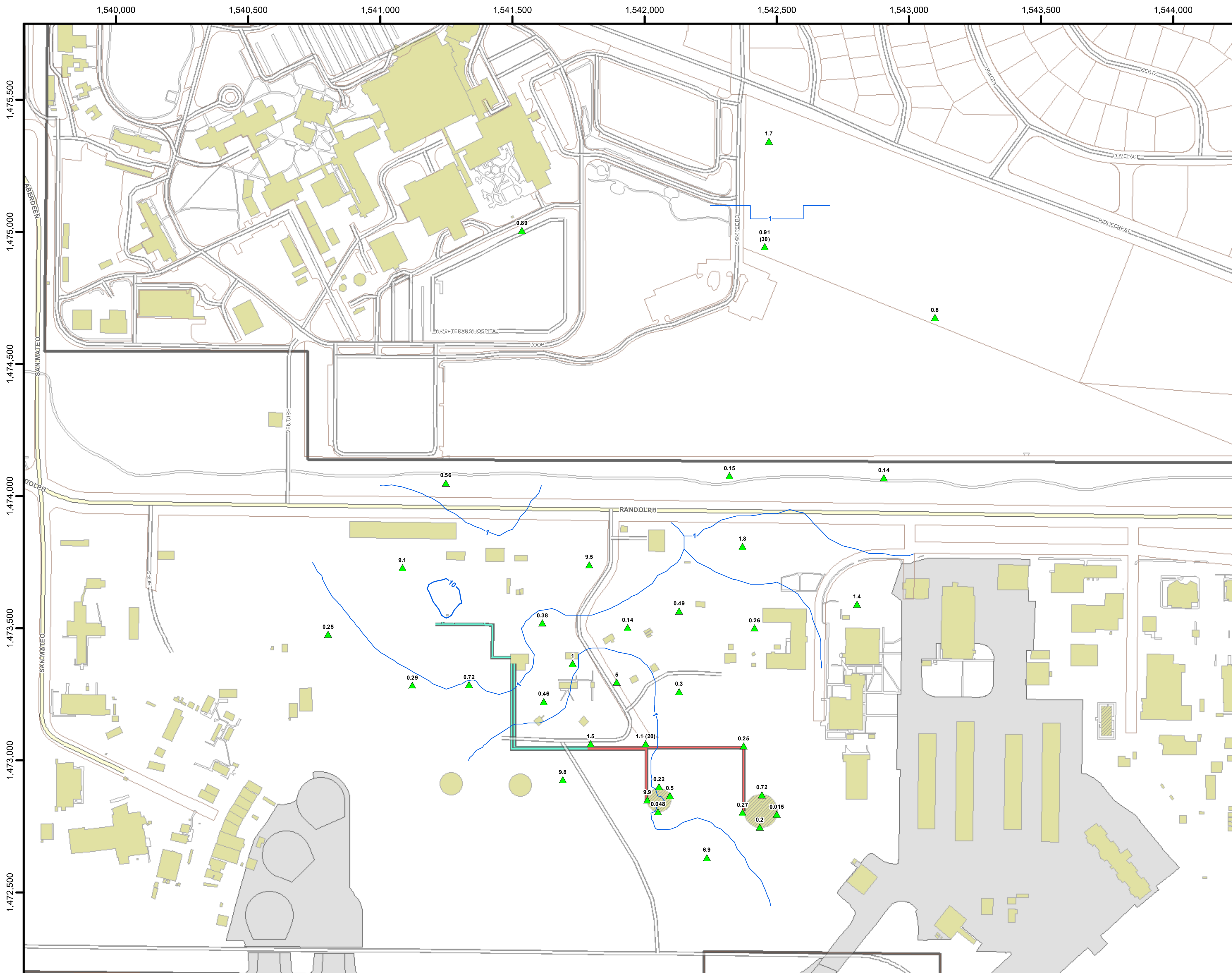
Feet

1 inch = 400 feet

FIRST QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 26

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

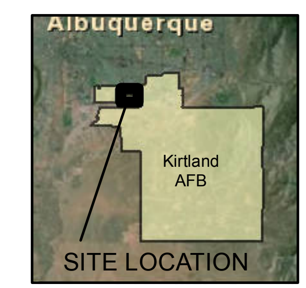
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 20

