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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 377TH AIR BASE WING (AFMC)

Colonel John C. Kubinec
377 ABW/CC
2000 Wyoming Blvd SE
Kirtland AFB NM 87117-5600

MAR 4 2013

Mr. John Kieling, Manager
RCRA Permits Management Program
Hazardous Waste Bureau (HWB)
New Mexico Environment Department (NMED)
2905 Rodeo Park Road
Santa Fe New Mexico 87505

Dear Mr. Kieling

Kirtland Air Force Base (AFB) is submitting the *July to December 2012 Interim Corrective Measures (ICM) Report for Solid Waste Management Unit (SWMU) ST-70, Buildings 481/482 Oil/water Separator (OWS) (Former ST-219), February 2013*. The report was prepared to document results of the operation, performance, and monitoring of the soil vapor extraction system and the monitoring of soil vapor and groundwater at SWMU ST70.

Please contact Ms. Victoria R. Martinez at (505) 846-6362 or at victoria.martinez@kirtland .af.mil if you have any questions.

Sincerely

JOHN C. KUBINEC, Colonel USAF
Commander

Attachment:
July to December 2012 ICM Report for SWMU ST-70. Bldgs 481/482 OWS (Former ST-219), February 2013

cc:
NMED-HWB (W. Moats), w/ attach
(W. McDonald), w/ attach
EPA Region 6 (L. King), w/out attach
AFCEE/CMSE (Mr. Oyelowo), w/out attach
/EXEC (Mr. Urrutia), w/out attach
Public Info Repository (Central New Mexico), w/ attach
Administrative Record/Information Repository (AR/IR), w/ attach
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KIRTLAND AIR FORCE BASE, NEW MEXICO

JULY 2012 TO DECEMBER 2012
INTERIM CORRECTIVE MEASURES OPERATION REPORT
FOR SOLID WASTE MANAGEMENT UNIT ST-70,
BUILDINGS 481/482 OIL WATER SEPARATOR (FORMER ST-219)

February 2013

377 MSG/CEANR
2050 Wyoming Blvd. SE
Kirtland AFB, New Mexico 87117-5670

ENVIRONMENTAL RESTORATION PROGRAM
KIRTLAND AIR FORCE BASE, NEW MEXICO

JULY 2012 TO DECEMBER 2012 INTERIM CORRECTIVE MEASURES OPERATIONS REPORT FOR SOLID WASTE MANAGEMENT UNIT ST-70, BUILDINGS 481/482 OIL WATER SEPARATOR (FORMER ST-219)

February 2013

Prepared for
Air Force Civil Engineer Center
Environmental Restoration Division
2261 Hughes Avenue, Suite 155
Lackland Air Force Base, TX 78226

NOTICE

This Interim Corrective Measures Operation Report has been prepared for the U.S. Air Force by Bhate Environmental Associates and CH2M HILL for the purpose of aiding in the implementation of a final remedial action plan under the Environmental Restoration Program (ERP). As the report relates to actual or possible releases of potentially hazardous substances, its release prior to an Air Force final decision on remedial action may be in the public's interest. The limited objectives of this report and the ongoing nature of the ERP, 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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Minchak, Sharon
Moayyad, Ben

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Bhate Environmental Associates, Inc
445 Union Blvd, Suite 129
Lakewood, CO 80228

CH2M HILL
4041 Jefferson Plaza NE, Suite 200
Albuquerque, NM 87109

8. PERFORMING ORGANIZATION REPORT NO.

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)

Air Force Civil Engineer Center
2261 Hughes Avenue, Suite 155
Lackland AFB, TX 78236
Project Manager: Joe Urrutia

10. SPONSOR/MONITOR'S ACRONYM(S)

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FEBRUARY 2013

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JOHN C. KUBINEC, Colonel, USAF
Commander, 377th Air Base Wing

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KIRTLAND AIR FORCE BASE
377th Air Base Wing Public Affairs

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NATURAL RESOURCE INJURY

The Department of Defense (DoD) policy requires the identification of Natural Resource Injury (NRI) and, whenever practicable, the rectification of any NRI during the site assessment, investigation, and remedy selection and implementation process for cleanup actions (DoD, 2000). As stated in the policy, DoD's objectives are

"…to promote earlier and more complete consideration of the risks to natural resources associated with past activities and cleanup alternatives; to ensure that Components exercise their statutory Trustee authorities to address NRI on behalf of the public; to lower the total life-cycle costs of the Components' remediation programs; and to reduce the potential for response cost recovery or natural resource damage claims against the Components."

Based on the above discussions and the site-specific conditions presented in this report, implementation of the selected remedial alternative of soil vapor extraction (SVE) at Solid Waste Management Unit ST-70 (Former ST-219) will not result in any NRIs. Site contamination is largely restricted to soil and soil gas present in the vadose zone below paved surfaces. Site conditions prevent migration of contamination to surface soil or the atmosphere, and SVE is expected to prevent further migration to the groundwater. Therefore, contamination at the site does not pose any harm to natural resources such as groundwater or ecological receptors. Likewise, the continued implementation of selected remedial alternative will create no significant disturbance to native soils, or ecological habitat.

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ENVIRONMENTAL JUSTICE CONSIDERATION

Presidential Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of federal programs, policies, and activities on minority and low-income populations. For purposes of this report, the population within a 50-mile radius around Kirtland Air Force Base (AFB) was considered. Demographic and economic census information presented in Addressing Environmental Justice under the National Environmental Policy Act at Sandia National Laboratories/New Mexico (Sandia National Laboratory, 1997) and the United States Census web site (http://quickfacts.census.gov/ qfd/states/35/3502000.html accessed on 6 October 2010) were used as primary references.

The population living within a 50-mile radius of Kirtland AFB, which exceeds 49 percent of the total population according to census data (Sandia National Laboratory, 1997), was evaluated with regard to health and environmental effects from activities at Kirtland AFB. Similarly, the low-income population, which exceeds 21 percent of the general population, was analyzed for effects from corrective measures activities at Kirtland AFB.

Minority populations are considered to be all people of all color except white people who are not Hispanic. In 1990, 49 percent (51 percent by 1996, 34.2 percent by 2000) of New Mexico's population was minority (Bureau of the Census, 1998; http://quickfacts.census.gov/qfd/states/35/3502000.html accessed on 6 October 2010). Neighborhoods having minority population percentages exceeding the minority population percentage of 49 percent (slightly more conservative than 51 percent) were identified on a block-by-block basis, with clusters of blocks known as block groups.

The Bureau of the Census characterizes persons in poverty (low-income persons) as those whose incomes are less than a statistical poverty threshold. The threshold is a weighted-average based on family size and age of family members. For instance, the 1990 census threshold for a family of four was based on a 1989 household income of $12,674 (Census, 1990). By 1996, the household income threshold rose to $16,036 (Census, 1997). In 1989, 21 percent of New Mexico's population was listed in poverty or designated as having low income (Census, 1996). By 1996, the estimated percentage stood at 24 percent (Census, 1997) and by 2000, the state-wide percent decreased to 18.4 (http://quickfacts.census.gov/qfd/states/35/3502000.html accessed on 6 October 2010). In this analysis, low-income block groups (same as above) occur where the low-income population percentage in the block group exceeds the poverty percentage for the state of New Mexico.

According to 1990 census data, approximately 280,360 minority individuals from an approximate total population of 609,500 reside within the 50-mile radius. This represents 46 percent of the total radius-of-influence population (Sandia National Laboratory, 1997).

Block groups having less than 21 percent low-income individuals were not considered to contain a large number of low-income neighborhoods because they contain less than or equal to the state average of 21 percent. Approximately 85,330 persons were identified as being low income, representing approximately 14 percent of the radius-of-influence population.

This distribution of low-income population has a strong correlation to minority populations of Blacks, Native Americans, and Hispanics. For example, portions of the Pueblo of Isleta, south of the city, have

high percentages of low-income individuals. To the southeast of Kirtland AFB, the rural Hispanic villages of Tajique, Torreon, and Escobosa are also low income.

To the north of Kirtland AFB, high concentrations of low-income populations are located in the Pueblos of Jemez, Santo Domingo, and Cochiti, as well as in the rural Hispanic villages of La Cienega and Jemez Springs. High concentrations of low-income populations occur west of Kirtland AFB, along the Rio Grande, in the predominantly Hispanic South Valley neighborhoods. In addition, small pockets of low-income populations reflect the locations of Black neighborhoods such as the Kirtland Addition and South Broadway/East San Jose areas.

Based on the findings of this report, there are no identified negative impacts from Solid Waste Management Unit ST-70, (Former ST-219) that would pose adverse health effects on the general human populations. Based on the analysis of any potential impacts, there would be no disproportionately high or adverse impacts to minority and low-income populations. Any impacts due to restrictions of access to cultural sites would be removed by coordination between the Kirtland AFB and the local Tribes to develop processes to allow access during periods in which safety standards and practices would be maintained.

PREFACE

This July through December 2012 Interim Corrective Measures Operation Report was prepared to document the operations and monitoring activities associated with the soil vapor extraction system at Solid Waste Management Unit (SWMU) ST-70 (Former ST-219) at Kirtland Air Force Base, New Mexico.

This report was prepared by Bhate Environmental Associates and CH2M HILL in August 2012. Mr. Joe Urrutia of the Air Force Center for Engineering and the Environment (AFCEE) served as the AFCEE Contracting Officers Representative.

Frank Gardner, P.G.
Bhate Environmental Associates
Project Manager

Sharon L. Minchak, P.G.
CH2M HILL
Program Manager

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFCEE	Air Force Center for Engineering and the Environment
bgs	below ground surface
cfm	cubic feet per minute
cis-1,2-DCE	Cis-1,2-Dichloroethene
COPC	contaminants of potential concern
DoD	Department of Defense
DOE	Department of Energy
EPA	U.S. Environmental Protection Agency
ERP	Environmental Restoration Program
ft	foot/feet
ft^3	cubic feet
GAC	granular activated carbon
ICM	Interim Corrective Measures
kg	Kilogram
kg/d	kilogram per day
kg/L	kilogram per liter
L	Liter
MEK	methyl ethyl ketone
µg/L	microgram per liter
mg/kg	milligrams per kilograms
mg/L	milligrams per liter
NMWQCC	New Mexico Water Quality Control Commission
NRI	Natural Resource Injury
OWS	oil water separator
PCE	Tetrachloroethene
ppbv	parts per billion by volume
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SVE	soil vapor extraction
SVOC	semivolatile organic compounds
SWMU	solid waste management unit

TCE	Trichloroethene
TPH	total petroleum hydrocarbons
USAF	United States Air Force
UST	underground storage tank
VOC	volatile organic compound

EXECUTIVE SUMMARY

Soil vapor extraction (SVE) has been identified as the preferred interim abatement option for the volatile organic compound (VOC) contamination within the vadose zone at Solid Waste Management Unit (SWMU) ST-70 (Former ST-219). Chlorinated VOC and total petroleum hydrocarbon (TPH) impacts at the site appear to be a result of leaks from the former Oil Water Separator (OWS) and the associated drains and piping. This Interim Corrective Measures (ICM) Operation Report for the SVE system has been prepared to document the operation, performance, and monitoring of the SVE system for the period from July to December 2012.

The primary objective of the SWMU ST-70 ICM is to to remove VOC contamination released from the former OWS to the underlying vadose zone through the operation of a SVE system. This objective will be evaluated by measuring the decrease in concentrations of contaminants of potential concern (COPCs) and VOCs within the extracted soil vapor. The primary COPCs for SWMU ST-70 are trichloroethene (TCE), tetrachloroethene (PCE), and TPH-gasoline, which were established with baseline sampling and reported in the ICM Construction Summary Report (USAF, 2009).

Quarterly monitoring was performed in August and October of 2012. Groundwater monitoring results indicate that TCE concentrations in groundwater are slightly increasing. Soil vapor contaminant concentrations were similar to those detected in recent monitoring events. High concentrations of chlorinated VOCs persist adjacent to the former OWS and high concentrations of fuel contaminants persist near the area drain.

The SWMU ST-70 (Former ST-219) SVE system operated for approximately 167 days during this reporting period. During planned maintenance downtime, the SVE blower was manually turned off for short periods to allow for sampling and maintenance. One unscheduled downtime resulted from a short-term power outage to the SVE system. During the operational period, 1.4×10^7 cubic feet (ft^3) (4.1×10^8 liters) of soil vapor were extracted and treated. From the time the SVE system was placed into full-scale operation on April 15, 2008 through the end of the reporting period, the SVE system has operated for approximately 1,447 days and has extracted and treated approximately 1.3×10^8 ft^3 (3.8×10^9 liters) of soil vapor.

The cumulative mass of all contamination removed by the SVE system since initiation of ICM operation is estimated to be approximately 17,700 kilograms (kg). However, only approximately 11 kg of the total mass removed is chlorinated VOC mass (primarily TCE, PCE and cis-1,2-DCE). The contaminant mass removed from the subsurface by the SVE system continues to be composed primarily of petroleum compounds. Contaminant mass was removed at rates of approximately between 4 and 22 kilograms per day in 2011 and 2012, and mass removal rates were in the middle to upper end of that range during this reporting period.

The SVE system was shut down for the winter rest period on December 21, 2012. The scheduled restart date is March 15, 2013. Field and analytical monitoring data will be reviewed to determine if an early restart is warranted.

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1.0 INTRODUCTION

The prior *Resource Conservation and Recovery Act* (RCRA) Facility Investigation (RFI) Report for Solid Waste Management Unit (SWMU) ST-70 Building 481/482 Oil Water Separator (OWS) (Former ST-219) (United States Air Force [USAF], 2005) identified soil vapor extraction (SVE) as the preferred interim remedial option for the volatile organic compound (VOC) contamination within the vadose zone. Chlorinated VOCs and total petroleum hydrocarbon (TPH) impacts at the site appear to be a result of leaks from the former OWS and the associated drains and piping located near building 481and 482 (Figure 1-1). The SVE system was designed to recover chlorinated solvent and petroleum hydrocarbon VOCs present within the subsurface and was constructed according to the design presented in the Interim Corrective Measures (ICM) Work Plan for SWMU ST-70 (Former ST-219) (USAF, 2008).

This ICM Report was prepared to document the operation, performance, and monitoring of the SVE system for the period of July through December 2012. The performance of the ICM is evaluated and recommendations are proposed based on this evaluation.

1.1 Interim Corrective Measures Remediation Objectives

The primary objective of the SWMU ST-70 ICM is to remove VOC contamination released from the former OWS to the underlying vadose zone through operation of an SVE system. . This objective will be evaluated by measuring the decrease in concentrations of contaminants of potential concern (COPC) and VOCs within the extracted soil vapor. In addition to the mass recovery objective, a secondary objective of the ICM is to protect groundwater from future impacts by chlorinated VOCs. This is accomplished by the SVE system providing pneumatic containment of the vapor phase plume and minimizing or eliminating the mechanism of vapor phase contaminant transport to groundwater.

This semi-annual operations report includes data on the ICM performance, system management, and site monitoring. Data evaluations, updates to the conceptual site model, and recommendations for future site monitoring, investigations, and corrective measures are presented in the Annual Characterization and Optimization Report will cover the period from July 2012 to June 2013. This semi-annual report is limited to:

System operation and maintenance information;

Analytical data and field measurements information from the SVE system;

Analytical data and field measurement information from SWMU ST-70 monitoring locations; and

Calculations of contaminant mass removal.

1.2 Report Organization

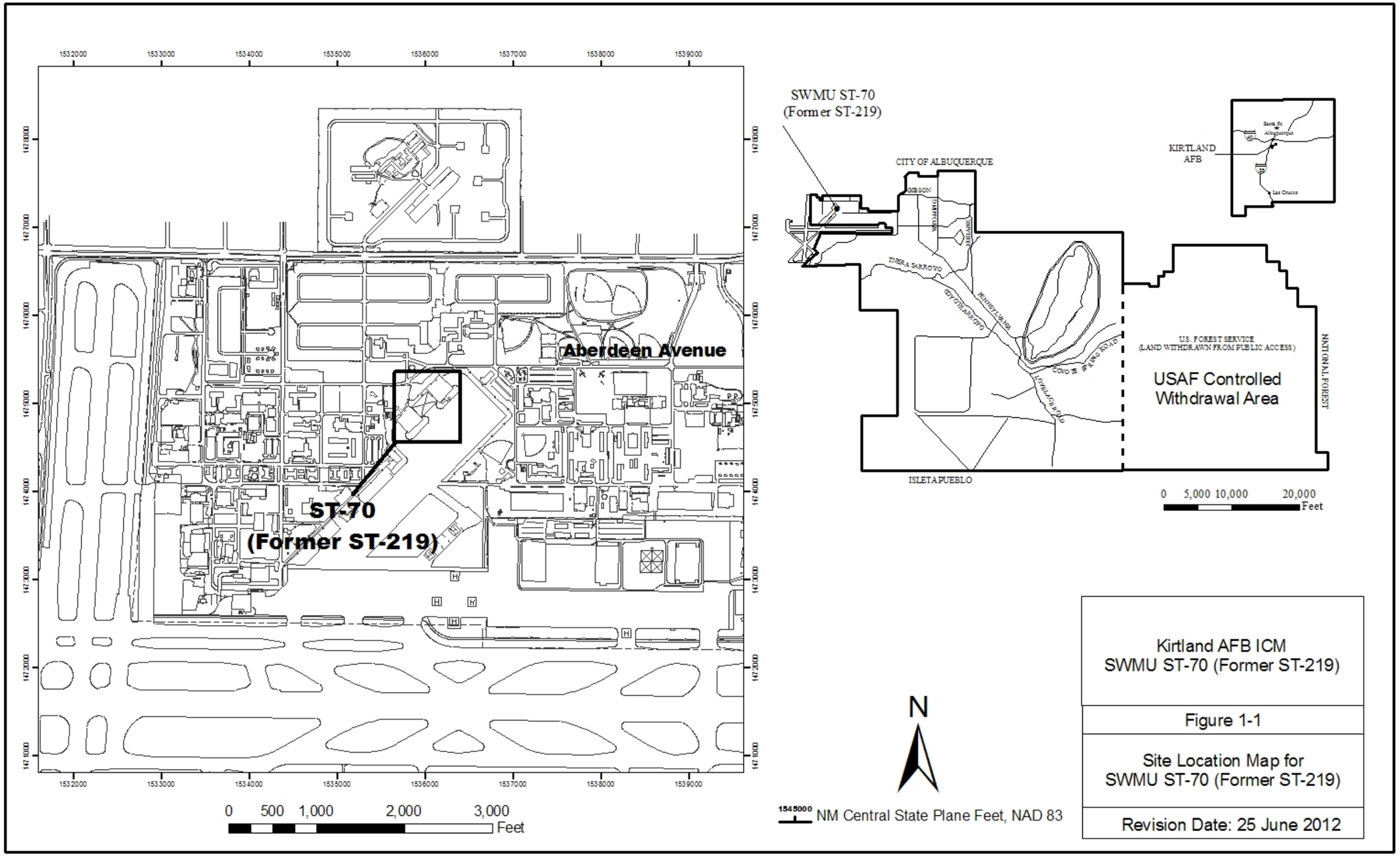
This report is organized into four sections, including this introduction, with additional material provided in three appendices.

Section 2 contains a brief discussion of site operations and documentation of the system operation and maintenance performed between July and December 2012.

Section 3 contains summaries of all SVE system and SWMU ST-70 site monitoring data. A summary of system performance including mass removal calculations is included in Section 3.

Section 4 contains a summary of ICM operation for the monitoring period.

The appendices provide documentation of the operation and maintenance activities, field measurement data, waste disposal records, and complete analytical data evaluation reports.


Aberdeen Avenue
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(Former ST-219)
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Feet
SWMU ST-70
(Former ST-219)
CITY OF ALBUQUERQUE
GIBSON
TIJERA SARROYO
PENNSYLVANIA
COYOTE SPRING ROAD
ISLETA PUEBLO
KIRTLAND AFB
Santa Fe
Albuquerque
Las Cruces
U.S. FOREST SERVICE
(LAND WITHDRAWN FROM PUBLIC ACCESS)
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Kirtland AFB ICM
SWMU ST-70 (Former ST-219)
Figure 1-1
Site Location Map for
SWMU ST-70 (Former ST-219)
Revision Date: 25 June 2012

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2.0 SYSTEM OPERATION AND MAINTENANCE

A brief description of the SWMU ST-70 (Former ST-219) site and SVE system are presented in this section.

2.1 Site Background

2.1.1 Site Description

The SWMU ST-70 (Former ST-219) is located in the northwestern part of Kirtland AFB, southeast of the intersection of Aberdeen Avenue and MacDill Street (Figure 1-1). The area in which SWMU ST-70 (Former ST-219) is located was previously used for aircraft movement and parking associated with Hangar Buildings 481 and 482. As such, the area was potentially subject to releases of fluids associated with aircraft maintenance such as fuels, lubricants, and degreasers. More recently the areas adjacent to SWMU ST-70 have been used as a passenger aircraft terminal. The Department of Energy (DOE) operates an airline passenger terminal housed in the portable office buildings between Buildings 481 and 482 and within Building 481. Additionally, a covered hazardous materials storage and containment area is present directly northeast of the SVE system, and within the SWMU ST-70 investigation boundary. Building 482 is rarely used for aircraft maintenance or parking.

The SWMU ST-70 (Former ST-219) is located within an unrestricted portion of the flightline between the two buildings. The concrete tarmac between Buildings 481 and 482 comes to an end approximately 30 feet (ft) southeast of the northwestern extent of the two buildings, with asphalt pavement located northwest of the concrete. The site is located on both concrete tarmac and asphalt pavement. A chain link fence (the flightline fence) topped with barbed wire separates the parking lot northwest of Buildings 481 and 482 from the flightline. Immediately west-northwest of the former OWS location is a set of portable office buildings that comprise a small air passenger terminal operated by a DOE contractor. An OWS separator was located roughly midway between the two hangar buildings. The OWS collected surface water drainage from the tarmac and separated the oily residues from aircraft operations from the surface water prior to discharge to the sanitary sewer system.

2.1.2 Site Release History

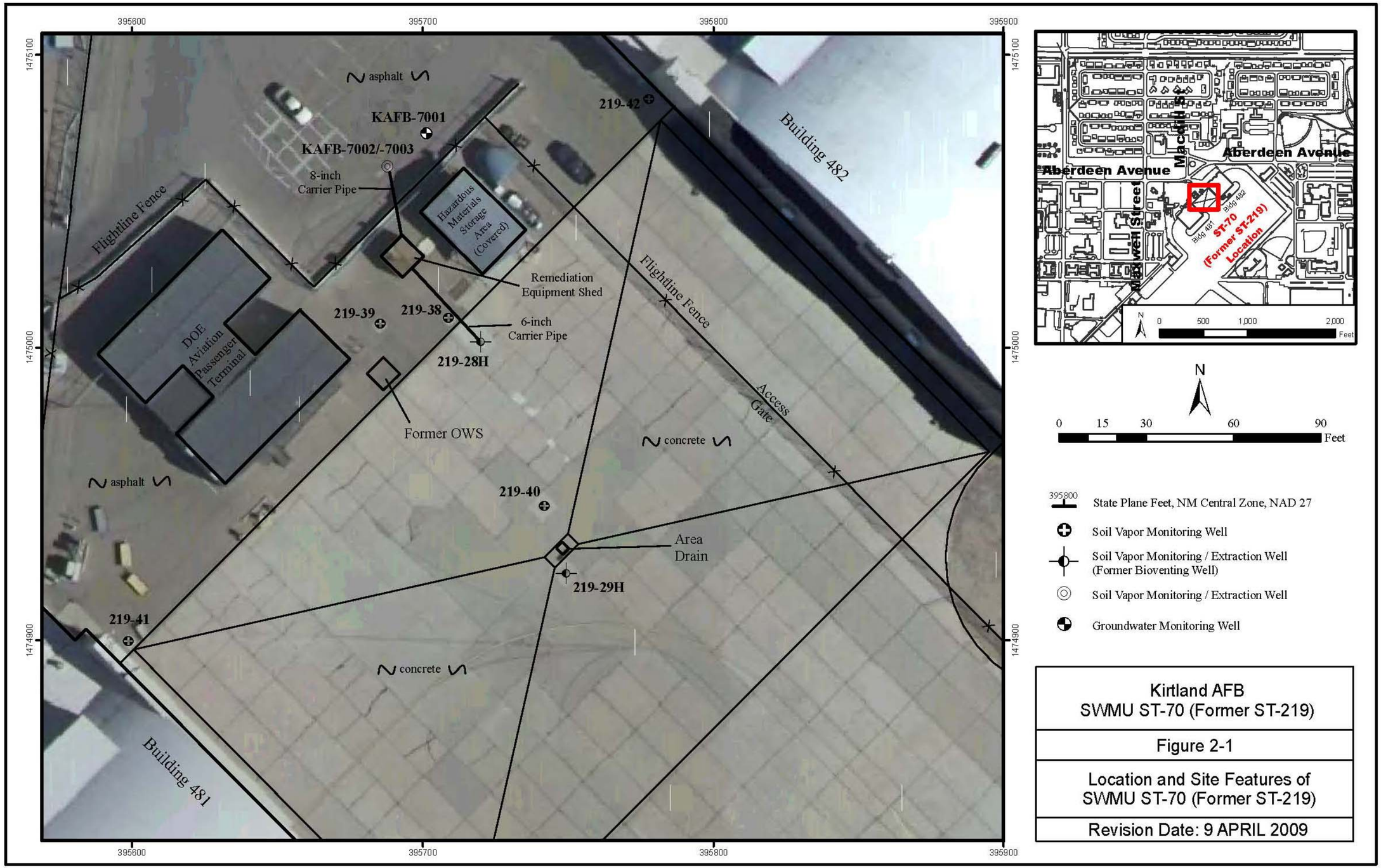
The OWS at SWMU ST-70 was identified as a contaminant release site from visual inspections and samples collected from inside the OWS in 1990 and 1992. Several phases of an RFI were performed at the site in subsequent years. Data from these RFIs indicated petroleum hydrocarbon contamination was present in soils and soil vapor adjacent to the OWS. The OWS was removed in 1994 and piping was reconfigured to direct drainage to the sanitary sewer. A covered hazardous materials storage and containment area is present within the flightline fence to the northeast of the SWMU ST-70 (Former ST-219) OWS location. The hazardous materials storage area consists of a concrete pad surrounded by a 6-inch concrete containment curb. A floor drain within the hazardous materials storage area which formerly led to the OWS has also been re-directed to the sanitary sewer.

2.2 Soil Vapor Extraction System Construction and Operation

The SVE system was installed within the flightline fence, between the hazardous waste storage area and the DOE contractor passenger terminal trailers. The SVE system is contained primarily within a wooden 10-ft x 12-ft storage shed. The shed houses the extraction blower, above grade piping, gauges, and carbon vessels that are connected to subsurface piping for three extraction wells (219-28H, KAFB-7002, and KAFB-7003).

Between November 2007 and April 2008, the pilot-scale SVE system was modified into a full-scale SVE system with vapor monitoring wells KAFB-7002 and KAFB-7003 converted into extraction wells. The full-scale SVE system was put into operation on April 15, 2008. The performance of the SVE operations is monitored using soil vapor monitoring points, soil vapor extraction wells, and groundwater monitoring well KAFB-7001. Site features and locations are presented in Figure 2-1.

Operational SVE efficiency in terms of contaminant mass removal has been observed to fluctuate seasonally and a rebound study was proposed in prior ICM monitoring reports (USAF, 2011; USAF, 2012a). A limited rebound study was implemented in June 2011 and the results indicated that extended downtime would not result in significant environmental impacts. An extended rebound study was implemented from January to April 2012. The results indicated that seasonal downtime of between one and three months would decrease the volume of waste generated and reduce wear on SVE components without significant adverse effects on the ICM performance (USAF, 2012b).



Kirtland AFB
SWMU ST-70 (Former ST-219)

Figure 2-1

Location and Site Features of
SWMU ST-70 (Former ST-219)

Revision Date: 9 APRIL 2009

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2.3 System Operations and Maintenance

The SVE system at SWMU ST-70 (Former ST-219) operated under the same flow configuration, and with little downtime during the reporting period from July through December 2012. The SVE system operated without significant maintenance issues except for one power disruption in November 2012.

2.3.1 Operating Hours and System Maintenance

The SVE system operated for a total of 167 days during this monitoring period with one unplanned downtime and with minimal downtime for routine monitoring and maintenance activities. One power disruption to the site occurred in November and was restored during the subsequent routine inspection and maintenance visit. According to DOE engineers, power supplies to portions of Hangar Building 481 was disrupted on November 9 and 10, 2012. Power was restored subsequent to a system inspection by resetting the main electrical breaker to the SVE shed on November 16. Scheduled shutdowns during this reporting period were effectively minimized and lasted no longer than 1 hour each. The SVE system was off for monitoring and maintenance for approximately 3 hours during this monitoring period.

Routine maintenance activities included exchange of granular activated carbon (GAC) exhaust treatment vessels, draining of line water condensate liquids, waste management, and replacement of corroded metal lock and fittings on SVE shed, and in one vapor monitoring point. (Field monitoring and maintenance records are presented in Appendix A. Waste disposal records are presented in Appendix B). No non-routine maintenance was performed, and inspections did not indicate that maintenance would be needed during the scheduled winter downtime.

Site monitoring and operational data were reviewed by Kirtland AFB during a status meeting on December 18, 2012. Initial reviews of site data and recommendations from previous monitoring reports were used to designate the seasonal down-time from December 21, 2012 to March 15, 2013.

During the reporting period, approximately 1.4×10^7 cubic feet (ft^3) (4.1×10^8 liters) of soil vapor were extracted and treated. From the time the SVE system was placed into full-scale operation on April 15, 2008 through the end of the reporting period, the SVE system has operated for approximately 1,447 days and has extracted and treated approximately 1.3×10^8 ft^3 (3.8×10^9 liters) of soil vapor. The current reporting period operational statistics are presented in Table 2-1.

Table 2-1. Soil Vapor Extraction System Operation and Downtime at Solid Waste Management Unit ST-70

Date	SVE Down Time (hours)	Cumulative Time		Percent Downtime (%)	Flow Rate (scfm)	Cumulative Volume Extracted (ft^3)	Notes[a]
		Total Downtime (days)	Total Operation Time (days)				
Previously Reported Operation (April 2008 through June 2012)							
04/15/08	N/A	0	0	0	70	0	Initial start-up
06/30/12	0.0	14.05	1280	1.10	62	1.18E+08	End of previous reporting periods
07/11/12	0.5	14.07	1291	1.09	64	1.19E+08	Maintenance downtime
08/23/12	0.6	14.09	1334	1.06	61	1.23E+08	Monitoring downtime
09/14/12	0.5	14.12	1356	1.04	62	1.25E+08	Maintenance downtime
10/12/12	0.4	14.13	1384	1.02	65	1.27E+08	Monitoring downtime
11/16/12	168	21.13	1412	1.50	58	1.30E+08	Power outage downtime
12/13/12	0.75	21.16	1439	1.47	54	1.32E+08	Maintenance downtime
12/21/12	0.2	21.17	1447	1.46	54	1.32E+08	Scheduled downtime begins
12/31/12	0.0	21.17	1447	1.46	0	1.32E+08	End of reporting period

[a] Items noted as maintenance downtime indicate that the SVE system was off for a minimal amount of time
ft^3 = cubic feet
N/A = not applicable
scfm = standard cubic feet per minute
SVE = soil vapor extraction

2.3.2 SVE System Configuration

The combined intake of the SVE system remained consistent at rates between 61 and 66 cubic feet per minute (cfm) during the summer months, and decreased to 54 cfm in the winter. SVE efficiency decreased during the winter months due to the presence of condensate liquids in the SVE lines. Regular maintenance was performed in November and December 2012 to minimize condensate build up.

The intake configuration is maintained to maximize intake contaminant concentrations and provide protection of groundwater quality. Flow from ST-70-02 was closed completely and ST-70-03 was closed to approximately 15 percent in July 2012 to maximize air flow in the shallow vadose zone where the highest contaminant concentrations were observed. However, a minor amount of flow from ST-70-02 leaked through the closed valve. The SVE well ST219-28H was operated completely open because the highest overall contaminant concentrations were detected at this well.

The following flow rates were recorded during this monitoring period:

40 to 50 cfm from ST219-28H;

0 to 2 cfm from ST-70-02 (extraction point closed); and

8 to 14 cfm from ST-70-03.

Maintenance activities are summarized in Table 2-2.

Table 2-2. Soil Vapor Extraction System Operation and Maintenance at Solid Waste Management Unit ST-70

Date	Down Time (hours)	Maintenance Performed	Notes
07/11/12	0.50	SVE system inspection, Monthly field monitoring, GAC change	System flow and pressure readings were collected. General chemical parameter and pressure readings were collected at all active locations.
08/23/12	0.60	SVE system Inspection, Quarterly vapor and groundwater sampling, Field monitoring,	The third quarter 2012 groundwater and soil vapor samples were collected. General chemical parameter and pressure readings were collected at all active
09/14/12	0.50	SVE system Inspection, SVE system readings, GAC change	System flow and pressure readings were collected.
09/20/12	0.00	Remediation waste removed for offsite	
10/11/12	0.00	Quarterly groundwater sampling	The fourth quarter 2012 groundwater sample was collected.
10/12/12	0.40	SVE system Inspection, Quarterly vapor sampling, Quarterly field monitoring, GAC change	The fourth quarter 2012 soil vapor samples were collected. General chemical parameter and pressure readings were collected at all active locations.
11/16/12	168.00	SVE system Inspection, SVE system readings,	Determine that power outage disturbed SVE operation for approximately 1 week
12/13/12	0.75	SVE system Inspection, SVE system readings, GAC change, Drain line condensate	System flow and pressure readings were collected. Regular maintenance was performed.
12/21/12	0.20	Site inspection, Drain line condensate, Off for scheduled	Regular maintenance was performed. SVE system was shut down and closed off for scheduled winter downtime[a].

Notes:
(a) The winter downtime is tentatively scheduled from December 21, 2012 to March 15, 2013
GAC = granular activated carbon
N/A = not applicable
SVE = soil vapor extraction

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3.0 SOIL VAPOR, GROUNDWATER, AND SYSTEM PERFORMANCE DATA

This section presents the monitoring analytical data collected from the site and treatment system at SWMU ST 70 (Former ST-219) for the current reporting period between July 2012 and December 2012. A brief discussion of the detected constituents and contaminant mass removal calculations for the ICM are also presented.

3.1 Monitoring Activities

During this six-month reporting period the following activities were performed:

- Two vapor sampling events were conducted, in August and October of 2012;
- Two groundwater sampling events were conducted, in August and October of 2012; and
- Six field monitoring events between July and December of 2012.

Monthly field monitoring continues to be performed for vapor pressures and SVE system flow rates. Field monitoring for chemical parameters had been scheduled at a quarterly frequency during active SVE operation and monthly during the winter downtime as a result of recommendations from the previous monitoring report (USAF, 2012b).

The following parameters are monitored quarterly by field instrumentation at active monitoring wells and from the SVE system sample ports:

- Vapor pressures or vacuums;
- Total VOCs by photoionization detector;
- Fixed gasses by air monitoring meter; and
- Water table elevation and quality readings (pH, temperature, specific conductance, and turbidity) for the groundwater monitoring location KAFB-7001.

Vapor pressures and SVE system pressures and flow rates are monitored monthly. Total VOC readings by photoionization detector will be measured monthly during the scheduled winter downtime between December 21, 2012 and March 15, 2013. Significant increases in field readings may prompt early re-start of the SVE system.

Quarterly sampling is also performed at all active monitoring wells and from the SVE system sample ports for laboratory analysis. The following laboratory analysis is performed for vapor samples:

- VOCs by the U.S. Environmental Protection Agency (EPA) Method TO 15;
- TPH-gasoline by EPA Method SW8015M; and
- Fixed gasses by Method SM2720C.

The following laboratory analysis is performed for groundwater samples from monitoring well KAFB-7001:

- VOCs by the EPA Method SW8260B;
- TPH-gasoline by EPA Method SW8015;
- Nitrate-nitrogen by EPA Method E300; and
- Dissolved RCRA metals by Methods SW6010C and SW7470A.

Soil vapor and SVE system vapor analytical results are presented in Section 3.1, and analytical results of groundwater monitoring are presented in Section 3.2. Field monitoring data are presented in Appendix A, and data quality evaluation reports of laboratory analytical data is presented in Appendix C.

3.2 Soil Vapor Monitoring Results

Contaminants detected in soil vapor are primarily associated with chlorinated solvents and their breakdown products, and fuel compounds and their metabolism daughter products. VOC contaminants were detected at highest concentrations adjacent to the former OWS and the area drain. Concentrations and detection patterns were consistent with recent historical values. Vapor monitoring data are presented in Table 3-1, and concentration trends of primary COPCs are presented in Figures 3-1 to 3-4.

During the reporting period, 13 contaminants related to chlorinated solvents were detected, and 11 of these were COCPs. However, only PCE, TCE and cis-1,2-DCE were detected at relatively high concentrations (above 500 ppb). Highest concentrations of all three of these compounds were detected at vapor point 219-39-42 during the August 2012 monitoring event. This location is the shallow sample port adjacent to the former OWS. Sample results from the October 2012 event at this one location were invalidated do to atmospheric leaks into the sample from a faulty sample port. The sample valve has been replaced to prevent future errors.

Ten contaminants related to fuels were detected, all of which were COCPs. However, only 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzen, xylenes, and TPH-gasoline were detected at relatively high concentrations (above 500 ppb). The highest concentrations of all three of these analytes were detected at vapor point 219-40-20 during the October 2012 monitoring event. This location is the shallow sample port adjacent to the area drain.

In addition to fuel and solvent related contaminants, three chlorofluorocarbons and one brominated VOC were detected during this reporting period. All of these detections were at low concentrations (below 10 ppb) and with no spatial pattern.

Pressure readings (in Appendix A) indicate that the SVE system is performing as designed, and that the system has an area of influence across a large portion of the shallow vadose zone beneath the site. Vapor monitoring points are typically subject to a low vacuum across much of the monitoring area, indicating vapor flow to the SVE system. During the monitoring period some positive soil vapor pressures are recorded as atmospheric temperature or pressure decreases.

Flow rates from SVE wells are consistent with the current extraction configuration, which is designed to maximize flow from the shallow vadose zone.

Table 3-1. July through December 2012 Soil Vapor Analytical Sample Results at Solid Waste Management Unit ST-70 (Page 1 of 2)

Chemical Class & Analytical Method	Location	Inlet		Exhaust		Mid-Carbon		70-01		70-02		70-03		219-28H		219-29H		219-38-41		219-38-99		219-39-42		219-40-20		219-41	
	Sample ID	ST70-AR-Inlet-230812	ST70-AR-Inlet-121012	ST70-AR-Exhaust-230812	ST70-AR-Exhaust-121012	ST70-AR-MID-230812	ST70-AR-Mid-121012	ST219-AR-7001-230812	ST219-AR-7001-121012	ST219-AR-7002-230812	ST219-AR-7002-121012	ST219-AR-7003-230812	ST219-AR-7003-121012	ST219-AR-28H-230812	ST219-AR-28H-121012	ST219-AR-29H-230812	ST219-AR-29H-121012	ST219-AR-38-41-230812	ST219-AR-38-41-121012	ST219-AR-38-99-230812	ST219-AR-38-99-121012	ST219-AR-39-42-230812	ST219-AR-39-42-121012	ST219-AR-40-20-230812	ST219-AR-40-20-121012	ST219-AR-41-230812	ST219-AR-41-121012
	Sample Date	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012
	Analyte / Screen Depth	not applicable		not applicable		not applicable		454-479		85-90		315-330		10-35 / 50-90		50-90		38-43		98-103		40-45		18-23		10-15	
VOCs (ppbv) Method TO-15[a]	1,1,1-Trichloroethane	<3.12	<4.02	2.69 J	0.57 J	1.8 J	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	1.58	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,1,2,2-Tetrachloroethane	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,1,2-Trichloroethane	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,1,2-Trichloro-1,2,2-trifluoroethane	<3.12	<4.02	3.84 J	1.04	2.07 J	<0.31	<0.26	<0.38	1.75 J	<0.62	1.89 J	2.61 J	<3.21	1.76 J	2.99	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,1-Dichloroethane	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	0.36 J	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,1-Dichloroethene	<3.12	13.7	25.8	6.3	9.07	0.51 J	<0.26	<0.38	<1.29	<0.62	1.77 J	2.96 J	<3.21	13.4	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,2,4-Trichlorobenzene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	7.85 J	<33.3	3.28 J	175 J	31.2 J	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,2,4-Trimethylbenzene	<3.12	226	2.93 J	6.35	13.2	16.1	<0.26	<0.38	1.9 J	4.9	2.45	4.4	4.24 J	203	1.37	1,060	504	501	772	4,270	57.3 J	164NR	5,090	19,900	14.5	17.1
	1,2-Dichloroethane (EDC)	<3.12	<4.02	3.76 J	0.79 J	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,2-Dichlorobenzene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,2-Dichloro-1,1,2,2-tetrafluoroethane	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,2-Dichloropropane	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,2-Dibromoethane (EDB)	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,3,5-Trimethylbenzene	5.68 J	229	2.52 J	4.01	51	15.5	<0.26	<0.38	1.94 J	3.68	2.29	3.17 J	6.68 J	191	5.05	948	561	384	773	2,630	55.8 J	127NR	4,350	12,000	11.7	9.63
	1,3-Dichlorobenzene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	1,4-Dichlorobenzene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Acetone	<3.12	32.7	46	110	33.1	4.95	15.6	22.1	16.6	21	8.98	8.36	24.1	14	14.8	<3.9	<33.3	32.5	314	149 J	<41.7	<18NR	<40.5	<53.6	25.8	4.87
	Benzene	<3.12	<4.02	1.37 J	0.92 J	<1.59	<0.31	<0.26	1.81	<1.29	0.67 J	0.65 J	3.1 J	<3.21	2.37 J	<0.27	<3.9	<33.3	<3.02	36.1 J	<22.7	348	64NR	<40.5	<53.6	<1.36	0.56 J
	Bromomethane	<3.12	<4.02	<1.29	7.19	1.6 J	<0.31	0.55 J	0.95 J	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	0.59 J	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Carbon tetrachloride	<3.12	5.2 J	1.46 J	1.41	2.91 J	<0.31	<0.26	<0.38	2.97 J	1.07 J	6.92	11	<3.21	3.2 J	2.17	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Chlorobenzene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Chloroethane	<3.12	<4.02	<1.29	2.74	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Chloroform	6.03 J	11.6 J	16.7	3.99	12.2	0.45 J	<0.26	<0.38	12.8	11	5.82	7.48	6.06 J	10.3	6.64	<3.9	<33.3	<3.02	97.7 J	61.3 J	62.4 J	<18NR	<40.5	<53.6	3.26 J	0.35 J
	Chloromethane	<3.12	<4.02	1.57 J	9.01	2.19 J	0.64 J	0.3 J	2.01	<1.29	0.64 J	<0.64	<1.01	<3.21	<1.53	0.68 J	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	cis-1,2-Dichloroethene	63	118	268	50.1	198	4.85	<0.26	<0.38	14	8	8.15	6.04	67	130	3.37	47.9	5,770	667	2,550	569	11,900	1700NR	551	159 J	1.78 J	1.49
	cis-1,3-Dichloropropene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Dichlorodifluoromethane	<3.12	<4.02	<1.29	0.46 J	<1.59	0.44 J	0.48 J	0.41 J	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	0.43 J	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	0.44 J
	Ethylbenzene	<3.12	6.6 J	<1.29	<0.31	2.74 J	0.4 J	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	5.59	0.68 J	18	<33.3	25.9	167	110	<41.7	<18NR	372	386	1.68 J	0.31 J

Table 3-1. January through June 2012 Soil Vapor Analytical Sample Results at Solid Waste Management Unit ST-70 (Concluded, Page 2 of 2)