Estimated Exceedance Area of ESL: 0 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

N

0 200 400 800

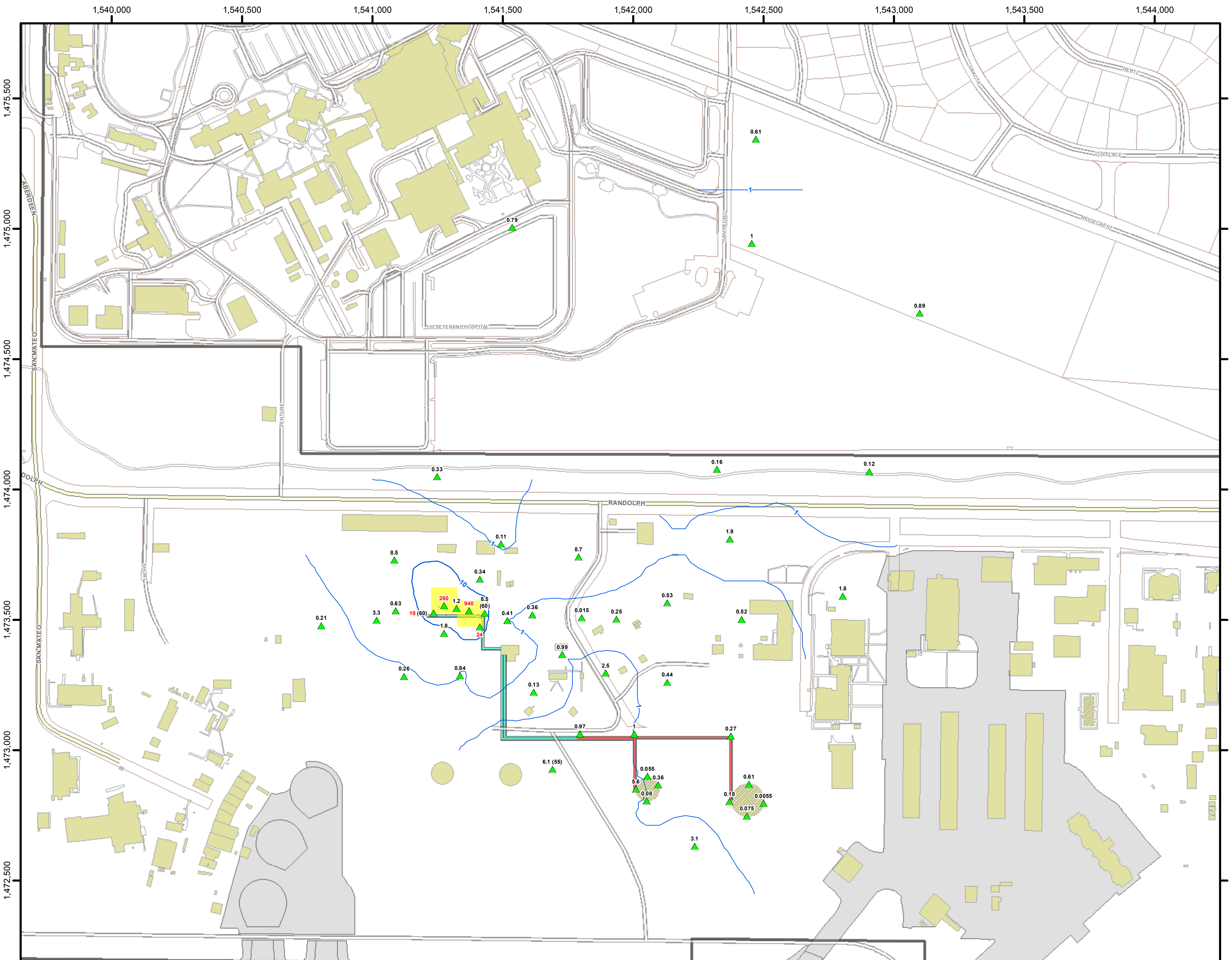
Feet

1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 27

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

▲ SVE Well with Toluene Vapor Concentration (ppmv)[1] — 2 (55)