Chemical Class & Analytical Method	Location	Inlet		Exhaust		Mid-Carbon		70-01		70-02		70-03		219-28H		219-29H		219-38-41		219-38-99		219-39-42		219-40-20		219-41	
	Sample ID	ST70-AR-Inlet-230812	ST70-AR-Inlet-121012	ST70-AR-Exhaust-230812	ST70-AR-Exhaust-121012	ST70-AR-MID-230812	ST70-AR-Mid-121012	ST219-AR-7001-230812	ST219-AR-7001-121012	ST219-AR-7002-230812	ST219-AR-7002-121012	ST219-AR-7003-230812	ST219-AR-7003-121012	ST219-AR-28H-230812	ST219-AR-28H-121012	ST219-AR-29H-230812	ST219-AR-29H-121012	ST219-AR-38-41-230812	ST219-AR-38-41-121012	ST219-AR-38-99-230812	ST219-AR-38-99-121012	ST219-AR-39-42-230812	ST219-AR-39-42-121012	ST219-AR-40-20-230812	ST219-AR-40-20-121012	ST219-AR-41-230812	ST219-AR-41-121012
	Sample Date	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012	8/23/2012	10/12/2012
	Analyte Screen Depth	not applicable		not applicable		not applicable		454-479		85-90		315-330		10-35 / 50-90		50-90		38-43		98-103		40-45		18-23		10-15	
VOCs (ppbv) Method TO15[a]	Hexachlorobutadiene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	136	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	m,p-Xylene	<6.24	31.3	2.71 J	<0.62	10.7	1.99 J	<0.52	<0.77	<2.58	<1.25	1.37 J	<2.02	<6.42	31	2.71	163	411	168	633	343	<83.4	<35NR	4,180	3,200	6.35 J	1.34 J
	MEK (2-Butanone)	<3.12	<4.02	<1.29	22.4	<1.59	0.82 J	2.15	4.18	2.06 J	3.96 J	<0.64	<1.01	<3.21	4.46 J	4.41	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	6.16 J	0.78 J
	Methylene chloride	<3.37	4.13 J	2.15 J	0.78 J	<2.61	0.39 J	<0.58	0.63 J	<1.53	0.71 J	<1.37	1.45 J	<3.32	1.88 J	<1.09	4.91 J	<33.3	<3.02	<45.2	24.4 J	47.8 J	<18NR	<40.5	<53.6	<2.92	0.6 J
	MTBE (Methyl tert-butyl ether)	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	o-Xylene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	0.83 J	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Styrene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	TCE (Trichloroethene)	209	422	417	140	502	18.6	<0.26	5.35	408	213	255	330	210	399	84	10 J	1,040	67	8,530	7,370	20,600	4000NR	247	87.9 J	5.83	6.08
	PCE (Tetrachloroethene)	183	345	75	84.8	214	18	<0.26	0.39 J	23	13.3	19	4.26	200	401	59.8	8.47 J	68.4 J	7.35 J	146	110	3,560	731NR	<40.5	<53.6	39.5	13.3
	Toluene	<3.12	<4.02	<1.29	0.5 J	<1.59	<0.31	<0.26	0.62 J	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	0.28 J	<3.9	<33.3	3.47 J	39.4 J	<22.7	114 J	18NR	65.1 J	<53.6	<1.36	<0.3
	trans-1,3-Dichloropropene	<3.12	<4.02	<1.29	<0.31	<1.59	<0.31	<0.26	<0.38	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
	Trichlorofluoromethane	<3.12	<4.02	3.85 J	1.23	2.34 J	<0.31	<0.26	<0.38	1.83 J	0.78 J	1.53 J	1.88 J	<3.21	2 J	3.98	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	3.39 J	1.21
	Vinyl chloride	<3.12	<4.02	<1.29	0.52 J	<1.59	<0.31	<0.26	0.88 J	<1.29	<0.62	<0.64	<1.01	<3.21	<1.53	<0.27	<3.9	<33.3	<3.02	<30.6	<22.7	<41.7	<18NR	<40.5	<53.6	<1.36	<0.3
TPH-Gasoline (µg/L) SW8015M[b]	Gasoline Range Organics (GRO)	585	939	89	104	256	94	<15.8	<15.4	71.8	<41.4	62.8	<36.3	524	1,010	<40.9	911	4,000	2,120	3,490	3,470	709	704NR	6,590	9,160	174	46.9 J
Fixed Gases (%) Method SM2720C[c]	Carbon Dioxide	5.12	1.4	5.03	0.4	5.47	0.1	<0.15	<0.15	1.34	0.7	0.3 J	0.2	5.11	1.9	7.41	3.8	12.5	3.2	15.9	7.5	18.2	2.8NR	12.8	11.5	1.31	0.3
	Carbon Monoxide	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.16	<0.15	<0.15	<0.15	<0.16	<0.16	<0.15	<0.2NR	<0.16	<0.15	<0.16	<0.15
	Methane	<0.14	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.16	<0.15	1.07	0.2	<0.16	<0.16	<0.15	<0.2NR	0.36 J	<0.15	<0.16	<0.15
	Nitrogen	76.2	131 UR	76.3	132 UR	76.3	130 UR	74.5	128 UR	74.6	132 UR	74.9	130 UR	76.2	129 UR	75.6	128 UR	75.4	125 UR	77.2	130 UR	76.9	129 UR	74.8	128 UR	74.2	127 UR
	Oxygen	18.7	15.7	18.7	17.1	18.3	18.1	25.6	19.3	24	16.7	24.8	17.2	18.7	16	17	13.8	11	17.2	6.87	15.8	4.94	15NR	12.1	5.3	24.5	17.9

[a] EPA, 1999. Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air-Second Edition. U.S. Environmental Protection Agency. EPA/625/R-96/010b. January.
[b] EPA, 1996. *EPA Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846) 3rd ed. with updates*. U.S. Environmental Protection Agency.
[c] AWWA, 1998. Standard Methods for the Examination of Water and Wastewater, 20th Edition. American Water Works Association.
Shading indicates the analyte was detected.
% = percent
ID = identification
J = estimated value, the concentration is less than PQL but greater than Laboratory MDL
UR = rejected value. This compoud was introduced at the laboratory during sample extraction.
MDL = method detection limit
NR = Data not representative due to air leaks from sample port. Data was invalidated during data validation.
ppbv = parts per billion by volume
PQL = practical quantitation limit
TPH = total petroleum hydrocarbons
µg/L = microgram per liter
VOC = volatile organic compound

Figure 3-1. Tetrachloroethene Vapor Concentrations at Solid Waste Management Unit ST-70 Soil Vapor Extraction Wells

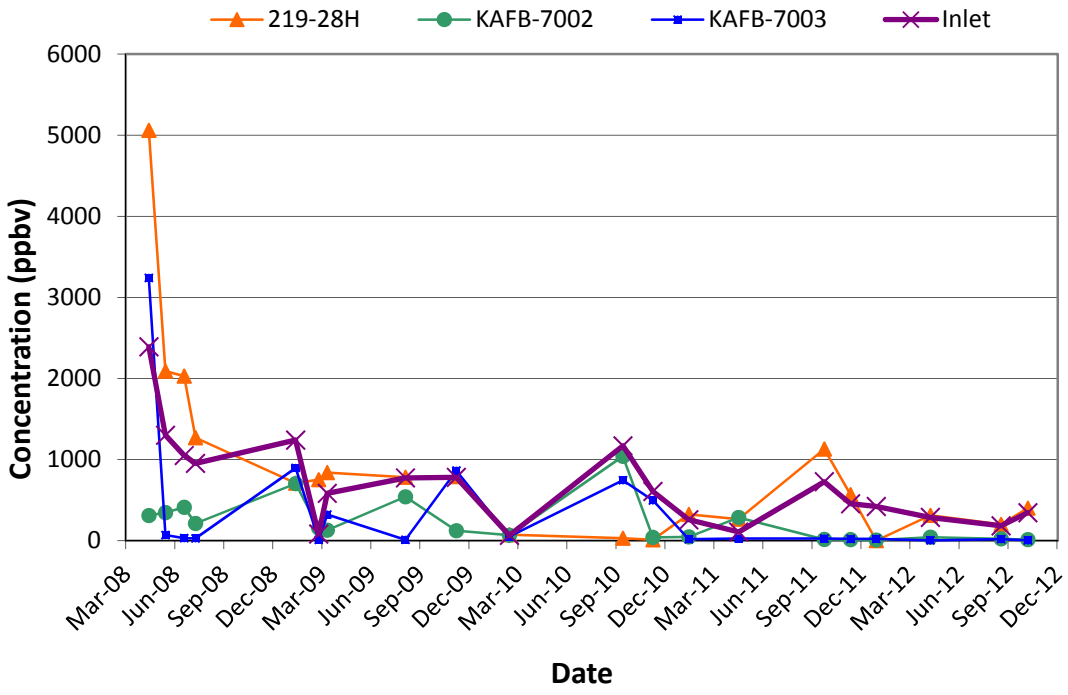


Figure 3-2. Trichloroethene Vapor Concentrations at Solid Waste Management Unit ST-70 Soil Vapor Extraction Wells

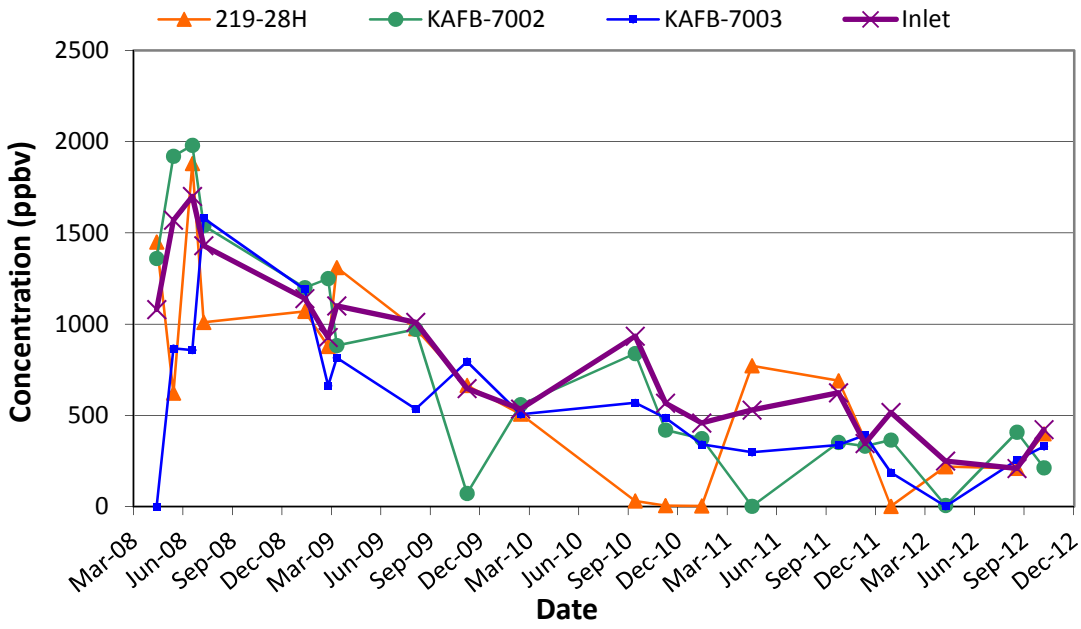


Figure 3-3. Trichloroethene Vapor Concentrations at Solid Waste Management Unit ST-70 Soil Vapor Monitoring Points

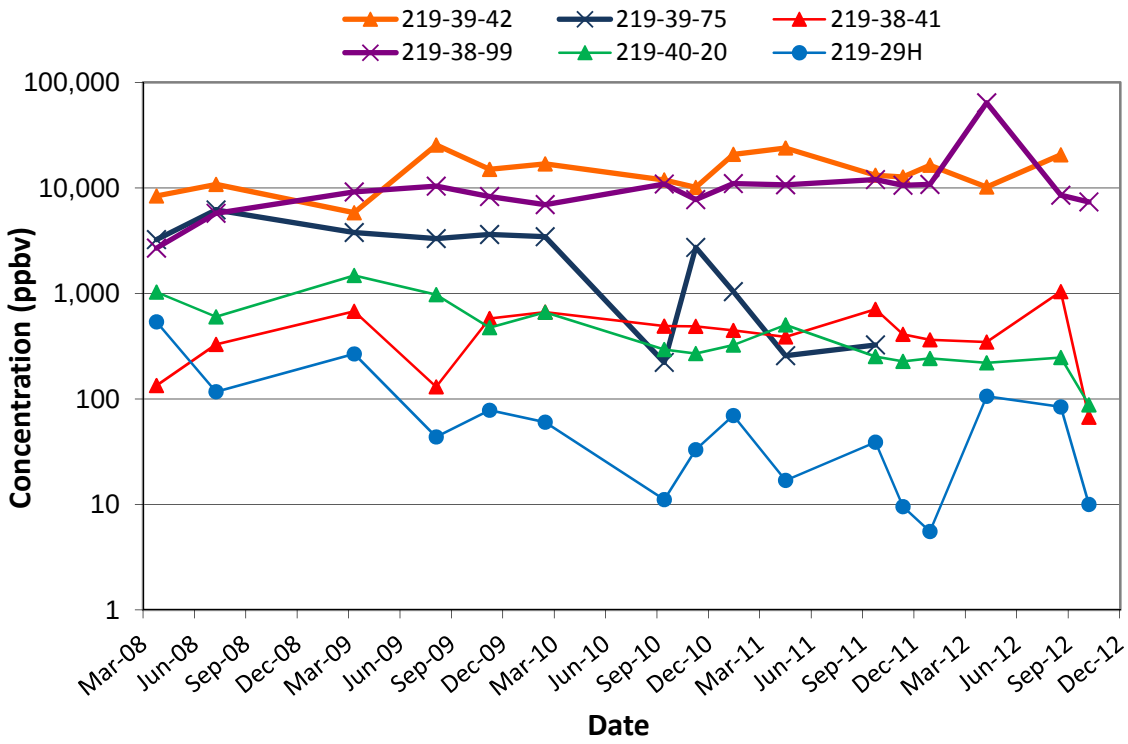
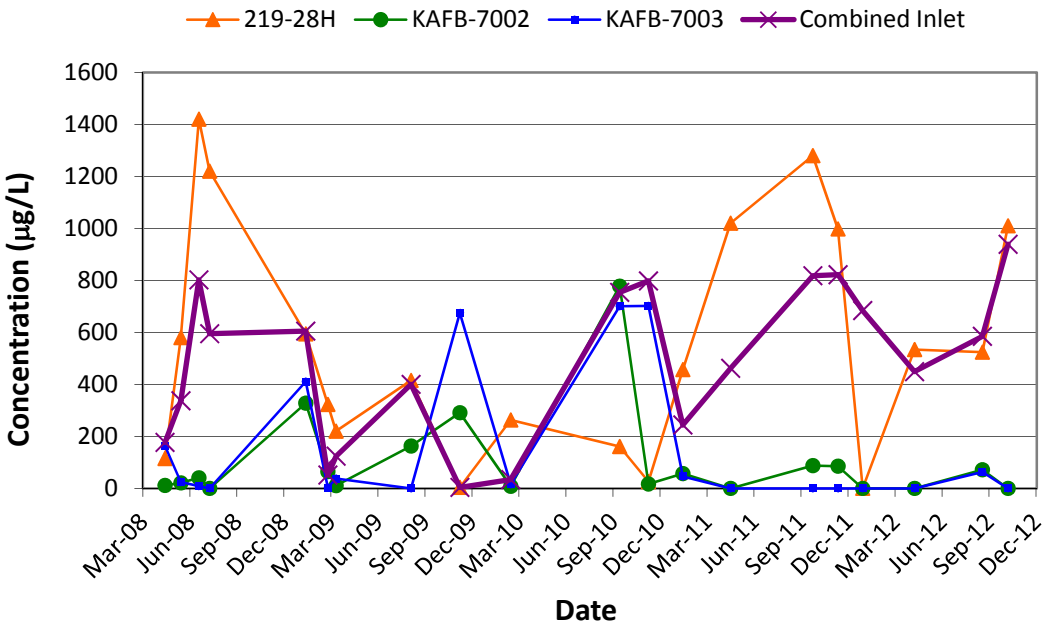


Figure 3-4. Total Petroleum Hydrocarbon-Gasoline Vapor Concentrations at Solid Waste Management Unit ST-70 Soil Vapor Extraction Wells



3.3 Groundwater Monitoring Results

The purpose of groundwater monitoring is to evaluate whether soil vapor COPCs have impacted groundwater in this area. To date, groundwater has not been impacted at concentrations above regulatory standards. Monitoring for nitrate-nitrogen and dissolved metals is performed to provide supplementary data for upgradient and cross-gradient contaminant plumes and these contaminants are not SWMU ST-70 COPCs.

The primary COPC in groundwater at the KAFB-7001 monitoring well is TCE, which was detected at concentrations of 1.6 and 1.7 μg/L in August 2012 and October 2012 respectively. Concentrations of TCE have increased in 2012, but remain significantly below regulatory standards. Chloroform, chloromethane, and dichlorobromomethane were detected at low J-flagged concentrations below 1 μg/L. No fuel-related COPCs were detected during this monitoring period. Complete groundwater sample laboratory analytical results are presented in Table 3-2. Trends of TCE concentrations are presented in Figure 3-5.

Table 3-2. Groundwater Analytical Results at Solid Waste Management Unit ST-70 (Page 1 of 2)

Chemical Class & Analytical Method	Analyte	Location	KAFB-7001	KAFB-7001
		Sample Date	8/23/2012	10/10/2012
		Sample ID	ST70-GW-7001-230812	ST70-GW-7001-101012
		EPA MCLs [a]		
VOCs (µg/L) Method SW8260B[b]	1,1,1,2-Tetrachloroethane	N/A	<0.2	<0.2
	1,1,1-Trichloroethane	60 [c]	<0.2	<0.2
	1,1,2,2-Tetrachloroethane	10 [c]	<0.4	<0.4
	1,1,2-Trichloroethane	5.0	<0.4	<0.4
	1,1-Dichloroethane	25 [c]	<0.2	<0.2
	1,1-Dichloroethene	5.0 [c]	<0.2	<0.2
	1,1-Dichloropropene	N/A	<0.4	<0.4
	1,2,3-Trichlorobenzene	N/A	<0.4	<0.4
	1,2,3-Trichloropropane	N/A	<0.8	<0.8
	1,2,4-Trichlorobenzene	70	<0.8	<0.8
	1,2,4-Trimethylbenzene	N/A	<0.2	<0.2
	1,2-Dibromo-3-chloropropane (DBCP)	0.2	<1.6	<1.6
	1,2-Dibromoethane (EDB)	0.05	<0.2	<0.2
	1,2-Dichlorobenzene	600	<0.2	<0.2
	1,2-Dichloroethane	5.0	<0.2	<0.2
	1,2-Dichloropropane	5.0	<0.2	<0.2
	1,3,5-Trimethylbenzene	N/A	<0.4	<0.4
	1,3-Dichlorobenzene	N/A	<0.2	<0.2
	1,3-Dichloropropane	N/A	<0.2	<0.2
	1,4-Dichlorobenzene	75	<0.4	<0.4
	2,2-Dichloropropane	N/A	<0.4	<0.4
	2-Butanone (MEK)	N/A	<3.2	<3.2
	2-Chlorotoluene	N/A	<0.4	<0.4
	2-Hexanone	N/A	<3.2	<3.2
	4-Chlorotoluene	N/A	<0.4	<0.4
	4-Isopropyltoluene	N/A	<0.4	<0.4
	4-Methyl-2-pentanone	N/A	<3.2	<3.2
	Acetone	N/A	<6.4	<2.8
	Benzene	5.0	<0.2	<0.2
	Bromobenzene	N/A	<0.2	<0.2
	Bromoform	N/A	<0.4	<0.4
	Bromomethane	N/A	<0.4	<0.4
	Carbon disulfide	N/A	<0.8	<0.8
	Carbon tetrachloride	5.0	<0.4	<0.4
	Chlorobenzene	100	<0.2	<0.2
	Chloroethane	N/A	<1.6	<1.6
	Chloroform	100 [c]	0.2 J	0.17 J
	Chloromethane	N/A	<1.6	0.82 J
	cis-1,2-Dichloroethene	70	<0.2	<0.2
	cis-1,3-Dichloropropene	N/A	<0.2	<0.2
	Dibromochloromethane	N/A	0.28 J	0.29 J
	Dibromomethane	N/A	<0.2	<0.2
	Dichlorodifluoromethane	N/A	<0.8	<0.8
	Ethylbenzene	700	<0.2	<0.2
	Hexachlorobutadiene	N/A	<0.4	<0.4
	Isopropylbenzene	N/A	<0.4	<0.4
	Methylene chloride	N/A	<0.4	<1.3
	Methyl tert-butyl ether (MtBE)	5.0	<0.4	<0.4

Table 3-2. Groundwater Analytical Results at Solid Waste Management Unit ST-70 (Concluded, Page 2 of 2)

Chemical Class & Analytical Method	Analyte	Location	KAFB-7001	KAFB-7001
		Sample Date	8/23/2012	10/10/2012
		Sample ID	ST70-GW-7001-230812	ST70-GW-7001-101012
		EPA MCLs [a]		
VOCs (µg/L) Method SW8260B[b]	Naphthalene	30 [d]	<0.8	<0.8
	n-Butylbenzene	N/A	<0.4	<0.4
	n-Propylbenzene	N/A	<0.2	<0.2
	sec-Butylbenzene	N/A	<0.4	<0.4
	Styrene	100	<0.4	<0.4
	tert-Butylbenzene	N/A	<0.4	<0.4
	Tetrachloroethene	5.0	<0.4	<0.4
	Toluene	750 [c]	<0.4	<0.4
	trans-1,2-Dichloroethene	100	<0.2	<0.2
	trans-1,3-Dichloropropene	N/A	<0.4	<0.4
	Trichloroethene	5.0	1.6	1.7
	Trichlorofluoromethane	N/A	<0.8	<0.8
	Vinyl chloride	1.0 [c]	<0.8	<0.8
	Xylenes (total)	620 [c]	<0.8	<0.8
TPH (mg/L) EPA Method 8015	Gasoline Range Organics (GRO) C6-C10	N/A	<20	<20
Dissolved Metals (mg/L) EPA Methods SW6010C[b] and SW7470A[b]	Arsenic	0.01	< 0.012	< 0.012
	Barium	2.0	0.044	0.043
	Cadmium	0.05	< 0.00008	< 0.00008
	Chromium	0.05	0.0047 J	< 0.0015
	Lead	0.015	< 0.005	< 0.005
	Selenium	0.05	0.022	0.025
	Silver	0.1	< 0.002	< 0.002
	Mercury	0.00063 [c]	< 0.00008	< 0.00008
Anions (mg/L) EPA Method 300	Nitrate as nitrogen	10	6.8	6.8

[a] EPA National Primary Drinking Water Standards - Maximum Contaminant Levels (MCLs) unless otherwise specified.

[b] Analytical methods are detailed in the EPA, 1993 and EPA, 1996 documents.

[c] Denotes values that are NMWQCC standards that are used because values are lower than the EPA MCLs for the compound.

Shading indicates the analyte was detected

Data Flags:

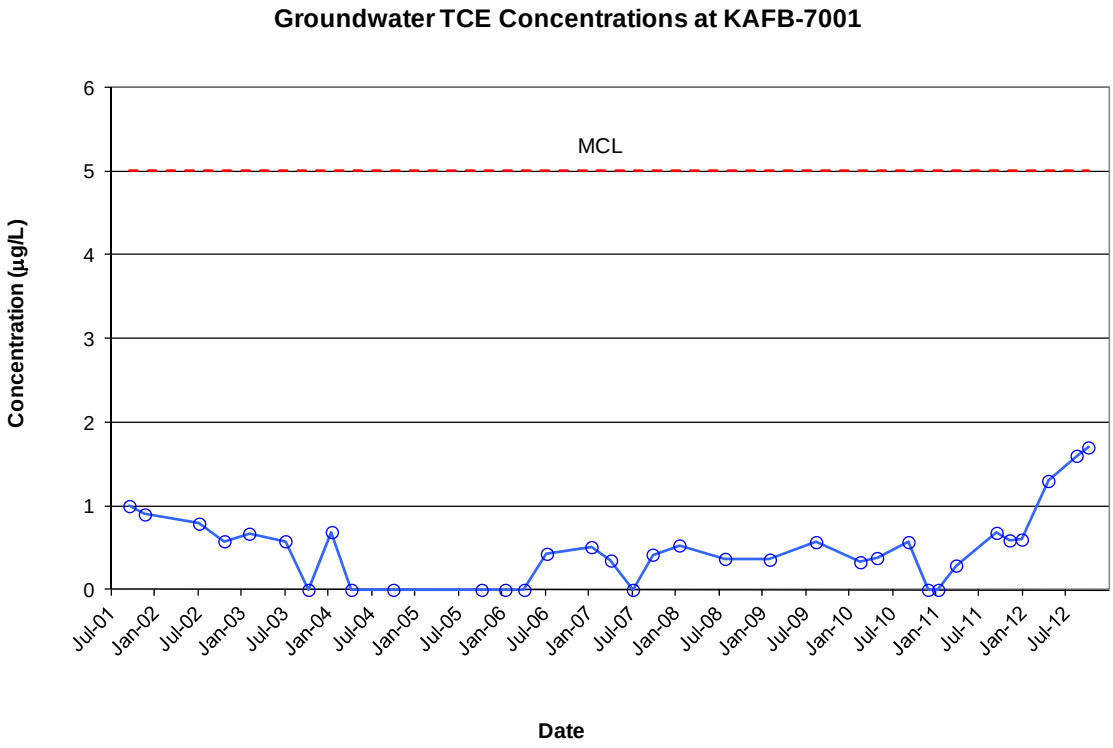
< - The analyte was not detected above the associated method detection limit (MDL).

J - estimated value, concentration is less than the practical quantitation limit, but greater than Laboratory MDL.

Abbreviations and acronyms:

µg/L = micrograms per liter
mg/L = milligrams per liter
EPA = U.S. Environmental Protection Agency
ID = identifier
MDL = method detection limit
N/A = not applicable
NMWQCC = New Mexico Water Quality Control Commission
VOC = volatile organic compound

Figure 3-5. Trichloroethene Concentrations in Groundwater at Solid Waste Management Unit ST-70



3.4 Soil Vapor Extraction System Performance

This section discusses the operation of the SVE system at SWMU ST-70 (Former ST-219). The system performance is measured by the contaminant mass removed from the subsurface through the extraction wells.

The estimates of contaminant mass removal are calculated using flow readings and laboratory analytical data from the combined inlet of the SVE system (between the blower and the condensate drums). The mass of fuel hydrocarbons is estimated from the TPH-gasoline concentrations, and the mass of halogenated VOCs is estimated from the sum of all halogenated VOC detections.

Mass removal was estimated using the following conversion:

$M = CQT$ (Equation 1)

where: M = cumulative mass removed (kilogram [kg])

C = vapor concentration ppbv converted to kilograms per liter [kg/L])

Q = extraction flow rate (standard cubic feet per minute [ft^3/m] converted to liters per day [L/day])

T = operational period (day)

In order to calculate the mass removal of halogenated VOCs, the concentrations were first converted by analyte from ppbv to µg/L by the following:

$$C = \frac{(conc)(MW)}{RT} \qquad \text{(Equation 2)}$$

where: *conc* = vapor concentration (ppbv)

MW = molecular weight of the analyte

R = ideal gas constant for standard ambient pressure (24.04×10^{-3})

T = temperature for standard ambient temperature (25 ^{o}C)

The sum of all reported halogenated VOC detections are converted to mass by Equation 1. Petroleum mass calculations are determined by using the TPH-gasoline concentrations in µg/L and by multiplying the numbers of liters processed to yield a total mass. Mass removal estimates are presented in Table 3-3.

The rate at which contaminant mass is removed from the subsurface is calculated by dividing the mass calculated in Equation 1 above by the time between sample events:

$$E = M/T \qquad \text{(Equation 3)}$$

where: *E* = estimated mass removal rate (kg or gram [g])

M = mass calculated in Equation 1(kg), mass is converted to grams for halogenated contaminants

T = operational period between sampling events (day)

The mass removal rate estimates are presented in Table 3-4.

Table 3-3. Estimated Total Contaminant Mass Removed at Solid Waste Management Unit ST-70

Period of Performance		Cumulative Volume Extracted (ft^3)	Analytical Data from SVE inlet			Cumulative Mass Removed	
			Dates of Inlet Sample	Sum of Halogenated VOCs (µg/L)	TPH-G (µg/L)	Chlorinated Mass (kg)	TPH Mass (kg)
04/15/08	03/14/09	1.94E+07	multiple	0.4 to 0.9	50 to 800	3.13	2,280
03/14/09	06/30/09	3.00E+07	03/14/09	0.359	51.4	4.20	2,440
07/01/09	09/30/09	3.92E+07	03/14/09	0.359	51.4	5.21	3,480
			08/07/09	0.386	400		
10/01/09	12/31/09	4.68E+07	08/07/09	0.386	400	6.13	3,490
			11/11/09	0.428	3.75		
01/01/10	03/31/10	5.46E+07	11/11/09	0.428	3.75	6.42	3,560
			02/10/10	0.128	34.1		
04/01/10	06/30/10	6.33E+07	02/10/10	0.128	34.1	6.73	3,650
07/01/10	09/30/10	7.22E+07	02/10/10	0.128	34.1	7.94	5,540
			09/17/10	0.482	754		
10/01/10	12/31/10	8.07E+07	09/17/10	0.482	754	8.58	7,460
			11/12/10	0.265	798		
01/01/11	03/31/11	8.65E+07	11/12/10	0.265	798	8.99	7,860
			01/18/11	0.249	244		
04/01/11	06/30/11	9.50E+07	01/18/11	0.249	244	9.39	8,970
			04/21/11	0.167	462		
07/01/11	09/30/11	1.04E+08	04/21/11	0.167	462	10.08	10,970
			09/28/11	0.281	818		
10/01/11	12/31/11	1.11E+08	09/28/11	0.281	818	10.4	12,800
			11/16/11	0.162	822		
01/01/12	06/30/12	1.18E+08	01/03/12	*Rebound Period		10.6	13,600
			04/13/12	0.0990	449		
07/01/12	09/30/12	1.26E+08	04/13/12	0.0990	449	10.8	15,000
			08/23/12	0.0816	585		
10/01/12	12/21/12	1.33E+08	08/23/12	0.0816	585	11.1	16,700
			10/12/12	0.164	939		

ft^3 = cubic foot of soil vapor at standard temperature and pressure
kg = kilograms
µg/L = micrograms per liter
TPH-G = total petroleum hydrocarbon-gasoline
VOCs = volatile organic compound
*No mass was removed during the scheduled downtime from 01/03/12 to 4/20/12

Table 3-4. Estimated Contaminant Mass Removal Rates at Solid Waste Management Unit ST-70

Period of Performance		Chlorinated Mass Removal Rate (kg/day)	TPH Mass Removal Rate (kg/day)
04/15/08	07/10/08	0.0199	15.7
03/14/09	06/30/09	0.0099	1.42
07/01/09	09/30/09	0.0186	19.3
10/01/09	12/31/09	0.01006	0.09
01/01/10	03/31/10	0.00312	0.831
04/01/10	06/30/10	0.00350	0.931
07/01/10	09/30/10	0.01316	20.59
10/01/10	12/31/10	0.00693	20.8
01/01/11	03/31/11	0.00452	4.42
04/01/11	06/30/11	0.00444	12.3
07/01/11	09/30/11	0.00748	21.7
10/01/11	12/31/11	0.00383	19.4
01/01/12	04/20/12	*Rebound Downtime Period	
04/20/12	06/30/12	0.00266	12.0
07/01/12	09/30/12	0.00209	15.0
10/01/12	12/21/12	0.00354	20.3

kg = kilograms
*No mass was removed during the scheduled downtime

Total mass removed by the SVE ICM at SWMU ST-70 is approximately 16,700 kilograms (kg), and mass removal rates continue to remain above 10 kilograms per day (kg/d). During the third calendar quarter of 2012, approximately 1,400 kg of contaminant mass were removed by the SVE system. During the fourth quarter of 2012, approximately 1,700 kg of mass were removed. Less than 1 kg of this total mass was from chlorinated VOCs. These numbers were in the mid to upper range of mass calculation values for recent quarters. Total contaminant mass removal rates have ranges from 4 to 22 kg/d (or 400 to 2,000 kg per quarter) during recent quarters. Rates of chlorinated mass removal are roughly three orders of magnitude less, and have ranged from 2 to 7 grams per day (or 0.2 to 0.7 kg per quarter).

During the entire reporting period (from July to December 2012) the SVE system operated for 167 days and during this period contaminant concentrations at the inlet were relatively high. Therefore, the ICM was effective in mass removal. Over the operational period of the full-scale SVE system, inlet concentrations have fluctuated significantly. Inlet concentrations have historically been at their lowest, and blower efficiency poorest, during the first quarter of each year due to low temperatures and the accumulation of condensate liquids in the extraction well piping. Therefore, an annual winter shut down period has been instituted during the first quarter of the year.

The SVE system was turned off on December 21, 2012, and is scheduled to restart by March 15. Field monitoring and first quarter analytical data will be reviewed to determine if an earlier re-start is warranted.

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4.0 INTERIM CORRECTIVE MEASURE PERFORMANCE SUMMARY

The primary COPCs for SWMU ST-70 (Former ST-219) are TCE, PCE, and TPH-gasoline for soil and TCE for groundwater. Soil vapor and groundwater COPC concentrations are relatively stable at the site. The highest chlorinated solvent related VOC concentrations were detected in shallow soil vapor adjacent to the former OWS. The highest fuel related VOC concentrations were detected in shallow soil vapor adjacent to the area drain. Groundwater concentrations of TCE increased slightly to 1.7 μg/L. No fuel related compounds were detected in groundwater.

The ICM at SWMU ST-70 is an SVE system. This system operated for approximately 167 days during this reporting period with little downtime. The cumulative mass of all contamination removed by the SVE system since initiation of ICM operation is estimated to be approximately 17,700 kg. However, only 11 kg of the total mass removed was chlorinated VOC mass (primarily TCE, PCE and cis-1,2-DCE). The contaminant mass removed from the subsurface by the SVE system continues to be composed primarily of petroleum compounds.

The SVE system continues to perform efficiently in terms of down time. The total down-time for the system (not including the scheduled rebound downtime) was approximately 1.5 percent of the total full-scale operational time. Contaminant mass was removed at rates of approximately between 4 and 22 kg/d in 2011 and 2012, and mass removal rates were in the middle to upper end of that range during this reporting period. Chlorinated VOC mass continues to comprise a very small portion of the total contaminant mass removed by SVE operations.

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APPENDIX A

Field Documentation and Measurements

SWMU ST-70 (Former ST-219) Field Measurements - Vacuum Readings

		SVE System					Vapor Extraction Wells		
Date	System ON/OFF	Combined Inlet	Pre-Blower	Post-Blower	Primary Exhaust	Final Exhaust	219-28H	ST-7002	ST-7003
7/11/2012	ON	20.0	21.0	9.4	4.2	0.06	13	1.0	1.7
8/23/2012	ON	19.5	21.0	9.2	4.2	0.05	13	0.3	2.0
9/14/2012	ON	17.2	18.5	10.5	5.6	0.05	11	0.2	2.9
10/12/2012	ON	17.0	18.5	11.0	5.4	0.18	10.8	0.0	1.6
11/16/2012	ON	22.0	23.0	9.5	5.0	0.06	15	0.0	0.8
12/13/2012	ON	27.5	29.0	7.8	4.3	0.05	19	0.0	0.8
12/21/2012	OFF	0.0	0.0	0.0	0.0	0.0	0	0	0

		Vapor Monitoring Wells						Groundwater Monitoring Well
		219-29H	219-38-41	219-38-99	219-39-42	219-40-20	219-41	KAFB-7001
7/11/2012	ON	0.07	0.02	0.04	0.08	atm	atm	0.42
8/23/2012	ON	0.19	0.03	0.02	0.05	atm	0.08	0.42
9/14/2012	ON	NM	NM	NM	NM	NM	NM	NM
10/12/2012	ON	0.05	0.07	0.04	0.08	0.05	0.06	0.32
11/16/2012	ON	0.04	0.02	atm	0.06	0.02	0.02	0.30
12/13/2012	ON	0.10	0.03	0.04	0.03	0.01	atm	0.08
12/21/2012	OFF							

All vacuum readings are in pressure readings of negative inches of water
shading indicates that the pressure is in positive inches of water
atm = atmospheric pressure
NM = not measured
OFF = SVE was offline for seasonal downtime starting December 21, 2012
SVE = soil vapor extraction system
Vapor monitoring wells 219-38-74, 219-37-75, 219-40-40, and 219-42 are no longer functional

SWMU ST-70 (Former ST-219) Field Measurements
Vapor Quality Readings

Location	PID Reading (ppmv)	Fixed Gas Readings (%)				
		O_2	CO_2	CO	CH_4	N_2
SVE System 07/11/12						
Combined Inlet	139	16.3	2.9	0	0.0	80.8
Primary Exhaust	0.6	16.3	2.8	0	0.0	80.8
Final Exhaust	0.0	16.3	2.9	0	0.0	80.8
Vapor Extraction Wells 07/11/12						
219-28H	42.3	15.8	3.2	0	0.0	81.0
ST-70-02	16.1	18.3	1.3	0	0.0	80.4
ST-70-03	17.0	18.0	0.9	0	0.0	81
Vapor Monitoring Points 07/11/12						
ST-70-01	0.1	20.7	0.0	0	0.0	79.2
219-29H	0.8	17.5	1.2	0	0.0	81.3
219-38-41	121.0	15.3	3.2	1	0.0	81.5
219-38-99	82.1	14.6	4.0	0	0.0	81.4
219-39-42	87.0	15.7	3.7	0	0.0	80.5
219-39-75	clogged	clogged	clogged	clogged	clogged	clogged
219-40-20	81.2	12.1	5.7	0	0.0	82.2
219-41	23.0	18.7	1.0	0	0.0	80.3
SVE System 08/23/12						
Combined Inlet	117	12.3	5.1	0	0.0	82.6
Primary Exhaust	60.4	12.3	5.1	0	0.0	82.6
Final Exhaust	6.3	12.3	5.0	0	0.0	82.7
Vapor Extraction Wells 08/23/12						
219-28H	152.0	11.8	5.4	0	0.0	82.7
ST-70-02	2.8	19.0	1.0	0	0.0	80
ST-70-03	8.6	19.7	0.2	0	0.0	80.1
Vapor Monitoring Points 08/23/12						
ST-70-01	0.0	20.1	0.0	0	0.0	79.9
219-29H	2.5	20.0	0.0	5	0.0	80.0
219-38-41	8.0	20.5	0.0	0	0.0	79.5
219-38-99	2.6	20.1	0.0	1	0.0	79.9
219-39-42	22.7	20.2	0.0	0	0.0	79.8
219-39-75	clogged	clogged	clogged	clogged	clogged	clogged
219-40-20	18.1	20.3	0.0	1	0.0	79.7
219-41	0.1	20.0	0.0	0	0.0	80.0
SVE System 10/12/12						
Combined Inlet	238	18.1	2.4	0	0.0	79.5
Primary Exhaust	69.4	18.1	2.4	0	0.0	79.5
Final Exhaust	3.5	17.9	2.4	0	0.0	79.7
Vapor Extraction Wells 10/12/12						
219-28H	281	17.5	2.7	0	0.0	79.7
ST-70-02	3.7	19.7	1.1	0	0.0	79.3
ST-70-03	2.2	19.4	0.2	0	0.0	80.3
Vapor Monitoring Points 10/12/12						
ST-70-01	0.2	20.3	0.1	0	0.0	79.7
219-29H	77.3	18.3	2.2	0	0.0	79.5
219-38-41	128	20.9	0.2	0	0.0	78.9
219-38-99	102	20.9	0.1	0	0.0	78.9
219-39-42	55.3	20.9	0.1	0	0.0	79.0
219-39-75	clogged	clogged	clogged	clogged	clogged	clogged
219-40-20	253	20.4	0.4	1	0.0	79.1
219-41	0.1	20.9	0.0	0	0.0	79.1
219-41	0.8	20.6	0.0	0	0.0	79.4

Note: Vapor monitoring points 219-38-74, 219-37-75, 219-40-40, and 219-42 are clogged and are no longer monitored

% = percent
CH_4 = methane
CO = carbon monoxide
CO2 = carbon dioxide
N2 = nitrogen
O2 = oxygen
PID = photoionization detector
ppmv = parts per million by volume
SVE = soil vapor extraction system

SWMU ST-70 (Former ST-219) Field Measurements
Groundwater Sampling Field Data Sheet

Site:	Kirtland Air Force Base	Well Number:	KAFB-7001
Date:	8/22/2012	Field Team:	B Moayyad
Job No.:	458580.01.03.03	Project/Event:	ST-70/ 3rd Quarter 2012
Field Conditions			

Equipment Calibration

Water Quality Meter: Horiba U-22 #C102378, AutoCal solution Lot#1337 exp12/19/12

pH:	4.02	SC:	4.51	Turbidity:	0.0	DO:	5.37
Temp:	29.7	Salinity:	0.23	ORP:	+157		

Pump Type: Dedicated Bennett Sample Pump (Model 1800-8, SN 1808-287)

Well and Purge Data

Initial Water Level: 460.72 Diameter: 4-inch

Final Water Level: Borehole Purge Volume: 30.0

Water Quality Readings

Time	Volume (gal)	pH	SC (mS/cm)	Temp. (C)	Turb (NTU)	DO (mg/L)	ORP (mV)
14:28	0.5					Start pump	
14:40	5.0	7.61	1.35	19.86	0.6	7.89	42
14:50	10.0	7.78	1.35	19.77	0.0	7.93	- 19
15:00	15.0	7.81	1.36	19.76	0.2	7.86	- 15
15:10	19.5	7.81	1.36	19.69	0.0	7.77	- 27
15:20	24.5	7.82	1.35	19.66	0.0	7.75	- 21
15:30	28.0	7.82	1.36	19.63	0.0	7.74	- 26
15:40	32.5	7.83	1.36	19.62	0.0	7.76	- 22

Observations/Notes:

Sample Information

Sample Date/Time: 8/22/12 16:00 Sample ID: ST70-GW-7001-220812

Analysis: VOCs - SW8260B, Nitrate - E300.0, ST70-GW-7001-220812MS & MSD
Dissolved Metals SW6010, TPH- Gasoline SW8015C

QA/QC Sample ID: ST70-TB-220812 Time 12:00 Type: TB

C = Celsius
DO = dissolved oxygen
F = Fahrenheit
ft = feet
gal = gallons
L = liter
mg/L = milligram per liter
MS = matrix spike
mS/cm = millisiemens per centimeter
MSD = matrix spike duplicate
mV = millivolts
NTU = nephalothematic units
ORP = oxygen reduction potential
pH = hydrogen concentration
QA/QC = quality assurance/quality control
SC = specific conductivity
TB = trip blank
Temp = temperature
TPH = total petroleum hydrocarbon(s)
Turb = turbidity
VOCs = volatile organic compounds

SWMU ST-70 (Former ST-219) Field Measurements
Groundwater Sampling Field Data Sheet

Site: Kirtland Air Force Base | Well Number: KAFB-7001
Date: 10/11/2012 | Field Team: B Moayyad
Job No.: 458580.01.03.03 | Project/Event: ST-70/ 4th Quarter 2012
Field Conditions

Equipment Calibration

Water Quality Meter: Horiba U-22 #C102521

pH:	4.00	SC:	4.49	Turbidity:	0.0	DO:	5.93
Temp:	23.49	Salinity:	0.23	ORP:	+189		

Pump Type: Dedicated Bennett Sample Pump (Model 1800-8, SN 1808-287)

Well and Purge Data

Initial Water Level: 460.79 | Diameter: 4-inch
Final Water Level: | Borehole Purge Volume: 30.0

Water Quality Readings

Time	Volume (gal)	pH	SC (mS/cm)	Temp. (C)	Turb (NTU)	DO (mg/L)	ORP (mV)
12:25	0.5					Start pump	
12:45	5.0	7.54	1.42	19.65	3.2	7.01	36
12:55	10.0	7.65	1.45	19.70	2.9	7.23	33
13:05	15.0	7.67	1.44	19.68	0.5	7.31	31
13:10	19.5	7.68	1.43	19.71	0.0	7.36	28
13:15	24.5	7.68	1.42	19.80	0.0	7.39	27

Observations/Notes: slow flow rate at 13:07

Sample Information

Sample Date/Time: 10/11/12 13:15 | Sample ID: ST70-GW-7001-101012
Analysis: VOCs - SW8260B, Nitrate - E300.0,
Dissolved Metals SW6010, TPH- Gasoline SW8015C
QA/QC Sample ID: ST70-TB-101012 | Time 9:00 | Type: TB

C = Celsius
DO = dissolved oxygen
F = Fahrenheit
ft = feet
gal = gallons
L = liter
mg/L = milligram per liter
MS = matrix spike
mS/cm = millisiemens per centimeter
MSD = matrix spike duplicate
mV = millivolts
NTU = nephalothematic units
ORP = oxygen reduction potential
pH = hydrogen concentration
QA/QC = quality assurance/quality control
SC = specific conductivity
TB = trip blank
Temp = temperature
TPH = total petroleum hydrocarbon(s)
Turb = turbidity
VOCs = volatile organic compounds

APPENDIX B

Waste Disposal Records

Re-Certification of Generator's Non-Hazardous Waste Profile Sheet

Profile #: 101142NM New Expiration Date: _____

A. GENERATOR INFORMATON

1. Generator Name: Kirtland AFB
2. Address: 2050 Wyoming SE, Albuquerque, NM 87117
3. Technical Contact: Victoria Martinez Title: Environmental Management
4. Telephone: 502-846-6362 Fax #: NA
5. Email: NA

B. BILLING INFORMATION - Optional (Mail WM Invoices To:) ☐ Same as above

1. Company Name: Advanced Environmental Solutions, Inc.
2. Address: 2318 Roldan Drive, Belen, NM 87002
3. Contact: Doug Roshau Title: Project Manager
4. Telephone: 505-861-1700 P.O. Box: NA
5. Special Billing Requirements: NA
6. Email: droshau@aesnm.com

C. RECERTIFICATION INFORMATION

1. Waste Name: Carbon-NM Special Waste
2. Have you obtained any laboratory analysis of this waste within the past year? ☑ Yes ☐ No
3. Have you changed the raw materials used in the waste generating process or the process itself? ☐ Yes ☑ No
4. Is the laboratory analysis and/or other pertinent information previously submitted still representative of the waste as presently generated? ☑ Yes ☐ No

NOTE: IF YOU ANSWERED YES TO QUESTION 2 OR 3 LISTED ABOVE, PLEASE ATTACH APPROPRIATE DOCUMENTATION.

D. RECERTIFICATION STATEMENT.

By signing this form, the generator hereby certifies: The information provided in this document, the attached Waste Management Generator's Waste Profile Sheet, and all other attached documents contain ture and accurate descriptions of this waste material. All new information regarding known or suspected hazards in the possession of the generator has been disclosed. The Generator hereby certifies this waste is not a "Hazardous Waste" as defined by the USEPA or Canadian Federal regulation and/or the state/province and this waste does not contain regulated radioactive materials or regulated concentrations of PCB's.

Name: (Print) L. W. Bitner Jr Title: CHIEF, ENVIRONMENTAL RESTORATION

Signature: _____ Date: _____

This is an extension of the original WM Decision. All conditions continue to apply.

Acceptable for use in the following states as sanctioned by Waste Management's waste review and approval process. Some waste streams will require the use of a new profile rather than the re-certification form.

AK, AL, AR, CO, DE, FL, GA, HI, IL, IN, KY, LA, MA, MD, ME, MI, MS, NC, NH, NY, OK, OR, SC, TX, VA & WA.