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 33.1

Estimated Exceedance Area of ESL: ~0.5 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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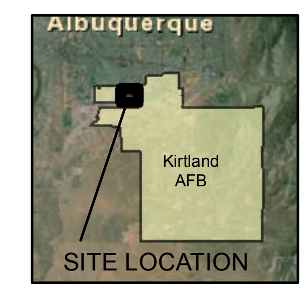

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

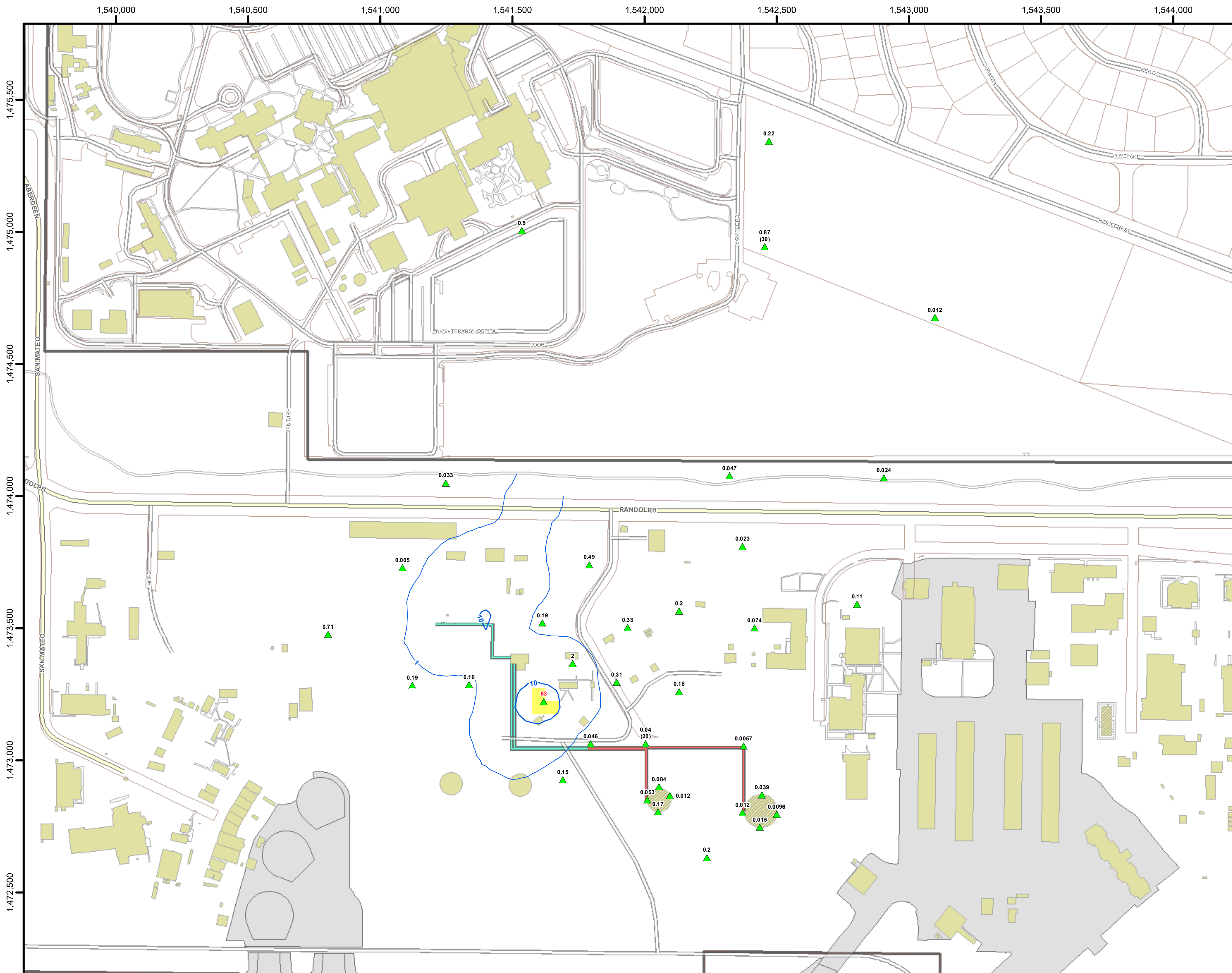
N

0 200 400 800
Feet
1 inch = 400 feet

SECOND QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 28

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 24.4

Estimated Exceedance Area of ESL: ~0.2 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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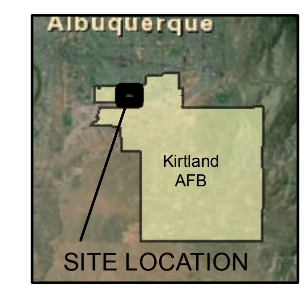