FOR WM USE ONLY

Management Method: ☐ Landfill ☐ Bioremediation ☐ Non-hazardous solidification ☐ Other: _____ ☐ Transfer ☐ See attached conditions

Approval Decision: ☐ Approved ☐ Not Approved

Waste Approval Expiration Date: _____

Management Facility Precautions, Special Handling Procedures or Limitation on approval: _____

☐ Shall not contain free liquid
☐ Shipment must be scheduled into disposal facility
☐ Approval number must accompany each shipment
☐ Waste Manifest must accompany load

WM Authorization Name / Title: _____ Date: _____

State Authorization (if Required): _____ Date: _____

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SPECIAL WASTE SHIPMENT RECORD

Rio Rancho Sanitary Landfill / Valencia Regional Landfill & Recycling Facility

Shipment № 62870

Mailing Address:
P.O. Box 15700
Rio Rancho, NM 87174
505/892-2055

☐ *Physical Address:*
33rd St. & Northern Blvd.
Rio Rancho, NM 87144
SWM #231402

☑ *Physical Address:*
1600 W. Highway 6
Los Lunas, NM 87031
SWM #013230 (sp)

Profile # **101142NM**
KAFOB

1. Generator's work site name and address
Kirtland Air Force Base

2. Generator's name and address
Kirtland Air Force Base
2050 Wyoming Blvd. SE - 377 MSG/CEANC
Albuquerque, NM 87117

Generator's Telephone no.
(505)846-6362

3. Authorized Agent's name and mailing address (if different from #2)
Advanced Environmental Solutions, Inc.
2318 Roldan Drive
Belen, New Mexico 87002

Agent's Telephone no.
(505)861-1700

4. Proper name and type of waste	5. Containers No.	Type	6. Total quantity (yd3)	(tons)
Carbon, NM Special Waste, Non-Hazardous, Non-DOT Regulated	1	DT	3	Y

7. Special handling instructions:
Job #:J10527, Shipment:SHIP0004509, WMI P.O. # P11440 1Z X 55g 1AZ D2516-D2527

8. GENERATOR'S OR AUTHORIZED AGENT'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway in accordance with applicable international and government regulations.

I hereby certify that the above named material does not contain free liquid as defined by 40CFR Part 258.28 and is not a hazardous waste as defined by 40CFR 261 or any applicable state law.

Generator's or Authorized Agent's printed/typed name	Signature	Month / Day / Year
VICTORIA R MARTINEZ	[signature]	9 / 20 / 2012

9. Transporter 1 (Acknowledgement of receipt of materials)

Printed/typed name, address, telephone no.	Signature	Month / Day / Year
Name: John Chavez Advanced Environmental Solutions, Inc. 2318 Roldan Dr. Belen, NM 87002 (505) 861-1700	[signature]	9 / 20 / 12

10. Transporter 2 (Acknowledgement of receipt of materials)

Printed/typed name, address, telephone no.	Signature	Month / Day / Year
		/ /

11. Discrepancy indication space
Cell 3

12. Waste disposal site location coordinates
N: 34° 43.232' W: 107° 02.413' Elev: 5500'

Received By (printed/typed name):	Signature	Month / Day / Year
Brian Bode	[signature]	9 / 21 / 12

White/GEN Yellow/CUSTOMER Pink/LANDFILL

CH2M HILL
4041 Jefferson Plaza NE
Suite 200
Albuquerque, NM 87109
Tel 505.884.5600
Fax 505.883.7507

13 September 2012

Ms. Victoria Martinez
377 MSG/CEANR
2050 Wyoming Boulevard, S.E.
Kirtland Air Force Base, NM 87117-5270

Subject: Notification of Disposal of Purge Water from Monitoring Well KAFB-7001.

Dear Ms. Martinez:

CH2M HILL is providing notification for disposal of purge water generated during the sampling of groundwater monitoring well KAFB-7001 according to the base-wide purge water agreements between Kirtland AFB and NMED. In August 2012, CH2M HILL conducted quarterly groundwater sampling activities for the solid waste municipal unit ST-70 site.

Monitoring well KAFB-7001 is sampled as part of the monitoring effort associated with the active SVE remediation located at ST-70. Contamination is primarily detected in the vadose zone at this site. Nitrate nitrogen was detected during these quarterly events at concentrations below drinking water standards. The volatile organic compound (VOC), trichloroethene (TCE) is commonly detected in KAFB-7001 groundwater at concentrations below the 5 microgram per liter (µg/L) drinking water standard. TCE was detected at 1.60 µg/L in the August 2012 sample from this well. Bromodichloromethane was also detected this quarter at a trace concentration of 0.28 J µg/L. Nitrate nitrogen was detected at 6.8 milligrams per liter (mg/L). Naturally occurring dissolved metals were also detected at concentrations below drinking water standards. All detections are consistent with historical values and no detections were greater than 90 percent of the EPA drinking water standards (or maximum contaminant levels [MCLs]). The purge water from KAFB-7001 meets the NMED guidance for surface disposal of Kirtland AFB, where purge water concentrations are less than 90 percent of applicable MCLs.

Table 2 presents a summary of the groundwater analytical results. The sample was analyzed for VOCs by EPA method 8260, metals by EPA method 6010 and 7470A, and nitrate by EPA method E300. Analytical results are compared to the New Mexico Water Quality Control Commission Regulations - Human Health Standards (NMWQCC-HHS) (20.6.2.3103NMAC, February, 2012). Regulatory standards used for comparison are included in Table 2.

Sampling efforts produced approximately 31 gallons of purge water. This purge water is currently staged in a polyethylene drum at the waste storage location adjacent to the site treatment system. Table 1 contains details of the purge water. The proposed method of disposal is discharging the groundwater onto the ground surface north of the ST-70 soil vapor extraction (SVE) shed onto a paved empty lot. During disposal, the discharge flow will be regulated to ensure that water will not flow into storm sewers or arroyos, and will remain confined to the ground surface in the paved lot.

CH2M HILL will proceed with disposal as stated above on September 20, 2012 with the verbal approval of Kirtland AFB.

Sincerely,

CH2M HILL, Inc.

Behnaum Moayyad
Staff Geologist

Attachments: Table 1. Summary of Purge Water Quantity, Sources, Sample IDs and Proposed Disposal Locations.
Table 2. Groundwater Analytical Results Summary, Monitoring Well KAFB-7001, Kirtland AFB, New Mexico.

Table 1. Summary of Purge Water Quantity, Sources, Sample IDs and Proposed Disposal Locations

Source [Well ID]	Volume of Purge Water	Sample ID	Proposed Disposal Location
KAFB-7001	32 gallons	ST70-GW-7001-220812	On paved ground surface north of the ST70 soil vapor extraction shed, outside flightline fence.

Table 2. Groundwater Analytical Results Summary, Monitoring Well KAFB-7001

Chemical Class & Analytical Method	Analyte	NMWQCC-HHSs [a]	KAFB-7001
			8/22/2012
VOCs (µg/L) Method SW8260	1,1,1,2-Tetrachloroethane	NA	0.20 U
	1,1,1-Trichloroethane	60	0.20 U
	1,1,2,2-Tetrachloroethane	10	0.40 U
	1,1,2-Trichloroethane	10	0.40 U
	1,1-Dichloroethane	25	0.20 U
	1,1-Dichloroethene	5	0.20 U
	1,1-Dichloropropene	NA	0.40 U
	1,2,3-Trichlorobenzene	NA	0.40 U
	1,2,3-Trichloropropane	NA	0.80 U
	1,2,4-Trichlorobenzene	NA	0.80 U
	1,2,4-Trimethylbenzene	NA	0.20 U
	1,2-Dibromo-3-chloropropane (DBCP)	NA	1.60 U
	1,2-Dibromoethane (EDB)	0.1	0.20 U
	1,2-Dichlorobenzene	NA	0.20 U
	1,2-Dichloroethane	10	0.20 U
	1,2-Dichloropropane	NA	0.20 U
	1,3,5-Trimethylbenzene	NA	0.40 U
	1,3-Dichlorobenzene	NA	0.20 U
	1,3-Dichloropropane	NA	0.20 U
	1,4-Dichlorobenzene	NA	0.40 U
	2,2-Dichloropropane	NA	0.40 U
	2-Butanone (MEK)	NA	3.20 U
	2-Chlorotoluene	NA	0.40 U
	2-Hexanone	NA	3.20 U
	4-Chlorotoluene	NA	0.40 U
	4-Isopropyltoluene	NA	0.40 U
	4-Methyl-2-pentanone	NA	3.20 U
	Acetone	NA	2.80 U
	Benzene	10	0.20 U
	Bromobenzene	NA	0.20 U
	Bromodichloromethane	NA	0.28 J
	Bromoform	NA	0.40 U
	Bromomethane	NA	0.40 U
	Carbon disulfide	NA	0.80 U
	Carbon tetrachloride	10	0.40 U
	Chlorobenzene	NA	0.20 U
	Chloroethane	NA	1.60 U
	Chloroform	100	0.20 U
	Chloromethane	NA	0.80 U
	cis-1,2-Dichloroethene	NA	0.20 U
	cis-1,3-Dichloropropene	NA	0.20 U
	Dibromochloromethane	NA	0.40 U
	Dibromomethane	NA	0.20 U
	Dichlorodifluoromethane	NA	0.80 U
	Ethylbenzene	750	0.20 U
	Hexachlorobutadiene	NA	0.40 U
	Isopropylbenzene	NA	0.40 U
	Methyl tert-butyl ether	NA	0.40 U
	Methylene chloride	100	1.30 U
	Naphthalene	30 [b]	0.80 U

Table 2. Groundwater Analytical Results Summary, Monitoring Well KAFB-7001

Chemical Class & Analytical Method	Analyte	NMWQCC-HHSs [a]	KAFB-7001
			8/22/2012
VOCs (µg/L) Method SW8260	n-Butylbenzene	NA	0.40 U
	n-Propylbenzene	NA	0.20 U
	sec-Butylbenzene	NA	0.40 U
	Styrene	NA	0.40 U
	Trichlorofluoromethane	NA	0.80 U
	Vinyl chloride	1	0.80 U
	Xylenes (total)	620	0.60 U
Dissolved Metals (µg/L) Methods SW6010/ 7470A	Arsenic	2.0	12.00 U
	Barium	120	44.00
	Cadmium	5.0	0.80 U
	Chromium	50	4.70 J
	Lead	10	5.00 U
	Selenium	50	22.00
	Silver	10	2.00 U
	Mercury	0.626	0.08 U
Total Petroleum Hydrocarbons (µg/L) Method SW8015C	Total Petroleum Hydrocarbons-Gasoline Range	NA	20.0 U
Nitrate Nitrogen (mg/L) Method E300	Nitrate as nitrogen	10[c]	6.8

a New Mexico Water Quality Control Commission Regulations - Human Health Standards (NMWQCC-HHS) (20.6.2.3103NMAC, September 26, 2004)

b Standard for combined napthalene and methyl-naphthalenes

c United States Environmental Protection Agency - Maximum Contaminant Limit

Shading indicates the analyte was detected.

NA - not applicable NS = not sampled U - not detected above Laboratory Reporting Limit

J - estimated value, concentration is less than Laboratory Reporting Limit but greater than Laboratory Method Detection Limit

B2b_PurgewaterDisposalApproval

From: Martinez, Victoria R Civ USAF AFMC 377 MSG/CEANR [Victoria.Martinez@kirtland.af.mil]
Sent: Thursday, September 13, 2012 2:55 PM
To: Moayyad, Ben/ABQ
Cc: Martinez, Victoria R Civ USAF AFMC 377 MSG/CEANR
Subject: RE: Purge water disposal notification - ST-70 - Second letter

Hi Ben,
This purge water can be disposed of as described in your letter.
Thank you,
Victoria R. Martinez
Environmental Restoration
Kirtland Air Force Base
505 846-6362
DSN 246-6362

-----Original Message-----
From: Ben.Moayyad@ch2m.com [mailto:Ben.Moayyad@ch2m.com]
Sent: Thursday, September 13, 2012 11:59 AM
To: Martinez, Victoria R Civ USAF AFMC 377 MSG/CEANR
Subject: RE: Purge water disposal notification - ST-70 - Second letter

Victoria,

We just got the August data yesterday. Attached is a second purge water disposal letter. The chemistry looks very similar to the last sample, except the we now have metals and TPH-gasoline being analyzed.

Please let me know if there are any questions or comments.

Thank you,

Ben

Direct Phone 505 855-5201

Mobile Phone 505 504-2214

CH2M HILL
4041 Jefferson Plaza NE
Suite 200
Albuquerque, NM 87109
Tel 505.884.5600
Fax 505.883.7507

20 December 2012

Ms. Victoria Martinez
377 MSG/CEANR
2050 Wyoming Boulevard, S.E.
Kirtland Air Force Base, NM 87117-5270

Subject: Notification of Disposal of Purge Water from Monitoring Well KAFB-7001.

Dear Ms. Martinez:

CH2M HILL is providing notification for disposal of purge water generated during the sampling of groundwater monitoring well KAFB-7001 according to the base-wide purge water agreements between Kirtland AFB and NMED. In October 2012, CH2M HILL conducted quarterly groundwater sampling activities for the solid waste municipal unit ST-70 site.

Monitoring well KAFB-7001 is sampled as part of the monitoring effort associated with the active SVE remediation located at ST-70. Contamination is primarily detected in the vadose zone at this site. Nitrate-nitrogen was detected during these quarterly events at concentrations below drinking water standards. The volatile organic compound (VOC), trichloroethene (TCE) is commonly detected in KAFB-7001 groundwater at concentrations below the 5 microgram per liter (µg/L) drinking water standard. TCE was detected at 1.70 µg/L in the October 2012 sample from this well. Bromodichloromethane, chloroform, and chloromethane were also detected this quarter at a trace concentrations less than 1 µg/L. Nitrate-nitrogen was detected at 7.3 milligrams per liter (mg/L). Naturally occurring dissolved metals were also detected at concentrations below drinking water standards. All detections are consistent with historical values and no detections were greater than 90 percent of the EPA drinking water standards (or maximum contaminant levels [MCLs]). The purge water from KAFB-7001 meets the NMED guidance for surface disposal of Kirtland AFB, where purge water concentrations are less than 90 percent of applicable MCLs.

Table 2 presents a summary of the groundwater analytical results. The sample was analyzed for VOCs by EPA method 8260, metals by EPA method 6010 and 7470A, and nitrate by EPA method E300. Analytical results are compared to the New Mexico Water Quality Control Commission Regulations - Human Health Standards (NMWQCC-HHS) (20.6.2.3103NMAC, February, 2012). Regulatory standards used for comparison are included in Table 2.

Sampling efforts produced approximately 35 gallons of purge water. This purge water is currently staged in a polyethylene drum at the waste storage location adjacent to the site treatment system. Table 1 contains details of the purge water. The proposed method of disposal is discharging the groundwater onto the ground surface north of the ST-70 soil vapor extraction (SVE) shed onto a paved empty lot. During disposal, the discharge flow will be regulated to ensure that water will not flow into storm sewers or arroyos, and will remain confined to the ground surface in the paved lot.

CH2M HILL will proceed with disposal as stated above on January 4, 2013 with the verbal approval of Kirtland AFB.

Sincerely,

CH2M HILL, Inc.

Behnaum Moayyad
Staff Geologist

Attachments: Table 1. Summary of Purge Water Quantity, Sources, Sample IDs and Proposed Disposal Locations.
Table 2. Groundwater Analytical Results Summary, Monitoring Well KAFB-7001, Kirtland AFB, New Mexico.

Table 1. Summary of Purge Water Quantity, Sources, Sample IDs and Proposed Disposal Locations

Source [Well ID]	Volume of Purge Water	Sample ID	Proposed Disposal Location
KAFB-7001	35 gallons	ST70-GW-7001-101012	On paved ground surface north of the ST70 soil vapor extraction shed, outside flightline fence.

Table 2. Groundwater Analytical Results Summary, Monitoring Well KAFB-7001

Chemical Class & Analytical Method	Analyte	NMWQCC-HHSs [a]	KAFB-7001
			10/11/2012
VOCs (µg/L)	1,1,1,2-Tetrachloroethane	NA	0.20 U
Method SW8260	1,1,1-Trichloroethane	60	0.20 U
	1,1,2,2-Tetrachloroethane	10	0.40 U
	1,1,2-Trichloroethane	10	0.40 U
	1,1-Dichloroethane	25	0.20 U
	1,1-Dichloroethene	5	0.20 U
	1,1-Dichloropropene	NA	0.40 U
	1,2,3-Trichlorobenzene	NA	0.40 U
	1,2,3-Trichloropropane	NA	0.80 U
	1,2,4-Trichlorobenzene	NA	0.80 U
	1,2,4-Trimethylbenzene	NA	0.20 U
	1,2-Dibromo-3-chloropropane (DBCP)	NA	1.60 U
	1,2-Dibromoethane (EDB)	0.1	0.20 U
	1,2-Dichlorobenzene	NA	0.20 U
	1,2-Dichloroethane	10	0.20 U
	1,2-Dichloropropane	NA	0.20 U
	1,3,5-Trimethylbenzene	NA	0.40 U
	1,3-Dichlorobenzene	NA	0.20 U
	1,3-Dichloropropane	NA	0.20 U
	1,4-Dichlorobenzene	NA	0.40 U
	2,2-Dichloropropane	NA	0.40 U
	2-Butanone (MEK)	NA	3.20 U
	2-Chlorotoluene	NA	0.40 U
	2-Hexanone	NA	3.20 U
	4-Chlorotoluene	NA	0.40 U
	4-Isopropyltoluene	NA	0.40 U
	4-Methyl-2-pentanone	NA	3.20 U
	Acetone	NA	2.80 U
	Benzene	10	0.20 U
	Bromobenzene	NA	0.20 U
	Bromodichloromethane	60	0.29 J
	Bromoform	NA	0.40 U
	Bromomethane	NA	0.40 U
	Carbon disulfide	NA	0.80 U
	Carbon tetrachloride	10	0.40 U
	Chlorobenzene	NA	0.20 U
	Chloroethane	NA	1.60 U
	Chloroform	100	0.17 J
	Chloromethane	NA	0.82 J
	cis-1,2-Dichloroethene	NA	0.20 U
	cis-1,3-Dichloropropene	NA	0.20 U
	Dibromochloromethane	NA	0.40 U
	Dibromomethane	NA	0.20 U
	Dichlorodifluoromethane	NA	0.80 U
	Ethylbenzene	750	0.20 U
	Hexachlorobutadiene	NA	0.40 U
	Isopropylbenzene	NA	0.40 U
	Methyl tert-butyl ether	NA	0.40 U
	Methylene chloride	100	1.30 U
	Naphthalene	30 [b]	0.80 U

Table 2. Groundwater Analytical Results Summary, Monitoring Well KAFB-7001

Chemical Class & Analytical Method	Analyte	NMWQCC-HHSs [a]	KAFB-7001 10/11/2012
VOCs (µg/L) Method SW8260	n-Butylbenzene	NA	0.40 U
	n-Propylbenzene	NA	0.20 U
	sec-Butylbenzene	NA	0.40 U
	Styrene	NA	0.40 U
	tert-Butylbenzene	NA	0.40 U
	Tetrachloroethene	NA	0.40 U
	Toluene	750	0.40 U
	trans-1,2-Dichloroethene	NA	0.20 U
	trans-1,3-Dichloropropene	NA	0.40 U
	Trichloroethene	100	1.70
	Trichlorofluoromethane	NA	0.80 U
	Vinyl chloride	1	0.80 U
	Xylenes (total)	620	0.60 U
Dissolved Metals (µg/L) Methods SW6010/ 7470A	Arsenic	2.0	12.0 U
	Barium	120	43.0
	Cadmium	5.0	0.80 U
	Chromium	50	1.50 U
	Lead	10	5.00 U
	Selenium	50	25.0
	Silver	10	2.0 U
	Mercury	0.626	0.08 U
Total Petroleum Hydrocarbons (µg/L) Method SW8015C	Total Petroleum Hydrocarbons-Gasoline Range	NA	20.0 U
Nitrate Nitrogen (mg/L) Method E300	Nitrate as nitrogen	10[c]	7.3

a New Mexico Water Quality Control Commission Regulations - Human Health Standards (NMWQCC-HHS) (20.6.2.3103NMAC, September 26, 2004)

b Standard for combined napthalene and methyl-naphthalenes

c United States Environmental Protection Agency - Maximum Contaminant Limit

Shading indicates the analyte was detected.

NA - not applicable NS = not sampled U - not detected above Laboratory Reporting Limit

J - estimated value, concentration is less than Laboratory Reporting Limit but greater than Laboratory Method Detection Limit

Cotter, Elaine/ABQ

From: Martinez, Victoria R Civ USAF AFMC 377 MSG/CEIR [Victoria.Martinez@kirtland.af.mil]
Sent: Tuesday, January 08, 2013 10:27 AM
To: Moayyad, Ben/ABQ
Cc: Minchak, Sharon/ABQ; Martinez, Victoria R Civ USAF AFMC 377 MSG/CEIR
Subject: RE: ST-70 Purge Water Disposal Notification

Hi Ben and Happy New Year,

The purge water results meet guidelines to dispose of as noted in the letter provided.

Thanks,

Victoria R. Martinez
Environmental Restoration
Kirtland Air Force Base
505 846-6362
DSN 246-6362

-----Original Message-----
From: Ben.Moayyad@ch2m.com [mailto:Ben.Moayyad@ch2m.com]
Sent: Thursday, December 20, 2012 11:41 AM
To: Martinez, Victoria R Civ USAF AFMC 377 MSG/CEIR
Cc: Sharon.Minchak@ch2m.com
Subject: ST-70 Purge Water Disposal Notification

Victoria,

We would like permission to empty the purge water from ST-70 well KAFB-7001 after the holidays, and before the next sample event in January 2013.

Please see attached letter showing that no concentrations are above NMWQCC-HSS or EPA drinking water standards.

Let me know if you have any questions or concerns.

Thank you,

ben

CH2MHILL

Behnaum Moayyad, P.G.

Hydrogeologist

4041 Jefferson Plaza NE. Ste 200

Albuquerque, NM 87109

Direct Phone: 505 855-5201

Mobile Phone 505 504-2214

Direct Fax: 505 816-0598

APPENDIX C

Soil Vapor and Groundwater Data Quality Evaluation Report

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Marcia Olive, Bhate Environmental Associates, Denver, Colorado.

Introduction

This data validation report covers samples taken from former Kirtland Air Force Base, New Mexico, on August 23, 2012. Thirteen air samples were collected from site ST-70 for long term monitoring. The analyses were performed by Applied Sciences Laboratory Corvallis, Oregon. The specific samples included in this validation were:

Sample ID	Matrix	Collection Date	Analyses
ST70-AR-7001-230812	Air	8/2312	TO-15, Fixed gases (SM2720C), TPH (SW8015M)
ST70-AR-29H-230812			
ST70-AR-40-20-230812			
ST70-AR-38-99-230812			
ST70-AR-38-41-230812			
ST70-AR-39-42-230812			
ST70-AR-41-230812			
ST70-AR-28H-230812			
ST70-AR-Inlet-230812			
ST70-AR-7002-230812			
ST70-AR-7003-230812			
ST70-AR-Mid-230812			
ST70-AR-Exhaust-230812			

This data was validated against the laboratory's QA/QC limits using the guidelines and practices published in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, June 2008), the *UFPQAPP Interim Remedial Action Operations at Solid Waste Management Unit ST-70(*AFCEE*,* February 2012*).*

Sample Handling and Holding times

The samples were prepared and analyzed within method specific sample holding times.

Blanks

Methylene chloride and TPH were detected in the method blanks between the detection limit (DL) and reporting limit (RL). The associated positive sample concentrations <5x the blank concentration (<10x the blank concentration for the common laboratory contaminant methylene chloride) were considered a non-detect and flagged "U" at the detected concentration.

Laboratory control sample (LCS)

The LCS recoveries for all compounds were within control limits for all analyses.

Project specific quality assurance/quality control

No field duplicate was collected with this laboratory package.

Compound quantitation and reporting limits

Where dilutions were required elevated reporting limits were reported.

Overall assessment of data

The percent relative standard deviation (%RSD) of acetone (34.2%) in the initial calibration exceeded acceptance criteria of 30%. Additionally, the percent drift (%D) for chloromethane (-35.7%) in the continuing calibration, CV1-0910, exceeded acceptance criteria. According to the National Functional Guidelines for Superfund Organics Method Data Review the acceptance criteria should not exceed 40% for specific volatile compounds exhibiting poor response; of which acetone and chloromethane are included. Since neither compound exceeded the 40% criterion, using professional judgment, no qualification of the sample data was necessary.

All analyses were performed, and the data met the required QC criteria except where noted. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	*Qualifier
ST70-AR-7001-230812	Methylene chloride TPH-GRO	0.58 U 15.8 U
ST70-AR-29H-230812	Methylene chloride TPH-GRO	1.09 U 40.9 U
ST70-AR-41-230812	Methylene chloride	2.92 U
ST70-AR-7002-230812	Methylene chloride	1.53 U
ST70-AR-7003-230812	Methylene chloride	1.37 U
ST70-AR-Mid-230812	Methylene chloride	2.61 U
ST70-AR-38-99-230812	Methylene chloride	45.2 U
ST70-AR-Inlet-230812	Methylene chloride	3.37 U
ST70-AR-28H-230812	Methylene chloride	3.32 U

*in ppbv/TPH in μg/L

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
BHATE/KAFB ST70/ST219 - KAFB ST-70

ASL Report #: L2314
Project ID: 427024.01.03.02
Attn: Marcia Olive
cc:
Ben Moayyad/ABQ
Paul Clement/ABQ

Authorized and Released By:

Laboratory Project Manager
Ben Thompson
(541) 758-0235 ext.23132
September 27, 2012

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

ACLASS ACCREDITED DoD ELAP

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L2314

Sample Receipt Comments

We certify that the test results meet all DoD ELAP requirements.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L231401	ST70-AR-29H-230812	08/23/12 12:33	08/27/12
L231402	ST70-AR-40-20-230812	08/23/12 12:43	08/27/12
L231403	ST70-AR-38-41-230812	08/23/12 12:54	08/27/12
L231404	ST70-AR-38-99-230812	08/23/12 13:00	08/27/12
L231405	ST70-AR-41-230812	08/23/12 13:11	08/27/12
L231406	ST70-AR-39-42-230812	08/23/12 13:26	08/27/12
L231407	ST70-AR-Exhaust-230812	08/23/12 13:52	08/27/12
L231408	ST70-AR-Mid-230812	08/23/12 13:57	08/27/12
L231409	ST70-AR-Inlet-230812	08/23/12 14:03	08/27/12
L231410	ST70-AR-28H-230812	08/23/12 14:12	08/27/12
L231411	ST70-AR-7002-230812	08/23/12 14:22	08/27/12
L231412	ST70-AR-7003-230812	08/23/12 14:32	08/27/12
L231413	ST70-AR-7001-230812	08/23/12 16:00	08/27/12

ASL Report #: L2314

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TPH - Gas Analysis by Method SM8015M 101
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CH2MHILL
Applied Sciences Laboratory (ASL)

CH2M HILL
Applied Sciences Laboratory (ASL)
1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Fax 541.752.0276

DOD Data Qualifiers

U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the LOD.
J	The analyte was positively identified but the associated numerical value is below the LOQ.
J	The analyte was positively identified, the quantitation is an estimation.
Q	The data must be evaluated for usability due to deficiencies in the ability to analyze the sample and meet QC criteria.
B	The analyte was found in an associated blank, as well as in the sample.
M	A matrix effect was present.
S	To be applied to all field screening data.
T	Tentatively identified compounds (using GC/MS).
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

TO-15

AFCEE
ORGANIC ANALYSES DATA PACKAGE

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Base/Command: KIRTLAND AFB (AIR) Prime Contractor: CH2M HILL

Project: BHATE/KAFB ST70/ST219

Field Sample ID	Lab Sample ID
ST70-AR-29H-230812	L231401
ST70-AR-40-20-230812	L231402
ST70-AR-38-41-230812	L231403
ST70-AR-38-99-230812	L231404
ST70-AR-41-230812	L231405
ST70-AR-39-42-230812	L231406
ST70-AR-Exhaust-230812	L231407
ST70-AR-Mid-230812	L231408
ST70-AR-Inlet-230812	L231409
ST70-AR-28H-230812	L231410
ST70-AR-7002-230812	L231411
ST70-AR-7003-230812	L231412
ST70-AR-7001-230812	L231413

Comments:

See attached narrative

CASE NARRATIVE
VOLATILE ORGANIC ANALYSIS

Analytical Method: TO-15 SDG: L2314

Lab Name: CH2M HILL Applied Science Laboratories Project # 427024.01.03.02

Base/Command: BHATE/KAFB ST70/ST219 - KAFB ST-70 Prime Contractor:

I. RECEIPT

A. Date: August 27, 2012

B. Sample Information:

LAB SAMPLE ID	CLIENT SAMPLE ID	CANISTER ID	SAMPLE MATRIX	DATE SAMPLED	TIME SAMPLED	RECEIVED PRESS. (torr)
L231401	ST70-AR-29H-230812	SG1831	AIR	08/23/2012	12:33	579
L231402	ST70-AR-40-20-230812	SG1421	AIR	08/23/2012	12:43	561
L231403	ST70-AR-38-41-230812	SG1329	AIR	08/23/2012	12:54	577
L231404	ST70-AR-38-99-230812	SG1766	AIR	08/23/2012	13:00	568
L231405	ST70-AR-41-230812	SG1438	AIR	08/23/2012	13:11	574
L231406	ST70-AR-39-42-230812	SG1362	AIR	08/23/2012	13:26	586
L231407	ST70-AR-Exhaust-230812	SG1681	AIR	08/23/2012	13:52	587
L231408	ST70-AR-Mid-230812	SG1756	AIR	08/23/2012	13:57	588
L231409	ST70-AR-Inlet-230812	SG1320	AIR	08/23/2012	14:03	593
L231410	ST70-AR-28H-230812	SG1768	AIR	08/23/2012	14:12	613
L231411	ST70-AR-7002-230812	SG1894	AIR	08/23/2012	14:22	600
L231412	ST70-AR-7003-230812	SG1363	AIR	08/23/2012	14:32	596
L231413	ST70-AR-7001-230812	SG1884	AIR	08/23/2012	16:00	593

II. Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Calibration:
The %D for Acetone(34.2%) in calibration 080712AA1 exceeded acceptance criteria of 30%. The %D for Chloromethane(-35.7%) in CV1-0910 exceeded acceptance criteria of 30%.

B. Blanks:
All acceptance criteria were met.

C. Duplicate Sample(s):
All acceptance criteria were met.

D. Instrument Performance Check:
All acceptance criteria were met.

E. Surrogate Recoveries:
All acceptance criteria were met.

F. Internal Standards:
All acceptance criteria were met.

G. Laboratory Control Sample (LCS):
All acceptance criteria were met.

H. Matrix Spike(MS)/Matrix Spike Duplicate(MSD):
Not applicable.

I. Manual integrations:
Manual integrations were performed on the following samples:

Lab ID	Client ID	Analyte(s)
Level7	ICAL	Methylene Chloride
ICV-0807	ICV	1,2,4-Trichlorobenzene

IV. Sampling Equipment Exceptions:
None.

V. Documentation Exceptions:
None.

VI. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared By: _____ Date: 9/20/12

Reviewed By: _____ Date: 09-20-2012

SAMPLE DATA SUMMARY

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-230812 Lab Sample ID: L231401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.27	0.9	**0.43**	1.8		F
Chloromethane	0.27	0.9	**0.68**	1.8		Q
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.27	0.9	0.27	1.8		U
Vinyl chloride	0.27	0.9	0.27	1.8		U
Bromomethane	0.27	0.9	**0.59**	1.8		F
Chloroethane	0.27	0.9	0.27	1.8		U
Trichlorofluoromethane	0.27	0.9	**3.98**	1.8		
Acetone	0.27	1.8	**14.8**	1.8		
1,1-DCE	0.27	0.9	0.27	1.8		U
Methylene chloride	0.27	4.5	**1.09**	1.8		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.27	0.9	**2.99**	1.8		
MTBE (Methyl tert-Butyl Ether)	0.27	1.8	0.27	1.8		U
1,1-DCA	0.27	0.9	**0.36**	1.8		F
MEK (2-Butanone)	0.27	1.8	**4.41**	1.8		
cis-1,2-DCE	0.27	0.9	**3.37**	1.8		
Chloroform	0.27	0.9	**6.64**	1.8		
1,2-DCA	0.27	0.9	0.27	1.8		U
1,1,1-TCA	0.27	0.9	**1.58**	1.8		
Carbon tetrachloride	0.27	0.9	**2.17**	1.8		
Benzene	0.27	0.9	0.27	1.8		U
1,2-Dichloropropane	0.27	0.9	0.27	1.8		U
TCE	0.27	0.9	**84.0**	1.8		
cis-1,3-Dichloropropene	0.27	0.9	0.27	1.8		U
trans-1,3-Dichloropropene	0.27	0.9	0.27	1.8		U
1,1,2-TCA	0.27	0.9	0.27	1.8		U
Toluene	0.27	0.9	**0.28**	1.8		F
1,2-EDB	0.27	0.9	0.27	1.8		U
Tetrachloroethylene	0.27	0.9	**59.8**	1.8		
Chlorobenzene	0.27	0.9	0.27	1.8		U
Ethylbenzene	0.27	0.9	**0.68**	1.8		F
m,p-Xylene	0.54	1.8	**2.71**	1.8		
Styrene	0.27	0.9	0.27	1.8		U
o-Xylene	0.27	0.9	**0.83**	1.8		F
1,1,2,2-Tetrachloroethane	0.27	0.9	0.27	1.8		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-230812 Lab Sample ID: L231401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.27	0.9	**5.05**	1.8		
1,2,4-Trimethylbenzene	0.27	0.9	**1.37**	1.8		
1,3-DCB	0.27	0.9	0.27	1.8		U
1,4-DCB	0.27	0.9	0.27	1.8		U
1,2-DCB	0.27	0.9	0.27	1.8		U
1,2,4-Trichlorobenzene	0.27	1.8	0.27	1.8		U
Hexachlorobutadiene	0.27	0.9	0.27	1.8		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	106	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-230812 Lab Sample ID: L231402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	40.5	135	40.5	270		U
Chloromethane	40.5	135	40.5	270		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	40.5	135	40.5	270		U
Vinyl chloride	40.5	135	40.5	270		U
Bromomethane	40.5	135	40.5	270		U
Chloroethane	40.5	135	40.5	270		U
Trichlorofluoromethane	40.5	135	40.5	270		U
Acetone	40.5	270	40.5	270		U
1,1-DCE	40.5	135	40.5	270		U
Methylene chloride	40.5	675	40.5	270		U
1,1,2-Trichloro-1,2,2-trifluoroethane	40.5	135	40.5	270		U
MTBE (Methyl tert-Butyl Ether)	40.5	270	40.5	270		U
1,1-DCA	40.5	135	40.5	270		U
MEK (2-Butanone)	40.5	270	40.5	270		U
cis-1,2-DCE	40.5	135	**551**	270		
Chloroform	40.5	135	40.5	270		U
1,2-DCA	40.5	135	40.5	270		U
1,1,1-TCA	40.5	135	40.5	270		U
Carbon tetrachloride	40.5	135	40.5	270		U
Benzene	40.5	135	40.5	270		U
1,2-Dichloropropane	40.5	135	40.5	270		U
TCE	40.5	135	**247**	270		
cis-1,3-Dichloropropene	40.5	135	40.5	270		U
trans-1,3-Dichloropropene	40.5	135	40.5	270		U
1,1,2-TCA	40.5	135	40.5	270		U
Toluene	40.5	135	**65.1**	270		F
1,2-EDB	40.5	135	40.5	270		U
Tetrachloroethylene	40.5	135	40.5	270		U
Chlorobenzene	40.5	135	40.5	270		U
Ethylbenzene	40.5	135	**372**	270		
m,p-Xylene	81.0	270	**4180**	270		
Styrene	40.5	135	40.5	270		U
o-Xylene	40.5	135	40.5	270		U
1,1,2,2-Tetrachloroethane	40.5	135	40.5	270		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-230812 Lab Sample ID: L231402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	40.5	135	**4350**	270		
1,2,4-Trimethylbenzene	40.5	135	**5090**	270		
1,3-DCB	40.5	135	40.5	270		U
1,4-DCB	40.5	135	40.5	270		U
1,2-DCB	40.5	135	40.5	270		U
1,2,4-Trichlorobenzene	40.5	270	40.5	270		U
Hexachlorobutadiene	40.5	135	40.5	270		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	102	60-140	
4-Bromofluorobenzene	116	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-230812 Lab Sample ID: L231403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	33.3	111	33.3	222		U
Chloromethane	33.3	111	33.3	222		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	33.3	111	33.3	222		U
Vinyl chloride	33.3	111	33.3	222		U
Bromomethane	33.3	111	33.3	222		U
Chloroethane	33.3	111	33.3	222		U
Trichlorofluoromethane	33.3	111	33.3	222		U
Acetone	33.3	222	33.3	222		U
1,1-DCE	33.3	111	33.3	222		U
Methylene chloride	33.3	555	33.3	222		U
1,1,2-Trichloro-1,2,2-trifluoroethane	33.3	111	33.3	222		U
MTBE (Methyl tert-Butyl Ether)	33.3	222	33.3	222		U
1,1-DCA	33.3	111	33.3	222		U
MEK (2-Butanone)	33.3	222	33.3	222		U
cis-1,2-DCE	33.3	111	**5770**	222		
Chloroform	33.3	111	33.3	222		U
1,2-DCA	33.3	111	33.3	222		U
1,1,1-TCA	33.3	111	33.3	222		U
Carbon tetrachloride	33.3	111	33.3	222		U
Benzene	33.3	111	33.3	222		U
1,2-Dichloropropane	33.3	111	33.3	222		U
TCE	33.3	111	**1040**	222		
cis-1,3-Dichloropropene	33.3	111	33.3	222		U
trans-1,3-Dichloropropene	33.3	111	33.3	222		U
1,1,2-TCA	33.3	111	33.3	222		U
Toluene	33.3	111	33.3	222		U
1,2-EDB	33.3	111	33.3	222		U
Tetrachloroethylene	33.3	111	**68.4**	222		F
Chlorobenzene	33.3	111	33.3	222		U
Ethylbenzene	33.3	111	33.3	222		U
m,p-Xylene	66.6	222	**411**	222		
Styrene	33.3	111	33.3	222		U
o-Xylene	33.3	111	33.3	222		U
1,1,2,2-Tetrachloroethane	33.3	111	33.3	222		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-230812 Lab Sample ID: L231403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	33.3	111	**561**	222		
1,2,4-Trimethylbenzene	33.3	111	**504**	222		
1,3-DCB	33.3	111	33.3	222		U
1,4-DCB	33.3	111	33.3	222		U
1,2-DCB	33.3	111	33.3	222		U
1,2,4-Trichlorobenzene	33.3	222	33.3	222		U
Hexachlorobutadiene	33.3	111	33.3	222		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	102	60-140	
4-Bromofluorobenzene	113	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-230812 Lab Sample ID: L231404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	30.6	102	30.6	204		U
Chloromethane	30.6	102	30.6	204		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	30.6	102	30.6	204		U
Vinyl chloride	30.6	102	30.6	204		U
Bromomethane	30.6	102	30.6	204		U
Chloroethane	30.6	102	30.6	204		U
Trichlorofluoromethane	30.6	102	30.6	204		U
Acetone	30.6	204	**314**	204		
1,1-DCE	30.6	102	30.6	204		U
Methylene chloride	30.6	510	**45.2**	204		F
1,1,2-Trichloro-1,2,2-trifluoroethane	30.6	102	30.6	204		U
MTBE (Methyl tert-Butyl Ether)	30.6	204	30.6	204		U
1,1-DCA	30.6	102	30.6	204		U
MEK (2-Butanone)	30.6	204	30.6	204		U
cis-1,2-DCE	30.6	102	**2550**	204		
Chloroform	30.6	102	**97.7**	204		F
1,2-DCA	30.6	102	30.6	204		U
1,1,1-TCA	30.6	102	30.6	204		U
Carbon tetrachloride	30.6	102	30.6	204		U
Benzene	30.6	102	**36.1**	204		F
1,2-Dichloropropane	30.6	102	30.6	204		U
TCE	30.6	102	**8530**	204		
cis-1,3-Dichloropropene	30.6	102	30.6	204		U
trans-1,3-Dichloropropene	30.6	102	30.6	204		U
1,1,2-TCA	30.6	102	30.6	204		U
Toluene	30.6	102	**39.4**	204		F
1,2-EDB	30.6	102	30.6	204		U
Tetrachloroethylene	30.6	102	**146**	204		
Chlorobenzene	30.6	102	30.6	204		U
Ethylbenzene	30.6	102	**167**	204		
m,p-Xylene	61.2	204	**633**	204		
Styrene	30.6	102	30.6	204		U
o-Xylene	30.6	102	30.6	204		U
1,1,2,2-Tetrachloroethane	30.6	102	30.6	204		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-230812 Lab Sample ID: L231404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	30.6	102	**773**	204		
1,2,4-Trimethylbenzene	30.6	102	**772**	204		
1,3-DCB	30.6	102	30.6	204		U
1,4-DCB	30.6	102	30.6	204		U
1,2-DCB	30.6	102	30.6	204		U
1,2,4-Trichlorobenzene	30.6	204	**175**	204		F
Hexachlorobutadiene	30.6	102	**136**	204		

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	100	60-140	
4-Bromofluorobenzene	114	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-230812 Lab Sample ID: L231405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	1.36	4.5	1.36	9.05		U
Chloromethane	1.36	4.5	1.36	9.05		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.36	4.5	1.36	9.05		U
Vinyl chloride	1.36	4.5	1.36	9.05		U
Bromomethane	1.36	4.5	1.36	9.05		U
Chloroethane	1.36	4.5	1.36	9.05		U
Trichlorofluoromethane	1.36	4.5	**3.39**	9.05		F
Acetone	1.36	9.1	**25.8**	9.05		
1,1-DCE	1.36	4.5	1.36	9.05		U
Methylene chloride	1.36	22.6	**2.92**	9.05		F
1,1,2-Trichloro-1,2,2-trifluoroethane	1.36	4.5	1.36	9.05		U
MTBE (Methyl tert-Butyl Ether)	1.36	9.1	1.36	9.05		U
1,1-DCA	1.36	4.5	1.36	9.05		U
MEK (2-Butanone)	1.36	9.1	**6.16**	9.05		F
cis-1,2-DCE	1.36	4.5	**1.78**	9.05		F
Chloroform	1.36	4.5	**3.26**	9.05		F
1,2-DCA	1.36	4.5	1.36	9.05		U
1,1,1-TCA	1.36	4.5	1.36	9.05		U
Carbon tetrachloride	1.36	4.5	1.36	9.05		U
Benzene	1.36	4.5	1.36	9.05		U
1,2-Dichloropropane	1.36	4.5	1.36	9.05		U
TCE	1.36	4.5	**5.83**	9.05		
cis-1,3-Dichloropropene	1.36	4.5	1.36	9.05		U
trans-1,3-Dichloropropene	1.36	4.5	1.36	9.05		U
1,1,2-TCA	1.36	4.5	1.36	9.05		U
Toluene	1.36	4.5	1.36	9.05		U
1,2-EDB	1.36	4.5	1.36	9.05		U
Tetrachloroethylene	1.36	4.5	**39.5**	9.05		
Chlorobenzene	1.36	4.5	1.36	9.05		U
Ethylbenzene	1.36	4.5	**1.68**	9.05		F
m,p-Xylene	2.72	9.1	**6.35**	9.05		F
Styrene	1.36	4.5	1.36	9.05		U
o-Xylene	1.36	4.5	1.36	9.05		U
1,1,2,2-Tetrachloroethane	1.36	4.5	1.36	9.05		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-230812 Lab Sample ID: L231405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	1.36	4.5	**11.7**	9.05		
1,2,4-Trimethylbenzene	1.36	4.5	**14.5**	9.05		
1,3-DCB	1.36	4.5	1.36	9.05		U
1,4-DCB	1.36	4.5	1.36	9.05		U
1,2-DCB	1.36	4.5	1.36	9.05		U
1,2,4-Trichlorobenzene	1.36	9.1	1.36	9.05		U
Hexachlorobutadiene	1.36	4.5	1.36	9.05		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	107	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-230812 Lab Sample ID: L231406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 11 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	41.7	139	41.7	278		U
Chloromethane	41.7	139	41.7	278		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	41.7	139	41.7	278		U
Vinyl chloride	41.7	139	41.7	278		U
Bromomethane	41.7	139	41.7	278		U
Chloroethane	41.7	139	41.7	278		U
Trichlorofluoromethane	41.7	139	41.7	278		U
Acetone	41.7	278	41.7	278		U
1,1-DCE	41.7	139	41.7	278		U
Methylene chloride	41.7	695	**47.8**	278		F
1,1,2-Trichloro-1,2,2-trifluoroethane	41.7	139	41.7	278		U
MTBE (Methyl tert-Butyl Ether)	41.7	278	41.7	278		U
1,1-DCA	41.7	139	41.7	278		U
MEK (2-Butanone)	41.7	278	41.7	278		U
cis-1,2-DCE	41.7	139	**11900**	278		
Chloroform	41.7	139	**62.4**	278		F
1,2-DCA	41.7	139	41.7	278		U
1,1,1-TCA	41.7	139	41.7	278		U
Carbon tetrachloride	41.7	139	41.7	278		U
Benzene	41.7	139	**348**	278		
1,2-Dichloropropane	41.7	139	41.7	278		U
TCE	41.7	139	**20600**	278		
cis-1,3-Dichloropropene	41.7	139	41.7	278		U
trans-1,3-Dichloropropene	41.7	139	41.7	278		U
1,1,2-TCA	41.7	139	41.7	278		U
Toluene	41.7	139	**114**	278		F
1,2-EDB	41.7	139	41.7	278		U
Tetrachloroethylene	41.7	139	**3560**	278		
Chlorobenzene	41.7	139	41.7	278		U
Ethylbenzene	41.7	139	41.7	278		U
m,p-Xylene	83.4	278	83.4	278		U
Styrene	41.7	139	41.7	278		U
o-Xylene	41.7	139	41.7	278		U
1,1,2,2-Tetrachloroethane	41.7	139	41.7	278		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-230812 Lab Sample ID: L231406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 11 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	41.7	139	**55.8**	278		F
1,2,4-Trimethylbenzene	41.7	139	**57.3**	278		F
1,3-DCB	41.7	139	41.7	278		U
1,4-DCB	41.7	139	41.7	278		U
1,2-DCB	41.7	139	41.7	278		U
1,2,4-Trichlorobenzene	41.7	278	41.7	278		U
Hexachlorobutadiene	41.7	139	41.7	278		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	103	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-230812 Lab Sample ID: L231407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 11 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	1.29	4.3	1.29	8.6		U
Chloromethane	1.29	4.3	**1.57**	8.6		F
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.29	4.3	1.29	8.6		U
Vinyl chloride	1.29	4.3	1.29	8.6		U
Bromomethane	1.29	4.3	1.29	8.6		U
Chloroethane	1.29	4.3	1.29	8.6		U
Trichlorofluoromethane	1.29	4.3	**3.85**	8.6		F
Acetone	1.29	8.6	**46.0**	8.6		
1,1-DCE	1.29	4.3	**25.8**	8.6		
Methylene chloride	1.29	21.5	**2.15**	8.6		F
1,1,2-Trichloro-1,2,2-trifluoroethane	1.29	4.3	**3.84**	8.6		F
MTBE (Methyl tert-Butyl Ether)	1.29	8.6	1.29	8.6		U
1,1-DCA	1.29	4.3	1.29	8.6		U
MEK (2-Butanone)	1.29	8.6	1.29	8.6		U
cis-1,2-DCE	1.29	4.3	**268**	8.6		
Chloroform	1.29	4.3	**16.7**	8.6		
1,2-DCA	1.29	4.3	**3.76**	8.6		F
1,1,1-TCA	1.29	4.3	**2.69**	8.6		F
Carbon tetrachloride	1.29	4.3	**1.46**	8.6		F
Benzene	1.29	4.3	**1.37**	8.6		F
1,2-Dichloropropane	1.29	4.3	1.29	8.6		U
TCE	1.29	4.3	**417**	8.6		
cis-1,3-Dichloropropene	1.29	4.3	1.29	8.6		U
trans-1,3-Dichloropropene	1.29	4.3	1.29	8.6		U
1,1,2-TCA	1.29	4.3	1.29	8.6		U
Toluene	1.29	4.3	1.29	8.6		U
1,2-EDB	1.29	4.3	1.29	8.6		U
Tetrachloroethylene	1.29	4.3	**74.6**	8.6		
Chlorobenzene	1.29	4.3	1.29	8.6		U
Ethylbenzene	1.29	4.3	1.29	8.6		U
m,p-Xylene	2.58	8.6	**2.71**	8.6		F
Styrene	1.29	4.3	1.29	8.6		U
o-Xylene	1.29	4.3	1.29	8.6		U
1,1,2,2-Tetrachloroethane	1.29	4.3	1.29	8.6		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-230812 Lab Sample ID: L231407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 11 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	1.29	4.3	**2.52**	8.6		F
1,2,4-Trimethylbenzene	1.29	4.3	**2.93**	8.6		F
1,3-DCB	1.29	4.3	1.29	8.6		U
1,4-DCB	1.29	4.3	1.29	8.6		U
1,2-DCB	1.29	4.3	1.29	8.6		U
1,2,4-Trichlorobenzene	1.29	8.6	1.29	8.6		U
Hexachlorobutadiene	1.29	4.3	1.29	8.6		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	107	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Mid-230812 Lab Sample ID: L231408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Mid-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	1.59	5.3	1.59	10.6		U
Chloromethane	1.59	5.3	**2.19**	10.6		Q
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.59	5.3	1.59	10.6		U
Vinyl chloride	1.59	5.3	1.59	10.6		U
Bromomethane	1.59	5.3	**1.60**	10.6		F
Chloroethane	1.59	5.3	1.59	10.6		U
Trichlorofluoromethane	1.59	5.3	**2.34**	10.6		F
Acetone	1.59	10.6	**33.1**	10.6		
1,1-DCE	1.59	5.3	**9.07**	10.6		
Methylene chloride	1.59	26.5	**2.61**	10.6		F
1,1,2-Trichloro-1,2,2-trifluoroethane	1.59	5.3	**2.07**	10.6		F
MTBE (Methyl tert-Butyl Ether)	1.59	10.6	1.59	10.6		U
1,1-DCA	1.59	5.3	1.59	10.6		U
MEK (2-Butanone)	1.59	10.6	1.59	10.6		U
cis-1,2-DCE	1.59	5.3	**198**	10.6		
Chloroform	1.59	5.3	**12.2**	10.6		
1,2-DCA	1.59	5.3	1.59	10.6		U
1,1,1-TCA	1.59	5.3	**1.80**	10.6		F
Carbon tetrachloride	1.59	5.3	**2.91**	10.6		F
Benzene	1.59	5.3	1.59	10.6		U
1,2-Dichloropropane	1.59	5.3	1.59	10.6		U
TCE	1.59	5.3	**502**	10.6		
cis-1,3-Dichloropropene	1.59	5.3	1.59	10.6		U
trans-1,3-Dichloropropene	1.59	5.3	1.59	10.6		U
1,1,2-TCA	1.59	5.3	1.59	10.6		U
Toluene	1.59	5.3	1.59	10.6		U
1,2-EDB	1.59	5.3	1.59	10.6		U
Tetrachloroethylene	1.59	5.3	**214**	10.6		
Chlorobenzene	1.59	5.3	1.59	10.6		U
Ethylbenzene	1.59	5.3	**2.74**	10.6		F
m,p-Xylene	3.18	10.6	**10.7**	10.6		
Styrene	1.59	5.3	1.59	10.6		U
o-Xylene	1.59	5.3	1.59	10.6		U
1,1,2,2-Tetrachloroethane	1.59	5.3	1.59	10.6		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Mid-230812 Lab Sample ID: L231408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Mid-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	1.59	5.3	**51.0**	10.6		
1,2,4-Trimethylbenzene	1.59	5.3	**13.2**	10.6		
1,3-DCB	1.59	5.3	1.59	10.6		U
1,4-DCB	1.59	5.3	1.59	10.6		U
1,2-DCB	1.59	5.3	1.59	10.6		U
1,2,4-Trichlorobenzene	1.59	10.6	1.59	10.6		U
Hexachlorobutadiene	1.59	5.3	1.59	10.6		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	100	60-140	
4-Bromofluorobenzene	109	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Inlet-230812 Lab Sample ID: L231409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Inlet-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	3.12	10.4	3.12	20.8		U
Chloromethane	3.12	10.4	3.12	20.8		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	3.12	10.4	3.12	20.8		U
Vinyl chloride	3.12	10.4	3.12	20.8		U
Bromomethane	3.12	10.4	3.12	20.8		U
Chloroethane	3.12	10.4	3.12	20.8		U
Trichlorofluoromethane	3.12	10.4	3.12	20.8		U
Acetone	3.12	20.8	3.12	20.8		U
1,1-DCE	3.12	10.4	3.12	20.8		U
Methylene chloride	3.12	52.0	**3.37**	20.8		F
1,1,2-Trichloro-1,2,2-trifluoroethane	3.12	10.4	3.12	20.8		U
MTBE (Methyl tert-Butyl Ether)	3.12	20.8	3.12	20.8		U
1,1-DCA	3.12	10.4	3.12	20.8		U
MEK (2-Butanone)	3.12	20.8	3.12	20.8		U
cis-1,2-DCE	3.12	10.4	**63.0**	20.8		
Chloroform	3.12	10.4	**6.03**	20.8		F
1,2-DCA	3.12	10.4	3.12	20.8		U
1,1,1-TCA	3.12	10.4	3.12	20.8		U
Carbon tetrachloride	3.12	10.4	3.12	20.8		U
Benzene	3.12	10.4	3.12	20.8		U
1,2-Dichloropropane	3.12	10.4	3.12	20.8		U
TCE	3.12	10.4	**209**	20.8		
cis-1,3-Dichloropropene	3.12	10.4	3.12	20.8		U
trans-1,3-Dichloropropene	3.12	10.4	3.12	20.8		U
1,1,2-TCA	3.12	10.4	3.12	20.8		U
Toluene	3.12	10.4	3.12	20.8		U
1,2-EDB	3.12	10.4	3.12	20.8		U
Tetrachloroethylene	3.12	10.4	**183**	20.8		
Chlorobenzene	3.12	10.4	3.12	20.8		U
Ethylbenzene	3.12	10.4	3.12	20.8		U
m,p-Xylene	6.24	20.8	6.24	20.8		U
Styrene	3.12	10.4	3.12	20.8		U
o-Xylene	3.12	10.4	3.12	20.8		U
1,1,2,2-Tetrachloroethane	3.12	10.4	3.12	20.8		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Inlet-230812 Lab Sample ID: L231409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Inlet-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	3.12	10.4	**5.68**	20.8		F
1,2,4-Trimethylbenzene	3.12	10.4	3.12	20.8		U
1,3-DCB	3.12	10.4	3.12	20.8		U
1,4-DCB	3.12	10.4	3.12	20.8		U
1,2-DCB	3.12	10.4	3.12	20.8		U
1,2,4-Trichlorobenzene	3.12	20.8	3.12	20.8		U
Hexachlorobutadiene	3.12	10.4	3.12	20.8		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	105	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-230812 Lab Sample ID: L231410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	3.21	10.7	3.21	21.4		U
Chloromethane	3.21	10.7	3.21	21.4		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	3.21	10.7	3.21	21.4		U
Vinyl chloride	3.21	10.7	3.21	21.4		U
Bromomethane	3.21	10.7	3.21	21.4		U
Chloroethane	3.21	10.7	3.21	21.4		U
Trichlorofluoromethane	3.21	10.7	3.21	21.4		U
Acetone	3.21	21.4	**24.1**	21.4		
1,1-DCE	3.21	10.7	3.21	21.4		U
Methylene chloride	3.21	53.5	**3.32**	21.4		F
1,1,2-Trichloro-1,2,2-trifluoroethane	3.21	10.7	3.21	21.4		U
MTBE (Methyl tert-Butyl Ether)	3.21	21.4	3.21	21.4		U
1,1-DCA	3.21	10.7	3.21	21.4		U
MEK (2-Butanone)	3.21	21.4	3.21	21.4		U
cis-1,2-DCE	3.21	10.7	**67.0**	21.4		
Chloroform	3.21	10.7	**6.06**	21.4		F
1,2-DCA	3.21	10.7	3.21	21.4		U
1,1,1-TCA	3.21	10.7	3.21	21.4		U
Carbon tetrachloride	3.21	10.7	3.21	21.4		U
Benzene	3.21	10.7	3.21	21.4		U
1,2-Dichloropropane	3.21	10.7	3.21	21.4		U
TCE	3.21	10.7	**210**	21.4		
cis-1,3-Dichloropropene	3.21	10.7	3.21	21.4		U
trans-1,3-Dichloropropene	3.21	10.7	3.21	21.4		U
1,1,2-TCA	3.21	10.7	3.21	21.4		U
Toluene	3.21	10.7	3.21	21.4		U
1,2-EDB	3.21	10.7	3.21	21.4		U
Tetrachloroethylene	3.21	10.7	**200**	21.4		
Chlorobenzene	3.21	10.7	3.21	21.4		U
Ethylbenzene	3.21	10.7	3.21	21.4		U
m,p-Xylene	6.42	21.4	6.42	21.4		U
Styrene	3.21	10.7	3.21	21.4		U
o-Xylene	3.21	10.7	3.21	21.4		U
1,1,2,2-Tetrachloroethane	3.21	10.7	3.21	21.4		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-230812 Lab Sample ID: L231410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	3.21	10.7	**6.68**	21.4		F
1,2,4-Trimethylbenzene	3.21	10.7	**4.24**	21.4		F
1,3-DCB	3.21	10.7	3.21	21.4		U
1,4-DCB	3.21	10.7	3.21	21.4		U
1,2-DCB	3.21	10.7	3.21	21.4		U
1,2,4-Trichlorobenzene	3.21	21.4	3.21	21.4		U
Hexachlorobutadiene	3.21	10.7	3.21	21.4		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	106	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-230812 Lab Sample ID: L231411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	1.29	4.3	1.29	8.6		U
Chloromethane	1.29	4.3	1.29	8.6		Q
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.29	4.3	1.29	8.6		U
Vinyl chloride	1.29	4.3	1.29	8.6		U
Bromomethane	1.29	4.3	1.29	8.6		U
Chloroethane	1.29	4.3	1.29	8.6		U
Trichlorofluoromethane	1.29	4.3	**1.83**	8.6		F
Acetone	1.29	8.6	**16.6**	8.6		
1,1-DCE	1.29	4.3	1.29	8.6		U
Methylene chloride	1.29	21.5	**1.53**	8.6		F
1,1,2-Trichloro-1,2,2-trifluoroethane	1.29	4.3	**1.75**	8.6		F
MTBE (Methyl tert-Butyl Ether)	1.29	8.6	1.29	8.6		U
1,1-DCA	1.29	4.3	1.29	8.6		U
MEK (2-Butanone)	1.29	8.6	**2.06**	8.6		F
cis-1,2-DCE	1.29	4.3	**14.0**	8.6		
Chloroform	1.29	4.3	**12.8**	8.6		
1,2-DCA	1.29	4.3	1.29	8.6		U
1,1,1-TCA	1.29	4.3	1.29	8.6		U
Carbon tetrachloride	1.29	4.3	**2.97**	8.6		F
Benzene	1.29	4.3	1.29	8.6		U
1,2-Dichloropropane	1.29	4.3	1.29	8.6		U
TCE	1.29	4.3	**408**	8.6		
cis-1,3-Dichloropropene	1.29	4.3	1.29	8.6		U
trans-1,3-Dichloropropene	1.29	4.3	1.29	8.6		U
1,1,2-TCA	1.29	4.3	1.29	8.6		U
Toluene	1.29	4.3	1.29	8.6		U
1,2-EDB	1.29	4.3	1.29	8.6		U
Tetrachloroethylene	1.29	4.3	**23.2**	8.6		
Chlorobenzene	1.29	4.3	1.29	8.6		U
Ethylbenzene	1.29	4.3	1.29	8.6		U
m,p-Xylene	2.58	8.6	2.58	8.6		U
Styrene	1.29	4.3	1.29	8.6		U
o-Xylene	1.29	4.3	1.29	8.6		U
1,1,2,2-Tetrachloroethane	1.29	4.3	1.29	8.6		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-230812 Lab Sample ID: L231411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	1.29	4.3	**1.94**	8.6		F
1,2,4-Trimethylbenzene	1.29	4.3	**1.90**	8.6		F
1,3-DCB	1.29	4.3	1.29	8.6		U
1,4-DCB	1.29	4.3	1.29	8.6		U
1,2-DCB	1.29	4.3	1.29	8.6		U
1,2,4-Trichlorobenzene	1.29	8.6	1.29	8.6		U
Hexachlorobutadiene	1.29	4.3	1.29	8.6		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	104	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-230812 Lab Sample ID: L231412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.64	2.1	0.64	4.28		U
Chloromethane	0.64	2.1	0.64	4.28		Q
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.64	2.1	0.64	4.28		U
Vinyl chloride	0.64	2.1	0.64	4.28		U
Bromomethane	0.64	2.1	0.64	4.28		U
Chloroethane	0.64	2.1	0.64	4.28		U
Trichlorofluoromethane	0.64	2.1	**1.53**	4.28		F
Acetone	0.64	4.3	**8.98**	4.28		
1,1-DCE	0.64	2.1	**1.77**	4.28		F
Methylene chloride	0.64	10.7	**1.37**	4.28		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.64	2.1	**1.89**	4.28		F
MTBE (Methyl tert-Butyl Ether)	0.64	4.3	0.64	4.28		U
1,1-DCA	0.64	2.1	0.64	4.28		U
MEK (2-Butanone)	0.64	4.3	0.64	4.28		U
cis-1,2-DCE	0.64	2.1	**8.15**	4.28		
Chloroform	0.64	2.1	**5.82**	4.28		
1,2-DCA	0.64	2.1	0.64	4.28		U
1,1,1-TCA	0.64	2.1	0.64	4.28		U
Carbon tetrachloride	0.64	2.1	**6.92**	4.28		
Benzene	0.64	2.1	**0.65**	4.28		F
1,2-Dichloropropane	0.64	2.1	0.64	4.28		U
TCE	0.64	2.1	**255**	4.28		
cis-1,3-Dichloropropene	0.64	2.1	0.64	4.28		U
trans-1,3-Dichloropropene	0.64	2.1	0.64	4.28		U
1,1,2-TCA	0.64	2.1	0.64	4.28		U
Toluene	0.64	2.1	0.64	4.28		U
1,2-EDB	0.64	2.1	0.64	4.28		U
Tetrachloroethylene	0.64	2.1	**19.0**	4.28		
Chlorobenzene	0.64	2.1	0.64	4.28		U
Ethylbenzene	0.64	2.1	0.64	4.28		U
m,p-Xylene	1.28	4.3	**1.37**	4.28		F
Styrene	0.64	2.1	0.64	4.28		U
o-Xylene	0.64	2.1	0.64	4.28		U
1,1,2,2-Tetrachloroethane	0.64	2.1	0.64	4.28		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-230812 Lab Sample ID: L231412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 10 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.64	2.1	**2.29**	4.28		
1,2,4-Trimethylbenzene	0.64	2.1	**2.45**	4.28		
1,3-DCB	0.64	2.1	0.64	4.28		U
1,4-DCB	0.64	2.1	0.64	4.28		U
1,2-DCB	0.64	2.1	0.64	4.28		U
1,2,4-Trichlorobenzene	0.64	4.3	0.64	4.28		U
Hexachlorobutadiene	0.64	2.1	0.64	4.28		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	104	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-230812 Lab Sample ID: L231413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.26	0.9	**0.48**	1.74		F
Chloromethane	0.26	0.9	**0.30**	1.74		F
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.26	0.9	0.26	1.74		U
Vinyl chloride	0.26	0.9	0.26	1.74		U
Bromomethane	0.26	0.9	**0.55**	1.74		F
Chloroethane	0.26	0.9	0.26	1.74		U
Trichlorofluoromethane	0.26	0.9	0.26	1.74		U
Acetone	0.26	1.7	**15.6**	1.74		
1,1-DCE	0.26	0.9	0.26	1.74		U
Methylene chloride	0.26	4.4	**0.58**	1.74		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.26	0.9	0.26	1.74		U
MTBE (Methyl tert-Butyl Ether)	0.26	1.7	0.26	1.74		U
1,1-DCA	0.26	0.9	0.26	1.74		U
MEK (2-Butanone)	0.26	1.7	**2.15**	1.74		
cis-1,2-DCE	0.26	0.9	0.26	1.74		U
Chloroform	0.26	0.9	0.26	1.74		U
1,2-DCA	0.26	0.9	0.26	1.74		U
1,1,1-TCA	0.26	0.9	0.26	1.74		U
Carbon tetrachloride	0.26	0.9	0.26	1.74		U
Benzene	0.26	0.9	0.26	1.74		U
1,2-Dichloropropane	0.26	0.9	0.26	1.74		U
TCE	0.26	0.9	0.26	1.74		U
cis-1,3-Dichloropropene	0.26	0.9	0.26	1.74		U
trans-1,3-Dichloropropene	0.26	0.9	0.26	1.74		U
1,1,2-TCA	0.26	0.9	0.26	1.74		U
Toluene	0.26	0.9	0.26	1.74		U
1,2-EDB	0.26	0.9	0.26	1.74		U
Tetrachloroethylene	0.26	0.9	0.26	1.74		U
Chlorobenzene	0.26	0.9	0.26	1.74		U
Ethylbenzene	0.26	0.9	0.26	1.74		U
m,p-Xylene	0.52	1.7	0.52	1.74		U
Styrene	0.26	0.9	0.26	1.74		U
o-Xylene	0.26	0.9	0.26	1.74		U
1,1,2,2-Tetrachloroethane	0.26	0.9	0.26	1.74		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-230812 Lab Sample ID: L231413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 8 Sep 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.26	0.9	0.26	1.74		U
1,2,4-Trimethylbenzene	0.26	0.9	0.26	1.74		U
1,3-DCB	0.26	0.9	0.26	1.74		U
1,4-DCB	0.26	0.9	0.26	1.74		U
1,2-DCB	0.26	0.9	0.26	1.74		U
1,2,4-Trichlorobenzene	0.26	1.7	0.26	1.74		U
Hexachlorobutadiene	0.26	0.9	0.26	1.74		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	103	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: TO15
Matrix: Air

Instrument ID: MSAA
Concentration Units: ppbv

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Dichlorodifluoromethane	10/01/11	0.15	0.24	0.23	0.24	0.22	0.22	0.21	0.22		0.01	0.15
Chloromethane	10/01/11	0.15	0.22	0.24	0.27	0.23	0.26	0.25	0.27		0.02	0.15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	10/01/11	0.15	0.34	0.33	0.31	0.26	0.27	0.24	0.25		0.04	0.15
Vinyl chloride	10/01/11	0.15	0.16	0.20	0.20	0.18	0.19	0.17	0.20		0.02	0.15
Bromomethane	10/01/11	0.15	0.25	0.26	0.27	0.23	0.23	0.22	0.25		0.02	0.15
Chloroethane	10/01/11	0.15	0.19	0.20	0.20	0.17	0.20	0.17	0.16		0.02	0.15
Trichlorofluoromethane	10/01/11	0.15	0.19	0.21	0.21	0.19	0.20	0.19	0.20		0.01	0.15
Acetone	10/01/11	0.15	1.81	1.89	1.91	1.82	1.93	1.86	1.88		0.04	0.15
1,1-DCE	10/01/11	0.15	0.17	0.18	0.20	0.18	0.19	0.17	0.18		0.01	0.15
Methylene chloride	10/01/11	0.15	0.33	0.37	0.39	0.38	0.41	0.37	0.40		0.03	0.15
1,1,2-Trichloro-1,2,2-trifluoroethane	10/01/11	0.15	0.18	0.19	0.20	0.18	0.19	0.18	0.21		0.01	0.15
MTBE (Methyl tert-Butyl Ether)	10/01/11	0.15	0.17	0.18	0.18	0.16	0.17	0.16	0.17		0.01	0.15
1,1-DCA	10/01/11	0.15	0.17	0.18	0.19	0.16	0.19	0.17	0.18		0.01	0.15
MEK (2-Butanone)	10/01/11	0.15	0.33	0.33	0.35	0.28	0.31	0.28	0.24		0.04	0.15
cis-1,2-DCE	10/01/11	0.15	0.16	0.17	0.18	0.16	0.19	0.16	0.18		0.01	0.15
Chloroform	10/01/11	0.15	0.17	0.18	0.19	0.17	0.18	0.17	0.18		0.01	0.15
1,2-DCA	10/01/11	0.15	0.16	0.16	0.16	0.15	0.15	0.15	0.16		0.01	0.15
1,1,1-TCA	10/01/11	0.15	0.18	0.19	0.20	0.18	0.19	0.17	0.19		0.01	0.15
Carbon tetrachloride	10/01/11	0.15	0.13	0.13	0.14	0.12	0.13	0.12	0.13		0.01	0.15
Benzene	10/01/11	0.15	0.21	0.23	0.23	0.20	0.22	0.21	0.22		0.01	0.15
1,2-Dichloropropane	10/01/11	0.15	0.18	0.19	0.18	0.18	0.18	0.19	0.18		0.005	0.15
TCE	10/01/11	0.15	0.20	0.18	0.20	0.19	0.18	0.20	0.19		0.01	0.15
cis-1,3-Dichloropropene	10/01/11	0.15	0.16	0.15	0.15	0.15	0.14	0.15	0.14		0.01	0.15
trans-1,3-Dichloropropene	10/01/11	0.15	0.13	0.13	0.11	0.12	0.12	0.12	0.12		0.01	0.15
1,1,2-TCA	10/01/11	0.15	0.17	0.16	0.17	0.17	0.16	0.16	0.16		0.01	0.15
Toluene	10/01/11	0.15	0.19	0.18	0.19	0.19	0.18	0.19	0.19		0.005	0.15
1,2-EDB	10/01/11	0.15	0.15	0.14	0.15	0.15	0.15	0.15	0.14		0.005	0.15
Tetrachloroethylene	10/01/11	0.15	0.17	0.17	0.16	0.16	0.16	0.16	0.17		0.01	0.15
Chlorobenzene	10/01/11	0.15	0.18	0.18	0.18	0.17	0.17	0.17	0.17		0.01	0.15
Ethylbenzene	10/01/11	0.15	0.16	0.16	0.17	0.16	0.16	0.16	0.16		0.004	0.15
m,p-Xylene	10/01/11	0.15	0.31	0.31	0.31	0.32	0.31	0.31	0.30		0.01	0.30
Styrene	10/01/11	0.15	0.12	0.12	0.11	0.11	0.11	0.12	0.12		0.01	0.15
o-Xylene	10/01/11	0.15	0.16	0.15	0.16	0.15	0.15	0.15	0.15		0.005	0.15
1,1,2,2-Tetrachloroethane	10/01/11	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.16		0.004	0.15
1,3,5-Trimethylbenzene	10/01/11	0.15	0.13	0.13	0.12	0.12	0.13	0.12	0.13		0.01	0.15
1,2,4-Trimethylbenzene	10/01/11	0.15	0.13	0.12	0.12	0.11	0.12	0.12	0.12		0.01	0.15
1,3-DCB	10/01/11	0.15	0.14	0.13	0.13	0.13	0.13	0.13	0.12		0.01	0.15
1,4-DCB	10/01/11	0.15	0.14	0.14	0.13	0.13	0.12	0.12	0.12		0.01	0.15
1,2-DCB	10/01/11	0.15	0.15	0.15	0.14	0.13	0.13	0.14	0.13		0.01	0.15
1,2,4-Trichlorobenzene	10/01/11	0.15	0.14	0.12	0.12	0.12	0.11	0.11	0.11		0.01	0.15
Hexachlorobutadiene	10/01/11	0.15	0.16	0.15	0.15	0.16	0.14	0.14	0.16		0.01	0.15

FIXED GASES ANALYSIS
BY SM 2720C

AFCEE
ORGANIC ANALYSES DATA PACKAGE

Analytical Method: SM2720C

SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO

Contract #: N/A

Base/Command: KIRTLAND AFB (AIR)

Prime Contractor: CH2M HILL

Project: BHATE/KAFB ST70/ST219

Field Sample ID	Lab Sample ID
ST70-AR-29H-230812	L231401
ST70-AR-40-20-230812	L231402
ST70-AR-38-41-230812	L231403
ST70-AR-38-99-230812	L231404
ST70-AR-41-230812	L231405
ST70-AR-39-42-230812	L231406
ST70-AR-Exhaust-230812	L231407
ST70-AR-Mid-230812	L231408
ST70-AR-Inlet-230812	L231409
ST70-AR-28H-230812	L231410
ST70-AR-7002-230812	L231411
ST70-AR-7003-230812	L231412
ST70-AR-7001-230812	L231413

Comments:

See attached narrative

CASE NARRATIVE
VOLATILE ORGANIC ANALYSIS

Analytical Method: Fixed Gases by Method SM2720C

SDG: L2314

Lab Name: CH2M HILL Applied Science Laboratories

Project # 427024.01.03.02

Base/Command: BHATE/KAFB ST70/ST 219

Prime Contractor:

I. RECEIPT

A. Date: 8-27-2012

B. Sample Information:

LAB SAMPLE ID	CLIENT SAMPLE ID	CANISTER ID	SAMPLE MATRIX	DATE SAMPLED	TIME SAMPLED	RECEIVED PRESS. (torr)
L231401	ST70-AR-29H-230812	SG1831	AIR	8/23/2012	12:33	579
L231402	ST70-AR-40-20-230812	SG1421	AIR	8/23/2012	12:43	561
L231403	ST70-AR-38-41-230812	SG1329	AIR	8/23/2012	12:54	577
L231404	ST70-AR-38-99-230812	SG1766	AIR	8/23/2012	13:00	568
L231405	ST70-AR-41-230812	SG1438	AIR	8/23/2012	13:11	574
L231406	ST70-AR-39-42-230812	SG1362	AIR	8/23/2012	13:26	586
L231407	ST70-AR-Exhaust-230812	SG1681	AIR	8/23/2012	13:52	587
L231408	ST70-AR-Mid-230812	SG1756	AIR	8/23/2012	13:57	588
L231409	ST70-AR-Inlet-230812	SG1320	AIR	8/23/2012	14:03	593
L231410	ST70-AR-28H-230812	SG1768	AIR	8/23/2012	14:12	613
L231411	ST70-AR-7002-230812	SG1894	AIR	8/23/2012	14:22	600
L231412	ST70-AR-7003-230812	SG1363	AIR	8/23/2012	14:32	596
L231413	ST70-AR-7001-230812	SG1884	AIR	8/23/2012	16:00	593

II. Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Calibration:
All acceptance criteria were met.

B. Blanks:
All acceptance criteria were met.

C. Duplicate Sample(s):
All acceptance criteria were met.

D. Laboratory Control Sample (LCS):
All acceptance criteria were met.

E. Matrix Spike(MS)/Matrix Spike Duplicate(MSD):
Not applicable.

IV. Sampling Equipment Exceptions:
None.

V. Documentation Exceptions:
None.

VI. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared By: Doug Malcolm Date: 9-10-12

Reviewed By: [illegible] Date: 09-26-12

SAMPLE DATA SUMMARY

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-230812 Lab Sample ID: L231401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.56	1.4	**17.0**	2.25		
Nitrogen	0.56	2.3	**75.6**	2.25		
Carbon Monoxide	0.16	1.1	0.16	2.25		U
Methane	0.16	1.1	0.16	2.25		U
Carbon Dioxide	0.16	1.1	**7.41**	2.25		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-230812 Lab Sample ID: L231402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.58	1.4	**12.1**	2.3		
Nitrogen	0.58	2.3	**74.8**	2.3		
Carbon Monoxide	0.16	1.2	0.16	2.3		U
Methane	0.16	1.2	**0.36**	2.3		F
Carbon Dioxide	0.16	1.2	**12.8**	2.3		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-230812 Lab Sample ID: L231403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.52	1.3	**11.0**	2.09		
Nitrogen	0.52	2.1	**75.4**	2.09		
Carbon Monoxide	0.15	1.0	0.15	2.09		U
Methane	0.15	1.0	**1.07**	2.09		
Carbon Dioxide	0.15	1.0	**12.5**	2.09		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-230812 Lab Sample ID: L231404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.57	1.4	**6.87**	2.26		
Nitrogen	0.57	2.3	**77.2**	2.26		
Carbon Monoxide	0.16	1.1	0.16	2.26		U
Methane	0.16	1.1	0.16	2.26		U
Carbon Dioxide	0.16	1.1	**15.9**	2.26		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-230812 Lab Sample ID: L231405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.57	1.4	**24.5**	2.27		
Nitrogen	0.57	2.3	**74.2**	2.27		
Carbon Monoxide	0.16	1.1	0.16	2.27		U
Methane	0.16	1.1	0.16	2.27		U
Carbon Dioxide	0.16	1.1	**1.31**	2.27		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-230812 Lab Sample ID: L231406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.55	1.3	**4.94**	2.2		
Nitrogen	0.55	2.2	**76.9**	2.2		
Carbon Monoxide	0.15	1.1	0.15	2.2		U
Methane	0.15	1.1	0.15	2.2		U
Carbon Dioxide	0.15	1.1	**18.2**	2.2		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-230812 Lab Sample ID: L231407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.53	1.3	**18.7**	2.13		
Nitrogen	0.53	2.1	**76.3**	2.13		
Carbon Monoxide	0.15	1.1	0.15	2.13		U
Methane	0.15	1.1	0.15	2.13		U
Carbon Dioxide	0.15	1.1	**5.03**	2.13		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Mid-230812 Lab Sample ID: L231408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Mid-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.53	1.3	**18.3**	2.1		
Nitrogen	0.53	2.1	**76.3**	2.1		
Carbon Monoxide	0.15	1.1	0.15	2.1		U
Methane	0.15	1.1	0.15	2.1		U
Carbon Dioxide	0.15	1.1	**5.47**	2.1		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Inlet-230812 Lab Sample ID: L231409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Inlet-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.51	1.2	**18.7**	2.05		
Nitrogen	0.51	2.1	**76.2**	2.05		
Carbon Monoxide	0.14	1.0	0.14	2.05		U
Methane	0.14	1.0	0.14	2.05		U
Carbon Dioxide	0.14	1.0	**5.12**	2.05		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-230812 Lab Sample ID: L231410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.53	1.3	**18.7**	2.12		
Nitrogen	0.53	2.1	**76.2**	2.12		
Carbon Monoxide	0.15	1.1	0.15	2.12		U
Methane	0.15	1.1	0.15	2.12		U
Carbon Dioxide	0.15	1.1	**5.11**	2.12		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-230812 Lab Sample ID: L231411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.53	1.3	**24.0**	2.13		
Nitrogen	0.53	2.1	**74.6**	2.13		
Carbon Monoxide	0.15	1.1	0.15	2.13		U
Methane	0.15	1.1	0.15	2.13		U
Carbon Dioxide	0.15	1.1	**1.34**	2.13		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-230812 Lab Sample ID: L231412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.53	1.3	**24.8**	2.12		
Nitrogen	0.53	2.1	**74.9**	2.12		
Carbon Monoxide	0.15	1.1	0.15	2.12		U
Methane	0.15	1.1	0.15	2.12		U
Carbon Dioxide	0.15	1.1	**0.30**	2.12		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-230812 Lab Sample ID: L231413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.54	1.3	**25.6**	2.17		
Nitrogen	0.54	2.2	**74.5**	2.17		
Carbon Monoxide	0.15	1.1	0.15	2.17		U
Methane	0.15	1.1	0.15	2.17		U
Carbon Dioxide	0.15	1.1	0.15	2.17		U

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SM2720C
Matrix: Air

Instrument ID: GCA
Concentration Units: Percent

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Oxygen	11/22/11	0.25	0.17	0.16	0.18	0.17	0.17	0.15	0.17		0.06	0.25
Nitrogen	11/22/11	0.50	0.15	0.11	0.05	0.06	0.12	0.04	0.08		0.05	0.25
Carbon Monoxide	11/22/11	0.25	0.21	0.23	0.21	0.20	0.21	0.21	0.22		0.08	0.07
Methane	11/22/11	0.20	0.16	0.18	0.17	0.17	0.18	0.17	0.18		0.06	0.07
Carbon Dioxide	11/22/11	0.25	0.22	0.22	0.21	0.20	0.22	0.21	0.22		0.08	0.07

TPH-GAS IN AIR BY SW 8015M

AFCEE
ORGANIC ANALYSES DATA PACKAGE

Analytical Method: SW8015M

SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO

Contract #: N/A

Base/Command: KIRTLAND AFB (AIR)

Prime Contractor: CH2M HILL

Project: BHATE/KAFB ST70/ST219

Field Sample ID	Lab Sample ID
ST70-AR-29H-230812	L231401
ST70-AR-40-20-230812	L231402
ST70-AR-38-41-230812	L231403
ST70-AR-38-99-230812	L231404
ST70-AR-41-230812	L231405
ST70-AR-39-42-230812	L231406
ST70-AR-Exhaust-230812	L231407
ST70-AR-Mid-230812	L231408
ST70-AR-Inlet-230812	L231409
ST70-AR-28H-230812	L231410
ST70-AR-7002-230812	L231411
ST70-AR-7003-230812	L231412
ST70-AR-7001-230812	L231413

Comments:

See attached narrative

CASE NARRATIVE
VOLATILE ORGANIC ANALYSIS

Analytical Method: TPH Gas by Method SW8015M

SDG: L2314

Lab Name: CH2M HILL Applied Science Laboratories

Project # 427024.01.03.02

Base/Command: BHATE/KAFB ST70/ST 219

Prime Contractor:

I. RECEIPT

A. Date: 8-27-2012

B. Sample Information:

LAB SAMPLE ID	CLIENT SAMPLE ID	CANISTER ID	SAMPLE MATRIX	DATE SAMPLED	TIME SAMPLED	RECEIVED PRESS. (torr)
L231401	ST70-AR-29H-230812	SG1831	AIR	8/23/2012	12:33	579
L231402	ST70-AR-40-20-230812	SG1421	AIR	8/23/2012	12:43	561
L231403	ST70-AR-38-41-230812	SG1329	AIR	8/23/2012	12:54	577
L231404	ST70-AR-38-99-230812	SG1766	AIR	8/23/2012	13:00	568
L231405	ST70-AR-41-230812	SG1438	AIR	8/23/2012	13:11	574
L231406	ST70-AR-39-42-230812	SG1362	AIR	8/23/2012	13:26	586
L231407	ST70-AR-Exhaust-230812	SG1681	AIR	8/23/2012	13:52	587
L231408	ST70-AR-Mid-230812	SG1756	AIR	8/23/2012	13:57	588
L231409	ST70-AR-Inlet-230812	SG1320	AIR	8/23/2012	14:03	593
L231410	ST70-AR-28H-230812	SG1768	AIR	8/23/2012	14:12	613
L231411	ST70-AR-7002-230812	SG1894	AIR	8/23/2012	14:22	600
L231412	ST70-AR-7003-230812	SG1363	AIR	8/23/2012	14:32	596
L231413	ST70-AR-7001-230812	SG1884	AIR	8/23/2012	16:00	593

II. Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Calibration:
All acceptance criteria were met.

B. Blanks:
All acceptance criteria were met.

C. Duplicate Sample(s):
All acceptance criteria were met.

D. Laboratory Control Sample (LCS):
All acceptance criteria were met.

E. Matrix Spike(MS)/Matrix Spike Duplicate(MSD):
Not applicable.

F. Manual Integrations:
Level 1 of the TPHA_44 TPH Gas calibration was manually integrated. A manual integration was performed on client sample L231401 and the duplicate analysis.

IV. Sampling Equipment Exceptions:
None.

V. Documentation Exceptions:
None.

VI. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared By: Doug Malcolm Date: 9-10-12

Reviewed By: [illegible] Date: 09/20/12

SAMPLE DATA SUMMARY

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-230812 Lab Sample ID: L231401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.75	56.3	**40.9**	2.25		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-230812 Lab Sample ID: L231402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.90	57.5	**6590**	2.3		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-230812 Lab Sample ID: L231403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.27	52.3	**4000**	2.09		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-230812 Lab Sample ID: L231404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.78	56.5	**3490**	2.26		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-230812 Lab Sample ID: L231405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.81	56.8	**174**	2.27		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-230812 Lab Sample ID: L231406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.60	55.0	709	2.2		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-230812 Lab Sample ID: L231407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.39	53.3	**89.0**	2.13		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Mid-230812 Lab Sample ID: L231408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Mid-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.30	52.5	**256**	2.1		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Inlet-230812 Lab Sample ID: L231409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Inlet-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.15	51.3	**585**	2.05		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-230812 Lab Sample ID: L231410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.36	53.0	**524**	2.12		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-230812 Lab Sample ID: L231411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.39	53.3	**71.8**	2.13		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-230812 Lab Sample ID: L231412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.36	53.0	**62.8**	2.12		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2314

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-230812 Lab Sample ID: L231413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-230812

Date Received: 27 Aug 12 Date Prepared: Date Analyzed: 7 Sep 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.51	54.3	**15.8**	2.17		F

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8015M
Matrix: Air

Instrument ID: GCD
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
TPH-Gasoline	02/14/12	3.91	2.43	4.73	4.23	2.04	4.50	3.82	4.24	4.08	0.99	3.00

CHAIN OF CUSTODY/SHIPPING DOCUMENTS

130X 20-8°C

L2314

Project/Contact Information	
Project #	427024.01.03.02
Project Name	KAFB ST-70, TO-17/TO-37
Report Copy to	Molive@Bhate.com
Company Name/Contact	CH2M HILL- ABQ\ Ben Moayyad

Requested Analysis			
VOC TO-15 (including acetone, MTBE, and MEK)	Tr-H-gasoline SW8015M	Fixed Gasses SM2320C	
Preservative			
none	none	none	

THIS AREA FOR LAB USE ONLY	
Lab #	Pg 1 of 1
Lab PM	Custody Review
Log In	LIMS Verification
pH	Cust Seals Y N Ice
QC Level 1 2 3	

Sampling Date	Sampling Time	Type Comp	Type Grab	Matrix Water	Matrix Soil	Matrix Air	Client Sample ID	LAB QC	Total Number of Containers	VOC TO-15	Tr-H-gasoline	Fixed Gasses		Alternate Description	Lab ID
8/23/12	12:33		X			X	ST70-AR- 29H -230812		1	X	X	X		Can #: SG 1831	-1
8/23/12	12:43		X			X	ST70-AR- 40-20 -230812		1	X	X	X		Can #: SG 1421	-2
8/23/12	12:54		X			X	ST70-AR- 38-41 -230812		1	X	X	X		Can #: SG 1329	-3
8/23/12	13:00		X			X	ST70-AR- 38-99 -230812		1	X	X	X		Can #: SG 1766	-4
8/23/12	13:11		X			X	ST70-AR- 41 -230812		1	X	X	X		Can #: SG 1438	-5
8/23/12	13:26		X			X	ST70-AR- 39-42 -230812		1	X	X	X		Can #: SG 1362	-6
8/23/12	13:52		X			X	ST70-AR- Exhaust -230812		1	X	X	X		Can #: SG 1681	-7
8/23/12	13:57		X			X	ST70-AR- Mid -230812		1	X	X	X		Can #: SG 1756	-8
8/23/12	14:03		X			X	ST70-AR- Inlet -230812		1	X	X	X		Can #: SG 1320	-9
8/23/12	14:12		X			X	ST70-AR- 28H -230812		1	X	X	X		Can #: SG 1768	-10
8/23/12	14:22		X			X	ST70-AR- 7002 -230812		1	X	X	X		Can #: SG 1894	-11
8/23/12	14:32		X			X	ST70-AR- 7003 -230812		1	X	X	X		Can #: SG 1363	-12
8/23/12	16:00		X			X	ST70-AR- 7001 -230812		1	X	X	X		Can #: SG 1884	-13

Cooler Temperature

Note - 2 extra canisters not used

SG1680 SG1770

Sampled By	Ben Moayyad	Relinquished By	1600 8/24/12
Received By	8/27/12 10:00	Relinquished By	
Received By		Date/Time	
Special Instructions			

SHIPPED: 407IG.

AIRBILL:

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2314
Client/Project: KAFB

Date received: 8-27-12
Checked by: RM
Checked by: _____

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD		✓	
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: Ice Blue Ice Bubble wrap AIR		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER 20.8 °C		✓	
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER	✓		
Enough sample volume provided for analysis? No, document in SRER		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Marcia Olive, Bhate Environmental Associates, Denver, Colorado.

Introduction

This data validation report covers samples taken from former Kirtland Air Force Base, New Mexico, on August 22, 2012. One aqueous sample and associated trip blank were collected from site ST70. The analyses were performed by Test America Laboratory Denver, Colorado. The specific sample included in this validation was:

Sample ID	Matrix	Collection Date	Analyses
ST70-GW-7001-220812	Water	8/22/12	VOCs(SW8260B), Nitrate (EPA 300), RCRA 8 Metals (SW6010C/7470A), TPH-GRO (SW8015C)
ST70-TB-7001-220812			VOCs (SW8260B)

This data was validated against the laboratory's QA/QC limits using the guidelines and practices published in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, June 2008), the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2010).

Sample Handling and Holding times

The samples were prepared and analyzed within method specific sample holding times.

Blanks

1,2,3-Trichlorobenzene was detected in the trip blank and method blank along with methylene chloride. These compounds were not detected in the sample; therefore no qualification was necessary.

Laboratory control sample (LCS)/surrogates

The laboratory control sample (LCS) recoveries were within QC control limits.

The TPH-GRO surrogate recovery for aaa-trifluorotoluene was above QC limits for the MS/MSD analyses. The sample used (ST70-GW-7001-220812) did not yield a positive detection for this compound. Additionally, precision and accuracy were demonstrated by satisfactory LCS and LCSD data. Therefore, qualification was deemed unnecessary.

Project specific quality assurance/quality control

The matrix spike (MS)/matrix spike duplicate (MSD) recoveries were within control for all compounds in all analyses

Compound quantitation and reporting limits

No dilutions were required. All compounds were reported down to their respective reporting limits.

Overall assessment of data

All analyses were performed, and the data met the required QC criteria. The data is 100% complete.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-32453-1
Client Project/Site: Bhate - Kirtland AFB, NM / ST70

For:
Bhate Environmental
445 Union Blvd Ste.129
Lakewood, Colorado 80226

Attn: Marcia Olive

Authorized for release by:
9/6/2012 4:01:06 PM

Lisa Uriell
Project Manager II
lisa.uriell@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-32453-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: Bhate Environmental

Project: Kirtland AFB, NM / ST70

Report Number: 280-32453-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Please note, all references to reporting limit and method detection limit in the case narrative are equivalent to the limit of quantitation (LOQ) and detection limit (DL).

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Sample Receiving
One water sample and one trip blank were received under Chain of Custody on August 23, 2012 at a temperature of 5.6°C. The samples arrived in good condition, properly preserved and on ice.

Analyses were listed on the chain of custody (COC); however, individual samples were not designated for specific analyses. The samples were logged per project scope and containers received. The client was notified via email on August 23, 2012.

No other anomalies were observed during sample receipt.

GCMS Volatiles, SW846 8260B
Low levels of 1,2,3-Trichlorobenzene and Methylene Chloride were detected in the method blank associated with batch 280-135528. The values should be considered estimates, and have been flagged “J”. Because the concentrations in the method blank were not present at levels greater than one half the reporting limits, corrective action was deemed unnecessary. Usability of the sample data is not compromised.

No other anomalies were observed.

GC Volatiles, SW846 8015B Gasoline Range Organics
The MS/MSD analyses associated with batch 280-134644 were performed on sample ST70-GW-7001-220812 (280-32453-1) as requested. The MS/MSD exhibited surrogate recoveries outside the QC control limits for a,a,a-Trifluorotoluene. The associated results have been flagged “Q” per the DoD QSM. Method precision and accuracy has been verified by the acceptable LCS/LCSD analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were observed.

Dissolved Metals, SW846 6010B/7470A
No anomalies were observed.

Job ID: 280-32453-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

General Chemistry - 300.0 Nitrate
No anomalies were observed.

Definitions/Glossary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.
Q	One or more quality control criteria failed.