Revision Date: 3/26/2014

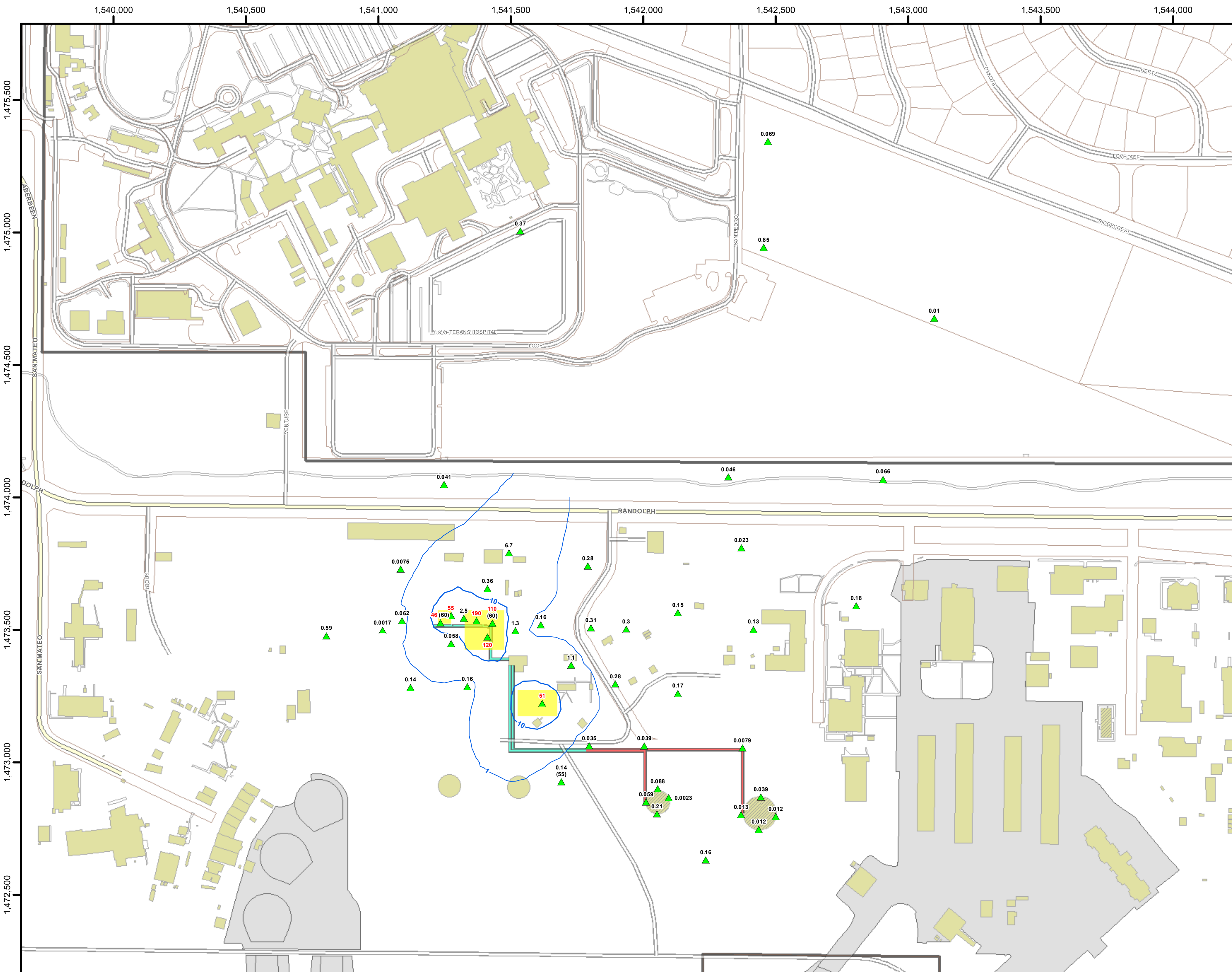
N

0 200 400 800
Feet
1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 29

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

2 (55) SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

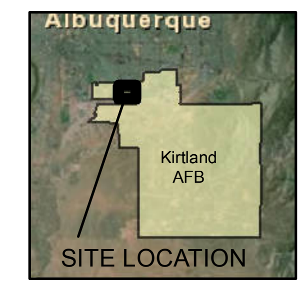
Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 51

Estimated Exceedance Area of ESL: ~0.9 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Revision Date: 3/26/2014