Metals

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

General Chemistry

Qualifier	Qualifier Description
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Client Sample ID: ST70-GW-7001-220812 — Lab Sample ID: 280-32453-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Chlorodibromomethane	0.28	J	1.0	0.17	ug/L	1		8260B/DoD	Total/NA
Chloroform	0.20	J	1.0	0.16	ug/L	1		8260B/DoD	Total/NA
Dichlorobromomethane	0.20	J	1.0	0.17	ug/L	1		8260B/DoD	Total/NA
Trichloroethene	1.6		1.0	0.16	ug/L	1		8260B/DoD	Total/NA
Barium	44		10	0.58	ug/L	1		6010C	Dissolved
Chromium	4.7	J	15	0.66	ug/L	1		6010C	Dissolved
Selenium	22		22	4.9	ug/L	1		6010C	Dissolved
Nitrate as N	6.8		0.50	0.042	mg/L	1		300.0	Total/NA

Client Sample ID: ST70-TB-7001-220812 — Lab Sample ID: 280-32453-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
1,2,3-Trichlorobenzene	0.23	J	1.0	0.18	ug/L	1		8260B/DoD	Total/NA

Method Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Method	Method Description	Protocol	Laboratory
8260B/DoD	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015C	Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)	SW846	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
300.0	Anions, Ion Chromatography	MCAWW	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-32453-1	ST70-GW-7001-220812	Water	08/22/12 16:00	08/23/12 09:00
280-32453-2	ST70-TB-7001-220812	Water	08/22/12 12:00	08/23/12 09:00

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS)

Client Sample ID: ST70-GW-7001-220812
Date Collected: 08/22/12 16:00
Date Received: 08/23/12 09:00

Lab Sample ID: 280-32453-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.20	U	1.0	0.17	ug/L			09/04/12 11:13	1
1,1,1-Trichloroethane	0.20	U	1.0	0.16	ug/L			09/04/12 11:13	1
1,2,3-Trichloropropane	0.80	U	3.0	0.77	ug/L			09/04/12 11:13	1
1,2,3-Trichlorobenzene	0.40	U	1.0	0.18	ug/L			09/04/12 11:13	1
1,1-Dichloroethane	0.20	U	1.0	0.16	ug/L			09/04/12 11:13	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.32	ug/L			09/04/12 11:13	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	0.81	ug/L			09/04/12 11:13	1
1,1-Dichloropropene	0.40	U	1.0	0.15	ug/L			09/04/12 11:13	1
1,1-Dichloroethene	0.20	U	1.0	0.14	ug/L			09/04/12 11:13	1
1,1,2-Trichloroethane	0.40	U	1.0	0.32	ug/L			09/04/12 11:13	1
1,1,2,2-Tetrachloroethane	0.40	U	1.0	0.20	ug/L			09/04/12 11:13	1
1,2,4-Trimethylbenzene	0.20	U	1.0	0.14	ug/L			09/04/12 11:13	1
1,2-Dichlorobenzene	0.20	U	1.0	0.13	ug/L			09/04/12 11:13	1
1,2-Dichloroethane	0.20	U	1.0	0.13	ug/L			09/04/12 11:13	1
1,3-Dichlorobenzene	0.20	U	1.0	0.16	ug/L			09/04/12 11:13	1
1,3-Dichloropropane	0.20	U	1.0	0.15	ug/L			09/04/12 11:13	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.14	ug/L			09/04/12 11:13	1
2-Butanone (MEK)	3.2	U	6.0	1.8	ug/L			09/04/12 11:13	1
1,4-Dichlorobenzene	0.40	U	1.0	0.16	ug/L			09/04/12 11:13	1
1,2-Dichloropropane	0.20	U	1.0	0.13	ug/L			09/04/12 11:13	1
2,2-Dichloropropane	0.40	U	1.0	0.20	ug/L			09/04/12 11:13	1
2-Hexanone	3.2	U	5.0	1.4	ug/L			09/04/12 11:13	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	1.0	ug/L			09/04/12 11:13	1
4-Isopropyltoluene	0.40	U	1.0	0.17	ug/L			09/04/12 11:13	1
Benzene	0.20	U	1.0	0.16	ug/L			09/04/12 11:13	1
Acetone	6.4	U	10	1.9	ug/L			09/04/12 11:13	1
Bromobenzene	0.20	U	1.0	0.17	ug/L			09/04/12 11:13	1
Bromoform	0.40	U	1.0	0.19	ug/L			09/04/12 11:13	1
Bromomethane	0.40	U	2.0	0.21	ug/L			09/04/12 11:13	1
Carbon tetrachloride	0.40	U	2.0	0.19	ug/L			09/04/12 11:13	1
Carbon disulfide	0.80	U	2.0	0.45	ug/L			09/04/12 11:13	1
2-Chlorotoluene	0.40	U	1.0	0.17	ug/L			09/04/12 11:13	1
4-Chlorotoluene	0.40	U	1.0	0.17	ug/L			09/04/12 11:13	1
Chlorobenzene	0.20	U	1.0	0.17	ug/L			09/04/12 11:13	1
Chlorobromomethane	0.20	U	1.0	0.10	ug/L			09/04/12 11:13	1
Chlorodibromomethane	**0.28**	**J**	1.0	0.17	ug/L			09/04/12 11:13	1
Chloroform	**0.20**	**J**	1.0	0.16	ug/L			09/04/12 11:13	1
Chloroethane	1.6	U	2.0	0.41	ug/L			09/04/12 11:13	1
Chloromethane	0.80	U	2.0	0.30	ug/L			09/04/12 11:13	1
cis-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			09/04/12 11:13	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.16	ug/L			09/04/12 11:13	1
Dibromomethane	0.40	U	1.0	0.17	ug/L			09/04/12 11:13	1
Dichlorobromomethane	**0.20**	**J**	1.0	0.17	ug/L			09/04/12 11:13	1
Dichlorodifluoromethane	0.80	U	2.0	0.31	ug/L			09/04/12 11:13	1
Ethylbenzene	0.20	U	1.0	0.16	ug/L			09/04/12 11:13	1
Hexachlorobutadiene	0.40	U	1.0	0.36	ug/L			09/04/12 11:13	1
Isopropylbenzene	0.40	U	1.0	0.19	ug/L			09/04/12 11:13	1
Ethylene Dibromide	0.20	U	1.0	0.18	ug/L			09/04/12 11:13	1
Methylene Chloride	0.40	U	5.0	0.32	ug/L			09/04/12 11:13	1
Methyl tert-butyl ether	0.40	U	5.0	0.25	ug/L			09/04/12 11:13	1
m-Xylene & p-Xylene	0.80	U	2.0	0.34	ug/L			09/04/12 11:13	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: ST70-GW-7001-220812 — **Lab Sample ID: 280-32453-1**
Date Collected: 08/22/12 16:00 — **Matrix: Water**
Date Received: 08/23/12 09:00

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.80	U	1.0	0.22	ug/L			09/04/12 11:13	1
n-Butylbenzene	0.40	U	1.0	0.32	ug/L			09/04/12 11:13	1
N-Propylbenzene	0.20	U	1.0	0.16	ug/L			09/04/12 11:13	1
o-Xylene	0.40	U	1.0	0.19	ug/L			09/04/12 11:13	1
Styrene	0.40	U	1.0	0.17	ug/L			09/04/12 11:13	1
sec-Butylbenzene	0.40	U	1.0	0.17	ug/L			09/04/12 11:13	1
tert-Butylbenzene	0.40	U	1.0	0.16	ug/L			09/04/12 11:13	1
trans-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			09/04/12 11:13	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.19	ug/L			09/04/12 11:13	1
Tetrachloroethene	0.40	U	1.0	0.20	ug/L			09/04/12 11:13	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.15	ug/L			09/04/12 11:13	1
Toluene	0.40	U	1.0	0.17	ug/L			09/04/12 11:13	1
Trichloroethene	**1.6**		1.0	0.16	ug/L			09/04/12 11:13	1
Trichlorofluoromethane	0.80	U	2.0	0.29	ug/L			09/04/12 11:13	1
Vinyl chloride	0.80	U	1.5	0.40	ug/L			09/04/12 11:13	1
2-Chloroethyl vinyl ether	0.40	U	3.0	0.69	ug/L			09/04/12 11:13	1
2-Nitropropane	3.2	U	5.0	1.6	ug/L			09/04/12 11:13	1
Ethyl acetate	3.2	U	5.0	1.2	ug/L			09/04/12 11:13	1
Ethyl ether	0.80	U	2.0	0.26	ug/L			09/04/12 11:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*91*		*85 - 120*		*09/04/12 11:13*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*70 - 120*		*09/04/12 11:13*	*1*
4-Bromofluorobenzene (Surr)	*92*		*75 - 120*		*09/04/12 11:13*	*1*
Dibromofluoromethane (Surr)	*95*		*85 - 115*		*09/04/12 11:13*	*1*

Client Sample ID: ST70-TB-7001-220812 — **Lab Sample ID: 280-32453-2**
Date Collected: 08/22/12 12:00 — **Matrix: Water**
Date Received: 08/23/12 09:00

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.20	U	1.0	0.17	ug/L			09/04/12 12:17	1
1,1,1-Trichloroethane	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
1,2,3-Trichloropropane	0.80	U	3.0	0.77	ug/L			09/04/12 12:17	1
1,2,3-Trichlorobenzene	**0.23**	**J**	1.0	0.18	ug/L			09/04/12 12:17	1
1,1-Dichloroethane	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.32	ug/L			09/04/12 12:17	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	0.81	ug/L			09/04/12 12:17	1
1,1-Dichloropropene	0.40	U	1.0	0.15	ug/L			09/04/12 12:17	1
1,1-Dichloroethene	0.20	U	1.0	0.14	ug/L			09/04/12 12:17	1
1,1,2-Trichloroethane	0.40	U	1.0	0.32	ug/L			09/04/12 12:17	1
1,1,2,2-Tetrachloroethane	0.40	U	1.0	0.20	ug/L			09/04/12 12:17	1
1,2,4-Trimethylbenzene	0.20	U	1.0	0.14	ug/L			09/04/12 12:17	1
1,2-Dichlorobenzene	0.20	U	1.0	0.13	ug/L			09/04/12 12:17	1
1,2-Dichloroethane	0.20	U	1.0	0.13	ug/L			09/04/12 12:17	1
1,3-Dichlorobenzene	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
1,3-Dichloropropane	0.20	U	1.0	0.15	ug/L			09/04/12 12:17	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.14	ug/L			09/04/12 12:17	1
2-Butanone (MEK)	3.2	U	6.0	1.8	ug/L			09/04/12 12:17	1
1,4-Dichlorobenzene	0.40	U	1.0	0.16	ug/L			09/04/12 12:17	1
1,2-Dichloropropane	0.20	U	1.0	0.13	ug/L			09/04/12 12:17	1
2,2-Dichloropropane	0.40	U	1.0	0.20	ug/L			09/04/12 12:17	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: ST70-TB-7001-220812
Date Collected: 08/22/12 12:00
Date Received: 08/23/12 09:00

Lab Sample ID: 280-32453-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	3.2	U	5.0	1.4	ug/L			09/04/12 12:17	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	1.0	ug/L			09/04/12 12:17	1
4-Isopropyltoluene	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
Benzene	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
Acetone	6.4	U	10	1.9	ug/L			09/04/12 12:17	1
Bromobenzene	0.20	U	1.0	0.17	ug/L			09/04/12 12:17	1
Bromoform	0.40	U	1.0	0.19	ug/L			09/04/12 12:17	1
Bromomethane	0.40	U	2.0	0.21	ug/L			09/04/12 12:17	1
Carbon tetrachloride	0.40	U	2.0	0.19	ug/L			09/04/12 12:17	1
Carbon disulfide	0.80	U	2.0	0.45	ug/L			09/04/12 12:17	1
2-Chlorotoluene	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
4-Chlorotoluene	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
Chlorobenzene	0.20	U	1.0	0.17	ug/L			09/04/12 12:17	1
Chlorobromomethane	0.20	U	1.0	0.10	ug/L			09/04/12 12:17	1
Chlorodibromomethane	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
Chloroform	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
Chloroethane	1.6	U	2.0	0.41	ug/L			09/04/12 12:17	1
Chloromethane	0.80	U	2.0	0.30	ug/L			09/04/12 12:17	1
cis-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			09/04/12 12:17	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
Dibromomethane	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
Dichlorobromomethane	0.20	U	1.0	0.17	ug/L			09/04/12 12:17	1
Dichlorodifluoromethane	0.80	U	2.0	0.31	ug/L			09/04/12 12:17	1
Ethylbenzene	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
Hexachlorobutadiene	0.40	U	1.0	0.36	ug/L			09/04/12 12:17	1
Isopropylbenzene	0.40	U	1.0	0.19	ug/L			09/04/12 12:17	1
Ethylene Dibromide	0.20	U	1.0	0.18	ug/L			09/04/12 12:17	1
Methylene Chloride	0.40	U	5.0	0.32	ug/L			09/04/12 12:17	1
Methyl tert-butyl ether	0.40	U	5.0	0.25	ug/L			09/04/12 12:17	1
m-Xylene & p-Xylene	0.80	U	2.0	0.34	ug/L			09/04/12 12:17	1
Naphthalene	0.80	U	1.0	0.22	ug/L			09/04/12 12:17	1
n-Butylbenzene	0.40	U	1.0	0.32	ug/L			09/04/12 12:17	1
N-Propylbenzene	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
o-Xylene	0.40	U	1.0	0.19	ug/L			09/04/12 12:17	1
Styrene	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
sec-Butylbenzene	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
tert-Butylbenzene	0.40	U	1.0	0.16	ug/L			09/04/12 12:17	1
trans-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			09/04/12 12:17	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.19	ug/L			09/04/12 12:17	1
Tetrachloroethene	0.40	U	1.0	0.20	ug/L			09/04/12 12:17	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.15	ug/L			09/04/12 12:17	1
Toluene	0.40	U	1.0	0.17	ug/L			09/04/12 12:17	1
Trichloroethene	0.20	U	1.0	0.16	ug/L			09/04/12 12:17	1
Trichlorofluoromethane	0.80	U	2.0	0.29	ug/L			09/04/12 12:17	1
Vinyl chloride	0.80	U	1.5	0.40	ug/L			09/04/12 12:17	1
2-Chloroethyl vinyl ether	0.40	U	3.0	0.69	ug/L			09/04/12 12:17	1
2-Nitropropane	3.2	U	5.0	1.6	ug/L			09/04/12 12:17	1
Ethyl acetate	3.2	U	5.0	1.2	ug/L			09/04/12 12:17	1
Ethyl ether	0.80	U	2.0	0.26	ug/L			09/04/12 12:17	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		85 - 120		09/04/12 12:17	1
1,2-Dichloroethane-d4 (Surr)	91		70 - 120		09/04/12 12:17	1
4-Bromofluorobenzene (Surr)	93		75 - 120		09/04/12 12:17	1
Dibromofluoromethane (Surr)	96		85 - 115		09/04/12 12:17	1

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Client Sample ID: ST70-GW-7001-220812
Date Collected: 08/22/12 16:00
Date Received: 08/23/12 09:00

Lab Sample ID: 280-32453-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	20	U	25	10	ug/L			08/27/12 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*94*		*82 - 110*		*08/27/12 15:36*	*1*

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: ST70-GW-7001-220812
Date Collected: 08/22/12 16:00
Date Received: 08/23/12 09:00

Lab Sample ID: 280-32453-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12	U	25	4.4	ug/L		09/04/12 14:00	09/05/12 23:00	1
Barium	**44**		10	0.58	ug/L		09/04/12 14:00	09/05/12 23:00	1
Cadmium	0.80	U	5.0	0.45	ug/L		09/04/12 14:00	09/05/12 23:00	1
Chromium	**4.7**	**J**	15	0.66	ug/L		09/04/12 14:00	09/05/12 23:00	1
Lead	5.0	U	15	2.6	ug/L		09/04/12 14:00	09/05/12 23:00	1
Selenium	**22**		22	4.9	ug/L		09/04/12 14:00	09/05/12 23:00	1
Silver	2.0	U	15	0.93	ug/L		09/04/12 14:00	09/05/12 23:00	1

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: ST70-GW-7001-220812
Date Collected: 08/22/12 16:00
Date Received: 08/23/12 09:00

Lab Sample ID: 280-32453-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.080	U	0.20	0.027	ug/L		08/27/12 14:40	08/27/12 17:57	1

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

General Chemistry

Client Sample ID: ST70-GW-7001-220812
Date Collected: 08/22/12 16:00
Date Received: 08/23/12 09:00

Lab Sample ID: 280-32453-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	6.8		0.50	0.042	mg/L			08/23/12 12:30	1

Surrogate Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-120)	(70-120)	(75-120)	(85-115)
280-32453-1	ST70-GW-7001-220812	91	91	92	95
280-32453-1 MS	ST70-GW-7001-220812	102	95	89	94
280-32453-1 MSD	ST70-GW-7001-220812	101	95	90	94
280-32453-2	ST70-TB-7001-220812	94	91	93	96
LCS 280-135528/4	Lab Control Sample	99	92	86	92
MB 280-135528/5	Method Blank	95	94	87	98

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-32453-1	ST70-GW-7001-220812	94
280-32453-1 MS	ST70-GW-7001-220812	112 M Q
280-32453-1 MSD	ST70-GW-7001-220812	112 M Q
LCS 280-134644/3	Lab Control Sample	110 M
LCSD 280-134644/4	Lab Control Sample Dup	105 M
MB 280-134644/5	Method Blank	96

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-135528/5
Matrix: Water
Analysis Batch: 135528

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.20	U	1.0	0.17	ug/L			09/04/12 09:22	1
1,1,1-Trichloroethane	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
1,2,3-Trichloropropane	0.80	U	3.0	0.77	ug/L			09/04/12 09:22	1
1,2,3-Trichlorobenzene	0.272	J	1.0	0.18	ug/L			09/04/12 09:22	1
1,1-Dichloroethane	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.32	ug/L			09/04/12 09:22	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	0.81	ug/L			09/04/12 09:22	1
1,1-Dichloropropene	0.40	U	1.0	0.15	ug/L			09/04/12 09:22	1
1,1-Dichloroethene	0.20	U	1.0	0.14	ug/L			09/04/12 09:22	1
1,1,2-Trichloroethane	0.40	U	1.0	0.32	ug/L			09/04/12 09:22	1
1,1,2,2-Tetrachloroethane	0.40	U	1.0	0.20	ug/L			09/04/12 09:22	1
1,2,4-Trimethylbenzene	0.20	U	1.0	0.14	ug/L			09/04/12 09:22	1
1,2-Dichlorobenzene	0.20	U	1.0	0.13	ug/L			09/04/12 09:22	1
1,2-Dichloroethane	0.20	U	1.0	0.13	ug/L			09/04/12 09:22	1
1,3-Dichlorobenzene	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
1,3-Dichloropropane	0.20	U	1.0	0.15	ug/L			09/04/12 09:22	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.14	ug/L			09/04/12 09:22	1
2-Butanone (MEK)	3.2	U	6.0	1.8	ug/L			09/04/12 09:22	1
1,4-Dichlorobenzene	0.40	U	1.0	0.16	ug/L			09/04/12 09:22	1
1,2-Dichloropropane	0.20	U	1.0	0.13	ug/L			09/04/12 09:22	1
2,2-Dichloropropane	0.40	U	1.0	0.20	ug/L			09/04/12 09:22	1
2-Hexanone	3.2	U	5.0	1.4	ug/L			09/04/12 09:22	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	1.0	ug/L			09/04/12 09:22	1
4-Isopropyltoluene	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
Benzene	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
Acetone	6.4	U	10	1.9	ug/L			09/04/12 09:22	1
Bromobenzene	0.20	U	1.0	0.17	ug/L			09/04/12 09:22	1
Bromoform	0.40	U	1.0	0.19	ug/L			09/04/12 09:22	1
Bromomethane	0.40	U	2.0	0.21	ug/L			09/04/12 09:22	1
Carbon tetrachloride	0.40	U	2.0	0.19	ug/L			09/04/12 09:22	1
Carbon disulfide	0.80	U	2.0	0.45	ug/L			09/04/12 09:22	1
2-Chlorotoluene	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
4-Chlorotoluene	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
Chlorobenzene	0.20	U	1.0	0.17	ug/L			09/04/12 09:22	1
Chlorobromomethane	0.20	U	1.0	0.10	ug/L			09/04/12 09:22	1
Chlorodibromomethane	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
Chloroform	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
Chloroethane	1.6	U	2.0	0.41	ug/L			09/04/12 09:22	1
Chloromethane	0.80	U	2.0	0.30	ug/L			09/04/12 09:22	1
cis-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			09/04/12 09:22	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
Dibromomethane	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
Dichlorobromomethane	0.20	U	1.0	0.17	ug/L			09/04/12 09:22	1
Dichlorodifluoromethane	0.80	U	2.0	0.31	ug/L			09/04/12 09:22	1
Ethylbenzene	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
Hexachlorobutadiene	0.40	U	1.0	0.36	ug/L			09/04/12 09:22	1
Isopropylbenzene	0.40	U	1.0	0.19	ug/L			09/04/12 09:22	1
Ethylene Dibromide	0.20	U	1.0	0.18	ug/L			09/04/12 09:22	1
Methylene Chloride	0.591	J	5.0	0.32	ug/L			09/04/12 09:22	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-135528/5
Matrix: Water
Analysis Batch: 135528

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	0.40	U	5.0	0.25	ug/L			09/04/12 09:22	1
m-Xylene & p-Xylene	0.80	U	2.0	0.34	ug/L			09/04/12 09:22	1
Naphthalene	0.80	U	1.0	0.22	ug/L			09/04/12 09:22	1
n-Butylbenzene	0.40	U	1.0	0.32	ug/L			09/04/12 09:22	1
N-Propylbenzene	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
o-Xylene	0.40	U	1.0	0.19	ug/L			09/04/12 09:22	1
Styrene	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
sec-Butylbenzene	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
tert-Butylbenzene	0.40	U	1.0	0.16	ug/L			09/04/12 09:22	1
trans-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			09/04/12 09:22	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.19	ug/L			09/04/12 09:22	1
Tetrachloroethene	0.40	U	1.0	0.20	ug/L			09/04/12 09:22	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.15	ug/L			09/04/12 09:22	1
Toluene	0.40	U	1.0	0.17	ug/L			09/04/12 09:22	1
Trichloroethene	0.20	U	1.0	0.16	ug/L			09/04/12 09:22	1
Trichlorofluoromethane	0.80	U	2.0	0.29	ug/L			09/04/12 09:22	1
Vinyl chloride	0.80	U	1.5	0.40	ug/L			09/04/12 09:22	1
2-Chloroethyl vinyl ether	0.40	U	3.0	0.69	ug/L			09/04/12 09:22	1
2-Nitropropane	3.2	U	5.0	1.6	ug/L			09/04/12 09:22	1
Ethyl acetate	3.2	U	5.0	1.2	ug/L			09/04/12 09:22	1
Ethyl ether	0.80	U	2.0	0.26	ug/L			09/04/12 09:22	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*95*		*85 - 120*		*09/04/12 09:22*	*1*
1,2-Dichloroethane-d4 (Surr)	*94*		*70 - 120*		*09/04/12 09:22*	*1*
4-Bromofluorobenzene (Surr)	*87*		*75 - 120*		*09/04/12 09:22*	*1*
Dibromofluoromethane (Surr)	*98*		*85 - 115*		*09/04/12 09:22*	*1*

Lab Sample ID: LCS 280-135528/4
Matrix: Water
Analysis Batch: 135528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	5.00	5.50		ug/L		110	80 - 130
1,1,1-Trichloroethane	5.00	5.54		ug/L		111	65 - 130
1,2,3-Trichloropropane	5.00	4.67		ug/L		93	75 - 125
1,2,3-Trichlorobenzene	5.00	4.98		ug/L		100	55 - 140
1,1-Dichloroethane	5.00	5.98		ug/L		120	70 - 135
1,2,4-Trichlorobenzene	5.00	5.22		ug/L		104	65 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.99	J	ug/L		100	50 - 130
1,1-Dichloropropene	5.00	5.45		ug/L		109	75 - 130
1,1-Dichloroethene	5.00	6.37		ug/L		127	70 - 130
1,1,2-Trichloroethane	5.00	5.47		ug/L		109	75 - 125
1,1,2,2-Tetrachloroethane	5.00	5.21		ug/L		104	65 - 130
1,2,4-Trimethylbenzene	5.00	5.12		ug/L		102	75 - 130
1,2-Dichlorobenzene	5.00	5.37		ug/L		107	70 - 120
1,2-Dichloroethane	5.00	5.33		ug/L		107	70 - 130
1,3-Dichlorobenzene	5.00	5.55		ug/L		111	75 - 125
1,3-Dichloropropane	5.00	5.14		ug/L		103	75 - 125

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-135528/4
Matrix: Water
Analysis Batch: 135528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	5.00	5.26		ug/L		105	75 - 130
2-Butanone (MEK)	20.0	13.7		ug/L		68	30 - 150
1,4-Dichlorobenzene	5.00	5.30		ug/L		106	75 - 125
1,2-Dichloropropane	5.00	5.08		ug/L		102	75 - 125
2,2-Dichloropropane	5.00	5.51		ug/L		110	70 - 135
2-Hexanone	20.0	15.1		ug/L		76	55 - 130
4-Methyl-2-pentanone (MIBK)	20.0	16.0		ug/L		80	60 - 135
4-Isopropyltoluene	5.00	5.08		ug/L		102	75 - 130
Benzene	5.00	5.48		ug/L		110	80 - 120
Acetone	20.0	19.9		ug/L		100	40 - 140
Bromobenzene	5.00	5.49		ug/L		110	75 - 125
Bromoform	5.00	5.44		ug/L		109	70 - 130
Bromomethane	5.00	4.46		ug/L		89	30 - 145
Carbon tetrachloride	5.00	5.76		ug/L		115	65 - 140
Carbon disulfide	5.00	3.62		ug/L		72	35 - 160
2-Chlorotoluene	5.00	5.33		ug/L		107	75 - 125
4-Chlorotoluene	5.00	5.36		ug/L		107	75 - 130
Chlorobenzene	5.00	5.30		ug/L		106	80 - 120
Chlorobromomethane	5.00	5.66		ug/L		113	65 - 130
Chlorodibromomethane	5.00	5.80		ug/L		116	60 - 135
Chloroform	5.00	5.50		ug/L		110	65 - 135
Chloroethane	5.00	4.74		ug/L		95	60 - 135
Chloromethane	5.00	4.76		ug/L		95	40 - 125
cis-1,2-Dichloroethene	5.00	5.50		ug/L		110	70 - 125
cis-1,3-Dichloropropene	5.00	5.47		ug/L		109	70 - 130
Dibromomethane	5.00	4.95		ug/L		99	75 - 125
Dichlorobromomethane	5.00	5.64		ug/L		113	75 - 120
Dichlorodifluoromethane	5.00	3.96		ug/L		79	30 - 155
Ethylbenzene	5.00	5.55		ug/L		111	75 - 125
Hexachlorobutadiene	5.00	5.99		ug/L		120	50 - 140
Isopropylbenzene	5.00	5.33		ug/L		107	75 - 125
Ethylene Dibromide	5.00	5.13		ug/L		103	80 - 120
Methylene Chloride	5.00	6.10		ug/L		122	55 - 140
Methyl tert-butyl ether	5.00	5.25		ug/L		105	65 - 125
m-Xylene & p-Xylene	10.0	11.1		ug/L		111	75 - 130
Naphthalene	5.00	4.99		ug/L		100	55 - 140
n-Butylbenzene	5.00	5.14		ug/L		103	70 - 135
N-Propylbenzene	5.00	5.33		ug/L		107	70 - 130
o-Xylene	5.00	5.36		ug/L		107	80 - 120
Styrene	5.00	5.34		ug/L		107	65 - 135
sec-Butylbenzene	5.00	5.47		ug/L		109	70 - 125
tert-Butylbenzene	5.00	5.32		ug/L		106	70 - 130
trans-1,2-Dichloroethene	5.00	6.04		ug/L		121	60 - 140
trans-1,3-Dichloropropene	5.00	5.18		ug/L		104	55 - 140
Tetrachloroethene	5.00	5.99		ug/L		120	45 - 150
Toluene	5.00	5.36		ug/L		107	75 - 120
Trichloroethene	5.00	5.37		ug/L		107	70 - 125
Trichlorofluoromethane	5.00	4.50		ug/L		90	60 - 145
Vinyl chloride	5.00	4.76		ug/L		95	50 - 145

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-135528/4
Matrix: Water
Analysis Batch: 135528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*99*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*92*		*70 - 120*
4-Bromofluorobenzene (Surr)	*86*		*75 - 120*
Dibromofluoromethane (Surr)	*92*		*85 - 115*

Lab Sample ID: 280-32453-1 MS
Matrix: Water
Analysis Batch: 135528

Client Sample ID: ST70-GW-7001-220812
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	0.20	U	5.00	5.65		ug/L		113	80 - 130
1,1,1-Trichloroethane	0.20	U	5.00	5.49		ug/L		110	65 - 130
1,2,3-Trichloropropane	0.80	U	5.00	4.74		ug/L		95	75 - 125
1,2,3-Trichlorobenzene	0.40	U	5.00	4.60		ug/L		92	55 - 140
1,1-Dichloroethane	0.20	U	5.00	6.10		ug/L		122	70 - 135
1,2,4-Trichlorobenzene	0.80	U	5.00	4.87		ug/L		97	65 - 135
1,2-Dibromo-3-Chloropropane	1.6	U	5.00	4.92	J	ug/L		98	50 - 130
1,1-Dichloropropene	0.40	U	5.00	5.51		ug/L		110	75 - 130
1,1-Dichloroethene	0.20	U	5.00	6.29		ug/L		126	70 - 130
1,1,2-Trichloroethane	0.40	U	5.00	5.28		ug/L		106	75 - 125
1,1,2,2-Tetrachloroethane	0.40	U	5.00	5.37		ug/L		107	65 - 130
1,2,4-Trimethylbenzene	0.20	U	5.00	5.16		ug/L		103	75 - 130
1,2-Dichlorobenzene	0.20	U	5.00	4.99		ug/L		100	70 - 120
1,2-Dichloroethane	0.20	U	5.00	5.43		ug/L		109	70 - 130
1,3-Dichlorobenzene	0.20	U	5.00	5.45		ug/L		109	75 - 125
1,3-Dichloropropane	0.20	U	5.00	5.33		ug/L		107	75 - 125
1,3,5-Trimethylbenzene	0.40	U	5.00	5.39		ug/L		108	75 - 130
2-Butanone (MEK)	3.2	U	20.0	15.6		ug/L		78	30 - 150
1,4-Dichlorobenzene	0.40	U	5.00	5.32		ug/L		106	75 - 125
1,2-Dichloropropane	0.20	U	5.00	5.26		ug/L		105	75 - 125
2,2-Dichloropropane	0.40	U	5.00	5.66		ug/L		113	70 - 135
2-Hexanone	3.2	U	20.0	15.8		ug/L		79	55 - 130
4-Methyl-2-pentanone (MIBK)	3.2	U	20.0	16.8		ug/L		84	60 - 135
4-Isopropyltoluene	0.40	U	5.00	5.25		ug/L		105	75 - 130
Benzene	0.20	U	5.00	5.51		ug/L		110	80 - 120
Acetone	6.4	U	20.0	18.4		ug/L		92	40 - 140
Bromobenzene	0.20	U	5.00	5.64		ug/L		113	75 - 125
Bromoform	0.40	U	5.00	5.50		ug/L		110	70 - 130
Bromomethane	0.40	U	5.00	4.48		ug/L		90	30 - 145
Carbon tetrachloride	0.40	U	5.00	5.84		ug/L		117	65 - 140
Carbon disulfide	0.80	U	5.00	3.59		ug/L		72	35 - 160
2-Chlorotoluene	0.40	U	5.00	5.35		ug/L		107	75 - 125
4-Chlorotoluene	0.40	U	5.00	5.29		ug/L		106	75 - 130
Chlorobenzene	0.20	U	5.00	5.48		ug/L		110	80 - 120
Chlorobromomethane	0.20	U	5.00	5.65		ug/L		113	65 - 130
Chlorodibromomethane	0.28	J	5.00	6.22		ug/L		119	60 - 135
Chloroform	0.20	J	5.00	5.72		ug/L		110	65 - 135
Chloroethane	1.6	U	5.00	4.80		ug/L		96	60 - 135
Chloromethane	0.80	U	5.00	4.60		ug/L		92	40 - 125

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-32453-1 MS
Matrix: Water
Analysis Batch: 135528

Client Sample ID: ST70-GW-7001-220812
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	0.20	U	5.00	5.54		ug/L		111	70 - 125
cis-1,3-Dichloropropene	0.20	U	5.00	5.71		ug/L		114	70 - 130
Dibromomethane	0.40	U	5.00	4.96		ug/L		99	75 - 125
Dichlorobromomethane	0.20	J	5.00	5.71		ug/L		110	75 - 120
Dichlorodifluoromethane	0.80	U	5.00	3.98		ug/L		80	30 - 155
Ethylbenzene	0.20	U	5.00	5.51		ug/L		110	75 - 125
Hexachlorobutadiene	0.40	U	5.00	5.46		ug/L		109	50 - 140
Isopropylbenzene	0.40	U	5.00	5.45		ug/L		109	75 - 125
Ethylene Dibromide	0.20	U	5.00	5.19		ug/L		104	80 - 120
Methylene Chloride	0.40	U	5.00	5.74		ug/L		115	55 - 140
Methyl tert-butyl ether	0.40	U	5.00	5.35		ug/L		107	65 - 125
m-Xylene & p-Xylene	0.80	U	10.0	10.9		ug/L		109	75 - 130
Naphthalene	0.80	U	5.00	4.72		ug/L		94	55 - 140
n-Butylbenzene	0.40	U	5.00	5.01		ug/L		100	70 - 135
N-Propylbenzene	0.20	U	5.00	5.30		ug/L		106	70 - 130
o-Xylene	0.40	U	5.00	5.57		ug/L		111	80 - 120
Styrene	0.40	U	5.00	5.48		ug/L		110	65 - 135
sec-Butylbenzene	0.40	U	5.00	5.63		ug/L		113	70 - 125
tert-Butylbenzene	0.40	U	5.00	5.40		ug/L		108	70 - 130
trans-1,2-Dichloroethene	0.20	U	5.00	6.09		ug/L		122	60 - 140
trans-1,3-Dichloropropene	0.40	U	5.00	5.10		ug/L		102	55 - 140
Tetrachloroethene	0.40	U	5.00	6.04		ug/L		121	45 - 150
Toluene	0.40	U	5.00	5.29		ug/L		106	75 - 120
Trichloroethene	1.6		5.00	6.90		ug/L		106	70 - 125
Trichlorofluoromethane	0.80	U	5.00	4.52		ug/L		90	60 - 145
Vinyl chloride	0.80	U	5.00	4.72		ug/L		94	50 - 145

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*102*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 120*
4-Bromofluorobenzene (Surr)	*89*		*75 - 120*
Dibromofluoromethane (Surr)	*94*		*85 - 115*

Lab Sample ID: 280-32453-1 MSD
Matrix: Water
Analysis Batch: 135528

Client Sample ID: ST70-GW-7001-220812
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.20	U	5.00	5.47		ug/L		109	80 - 130	3	30
1,1,1-Trichloroethane	0.20	U	5.00	5.42		ug/L		108	65 - 130	1	30
1,2,3-Trichloropropane	0.80	U	5.00	4.76		ug/L		95	75 - 125	1	30
1,2,3-Trichlorobenzene	0.40	U	5.00	4.70		ug/L		94	55 - 140	2	30
1,1-Dichloroethane	0.20	U	5.00	6.05		ug/L		121	70 - 135	1	30
1,2,4-Trichlorobenzene	0.80	U	5.00	4.95		ug/L		99	65 - 135	2	30
1,2-Dibromo-3-Chloropropane	1.6	U	5.00	4.90	J	ug/L		98	50 - 130	0	30
1,1-Dichloropropene	0.40	U	5.00	5.40		ug/L		108	75 - 130	2	30
1,1-Dichloroethene	0.20	U	5.00	6.25		ug/L		125	70 - 130	1	30
1,1,2-Trichloroethane	0.40	U	5.00	5.58		ug/L		112	75 - 125	6	30
1,1,2,2-Tetrachloroethane	0.40	U	5.00	5.46		ug/L		109	65 - 130	2	30

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-32453-1 MSD
Matrix: Water
Analysis Batch: 135528

Client Sample ID: ST70-GW-7001-220812
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	0.20	U	5.00	5.09		ug/L		102	75 - 130	1	30
1,2-Dichlorobenzene	0.20	U	5.00	5.39		ug/L		108	70 - 120	8	30
1,2-Dichloroethane	0.20	U	5.00	5.29		ug/L		106	70 - 130	3	30
1,3-Dichlorobenzene	0.20	U	5.00	5.47		ug/L		109	75 - 125	0	30
1,3-Dichloropropane	0.20	U	5.00	5.31		ug/L		106	75 - 125	1	30
1,3,5-Trimethylbenzene	0.40	U	5.00	5.36		ug/L		107	75 - 130	1	30
2-Butanone (MEK)	3.2	U	20.0	16.4		ug/L		82	30 - 150	5	30
1,4-Dichlorobenzene	0.40	U	5.00	5.32		ug/L		106	75 - 125	0	30
1,2-Dichloropropane	0.20	U	5.00	5.17		ug/L		103	75 - 125	2	30
2,2-Dichloropropane	0.40	U	5.00	5.60		ug/L		112	70 - 135	1	30
2-Hexanone	3.2	U	20.0	17.1		ug/L		85	55 - 130	8	30
4-Methyl-2-pentanone (MIBK)	3.2	U	20.0	18.9		ug/L		94	60 - 135	11	30
4-Isopropyltoluene	0.40	U	5.00	5.06		ug/L		101	75 - 130	4	30
Benzene	0.20	U	5.00	5.48		ug/L		110	80 - 120	1	30
Acetone	6.4	U	20.0	21.7		ug/L		109	40 - 140	16	30
Bromobenzene	0.20	U	5.00	5.67		ug/L		113	75 - 125	0	30
Bromoform	0.40	U	5.00	5.36		ug/L		107	70 - 130	3	30
Bromomethane	0.40	U	5.00	5.08		ug/L		102	30 - 145	13	30
Carbon tetrachloride	0.40	U	5.00	5.79		ug/L		116	65 - 140	1	30
Carbon disulfide	0.80	U	5.00	3.78		ug/L		76	35 - 160	5	30
2-Chlorotoluene	0.40	U	5.00	5.36		ug/L		107	75 - 125	0	30
4-Chlorotoluene	0.40	U	5.00	5.47		ug/L		109	75 - 130	3	30
Chlorobenzene	0.20	U	5.00	5.27		ug/L		105	80 - 120	4	30
Chlorobromomethane	0.20	U	5.00	5.69		ug/L		114	65 - 130	1	30
Chlorodibromomethane	0.28	J	5.00	6.07		ug/L		116	60 - 135	3	30
Chloroform	0.20	J	5.00	5.69		ug/L		110	65 - 135	1	30
Chloroethane	1.6	U	5.00	5.20		ug/L		104	60 - 135	8	30
Chloromethane	0.80	U	5.00	5.23		ug/L		105	40 - 125	13	30
cis-1,2-Dichloroethene	0.20	U	5.00	5.52		ug/L		110	70 - 125	0	30
cis-1,3-Dichloropropene	0.20	U	5.00	5.58		ug/L		112	70 - 130	2	30
Dibromomethane	0.40	U	5.00	5.05		ug/L		101	75 - 125	2	30
Dichlorobromomethane	0.20	J	5.00	5.91		ug/L		114	75 - 120	3	30
Dichlorodifluoromethane	0.80	U	5.00	4.43		ug/L		89	30 - 155	11	30
Ethylbenzene	0.20	U	5.00	5.36		ug/L		107	75 - 125	3	30
Hexachlorobutadiene	0.40	U	5.00	5.46		ug/L		109	50 - 140	0	30
Isopropylbenzene	0.40	U	5.00	5.39		ug/L		108	75 - 125	1	30
Ethylene Dibromide	0.20	U	5.00	5.24		ug/L		105	80 - 120	1	30
Methylene Chloride	0.40	U	5.00	6.00		ug/L		120	55 - 140	4	30
Methyl tert-butyl ether	0.40	U	5.00	5.39		ug/L		108	65 - 125	1	30
m-Xylene & p-Xylene	0.80	U	10.0	10.8		ug/L		108	75 - 130	1	30
Naphthalene	0.80	U	5.00	4.75		ug/L		95	55 - 140	1	30
n-Butylbenzene	0.40	U	5.00	5.00		ug/L		100	70 - 135	0	30
N-Propylbenzene	0.20	U	5.00	5.31		ug/L		106	70 - 130	0	30
o-Xylene	0.40	U	5.00	5.42		ug/L		108	80 - 120	3	30
Styrene	0.40	U	5.00	5.26		ug/L		105	65 - 135	4	30
sec-Butylbenzene	0.40	U	5.00	5.42		ug/L		108	70 - 125	4	30
tert-Butylbenzene	0.40	U	5.00	5.31		ug/L		106	70 - 130	2	30
trans-1,2-Dichloroethene	0.20	U	5.00	5.93		ug/L		119	60 - 140	3	30
trans-1,3-Dichloropropene	0.40	U	5.00	5.14		ug/L		103	55 - 140	1	30
Tetrachloroethene	0.40	U	5.00	5.73		ug/L		115	45 - 150	5	30

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-32453-1 MSD — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 135528

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene	0.40	U	5.00	5.24		ug/L		105	75 - 120	1	30
Trichloroethene	1.6		5.00	6.76		ug/L		103	70 - 125	2	30
Trichlorofluoromethane	0.80	U	5.00	4.98		ug/L		100	60 - 145	10	30
Vinyl chloride	0.80	U	5.00	5.27		ug/L		105	50 - 145	11	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*101*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*95*		*70 - 120*
4-Bromofluorobenzene (Surr)	*90*		*75 - 120*
Dibromofluoromethane (Surr)	*94*		*85 - 115*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Lab Sample ID: MB 280-134644/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134644

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	20	U	25	10	ug/L			08/27/12 13:08	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*96*		*82 - 110*		*08/27/12 13:08*	*1*

Lab Sample ID: LCS 280-134644/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134644

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	112	M	ug/L		111	79 - 149

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*110*	*M*	*82 - 110*

Lab Sample ID: LCSD 280-134644/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134644

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	101	110	M	ug/L		109	79 - 149	1	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*105*	*M*	*82 - 110*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics) (Continued)

Lab Sample ID: 280-32453-1 MS
Matrix: Water
Analysis Batch: 134644

Client Sample ID: ST70-GW-7001-220812
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	20	U	101	110	M Q	ug/L		109	79 - 149

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*112*	*M Q*	*82 - 110*

Lab Sample ID: 280-32453-1 MSD
Matrix: Water
Analysis Batch: 134644

Client Sample ID: ST70-GW-7001-220812
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	20	U	101	107	M Q	ug/L		106	79 - 149	3	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*112*	*M Q*	*82 - 110*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-135414/1-A
Matrix: Water
Analysis Batch: 136000

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 135414

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12	U	25	4.4	ug/L		09/04/12 14:00	09/05/12 22:55	1
Barium	1.5	U	10	0.58	ug/L		09/04/12 14:00	09/05/12 22:55	1
Cadmium	0.80	U	5.0	0.45	ug/L		09/04/12 14:00	09/05/12 22:55	1
Chromium	1.5	U	15	0.66	ug/L		09/04/12 14:00	09/05/12 22:55	1
Lead	5.0	U	15	2.6	ug/L		09/04/12 14:00	09/05/12 22:55	1
Selenium	12	U	22	4.9	ug/L		09/04/12 14:00	09/05/12 22:55	1
Silver	2.0	U	15	0.93	ug/L		09/04/12 14:00	09/05/12 22:55	1

Lab Sample ID: LCS 280-135414/2-A
Matrix: Water
Analysis Batch: 136000

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 135414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	1070		ug/L		107	80 - 120
Barium	2000	2120		ug/L		106	80 - 120
Cadmium	100	109		ug/L		109	80 - 120
Chromium	200	208		ug/L		104	80 - 120
Lead	500	551		ug/L		110	80 - 120
Selenium	2000	2270		ug/L		114	80 - 120
Silver	50.0	54.4		ug/L		109	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 280-32453-1 MS — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 136000 — **Prep Batch: 135414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Arsenic	12	U	1000	1090		ug/L		109	80 - 120		
Barium	44		2000	2190		ug/L		107	80 - 120		
Cadmium	0.80	U	100	108		ug/L		108	80 - 120		
Chromium	4.7	J	200	212		ug/L		104	80 - 120		
Lead	5.0	U	500	536		ug/L		107	80 - 120		
Selenium	22		2000	2250		ug/L		111	80 - 120		
Silver	2.0	U	50.0	54.1		ug/L		108	80 - 120		

Lab Sample ID: 280-32453-1 MSD — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 136000 — **Prep Batch: 135414**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	12	U	1000	1100		ug/L		110	80 - 120	2	20
Barium	44		2000	2190		ug/L		107	80 - 120	0	20
Cadmium	0.80	U	100	110		ug/L		110	80 - 120	2	20
Chromium	4.7	J	200	217		ug/L		106	80 - 120	2	20
Lead	5.0	U	500	549		ug/L		110	80 - 120	2	20
Selenium	22		2000	2280		ug/L		113	80 - 120	1	20
Silver	2.0	U	50.0	55.1		ug/L		110	80 - 120	2	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-134289/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134633 — **Prep Batch: 134289**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.080	U	0.20	0.027	ug/L		08/27/12 14:40	08/27/12 17:41	1

Lab Sample ID: LCS 280-134289/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134633 — **Prep Batch: 134289**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.31		ug/L		106	80 - 120

Lab Sample ID: 280-32453-1 MS — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 134633 — **Prep Batch: 134289**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.080	U	5.00	5.06		ug/L		101	80 - 120

Lab Sample ID: 280-32453-1 MSD — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 134633 — **Prep Batch: 134289**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.080	U	5.00	4.82		ug/L		96	80 - 120	5	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 280-134490/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134490

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.10	U	0.50	0.042	mg/L			08/23/12 11:57	1

Lab Sample ID: LCS 280-134490/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134490

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	5.05		mg/L		101	90 - 110

Lab Sample ID: LCSD 280-134490/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134490

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5.00	5.03		mg/L		101	90 - 110	0	10

Lab Sample ID: MRL 280-134490/3 MRL — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134490

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.200	0.212	J	mg/L		106	50 - 150

Lab Sample ID: 280-32453-1 MS — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134490

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	6.8		5.00	11.9	J	mg/L		101	80 - 120

Lab Sample ID: 280-32453-1 MSD — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134490

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	6.8		5.00	12.0	J	mg/L		103	80 - 120	1	20

Lab Sample ID: 280-32453-1 DU — **Client Sample ID: ST70-GW-7001-220812**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 134490

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Nitrate as N	6.8		6.83		mg/L		0.2	15

QC Association Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

GC/MS VOA

Analysis Batch: 135528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-32453-1	ST70-GW-7001-220812	Total/NA	Water	8260B/DoD	
280-32453-1 MS	ST70-GW-7001-220812	Total/NA	Water	8260B/DoD	
280-32453-1 MSD	ST70-GW-7001-220812	Total/NA	Water	8260B/DoD	
280-32453-2	ST70-TB-7001-220812	Total/NA	Water	8260B/DoD	
LCS 280-135528/4	Lab Control Sample	Total/NA	Water	8260B/DoD	
MB 280-135528/5	Method Blank	Total/NA	Water	8260B/DoD	

GC VOA

Analysis Batch: 134644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-32453-1	ST70-GW-7001-220812	Total/NA	Water	8015C	
280-32453-1 MS	ST70-GW-7001-220812	Total/NA	Water	8015C	
280-32453-1 MSD	ST70-GW-7001-220812	Total/NA	Water	8015C	
LCS 280-134644/3	Lab Control Sample	Total/NA	Water	8015C	
LCSD 280-134644/4	Lab Control Sample Dup	Total/NA	Water	8015C	
MB 280-134644/5	Method Blank	Total/NA	Water	8015C	

Metals

Prep Batch: 134289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-32453-1	ST70-GW-7001-220812	Dissolved	Water	7470A	
280-32453-1 MS	ST70-GW-7001-220812	Dissolved	Water	7470A	
280-32453-1 MSD	ST70-GW-7001-220812	Dissolved	Water	7470A	
LCS 280-134289/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 280-134289/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 134633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-32453-1	ST70-GW-7001-220812	Dissolved	Water	7470A	134289
280-32453-1 MS	ST70-GW-7001-220812	Dissolved	Water	7470A	134289
280-32453-1 MSD	ST70-GW-7001-220812	Dissolved	Water	7470A	134289
LCS 280-134289/2-A	Lab Control Sample	Total/NA	Water	7470A	134289
MB 280-134289/1-A	Method Blank	Total/NA	Water	7470A	134289

Prep Batch: 135414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-32453-1	ST70-GW-7001-220812	Dissolved	Water	3005A	
280-32453-1 MS	ST70-GW-7001-220812	Dissolved	Water	3005A	
280-32453-1 MSD	ST70-GW-7001-220812	Dissolved	Water	3005A	
LCS 280-135414/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 280-135414/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 136000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-32453-1	ST70-GW-7001-220812	Dissolved	Water	6010C	135414
280-32453-1 MS	ST70-GW-7001-220812	Dissolved	Water	6010C	135414
280-32453-1 MSD	ST70-GW-7001-220812	Dissolved	Water	6010C	135414
LCS 280-135414/2-A	Lab Control Sample	Total Recoverable	Water	6010C	135414
MB 280-135414/1-A	Method Blank	Total Recoverable	Water	6010C	135414

QC Association Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

General Chemistry

Analysis Batch: 134490

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-32453-1	ST70-GW-7001-220812	Total/NA	Water	300.0	
280-32453-1 DU	ST70-GW-7001-220812	Total/NA	Water	300.0	
280-32453-1 MS	ST70-GW-7001-220812	Total/NA	Water	300.0	
280-32453-1 MSD	ST70-GW-7001-220812	Total/NA	Water	300.0	
LCS 280-134490/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 280-134490/5	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 280-134490/6	Method Blank	Total/NA	Water	300.0	
MRL 280-134490/3 MRL	Lab Control Sample	Total/NA	Water	300.0	

Lab Chronicle

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-32453-1

Client Sample ID: ST70-GW-7001-220812

Lab Sample ID: 280-32453-1

Date Collected: 08/22/12 16:00

Matrix: Water

Date Received: 08/23/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/DoD		1	20 mL	20 mL	135528	09/04/12 11:13	GPM	TAL DEN
Total/NA	Analysis	8015C		1	5 mL	5 mL	134644	08/27/12 15:36	AMB	TAL DEN
Dissolved	Prep	7470A			30 mL	30 mL	134289	08/27/12 14:40	BLR	TAL DEN
Dissolved	Analysis	7470A		1			134633	08/27/12 17:57	BLR	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	135414	09/04/12 14:00	JM	TAL DEN
Dissolved	Analysis	6010C		1			136000	09/05/12 23:00	HEB	TAL DEN
Total/NA	Analysis	300.0		1	1.0 mL	1.0 mL	134490	08/23/12 12:30	EK	TAL DEN

Client Sample ID: ST70-TB-7001-220812

Lab Sample ID: 280-32453-2

Date Collected: 08/22/12 12:00

Matrix: Water

Date Received: 08/23/12 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/DoD		1	20 mL	20 mL	135528	09/04/12 12:17	GPM	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Chain of Custody Record

Sampler ID _____

Temperature on Receipt 5.6 TAL 8/23

Drinking Water? Yes ☐ No ☑

TestAmerica – CO

THE LEADER IN ENVIRONMENTAL TESTING

TAL-4124-280 (0508)

Client: Bhate & Associates	Project ~~Manager~~ Contact: Marcia Olive // Ben Moayyad	Date: 8/22/12	Chain of Custody Number: 149587
Address: 445 Union Blvd Ste 129	Telephone Number (Area Code)/Fax Number: 303-597-2450 x103 // 505-855-5201	Lab Number (Proj. #): 2800 2724	Page 1 of 1
City: Lakewood; State: CO; Zip Code: 80226	Site Contact: Ben Moayyad	Lab Contact: Lisa Uriell	
Project Name and Location (State): ST70, Kirtland AFB (NM)	Carrier/Waybill Number: FedEx 7988-0195-0820		
Contract/Purchase Order/Quote No.: Bhate Project 9120116			

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil	Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH	8015-GRO	8260-DoD VOCs	7470A-Hg	6010C-Metals	E300-Nitrate	Special Instructions/ Conditions of Receipt
ST70-GW-7001-220812	8/22/12	1600		✓			✓		✓	✓								MS/MSD included
ST70-TB-7001-220812	8/22/12	1700		✓						✓								

Possible Hazard Identification: ☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal: ☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required: ☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☑ 21 Days ☐ Other _____

QC Requirements (Specify): Do Normal + MS/MSD / Metals = field filtered RCRA 8

1. Relinquished By: [signature]	Date: 8/22/12	Time: 1620	1. Received By: VWheeler	Date: 8/23/12	Time: 0915
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Comments

DISTRIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

Login Sample Receipt Checklist

Client: Bhate Environmental

Job Number: 280-32453-1

Login Number: 32453
List Number: 1
Creator: Wheeler, Virginia L

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	False	Analyses listed on COC; individual samples not designated for specific analyses
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Marcia Olive, Bhate Environmental Associates, Denver, Colorado.

Introduction

This data validation report covers samples taken from former Kirtland Air Force Base, New Mexico, on October 12, 2012. Thirteen air samples were collected from site ST-70 for long term monitoring. The analyses were performed by Applied Sciences Laboratory Corvallis, Oregon. The specific samples included in this validation were:

Sample ID	Matrix	Collection Date	Analyses
ST70-AR-40-20-121012	Air	10/12/12	TO-15, Fixed gases (SM2720C), TPH (SW8015M)
ST70-AR-29H-121012			
ST70-AR-38-99-121012			
ST70-AR-38-41-121012			
ST70-AR-39-42-121012			
ST70-AR-41-121012			
ST70-AR-INLET-121012			
ST70-AR-MID-121012			
ST70-AR-Exhaust-121012			
ST70-AR-28H-121012			
ST70-AR-7002-121012			
ST70-AR-7003-121012			
ST70-AR-7001-121012			

This data was validated against the laboratory's QA/QC limits using the guidelines and practices published in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, June 2008), the *UFPQAPP Interim Remedial Action Operations at Solid Waste Management Unit ST-70(*AFCEE*,* February 2013*).*

Sample Handling and Holding times

The samples were prepared and analyzed within method specific sample holding times.

Blanks

TPH was detected in both method blanks between the detection limit (DL) and reporting limit (RL). The associated samples ST70-AR-7002-121012, ST70-AR-7003-121012 and ST70-AR-7001-121012 yielded concentrations <5x the blank concentration and were considered a non-detect and flagged "U" at the detected concentration.

Laboratory control sample (LCS)

The LCS recoveries for all compounds were within control limits for all analyses.

Project specific quality assurance/quality control

No field duplicate was collected with this laboratory package.

Compound quantitation and reporting limits

Where dilutions were required elevated reporting limits were reported.

Overall assessment of data

The fixed gas analysis reported that the sample canisters were inadvertently pressurized with nitrogen gas. This caused in the nitrogen results to be in excess of 100%. The nitrogen analytical data were rejected.

Analytical results from sample ST219-AR-39-42-121012 were invalidated when compared to historical data. The analytical detections of contaminants of potential concern were less than 10% of historical average concentrations, and oxygen concentrations were much higher than detected previously. The sample was contaminated at the point of sampling with atmospheric air.

All analyses were performed, and the data met the required QC criteria except where noted. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	*Qualifier
ST70-AR-7002-121012	TPH-GRO	41.4 U
ST70-AR-7003-121012	TPH-GRO	36.3 U
ST70-AR-7001-121012	TPH-GRO	15.4 U
ST70-AR-40-20-121012	Nitrogen	128 UR
ST70-AR-29H-121012	Nitrogen	128 UR
ST70-AR-38-99-121012	Nitrogen	130 UR
ST70-AR-38-41-121012	Nitrogen	125 UR
ST70-AR-39-42-121012	Nitrogen	129 UR
ST70-AR-41-121012	Nitrogen	127 UR
ST70-AR-INLET-121012	Nitrogen	131 UR
ST70-AR-MID-121012	Nitrogen	130 UR
ST70-AR-Exhaust-121012	Nitrogen	132 UR
ST70-AR-28H-121012	Nitrogen	129 UR
ST70-AR-7002-121012	Nitrogen	132 UR
ST70-AR-7003-121012	Nitrogen	130 UR
ST70-AR-7001-121012	Nitrogen	128 UR
ST70-AR-39-42-121012	All	Rejected

* in μg/L

CH2MHILL
Applied Sciences Laboratory

ANALYTICAL REPORT

For:
BHATE/KAFB ST70 / ST219

ASL Report #: L2644
Project ID: 458580.01.03.02
Attn: Marcia Olive
cc:
Ben Moayyad/ABQ
Paul Clement/ABQ

Authorized and Released By:

Laboratory Project Manager
Ben Thompson
(541) 758-0235 ext.23132
November 08, 2012

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

ACLASS ACCREDITED DoD ELAP

CH2M HILL Applied Sciences Laboratory • 1100 NE Circle Boulevard, Suite 300 • Corvallis, Oregon 97330 • www.ch2mhill.com/asl

ASL Report #: L2644

Sample Receipt Comments

We certify that the test results meet all DoD ELAP requirements except those listed below:

- CH2M HILL Applied Sciences Laboratory is not accredited by NELAP for the following tests: TO15, SW8015M.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
L264401	ST70-AR-40-20-121012	10/12/12 11:28	10/17/12
L264402	ST70-AR-29H-121012	10/12/12 11:38	10/17/12
L264403	ST70-AR-38-99-121012	10/12/12 11:55	10/17/12
L264404	ST70-AR-38-41-121012	10/12/12 12:00	10/17/12
L264405	ST70-AR-39-42-121012	10/12/12 12:18	10/17/12
L264406	ST70-AR-41-121012	10/12/12 12:35	10/17/12
L264407	ST70-AR-INLET-121012	10/12/12 13:15	10/17/12
L264408	ST70-AR-MID-121012	10/12/12 13:25	10/17/12
L264409	ST70-AR-Exhaust-121012	10/12/12 13:30	10/17/12
L264410	ST70-AR-28H-121012	10/12/12 13:35	10/17/12
L264411	ST70-AR-7002-121012	10/12/12 13:45	10/17/12
L264412	ST70-AR-7003-121012	10/12/12 13:55	10/17/12
L264413	ST70-AR-7001-121012	10/12/12 14:05	10/17/12

ASL Report #: L2644

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CH2M HILL
Applied Sciences Laboratory (ASL)

CH2M HILL
Applied Sciences Laboratory (ASL)
1100 NE Circle Blvd
Suite 300
Corvallis, OR 97330
Tel 541.768.3120
Fax 541.752.0276

AFCEE Data Qualifiers

J	The analyte was positively identified, the quantitation is an estimation.
U	The analyte was analyzed for, but not detected. The associated numerical value is at or below the MDL.
F	The analyte was positively identified but the associated numerical value is below the RL.
Q	The data must be evaluated for usability due to deficiencies in the ability to analyze the sample and meet QC criteria.
B	The analyte was found in an associated blank, as well as in the sample.
M	A matrix effect was present.
S	To be applied to all field screening data.
T	Tentatively identified compounds (using GC/MS).
UJ	The analyte was not detected; however, the result is estimated due to discrepancies in meeting certain analyte-specific quality control criteria.

TO-15

AFCEE
ORGANIC ANALYSES DATA PACKAGE

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Base/Command: KIRTLAND AFB (AIR) Prime Contractor: CH2M HILL

Project: BHATE/KAFB ST70 / ST219

Field Sample ID	Lab Sample ID
ST70-AR-40-20-121012	L264401
ST70-AR-29H-121012	L264402
ST70-AR-38-99-121012	L264403
ST70-AR-38-41-121012	L264404
ST70-AR-39-42-121012	L264405
ST70-AR-41-121012	L264406
ST70-AR-INLET-121012	L264407
ST70-AR-MID-121012	L264408
ST70-AR-Exhaust-121012	L264409
ST70-AR-28H-121012	L264410
ST70-AR-7002-121012	L264411
ST70-AR-7003-121012	L264412
ST70-AR-7001-121012	L264413

Comments:

See attached narrative

CASE NARRATIVE
VOLATILE ORGANIC ANALYSIS

Analytical Method: TO-15 SDG: L2644

Lab Name: CH2M HILL Applied Science Laboratories Project # 458580.01.03.02

Base/Command: BHATE/KAFB ST70 / ST219 Prime Contractor:

I. RECEIPT

A. Date: October 17, 2012

B. Sample Information:

LAB SAMPLE ID	CLIENT SAMPLE ID	CANISTER ID	SAMPLE MATRIX	DATE SAMPLED	TIME SAMPLED	RECEIVED PRESS. (torr)
L264401	ST70-AR-40-20-121012	SG1463	AIR	10/12/2012	11:28	616
L264402	ST70-AR-29H-121012	SG1353	AIR	10/12/2012	11:38	611
L264403	ST70-AR-38-99-121012	SG1372	AIR	10/12/2012	11:55	599
L264404	ST70-AR-38-41-121012	SG1864	AIR	10/12/2012	12:00	609
L264405	ST70-AR-39-42-121012	SG1275	AIR	10/12/2012	12:18	600
L264406	ST70-AR-41-121012	SG1439	AIR	10/12/2012	12:35	616
L264407	ST70-AR-INLET-121012	SG1318	AIR	10/12/2012	13:15	592
L264408	ST70-AR-MID-121012	SG1847	AIR	10/12/2012	13:25	594
L264409	ST70-AR-Exhaust-121012	SG1769	AIR	10/12/2012	13:30	594
L264410	ST70-AR-28H-121012	SG1672	AIR	10/12/2012	13:35	600
L264411	ST70-AR-7002-121012	SG1956	AIR	10/12/2012	13:45	598
L264412	ST70-AR-7003-121012	SG1352	AIR	10/12/2012	13:55	608
L264413	ST70-AR-7001-121012	SG1802	AIR	10/12/2012	14:05	600

II. Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Calibration:
All acceptance criteria were met.

B. Blanks:
All acceptance criteria were met.

C. Duplicate Sample(s):
All acceptance criteria were met.

D. Instrument Performance Check:
All acceptance criteria were met.

E. Surrogate Recoveries:
All acceptance criteria were met.

F. Internal Standards:
All acceptance criteria were met.

G. Laboratory Control Sample (LCS):
All acceptance criteria were met.

H. Matrix Spike(MS)/Matrix Spike Duplicate(MSD):
Not applicable.

I. Manual integrations:
Manual integrations were performed on the following samples:

Lab ID	Client ID	Analyte(s)
Level 1	ICAL	Acetone and Vinyl Chloride

IV. Sampling Equipment Exceptions:
None.

V. Documentation Exceptions:
None.

VI. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared By: _____ Date: 10/31/12

Reviewed By: C. Hopper Date: 10/31/12

SAMPLE DATA
SUMMARY

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-121012 Lab Sample ID: L264401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	53.6	179	53.6	357		U
Chloromethane	53.6	179	53.6	357		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	53.6	179	53.6	357		U
Vinyl chloride	53.6	179	53.6	357		U
Bromomethane	53.6	179	53.6	357		U
Chloroethane	53.6	179	53.6	357		U
Trichlorofluoromethane	53.6	179	53.6	357		U
Acetone	53.6	357	53.6	357		U
1,1-DCE	53.6	179	53.6	357		U
Methylene chloride	53.6	893	53.6	357		U
1,1,2-Trichloro-1,2,2-trifluoroethane	53.6	179	53.6	357		U
MTBE (Methyl tert-Butyl Ether)	53.6	357	53.6	357		U
1,1-DCA	53.6	179	53.6	357		U
MEK (2-Butanone)	53.6	357	53.6	357		U
cis-1,2-DCE	53.6	179	**159**	357		F
Chloroform	53.6	179	53.6	357		U
1,2-DCA	53.6	179	53.6	357		U
1,1,1-TCA	53.6	179	53.6	357		U
Carbon tetrachloride	53.6	179	53.6	357		U
Benzene	53.6	179	53.6	357		U
1,2-Dichloropropane	53.6	179	53.6	357		U
TCE	53.6	179	**87.9**	357		F
cis-1,3-Dichloropropene	53.6	179	53.6	357		U
trans-1,3-Dichloropropene	53.6	179	53.6	357		U
1,1,2-TCA	53.6	179	53.6	357		U
Toluene	53.6	179	53.6	357		U
1,2-EDB	53.6	179	53.6	357		U
Tetrachloroethylene	53.6	179	53.6	357		U
Chlorobenzene	53.6	179	53.6	357		U
Ethylbenzene	53.6	179	**386**	357		
m,p-Xylene	107	357	**3200**	357		
Styrene	53.6	179	53.6	357		U
o-Xylene	53.6	179	53.6	357		U
1,1,2,2-Tetrachloroethane	53.6	179	53.6	357		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-121012 Lab Sample ID: L264401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	53.6	179	**12000**	357		
1,2,4-Trimethylbenzene	53.6	179	**19900**	357		
1,3-DCB	53.6	179	53.6	357		U
1,4-DCB	53.6	179	53.6	357		U
1,2-DCB	53.6	179	53.6	357		U
1,2,4-Trichlorobenzene	53.6	357	53.6	357		U
Hexachlorobutadiene	53.6	179	53.6	357		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	106	60-140	
4-Bromofluorobenzene	120	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-121012 Lab Sample ID: L264402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	3.90	13.0	3.90	26		U
Chloromethane	3.90	13.0	3.90	26		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	3.90	13.0	3.90	26		U
Vinyl chloride	3.90	13.0	3.90	26		U
Bromomethane	3.90	13.0	3.90	26		U
Chloroethane	3.90	13.0	3.90	26		U
Trichlorofluoromethane	3.90	13.0	3.90	26		U
Acetone	3.90	26.0	3.90	26		U
1,1-DCE	3.90	13.0	3.90	26		U
Methylene chloride	3.90	65.0	**4.91**	26		F
1,1,2-Trichloro-1,2,2-trifluoroethane	3.90	13.0	3.90	26		U
MTBE (Methyl tert-Butyl Ether)	3.90	26.0	3.90	26		U
1,1-DCA	3.90	13.0	3.90	26		U
MEK (2-Butanone)	3.90	26.0	3.90	26		U
cis-1,2-DCE	3.90	13.0	**47.9**	26		
Chloroform	3.90	13.0	3.90	26		U
1,2-DCA	3.90	13.0	3.90	26		U
1,1,1-TCA	3.90	13.0	3.90	26		U
Carbon tetrachloride	3.90	13.0	3.90	26		U
Benzene	3.90	13.0	3.90	26		U
1,2-Dichloropropane	3.90	13.0	3.90	26		U
TCE	3.90	13.0	**10.0**	26		F
cis-1,3-Dichloropropene	3.90	13.0	3.90	26		U
trans-1,3-Dichloropropene	3.90	13.0	3.90	26		U
1,1,2-TCA	3.90	13.0	3.90	26		U
Toluene	3.90	13.0	3.90	26		U
1,2-EDB	3.90	13.0	3.90	26		U
Tetrachloroethylene	3.90	13.0	**8.47**	26		F
Chlorobenzene	3.90	13.0	3.90	26		U
Ethylbenzene	3.90	13.0	**18.0**	26		
m,p-Xylene	7.80	26.0	**163**	26		
Styrene	3.90	13.0	3.90	26		U
o-Xylene	3.90	13.0	3.90	26		U
1,1,2,2-Tetrachloroethane	3.90	13.0	3.90	26		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-121012 Lab Sample ID: L264402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	3.90	13.0	**948**	26		
1,2,4-Trimethylbenzene	3.90	13.0	**1060**	26		
1,3-DCB	3.90	13.0	3.90	26		U
1,4-DCB	3.90	13.0	3.90	26		U
1,2-DCB	3.90	13.0	3.90	26		U
1,2,4-Trichlorobenzene	3.90	26.0	**7.85**	26		F
Hexachlorobutadiene	3.90	13.0	3.90	26		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	101	60-140	
4-Bromofluorobenzene	120	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-121012 Lab Sample ID: L264403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	22.7	75.5	22.7	151		U
Chloromethane	22.7	75.5	22.7	151		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	22.7	75.5	22.7	151		U
Vinyl chloride	22.7	75.5	22.7	151		U
Bromomethane	22.7	75.5	22.7	151		U
Chloroethane	22.7	75.5	22.7	151		U
Trichlorofluoromethane	22.7	75.5	22.7	151		U
Acetone	22.7	151	**149**	151		F
1,1-DCE	22.7	75.5	22.7	151		U
Methylene chloride	22.7	378	**24.4**	151		F
1,1,2-Trichloro-1,2,2-trifluoroethane	22.7	75.5	22.7	151		U
MTBE (Methyl tert-Butyl Ether)	22.7	151	22.7	151		U
1,1-DCA	22.7	75.5	22.7	151		U
MEK (2-Butanone)	22.7	151	22.7	151		U
cis-1,2-DCE	22.7	75.5	**569**	151		
Chloroform	22.7	75.5	**61.3**	151		F
1,2-DCA	22.7	75.5	22.7	151		U
1,1,1-TCA	22.7	75.5	22.7	151		U
Carbon tetrachloride	22.7	75.5	22.7	151		U
Benzene	22.7	75.5	22.7	151		U
1,2-Dichloropropane	22.7	75.5	22.7	151		U
TCE	22.7	75.5	**7370**	151		
cis-1,3-Dichloropropene	22.7	75.5	22.7	151		U
trans-1,3-Dichloropropene	22.7	75.5	22.7	151		U
1,1,2-TCA	22.7	75.5	22.7	151		U
Toluene	22.7	75.5	22.7	151		U
1,2-EDB	22.7	75.5	22.7	151		U
Tetrachloroethylene	22.7	75.5	**110**	151		
Chlorobenzene	22.7	75.5	22.7	151		U
Ethylbenzene	22.7	75.5	**110**	151		
m,p-Xylene	45.3	151	**343**	151		
Styrene	22.7	75.5	22.7	151		U
o-Xylene	22.7	75.5	22.7	151		U
1,1,2,2-Tetrachloroethane	22.7	75.5	22.7	151		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-121012 Lab Sample ID: L264403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	22.7	75.5	**2630**	151		
1,2,4-Trimethylbenzene	22.7	75.5	**4270**	151		
1,3-DCB	22.7	75.5	22.7	151		U
1,4-DCB	22.7	75.5	22.7	151		U
1,2-DCB	22.7	75.5	22.7	151		U
1,2,4-Trichlorobenzene	22.7	151	**31.2**	151		F
Hexachlorobutadiene	22.7	75.5	22.7	151		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	111	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-121012 Lab Sample ID: L264404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	3.02	10.1	3.02	20.1		U
Chloromethane	3.02	10.1	3.02	20.1		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	3.02	10.1	3.02	20.1		U
Vinyl chloride	3.02	10.1	3.02	20.1		U
Bromomethane	3.02	10.1	3.02	20.1		U
Chloroethane	3.02	10.1	3.02	20.1		U
Trichlorofluoromethane	3.02	10.1	3.02	20.1		U
Acetone	3.02	20.1	**32.5**	20.1		
1,1-DCE	3.02	10.1	3.02	20.1		U
Methylene chloride	3.02	50.3	3.02	20.1		U
1,1,2-Trichloro-1,2,2-trifluoroethane	3.02	10.1	3.02	20.1		U
MTBE (Methyl tert-Butyl Ether)	3.02	20.1	3.02	20.1		U
1,1-DCA	3.02	10.1	3.02	20.1		U
MEK (2-Butanone)	3.02	20.1	3.02	20.1		U
cis-1,2-DCE	3.02	10.1	**667**	20.1		
Chloroform	3.02	10.1	3.02	20.1		U
1,2-DCA	3.02	10.1	3.02	20.1		U
1,1,1-TCA	3.02	10.1	3.02	20.1		U
Carbon tetrachloride	3.02	10.1	3.02	20.1		U
Benzene	3.02	10.1	3.02	20.1		U
1,2-Dichloropropane	3.02	10.1	3.02	20.1		U
TCE	3.02	10.1	**67.0**	20.1		
cis-1,3-Dichloropropene	3.02	10.1	3.02	20.1		U
trans-1,3-Dichloropropene	3.02	10.1	3.02	20.1		U
1,1,2-TCA	3.02	10.1	3.02	20.1		U
Toluene	3.02	10.1	**3.47**	20.1		F
1,2-EDB	3.02	10.1	3.02	20.1		U
Tetrachloroethylene	3.02	10.1	**7.35**	20.1		F
Chlorobenzene	3.02	10.1	3.02	20.1		U
Ethylbenzene	3.02	10.1	**25.9**	20.1		
m,p-Xylene	6.03	20.1	**168**	20.1		
Styrene	3.02	10.1	3.02	20.1		U
o-Xylene	3.02	10.1	3.02	20.1		U
1,1,2,2-Tetrachloroethane	3.02	10.1	3.02	20.1		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-121012 Lab Sample ID: L264404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	3.02	10.1	**384**	20.1		
1,2,4-Trimethylbenzene	3.02	10.1	**501**	20.1		
1,3-DCB	3.02	10.1	3.02	20.1		U
1,4-DCB	3.02	10.1	3.02	20.1		U
1,2-DCB	3.02	10.1	3.02	20.1		U
1,2,4-Trichlorobenzene	3.02	20.1	**3.28**	20.1		F
Hexachlorobutadiene	3.02	10.1	3.02	20.1		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	103	60-140	
4-Bromofluorobenzene	116	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-121012 Lab Sample ID: L264405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	17.6	58.5	17.6	117		U
Chloromethane	17.6	58.5	17.6	117		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	17.6	58.5	17.6	117		U
Vinyl chloride	17.6	58.5	17.6	117		U
Bromomethane	17.6	58.5	17.6	117		U
Chloroethane	17.6	58.5	17.6	117		U
Trichlorofluoromethane	17.6	58.5	17.6	117		U
Acetone	17.6	117	17.6	117		U
1,1-DCE	17.6	58.5	17.6	117		U
Methylene chloride	17.6	293	17.6	117		U
1,1,2-Trichloro-1,2,2-trifluoroethane	17.6	58.5	17.6	117		U
MTBE (Methyl tert-Butyl Ether)	17.6	117	17.6	117		U
1,1-DCA	17.6	58.5	17.6	117		U
MEK (2-Butanone)	17.6	117	17.6	117		U
cis-1,2-DCE	17.6	58.5	**1690**	117		
Chloroform	17.6	58.5	17.6	117		U
1,2-DCA	17.6	58.5	17.6	117		U
1,1,1-TCA	17.6	58.5	17.6	117		U
Carbon tetrachloride	17.6	58.5	17.6	117		U
Benzene	17.6	58.5	**64.1**	117		
1,2-Dichloropropane	17.6	58.5	17.6	117		U
TCE	17.6	58.5	**3960**	117		
cis-1,3-Dichloropropene	17.6	58.5	17.6	117		U
trans-1,3-Dichloropropene	17.6	58.5	17.6	117		U
1,1,2-TCA	17.6	58.5	17.6	117		U
Toluene	17.6	58.5	**18.1**	117		F
1,2-EDB	17.6	58.5	17.6	117		U
Tetrachloroethylene	17.6	58.5	**731**	117		
Chlorobenzene	17.6	58.5	17.6	117		U
Ethylbenzene	17.6	58.5	17.6	117		U
m,p-Xylene	35.1	117	35.1	117		U
Styrene	17.6	58.5	17.6	117		U
o-Xylene	17.6	58.5	17.6	117		U
1,1,2,2-Tetrachloroethane	17.6	58.5	17.6	117		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-121012 Lab Sample ID: L264405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	17.6	58.5	**127**	117		
1,2,4-Trimethylbenzene	17.6	58.5	**164**	117		
1,3-DCB	17.6	58.5	17.6	117		U
1,4-DCB	17.6	58.5	17.6	117		U
1,2-DCB	17.6	58.5	17.6	117		U
1,2,4-Trichlorobenzene	17.6	117	17.6	117		U
Hexachlorobutadiene	17.6	58.5	17.6	117		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	104	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-121012 Lab Sample ID: L264405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	3.03	10.1	**22.0**	20.2		
1,2,4-Trimethylbenzene	3.03	10.1	**28.3**	20.2		
1,3-DCB	3.03	10.1	3.03	20.2		U
1,4-DCB	3.03	10.1	3.03	20.2		U
1,2-DCB	3.03	10.1	3.03	20.2		U
1,2,4-Trichlorobenzene	3.03	20.2	3.03	20.2		U
Hexachlorobutadiene	3.03	10.1	3.03	20.2		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	104	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-121012 Lab Sample ID: L264406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.30	1.0	**0.44**	2		F
Chloromethane	0.30	1.0	0.30	2		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.30	1.0	0.30	2		U
Vinyl chloride	0.30	1.0	0.30	2		U
Bromomethane	0.30	1.0	0.30	2		U
Chloroethane	0.30	1.0	0.30	2		U
Trichlorofluoromethane	0.30	1.0	**1.21**	2		
Acetone	0.30	2.0	**4.87**	2		
1,1-DCE	0.30	1.0	0.30	2		U
Methylene chloride	0.30	5.0	**0.60**	2		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.30	1.0	0.30	2		U
MTBE (Methyl tert-Butyl Ether)	0.30	2.0	0.30	2		U
1,1-DCA	0.30	1.0	0.30	2		U
MEK (2-Butanone)	0.30	2.0	**0.78**	2		F
cis-1,2-DCE	0.30	1.0	**1.49**	2		
Chloroform	0.30	1.0	**0.35**	2		F
1,2-DCA	0.30	1.0	0.30	2		U
1,1,1-TCA	0.30	1.0	0.30	2		U
Carbon tetrachloride	0.30	1.0	0.30	2		U
Benzene	0.30	1.0	**0.56**	2		F
1,2-Dichloropropane	0.30	1.0	0.30	2		U
TCE	0.30	1.0	**6.08**	2		
cis-1,3-Dichloropropene	0.30	1.0	0.30	2		U
trans-1,3-Dichloropropene	0.30	1.0	0.30	2		U
1,1,2-TCA	0.30	1.0	0.30	2		U
Toluene	0.30	1.0	0.30	2		U
1,2-EDB	0.30	1.0	0.30	2		U
Tetrachloroethylene	0.30	1.0	**13.3**	2		
Chlorobenzene	0.30	1.0	0.30	2		U
Ethylbenzene	0.30	1.0	**0.31**	2		F
m,p-Xylene	0.60	2.0	**1.34**	2		F
Styrene	0.30	1.0	0.30	2		U
o-Xylene	0.30	1.0	0.30	2		U
1,1,2,2-Tetrachloroethane	0.30	1.0	0.30	2		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-121012 Lab Sample ID: L264406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.30	1.0	**9.63**	2		
1,2,4-Trimethylbenzene	0.30	1.0	**17.1**	2		
1,3-DCB	0.30	1.0	0.30	2		U
1,4-DCB	0.30	1.0	0.30	2		U
1,2-DCB	0.30	1.0	0.30	2		U
1,2,4-Trichlorobenzene	0.30	2.0	0.30	2		U
Hexachlorobutadiene	0.30	1.0	0.30	2		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	105	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-INLET-121012 Lab Sample ID: L264407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-INLET-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	4.02	13.4	4.02	26.8		U
Chloromethane	4.02	13.4	4.02	26.8		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	4.02	13.4	4.02	26.8		U
Vinyl chloride	4.02	13.4	4.02	26.8		U
Bromomethane	4.02	13.4	4.02	26.8		U
Chloroethane	4.02	13.4	4.02	26.8		U
Trichlorofluoromethane	4.02	13.4	4.02	26.8		U
Acetone	4.02	26.8	**32.7**	26.8		
1,1-DCE	4.02	13.4	**13.7**	26.8		
Methylene chloride	4.02	67.0	**4.13**	26.8		F
1,1,2-Trichloro-1,2,2-trifluoroethane	4.02	13.4	4.02	26.8		U
MTBE (Methyl tert-Butyl Ether)	4.02	26.8	4.02	26.8		U
1,1-DCA	4.02	13.4	4.02	26.8		U
MEK (2-Butanone)	4.02	26.8	4.02	26.8		U
cis-1,2-DCE	4.02	13.4	**118**	26.8		
Chloroform	4.02	13.4	**11.6**	26.8		F
1,2-DCA	4.02	13.4	4.02	26.8		U
1,1,1-TCA	4.02	13.4	4.02	26.8		U
Carbon tetrachloride	4.02	13.4	**5.20**	26.8		F
Benzene	4.02	13.4	4.02	26.8		U
1,2-Dichloropropane	4.02	13.4	4.02	26.8		U
TCE	4.02	13.4	**422**	26.8		
cis-1,3-Dichloropropene	4.02	13.4	4.02	26.8		U
trans-1,3-Dichloropropene	4.02	13.4	4.02	26.8		U
1,1,2-TCA	4.02	13.4	4.02	26.8		U
Toluene	4.02	13.4	4.02	26.8		U
1,2-EDB	4.02	13.4	4.02	26.8		U
Tetrachloroethylene	4.02	13.4	**345**	26.8		
Chlorobenzene	4.02	13.4	4.02	26.8		U
Ethylbenzene	4.02	13.4	**6.60**	26.8		F
m,p-Xylene	8.04	26.8	**31.3**	26.8		
Styrene	4.02	13.4	4.02	26.8		U
o-Xylene	4.02	13.4	4.02	26.8		U
1,1,2,2-Tetrachloroethane	4.02	13.4	4.02	26.8		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-INLET-121012 Lab Sample ID: L264407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-INLET-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	4.02	13.4	**229**	26.8		
1,2,4-Trimethylbenzene	4.02	13.4	**226**	26.8		
1,3-DCB	4.02	13.4	4.02	26.8		U
1,4-DCB	4.02	13.4	4.02	26.8		U
1,2-DCB	4.02	13.4	4.02	26.8		U
1,2,4-Trichlorobenzene	4.02	26.8	4.02	26.8		U
Hexachlorobutadiene	4.02	13.4	4.02	26.8		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	99	60-140	
4-Bromofluorobenzene	111	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-MID-121012 Lab Sample ID: L264408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-MID-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.31	1.0	**0.44**	2.09		F
Chloromethane	0.31	1.0	**0.64**	2.09		F
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.31	1.0	0.31	2.09		U
Vinyl chloride	0.31	1.0	0.31	2.09		U
Bromomethane	0.31	1.0	0.31	2.09		U
Chloroethane	0.31	1.0	0.31	2.09		U
Trichlorofluoromethane	0.31	1.0	0.31	2.09		U
Acetone	0.31	2.1	**4.95**	2.09		
1,1-DCE	0.31	1.0	**0.51**	2.09		F
Methylene chloride	0.31	5.2	**0.39**	2.09		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.31	1.0	0.31	2.09		U
MTBE (Methyl tert-Butyl Ether)	0.31	2.1	0.31	2.09		U
1,1-DCA	0.31	1.0	0.31	2.09		U
MEK (2-Butanone)	0.31	2.1	**0.82**	2.09		F
cis-1,2-DCE	0.31	1.0	**4.85**	2.09		
Chloroform	0.31	1.0	**0.45**	2.09		F
1,2-DCA	0.31	1.0	0.31	2.09		U
1,1,1-TCA	0.31	1.0	0.31	2.09		U
Carbon tetrachloride	0.31	1.0	0.31	2.09		U
Benzene	0.31	1.0	0.31	2.09		U
1,2-Dichloropropane	0.31	1.0	0.31	2.09		U
TCE	0.31	1.0	**18.6**	2.09		
cis-1,3-Dichloropropene	0.31	1.0	0.31	2.09		U
trans-1,3-Dichloropropene	0.31	1.0	0.31	2.09		U
1,1,2-TCA	0.31	1.0	0.31	2.09		U
Toluene	0.31	1.0	0.31	2.09		U
1,2-EDB	0.31	1.0	0.31	2.09		U
Tetrachloroethylene	0.31	1.0	**18.0**	2.09		
Chlorobenzene	0.31	1.0	0.31	2.09		U
Ethylbenzene	0.31	1.0	**0.40**	2.09		F
m,p-Xylene	0.63	2.1	**1.99**	2.09		F
Styrene	0.31	1.0	0.31	2.09		U
o-Xylene	0.31	1.0	0.31	2.09		U
1,1,2,2-Tetrachloroethane	0.31	1.0	0.31	2.09		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-MID-121012 Lab Sample ID: L264408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-MID-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.31	1.0	**15.5**	2.09		
1,2,4-Trimethylbenzene	0.31	1.0	**16.1**	2.09		
1,3-DCB	0.31	1.0	0.31	2.09		U
1,4-DCB	0.31	1.0	0.31	2.09		U
1,2-DCB	0.31	1.0	0.31	2.09		U
1,2,4-Trichlorobenzene	0.31	2.1	0.31	2.09		U
Hexachlorobutadiene	0.31	1.0	0.31	2.09		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	110	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-121012 Lab Sample ID: L264409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.31	1.0	**0.46**	2.05		F
Chloromethane	0.31	1.0	**9.01**	2.05		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.31	1.0	0.31	2.05		U
Vinyl chloride	0.31	1.0	**0.52**	2.05		F
Bromomethane	0.31	1.0	**7.19**	2.05		
Chloroethane	0.31	1.0	**2.74**	2.05		
Trichlorofluoromethane	0.31	1.0	**1.23**	2.05		
Acetone	0.31	2.1	**110**	2.05		
1,1-DCE	0.31	1.0	**6.30**	2.05		
Methylene chloride	0.31	5.1	**0.78**	2.05		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.31	1.0	**1.04**	2.05		
MTBE (Methyl tert-Butyl Ether)	0.31	2.1	0.31	2.05		U
1,1-DCA	0.31	1.0	0.31	2.05		U
MEK (2-Butanone)	0.31	2.1	**22.4**	2.05		
cis-1,2-DCE	0.31	1.0	**50.1**	2.05		
Chloroform	0.31	1.0	**3.99**	2.05		
1,2-DCA	0.31	1.0	**0.79**	2.05		F
1,1,1-TCA	0.31	1.0	**0.57**	2.05		F
Carbon tetrachloride	0.31	1.0	**1.41**	2.05		
Benzene	0.31	1.0	**0.92**	2.05		F
1,2-Dichloropropane	0.31	1.0	0.31	2.05		U
TCE	0.31	1.0	**140**	2.05		
cis-1,3-Dichloropropene	0.31	1.0	0.31	2.05		U
trans-1,3-Dichloropropene	0.31	1.0	0.31	2.05		U
1,1,2-TCA	0.31	1.0	0.31	2.05		U
Toluene	0.31	1.0	**0.50**	2.05		F
1,2-EDB	0.31	1.0	0.31	2.05		U
Tetrachloroethylene	0.31	1.0	**84.8**	2.05		
Chlorobenzene	0.31	1.0	0.31	2.05		U
Ethylbenzene	0.31	1.0	0.31	2.05		U
m,p-Xylene	0.62	2.1	0.62	2.05		U
Styrene	0.31	1.0	0.31	2.05		U
o-Xylene	0.31	1.0	0.31	2.05		U
1,1,2,2-Tetrachloroethane	0.31	1.0	0.31	2.05		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-121012 Lab Sample ID: L264409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.31	1.0	**4.01**	2.05		
1,2,4-Trimethylbenzene	0.31	1.0	**6.35**	2.05		
1,3-DCB	0.31	1.0	0.31	2.05		U
1,4-DCB	0.31	1.0	0.31	2.05		U
1,2-DCB	0.31	1.0	0.31	2.05		U
1,2,4-Trichlorobenzene	0.31	2.1	0.31	2.05		U
Hexachlorobutadiene	0.31	1.0	0.31	2.05		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	100	60-140	
4-Bromofluorobenzene	116	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-121012 Lab Sample ID: L264410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	1.53	5.1	1.53	10.2		U
Chloromethane	1.53	5.1	1.53	10.2		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.53	5.1	1.53	10.2		U
Vinyl chloride	1.53	5.1	1.53	10.2		U
Bromomethane	1.53	5.1	1.53	10.2		U
Chloroethane	1.53	5.1	1.53	10.2		U
Trichlorofluoromethane	1.53	5.1	**2.00**	10.2		F
Acetone	1.53	10.2	**14.0**	10.2		
1,1-DCE	1.53	5.1	**13.4**	10.2		
Methylene chloride	1.53	25.5	**1.88**	10.2		F
1,1,2-Trichloro-1,2,2-trifluoroethane	1.53	5.1	**1.76**	10.2		F
MTBE (Methyl tert-Butyl Ether)	1.53	10.2	1.53	10.2		U
1,1-DCA	1.53	5.1	1.53	10.2		U
MEK (2-Butanone)	1.53	10.2	**4.46**	10.2		F
cis-1,2-DCE	1.53	5.1	**130**	10.2		
Chloroform	1.53	5.1	**10.3**	10.2		
1,2-DCA	1.53	5.1	1.53	10.2		U
1,1,1-TCA	1.53	5.1	1.53	10.2		U
Carbon tetrachloride	1.53	5.1	**3.20**	10.2		F
Benzene	1.53	5.1	**2.37**	10.2		F
1,2-Dichloropropane	1.53	5.1	1.53	10.2		U
TCE	1.53	5.1	**399**	10.2		
cis-1,3-Dichloropropene	1.53	5.1	1.53	10.2		U
trans-1,3-Dichloropropene	1.53	5.1	1.53	10.2		U
1,1,2-TCA	1.53	5.1	1.53	10.2		U
Toluene	1.53	5.1	1.53	10.2		U
1,2-EDB	1.53	5.1	1.53	10.2		U
Tetrachloroethylene	1.53	5.1	**401**	10.2		
Chlorobenzene	1.53	5.1	1.53	10.2		U
Ethylbenzene	1.53	5.1	**5.59**	10.2		
m,p-Xylene	3.06	10.2	**31.0**	10.2		
Styrene	1.53	5.1	1.53	10.2		U
o-Xylene	1.53	5.1	1.53	10.2		U
1,1,2,2-Tetrachloroethane	1.53	5.1	1.53	10.2		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-121012 Lab Sample ID: L264410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	1.53	5.1	**191**	10.2		
1,2,4-Trimethylbenzene	1.53	5.1	**203**	10.2		
1,3-DCB	1.53	5.1	1.53	10.2		U
1,4-DCB	1.53	5.1	1.53	10.2		U
1,2-DCB	1.53	5.1	1.53	10.2		U
1,2,4-Trichlorobenzene	1.53	10.2	1.53	10.2		U
Hexachlorobutadiene	1.53	5.1	1.53	10.2		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	100	60-140	
4-Bromofluorobenzene	115	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-121012 Lab Sample ID: L264411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.62	2.1	0.62	4.16		U
Chloromethane	0.62	2.1	**0.64**	4.16		F
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.62	2.1	0.62	4.16		U
Vinyl chloride	0.62	2.1	0.62	4.16		U
Bromomethane	0.62	2.1	0.62	4.16		U
Chloroethane	0.62	2.1	0.62	4.16		U
Trichlorofluoromethane	0.62	2.1	**0.78**	4.16		F
Acetone	0.62	4.2	**21.0**	4.16		
1,1-DCE	0.62	2.1	0.62	4.16		U
Methylene chloride	0.62	10.4	**0.71**	4.16		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.62	2.1	0.62	4.16		U
MTBE (Methyl tert-Butyl Ether)	0.62	4.2	0.62	4.16		U
1,1-DCA	0.62	2.1	0.62	4.16		U
MEK (2-Butanone)	0.62	4.2	**3.96**	4.16		F
cis-1,2-DCE	0.62	2.1	**8.00**	4.16		
Chloroform	0.62	2.1	**11.0**	4.16		
1,2-DCA	0.62	2.1	0.62	4.16		U
1,1,1-TCA	0.62	2.1	0.62	4.16		U
Carbon tetrachloride	0.62	2.1	**1.07**	4.16		F
Benzene	0.62	2.1	**0.67**	4.16		F
1,2-Dichloropropane	0.62	2.1	0.62	4.16		U
TCE	0.62	2.1	**213**	4.16		
cis-1,3-Dichloropropene	0.62	2.1	0.62	4.16		U
trans-1,3-Dichloropropene	0.62	2.1	0.62	4.16		U
1,1,2-TCA	0.62	2.1	0.62	4.16		U
Toluene	0.62	2.1	0.62	4.16		U
1,2-EDB	0.62	2.1	0.62	4.16		U
Tetrachloroethylene	0.62	2.1	**13.3**	4.16		
Chlorobenzene	0.62	2.1	0.62	4.16		U
Ethylbenzene	0.62	2.1	0.62	4.16		U
m,p-Xylene	1.25	4.2	1.25	4.16		U
Styrene	0.62	2.1	0.62	4.16		U
o-Xylene	0.62	2.1	0.62	4.16		U
1,1,2,2-Tetrachloroethane	0.62	2.1	0.62	4.16		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-121012 Lab Sample ID: L264411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.62	2.1	**3.68**	4.16		
1,2,4-Trimethylbenzene	0.62	2.1	**4.90**	4.16		
1,3-DCB	0.62	2.1	0.62	4.16		U
1,4-DCB	0.62	2.1	0.62	4.16		U
1,2-DCB	0.62	2.1	0.62	4.16		U
1,2,4-Trichlorobenzene	0.62	4.2	0.62	4.16		U
Hexachlorobutadiene	0.62	2.1	0.62	4.16		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	104	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-121012 Lab Sample ID: L264412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	1.01	3.4	1.01	6.73		U
Chloromethane	1.01	3.4	1.01	6.73		U
1,2-Dichloro-1,1,2,2-tetrafluoroethane	1.01	3.4	1.01	6.73		U
Vinyl chloride	1.01	3.4	1.01	6.73		U
Bromomethane	1.01	3.4	1.01	6.73		U
Chloroethane	1.01	3.4	1.01	6.73		U
Trichlorofluoromethane	1.01	3.4	**1.88**	6.73		F
Acetone	1.01	6.7	**8.36**	6.73		
1,1-DCE	1.01	3.4	**2.96**	6.73		F
Methylene chloride	1.01	16.8	**1.45**	6.73		F
1,1,2-Trichloro-1,2,2-trifluoroethane	1.01	3.4	**2.61**	6.73		F
MTBE (Methyl tert-Butyl Ether)	1.01	6.7	1.01	6.73		U
1,1-DCA	1.01	3.4	1.01	6.73		U
MEK (2-Butanone)	1.01	6.7	1.01	6.73		U
cis-1,2-DCE	1.01	3.4	**6.04**	6.73		
Chloroform	1.01	3.4	**7.48**	6.73		
1,2-DCA	1.01	3.4	1.01	6.73		U
1,1,1-TCA	1.01	3.4	1.01	6.73		U
Carbon tetrachloride	1.01	3.4	**11.0**	6.73		
Benzene	1.01	3.4	**3.10**	6.73		F
1,2-Dichloropropane	1.01	3.4	1.01	6.73		U
TCE	1.01	3.4	**330**	6.73		
cis-1,3-Dichloropropene	1.01	3.4	1.01	6.73		U
trans-1,3-Dichloropropene	1.01	3.4	1.01	6.73		U
1,1,2-TCA	1.01	3.4	1.01	6.73		U
Toluene	1.01	3.4	1.01	6.73		U
1,2-EDB	1.01	3.4	1.01	6.73		U
Tetrachloroethylene	1.01	3.4	**4.26**	6.73		
Chlorobenzene	1.01	3.4	1.01	6.73		U
Ethylbenzene	1.01	3.4	1.01	6.73		U
m,p-Xylene	2.02	6.7	2.02	6.73		U
Styrene	1.01	3.4	1.01	6.73		U
o-Xylene	1.01	3.4	1.01	6.73		U
1,1,2,2-Tetrachloroethane	1.01	3.4	1.01	6.73		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-121012 Lab Sample ID: L264412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	1.01	3.4	**3.17**	6.73		F
1,2,4-Trimethylbenzene	1.01	3.4	**4.40**	6.73		
1,3-DCB	1.01	3.4	1.01	6.73		U
1,4-DCB	1.01	3.4	1.01	6.73		U
1,2-DCB	1.01	3.4	1.01	6.73		U
1,2,4-Trichlorobenzene	1.01	6.7	1.01	6.73		U
Hexachlorobutadiene	1.01	3.4	1.01	6.73		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	98	60-140	
4-Bromofluorobenzene	103	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-121012 Lab Sample ID: L264413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Dichlorodifluoromethane	0.38	1.3	**0.41**	2.55		F
Chloromethane	0.38	1.3	**2.01**	2.55		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	0.38	1.3	0.38	2.55		U
Vinyl chloride	0.38	1.3	**0.88**	2.55		F
Bromomethane	0.38	1.3	**0.95**	2.55		F
Chloroethane	0.38	1.3	0.38	2.55		U
Trichlorofluoromethane	0.38	1.3	0.38	2.55		U
Acetone	0.38	2.6	**22.1**	2.55		
1,1-DCE	0.38	1.3	0.38	2.55		U
Methylene chloride	0.38	6.4	**0.63**	2.55		F
1,1,2-Trichloro-1,2,2-trifluoroethane	0.38	1.3	0.38	2.55		U
MTBE (Methyl tert-Butyl Ether)	0.38	2.6	0.38	2.55		U
1,1-DCA	0.38	1.3	0.38	2.55		U
MEK (2-Butanone)	0.38	2.6	**4.18**	2.55		
cis-1,2-DCE	0.38	1.3	0.38	2.55		U
Chloroform	0.38	1.3	0.38	2.55		U
1,2-DCA	0.38	1.3	0.38	2.55		U
1,1,1-TCA	0.38	1.3	0.38	2.55		U
Carbon tetrachloride	0.38	1.3	0.38	2.55		U
Benzene	0.38	1.3	**1.81**	2.55		
1,2-Dichloropropane	0.38	1.3	0.38	2.55		U
TCE	0.38	1.3	**5.35**	2.55		
cis-1,3-Dichloropropene	0.38	1.3	0.38	2.55		U
trans-1,3-Dichloropropene	0.38	1.3	0.38	2.55		U
1,1,2-TCA	0.38	1.3	0.38	2.55		U
Toluene	0.38	1.3	**0.62**	2.55		F
1,2-EDB	0.38	1.3	0.38	2.55		U
Tetrachloroethylene	0.38	1.3	**0.39**	2.55		F
Chlorobenzene	0.38	1.3	0.38	2.55		U
Ethylbenzene	0.38	1.3	0.38	2.55		U
m,p-Xylene	0.77	2.6	0.77	2.55		U
Styrene	0.38	1.3	0.38	2.55		U
o-Xylene	0.38	1.3	0.38	2.55		U
1,1,2,2-Tetrachloroethane	0.38	1.3	0.38	2.55		U