N

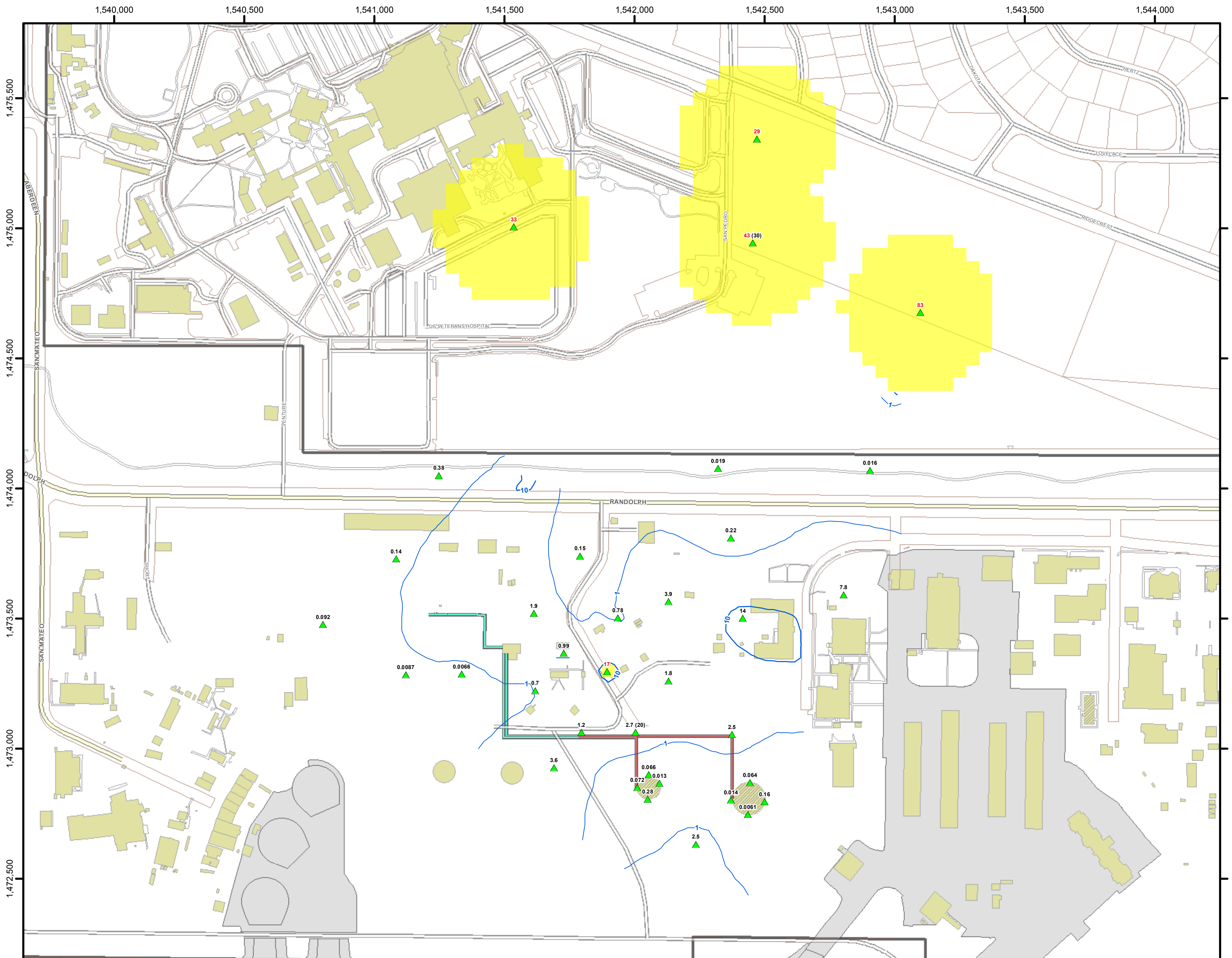
0 200 400 800 Feet

1 inch = 400 feet

THIRD QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 30

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

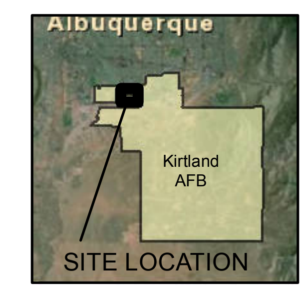
SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours
- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)
- 0 - 15.920
- 15.921 - 83

Estimated Exceedance Area of ESL: ~24.3 acres

Note:
1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
3) ESLs and exceedance areas are for planning purposes only, based on conservative assumption that burrowing wildlife are exposed to these soil gas concentrations in a burrow; see text for further details.



Service Layer Credits: Copyright:© 2013 Esri, DeLorme, NAVTEQ, TomTom
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP,