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: TO15 SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-121012 Lab Sample ID: L264413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 30 Oct 12

Concentration Units: ppbv

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
1,3,5-Trimethylbenzene	0.38	1.3	0.38	2.55		U
1,2,4-Trimethylbenzene	0.38	1.3	0.38	2.55		U
1,3-DCB	0.38	1.3	0.38	2.55		U
1,4-DCB	0.38	1.3	0.38	2.55		U
1,2-DCB	0.38	1.3	0.38	2.55		U
1,2,4-Trichlorobenzene	0.38	2.6	0.38	2.55		U
Hexachlorobutadiene	0.38	1.3	0.38	2.55		U

Surrogate	Recovery	Control Limits	Qualifier
Toluene-d8	100	60-140	
4-Bromofluorobenzene	103	60-140	

Internal Standard	Qualifier
Bromochloromethane	
1,4-Difluorobenzene	
Chlorobenzene-d5	

Surrogate Recoveries are reported in Appendix O-A
Internal Standards are reported in Appendix O-C

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: TO15
Matrix: Air

Instrument ID: MSAA
Concentration Units: ppbv

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Dichlorodifluoromethane	10/01/11	0.15	0.24	0.23	0.24	0.22	0.22	0.21	0.22		0.01	0.15
Chloromethane	10/01/11	0.15	0.22	0.24	0.27	0.23	0.26	0.25	0.27		0.02	0.15
1,2-Dichloro-1,1,2,2-tetrafluoroethane	10/01/11	0.15	0.34	0.33	0.31	0.26	0.27	0.24	0.25		0.04	0.15
Vinyl chloride	10/01/11	0.15	0.16	0.20	0.20	0.18	0.19	0.17	0.20		0.02	0.15
Bromomethane	10/01/11	0.15	0.25	0.26	0.27	0.23	0.23	0.22	0.25		0.02	0.15
Chloroethane	10/01/11	0.15	0.19	0.20	0.20	0.17	0.20	0.17	0.16		0.02	0.15
Trichlorofluoromethane	10/01/11	0.15	0.19	0.21	0.21	0.19	0.20	0.19	0.20		0.01	0.15
Acetone	10/01/11	0.15	1.81	1.89	1.91	1.82	1.93	1.86	1.88		0.04	0.15
1,1-DCE	10/01/11	0.15	0.17	0.18	0.20	0.18	0.19	0.17	0.18		0.01	0.15
Methylene chloride	10/01/11	0.15	0.33	0.37	0.39	0.38	0.41	0.37	0.40		0.03	0.15
1,1,2-Trichloro-1,2,2-trifluoroethane	10/01/11	0.15	0.18	0.19	0.20	0.18	0.19	0.18	0.21		0.01	0.15
MTBE (Methyl tert-Butyl Ether)	10/01/11	0.15	0.17	0.18	0.18	0.16	0.17	0.16	0.17		0.01	0.15
1,1-DCA	10/01/11	0.15	0.17	0.18	0.19	0.16	0.19	0.17	0.18		0.01	0.15
MEK (2-Butanone)	10/01/11	0.15	0.33	0.33	0.35	0.28	0.31	0.28	0.24		0.04	0.15
cis-1,2-DCE	10/01/11	0.15	0.16	0.17	0.18	0.16	0.19	0.16	0.18		0.01	0.15
Chloroform	10/01/11	0.15	0.17	0.18	0.19	0.17	0.18	0.17	0.18		0.01	0.15
1,2-DCA	10/01/11	0.15	0.16	0.16	0.16	0.15	0.15	0.15	0.16		0.01	0.15
1,1,1-TCA	10/01/11	0.15	0.18	0.19	0.20	0.18	0.19	0.17	0.19		0.01	0.15
Carbon tetrachloride	10/01/11	0.15	0.13	0.13	0.14	0.12	0.13	0.12	0.13		0.01	0.15
Benzene	10/01/11	0.15	0.21	0.23	0.23	0.20	0.22	0.21	0.22		0.01	0.15
1,2-Dichloropropane	10/01/11	0.15	0.18	0.19	0.18	0.18	0.18	0.19	0.18		0.005	0.15
TCE	10/01/11	0.15	0.20	0.18	0.20	0.19	0.18	0.20	0.19		0.01	0.15
cis-1,3-Dichloropropene	10/01/11	0.15	0.16	0.15	0.15	0.15	0.14	0.15	0.14		0.01	0.15
trans-1,3-Dichloropropene	10/01/11	0.15	0.13	0.13	0.11	0.12	0.12	0.12	0.12		0.01	0.15
1,1,2-TCA	10/01/11	0.15	0.17	0.16	0.17	0.17	0.16	0.16	0.16		0.01	0.15
Toluene	10/01/11	0.15	0.19	0.18	0.19	0.19	0.18	0.19	0.19		0.005	0.15
1,2-EDB	10/01/11	0.15	0.15	0.14	0.15	0.15	0.15	0.15	0.14		0.005	0.15
Tetrachloroethylene	10/01/11	0.15	0.17	0.17	0.16	0.16	0.16	0.16	0.17		0.01	0.15
Chlorobenzene	10/01/11	0.15	0.18	0.18	0.18	0.17	0.17	0.17	0.17		0.01	0.15
Ethylbenzene	10/01/11	0.15	0.16	0.16	0.17	0.16	0.16	0.16	0.16		0.004	0.15
m,p-Xylene	10/01/11	0.15	0.31	0.31	0.31	0.32	0.31	0.31	0.30		0.01	0.30
Styrene	10/01/11	0.15	0.12	0.12	0.11	0.11	0.11	0.12	0.12		0.01	0.15
o-Xylene	10/01/11	0.15	0.16	0.15	0.16	0.15	0.15	0.15	0.15		0.005	0.15
1,1,2,2-Tetrachloroethane	10/01/11	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.16		0.004	0.15
1,3,5-Trimethylbenzene	10/01/11	0.15	0.13	0.13	0.12	0.12	0.13	0.12	0.13		0.01	0.15
1,2,4-Trimethylbenzene	10/01/11	0.15	0.13	0.12	0.12	0.11	0.12	0.12	0.12		0.01	0.15
1,3-DCB	10/01/11	0.15	0.14	0.13	0.13	0.13	0.13	0.13	0.12		0.01	0.15
1,4-DCB	10/01/11	0.15	0.14	0.14	0.13	0.13	0.12	0.12	0.12		0.01	0.15
1,2-DCB	10/01/11	0.15	0.15	0.15	0.14	0.13	0.13	0.14	0.13		0.01	0.15
1,2,4-Trichlorobenzene	10/01/11	0.15	0.14	0.12	0.12	0.12	0.11	0.11	0.11		0.01	0.15
Hexachlorobutadiene	10/01/11	0.15	0.16	0.15	0.15	0.16	0.14	0.14	0.16		0.01	0.15

MDL FORM

FIXED GASES ANALYSIS
BY SM 2720C

CASE NARRATIVE
VOLATILE ORGANIC ANALYSIS

Analytical Method: Fixed Gases by Method SM2720C

SDG: L2644

Lab Name: CH2M HILL Applied Science Laboratories

Project # 458580.01.03.02

Base/Command: BHATE/KAFB ST 70/ ST 219

Prime Contractor:

I. RECEIPT

A. Date: October 17, 2012

B. Sample Information:

LAB SAMPLE ID	CLIENT SAMPLE ID	CANISTER ID	SAMPLE MATRIX	DATE SAMPLED	TIME SAMPLED	RECEIVED PRESS. (torr)
L264401	ST70-AR-40-20-121012	SG1463	AIR	10/12/12	11:28	616
L264402	ST70-AR-29H-121012	SG1353	AIR	10/12/12	11:38	611
L264403	ST70-AR-38-99-121012	SG1372	AIR	10/12/12	11:55	599
L264404	ST70-AR-38-41-121012	SG1864	AIR	10/12/12	12:00	609
L264405	ST70-AR-39-42-121012	SG1275	AIR	10/12/12	12:18	600
L264406	ST70-AR-41-121012	SG1439	AIR	10/12/12	12:35	616
L264407	ST70-AR-INLET-121012	SG1318	AIR	10/12/12	13:15	592
L264408	ST70-AR-MID-121012	SG1847	AIR	10/12/12	13:25	594
L264409	ST70-AR-Exhaust-121012	SG1769	AIR	10/12/12	13:30	594
L264410	ST70-AR-28H-121012	SG1672	AIR	10/12/12	13:35	600
L264411	ST70-AR-7002-121012	SG1956	AIR	10/12/12	13:45	598
L264412	ST70-AR-7003-121012	SG1352	AIR	10/12/12	13:55	608
L264413	ST70-AR-7001-121012	SG1802	AIR	10/12/12	14:05	600

II. Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Calibration:
All acceptance criteria were met.

B. Blanks:
All acceptance criteria were met.

C. Duplicate Sample(s):
All acceptance criteria were met.

G. Laboratory Control Sample (LCS):
All acceptance criteria were met.

H. Matrix Spike(MS)/Matrix Spike Duplicate(MSD):
Not applicable.

I. Manual integrations:
None performed.

IV. Sampling Equipment Exceptions:
Upon receipt, the sample canisters were inadvertently pressurized with nitrogen gas.

V. Documentation Exceptions:
None.

VI. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the

data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared By: Doug Malcolm Date: 10-22-12

Reviewed By: [illegible] Date: 10-31-12

SAMPLE DATA
SUMMARY

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-121012 Lab Sample ID: L264401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.50	1.2	**5.26**	1.99		
Nitrogen	0.50	2.0	**128**	1.99		
Carbon Monoxide	0.14	1.0	0.14	1.99		U
Methane	0.14	1.0	0.14	1.99		U
Carbon Dioxide	0.14	1.0	**11.5**	1.99		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-121012 Lab Sample ID: L264402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.50	1.2	**13.8**	2.01		
Nitrogen	0.50	2.0	**128**	2.01		
Carbon Monoxide	0.14	1.0	0.14	2.01		U
Methane	0.14	1.0	0.14	2.01		U
Carbon Dioxide	0.14	1.0	**3.80**	2.01		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-121012 Lab Sample ID: L264403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.52	1.3	**15.8**	2.09		
Nitrogen	0.52	2.1	**130**	2.09		
Carbon Monoxide	0.15	1.0	0.15	2.09		U
Methane	0.15	1.0	0.15	2.09		U
Carbon Dioxide	0.15	1.0	**7.45**	2.09		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-121012 Lab Sample ID: L264404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.50	1.2	**17.2**	2		
Nitrogen	0.50	2.0	**125**	2		
Carbon Monoxide	0.14	1.0	0.14	2		U
Methane	0.14	1.0	**0.21**	2		F
Carbon Dioxide	0.14	1.0	**3.19**	2		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-121012 Lab Sample ID: L264405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.51	1.2	**14.7**	2.02		
Nitrogen	0.51	2.0	**129**	2.02		
Carbon Monoxide	0.14	1.0	0.14	2.02		U
Methane	0.14	1.0	0.14	2.02		U
Carbon Dioxide	0.14	1.0	**2.75**	2.02		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-121012 Lab Sample ID: L264406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.50	1.2	**17.9**	2		
Nitrogen	0.50	2.0	**127**	2		
Carbon Monoxide	0.14	1.0	0.14	2		U
Methane	0.14	1.0	0.14	2		U
Carbon Dioxide	0.14	1.0	**0.26**	2		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-INLET-121012 Lab Sample ID: L264407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-INLET-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.52	1.2	**15.7**	2.06		
Nitrogen	0.52	2.1	**131**	2.06		
Carbon Monoxide	0.14	1.0	0.14	2.06		U
Methane	0.14	1.0	0.14	2.06		U
Carbon Dioxide	0.14	1.0	**1.36**	2.06		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-MID-121012 Lab Sample ID: L264408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-MID-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.51	1.2	**18.1**	2.04		
Nitrogen	0.51	2.0	**130**	2.04		
Carbon Monoxide	0.14	1.0	0.14	2.04		U
Methane	0.14	1.0	0.14	2.04		U
Carbon Dioxide	0.14	1.0	0.14	2.04		U

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-121012 Lab Sample ID: L264409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.51	1.2	**17.1**	2.05		
Nitrogen	0.51	2.1	**132**	2.05		
Carbon Monoxide	0.14	1.0	0.14	2.05		U
Methane	0.14	1.0	0.14	2.05		U
Carbon Dioxide	0.14	1.0	**0.35**	2.05		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-121012 Lab Sample ID: L264410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.51	1.2	**16.0**	2.02		
Nitrogen	0.51	2.0	**129**	2.02		
Carbon Monoxide	0.14	1.0	0.14	2.02		U
Methane	0.14	1.0	0.14	2.02		U
Carbon Dioxide	0.14	1.0	**1.93**	2.02		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-121012 Lab Sample ID: L264411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.52	1.2	**16.7**	2.08		
Nitrogen	0.52	2.1	**132**	2.08		
Carbon Monoxide	0.15	1.0	0.15	2.08		U
Methane	0.15	1.0	0.15	2.08		U
Carbon Dioxide	0.15	1.0	**0.70**	2.08		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-121012 Lab Sample ID: L264412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.51	1.2	**17.2**	2.02		
Nitrogen	0.51	2.0	**130**	2.02		
Carbon Monoxide	0.14	1.0	0.14	2.02		U
Methane	0.14	1.0	0.14	2.02		U
Carbon Dioxide	0.14	1.0	**0.24**	2.02		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM2720C SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-121012 Lab Sample ID: L264413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 19 Oct 12

Concentration Units: Percent

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
Oxygen	0.51	1.2	**19.3**	2.04		
Nitrogen	0.51	2.0	**128**	2.04		
Carbon Monoxide	0.14	1.0	0.14	2.04		U
Methane	0.14	1.0	0.14	2.04		U
Carbon Dioxide	0.14	1.0	0.14	2.04		U

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SM2720C

Instrument ID: GCA

Matrix: Air

Concentration Units: Percent

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
Oxygen	11/22/11	0.25	0.17	0.16	0.18	0.17	0.17	0.15	0.17		0.06	0.25
Nitrogen	11/22/11	0.50	0.15	0.11	0.05	0.06	0.12	0.04	0.08		0.05	0.25
Carbon Monoxide	11/22/11	0.25	0.21	0.23	0.21	0.20	0.21	0.21	0.22		0.08	0.07
Methane	11/22/11	0.20	0.16	0.18	0.17	0.17	0.18	0.17	0.18		0.06	0.07
Carbon Dioxide	11/22/11	0.25	0.22	0.22	0.21	0.20	0.22	0.21	0.22		0.08	0.07

TPH-GAS IN AIR BY SW 8015M

CASE NARRATIVE
VOLATILE ORGANIC ANALYSIS

Analytical Method: TPH-G in Air by Method SW8015M

SDG: L2644

Lab Name: CH2M HILL Applied Science Laboratories

Project # 458580.01.03.02

Base/Command: BHATE/KAFB ST 70/ ST 219

Prime Contractor:

I. RECEIPT

A. Date: October 17, 2012

B. Sample Information:

LAB SAMPLE ID	CLIENT SAMPLE ID	CANISTER ID	SAMPLE MATRIX	DATE SAMPLED	TIME SAMPLED	RECEIVED PRESS. (torr)
L264401	ST70-AR-40-20-121012	SG1463	AIR	10/12/12	11:28	616
L264402	ST70-AR-29H-121012	SG1353	AIR	10/12/12	11:38	611
L264403	ST70-AR-38-99-121012	SG1372	AIR	10/12/12	11:55	599
L264404	ST70-AR-38-41-121012	SG1864	AIR	10/12/12	12:00	609
L264405	ST70-AR-39-42-121012	SG1275	AIR	10/12/12	12:18	600
L264406	ST70-AR-41-121012	SG1439	AIR	10/12/12	12:35	616
L264407	ST70-AR-INLET-121012	SG1318	AIR	10/12/12	13:15	592
L264408	ST70-AR-MID-121012	SG1847	AIR	10/12/12	13:25	594
L264409	ST70-AR-Exhaust-121012	SG1769	AIR	10/12/12	13:30	594
L264410	ST70-AR-28H-121012	SG1672	AIR	10/12/12	13:35	600
L264411	ST70-AR-7002-121012	SG1956	AIR	10/12/12	13:45	598
L264412	ST70-AR-7003-121012	SG1352	AIR	10/12/12	13:55	608
L264413	ST70-AR-7001-121012	SG1802	AIR	10/12/12	14:05	600

II. Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Calibration:
All acceptance criteria were met.

B. Blanks:
All acceptance criteria were met.

C. Duplicate Sample(s):
All acceptance criteria were met.

G. Laboratory Control Sample (LCS):
All acceptance criteria were met.

H. Matrix Spike(MS)/Matrix Spike Duplicate(MSD):
Not applicable.

I. Manual integrations:
None performed.

IV. Sampling Equipment Exceptions:
None.

V. Documentation Exceptions:
None.

VI. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the

data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signature.

Prepared By: Doug Malcolm Date: 10-24-12

Reviewed By: [signature] Date: 10-30-12

SAMPLE DATA SUMMARY

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-40-20-121012 Lab Sample ID: L264401 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-40-20-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	11.9	99.5	**9160**	3.98		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-29H-121012 Lab Sample ID: L264402 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-29H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.03	50.3	**911**	2.01		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-99-121012 Lab Sample ID: L264403 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-99-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.27	52.3	**3470**	2.09		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-38-41-121012 Lab Sample ID: L264404 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-38-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.00	50.0	**2120**	2		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-39-42-121012 Lab Sample ID: L264405 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-39-42-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.06	50.5	**704**	2.02		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-41-121012 Lab Sample ID: L264406 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-41-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.00	50.0	**46.9**	2		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-INLET-121012 Lab Sample ID: L264407 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-INLET-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.18	51.5	939	2.06		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-MID-121012 Lab Sample ID: L264408 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-MID-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 23 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.12	51.0	**94.0**	2.04		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-Exhaust-121012 Lab Sample ID: L264409 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-Exhaust-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 24 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.15	51.3	**104**	2.05		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-28H-121012 Lab Sample ID: L264410 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-28H-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 24 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.06	50.5	**1010**	2.02		

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7002-121012 Lab Sample ID: L264411 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7002-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 24 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.24	52.0	**41.4**	2.08		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7003-121012 Lab Sample ID: L264412 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7003-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 24 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.06	50.5	**36.3**	2.02		F

Comments:

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SW8015M SDG #: L2644

Lab Name: CH2M HILL/LAB/CVO Contract #: N/A

Field Sample ID: ST70-AR-7001-121012 Lab Sample ID: L264413 Matrix: AIR

% Solids: 0 Sample Description: ST70-AR-7001-121012

Date Received: 17 Oct 12 Date Prepared: Date Analyzed: 24 Oct 12

Concentration Units: ug/L

Analyte	DL	RL	Result	Dilution	Confirm	Qualifier
TPH-Gasoline	6.12	51.0	**15.4**	2.04		F

Comments:

CH2MHILL
Applied Sciences Laboratory (ASL)

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

DL Study Report

Analytical Method: SW8015M
Matrix: Air

Instrument ID: GCD
Concentration Units: ug/L

Analyte	Analysis Date	Amt. Spiked	Replicates 1	2	3	4	5	6	7	8	Std. Dev.	DL
TPH-Gasoline	02/14/12	3.91	2.43	4.73	4.23	2.04	4.50	3.82	4.24	4.08	0.99	3.00

CHAIN OF CUSTODY/SHIPPING DOCUMENTS

L2644

Project/Contact Information	
Project #	458580.01.03.02
Project Name	KAFB ST-70, TO-17/TO-37
Report Copy to	Molive@Bhate.com
Company Name/Contact	CH2M HILL- ABQ\ Ben Moayyad

THIS AREA FOR LAB USE ONLY	
Lab #	Pg 1 of 1
Lab PM	Custody Review
Log In	LIMS Verificatior
pH	Cust Seals Y N Ice
QC Level 1 2 3	
Cooler Temperature	

Sampling Date	Sampling Time	Type Comp	Type Grab	Matrix Water	Matrix Soil	Matrix Air	Client Sample ID	LAB QC	Total Number of Containers	VOC TO-15 (including acetone, MTBE, and MEK)	TPH-gasoline SW8015M	Fixed Gasses SM2320C		Alternate Description	Lab ID
										Preservative					
										none	none	none			
10/12/12	11:28		X			X	ST70-AR- 40-20 -121012		1	X	X	X		Can #: SG 1463	1
10/12/12	11:38		X			X	ST70-AR- 29H -121012		1	X	X	X		Can #: SG 1353	2
10/12/12	11:55		X			X	ST70-AR- 38-99 -121012		1	X	X	X		Can #: SG 1372 FLAG for leaks	3
10/12/12	12:00		X			X	ST70-AR- 38-41 -121012		1	X	X	X		Can #: SG 1864	4
10/12/12	12:18		X			X	ST70-AR- 39-42 -121012		1	X	X	X		Can #: SG 1275	5
10/12/12	12:35		X			X	ST70-AR- 41 -121012		1	X	X	X		Can #: SG 1439	6
10/12/12	13:15		X			X	ST70-AR- INLET -121012		1	X	X	X		Can #: SG 1318	7
10/12/12	13:25		X			X	ST70-AR- MID -121012		1	X	X	X		Can #: SG 1847	8
10/12/12	13:30		X			X	ST70-AR- Exhaust -121012		1	X	X	X		Can #: SG 1769	9
10/12/12	13:35		X			X	ST70-AR- 28H -121012		1	X	X	X		Can #: SG 1672	10
10/12/12	13:45		X			X	ST70-AR- 7002 -121012		1	X	X	X		Can #: SG 1956	11
10/12/12	13:55		X			X	ST70-AR- 7003 -121012		1	X	X	X		Can #: SG 1352	12
10/12/12	14:05		X			X	ST70-AR- 7001 -121012		1	X	X	X		Can #: SG 1802	13
														Note - 1 extra cannisters wasted	

Sampled By	Ben Moayyad	Relinquished By	10/15/12
Received By	Carmen Bell 10/17/12 0800	Relinquished By	
Received By		Date/Time	
Special Instructions			

SHIPPED:

AIRBILL:

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

Batch Number: L2644
Client/Project: KAFB

Date received: 10/17/12
Checked by: 03
Checked by:

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Radiological Screening for DoD	✓		
Were custody seals intact and on the outside of the cooler?		✓	
Type of packing material: Ice Blue Ice (Bubble wrap)			
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM			✓
Samples have multi-phase? If yes, document on SRER			✓
Was there ice in the cooler? Enter temp. If >6°C contact client/SRER °C	✓		
All VOCs free of air bubbles? No, document on SRER	✓		
pH of all samples checked and met requirements? No, then document in SRER	✓		
Enough sample volume provided for analysis? No, document in SRER	✓		
Did sample labels agree with COC? No, document in SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

Data Validation Report

This report contains the results of the review and validation of the specified data package performed by Marcia Olive, Bhate Environmental Associates, Denver, Colorado.

Introduction

This data validation report covers samples taken from former Kirtland Air Force Base, New Mexico, on October 11, 2012. One aqueous sample and associated trip blank were collected from site ST70. The analyses were performed by Test America Laboratory Denver, Colorado. The specific sample included in this validation was:

Sample ID	Matrix	Collection Date	Analyses
ST70-GW-7001-101012	Water	10/11/12	VOCs(SW8260B), Nitrate (EPA 300), RCRA 8 Metals (SW6010C/7470A), TPH-GRO (SW8015C)

This data was validated against the laboratory's QA/QC limits using the guidelines and practices published in the *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA, June 2008), the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review* (USEPA, January 2010).

Sample Handling and Holding times

The sample was prepared and analyzed within method specific sample holding times.

Blanks

Low levels of acetone and methylene chloride were detected in the trip blank and 1,2,3-trichlorobenzene, acetone, methylene chloride and naphthalene were detected in the method blank. Only methylene chloride was detected at a concentration <10x the blank concentration and the data was flagged "U" and raised to the reporting limit.

Laboratory control sample (LCS)/surrogates

The laboratory control sample (LCS) and surrogate recoveries were within QC control limits.

Project specific quality assurance/quality control

The matrix spike (MS) and/or matrix spike duplicate (MSD) recoveries for 1,1,2,2-tetrachloroethane, 2-hexanone, 4-methyl-2-pentanone and dichlorobromomethane were slightly above control limits. The sample used for the MS/MSD analyses was from another batch/lot. Precision and accuracy were cross reference with the LCS recoveries, which were in control. Therefore, using professional judgment no qualification was necessary.

Compound quantitation and reporting limits

No dilutions were required. All compounds were reported down to their respective reporting limits.

Overall assessment of data

The continuing calibration verification (CCV) percent difference (%D) for 2-hexanone and 4-methyl-2-pentanone were above control limits. These compounds were not detected in the sample. Therefore the data was not adversely affected and required no qualification.

Cadmium exceeded the limit of detection in the interference check standard solution A (ICSA). The vendor confirmed that this element is a trace impurity of this solution. Since cadmium was not detected in the sample using professional judgment no qualification was deemed necessary.

All analyses were performed, and the data met the required QC criteria except where noted. The data is 100% complete.

Summary of Qualified Data

Sample ID	Parameter	*Qualifier
ST70-GW-7001-101012	Methylene chloride	5.0 U (0.42 J)

*in µg/l

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-34524-1
Client Project/Site: Bhate - Kirtland AFB, NM / ST70

For:
Bhate Environmental
445 Union Blvd Ste.129
Lakewood, Colorado 80226

Attn: Marcia Olive

Authorized for release by:
10/29/2012 12:00:00 PM

Lisa Uriell
Project Manager II
lisa.uriell@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 280-34524-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: Bhate Environmental

Project: Kirtland AFB, NM / ST70

Report Number: 280-34524-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Please note, all references to reporting limit and method detection limit in the case narrative are equivalent to the limit of quantitation (LOQ) and detection limit (DL).

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Sample Receiving
One water sample and one trip blank were received under Chain of Custody on October 12, 2012 at a temperature of 3.1°C. The samples arrived in good condition, properly preserved and on ice.

One of the 2 x 40mL VOA vials contained a large air bubble > 6 mm in size for sample TRIP BLANK (280-34524-1). The laboratory proceeded with the requested analyses using the uncompromised vial. The client was notified on October 12, 2012.

No other anomalies were observed during sample receipt.

GCMS Volatiles, SW846 8260B
Low levels of 1,2,3-Trichlorobenzene, Acetone, Methylene Chloride and Naphthalene were detected in the method blank associated with batch 280-143733. The values should be considered estimates, and have been flagged “J”. Because the concentrations in the method blank were not present at levels greater than one half the reporting limits, corrective action was deemed unnecessary. Usability of the sample data is not compromised.

The MS/MSD analyses associated with batch 280-143733 were performed on a sample from another client and/or job. The MS/MSD exhibited percent recoveries outside the QC control limits for 1,1,2,2-Tetrachloroethane, 2-Hexanone, 4-Methyl-2-pentanone (MIBK) and Dichlorobromomethane. The acceptable LCS analysis data indicated that the analytical system was operating within control; therefore, corrective action is deemed unnecessary.

The Continuing Calibration Verification (CCV) standard associated with analytical batch 280-143733 exhibited % Difference (%D) values out of range for 2-Hexanone and 4-Methyl-2-pentanone (MIBK). TestAmerica Denver’s SOP indicates that for non-CCC compounds drift must be ≤30%D with a maximum of three outliers allowed. As there are only two outliers, method and SOP criteria have been met and corrective action is deemed unnecessary. The associated data in the analytical report have been flagged “Q” per the DoD QSM.

No other anomalies were observed.

Job ID: 280-34524-1 (Continued)

Laboratory: TestAmerica Denver (Continued)

GC Volatiles, SW846 8015B Gasoline Range Organics
No anomalies were observed.

Dissolved Metals, SW846 6010B/7470A
The interference check standard solution (ICSA) for the method 6020 analysis associated with analytical batch 280-143739 was greater than the Limit of Detection (LOD) for Cadmium. The laboratory has confirmed with the vendor that this element is a trace impurity in the ICSA solution, and not due to matrix interference. Therefore, no corrective action was needed. The associated data have been flagged “Q” per the DoD QSM.

No other anomalies were observed.

General Chemistry - 300.0 Nitrate
No anomalies were observed.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
J	Estimated: The quantitation is an estimation due to discrepancies in meeting certain analyte-specific quality control criteria.

GC VOA

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
M	Manual integrated compound.

Metals

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
Q	One or more quality control criteria failed.
J	Estimated: The analyte was positively identified; the quantitation is an estimation

General Chemistry

Qualifier	Qualifier Description
J	Estimated: The analyte was positively identified; the quantitation is an estimation
U	Undetected at the Limit of Detection.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RL	Reporting Limit
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Detection Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Client Sample ID: TRIP BLANK — Lab Sample ID: 280-34524-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Acetone	3.4	J	10	1.9	ug/L	1		8260B/DoD	Total/NA
Methylene Chloride	0.50	J	5.0	0.32	ug/L	1		8260B/DoD	Total/NA

Client Sample ID: ST70-GW-7001-101012 — Lab Sample ID: 280-34524-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Chlorodibromomethane	0.29	J	1.0	0.17	ug/L	1		8260B/DoD	Total/NA
Chloroform	0.17	J	1.0	0.16	ug/L	1		8260B/DoD	Total/NA
Chloromethane	0.82	J	2.0	0.30	ug/L	1		8260B/DoD	Total/NA
Dichlorobromomethane	0.25	J	1.0	0.17	ug/L	1		8260B/DoD	Total/NA
Methylene Chloride	0.42	J	5.0	0.32	ug/L	1		8260B/DoD	Total/NA
Trichloroethene	1.7		1.0	0.16	ug/L	1		8260B/DoD	Total/NA
Barium	43		10	0.58	ug/L	1		6010C	Dissolved
Selenium	25		22	4.9	ug/L	1		6010C	Dissolved
Nitrate as N	7.3		0.50	0.042	mg/L	1		300.0	Total/NA

Method Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Method	Method Description	Protocol	Laboratory
8260B/DoD	Volatile Organic Compounds (GC/MS)	SW846	TAL DEN
8015C	Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)	SW846	TAL DEN
6010C	Metals (ICP)	SW846	TAL DEN
7470A	Mercury (CVAA)	SW846	TAL DEN
300.0	Anions, Ion Chromatography	MCAWW	TAL DEN

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-34524-1	TRIP BLANK	Water	10/11/12 09:00	10/12/12 09:30
280-34524-2	ST70-GW-7001-101012	Water	10/11/12 13:15	10/12/12 09:30

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS)

Client Sample ID: TRIP BLANK
Date Collected: 10/11/12 09:00
Date Received: 10/12/12 09:30

Lab Sample ID: 280-34524-1
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.20	U	1.0	0.17	ug/L			10/24/12 17:56	1
1,1,1-Trichloroethane	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
1,2,3-Trichloropropane	0.80	U	3.0	0.77	ug/L			10/24/12 17:56	1
1,2,3-Trichlorobenzene	0.40	U	1.0	0.18	ug/L			10/24/12 17:56	1
1,1-Dichloroethane	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.32	ug/L			10/24/12 17:56	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	0.81	ug/L			10/24/12 17:56	1
1,1-Dichloropropene	0.40	U	1.0	0.15	ug/L			10/24/12 17:56	1
1,1-Dichloroethene	0.20	U	1.0	0.14	ug/L			10/24/12 17:56	1
1,1,2-Trichloroethane	0.40	U	1.0	0.32	ug/L			10/24/12 17:56	1
1,1,2,2-Tetrachloroethane	0.40	U	1.0	0.20	ug/L			10/24/12 17:56	1
1,2,4-Trimethylbenzene	0.20	U	1.0	0.14	ug/L			10/24/12 17:56	1
1,2-Dichlorobenzene	0.20	U	1.0	0.13	ug/L			10/24/12 17:56	1
1,2-Dichloroethane	0.20	U	1.0	0.13	ug/L			10/24/12 17:56	1
1,3-Dichlorobenzene	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
1,3-Dichloropropane	0.20	U	1.0	0.15	ug/L			10/24/12 17:56	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.14	ug/L			10/24/12 17:56	1
2-Butanone (MEK)	3.2	U	6.0	1.8	ug/L			10/24/12 17:56	1
1,4-Dichlorobenzene	0.40	U	1.0	0.16	ug/L			10/24/12 17:56	1
1,2-Dichloropropane	0.20	U	1.0	0.13	ug/L			10/24/12 17:56	1
2,2-Dichloropropane	0.40	U	1.0	0.20	ug/L			10/24/12 17:56	1
2-Hexanone	3.2	U Q	5.0	1.4	ug/L			10/24/12 17:56	1
4-Methyl-2-pentanone (MIBK)	3.2	U Q	5.0	1.0	ug/L			10/24/12 17:56	1
4-Isopropyltoluene	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
Benzene	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
Acetone	**3.4**	**J**	10	1.9	ug/L			10/24/12 17:56	1
Bromobenzene	0.20	U	1.0	0.17	ug/L			10/24/12 17:56	1
Bromoform	0.40	U	1.0	0.19	ug/L			10/24/12 17:56	1
Bromomethane	0.40	U	2.0	0.21	ug/L			10/24/12 17:56	1
Carbon tetrachloride	0.40	U	2.0	0.19	ug/L			10/24/12 17:56	1
Carbon disulfide	0.80	U	2.0	0.45	ug/L			10/24/12 17:56	1
2-Chlorotoluene	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
4-Chlorotoluene	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
Chlorobenzene	0.20	U	1.0	0.17	ug/L			10/24/12 17:56	1
Chlorobromomethane	0.20	U	1.0	0.10	ug/L			10/24/12 17:56	1
Chlorodibromomethane	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
Chloroform	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
Chloroethane	1.6	U	2.0	0.41	ug/L			10/24/12 17:56	1
Chloromethane	0.80	U	2.0	0.30	ug/L			10/24/12 17:56	1
cis-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			10/24/12 17:56	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
Dibromomethane	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
Dichlorobromomethane	0.20	U	1.0	0.17	ug/L			10/24/12 17:56	1
Dichlorodifluoromethane	0.80	U	2.0	0.31	ug/L			10/24/12 17:56	1
Ethylbenzene	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
Hexachlorobutadiene	0.40	U	1.0	0.36	ug/L			10/24/12 17:56	1
Isopropylbenzene	0.40	U	1.0	0.19	ug/L			10/24/12 17:56	1
Ethylene Dibromide	0.20	U	1.0	0.18	ug/L			10/24/12 17:56	1
Methylene Chloride	**0.50**	**J**	5.0	0.32	ug/L			10/24/12 17:56	1
Methyl tert-butyl ether	0.40	U	5.0	0.25	ug/L			10/24/12 17:56	1
m-Xylene & p-Xylene	0.80	U	2.0	0.34	ug/L			10/24/12 17:56	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: TRIP BLANK — **Lab Sample ID: 280-34524-1**
Date Collected: 10/11/12 09:00 — **Matrix: Water**
Date Received: 10/12/12 09:30

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.80	U	1.0	0.22	ug/L			10/24/12 17:56	1
n-Butylbenzene	0.40	U	1.0	0.32	ug/L			10/24/12 17:56	1
N-Propylbenzene	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
o-Xylene	0.40	U	1.0	0.19	ug/L			10/24/12 17:56	1
Styrene	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
sec-Butylbenzene	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
tert-Butylbenzene	0.40	U	1.0	0.16	ug/L			10/24/12 17:56	1
trans-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			10/24/12 17:56	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.19	ug/L			10/24/12 17:56	1
Tetrachloroethene	0.40	U	1.0	0.20	ug/L			10/24/12 17:56	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.15	ug/L			10/24/12 17:56	1
Toluene	0.40	U	1.0	0.17	ug/L			10/24/12 17:56	1
Trichloroethene	0.20	U	1.0	0.16	ug/L			10/24/12 17:56	1
Trichlorofluoromethane	0.80	U	2.0	0.29	ug/L			10/24/12 17:56	1
Vinyl chloride	0.80	U	1.5	0.40	ug/L			10/24/12 17:56	1
2-Chloroethyl vinyl ether	0.40	U	3.0	0.69	ug/L			10/24/12 17:56	1
2-Nitropropane	3.2	U	5.0	1.6	ug/L			10/24/12 17:56	1
Ethyl acetate	3.2	U	5.0	1.2	ug/L			10/24/12 17:56	1
Ethyl ether	0.80	U	2.0	0.26	ug/L			10/24/12 17:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*85 - 120*		*10/24/12 17:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*70 - 120*		*10/24/12 17:56*	*1*
4-Bromofluorobenzene (Surr)	*119*		*75 - 120*		*10/24/12 17:56*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*10/24/12 17:56*	*1*

Client Sample ID: ST70-GW-7001-101012 — **Lab Sample ID: 280-34524-2**
Date Collected: 10/11/12 13:15 — **Matrix: Water**
Date Received: 10/12/12 09:30

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.20	U	1.0	0.17	ug/L			10/24/12 18:18	1
1,1,1-Trichloroethane	0.20	U	1.0	0.16	ug/L			10/24/12 18:18	1
1,2,3-Trichloropropane	0.80	U	3.0	0.77	ug/L			10/24/12 18:18	1
1,2,3-Trichlorobenzene	0.40	U	1.0	0.18	ug/L			10/24/12 18:18	1
1,1-Dichloroethane	0.20	U	1.0	0.16	ug/L			10/24/12 18:18	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.32	ug/L			10/24/12 18:18	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	0.81	ug/L			10/24/12 18:18	1
1,1-Dichloropropene	0.40	U	1.0	0.15	ug/L			10/24/12 18:18	1
1,1-Dichloroethene	0.20	U	1.0	0.14	ug/L			10/24/12 18:18	1
1,1,2-Trichloroethane	0.40	U	1.0	0.32	ug/L			10/24/12 18:18	1
1,1,2,2-Tetrachloroethane	0.40	U	1.0	0.20	ug/L			10/24/12 18:18	1
1,2,4-Trimethylbenzene	0.20	U	1.0	0.14	ug/L			10/24/12 18:18	1
1,2-Dichlorobenzene	0.20	U	1.0	0.13	ug/L			10/24/12 18:18	1
1,2-Dichloroethane	0.20	U	1.0	0.13	ug/L			10/24/12 18:18	1
1,3-Dichlorobenzene	0.20	U	1.0	0.16	ug/L			10/24/12 18:18	1
1,3-Dichloropropane	0.20	U	1.0	0.15	ug/L			10/24/12 18:18	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.14	ug/L			10/24/12 18:18	1
2-Butanone (MEK)	3.2	U	6.0	1.8	ug/L			10/24/12 18:18	1
1,4-Dichlorobenzene	0.40	U	1.0	0.16	ug/L			10/24/12 18:18	1
1,2-Dichloropropane	0.20	U	1.0	0.13	ug/L			10/24/12 18:18	1
2,2-Dichloropropane	0.40	U	1.0	0.20	ug/L			10/24/12 18:18	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: ST70-GW-7001-101012
Date Collected: 10/11/12 13:15
Date Received: 10/12/12 09:30

Lab Sample ID: 280-34524-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
2-Hexanone	3.2	U Q	5.0	1.4	ug/L			10/24/12 18:18	1
4-Methyl-2-pentanone (MIBK)	3.2	U Q	5.0	1.0	ug/L			10/24/12 18:18	1
4-Isopropyltoluene	0.40	U	1.0	0.17	ug/L			10/24/12 18:18	1
Benzene	0.20	U	1.0	0.16	ug/L			10/24/12 18:18	1
Acetone	6.4	U	10	1.9	ug/L			10/24/12 18:18	1
Bromobenzene	0.20	U	1.0	0.17	ug/L			10/24/12 18:18	1
Bromoform	0.40	U	1.0	0.19	ug/L			10/24/12 18:18	1
Bromomethane	0.40	U	2.0	0.21	ug/L			10/24/12 18:18	1
Carbon tetrachloride	0.40	U	2.0	0.19	ug/L			10/24/12 18:18	1
Carbon disulfide	0.80	U	2.0	0.45	ug/L			10/24/12 18:18	1
2-Chlorotoluene	0.40	U	1.0	0.17	ug/L			10/24/12 18:18	1
4-Chlorotoluene	0.40	U	1.0	0.17	ug/L			10/24/12 18:18	1
Chlorobenzene	0.20	U	1.0	0.17	ug/L			10/24/12 18:18	1
Chlorobromomethane	0.20	U	1.0	0.10	ug/L			10/24/12 18:18	1
Chlorodibromomethane	**0.29**	**J**	1.0	0.17	ug/L			10/24/12 18:18	1
Chloroform	**0.17**	**J**	1.0	0.16	ug/L			10/24/12 18:18	1
Chloroethane	1.6	U	2.0	0.41	ug/L			10/24/12 18:18	1
Chloromethane	**0.82**	**J**	2.0	0.30	ug/L			10/24/12 18:18	1
cis-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			10/24/12 18:18	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.16	ug/L			10/24/12 18:18	1
Dibromomethane	0.40	U	1.0	0.17	ug/L			10/24/12 18:18	1
Dichlorobromomethane	**0.25**	**J**	1.0	0.17	ug/L			10/24/12 18:18	1
Dichlorodifluoromethane	0.80	U	2.0	0.31	ug/L			10/24/12 18:18	1
Ethylbenzene	0.20	U	1.0	0.16	ug/L			10/24/12 18:18	1
Hexachlorobutadiene	0.40	U	1.0	0.36	ug/L			10/24/12 18:18	1
Isopropylbenzene	0.40	U	1.0	0.19	ug/L			10/24/12 18:18	1
Ethylene Dibromide	0.20	U	1.0	0.18	ug/L			10/24/12 18:18	1
Methylene Chloride	**0.42**	**J**	5.0	0.32	ug/L			10/24/12 18:18	1
Methyl tert-butyl ether	0.40	U	5.0	0.25	ug/L			10/24/12 18:18	1
m-Xylene & p-Xylene	0.80	U	2.0	0.34	ug/L			10/24/12 18:18	1
Naphthalene	0.80	U	1.0	0.22	ug/L			10/24/12 18:18	1
n-Butylbenzene	0.40	U	1.0	0.32	ug/L			10/24/12 18:18	1
N-Propylbenzene	0.20	U	1.0	0.16	ug/L			10/24/12 18:18	1
o-Xylene	0.40	U	1.0	0.19	ug/L			10/24/12 18:18	1
Styrene	0.40	U	1.0	0.17	ug/L			10/24/12 18:18	1
sec-Butylbenzene	0.40	U	1.0	0.17	ug/L			10/24/12 18:18	1
tert-Butylbenzene	0.40	U	1.0	0.16	ug/L			10/24/12 18:18	1
trans-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			10/24/12 18:18	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.19	ug/L			10/24/12 18:18	1
Tetrachloroethene	0.40	U	1.0	0.20	ug/L			10/24/12 18:18	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.15	ug/L			10/24/12 18:18	1
Toluene	0.40	U	1.0	0.17	ug/L			10/24/12 18:18	1
Trichloroethene	**1.7**		1.0	0.16	ug/L			10/24/12 18:18	1
Trichlorofluoromethane	0.80	U	2.0	0.29	ug/L			10/24/12 18:18	1
Vinyl chloride	0.80	U	1.5	0.40	ug/L			10/24/12 18:18	1
2-Chloroethyl vinyl ether	0.40	U	3.0	0.69	ug/L			10/24/12 18:18	1
2-Nitropropane	3.2	U	5.0	1.6	ug/L			10/24/12 18:18	1
Ethyl acetate	3.2	U	5.0	1.2	ug/L			10/24/12 18:18	1
Ethyl ether	0.80	U	2.0	0.26	ug/L			10/24/12 18:18	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		85 - 120		10/24/12 18:18	1
1,2-Dichloroethane-d4 (Surr)	84		70 - 120		10/24/12 18:18	1
4-Bromofluorobenzene (Surr)	108		75 - 120		10/24/12 18:18	1
Dibromofluoromethane (Surr)	89		85 - 115		10/24/12 18:18	1

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Client Sample ID: ST70-GW-7001-101012
Date Collected: 10/11/12 13:15
Date Received: 10/12/12 09:30

Lab Sample ID: 280-34524-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	20	U	25	10	ug/L			10/23/12 17:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*101*		*82 - 110*		*10/23/12 17:16*	*1*

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Method: 6010C - Metals (ICP) - Dissolved

Client Sample ID: ST70-GW-7001-101012
Date Collected: 10/11/12 13:15
Date Received: 10/12/12 09:30

Lab Sample ID: 280-34524-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12	U	25	4.4	ug/L		10/23/12 08:45	10/24/12 01:48	1
Barium	**43**		10	0.58	ug/L		10/23/12 08:45	10/24/12 01:48	1
Cadmium	0.80	U Q	5.0	0.45	ug/L		10/23/12 08:45	10/24/12 01:48	1
Chromium	1.5	U	15	0.66	ug/L		10/23/12 08:45	10/24/12 01:48	1
Lead	5.0	U	15	2.6	ug/L		10/23/12 08:45	10/24/12 01:48	1
Selenium	**25**		22	4.9	ug/L		10/23/12 08:45	10/24/12 16:59	1
Silver	2.0	U	15	0.93	ug/L		10/23/12 08:45	10/24/12 01:48	1

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Method: 7470A - Mercury (CVAA) - Dissolved

Client Sample ID: ST70-GW-7001-101012
Date Collected: 10/11/12 13:15
Date Received: 10/12/12 09:30

Lab Sample ID: 280-34524-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.080	U	0.20	0.027	ug/L		10/15/12 13:25	10/15/12 23:36	1

Client Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

General Chemistry

Client Sample ID: ST70-GW-7001-101012
Date Collected: 10/11/12 13:15
Date Received: 10/12/12 09:30

Lab Sample ID: 280-34524-2
Matrix: Water

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	7.3		0.50	0.042	mg/L			10/12/12 18:00	1

Surrogate Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		TOL	12DCE	BFB	DBFM
Lab Sample ID	Client Sample ID	(85-120)	(70-120)	(75-120)	(85-115)
280-34524-1	TRIP BLANK	100	96	119	99
280-34524-2	ST70-GW-7001-101012	91	84	108	89
280-34566-G-22 MS	Matrix Spike	93	89	105	88
280-34566-G-22 MSD	Matrix Spike Duplicate	89	88	102	86
LCS 280-143733/4	Lab Control Sample	92	90	104	93
MB 280-143733/5	Method Blank	89	89	104	89

Surrogate Legend

TOL = Toluene-d8 (Surr)
12DCE = 1,2-Dichloroethane-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFT1
Lab Sample ID	Client Sample ID	(82-110)
280-34524-2	ST70-GW-7001-101012	101
280-34815-Q-1 MS	Matrix Spike	99
280-34815-Q-1 MSD	Matrix Spike Duplicate	97
LCS 280-143828/4	Lab Control Sample	98
LCSD 280-143828/5	Lab Control Sample Dup	99
MB 280-143828/6	Method Blank	97

Surrogate Legend

TFT = a,a,a-Trifluorotoluene

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 280-143733/5
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.20	U	1.0	0.17	ug/L			10/24/12 08:07	1
1,1,1-Trichloroethane	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
1,2,3-Trichloropropane	0.80	U	3.0	0.77	ug/L			10/24/12 08:07	1
1,2,3-Trichlorobenzene	0.244	J	1.0	0.18	ug/L			10/24/12 08:07	1
1,1-Dichloroethane	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
1,2,4-Trichlorobenzene	0.80	U	1.0	0.32	ug/L			10/24/12 08:07	1
1,2-Dibromo-3-Chloropropane	1.6	U	5.0	0.81	ug/L			10/24/12 08:07	1
1,1-Dichloropropene	0.40	U	1.0	0.15	ug/L			10/24/12 08:07	1
1,1-Dichloroethene	0.20	U	1.0	0.14	ug/L			10/24/12 08:07	1
1,1,2-Trichloroethane	0.40	U	1.0	0.32	ug/L			10/24/12 08:07	1
1,1,2,2-Tetrachloroethane	0.40	U	1.0	0.20	ug/L			10/24/12 08:07	1
1,2,4-Trimethylbenzene	0.20	U	1.0	0.14	ug/L			10/24/12 08:07	1
1,2-Dichlorobenzene	0.20	U	1.0	0.13	ug/L			10/24/12 08:07	1
1,2-Dichloroethane	0.20	U	1.0	0.13	ug/L			10/24/12 08:07	1
1,3-Dichlorobenzene	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
1,3-Dichloropropane	0.20	U	1.0	0.15	ug/L			10/24/12 08:07	1
1,3,5-Trimethylbenzene	0.40	U	1.0	0.14	ug/L			10/24/12 08:07	1
2-Butanone (MEK)	3.2	U	6.0	1.8	ug/L			10/24/12 08:07	1
1,4-Dichlorobenzene	0.40	U	1.0	0.16	ug/L			10/24/12 08:07	1
1,2-Dichloropropane	0.20	U	1.0	0.13	ug/L			10/24/12 08:07	1
2,2-Dichloropropane	0.40	U	1.0	0.20	ug/L			10/24/12 08:07	1
2-Hexanone	3.2	U	5.0	1.4	ug/L			10/24/12 08:07	1
4-Methyl-2-pentanone (MIBK)	3.2	U	5.0	1.0	ug/L			10/24/12 08:07	1
4-Isopropyltoluene	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
Benzene	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
Acetone	2.55	J	10	1.9	ug/L			10/24/12 08:07	1
Bromobenzene	0.20	U	1.0	0.17	ug/L			10/24/12 08:07	1
Bromoform	0.40	U	1.0	0.19	ug/L			10/24/12 08:07	1
Bromomethane	0.40	U	2.0	0.21	ug/L			10/24/12 08:07	1
Carbon tetrachloride	0.40	U	2.0	0.19	ug/L			10/24/12 08:07	1
Carbon disulfide	0.80	U	2.0	0.45	ug/L			10/24/12 08:07	1
2-Chlorotoluene	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
4-Chlorotoluene	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
Chlorobenzene	0.20	U	1.0	0.17	ug/L			10/24/12 08:07	1
Chlorobromomethane	0.20	U	1.0	0.10	ug/L			10/24/12 08:07	1
Chlorodibromomethane	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
Chloroform	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
Chloroethane	1.6	U	2.0	0.41	ug/L			10/24/12 08:07	1
Chloromethane	0.80	U	2.0	0.30	ug/L			10/24/12 08:07	1
cis-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			10/24/12 08:07	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
Dibromomethane	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
Dichlorobromomethane	0.20	U	1.0	0.17	ug/L			10/24/12 08:07	1
Dichlorodifluoromethane	0.80	U	2.0	0.31	ug/L			10/24/12 08:07	1
Ethylbenzene	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
Hexachlorobutadiene	0.40	U	1.0	0.36	ug/L			10/24/12 08:07	1
Isopropylbenzene	0.40	U	1.0	0.19	ug/L			10/24/12 08:07	1
Ethylene Dibromide	0.20	U	1.0	0.18	ug/L			10/24/12 08:07	1
Methylene Chloride	0.664	J	5.0	0.32	ug/L			10/24/12 08:07	1

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 280-143733/5
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	0.40	U	5.0	0.25	ug/L			10/24/12 08:07	1
m-Xylene & p-Xylene	0.80	U	2.0	0.34	ug/L			10/24/12 08:07	1
Naphthalene	0.313	J	1.0	0.22	ug/L			10/24/12 08:07	1
n-Butylbenzene	0.40	U	1.0	0.32	ug/L			10/24/12 08:07	1
N-Propylbenzene	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
o-Xylene	0.40	U	1.0	0.19	ug/L			10/24/12 08:07	1
Styrene	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
sec-Butylbenzene	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
tert-Butylbenzene	0.40	U	1.0	0.16	ug/L			10/24/12 08:07	1
trans-1,2-Dichloroethene	0.20	U	1.0	0.15	ug/L			10/24/12 08:07	1
trans-1,3-Dichloropropene	0.40	U	1.0	0.19	ug/L			10/24/12 08:07	1
Tetrachloroethene	0.40	U	1.0	0.20	ug/L			10/24/12 08:07	1
1,2-Dichloroethene, Total	0.20	U	1.0	0.15	ug/L			10/24/12 08:07	1
Toluene	0.40	U	1.0	0.17	ug/L			10/24/12 08:07	1
Trichloroethene	0.20	U	1.0	0.16	ug/L			10/24/12 08:07	1
Trichlorofluoromethane	0.80	U	2.0	0.29	ug/L			10/24/12 08:07	1
Vinyl chloride	0.80	U	1.5	0.40	ug/L			10/24/12 08:07	1
2-Chloroethyl vinyl ether	0.40	U	3.0	0.69	ug/L			10/24/12 08:07	1
2-Nitropropane	3.2	U	5.0	1.6	ug/L			10/24/12 08:07	1
Ethyl acetate	3.2	U	5.0	1.2	ug/L			10/24/12 08:07	1
Ethyl ether	0.80	U	2.0	0.26	ug/L			10/24/12 08:07	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*89*		*85 - 120*		*10/24/12 08:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 120*		*10/24/12 08:07*	*1*
4-Bromofluorobenzene (Surr)	*104*		*75 - 120*		*10/24/12 08:07*	*1*
Dibromofluoromethane (Surr)	*89*		*85 - 115*		*10/24/12 08:07*	*1*

Lab Sample ID: LCS 280-143733/4
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	5.00	4.76		ug/L		95	80 - 130
1,1,1-Trichloroethane	5.00	4.58		ug/L		92	65 - 130
1,2,3-Trichloropropane	5.00	4.87		ug/L		97	75 - 125
1,2,3-Trichlorobenzene	5.00	4.60		ug/L		92	55 - 140
1,1-Dichloroethane	5.00	4.92		ug/L		98	70 - 135
1,2,4-Trichlorobenzene	5.00	4.53		ug/L		91	65 - 135
1,2-Dibromo-3-Chloropropane	5.00	4.62	J	ug/L		92	50 - 130
1,1-Dichloropropene	5.00	4.78		ug/L		96	75 - 130
1,1-Dichloroethene	5.00	4.24		ug/L		85	70 - 130
1,1,2-Trichloroethane	5.00	4.68		ug/L		94	75 - 125
1,1,2,2-Tetrachloroethane	5.00	5.44		ug/L		109	65 - 130
1,2,4-Trimethylbenzene	5.00	4.77		ug/L		95	75 - 130
1,2-Dichlorobenzene	5.00	4.65		ug/L		93	70 - 120
1,2-Dichloroethane	5.00	5.50		ug/L		110	70 - 130
1,3-Dichlorobenzene	5.00	4.64		ug/L		93	75 - 125
1,3-Dichloropropane	5.00	4.85		ug/L		97	75 - 125

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-143733/4
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,3,5-Trimethylbenzene	5.00	4.87		ug/L		97	75 - 130
2-Butanone (MEK)	20.0	25.0		ug/L		125	30 - 150
1,4-Dichlorobenzene	5.00	4.73		ug/L		95	75 - 125
1,2-Dichloropropane	5.00	4.77		ug/L		95	75 - 125
2,2-Dichloropropane	5.00	5.06		ug/L		101	70 - 135
2-Hexanone	20.0	23.3		ug/L		117	55 - 130
4-Methyl-2-pentanone (MIBK)	20.0	23.2		ug/L		116	60 - 135
4-Isopropyltoluene	5.00	4.82		ug/L		96	75 - 130
Benzene	5.00	4.61		ug/L		92	80 - 120
Acetone	20.0	22.0		ug/L		110	40 - 140
Bromobenzene	5.00	4.36		ug/L		87	75 - 125
Bromoform	5.00	4.54		ug/L		91	70 - 130
Bromomethane	5.00	3.76		ug/L		75	30 - 145
Carbon tetrachloride	5.00	4.66		ug/L		93	65 - 140
Carbon disulfide	5.00	3.15		ug/L		63	35 - 160
2-Chlorotoluene	5.00	5.31		ug/L		106	75 - 125
4-Chlorotoluene	5.00	4.67		ug/L		93	75 - 130
Chlorobenzene	5.00	4.56		ug/L		91	80 - 120
Chlorobromomethane	5.00	4.58		ug/L		92	65 - 130
Chlorodibromomethane	5.00	4.77		ug/L		95	60 - 135
Chloroform	5.00	4.87		ug/L		97	65 - 135
Chloroethane	5.00	3.99		ug/L		80	60 - 135
Chloromethane	5.00	4.04		ug/L		81	40 - 125
cis-1,2-Dichloroethene	5.00	4.33		ug/L		87	70 - 125
cis-1,3-Dichloropropene	5.00	5.00		ug/L		100	70 - 130
Dibromomethane	5.00	4.93		ug/L		99	75 - 125
Dichlorobromomethane	5.00	5.17		ug/L		103	75 - 120
Dichlorodifluoromethane	5.00	3.47		ug/L		69	30 - 155
Ethylbenzene	5.00	4.61		ug/L		92	75 - 125
Hexachlorobutadiene	5.00	4.85		ug/L		97	50 - 140
Isopropylbenzene	5.00	4.73		ug/L		95	75 - 125
Ethylene Dibromide	5.00	4.72		ug/L		94	80 - 120
Methylene Chloride	5.00	4.51	J	ug/L		90	55 - 140
Methyl tert-butyl ether	5.00	4.04	J	ug/L		81	65 - 125
m-Xylene & p-Xylene	10.0	9.18		ug/L		92	75 - 130
Naphthalene	5.00	5.26		ug/L		105	55 - 140
n-Butylbenzene	5.00	5.27		ug/L		105	70 - 135
N-Propylbenzene	5.00	4.45		ug/L		89	70 - 130
o-Xylene	5.00	4.51		ug/L		90	80 - 120
Styrene	5.00	4.58		ug/L		92	65 - 135
sec-Butylbenzene	5.00	4.76		ug/L		95	70 - 125
tert-Butylbenzene	5.00	5.26		ug/L		105	70 - 130
trans-1,2-Dichloroethene	5.00	4.26		ug/L		85	60 - 140
trans-1,3-Dichloropropene	5.00	5.28		ug/L		106	55 - 140
Tetrachloroethene	5.00	4.02		ug/L		80	45 - 150
Toluene	5.00	4.76		ug/L		95	75 - 120
Trichloroethene	5.00	4.70		ug/L		94	70 - 125
Trichlorofluoromethane	5.00	4.43		ug/L		89	60 - 145
Vinyl chloride	5.00	4.13		ug/L		83	50 - 145

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 280-143733/4
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*92*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 120*
4-Bromofluorobenzene (Surr)	*104*		*75 - 120*
Dibromofluoromethane (Surr)	*93*		*85 - 115*

Lab Sample ID: 280-34566-G-22 MS
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1,2-Tetrachloroethane	0.20	U	5.00	5.54		ug/L		111	80 - 130
1,1,1-Trichloroethane	0.20	U	5.00	5.20		ug/L		104	65 - 130
1,2,3-Trichloropropane	0.80	U	5.00	5.76		ug/L		115	75 - 125
1,2,3-Trichlorobenzene	0.40	U	5.00	5.23		ug/L		105	55 - 140
1,1-Dichloroethane	0.20	U	5.00	5.67		ug/L		113	70 - 135
1,2,4-Trichlorobenzene	0.80	U	5.00	5.00		ug/L		100	65 - 135
1,2-Dibromo-3-Chloropropane	1.6	U	5.00	5.41		ug/L		108	50 - 130
1,1-Dichloropropene	0.40	U	5.00	5.41		ug/L		108	75 - 130
1,1-Dichloroethene	0.20	U	5.00	4.96		ug/L		99	70 - 130
1,1,2-Trichloroethane	0.40	U	5.00	5.23		ug/L		105	75 - 125
1,1,2,2-Tetrachloroethane	0.40	U J	5.00	6.60	J	ug/L		132	65 - 130
1,2,4-Trimethylbenzene	0.20	U	5.00	5.32		ug/L		106	75 - 130
1,2-Dichlorobenzene	0.20	U	5.00	5.32		ug/L		106	70 - 120
1,2-Dichloroethane	0.20	U	5.00	6.20		ug/L		124	70 - 130
1,3-Dichlorobenzene	0.20	U	5.00	5.22		ug/L		104	75 - 125
1,3-Dichloropropane	0.20	U	5.00	5.85		ug/L		117	75 - 125
1,3,5-Trimethylbenzene	0.40	U	5.00	5.51		ug/L		110	75 - 130
2-Butanone (MEK)	3.2	U	20.0	22.2		ug/L		111	30 - 150
1,4-Dichlorobenzene	0.40	U	5.00	5.46		ug/L		109	75 - 125
1,2-Dichloropropane	0.20	U	5.00	5.63		ug/L		113	75 - 125
2,2-Dichloropropane	0.40	U	5.00	5.64		ug/L		113	70 - 135
2-Hexanone	3.2	U J	20.0	26.6	J	ug/L		133	55 - 130
4-Methyl-2-pentanone (MIBK)	3.2	U J	20.0	26.6		ug/L		133	60 - 135
4-Isopropyltoluene	0.40	U	5.00	5.41		ug/L		108	75 - 130
Benzene	0.20	U	5.00	5.28		ug/L		106	80 - 120
Acetone	3.0	J	20.0	22.6		ug/L		98	40 - 140
Bromobenzene	0.20	U	5.00	5.03		ug/L		101	75 - 125
Bromoform	0.40	U	5.00	5.36		ug/L		107	70 - 130
Bromomethane	0.40	U	5.00	4.26		ug/L		85	30 - 145
Carbon tetrachloride	0.40	U	5.00	5.20		ug/L		104	65 - 140
Carbon disulfide	0.80	U	5.00	3.55		ug/L		71	35 - 160
2-Chlorotoluene	0.40	U	5.00	6.00		ug/L		120	75 - 125
4-Chlorotoluene	0.40	U	5.00	5.59		ug/L		112	75 - 130
Chlorobenzene	0.20	U	5.00	5.27		ug/L		105	80 - 120
Chlorobromomethane	0.20	U	5.00	5.42		ug/L		108	65 - 130
Chlorodibromomethane	0.40	U	5.00	5.63		ug/L		113	60 - 135
Chloroform	0.20	U	5.00	5.62		ug/L		112	65 - 135
Chloroethane	1.6	U	5.00	4.52		ug/L		90	60 - 135
Chloromethane	0.80	U	5.00	4.43		ug/L		89	40 - 125

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-34566-G-22 MS
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
cis-1,2-Dichloroethene	0.20	U	5.00	4.99		ug/L		100	70 - 125
cis-1,3-Dichloropropene	0.20	U	5.00	5.84		ug/L		117	70 - 130
Dibromomethane	0.40	U	5.00	5.75		ug/L		115	75 - 125
Dichlorobromomethane	0.20	U J	5.00	6.06	J	ug/L		121	75 - 120
Dichlorodifluoromethane	0.80	U	5.00	3.51		ug/L		70	30 - 155
Ethylbenzene	0.20	U	5.00	5.24		ug/L		105	75 - 125
Hexachlorobutadiene	0.40	U	5.00	5.15		ug/L		103	50 - 140
Isopropylbenzene	0.40	U	5.00	5.38		ug/L		108	75 - 125
Ethylene Dibromide	0.20	U	5.00	5.57		ug/L		111	80 - 120
Methylene Chloride	0.40	U	5.00	4.94	J	ug/L		99	55 - 140
Methyl tert-butyl ether	0.40	U	5.00	4.83	J	ug/L		97	65 - 125
m-Xylene & p-Xylene	0.80	U	10.0	10.2		ug/L		102	75 - 130
Naphthalene	0.80	U	5.00	5.95		ug/L		119	55 - 140
n-Butylbenzene	0.40	U	5.00	5.90		ug/L		118	70 - 135
N-Propylbenzene	0.20	U	5.00	5.08		ug/L		102	70 - 130
o-Xylene	0.40	U	5.00	5.25		ug/L		105	80 - 120
Styrene	0.40	U	5.00	5.23		ug/L		105	65 - 135
sec-Butylbenzene	0.40	U	5.00	5.42		ug/L		108	70 - 125
tert-Butylbenzene	0.40	U	5.00	5.96		ug/L		119	70 - 130
trans-1,2-Dichloroethene	0.20	U	5.00	4.90		ug/L		98	60 - 140
trans-1,3-Dichloropropene	0.40	U	5.00	6.21		ug/L		124	55 - 140
Tetrachloroethene	0.40	U	5.00	4.64		ug/L		93	45 - 150
Toluene	0.40	U	5.00	5.47		ug/L		109	75 - 120
Trichloroethene	0.20	U	5.00	5.31		ug/L		106	70 - 125
Trichlorofluoromethane	0.80	U	5.00	4.76		ug/L		95	60 - 145
Vinyl chloride	0.80	U	5.00	4.49		ug/L		90	50 - 145

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Toluene-d8 (Surr)	*93*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*89*		*70 - 120*
4-Bromofluorobenzene (Surr)	*105*		*75 - 120*
Dibromofluoromethane (Surr)	*88*		*85 - 115*

Lab Sample ID: 280-34566-G-22 MSD
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.20	U	5.00	5.38		ug/L		108	80 - 130	3	30
1,1,1-Trichloroethane	0.20	U	5.00	5.01		ug/L		100	65 - 130	4	30
1,2,3-Trichloropropane	0.80	U	5.00	5.61		ug/L		112	75 - 125	3	30
1,2,3-Trichlorobenzene	0.40	U	5.00	5.17		ug/L		103	55 - 140	1	30
1,1-Dichloroethane	0.20	U	5.00	5.47		ug/L		109	70 - 135	3	30
1,2,4-Trichlorobenzene	0.80	U	5.00	4.96		ug/L		99	65 - 135	1	30
1,2-Dibromo-3-Chloropropane	1.6	U	5.00	5.42		ug/L		108	50 - 130	0	30
1,1-Dichloropropene	0.40	U	5.00	5.25		ug/L		105	75 - 130	3	30
1,1-Dichloroethene	0.20	U	5.00	4.74		ug/L		95	70 - 130	4	30
1,1,2-Trichloroethane	0.40	U	5.00	5.39		ug/L		108	75 - 125	3	30
1,1,2,2-Tetrachloroethane	0.40	U J	5.00	6.52		ug/L		130	65 - 130	1	30

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-34566-G-22 MSD
Matrix: Water
Analysis Batch: 143733

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	0.20	U	5.00	5.26		ug/L		105	75 - 130	1	30
1,2-Dichlorobenzene	0.20	U	5.00	5.32		ug/L		106	70 - 120	0	30
1,2-Dichloroethane	0.20	U	5.00	6.06		ug/L		121	70 - 130	2	30
1,3-Dichlorobenzene	0.20	U	5.00	5.11		ug/L		102	75 - 125	2	30
1,3-Dichloropropane	0.20	U	5.00	5.64		ug/L		113	75 - 125	4	30
1,3,5-Trimethylbenzene	0.40	U	5.00	5.22		ug/L		104	75 - 130	5	30
2-Butanone (MEK)	3.2	U	20.0	28.5		ug/L		143	30 - 150	25	30
1,4-Dichlorobenzene	0.40	U	5.00	5.21		ug/L		104	75 - 125	5	30
1,2-Dichloropropane	0.20	U	5.00	5.40		ug/L		108	75 - 125	4	30
2,2-Dichloropropane	0.40	U	5.00	5.37		ug/L		107	70 - 135	5	30
2-Hexanone	3.2	U J	20.0	26.9	J	ug/L		135	55 - 130	1	30
4-Methyl-2-pentanone (MIBK)	3.2	U J	20.0	27.3	J	ug/L		136	60 - 135	3	30
4-Isopropyltoluene	0.40	U	5.00	5.16		ug/L		103	75 - 130	5	30
Benzene	0.20	U	5.00	5.06		ug/L		101	80 - 120	4	30
Acetone	3.0	J	20.0	24.1		ug/L		105	40 - 140	6	30
Bromobenzene	0.20	U	5.00	4.88		ug/L		98	75 - 125	3	30
Bromoform	0.40	U	5.00	5.23		ug/L		105	70 - 130	3	30
Bromomethane	0.40	U	5.00	4.20		ug/L		84	30 - 145	2	30
Carbon tetrachloride	0.40	U	5.00	5.03		ug/L		101	65 - 140	3	30
Carbon disulfide	0.80	U	5.00	3.57		ug/L		71	35 - 160	1	30
2-Chlorotoluene	0.40	U	5.00	5.81		ug/L		116	75 - 125	3	30
4-Chlorotoluene	0.40	U	5.00	5.19		ug/L		104	75 - 130	7	30
Chlorobenzene	0.20	U	5.00	5.09		ug/L		102	80 - 120	3	30
Chlorobromomethane	0.20	U	5.00	5.12		ug/L		102	65 - 130	6	30
Chlorodibromomethane	0.40	U	5.00	5.65		ug/L		113	60 - 135	0	30
Chloroform	0.20	U	5.00	5.41		ug/L		108	65 - 135	4	30
Chloroethane	1.6	U	5.00	4.46		ug/L		89	60 - 135	1	30
Chloromethane	0.80	U	5.00	4.33		ug/L		87	40 - 125	2	30
cis-1,2-Dichloroethene	0.20	U	5.00	4.87		ug/L		97	70 - 125	2	30
cis-1,3-Dichloropropene	0.20	U	5.00	5.58		ug/L		112	70 - 130	4	30
Dibromomethane	0.40	U	5.00	5.57		ug/L		111	75 - 125	3	30
Dichlorobromomethane	0.20	U J	5.00	5.93		ug/L		119	75 - 120	2	30
Dichlorodifluoromethane	0.80	U	5.00	3.41		ug/L		68	30 - 155	3	30
Ethylbenzene	0.20	U	5.00	5.04		ug/L		101	75 - 125	4	30
Hexachlorobutadiene	0.40	U	5.00	5.01		ug/L		100	50 - 140	3	30
Isopropylbenzene	0.40	U	5.00	5.18		ug/L		104	75 - 125	4	30
Ethylene Dibromide	0.20	U	5.00	5.39		ug/L		108	80 - 120	3	30
Methylene Chloride	0.40	U	5.00	4.85	J	ug/L		97	55 - 140	2	30
Methyl tert-butyl ether	0.40	U	5.00	4.78	J	ug/L		96	65 - 125	1	30
m-Xylene & p-Xylene	0.80	U	10.0	10.0		ug/L		100	75 - 130	2	30
Naphthalene	0.80	U	5.00	5.99		ug/L		120	55 - 140	1	30
n-Butylbenzene	0.40	U	5.00	5.65		ug/L		113	70 - 135	4	30
N-Propylbenzene	0.20	U	5.00	4.89		ug/L		98	70 - 130	4	30
o-Xylene	0.40	U	5.00	5.01		ug/L		100	80 - 120	5	30
Styrene	0.40	U	5.00	4.98		ug/L		100	65 - 135	5	30
sec-Butylbenzene	0.40	U	5.00	5.16		ug/L		103	70 - 125	5	30
tert-Butylbenzene	0.40	U	5.00	5.18		ug/L		104	70 - 130	14	30
trans-1,2-Dichloroethene	0.20	U	5.00	4.74		ug/L		95	60 - 140	3	30
trans-1,3-Dichloropropene	0.40	U	5.00	5.97		ug/L		119	55 - 140	4	30
Tetrachloroethene	0.40	U	5.00	4.38		ug/L		88	45 - 150	6	30

Method: 8260B/DoD - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 280-34566-G-22 MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 143733

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Toluene	0.40	U	5.00	5.27		ug/L		105	75 - 120	4	30
Trichloroethene	0.20	U	5.00	5.10		ug/L		102	70 - 125	4	30
Trichlorofluoromethane	0.80	U	5.00	4.72		ug/L		94	60 - 145	1	30
Vinyl chloride	0.80	U	5.00	4.33		ug/L		87	50 - 145	4	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*89*		*85 - 120*
1,2-Dichloroethane-d4 (Surr)	*88*		*70 - 120*
4-Bromofluorobenzene (Surr)	*102*		*75 - 120*
Dibromofluoromethane (Surr)	*86*		*85 - 115*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics)

Lab Sample ID: MB 280-143828/6 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 143828

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	20	U	25	10	ug/L			10/23/12 14:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*97*		*82 - 110*		*10/23/12 14:24*	*1*

Lab Sample ID: LCS 280-143828/4 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 143828

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	101	109	M	ug/L		108	79 - 149

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*98*		*82 - 110*

Lab Sample ID: LCSD 280-143828/5 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 143828

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	101	106	M	ug/L		105	79 - 149	3	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Method: 8015C - Nonhalogenated Organics using GC/FID -Modified (Gasoline Range Organics) (Continued)

Lab Sample ID: 280-34815-Q-1 MS
Matrix: Water
Analysis Batch: 143828

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO) -C6-C10	20	U	101	108	M	ug/L		107	79 - 149

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*99*		*82 - 110*

Lab Sample ID: 280-34815-Q-1 MSD
Matrix: Water
Analysis Batch: 143828

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO) -C6-C10	20	U	101	108	M	ug/L		108	79 - 149	1	27

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
a,a,a-Trifluorotoluene	*97*		*82 - 110*

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-143206/1-A
Matrix: Water
Analysis Batch: 143739

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 143206

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	12	U	25	4.4	ug/L		10/23/12 08:45	10/24/12 01:04	1
Barium	1.5	U	10	0.58	ug/L		10/23/12 08:45	10/24/12 01:04	1
Cadmium	0.80	U Q	5.0	0.45	ug/L		10/23/12 08:45	10/24/12 01:04	1
Chromium	1.5	U	15	0.66	ug/L		10/23/12 08:45	10/24/12 01:04	1
Lead	5.0	U	15	2.6	ug/L		10/23/12 08:45	10/24/12 01:04	1
Silver	2.0	U	15	0.93	ug/L		10/23/12 08:45	10/24/12 01:04	1

Lab Sample ID: MB 280-143206/1-A
Matrix: Water
Analysis Batch: 143981

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 143206

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	12	U	22	4.9	ug/L		10/23/12 08:45	10/24/12 16:43	1

Lab Sample ID: LCS 280-143206/2-A
Matrix: Water
Analysis Batch: 143739

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 143206

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	1040		ug/L		104	80 - 120
Barium	2000	2040		ug/L		102	80 - 120
Cadmium	100	105	Q	ug/L		105	80 - 120
Chromium	200	198		ug/L		99	80 - 120
Lead	500	504		ug/L		101	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 280-143206/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 143739 — **Prep Batch: 143206**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	50.0	56.6		ug/L		113	80 - 120

Lab Sample ID: LCS 280-143206/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total Recoverable**
Analysis Batch: 143981 — **Prep Batch: 143206**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	2000	2020		ug/L		101	80 - 120

Lab Sample ID: 280-34827-A-18-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 143739 — **Prep Batch: 143206**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	12	U	1000	1050		ug/L		105	80 - 120
Barium	3.5	J	2000	2040		ug/L		102	80 - 120
Cadmium	0.80	U Q	100	106	Q	ug/L		106	80 - 120
Chromium	1.5	U	200	200		ug/L		100	80 - 120
Lead	5.0	U	500	508		ug/L		102	80 - 120
Silver	2.0	U	50.0	56.1		ug/L		112	80 - 120

Lab Sample ID: 280-34827-A-18-B MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 143981 — **Prep Batch: 143206**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	9.4	J	2000	2030		ug/L		101	80 - 120

Lab Sample ID: 280-34827-A-18-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 143739 — **Prep Batch: 143206**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	12	U	1000	1030		ug/L		103	80 - 120	2	20
Barium	3.5	J	2000	2010		ug/L		101	80 - 120	1	20
Cadmium	0.80	U Q	100	104	Q	ug/L		104	80 - 120	2	20
Chromium	1.5	U	200	196		ug/L		98	80 - 120	2	20
Lead	5.0	U	500	498		ug/L		100	80 - 120	2	20
Silver	2.0	U	50.0	56.1		ug/L		112	80 - 120	0	20

Lab Sample ID: 280-34827-A-18-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 143981 — **Prep Batch: 143206**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	9.4	J	2000	2050		ug/L		102	80 - 120	1	20

QC Sample Results

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 280-141914/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 142393 — **Prep Batch: 141914**

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.080	U	0.20	0.027	ug/L		10/15/12 13:25	10/15/12 22:59	1

Lab Sample ID: LCS 280-141914/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 142393 — **Prep Batch: 141914**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	5.00	5.34		ug/L		107	80 - 120

Lab Sample ID: 280-34466-G-4-C MS — **Client Sample ID: Matrix Spike**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 142393 — **Prep Batch: 141914**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.080	U	5.00	5.21		ug/L		104	80 - 120

Lab Sample ID: 280-34466-G-4-D MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 142393 — **Prep Batch: 141914**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.080	U	5.00	5.15		ug/L		103	80 - 120	1	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 280-142054/5 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 142054

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.10	U	0.50	0.042	mg/L			10/12/12 14:21	1

Lab Sample ID: LCS 280-142054/3 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 142054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	5.00	4.99		mg/L		100	90 - 110

Lab Sample ID: LCSD 280-142054/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 142054

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	5.00	5.00		mg/L		100	90 - 110	0	10

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MRL 280-142054/7 MRL
Matrix: Water
Analysis Batch: 142054

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N			0.500	0.471	J	mg/L		94	50 - 150		

Lab Sample ID: 280-34533-I-2 MS
Matrix: Water
Analysis Batch: 142054

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Nitrate as N	0.069	J	5.00	5.72		mg/L		113	80 - 120		

Lab Sample ID: 280-34533-I-2 MSD
Matrix: Water
Analysis Batch: 142054

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.069	J	5.00	5.80		mg/L		115	80 - 120	1	20

Lab Sample ID: 280-34533-I-2 DU
Matrix: Water
Analysis Batch: 142054

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Nitrate as N	0.069	J		0.0690	J	mg/L				0	15

QC Association Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

GC/MS VOA

Analysis Batch: 143733

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34524-1	TRIP BLANK	Total/NA	Water	8260B/DoD	
280-34524-2	ST70-GW-7001-101012	Total/NA	Water	8260B/DoD	
280-34566-G-22 MS	Matrix Spike	Total/NA	Water	8260B/DoD	
280-34566-G-22 MSD	Matrix Spike Duplicate	Total/NA	Water	8260B/DoD	
LCS 280-143733/4	Lab Control Sample	Total/NA	Water	8260B/DoD	
MB 280-143733/5	Method Blank	Total/NA	Water	8260B/DoD	

GC VOA

Analysis Batch: 143828

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34524-2	ST70-GW-7001-101012	Total/NA	Water	8015C	
280-34815-Q-1 MS	Matrix Spike	Total/NA	Water	8015C	
280-34815-Q-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8015C	
LCS 280-143828/4	Lab Control Sample	Total/NA	Water	8015C	
LCSD 280-143828/5	Lab Control Sample Dup	Total/NA	Water	8015C	
MB 280-143828/6	Method Blank	Total/NA	Water	8015C	

Metals

Prep Batch: 141914

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34466-G-4-C MS	Matrix Spike	Dissolved	Water	7470A	
280-34466-G-4-D MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	
280-34524-2	ST70-GW-7001-101012	Dissolved	Water	7470A	
LCS 280-141914/2-A	Lab Control Sample	Total/NA	Water	7470A	
MB 280-141914/1-A	Method Blank	Total/NA	Water	7470A	

Analysis Batch: 142393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34466-G-4-C MS	Matrix Spike	Dissolved	Water	7470A	141914
280-34466-G-4-D MSD	Matrix Spike Duplicate	Dissolved	Water	7470A	141914
280-34524-2	ST70-GW-7001-101012	Dissolved	Water	7470A	141914
LCS 280-141914/2-A	Lab Control Sample	Total/NA	Water	7470A	141914
MB 280-141914/1-A	Method Blank	Total/NA	Water	7470A	141914

Prep Batch: 143206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34524-2	ST70-GW-7001-101012	Dissolved	Water	3005A	
280-34827-A-18-B MS	Matrix Spike	Dissolved	Water	3005A	
280-34827-A-18-C MSD	Matrix Spike Duplicate	Dissolved	Water	3005A	
LCS 280-143206/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 280-143206/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 143739

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34524-2	ST70-GW-7001-101012	Dissolved	Water	6010C	143206
280-34827-A-18-B MS	Matrix Spike	Dissolved	Water	6010C	143206
280-34827-A-18-C MSD	Matrix Spike Duplicate	Dissolved	Water	6010C	143206
LCS 280-143206/2-A	Lab Control Sample	Total Recoverable	Water	6010C	143206
MB 280-143206/1-A	Method Blank	Total Recoverable	Water	6010C	143206

QC Association Summary

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Metals (Continued)

Analysis Batch: 143981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34524-2	ST70-GW-7001-101012	Dissolved	Water	6010C	143206
280-34827-A-18-B MS	Matrix Spike	Dissolved	Water	6010C	143206
280-34827-A-18-C MSD	Matrix Spike Duplicate	Dissolved	Water	6010C	143206
LCS 280-143206/2-A	Lab Control Sample	Total Recoverable	Water	6010C	143206
MB 280-143206/1-A	Method Blank	Total Recoverable	Water	6010C	143206

General Chemistry

Analysis Batch: 142054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-34524-2	ST70-GW-7001-101012	Total/NA	Water	300.0	
280-34533-I-2 DU	Duplicate	Total/NA	Water	300.0	
280-34533-I-2 MS	Matrix Spike	Total/NA	Water	300.0	
280-34533-I-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
LCS 280-142054/3	Lab Control Sample	Total/NA	Water	300.0	
LCSD 280-142054/4	Lab Control Sample Dup	Total/NA	Water	300.0	
MB 280-142054/5	Method Blank	Total/NA	Water	300.0	
MRL 280-142054/7 MRL	Lab Control Sample	Total/NA	Water	300.0	

Lab Chronicle

Client: Bhate Environmental
Project/Site: Bhate - Kirtland AFB, NM / ST70

TestAmerica Job ID: 280-34524-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 280-34524-1

Date Collected: 10/11/12 09:00
Matrix: Water
Date Received: 10/12/12 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/DoD		1	20 mL	20 mL	143733	10/24/12 17:56	GPM	TAL DEN

Client Sample ID: ST70-GW-7001-101012

Lab Sample ID: 280-34524-2

Date Collected: 10/11/12 13:15
Matrix: Water
Date Received: 10/12/12 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/DoD		1	20 mL	20 mL	143733	10/24/12 18:18	GPM	TAL DEN
Total/NA	Analysis	8015C		1	5 mL	5 mL	143828	10/23/12 17:16	AMB	TAL DEN
Dissolved	Prep	7470A			30 mL	30 mL	141914	10/15/12 13:25	BLR	TAL DEN
Dissolved	Analysis	7470A		1			142393	10/15/12 23:36	JM	TAL DEN
Dissolved	Prep	3005A			50 mL	50 mL	143206	10/23/12 08:45	NF	TAL DEN
Dissolved	Analysis	6010C		1			143739	10/24/12 01:48	JKH	TAL DEN
Dissolved	Analysis	6010C		1			143981	10/24/12 16:59	JKH	TAL DEN
Total/NA	Analysis	300.0		1	1.0 mL	1.0 mL	142054	10/12/12 18:00	TLP	TAL DEN

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

3d @ IRL 101212

Serial Number 033537

ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

◯ TestAmerica ~~Savannah~~ Denver
~~5102 LaRoche Avenue~~
~~Savannah, GA 31404~~

Website: www.testamericainc.com
~~Phone: (912) 354-7858~~
~~Fax: (912) 352-0165~~

◯ Alternate Laboratory Name/Location

Phone:
Fax:

PROJECT REFERENCE: Bhate # 9120116	PROJECT NO.	PROJECT LOCATION (STATE)	PAGE 1 OF 1
TAL (LAB) PROJECT MANAGER: Lisa Uriell	P.O. NUMBER	CONTRACT NO.	STANDARD REPORT DELIVERY ◯
CLIENT (SITE) PM/chemist: Frank Gardner/ Marcia Olive	CLIENT PHONE: 303-597-2450	CLIENT FAX	DATE DUE _____
CLIENT NAME: Bhate & Associates	CLIENT E-MAIL: Molive@bhate.com		EXPEDITED REPORT DELIVERY (SURCHARGE) ◯
CLIENT ADDRESS: 445 Union Blvd Ste 129, Lakewood CO 80228			DATE DUE _____
~~COMPANY CONTRACTING THIS WORK~~ (if applicable): Sampler: Ben Moayyad 505-504-2214			NUMBER OF COOLERS SUBMITTED PER SHIPMENT:

REQUIRED ANALYSIS: 8260 VOC; 8015B TPH-GRO; E300 Nitrate; 6010/6020/7470A RCRA 8 metals

PRESERVATIVE: HCl; HCl

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	SOLID OR SEMISOLID	AIR	NONAQUEOUS LIQUID (OIL, SOLVENT, ...)	8260 VOC	8015B TPH-GRO	E300 Nitrate	6010/6020/7470A RCRA 8 metals	REMARKS
10/11/12	0900	Trip Blank		✓				✓				
10/11/12	~~1~~ BR 13:15	ST70-GW-700H10112		✓				✓	✓	✓	✓	Field Filtered Metals

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
B Moayyad	10/11/12	1430						
RECEIVED BY: (SIGNATURE)	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**	**RECEIVED BY: (SIGNATURE)**	**DATE**	**TIME**

LABORATORY USE ONLY

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	CUSTODY SEAL NO.	SAVANNAH LOG NO.	LABORATORY REMARKS
[signature]	10/12/12	0930	YES ● NO ◯			

TAL 8240-680 (1008)

Login Sample Receipt Checklist

Client: Bhate Environmental

Job Number: 280-34524-1

Login Number: 34524
List Number: 1
Creator: Bindel, Aaron M

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	1 of 2 Trip Blank vials received with a large bubble
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	