Revision Date: 3/26/2014

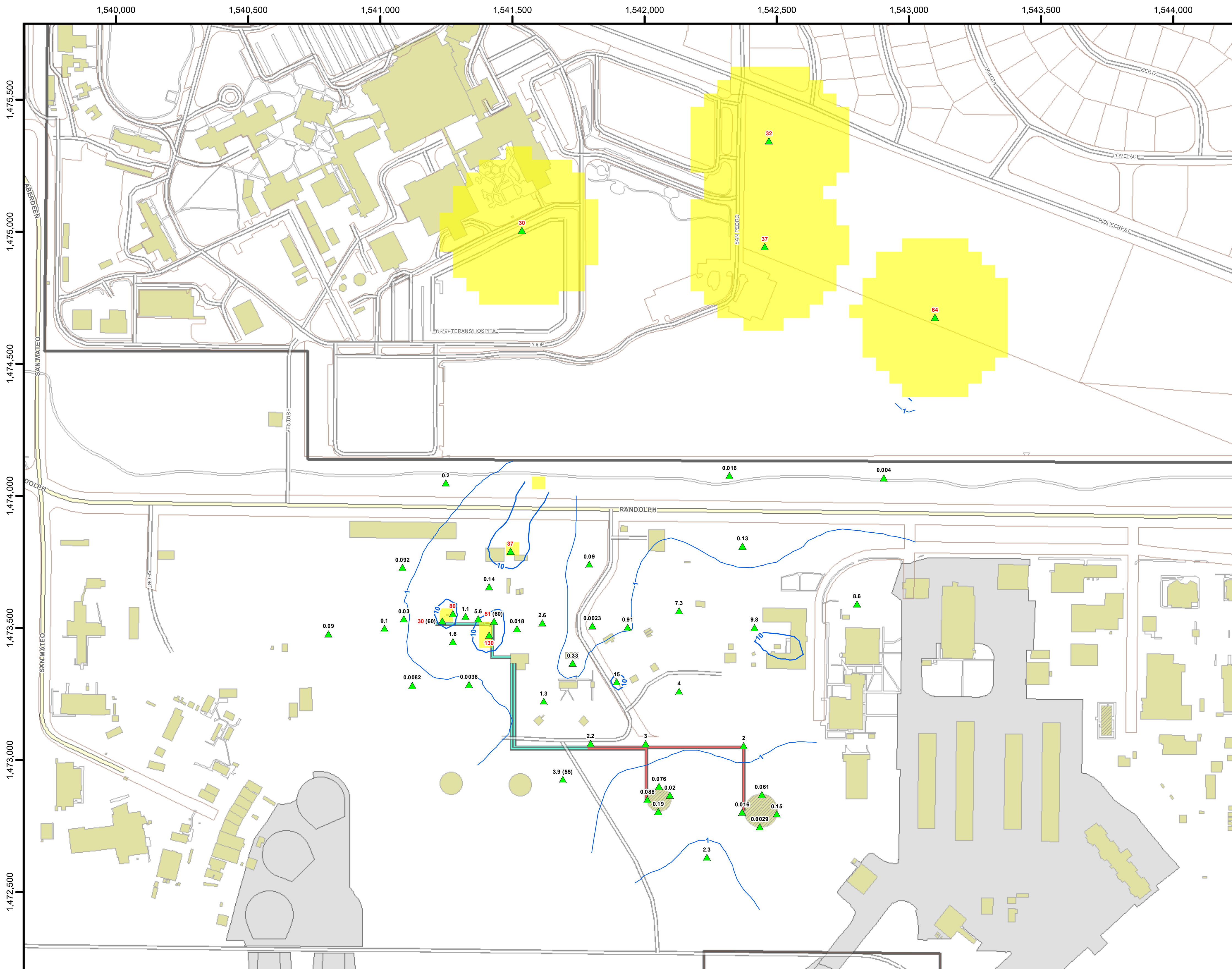
N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 31

TOLUENE SOIL GAS CONTOURS, ~25-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL



Legend

SVE Well with Toluene Vapor Concentration (ppmv)[1]

Toluene Vapor Concentration Contours

- 1 ppmv
- 10 ppmv
- 100 ppmv

Toluene Concentration Exceeds ESL (15.921 ppmv)

- 0 - 15.920
- 15.921 - 68.8

Estimated Exceedance Area of ESL: ~24.6 acres

Note:

1) Red indicates an ecological screening level (ESL) exceedance. When sample depth is different than posted depth interval, value is shown in parenthesis.
2) The vadose zone toluene plume was gridded in three dimensions using inverse distance weighting in RockWorks and then concentration plan-view maps were "cut" at respective elevations. Sample results within approximately 50 ft of the elevation are posted; however, all results were used in 3-D gridding. Locations are not shown at elevations where there is no sample result for the elevation interval. This approach follows the same procedure used for benzene in the Quarterly Pre-Remedy Monitoring and Site Investigation Reports for the BFF Site prepared by Shaw Environmental & Infrastructure, Inc., and CB&I Federal Services LLC.
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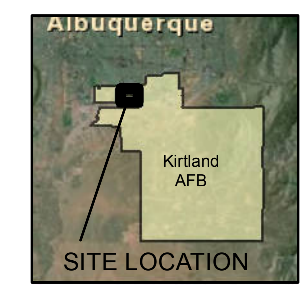

Revision Date: 3/26/2014

N

0 200 400 800
Feet
1 inch = 400 feet

FOURTH QUARTER 2013
BULK FUELS FACILITY
KIRTLAND AIR FORCE BASE, NEW MEXICO

APPENDIX C-4, FIGURE 32

TOLUENE SOIL GAS CONTOURS, ~50-FT DEPTH, COMPARED WITH ECOLOGICAL SCREENING LEVEL